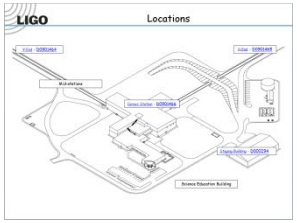
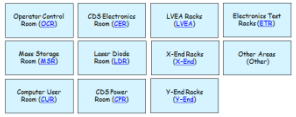
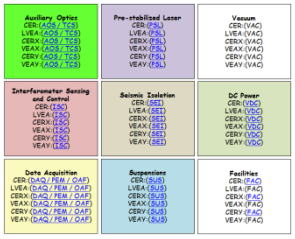
LLO Electronics Racks - Start

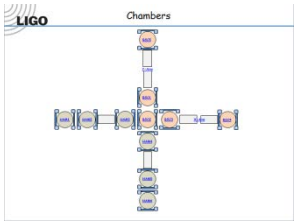
This document provides details about the LLO electronics racks. It may be examined through four separate but interconnected methods: racks may be found searching MAPS of the observatory, or for AREAS in which they reside, or by searching SUBSYSTEMS that they service., or through the DocDB references to their D-numbers or S-numbers.

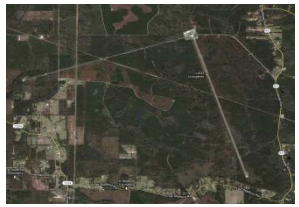
Search by LOCATION	Search by AREA	Search by SUBSYSTEM	Search by DocDB	Search by Chamber	Search by Aerial Photo





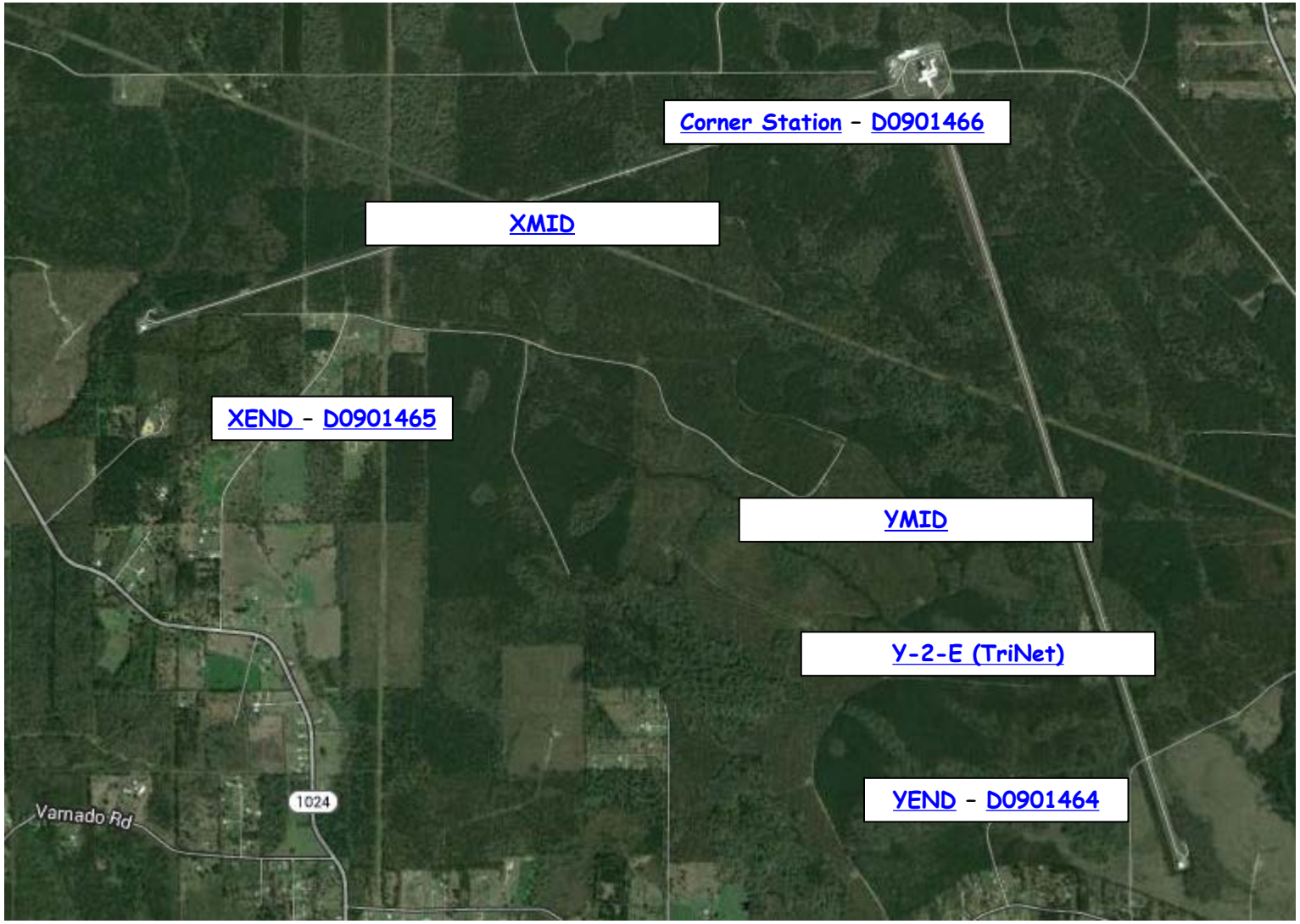






LLO Site – Aerial

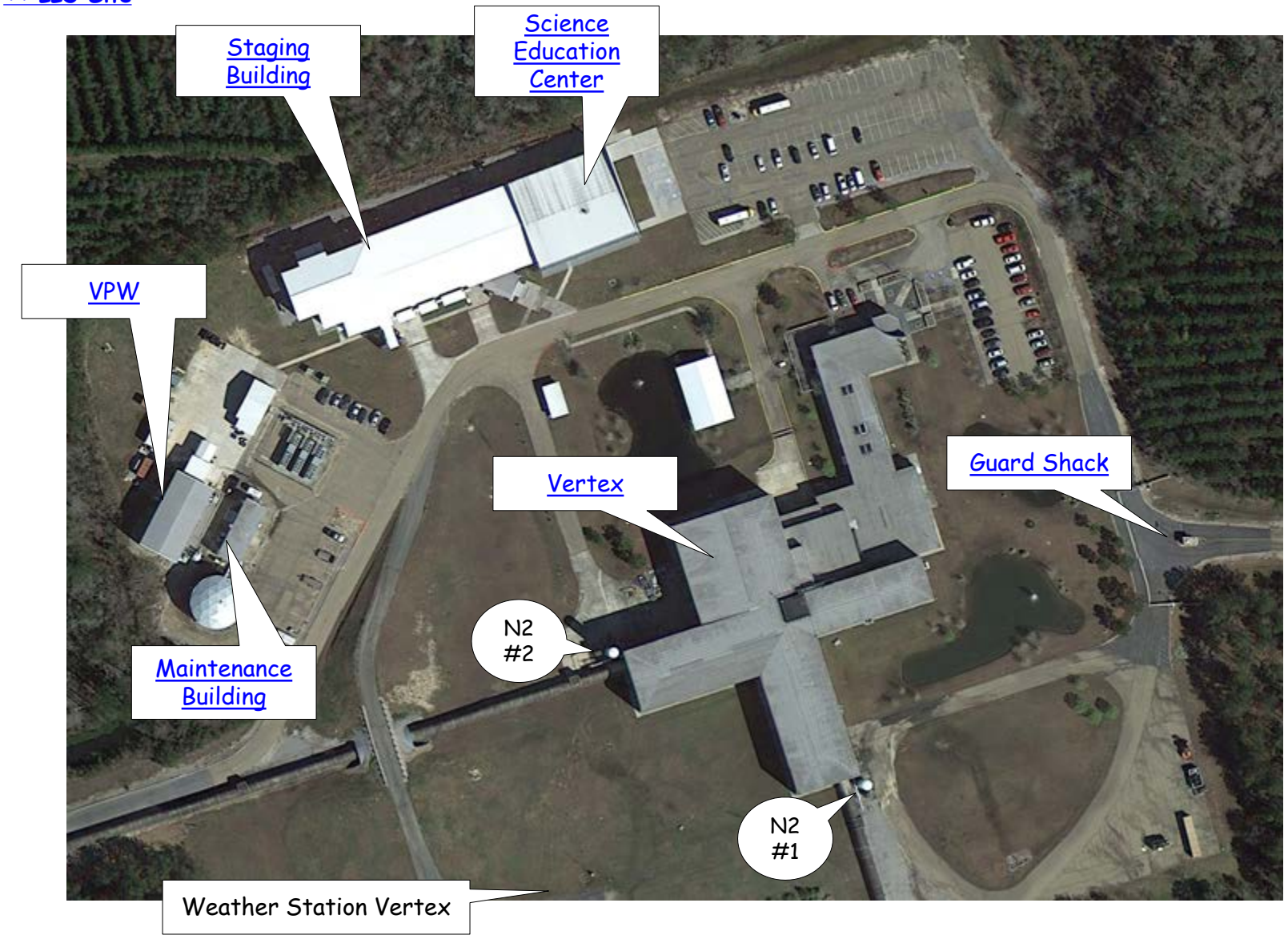
[<< Start]



Corner - Aerial

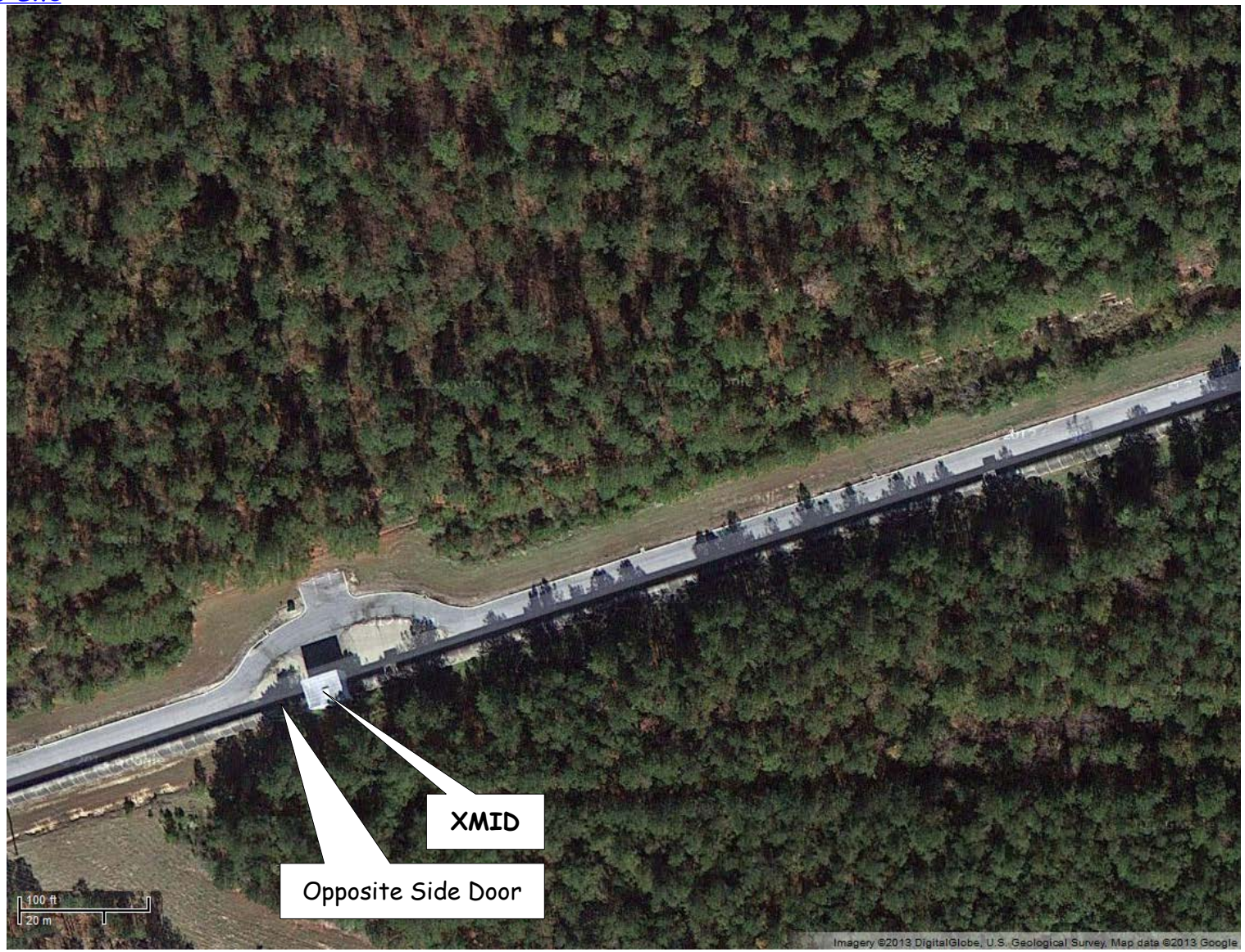
LIGO

<< LLO Site



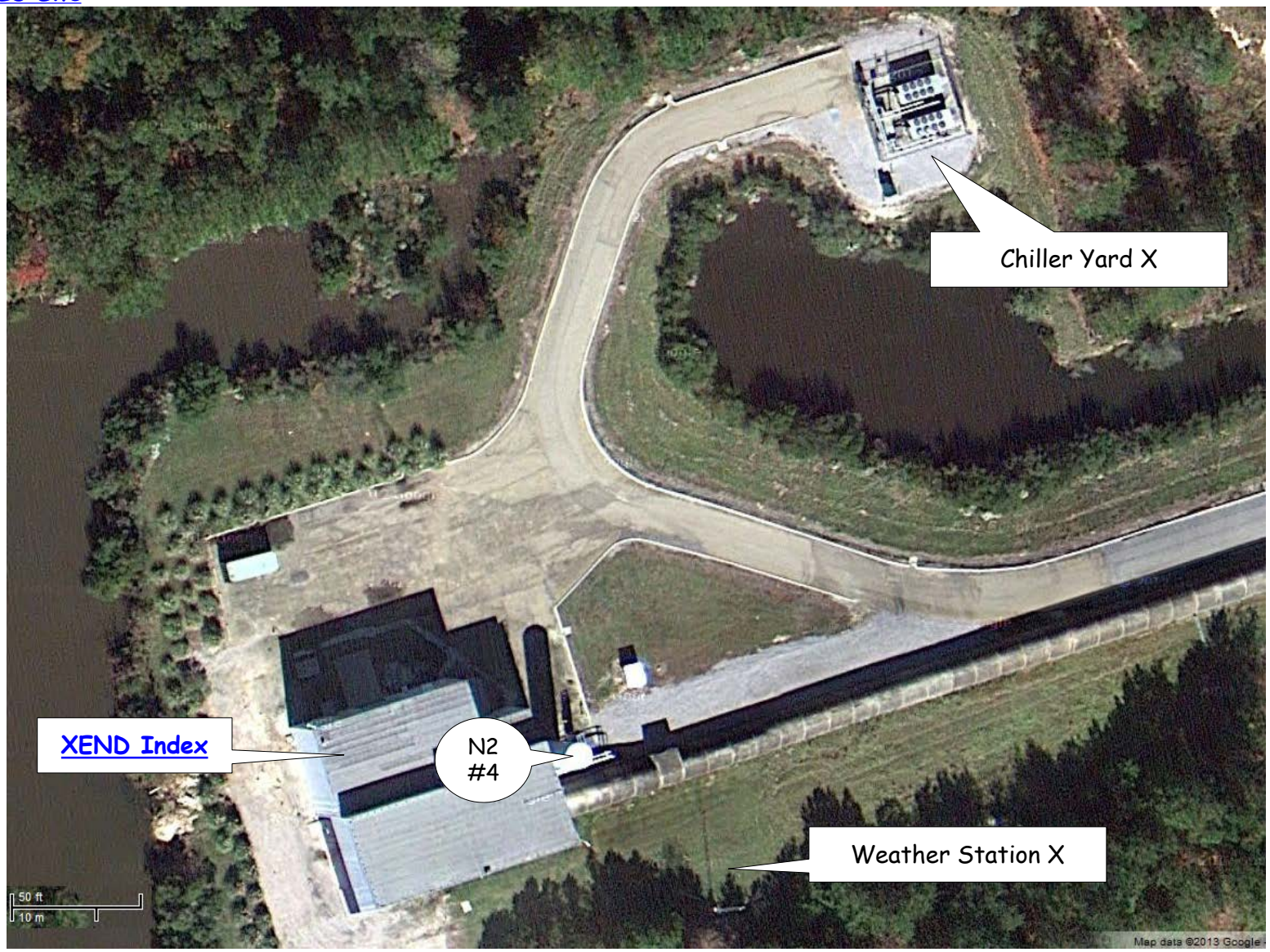
XMID - Aerial

[<< LLO Site]



XEND - Aerial

[<< LLO Site]



YMID - Aerial

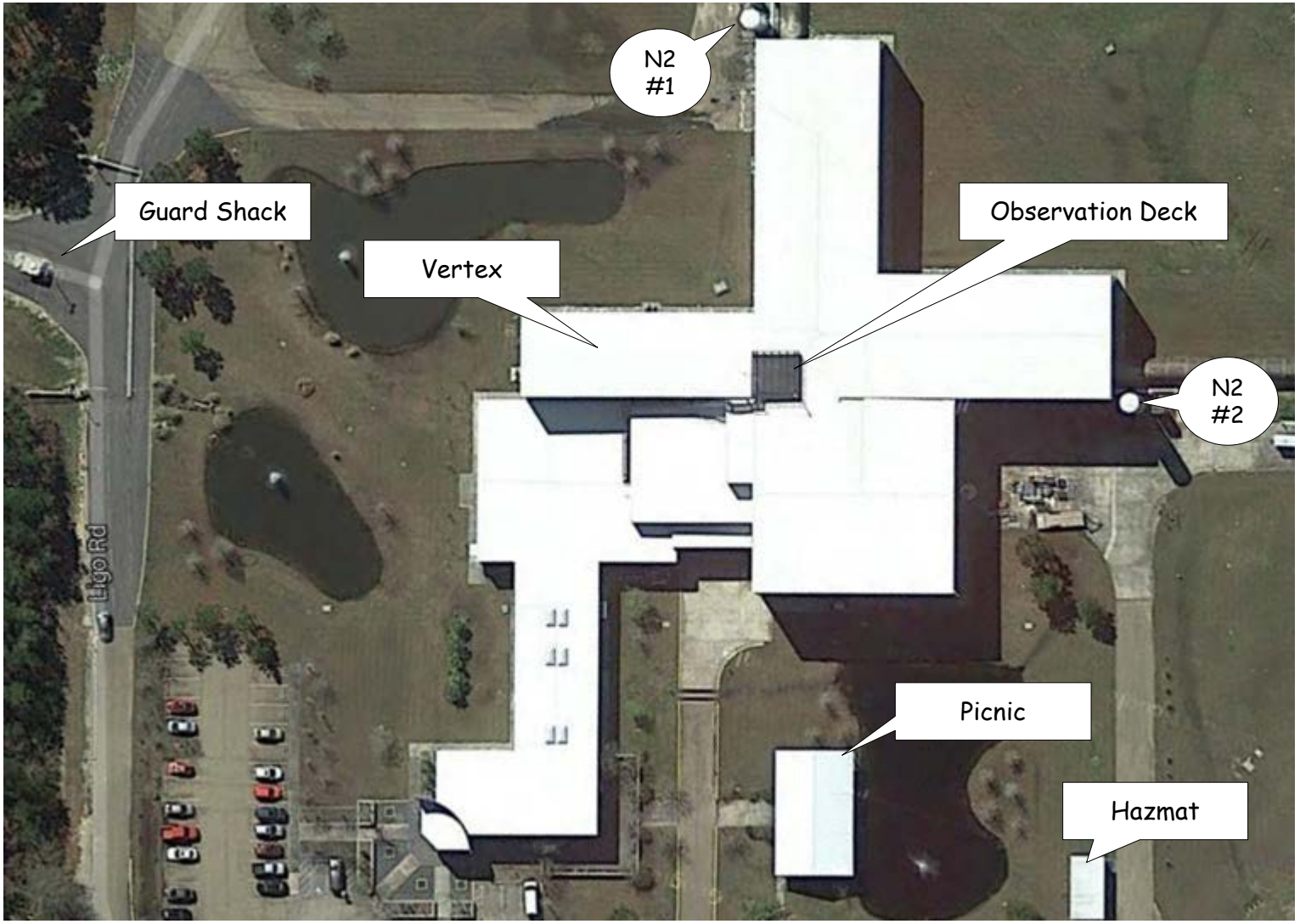
[<< LLO Site]

YEND - Aerial

[<< LLO Site]

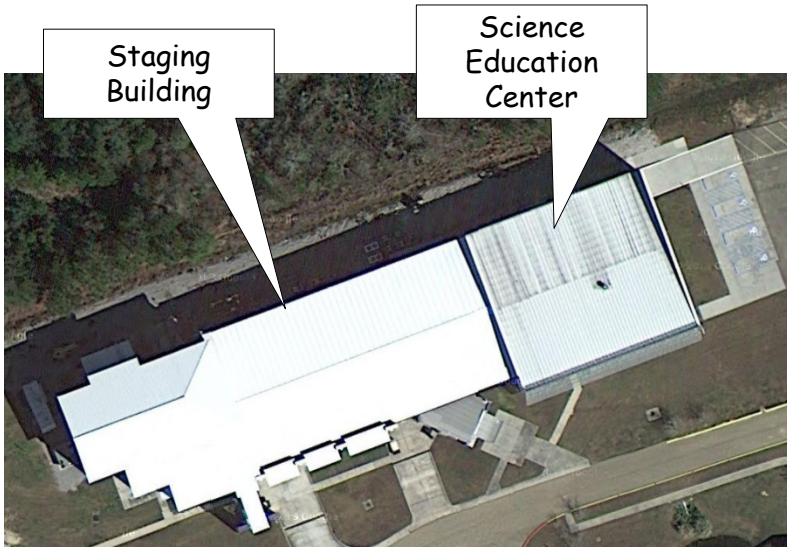
Vertex

[<< Corner](#)



Staging Building and Science Education Center

[<< Corner](#)

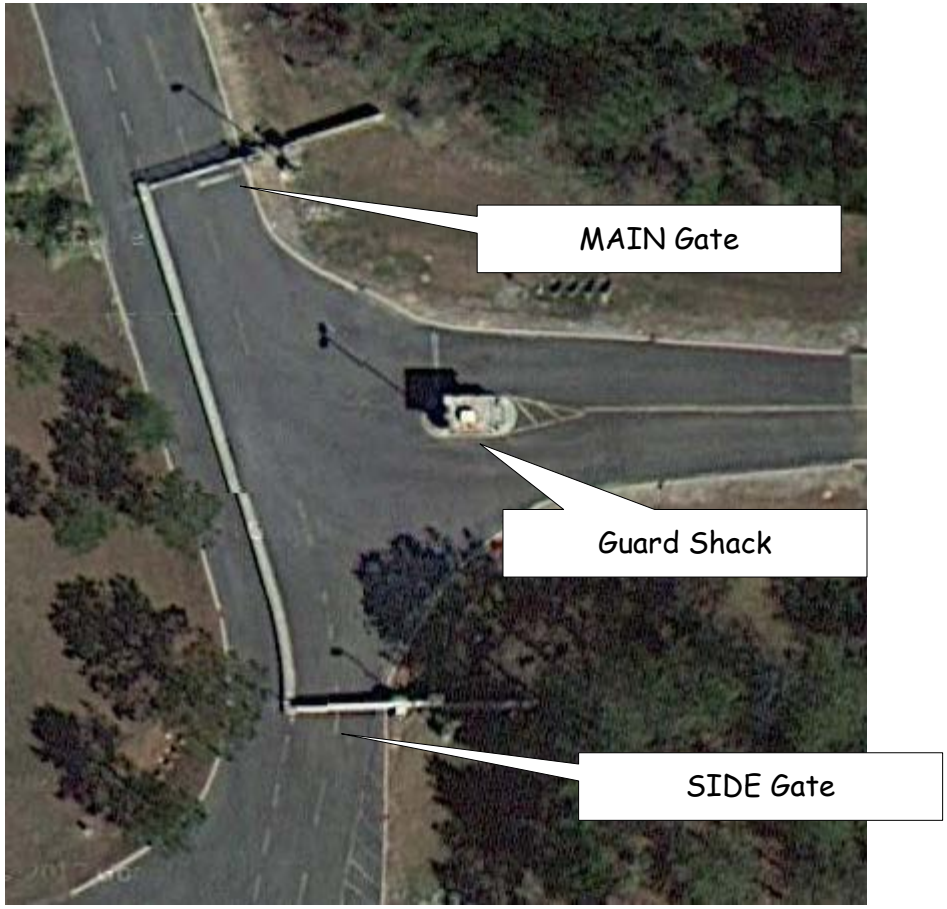


VPW and Maintenance Building

LIGO
<< Corner

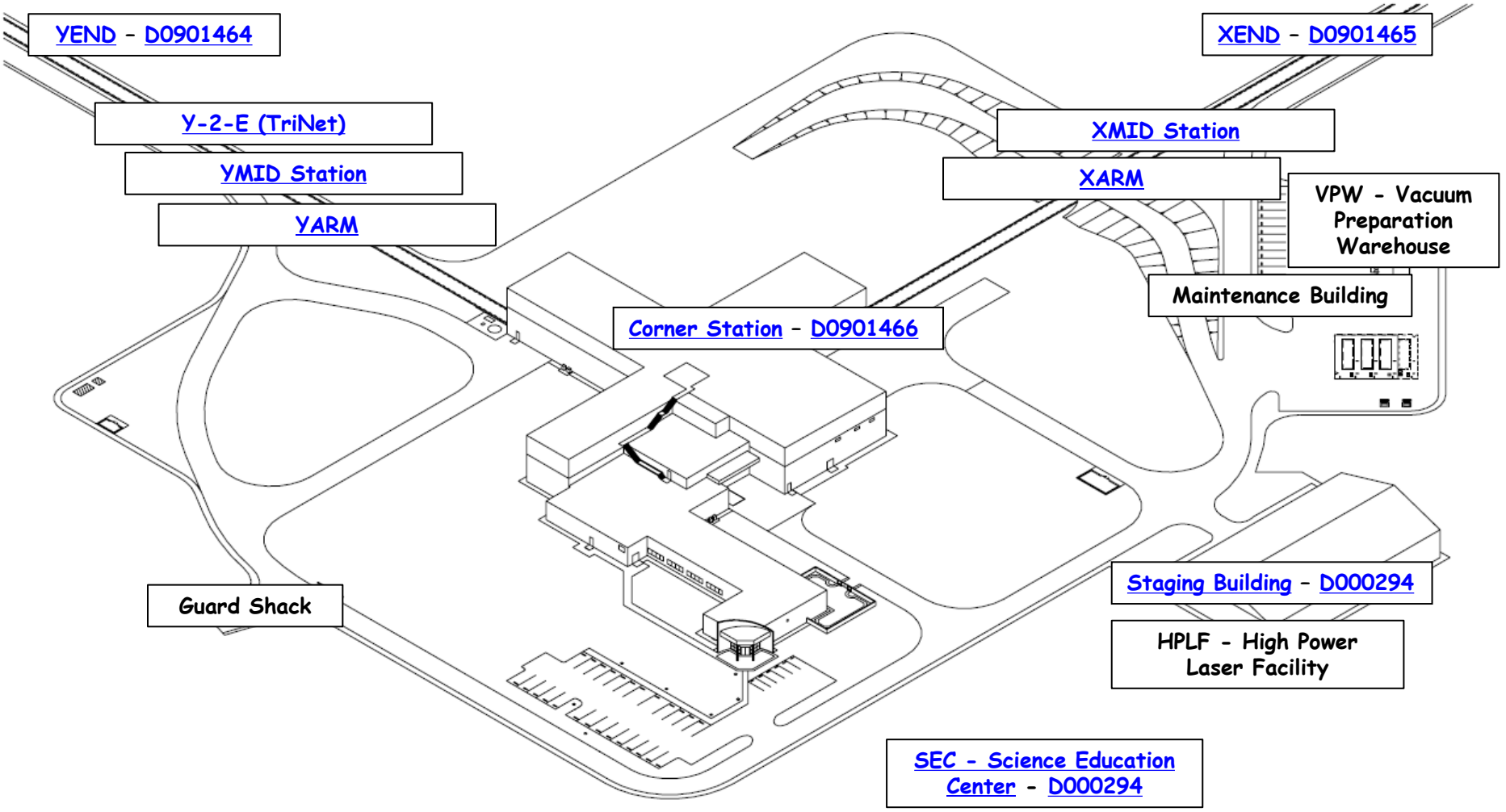
Guard Shack and Gates

[<< Corner](#)



Locations

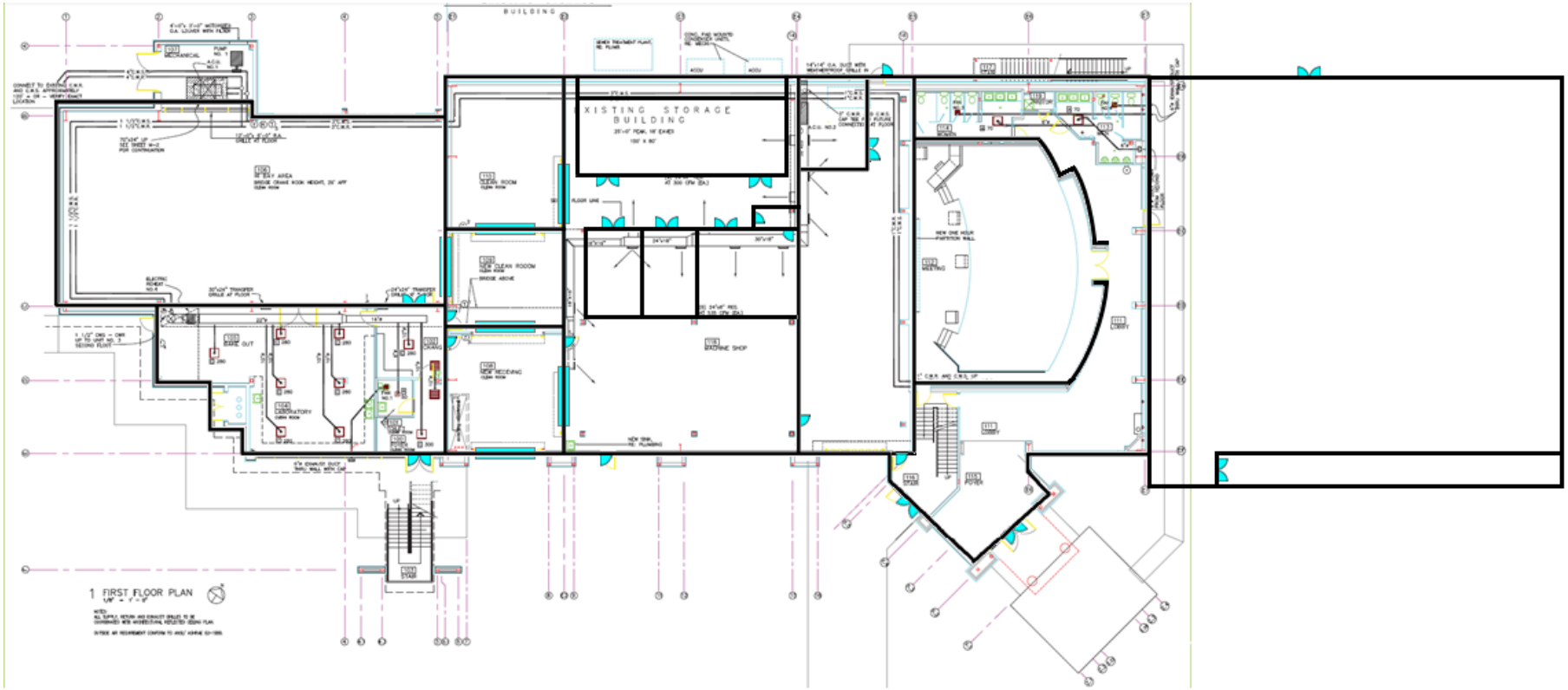
[<< Start]



Staging Building, SEC As Built

[<< Locations]

D000294



LLO Racks by AREA

LIGO
<< Start

LLO electronics racks are installed in a variety of LOCATIONS. Generally speaking, each location houses a specific type of rack. Front-end computers are housed in the MSR. Electronics racks with IO chasses are housed in the CER. Other electronics racks that interface to chambers are located in the LVEA, XEND and YEND areas. Power supplies are housed in the CPR. And finally, test racks for electronics are spread throughout the facility, housed wherever they are required.

Operator Control Room (OCR)	CDS Electronics Room (CER)	LVEA Racks (LVEA Racks)	XEND Racks (XEND Racks)	Electronics Test Racks (ETR)
Mass Storage Room (MSR)	Laser Diode Room (LDR)	LVEA Tables (LVEA Tables)	XEND Tables (XEND Tables)	Other Areas (Other)
Computer User Room (CUR)	CDS Power Room (CPR)	Mechanical Room Racks (Mech Racks)	YEND Racks (YEND Racks)	
			YEND Tables (YEND Tables)	

LLO Racks by Subsystem

LIGO

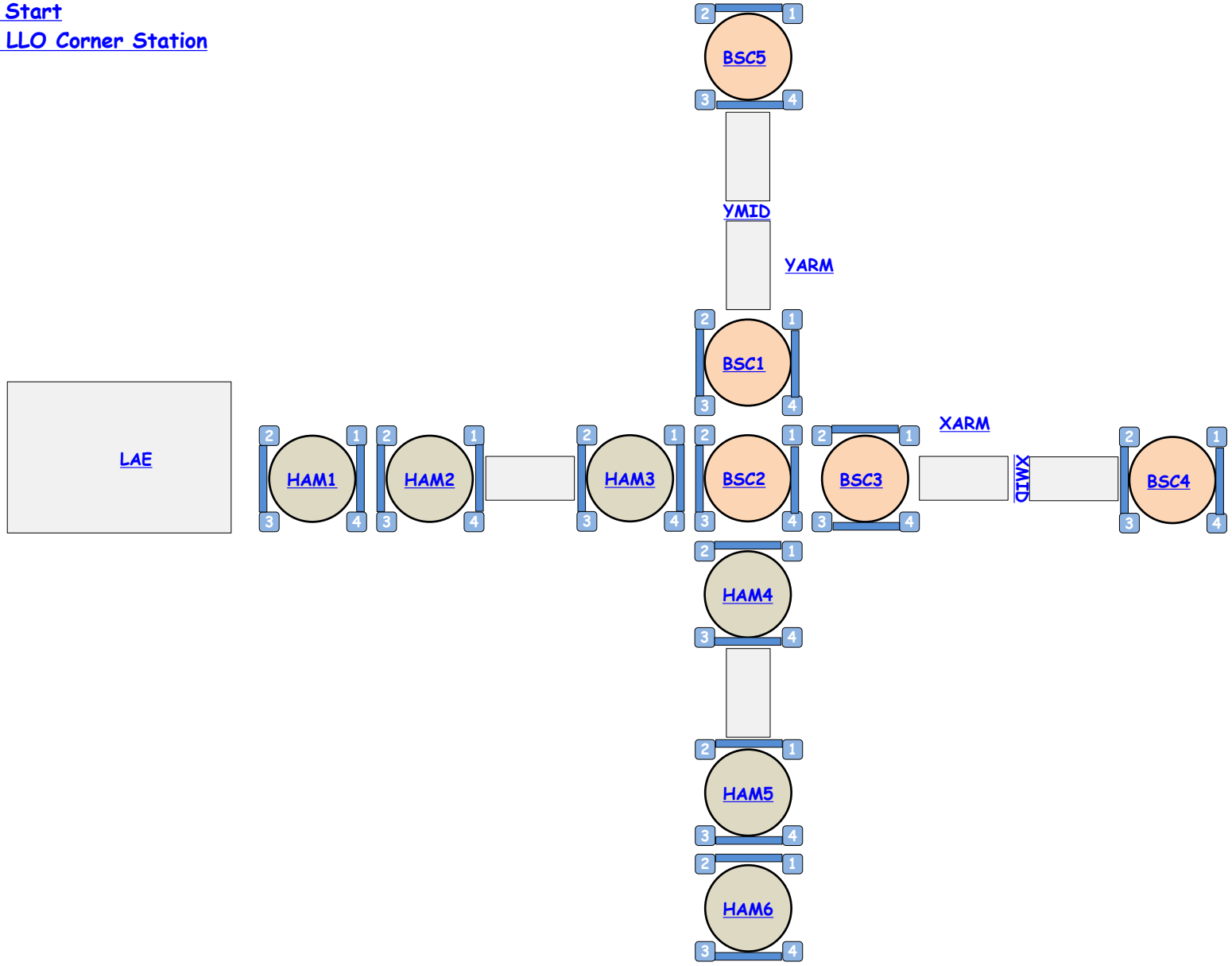
<< Start

IFO Subsystems are another way to view the racks that are installed in a variety of locations. Generally speaking, each subsystem has racks that are positioned in several physical locations. The subsystems are: AOS, DAQ, ISC, PSL, SEI, SUS, VAC, and VDC. TCS is a part of AOS. PEM and OAF are part of DAQ. HEPI is part of SEI.

Auxiliary Optics CER:(AOS / TCS) LVEA:(AOS / TCS) CERX:(AOS / TCS) VEAX:(AOS / TCS) CERY:(AOS / TCS) VEAY:(AOS / TCS) MECH:(AOS / TCS)	**Pre-stabilized Laser** CER:(PSL) LVEA:(PSL) CERX:(PSL) VEAX:(PSL) CERY:(PSL) VEAY:(PSL)	**Vacuum** CER:(VAC) LVEA:(VAC) CERX:(VAC) VEAX:(VAC) CERY:(VAC) VEAY:(VAC) MECH:(VAC)
Interferometer Sensing and Control CER:(ISC) LVEA:(ISC) CERX:(ISC) VEAX:(ISC) CERY:(ISC) VEAY:(ISC)	**Seismic Isolation** CER:(SEI) LVEA:(SEI) CERX:(SEI) VEAX:(SEI) CERY:(SEI) VEAY:(SEI)	**DC Power** CER:(VDC) LVEA:(VDC) CERX:(VDC) VEAX:(VDC) CERY:(VDC) VEAY:(VDC)
Data Acquisition CER:(DAQ / PEM / OAF) LVEA:(DAQ / PEM / OAF) CERX:(DAQ / PEM / OAF) VEAX:(DAQ / PEM / OAF) CERY:(DAQ / PEM / OAF) VEAY:(DAQ / PEM / OAF) PEM Categories	**Suspensions** CER:(SUS) LVEA:(SUS) CERX:(SUS) VEAX:(SUS) CERY:(SUS) VEAY:(SUS)	**Facilities** CER:(FAC) LVEA:(FAC) CERX:(FAC) VEAX:(FAC) CERY:(FAC) VEAY:(FAC)

Chambers

<< Start
<< LLO Corner Station



Chambers

[<< Start](#)
[<< LLO Corner Station](#)

•HAM1 Flange Layout	- L1 Horizontal Access Module1	D1002884
•HAM2 Flange Layout	- L1 Horizontal Access Module 2	D1002885
•HAM3 Flange Layout	- L1 Horizontal Access Module 3	D1002886
•HAM4 Flange Layout	- L1 Horizontal Access Module 4	D1002887
•HAM5 Flange Layout	- L1 Horizontal Access Module 5	D1002888
•HAM6 Flange Layout	- L1 Horizontal Access Module 6	D1002890
•BSC1 Flange Layout	- L1 Beam Splitter Chamber 1 (ITMY)	D1003088
•BSC2 Flange Layout	- L1 Beam Splitter Chamber 2 (BS)	D1003089
•BSC3 Flange Layout	- L1 Beam Splitter Chamber 3 (ITMX)	D1003090
•BSC4 Flange Layout	- L1 Beam Splitter Chamber 4 (ETMX)	D1003091
•BSC5 Flange Layout	- L1 Beam Splitter Chamber 5 (ETMY)	D1003092

Viewports are named in T1000746
Chamber Flanges are named in D1002892
Flanges are indexed in E1200755
Flanges are also documented in D1002870
Feedthroughs are documented in D1101775
Flange Types are also named in D1101775

LLO Rack Naming Scheme

LIGO

<< Start

CDS racks are named according to site, IFO designation, subsystem use, station (location) and sequence. (See G1001030)

Site	Description	IFO	Subsystem	Description	Station	Description	Rack Number
L	Livingston	1	AOS	Auxiliary Optics	C	[Corner] Common	1
H	Hanford	2	DAQ	Data Acquisition	MS	Mass Storage	2
M	MIT		ETR	Electronics Test Rack	R	[Corner] Remote (Field)	3
C	CIT		FAC	Facilities and Infrastructure	XC	ENDX Common	4
			ISC	IFO Sensing and Control	XR	ENDX Remote [Field]	5
			LDR	Laser Diode Room	YC	ENDY Common	6
			OAF	Online Adaptive Filtering	YR	ENDY Remote [Field]	7
			PEM	Physical Environment Monitoring			8
			PSL	Pre-stabilized Laser			9
			SEI	Seismic Isolation			10
			SUS	Suspensions			11
			TCS	Thermal Compensation System			12
			VAC	Vacuum			etc.
			VDC	Voltage - DC			

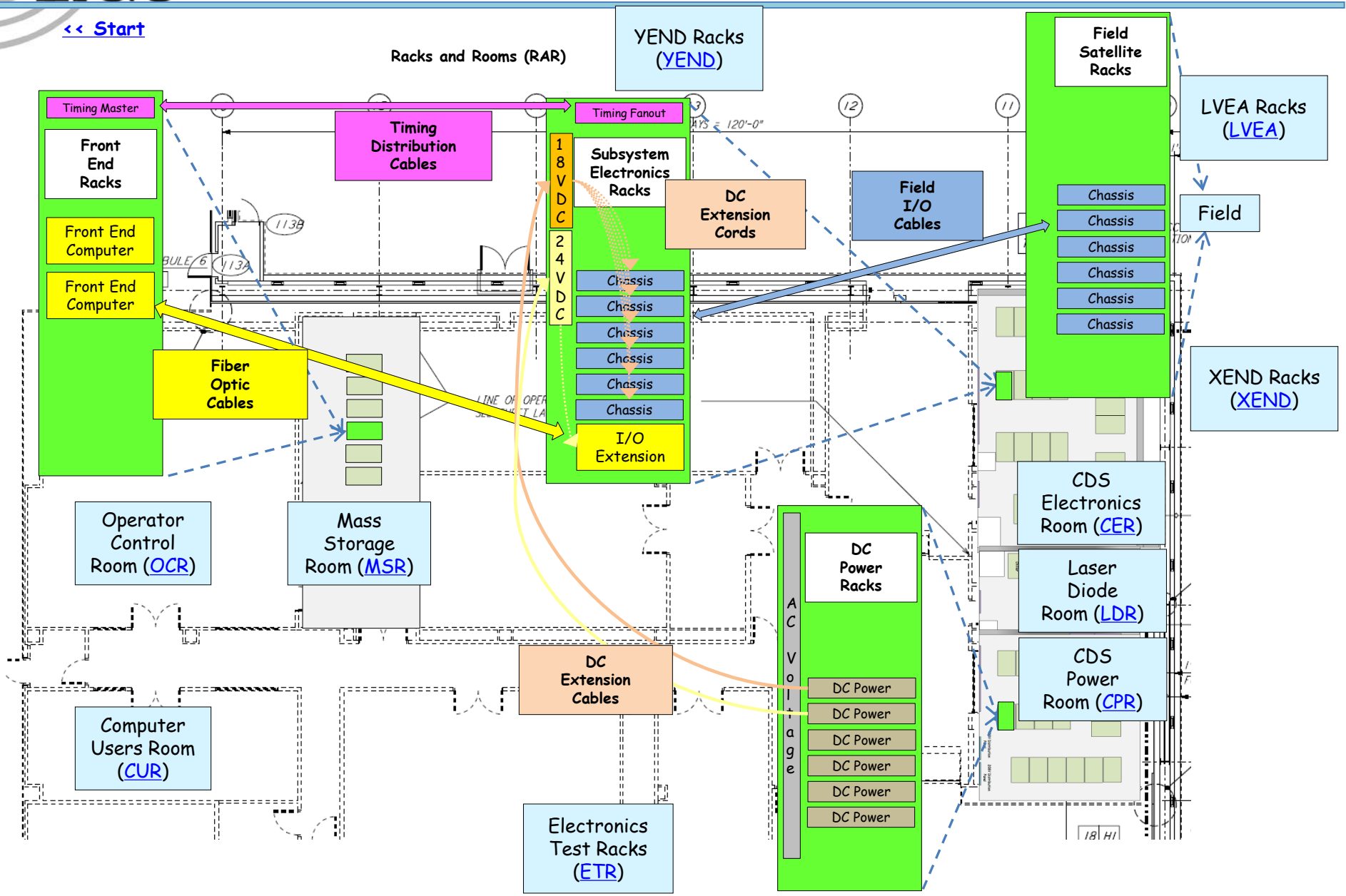
LLO CDS Electronics Rack Names

[<< Start]

CDS racks are named according to site, IFO designation, subsystem use, station (location) and sequence. (See G1001030)

Rack	Rack Designator	Subsystem	Location	Comment	Rack Type	Dxxxxxxx	Sxxxxxxx
1	L1-AOS-C1	AOS	CER		Standard	D1201119	S1202974
2	L1-TCS-R1	AOS	LVEA		Standard	D1201122	S1202975
3	L1-TCS-R2	AOS	LVEA		Standard	D1201123	S1202976
4	L1-TCS-XC1	AOS	CERX		Standard	D1201129	S1202980
5	L1-TCS-YC1	AOS	CERY		Standard	D1201130	S1202981
6	L1-OAF-C1	DAQ	CER	OAF/PEM	Standard	D1200941	S1202404
7	L1-DAQ-XC1	DAQ	CERX		Standard	D1201085	S1202949
8	L1-DAQ-YC1	DAQ	CERY		Standard	D1201092	S1202956
9	L1-ISC-C1	ISC	CER		Standard	D1200949	S1201186
10	L1-ISC-C2	ISC	CER		Standard	D1200975	S1201187
11	L1-ISC-C3	ISC	CER		Standard	D1200976	S1201188
12	L1-ISC-C4	ISC	CER		Standard	D1200977	S1201189
13	L1-ISC-R1	ISC	LVEA		Standard	D1001460	S1201192
14	L1-ISC-R2	ISC	LVEA		Standard	D1001425	S1201193
15	L1-ISC-R3	ISC	LVEA		Standard	D1001426	S1201194
16	L1-ISC-R4	ISC	LVEA		Standard	D1101904	S1201195
17	L1-ISC-R5	ISC	LVEA		Standard	D1200196	S1201196
18	L1-ISC-XC1	ISC	CERX		Standard	D1201084	S1202948
19	L1-ISC-YC1	ISC	CERY		Standard	D1201091	S1202955
20	L1-ISC-XR1	ISC	VEAX		Standard	D1201087	S1202951
21	L1-ISC-YR1	ISC	VEAY		Standard	D1201094	S1202958
22	L1-ETR-04	OPTICS	Test Rack	Optics Electronics Lab Rack	11U		
23	L1-LDR-C1	PSL	LDR		Vendor		
24	L1-LDR-C2	PSL	LDR		Vendor		
25	L1-PSL-C1	PSL	CER		Standard	D1201118	S1202977
26	L1-PSL-R1	PSL	LVEA		Standard	D1201120	S1202978
27	L1-PSL-R2	PSL	LVEA		Standard	D1201121	S1202979
28	L1-SEI-C1	SEI	CER	SEI HAM 1 and HAM 6	Standard	D1201112	S1200743
29	L1-SEI-C2	SEI	CER	SEI HAM 2 and HAM 3	Standard	D1201113	S1200744
30	L1-SEI-C3	SEI	CER	SEI HAM 4 and HAM 5	Standard	D1201114	S1200745
31	L1-SEI-C4	SEI	CER	SEI BCS1	Standard	D1201115	S1200746
32	L1-SEI-C5	SEI	CER	SEI BCS2	Standard	D1201116	S1200747
33	L1-SEI-C6	SEI	CER	SEI BCS3	Standard	D1201117	S1200748
34	L1-SEI-XC1	SEI	CERX	SEI BCS4	Standard	D1201081	S1202945
35	L1-SEI-YC1	SEI	CERY	SEI BCS5	Standard	D1201088	S1202952
36	L1-ETR-05	SEI	Test Rack	HAM ISI Electronics Test Rack			
37	L1-ETR-07	SEI	Test Rack	Triple Electronics Test Rack			
38	L1-SUS-C1	SUS	CER	SUS ITM, FM, and BS (1 of 2)	Standard	D1200856	S1104062
39	L1-SUS-C2	SUS	CER	SUS ITM, FM, and BS (2 of 2)	Standard	D1200859	S1104356
40	L1-SUS-C3	SUS	CER	SUS HAM 2 (1 of 2)	Standard	D1200864	S1104357
41	L1-SUS-C4	SUS	CER	SUS HAM 2 (2 of 2)	Standard	D1200867	S1104358
42	L1-SUS-C5	SUS	CER	SUS ITMX, ITMY, and BS (1 of 2)	Standard	D1200874	S1105375
43	L1-SUS-C6	SUS	CER	SUS ITMX, ITMY, and BS (2 of 2)	Standard	D1200875	S1105376
44	L1-SUS-C7	SUS	CER	SUS HAM 5 and HAM 6 (1 of 2)	Standard	D1200876	S1105377
45	L1-SUS-C8	SUS	CER	SUS HAM 5 and HAM 6 (2 of 2)	Standard	D1200877	S1105378
46	L1-SUS-R1	SUS	LVEA		Standard	D1200879	S1200749
47	L1-SUS-R2	SUS	LVEA		Standard	D1200880	S1200750
48	L1-SUS-R3	SUS	LVEA		Standard	D1200883	S1202300
49	L1-SUS-R4	SUS	LVEA		Standard	D1201134	S1202995
50	L1-SUS-R5	SUS	LVEA		Standard	D1201135	S1202996
51	L1-SUS-R6	SUS	LVEA		Standard	D1201136	S1202997
52	L1-SUS-XC1	SUS	CERX		Standard	D1201082	S1202946
53	L1-SUS-XC2	SUS	CERX		Standard	D1201083	S1202947
54	L1-SUS-XR1	SUS	VEAX		Standard	D1201131	S1202993
55	L1-SUS-YC1	SUS	CERY		Standard	D1201089	S1202953
56	L1-SUS-YC2	SUS	CERY		Standard	D1201090	S1202954
57	L1-SUS-YR1	SUS	VEAY		Standard	D1201132	S1202994
58	L1-ETR-02	SUS	Test Rack	BSC Electronics Test Rack			
59	L1-ETR-03	SUS	Test Rack	RM Electronics Test Rack			
60	L1-ETR-06	SUS	Test Rack	STS Huddle Electronics Test Rack			
61	L1-VAC-R1	VAC	LVEA	Vacuum Rack – X Arm	Knurr		
62	L1-VAC-R2	VAC	LVEA	Vacuum Rack – Y Arm	Knurr		
63	L1-VAC-R3	VAC	Mechanical Room	Vacuum Rack – Mechanical Room	Knurr		
64	L1-VAC-XR1	VAC	VEAX	Vacuum Rack – X End	Knurr		
65	L1-VAC-YR1	VAC	VEAY	Vacuum Rack – Y End	Knurr		
66	L1-VDC-C1	VDC	CPR		DC	D1200890	S1105247
67	L1-VDC-C2	VDC	CPR		DC	D1200891	S1105248
68	L1-VDC-C3	VDC	CPR		DC	D1200892	S1105249
69	L1-VDC-C4	VDC	CPR		DC	D1200893	S1105250
70	L1-VDC-C5	VDC	CPR		DC	D1200894	S1105251
71	L1-VDC-C6	VDC	CPR		DC	D1200895	S1105252
72	L1-VDC-C7	VDC	CPR		DC	D1200896	S1105253
73	L1-VDC-C8	VDC	CPR	Planned	DC	D1201137	S1202998
74	L1-VDC-XC1	VDC	CERX		DC	D1200897	S1202311
75	L1-VDC-XC2	VDC	CERX		DC	D1200898	S1202312
76	L1-VDC-YC1	VDC	CERY		DC	D1200899	S1202313
77	L1-VDC-YC2	VDC	CERY		DC	D1200900	S1202314
78	L1-MSR-01	CDS	MSR	Atomic Clock	Knurr	D1201372	S1203487
79	L1-MSR-02	CDS	MSR	Fiber Patch	Knurr	D1201373	S1203488
80	L1-MSR-03	CDS	MSR	EPICS	Knurr	D1201374	S1203489
81	L1-MSR-04	CDS	MSR	EPICS	Knurr	D1201375	S1203490
82	L1-MSR-05	CDS	MSR	Backup Tape	Knurr	D1201376	S1203491
83	L1-MSR-06	CDS	MSR	Video	Knurr	D1201377	S1203492
84	L1-MSR-07	CDS	MSR	IFO Front End Computers	Standard	D1201378	S1203493
85	L1-MSR-08	CDS	MSR	IFO Front End Computers	Standard	D1201379	S1203494
86	L1-MSR-09	CDS	MSR	CDS Computers	Standard	D1201380	S1203495
87	L1-MSR-10	CDS	MSR	CDS Computers	Standard	D1201381	S1203496
88	L1-MSR-11	CDS	MSR	General Computing	Standard	D1201382	S1203497
89	L1-MSR-12	CDS	MSR	DAQ Electronics Test Rack	Standard	D1201383	S1203498
90	L1-MSR-13	CDS	MSR	UPS for IFO and CDS Computers	Linier	D1201384	S1203499
91	L1-FAC-C1	FAC	CER		Standard	D1200940	S1202403
92	L1-FAC-XC1	FAC	CERX		Standard	D1201086	S1202950
93	L1-FAC-YC1	FAC	CERY		Standard	D1201093	S1202957
94	L1-UNK-C1		CER		Standard	D1201356	S1203450
95	L1-UNK-C2		CER		Standard	D1201357	S1203451
96	L1-UNK-C3		CER		Standard	D1201358	S1203452

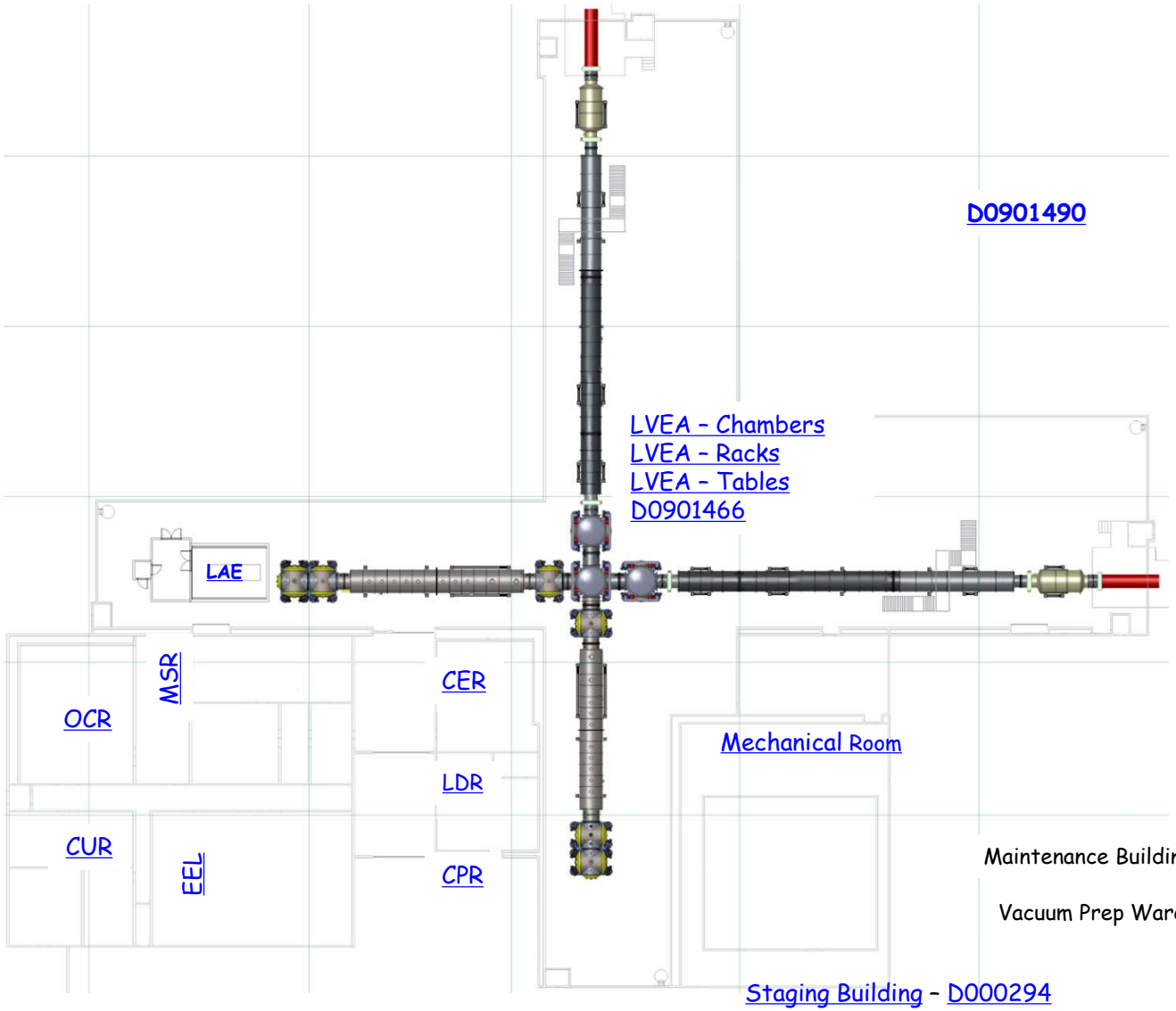
LLO CDS Components



Corner Station – D0901490

« Locations

YEND – D0901464



LAE (Laser Area Enclosure)

[<< LLO Corner Station]
[<< Chambers]

LAE

LAE Documentation

OCR (Operations Control Room)

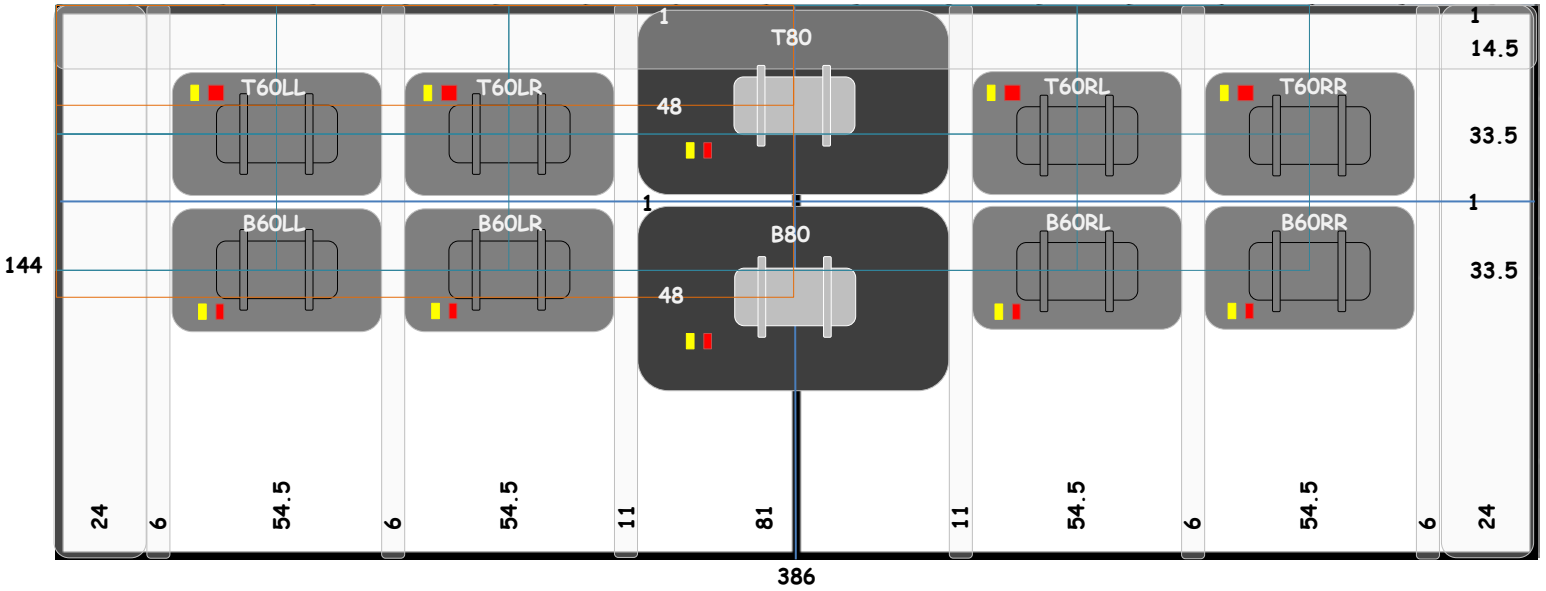
<< LLO Corner Station
<< LLO Racks by AREA
<< LLO CDS Components

OCR

OCR Documentation

OCR Front (South) Wall

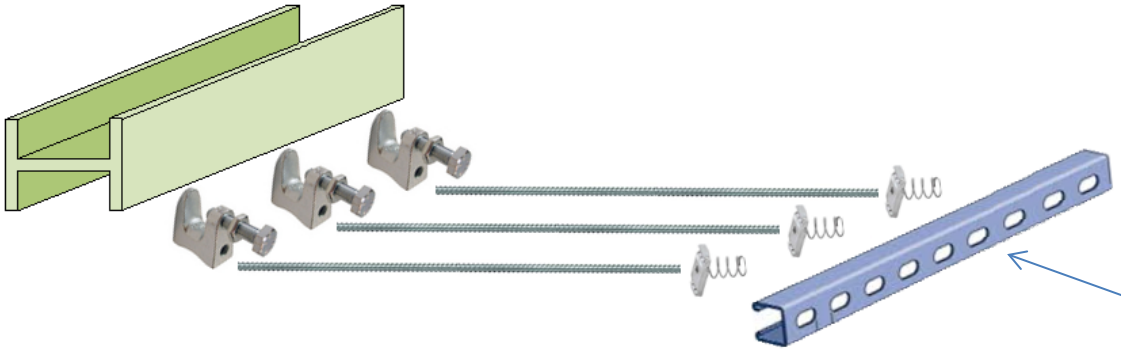
[<< OCR]



Item	Center X (From Left Wall)	Center Y (From Ceiling)	Circuit
T60LL	57.375	32.250	Q:CS175-RP-01:13
T60LR	118.125	32.250	Q:CS175-RP-01:15
T80	192.000	25.000	D:CS175-RP-01:25
T60RL	265.875	32.250	Q:CS175-RP-01:8
T60RR	326.625	32.250	Q:CS175-RP-01:10
B60LL	57.375	66.750	D:CS175-RP-01:13
B60LR	118.125	66.750	D:CS175-RP-01:15
B80	192.000	74.000	D:CS175-RP-01:25
B60RL	265.875	66.750	D:CS175-RP-01:8
B60RR	326.625	66.750	D:CS175-RP-01:10

OCR Front (South) Wall

[<< OCR]

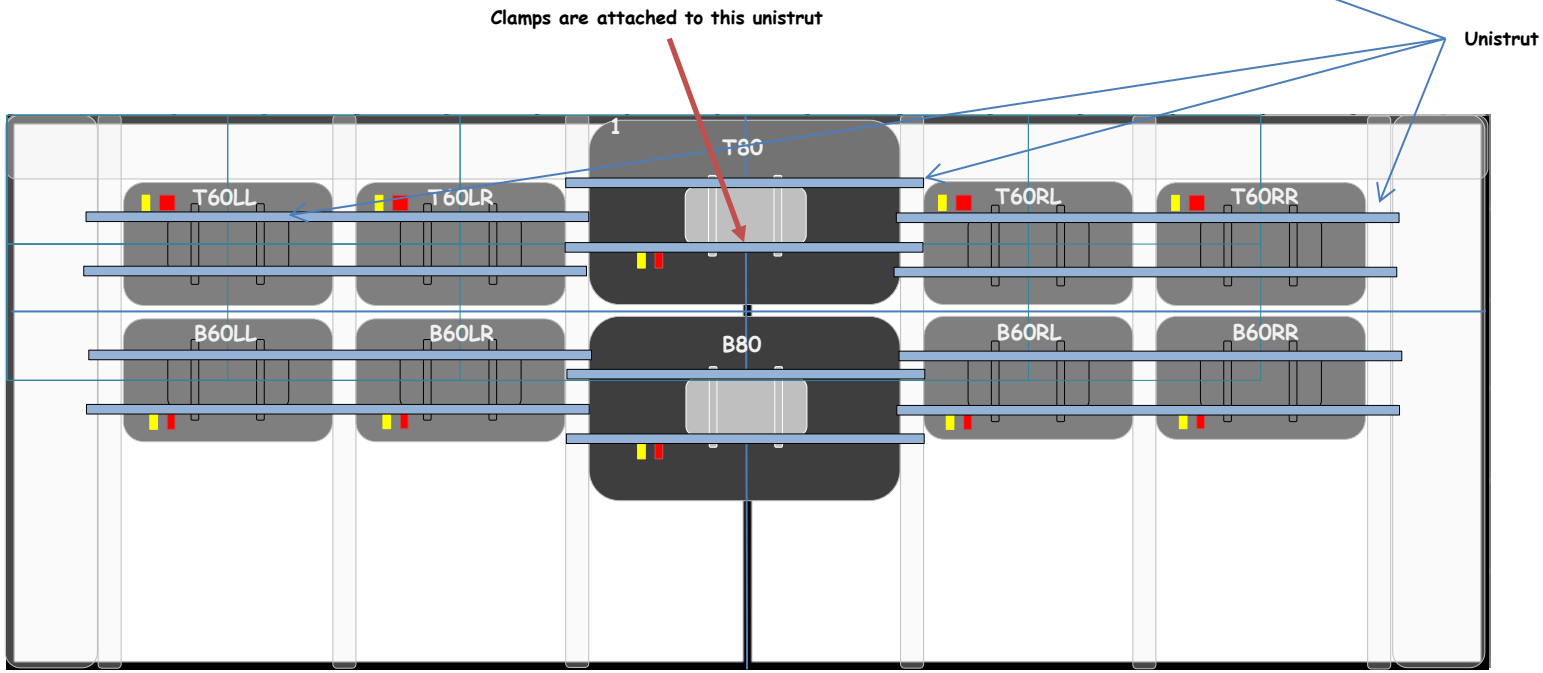


Unistrut is used to reinforce the front wall.

Two lengths of unistrut are used to support each monitor. They are bolted to the wall from the crawl space between the front wall and the LVEA wall.

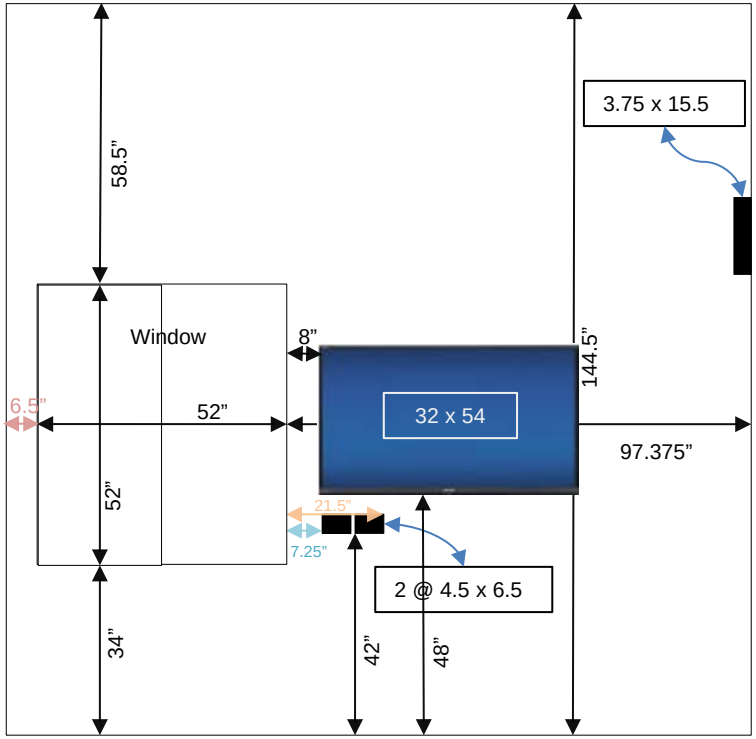
Beam Clamps and Allthread are used as a brace.

On one of the unistruts (see diagram) allthread and beam clamps are evenly positioned and clamped to the I-beam structure of the building. This is to provide stability for the front wall.



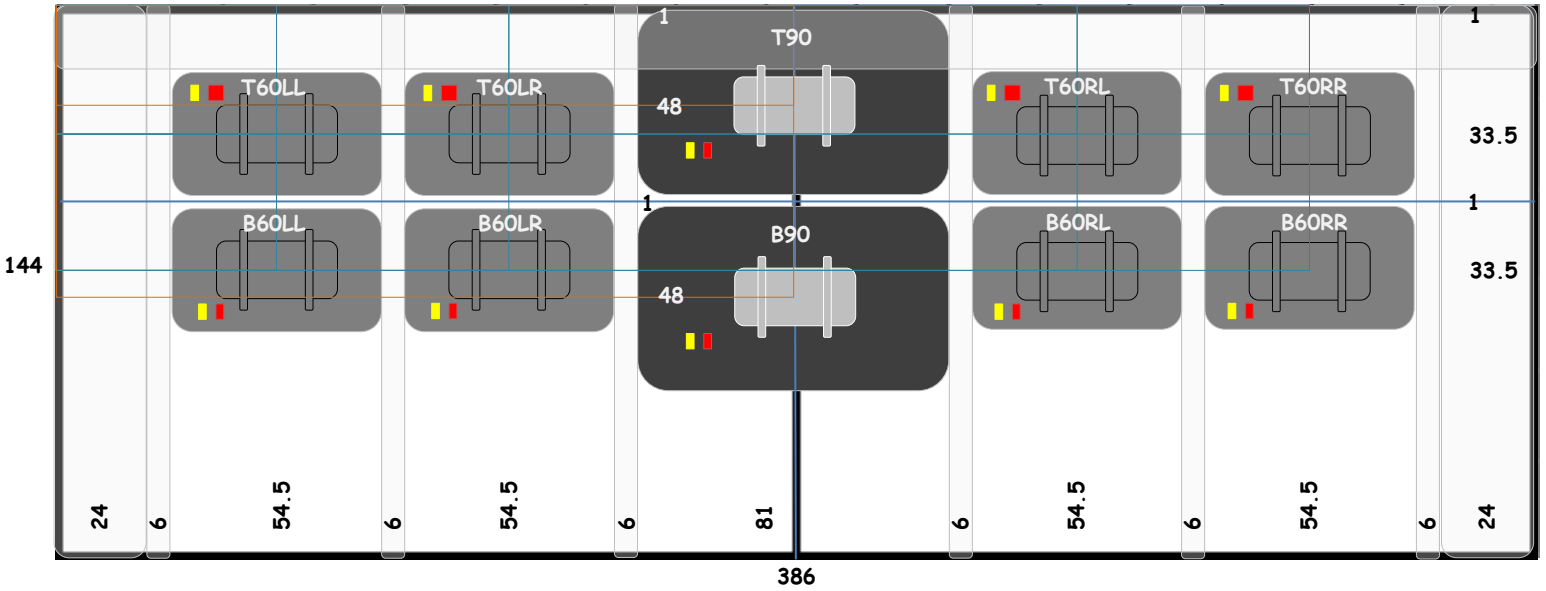
OCR Rear (North) Wall Layout

[<< OCR]



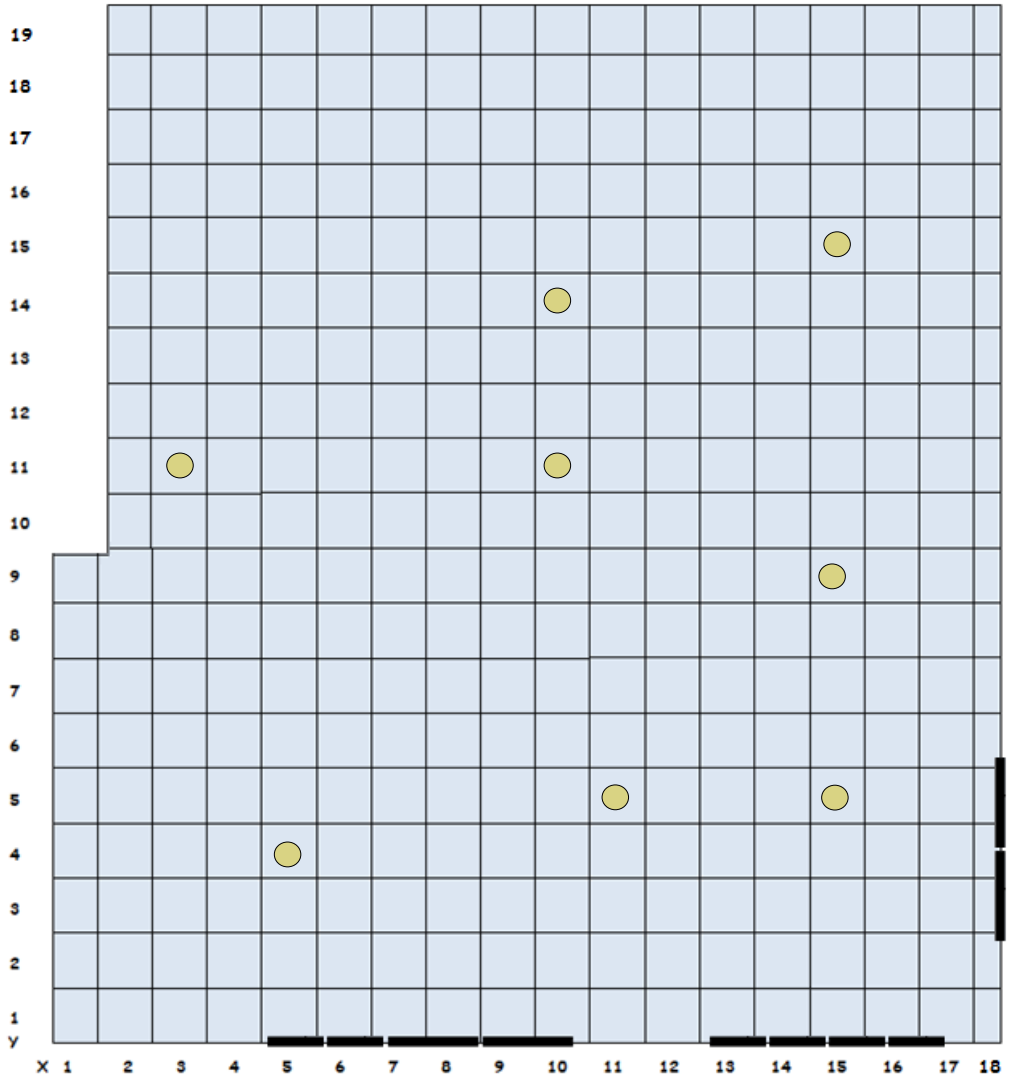
OCR West Side Wall Layout

[<< OCR]



OCR Floor Layout

[<< OCR]



CUR (Computer User's Room)

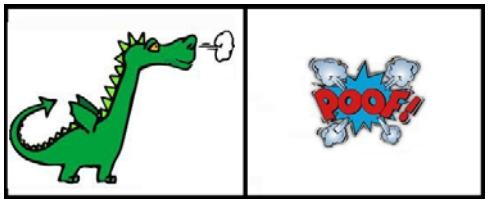
<< LLO Corner Station
<< LLO Racks by AREA
<< LLO CDS Components

CUR

CUR Documentation

EEL (EE Lab)

<< LLO Corner Station
<< LLO Racks by AREA
<< LLO CDS Components



EEL

EEL Documentation

EEL (EE Lab) Layout

[<< EEL]

AC Power to the benches:

Twelve 12) new circuits from RP2 power the Orange, White, Green, and Red benches.

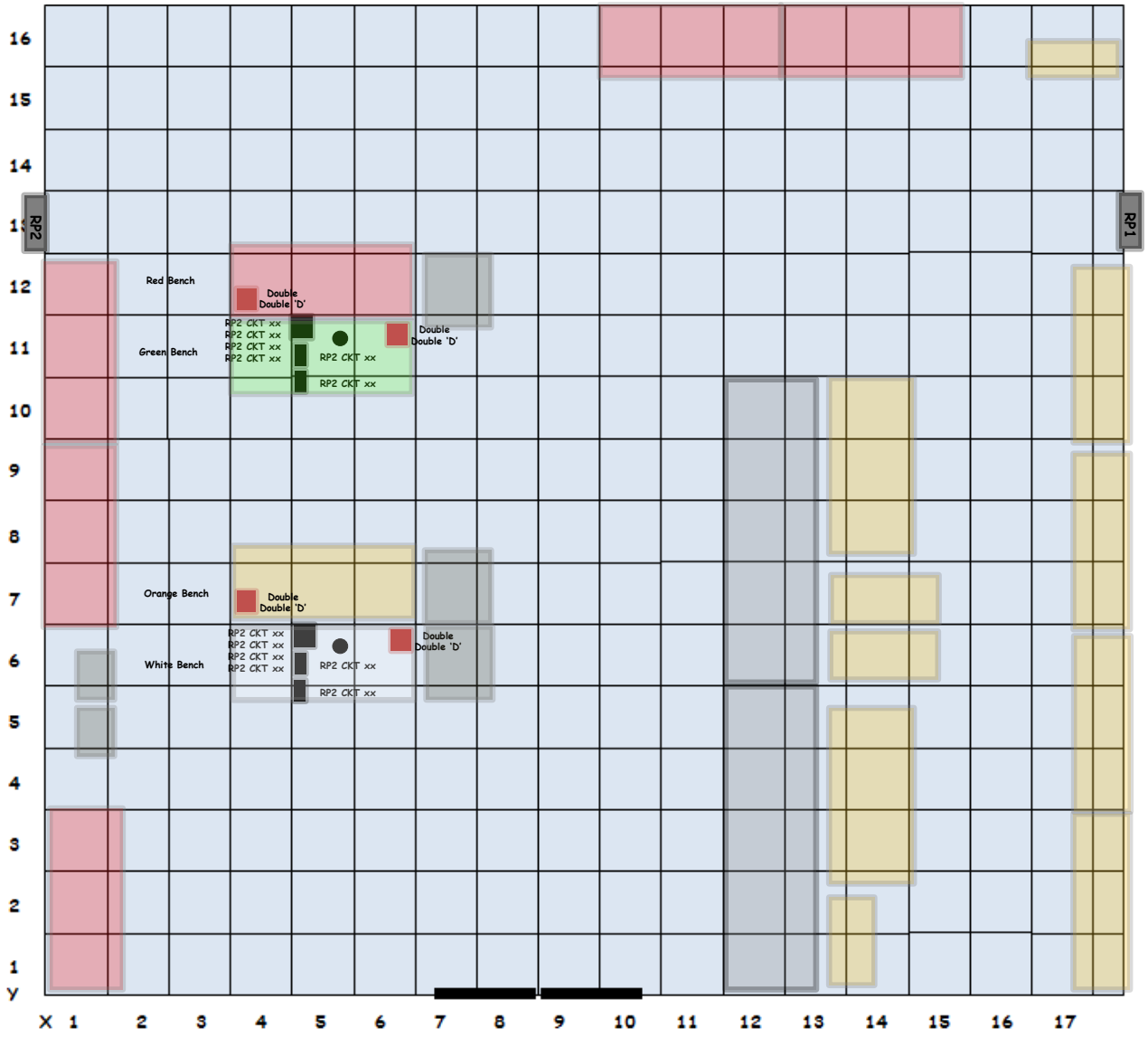
Under the floor:

Provide two locations of four (4) circuits in one Quad 'D':
1) Each Socket is a 15A 110VAC circuit.
2) Each circuit serves a power strip on a bench.

Provide two locations of two (2) circuits each in a Single 'D':
1) Each Single outlet is a 20A 110VAC circuit.
2) Each circuit serves a Double-Double 'D' mounted to a bench.

Attached to the benches:

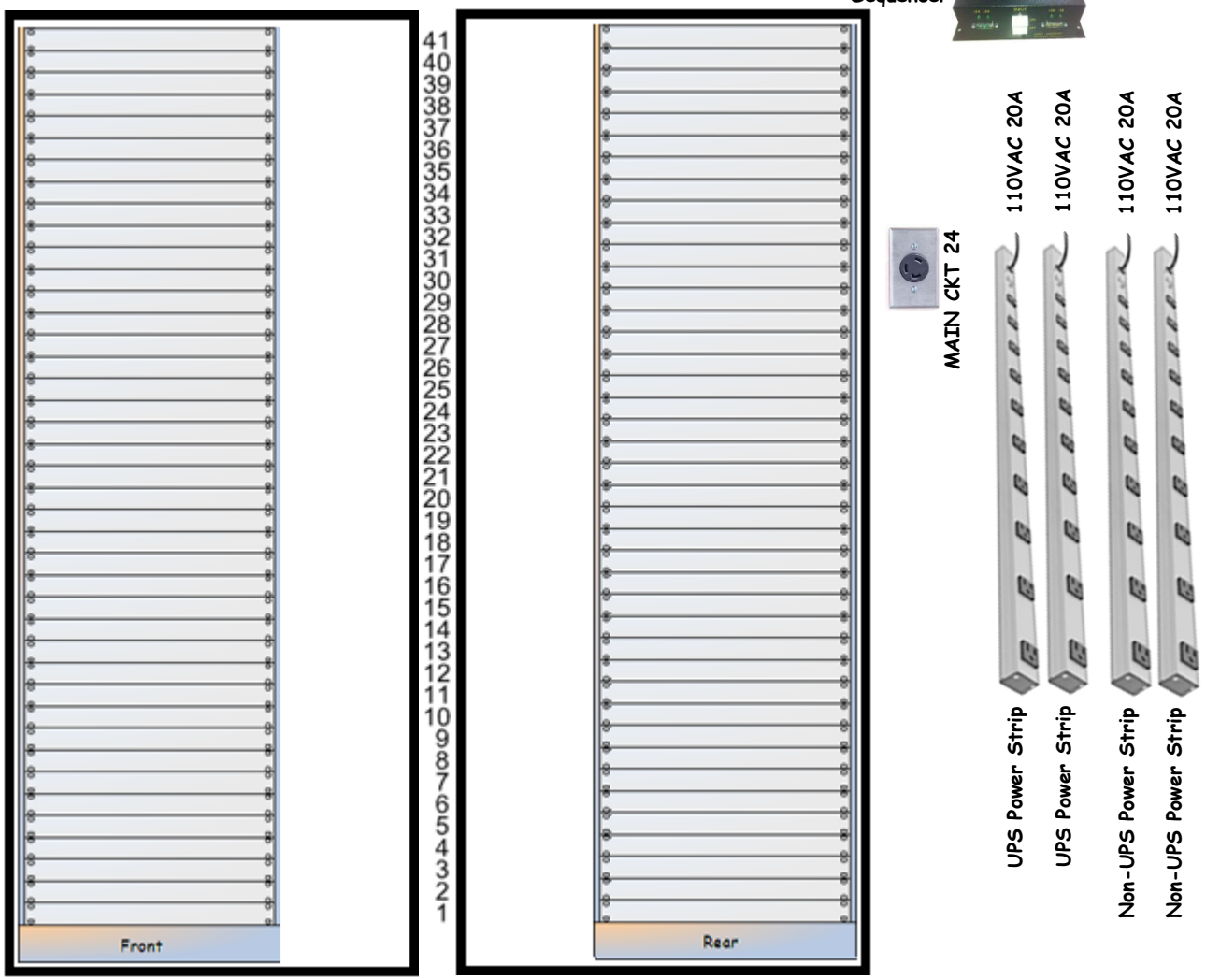
1) Attached to each bench is a Double-Double 'D' mounted on the far right underside of the work surface (facing the bench from the front). This box is on a flexible cord that plugs in beneath the floor and is long enough to allow some freedom of movement of the bench.



L1-EEL-1

[<< EEL Layout]

L1-EEL-1 Test Rack (Dxxxxxxx) (Sxxxxxxx)



MSR (Mass Storage Room)

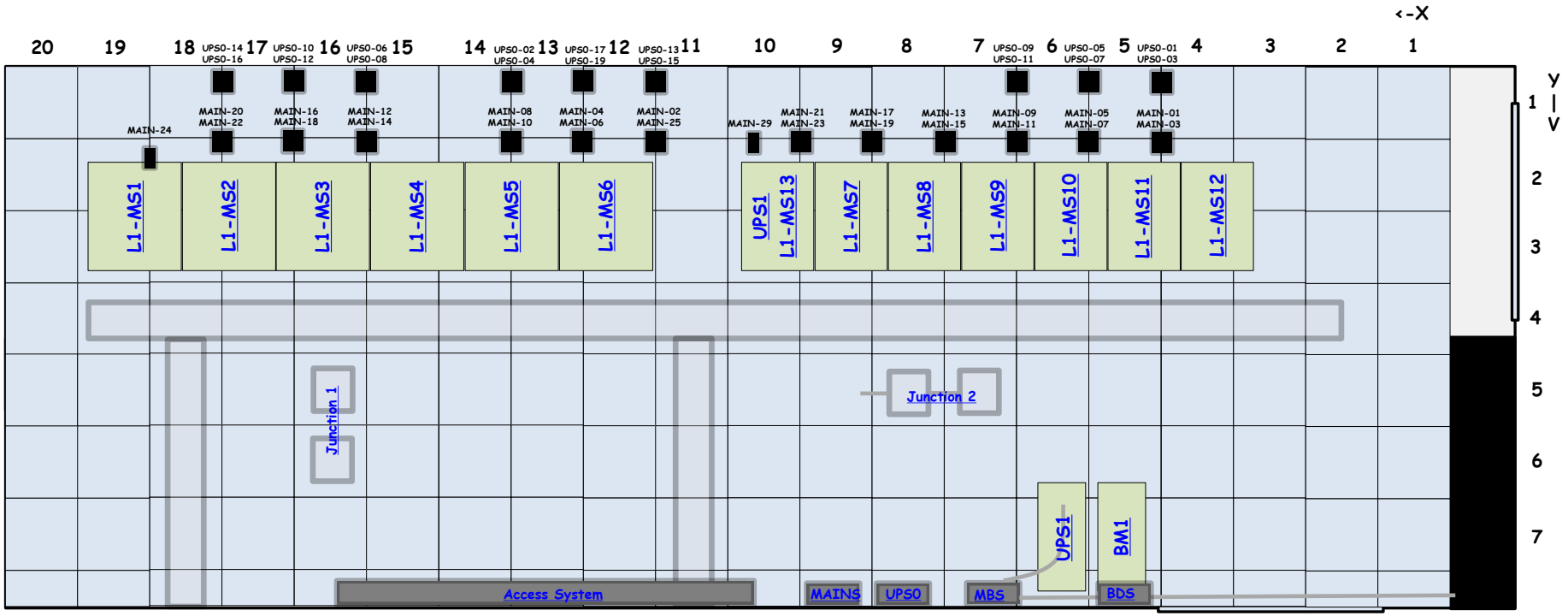
<< LLO Corner Station
<< LLO Racks by AREA
<< LLO CDS Components

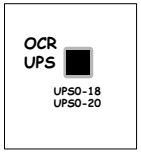
MSR

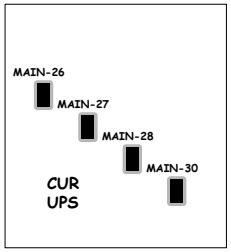
MSR Documentation
MSR Layout
IO Extenders Index

MSR (Mass Storage Room) Layout

<< LLO Corner Station
<< LLO Racks by AREA
<< LLO CDS Components

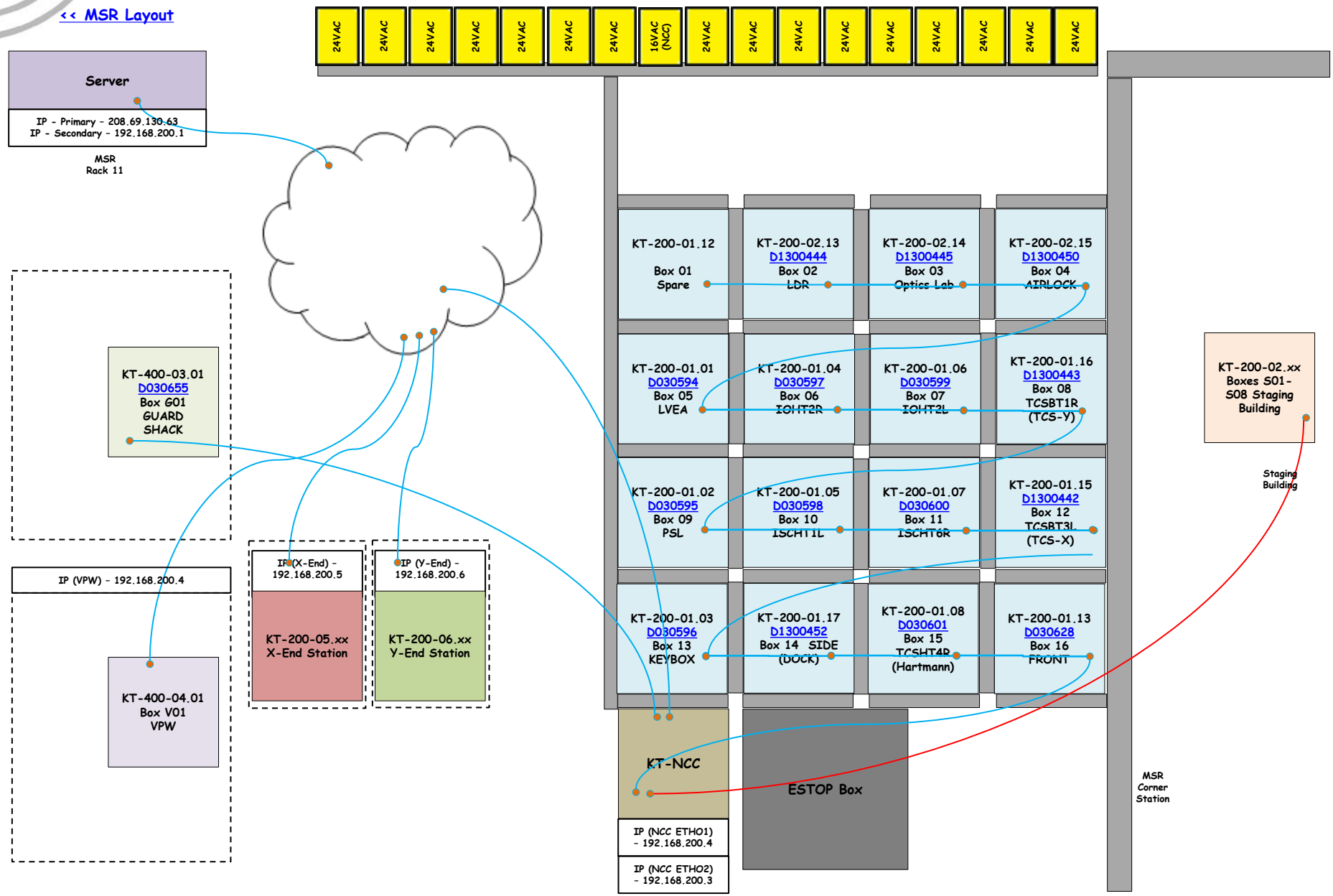




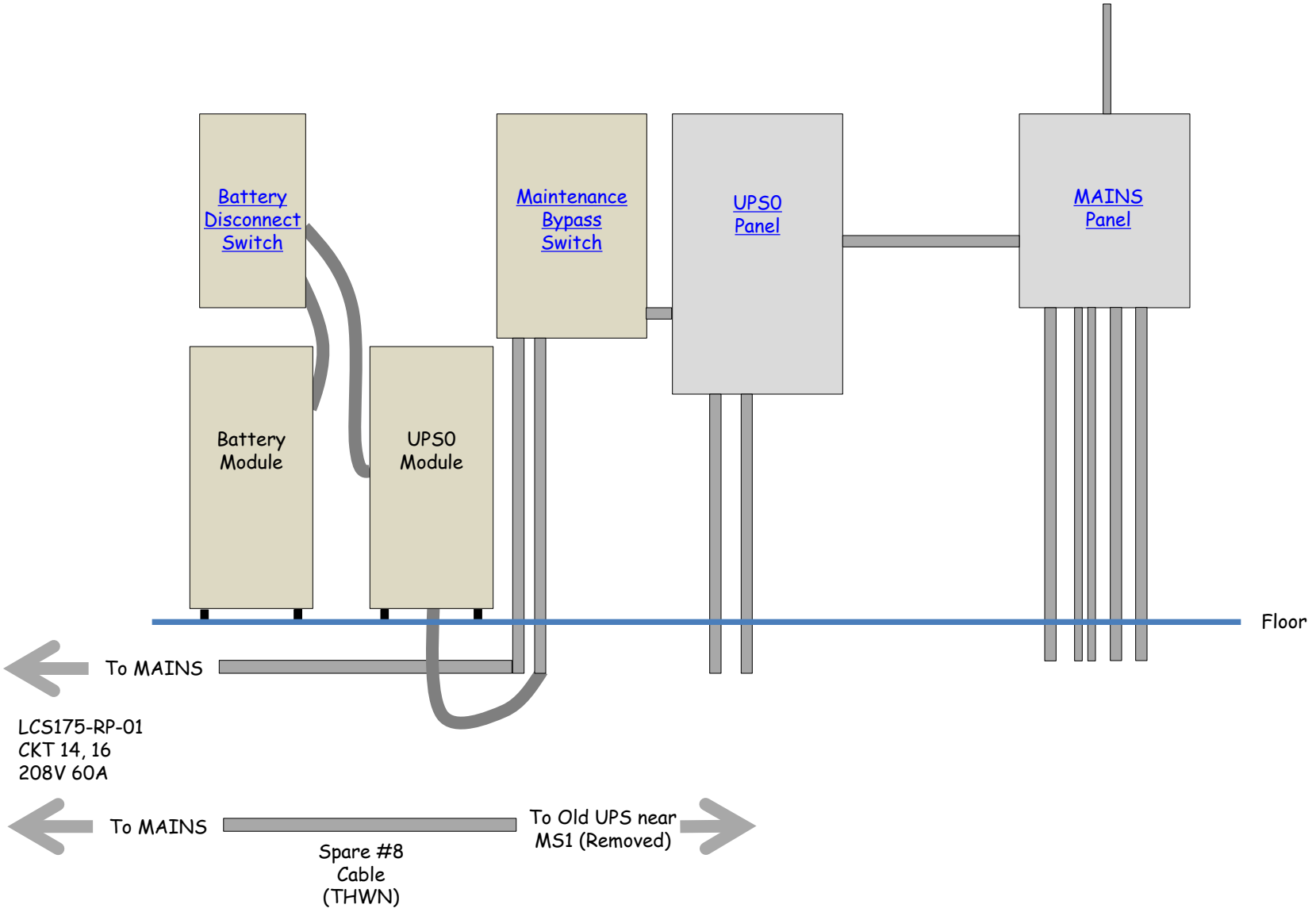


MSR – Kantech Controllers (G1200383)

<< MSR Layout



MSR Power Panels



UPS0 Power Panel

[<< MSR Power Panels]

Panel	Circuit	Circuit Voltage	Breaker Amperage	Outlet Box Label	Type	Outlet Amperage	Outlet Color	Outlet Strip	Rack
UPS Panel	1	110	20	UPS CKT 1	DD 5-20R	110VAC 20A	Orange	Open	Open
UPS Panel	2	110	20	UPS CKT 2	DD 5-20R	110VAC 20A	Orange	20A-009	MS4-2
UPS Panel	3	110	20	UPS CKT 3	DD 5-20R	110VAC 20A	Orange	Open	Open
UPS Panel	4	110	20	UPS CKT 4	DD 5-20R	110VAC 20A	Orange	20A-011	MS4-1
UPS Panel	5	110	20	UPS CKT 5	DD 5-20R	110VAC 20A	Orange	20A-028	MS11-1
UPS Panel	6	110	20	UPS CKT 6	DD 5-20R	110VAC 20A	Orange	20A-004	MS3-1
UPS Panel	7	110	20	UPS CKT 7	DD 5-20R	110VAC 20A	Orange	20A-045	MS11-2
UPS Panel	8	110	20	UPS CKT 8	DD 5-20R	110VAC 20A	Orange	20A-003	MS3-2
UPS Panel	9	110	20	UPS CKT 9	DD 5-20R	110VAC 20A	Orange	20A-047	MS10-2
UPS Panel	10	110	20	UPS CKT 10	DD 5-20R	110VAC 20A	Orange	20A-002	MS2-1
UPS Panel	11	110	20	UPS CKT 11	DD 5-20R	110VAC 20A	Orange	20A-048	MS10-1
UPS Panel	12	110	20	UPS CKT 12	DD 5-20R	110VAC 20A	Orange	20A-001	MS2-2
UPS Panel	13	110	20	UPS CKT 13	DD 5-20R	110VAC 20A	Orange	15A-001	MS6-1
UPS Panel	14	110	20	UPS CKT 14	DD 5-20R	110VAC 20A	Orange	Open	Open
UPS Panel	15	110	20	UPS CKT 15	DD 5-20R	110VAC 20A	Orange	Open	Open
UPS Panel	16	110	20	UPS CKT 16	DD 5-20R	110VAC 20A	Orange	20A-007	MS1-1
UPS Panel	17	110	20	UPS CKT 17	DD 5-20R	110VAC 20A	Orange	20A-005	MS5-1
UPS Panel	18	110	20	UPS CKT 18	DD 5-20R	110VAC 20A	Orange	Operator Desk	OCR X11Y2
UPS Panel	19	110	20	UPS CKT 19	DD 5-20R	110VAC 20A	Orange	20A-008	MS5-2
UPS Panel	20	110	20	UPS CKT 20	DD 5-20R	110VAC 20A	Orange	Operator Desk	OCR X11Y2
									As of 4/9/2013

MAINS Power Panel

LIGO
<< MSR Power Panels

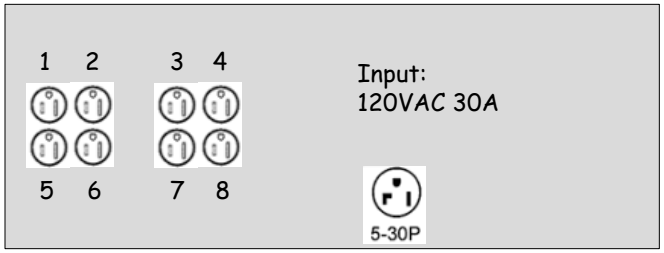
Panel	Circuit	Circuit Voltage	Breaker Amperage	Outlet Box Label	Type	Outlet Amperage	Outlet Color	Outlet Strip	Destination
MAINS	01	110	20	MAIN CKT 1	DD 5-20R	110VAC 20A	White	15A-005	MS12-2
MAINS	02	110	20	MAIN CKT 2	DD 5-20R	110VAC 20A	White	20A-050	MS7-3
MAINS	03	110	20	MAIN CKT 3	DD 5-20R	110VAC 20A	White	15A-006	MS12-1
MAINS	04	110	20	MAIN CKT 4	DD 5-20R	110VAC 20A	White	20A-014	MS5-1
MAINS	05	110	20	MAIN CKT 5	DD 5-20R	110VAC 20A	White	20A-027	MS11-1
MAINS	06	110	20	MAIN CKT 6	DD 5-20R	110VAC 20A	White	20A-015	MS5-2
MAINS	07	110	20	MAIN CKT 7	DD 5-20R	110VAC 20A	White	20A-046	MS11-2
MAINS	08	110	20	MAIN CKT 8	DD 5-20R	110VAC 20A	White	20A-029	MS4-2
MAINS	09	110	20	MAIN CKT 9	DD 5-20R	110VAC 20A	White	20A-044	MS10-2
MAINS	10	110	20	MAIN CKT 10	DD 5-20R	110VAC 20A	White	20A-010	MS4-1
MAINS	11	110	20	MAIN CKT 11	DD 5-20R	110VAC 20A	White	20A-043	MS10-1
MAINS	12	110	20	MAIN CKT 12	DD 5-20R	110VAC 20A	White	20A-016	MS3-2
MAINS	13	110	20	MAIN CKT 13	DD 5-20R	110VAC 20A	White	20A-025	MS9-2
MAINS	14	110	20	MAIN CKT 14	DD 5-20R	110VAC 20A	White	20A-012	MS3-1
MAINS	15	110	20	MAIN CKT 15	DD 5-20R	110VAC 20A	White	20A-026	MS9-1
MAINS	16	110	20	MAIN CKT 16	DD 5-20R	110VAC 20A	White	20A-013	MS2-1
MAINS	17	110	20	MAIN CKT 17	DD 5-20R	110VAC 20A	White	20A-024	MS8-1
MAINS	18	110	20	MAIN CKT 18	DD 5-20R	110VAC 20A	White	20A-017	MS2-2
MAINS	19	110	20	MAIN CKT 19	DD 5-20R	110VAC 20A	White	20A-018	MS8-2
MAINS	20	110	20	MAIN CKT 20	DD 5-20R	110VAC 20A	White	Open	Open
MAINS	21	110	20	MAIN CKT 21	DD 5-20R	110VAC 20A	White	20A-019	MS7-2
MAINS	22	110	20	MAIN CKT 22	DD 5-20R	110VAC 20A	White	20A-038	MS1-1
MAINS	23	110	20	MAIN CKT 23	DD 5-20R	110VAC 20A	White	20A-020	MS7-1
MAINS	24	110	30	MAIN CKT 24	L6-30R	110VAC 30A	Brown	Single Outlet	Open
MAINS	25	110	20	MAIN CKT 25	DD 5-20R	110VAC 20A	White	15A-002	MS6-1
MAINS	26	110	30	MAIN CKT 26	L6-30R	110VAC 30A	Brown	Single Outlet	CUR-UPS 1
MAINS	27	110	30	MAIN CKT 27	L6-30R	110VAC 30A	Brown	Single Outlet	CUR-UPS 2
MAINS	28	110	30	MAIN CKT 28	L6-30R	110VAC 30A	Brown	Single Outlet	CUR-UPS 4
MAINS	29	110	20	MAIN CKT 29	DD 5-20R	110VAC 20A	White	20A-055	MS9-3
MAINS	30	110	30	MAIN CKT 30	L6-30R	110VAC 30A	Brown	Single Outlet	CUR-UPS 3
MAINS	31/32/33		100						As of 4/9/2013

Battery Module

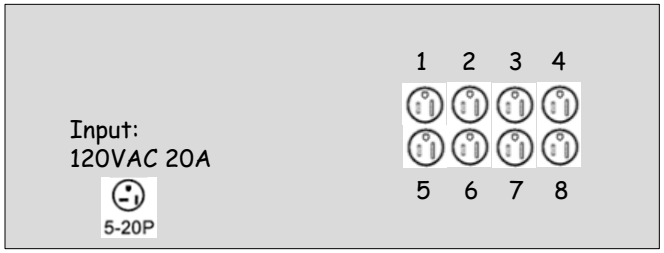
LIGO
<< MSR Layout

30 each NPX-150R

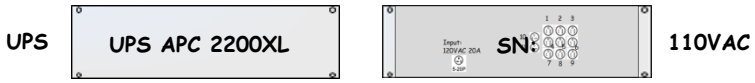
UPS ACP XXXX

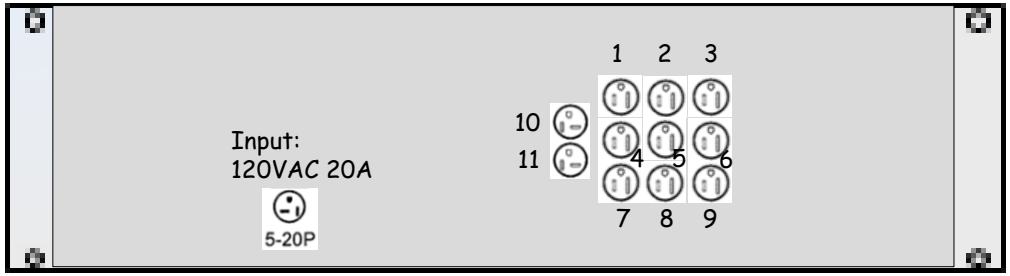


UPS ACP 2200



UPS ACP 2200XL

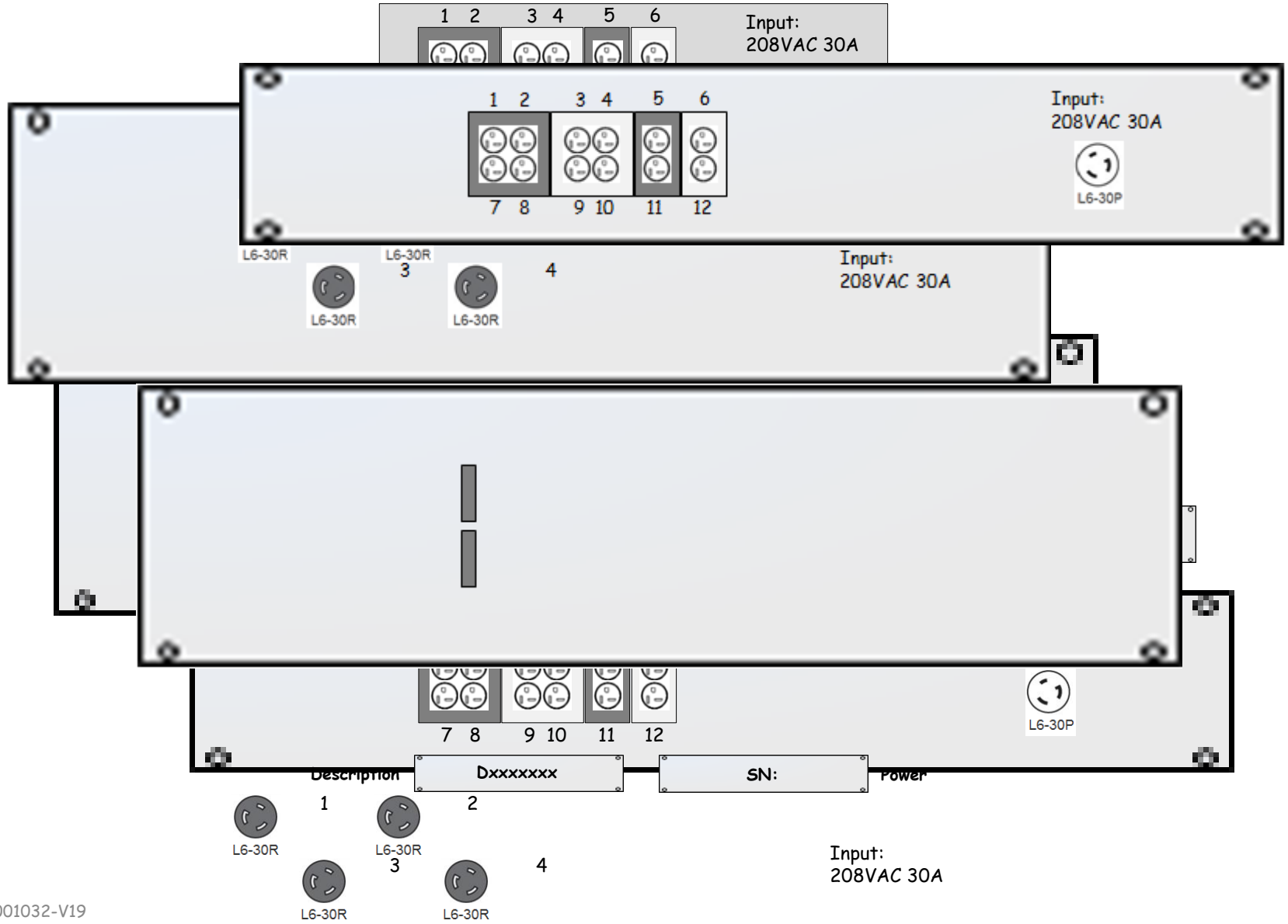




UPS ACP 3000XL

[<< MSR Layout]

UPS1 ACP 10000XL



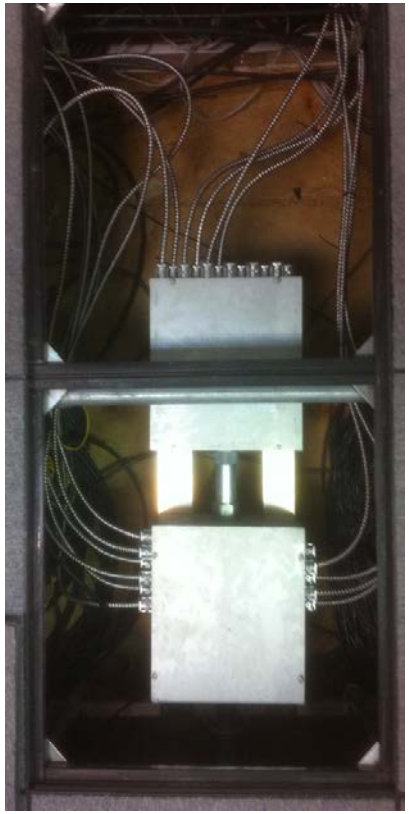
UPS0 Battery Module Switch Box

UPS0 Maintenance Bypass Switch Box

[<< MSR Layout]

Mains and UPS Subfloor Distribution Boxes

LIGO
<< MSR Layout



MAINS and UPS0 Subfloor Distribution Junction 1

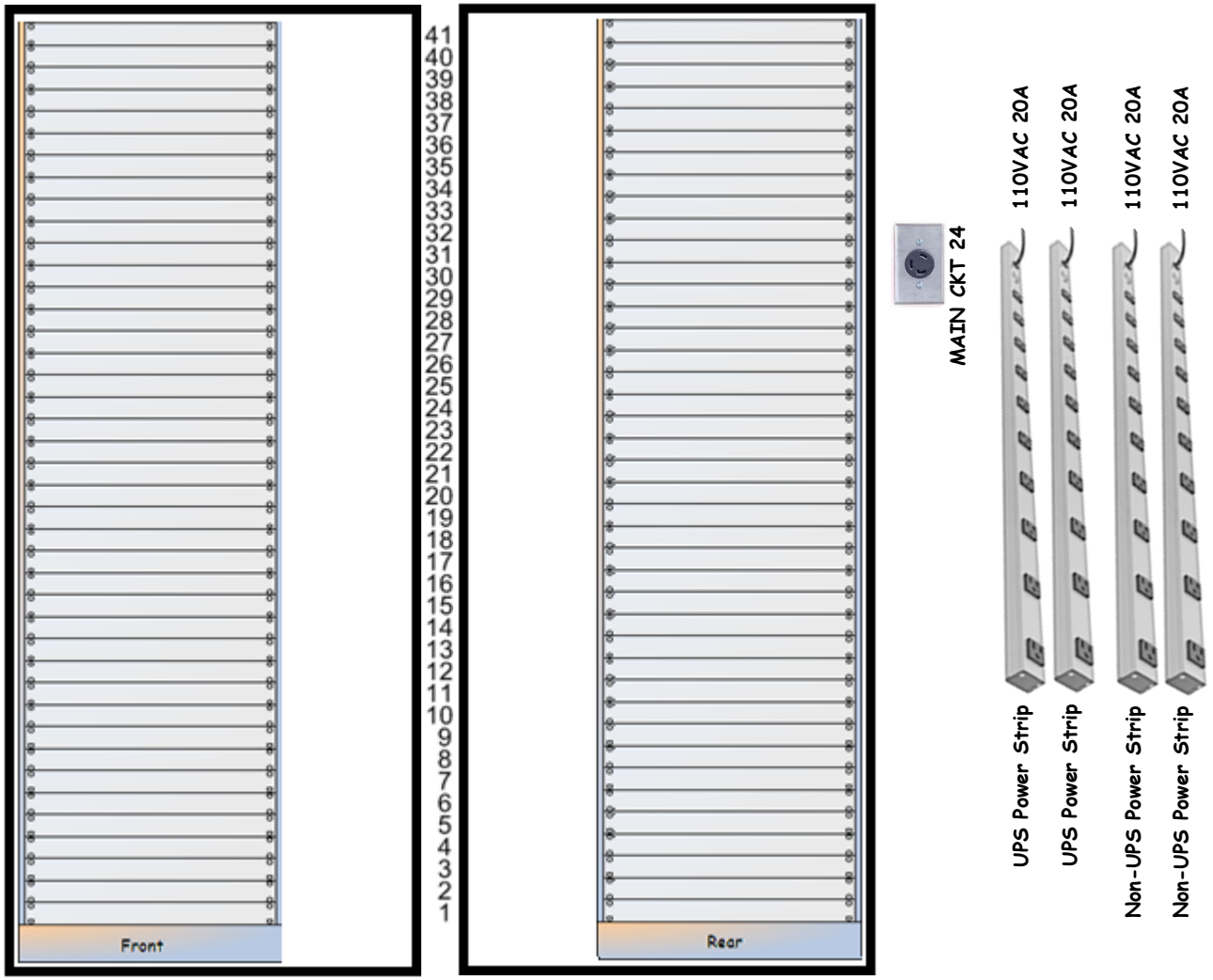
MAINS and UPS0 Subfloor Distribution Junction 2

MAINS Floor Penetration

L1-MSR-01

[<< MSR Layout]

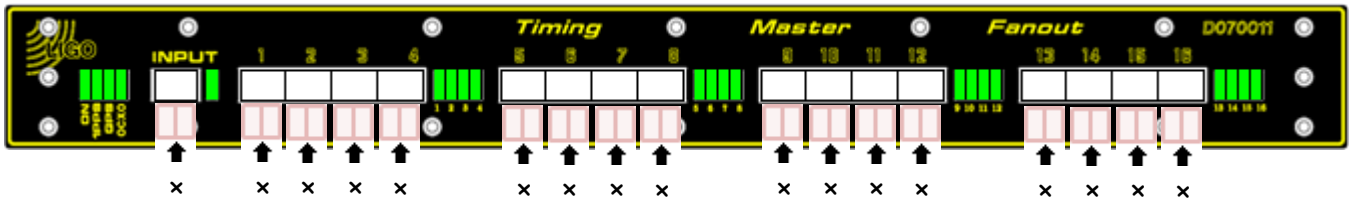
L1-MSR-01 Atomic Clock Rack Layout (D1201372) (S1203487)



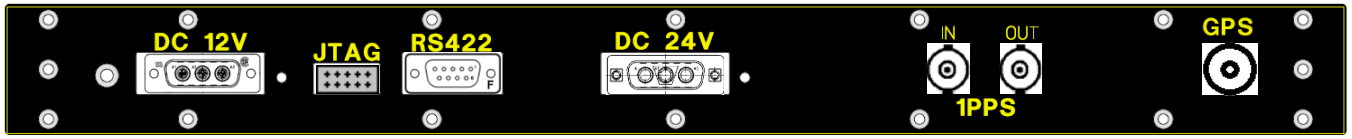
D070011 - S1000876

« L1-MS1

Timing Master Module | D070011 | S1000876 | +12VDC



D070011
Front

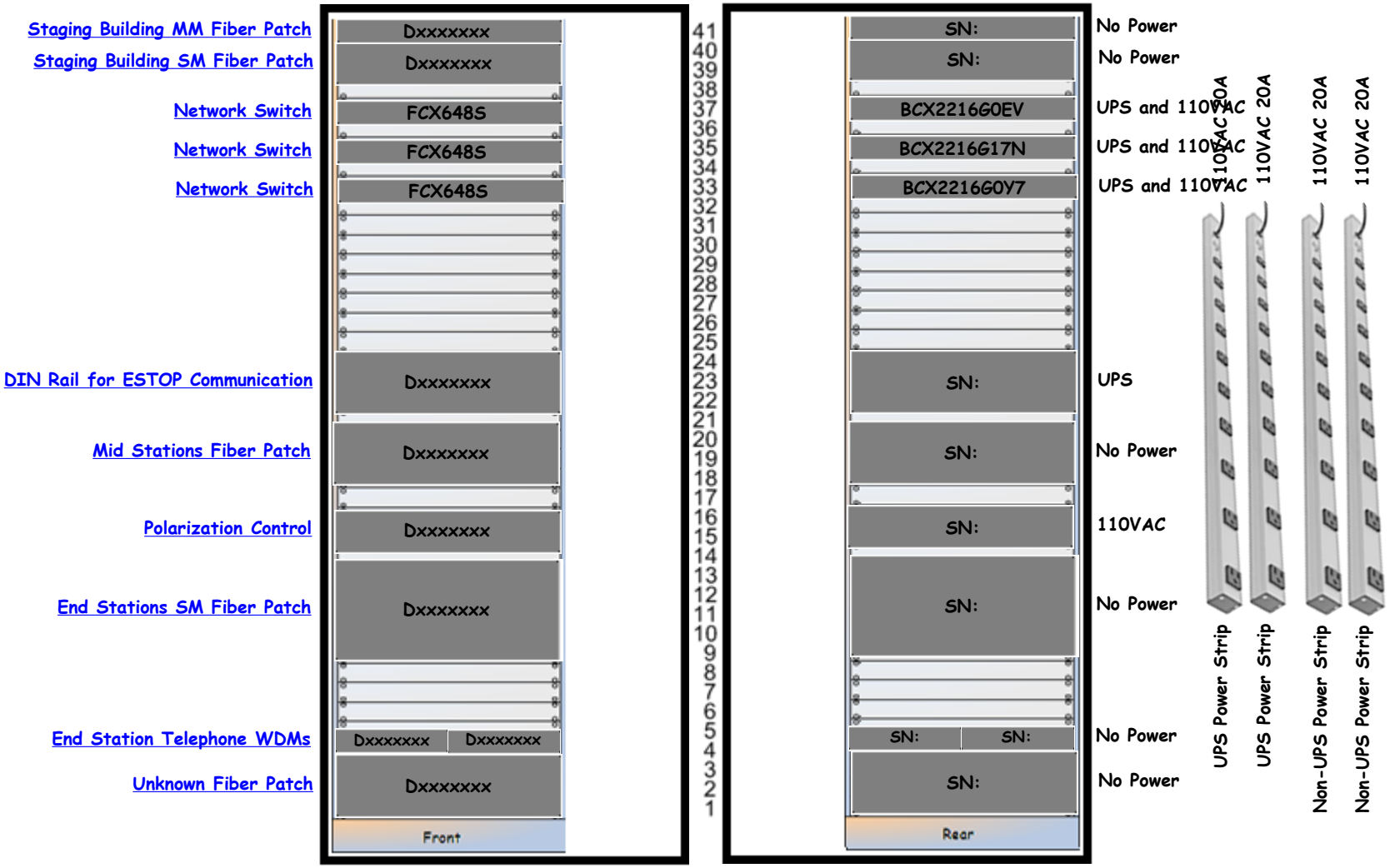


S1000876
Rear
Master

L1-MSR-02

[<< MSR Layout]

L1-MSR-02 Fiber Patch Rack Layout (D1201373) (S1203488)



MSR to Staging Building MM Fiber Patch

[<< L1-MSR-02]

Staging Building MM Fiber Patch | Dxxxxxxx | SN: | No Power

MSR to Staging Building SM Fiber Patch

LIGO
<< L1-MSR-02

Staging Building SM Fiber Patch | Dxxxxxxx | SN: | No Power

2MMF
Lanscape Corning

Network Switch

[<< L1-MSR-02]

Network Switch | FCX648S | BCX2216G0EV | 110VAC MAINS and UPS

FID: de2HHGLiFgx

Network Switch

[<< L1-MSR-02]

Network Switch | FCX648S | BCX2216G17N | 110VAC MAINS and UPS

FID: de2HHGLiGMp

Network Switch

[<< L1-MSR-02]

Network Switch | FCX648S | BCX2216G0Y7 | 110VAC MAINS and UPS

FID: de2HHGKiFaM

DIN Rail for ESTOP Communication

[<< L1-MSR-02](#)

DIN Rail for ESTOP Communication

Dxxxxxxx

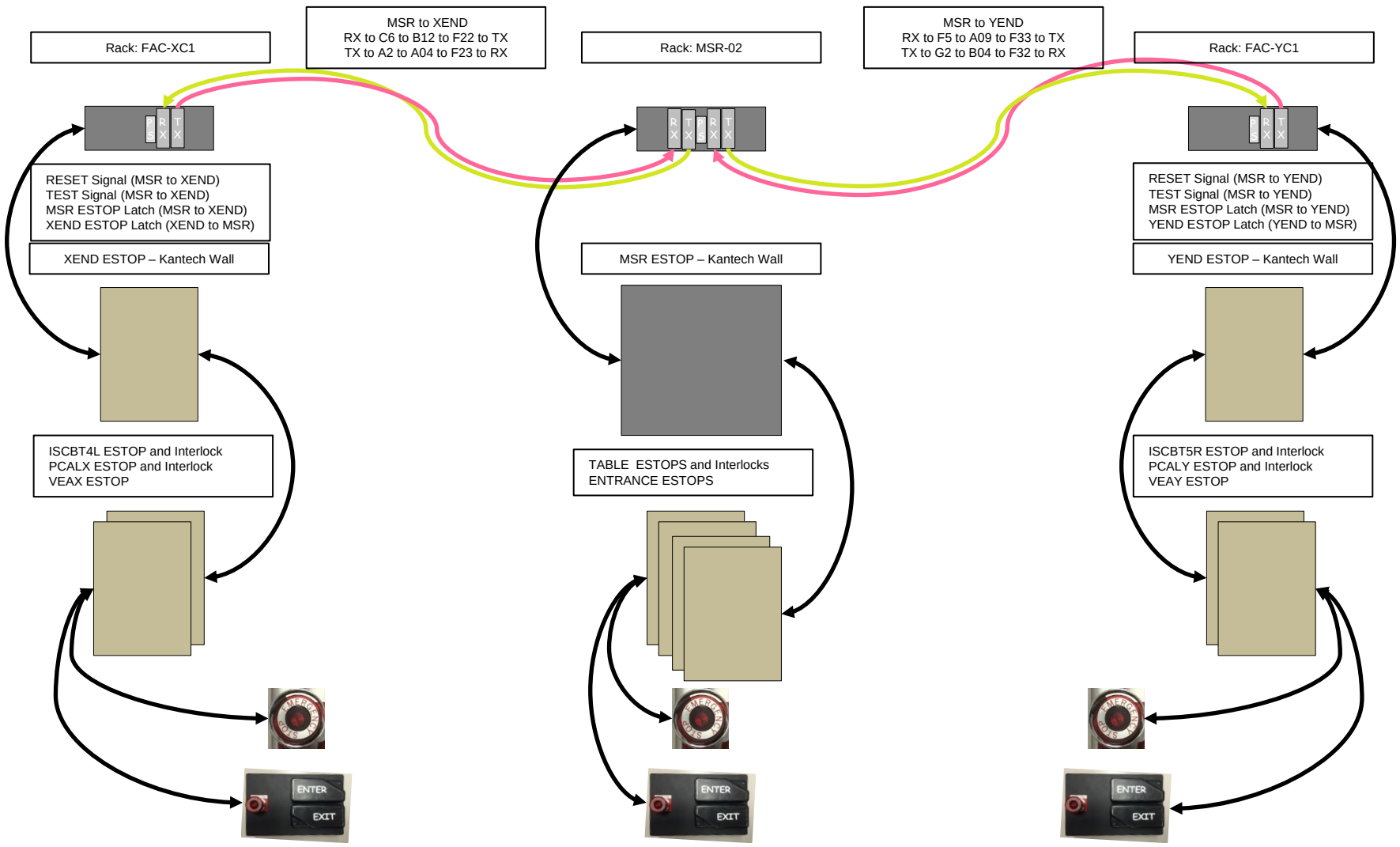
SN:

UPS

ESTOP System Overview

[<< L1-MSR-02]

[See LIGO-G1200383]



MSR to Mid Stations ?M Fiber Patch

[<< L1-MSR-02]

Mid Stations Fiber Patch | Dxxxxxxx | SN: | No Power

1-12 SM to X MIDX
13-24 SM to Y MID

Fiber Control MPC1-2 Polarization Control

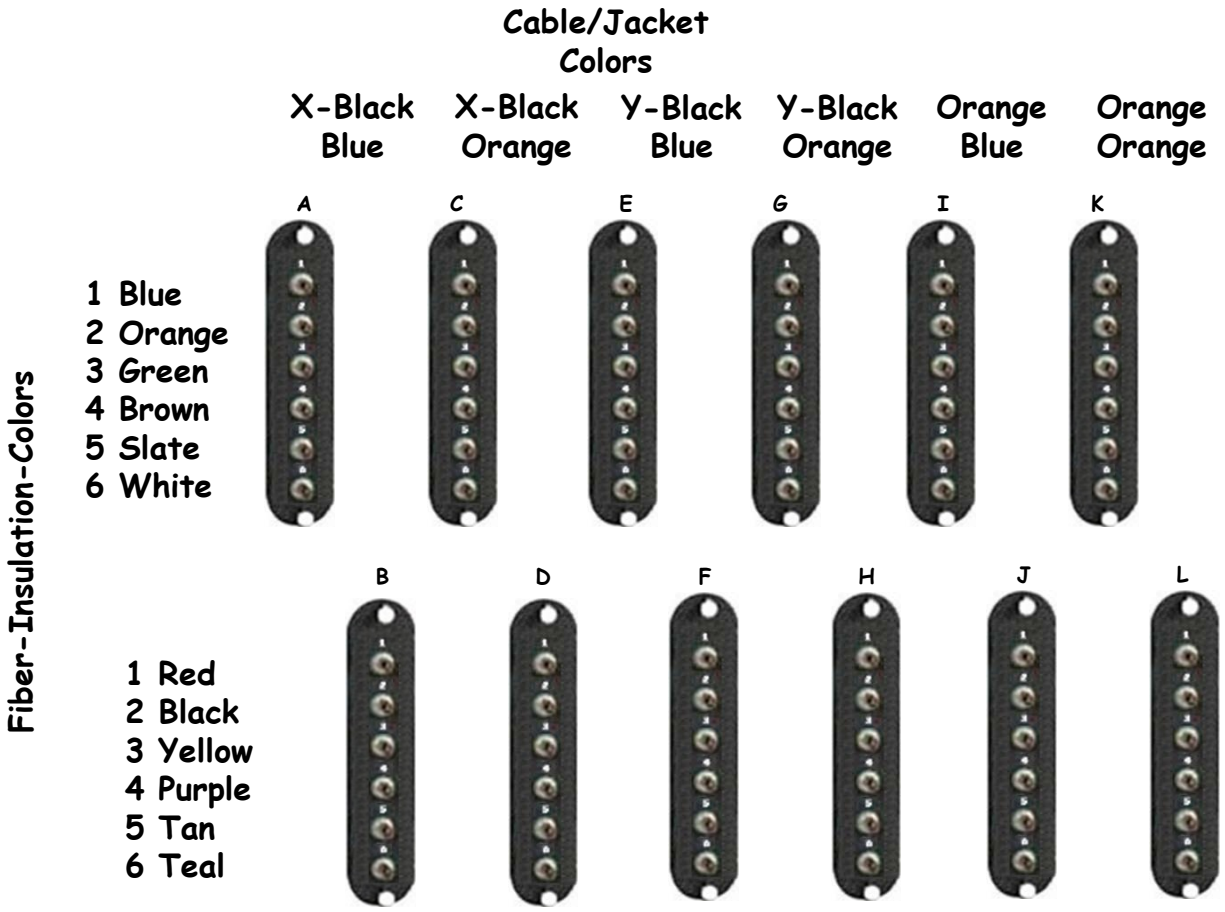
[<< L1-MSR-02]

Polarization Control | Dxxxxxxx | SN: | No Power

MSR to End Stations SM Fiber Patch

[<< L1-MSR-02]

End Stations SM Fiber Patch | Dxxxxxxx | SN: | No Power



[X END Fiber Patch Panel >>]

[See LIGO-E1500002]

[Y END Fiber Patch Panel >>]

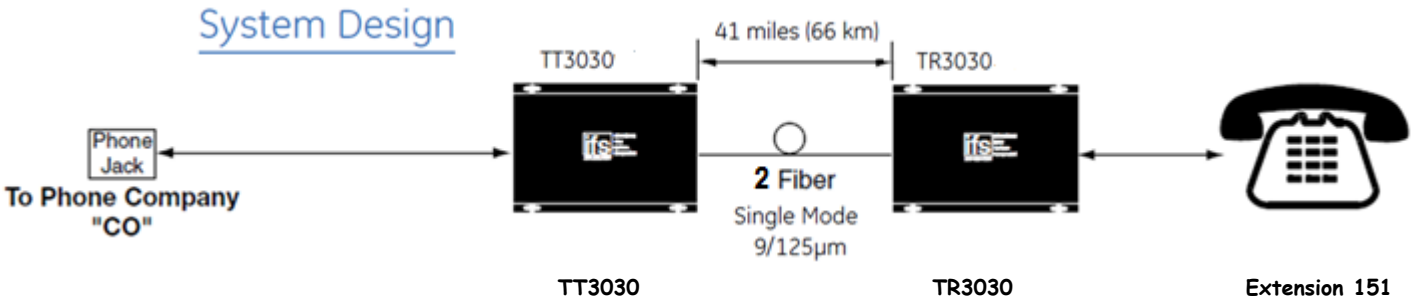
End Station Phone Connections

[<< L1-MSR-02]

End Station Telephone WDMs | Dxxxxxxx | Dxxxxxxx | SN: | SN: | No Power

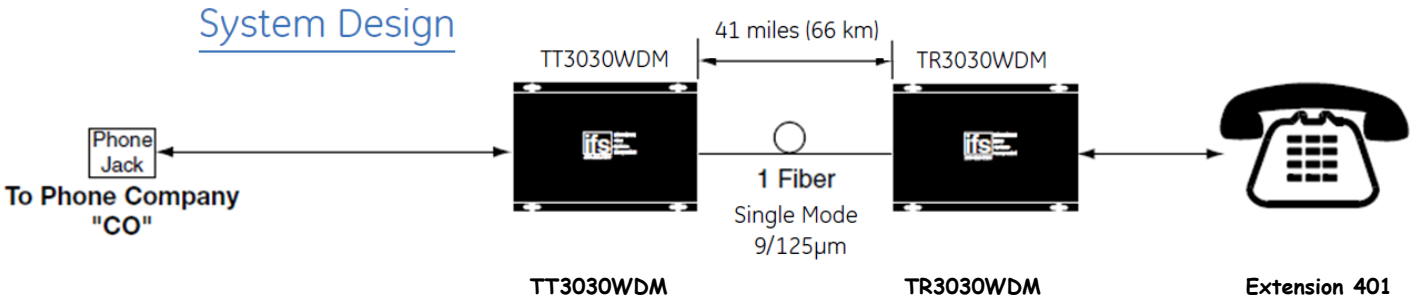
[X End Phone]

[TR3030WDM]
GE Security
Optical In/Out:
[To 1Y23 PP B2]
Phone: Copper to X Foyer
Power: 12VDC



[Y End Phone]

[TR3030WDM]
GE Security
Optical In/Out:
[To 1Y23 PP B2]
Phone: Copper to Y Foyer
Power: 12VDC



X End Station Phone Connections

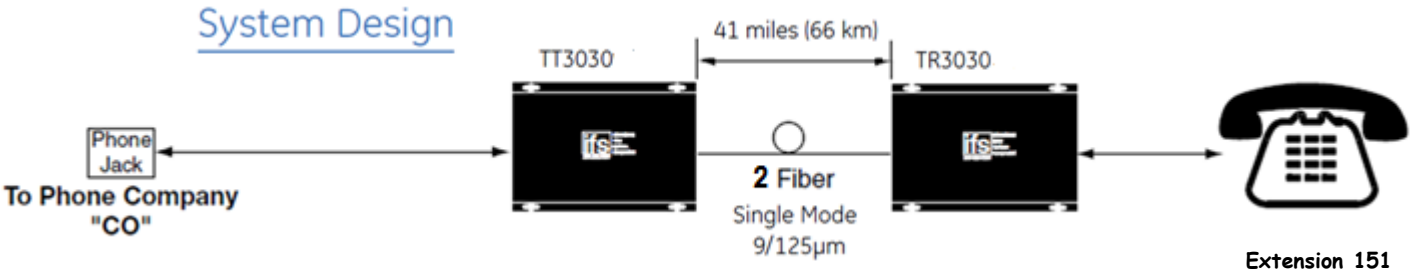
[<< End Station Phones]

End Station Telephone WDMs | Dxxxxxxx | Dxxxxxxx | SN: | SN: | No Power

X End Phone

[TR3030WDM]
GE Security
Optical In/Out:
[To 1Y23 PP B2]
Phone: Copper to X Foyer
Power: 12VDC

Powered from Wall Wart from Tripp-Lite UPS
Model BC320
9834DY0BC614000661 To 6-Outlet Power Strip in Non-isolated wall socket



Y End Station Phone Connections

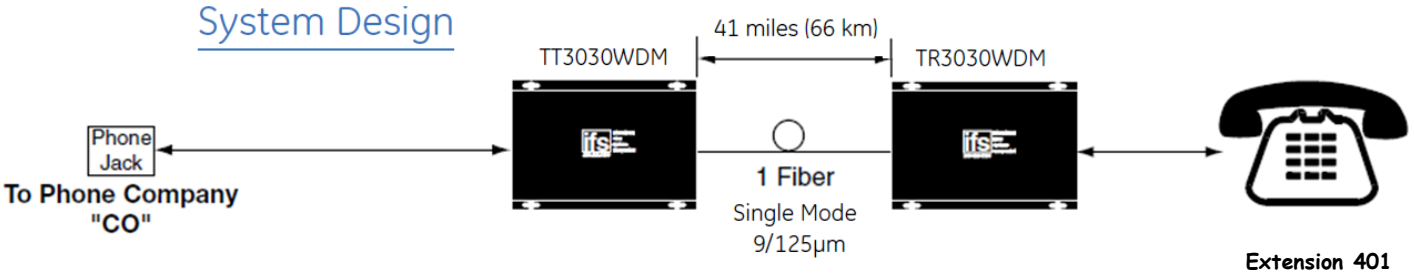
[<< End Station Phones]

End Station Telephone WDMs | Dxxxxxxx | Dxxxxxxx | SN: | SN: | No Power

Phone

[TR3030WDM]
GE Security
Optical In/Out:
[To 1Y23 PP B2]
Phone: Copper to Y Foyer
Power: 12VDC

Powered from Wall Wart from Tripp-Lite UPS
Model BC320
9834DY0BC614000661 To 6-Outlet Power Strip in Non-isolated wall socket



MSR to Unknown Fiber Patch

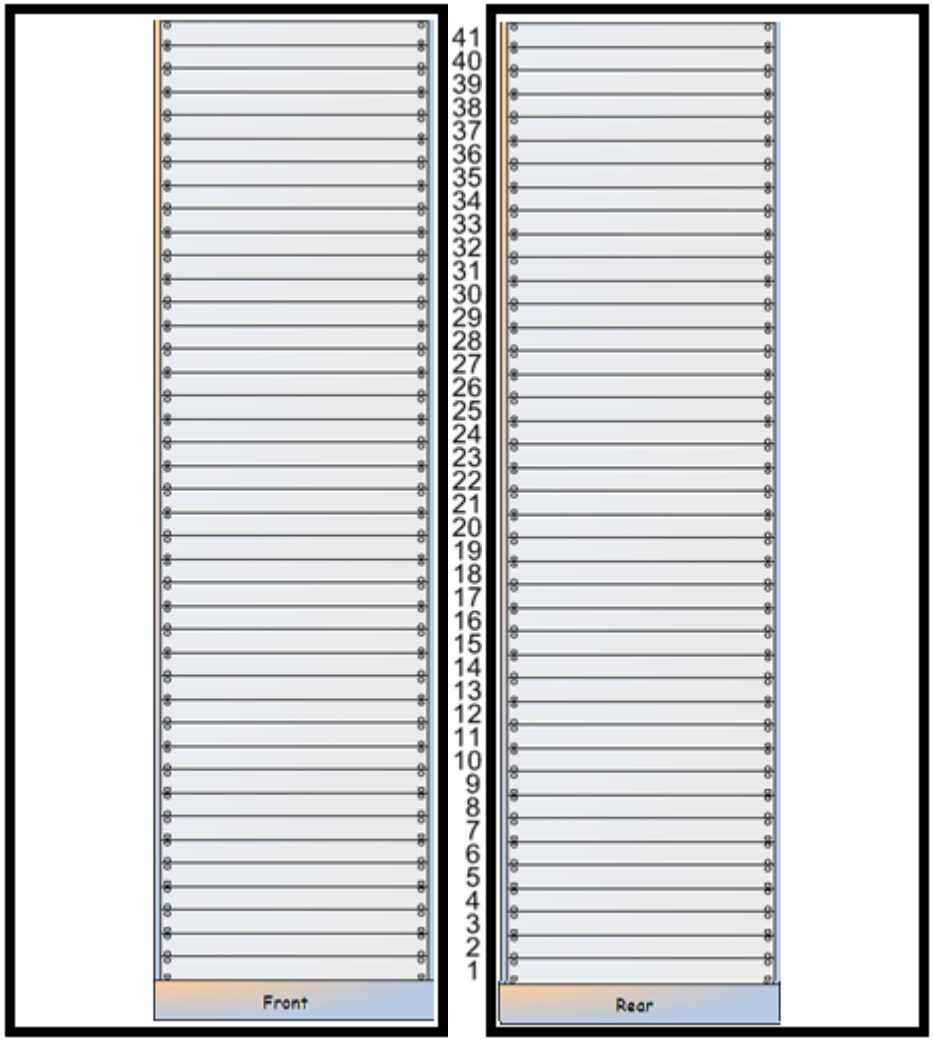
[<< L1-MSR-02]

Unknown Fiber Patch | Dxxxxxxx | SN: | No Power

L1-MSR-03

[<< MSR Layout]

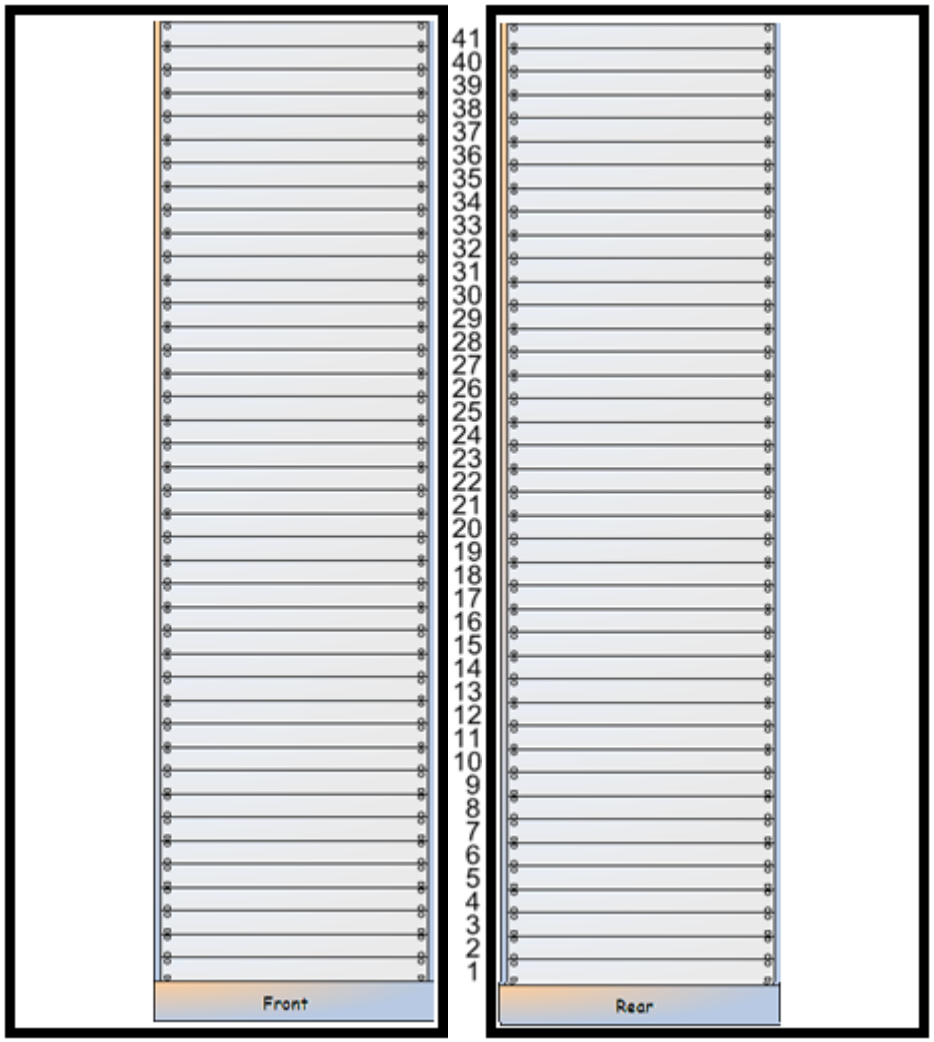
L1-MSR-03 EPICS Rack Layout (D1201374) (S1203489)



L1-MSR-04

[<< MSR Layout]

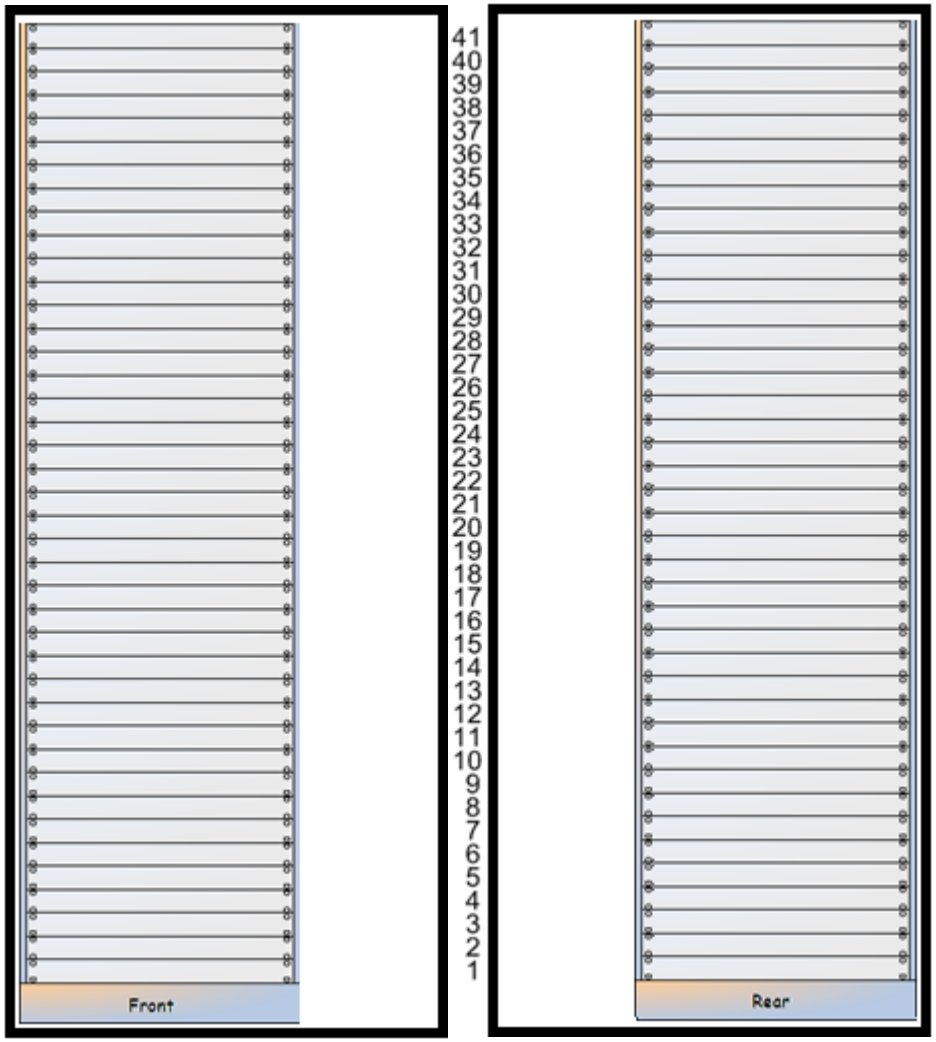
L1-MSR-04 EPICS Rack Layout (D1201375) (S1203490)



L1-MSR-05

[<< MSR Layout]

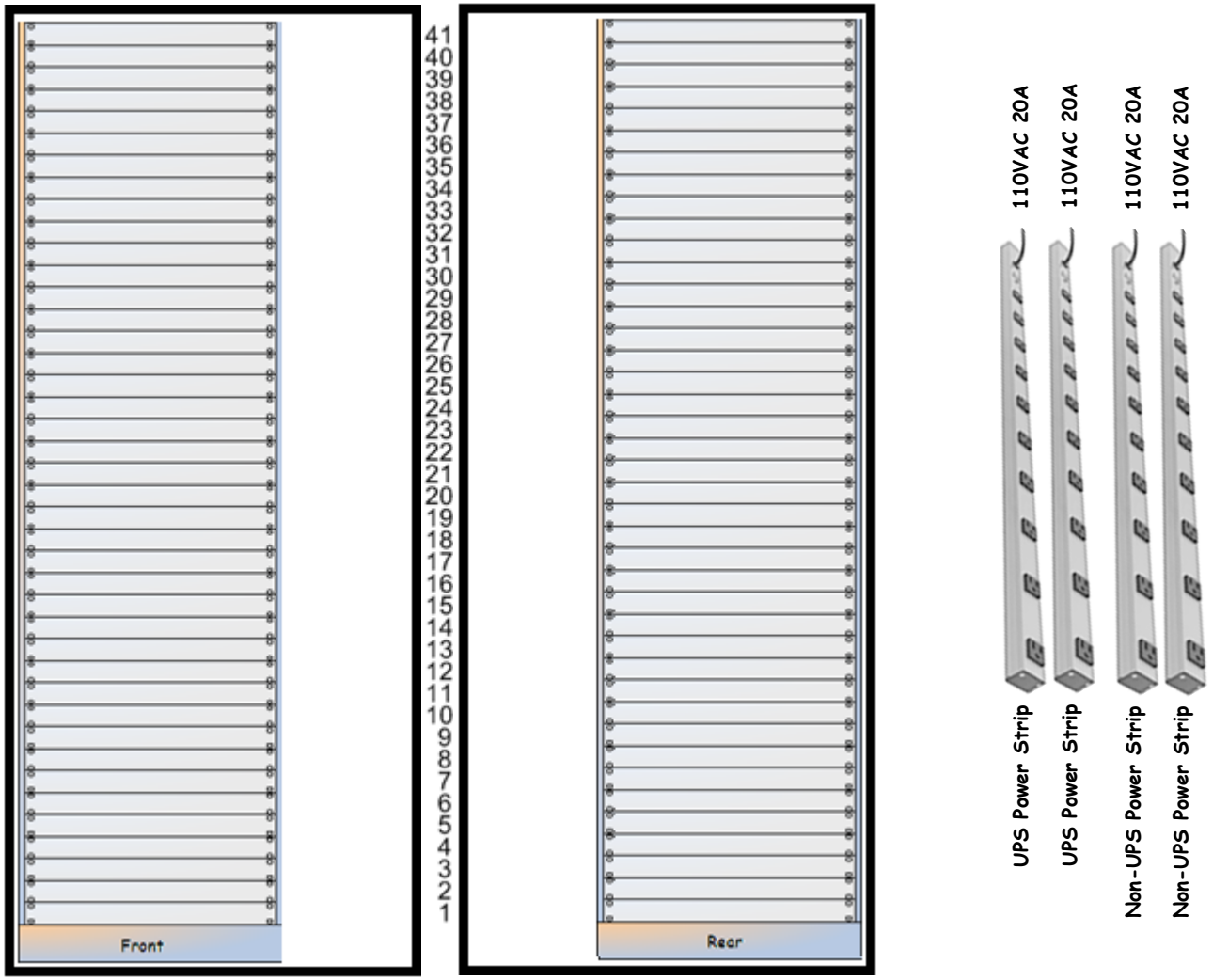
L1-MSR-05 Backup Tape Rack Layout (D1201376) (S1203491)



L1-MSR-06

[<< MSR Layout]

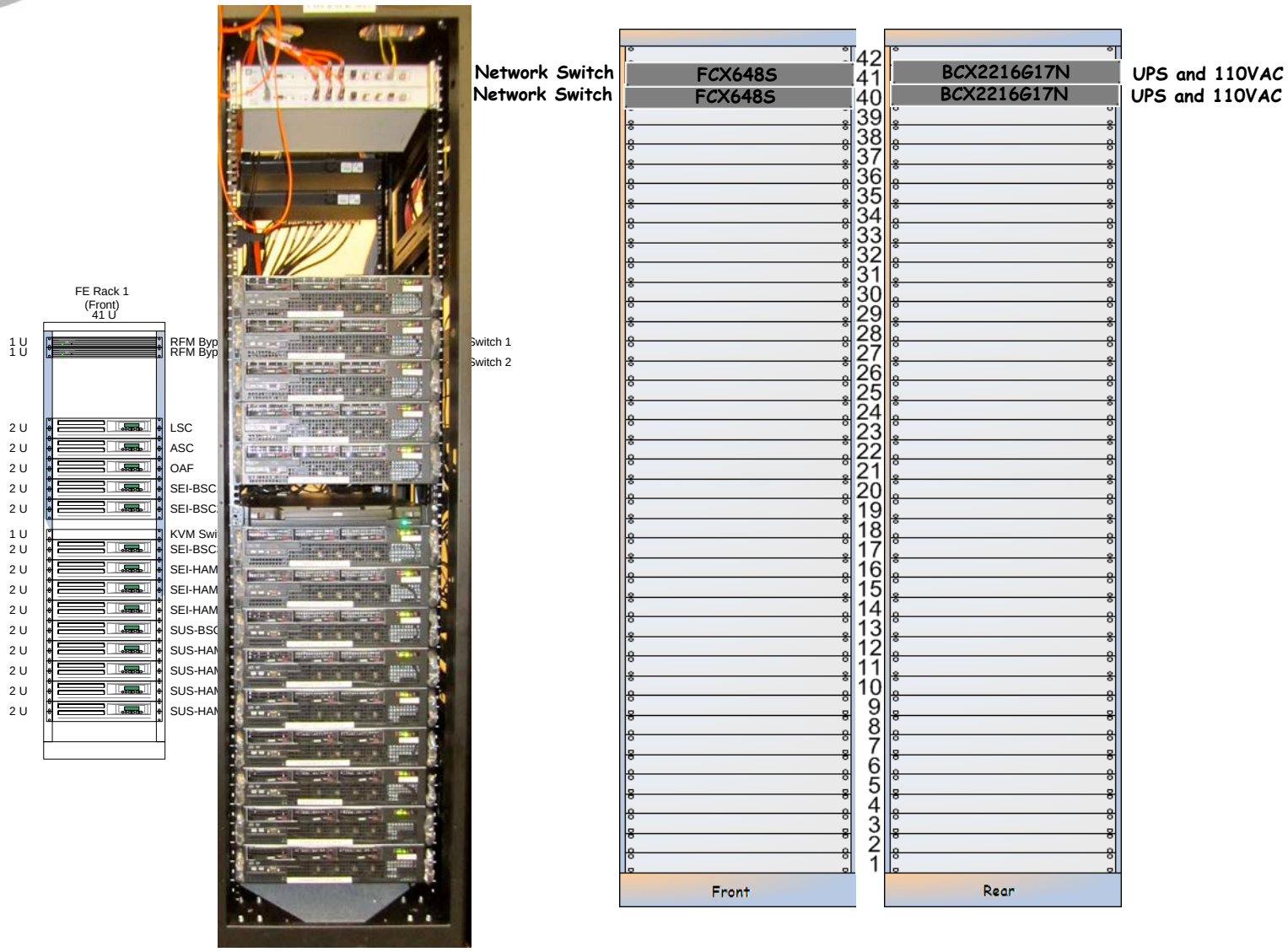
L1-MSR-06 Video Rack Layout (D1201377) (S1203492)



L1-MSR-07

[<< MSR Layout]

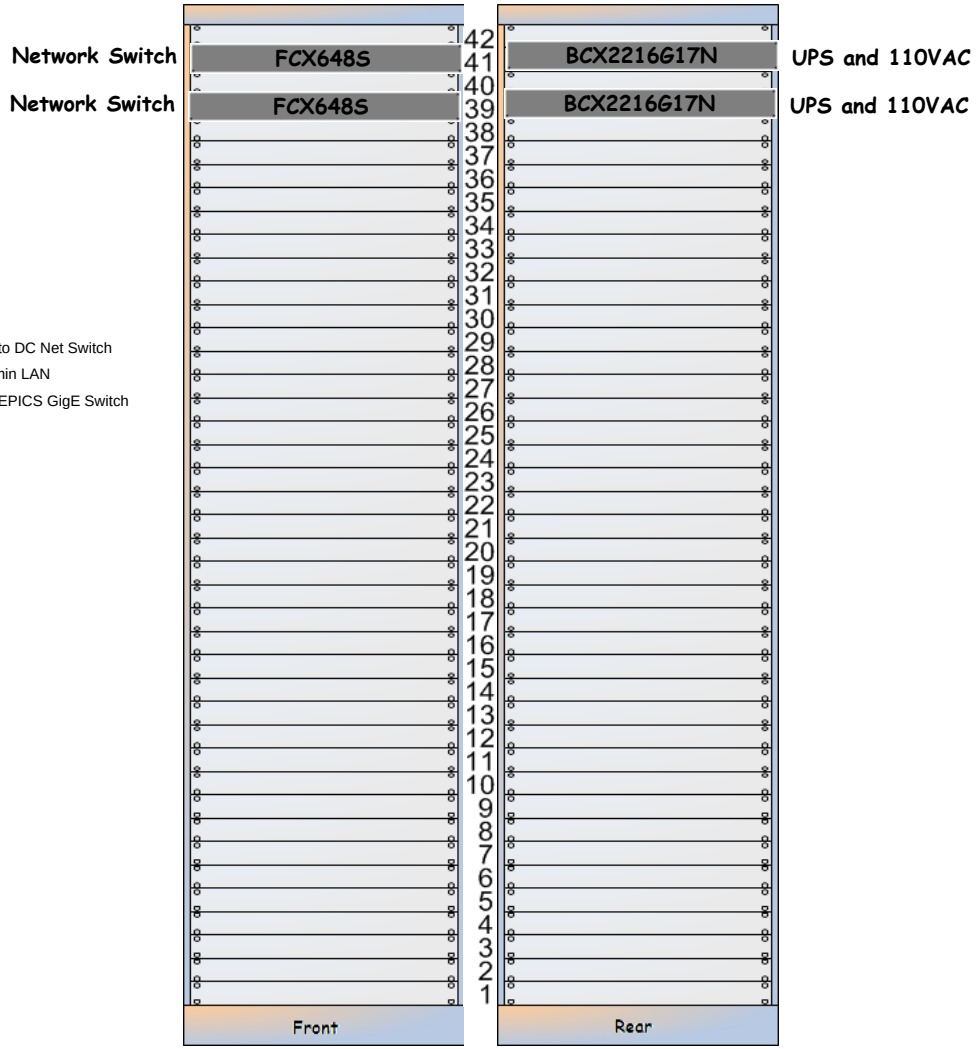
L1-MSR-07 IFO Front End Computers Rack Layout (D1201378) (S1203493)

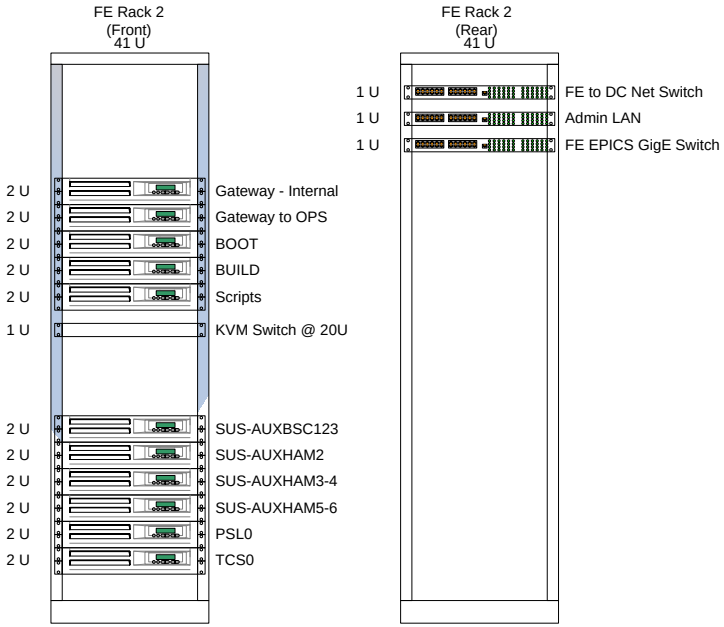


L1-MSR-08

[<< MSR Layout]

L1-MSR-08 IFO Front End Computers Rack Layout (D1201379) (S1203494)

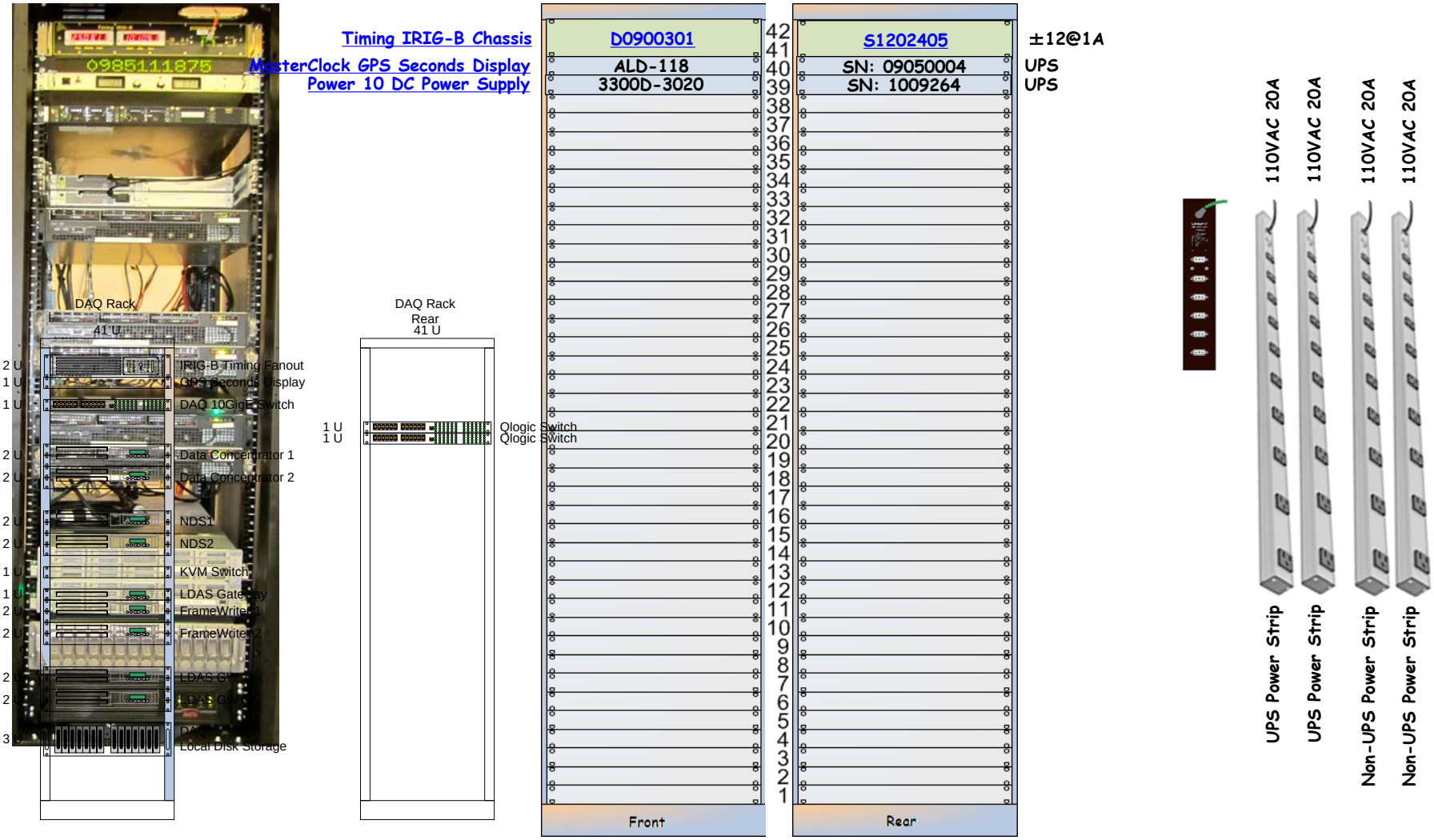




L1-MSR-09

[<< MSR Layout]

L1-MSR-09 CDS Computers Rack Layout (D1201380) (S1203495)

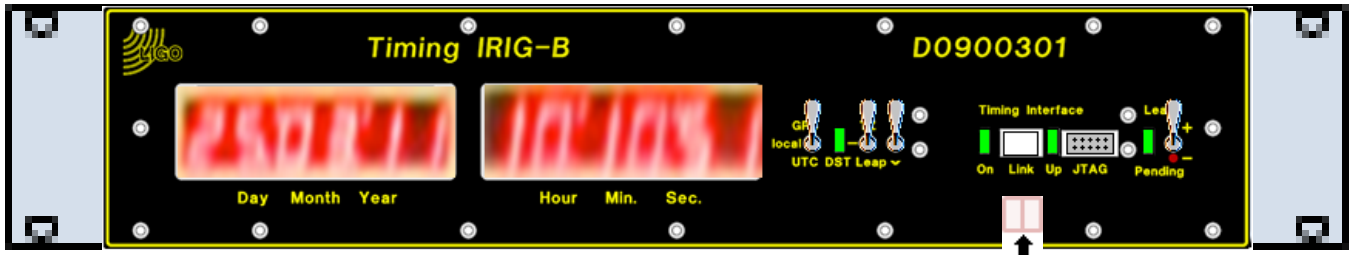


L1-MSR-9 is a part of T1000588

D0900301 - S1202405

[<< L1-MS9]

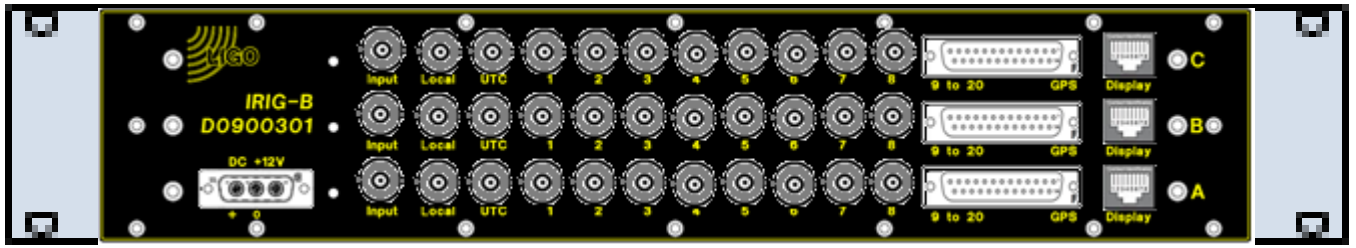
Timing IRIG-B Interface Chassis | D0900301 | S1202405 | +12VDC



D0900301

Front

L1:MSR IRIBG - 1



S1202405

Rear

MasterClock ALD118

[<< L1-MS9]

MasterClock GPS Seconds Display | ALD118 | SN: 09050004 | UPS

[D0900301]

Front

[S1202405]

Rear

Power 10 DC Power Supply

[<< L1-MS9]

Power 10 DC Power Supply | 3300D-3020 | SN: 1009264 | UPS

[D0900301]

Front

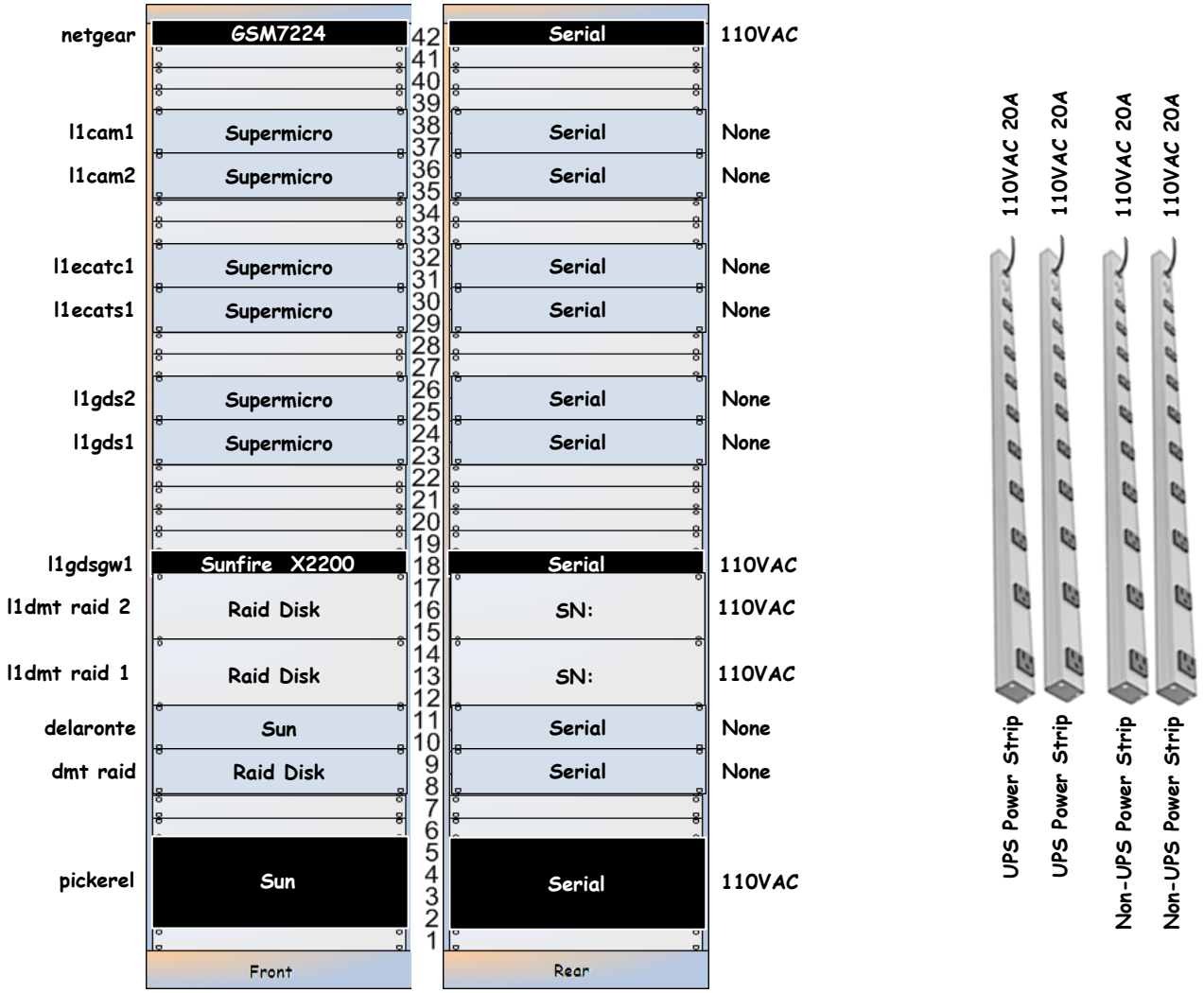
[S1202405]

Rear

L1-MSR-10

[<< MSR Layout]

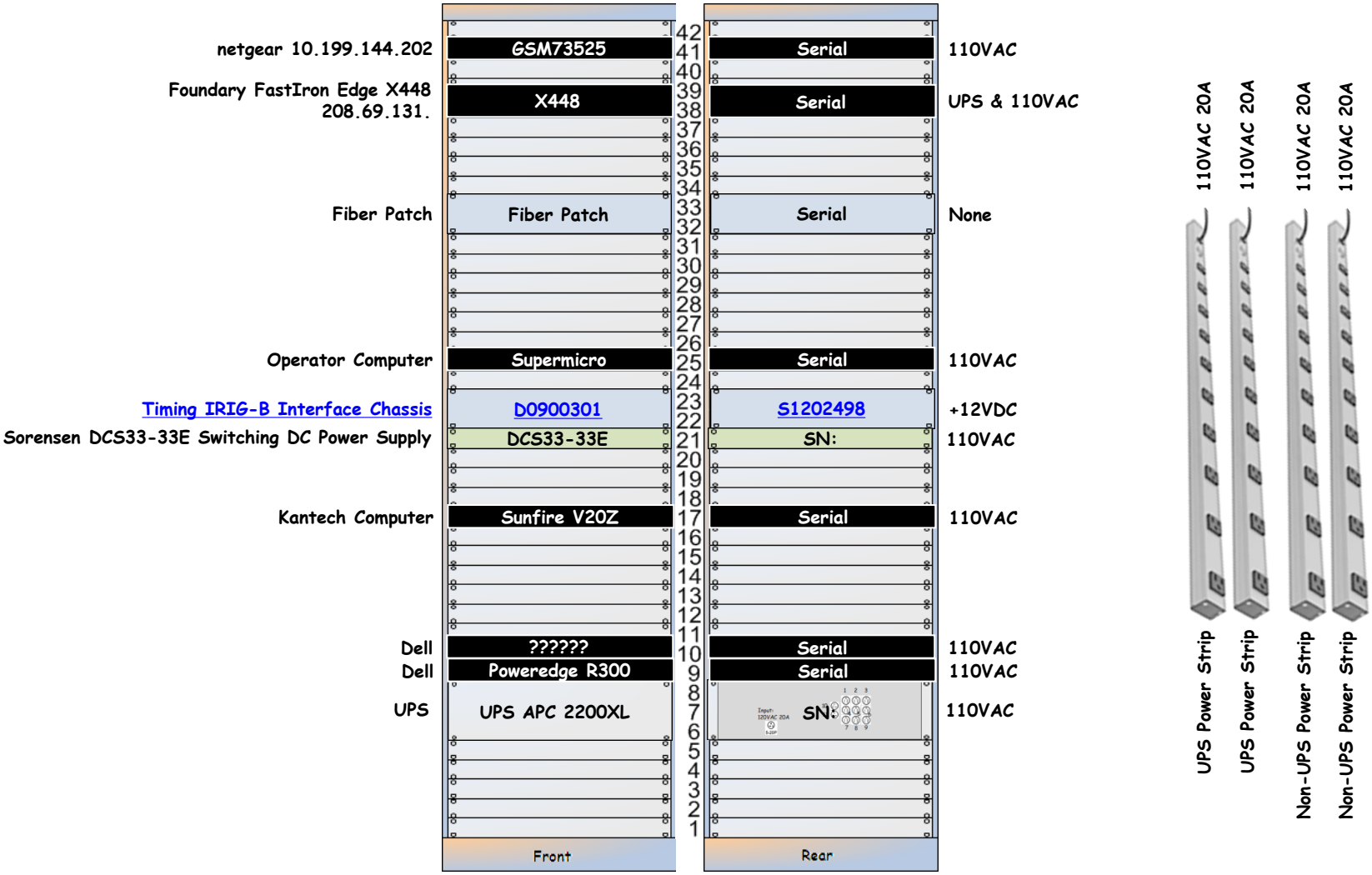
L1-MSR-10 CDS Computers Rack Layout (D1201381) (S1203496)



L1-MSR-11

[<< MSR Layout]

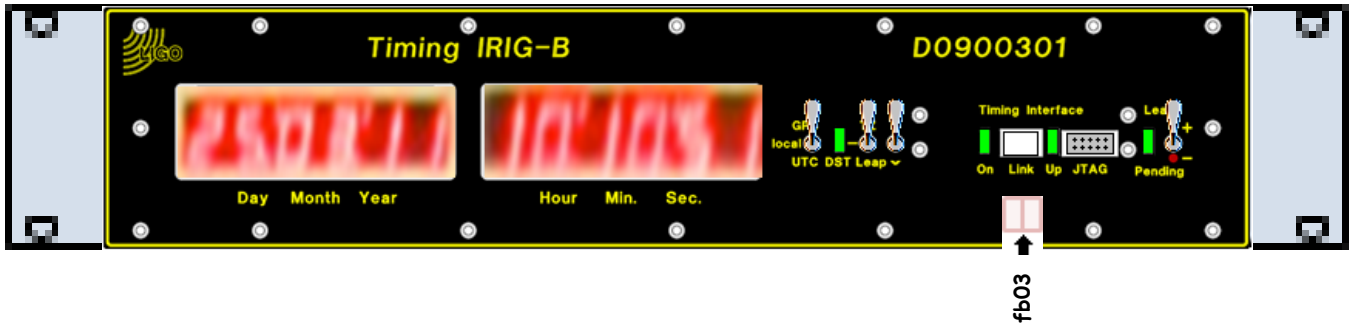
L1-MSR-11 General Computing Rack Layout (D1201382) (S1203497)



D0900301 - S1202498

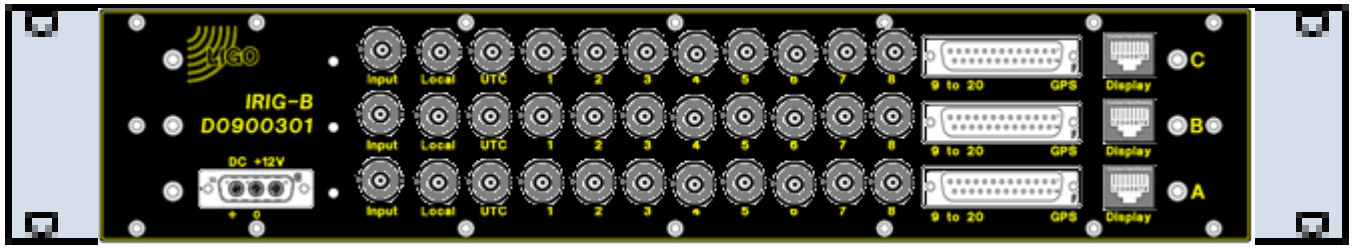
« L1-MS11

Timing IRIG-B Interface Chassis | D0900301 | S1202498 | +12VDC



D0900301

Front



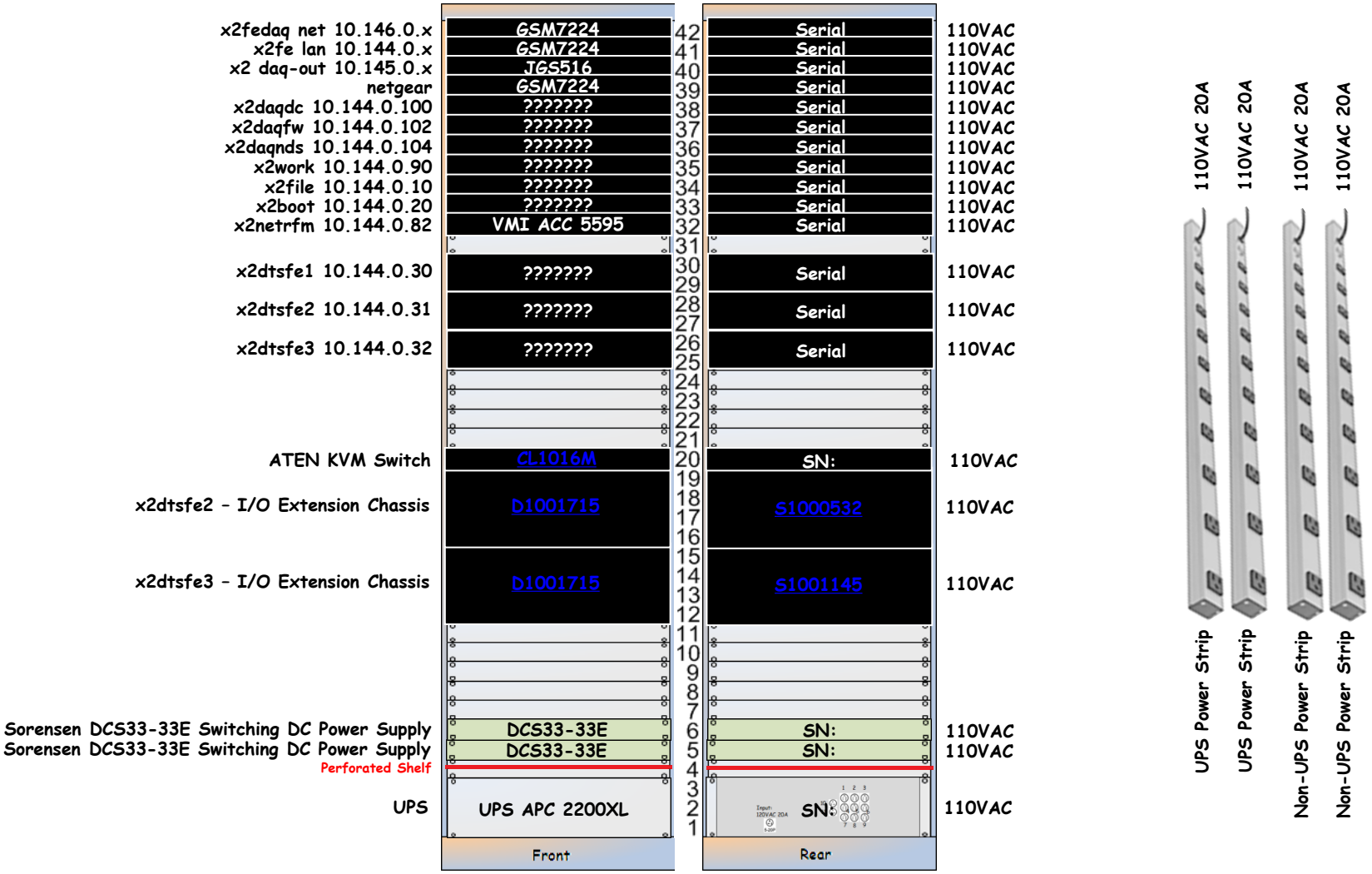
S1202498

Rear

L1-MSR-12

[<< MSR Layout]

L1-MSR-12 DAQ Test Rack Rack Layout (D1201383) (S1203498)



l1lanfex – GSM7224

« L1-MSR-12

l1lanfey 10.199.0.13 | GSM7224 | 2B62045700143 | 110VAC

GSM7224

Front

C0:3F:0E:86:88:AC

3 – To FE LAN Port

5 – To 5595 LAN 10BaseT

21F – To 1X23 PP E3.E4

2B62045700143

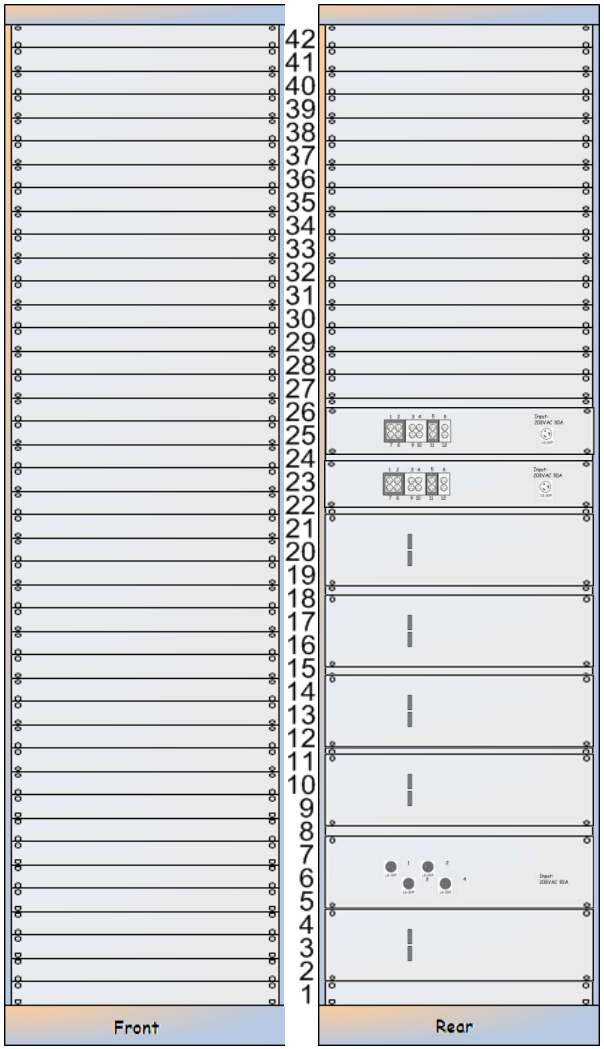
Rear

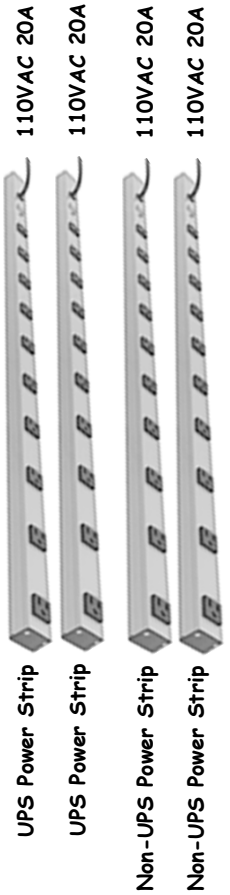
To UPS Power Strip

L1-MSR-13

[<< MSR Layout]

L1-MSR-13 UPS for IFO and CDS Computers Rack Layout (Txxxxxxx)





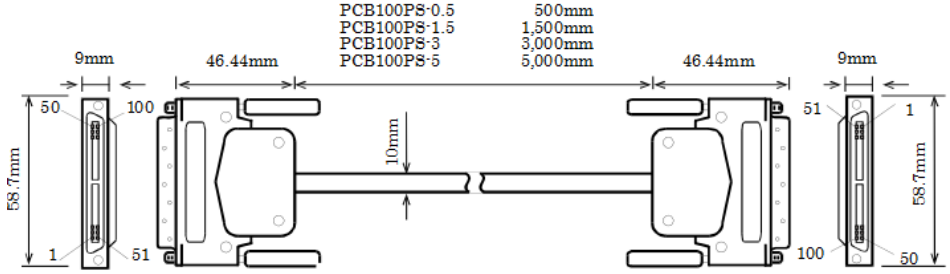
IO Extender Communications and Timing Fibers

LIGO
<< MSR

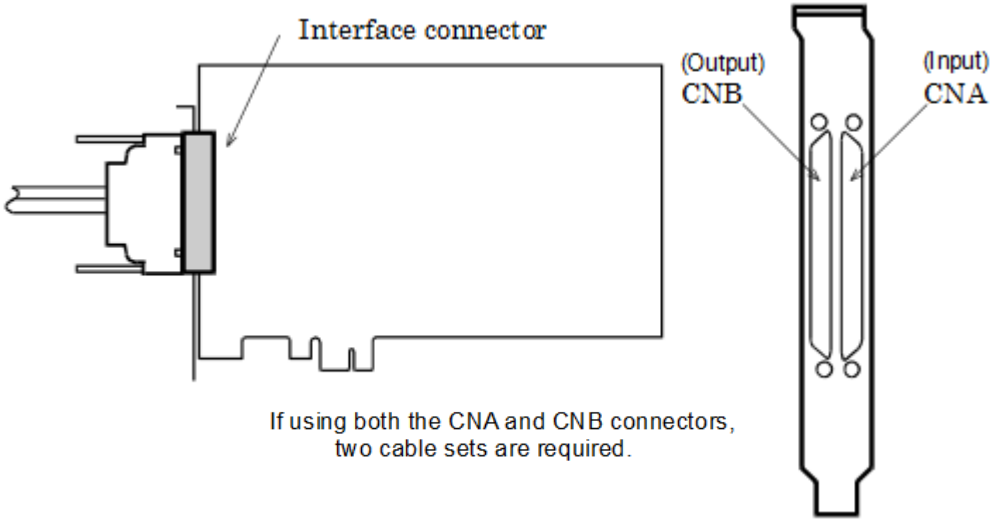
l1psl0	S1001134	L1-PSL-C1	L1:FE-IO-19	L1:TIM-PSL-C1-A
l1oaf0	S1103894	L1-OAF-C1	L1:FE-IO-03	
l1tcs0	S1103894	L1-AOS-C1	L1:FE-IO-22	
l1seiham16	S1001144	L1-SEI-C1	L1:FE-IO-07	
l1seiham23	S1001145	L1-SEI-C2	L1:FE-IO-08	
l1seiham45	S1001146	L1-SEI-C3	L1:FE-IO-09	
l1seibsc1	S1001147	L1-SEI-C4	L1:FE-IO-04	
l1seibsc2	S1001148	L1-SEI-C5	L1:FE-IO-20	
l1seibsc3	S1100946	L1-SEI-C6	L1:FE-IO-23	
l1asc0	S1106300	L1-ISC-C1	L1:FE-IO-02	
l1lsc0	S1106342	L1-ISC-C1	L1:FE-IO-01	
l1susauxham34	S1001141	L1-SUS-C2	L1:FE-IO-17	
l1susham34	S1001140	L1-SUS-C2	L1:FE-IO-13	
l1susauxham2	S1103891	L1-SUS-C3	L1:FE-IO-16	
l1susham2a	S1001133	L1-SUS-C3	L1:FE-IO-11	
l1susham2b	S1001139	L1-SUS-C3	L1:FE-IO-12	
l1susbsc123	S1001143	L1-SUS-C5	L1:FE-IO-10	
l1susauxbsc123	S1103888	L1-SUS-C5	L1:FE-IO-21	
l1susauxham56	S1103889	L1-SUS-C8	L1:FE-IO-18	
l1susham56	S1001142	L1-SUS-C8	L1:FE-IO-14	
l1iscex	S1000536	L1-ISC-XC1	L1:FE-IO-33	L1:ISCEX
l1seiex	S1201774	L1-SEI-XC1	L1:FE-IO-30	L1:SEIEX
l1susauxex	S1201779	L1-SUS-XC2	L1:FE-IO-32	L1:SUSAUXEX
l1susex	S1103367	L1-SUS-XC2	L1:FE-IO-31	L1:SUSEX
l1pemey	S1000528	L1-ISC-YC1		
l1seiey	S1200166	L1-SEI-YC1		
l1susauxey	S1201775	L1-SUS-YC2		
l1susey	S1201776	L1-SUS-YC2		

Binary IO Card - DIO6464L-PE

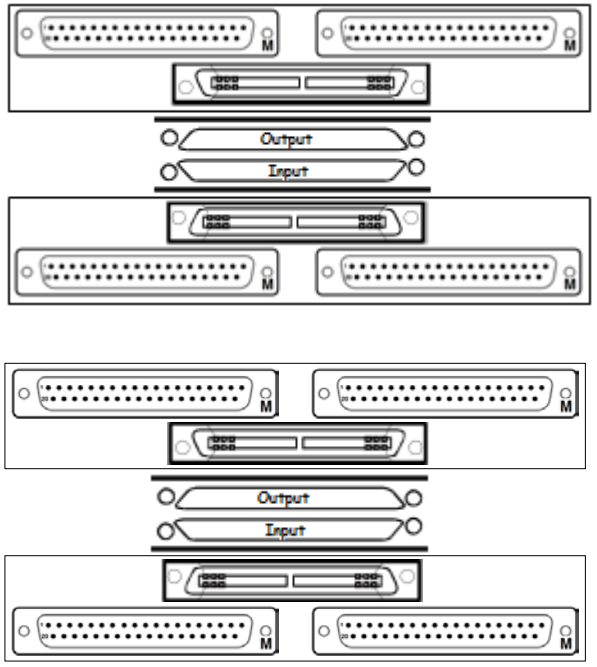
DIO6464L-PE



37-pin D-SUB × for 100-pin 0.8mm pitch connector shielded cable distribution 2 (3m)



If using both the CNA and CNB connectors, two cable sets are required.



CER (Corner Electronics Room)

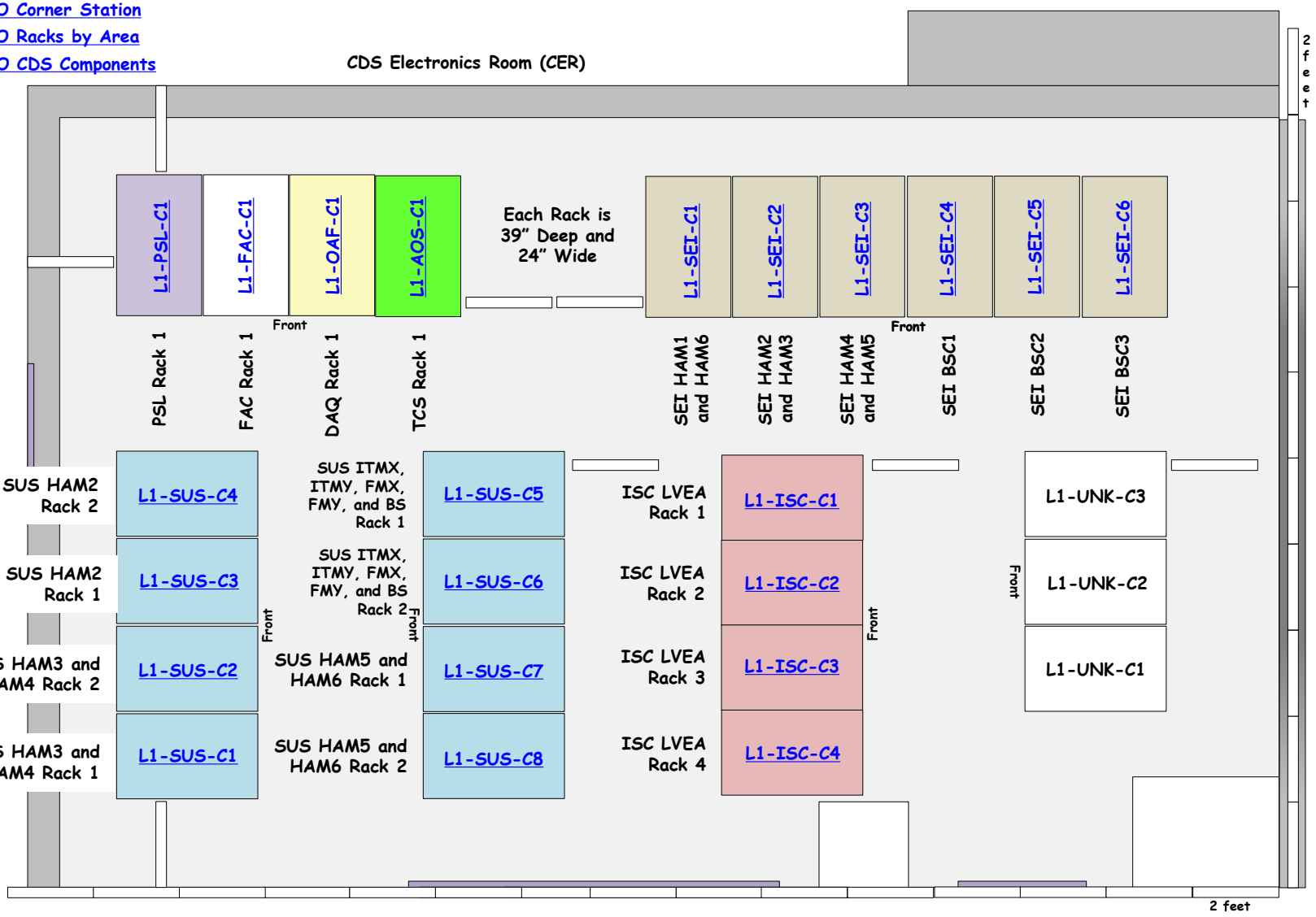
[<< LLO Corner Station]
[<< LLO Racks by AREA]
[<< LLO CDS Components]

CER

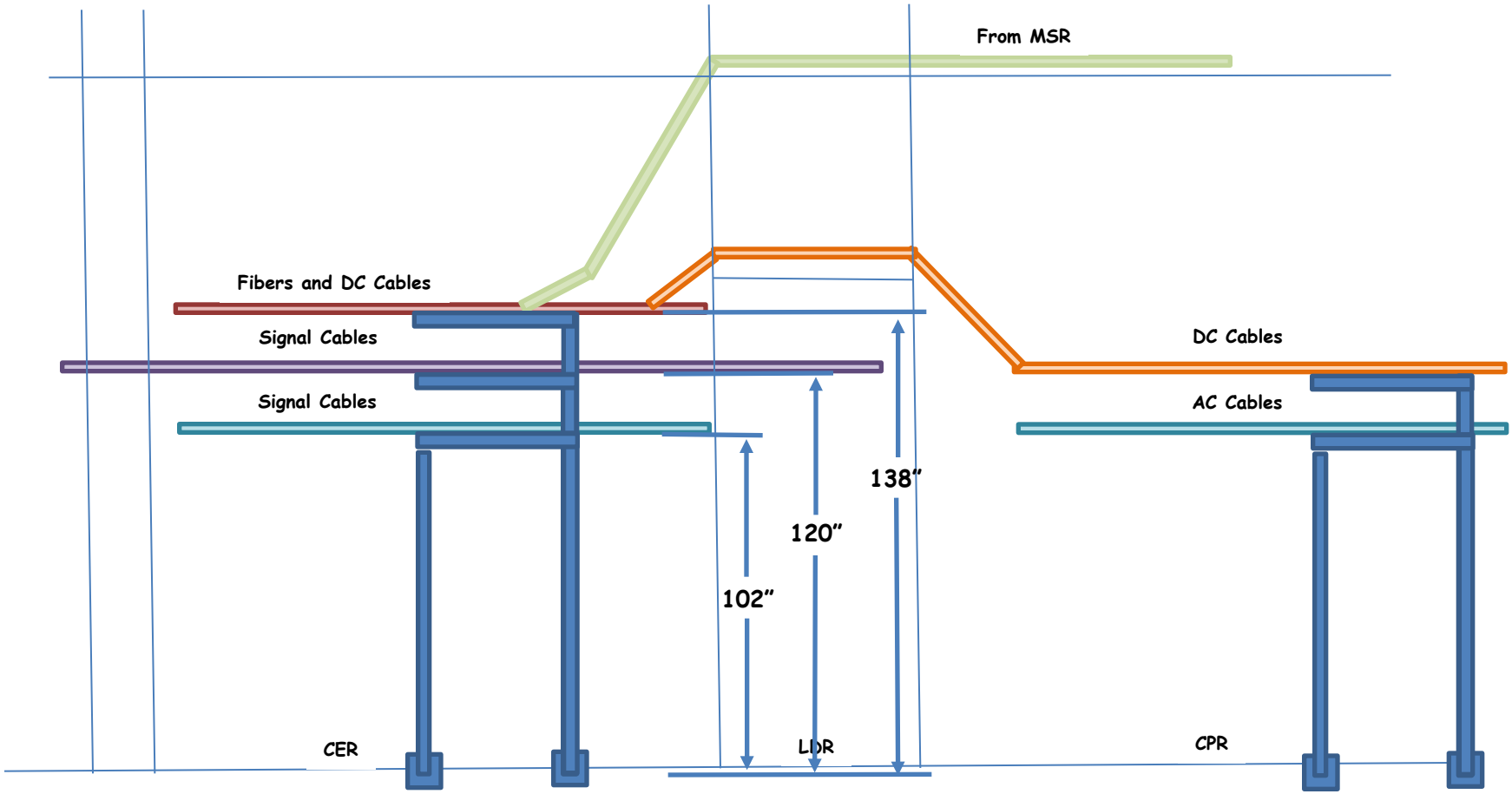
[Rack Layout >>]

LLO CER – Rack Layout

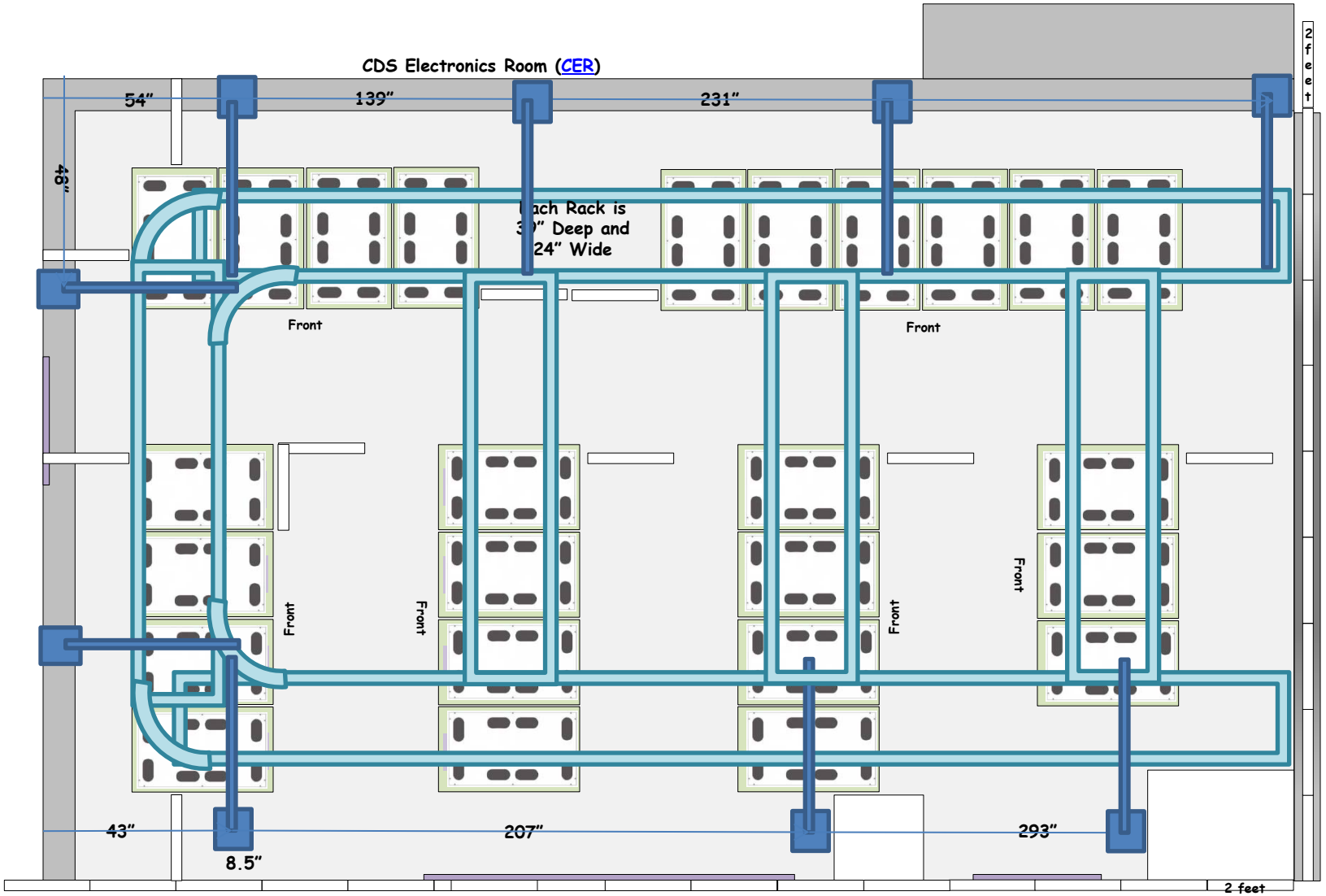
<< LLO Corner Station
<< LLO Racks by Area
<< LLO CDS Components



LLO CER, LDR, and CPR Cable Tray Layout

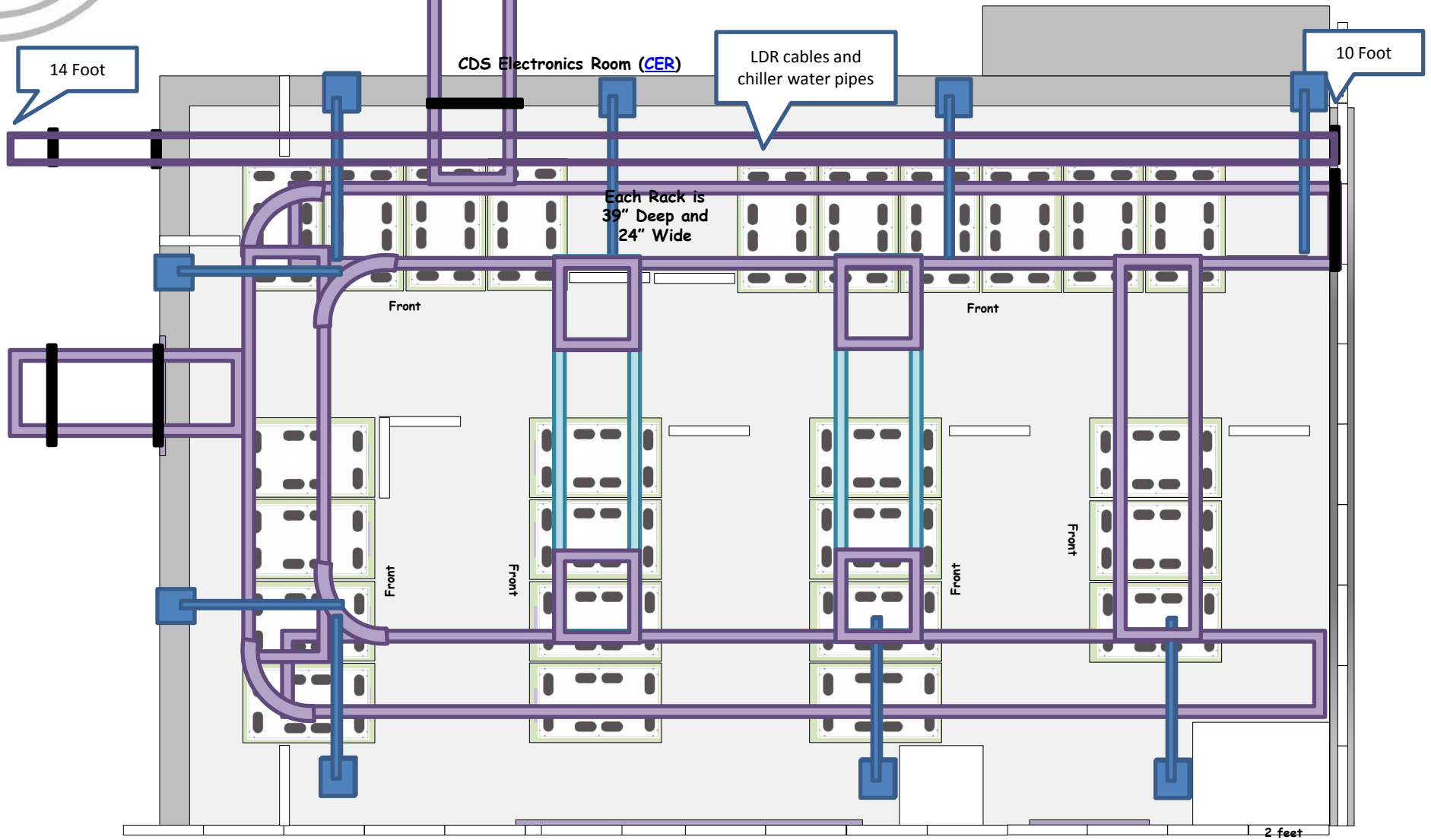


LLO CER – 8.5ft Cable Tray Layout



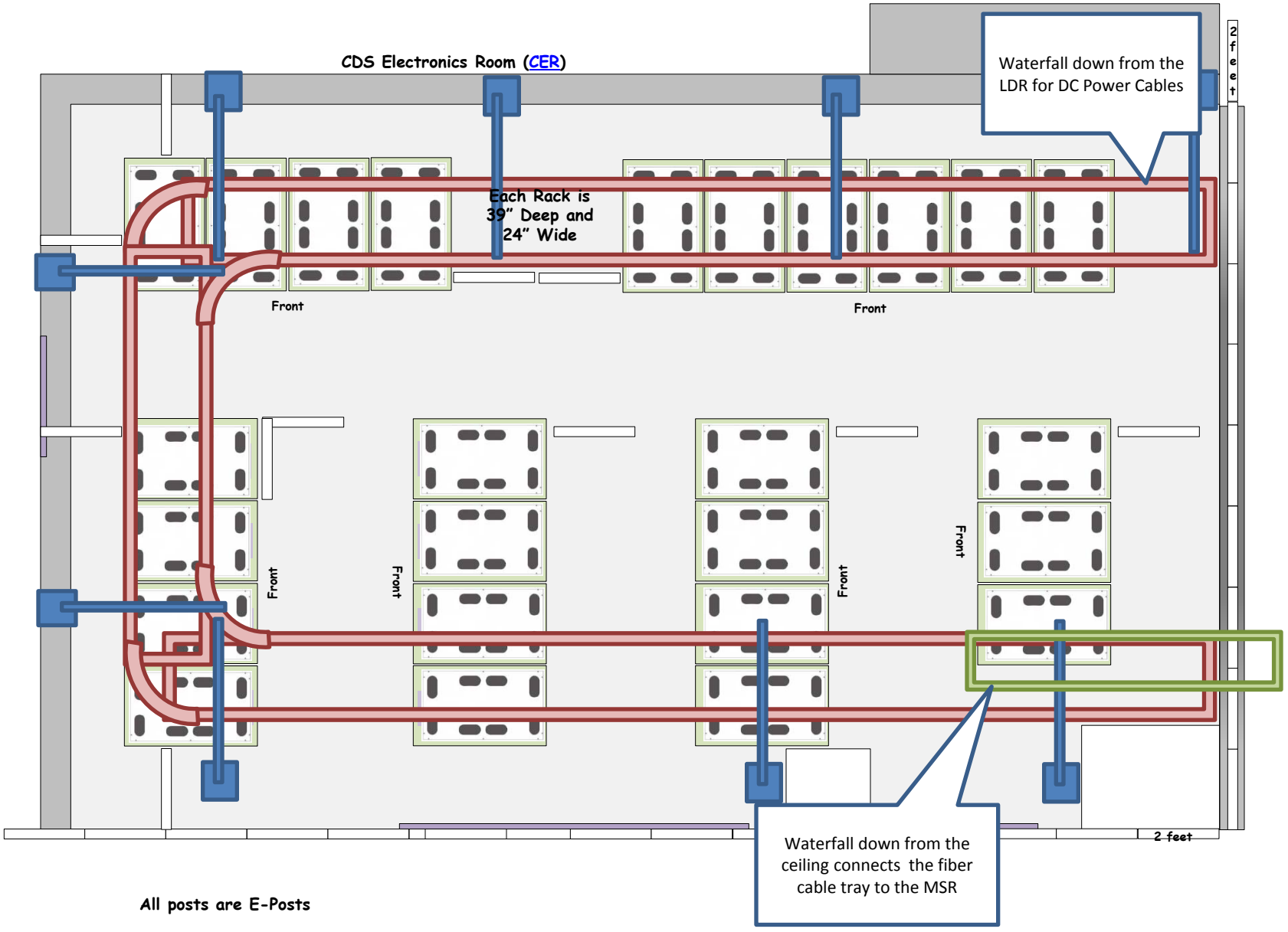
All posts are E-Posts

LLO CER – 10ft Cable Tray Layout

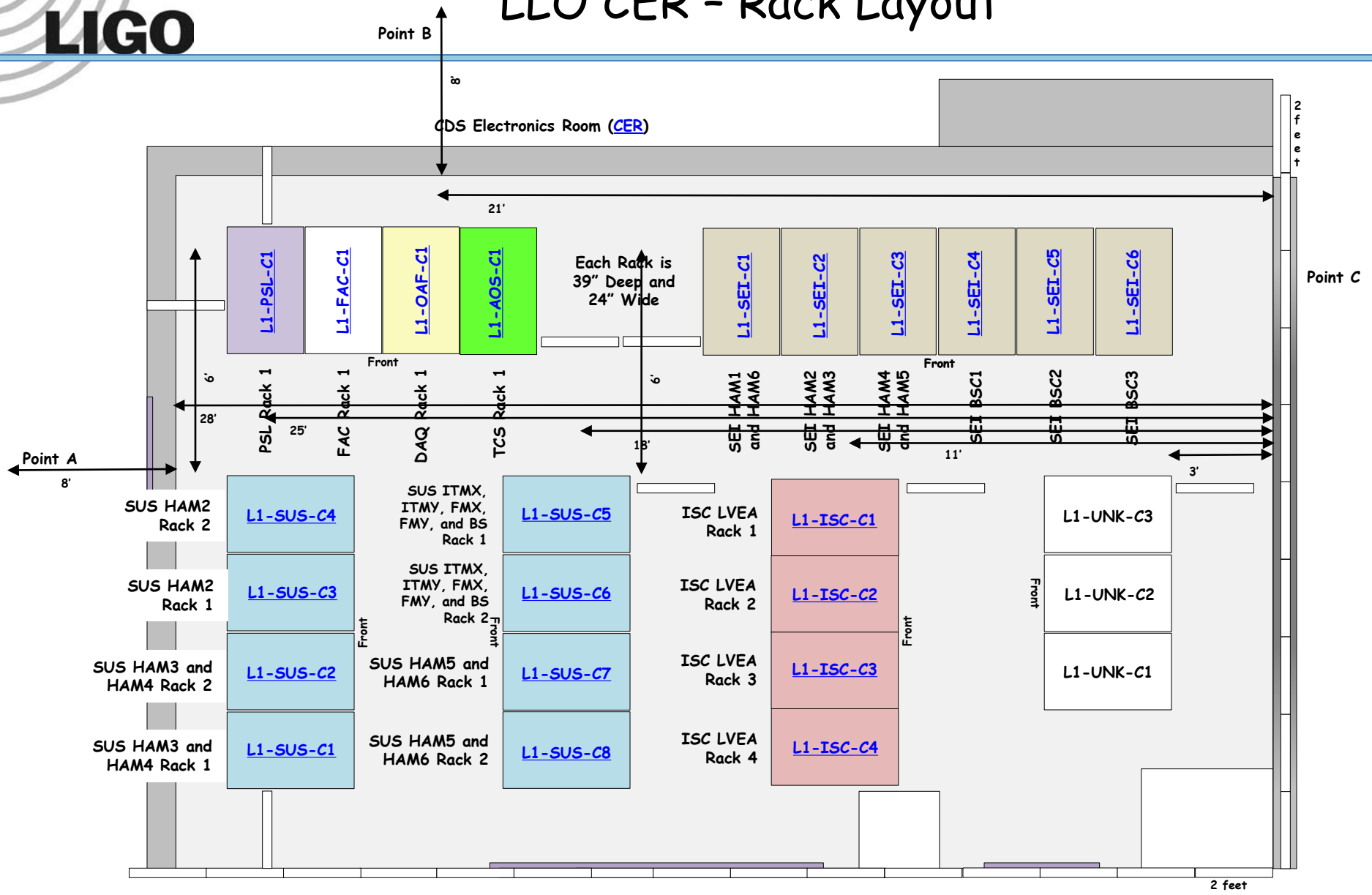


All posts are E-Posts

LLO CER – 11.5ft Cable Tray Layout



LLO CER – Rack Layout



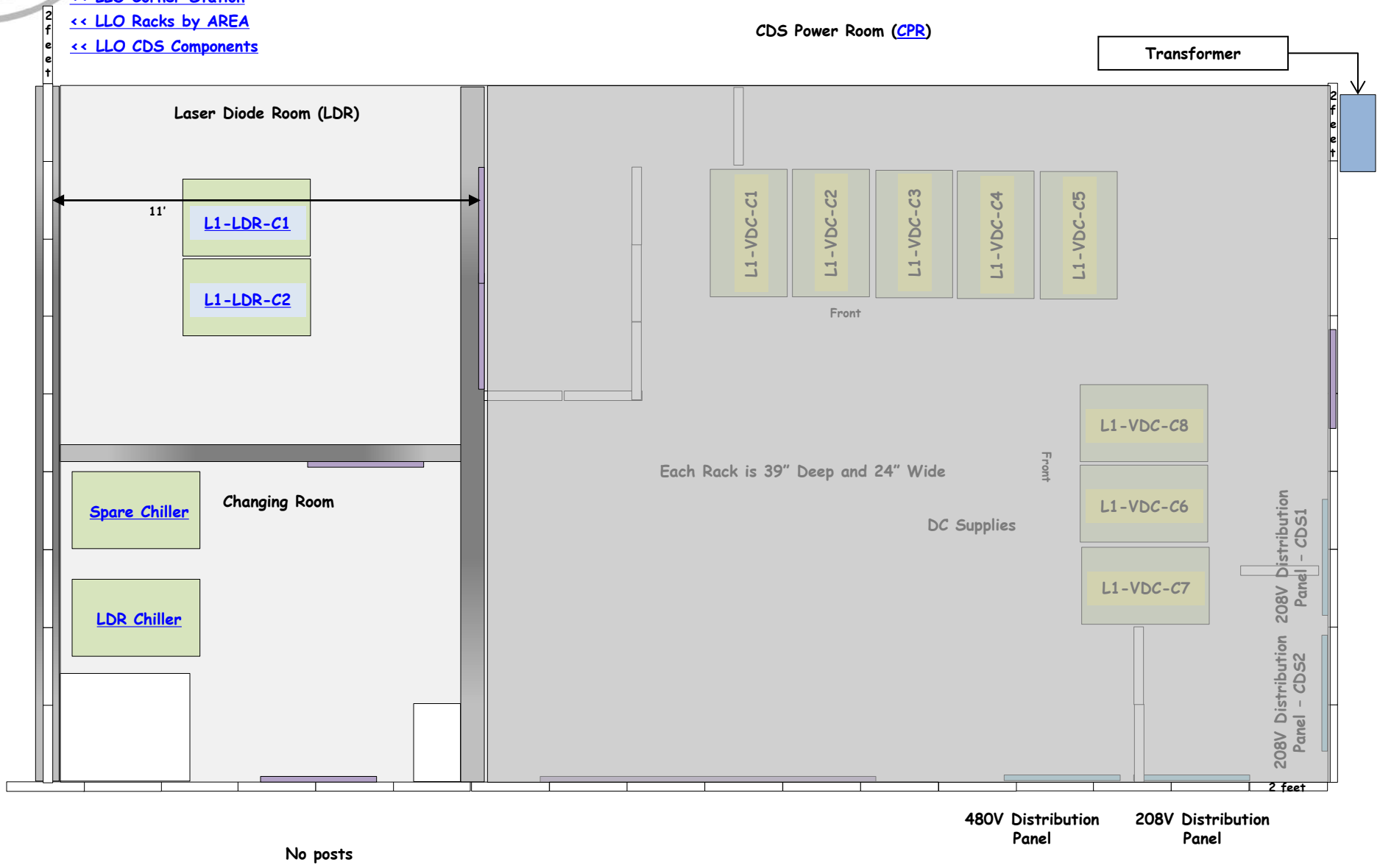
LDR (Laser Diode Room)

<< LLO Corner Station
<< LLO Racks by AREA
<< LLO CDS Components

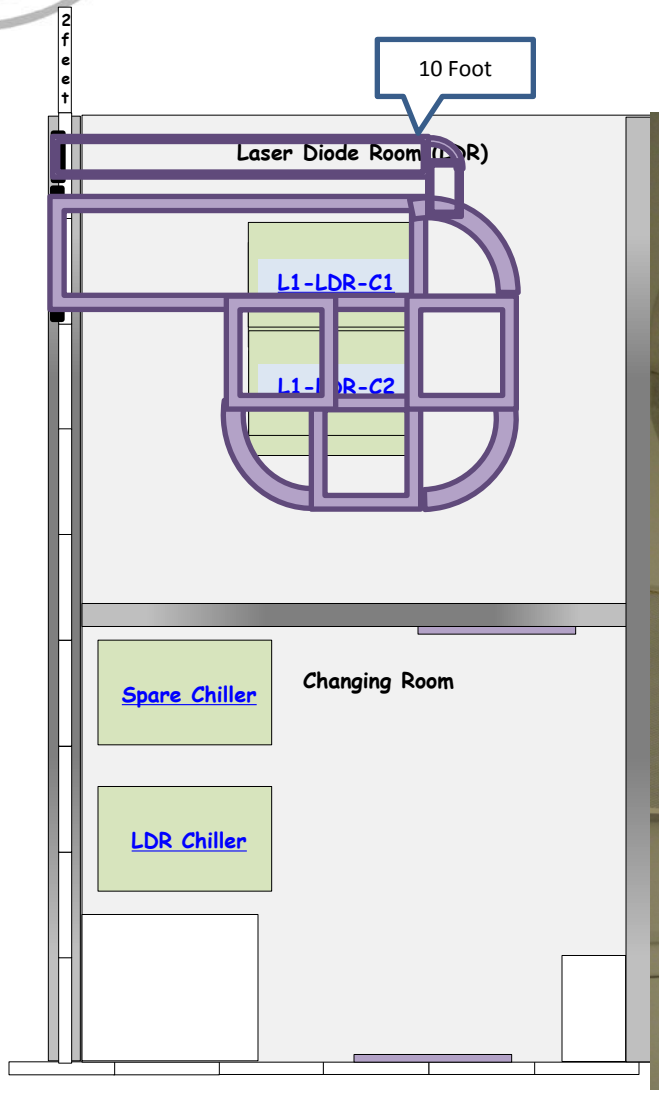
LDR

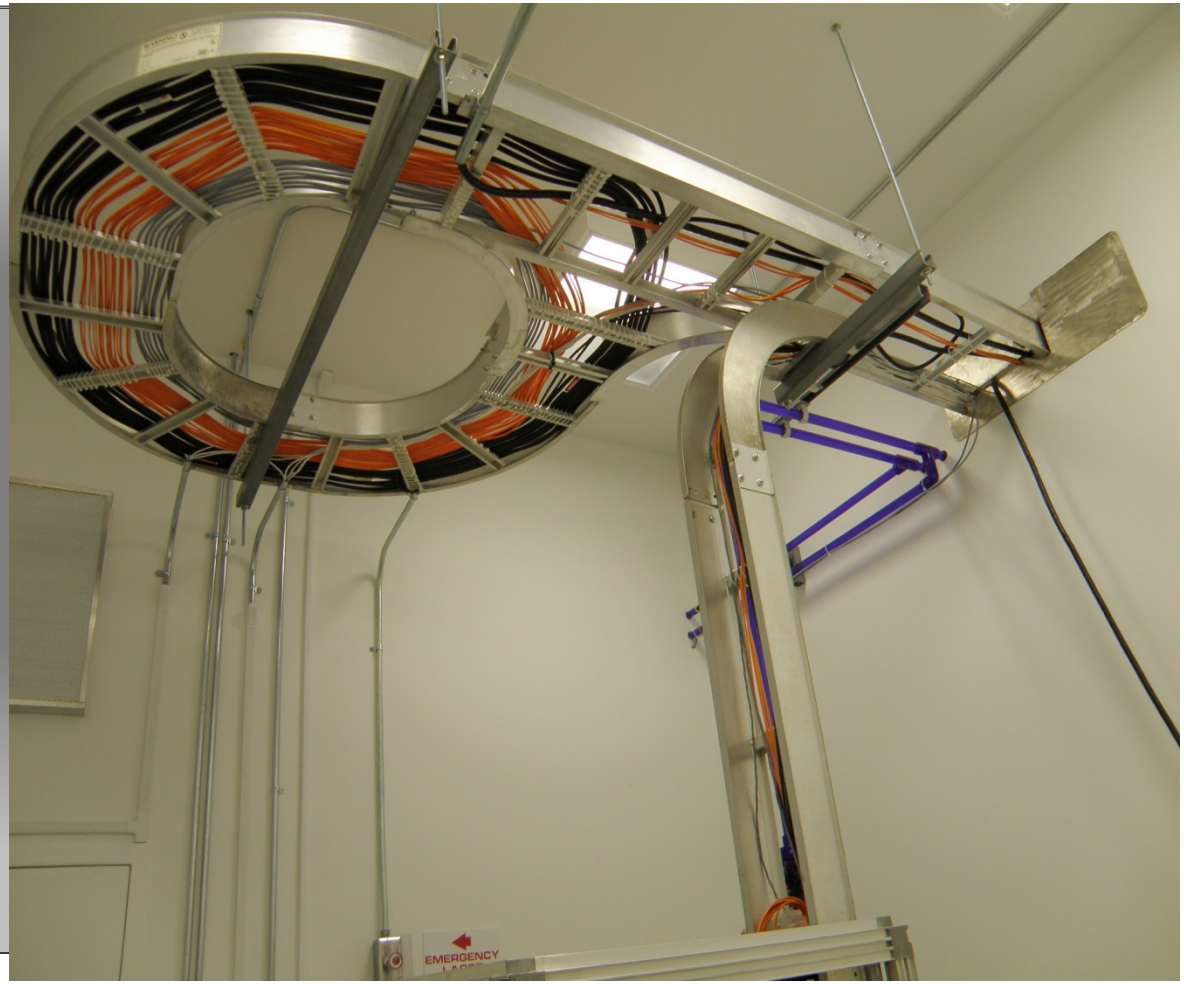
LLO LDR – Rack Layout

<< LLO Corner Station
<< LLO Racks by AREA
<< LLO CDS Components



LLO LDR – 10ft Cable Tray Layout





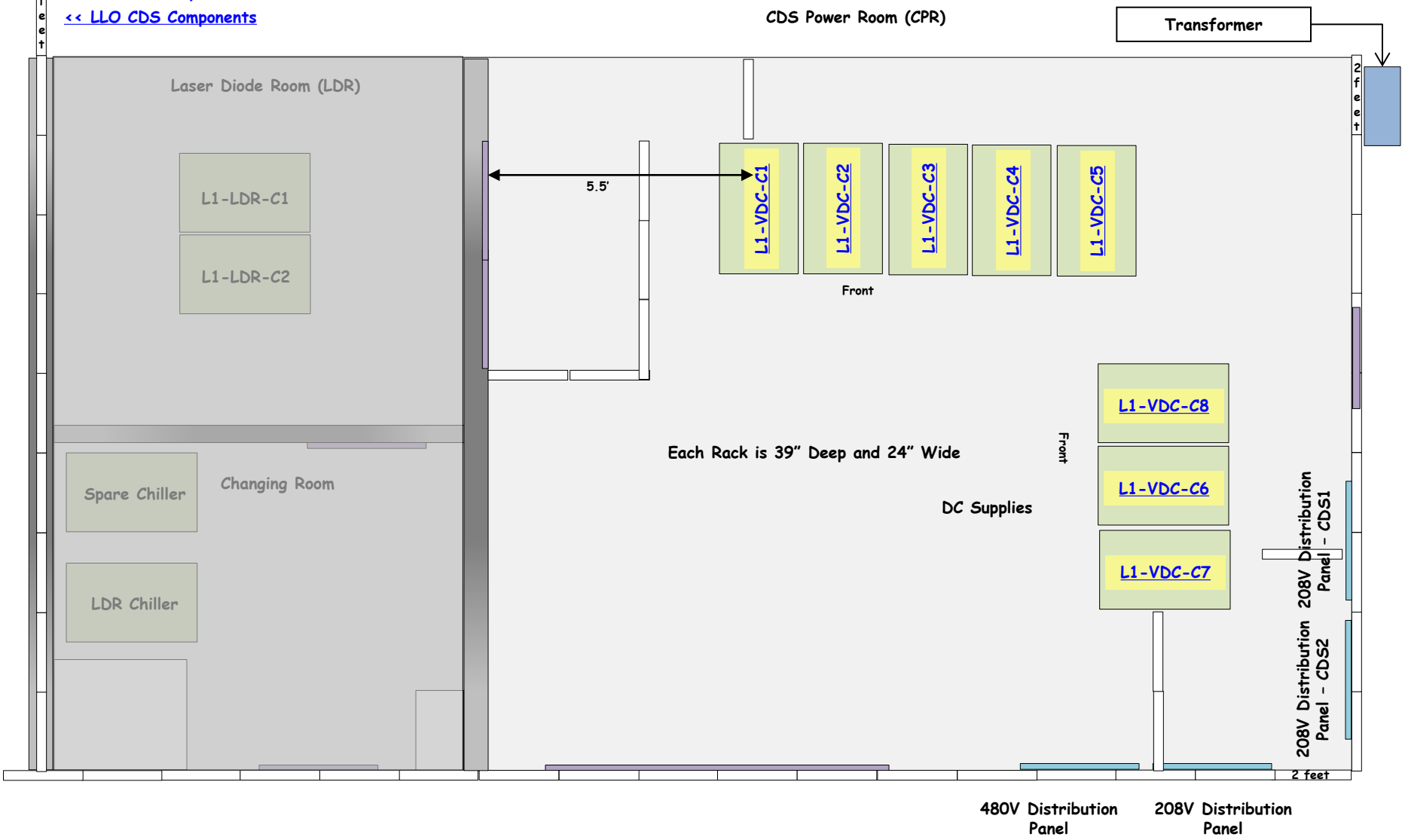
CPR (CDS Power Room)

<< LLO Corner Station
<< LLO Racks by AREA
<< LLO CDS Components

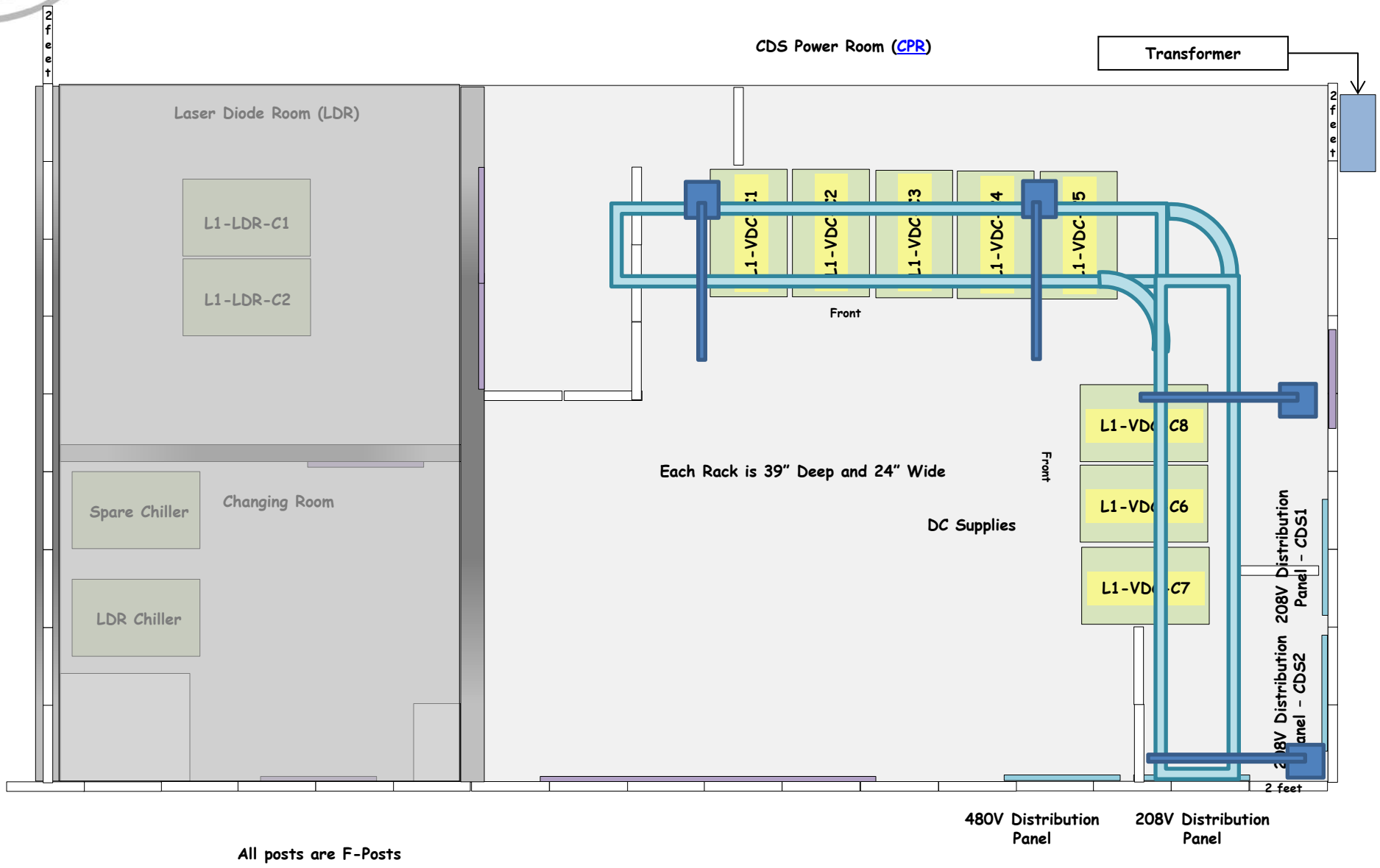
CPR

LLO CPR – Rack Layout

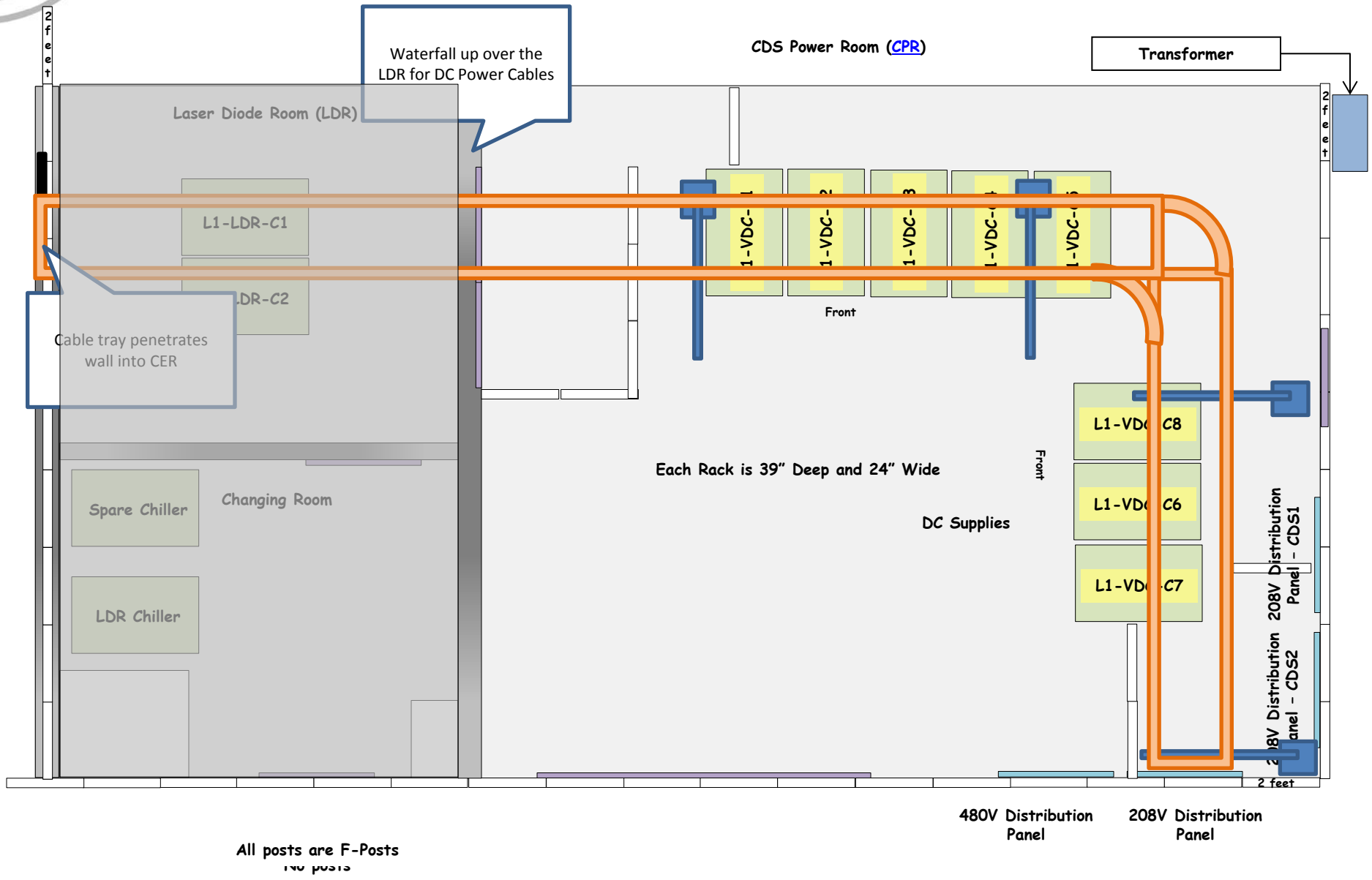
<< LLO Corner Station
<< LLO Racks by AREA
<< LLO CDS Components



LLO CPR – 8.5ft (AC) Cable Tray Layout



LLO CPR – 10ft (DC) Cable Tray



Subsystem: DC Power (VDC)

<< LLO Corner Station
<< LLO Racks by AREA
<< LLO CDS Components
<< LLO Racks by Subsystem

VDC

DC Power Supplies >>
CPR Rack Layout >>
CERX DC Rack Layout >>
CERY DC Rack Layout >>

DC Power Supplies

LIGO
<< VDC

KEPCO BHK500-80MG
KEPCO JQE25-20MVPY27274
KEPCO JQE36-30M

KEPCO BHK500-80MG

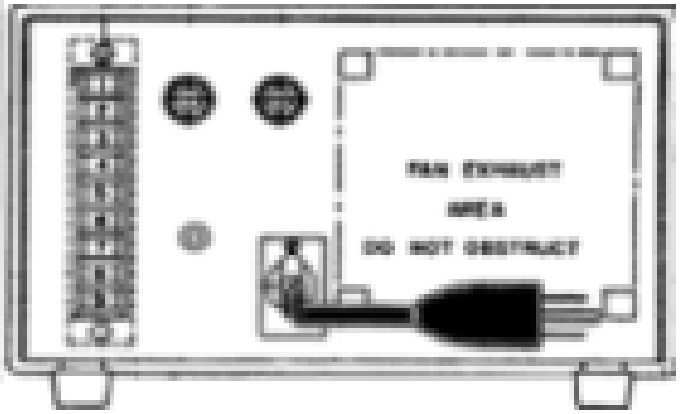
<< DC Power Supplies

Picture: Front Panel
Picture: Rear Panel
Specifications
Inventory of Serial Numbers / Dates received / scheduled maintenance / assigned use / etc.

Acceptance Testing: LIGO-Txxxxxxx

KEPCO JQE25-20MVPY27274

[<< DC Power Supplies]



Picture: Front Pan
Picture: Rear Pane
Specifications
Inventory of Serial Numbers / Dates received / scheduled maintenance / assigned use / etc.

Acceptance Testing: LIGO-T1100478

KEPCO JQE36-30

Picture: Front Panel
Picture: Rear Panel
Specifications
Inventory of Serial Numbers / Dates received / scheduled maintenance / assigned use / etc.

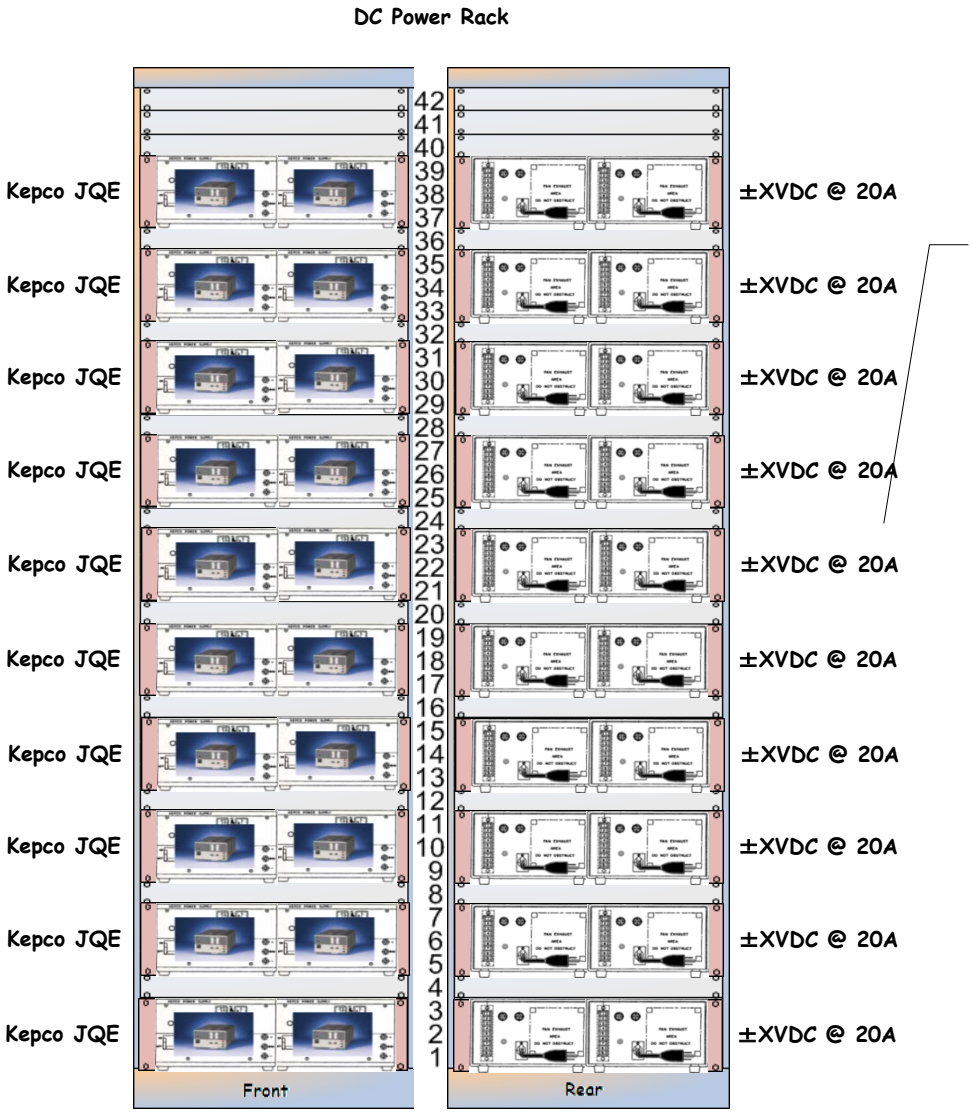
Acceptance Testing: LIGO-Txxxxxxx

DC Power Rack – Required VDC

LIGO
<< CPR

5 Standard Banks per Rack

10 x 4U => 40U



A Standard Bank (SB) of power supplies consists of 4 supplies, and services 1 Electronics Rack. The 4 supplies are: +18V@20A, -18V@20A, +24V@20A, and -24V@20A.

Each Standard Bank of DC Power Supplies provides

18V * 20A => 360W
360W * 2 PS => 720W
24V * 20A => 480W
480W * 2 PS => 960W
720W + 960W => 1680W

There are 5 SB (20 PS) / Power Rack. Each Power Rack therefore provides 8400W

Each Power Rack services 5 Electronics Racks.

There are roughly 22 racks per interferometer.

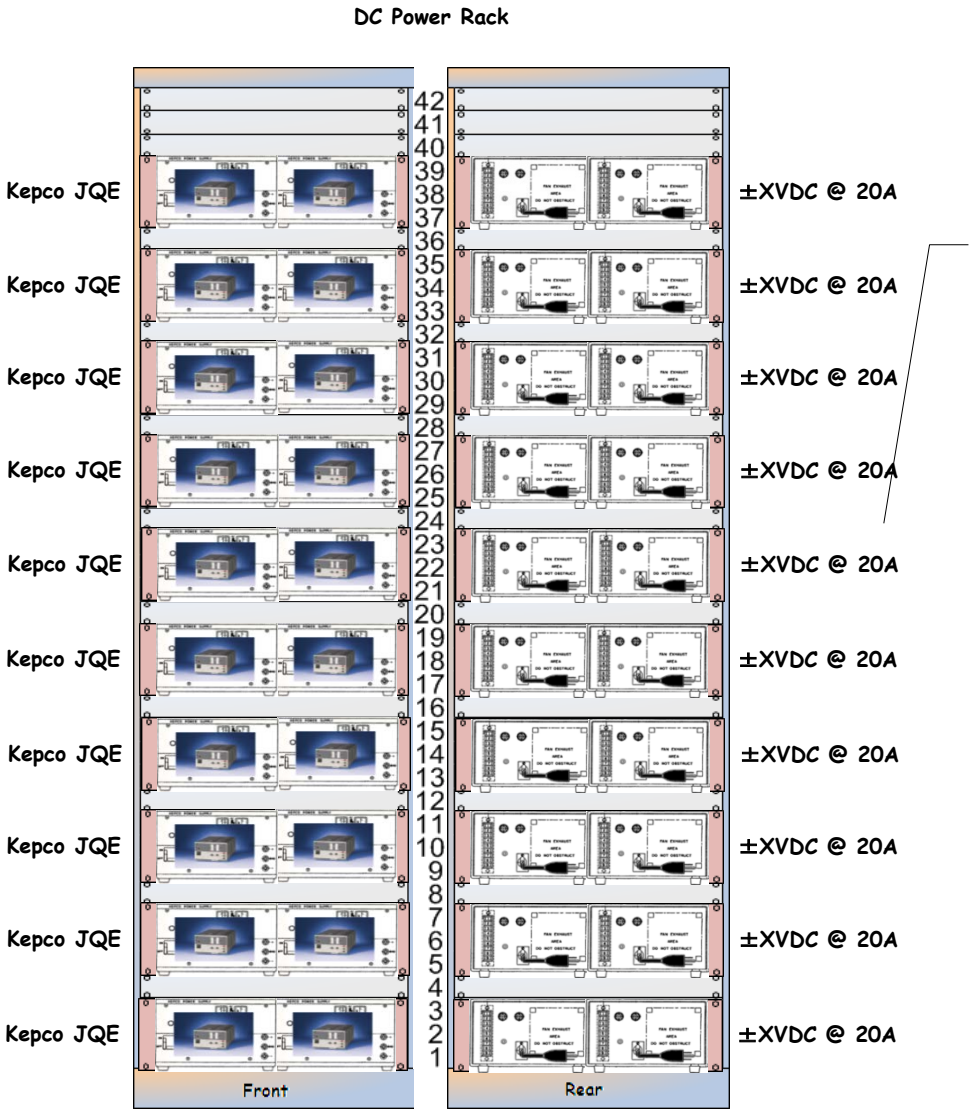
Therefore 5 DC Power Racks are required and will **provide** for a total of 42,000 W.

DC Power Rack – Required VAC

LIGO
<< CPR

5 Standard Banks per Rack

10 x 4U => 40U



A Standard Bank (SB) of power supplies consists of 4 supplies, and services 1 Electronics Rack. The 4 supplies are: +18V@20A, -18V@20A, +24V@20A, and -24V@20A.

Each (~JQE25-20M) DC Power Supply requires 10.5A @ 125VAC

Each Standard Bank of DC Power Supplies requires 42A @ 125VAC

There are 5 SB (20 PS) / Power Rack. Each Power Rack therefore requires 210A @ 125VAC.

10 – 125V@20A circuits per Power Rack should suffice.

Each Power Rack services 5 Electronics Racks.

There are roughly 22 racks per interferometer.

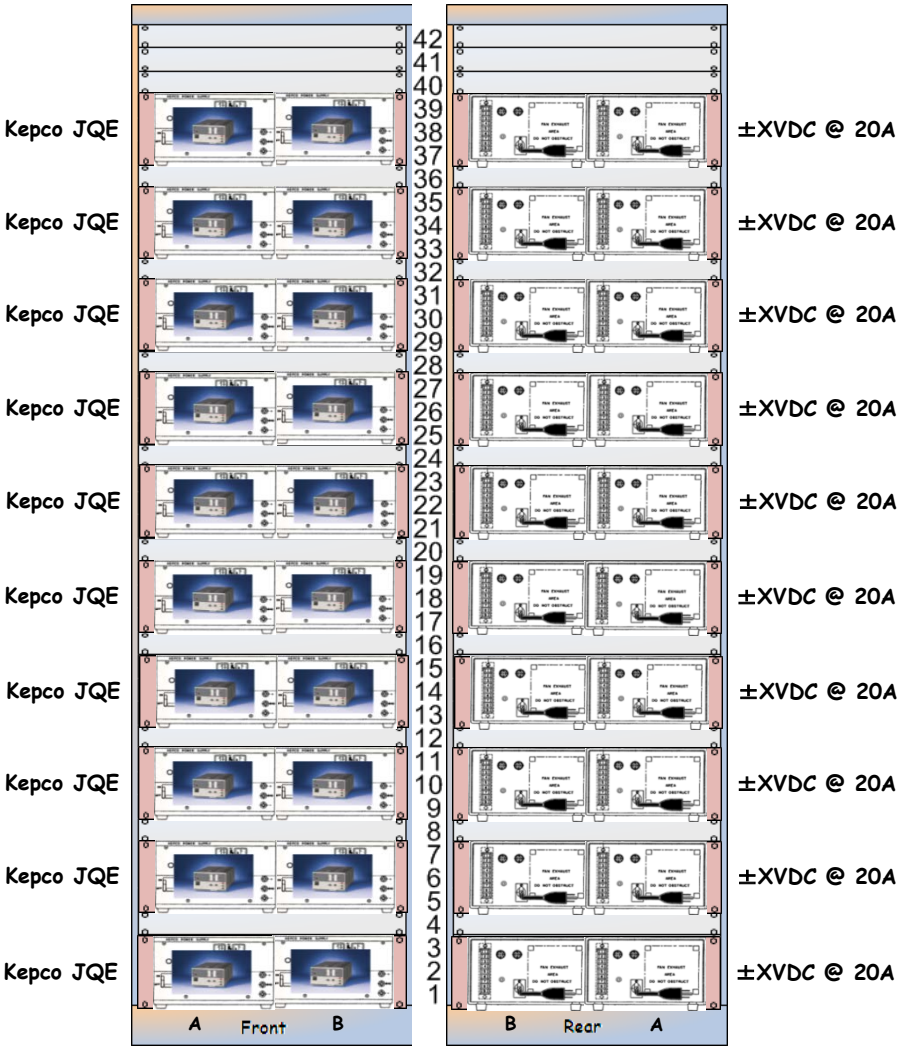
70 – 125V @20A circuits are required for a total of 183,750W.

Therefore 2 – 480VAC * 200A circuits would **provide** 192,000W

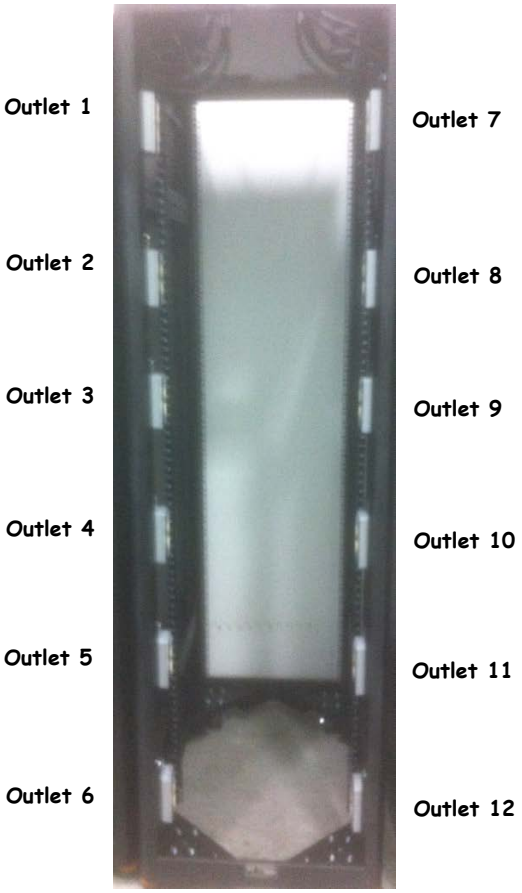
DC Power Rack – VAC Wiring

[<< CPR]

DC Power Rack



12 @ 125V, 20A Circuits per Rack



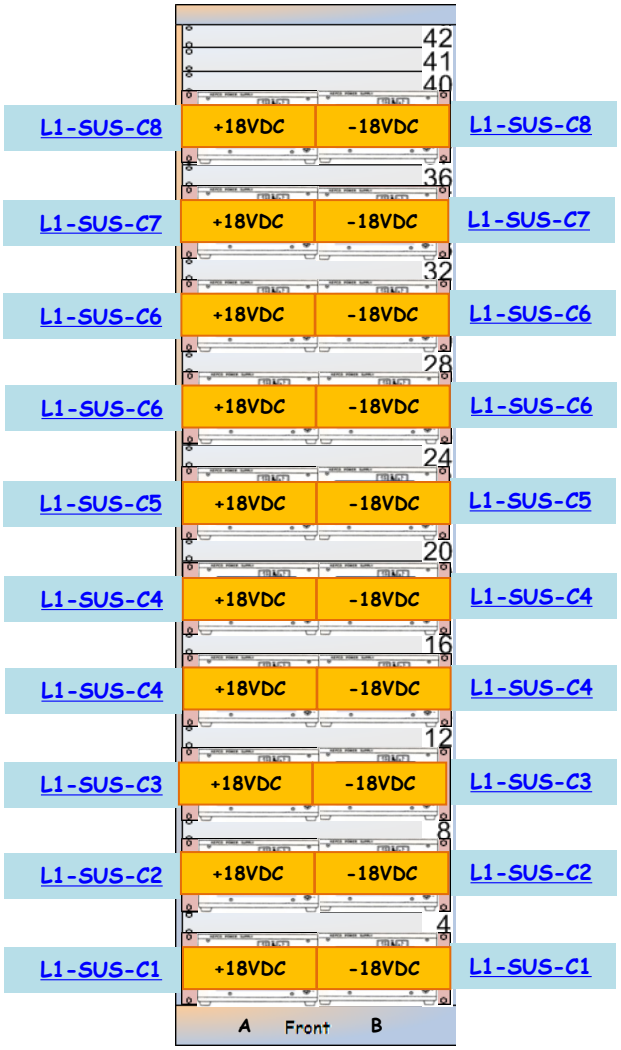
Rear

L1-VDC-C1 Power Racks – Required Supplies

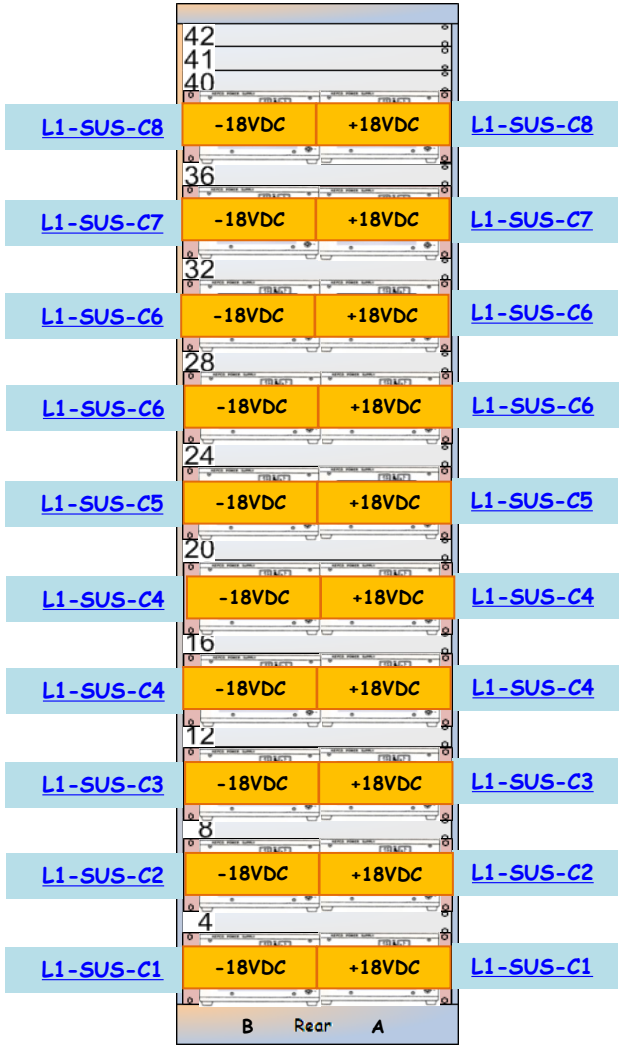
[<< CPR]

L1-VDC-C1 Corner Station DC Power Rack Layout (D1200890) (S1105247)

L1-VDC-C1 Power Rack



L1-VDC-C1 Power Rack



[Cable Runs >>]

L1-VDC-C1 Cable Runs

« L1-VDC-C1

L1-VDC-C1 Corner Station DC Cable Runs (D1200890) (S1105247)

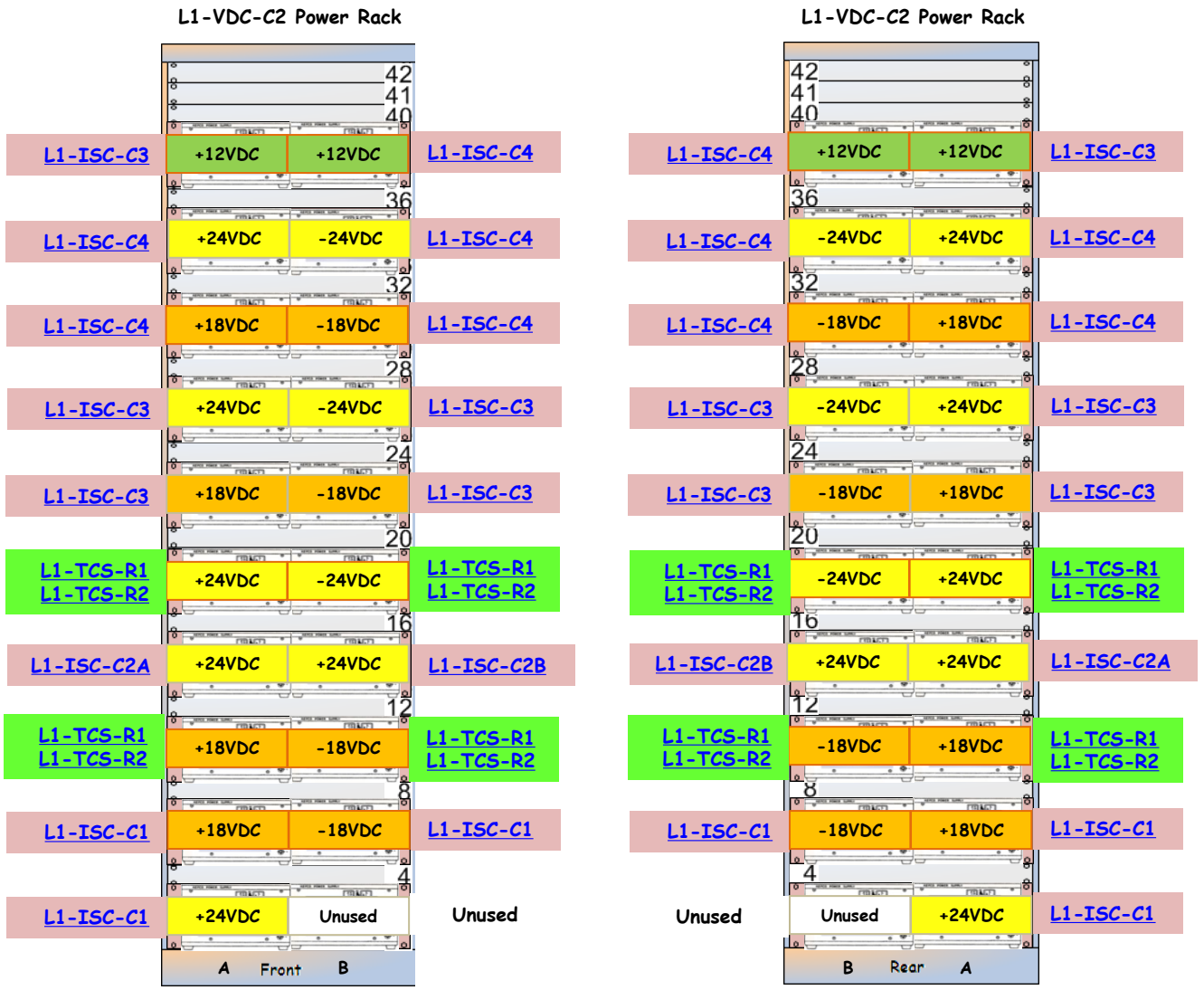
L1-VDC-C1 S1105247	Power Panel	Circuit	DC Power Rack	Outlet	Plug Position	Rack U	Power Supply Model	Power Supply Serial	Polarity	DC Extension Cable	Electronics Rack	DC Power Strip
1	CDS-1	06	L1-VDC-C1	08	Top	U37-A (Left)	JQE 25V 20A	H236464	Plus	PTO-001	L1-SUS-C8	PSO-001
2	CDS-1	06	L1-VDC-C1	08	Bottom	U37-B (Right)	JQE 25V 20A	H236467	Minus	PTO-001	L1-SUS-C8	PSO-001
3	CDS-1	27	L1-VDC-C1	02	Top	U33-A (Left)	JQE 25V 20A	H236434	Plus	PTO-002	L1-SUS-C7	PSO-002
4	CDS-1	27	L1-VDC-C1	02	Bottom	U33-B (Right)	JQE 25V 20A	H236427	Minus	PTO-002	L1-SUS-C7	PSO-002
5	CDS-1	08	L1-VDC-C1	09	Top	U29-A (Left)	JQE 25V 20A	H236468	Plus	PTO-021	L1-SUS-C6A	PSO-003
6	CDS-1	08	L1-VDC-C1	09	Bottom	U29-B (Right)	JQE 25V 20A	H236372-R1	Minus	PTO-021	L1-SUS-C6A	PSO-003
7	CDS-1	29	L1-VDC-C1	03	Top	U25-A (Left)	JQE 25V 20A	H236447	Plus	PTO-003	L1-SUS-C6B	PSO-021
8	CDS-1	29	L1-VDC-C1	03	Bottom	U25-B (Right)	JQE 25V 20A	H236463	Minus	PTO-003	L1-SUS-C6B	PSO-021
9	CDS-1	10	L1-VDC-C1	10	Top	U21-A (Left)	JQE 25V 20A	H236388	Plus	PTO-004	L1-SUS-C5	PSO-004
10	CDS-1	10	L1-VDC-C1	10	Bottom	U21-B (Right)	JQE 25V 20A	H236406	Minus	PTO-004	L1-SUS-C5	PSO-004
11	CDS-1	31	L1-VDC-C1	04	Top	U17-A (Left)	JQE 25V 20A	H236396	Plus	PTO-005	L1-SUS-C4A	PSO-005
12	CDS-1	31	L1-VDC-C1	04	Bottom	U17-B (Right)	JQE 25V 20A	H236404	Minus	PTO-005	L1-SUS-C4A	PSO-005
13	CDS-1	12	L1-VDC-C1	11	Top	U13-A (Left)	JQE 25V 20A	H236418	Plus	PTO-022	L1-SUS-C4B	PSO-022
14	CDS-1	12	L1-VDC-C1	11	Bottom	U13-B (Right)	JQE 25V 20A	H236424	Minus	PTO-022	L1-SUS-C4B	PSO-022
15	CDS-1	33	L1-VDC-C1	05	Top	U09-A (Left)	JQE 25V 20A	H236469	Plus	PTO-006	L1-SUS-C3	PSO-006
16	CDS-1	33	L1-VDC-C1	05	Bottom	U09-B (Right)	JQE 25V 20A	H236443	Minus	PTO-006	L1-SUS-C3	PSO-006
17	CDS-1	14	L1-VDC-C1	12	Top	U05-A (Left)	JQE 25V 20A	H210616	Plus	PTO-007	L1-SUS-C2	PSO-007
18	CDS-1	14	L1-VDC-C1	12	Bottom	U05-B (Right)	JQE 25V 20A	H210622	Minus	PTO-007	L1-SUS-C2	PSO-007
19	CDS-1	02	L1-VDC-C1	06	Top	U01-A (Left)	JQE 25V 20A	H210617	Plus	PTO-008	L1-SUS-C1	PSO-008
20	CDS-1	02	L1-VDC-C1	06	Bottom	U01-B (Right)	JQE 25V 20A	H210619	Minus	PTO-008	L1-SUS-C1	PSO-008
D1200890												

L1-VDC-C2 Power Racks – Required Supplies

LIGO

<< CPR

L1-VDC-C2 Corner Station DC Power Rack Layout (D1200891) (S1105248)



Cable Runs >>

L1-VDC-C2 Cable Runs

LIGO

<< L1-VDC-C2

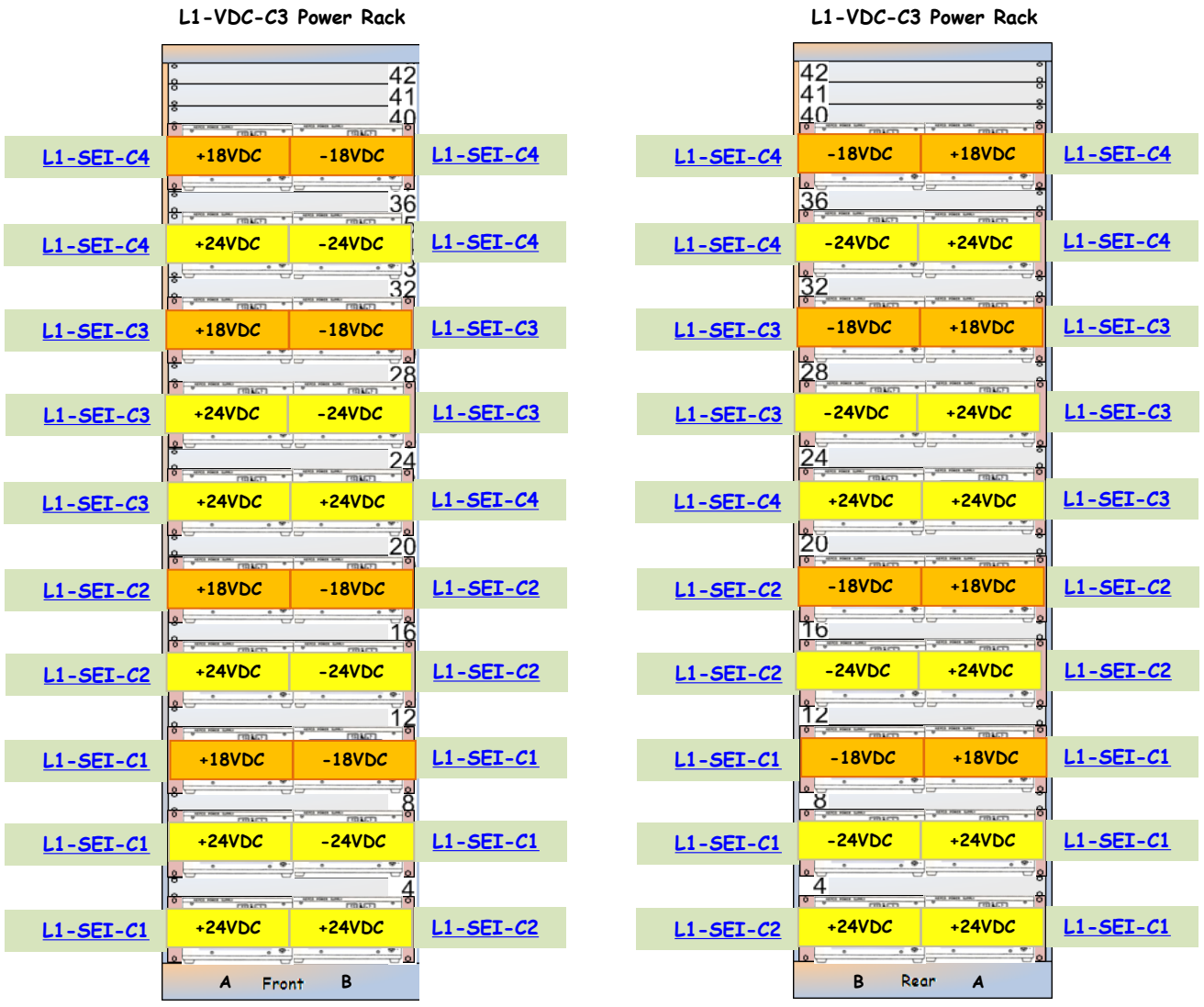
L1-VDC-C2 Corner Station DC Cable Runs (D1200891) (S1105248)

L1-VDC-C2 S1105248	Power Panel	Circuit	DC Power Rack	Outlet	Plug Position	Rack U	Power Supply Model	Power Supply Serial	Polarity	DC Extension Cable	Electronics Rack	Cable Length	DC Power Strip
1	CDS-1	15	L1-VDC-C2	08	Top	U37-A (Left)	JQE 15V 6A		Plus	PTG-002	L1-ISC-C3		PSG-003
2	CDS-1	15	L1-VDC-C2	08	Bottom	U37-B (Right)	JQE 15V 6A		Plus	PTG-003	L1-ISC-C4		PSG-004
3	CDS-1	03	L1-VDC-C2	02	Top	U33-A (Left)	JQE 25V 20A	H236408	Plus	PTY-012	L1-ISC-C4		
4	CDS-1	03	L1-VDC-C2	02	Bottom	U33-B (Right)	JQE 25V 20A	H236466	Minus	PTY-012	L1-ISC-C4		
5	CDS-1	17	L1-VDC-C2	09	Top	U29-A (Left)	JQE 25V 20A	H236426	Plus	PTO-057	L1-ISC-C4		
6	CDS-1	17	L1-VDC-C2	09	Bottom	U29-B (Right)	JQE 25V 20A	H236439	Minus	PTO-057	L1-ISC-C4		
7	CDS-1	05	L1-VDC-C2	03	Top	U25-A (Left)	JQE 25V 20A	H236437	Plus	PTY-011	L1-ISC-C3		
8	CDS-1	05	L1-VDC-C2	03	Bottom	U25-B (Right)	JQE 25V 20A	H236425	Minus	PTY-011	L1-ISC-C3		
9	CDS-1	19	L1-VDC-C2	10	Top	U21-A (Left)	JQE 25V 20A	H236444	Plus	PTO-056	L1-ISC-C3		
10	CDS-1	19	L1-VDC-C2	10	Bottom	U21-B (Right)	JQE 25V 20A	H236471	Minus	PTO-056	L1-ISC-C3		
11	CDS-1	07	L1-VDC-C2	04	Top	U17-A (Left)	JQE 25V 20A	H236449	Plus	PTY-037 PTY-038	L1-TCS-R1 L1-TCS-R2		
12	CDS-1	07	L1-VDC-C2	04	Bottom	U17-B (Right)	JQE 25V 10A	H192374	Minus	PTY-037 PTY-038	L1-TCS-R1 L1-TCS-R2		
13	CDS-1	21	L1-VDC-C2	11	Top	U13-A (Left)	JQE 25V 20A	H236430	Plus	L1-TB07	L1-ISC-C2A		
14	CDS-1	21	L1-VDC-C2	11	Bottom	U13-B (Right)	JQE 25V 20A	H236445	Minus	PTY-047	L1-ISC-C2B		
15	CDS-1	09	L1-VDC-C2	05	Top	U09-A (Left)	JQE 25V 20A	H236395	Plus	PTO-037 PTO-038	L1-TCS-R1 L1-TCS-R2		
16	CDS-1	09	L1-VDC-C2	05	Bottom	U09-B (Right)	JQE 25V 20A	H236438	Minus	PTO-037 PTO-038	L1-TCS-R1 L1-TCS-R2		
17	CDS-1	23	L1-VDC-C2	12	Top	U05-A (Left)	JQE 25V 20A	H236475	Plus	PTO-054	L1-ISC-C1		
18	CDS-1	23	L1-VDC-C2	12	Bottom	U05-B (Right)	JQE 25V 20A	H236455	Minus	PTO-054	L1-ISC-C1		
19	CDS-1	06	L1-VDC-C2	06	Top	U01-A (Left)	JQE 25V 20A	H236399	Plus	L1-TB02	L1-ISC-C1		
20	CDS-1	06	L1-VDC-C2	06	Bottom	U01-B (Right)	JQE 25V 20A	H236407	Plus		L1-ISC-C2		
D1200891													

L1-VDC-C3 Power Racks – Required Supplies

[<< CPR]

L1-VDC-C3 Corner Station DC Power Rack Layout (D1200892) (S1105249)



[Cable Runs >>]

L1-VDC-C3 Cable Runs

LIGO

<< L1-VDC-C3

L1-VDC-C3 Corner Station DC Cable Runs (D1200892) (S1105249)

L1-VDC-C3 S1105249	Power Panel	Circuit	DC Power Rack	Outlet	Plug Position	Rack U	Power Supply Model	Power Supply Serial	Polarity	DC Extension Cable	Electronics Rack	Cable Length	DC Power Strip
1	CDS-2	15	L1-VDC-C3	08	Top	U37-A (Left)	JQE 25V 20A	H236457	Plus	PTO-014	L1-SEI-C4		PSO-014
2	CDS-2	15	L1-VDC-C3	08	Bottom	U37-B (Right)	JQE 25V 20A	H236456	Minus	PTO-014	L1-SEI-C4		PSO-014
3	CDS-2	03	L1-VDC-C3	02	Top	U33-A (Left)	JQE 25V 20A	H236450	Plus	PTY-013	L1-SEI-C4		PSY-013
4	CDS-2	03	L1-VDC-C3	02	Bottom	U33-B (Right)	JQE 25V 20A	H236454	Minus	PTY-013	L1-SEI-C4		PSY-013
5	CDS-2	17	L1-VDC-C3	09	Top	U29-A (Left)	JQE 25V 20A	H236452	Plus	PTO-015	L1-SEI-C3		PSO-015
6	CDS-2	17	L1-VDC-C3	09	Bottom	U29-B (Right)	JQE 25V 20A	H236451	Minus	PTO-015	L1-SEI-C3		PSO-015
7	CDS-2	05	L1-VDC-C3	03	Top	U25-A (Left)	JQE 25V 20A	H236458	Plus	PTY-014	L1-SEI-C3		PSY-014
8	CDS-2	05	L1-VDC-C3	03	Bottom	U25-B (Right)	JQE 25V 20A	H236432	Minus	PTY-014	L1-SEI-C3		PSY-014
9	CDS-2	19	L1-VDC-C3	10	Top	U21-A (Left)	JQE 25V 20A	H236435	Plus	PTY-015	L1-SEI-C3		PSY-015
10	CDS-2	19	L1-VDC-C3	10	Bottom	U21-B (Right)	JQE 25V 20A	H236436	Plus	PTY-016	L1-SEI-C4		PSY-016
11	CDS-2	07	L1-VDC-C3	04	Top	U17-A (Left)	JQE 25V 20A	H236402	Plus	PTO-016	L1-SEI-C2		PSO-016
12	CDS-2	07	L1-VDC-C3	04	Bottom	U17-B (Right)	JQE 25V 20A	H236477	Minus	PTO-016	L1-SEI-C2		PSO-016
13	CDS-2	21	L1-VDC-C3	11	Top	U13-A (Left)	JQE 25V 20A	H236384	Plus	PTY-017	L1-SEI-C2		PSY-017
14	CDS-2	21	L1-VDC-C3	11	Bottom	U13-B (Right)	JQE 25V 20A	H236390	Minus	PTY-017	L1-SEI-C2		PSY-017
15	CDS-2	09	L1-VDC-C3	05	Top	U09-A (Left)	JQE 25V 20A	H236383	Plus	PTO-017	L1-SEI-C1		PSO-017
16	CDS-2	09	L1-VDC-C3	05	Bottom	U09-B (Right)	JQE 25V 20A	H236391	Minus	PTO-017	L1-SEI-C1		PSO-017
17	CDS-2	23	L1-VDC-C3	12	Top	U05-A (Left)	JQE 25V 20A	H236372-R2	Plus	PTY-018	L1-SEI-C1		PSY-018
18	CDS-2	23	L1-VDC-C3	12	Bottom	U05-B (Right)	JQE 25V 20A	H236377	Minus	PTY-018	L1-SEI-C1		PSY-018
19	CDS-2	11	L1-VDC-C3	06	Top	U01-A (Left)	JQE 25V 20A	H236401	Plus	PTY-019	L1-SEI-C1		PSY-019
20	CDS-2	11	L1-VDC-C3	06	Bottom	U01-B (Right)	JQE 25V 20A	H236392	Plus	PTY-020	L1-SEI-C2		PSY-020
D1200892													

L1-VDC-C4 Power Racks – Required Supplies

LIGO

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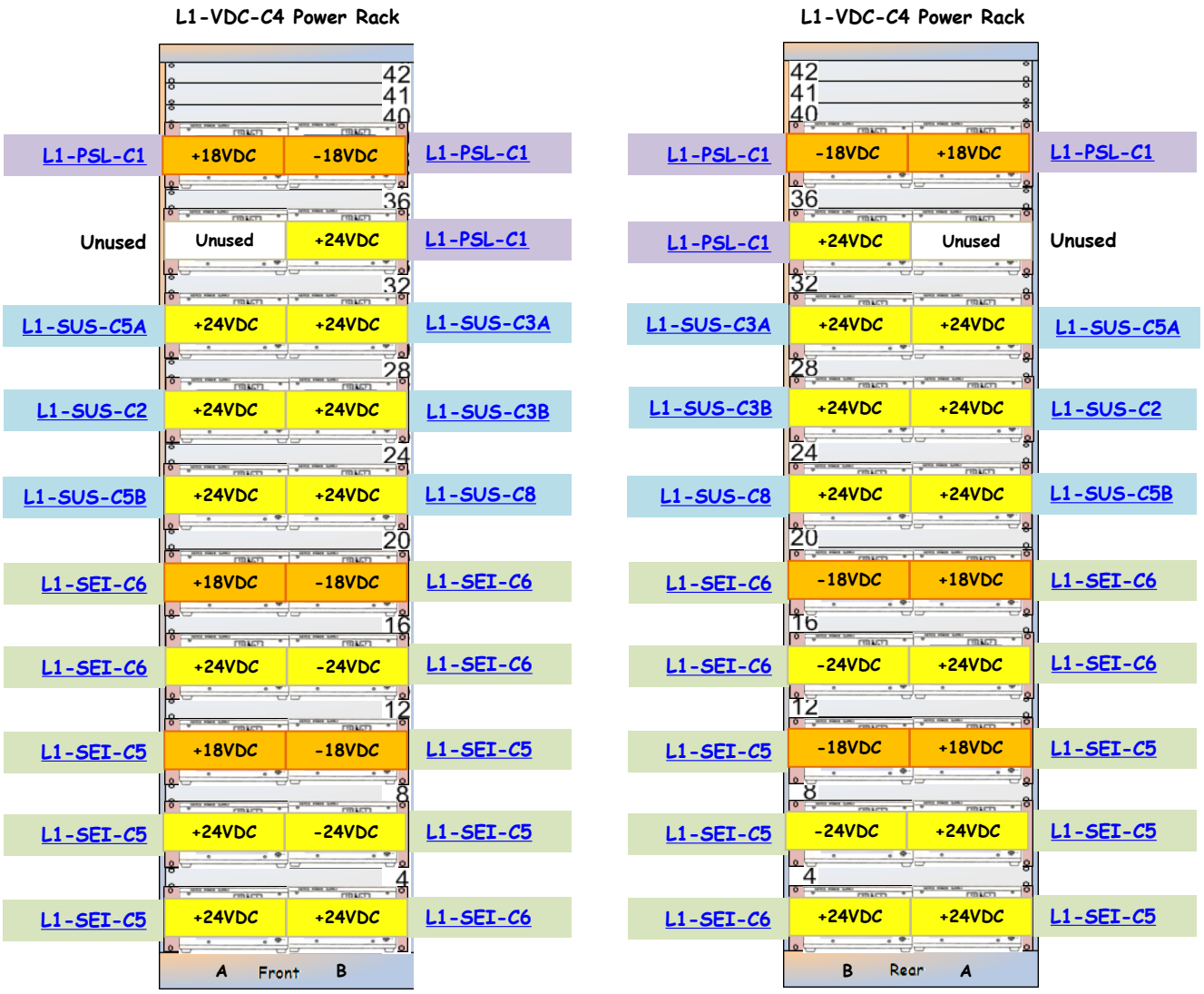
L1-VDC-C4 Corner Station DC Power Rack Layout (D1200893) (S1105250)



Cable Runs >>

L1-VDC-C4 Cable Runs

LIGO

<< L1-VDC-C4

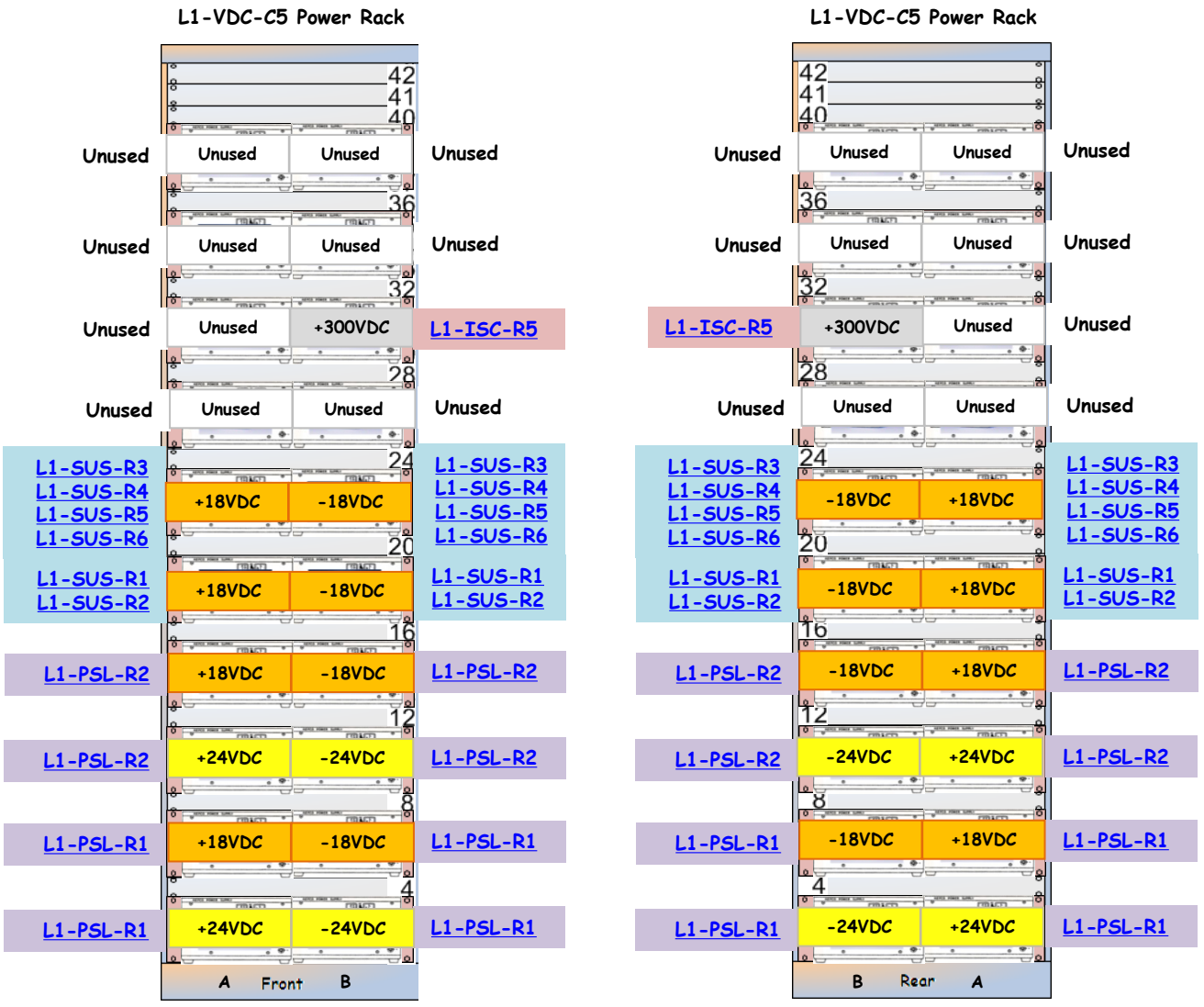
L1-VDC-C4 Corner Station DC Cable Runs (D1200893) (S1105250)

L1-VDC-C4 S1105250	Power Panel	Circuit	DC Power Rack	Outlet	Plug Position	Rack U	Power Supply Model	Power Supply Serial	Polarity	DC Extension Cable	Electronics Rack	Cable Length	DC Power Strip
1	CDS-2	26	L1-VDC-C4	08	Top	U37-A (Left)	JQE 25V 20A	H236442	Plus	PTO-018	L1-PSL-C1		PSO-018
2	CDS-2	26	L1-VDC-C4	08	Bottom	U37-B (Right)	JQE 25V 20A	H236416	Minus	PTO-018	L1-PSL-C1		PSO-018
3	CDS-2	14	L1-VDC-C4	02	Top	U33-A (Left)	JQE 25V 20A						
4	CDS-2	14	L1-VDC-C4	02	Bottom	U33-B (Right)	JQE 25V 20A	H236453	Plus	PTY-009	L1-PSL-C1		PSY-009
5	CDS-2	28	L1-VDC-C4	09	Top	U29-A (Left)	JQE 25V 20A	H236495	Plus	PTY-002	L1-SUS-C5A		None
6	CDS-2	28	L1-VDC-C4	09	Bottom	U29-B (Right)	JQE 25V 20A	H236375	Plus	PTY-005	L1-SUS-C3A		PSY-027
7	CDS-2	16	L1-VDC-C4	03	Top	U25-A (Left)	JQE 25V 20A	H210621	Plus	L1-TB03	L1-SUS-C2		PSY-004
8	CDS-2	16	L1-VDC-C4	03	Bottom	U25-B (Right)	JQE 25V 20A	H210620	Plus	L1-TB04	L1-SUS-C3B		PSY-005
9	CDS-2	30	L1-VDC-C4	10	Top	U21-A (Left)	JQE 25V 20A	H210618	Plus	L1-TB01	L1-SUS-C5B		PSY-002
10	CDS-2	30	L1-VDC-C4	10	Bottom	U21-B (Right)	JQE 25V 20A	H236386	Plus	PTY-001	L1-SUS-C8		PSY-001
11	CDS-2	18	L1-VDC-C4	04	Top	U17-A (Left)	JQE 25V 20A	H236374	Plus	PTO-019	L1-SEI-C6		PSO-019
12	CDS-2	18	L1-VDC-C4	04	Bottom	U17-B (Right)	JQE 25V 20A	H236382	Minus	PTO-019	L1-SEI-C6		PSO-019
13	CDS-2	32	L1-VDC-C4	11	Top	U13-A (Left)	JQE 25V 20A	H236373	Plus	PTY-021	L1-SEI-C6		PSY-021
14	CDS-2	32	L1-VDC-C4	11	Bottom	U13-B (Right)	JQE 25V 20A	H236387	Minus	PTY-021	L1-SEI-C6		PSY-021
15	CDS-2	20	L1-VDC-C4	05	Top	U09-A (Left)	JQE 25V 20A	H236376	Plus	PTO-020	L1-SEI-C5		PSO-020
16	CDS-2	20	L1-VDC-C4	05	Bottom	U09-B (Right)	JQE 25V 20A	H236379	Minus	PTO-020	L1-SEI-C5		PSO-020
17	CDS-2	34	L1-VDC-C4	12	Top	U05-A (Left)	JQE 25V 20A	H236381	Plus	PTY-022	L1-SEI-C5		PSY-022
18	CDS-2	34	L1-VDC-C4	12	Bottom	U05-B (Right)	JQE 25V 20A	H236385	Minus	PTY-022	L1-SEI-C5		PSY-022
19	CDS-2	22	L1-VDC-C4	06	Top	U01-A (Left)	JQE 25V 20A	H236415	Plus	PTY-023	L1-SEI-C5		PSY-023
20	CDS-2	22	L1-VDC-C4	06	Bottom	U01-B (Right)	JQE 25V 20A	H236403	Plus	PTY-024	L1-SEI-C6		PSY-024
D1200893													

L1-VDC-C5 Power Racks – Required Supplies

[<< CPR]

L1-VDC-C5 Corner Station DC Power Rack Layout (D1200894) (S1105251)



[Cable Runs >>]

L1-VDC-C5 Cable Runs

LIGO

<< L1-VDC-C5

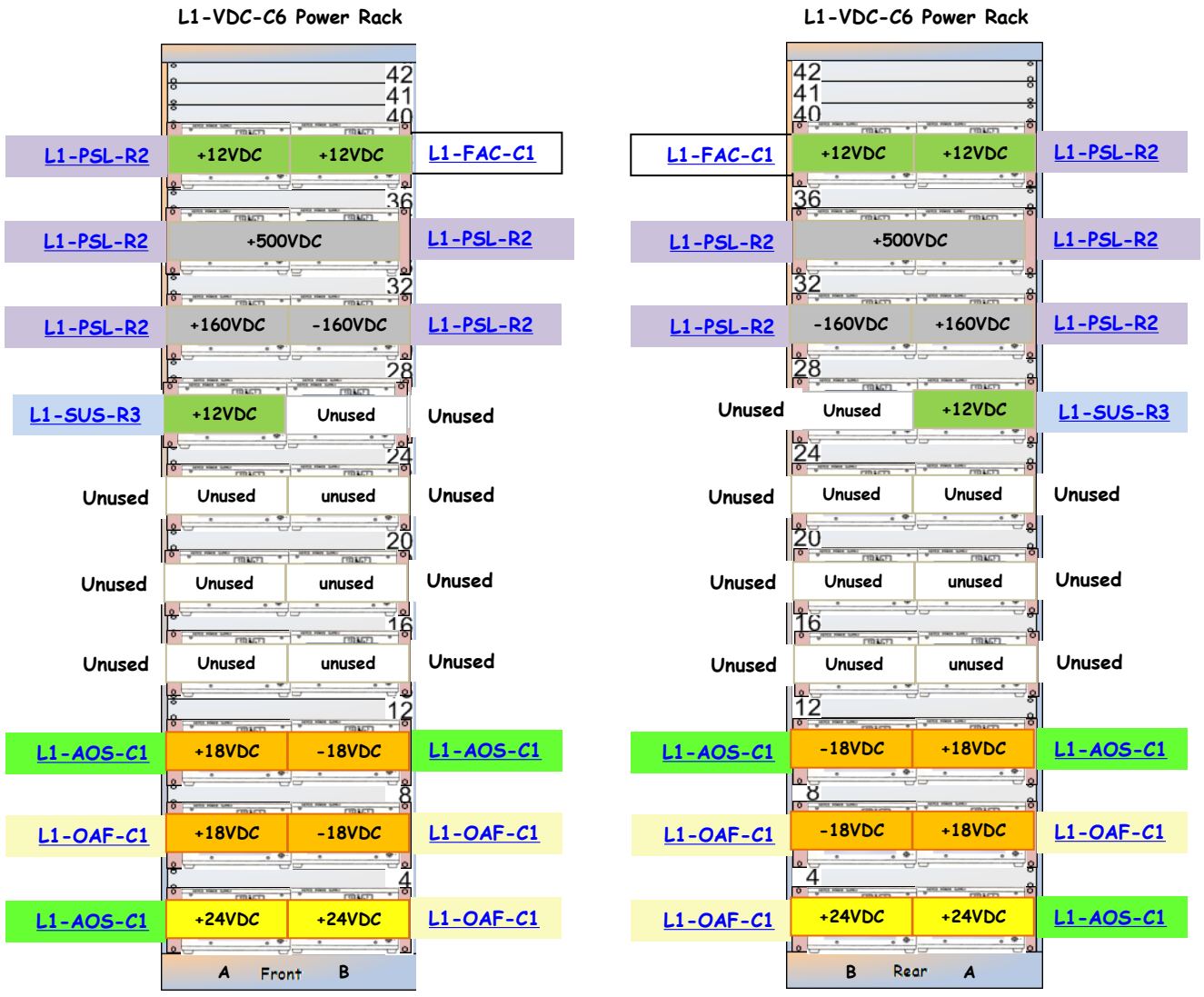
L1-VDC-C5 Corner Station DC Cable Runs (D1200894) (S1105251)

L1-VDC-C5 S1105251	Power Panel	Circuit	DC Power Rack	Outlet	Plug Position	Rack U	Power Supply Model	Power Supply Serial	Polarity	DC Extension Cable	Electronics Rack	Cable Length	DC Power Strip
1	CDS-1	25	L1-VDC-C5	08	Top	U37-A (Left)							
2	CDS-1	25	L1-VDC-C5	08	Bottom	U37-B (Right)	PCX 100-0.2MAT PCS 40-0.5MAT						
3	CDS-2	13	L1-VDC-C5	02	Top	U33-A (Left)	JQE 25V 4A JQE 25V 4A						
4	CDS-2	13	L1-VDC-C5	02	Bottom	U33-B (Right)	PCX 100-0.2MAT PCS 40-0.5MAT						
5	CDS-1	13	L1-VDC-C5	09	Top	U29-A (Left)	BHK 300V 130mA	A107948	Plus		L1-ISC-R5		
6	CDS-1	13	L1-VDC-C5	09	Bottom	U29-B (Right)	BHK 300V 130mA	A100472	Plus	PBX-005	L1-ISC-R5		
7	CDS-2	38	L1-VDC-C5	03	Top	U25-A (Left)	JQE 150V 3.5A	H179839					
8	CDS-2	38	L1-VDC-C5	03	Bottom	U25-B (Right)	JQE 150V 3.5A	H179837					
9	CDS-1	01	L1-VDC-C5	10	Top	U21-A (Left)	JQE 25V 20A	H236420	Plus	PTO-027 PTO-028 PTO-029 PTO-030	L1-SUS-R3 L1-SUS-R4 L1-SUS-R5 L1-SUS-R6		PSO-027 PSO-028 PSO-029 PSO-030
10	CDS-1	01	L1-VDC-C5	10	Bottom	U21-B (Right)	JQE 25V 20A	H236378	Minus	PTO-027 PTO-028 PTO-029 PTO-030	L1-SUS-R3 L1-SUS-R4 L1-SUS-R5 L1-SUS-R6		PSO-027 PSO-028 PSO-029 PSO-030
11	CDS-2	12	L1-VDC-C5	04	Top	U17-A (Left)	JQE 25V 20A	H236409	Plus	PTO-023 PTO-024	L1-SUS-R1 L1-SUS-R2		PSO-023 PSO-024
12	CDS-2	12	L1-VDC-C5	04	Bottom	U17-B (Right)	JQE 25V 20A	H236410	Minus	PTO-023 PTO-024	L1-SUS-R1 L1-SUS-R2		PSO-023 PSO-024
13	CDS-1	04	L1-VDC-C5	11	Top	U13-A (Left)	JQE 25V 20A	H236380	Plus	PTO-025	L1-PSL-R2		PSO-025
14	CDS-1	04	L1-VDC-C5	11	Bottom	U13-B (Right)	JQE 25V 20A	H236465	Minus	PTO-025	L1-PSL-R2		PSO-025
15	CDS-2	24	L1-VDC-C5	05	Top	U09-A (Left)	JQE 25V 20A	H236459	Plus	PTY-025	L1-PSL-R2		PSY-025
16	CDS-2	24	L1-VDC-C5	05	Bottom	U09-B (Right)	JQE 25V 20A	H236394	Minus	PTY-025	L1-PSL-R2		PSY-025
17	CDS-2	01	L1-VDC-C5	12	Top	U05-A (Left)	JQE 25V 20A	H236397	Plus	PTO-026	L1-PSL-R1		PSO-026
18	CDS-2	01	L1-VDC-C5	12	Bottom	U05-B (Right)	JQE 25V 20A	H236400	Minus	PTO-026	L1-PSL-R1		PSO-026
19	CDS-2	36	L1-VDC-C5	06	Top	U01-A (Left)	JQE 25V 20A	H236393	Plus	L1-TB05	L1-PSL-R1		PSY-026
20	CDS-2	36	L1-VDC-C5	06	Bottom	U01-B (Right)	JQE 25V 20A	H236398	Minus	L1-TB05	L1-PSL-R1		PSY-026
D1200894													

L1-VDC-C6 Power Racks – Required Supplies

[<< CPR]

L1-VDC-C6 Corner Station DC Power Rack Layout (D1200895) (S1105252)



[Cable Runs >>]

L1-VDC-C6 Cable Runs

LIGO

<< L1-VDC-C6

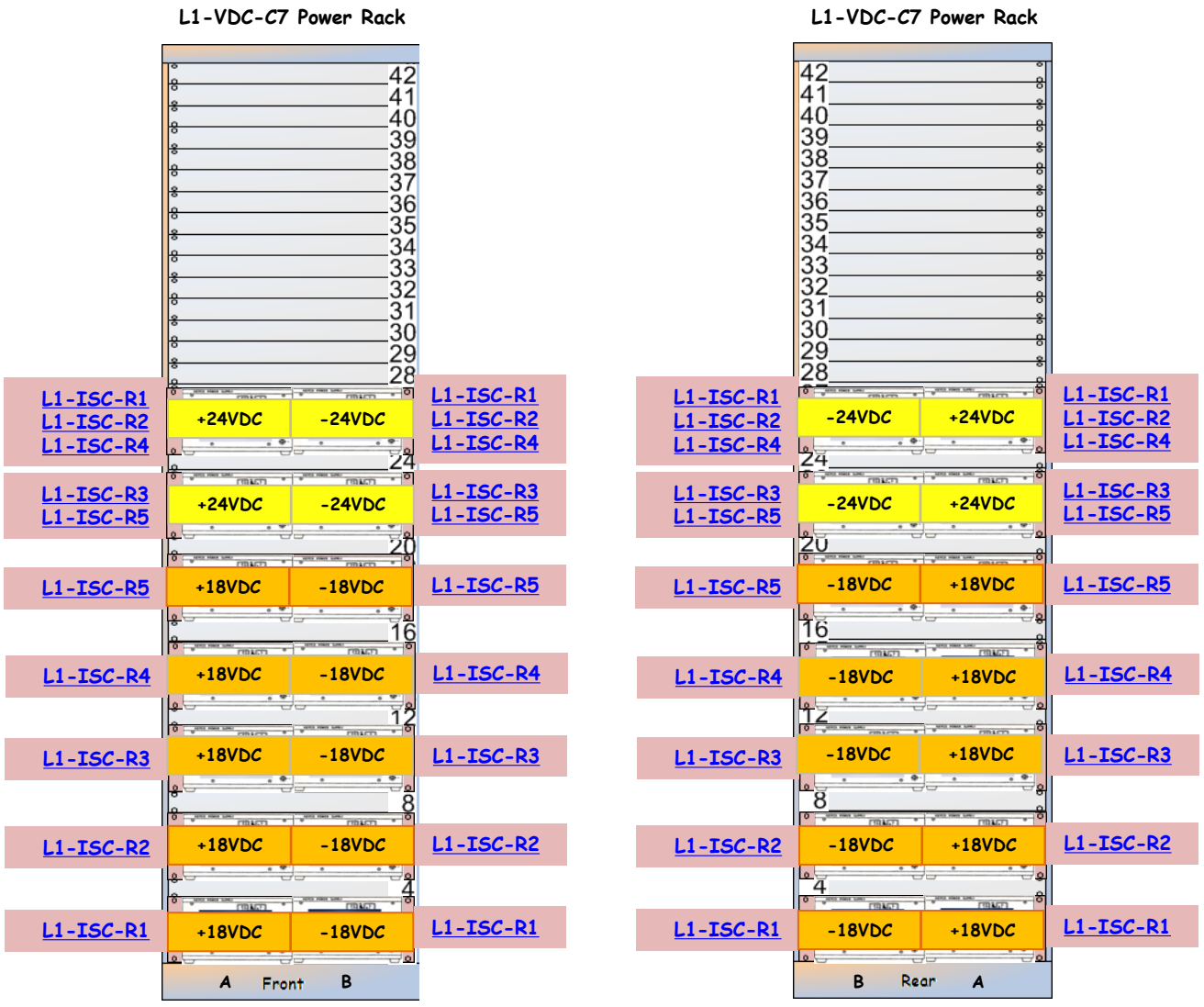
L1-VDC-C6 Corner Station DC Cable Runs (D1200895) (S1105252)

L1-VDC-C6 S1105252	Power Panel	Circuit	DC Power Rack	Outlet	Plug Position	Rack U	Power Supply Model	Power Supply Serial	Polarity	DC Extension Cable	Electronics Rack	Cable Length	DC Power Strip
1	CDS-2	37	L1-VDC-C6	08	Top	U37-A (Left)	JQE 15V 6A		Plus	PTB-001	L1-PSL-R2		PSG-002
2	CDS-2	37	L1-VDC-C6	08	Bottom	U37-B (Right)	JQE 15V 6A		Plus	PTG-001	L1-FAC-C1	_	PSG-001
3	CDS-2	31	L1-VDC-C6	02	Top	U33-A (Left)	BHK 500V 0.4A	C72508	Plus	PBX-001	L1-PSL-R2		
4	CDS-2	31	L1-VDC-C6	02	Bottom	U33-B (Right)	BHK 500V 0.4A	C72508	Plus	PBX-001	L1-PSL-R2		
5	CDS-2	27	L1-VDC-C6	09	Top	U29-A (Left)	PCX 200V 0.1A		Plus	PBX-002	L1-PSL-R2		
6	CDS-2	27	L1-VDC-C6	09	Bottom	U29-B (Right)	PCX 200V 0.1A		Minus	PBX-002	L1-PSL-R2		
7	CDS-2	08	L1-VDC-C6	03	Top	U25-A (Left)	BHK 500V 80mA	A107262	Plus	Spare	L1-TSC-XR1		
8	CDS-2	08	L1-VDC-C6	03	Bottom	U25-B (Right)	BHK 500V 80mA	A107265	Minus	Spare	L1-TSC-YR1		
9	CDS-2	39	L1-VDC-C6	10	Top	U21-A (Left)	JQE 15V 12A	H114633	Plus	PTG-006	L1-SUS-R3		
10	CDS-2	39	L1-VDC-C6	10	Bottom	U21-B (Right)	JQE 15V 12A	H114642					
11	CDS-2	33	L1-VDC-C6	04	Top	U17-A (Left)	JQE 15V 12A	H114630					
12	CDS-2	33	L1-VDC-C6	04	Bottom	U17-B (Right)	JQE 15V 12A	H114625					
13	CDS-2	29	L1-VDC-C6	11	Top	U13-A (Left)	JQE 25V 20A	H210611					
14	CDS-2	29	L1-VDC-C6	11	Bottom	U13-B (Right)	JQE 150V 1.5A	H193672					
15	CDS-2	10	L1-VDC-C6	05	Top	U09-A (Left)	JQE 25V 20A	H236431	Plus	PTO-013	L1-AOS-C1		
16	CDS-2	10	L1-VDC-C6	05	Bottom	U09-B (Right)	JQE 25V 20A	H236470	Minus	PTO-013	L1-AOS-C1		
17	CDS-2	41	L1-VDC-C6	12	Top	U05-A (Left)	JQE 25V 20A	H236423	Plus	PTO-013	L1-OAF-C1	_	
18	CDS-2	41	L1-VDC-C6	12	Bottom	U05-B (Right)	JQE 25V 20A	H236413	Minus	PTO-013	L1-OAF-C1	_	
19	CDS-2	35	L1-VDC-C6	06	Top	U01-A (Left)	JQE 25V 20A	H236491	Plus	PTY-055	L1-AOS-C1		
20	CDS-2	35	L1-VDC-C6	06	Bottom	U01-B (Right)	JQE 25V 20A	H236472	Plus	PTY-053	L1-OAF-C1	_	
D1200895													

L1-VDC-C7 Power Racks – Required Supplies

[<< CPR]

L1-VDC-C7 Corner Station DC Power Rack Layout (D1200896) (S1105253)



[Cable Runs >>]

L1-VDC-C7 Cable Runs

LIGO

<< L1-VDC-C7

L1-VDC-C7 Corner Station DC Cable Runs (D1200896) (S1105253)

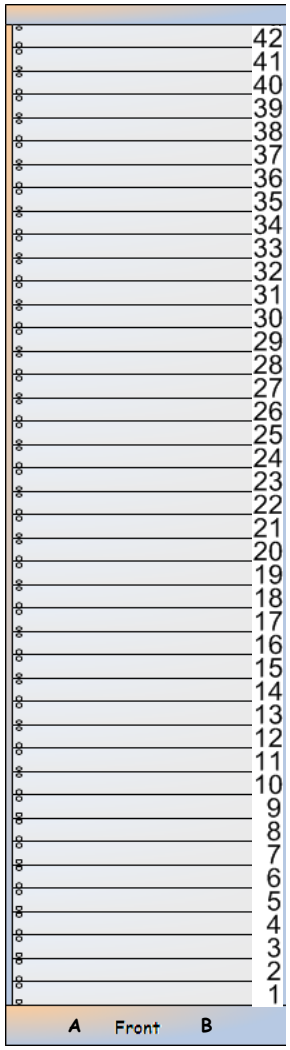
L1-VDC-C7 S1105253	Power Panel	Circuit	DC Power Rack	Outlet	Plug Position	Rack U	Power Supply Model	Power Supply Serial	Polarity	DC Extension Cable	Electronics Rack	Cable Length	DC Power Strip
1	CDS-1	22	L1-VDC-C7	07	Top	U37-A (Left)	JQE 15V 12A	H114649					
2	CDS-1	22	L1-VDC-C7	07	Bottom	U37-B (Right)	JQE 15V 12A	H114648					
3	CDS-1	16	L1-VDC-C7	01	Top	U33-A (Left)							
4	CDS-1	16	L1-VDC-C7	01	Bottom	U33-B (Right)							
5	CDS-1	34	L1-VDC-C7	08	Top	U29-A (Left)							
6	CDS-1	34	L1-VDC-C7	08	Bottom	U29-B (Right)							
7	CDS-1	28	L1-VDC-C7	02	Top	U25-A (Left)	JQE 25V 20A	H236405	Plus	L1-TB06 PTY-048 PTY-049	L1-ISC-R1 L1-ISC-R2 L1-ISC-R4		
8	CDS-1	28	L1-VDC-C7	02	Bottom	U25-B (Right)	JQE 25V 20A	H236411	Minus	L1-TB06 PTY-048 PTY-049	L1-ISC-R1 L1-ISC-R2 L1-ISC-R4		
9	CDS-1	24	L1-VDC-C7	09	Top	U21-A (Left)	JQE 25V 20A	H236460	Plus	PTY-050 PTY-051	L1-ISC-R3 L1-ISC-R5		
10	CDS-1	24	L1-VDC-C7	09	Bottom	U21-B (Right)	JQE 25V 20A	H236433	Minus	PTY-050 PTY-051	L1-ISC-R3 L1-ISC-R5		
11	CDS-1	18	L1-VDC-C7	03	Top	U17-A (Left)	JQE 25V 20A	H236448	Plus	PTO-061	L1-ISC-R5		
12	CDS-1	18	L1-VDC-C7	03	Bottom	U17-B (Right)	JQE 25V 20A	H236446	Minus	PTO-061	L1-ISC-R5		
13	CDS-2	02	L1-VDC-C7	10	Top	U13-A (Left)	JQE 25V 20A	H236440	Plus	PTO-060	L1-ISC-R4		
14	CDS-2	02	L1-VDC-C7	10	Bottom	U13-B (Right)	JQE 25V 20A	H236485	Minus	PTO-060	L1-ISC-R4		
15	CDS-1	30	L1-VDC-C7	04	Top	U09-A (Left)	JQE 25V 20A	H236419	Plus	PTO-062	L1-ISC-R3		
16	CDS-1	30	L1-VDC-C7	04	Bottom	U09-B (Right)	JQE 25V 20A	H236412	Minus	PTO-062	L1-ISC-R3		
17	CDS-1	26	L1-VDC-C7	11	Top	U05-A (Left)	JQE 25V 20A	H236429	Plus	PTO-059	L1-ISC-R2		
18	CDS-1	26	L1-VDC-C7	11	Bottom	U05-B (Right)	JQE 25V 20A	H236462	Minus	PTO-059	L1-ISC-R2		
19	CDS-1	20	L1-VDC-C7	05	Top	U01-A (Left)	JQE 25V 20A	H236417	Plus	PTO-058	L1-ISC-R1		
20	CDS-1	20	L1-VDC-C7	05	Bottom	U01-B (Right)	JQE 25V 20A	H236421	Minus	PTO-058	L1-ISC-R1		
D1200896													

L1-VDC-C8 Power Racks – Required Supplies

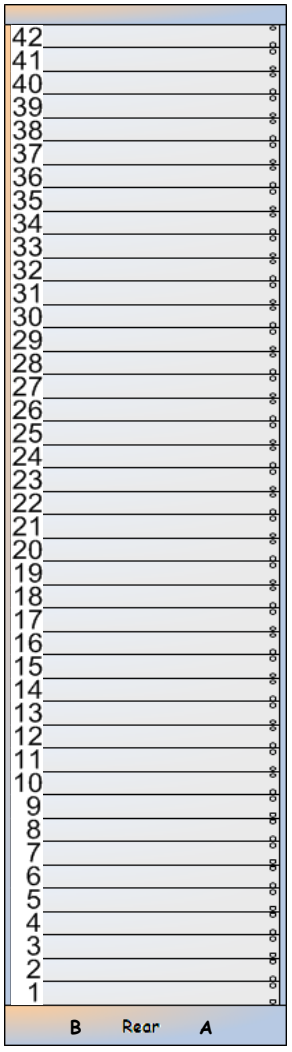
[<< CPR]

L1-VDC-C8 Corner Station DC Power Rack Layout (D1201137) (S1202998)

L1-VDC-C8 Power Rack



L1-VDC-C8 Power Rack



[Cable Runs >>]

L1-VDC-C8 Cable Runs

[<< L1-VDC-C8]

L1-VDC-C8 Corner Station DC Cable Runs (D1201137) (S1202998)

L1-VDC-C8 S1202998	Power Panel	Circuit	DC Power Rack	Outlet	Plug Position	Rack U	Power Supply Model	Power Supply Serial	Polarity	DC Extension Cable	Electronics Rack	Cable Length	DC Power Strip
1	CDS-1	36	L1-VDC-C8	08	Top	U37-A (Left)							
2	CDS-1	36	L1-VDC-C8	08	Bottom	U37-B (Right)							
3	CDS-1	35	L1-VDC-C8	02	Top	U33-A (Left)							
4	CDS-1	35	L1-VDC-C8	02	Bottom	U33-B (Right)							
5	CDS-1	38	L1-VDC-C8	09	Top	U29-A (Left)							
6	CDS-1	38	L1-VDC-C8	09	Bottom	U29-B (Right)							
7	CDS-1	37	L1-VDC-C8	03	Top	U25-A (Left)							
8	CDS-1	37	L1-VDC-C8	03	Bottom	U25-B (Right)							
9	CDS-1	40	L1-VDC-C8	10	Top	U21-A (Left)							
10	CDS-1	40	L1-VDC-C8	10	Bottom	U21-B (Right)							
11	CDS-1	39	L1-VDC-C8	04	Top	U17-A (Left)							
12	CDS-1	39	L1-VDC-C8	04	Bottom	U17-B (Right)							
13	CDS-2	42	L1-VDC-C8	11	Top	U13-A (Left)							
14	CDS-2	42	L1-VDC-C8	11	Bottom	U13-B (Right)							
15	CDS-1	41	L1-VDC-C8	05	Top	U09-A (Left)							
16	CDS-1	41	L1-VDC-C8	05	Bottom	U09-B (Right)							
17	CDS-2	40	L1-VDC-C8	12	Top	U05-A (Left)							
18	CDS-2	40	L1-VDC-C8	12	Bottom	U05-B (Right)							
19	CDS-2	42	L1-VDC-C8	06	Top	U01-A (Left)							
20	CDS-2	42	L1-VDC-C8	06	Bottom	U01-B (Right)							
D1201137													

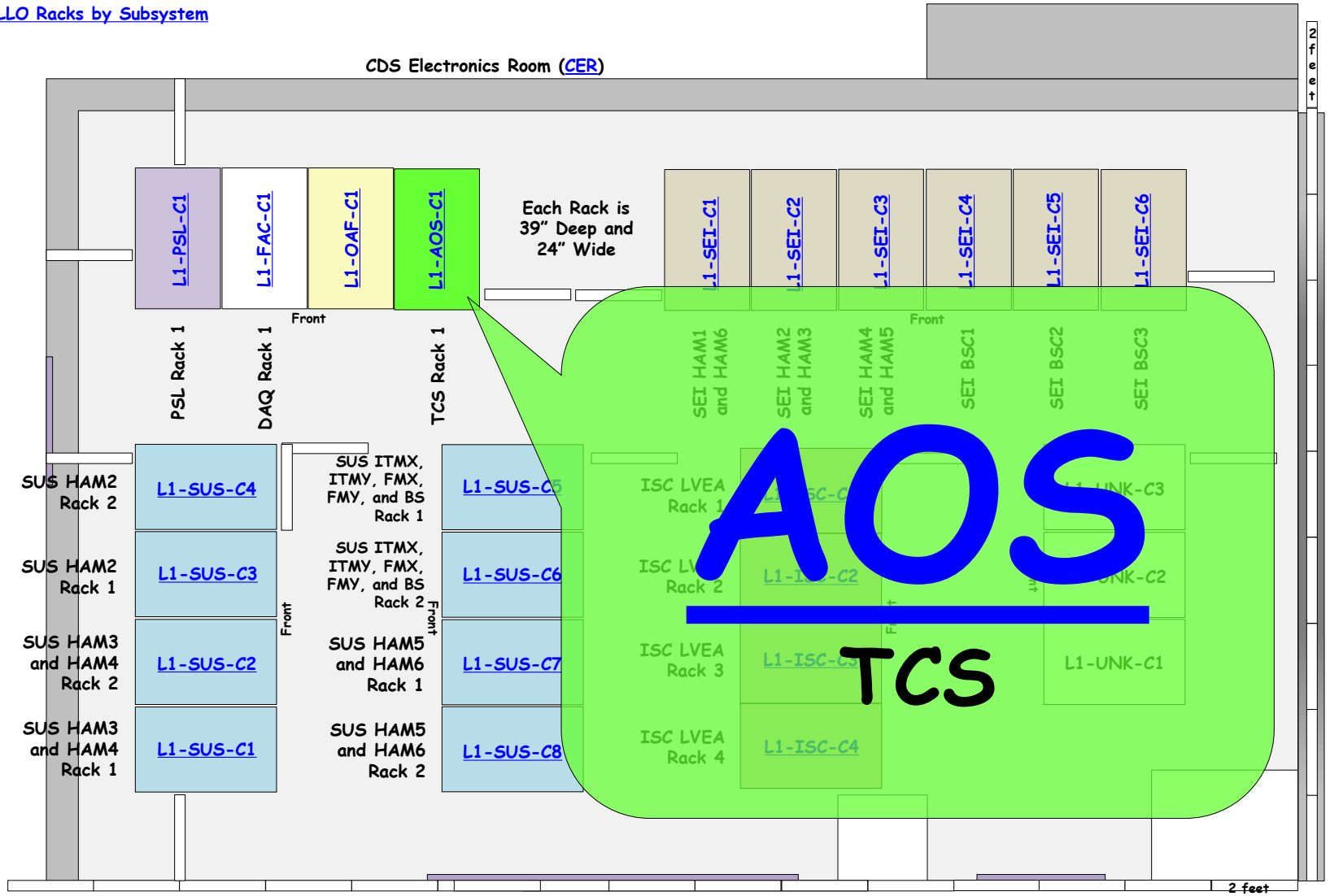
Other KEPCOs

[<< L1-VDC-C7]

Subsystem: AOS / TCS (Auxiliary Optics)

LIGO

<< LLO Racks by Subsystem



IO Diagram: D1100909

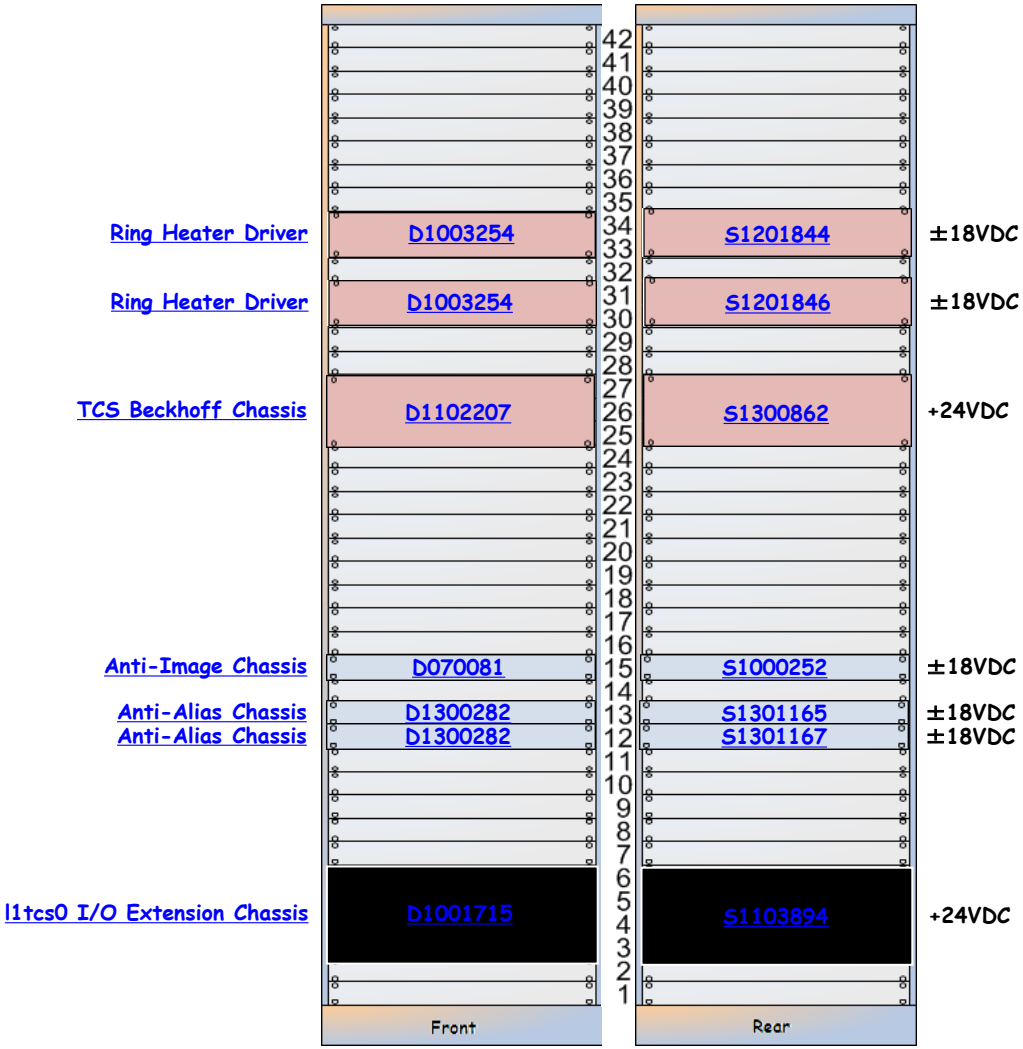
Op Lev Docs : E1200031 and T1000097

D1200258

L1-AOS-C1

LIGO
<< CER

AOS Rack Layout (D1201119) (S1202974)



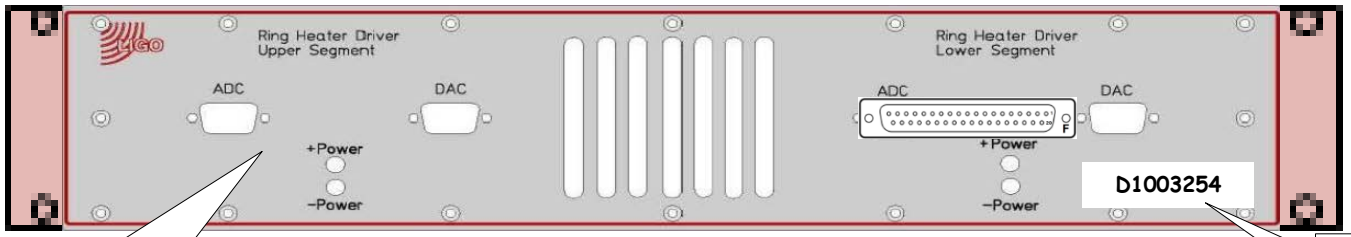
L1-AOS-C1 is part of E1100895
L1-AOS-C1 is part of D1200258

L1-AOS-C1 Details

D1003254-S1201844

« L1-AOS-C1

Ring Heater Driver | D1003254 | S1201844 | ±18VDC



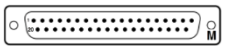
D1003254

Front

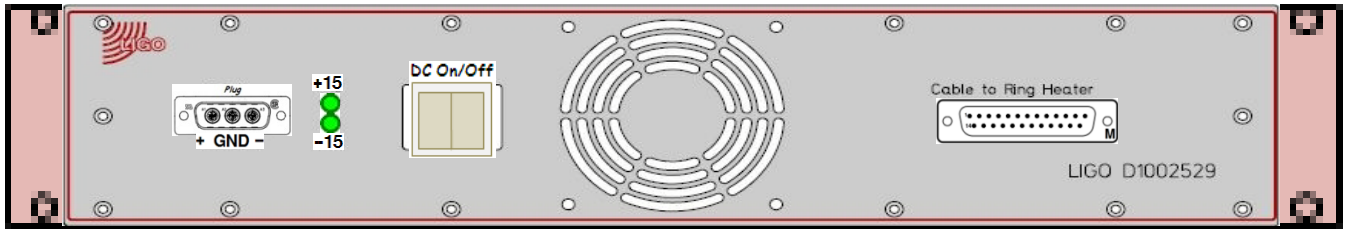
This is an early revision of the front panel. It now has one DB37M connector. 20121205 dlk

Description

Label



White label 20121205 dlk

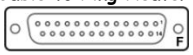


S1201844

Rear

Cable to Ring Heater

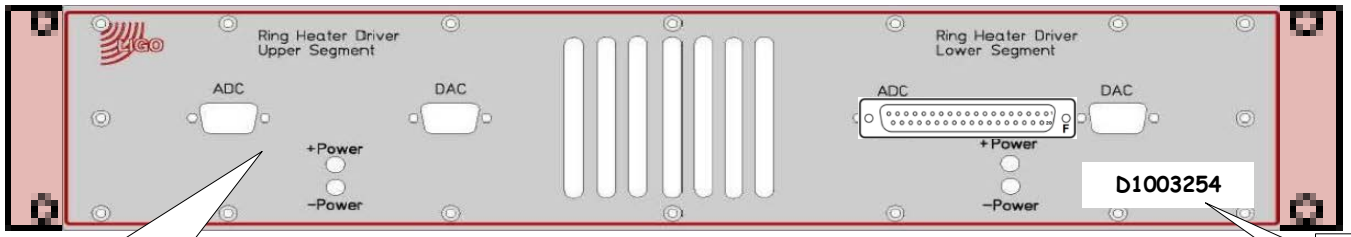
Label



D1003254-S1201846

« L1-AOS-C1

Ring Heater Driver | D1003254 | S1201846 | ±18VDC



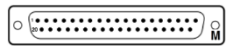
D1003254

Front

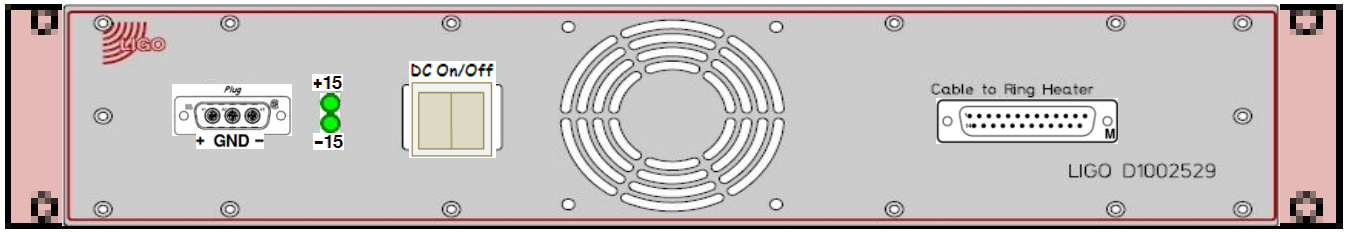
This is an early revision of the front panel. It now has one DB37M connector. 20121205 dlk

Description

Label



White label 20121205 dlk

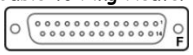


S1201846

Rear

Cable to Ring Heater

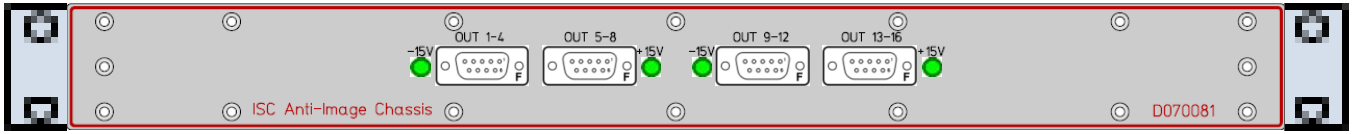
Label



D070081 - S1000252

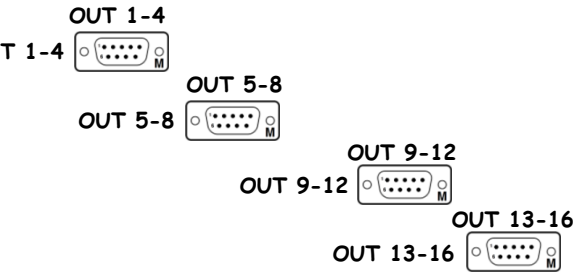
« L1-AOS-C1

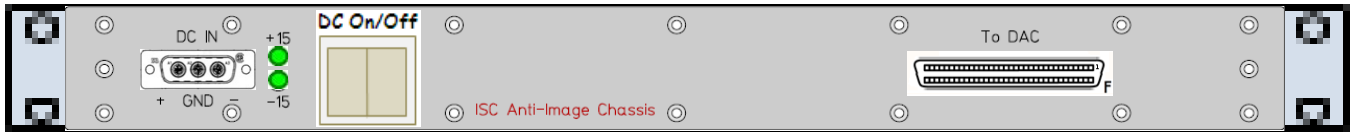
Anti-Image Chassis | D070081 | S1000252 | ±18VDC



D070081

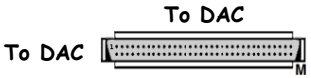
Front





S1000252

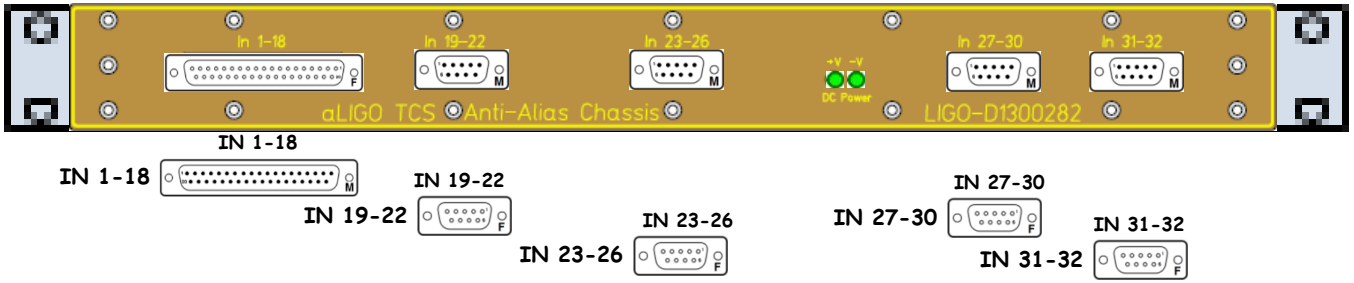
Rear



D1300282 - S1301165

[<< L1-AOS-C1]

Anti-Alias Chassis | D1300282 | S1301165 | ±18VDC



D1300282

Front

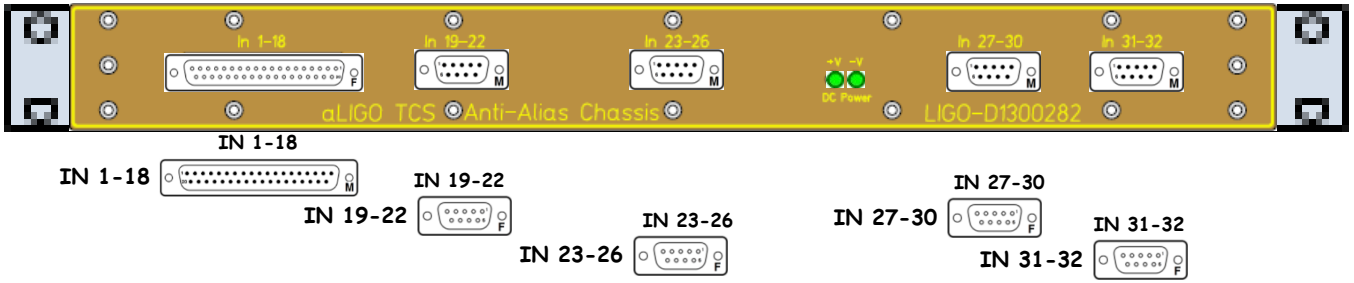
S1301165

Rear

D1300282 - S1301167

[<< L1-AOS-C1]

Anti-Alias Chassis [D1300282] [S1301167] ±18VDC



D1300282

Front

S1301167

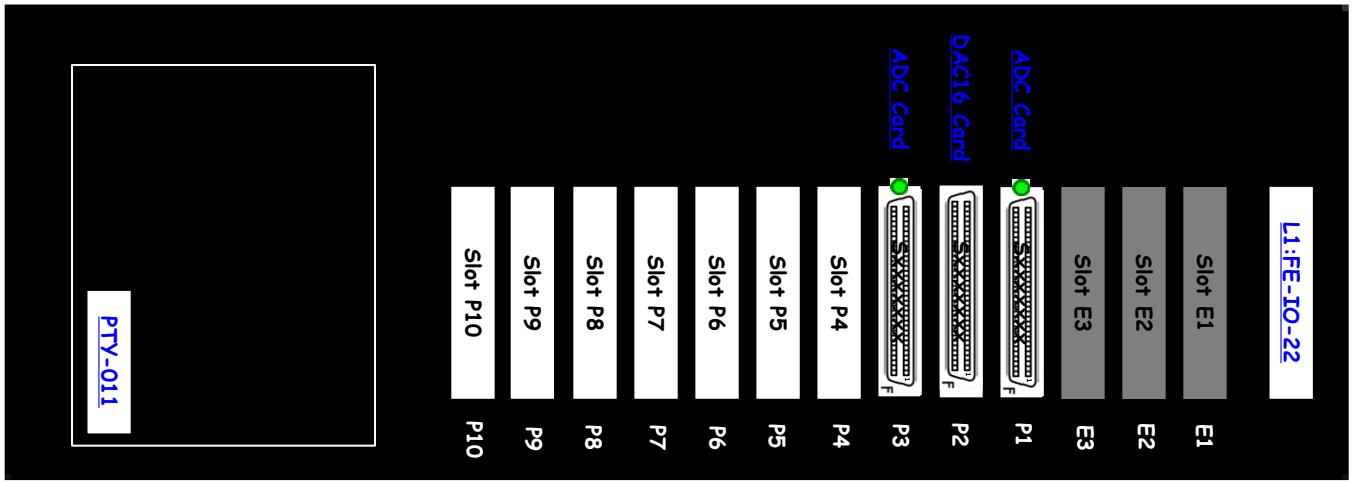
Rear

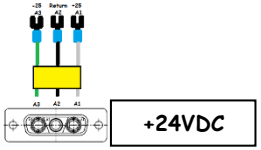
l1tcs0 - D1001715 - S1103894

[<< L1-AOS-C1]

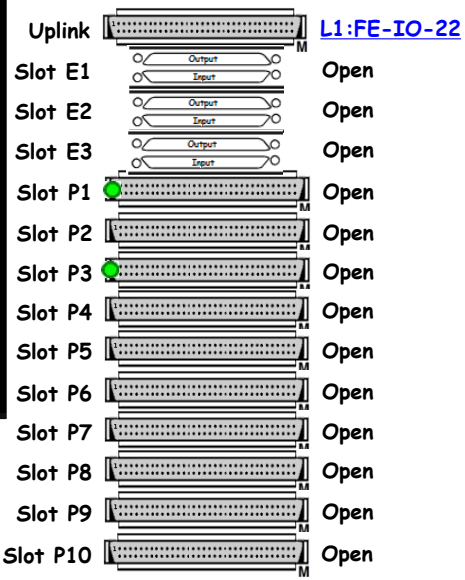
l1tcs0 I/O Extension Chassis | D1001715 | S1103894 | +24VDC

D1001715
Front





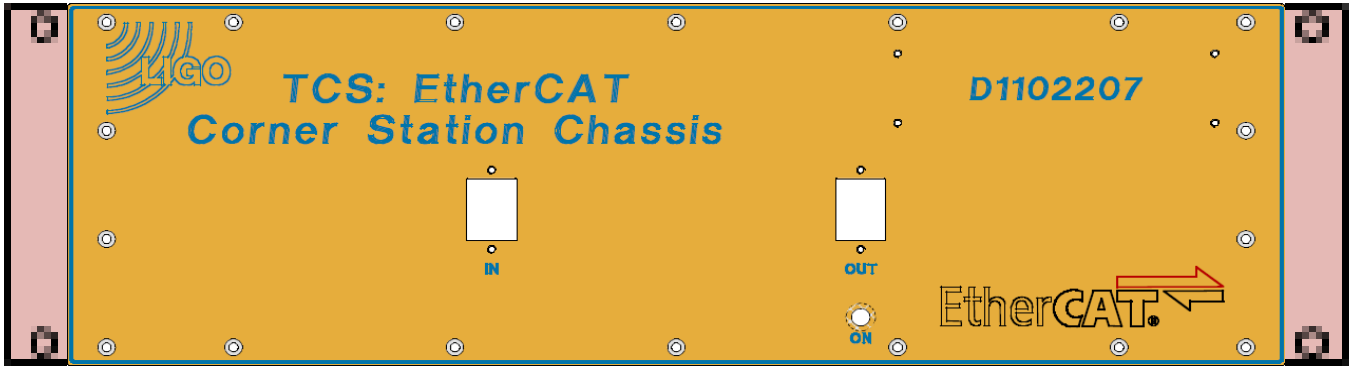
S1103894
Rear



D1102207 - S1300862

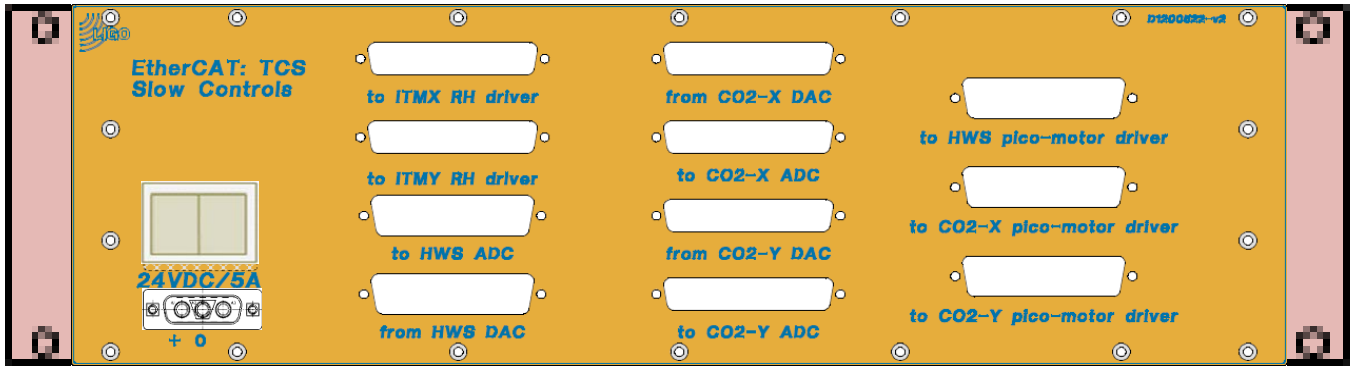
[<< L1-AOS-C1]

TCS Beckhoff Chassis | D1102207 | S1300862 | +24VDC



D1102207

Front

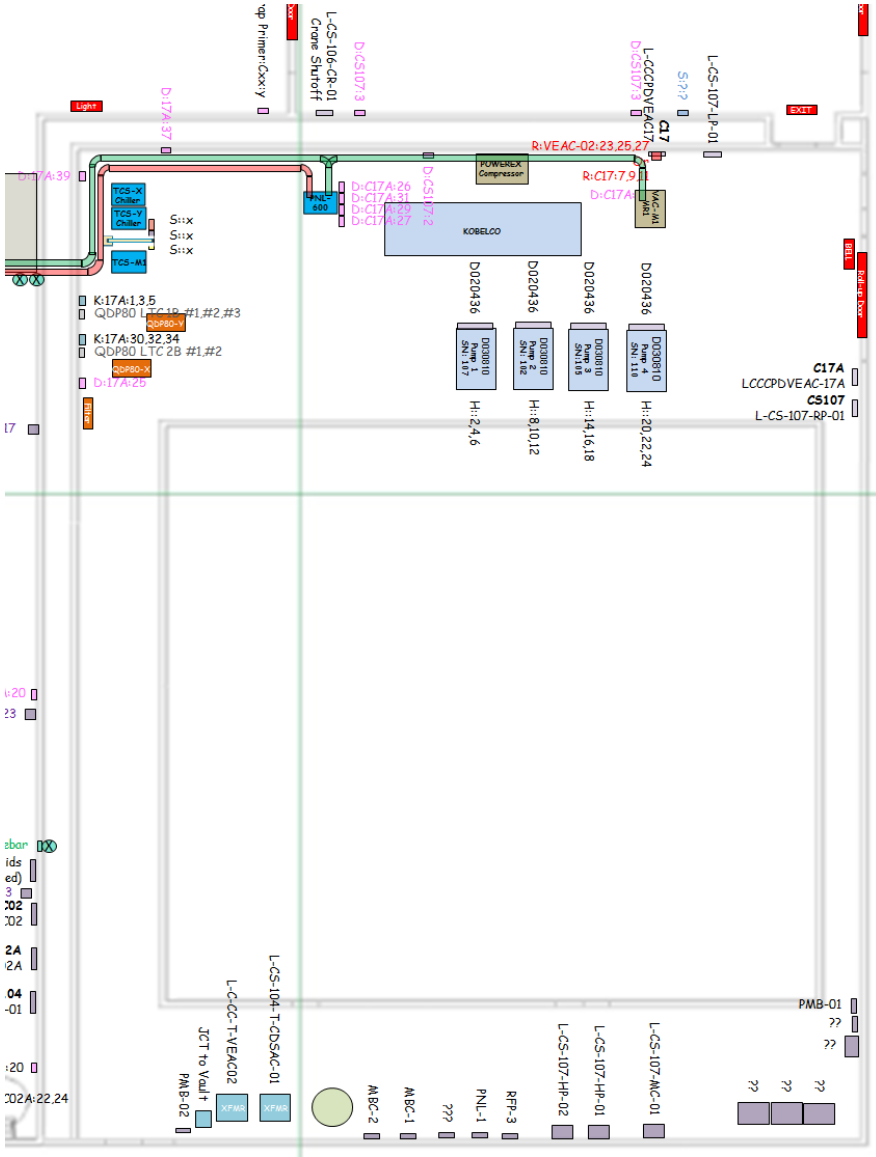


S1300862

Rear

Mechanical Room Racks

[<< LLO Racks by AREA]
[<< LLO Racks by Subsystems]



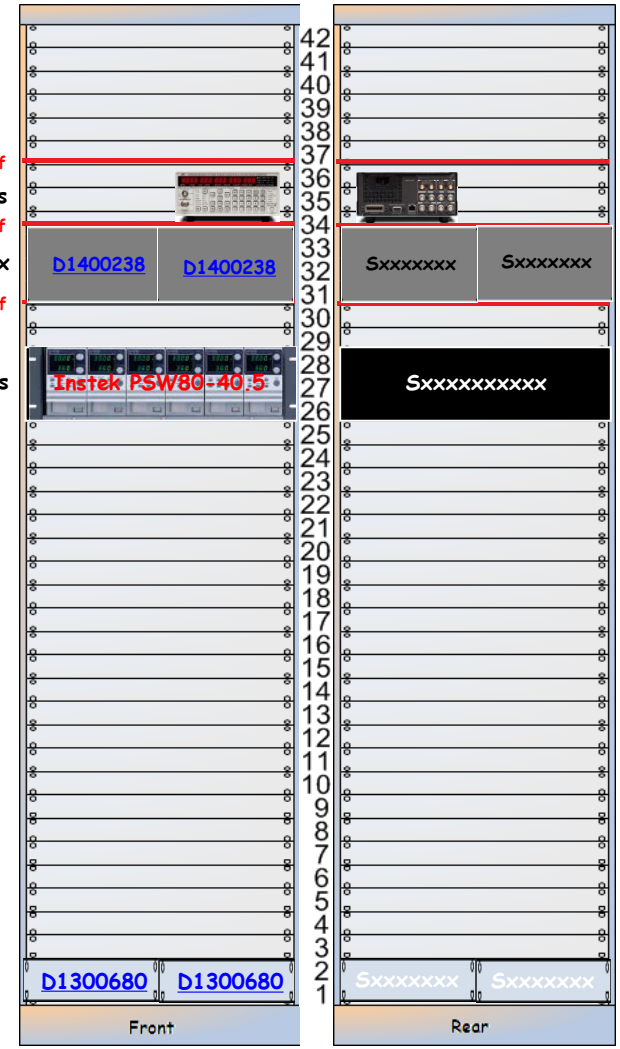
TCS Rack 1 (HV) (L1-TCS-M1)	LVEA Mech VAC (L1-VAC-R3)
	Vacuum ION PUMP Controllers (L1-PNL-600)
QDP80 (link)	HEPI Pumps (link)
Kobelco (link)	PMB (link)
Chillers (link)	

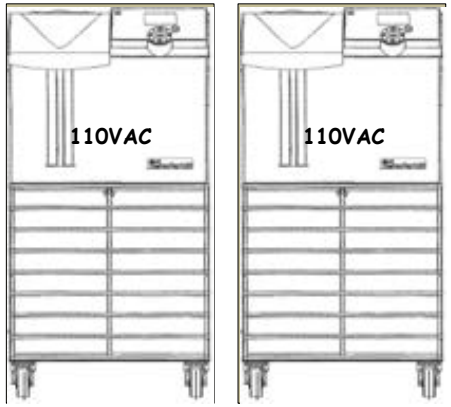
Commissioning Needs Operations

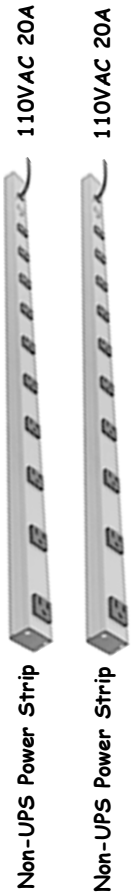
L1-TCS-M1 – TCS Power Supplies and Chillers

[<< Mechanical Room Racks]

L1-TCS-M1 (Mechanical Room) Rack Layout (D1201356) (S1203450)







D1400238-Sxxxxxxx

« L1-TCS-M1

TCS CO2 Laser Power Supply Interlock Box | D1400238 | Sxxxxxxx | ±24VDC

D1400238

Front

Sxxxxxxx

Rear

D1400238 - TCS CO2 Laser Input Power Interlock Box

Digi-Key HM1193-ND 8.74 x 5.75 x 4.14 Black Box
Mouser 651—2963802 Phoenix Contact Safety Relay
Digi-Key 277-9822-ND AC/DC CONVERTER 24V 2.5A 60W
DB9 F bulkhead mount + 2 pins
3.75” DIN rail
2 – 8-32*3/8 Screws
2 – 8-32 Nylon filled nuts
2 - #10 Flat washers
2 - Grommets
1 – 16/3 3-prong extension cord – 6’

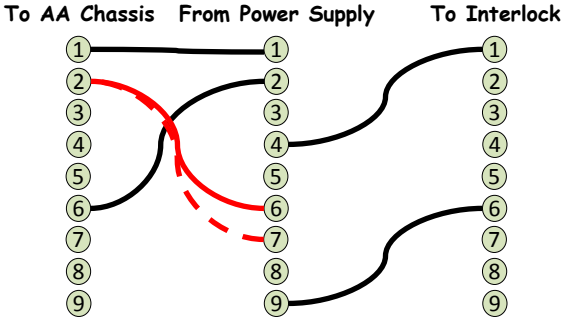
D1300680 - Sxxxxxxx

[<< L1-TCS-M1]

TCS Power Supply Splitter [D1300680] Sxxxxxxx No Power

This device is NOT removable because signals cross pins. And Pin 7 is called out as Ground, but is not connected.

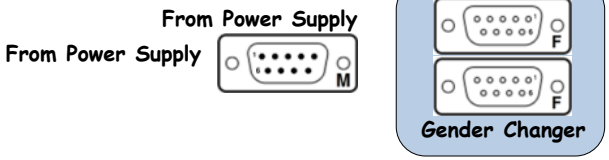
In addition, the drawings for the cable pin-outs are wrong.

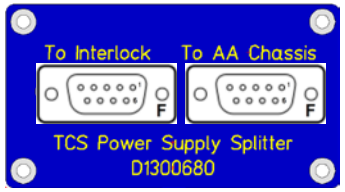


"To Interlock" cable is NOT present. The actual Interlock Cable comes from the D1400238 Box.

D1300680

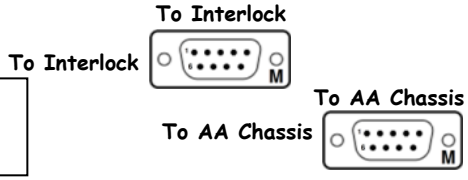
Front





D1300680

Rear



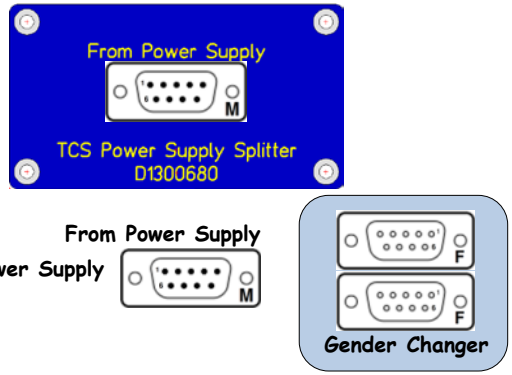
D1300680 - Sxxxxxxx

[<< L1-TCS-M1]

TCS Power Supply Splitter | D1300680 | Sxxxxxxx | No Power

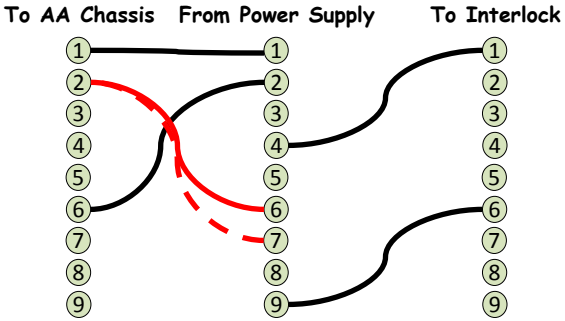
This device is NOT removable because signals cross pins. And Pin 7 is called out as Ground, but is not connected.

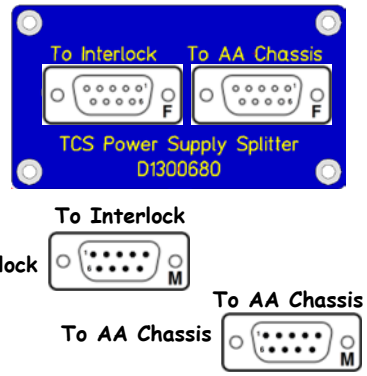
In addition, the drawings for the cable pin-outs are wrong.



D1300680

Front





D1300680

Rear

"To Interlock" cable is NOT present. The actual Interlock Cable comes from the D1400238 Box.

TCS Chiller UPS Calculations

Per chiller (2 per site)

ThermoFisher SCIENTIFIC

Bldg. 2B - Suite 400
28 Schenck Parkway
Asheville, NC 28803
Phone: (866) 984-3766 Fax: (888) 618-2676

Description
1111C20160200100
TF14 D A 115/60 T1 FCR DCOM ACOM

Setpoint range: 5-40C
Cooling capacity: 60Hz - 1400 Watts @20C
Dimensions: H x W x D: (27.3 in x 14.2 in x 24.6 in); (69.2 cm x 36.0 cm x 62.4 cm)
Volume: 1.9 gallons (7.2 liters)
Power Requirements: 115VAC 60HZ; 100VAC 50HZ 14.6A
Pump: 60Hz - Pump Flow: 3.5 gpm @ 60 psid; (13.2 lpm @ 4.1 bar)
Compliance:
CSA File #: 1056974_C_000
CLASS: 8721-05 CAN/CSA 22.2 No. 61010-1-04
CLASS: 8721-85 ANSI/UL Standard 61010-1
2004/108/EC - EMC Directive - EN 61326-1:2006
2006/95/EC - Low Voltage Directive - EN 61010-1:2001

Options:
Flow Control Readout
RS232/RS485
Analog-IO

115VAC x 14.6A = 1679VA

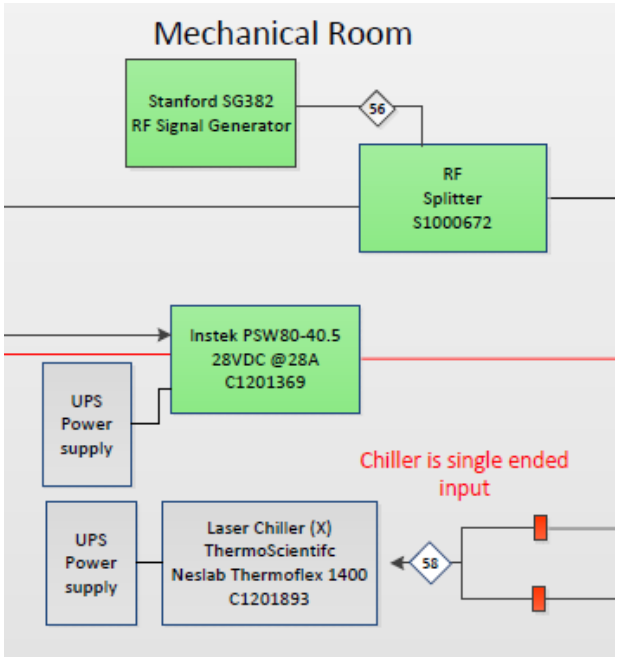
APC by Schneider Electric

Configured Runtime Chart

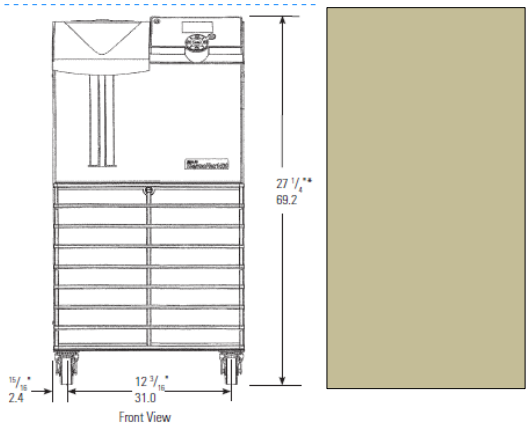
Model plus battery quantity	Typical backup time at 1800W Refresh
SMX3000RMLV2U	12 mins
SMX3000RMLV2U + (1)SMX120RMBP2U	51 mins
SMX3000RMLV2U + (2)SMX120RMBP2U	1 hrs 31 mins
SMX3000RMLV2U + (3)SMX120RMBP2U	2 hrs 14 mins
SMX3000RMLV2U + (4)SMX120RMBP2U	2 hrs 57 mins
SMX3000RMLV2U + (6)SMX120RMBP2U	4 hrs 27 mins
SMX3000RMLV2U + (8)SMX120RMBP2U	5 hrs 59 mins
SMX3000RMLV2U + (10)SMX120RMBP2U	7 hrs 34 mins

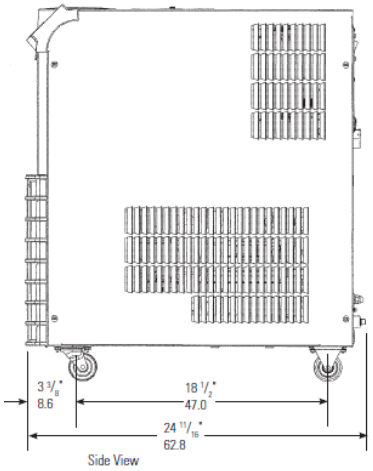
Thermoflex 1400 Chiller

[<< L1-TCS-M1]



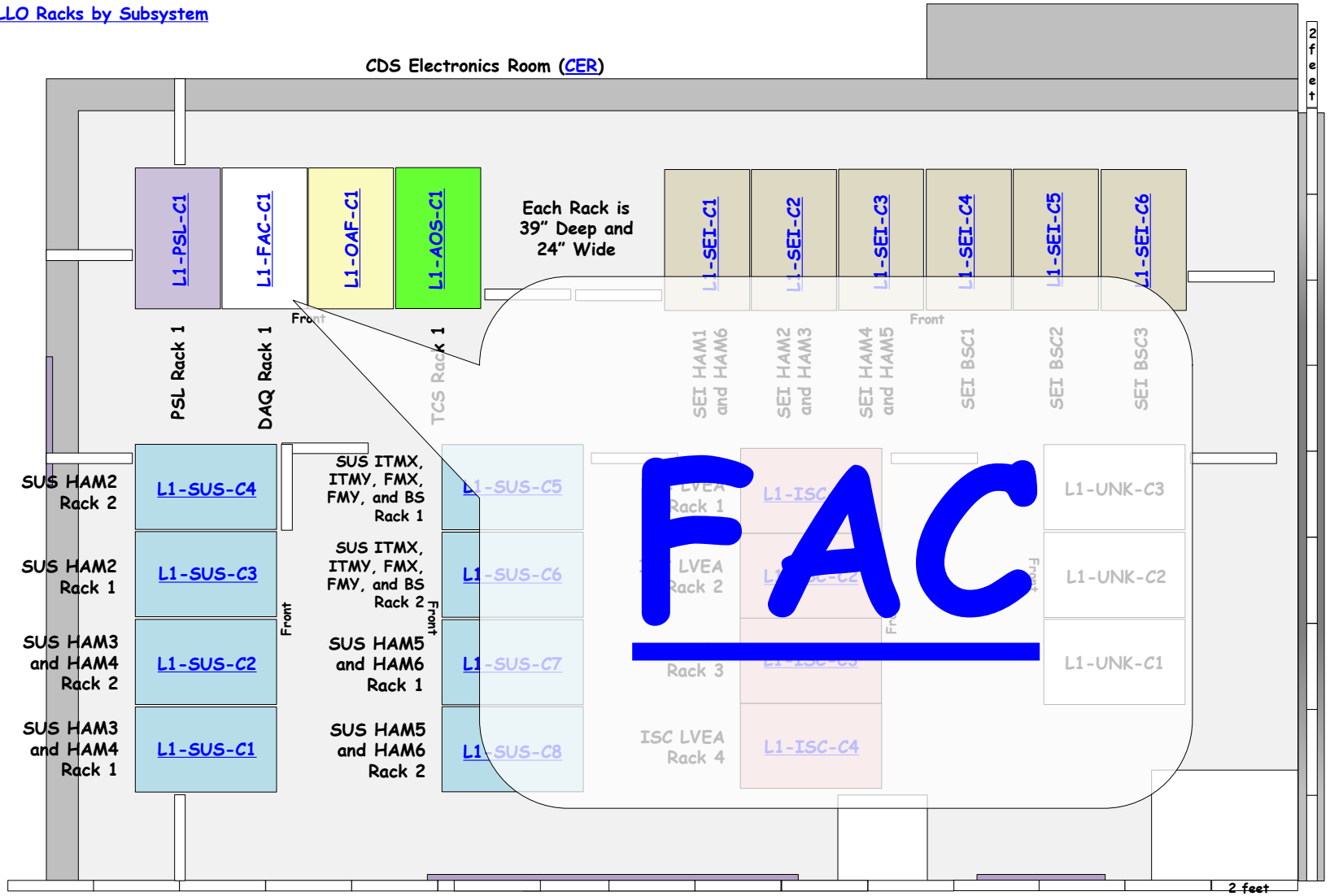
ThermoFlex1400	Voltage ±10%	Frequency	Phase	Branch Circuit Requirements	Line Cord Plug
	100 VAC	50 Hz	1Ø	20A	5-20P
	115 VAC	60 Hz	1Ø	20A	5-20P
	200 VAC	50 Hz	1Ø	15A	6-15P
	208-230 VAC	60 Hz	1Ø	15A	6-15P
	230 VAC	50 Hz	1Ø	*16A[1], 15A[2], 13A[3]	-





Subsystem: FAC (Facilities)

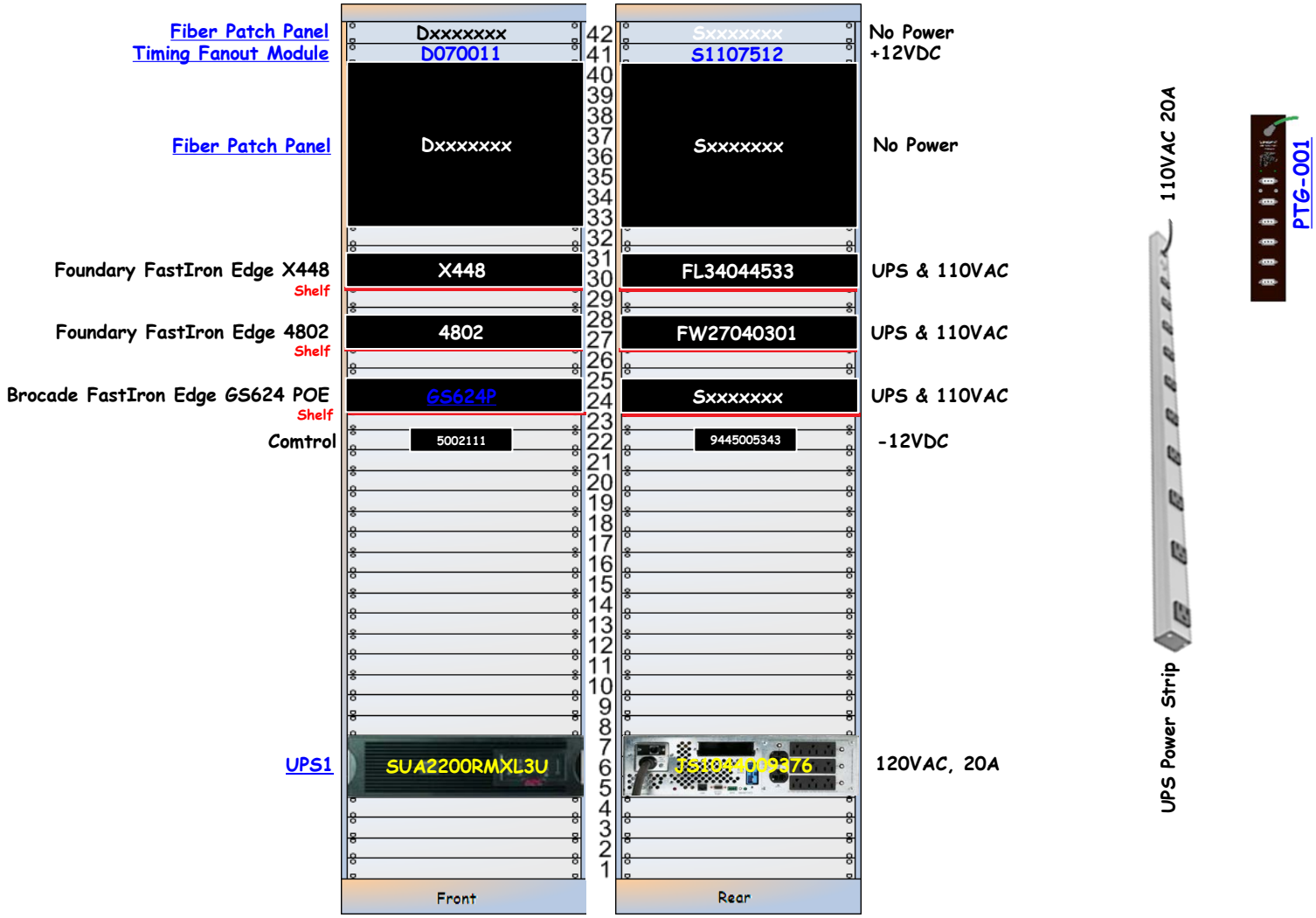
[<< LLO Racks by Subsystem]



L1-FAC-C1

« CER

L1-FAC-C1 Rack Layout (D1200940) (S1202403)



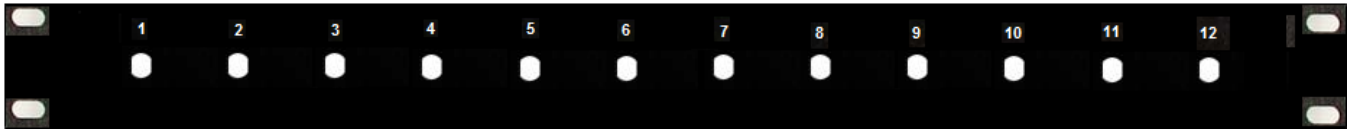
L1-FAC-C1 Details

Dxxxxxxx - Sxxxxxxx

[<< L1-FAC-C1]

Fiber Patch Panel | Dxxxxxxx | Sxxxxxxx | No Power

Fibercables.com



Dxxxxxxx

Front

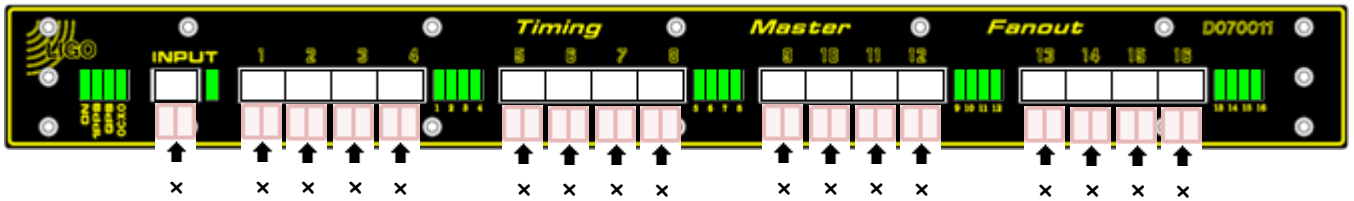
Sxxxxxxxx

Rear

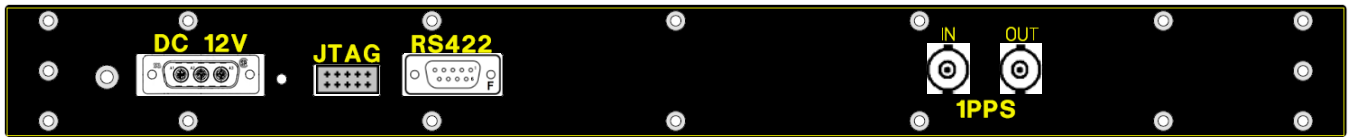
D070011 - S1107512

[<< L1-FAC-C1]

Timing Fanout Module | D070011 | S1107512 | +12VDC



D070011
Front



S1107512
Rear
Fanout

Fiber Patch Panel

LIGO
<< L1-FAC-C1

SUA2200RMXL3U – JS1044009376 UPS

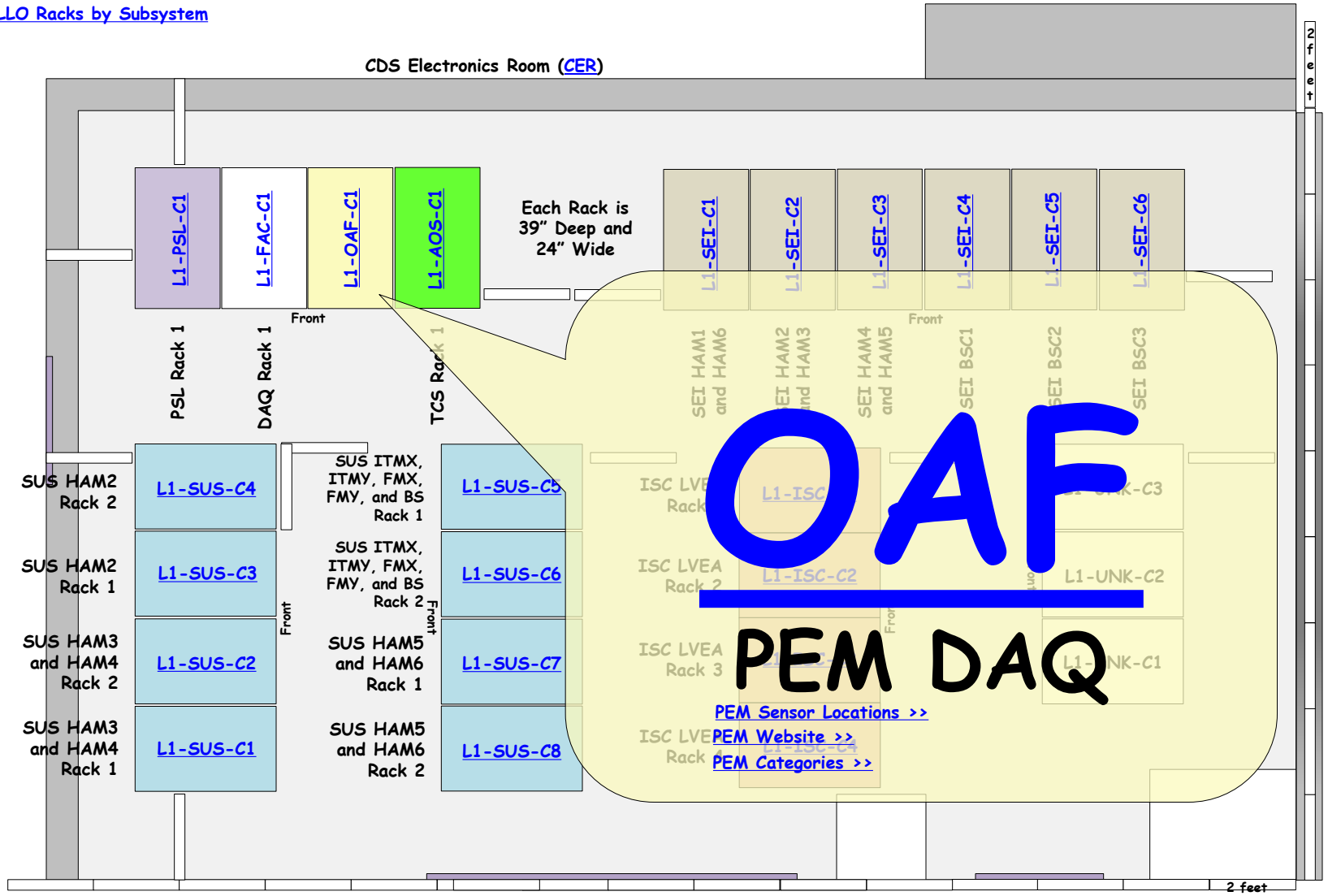
LIGO
<< L1-FAC-C1

UPS1

120VAC, 20A

Subsystem: OAF (Online Adaptive Filtering)

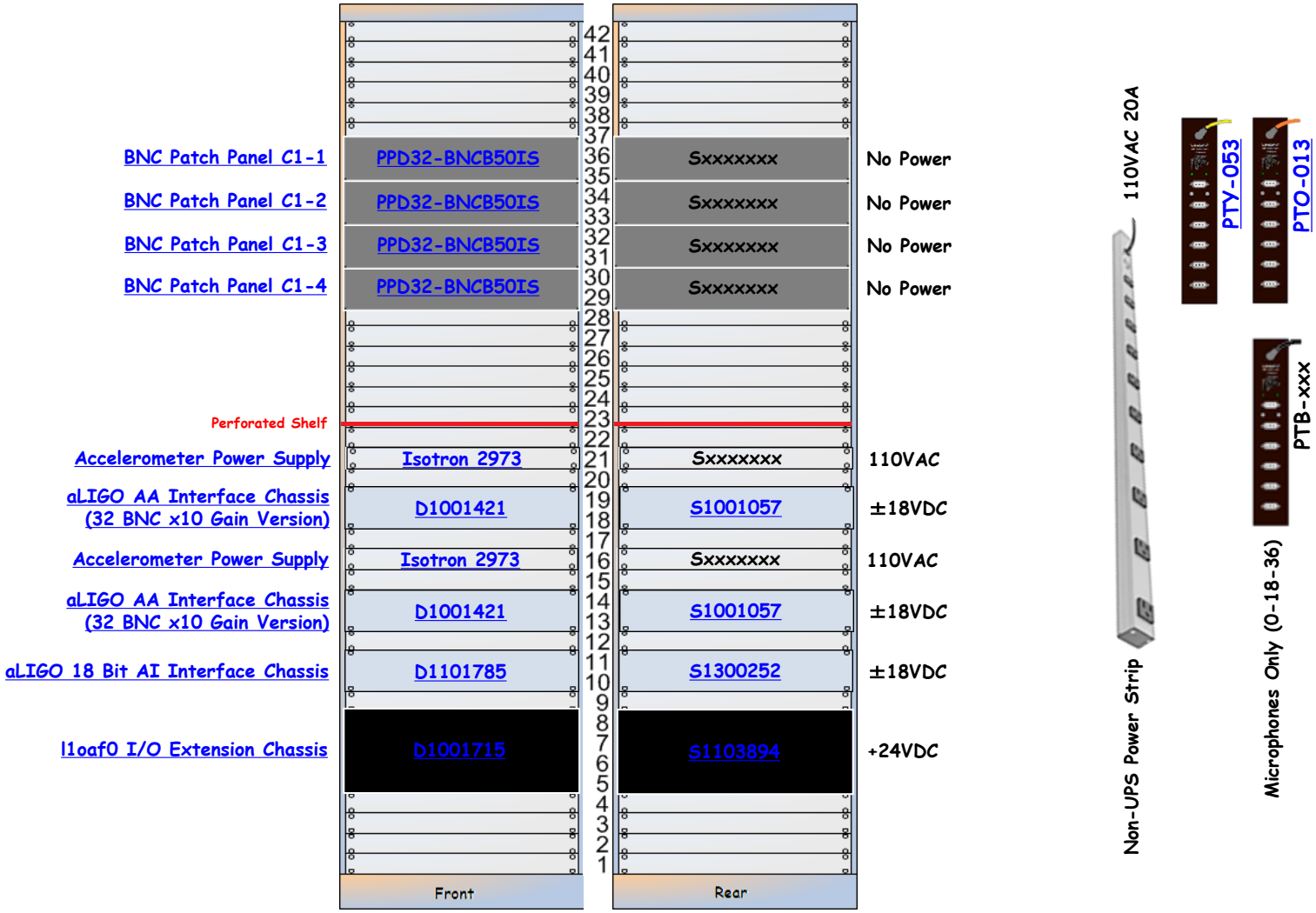
[<< LLO Racks by Subsystem]



L1-OAF-C1 (Online Adaptive Filtering)

[<< CER]

L1-OAF-C1 Rack Layout (D1200941) (S1202404)



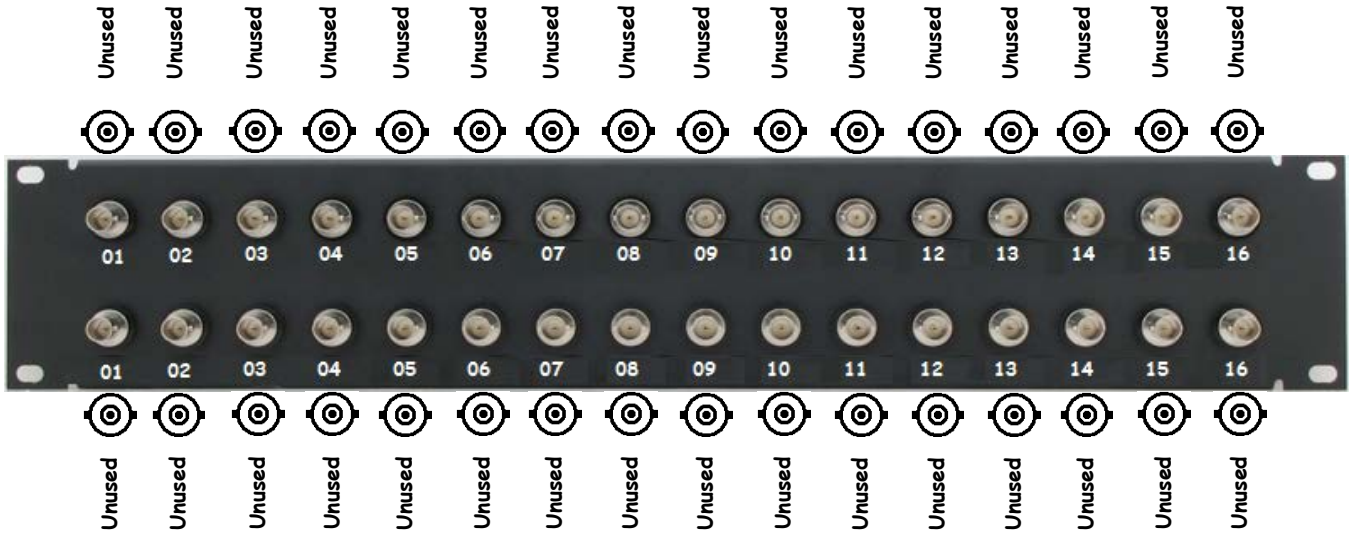
[PEM Sensor Locations >>]

L1-OAF-C1 Details

BNC Patch Panel C1-1

[<< L1-OAF-C1]

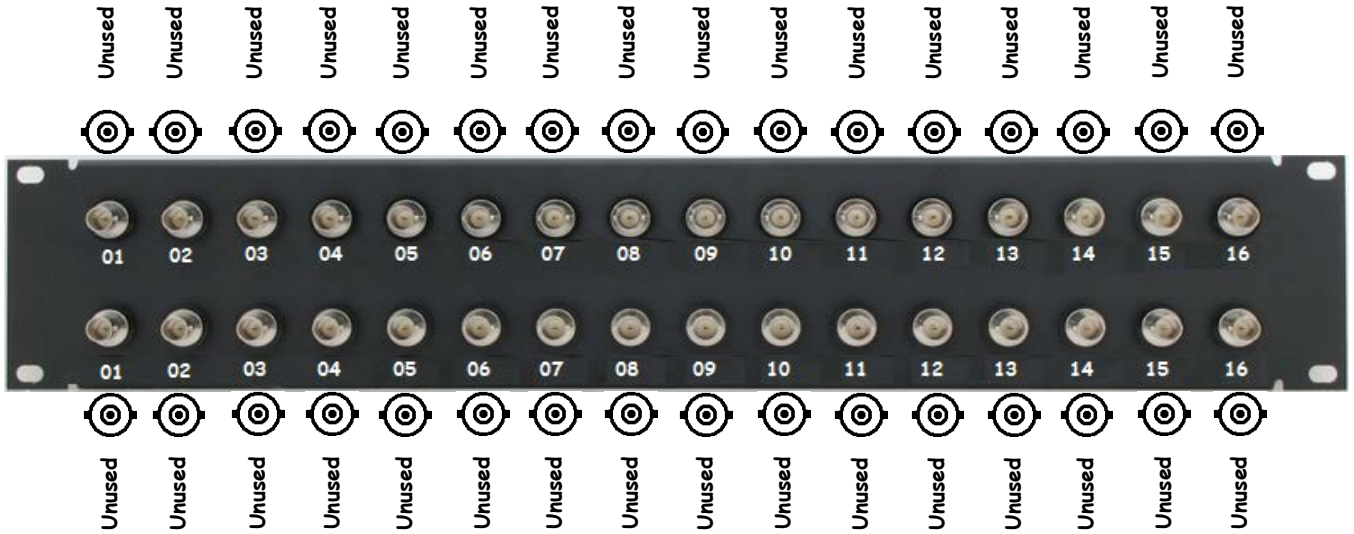
BNC Patch Panel C1-1 | PPD32-BNCB50IS | Sxxxxxxx | No Power



BNC Patch Panel C1-2

« L1-OAF-C1

BNC Patch Panel C1-2 | PPD32-BNCB50IS | Sxxxxxxx | No Power



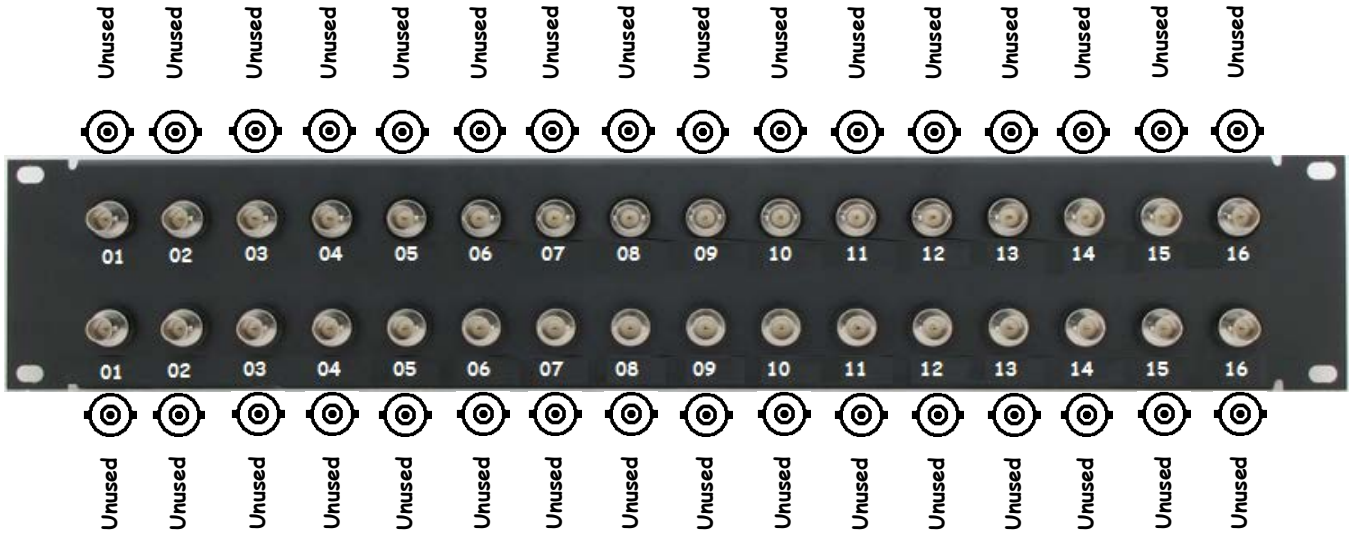
PPD32-BNCB50IS

Front

BNC Patch Panel C1-3

[<< L1-OAF-C1]

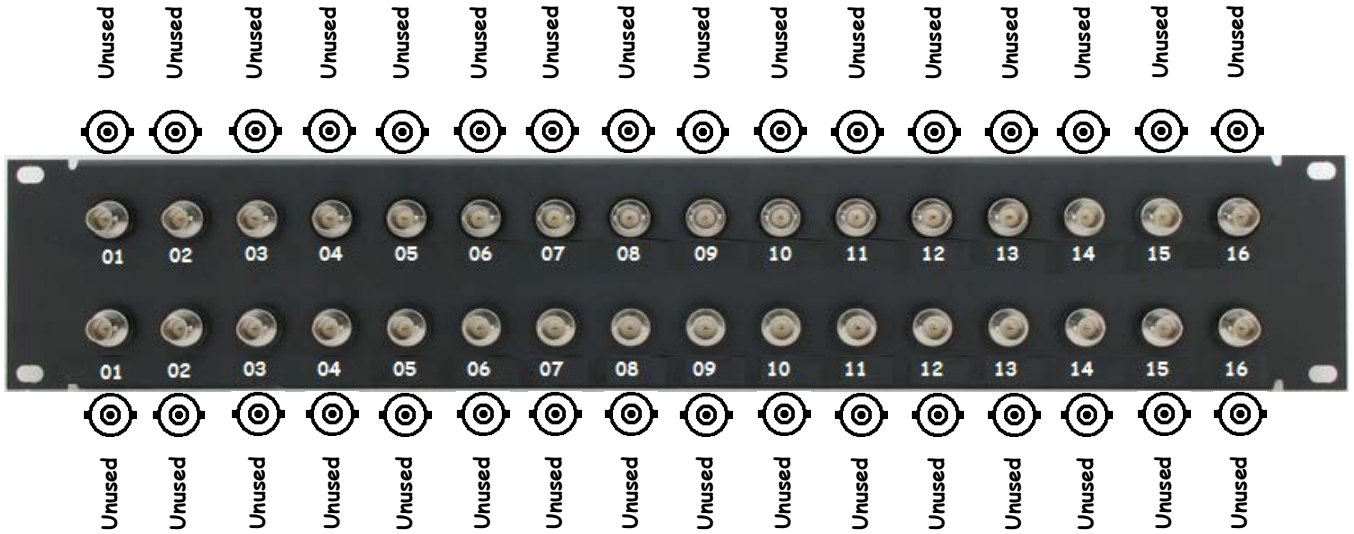
BNC Patch Panel C1-3 | PPD32-BNCB50IS | Sxxxxxxx | No Power



BNC Patch Panel C1-4

« L1-OAF-C1

BNC Patch Panel C1-4 | PPD32-BNCB50IS | Sxxxxxxx | No Power



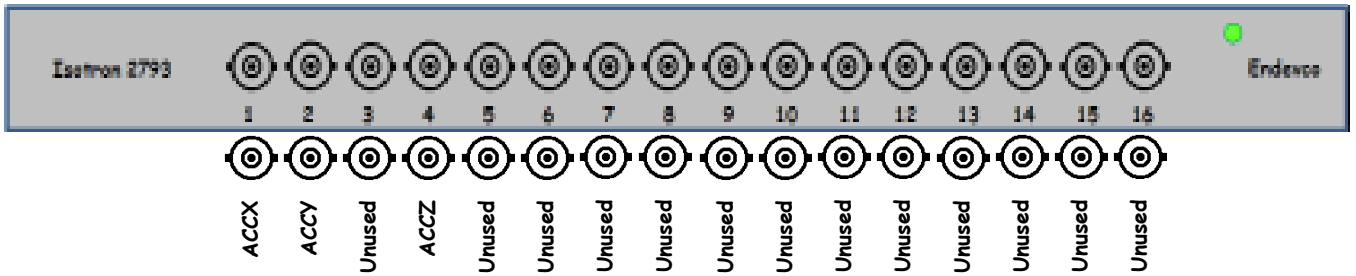
PPD32-BNCB50IS

Front

Endevco Isotron 2793

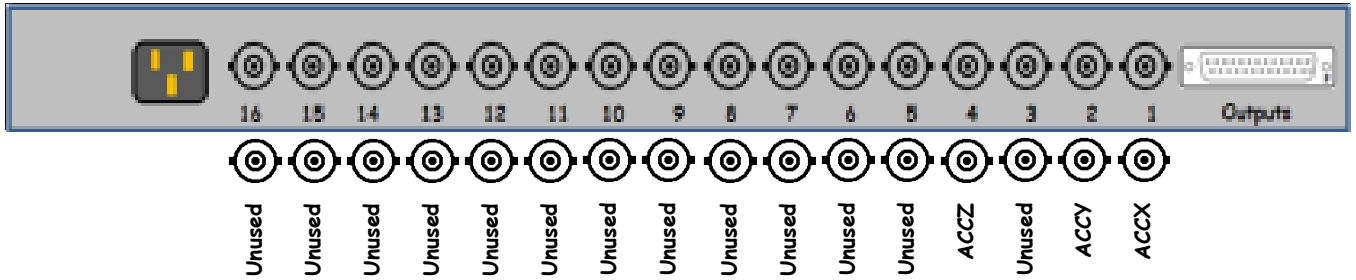
[<< L1-OAF-C1]

Accelerometer Power Supply | Isotron 2973 | Sxxxxxxx | 110VAC



[Isotron 2973]

Front



Sxxxxxxx

Rear

D1001421 - S1001057

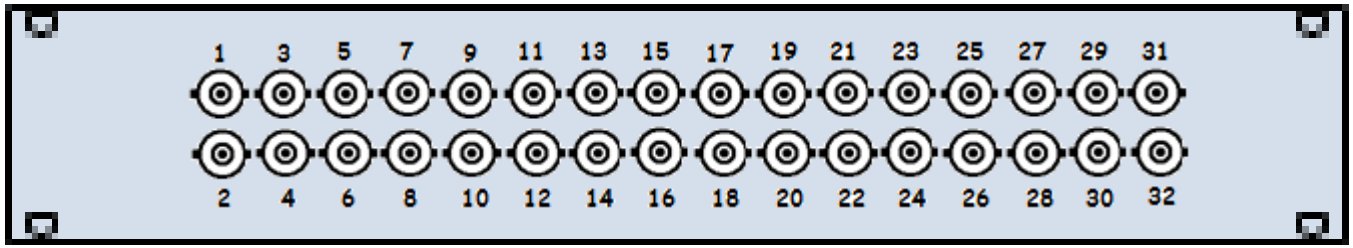
<< L1-OAF-C1

aLIGO AA Interface Chassis
(32 BNC, x10 Gain Version)

D1001421

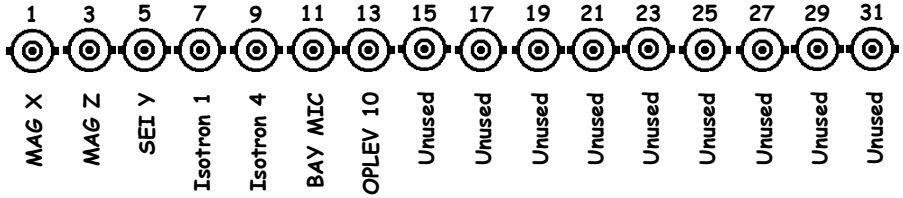
S1001057 :

±18VDC

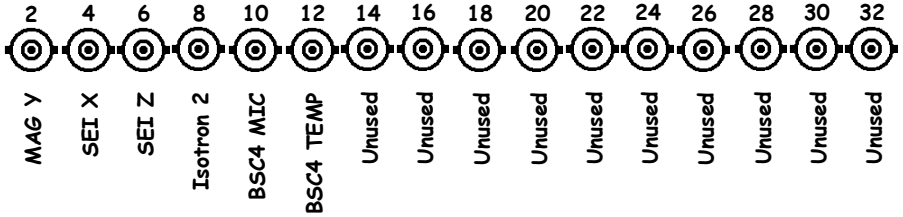


D1001421

Front



D1300774



S1001057

Rear

To ADC Adapter

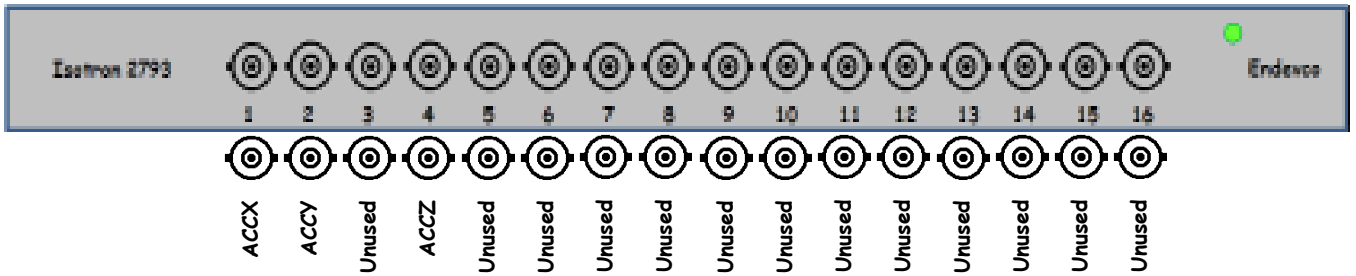
To l1oaf0 Slot P1

M

Endevco Isotron 2793

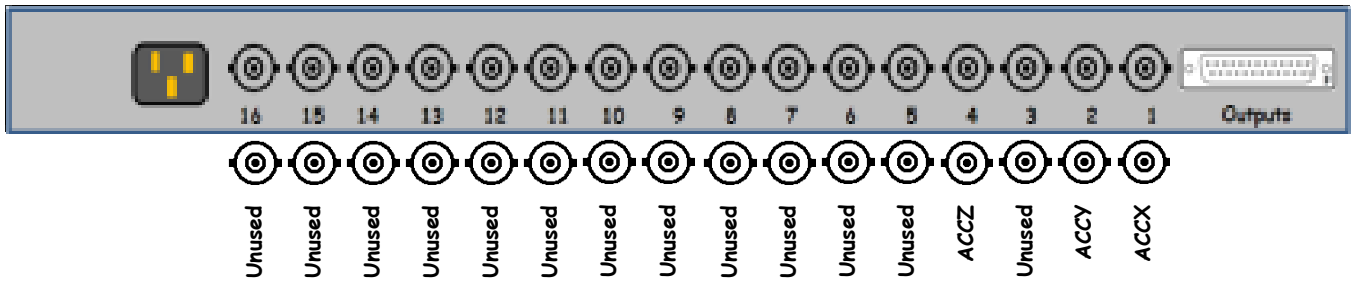
LIGO
<< L1-OAF-C1

Accelerometer Power Supply | Isotron 2973 | Sxxxxxxx | 110VAC



Isotron 2973

Front



Sxxxxxxx

Rear

D1001421 - S1001057

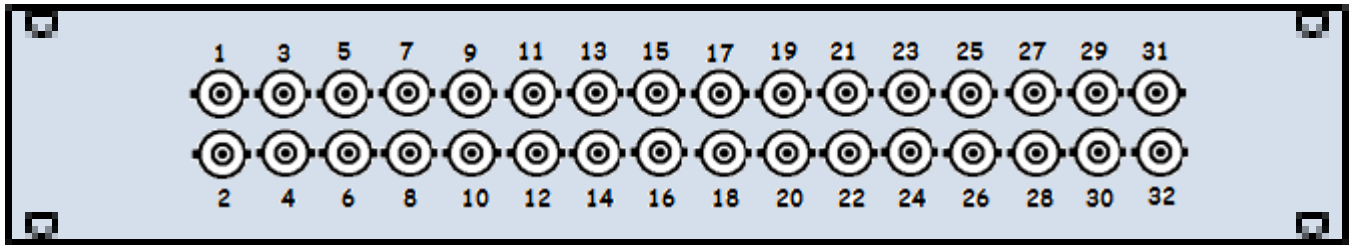
<< L1-OAF-C1

aLIGO AA Interface Chassis
(32 BNC, x10 Gain Version)

D1001421

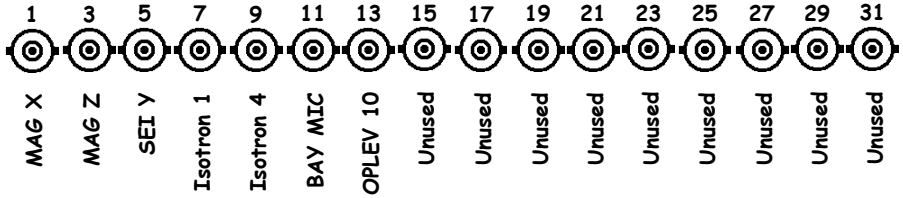
S1001057 :

±18VDC

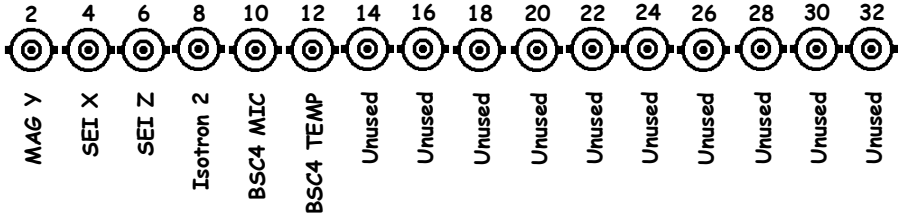


D1001421

Front



D1300774



S1001057

Rear

To ADC Adapter

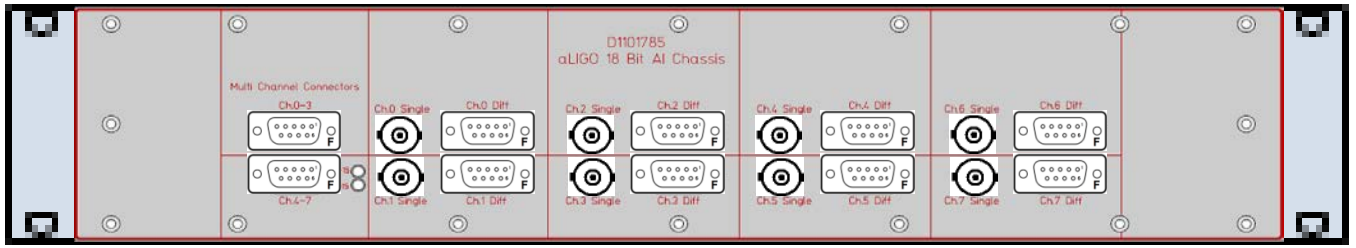
To l1oaf0 Slot P1

M

D1101785 - S1300252

[<< L1-OAF-C1]

aLIGO 18 Bit AI Interface Chassis | D1101785 | S1300252 | ±18VDC



D1101785

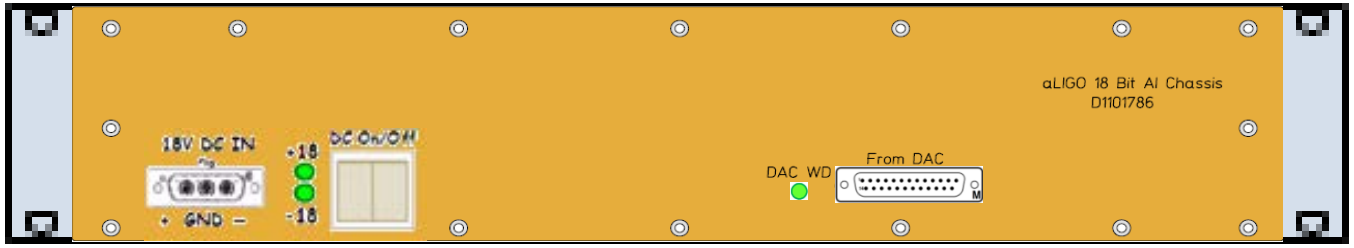
Front

Ch 0-3

Ch 0-3

Ch 4-7

Ch 4-7



S1300252

Rear

From DAC

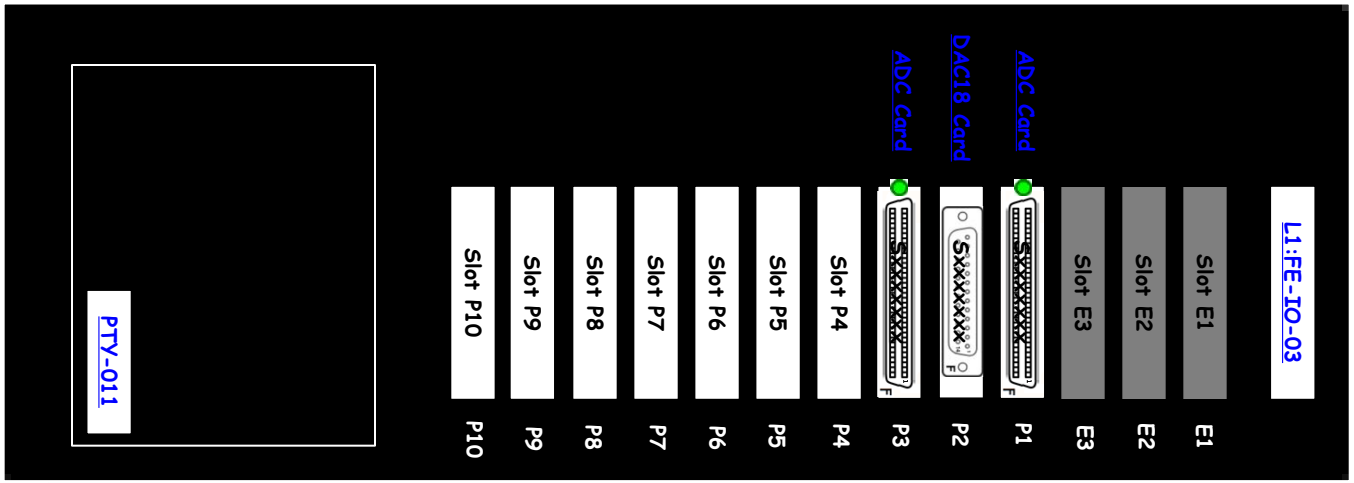
From DAC

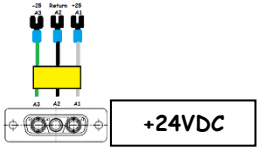
l1oaf0 - D1001715 - S1103894

[<< L1-OAF-C1]

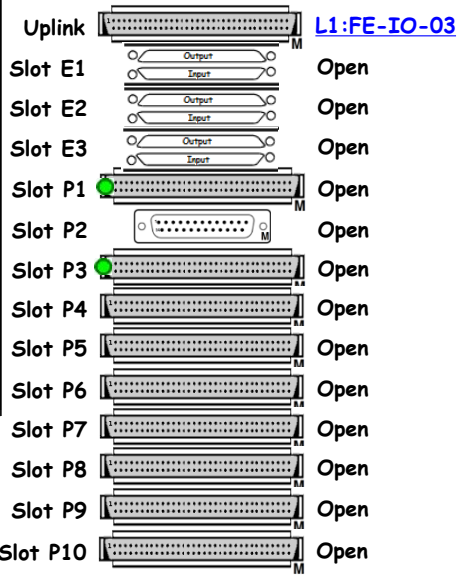
l1oaf0 I/O Extension Chassis | D1001715 | S1103894 | 110VAC

D1001715
Front





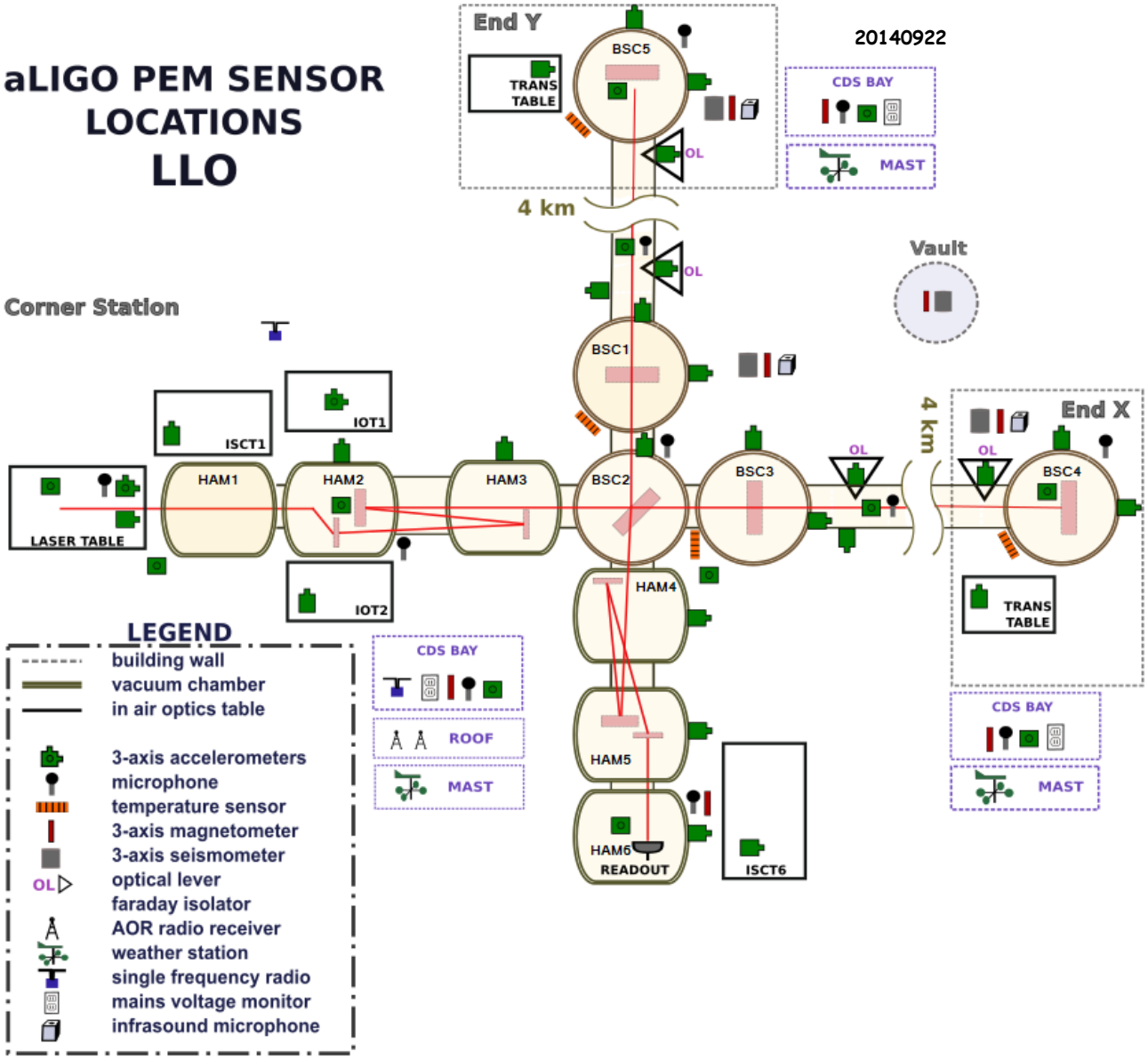
S1103894
Rear



LLO PEM Sensor Locations

<< L1-OAF-C1

PEM Website
PEM Categories



D1200615

PEM Categories

- Accelerometers
- Antennae (Radio Receivers)
- Coil Magnetometer
- Cosmic Ray Detector
- Magnetometer
- Microphones
- Muon (Charged Particle) Detector
- Particle Counters (Dust Monitors)
- Power Line (Voltage) Monitor
- Residual Gas in Vacuum System
- Scintillator Detector
- Seismometers
- Temperature Sensors
- Tiltmeters
- Vacuum Contamination Monitor
- Weather Stations

Current PEM (2008)

- Accelerometers
  - $10^{-8}\ f^{-2}\ m\ Hz^{-1/2}$
  - 10-200Hz (256Hz, 16bit)
- Seismometers
  - $3 \times 10^{-10}\ f^{-2}\ m\ Hz^{-1/2}$
  - 0-10 Hz (256Hz, 16bit, 3 axis)
- Microphones
  - $10\ Pa\ Hz^{-1/2}$
  - 10-1000Hz (2048Hz, 16bit)
- RF receivers
  - 10μV/m
  - 1.3GHz (2048Hz, 6x16bit)
- Residual Gas in Vacuum System
- Vacuum contamination Monitor
- Weather Station
  - T (1K), RH (10%), precipitation (10%), Wind (1mph)

Current PEM (2008)

- Tiltmeters
  - $2 \times 10^{-9}\ f^{-2}$ rad $Hz^{-1/2}$
  - 0-10Hz (256Hz, 16bit, 2 axis)
- Dust Monitors
- Muon (Charged Particle) Detector
  - $10^{-4} \mu/s/m^2$
  - 1 msec (2048Hz, 16bit)
- Cosmic Rays
- Magnetometer
  - 2×10^{-11} T.$Hz^{-1/2}$
  - 1 kHz (2048Hz, 3x16bit)
- Coil magnetometer
  - 2×10^{-12} T.$Hz^{-1/2}$
  - 1 kHz (2048Hz, 16bit)
- Scintillator detector
- Power Line Monitor

PCIe to Fiber Cable Adapter

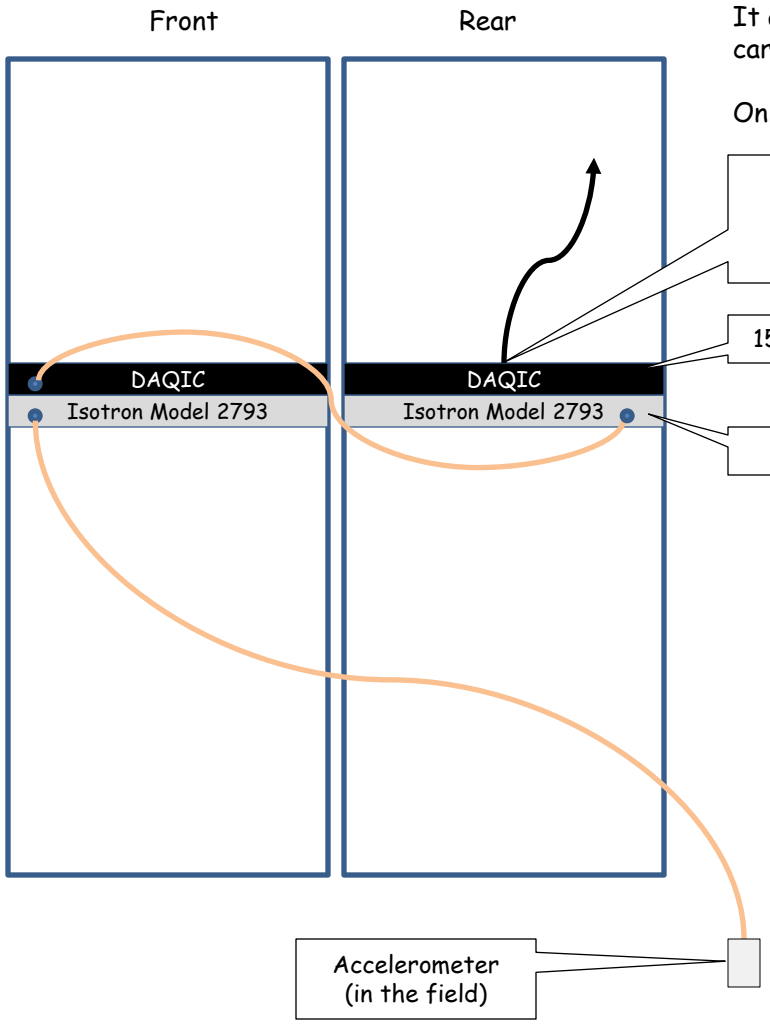
Accelerometers (1)

1X5
1X20
1Y20

Isotron Power Supply Model 2793 has 16 channels
This model does NOT come with a DC option.
There is a 3-channel Power Supply that has a DC option, but it has many other features not desired.

It appears that a short (6") 10-32 to BNC cable can be ordered, but care should be given to strain relief considerations.

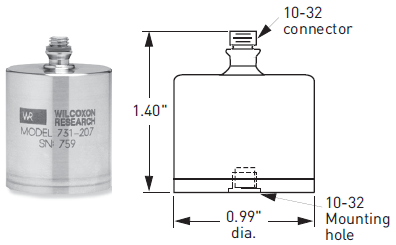
Only Wilcoxon Accelerometers are used for PEM



Accelerometer locations:

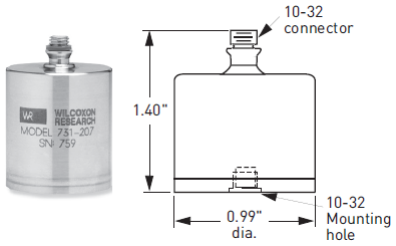
1) PSL X
2) PSL Y
3) PSL Z
4) ISCT1 X
5) ISCT1 Y
6) ISCT1 Z
7) HAM1 X
8) HAM1 Y aka HAM6 X
9) HAM1 Z
10) HAM2 X
11) HAM2 Y aka HAM6 Y
12) HAM2 Z
13) HAM3 X
14) HAM3 Y aka HAM6 Z
15) HAM3 Z
16) BSC1 X
17) BSC1 Y
18) BSC1 Z
19) BSC2 X
20) BSC2 Y
21) BSC2 Z
22) BSC3 X
23) BSC3 Y
24) BSC3 Z
25) HAM6 X
26) HAM6 Y
27) HAM6 Z
28) BSC4 X (VEAX)
29) BSC4 Y (VEAX)
30) BSC4 Z (VEAX)
31) BSC5 X (VEAY)
32) BSC5 Y (VEAY)
33) BSC5 Z (VEAY)

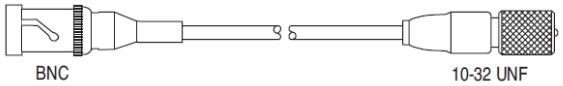
731-207 low frequency seismic accelerometer



Accelerometers (2)

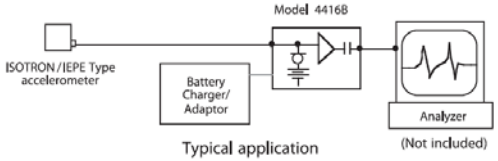
731-207 low frequency seismic accelerometer



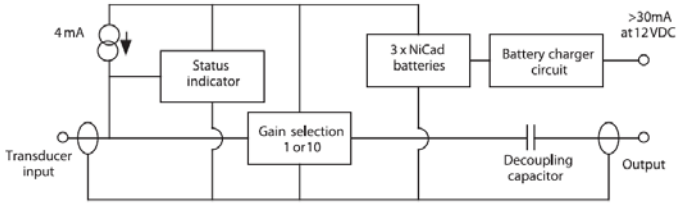


3061

The Endevco model 3061 cable is a non-low noise treated version of the 3090CM12 cable assembly. This cable has a male 10-32 miniature coax connector at one end and a male BNC at the other. The model 3061 is temperature rated from -85°F to +350°F.



Typical application



Model 4416B block diagram

Notes:

1. For ultra-low noise application, model 4416BM1 offers the same basic design without the gain stage.

Accelerometers (3)

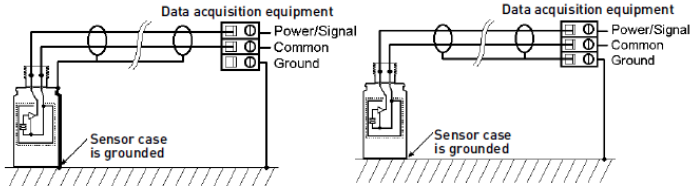
Avoiding ground loops

In order to provide proper shielding and prevent ground loops, shield and common grounding should be carefully considered. Ground loops are developed when a common line (i.e. signal return/shield) is grounded at two points of differing electrical potential.

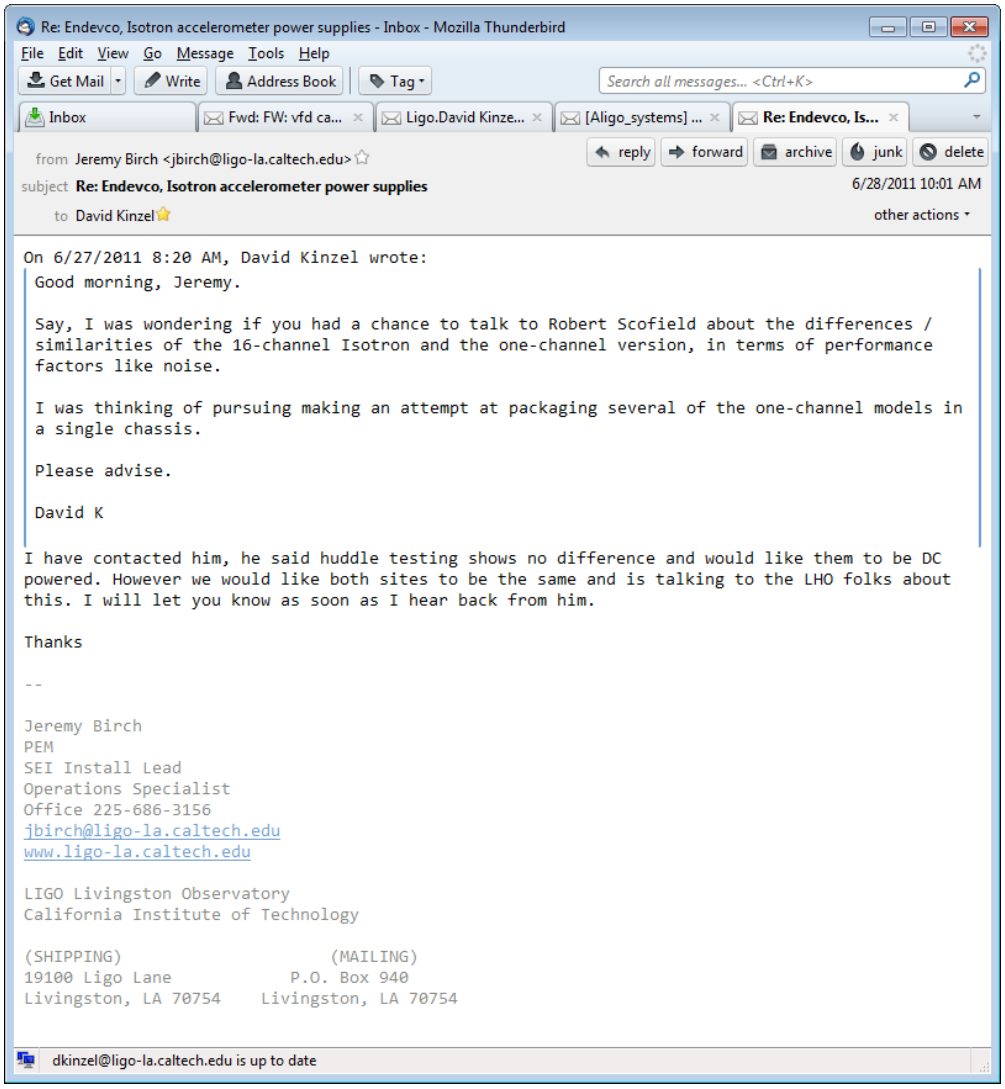
For sensors with coaxial cable, the center conductor carries the signal and power, while the outer braiding provides the shielding and signal return. Normally the cable shield is electrically isolated from the sensor housing. This isolates the shield from the mounting point of the machine and prevents ground loops. If a non-isolated sensor is used, it is recommended that an isolated mounting pad be used to break up possible ground loops.

For sensors using two conductor/shielded cable, the signal and power are carried on one lead and the signal common on the other. The cable shield serves to protect the signal from Electrostatic Discharge (ESD) and Electromagnetic Interference (EMI). The shield should be grounded at only one point, normally to the readout equipment.

In all cases, it is very important that the cable shield terminations be properly grounded. Failure to do so in high ESD/EMI environments can result in damage to the sensor electronics.



Accelerometers (4)



Re: Endevco, Isotron accelerometer power supplies - Inbox - Mozilla Thunderbird

File Edit View Go Message Tools Help

Get Mail | Write | Address Book | Tag | Search all messages... <Ctrl+K>

Inbox | Fwd: FW: vfd ca... | Ligo.David Kinze... | [Aligo_systems] ... | Re: Endevco, Is...

reply | forward | archive | junk | delete

from Jeremy Birch <jbirch@ligo-la.caltech.edu>

subject **Re: Endevco, Isotron accelerometer power supplies** 6/28/2011 10:01 AM

to David Kinzel other actions

On 6/27/2011 8:20 AM, David Kinzel wrote:

> Good morning, Jeremy.
>
> Say, I was wondering if you had a chance to talk to Robert Scofield about the differences / similarities of the 16-channel Isotron and the one-channel version, in terms of performance factors like noise.
>
> I was thinking of pursuing making an attempt at packaging several of the one-channel models in a single chassis.
>
> Please advise.
>
> David K

I have contacted him, he said huddle testing shows no difference and would like them to be DC powered. However we would like both sites to be the same and is talking to the LHO folks about this. I will let you know as soon as I hear back from him.

Thanks

--

Jeremy Birch
PEM
SEI Install Lead
Operations Specialist
Office 225-686-3156
jbirch@ligo-la.caltech.edu
www.ligo-la.caltech.edu

LIGO Livingston Observatory
California Institute of Technology

(SHIPPING) 19100 Ligo Lane Livingston, LA 70754

(MAILING) P.O. Box 940 Livingston, LA 70754

dkinzel@ligo-la.caltech.edu is up to date

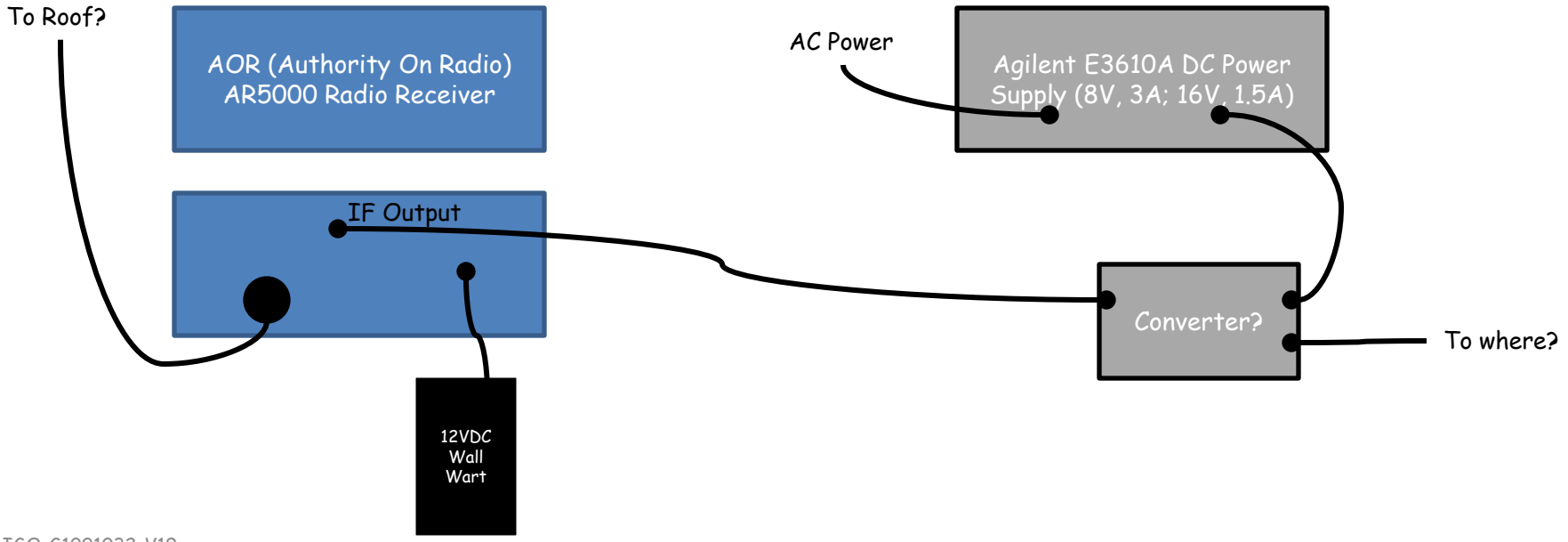
Antennae

There are two antennae of interest.
1) Roof Antenna
2) CDS High-bay Antenna

The Roof Antenna

1)Receiver is located in the MSR
2)219.84 MHz FM

Doug Lormand?



Humidity (and Temperature) Sensors

[<< PEM Categories]

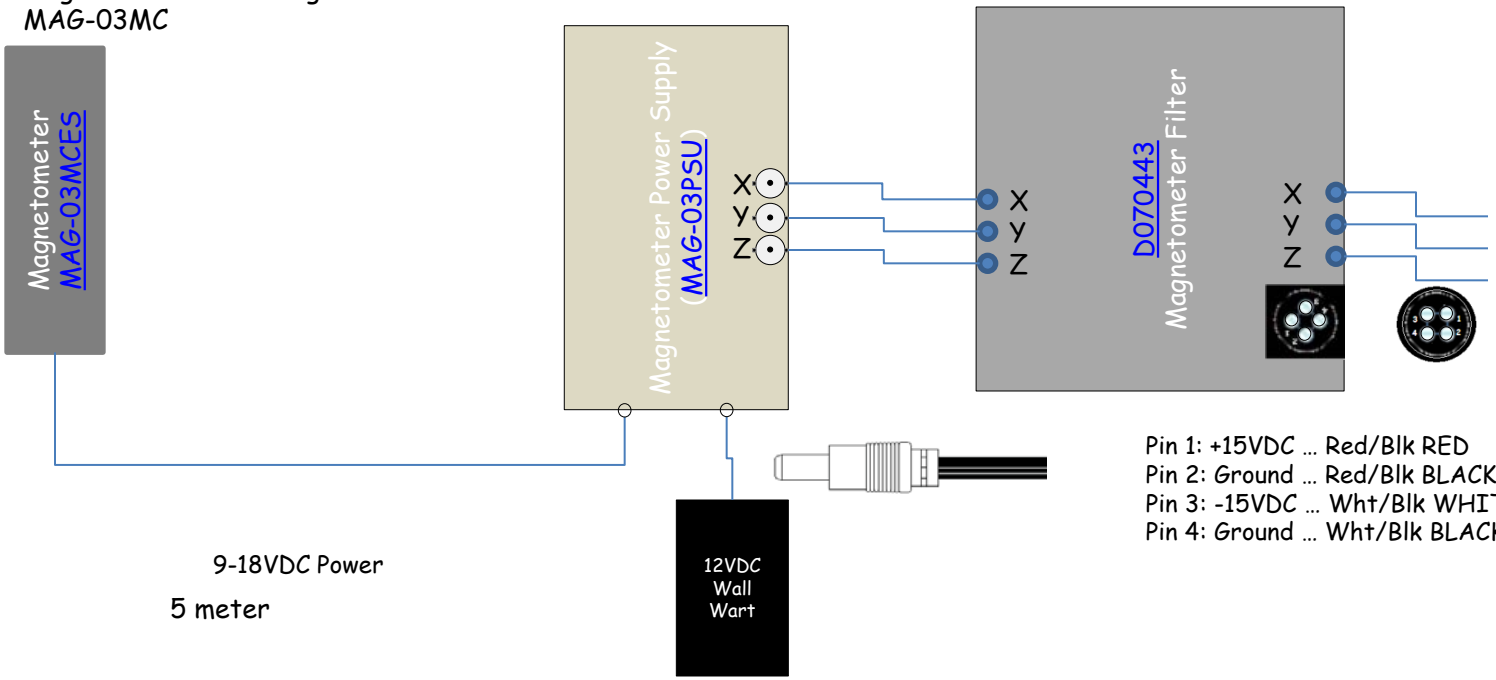
Humidity sensor locations
1)Room 172 – LDR Changing Room

(J.) David Barker says this is the Siemens System

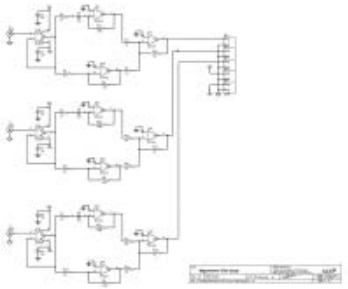
Magnetometer (1)

LIGO
<< PEM Categories

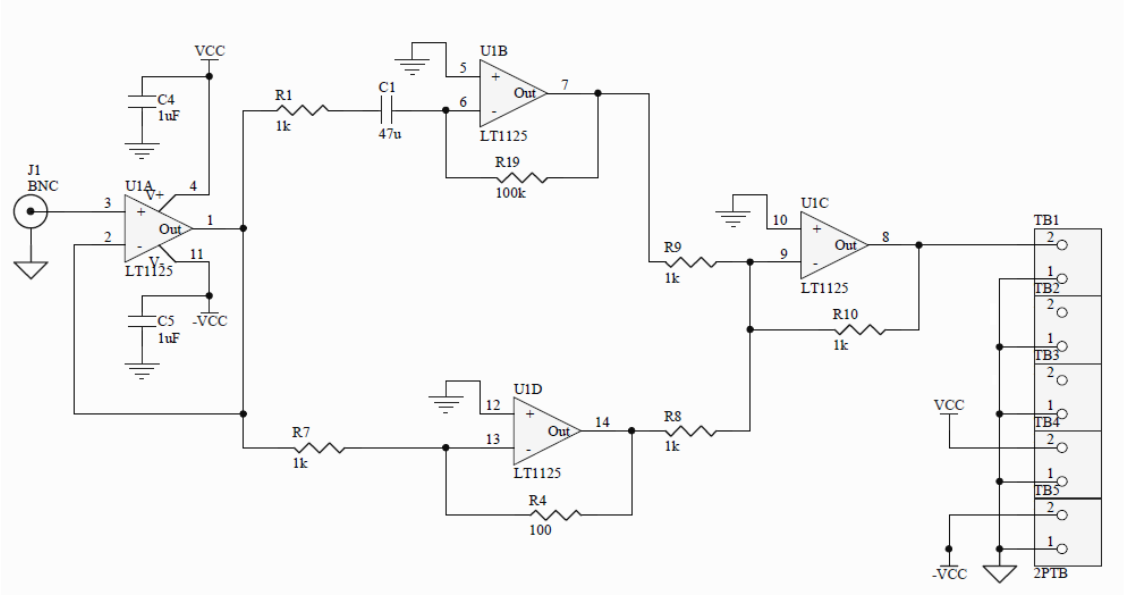
Magnetometer: Bartington Instruments
MAG-03MC

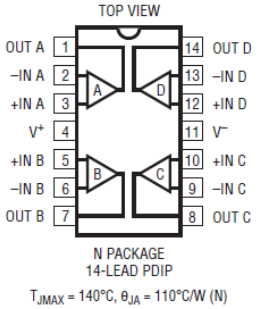


D030574
T1100382

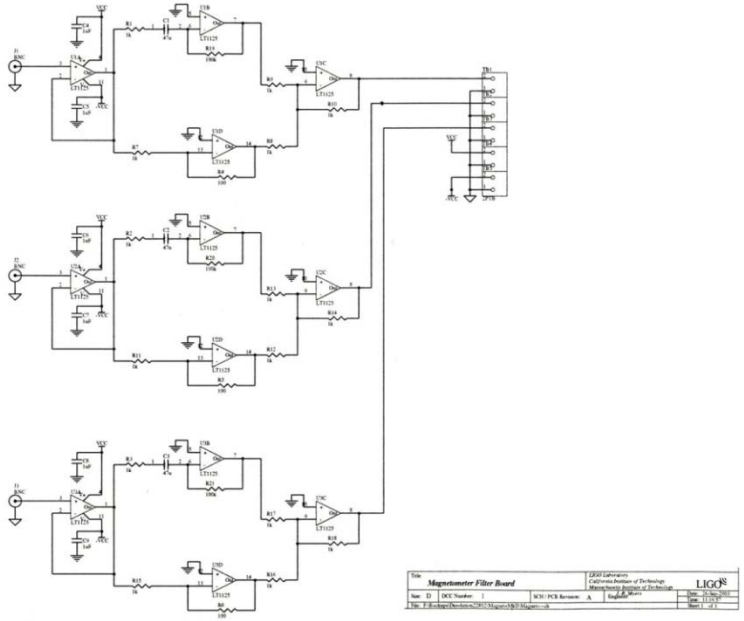


Magnetometers (2) Filter Schematic

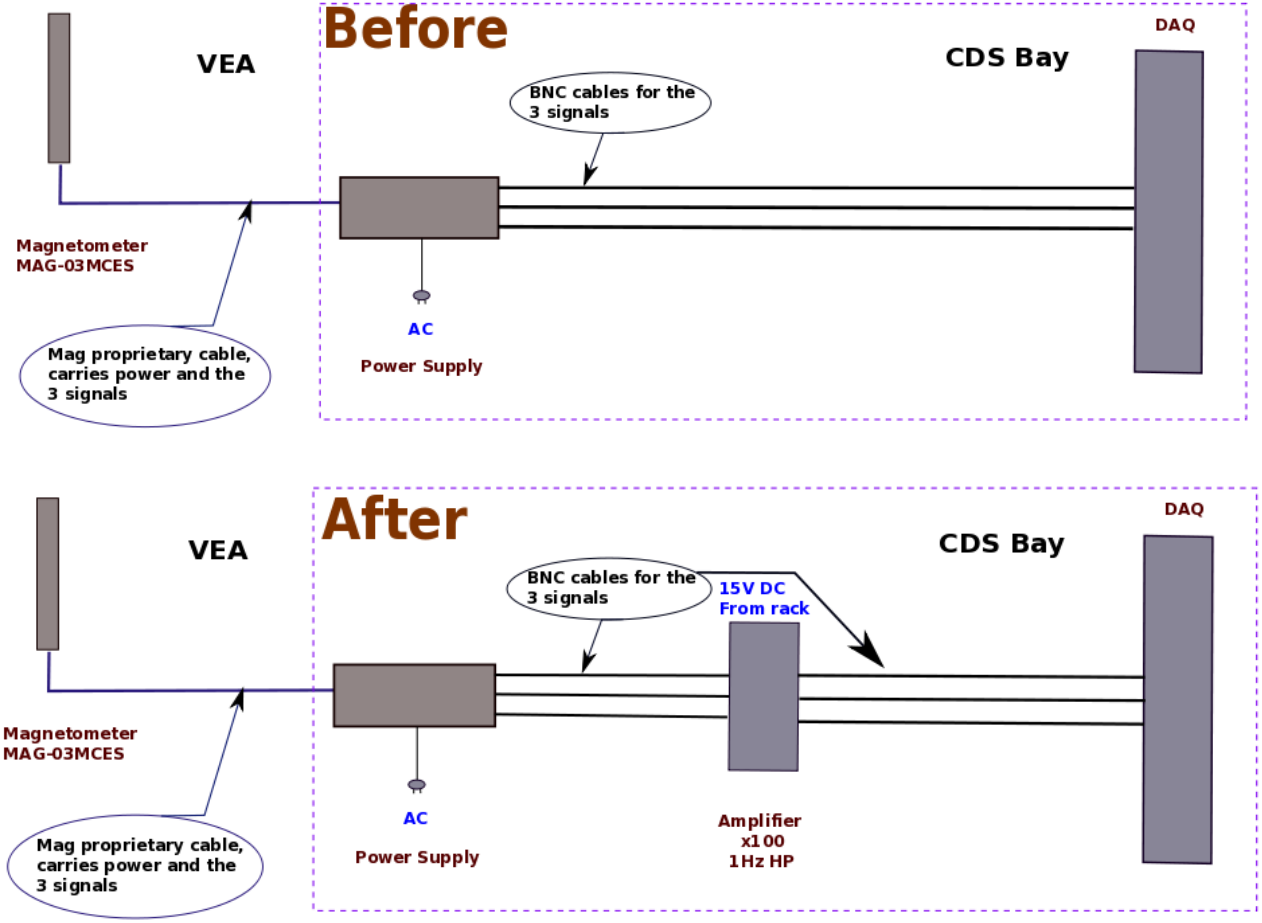




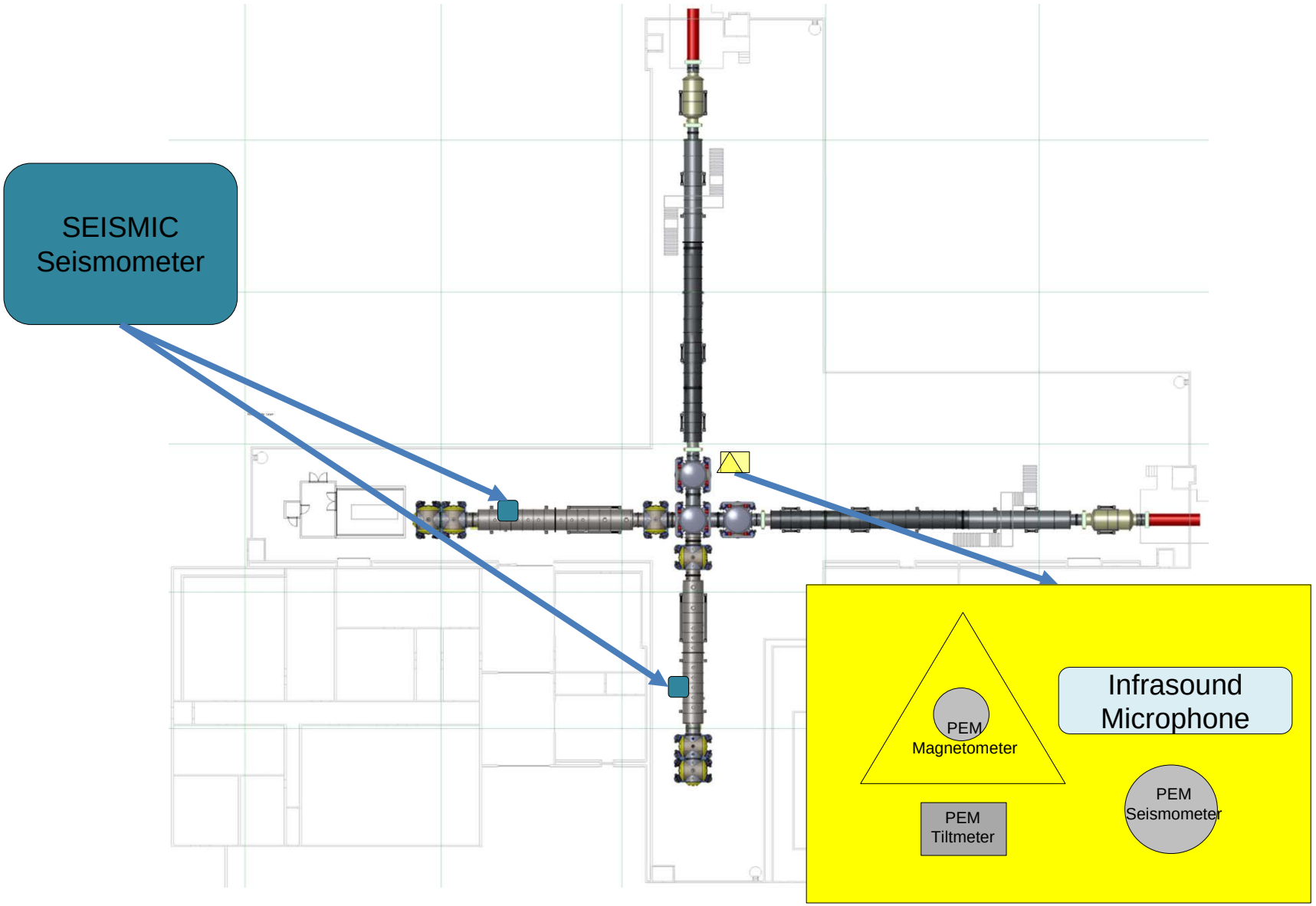
[D030574]



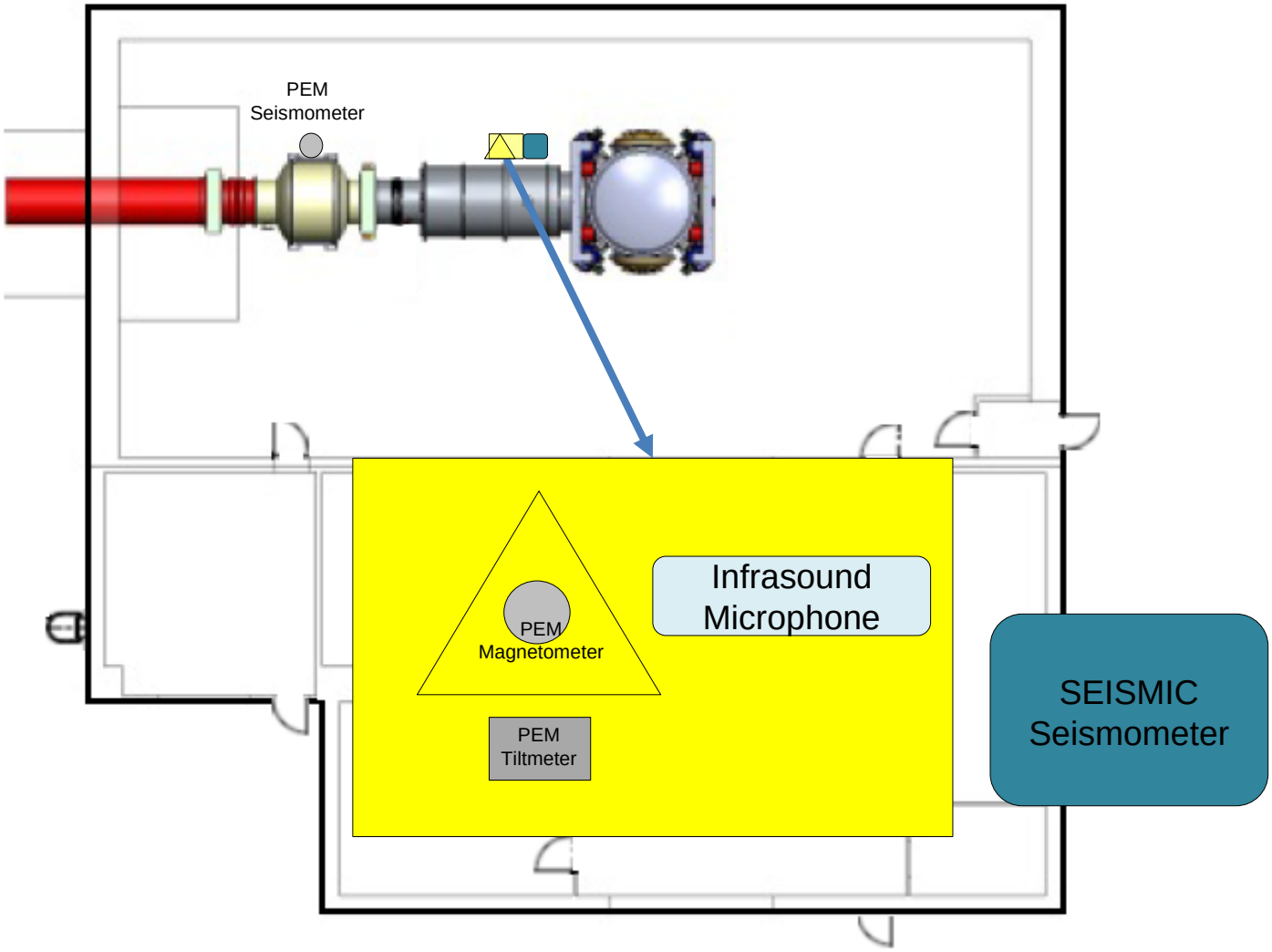
Magnetometers (3) Amplifier Sketch



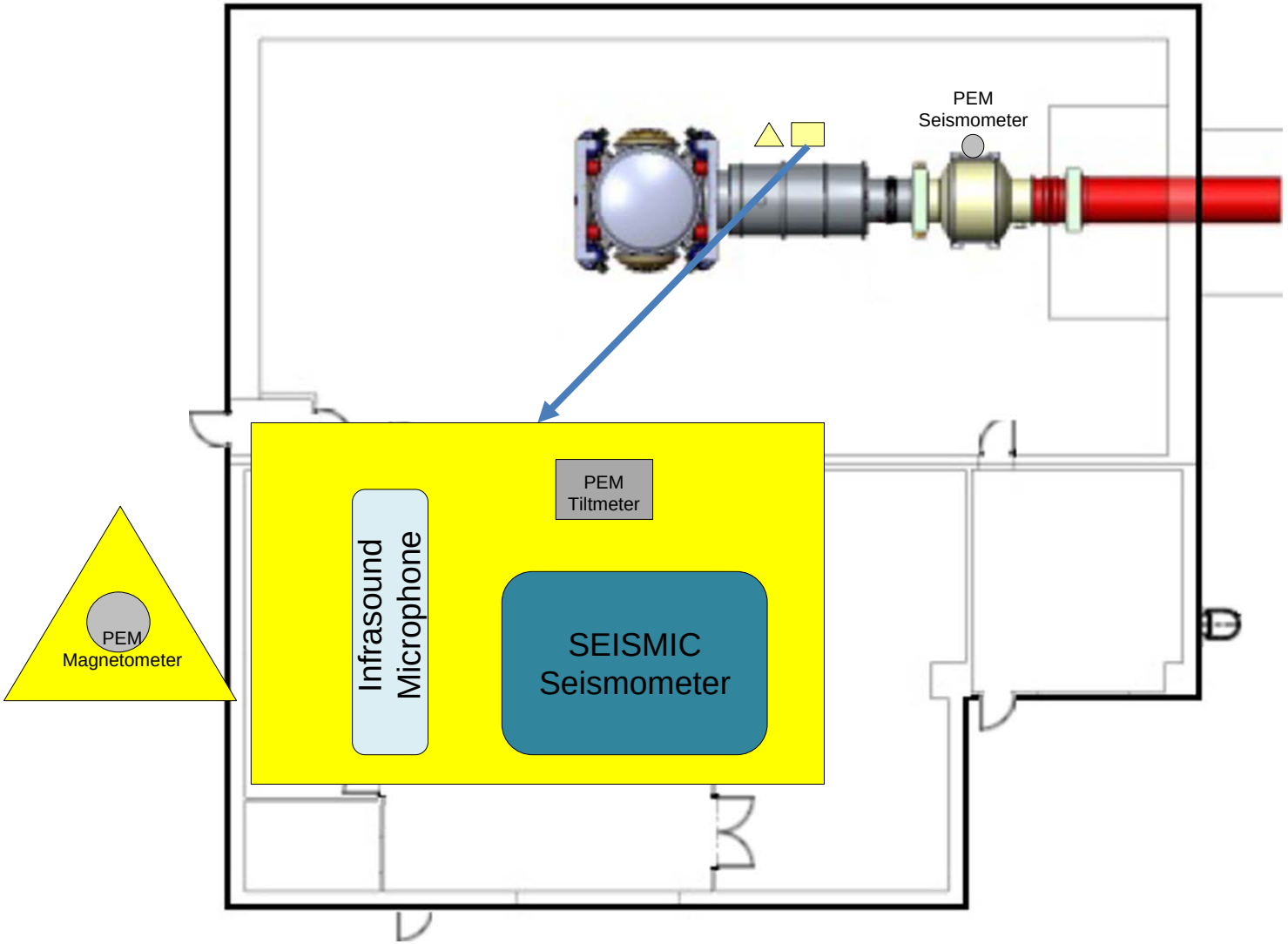
LVEA PEM Sensors (No-Fly Zone)



VEAX PEM Sensors (No-Fly Zone)



VEAY PEM Sensors (No-Fly Zone)



Microphones

LIGO
<< PEM Categories

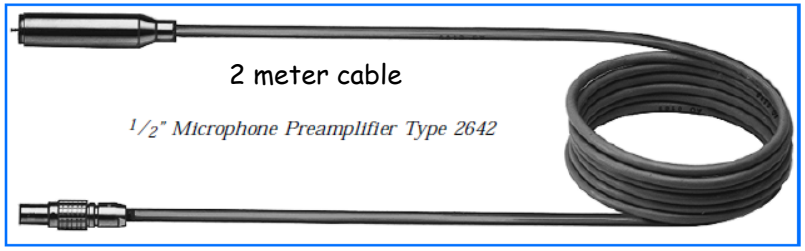
Microphone locations
1) LVEA (PSL)
2) LVEA (Input Optics (HAM2))
3) LVEA (BCS3)
4) LVEA (CRYO-X)
5) LVEA (CRYO-Y)
6) LVEA (Output Optics (HAM6))
7) CER (EBAY)
8) VEAX (BSC4)
9) VEAY (BSC5)
10) CERX (XBAY)
11) CERY (YBAY)

The Manufacturer is Bruel & Kjaer

Since the power supply handles two microphones, the microphones are 'paired' in certain places.

Extension cables are available – 3m, 10m, and 30m

1/2" Condenser Microphone Type 4130 and Random Incidence Corrector DZ 9566



Microphone Power Supply Type 2810

Microphones

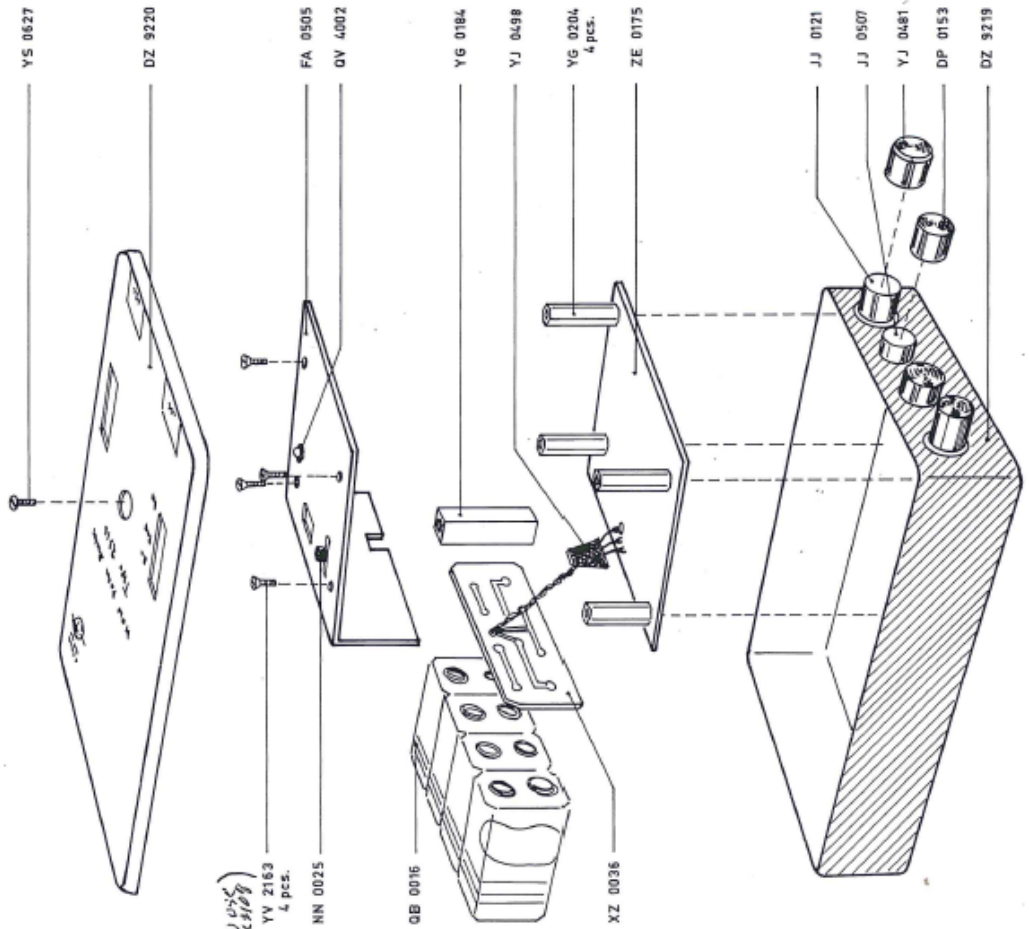
Microphone Power Supply Type 2810

BRÜEL & KJÆR
Nærum - Denmark

2810

Service Instruction
Microphone Power Supply

Valid from serial no. 721365



Modifications

Due to the constant technical progress the instrument will be modified from time to time in order to provide continously improved performance.

For this reason there may be small differencies between the instrument and the Service Instruction.

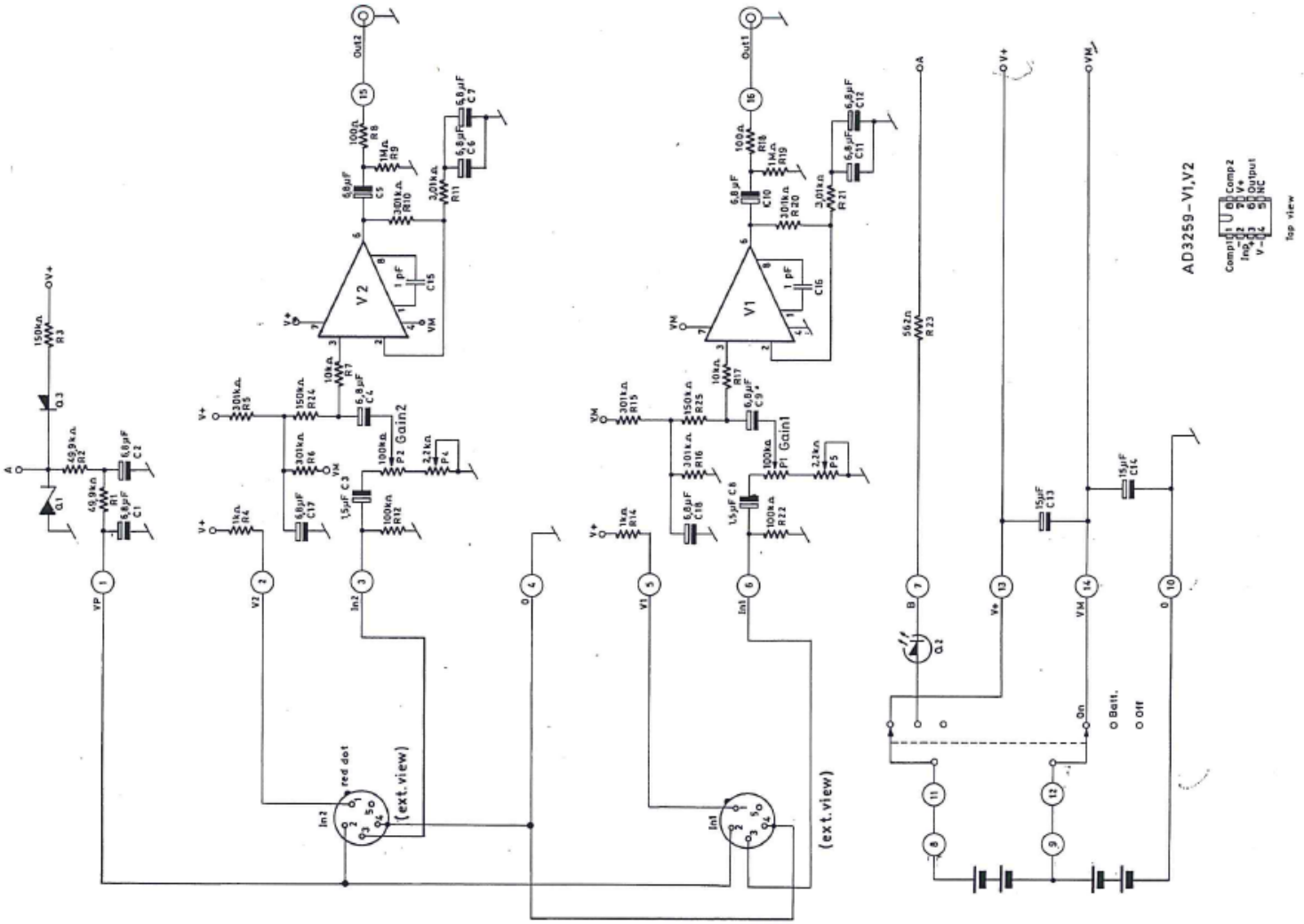
However, the local Representative Service is in possession of all information regarding the modifications that have been made.

Spare Parts

Please state type and serial number of the instrument when ordering spare parts.

3.80

Microphones

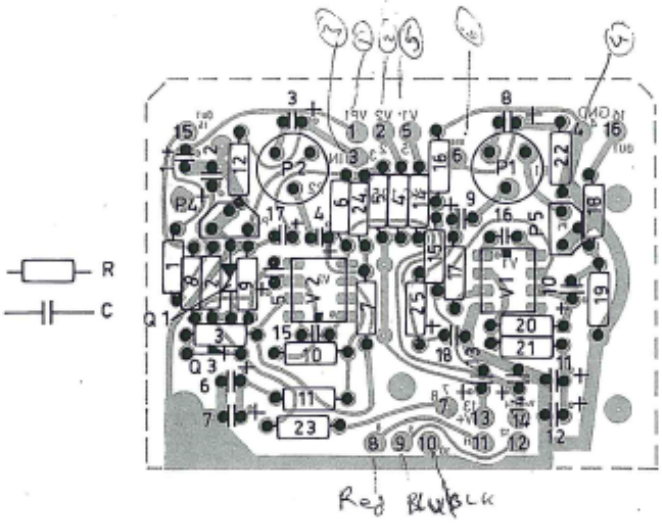


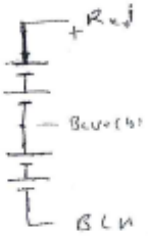
Microphone Power Supply Type 2810

Parts List

C 1,2	Tantalum	6,8 µF/ 35 V		CF 0009
C 3	-	1,5 µF/ 35 V		CF 0008
C 4-7	-	6,8 µF/ 35 V		CF 0009
C 8	-	1,5 µF/ 35 V		CF 0008
C 9-12	-	6,8 µF/ 35 V		CF 0009
C 13,14	-	15 µF/ 20 V		CF 0010
C 15,16	Ceramic	1 pF/400 V		CK 0100
C 17,18	Tantalum	6,8 µF/ 35 V		CF 0009
P 1,2	Trimmer	100 kΩ		PD-4104 PG 1117
P 4,5	-	2,2 kΩ		PG 2220
Q 1	Zener MZ 28	27-28V/0,4 W		QV 1120 = QV1108 (soldered)
Q 2	Light Emitting Diode			QV 4002
Q 3	Silicon BAX 16	150 V/300 mA		QV 0217
R 1,2	Metal 1/4 W	1%	49,9 kΩ	RF 4499
R 3	- -	-	150 kΩ	RF 5150
R 4	- -	-	1,00 kΩ	RF 3100
R 5,6	- -	-	301 kΩ	RF 5301
R 7	- -	-	10,0 kΩ	RF 4100
R 8	- -	-	100 Ω	RF 2100
R 9	Carbon -	5%	1 MΩ	RB 6100
R 10	Metal -	1%	301 kΩ	RF 5301
R 11	- -	-	3,01 kΩ	RF 3301
R 12	- -	-	100 kΩ	RF 5100
R 14	- -	-	1,00 kΩ	RF 3100
R 15,16	- -	-	301 kΩ	RF 5301
R 17	- -	-	10,0 kΩ	RF 4100
R 18	- -	-	100 Ω	RF 2100
R 19	Carbon -	5%	1 MΩ	RB 6100
R 20	Metal -	1%	301 kΩ	RF 5301
R 21	- -	-	3,01 kΩ	RF 3301
R 22	- -	-	100 kΩ	RF 5100
R 23	- -	-	562 Ω	RF 2562
R 24,25	- -	-	150 kΩ	RF 5150
V 1,2	Op. Ampl.		AD 3259	VE 0057
	Printed Circuit Board			XC 1254
	8-pin DIL Socket			JJ 0804

Microphone Power Supply Type 2810





1. Power Supply

a. Voltage
ON/OFF: "On"

Measure between (10) and (14): + 17,5 ± 2,5 V DC
Measure between (13) and (14): —17,5 ± 2,5 V DC
Measure between (1) and (4): 27,5 ± 0,5 V DC

b. Current Consumption
ON/OFF: "Off"

Connect a mA-meter from (12) to (14): 400 ± 100 µA
Connect a mA-meter from (11) to (13): 400 ± 100 µA

2. Amplifier

The instrument consists of two electrically equal amplifier.
The following adjustment refers to amplifier 1.

a. Amplification
ON/OFF: "On"

Connect the input signal to (6) and adjust it to 1 kHz, 30 mV RMS.
Set P1 fully counter clockwise
Adjust P 5 to 0 dB amplification, measured on the output socket.
Set P 1 fully clockwise and check the amplification: 40 ± 0,3 dB.

Connect an oscilloscope to the output.
Increase the input voltage until the output voltage is 9 Vpp.
Check that the output voltage is not peak limited.

b. Frequency Response

Set the input voltage (at 1 kHz) for 3 V RMS on output
Check the frequency response at 10 Hz: ± 1 dB
10 kHz: ± 0,7 dB
15 kHz: ± 0,7 dB

c. Distortion

Set the input voltage (at 10 kHz) for 3 V RMS on output
Check the distortion of the output voltage: max 4%

d. Output Impedance

Set the input voltage (at 1 kHz) for 3 V RMS on output
Load the output with a 2,0 kΩ resistor (± 1%)
Check the output voltage: 3 V RMS —0,5 ± 0,1 dB.

e. Input Impedance

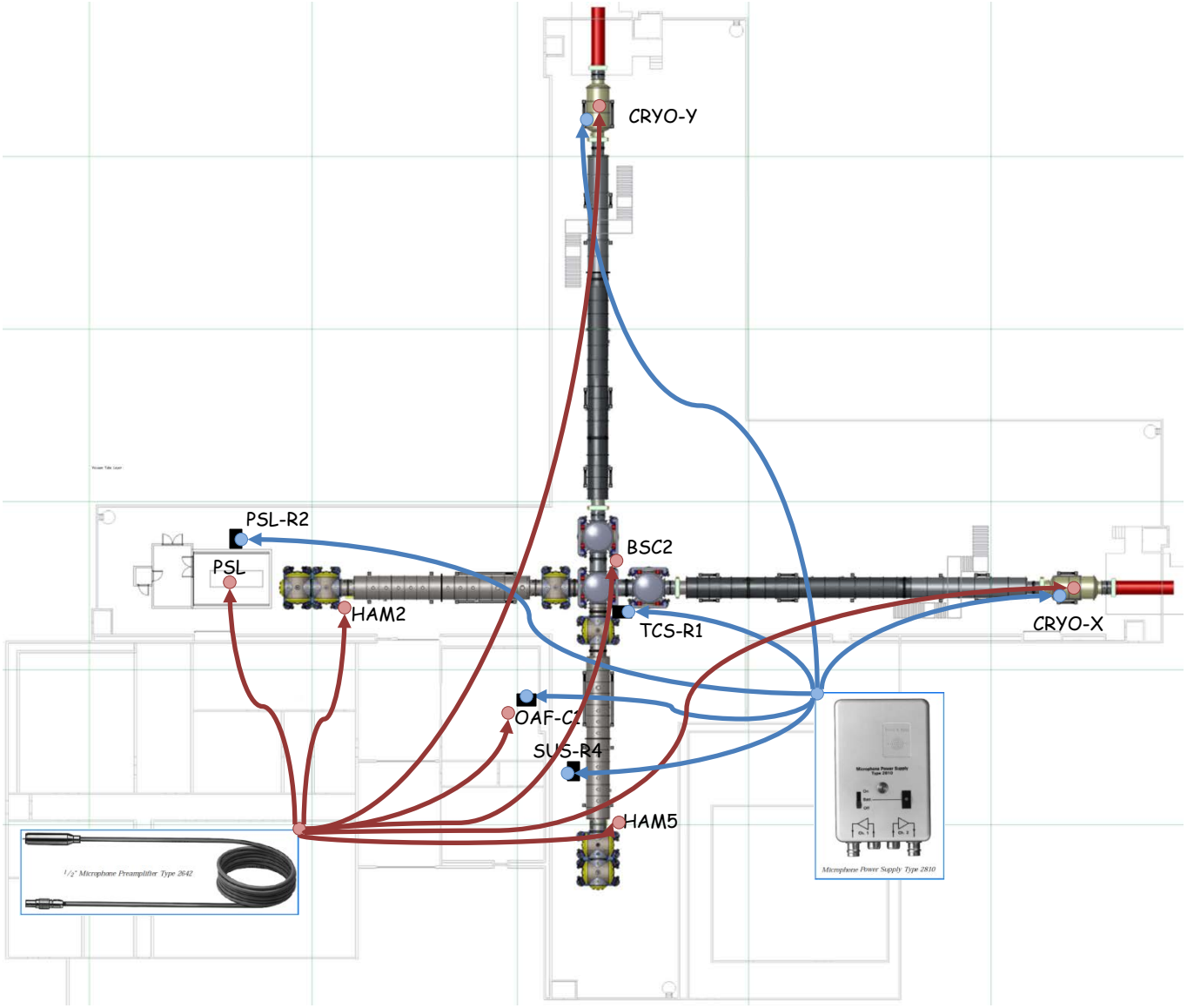
Set the input voltage (at 1 kHz) for 3 V RMS on output
Connect a 2,21 kΩ resistor (± 1%) in series with the input signal
Check the output voltage: 3 V RMS —0,5 ± 0,1 dB.

f. Noise

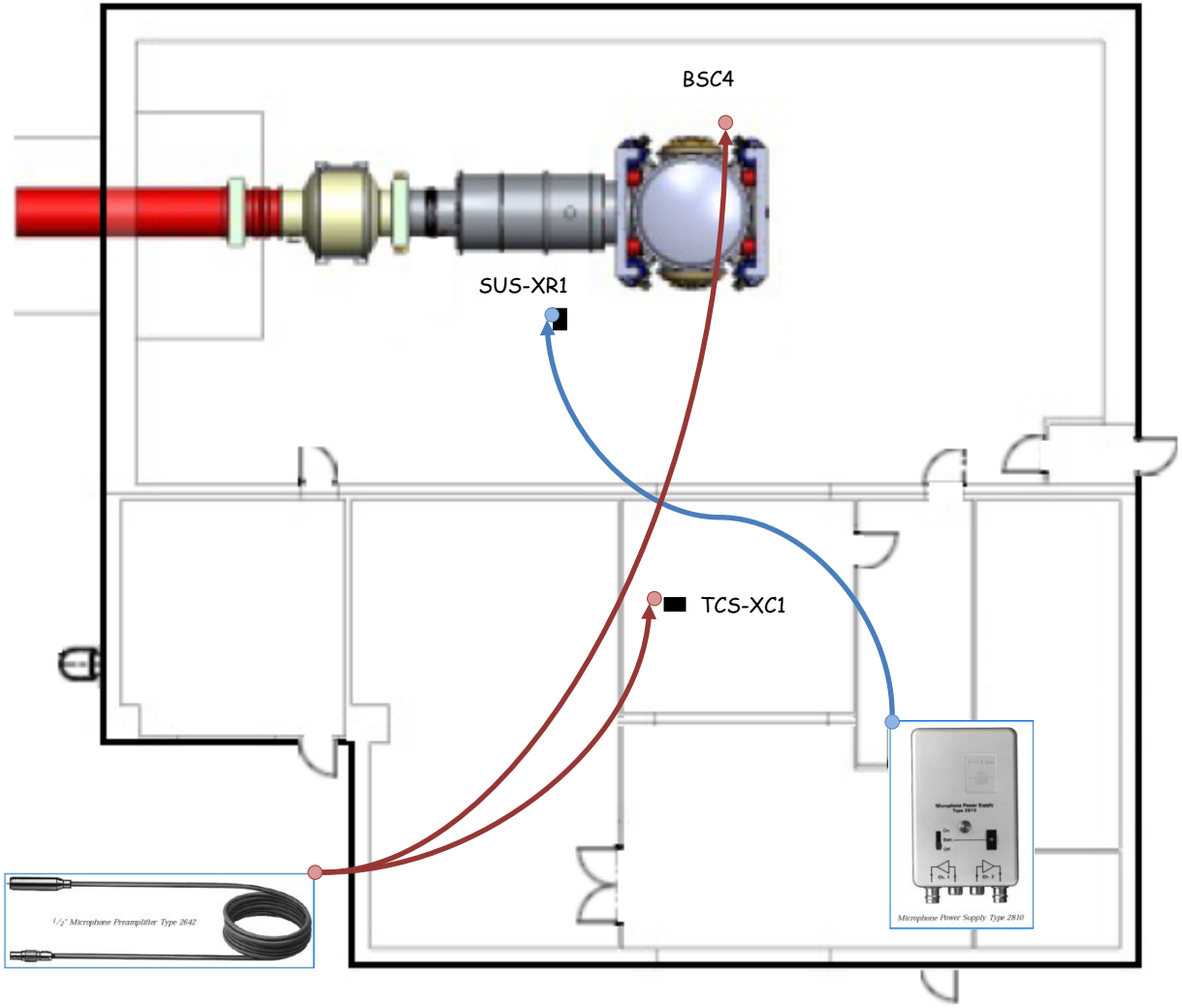
Short circuit input to ground.
Measure the noise signal on output: 400 ± 200 µV (22,5 Hz — 22,5 kHz)
300 ± 100 µV (A-weighted)

Microphone Power Supply Type 2810

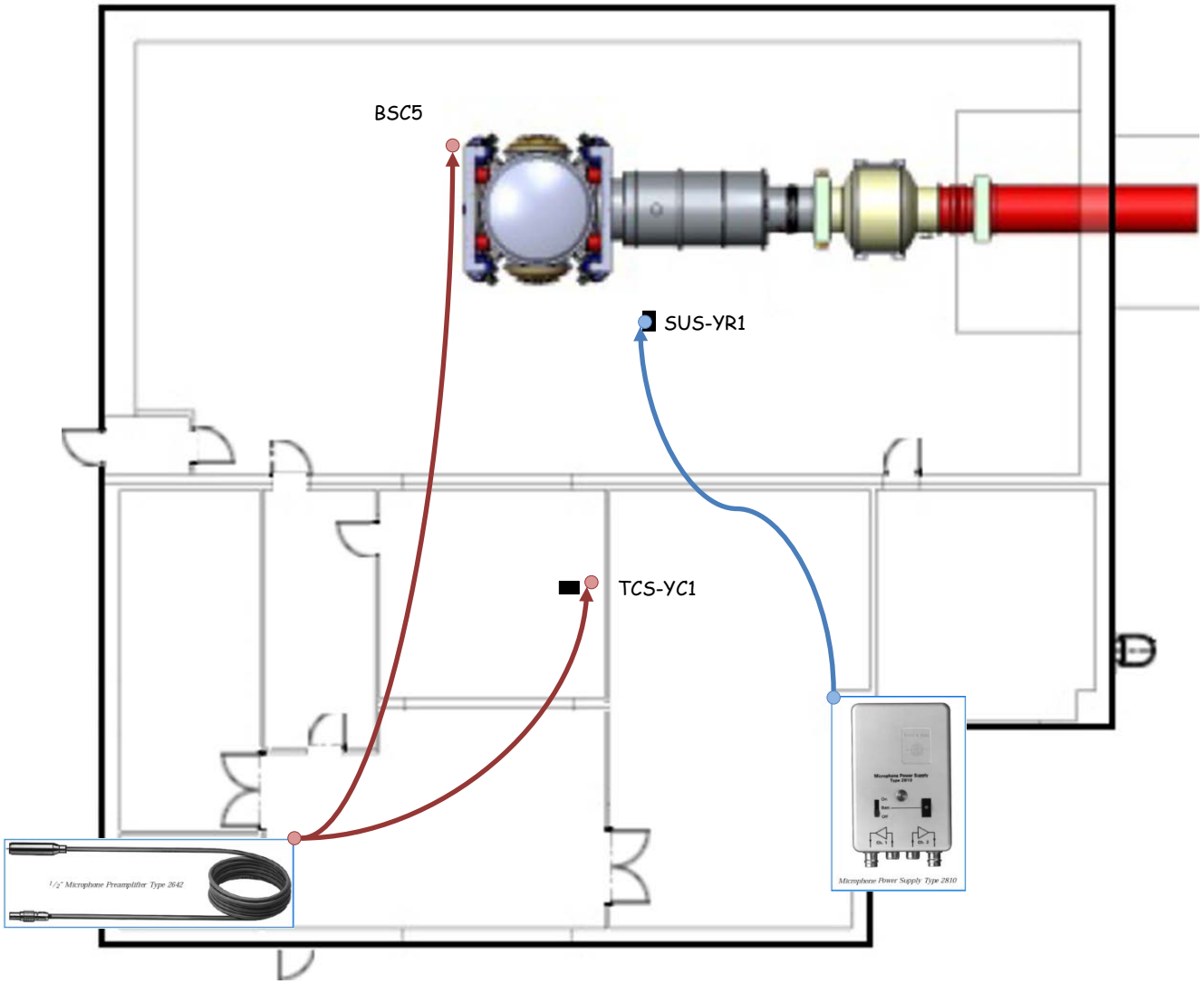
Microphone Locations (Vertex)



Microphone Locations (X-End)

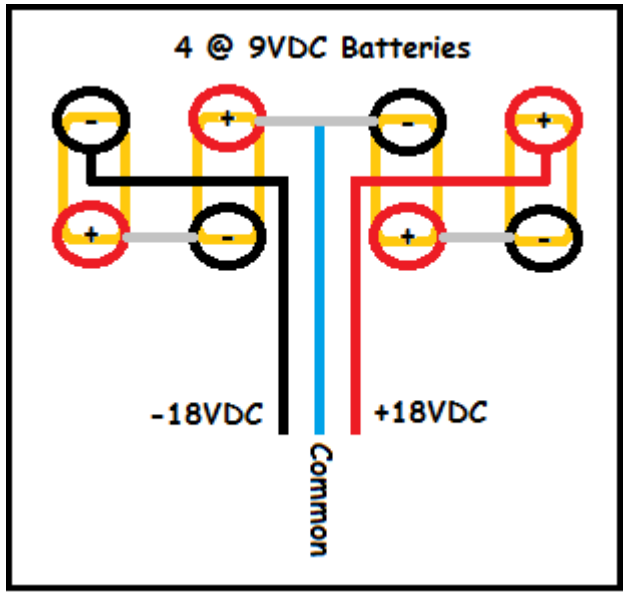


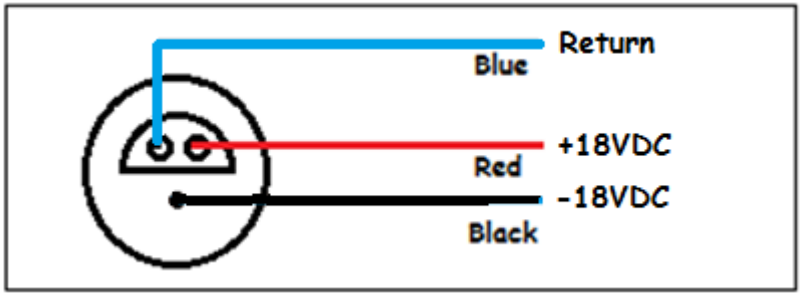
Microphone Locations (Y-End)



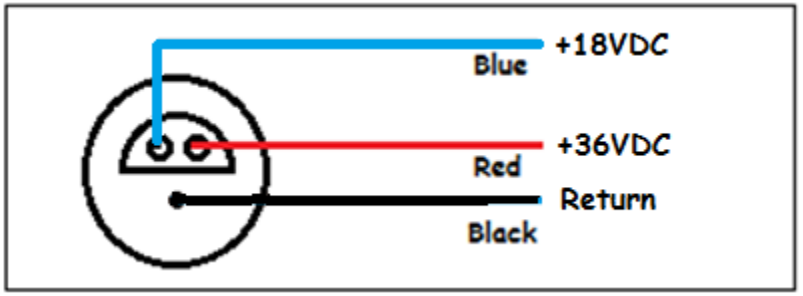
Microphones

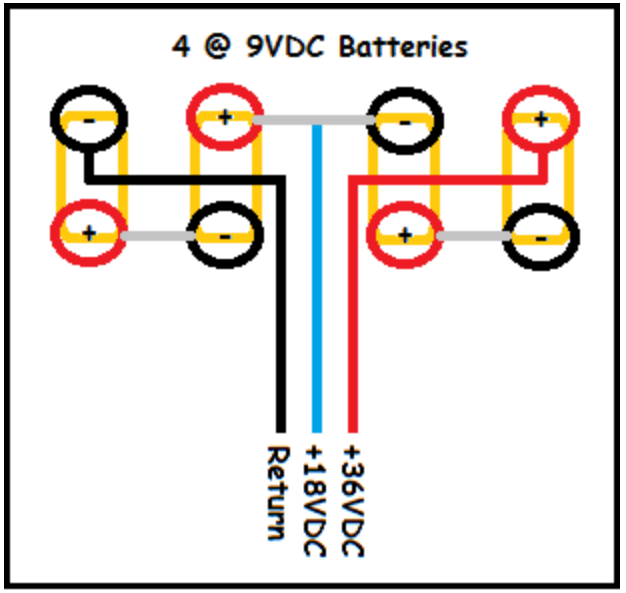
The 2810 was originally powered by 4 (four) 9V batteries. They were self-contained and would not interfere with any other device.
But somebody modified them to take DC power from power supplies because perpetually replacing batteries is onerous.





So - due to internal 2810 circuitry that puts the return voltage on the shield of the BNC signal cables, the power supplies that replace the batteries must be configured with a common NEGATIVE pole, and all permanently modified 2810s must be exclusively powered from these supplies.





Microphones

Anamaria Effler (Experimental Relativity Group of the Louisiana State University) **2014-03-05 17:11:21 PST**

The PEM microphones require a 0-18-36V power supply. The 0V goes on the shield, so it cannot be floated. They pull very little current (few mA), so one would be sufficient to run several microphones.

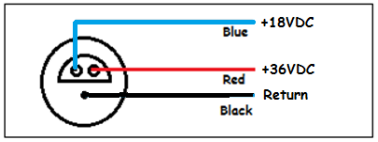
The power supply must go into the DC power room, and cables have to be run to each sensor:
- in the end stations, the power cable should be run until under each BSC;
- in the LVEA the power cables should be run under each location, as shown in the LLO sensor map: http://pem.ligo.org/channelinfo/

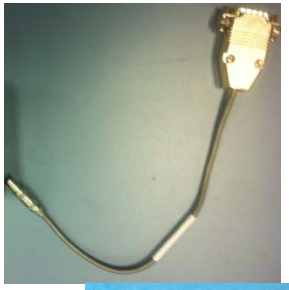
The cable length doesn't need to be exact, just approximately in the area (e.g. between HAM1 and HAM2, for the input optics microphone).

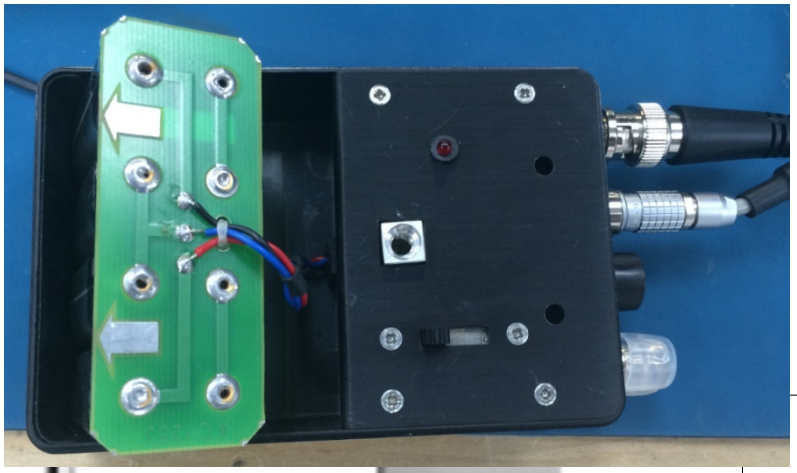
The cable should be left unterminated at the sensor end (and disconnected at the power supply), to be terminated when each sensor is installed.

Currently there are two power supplies on the floor in the LVEA, one in the PSL racks and one between BSC2 and HAM2 serving the PSL microphone and the LVEA microphone. These will be removed when the final solution (above) is in place.

Microphones – Power Adaptor Cable

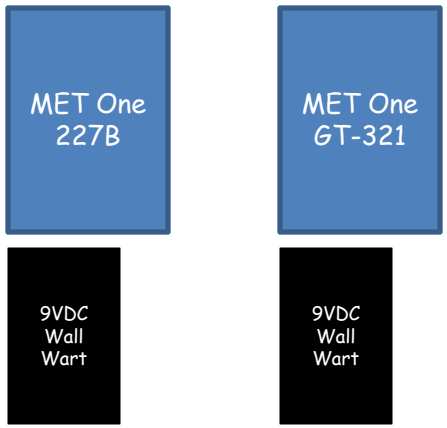






Particle Counters (Dust Monitors)

LIGO
<< PEM Categories

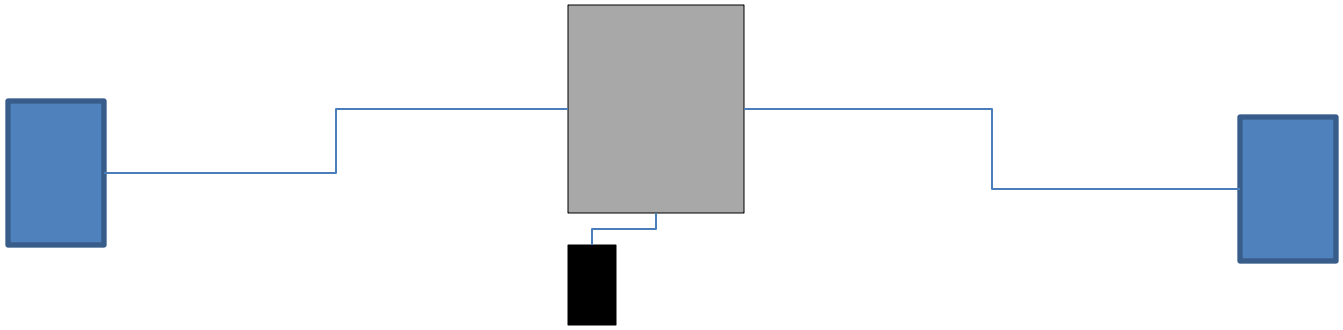


Dust Monitors are not on during Science Mode due to the acoustic noise. This noise is the air pump. It is always on.

The manufacturer is Pacific Scientific
Old ones (being replaced) are MET One 227B. (9VDC)
New ones (replacements) are MET One GT-321. (9VDC, 2A)

These are scattered throughout the LVEA and usually two of them share a power supply via a cable to a junction box. They are powered from the serial interface port. Not sure if this is a homemade adaptation.

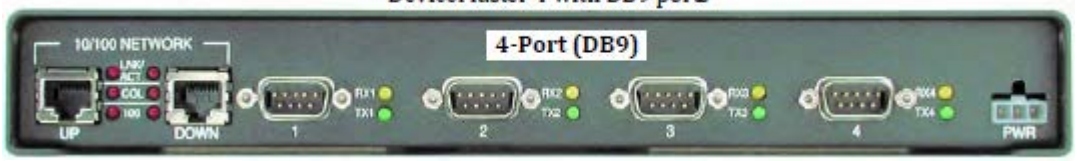
The Junction Box needs documentation.

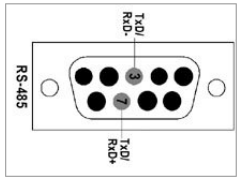


Comtrol DeviceMaster with DB9 Ports

Comtrol DeviceMaster 4 with DB9 Ports

DeviceMaster 4 with DB9 ports

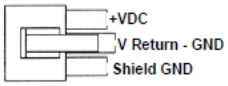




4-Port Power Supply

This table provides the specifications for the power supply shipped with the DeviceMaster 4-port.

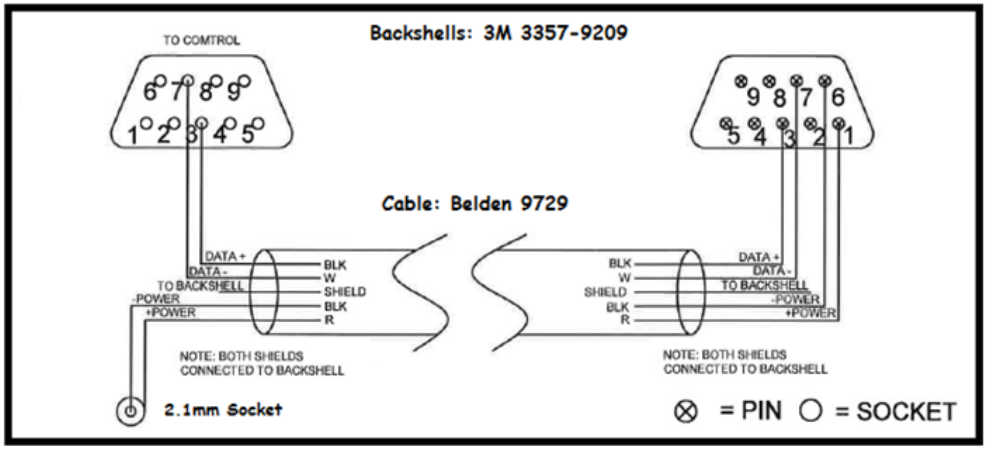
Comtrol Power Supply: 4-Port	
Input line frequency	47 - 63 Hz
Input line voltage	90 - 260 VAC
Output voltage	24VDC
Output current	500 mA @ 24VDC



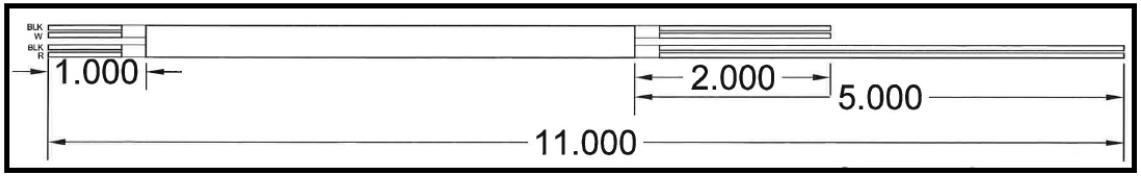
Housing Molex P/N:
39-01-4030
Pins Molex P/N:
44485-1211

3M Shell 3357-9209

2.1mm Socket
(Note polarity)



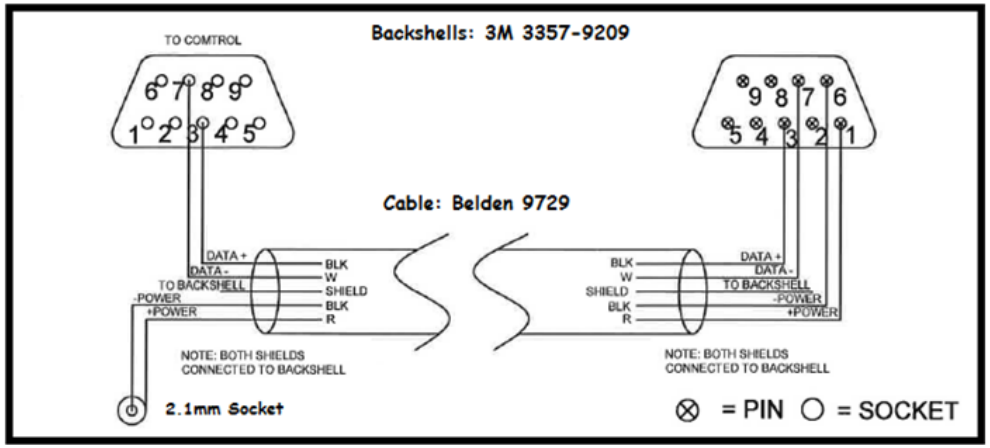
3M Shell 3357-9209



Particle Counter Y-Cable – Comtrol End

3M Shell 3357-9209

2.1mm Socket
(Note polarity)

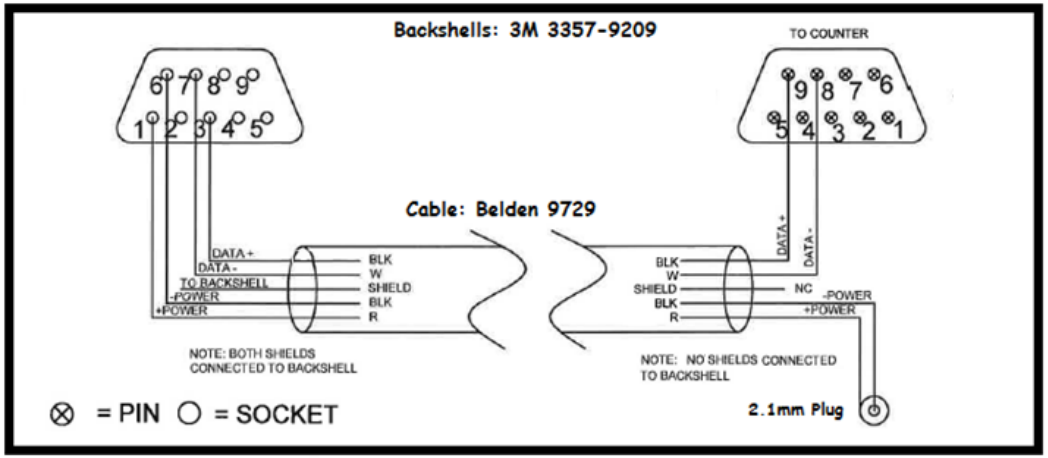


3M Shell 3357-9209

This cable is configured to carry both DC Power and RS485 Signals. The 2.1mm Socket can come from a commercially available 2.1mm Cable Assembly. Note the center pin of the 2.1mm is NEGATIVE. And both shields are tied together and tied to both backshells.

Particle Counter Y-Cable – Particle Counter End

3M Shell 3357-9209

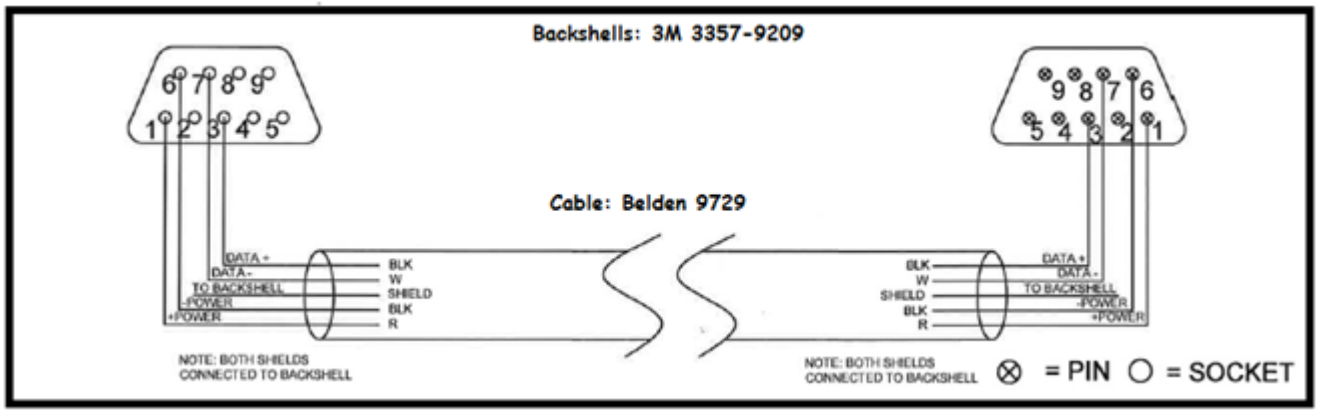


3M Shell 3357-9209

2.1mm Plug
(Note polarity)

This cable is configured to carry both DC Power and RS485 Signals. The 2.1mm Plug can come from a commercially available 2.1mm Cable Assembly. Note the center conductor of the 2.1mm is NEGATIVE. And both shields are tied together and are tied only to the backshell that connects to the cable. The backshell connected to the Particle Counter is NOT tied to the shields.

Particle Counter Extension Cable

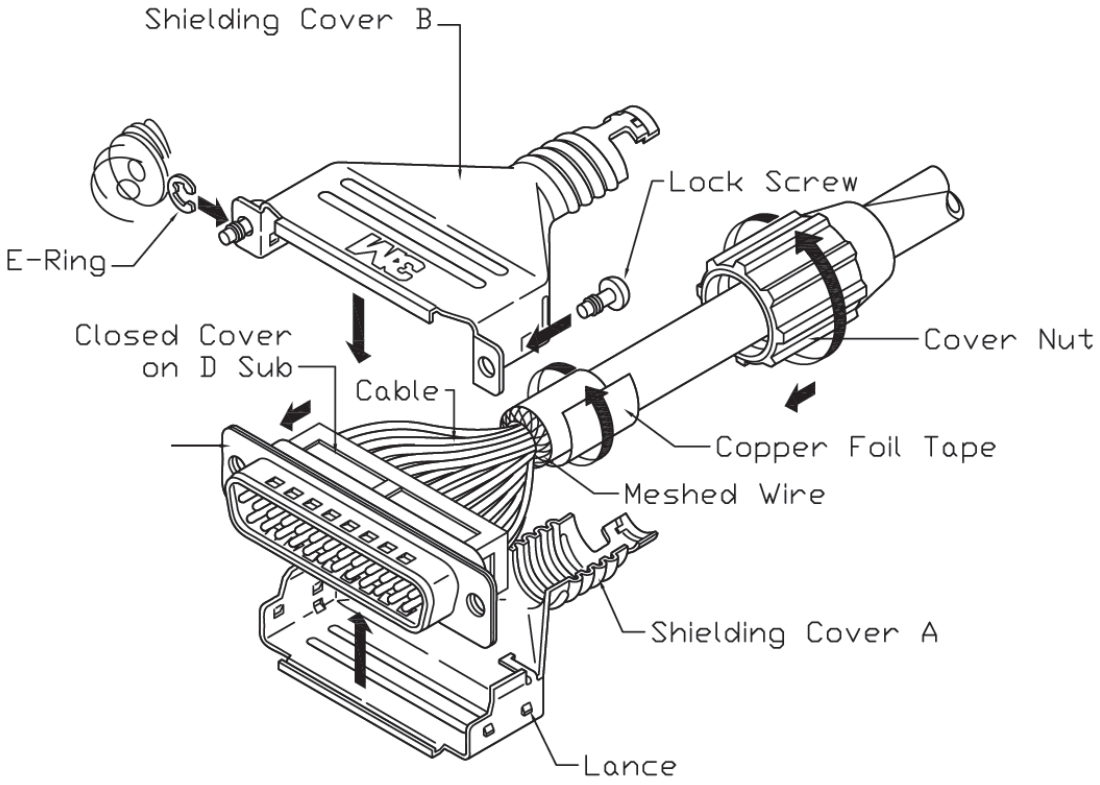


This cable is configured to carry both DC Power and RS485 Signals. Note that both shields are tied together and tied to both backshells.

It is 70' from the L1-FAC-XC1 Rack to the knee of the waterfall in the VEAX.

It is 65' from the L1-FAC-YC1 Rack to the knee of the waterfall in the VEAY.

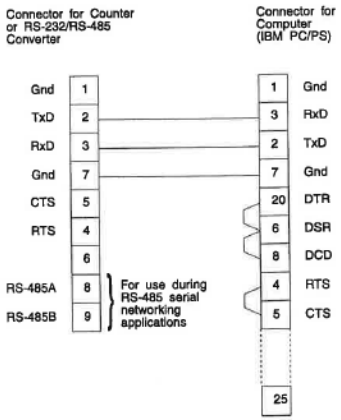
3M Backshell Assembly



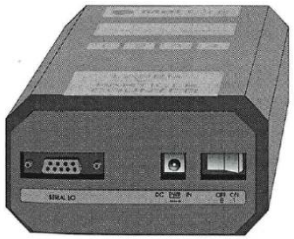
This is a sample drawing of the 3M backshell showing how the E-Ring is attached to the Lock Screw, and showing how the Cover Nut holds the backshell in place.

Particle Counters (Met One 227B)

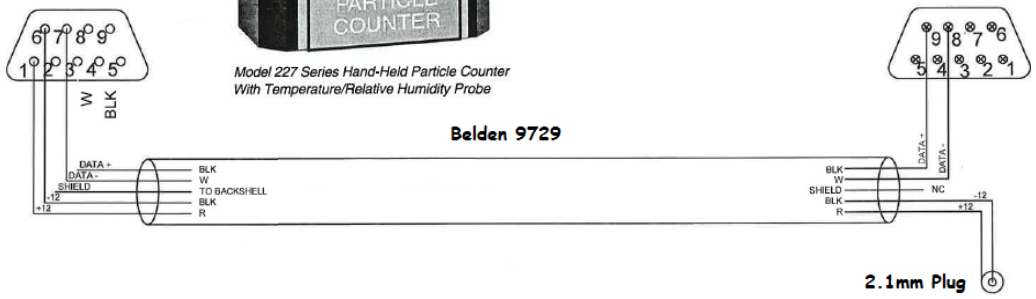
Model 227 Series Hand-Held Particle Counter
With Temperature/Relative Humidity Probe



Serial Cable Schematic Diagram



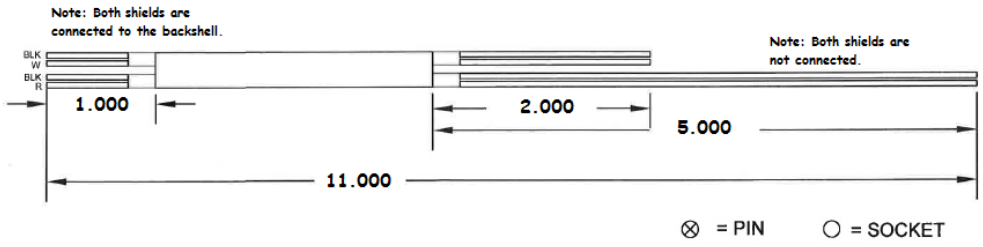
3M Shell 3357-9209



Belden 9729

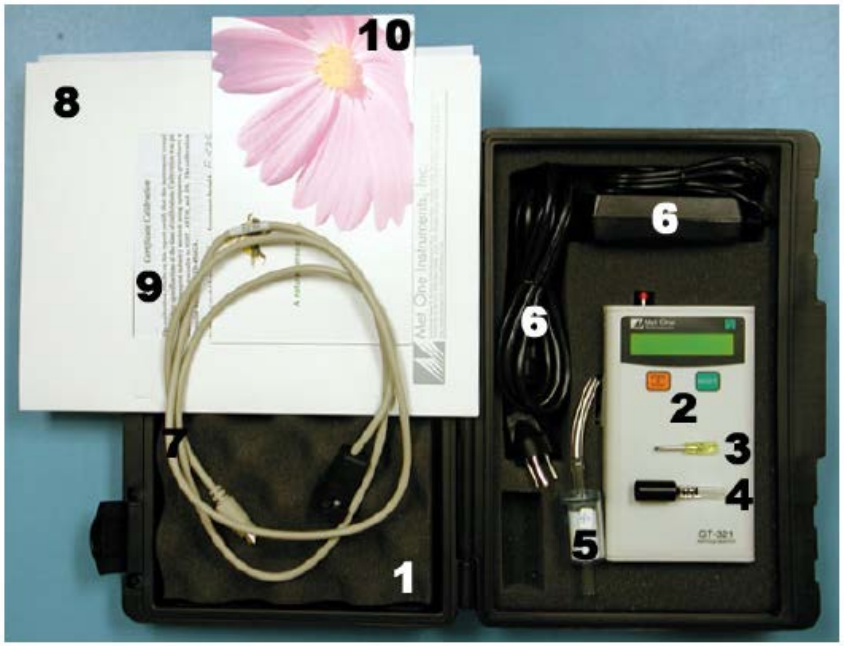
2.1mm Plug

3M Shell 3357-9209



2.1mm Plug
(Note polarity)

Particle Counters (GT-321)

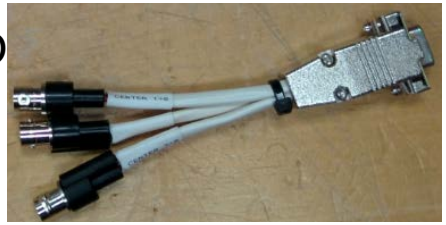


1. Carrying case
2. GT-321 Hand Held Particle Counter
3. Miniature screwdriver
4. Iso-kinetic Sample Probe with a short piece of tubing
5. Zero Particulate Filter (Met One Part Number G3111)
6. Universal AC to DC converter module with IEC AC power cord
7. RS-232 Serial Cable
8. Operation Manual
9. GT-321 Calibration Certificate
10. Color Brochure (optional)

Seismometers

Seismometer locations
1) BSC1 (LVEA) –
2) BSC4 (VEAX) – Guralp CMG-40T
3) BSC5 (VEAY) – Guralp CMG-40T
4) EELAB (SPARE) – Guralp CMG-40T

PT06E-16-26S(SR)-ND
CONN PLUG 26 POS
STRAIGHT W/SCKT



Seismometers

PT06E-16-26S

To SEISMOMETER

PT06E-16-26S

PT06E-16-26S

PT06E-12-10S

To PEM ADC

SIGNAL	PT06E-16-26S	COLOR	DB9M	DB9F	BNC-FEMALE
X+	E	WHITE	1	1	BNC1 CENTER
X-	F	BLACK	6	6	BNC1 SHIELD
Y+	C	RED	2	2	BNC2 CENTER
Y-	D	GREEN	7	7	BNC2 SHIELD
Z+	A	BLUE	3	3	BNC3 CENTER
Z-	B	BROWN	8	8	BNC3 SHIELD

To DC POWER

SIGNAL	PT06E-12-10S	COLOR	3W3
-12VDC	H	GREEN	A3
RETURN	A	BLACK	A2
+12VDC	B	WHITE	A1

Seismometers

PT06E-16-26S(SR)-ND
CONN PLUG 26 POS
STRAIGHT W/SCKT

PT06A-14-15P(SR)-ND
CONN PLUG 15 POS
STRAIGHT W/PINS

501-1030-ND
BREAKOUT BNC
FEMALE-20AWG LEADS

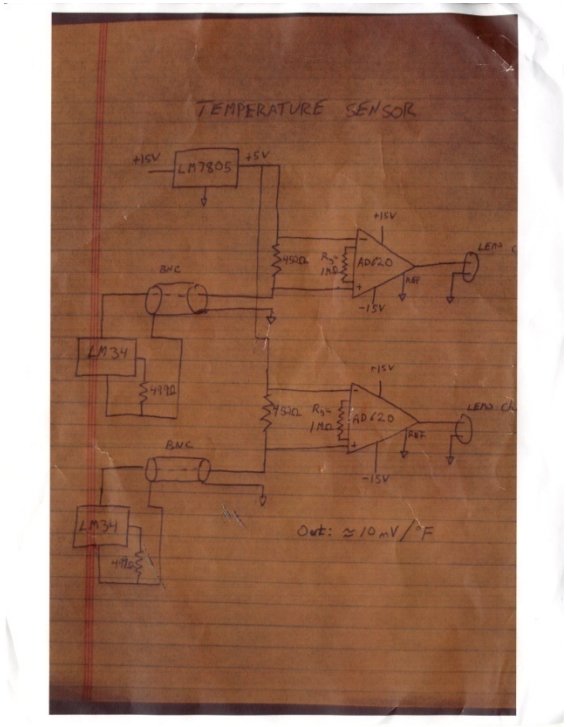
PT06E-12-10S(470)-ND
CONN PLUG 10 POS
STRAIGHT W/SCKT

PT06A-14-15S(SR)-ND
CONN PLUG 15 POS
STRAIGHT W/SCKT

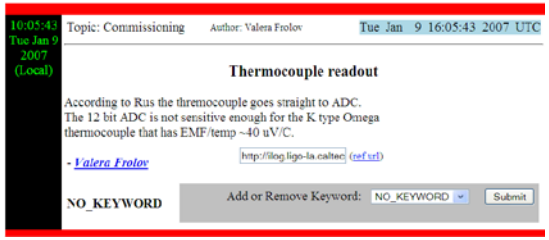
Temperature Sensors

[<< PEM Categories]

Temperature Sensor locations
1)BSC1 (LVEA) – one old, one new
2)BSC3 (LVEA)
3)BSC4 (VEAX)
4)BSC5 (VEAY)

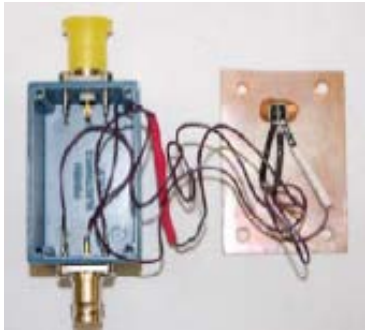


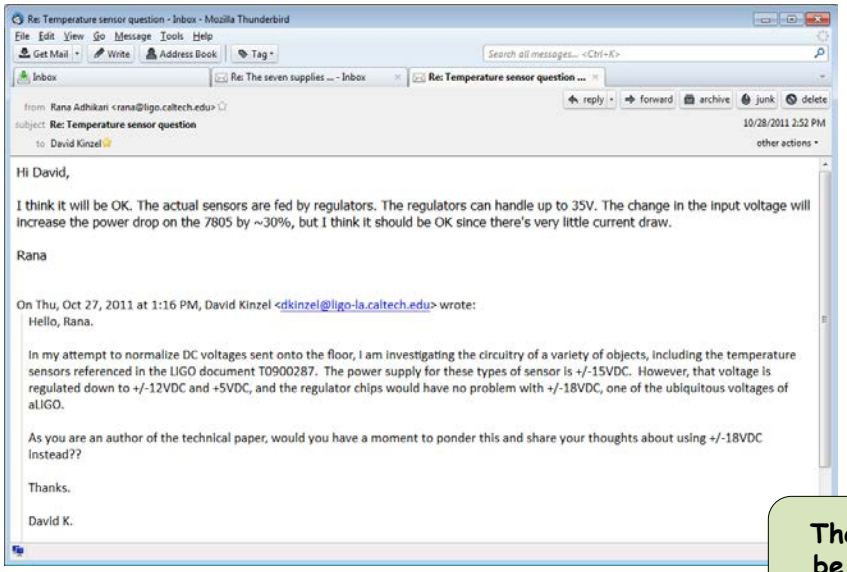
Temperature Sensors include thermocouples:
1)Are there any read in the chiller lines? TCS, PSL?
2)There are thermocouples in the vacuum system for the N2 tanks.
3)https://dcc.ligo.org/G1401168-v1

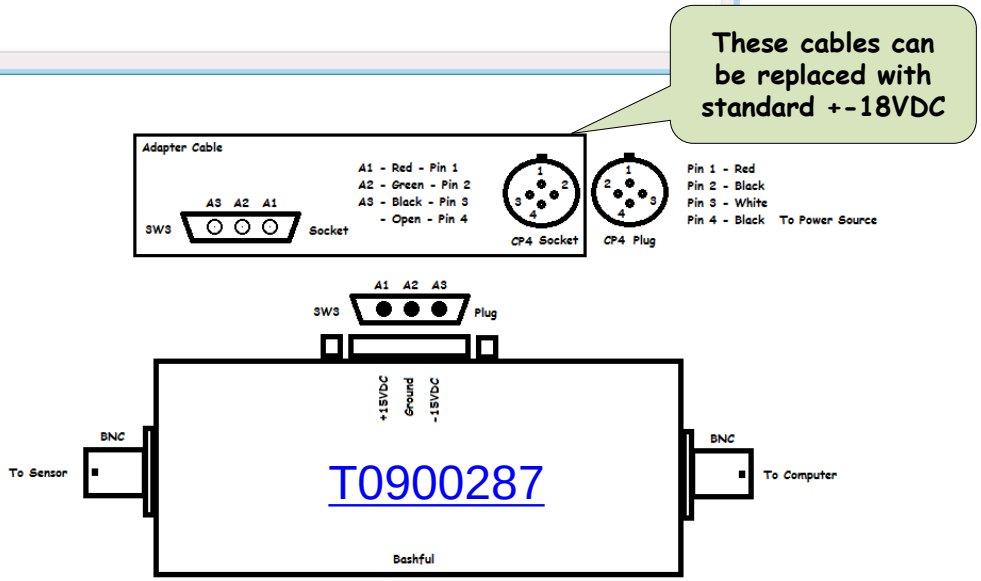


Temperature Sensors

LIGO
<< PEM Categories

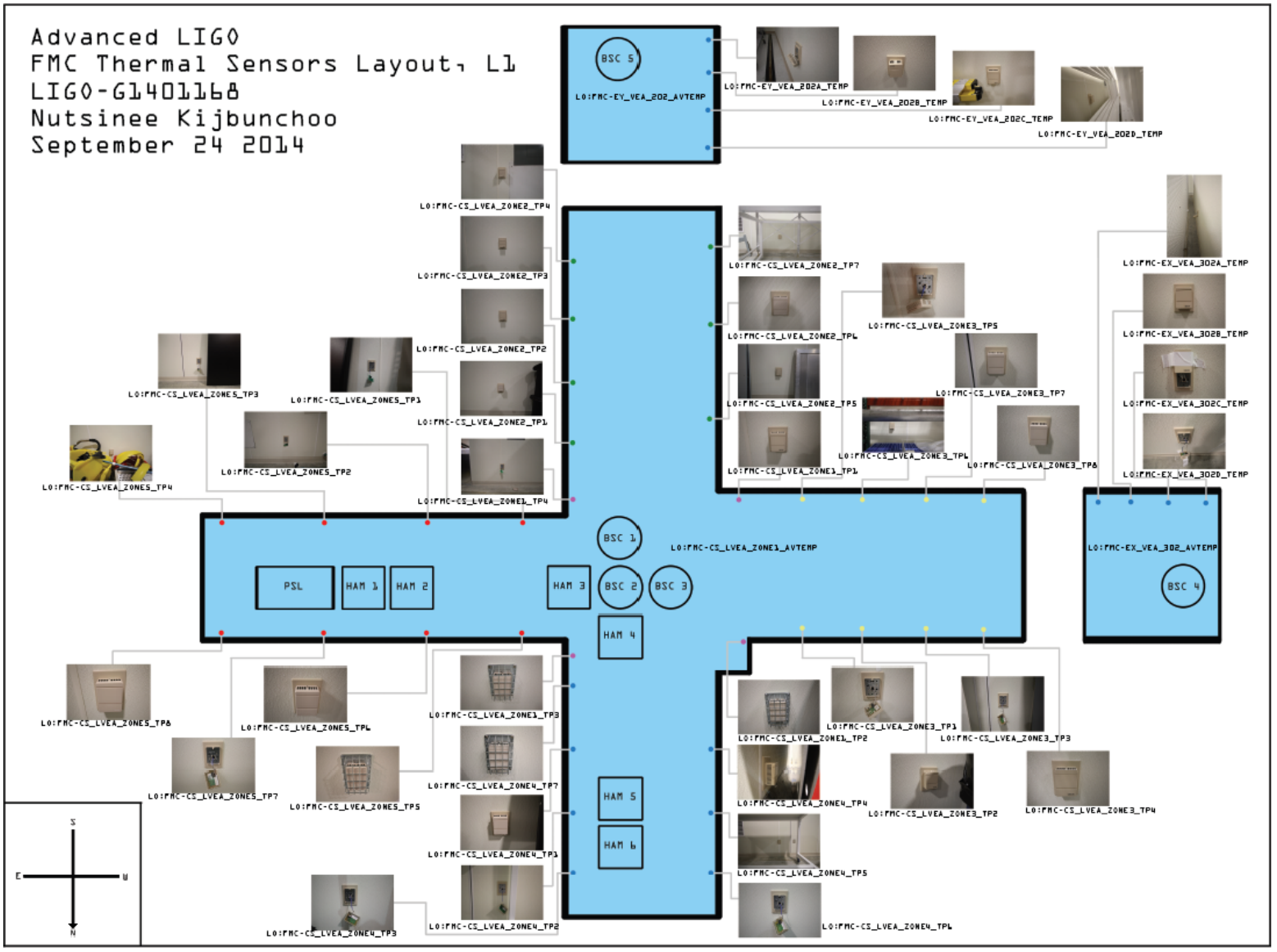






Temperature Sensor Locations

[<< PEM Categories]



G1401168

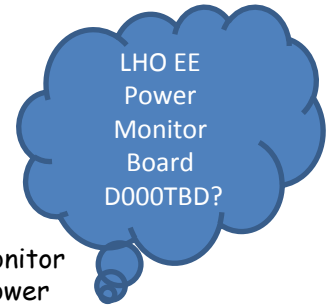
Tiltmeters

PT06E-16-26S(SR)-ND
CONN PLUG 26 POS
STRAIGHT W/SCKT

Voltage Monitor (1)

LIGO
<< PEM Categories

Comments as of 20100525



PEM Voltage Monitor locations:
1) LVEA – Rack 1X5 – DAQIC2, BNC Port 13
2) VEAX – Rack 1X20 – DAQIC2, BNC Port ?
3) VEAY – Rack 1Y20 – DAQIC2, BNC Port 10

This monitor is labeled, "PEM Voltage Monitor No. CAS-Vxx." The circuit board inside says, "LHO EE Power Monitor Board D0000TBD." Documentation is scarce. This device is probably OK for monitoring the single balanced power into which it is plugged in Rack 1X5. It is intended to record the differential between the two phases of the balanced power. But if it is used on any 'real' AC circuit, it creates the potential for a ½ line voltage ground loop between neutral and ground, and another between hot and ground.

Additionally, even in the balanced power situation, NEUTRAL is the wrong designation, for none of the conductors is neutral in a balanced power circuit: it is the negative AC power.

The circuit ties all shields together, so current loops exist between 2 potentially different AC circuits.

And also the cable ties all shields together, creating the same problem.

And most ironic, the monitor in Rack 1X5 is NOT being read at all: there is no signal name, but it is plugged in. (This was NOT true in September 2009 when inventory of the DAQIC signals was last taken.)

At the YEND, the AC cable has only three BNC connectors. Two are connected to the Voltage Monitor box.

At the XEND, the AC cable has all four BNC connectors, but they are cross-connected to the Voltage Monitor Box: Cable HOT1, NEU1, HOT2, NEU2 are connected to Box HOT2, NEU2, HOT1, NEU1 and I did not check the cable for accuracy. I did note it only has 2 wires coming into the CP4 port, however, but which two is not clear.

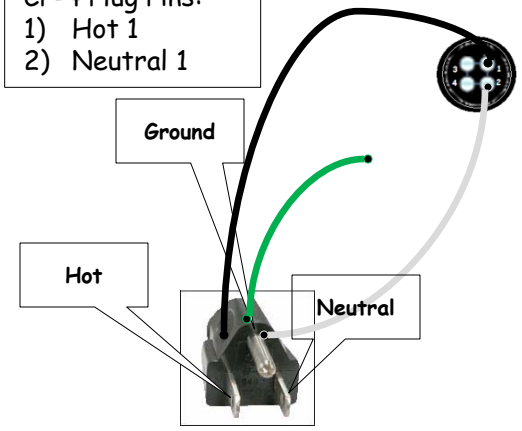
Voltage Monitor (2)

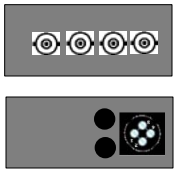
Photos as of 20100525

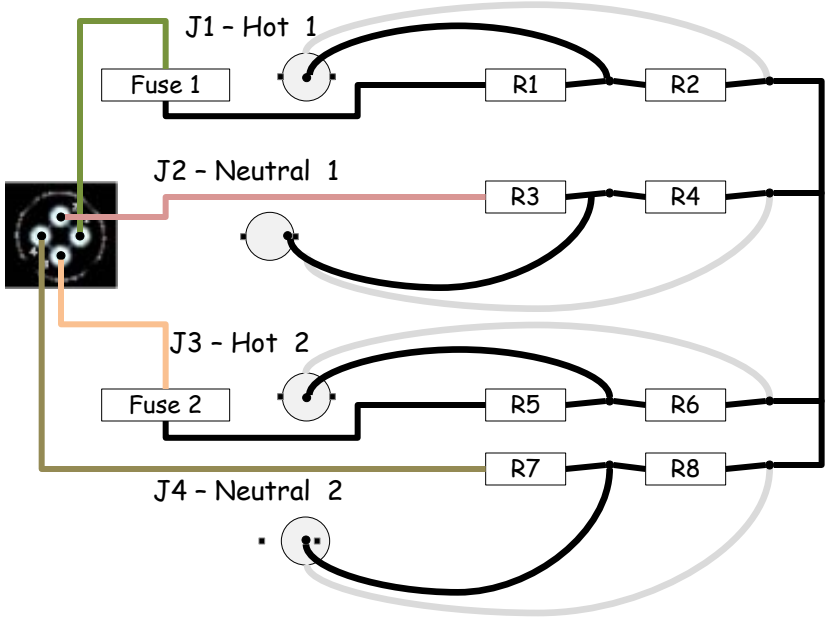
Voltage Monitor (3)

Internal Design and Interfaces as of 20100525

CP-4 Plug Pins:
1) Hot 1
2) Neutral 1

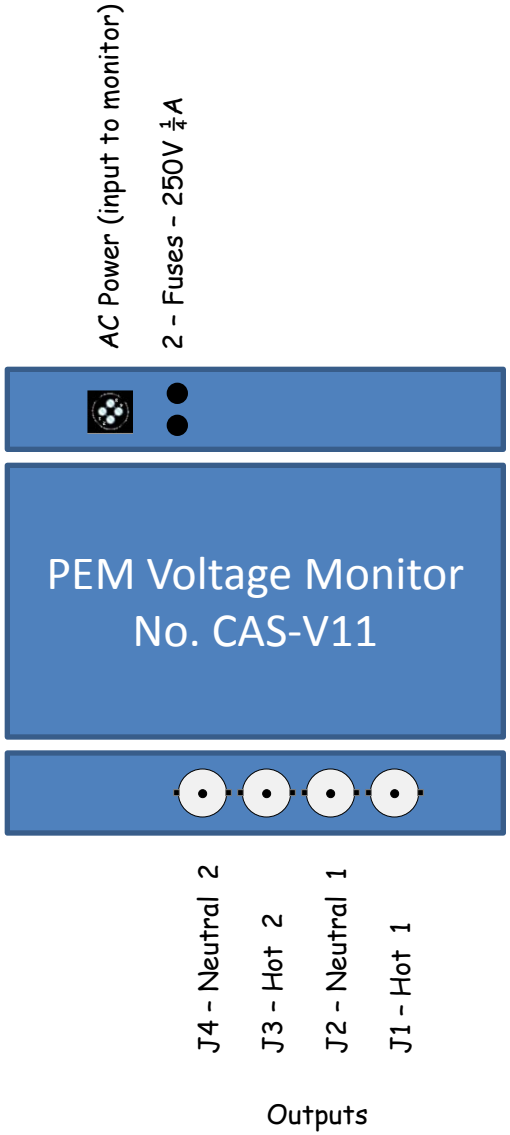






CP-4 Socket Pins:
1)Hot 1 – fused
2)Neutral 1
3)Hot 2 – fused
4)Neutral 2

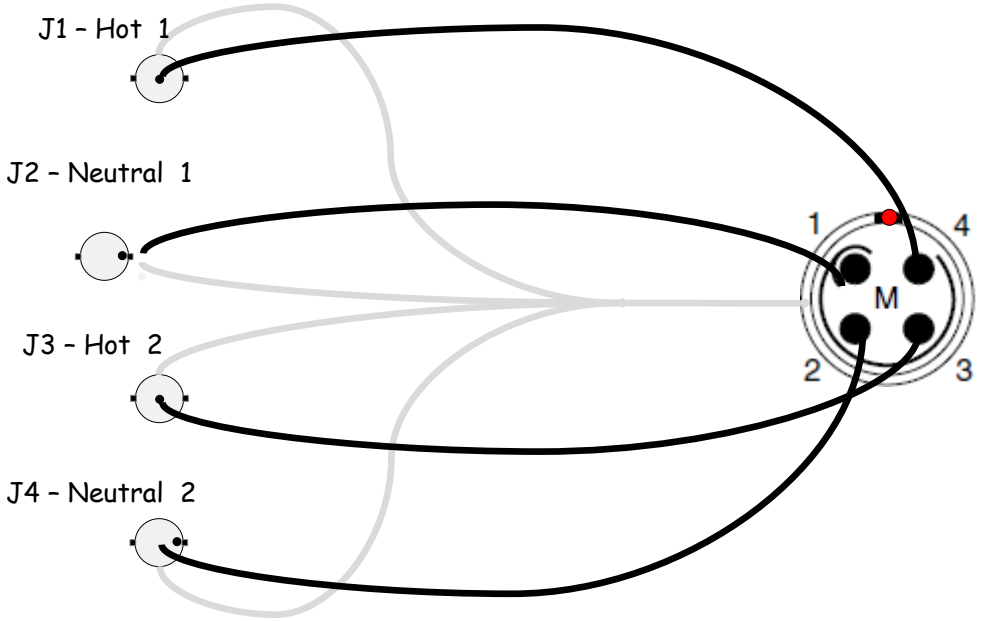
R1,R3,R5,R7 = 1MΩ
R2,R4,R6,R8 = 1kΩ
Fuse1,2 = 250V, ¼A



Voltage Monitor (4)

Cable design as of 20100525

Cable: From 4 BNC connectors to 4-Pin Lemo on DAQIC-2



Lemo 4-Pin:
1) Neutral 1
2) Neutral 2
3) Hot 2 – fused
4) Hot 1 – fused
5) Shield

Weather Sensors

<< PEM Categories

Weather Sensor locations

LLO network

LSU network

Wall Warts and Other Items Requiring Power

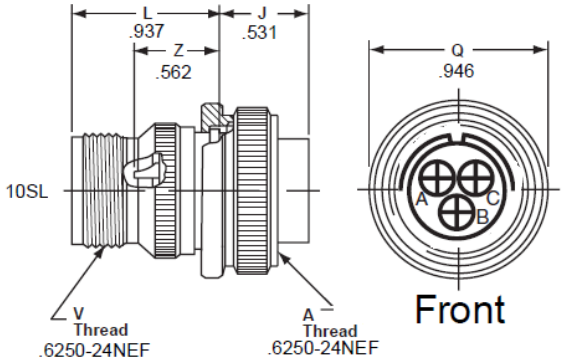
- Cameras
- Computer Monitors
- Lights

Vacuum Equipment
Rechargeable Flashlights
Optical Isolators
Trouble Lights
Warning Signs
Laser Hazard Status Signs
Laser Danger Signs
Loudspeaker
Telephones

Cameras (Video)

OPLEVS – Optical Levers

3-Pin Power Connector



Amphenol Industrial

Mouser Part #:	654-MS3106A10SL-3S
Manufacturer Part #:	MS3106A10SL-3S
Manufacturer:	Amphenol Industrial
Description:	Circular MIL Spec Connector 3P #16 SKT CONTACTS

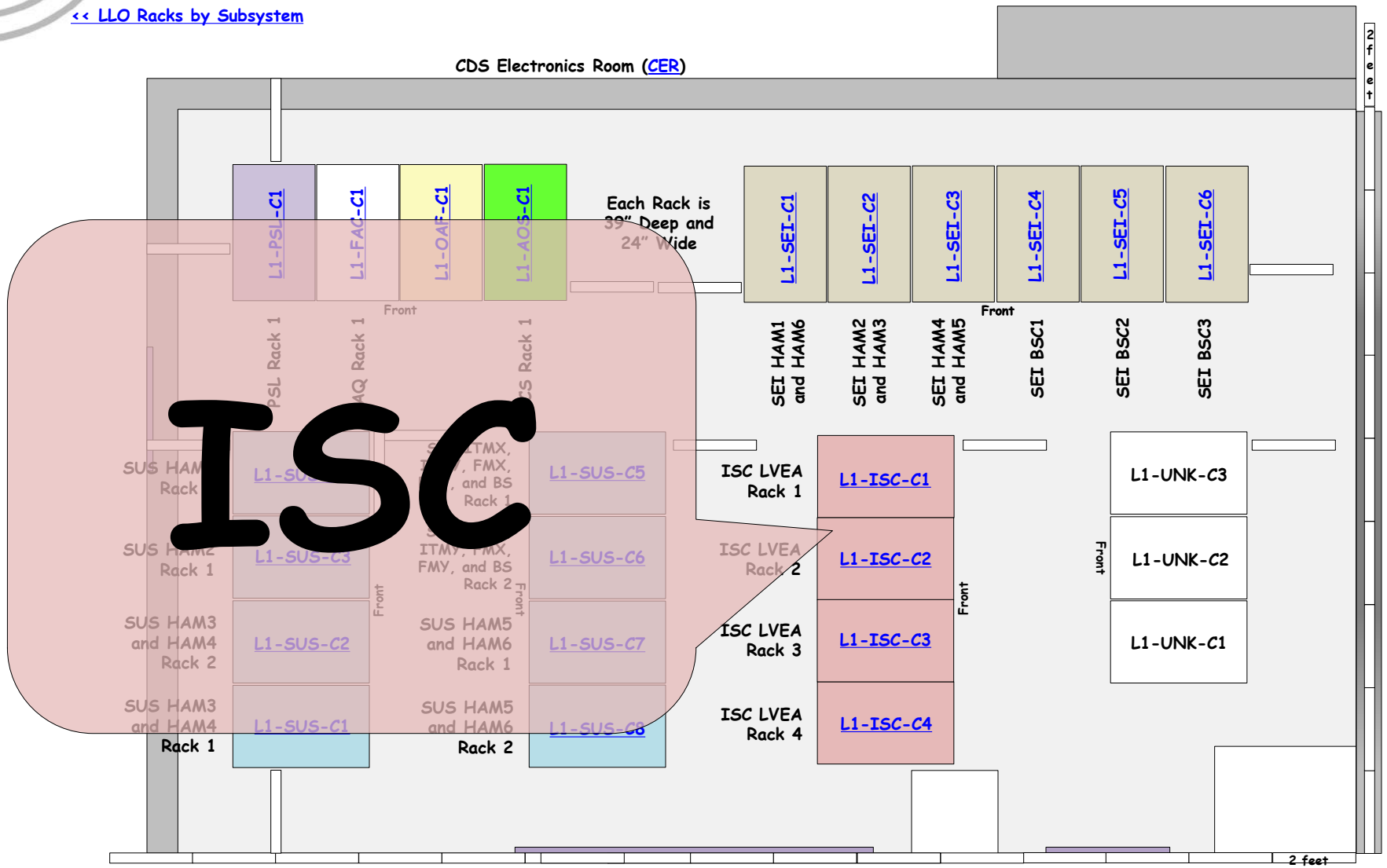
Amphenol Industrial

Mouser Part #:	654-97-3057-1004-1
Manufacturer Part #:	97-3057-1004-1
Manufacturer:	Amphenol Industrial
Description:	Circular MIL Spec Strain Reliefs & Adapters Clamp with Bushing Size 10SL, 12S

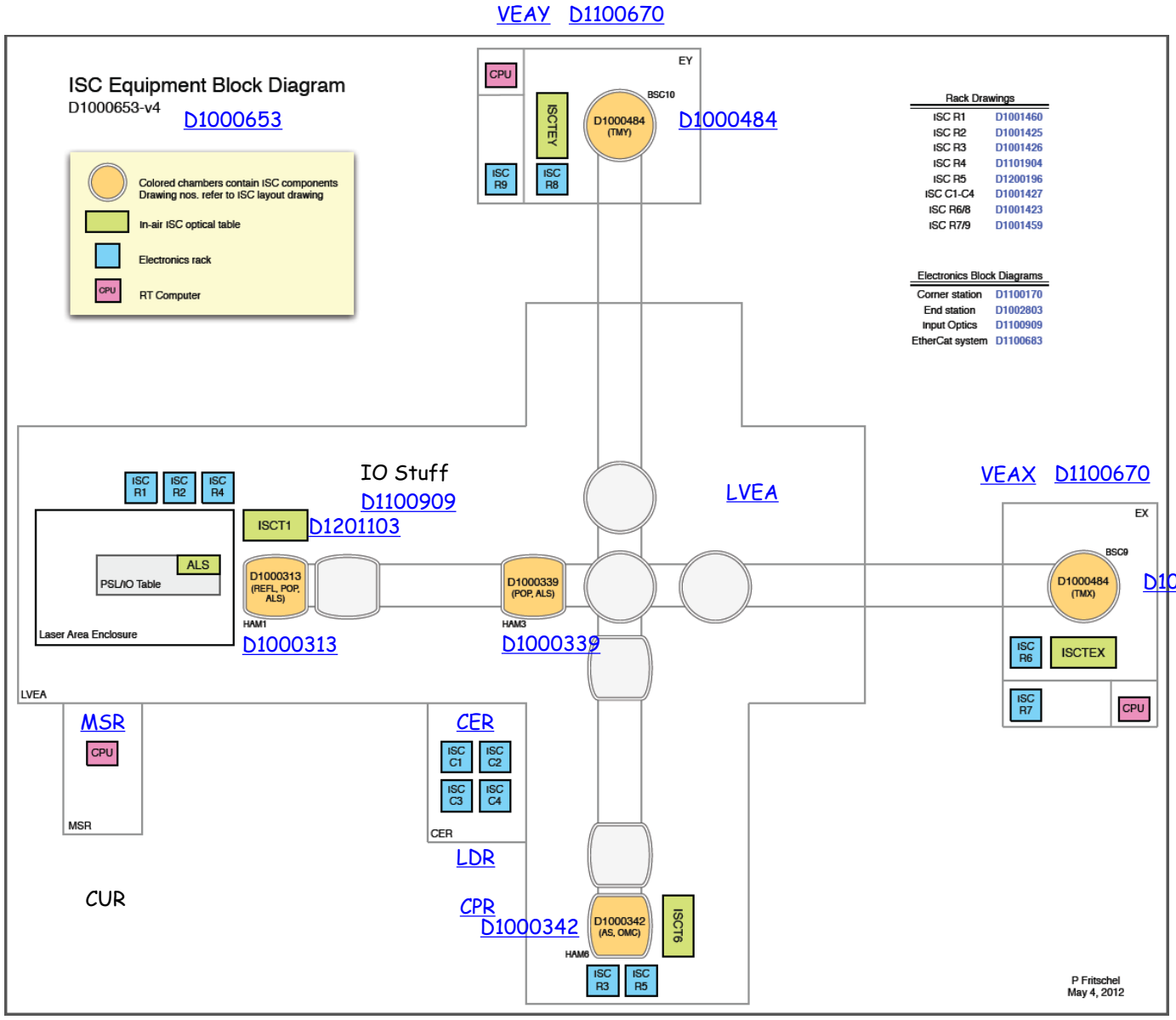
Pin A –
Pin B –
Pin C –

Subsystem: ISC (Interferometer Sensing and Control)

[<< LLO Racks by Subsystem]



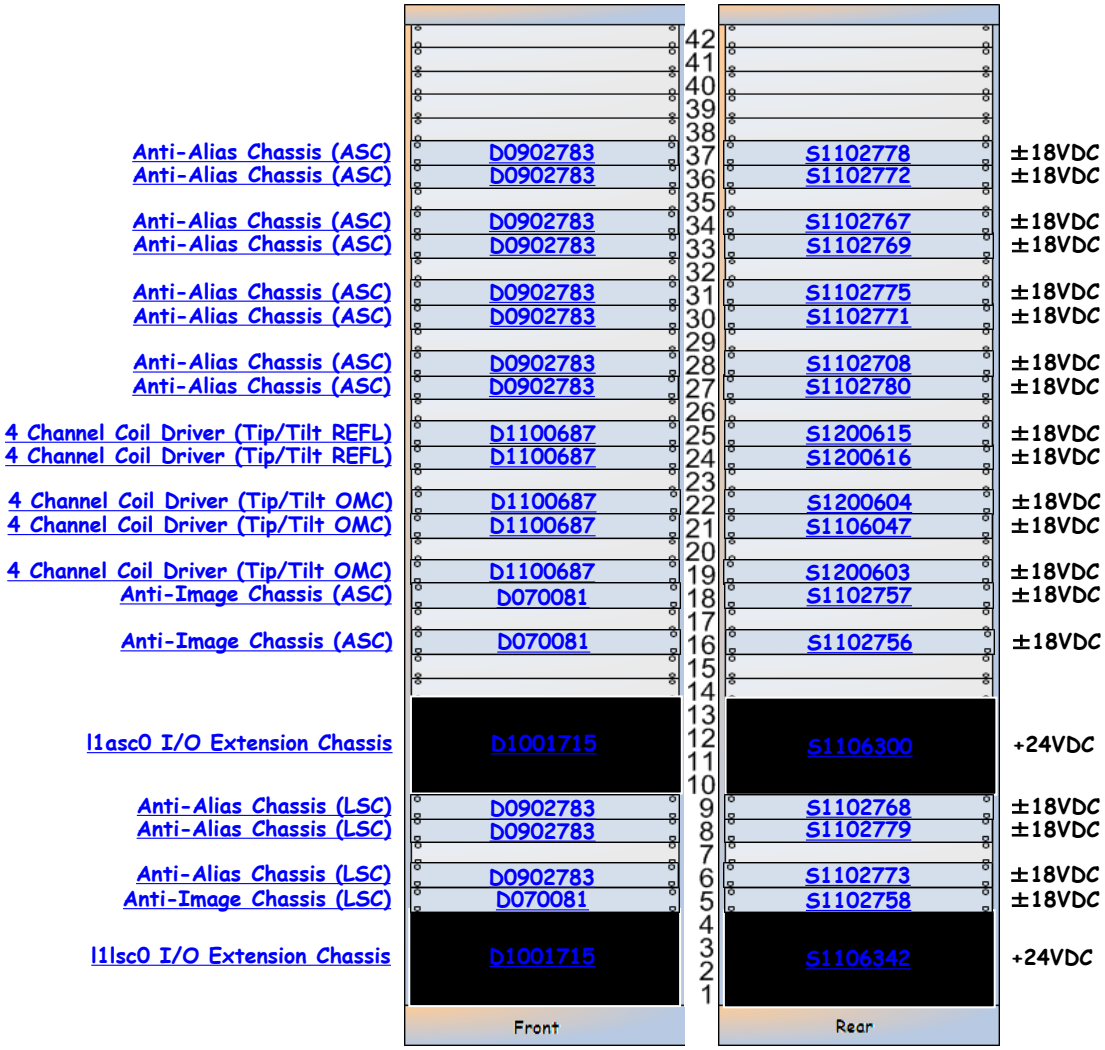
LLO ISC Equipment

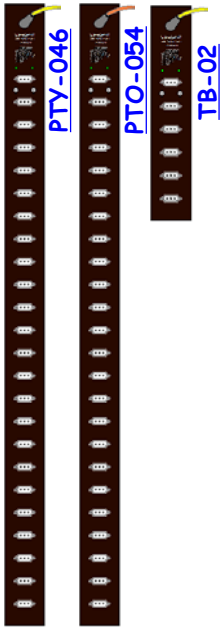


L1-ISC-C1

[<< CER]

ISC LVEA Rack 1 Layout ([D1200949]) ([S1201186])



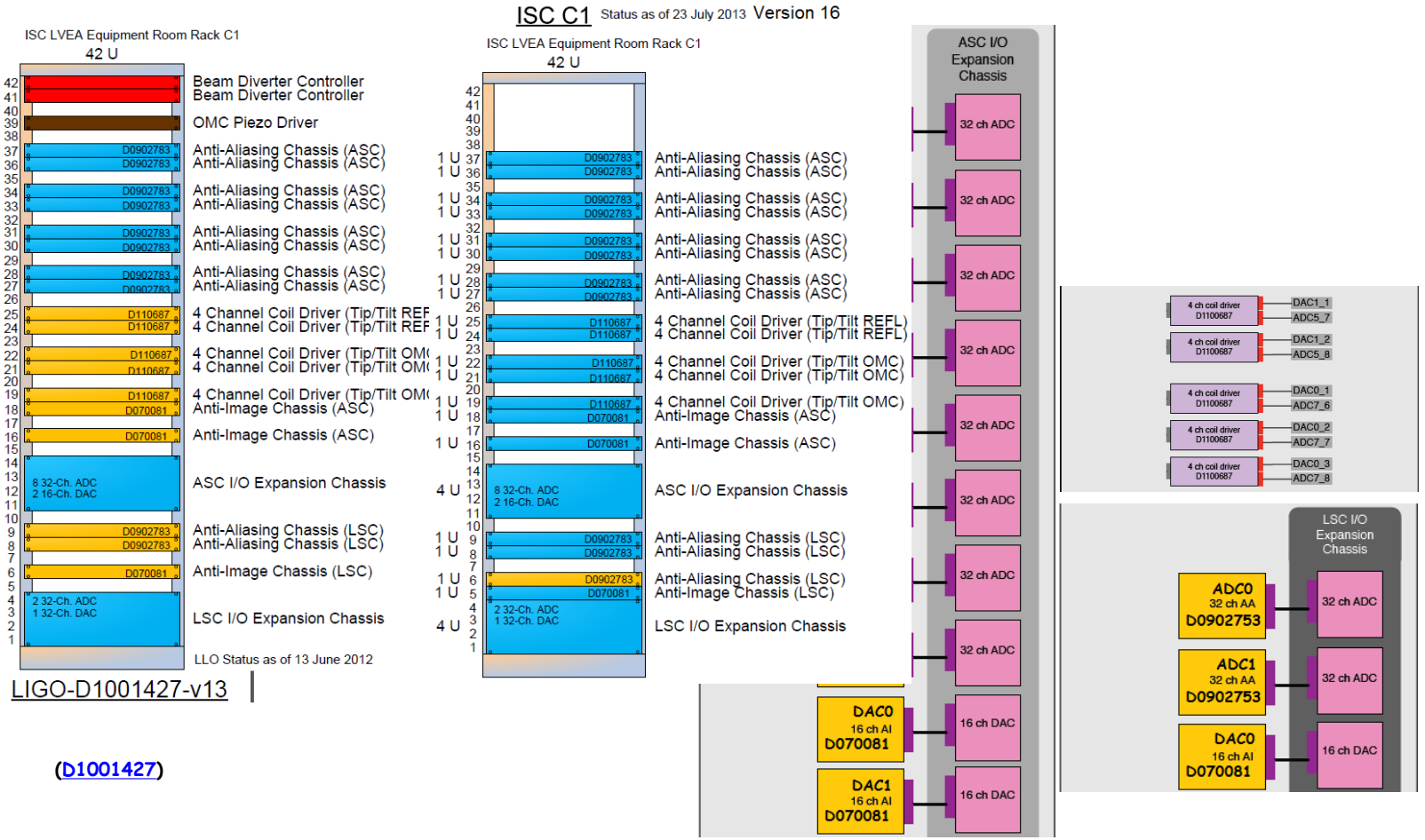


ISC-C1 is part of [D1001427].

IO Diagram: [D1100909]

Vertex ISC: [D1100170]

ISC LVEA Rack 1 Layout (D1200949) (S1201186)



(D1001427)

(D1100170)

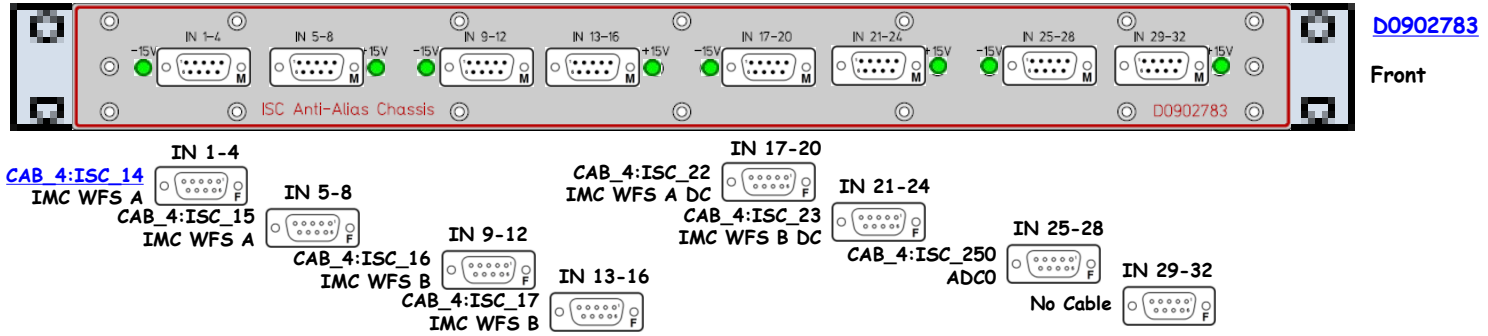
L1-ISC-C1 Details

ISC-C1 is part of D1001427.

D0902783 - S1102778 (ADC0)

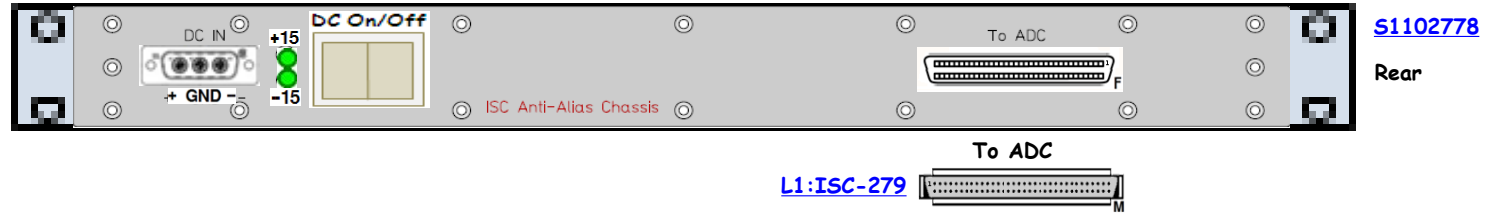
« L1-ISC-C1

Anti-Alias Chassis (ASC) | D0902783 | S1102778 | ±18VDC



D0902783

Front

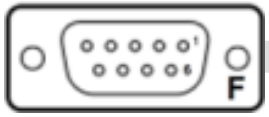


S1102778

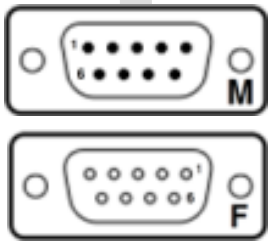
Rear

CAB_4:ISC_14 (IMC WFS A)

<< D0902783 - S1102778



Pins	D0902783-S1102778	Other End
1		
2		
3		
4		
5		
6		
7		
8		
9		

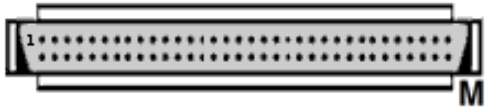


>> Thing

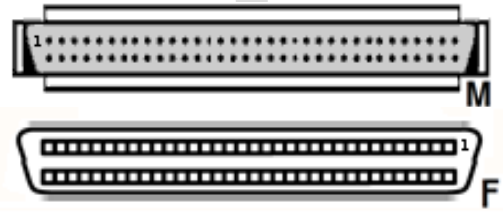
L1:ISC-279 (To ADC)

LIGO

<< D0902783 - S1102778



Pins	D0902783-S1102778	D1001715-S1106300
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		

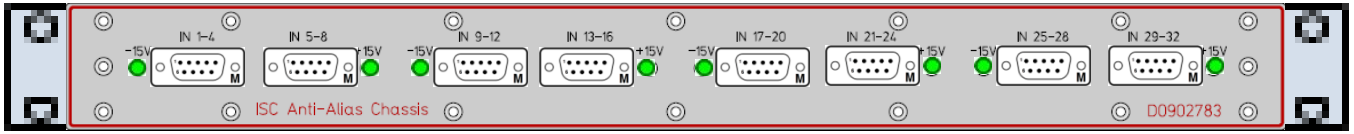


>> D1001715 - S1106300

D0902783 - S1102772 (ADC1)

[<< L1-ISC-C1]

Anti-Alias Chassis (ASC) | D0902783 | S1102772 | ±18VDC



D0902783

Front

IN 1-4
CAB_4:ISC_247
IM4 TRANS QPD
CAB_4:ISC_249
MC2 TRANS QPD

IN 5-8
CAB_4:ISC_268
PSL IO PDS

IN 9-12
CAB_4:ISC_270
IOT1 PDS

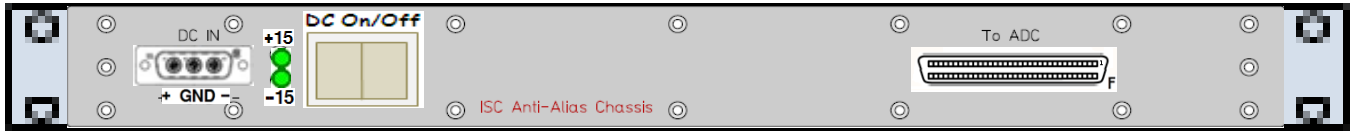
IN 13-16

IN 17-20
CAB_4:ISC_272
IOT2 PDS

IN 21-24
N/A

IN 25-28
N/A

IN 29-32
N/A



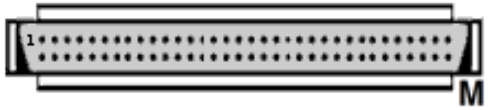
S1102772

Rear

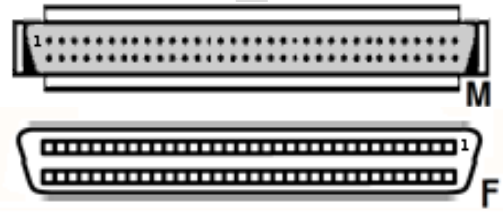
To ADC
L1:ISC-280

L1:ISC-280 (To ADC)

[<< D0902783 - S1102772]



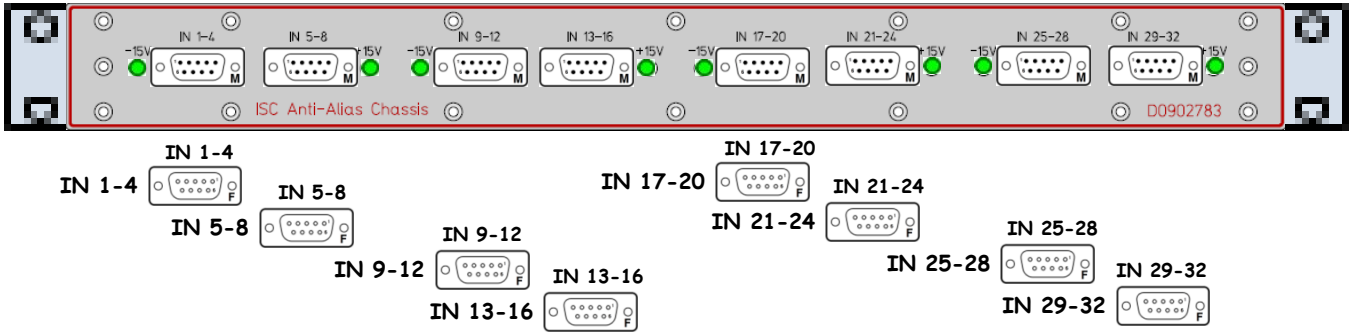
Pins	D0902783-S1102772	D1001715-S1106300
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		



[>> D1001715 - S1106300]

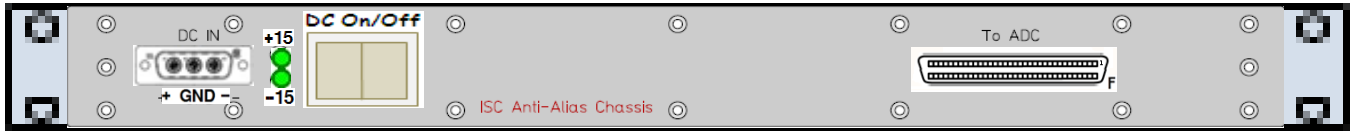
D0902783 - S1102767

Anti-Alias Chassis (ASC) | D0902783 | S1102767 | ±18VDC



D0902783

Front

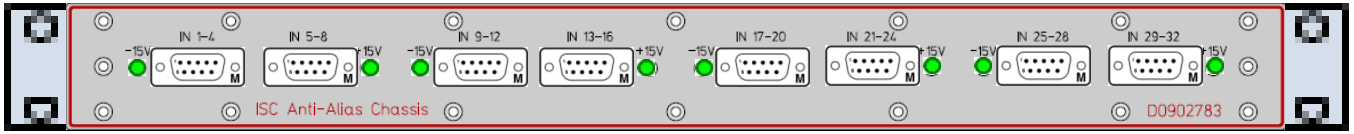


S1102767

Rear

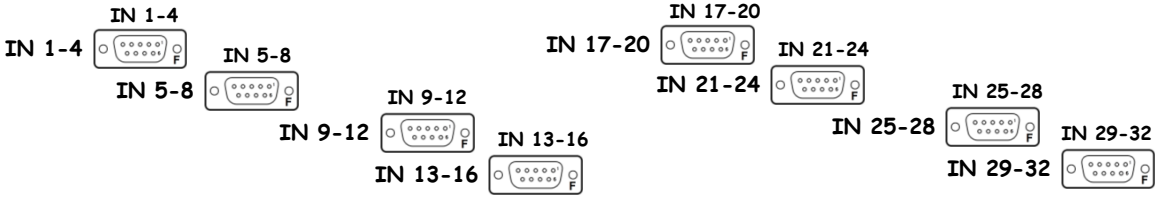
D0902783 - S1102769

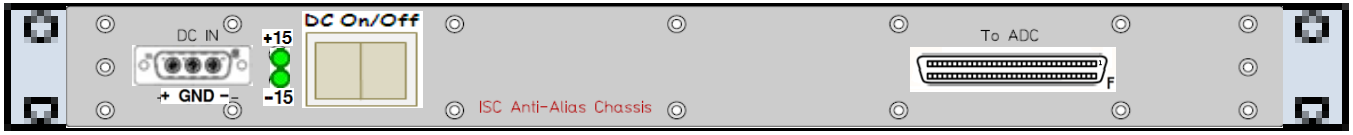
Anti-Alias Chassis (ASC) D0902783 S1102769 ±18VDC



D0902783

Front



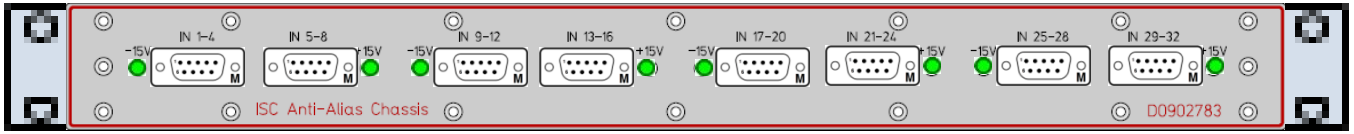


S1102769

Rear

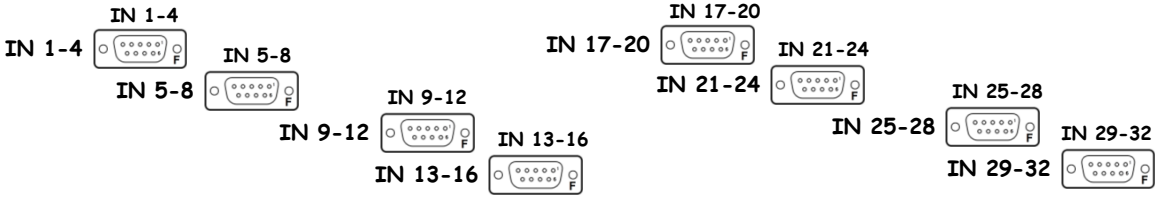
D0902783 - S1102775

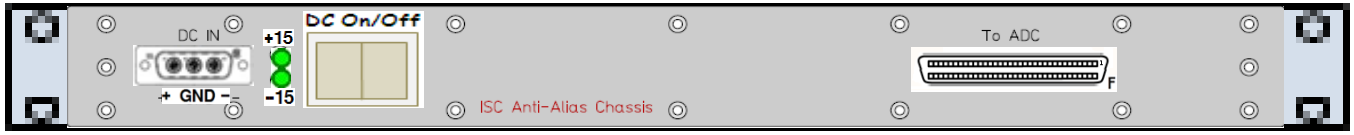
Anti-Alias Chassis (ASC) | D0902783 | S1102775 | ±18VDC



D0902783

Front



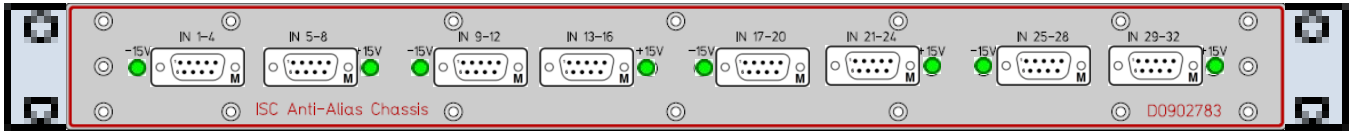


S1102775

Rear

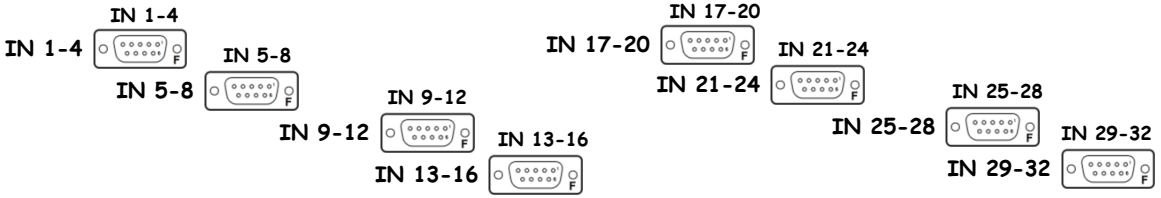
D0902783 - S1102771

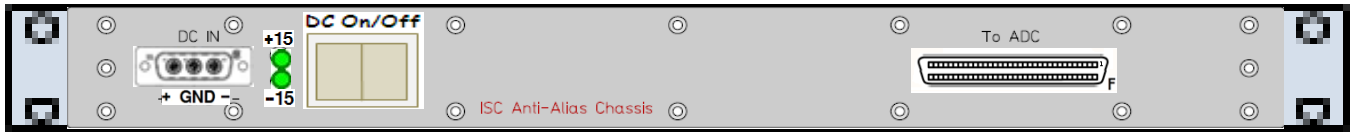
Anti-Alias Chassis (ASC) | D0902783 | S1102771 | ±18VDC



D0902783

Front



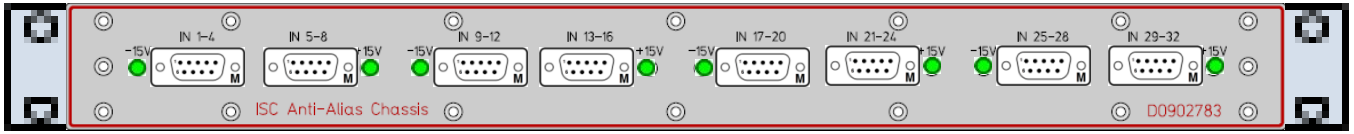


S1102771

Rear

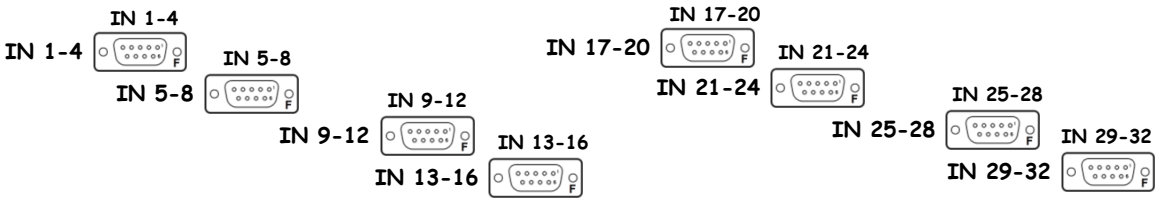
D0902783 - S1102708

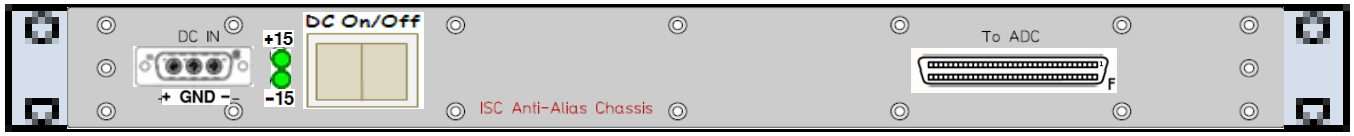
Anti-Alias Chassis (ASC) | D0902783 | S1102708 | ±18VDC



D0902783

Front



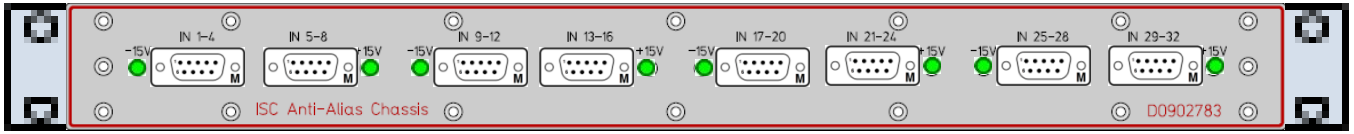


S1102708

Rear

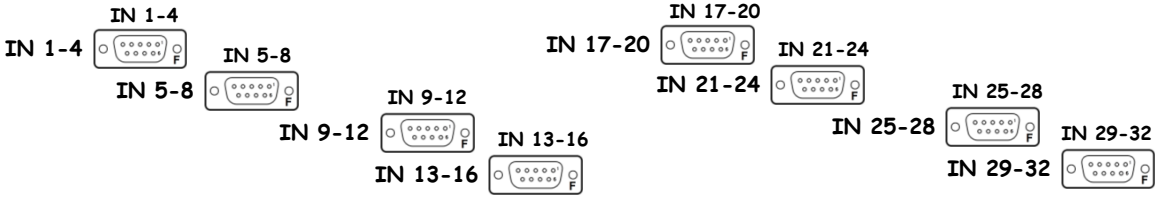
D0902783 - S1102780

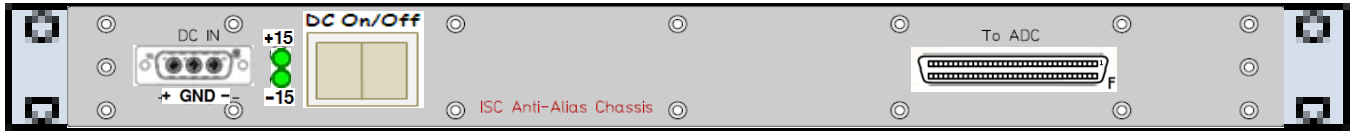
Anti-Alias Chassis (ASC) | D0902783 | S1102780 | ±18VDC



D0902783

Front



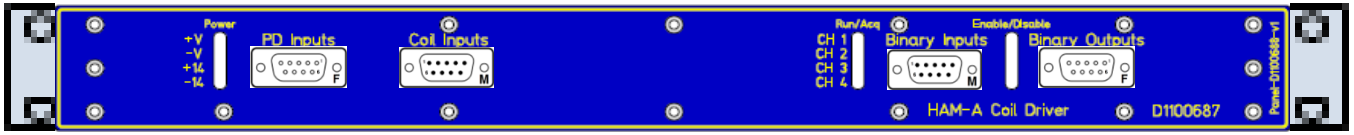


S1102780

Rear

D1100687 - S1200615

4 Channel Coil Driver (Tip/Tilt REFL) | D1100687 | S1200615 : | ±18VDC



D1100687

Front

PD Inputs

PD Inputs

Coil Inputs

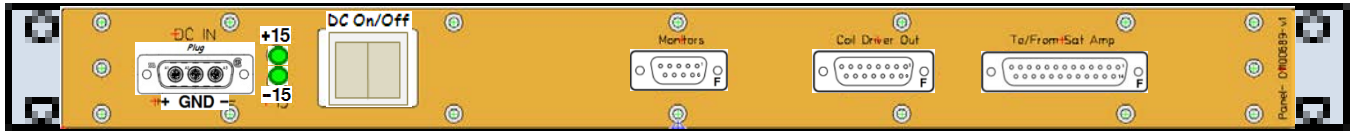
Coil Inputs

Binary Inputs

Binary Inputs

Binary Outputs

Binary Outputs



S1200615

Rear

Monitors

Monitors

Coil Driver Out

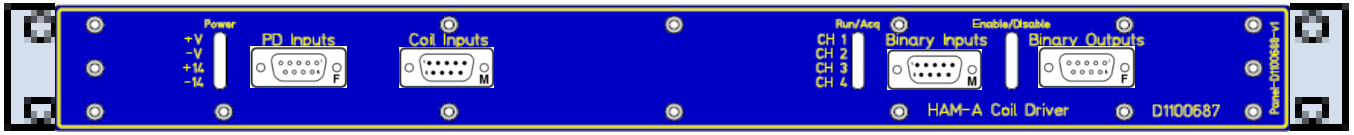
Coil Driver Out

To/From Sat Amp

To/From Sat Amp

D1100687 – S1200616

4 Channel Coil Driver (Tip/Tilt REFL) | D1100687 | S1200616 : | ±18VDC



D1100687

Front

PD Inputs

PD Inputs

Coil Inputs

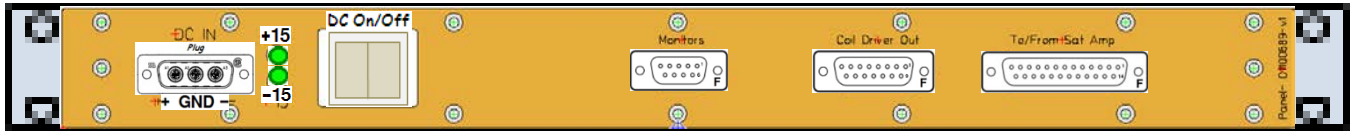
Coil Inputs

Binary Inputs

Binary Inputs

Binary Outputs

Binary Outputs



S1200616

Rear

Monitors

Monitors

Coil Driver Out

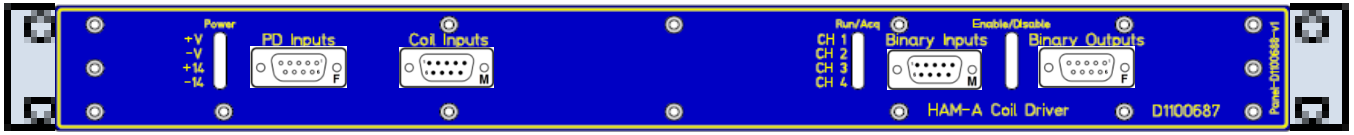
Coil Driver Out

To/From Sat Amp

To/From Sat Amp

D1100687 – S1106047

4 Channel Coil Driver (Tip/Tilt OMC) | D1100687 | S1106047 | ±18VDC



D1100687

Front

PD Inputs

PD Inputs

Coil Inputs

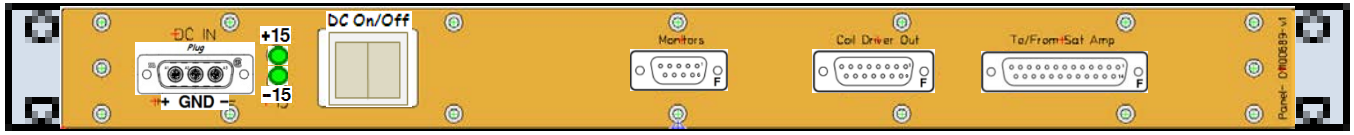
Coil Inputs

Binary Inputs

Binary Inputs

Binary Outputs

Binary Outputs



S1106047

Rear

Monitors

Monitors

Coil Driver Out

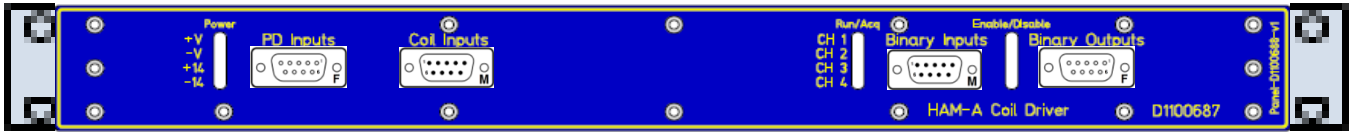
Coil Driver Out

To/From Sat Amp

To/From Sat Amp

D1100687 – S1200604

4 Channel Coil Driver (Tip/Tilt OMC) | D1100687 | S1200604 : | ±18VDC

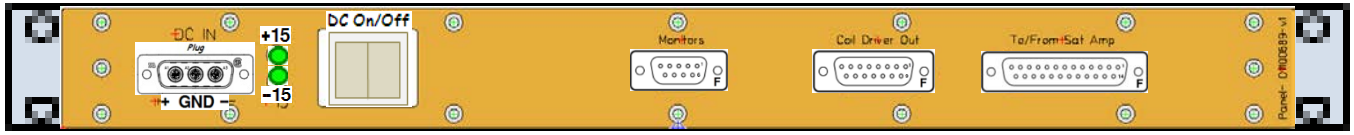


D1100687

Front

PD Inputs
PD Inputs
Coil Inputs
Coil Inputs

Binary Inputs
Binary Inputs
Binary Outputs
Binary Outputs



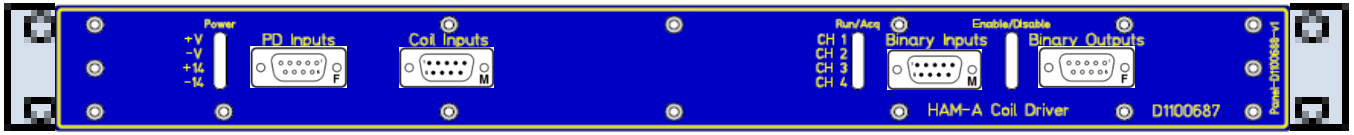
S1200604

Rear

Monitors
Monitors
Coil Driver Out
Coil Driver Out
To/From Sat Amp
To/From Sat Amp

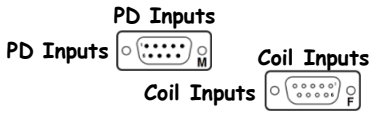
D1100687 – S1200603

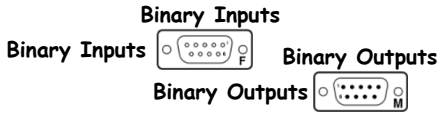
4 Channel Coil Driver (Tip/Tilt OMC) | D1100687 | S1200603 | ±18VDC

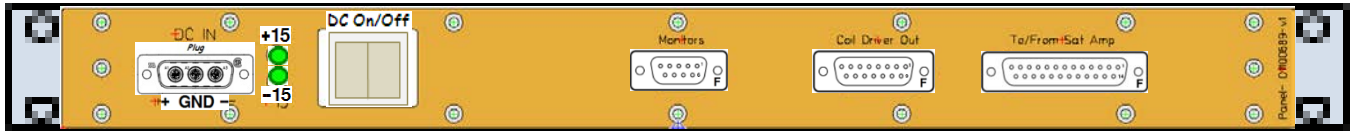


D1100687

Front

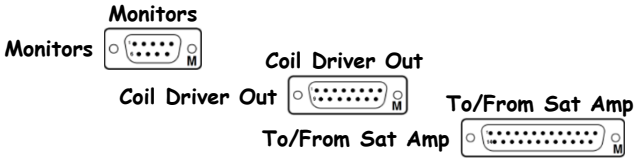






S1200603

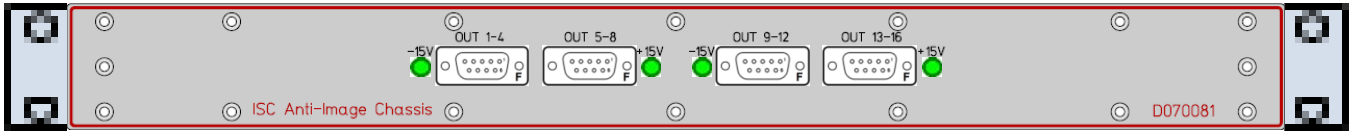
Rear



D070081 - S1102757

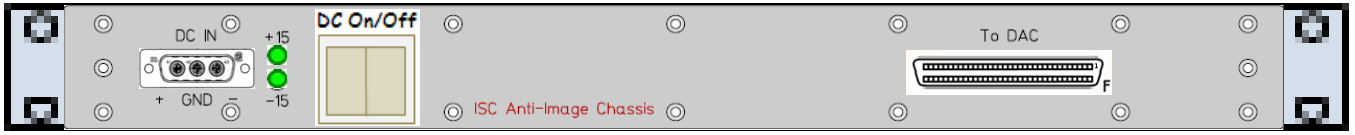
[<< L1-ISC-C1]

Anti-Image Chassis (ASC) | D070081 | S1102757 | ±18VDC



D070081

Front



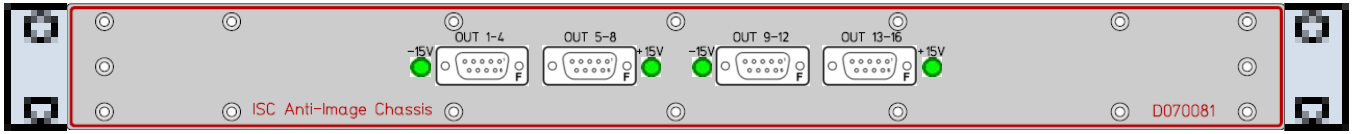
S1102757

Rear

D070081 - S1102756

[<< L1-ISC-C1]

Anti-Image Chassis (ASC) | D070081 | S1102756 | ±18VDC



D070081

Front

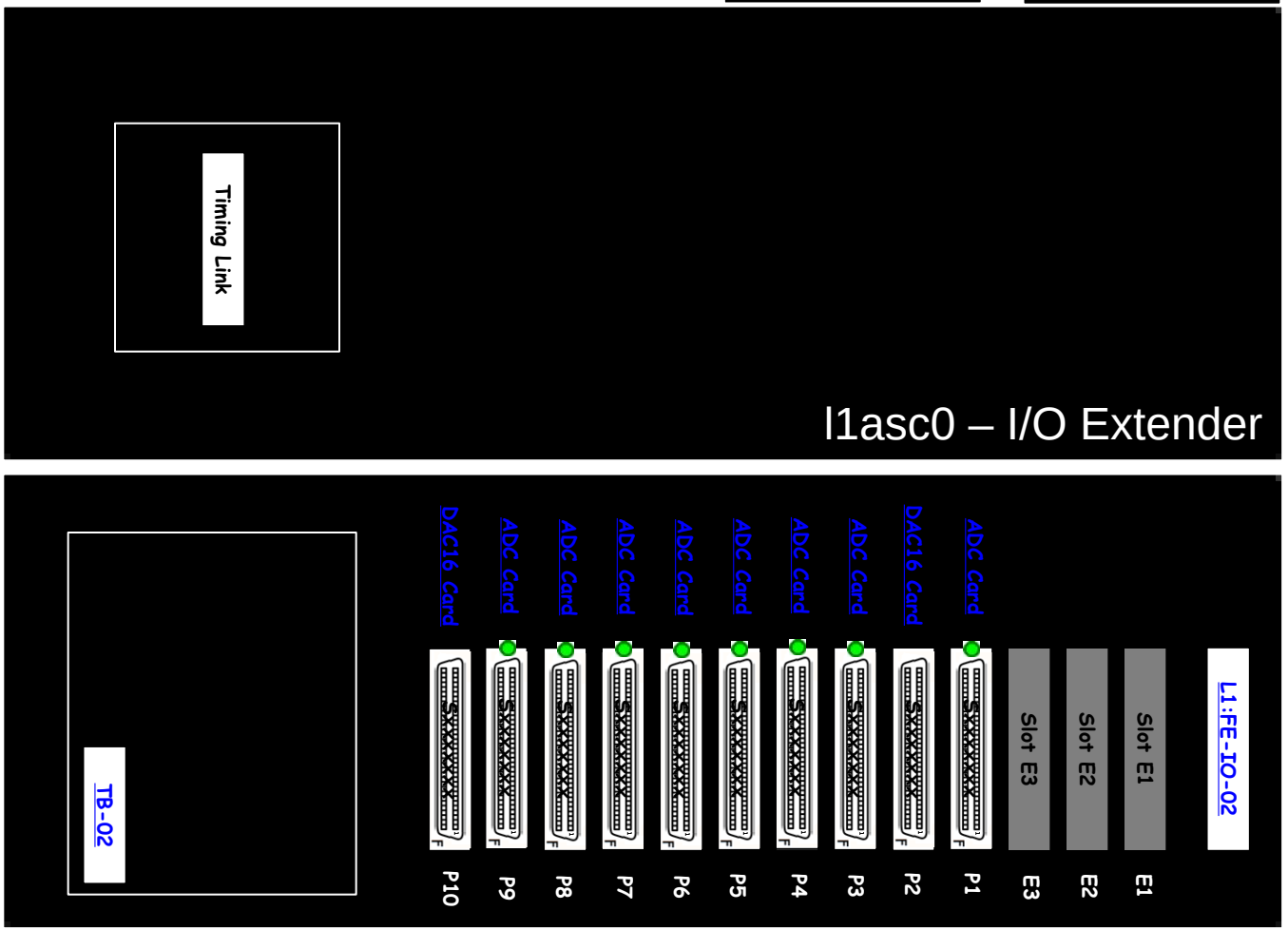
S1102756

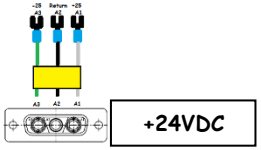
Rear

l1asc0 - D1001715 - S1106300

[<< L1-ISC-C1]

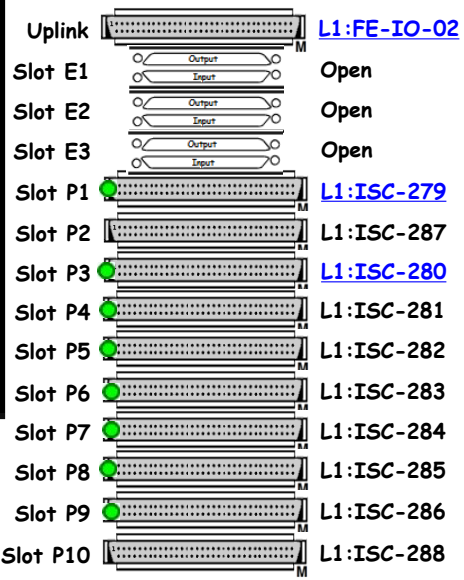
l1asc0 I/O Extension Chassis | D1001715 | S1106300 | +24VDC





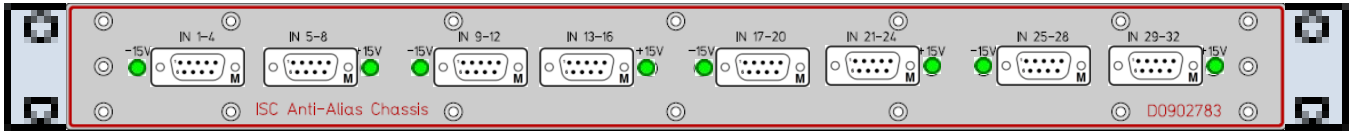
D1001715
Front

S1106300
Rear



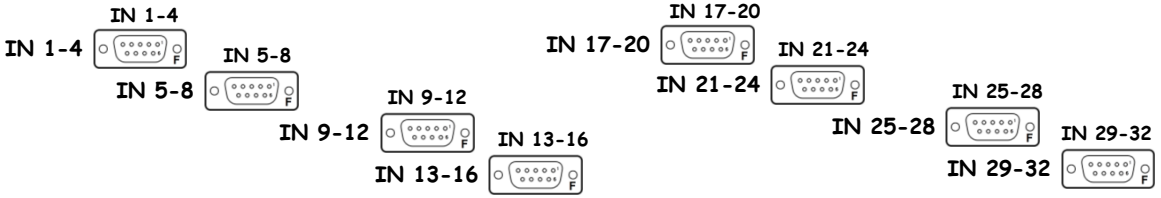
D0902783 - S1102768

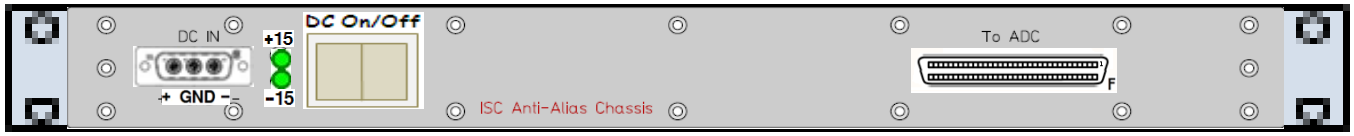
Anti-Alias Chassis (LSC) | D0902783 | S1102768 | ±18VDC



D0902783

Front



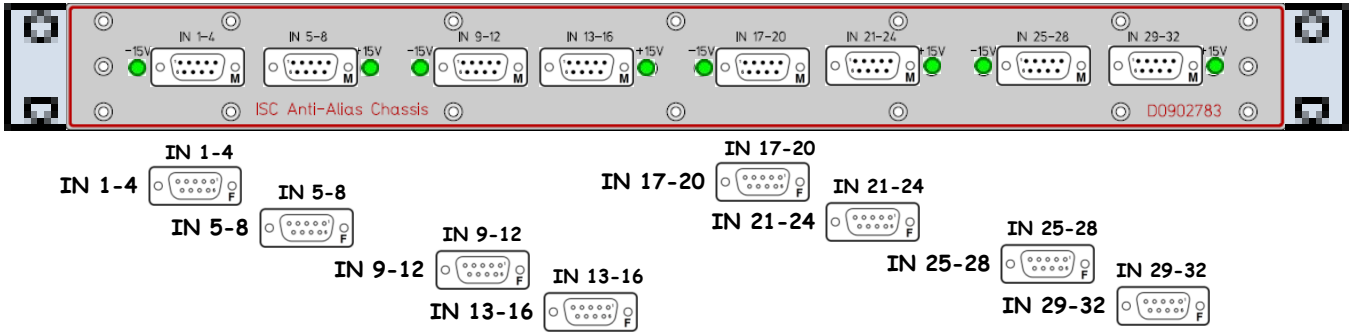


S1102768

Rear

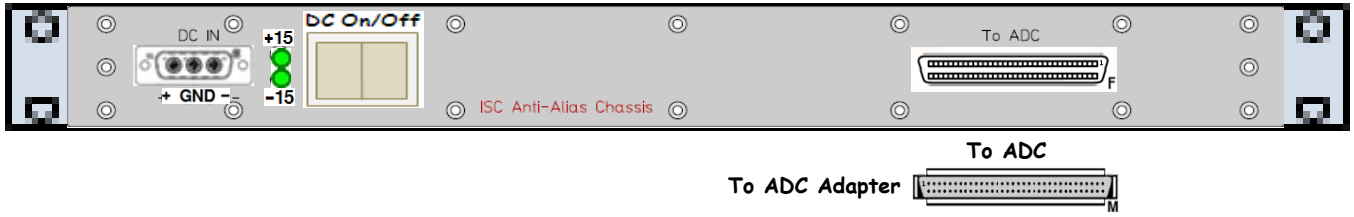
D0902783 - S1102779

Anti-Alias Chassis (LSC) | D0902783 | S1102779 | ±18VDC



D0902783

Front



S1102779

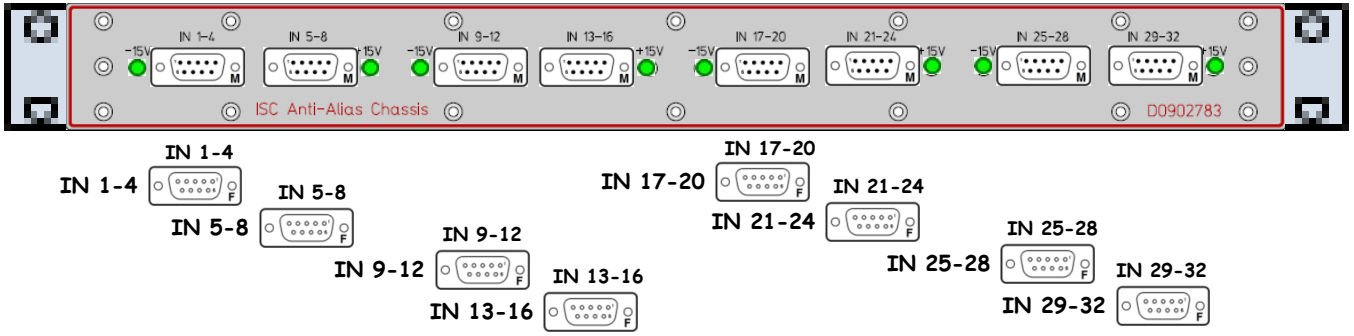
Rear

To ADC

To ADC Adapter

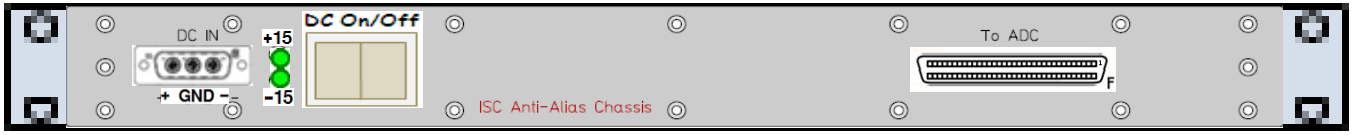
D0902783 - S1102773

Anti-Alias Chassis (LSC) | D0902783 | S1102773 | ±18VDC



D0902783

Front

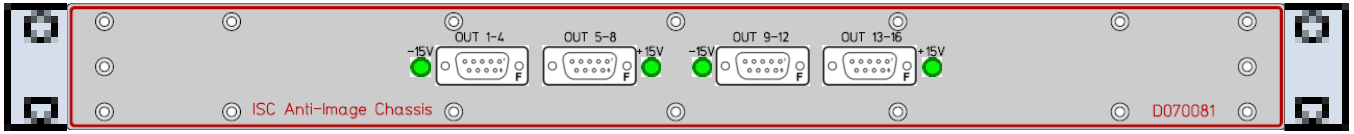


S1102773

Rear

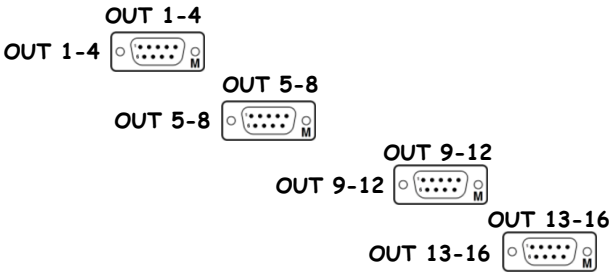
D070081 - S1102758

Anti-Image Chassis (LSC) | D070081 | S1102758 | ±18VDC



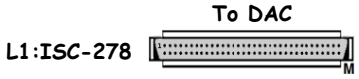
D070081

Front



S1102758

Rear

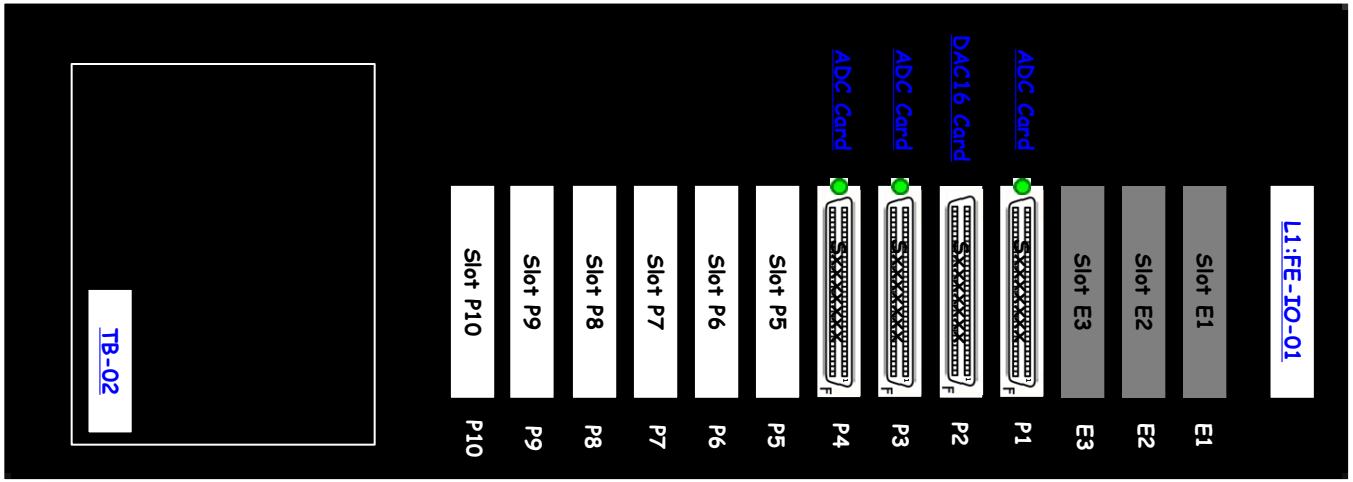


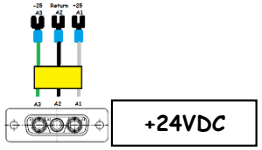
l1lsc0 - D1001715 - S1106342

« L1-ISC-C1

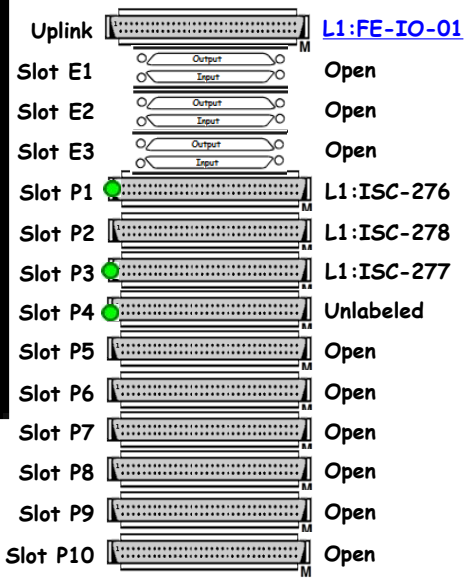
l1lsc0 I/O Extension Chassis | D1001715 | S1106342 | +24VDC

D1001715
Front





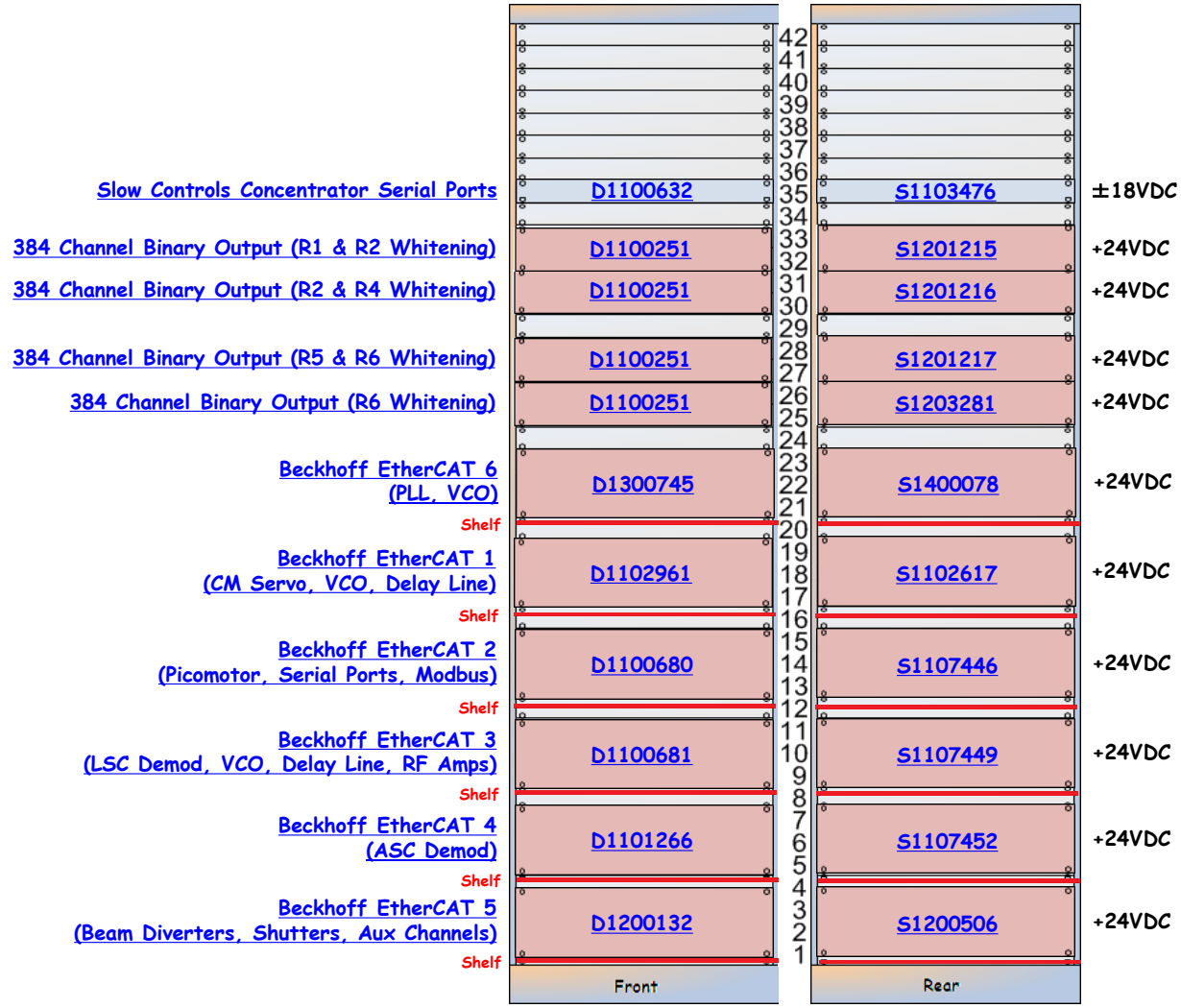
S1106342
Rear



L1-ISC-C2

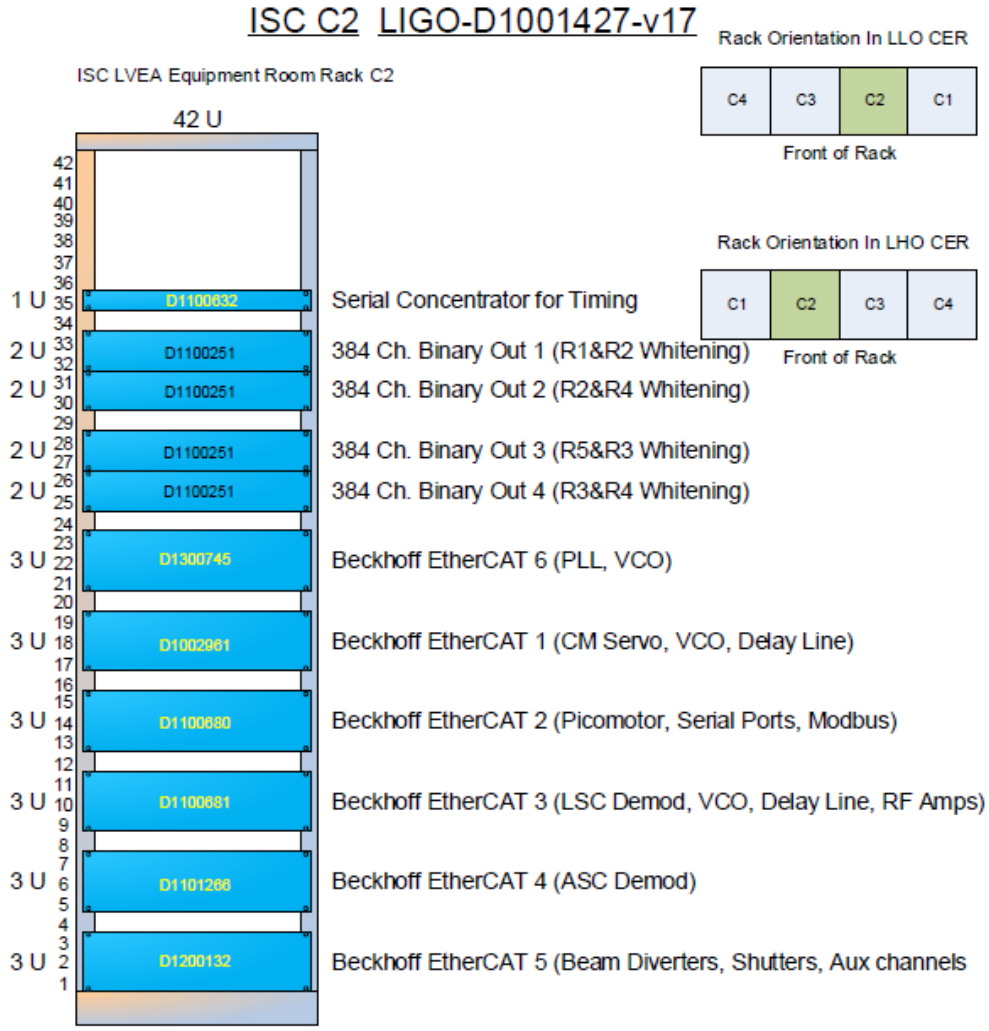
« CER

ISC LVEA Rack 2 Layout (D1200975) (S1201187)

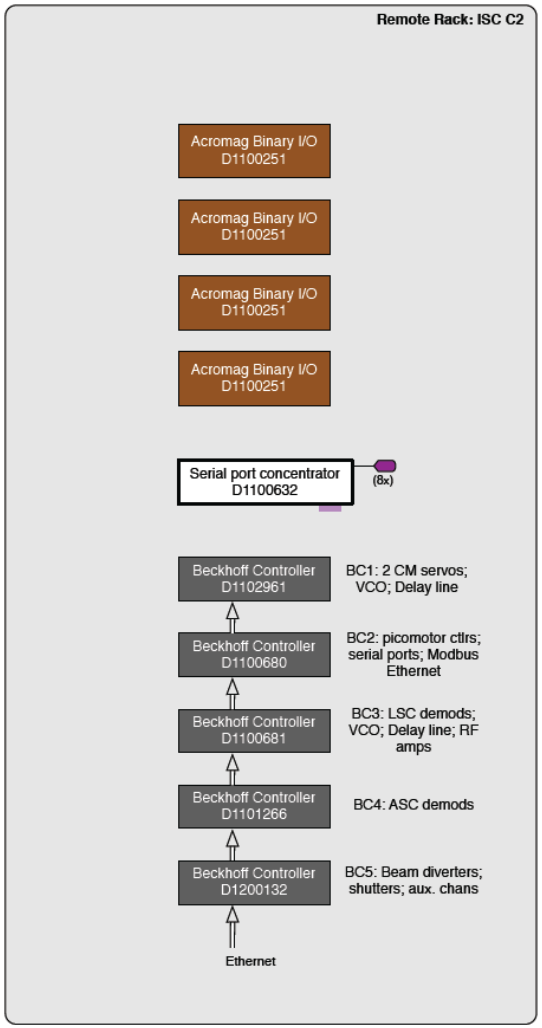


ISC-C2 is part of D1001427.
ISC-C2 is part of D1100170.

ISC LVEA Rack 2 Layout (D1001427) (S1201187)



(D1001427)



(D1100170)

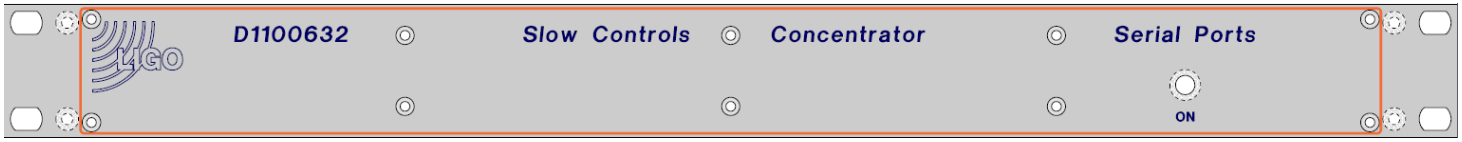
L1-ISC-C2 Details

ISC-C2 is part of D1001427.
ISC-C2 is part of D1100170.

D1100632 – S1103476

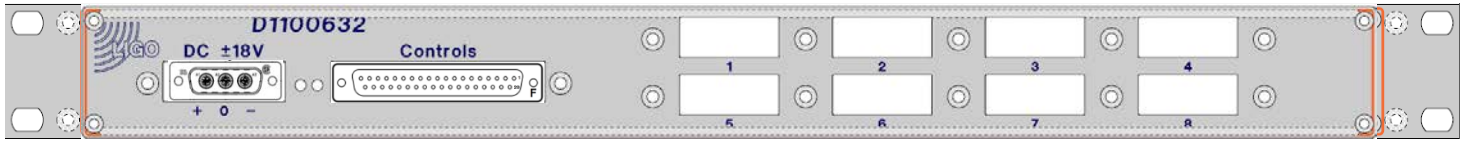
« L1-ISC-C2

Serial Port Concentrator for Timing | D1100632 | S1103476 | ±18VDC



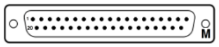
D1100632

Front



S1103476

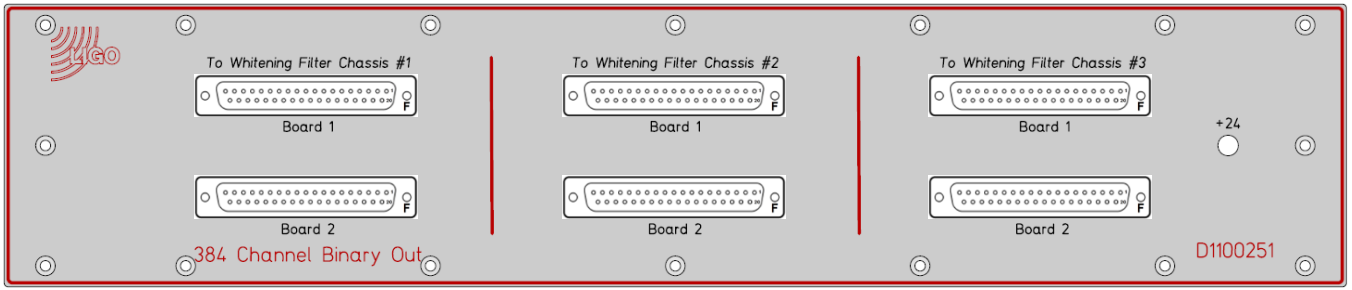
Rear



D1100251 - S1201215

[<< L1-ISC-C2]

384 Channel Binary Output (R1 & R2 Whitening) | D1100251 | S1201215 | +24VDC



D1100251

Front

Chassis 1 - Board 1 Front

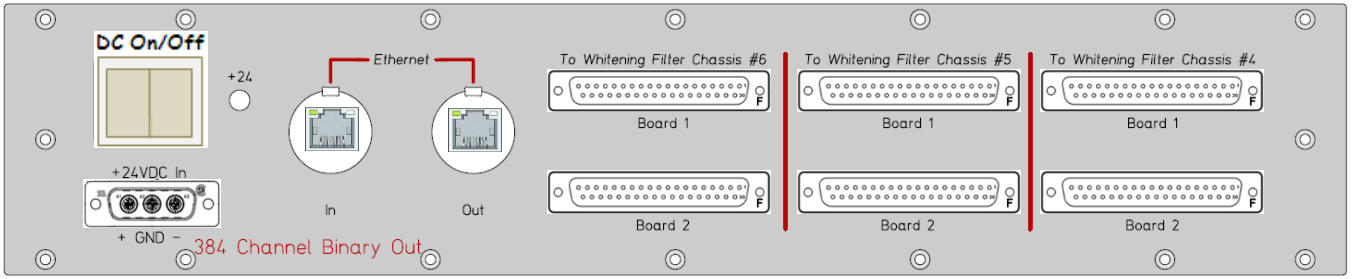
Chassis 2 - Board 1 Front

Chassis 3 - Board 1 Front

Chassis 1 - Board 2 Front

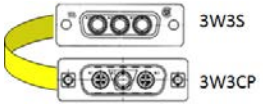
Chassis 2 - Board 2 Front

Chassis 3 - Board 2 Front



S1201215

Rear



Chassis 6 - Board 1 Rear

Chassis 5 - Board 1 Rear

Chassis 4 - Board 1 Rear

Chassis 6 - Board 2 Rear

Chassis 5 - Board 2 Rear

Chassis 4 - Board 2 Rear

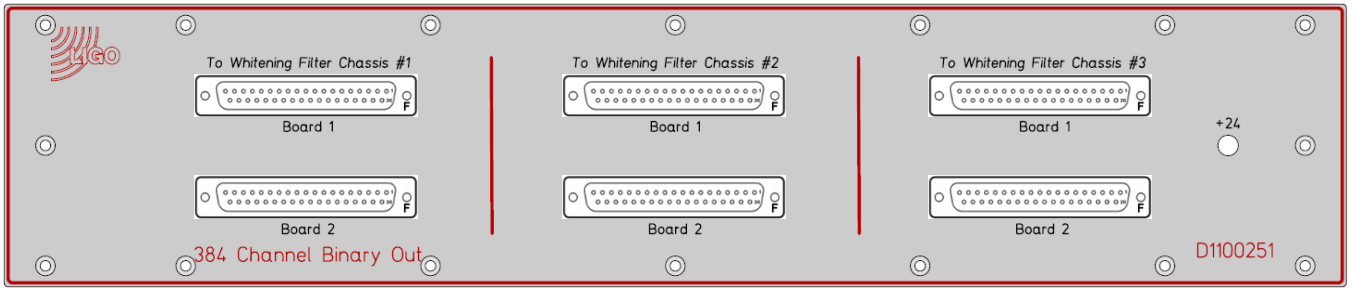
In Rear

Out Rear

D1100251 – S1201216

[<< L1-ISC-C2]

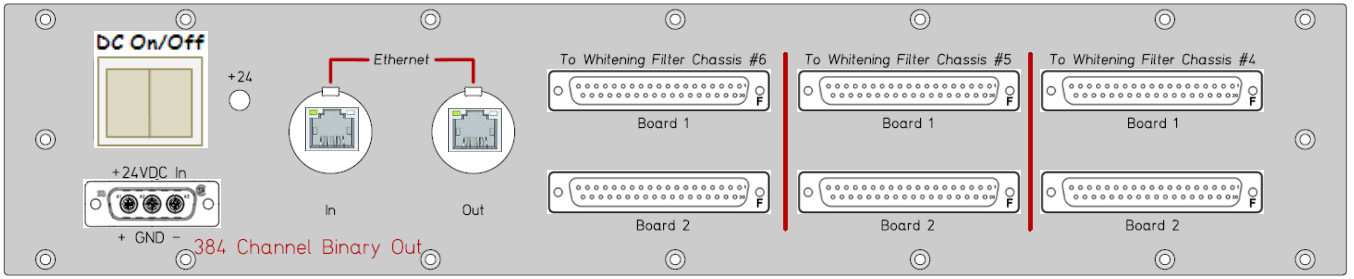
384 Channel Binary Output (R2 & R4 Whitening) | D1100251 | S1201216 | +24VDC



D1100251

Front

Chassis 1 – Board 1 (Front)
Chassis 2 – Board 1 (Front)
Chassis 3 – Board 1 (Front)
Chassis 1 – Board 2 (Front)
Chassis 2 – Board 2 (Front)
Chassis 3 – Board 2 (Front)



S1201216

Rear

3W3S
3W3CP

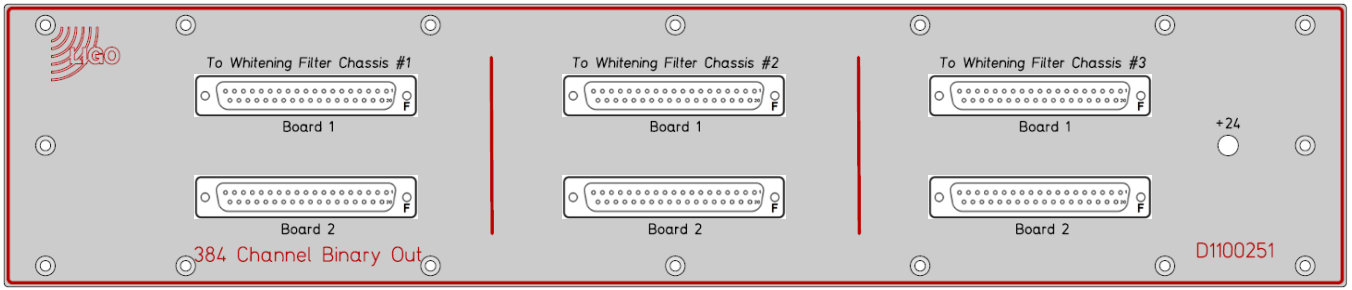
Chassis 6 – Board 1 (Rear)
Chassis 5 – Board 1 (Rear)
Chassis 4 – Board 1 (Rear)
Chassis 6 – Board 2 (Rear)
Chassis 5 – Board 2 (Rear)
Chassis 4 – Board 2 (Rear)

In (Rear)
Out (Rear)

D1100251 – S1201217

« L1-ISC-C2

384 Channel Binary Output (R5 & R6 Whitening) | D1100251 | S1201217 | +24VDC



D1100251

Front

Chassis 1 – Board 1 Front

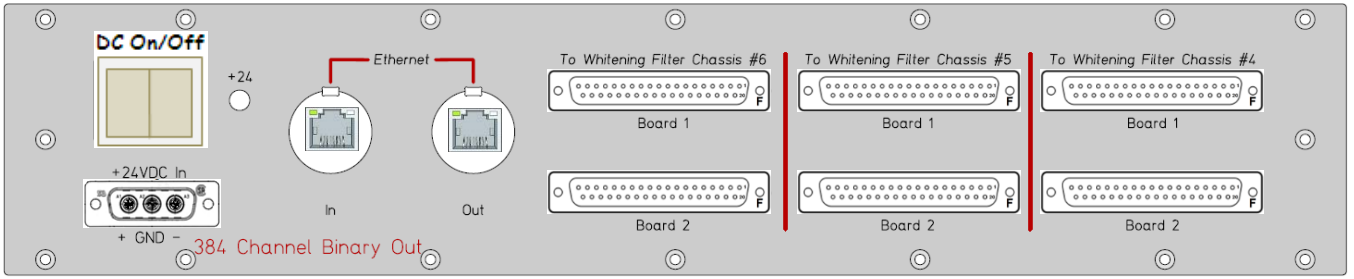
Chassis 2 – Board 1 Front

Chassis 3 – Board 1 Front

Chassis 1 – Board 2 Front

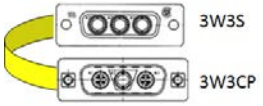
Chassis 2 – Board 2 Front

Chassis 3 – Board 2 Front



S1201217

Rear



Chassis 6 – Board 1 Rear

Chassis 5 – Board 1 Rear

Chassis 4 – Board 1 Rear

Chassis 6 – Board 2 Rear

Chassis 5 – Board 2 Rear

Chassis 4 – Board 2 Rear

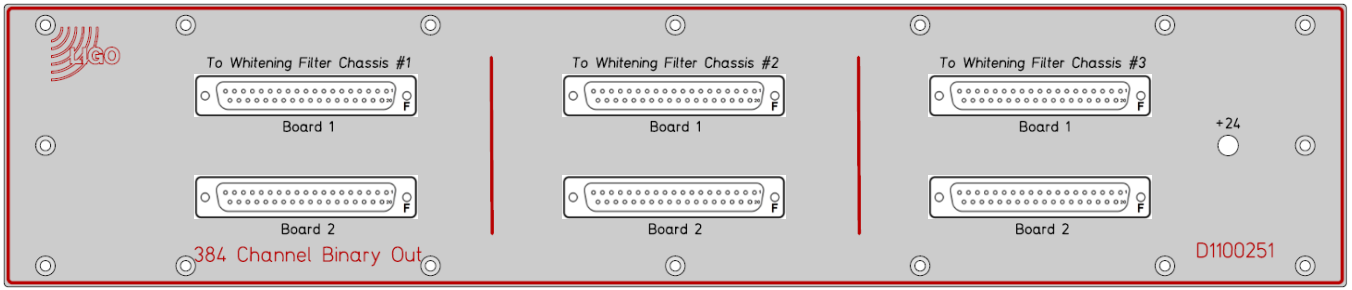
In Rear

Out Rear

D1100251 - S1203281

[<< L1-ISC-C2]

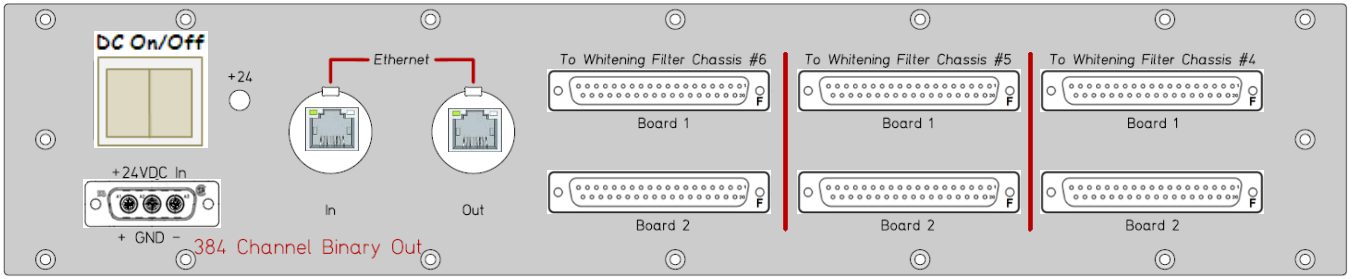
384 Channel Binary Output (R6 Whitening) | D1100251 | S1203281 | +24VDC



D1100251

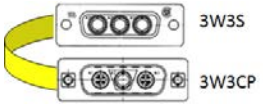
Front

Chassis 1 - Board 1 (Front)
Chassis 2 - Board 1 (Front)
Chassis 3 - Board 1 (Front)
Chassis 1 - Board 2 (Front)
Chassis 2 - Board 2 (Front)
Chassis 3 - Board 2 (Front)



S1203281

Rear



Chassis 6 - Board 1 (Rear)
Chassis 5 - Board 1 (Rear)
Chassis 4 - Board 1 (Rear)
Chassis 6 - Board 2 (Rear)
Chassis 5 - Board 2 (Rear)
Chassis 4 - Board 2 (Rear)

In (Rear)

Out (Rear)

D1102961 - S1102617

[<< L1-ISC-C2]

Beckhoff EtherCAT 1
(CM Servo, VCO, Delay Line)

D1102961

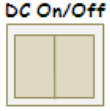
S1102617

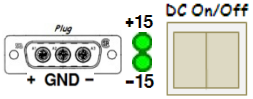
Power

D1102961

Front

DC On/Off

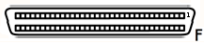


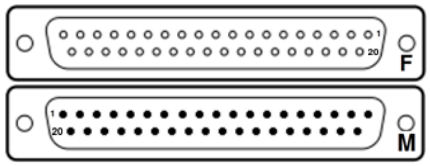


S1102617

Rear

From DAC Adapter





D1100680 – Sxxxxxxx

[<< L1-ISC-C2]

Beckhoff EtherCAT 2
(Picomotor, Serial Ports, Modbus)

D1100680

S1107446

Power

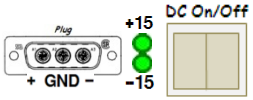
D1100680

Front

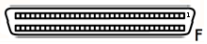
DC On/Off

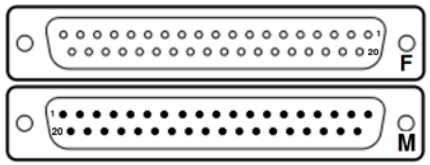
S1107446

Rear



From DAC Adapter





D1100681 – S1107449

[<< L1-ISC-C2]

Beckhoff EtherCAT 3
(LSC Demod, VCO, Delay Line, RF Amps)

D1100681

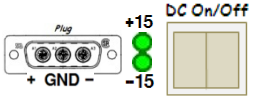
S1107449

Power

D1100681

Front

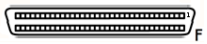
DC On/Off

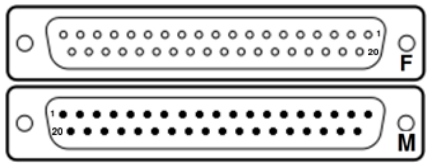


S1107449

Rear

From DAC Adapter





D1101266 - S1107452

[<< L1-ISC-C2]

Beckhoff EtherCAT 4
(ASC Demod)

D1101266

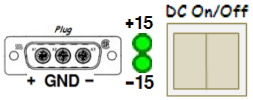
S1107452

Power

D1101266

Front

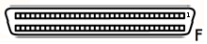
DC On/Off

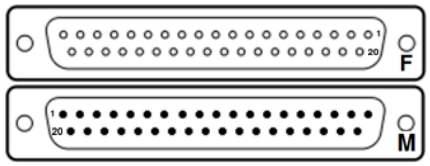


S1107452

Rear

From DAC Adapter





D1200132 - S1200506

[<< L1-ISC-C2]

Beckhoff EtherCAT 5
(Beam Diverters, Shutters, Aux Channels)

D1200132

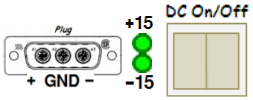
S1200506

Power

D1200132

Front

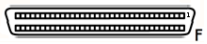
DC On/Off

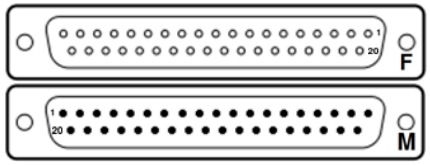


S1200506

Rear

From DAC Adapter





D1300745 - S1400078

[<< L1-ISC-C2]

Beckhoff EtherCAT 6
(PLL, VCO)

D1300745

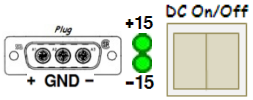
S1400078

Power

D1300745

Front

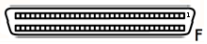
DC On/Off

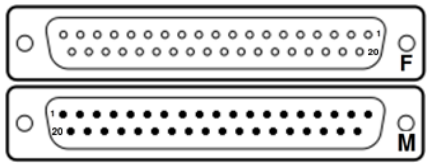


S1400078

Rear

From DAC Adapter

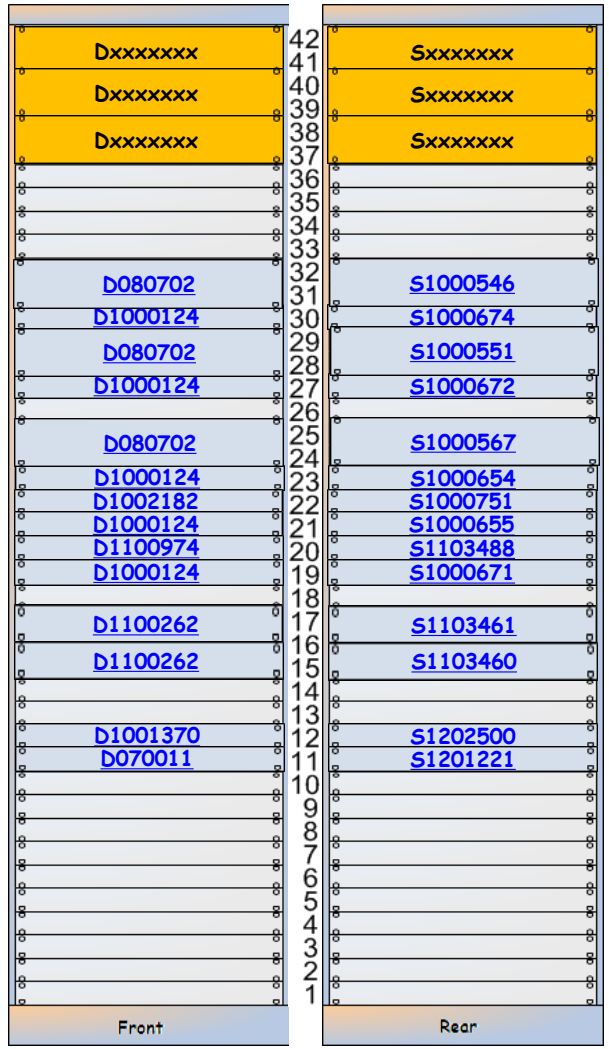




L1-ISC-C3

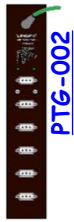
« CER

ISC LVEA Rack 3 Layout (D1200976) (S1201188)



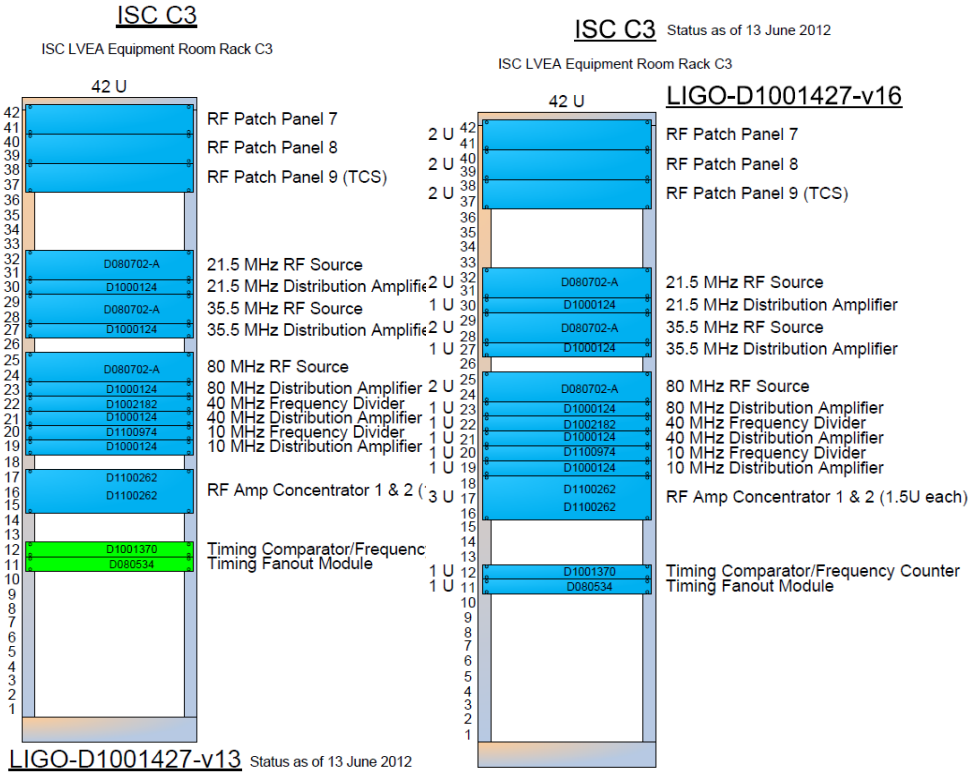
D1200757 Sequencer

S1202578

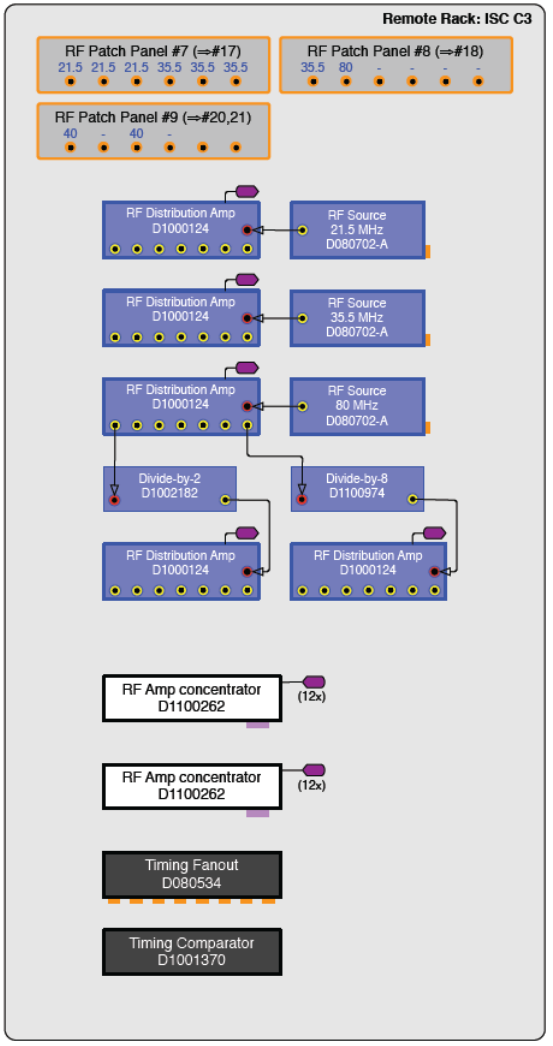


ISC-C3 is part of D1001427.

ISC LVEA Rack 3 Layout (D1001427) (S1201188)



(D1001427)



(D1100170)

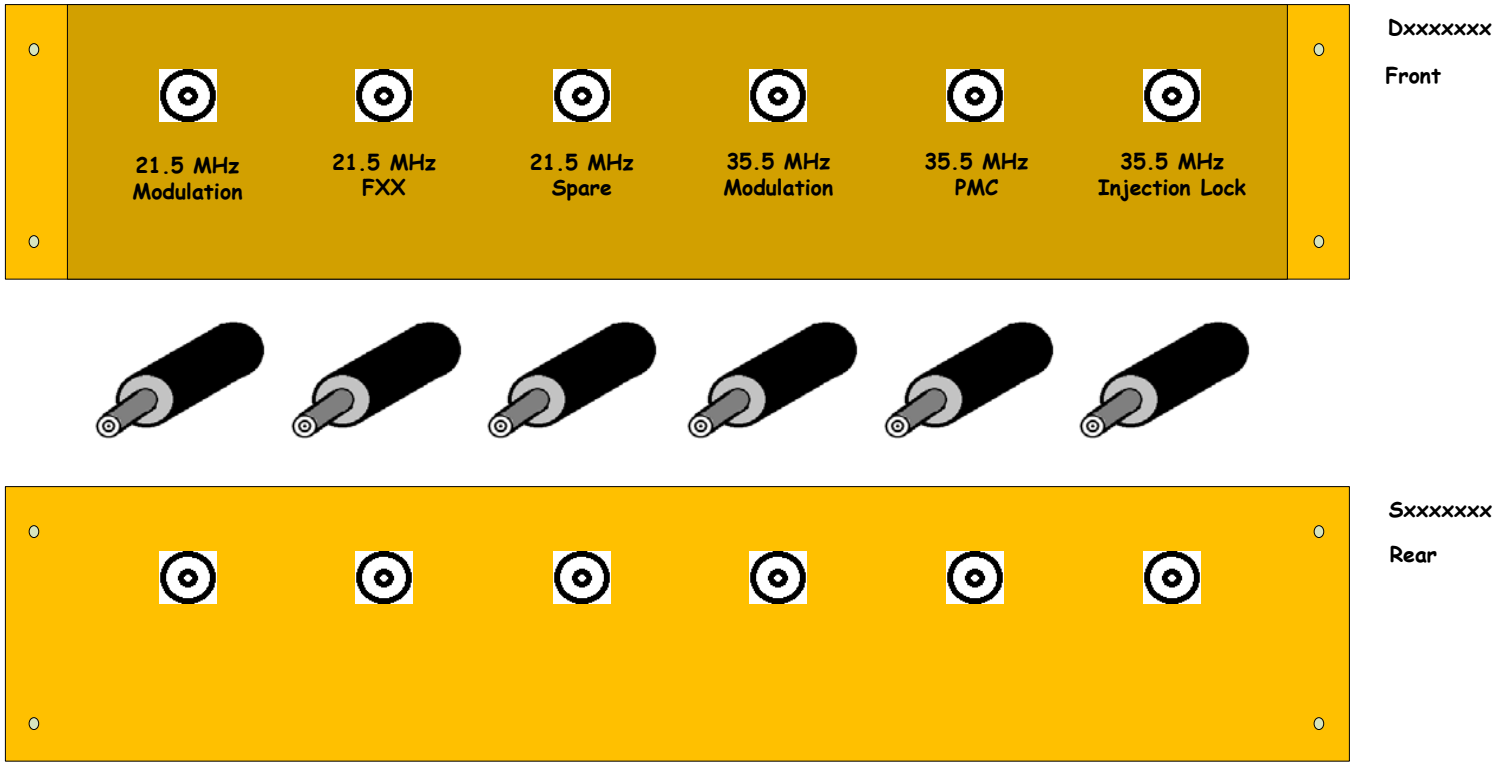
L1-ISC-C3 Details

ISC-C3 is part of D1001427.

RF Distribution Panel 7

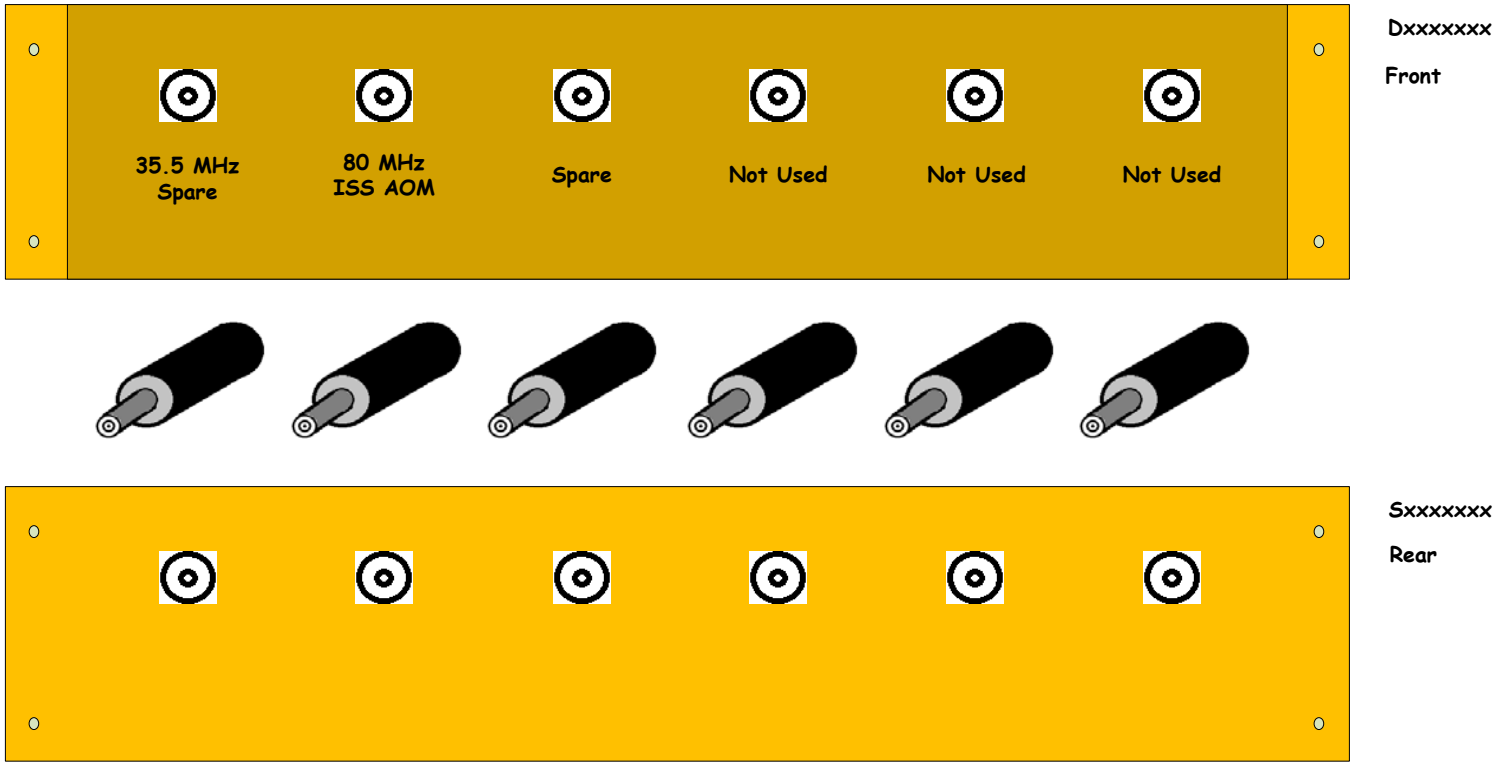
LIGO
<< L1-ISC-C3

RF Distribution Panel 7 | Dxxxxxxx | Sxxxxxxx | No Power



RF Distribution Panel 8

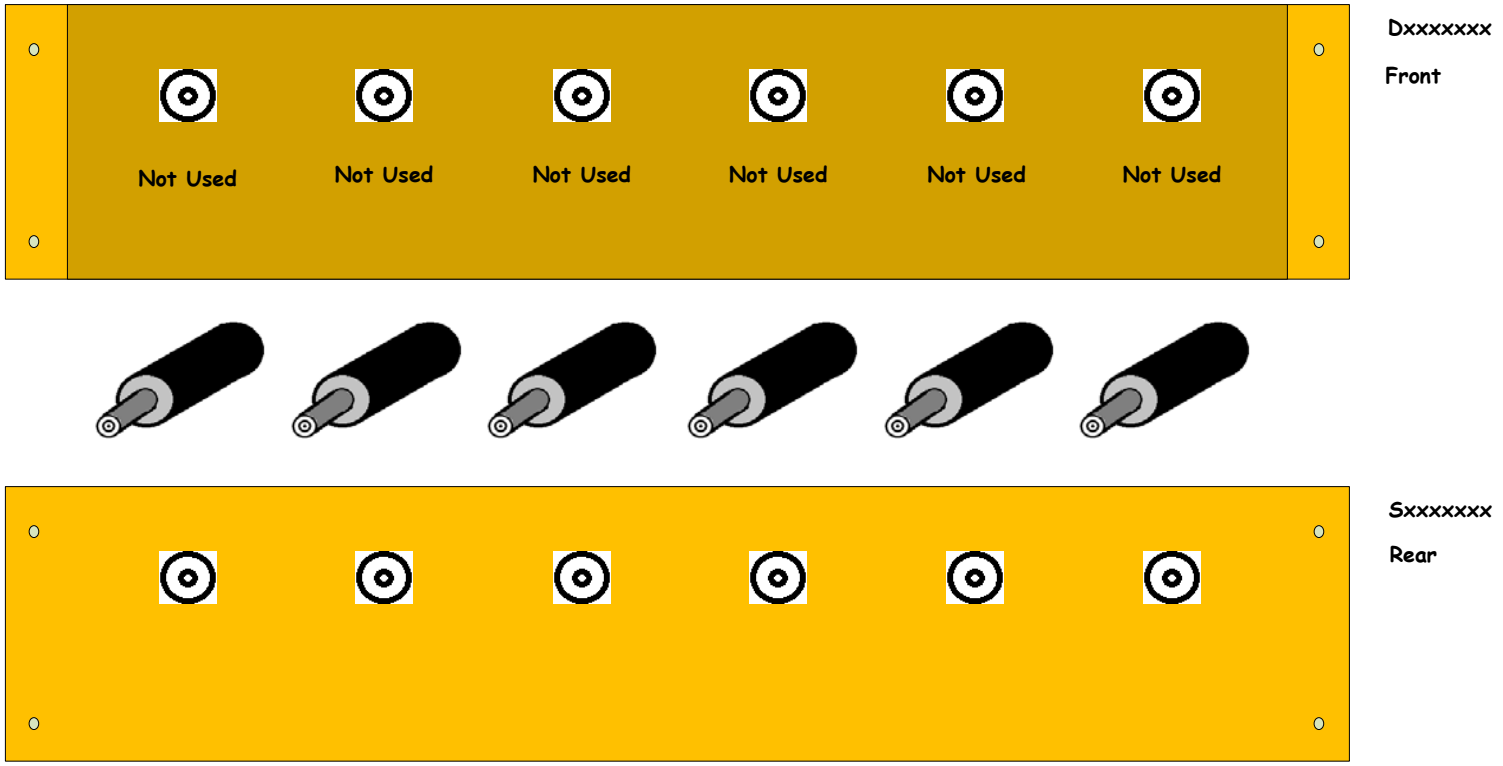
RF Distribution Panel 8 | Dxxxxxxx | Sxxxxxxx | No Power



RF Distribution Panel 9

[<< L1-ISC-C3]

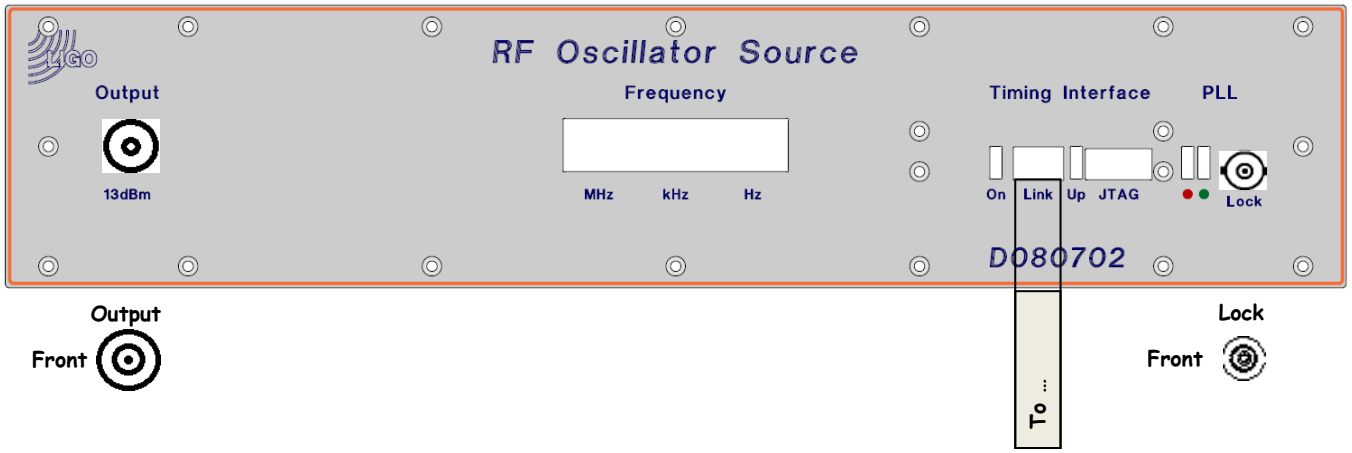
RF Distribution Panel 9 | Dxxxxxxx | Sxxxxxxx | No Power



D080702 - S1000546

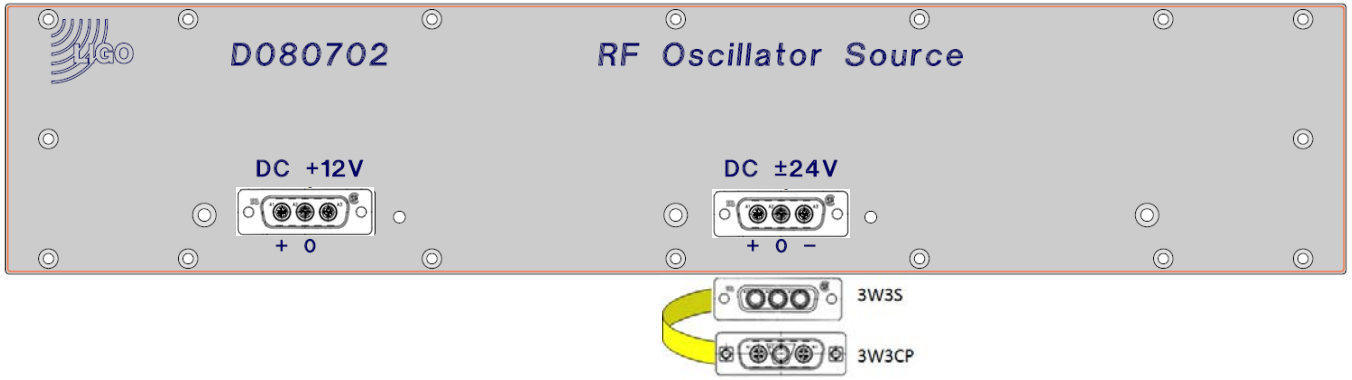
LIGO
<< L1-ISC-C3

21.5 MHz RF Source | D080702 | S1000546 | +12VDC, ±24VDC



D080702

Front



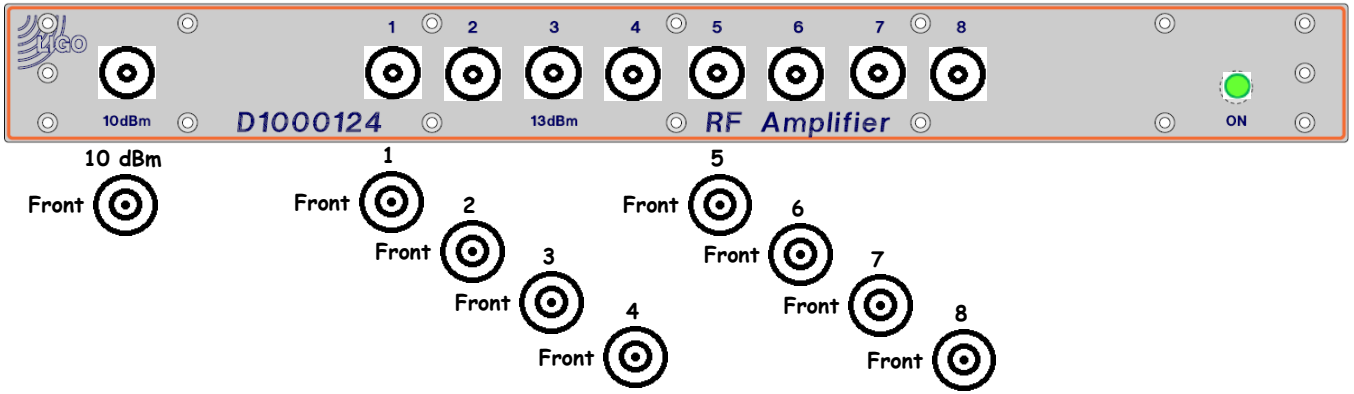
S1000546

Rear

D1000124 - S1000674

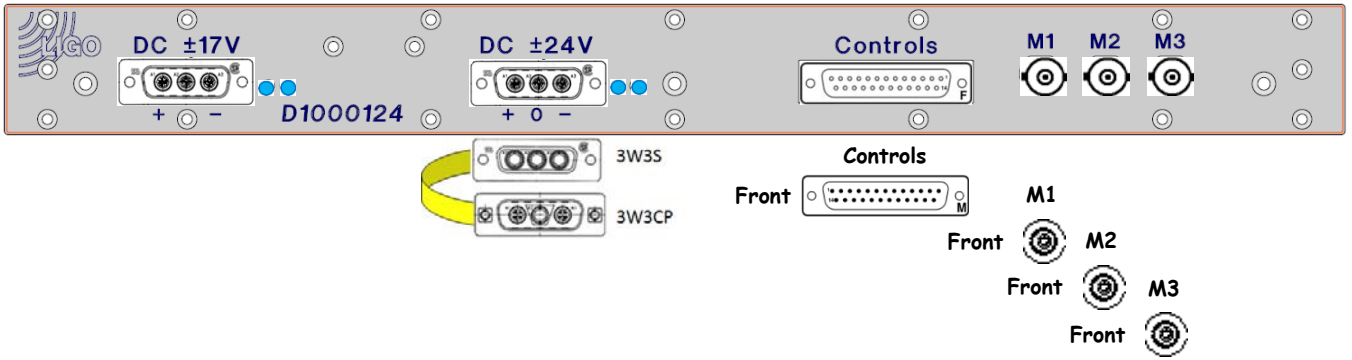
LIGO
<< L1-ISC-C3

21.5 MHz Distribution Amplifier | D1000124 | S1000674 | ±17VDC, ±24VDC



D1000124

Front



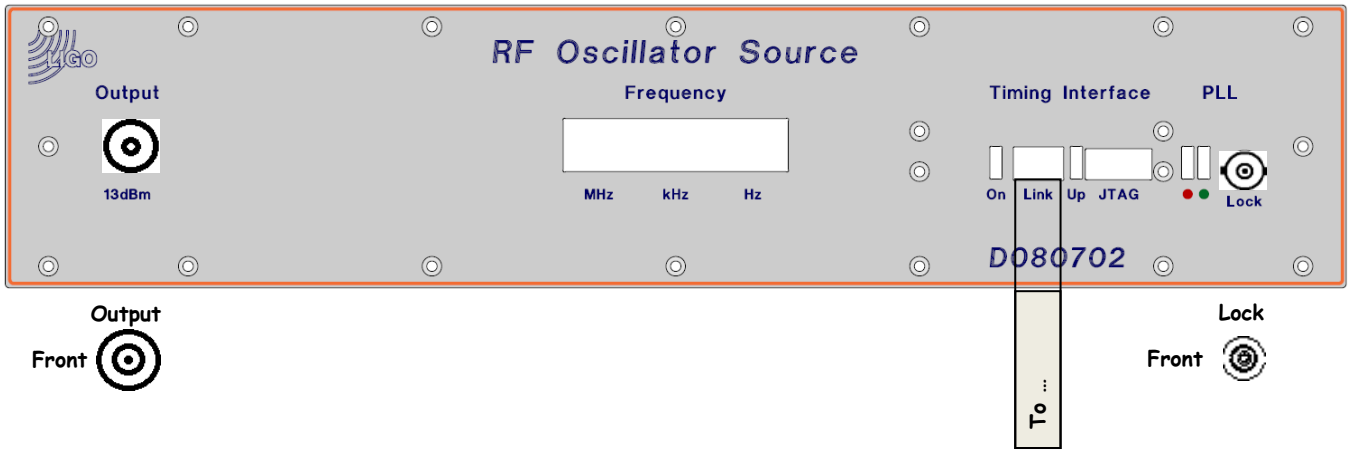
S1000674

Rear

D080702 - S1000551

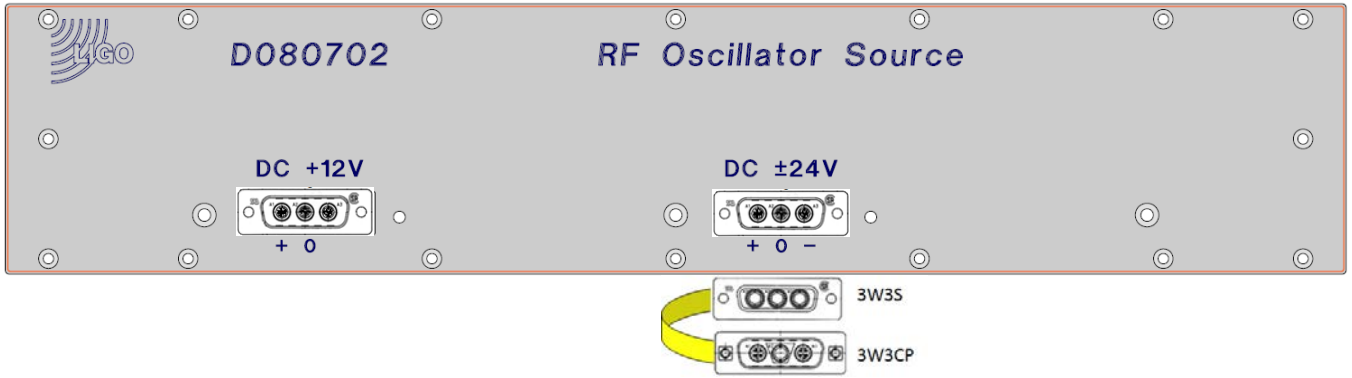
LIGO
<< L1-ISC-C3

35.5 MHz RF Source | D080702 | S1000551 | +12VDC, ±24VDC



D080702

Front



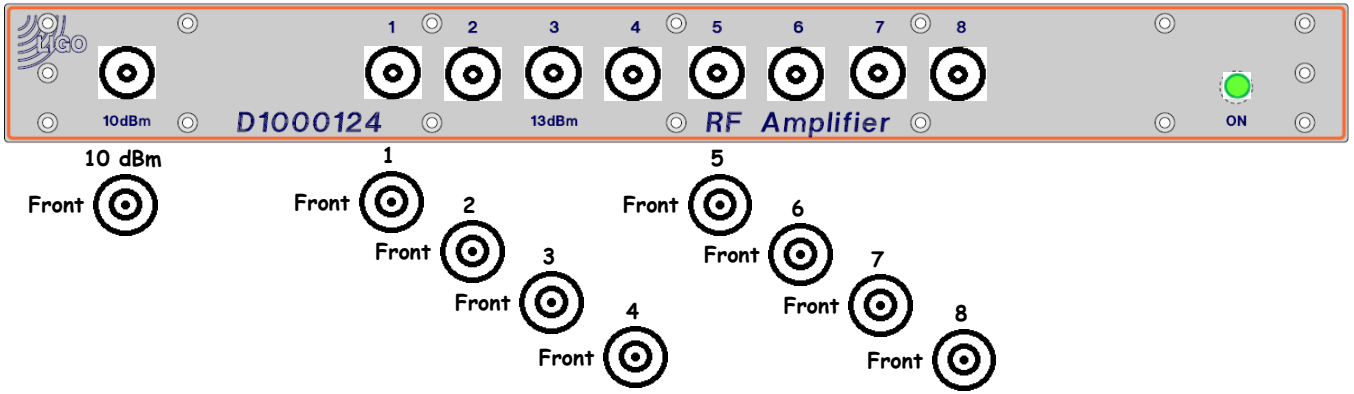
S1000551

Rear

D1000124 - S1000672

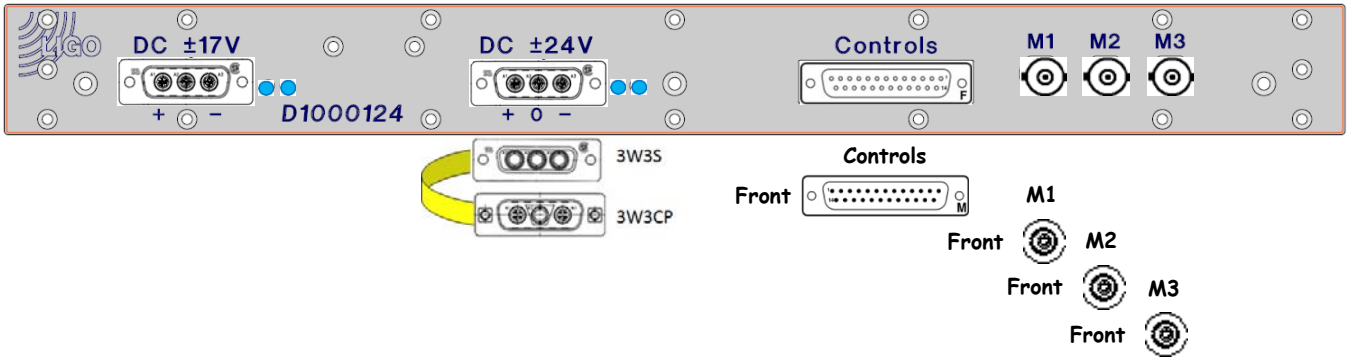
LIGO
<< L1-ISC-C3

35.5 MHz Distribution Amplifier | D1000124 | S1000672 | ±17VDC, ±24VDC



D1000124

Front



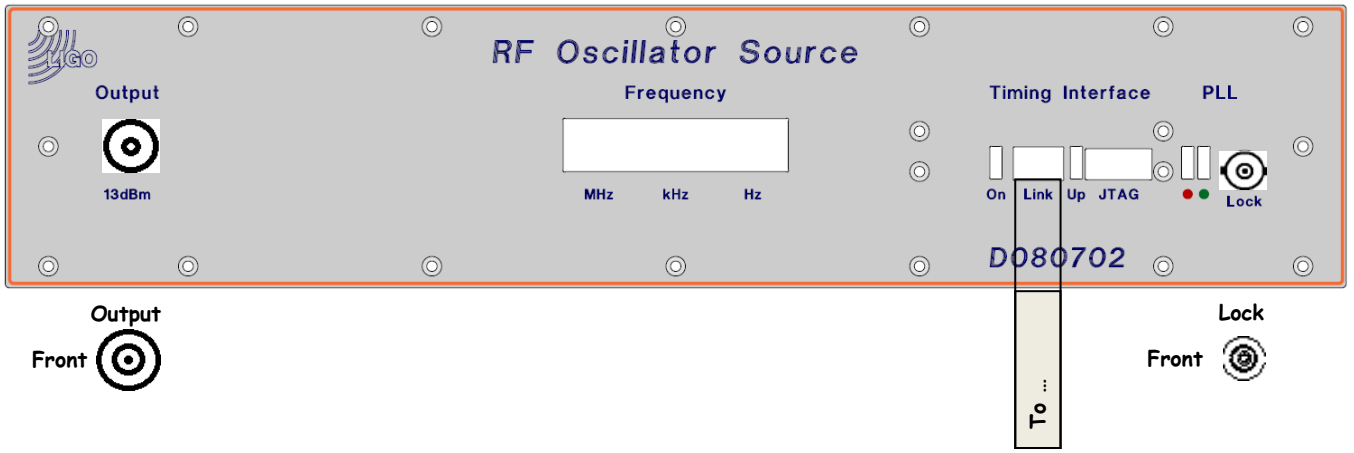
S1000672

Rear

D080702 - Sxxxxxxx

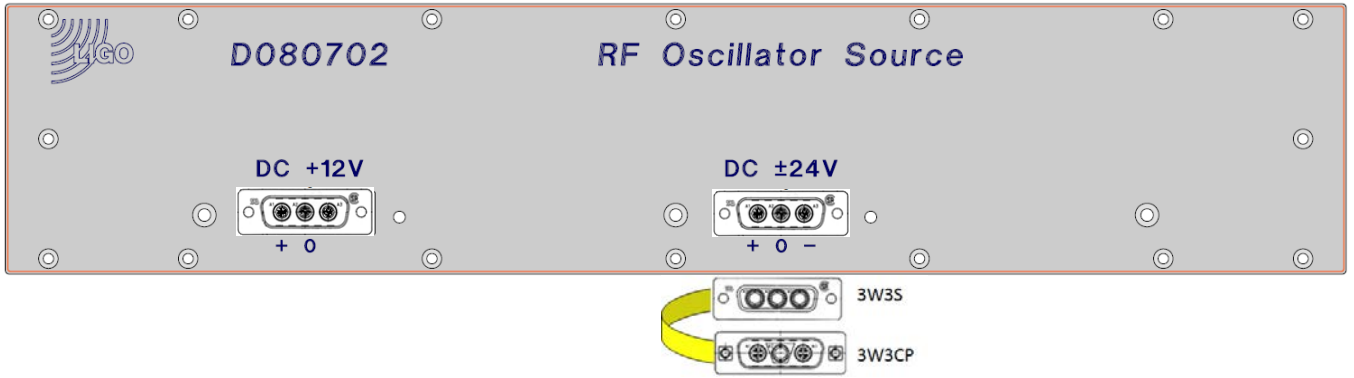
« L1-ISC-C3

80 MHz RF Source | D080702 | Sxxxxxxx | +12VDC, ±24VDC



D080702

Front



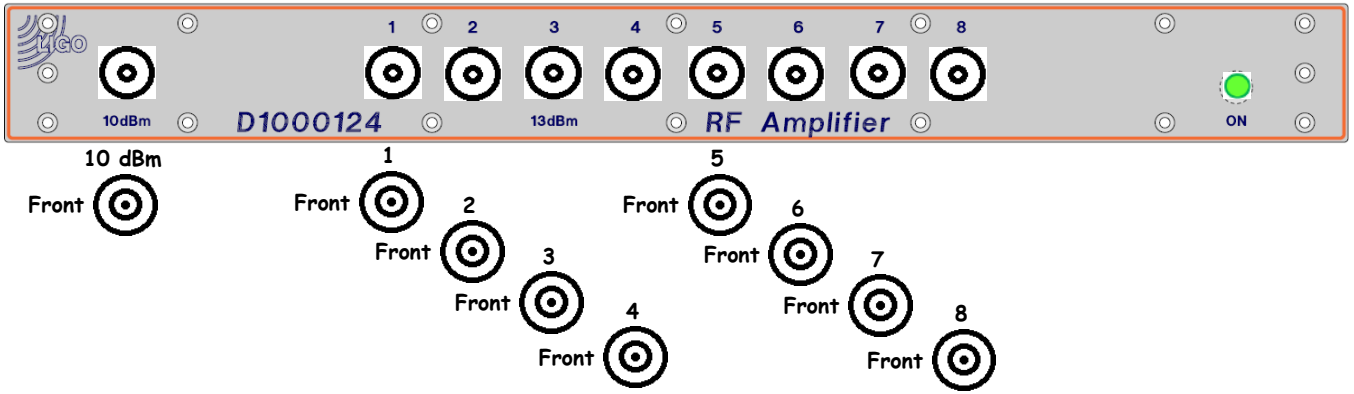
S1000551

Rear

D1000124 – Sxxxxxxx

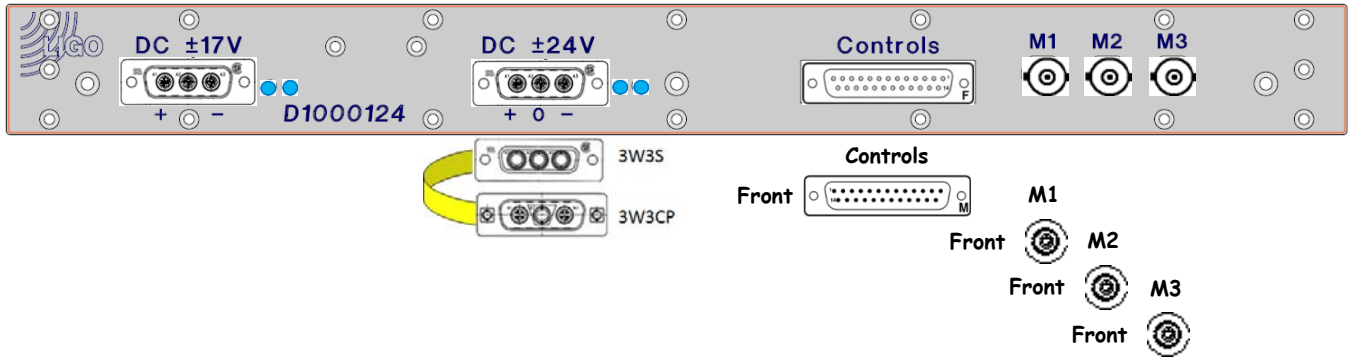
« L1-ISC-C3

80 MHz Distribution Amplifier | D1000124 | Sxxxxxxx | ±17VDC, ±24VDC



D1000124

Front



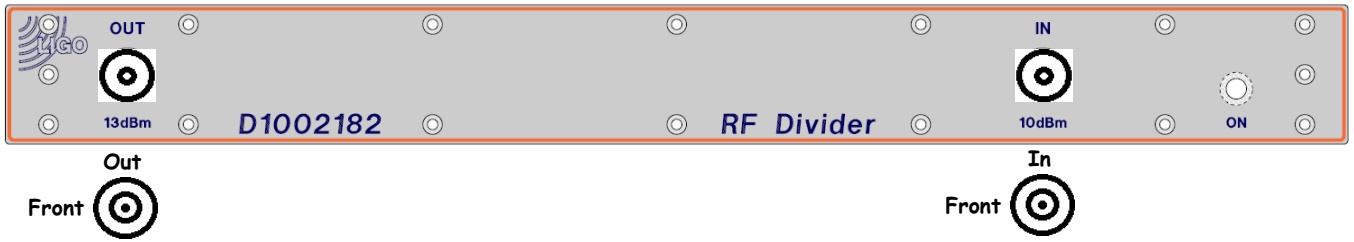
Sxxxxxxx

Rear

D1002182 – Sxxxxxxx

[<< L1-ISC-C3]

40 MHz Frequency Divider | D1002182 | Sxxxxxxx | ±17VDC, ±24VDC



D1002182

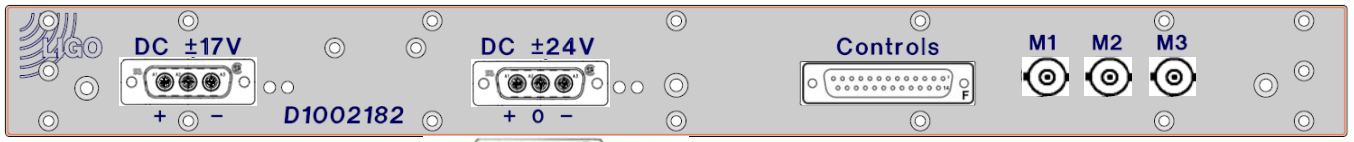
Front

Out

Front

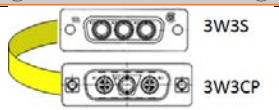
In

Front



S1000650

Rear



Controls

Front

M1

Front

M2

Front

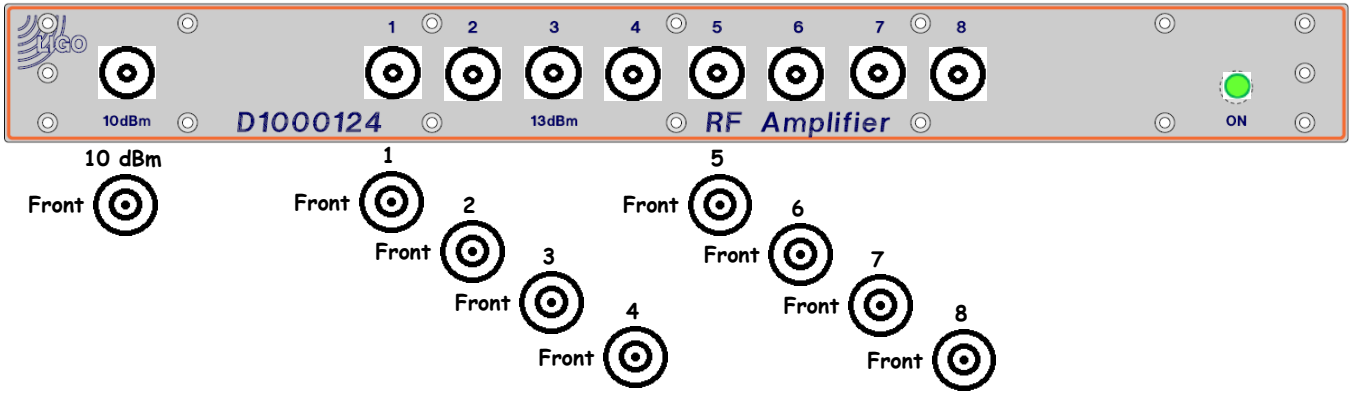
M3

Front

D1000124 – Sxxxxxxx

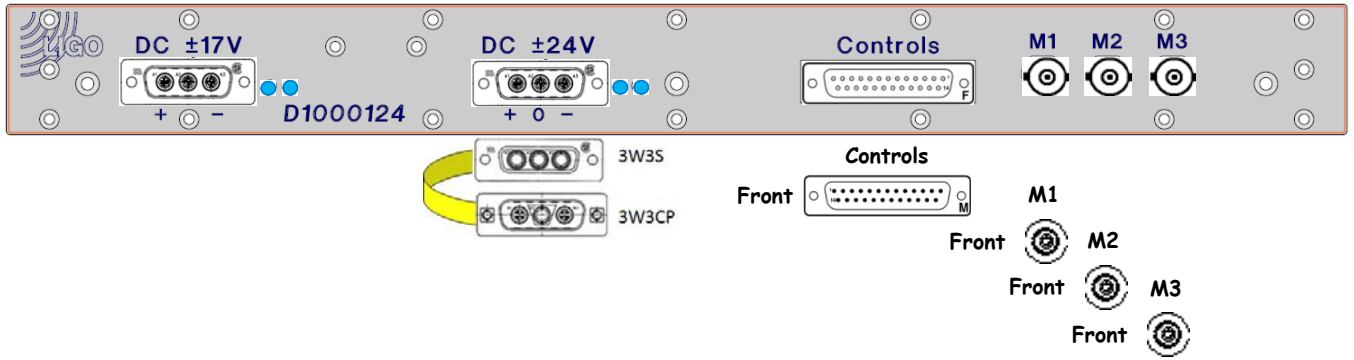
« L1-ISC-C3

40 MHz Distribution Amplifier | D1000124 | Sxxxxxxx | ±17VDC, ±24VDC



D1000124

Front



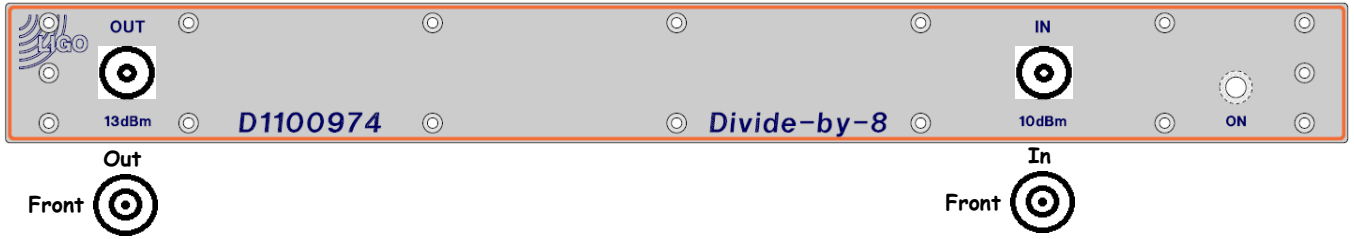
Sxxxxxxx

Rear

D1100974 - Sxxxxxxx

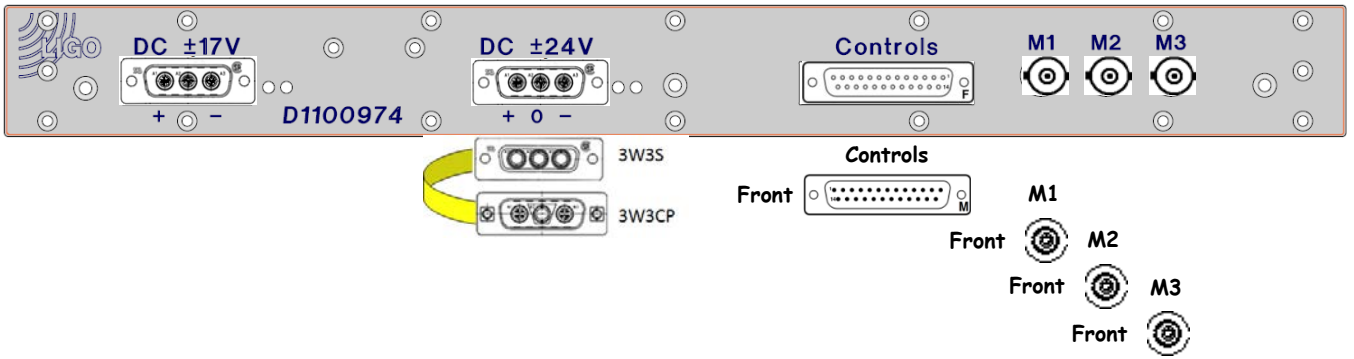
LIGO
<< L1-ISC-C3

10 MHz Frequency Divider | D1100974 | Sxxxxxxx | ±17VDC, ±24VDC



D1100974

Front



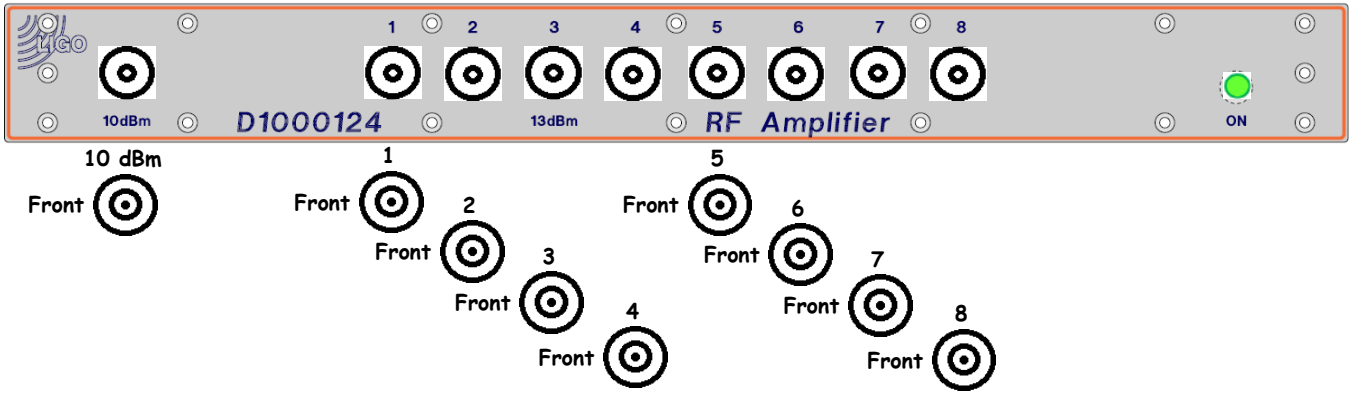
S1000650

Rear

D1000124 - Sxxxxxxx

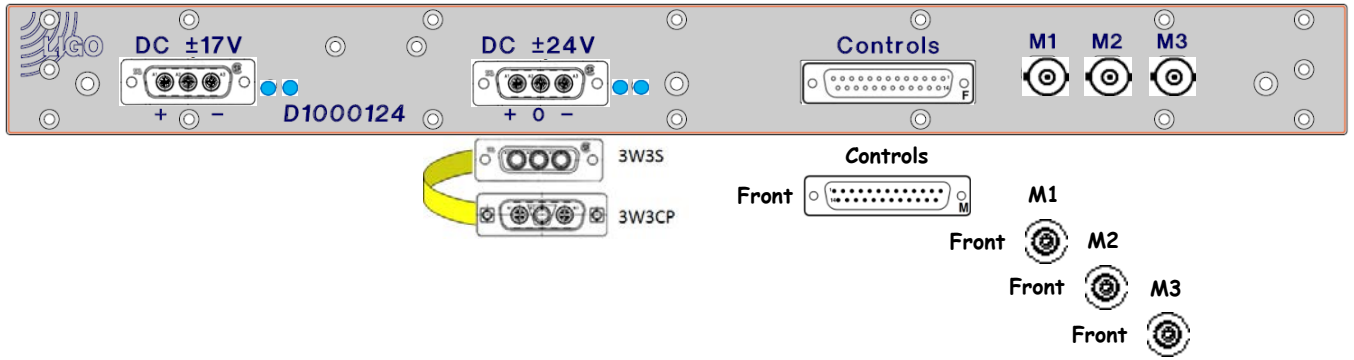
« L1-ISC-C3

10 MHz Distribution Amplifier | D1000124 | Sxxxxxxx | ±17VDC, ±24VDC



D1000124

Front



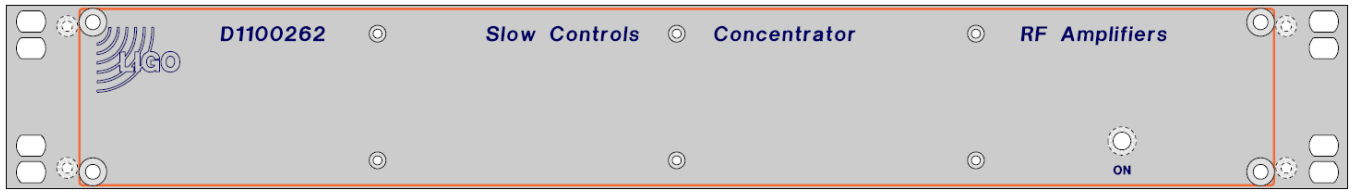
Sxxxxxxx

Rear

D1100262 – Sxxxxxxx

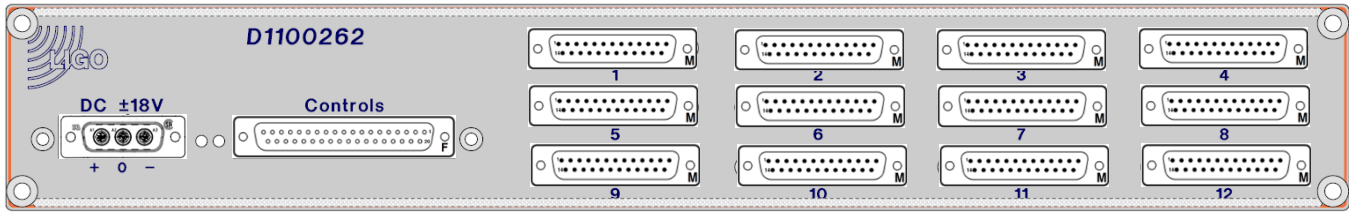
[<< L1-ISC-C3]

RF Amplifier Concentrator 1 | D1100262 | SN: | ±18VDC



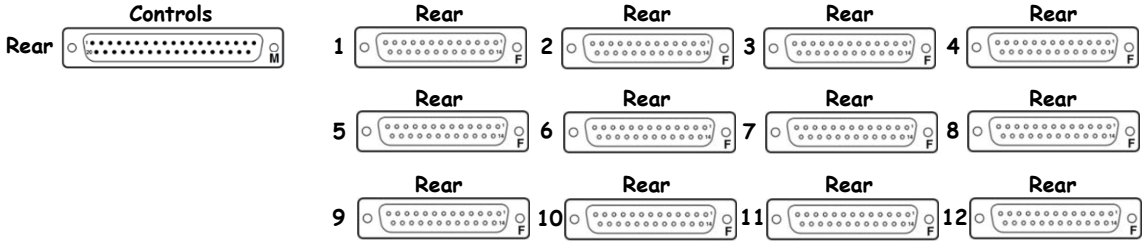
D1100262

Front



S1001232

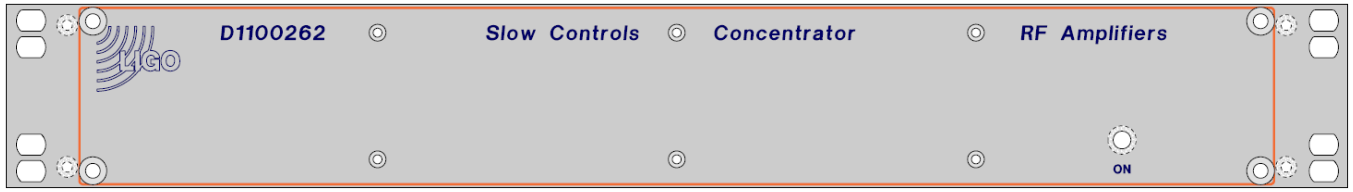
Rear



D1100262 – Sxxxxxxx

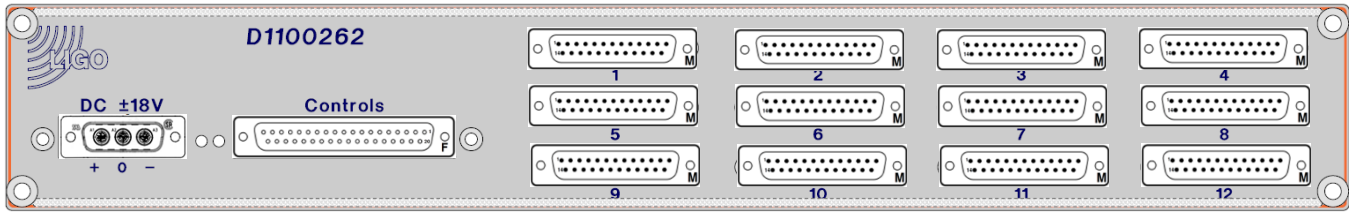
[<< L1-ISC-C3]

RF Amplifier Concentrator 2 | D1100262 | SN: | ±18VDC



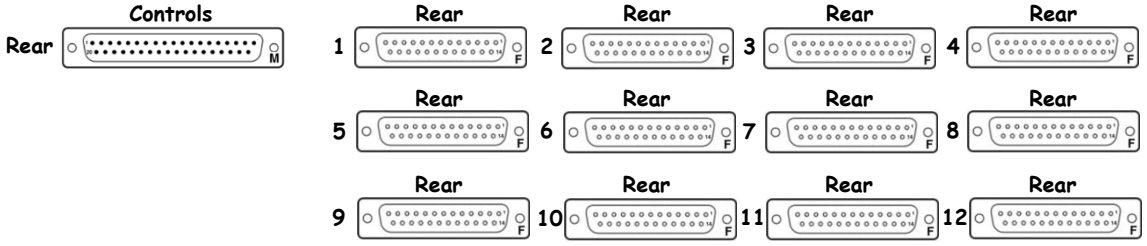
D1100262

Front



S1001232

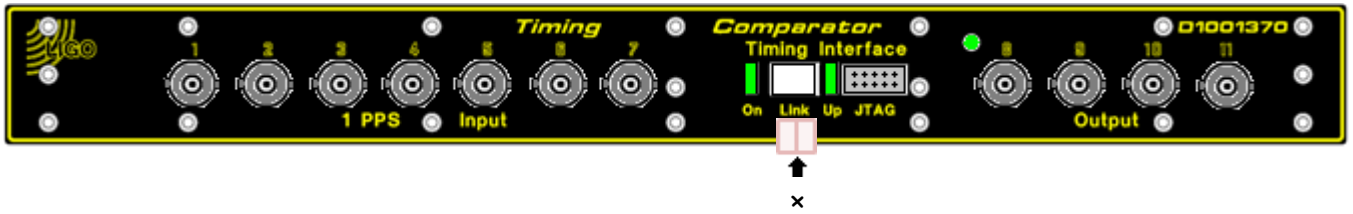
Rear



D1001370 - S1202500

[<< L1-ISC-C3]

Timing Comparator / Frequency Counter [D1001370] [S1202500] +12VDC



[D1001370]

Front

×

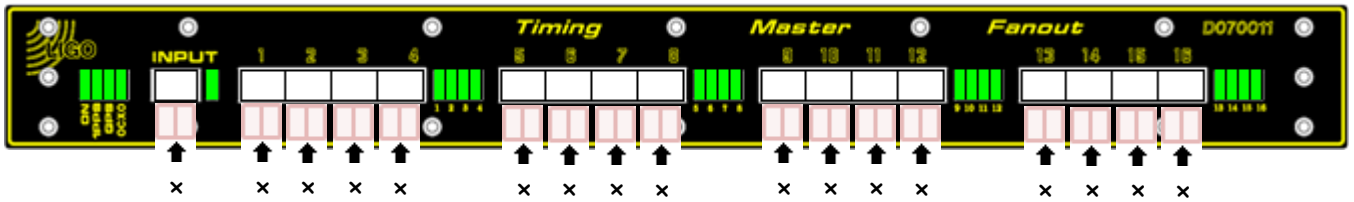
[S1202500]

Rear

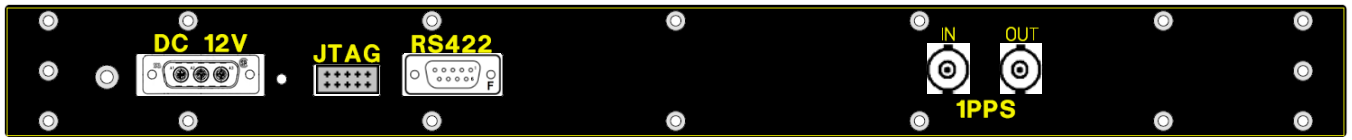
D070011 – S1201221

[<< L1-ISC-C3]

Timing Fanout Module | D070011 | S1201221 | +12VDC (& +24VDC)



D070011 (D080534)
Front

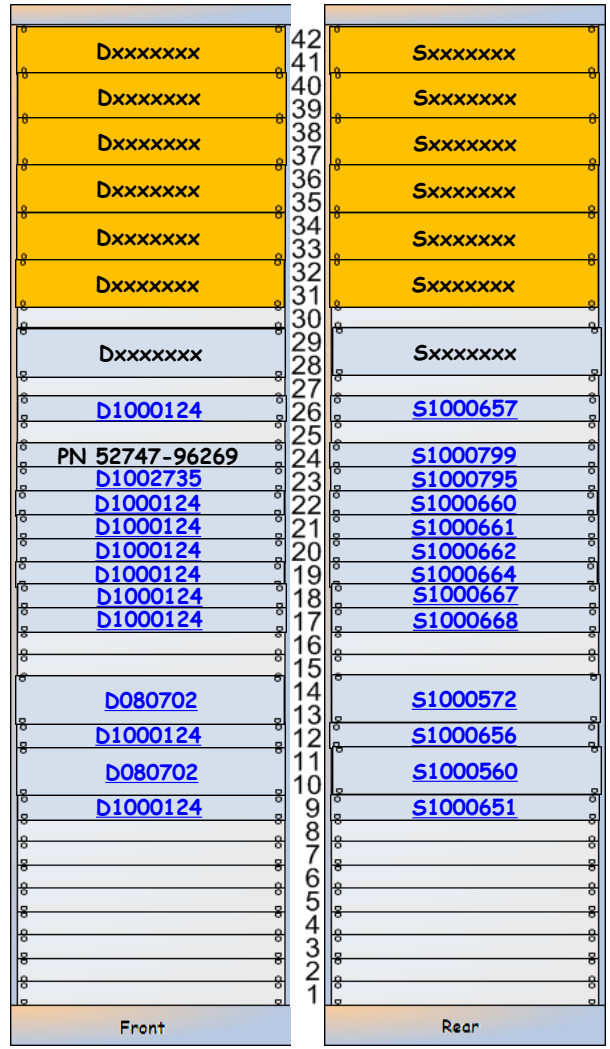


S1201221
Rear
Fanout

L1-ISC-C4

[<< CER]

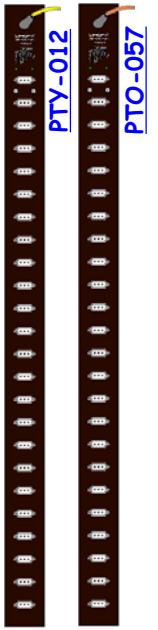
ISC LVEA Rack 4 Layout ([D1200977]) ([S1201189])

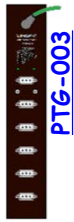


	Front		Rear	
RF Distribution Panel 1	Dxxxxxxx	42	Sxxxxxxx	No Power
		41		
RF Distribution Panel 2	Dxxxxxxx	40	Sxxxxxxx	No Power
		39		
RF Distribution Panel 3	Dxxxxxxx	38	Sxxxxxxx	No Power
		37		
RF Distribution Panel 4	Dxxxxxxx	36	Sxxxxxxx	No Power
		35		
RF Distribution Panel 5	Dxxxxxxx	34	Sxxxxxxx	No Power
		33		
RF Distribution Panel 6	Dxxxxxxx	32	Sxxxxxxx	No Power
		31		
		30		
IFR Signal Generator	Dxxxxxxx	29	Sxxxxxxx	Power
		28		
		27		
9.099 / 8.684 MHz Distribution Amplifier	D1000124	26	S1000657	±17VDC, ±24VDC
		25		
Spectrum Microwave Harmonic Generator	PN 52747-96269	24	S1000799	From D1002735
9.099 / 8.684 MHz Harmonic Power Supply	D1002735	23	S1000795	±17VDC, ±24VDC
18 MHz Distribution Amplifier	D1000124	22	S1000660	±17VDC, ±24VDC
27 MHz Distribution Amplifier	D1000124	21	S1000661	±17VDC, ±24VDC
36 MHz Distribution Amplifier	D1000124	20	S1000662	±17VDC, ±24VDC
45 MHz Distribution Amplifier	D1000124	19	S1000664	±17VDC, ±24VDC
90 MHz Distribution Amplifier	D1000124	18	S1000667	±17VDC, ±24VDC
135 MHz Distribution Amplifier	D1000124	17	S1000668	±17VDC, ±24VDC
		16		
		15		
24.078 / 22.993 MHz RF Source	D080702	14	S1000572	+12VDC, ±24VDC
24.078 / 22.993 MHz Distribution Amplifier	D1000124	13	S1000656	±17VDC, ±24VDC
71 MHz RF Source	D080702	12	S1000560	+12VDC, ±24VDC
71 MHz Distribution Amplifier	D1000124	11	S1000651	±17VDC, ±24VDC
		10		
		9		
		8		
		7		
		6		
		5		
		4		
		3		
		2		
		1		

[D1200757] Sequencer

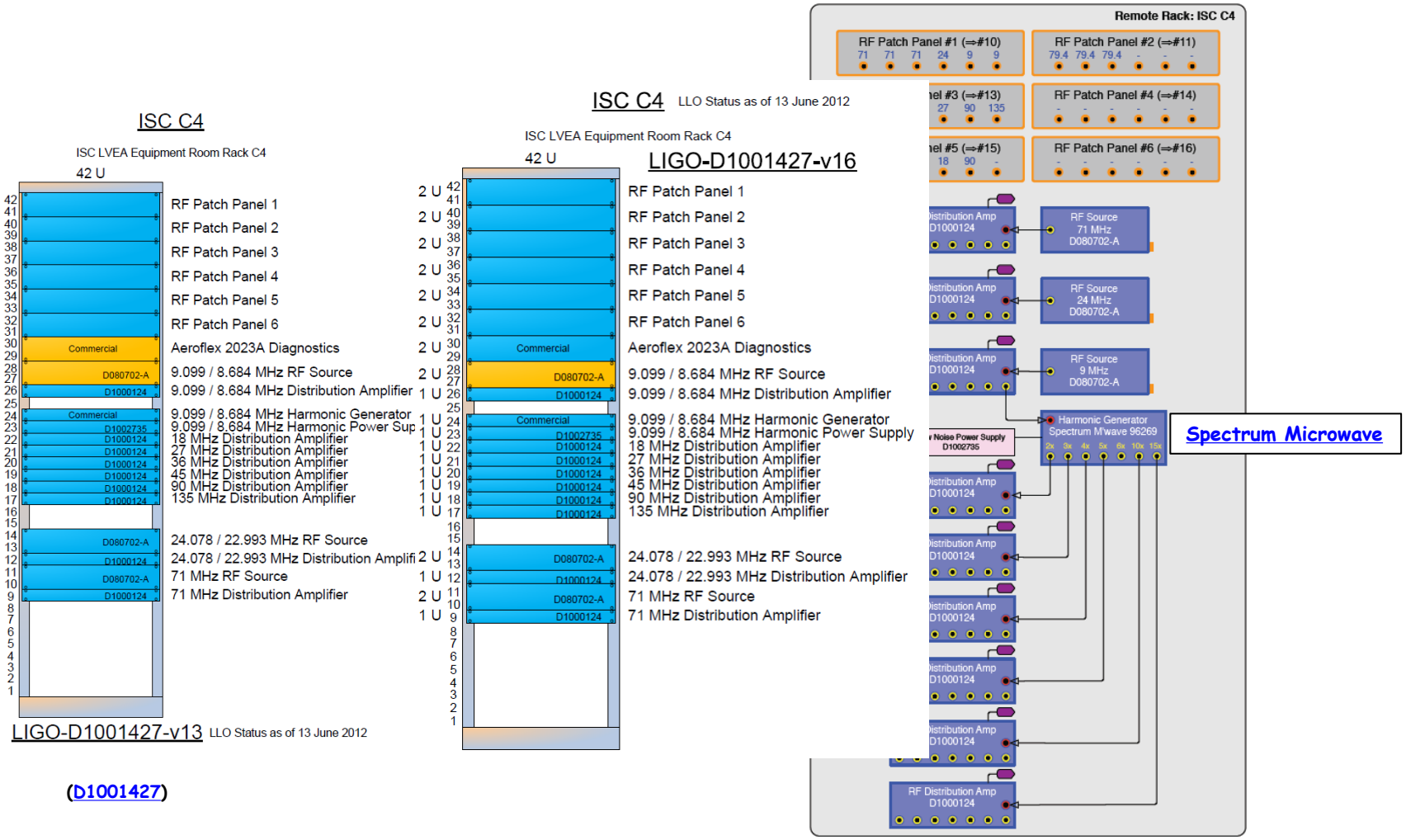
[S1202562]





ISC-C4 is part of [D1001427].

ISC LVEA Rack 4 Layout (D1001427) (S1201189)



(D1001427)

(D1100170)

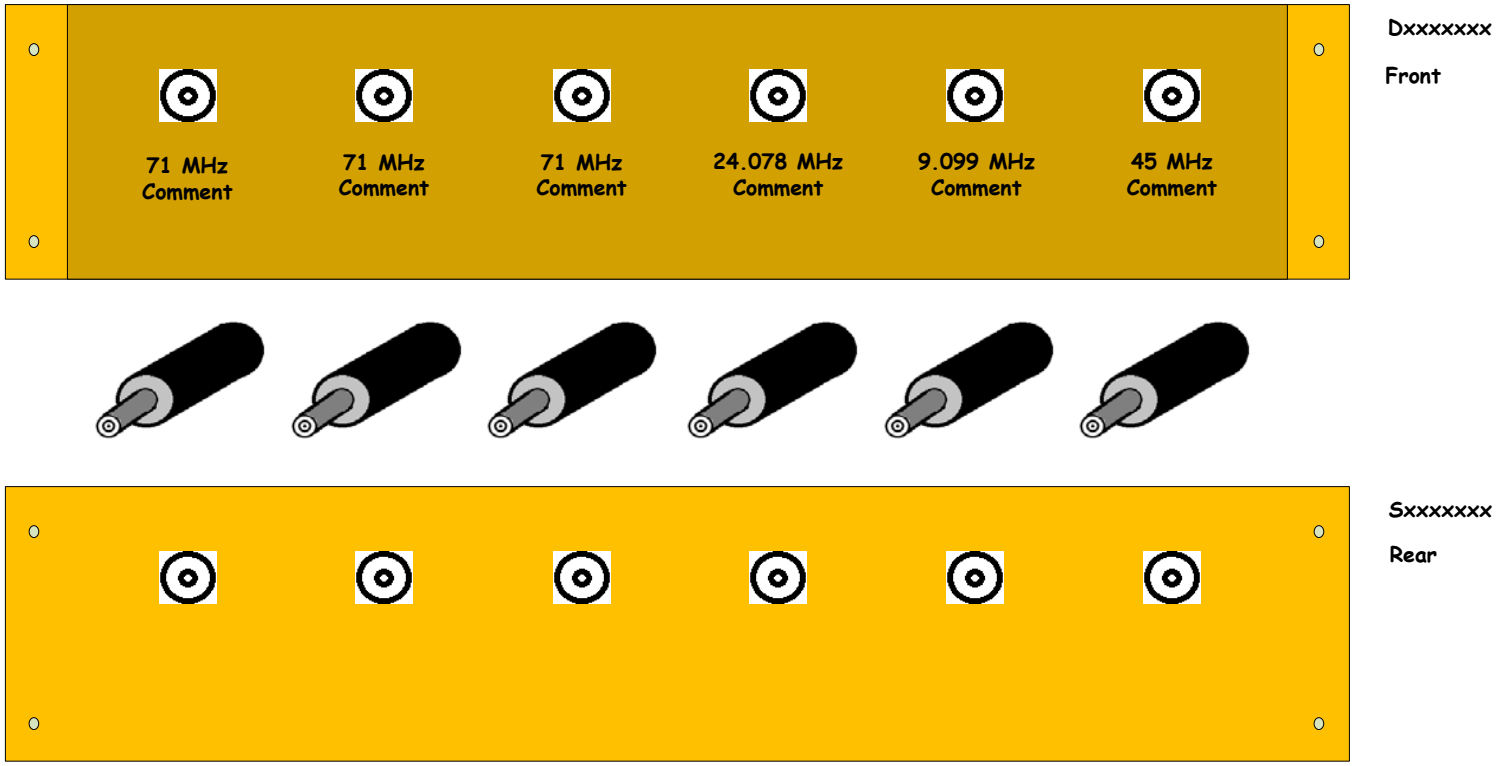
L1-ISC-C4 Details

ISC-C4 is part of D1001427.

RF Distribution Panel 1

LIGO
<< L1-ISC-C4

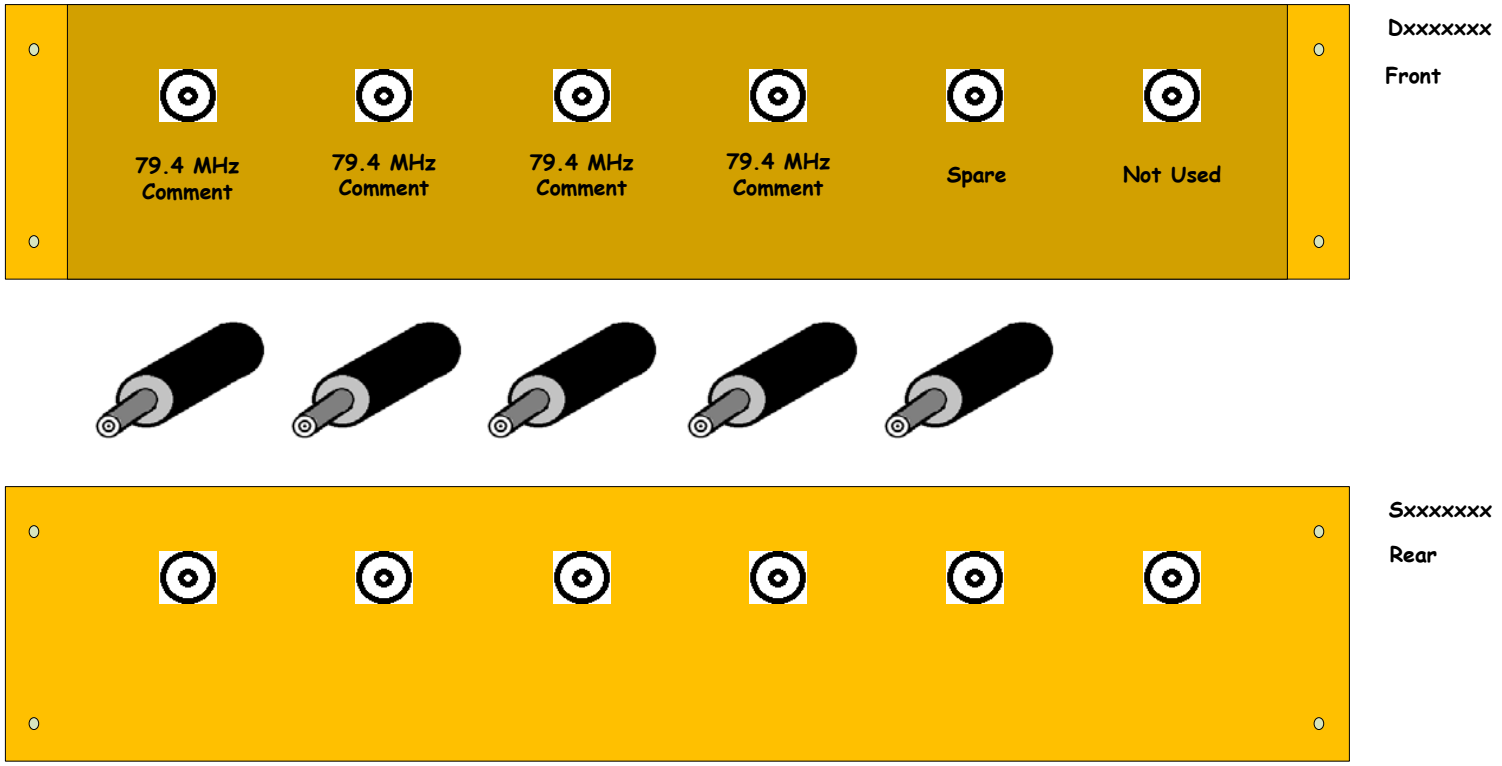
RF Distribution Panel 1 | Dxxxxxxx | Sxxxxxxx | No Power



RF Distribution Panel 2

[<< L1-ISC-C4]

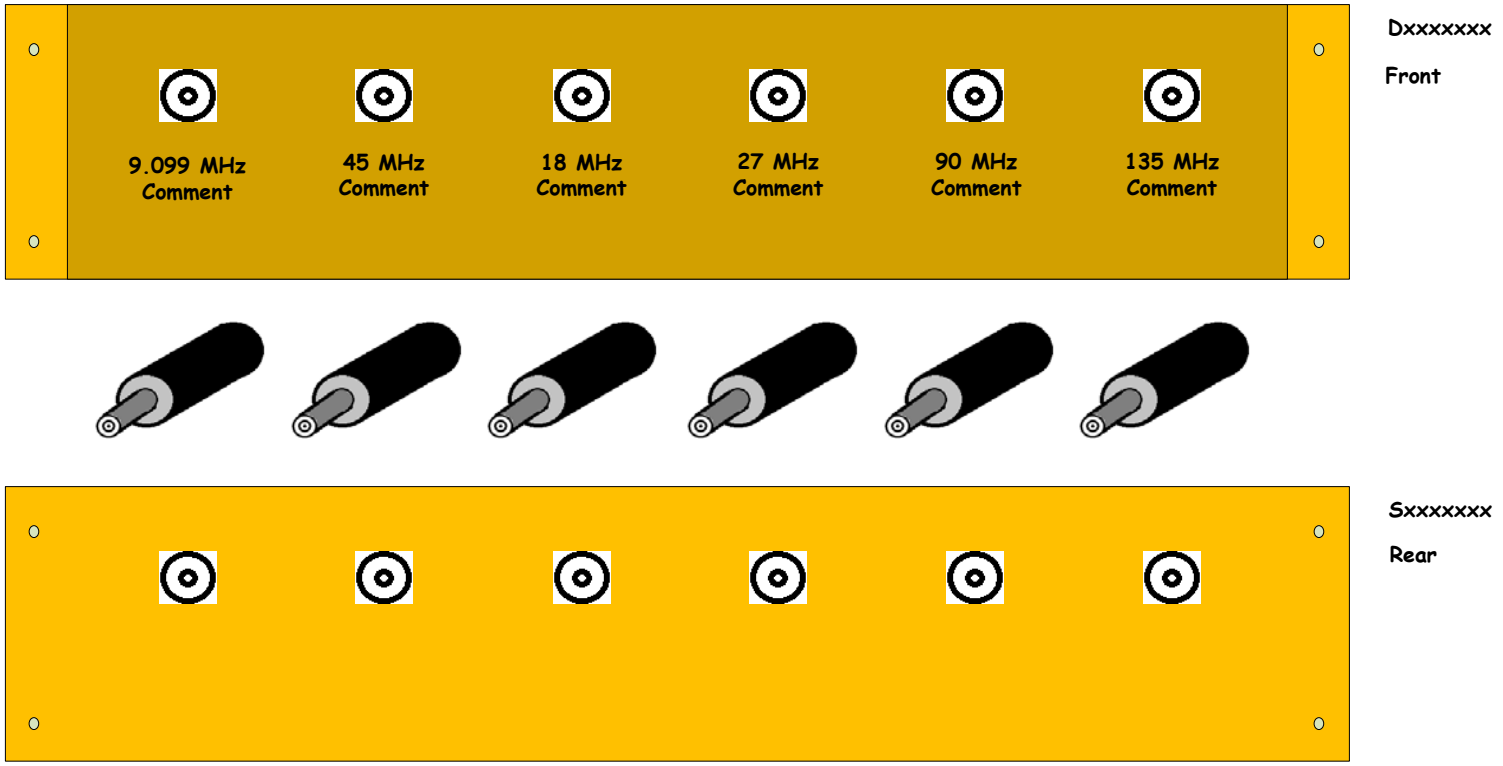
RF Distribution Panel 2 | Dxxxxxxx | Sxxxxxxx | No Power



RF Distribution Panel 3

[<< L1-ISC-C4]

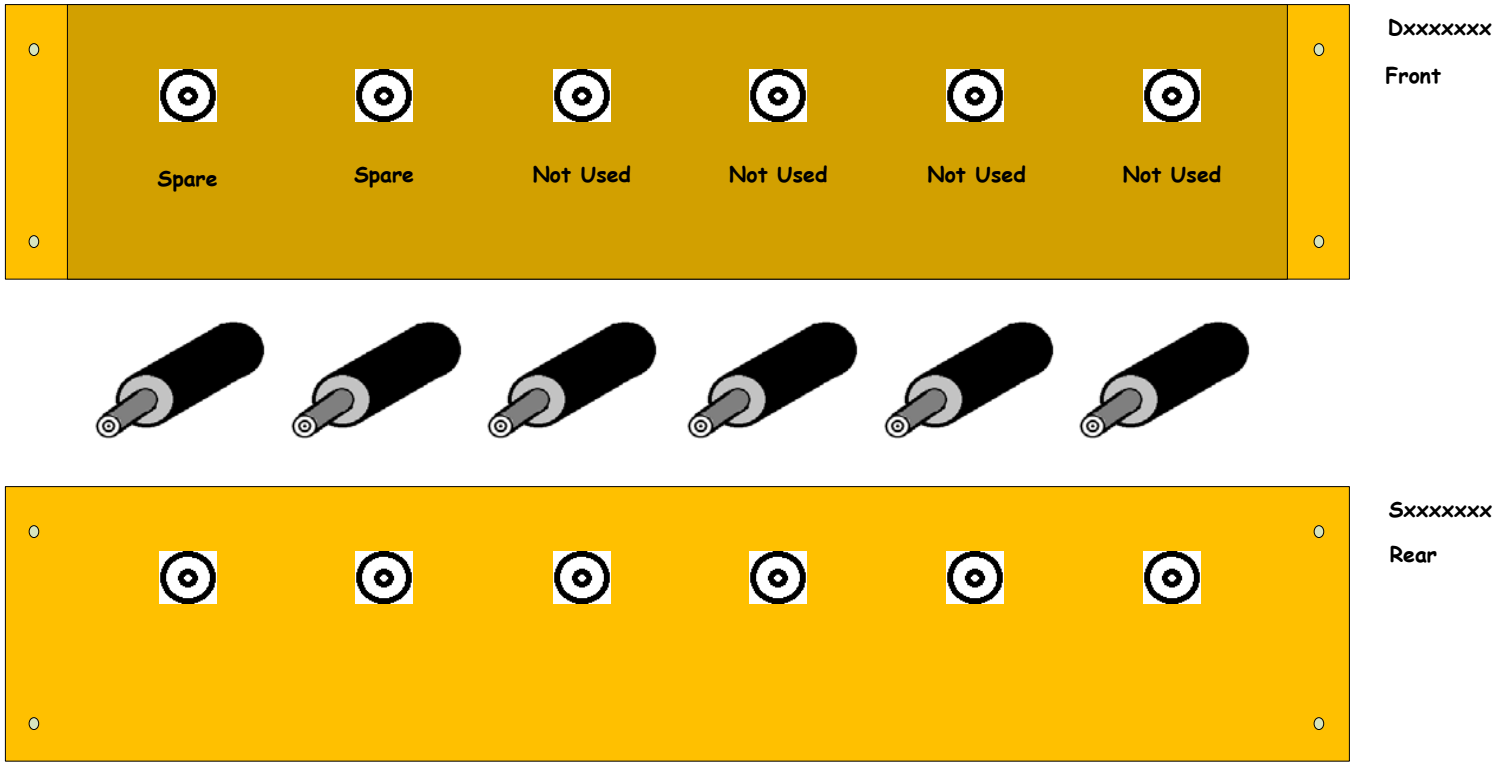
RF Distribution Panel 3 | Dxxxxxxx | Sxxxxxxx | No Power



RF Distribution Panel 4

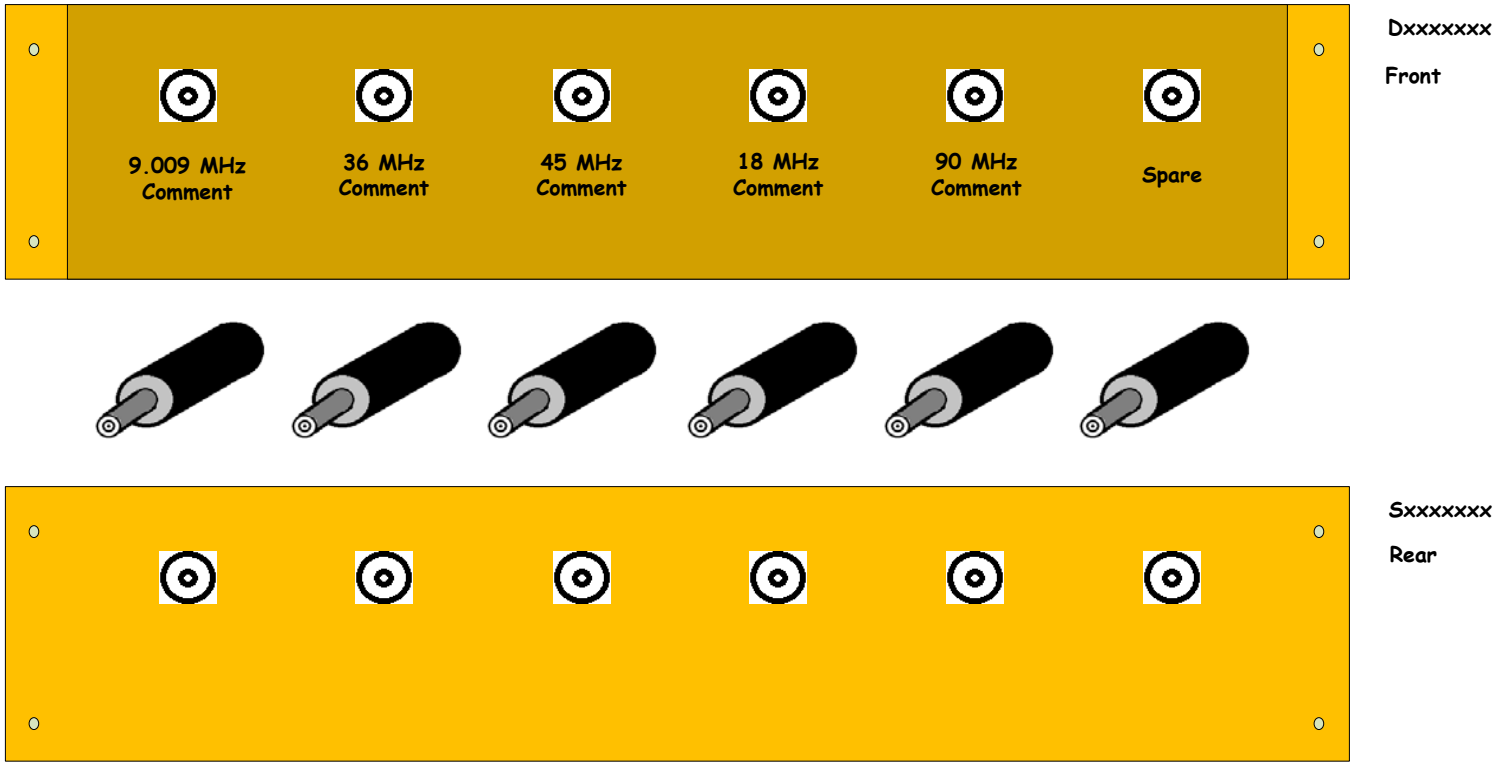
[<< L1-ISC-C4]

RF Distribution Panel 4 | Dxxxxxxx | Sxxxxxxx | No Power



RF Distribution Panel 5

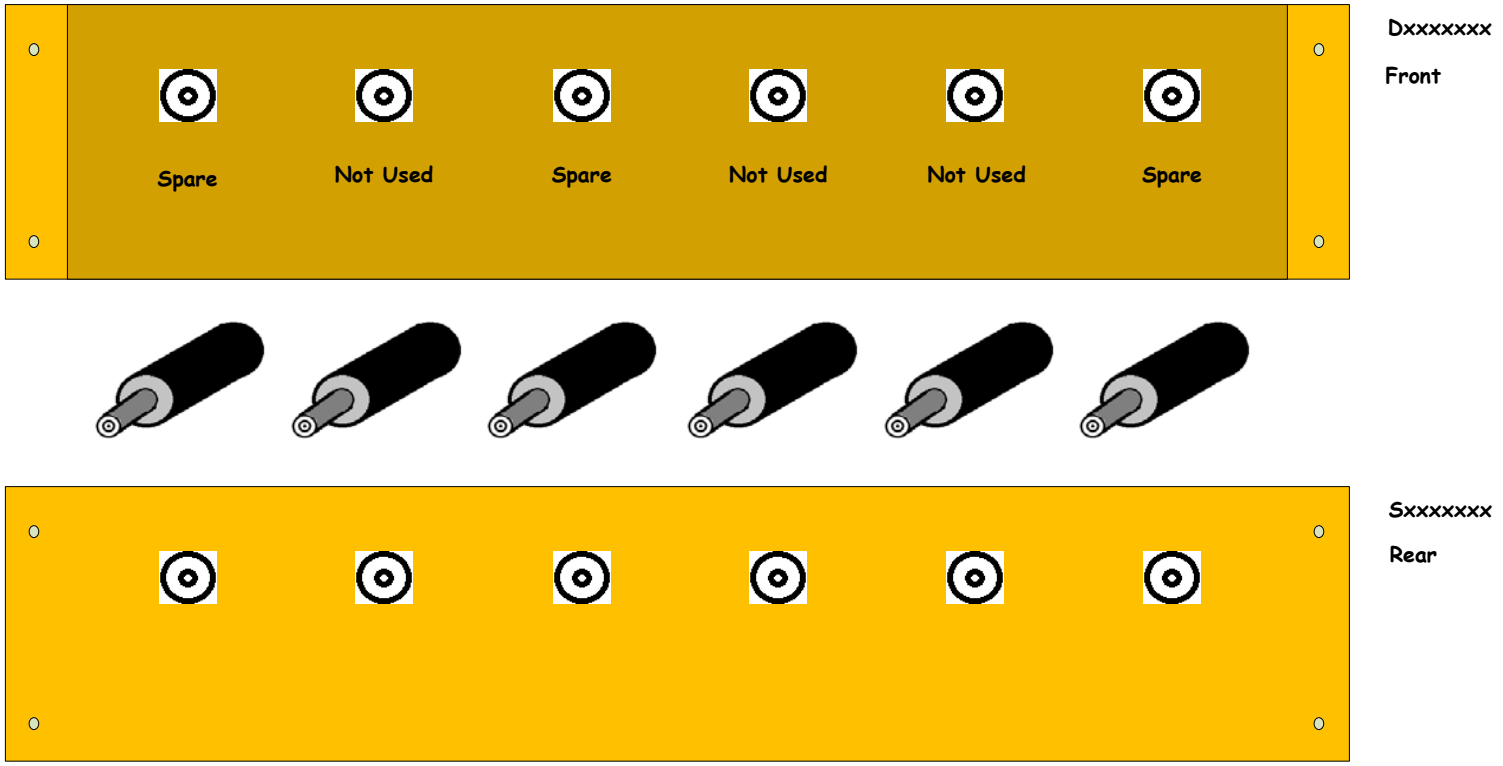
RF Distribution Panel 5 | Dxxxxxxx | Sxxxxxxx | No Power



RF Distribution Panel 6

[<< L1-ISC-C4]

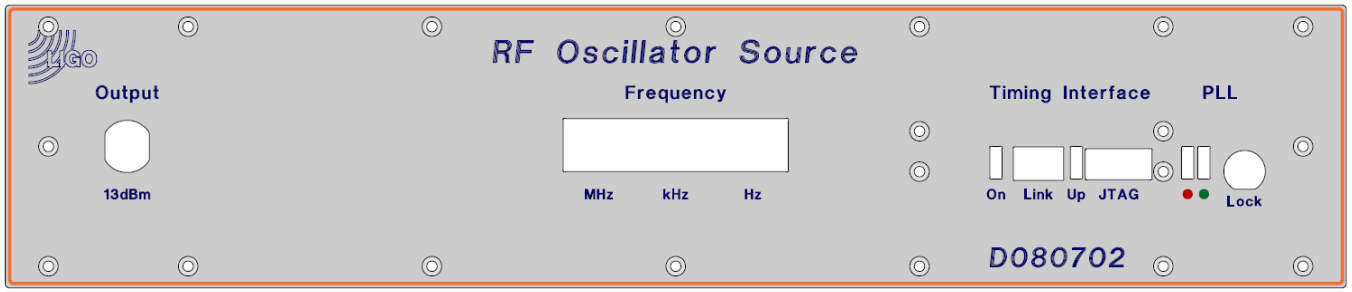
RF Distribution Panel 6 | Dxxxxxxx | Sxxxxxxx | No Power



D080702 - Sxxxxxxx

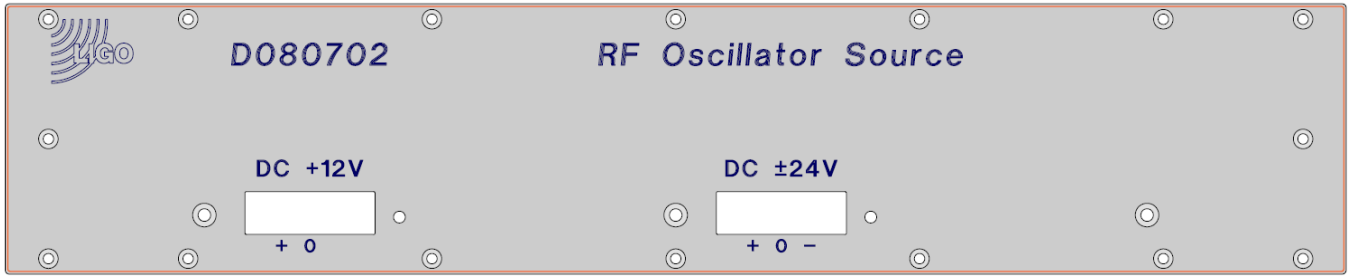
[<< L1-ISC-C4]

9.099 / 8.684 MHz RF Source | D080702 | Sxxxxxxx | +12VDC, ±24VDC



D080702

Front



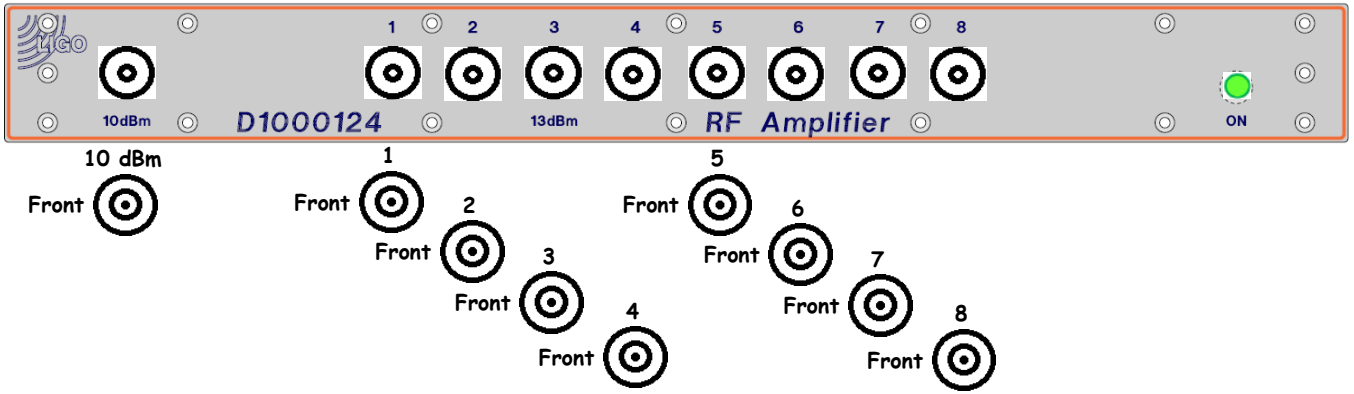
S1001232

Rear

D1000124 - S1000657

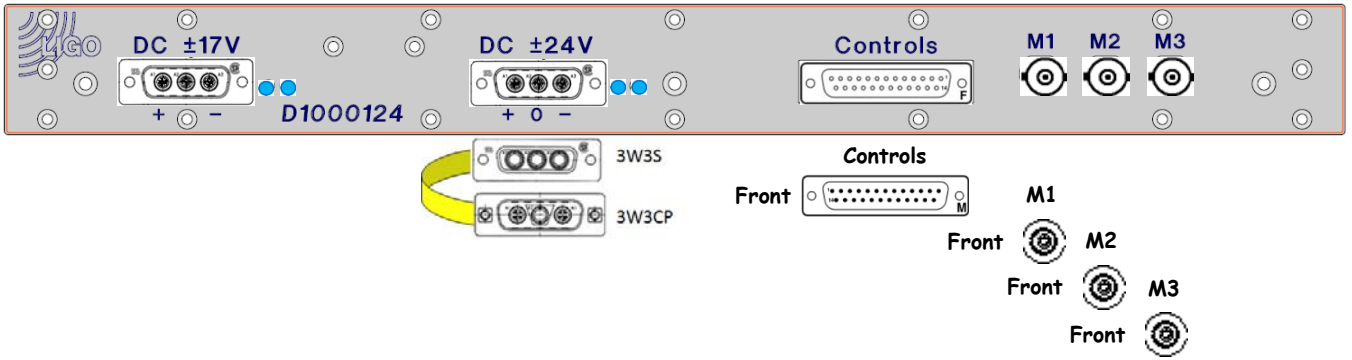
<< L1-ISC-C4

9.099 / 8.684 MHz Distribution Amplifier | D1000124 | S1000657 | ±17VDC, ±24VDC



D1000124

Front



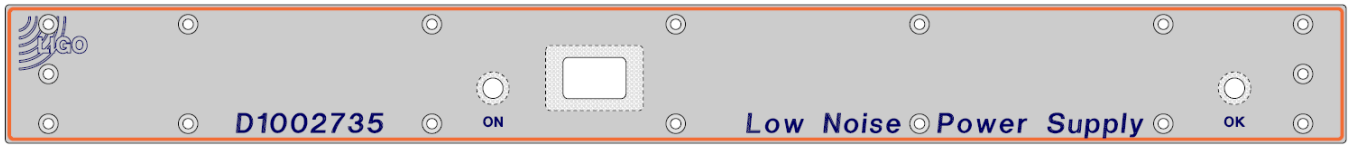
S1000657

Rear

D1002735 - S1000795

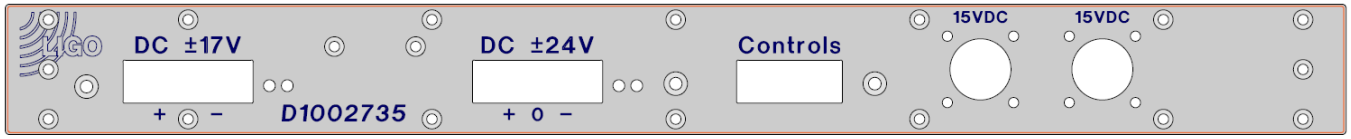
[<< L1-ISC-C4](#)

9.099 / 8.684 MHz Harmonic Generator Power Supply | D1002735 | S1000795 | ±17VDC, ±24VDC



D1002735

Front



S1000795

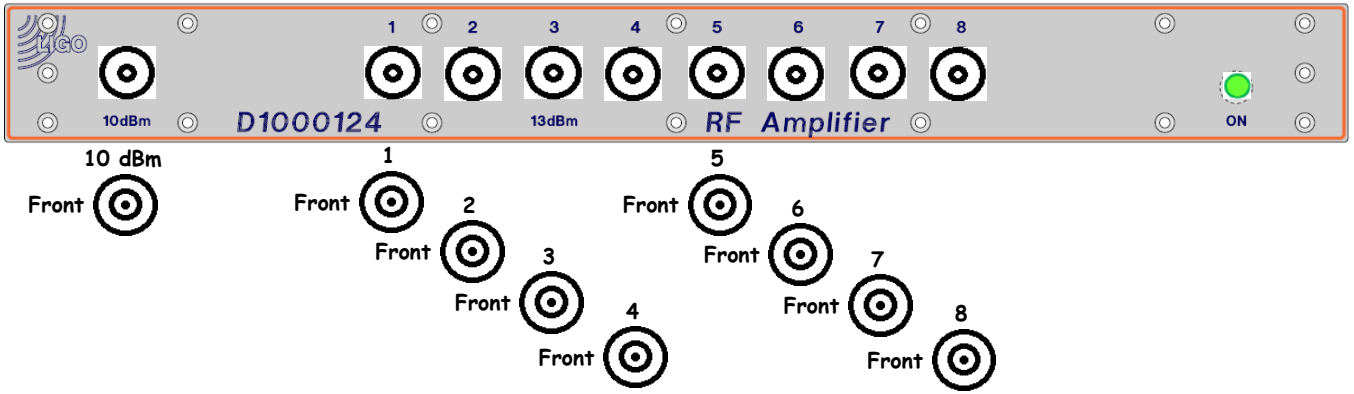
Rear

From DAC Adapter

D1000124 - S1000660

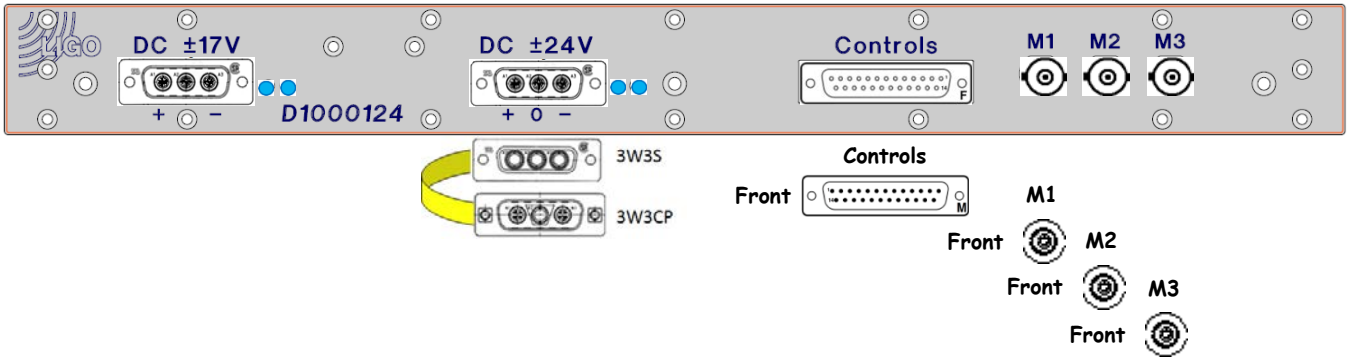
LIGO
<< L1-ISC-C4

18 MHz Distribution Amplifier | D1000124 | S1000660 | ±17VDC, ±24VDC



D1000124

Front



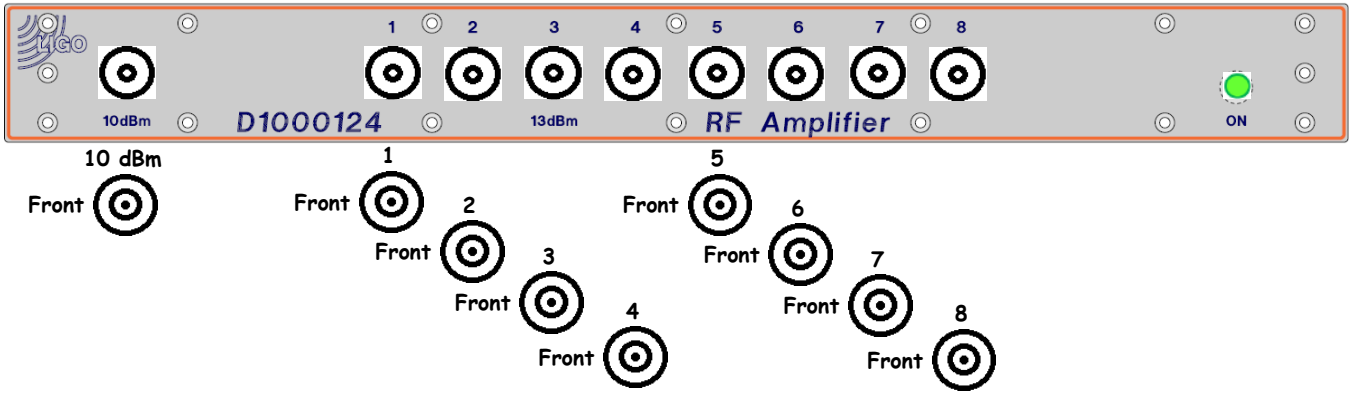
S1000660

Rear

D1000124 - S1000661

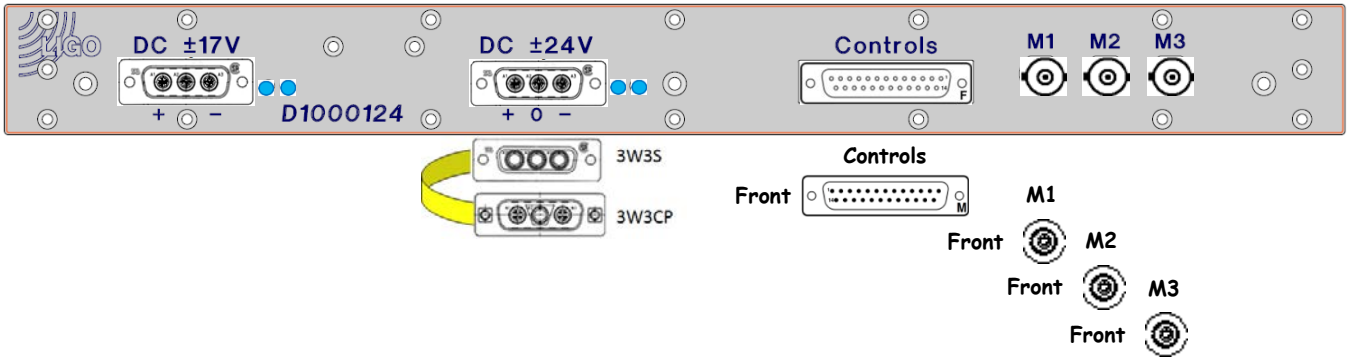
LIGO
<< L1-ISC-C4

27 MHz Distribution Amplifier | D1000124 | S1000661 | ±17VDC, ±24VDC



D1000124

Front



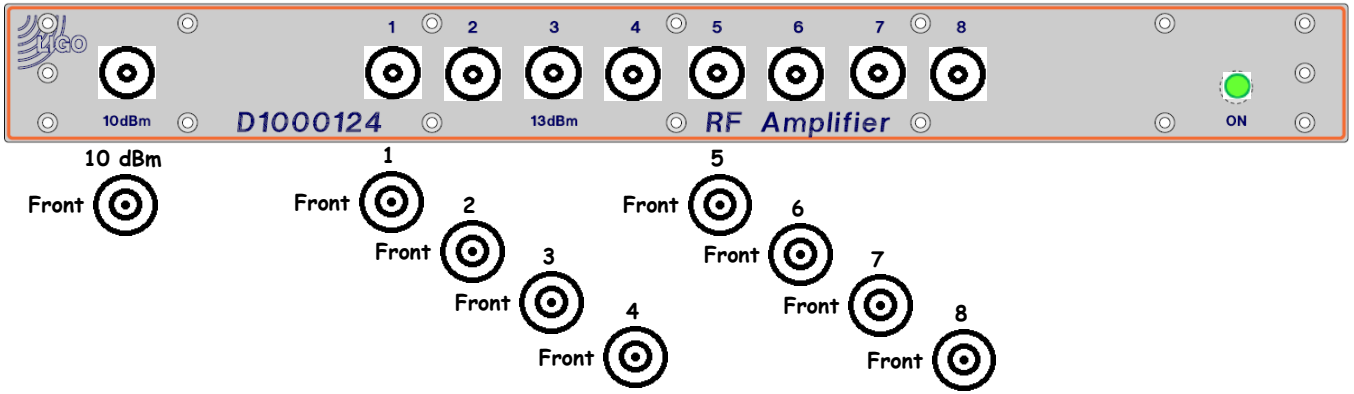
S1000661

Rear

D1000124 - S1000662

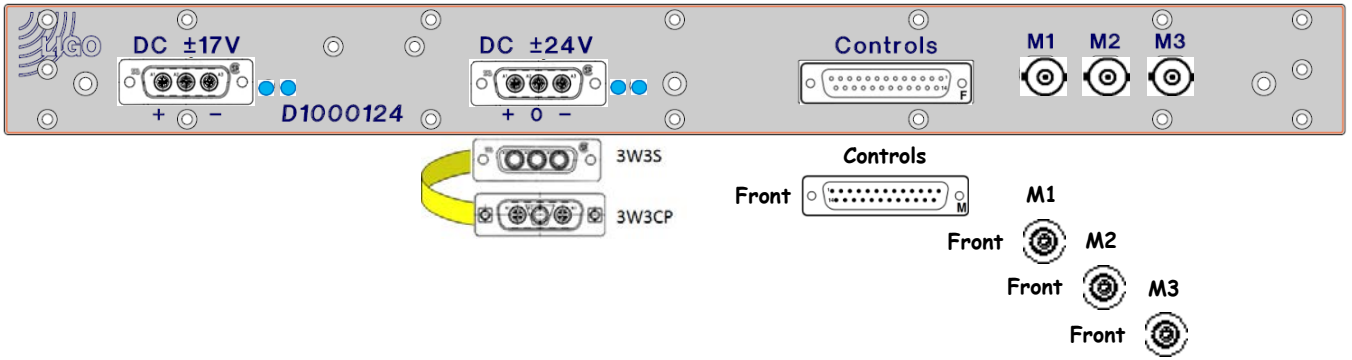
LIGO
<< L1-ISC-C4

36 MHz Distribution Amplifier | D1000124 | S1000662 | ±17VDC, ±24VDC



D1000124

Front



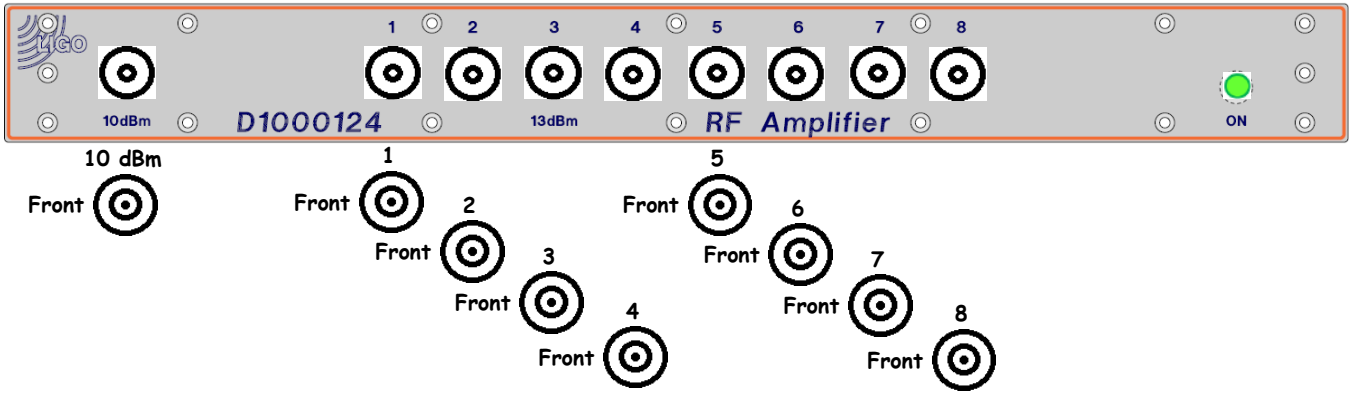
S1000662

Rear

D1000124 - S1000664

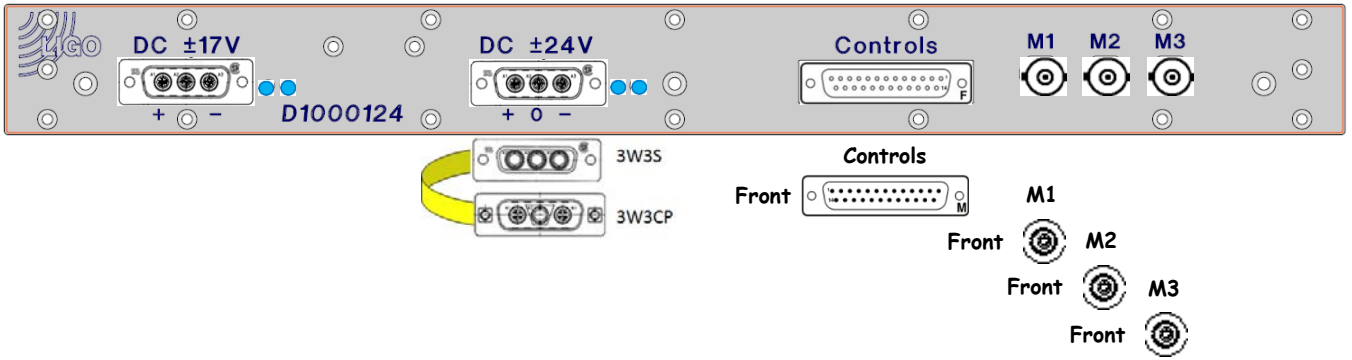
L1-ISC-C4

45 MHz Distribution Amplifier | D1000124 | S1000664 | ±17VDC, ±24VDC



D1000124

Front



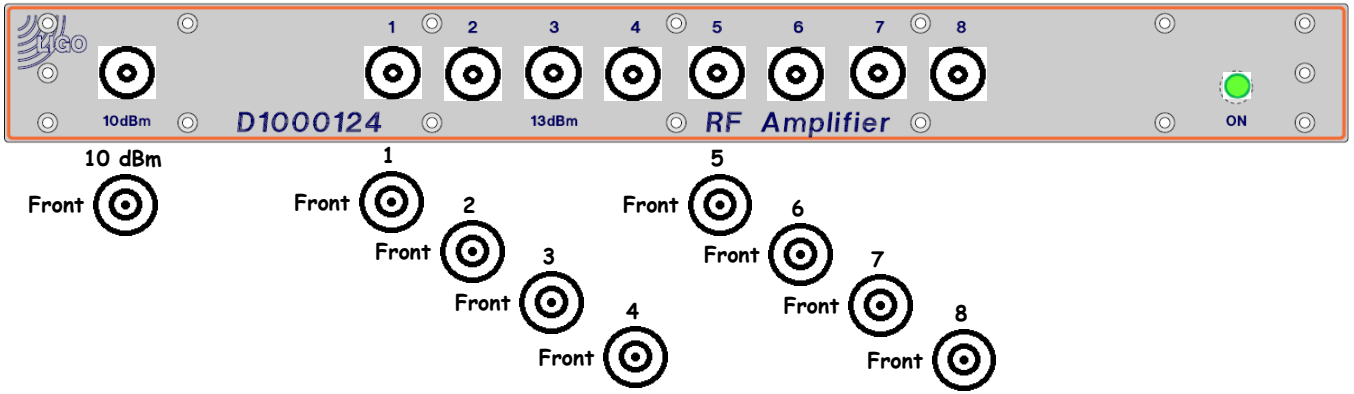
S1000664

Rear

D1000124 - S1000667

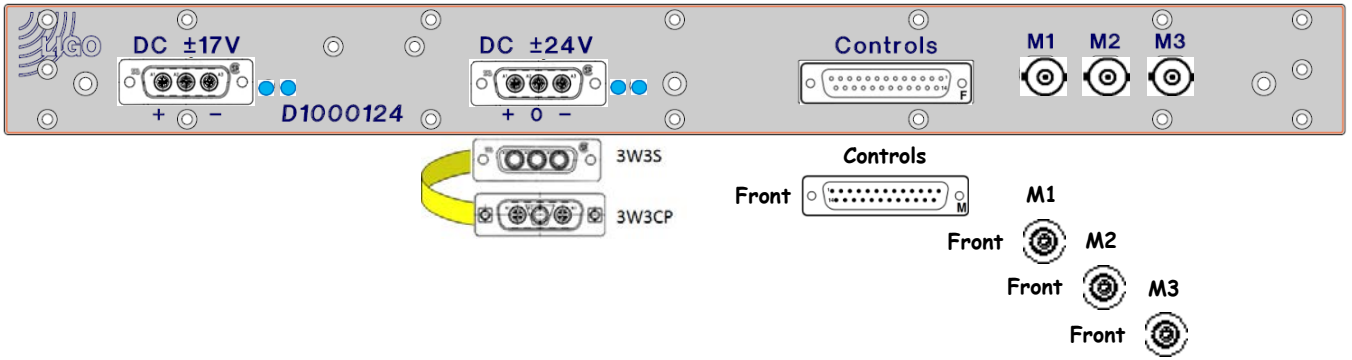
LIGO
<< L1-ISC-C4

90 MHz Distribution Amplifier | D1000124 | S1000667 | ±17VDC, ±24VDC



D1000124

Front



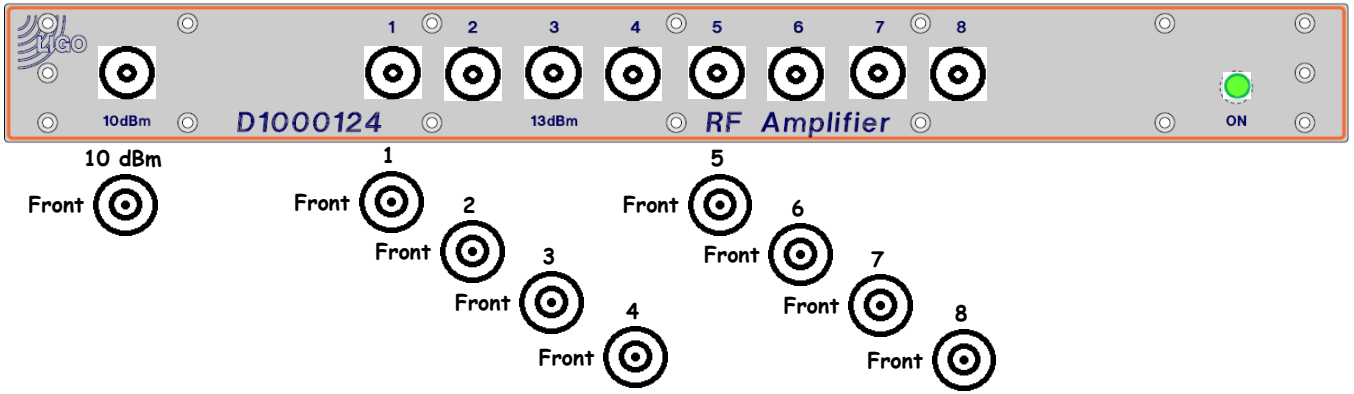
S1000667

Rear

D1000124 - S1000668

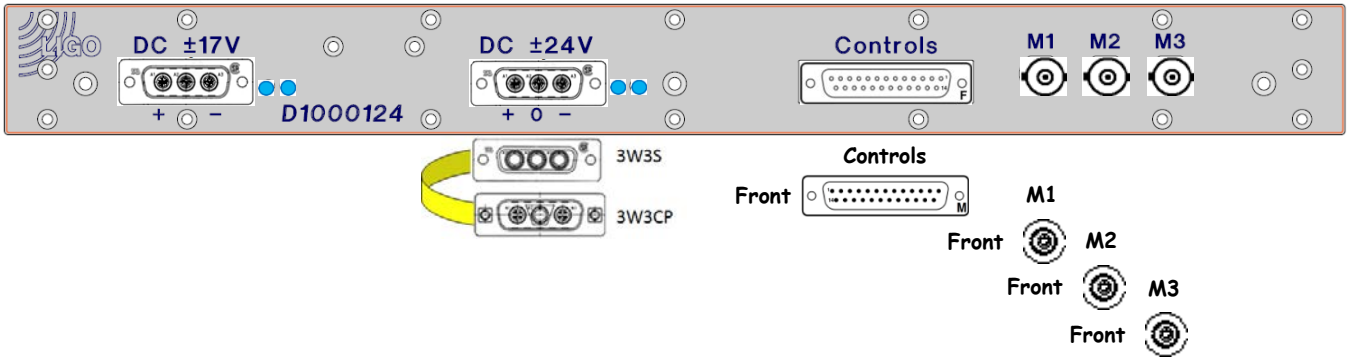
[<< L1-ISC-C4]

135 MHz Distribution Amplifier | D1000124 | S1000668 | ±17VDC, ±24VDC



D1000124

Front



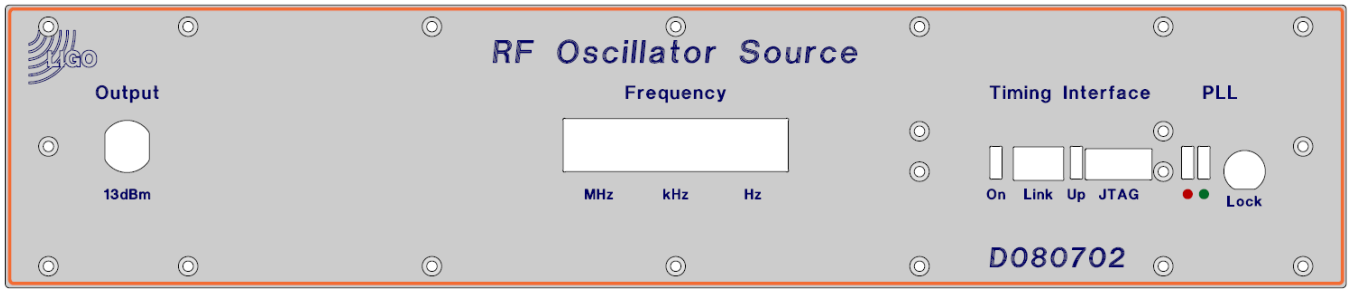
S1000668

Rear

D080702 - S1000572

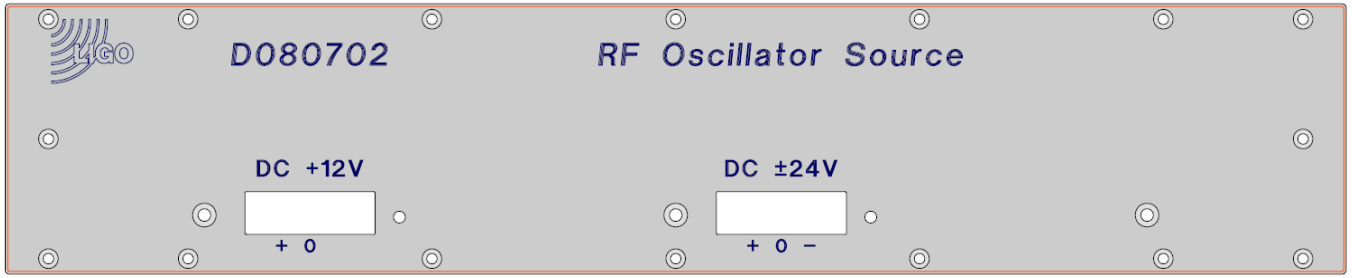
« L1-ISC-C4

24.078 / 22.993 MHz RF Source | D080702 | S1000572 | +12VDC, ±24VDC



D080702

Front



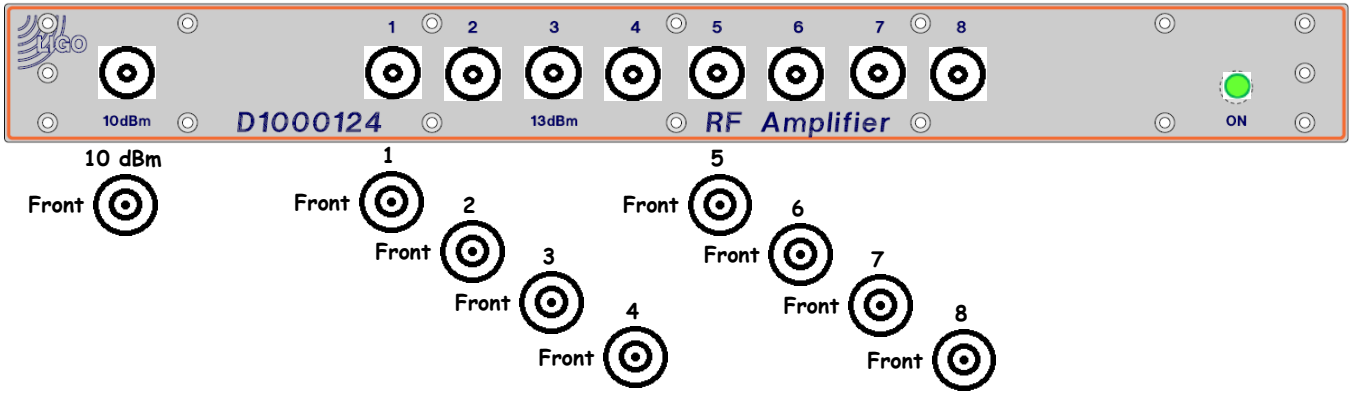
S1000572

Rear

D1000124 - S1000656

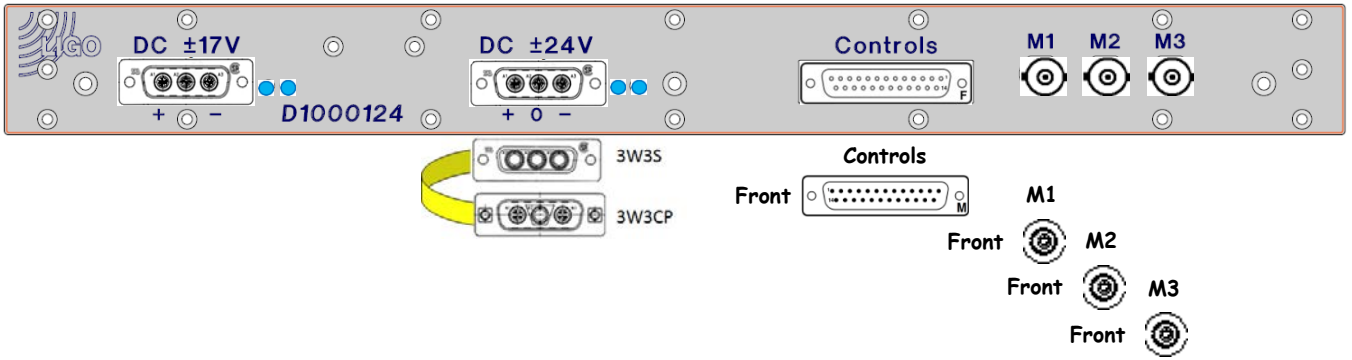
<< L1-ISC-C4

24.078 / 22.993 MHz Distribution Amplifier | D1000124 | S1000656 | ±17VDC, ±24VDC



D1000124

Front



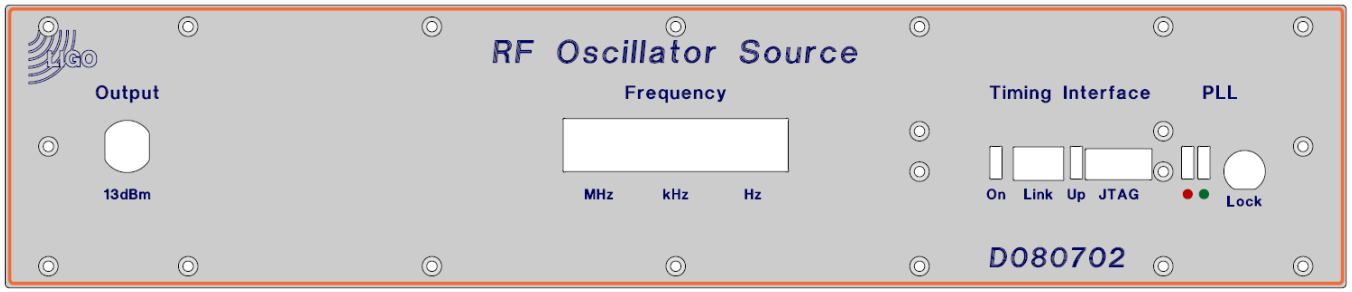
S1000656

Rear

D080702 - S1000560

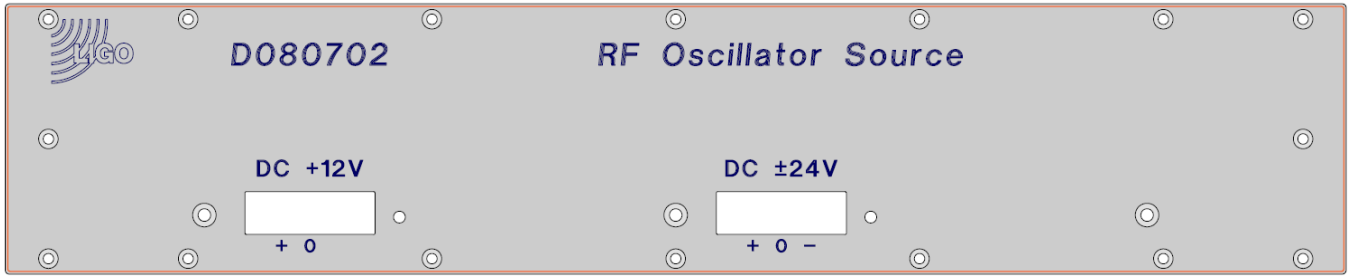
[<< L1-ISC-C4]

71 MHz RF Source | D080702 | S1000560 | +12VDC, ±24VDC



D080702

Front



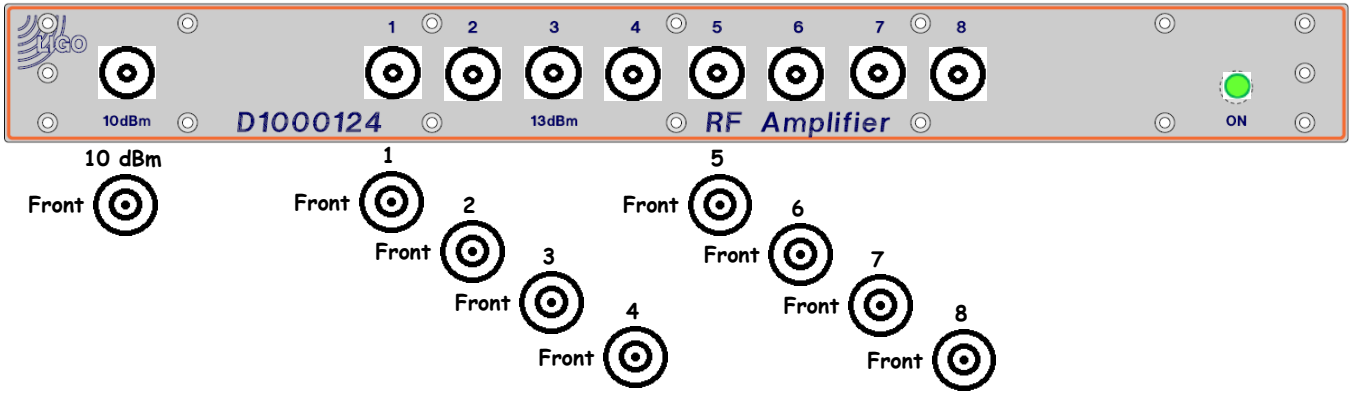
S1000560

Rear

D1000124 - S1000651

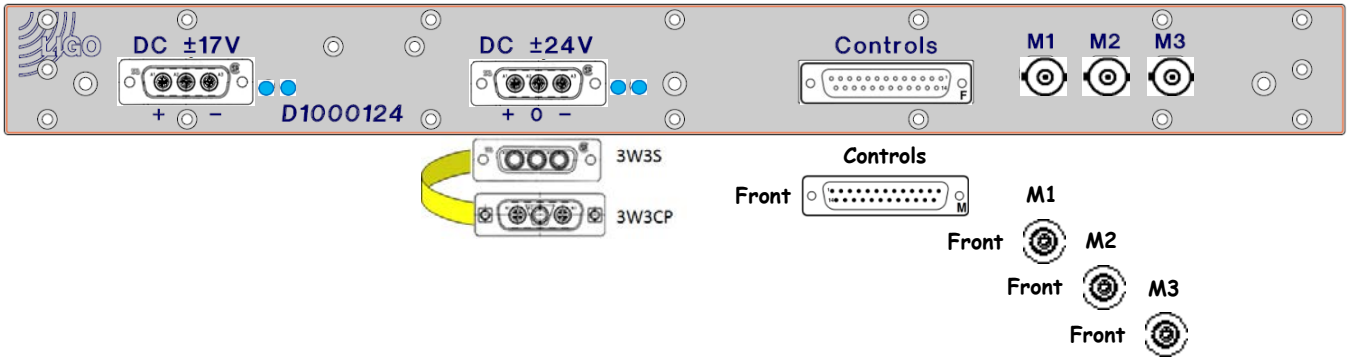
LIGO
<< L1-ISC-C4

71 MHz Distribution Amplifier | D1000124 | S1000651 | ±17VDC, ±24VDC



D1000124

Front

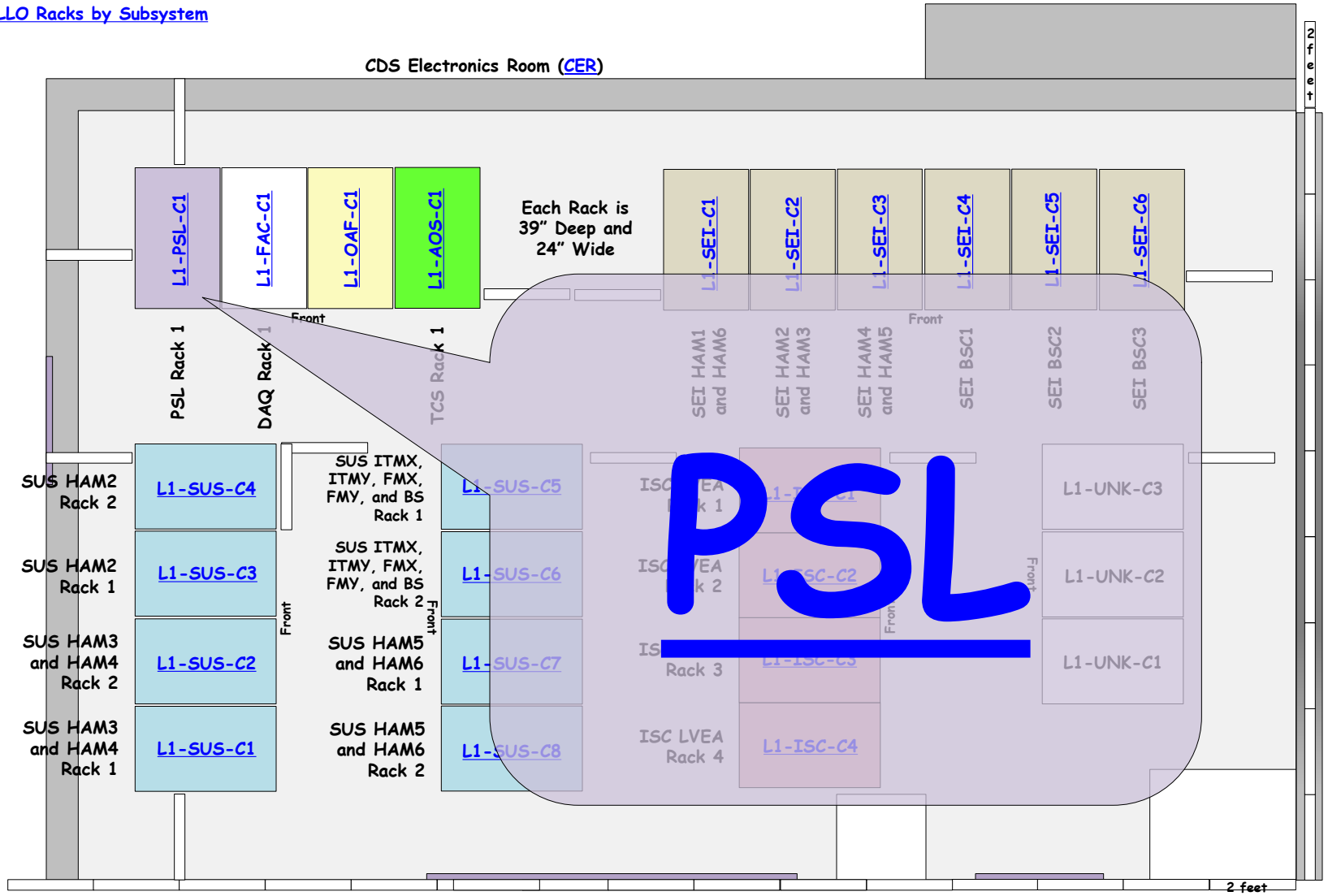


S1000651

Rear

Subsystem: PSL (Pre-Stabilized Laser)

[<< LLO Racks by Subsystem]



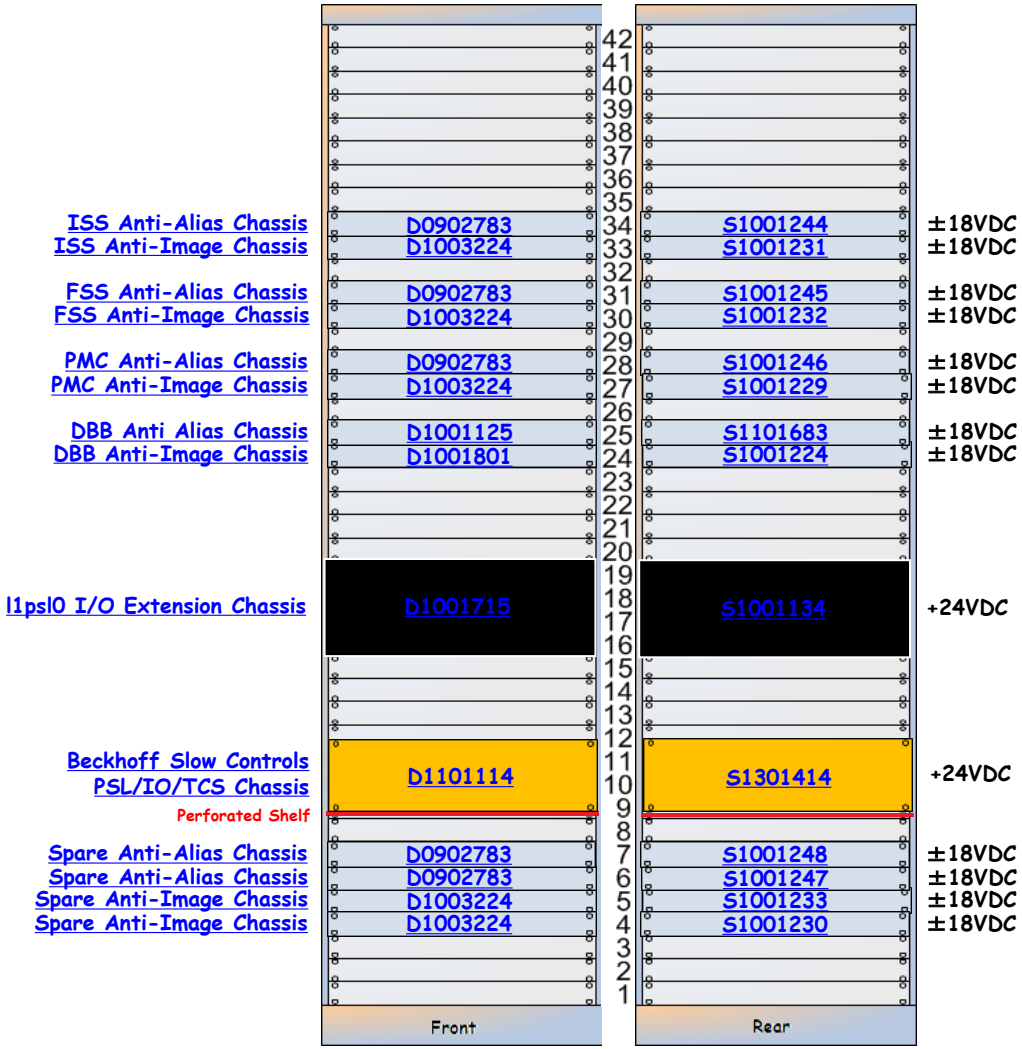
PSL Component List: LIGO-T0900633
PSL Table Layout: LIGO-T0900610

L1-PSL-C1

LIGO

<< CER

PSL Rack 1 Layout (D1201118) (S1202977)

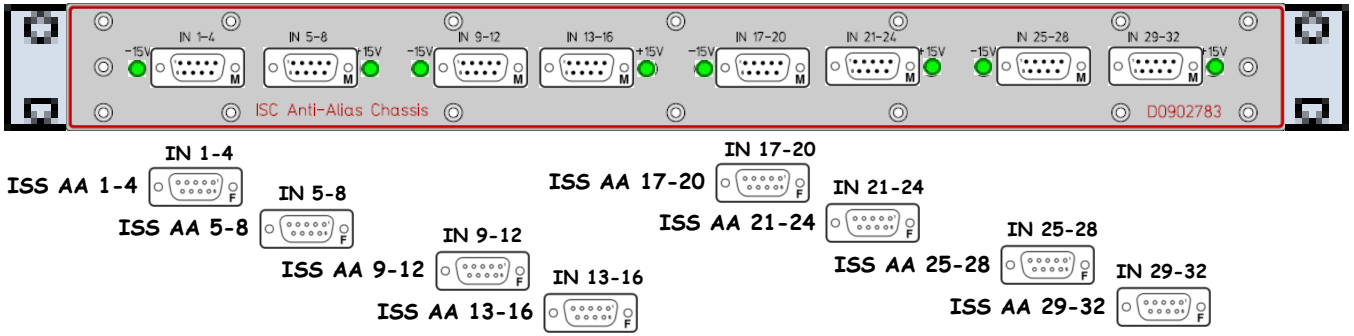


L1-PSL-C1 Details

D0902783 - S1001244

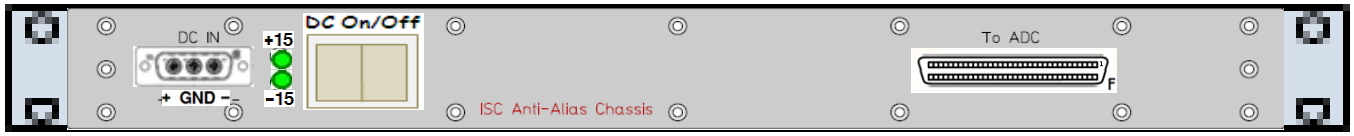
[<< L1-PSL-C1]

ISS Anti-Alias Chassis | D0902783 | S1001244 | ±18VDC



D0902783

Front



S1001244

Rear

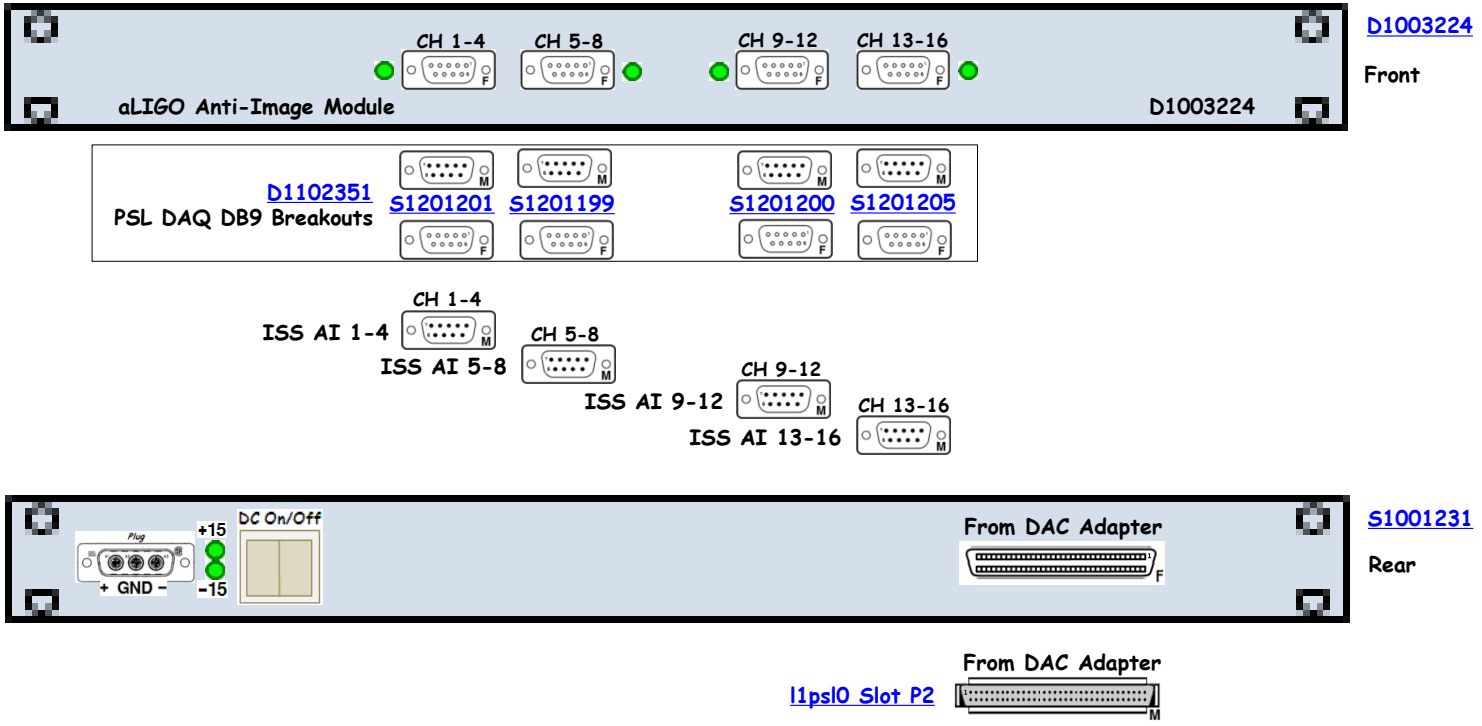
To ADC

l1psl0 Slot P1

D1003224 - S1001231

LIGO
<< L1-PSL-C1

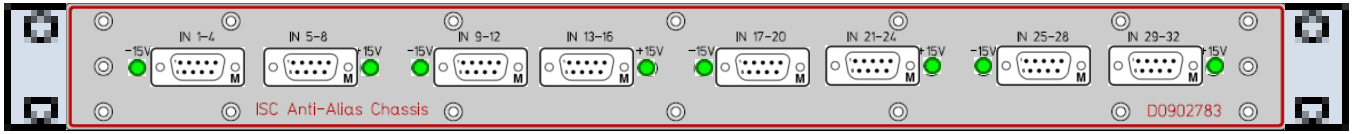
ISS Anti-Image Chassis D1003224 S1001231 ±18VDC



D0902783 - S1001245

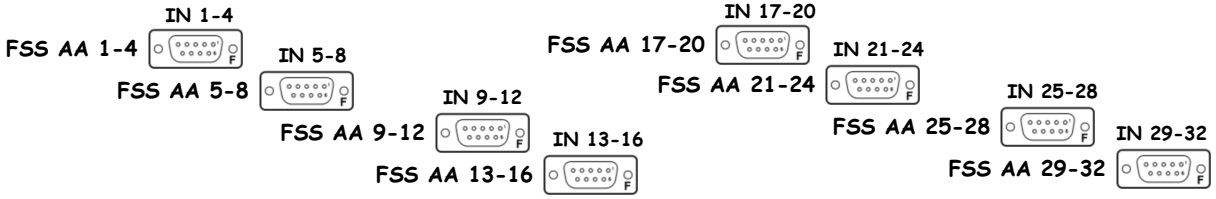
[<< L1-PSL-C1]

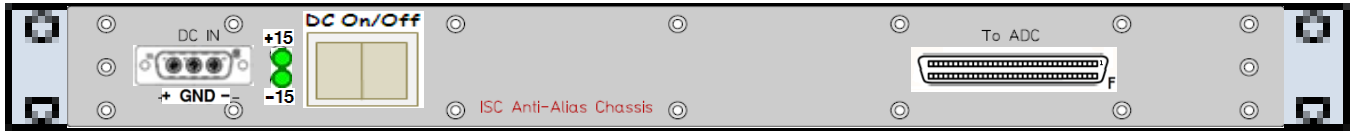
FSS Anti-Alias Chassis | D0902783 | S1001245 | ±18VDC



D0902783

Front





S1001245

Rear

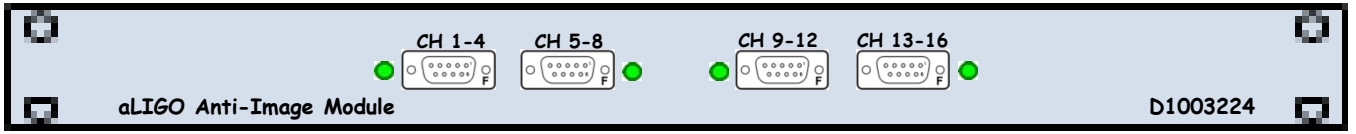
To ADC

[l1psl0 Slot P3]

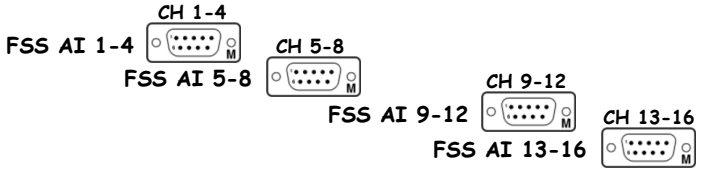
D1003224 - S1001232

LIGO
<< L1-PSL-C1

FSS Anti-Image Chassis D1003224 S1001232 ±18VDC



D1003224
Front



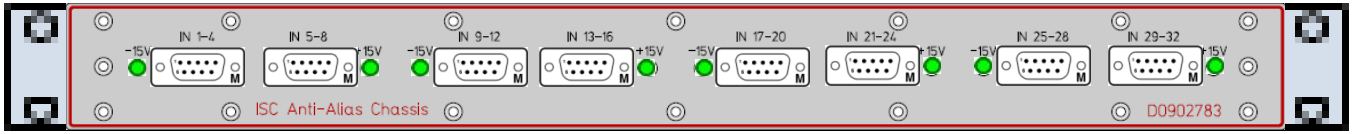
S1001232
Rear

From DAC Adapter
l1psl0 Slot P6

D0902783 - S1001246

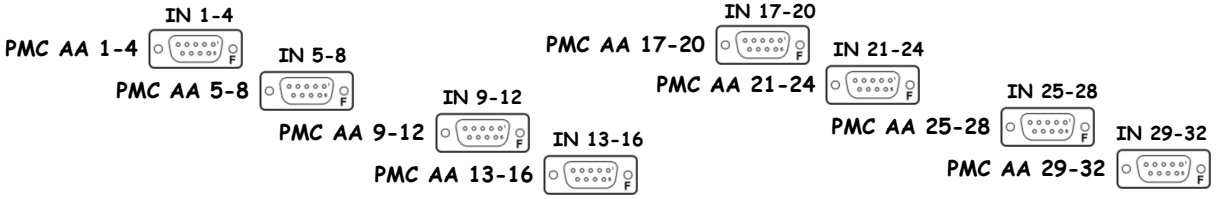
[<< L1-PSL-C1]

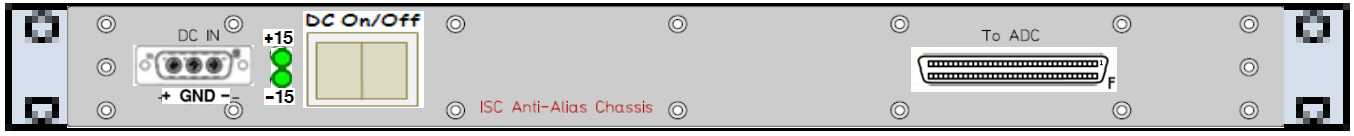
PMC Anti-Image Chassis | D0902783 | S1001246 | ±18VDC



[D0902783]

Front





[S1001245]

Rear

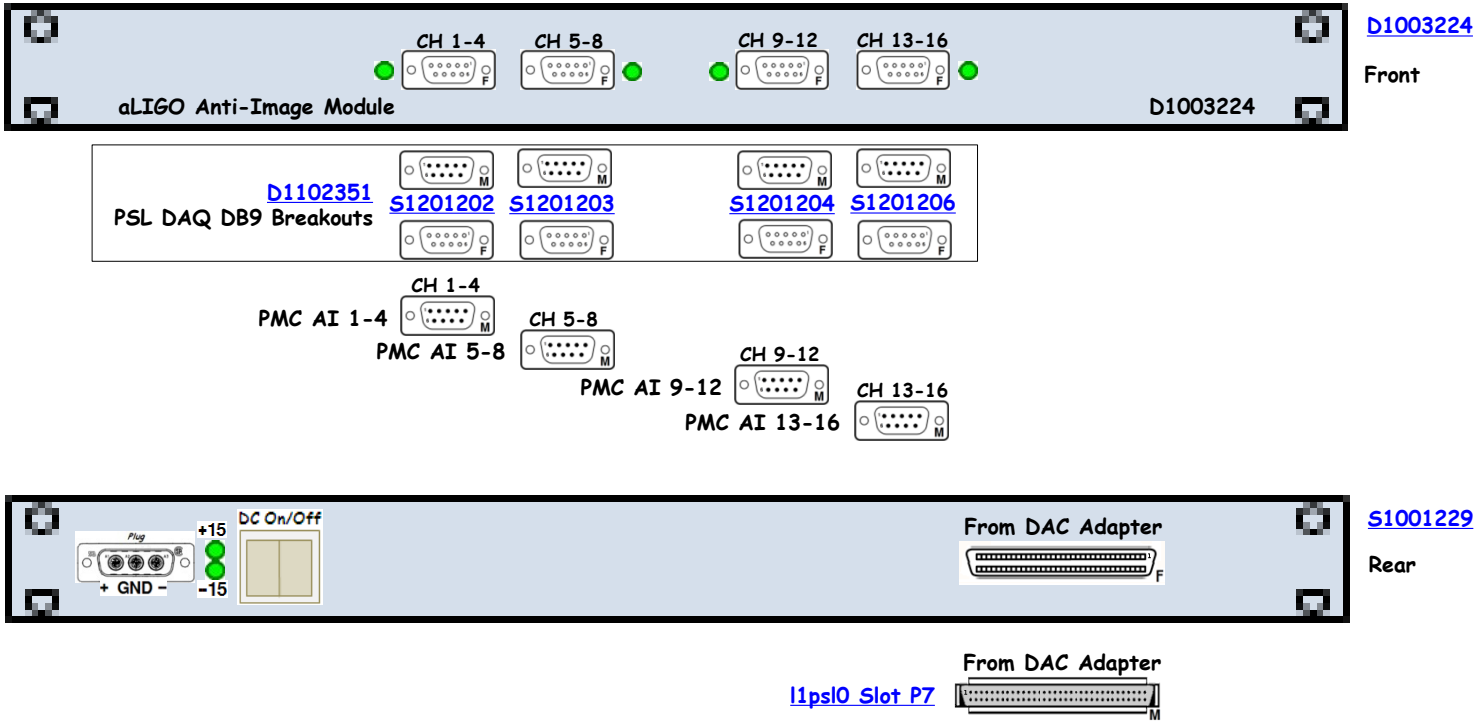
To ADC

[l1psl0 Slot P4]

D1003224 - S1001229

« L1-PSL-C1

PMC Anti-Image Chassis D1003224 S1001229 ±18VDC

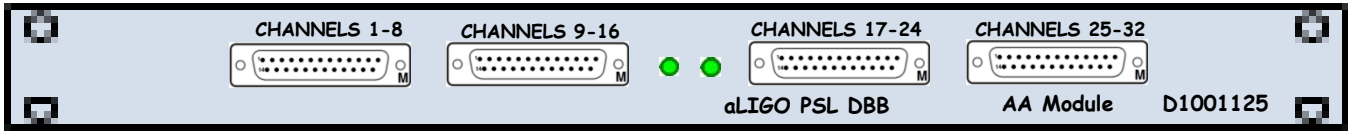


D1001125 – S1101683

« L1-PSL-C1

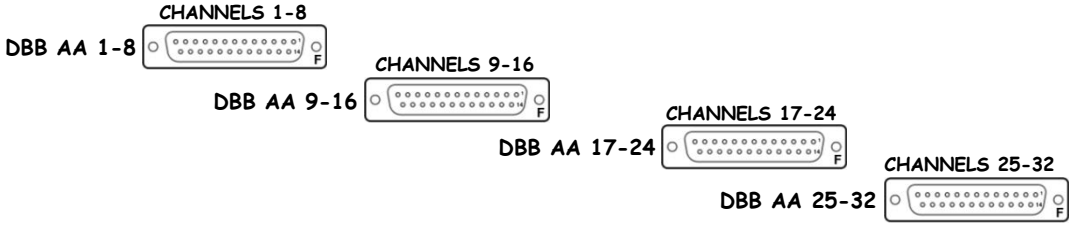
DBB Anti-Alias Chassis D1001125 S1101683 ±18VDC

AI Module aLIGO PSL DBB Assembly Drawing D1100292



D1001125

Front



S1101683

Rear

To ADC Adapter

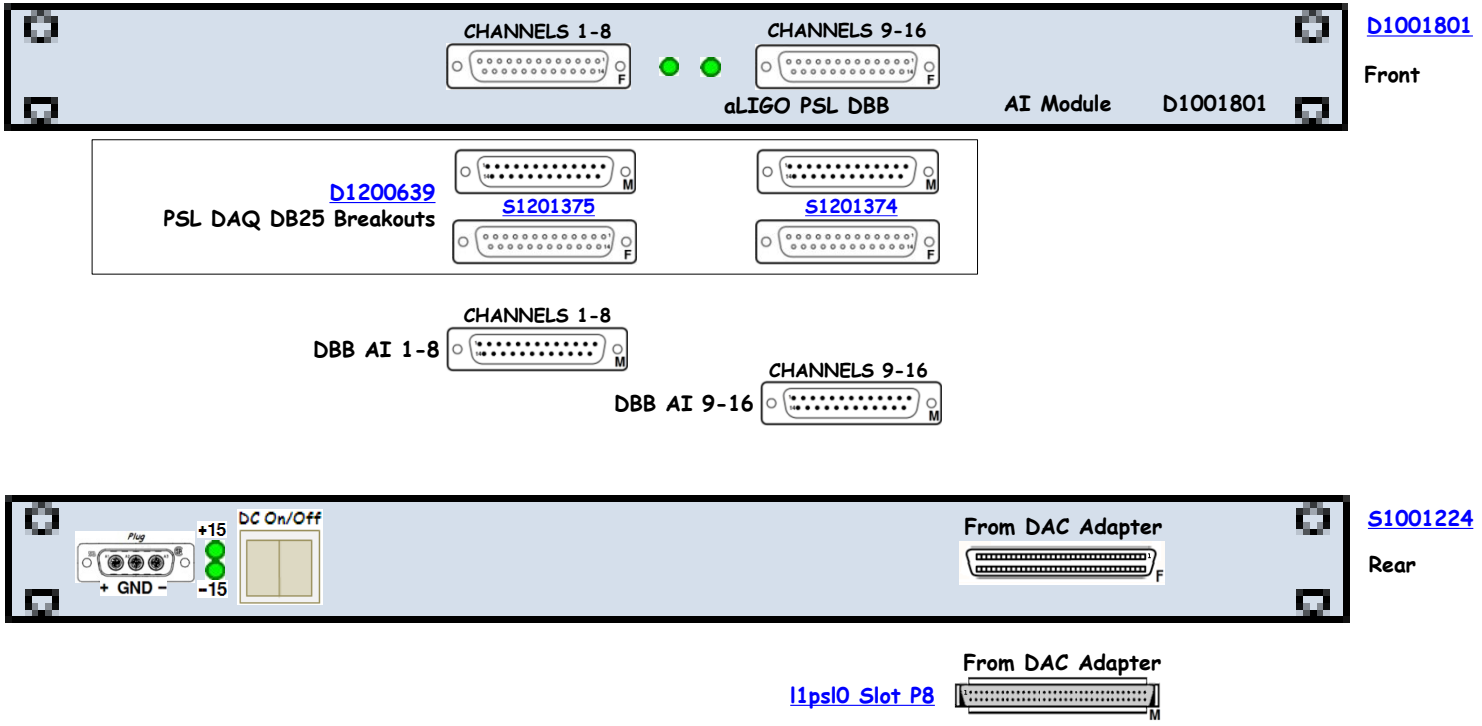
l1psl0 Slot P5

D1001801 – S1001224

LIGO
<< L1-PSL-C1

DBB Anti-Image Chassis D1001801 S1001224 ±18VDC

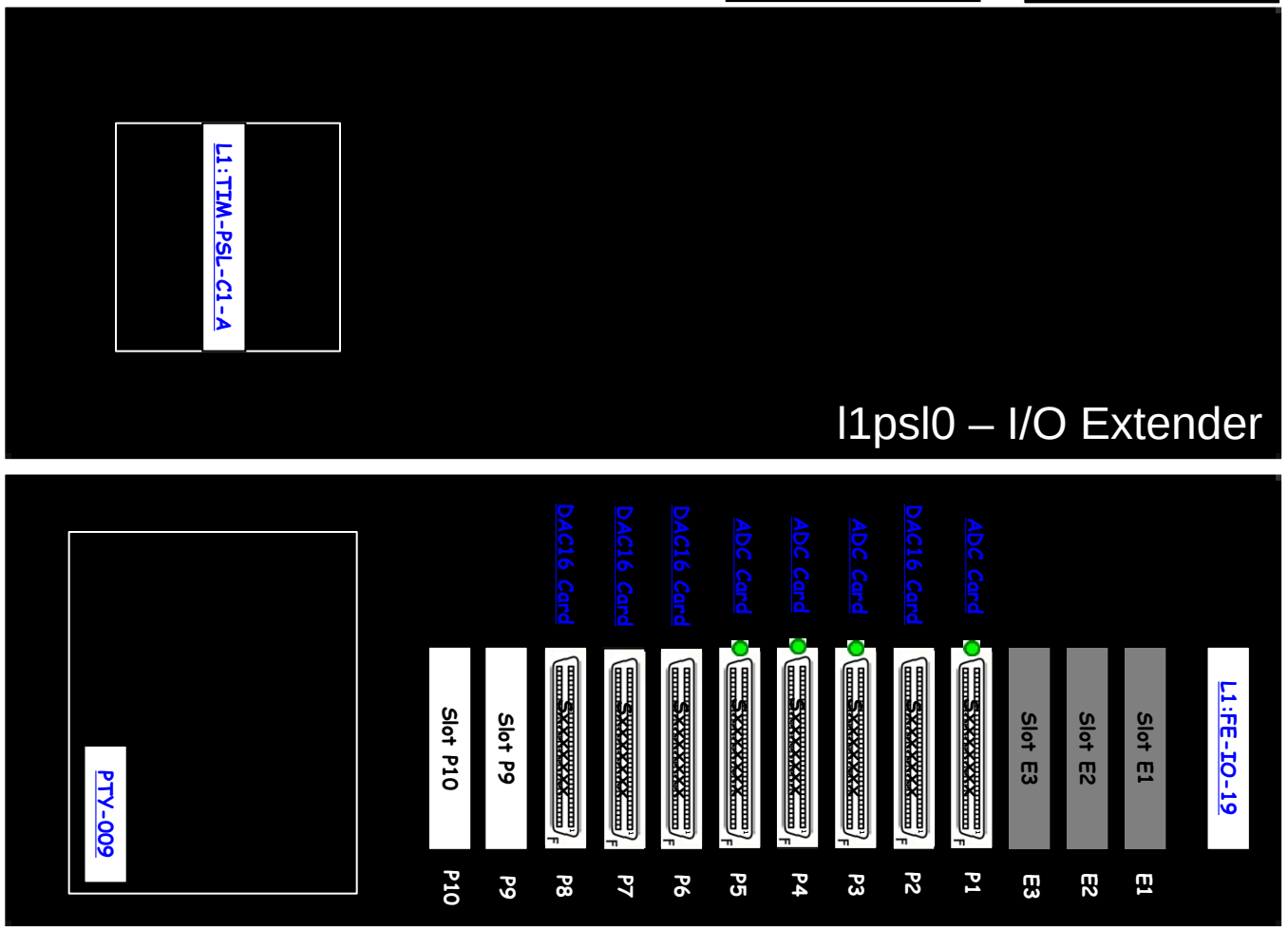
AI Module aLIGO PSL DBB Assembly Drawing D1002103



l1psl0 – D1001715 – S1001134

[<< L1-PSL-C1]

l1psl0 I/O Extension Chassis | D1001715 | S1001134 | +24VDC



D1001715
Front

S1001134
Rear

Uplink	L1:FE-IO-19
Slot E1	Open
Slot E2	Open
Slot E3	Open
Slot P1	S1001244
Slot P2	S1001231
Slot P3	S1001245
Slot P4	S1001246
Slot P5	S1101683
Slot P6	S1001232
Slot P7	S1001233
Slot P8	S1001224
Slot P9	Open
Slot P10	Open

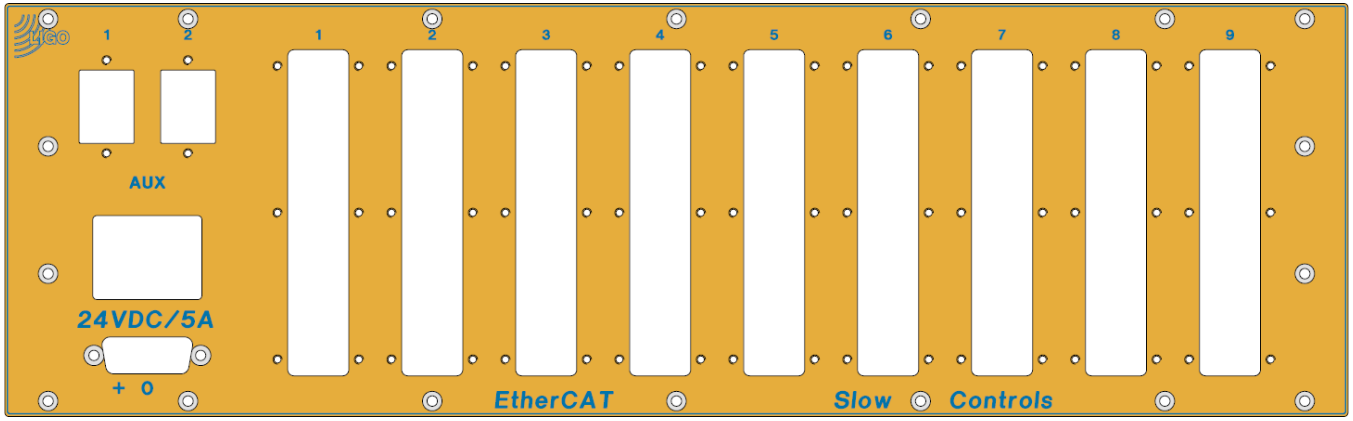
D1101114 - S1301414

[<< L1-PSL-C1]

Beckhoff Slow Controls PSL/IO/TCS Chassis | D1101114 | S1301414 | +24VDC

D1101114

Front: D0902553
Name: D1101121

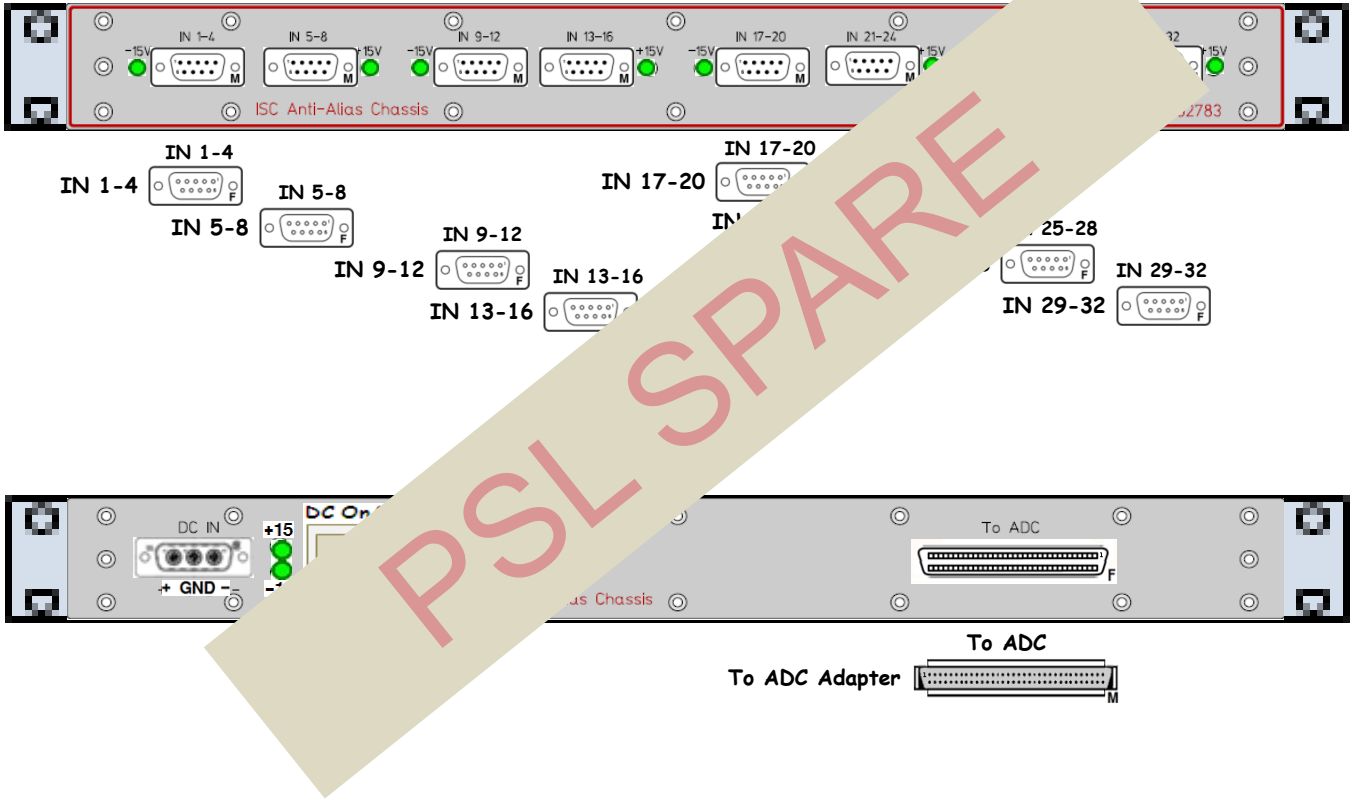


S1301414

Rear: D0902554

D0902783 - S1001248

Anti-Alias Chassis D0902783 S1001248 ±18VDC



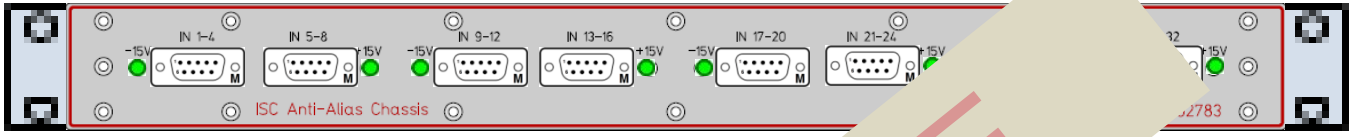
D0902783
Front

S1001248
Rear

PSL SPARE

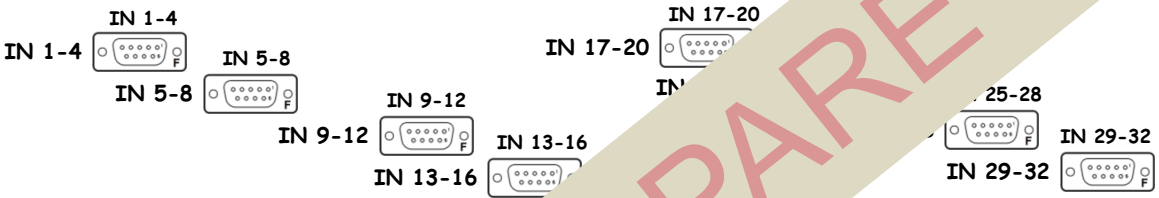
D0902783 - S1001247

Anti-Alias Chassis | D0902783 | S1001247 | ±18VDC



D0902783

Front



S1001247

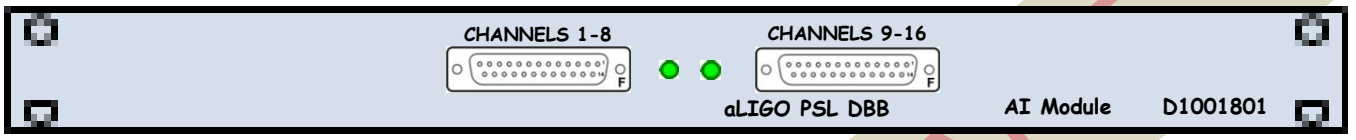
Rear

PSL SPARE

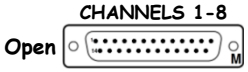
D1003224 - S1001233

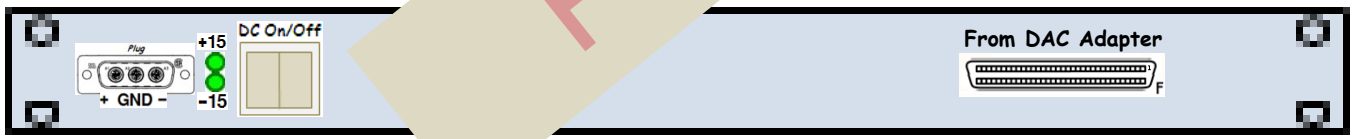
LIGO
<< L1-PSL-C1

Anti-Image Chassis | D1003224 | S1001233 | ±18VDC



D1003224
Front



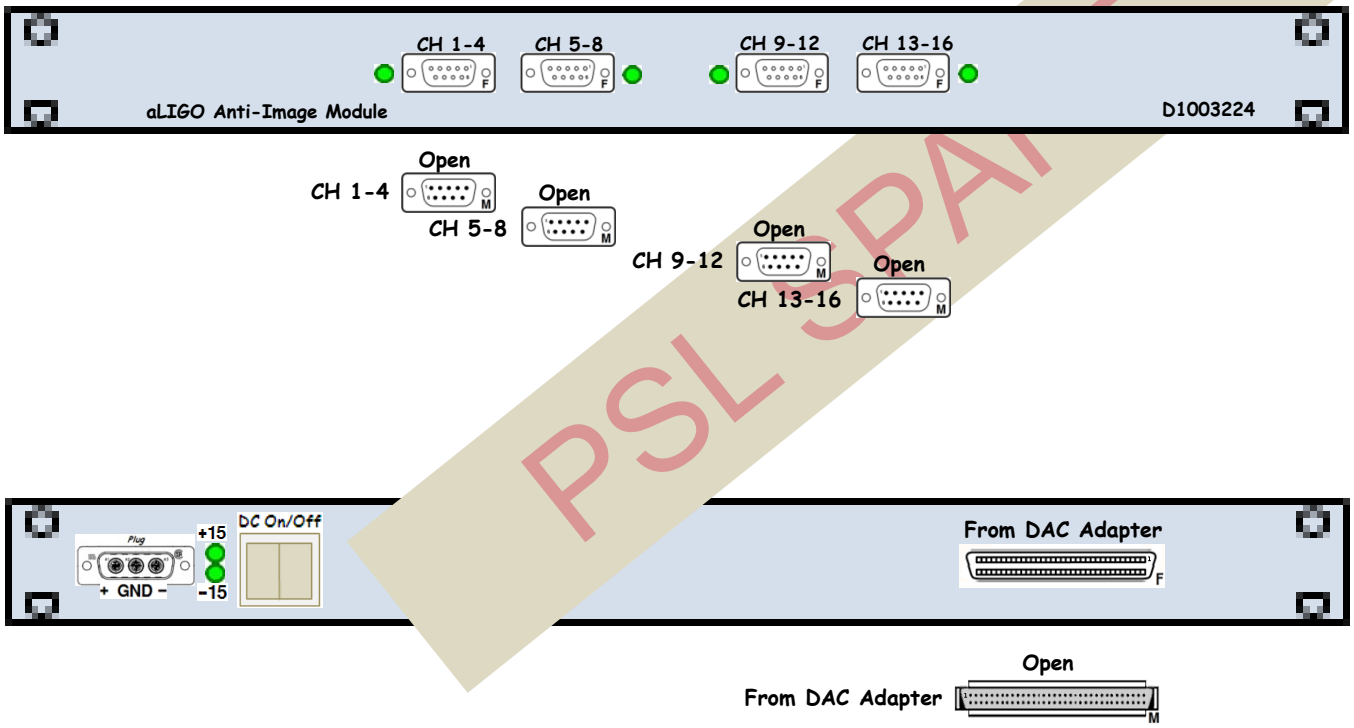


S1001229
Rear

PSL SPARE

D1003224 - S1001230

Anti-Image Chassis D1003224 S1001230 ±18VDC

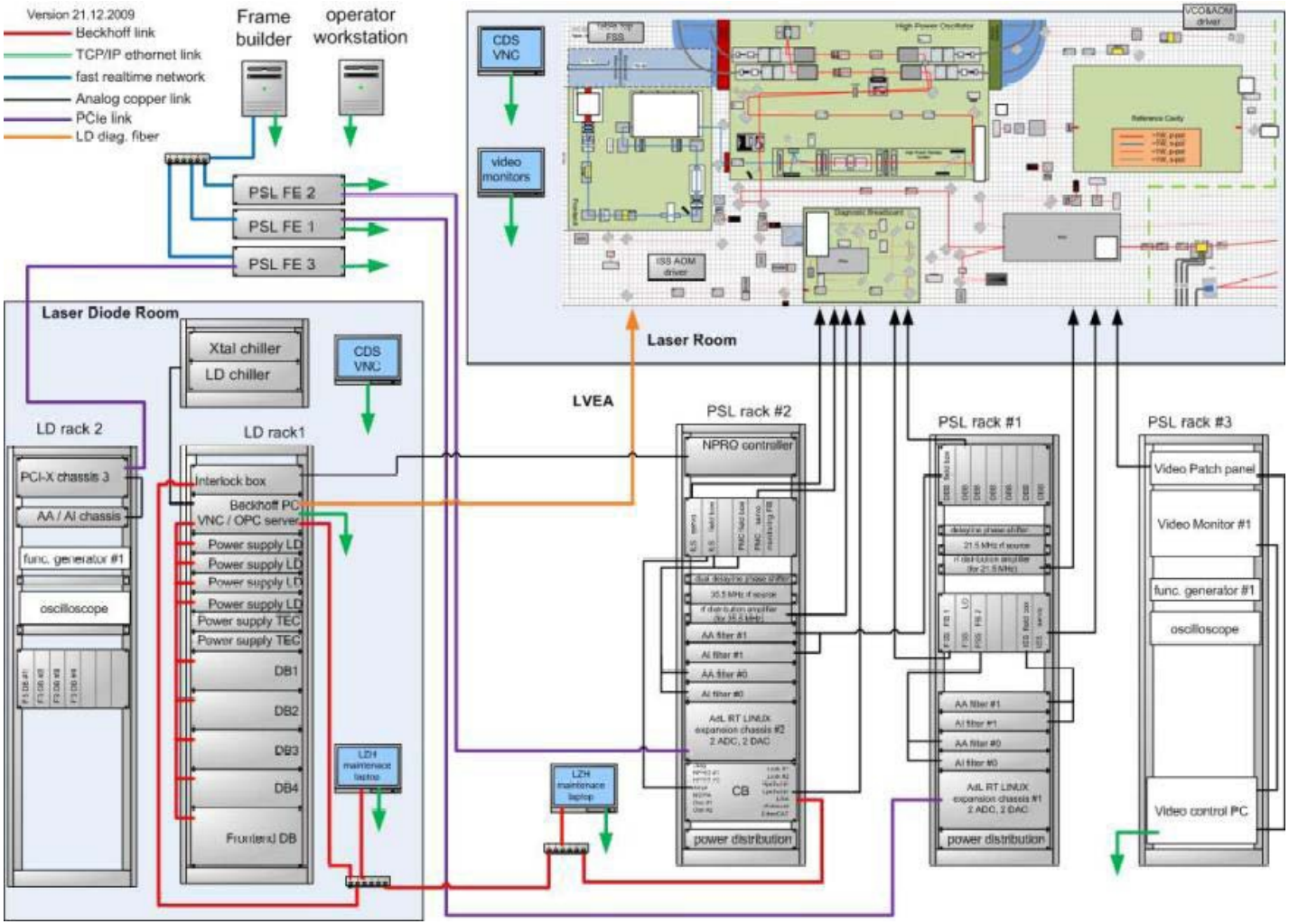


D1003224
Front

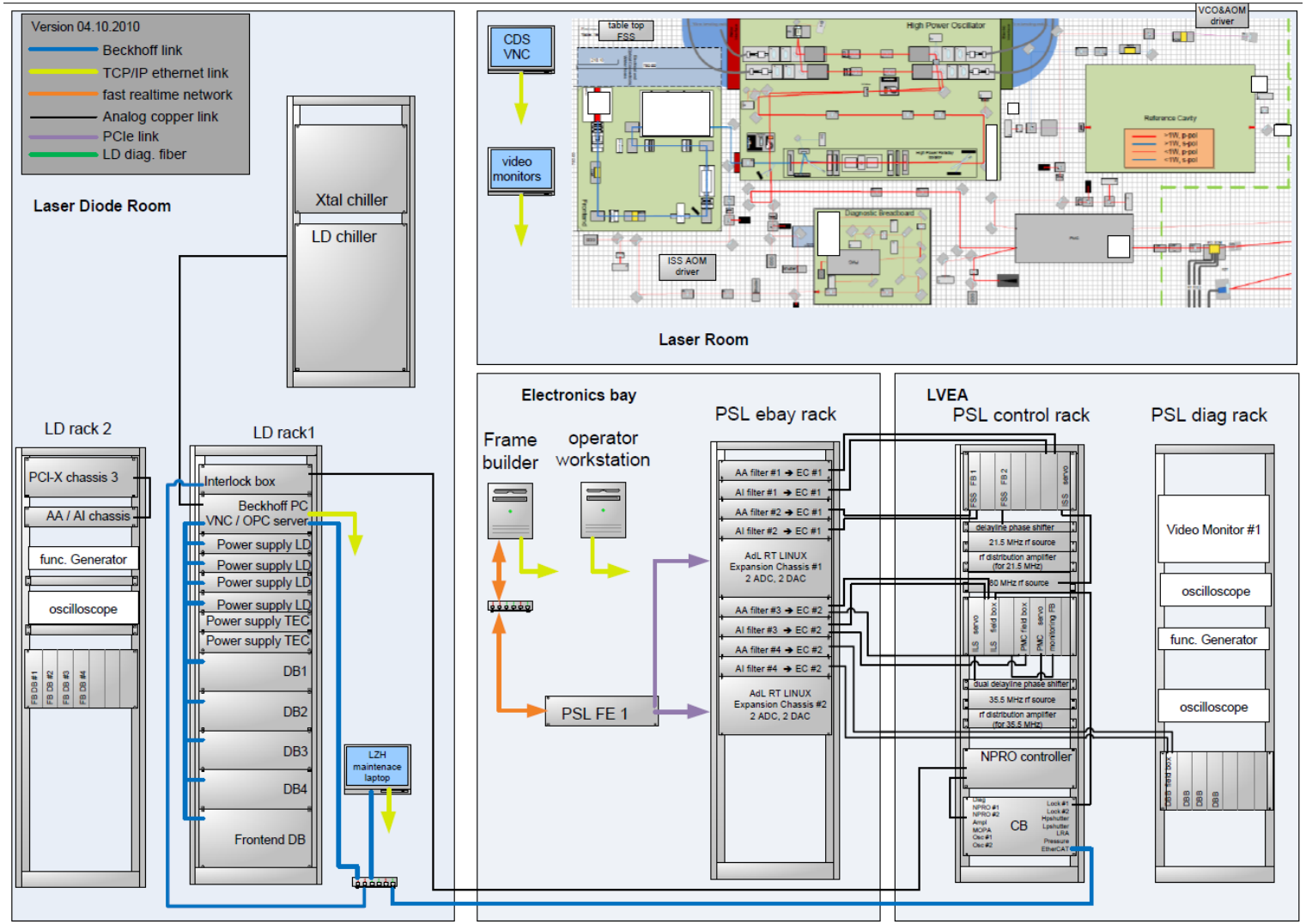
S1001230
Rear

PSL SPARE

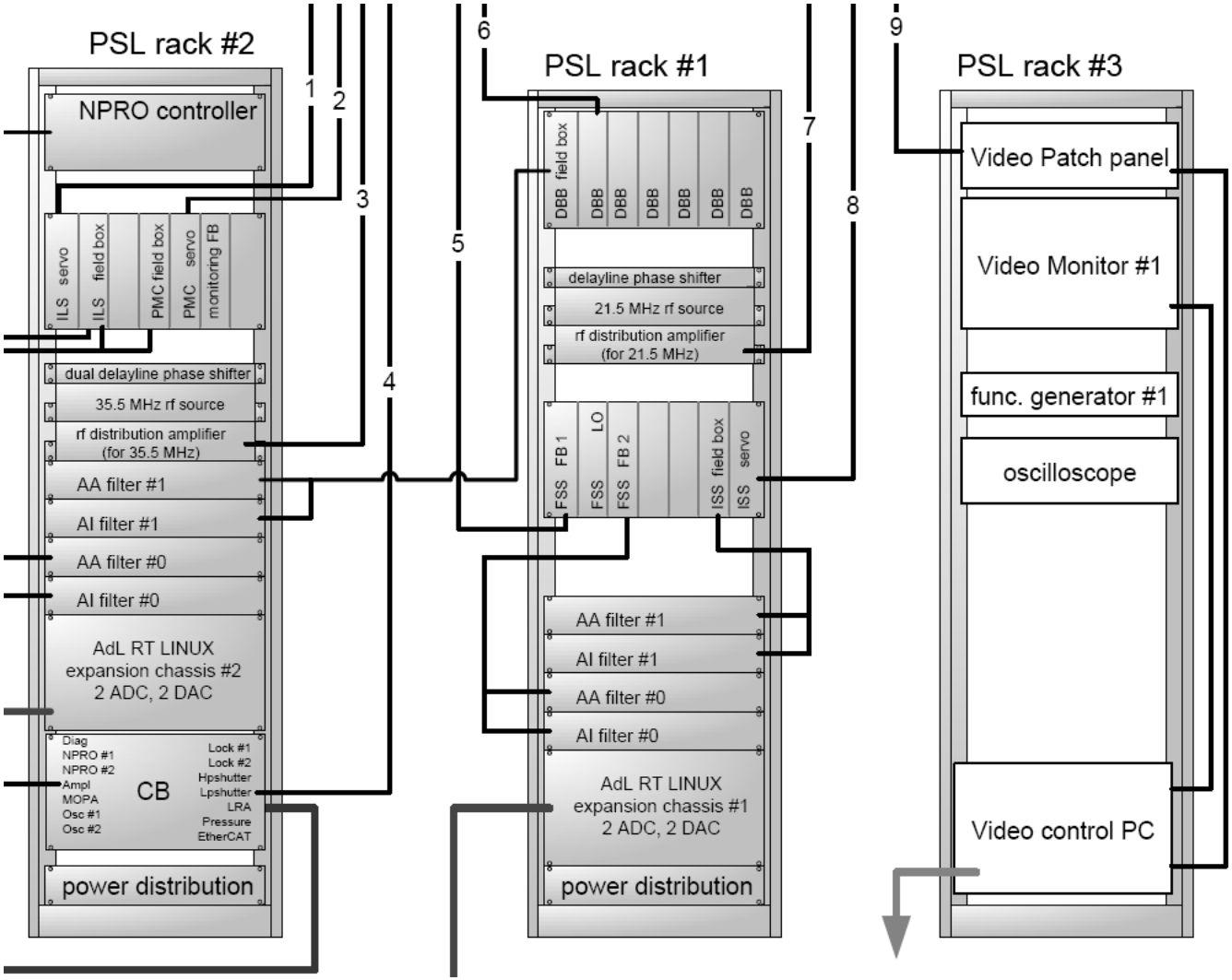
PSL Racks(LIGO-G1000106-V1 – p.17)



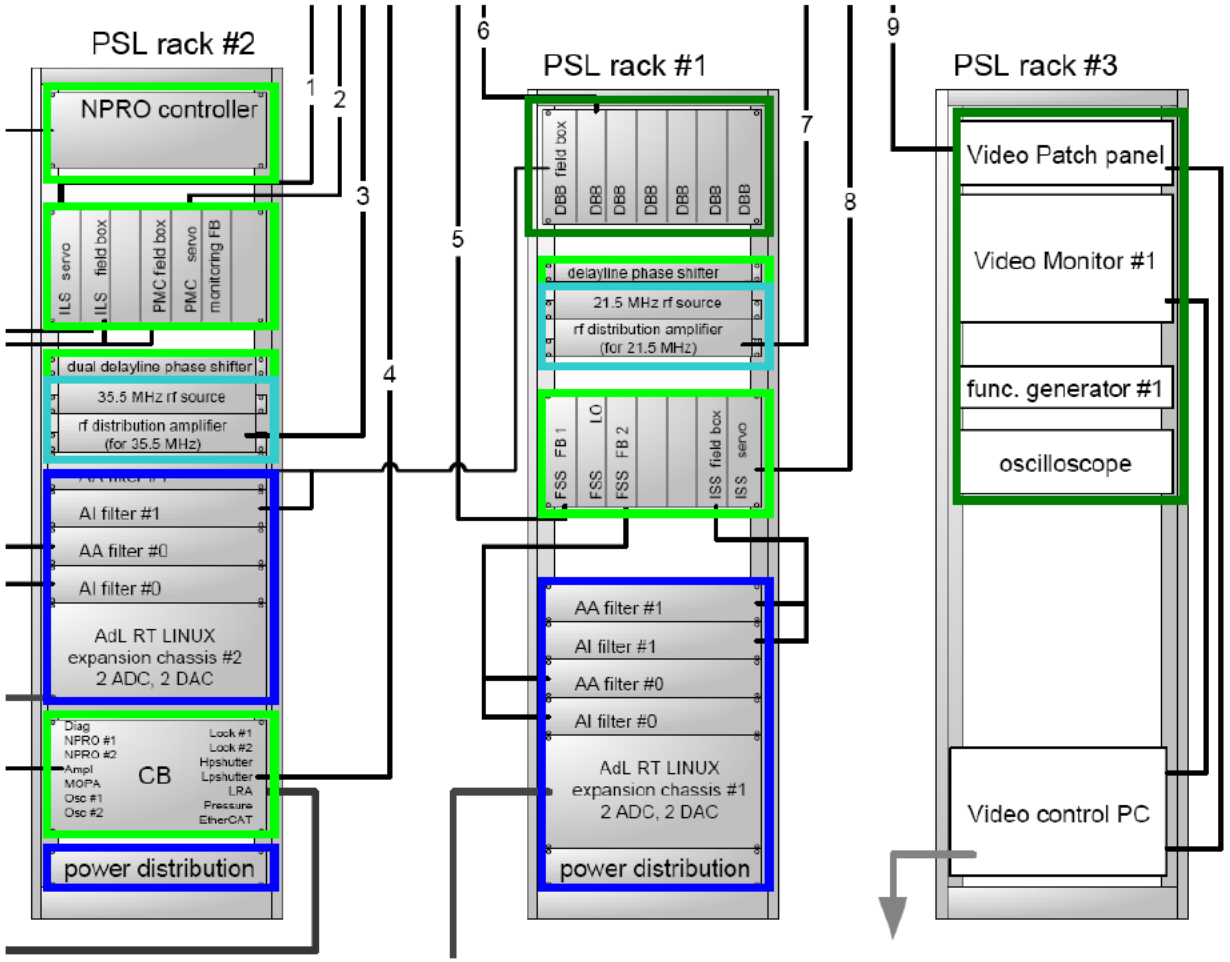
PSL Racks(Layout 20101006)



PSL Racks(LIGO-G1000106-V1 – p.41)



PSL Racks(LIGO-G1000106-V1 – p.41)



Needs to be close to LAE

Needs to be close to LAE, but shut down during science run

Can be moved to electronics bay

Might be moved to electronics bay, but then need to transport large RF signals over long distance.

PSL Racks - L1-PSL-01- ILS and PMC

D070011 Fanout Timing

L1-PSL-01 Front

NPRO Controller

Eurocard Crate ECC-1 (ILS and PMC)

DXXXXXXXX Delay Line Chassis

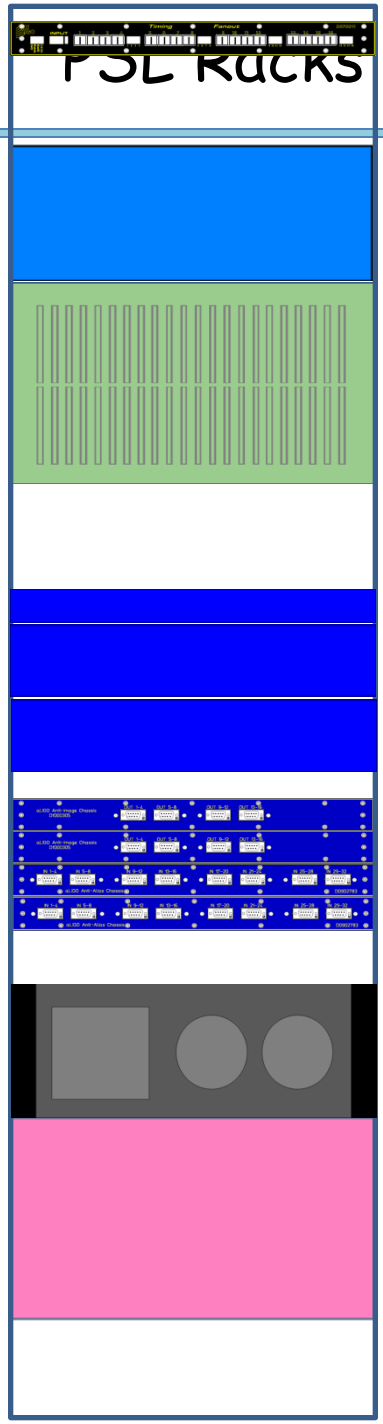
DXXXXXXXX 35.5MHz Amplifier Chassis

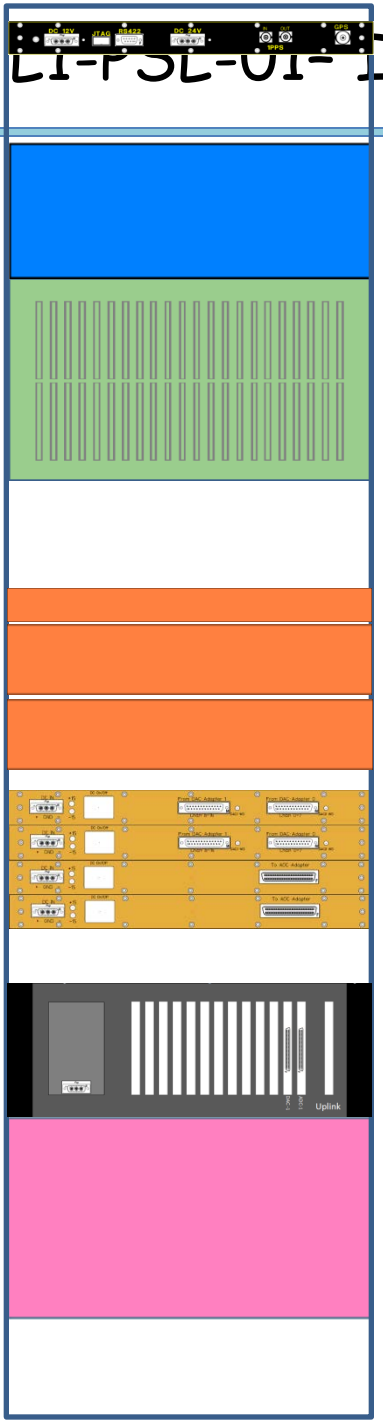
DXXXXXXXX 35.5MHz Amplifier Chassis

D1000305 AI Chassis
D1000305 AI Chassis
D0902783 AA Chassis
D0902783 AA Chassis

I/O Extension
2 ADC
2 DAC

Control Box (CB)





L1-PSL-01 Rear

NPRO Controller

Eurocard Crate ECC-1 (ILS and PMC)

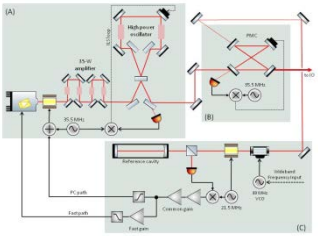
DXXXXXXXX SYYYYYYYY

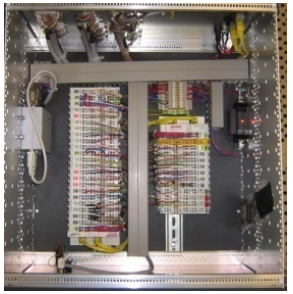
DXXXXXXXX SYYYYYYYY

DXXXXXXXX SYYYYYYYY

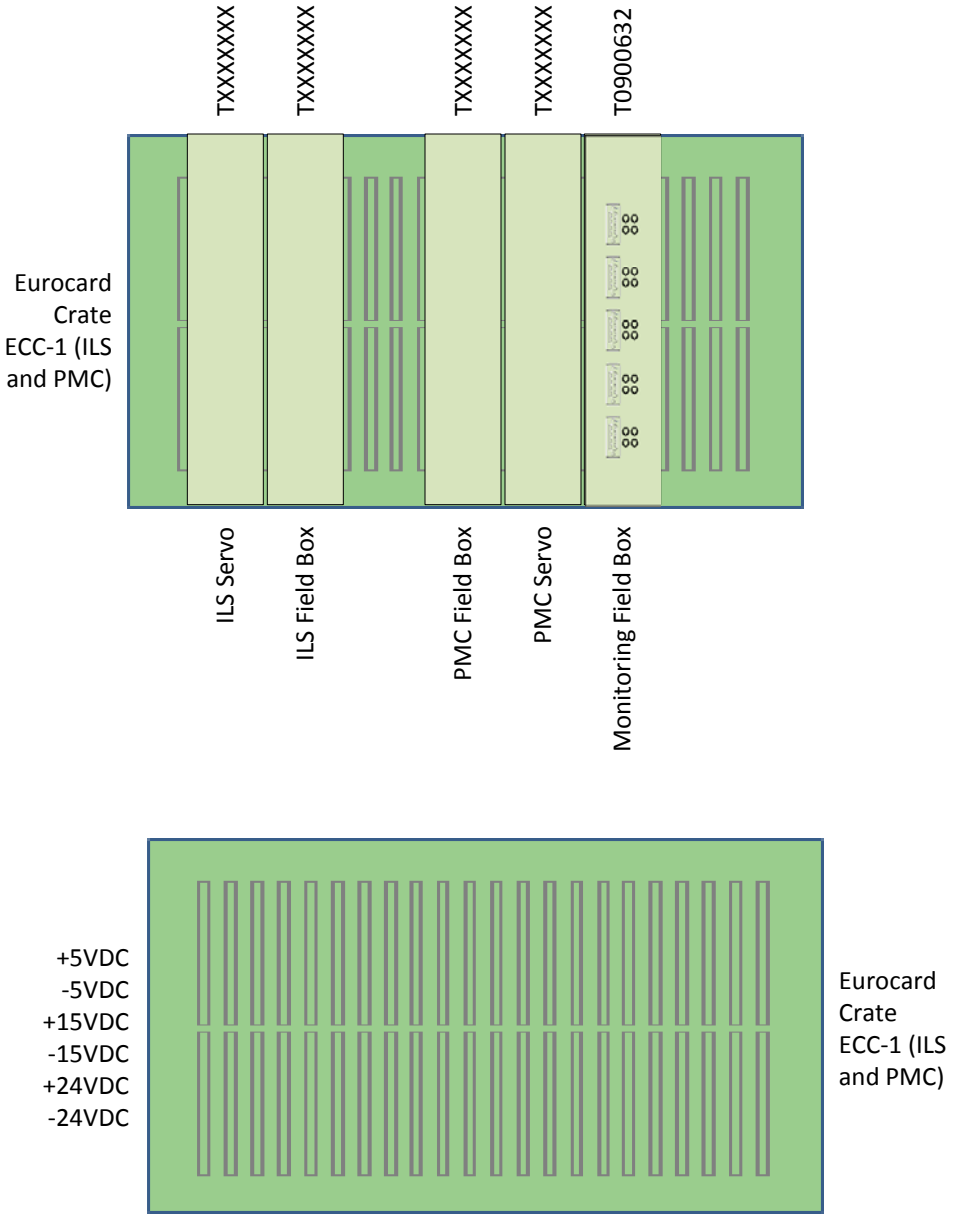
D1000305 SYYYYYYYY
D1000305 SYYYYYYYY
D0902783 SYYYYYYYY
D0902783 SYYYYYYYY

Control Box (CB)





PSL Racks – L1-PSL-1-ECC-1 (ILS and PMC)



PSL Racks - L1-PSL-02 (DBB, FSS, and ISS)

D070011 Fanout Timing

L1-PSL-02
Front

Eurocard Crate ECC-1 (DBB)

Eurocard Crate ECC-2 (FSS and ISS)

DXXXXXXXX Delay Line Chassis

DXXXXXXXX 21.5MHz Amplifier Chassis

DXXXXXXXX 21.5MHz Amplifier Chassis

D1000305 AI Chassis
D1000305 AI Chassis
D0902783 AA Chassis
D0902783 AA Chassis

I/O Extension
2 ADC
2 DAC

Frequency Stabilization Servo
Intensity Stabilization Servo
Diagnostic Breadboard

L1-PSL-02
Rear

Eurocard Crate ECC-1 (DBB)

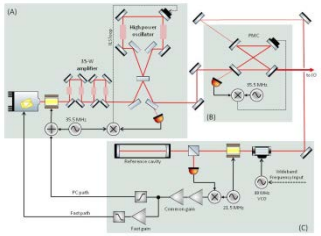
Eurocard Crate ECC-2 (FSS and ISS)

DXXXXXXXX SYYYYYYYY

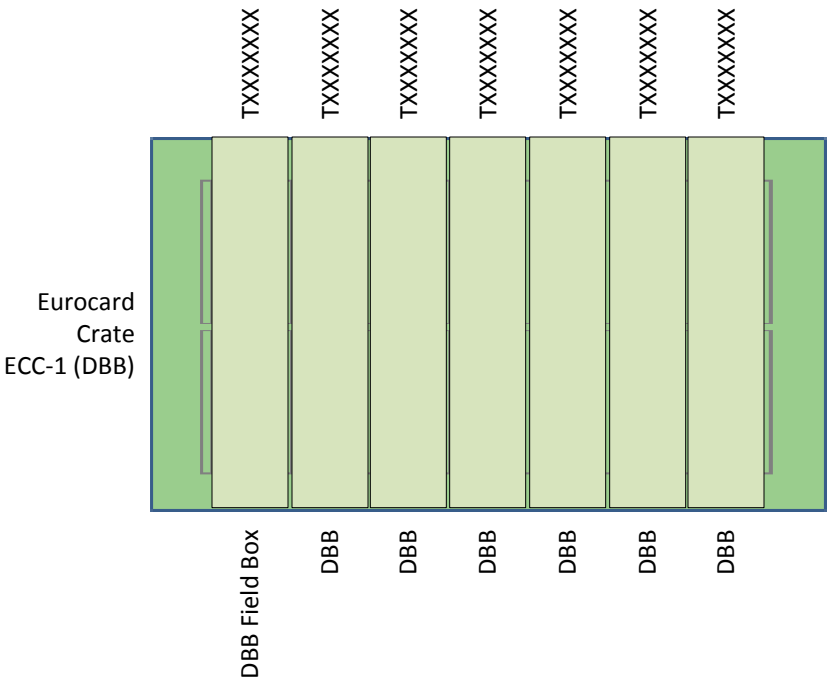
DXXXXXXXX SYYYYYYYY

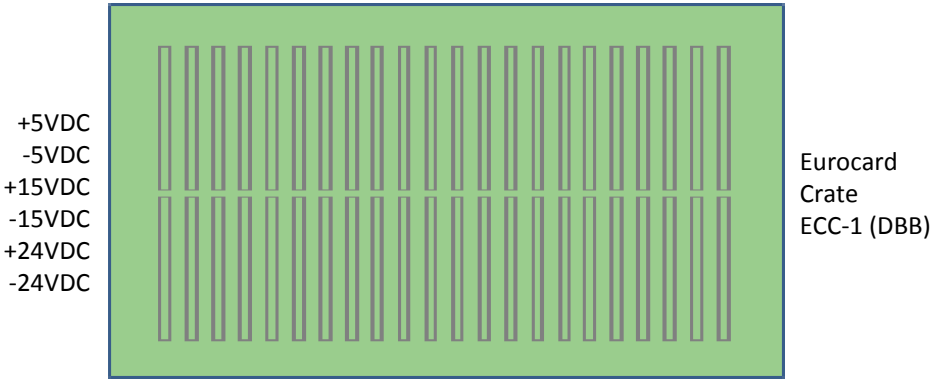
DXXXXXXXX SYYYYYYYY

D1000305 SYYYYYYYY
D1000305 SYYYYYYYY
D0902783 SYYYYYYYY
D0902783 SYYYYYYYY

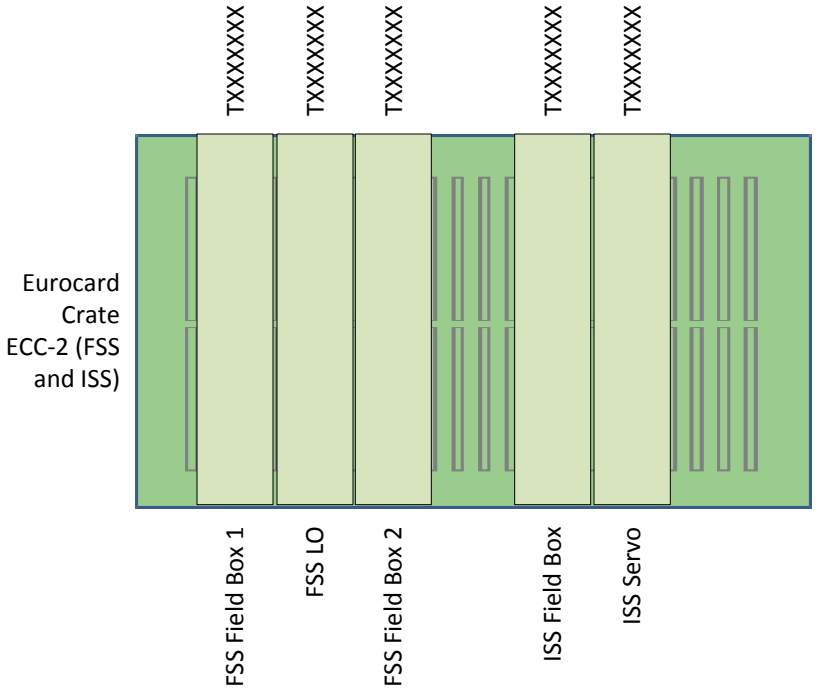


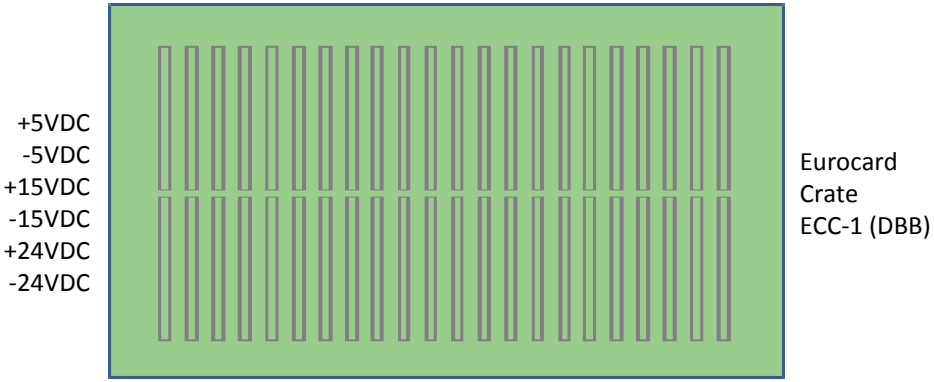
L1-PSL-02-ECC-1 (DBB)

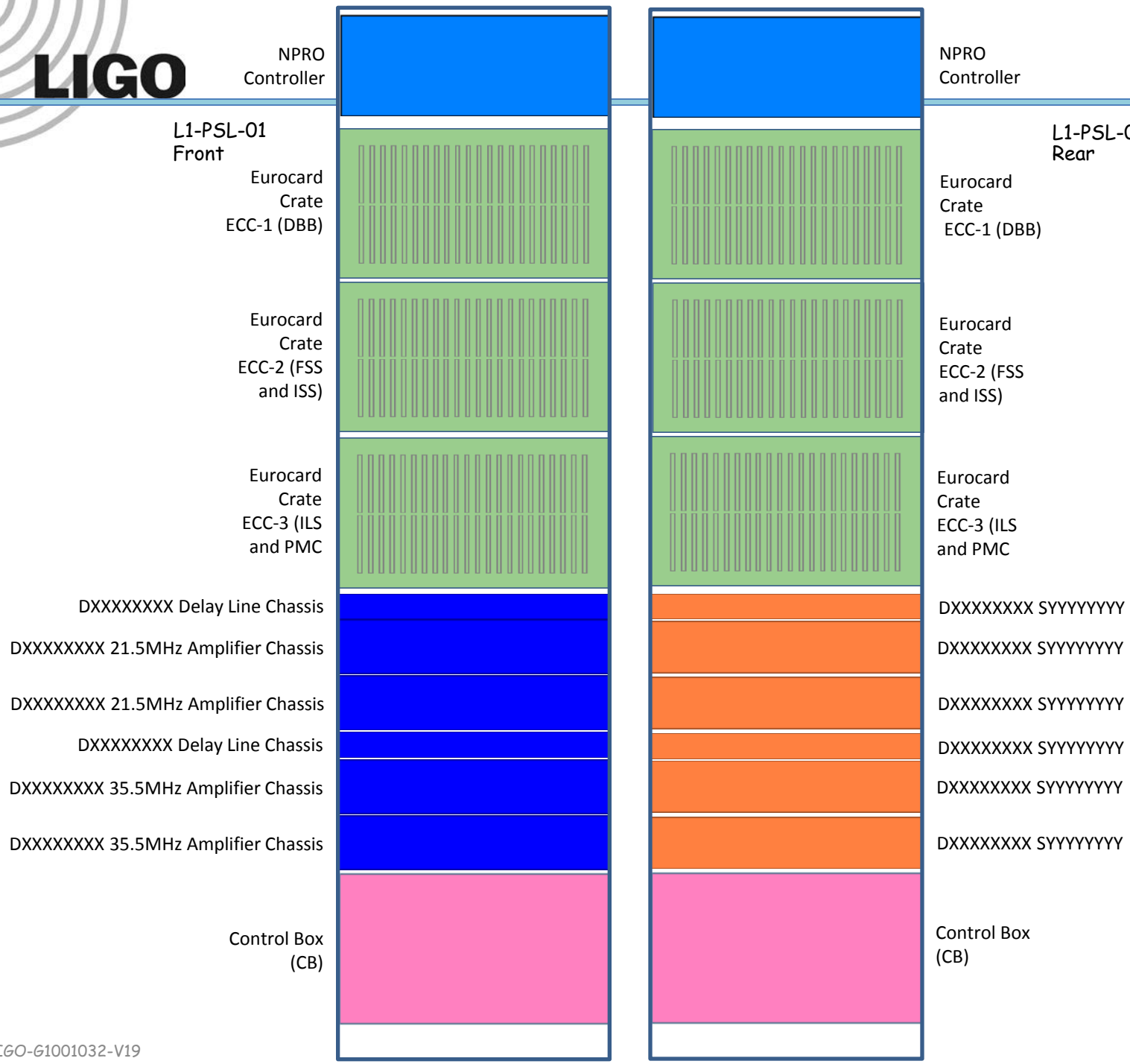


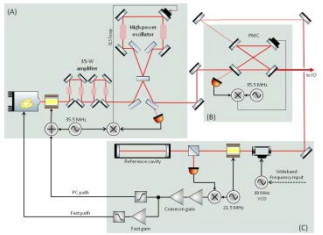


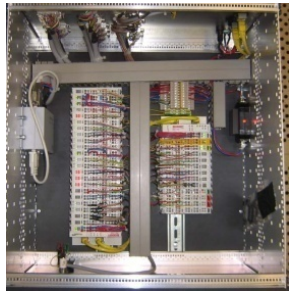
L1-PSL-02-ECC-2 (FSS and ISS)






NPRO Controller
L1-PSL-01 Front
Eurocard Crate ECC-1 (DBB)
Eurocard Crate ECC-2 (FSS and ISS)
Eurocard Crate ECC-3 (ILS and PMC
DXXXXXXXX Delay Line Chassis
DXXXXXXXX 21.5MHz Amplifier Chassis
DXXXXXXXX 21.5MHz Amplifier Chassis
DXXXXXXXX Delay Line Chassis
DXXXXXXXX 35.5MHz Amplifier Chassis
DXXXXXXXX 35.5MHz Amplifier Chassis
Control Box (CB)
NPRO Controller
L1-PSL-01 Rear
Eurocard Crate ECC-1 (DBB)
Eurocard Crate ECC-2 (FSS and ISS)
Eurocard Crate ECC-3 (ILS and PMC
DXXXXXXXX SYYYYYYYY
DXXXXXXXX SYYYYYYYY
DXXXXXXXX SYYYYYYYY
DXXXXXXXX SYYYYYYYY
DXXXXXXXX SYYYYYYYY
DXXXXXXXX SYYYYYYYY
Control Box (CB)

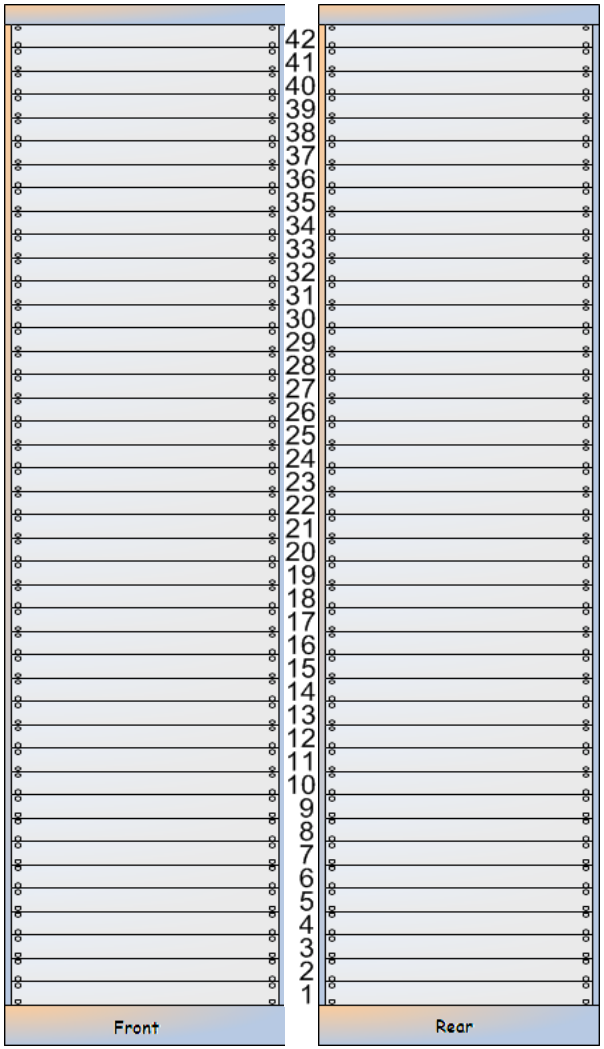




L1-LDR-C1

[<< LDR]

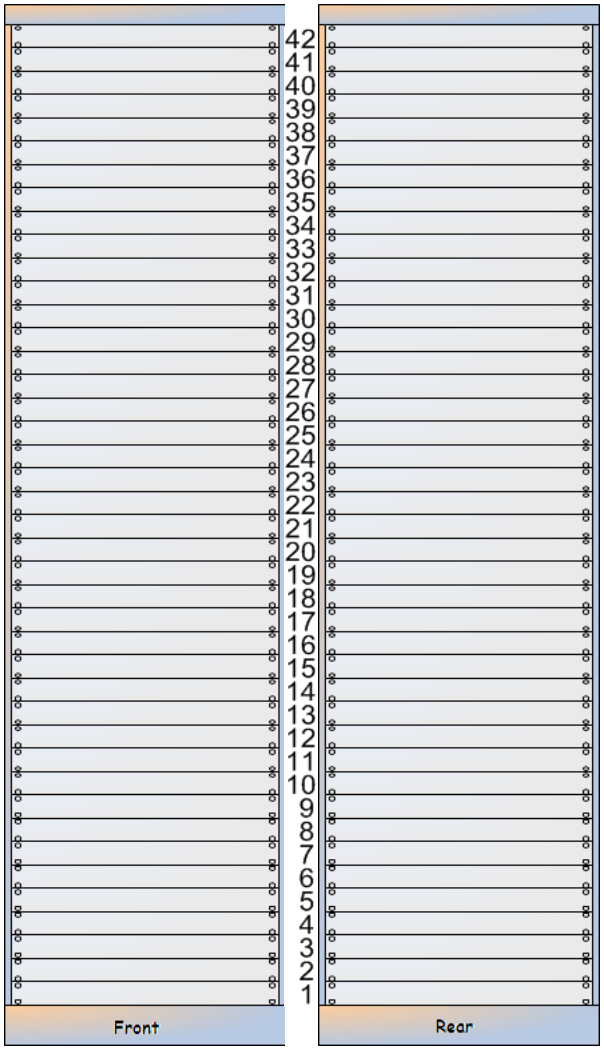
LDR Rack 1 Layout (Dxxxxxxx)



L1-LDR-C2

[<< LDR]

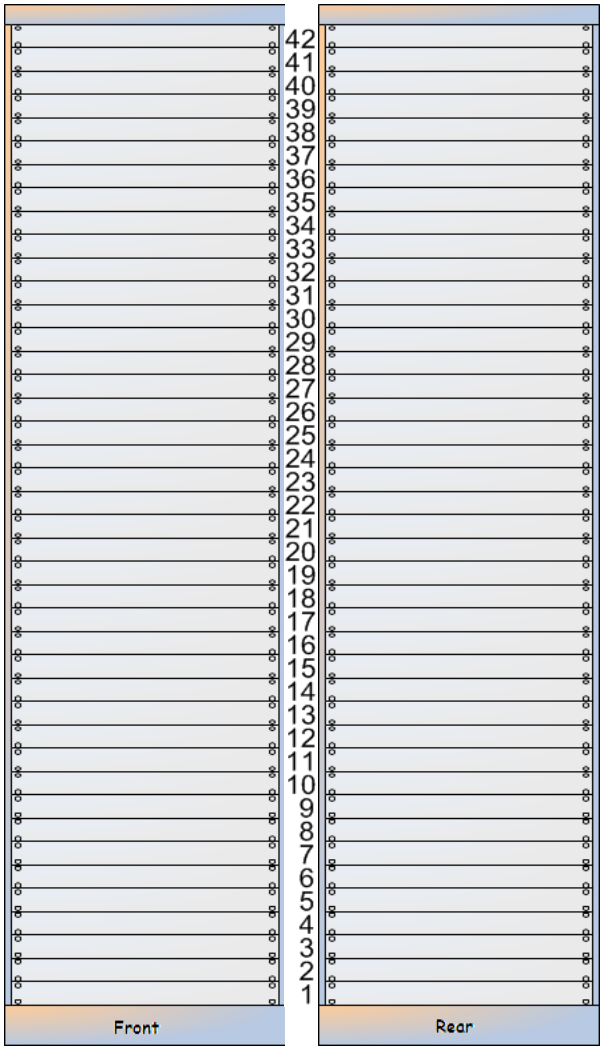
LDR Rack 2 Layout (Dxxxxxxx)



LDR Chiller

[<< LDR]

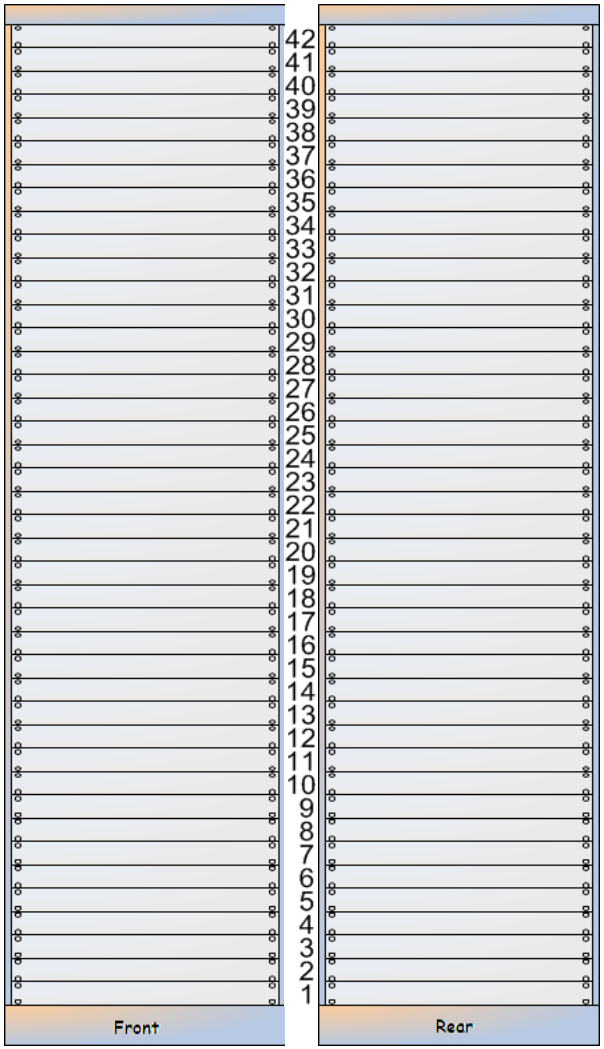
LDR Rack 3 Layout (Chillers) (Dxxxxxxx)



Spare Chiller

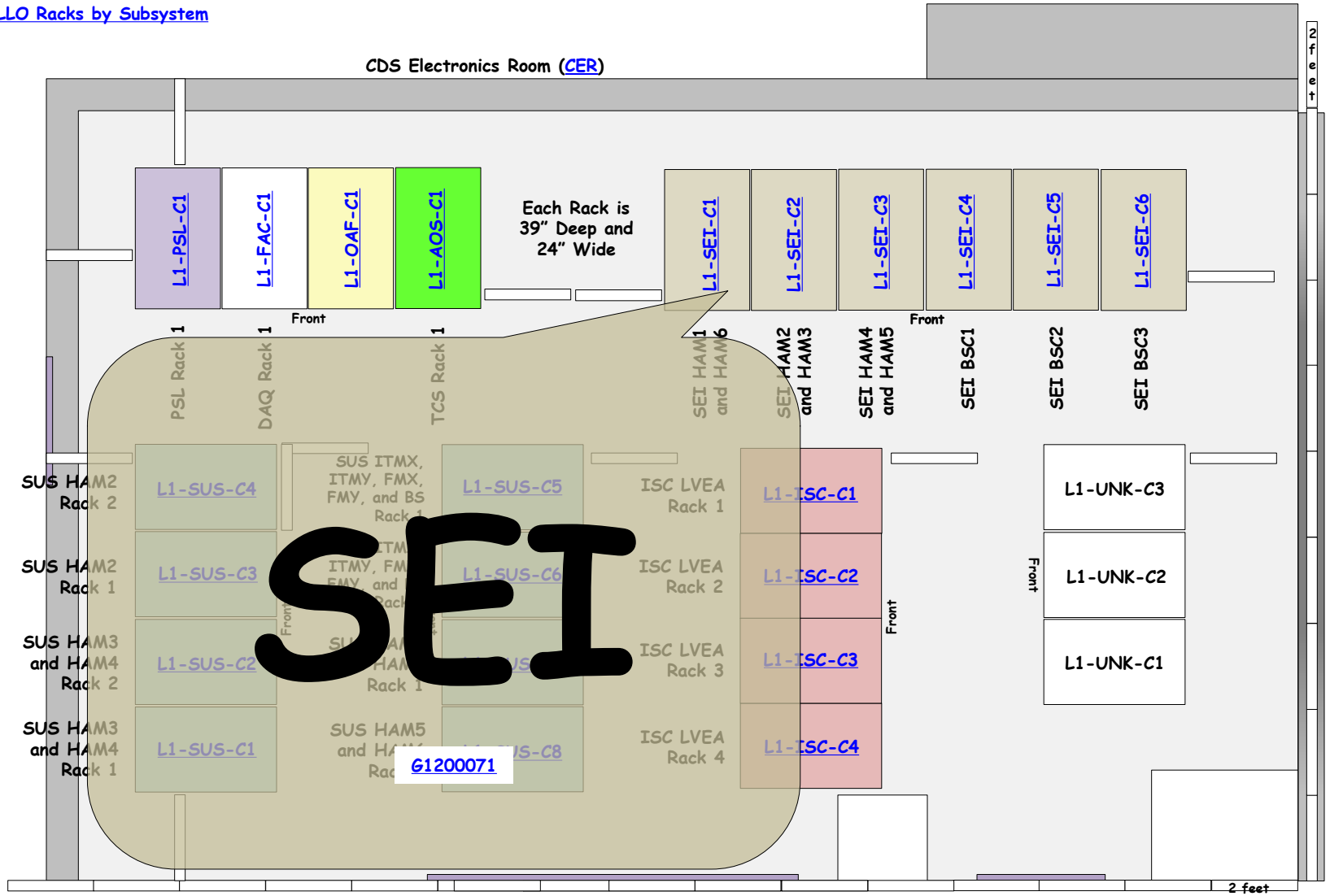
[<< LDR]

LDR Rack 4 Layout (Chillers) (Dxxxxxxx)



Subsystem: SEI (Seismic Isolation)

[<< LLO Racks by Subsystem]

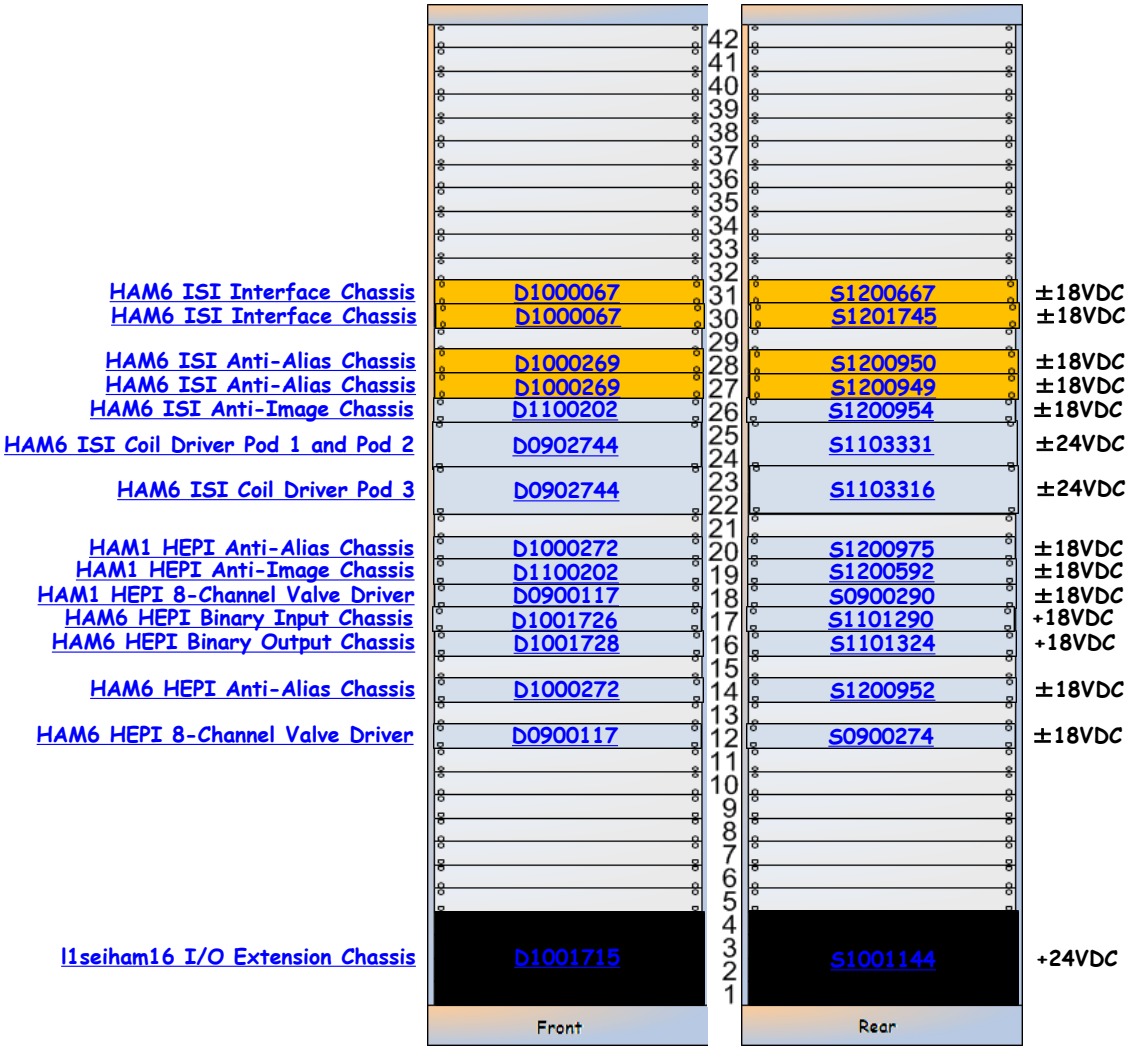


L1-SEI-C1

LIGO

<< CER

SEI HAM1 HEPI and HAM6 ISI and HEPI Rack Layout (D1201112) (S1200743)



SEI-C1 is part of D1101584

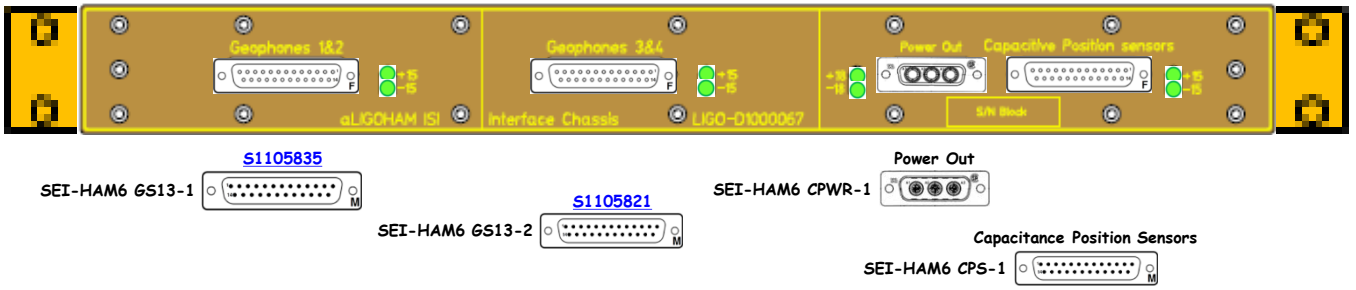
L1-SEI-C1 Details

SEI-C1 is part of D1101584

D1000067 - S1200667

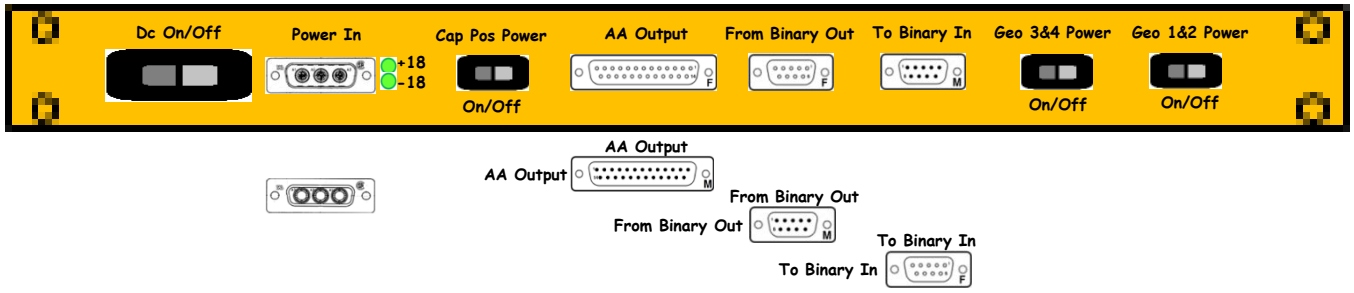
« L1-SEI-C1

HAM6 ISI Interface Chassis D1000067 S1200667 ±18VDC



D1000067

Front



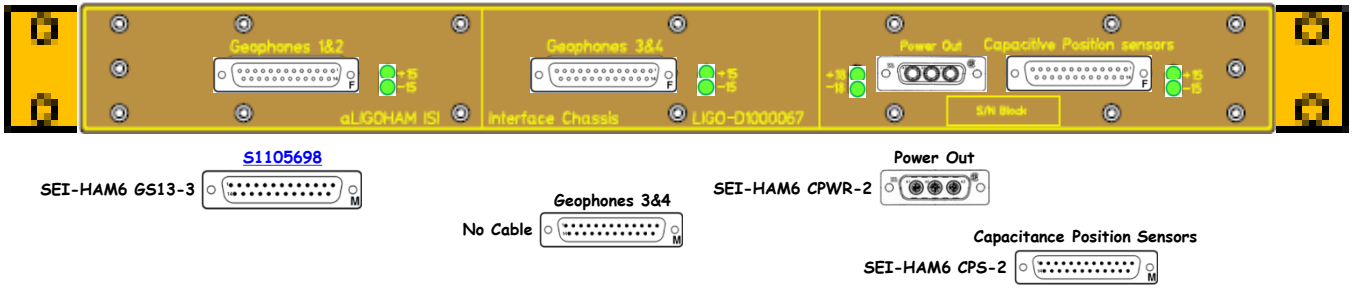
S1200667

Rear

D1000067 - S1201745

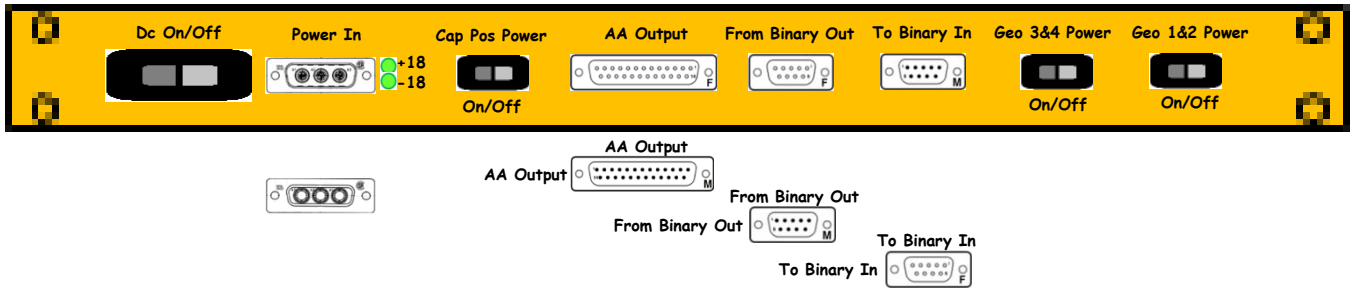
« L1-SEI-C1

HAM6 ISI Interface Chassis | D1000067 | S1201745 | ±18VDC



D1000067

Front



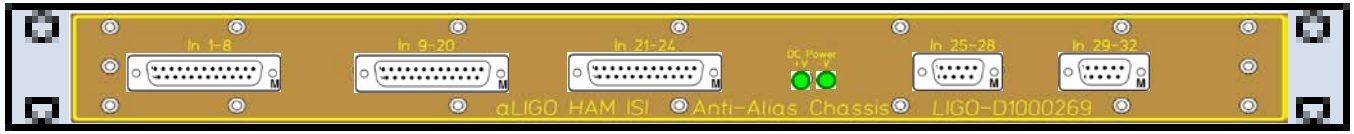
S1201745

Rear

D1000269 - S1200950

« L1-SEI-C1

HAM6 ISI Anti-Alias Chassis D1000269 S1200950 ±18VDC



D1000269

Front

S1105698

SEI-HAM6 COIL_ADC-1

IN 9-20

SEI-HAM6 ISI_ADC-1

IN 21-24

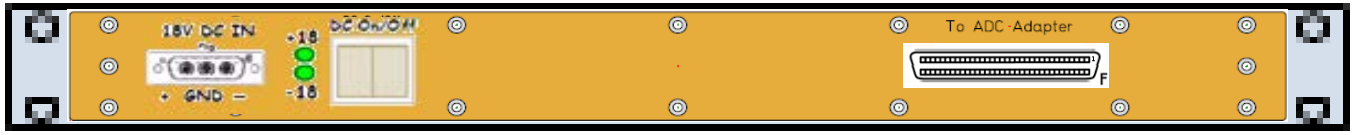
SEI-HAM6 COIL_ADC-2

IN 25-28

SEI-BSC1 STS2_C4-C1

IN 29-32

SEI-BSC2 STS2_C4-C1



S1200950

Rear

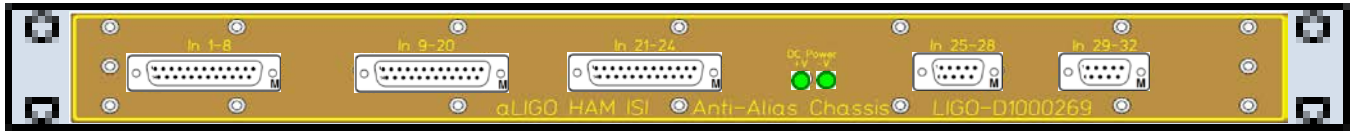
To ADC Adapter

To ADC Adapter

D1000269 - S1200949

[<< L1-SEI-C1]

HAM6 ISI Anti-Alias Chassis D1000269 S1200949 ±18VDC



D1000269

Front

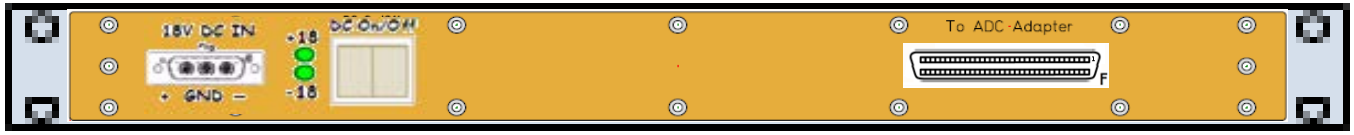
IN 1-8
No Cable

IN 9-20
SEI-HAM6 ISI_ADC-2

IN 21-24
No Cable

IN 25-28
SEI-BSC3 STS2_C6-C1

IN 29-32
No Cable



S1200949

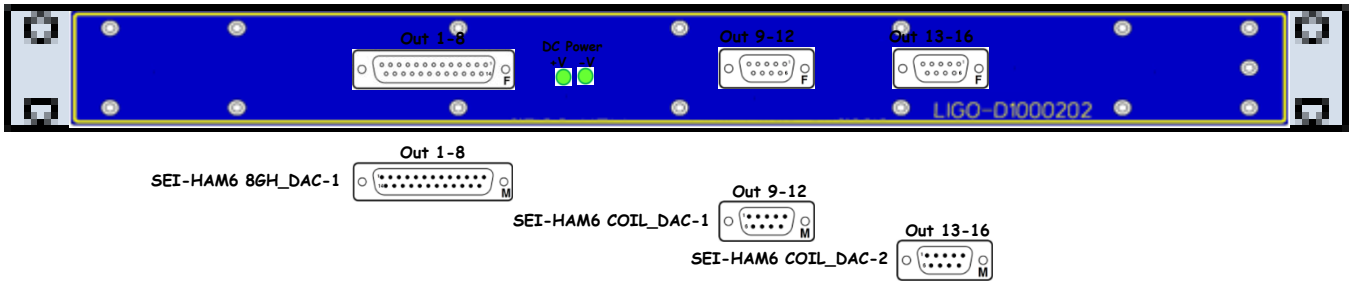
Rear

To ADC Adapter
To ADC Adapter

D1100202 - S1200954

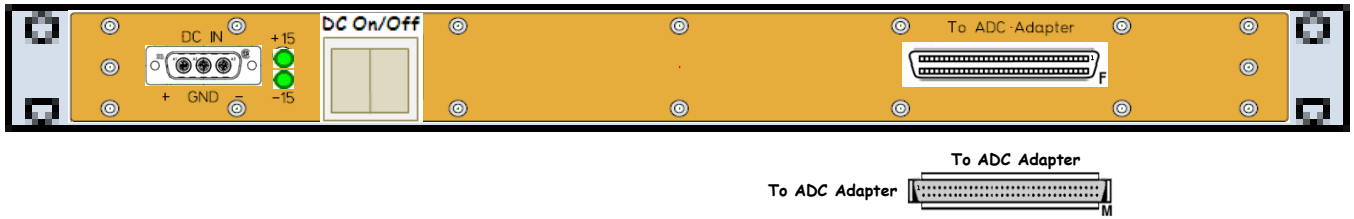
<< L1-SEI-C1

HAM6 ISI Anti-Image Chassis | D1100202 | S1200954 | ±18VDC



D1100202

Front



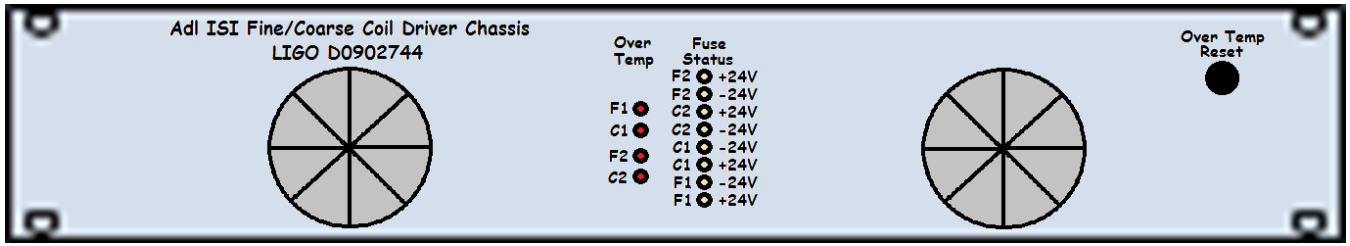
S1200954

Rear

D0902744 - S1103331

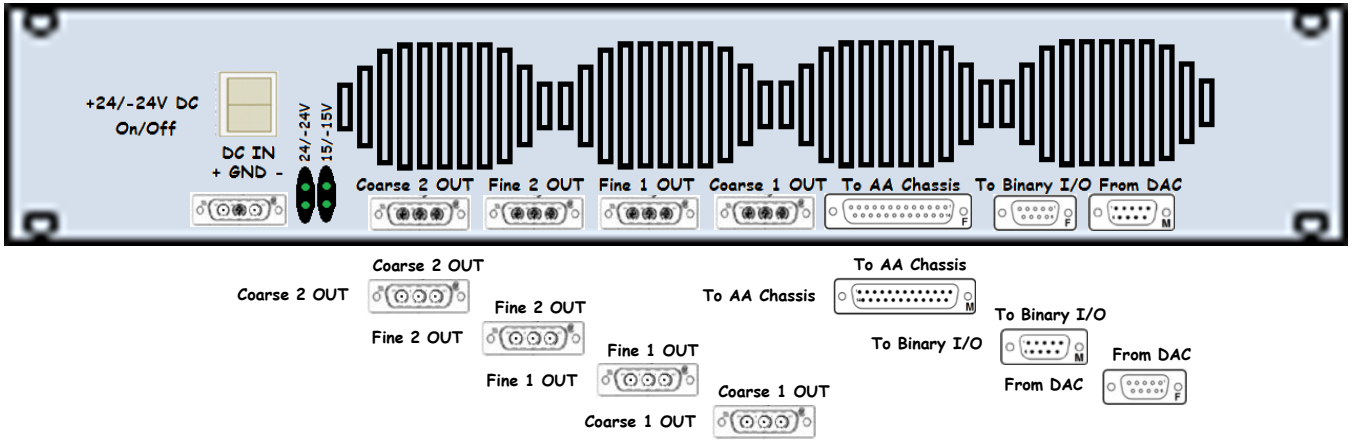
[<< L1-SEI-C1]

HAM6 ISI Coil Driver Pod 1 and Pod 2 | D0902744 | S1103331 | ±24VDC



D0902744

Front



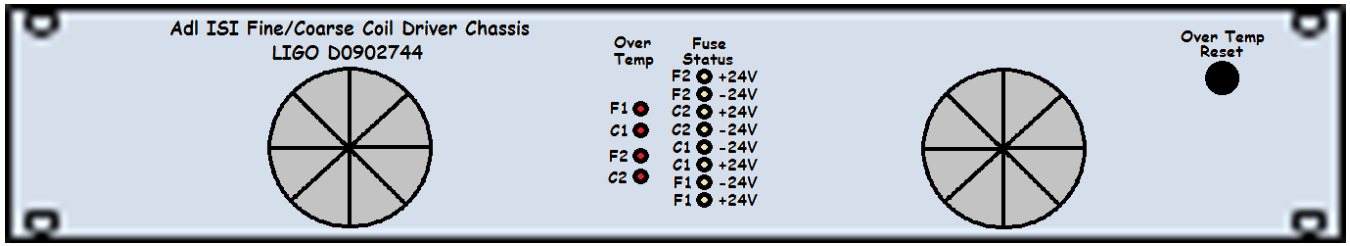
S1103331

Rear

D0902744 - S1103316

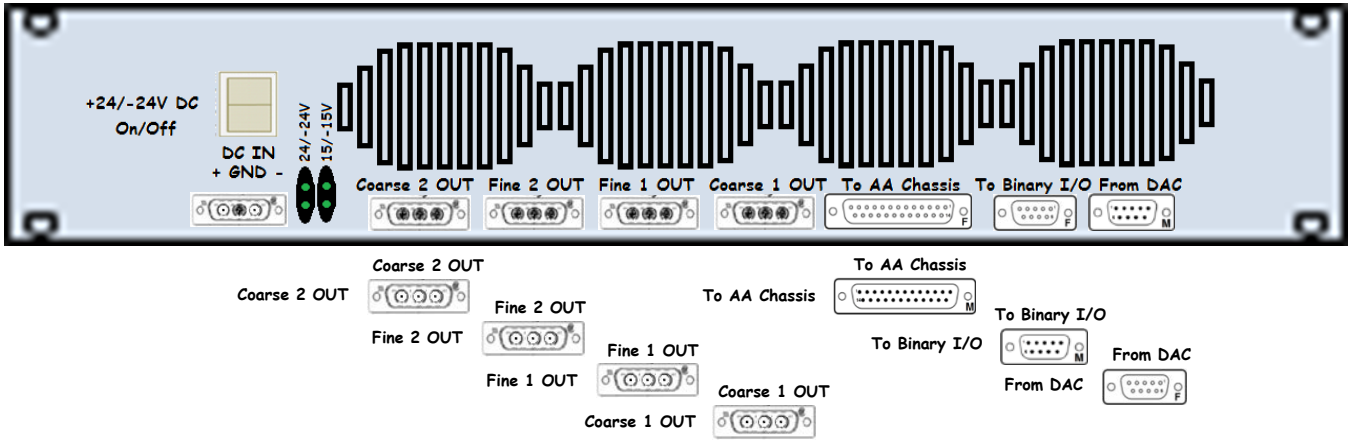
[<< L1-SEI-C1]

HAM6 ISI Coil Driver Pod 1 and Pod 2 | D0902744 | S1103316 | ±24VDC



D0902744

Front



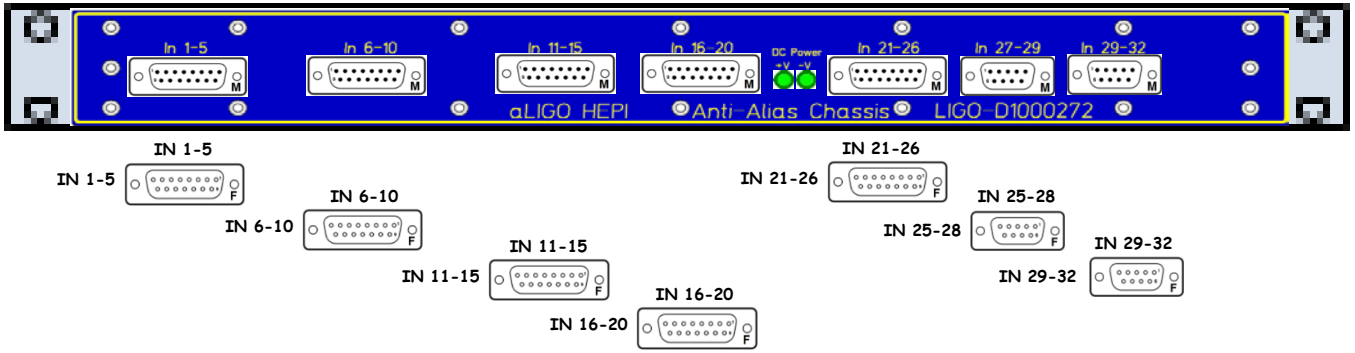
S1103316

Rear

D1000272 - S1200975

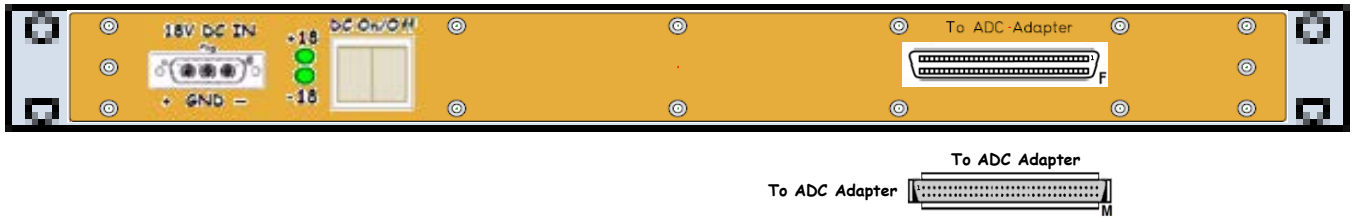
« L1-SEI-C1

HAM1 HEPI Anti-Alias Chassis | D1000272 | S1200975 | ±18VDC



D1000272

Front

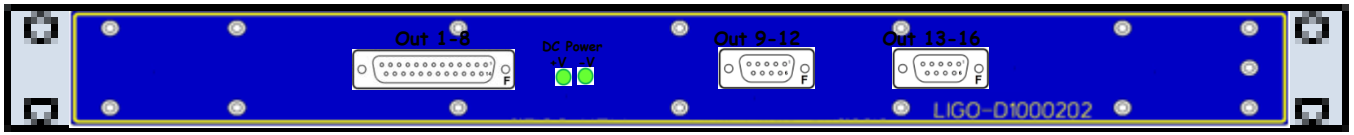


S1200975

Rear

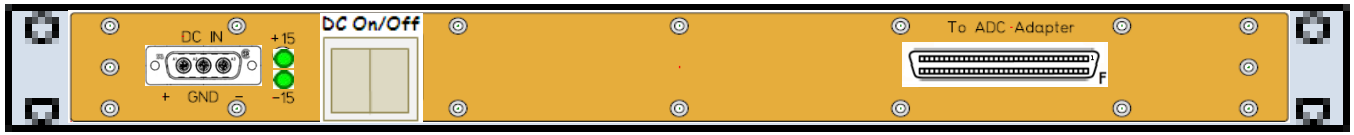
D1100202 - S1200592

HAM1 HEPI Anti-Image Chassis | D1100202 | S1200592 | ±18VDC



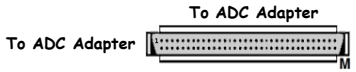
D1100202

Front



S1200592

Rear

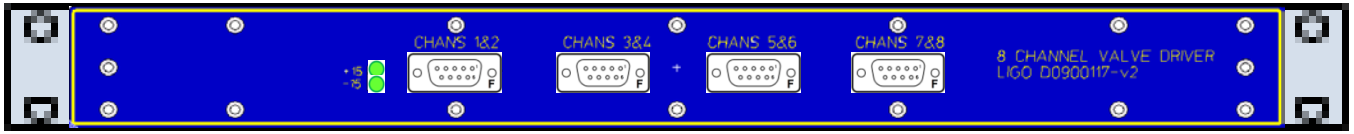


D0900117 - S0900290

LIGO
<< L1-SEI-C1

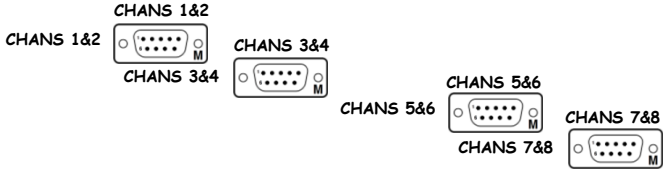
HAM1 HEPI 8-Channel Valve Driver | D0900117 | S0900290 | ±18VDC

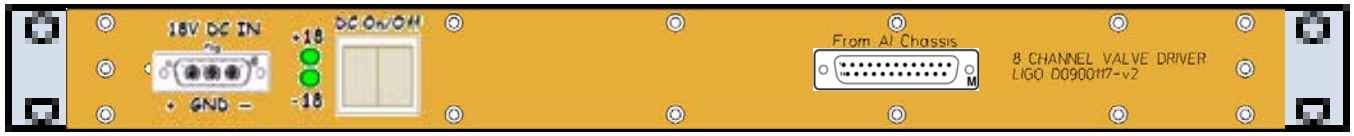
HAM1



D0900117

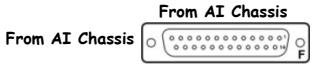
Front





S0900274

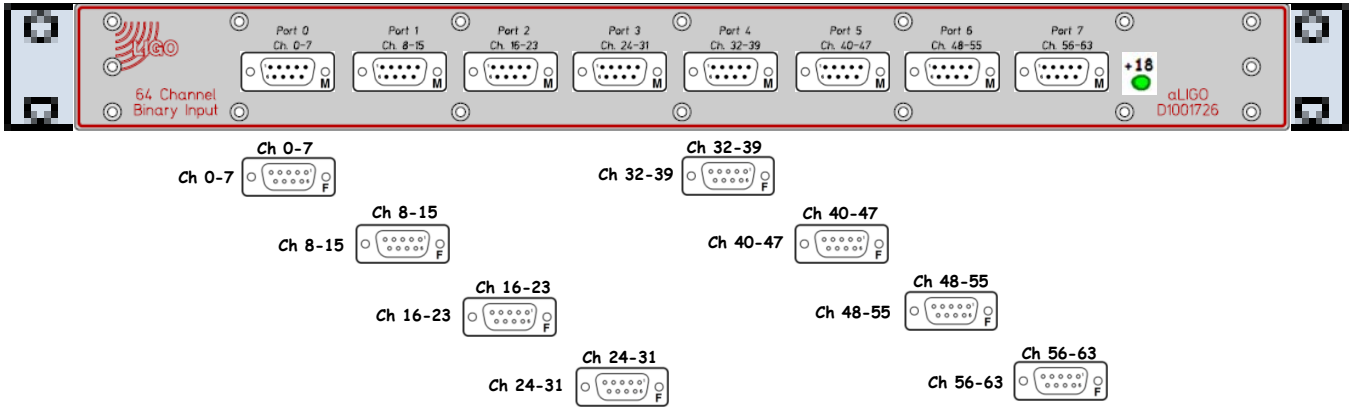
Rear



D0900117 is part of D0901338

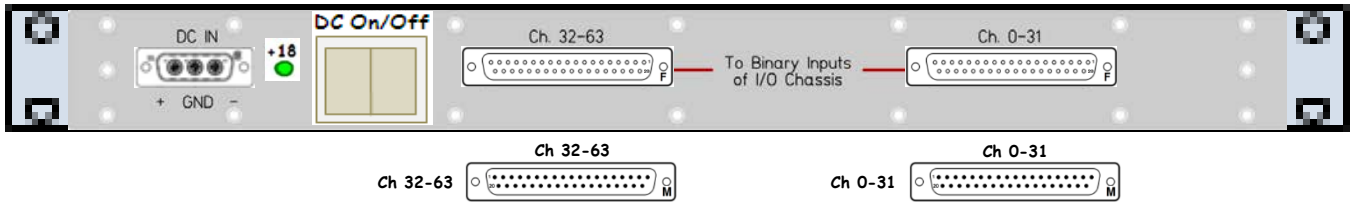
D1001726 - S1101290

HAM6 HEPI Binary Input Chassis | D1001726 | S1101290 | +18VDC



D1001726

Front



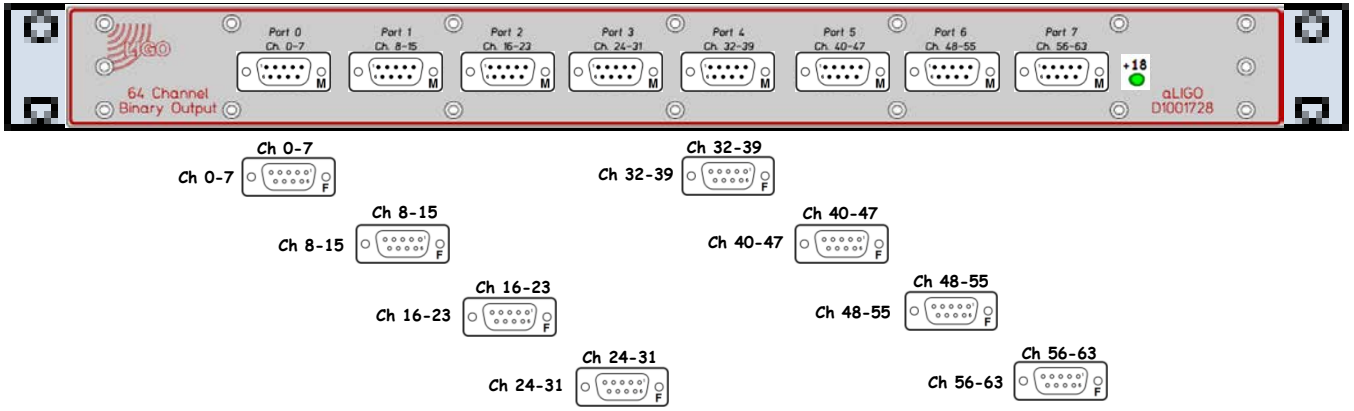
S1101290

Rear

D1001728 - S1101324

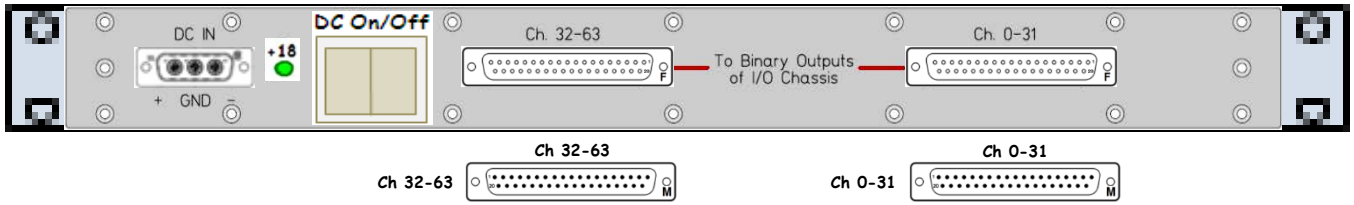
[<< L1-SEI-C1]

HAM6 HEPI Binary Output Chassis | D1001728 | S1101324 | +18VDC



D1001728

Front



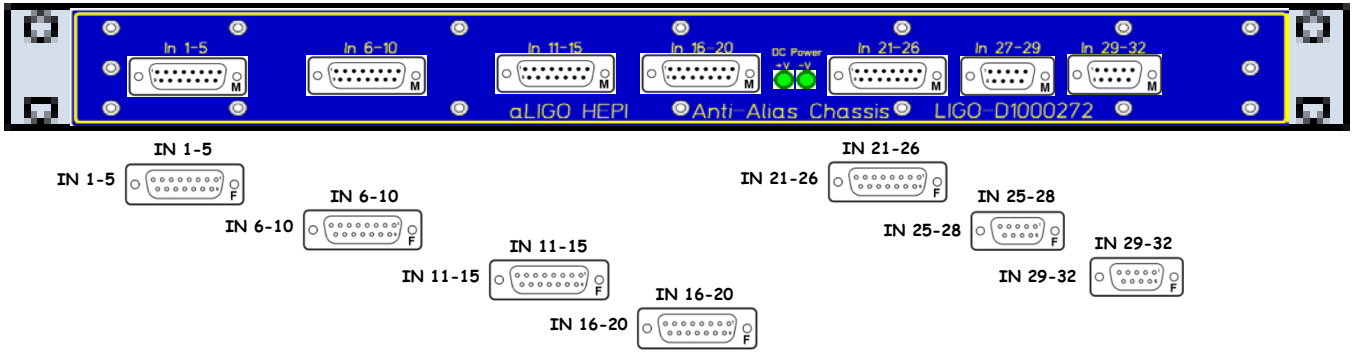
S1101324

Rear

D1000272 - S1200952

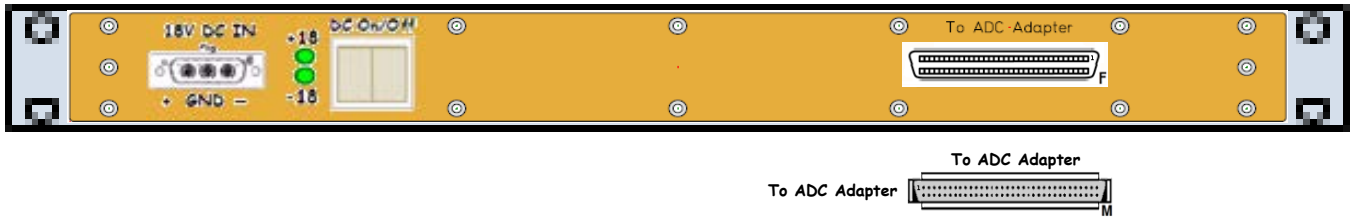
<< L1-SEI-C1

HAM6 HEPI Anti-Alias Chassis | D1000272 | S1200952 | ±18VDC



D1000272

Front



S1200952

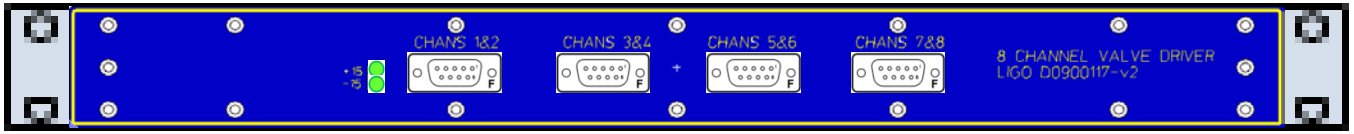
Rear

D0900117 - S0900274

LIGO
<< L1-SEI-C1

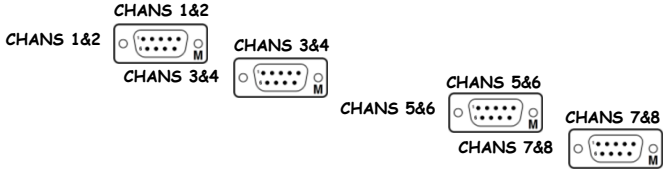
HAM6 HEPI 8-Channel Valve Driver | D0900117 | S0900274 | ±18VDC

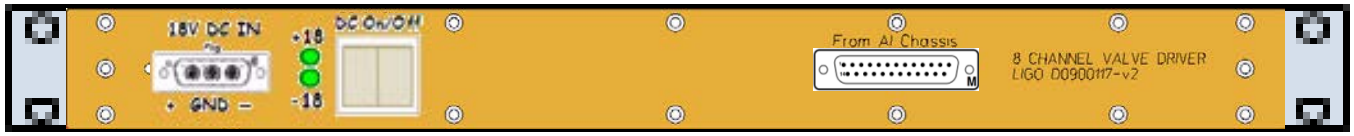
HAM6



D0900117

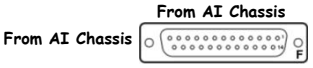
Front





S0900274

Rear



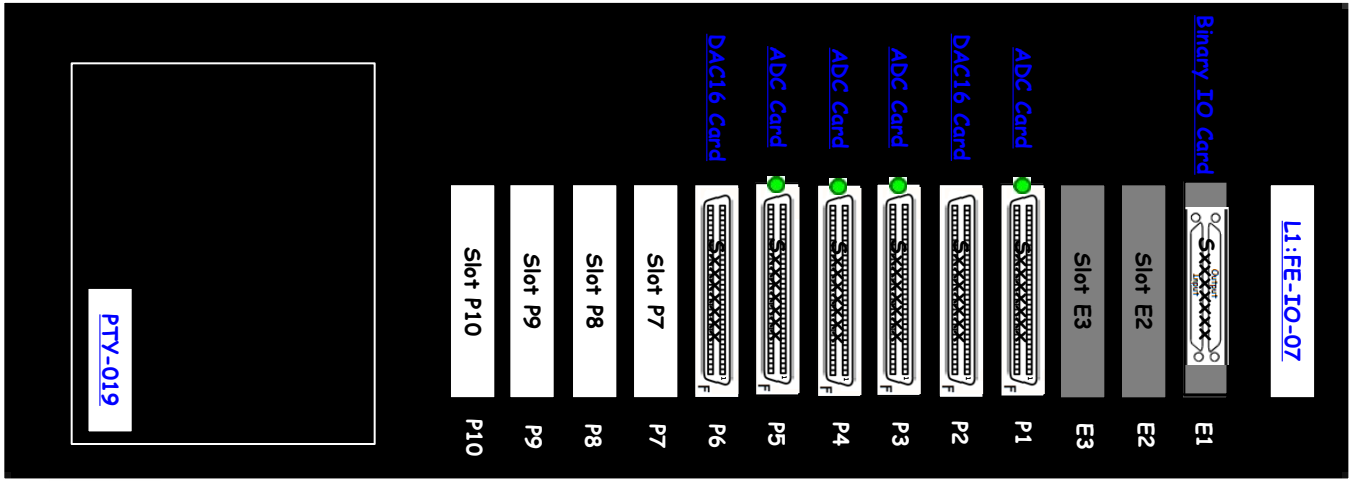
D0900117 is part of D0901338

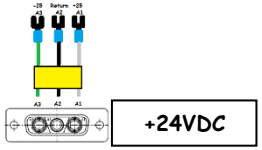
l1seiham16 - D1001715 - S1001144

« L1-SEI-C1

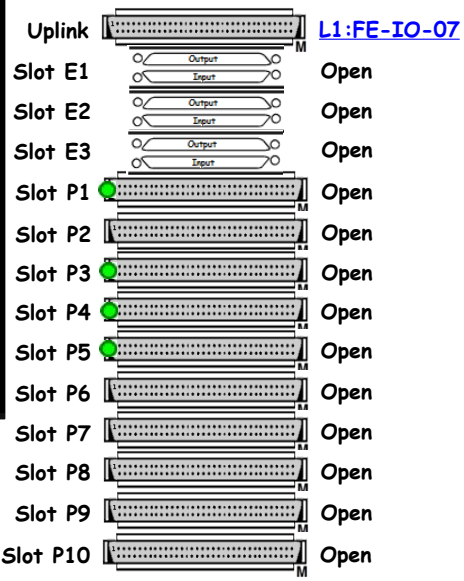
l1seiham16 I/O Extension Chassis | D1001715 | S1001144 | +24VDC

D1001715
Front





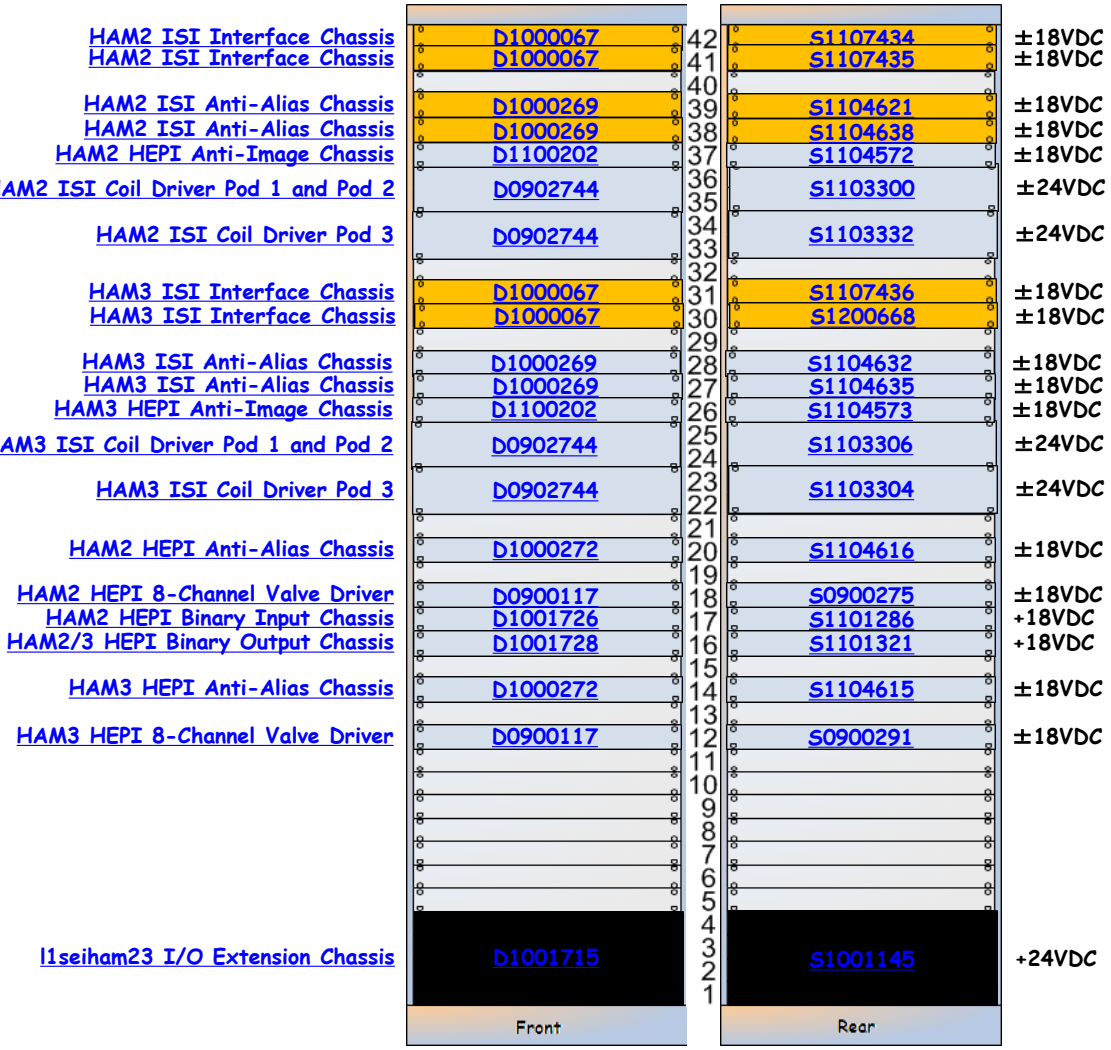
S1001144
Rear



L1-SEI-C2

[<< CER]

SEI HAM2 ISI and HEPI and HAM3 ISI and HEPI Rack Layout (D1201113) (S1200744)



SEI-C2 is part of D1101576

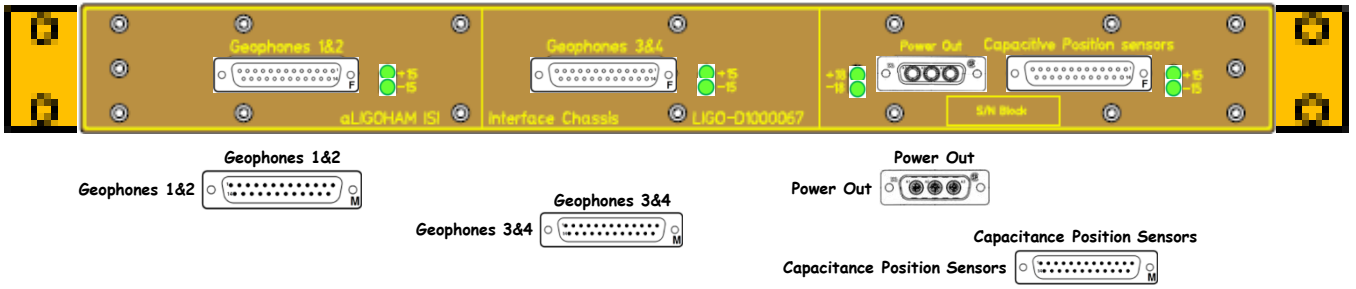
L1-SEI-C2 Details

SEI-C2 is part of D1101576

D1000067 - S1107434

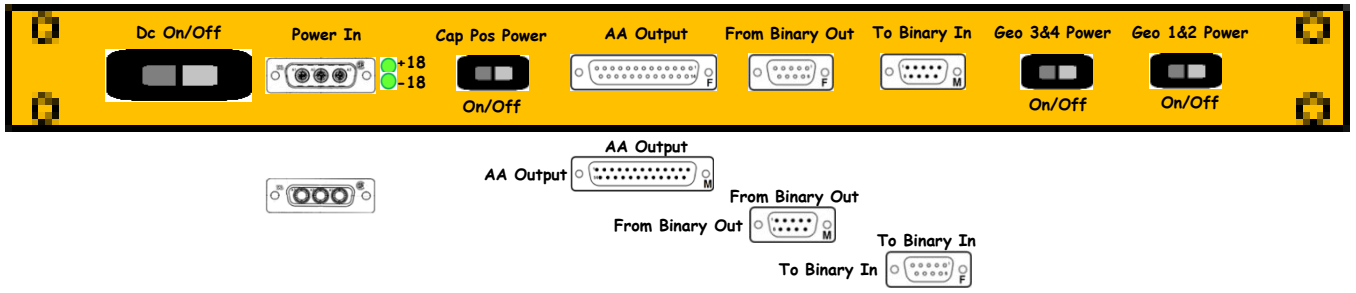
[<< L1-SEI-C2]

HAM2 ISI Interface Chassis | D1000067 | S1107434 | ±18VDC



D1000067

Front



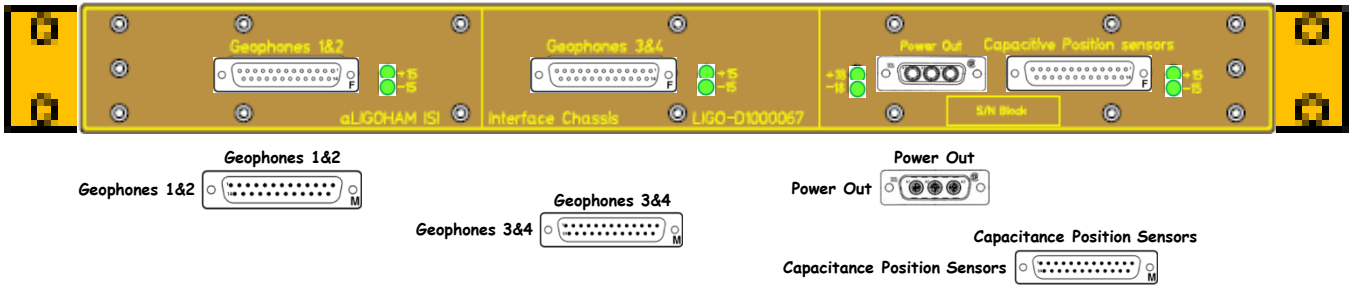
S1107434

Rear

D1000067 - S1107435

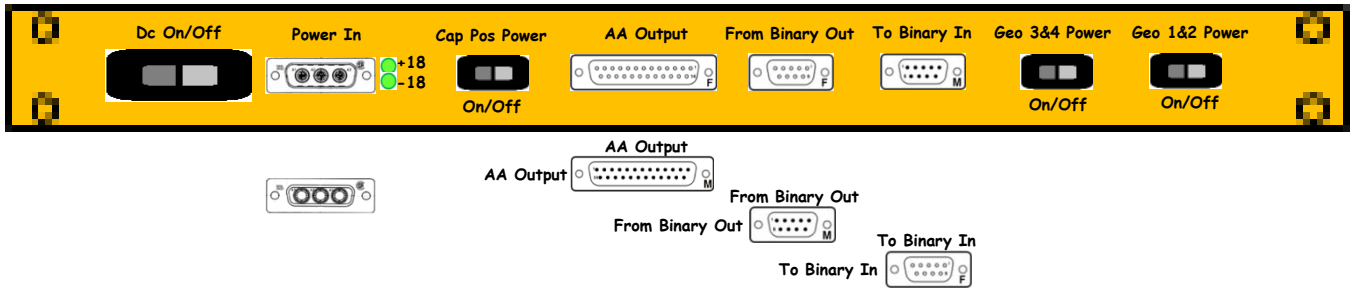
[<< L1-SEI-C2]

HAM2 ISI Interface Chassis | D1000067 | S1107435 | ±18VDC



D1000067

Front



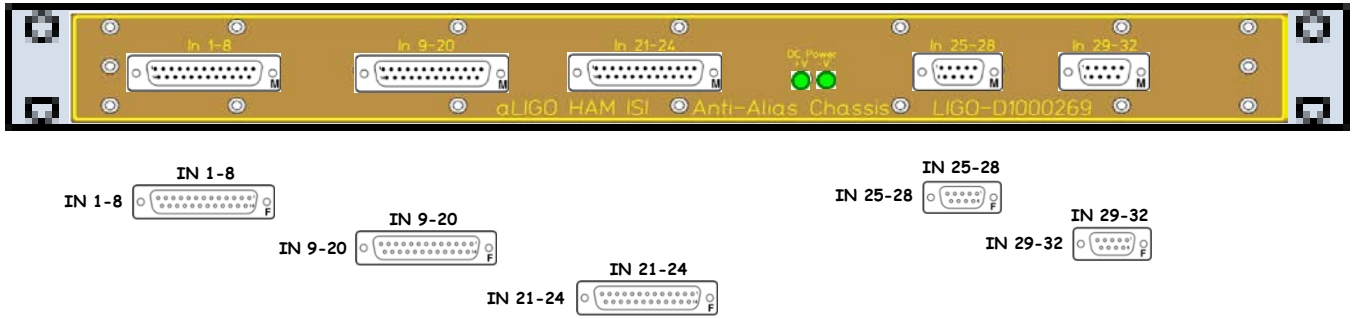
S1107435

Rear

D1000269 - S1104621

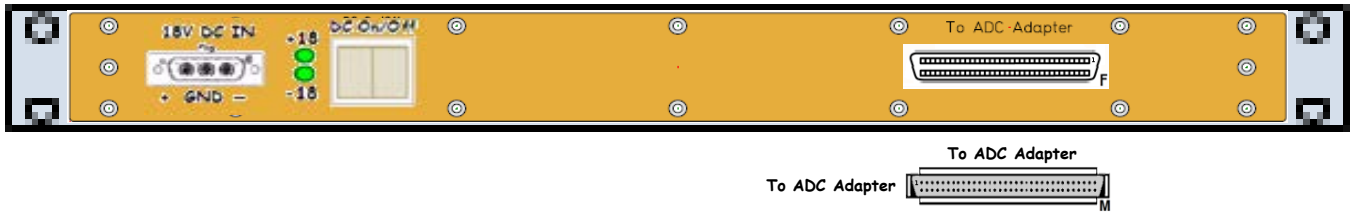
[<< L1-SEI-C2]

HAM2 ISI Anti-Alias Chassis | D1000269 | S1104621 | ±18VDC



[D1000269]

Front



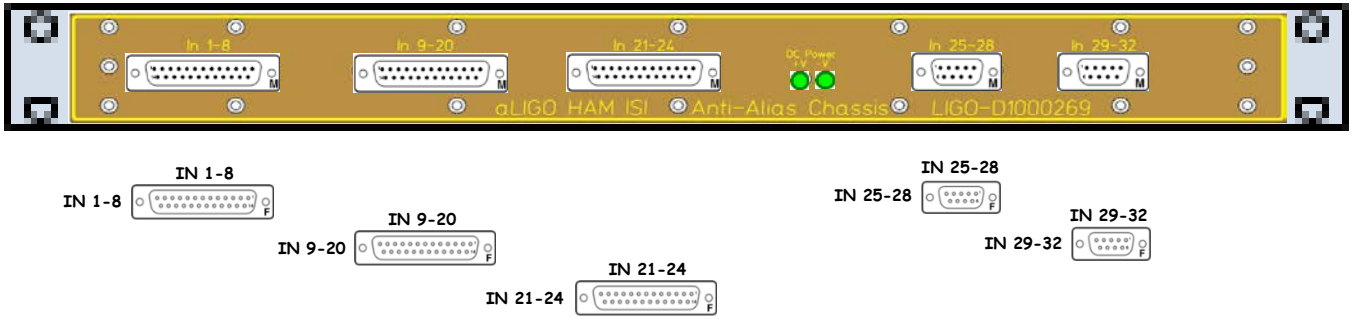
[S1104621]

Rear

D1000269 - S1104638

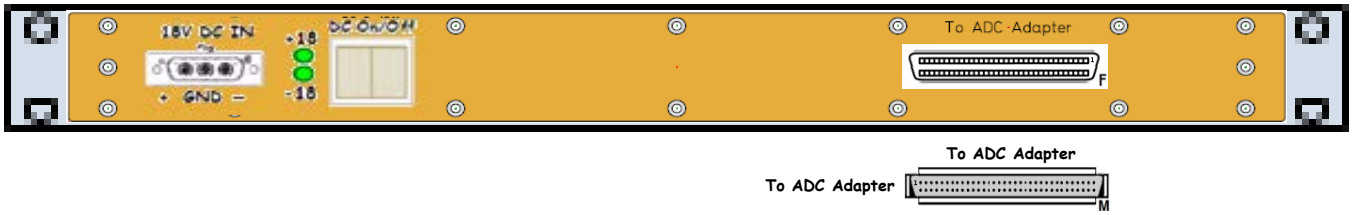
[<< L1-SEI-C2]

HAM2 ISI Anti-Alias Chassis | D1000269 | S1104638 | ±18VDC



[D1000269]

Front

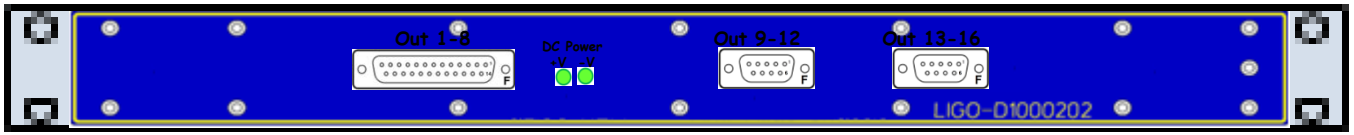


[S1104638]

Rear

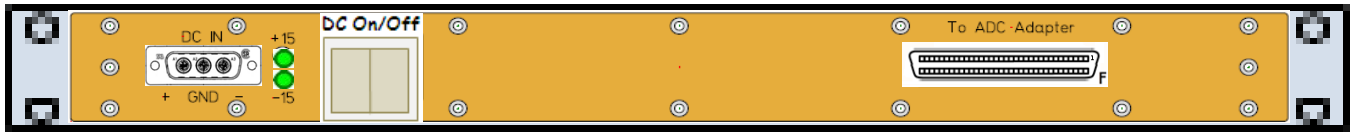
D1100202 - S1104572

HAM2 HEPI Anti-Image Chassis | D1100202 | S1104572 | ±18VDC



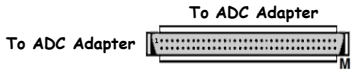
D1100202

Front



S1104572

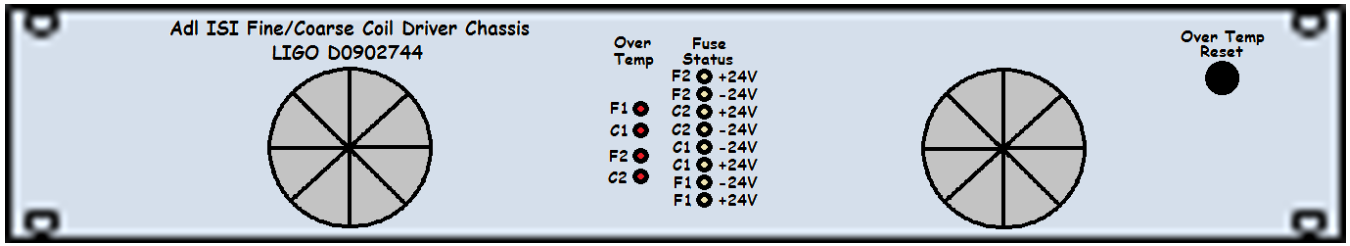
Rear



D0902744 - S1103300

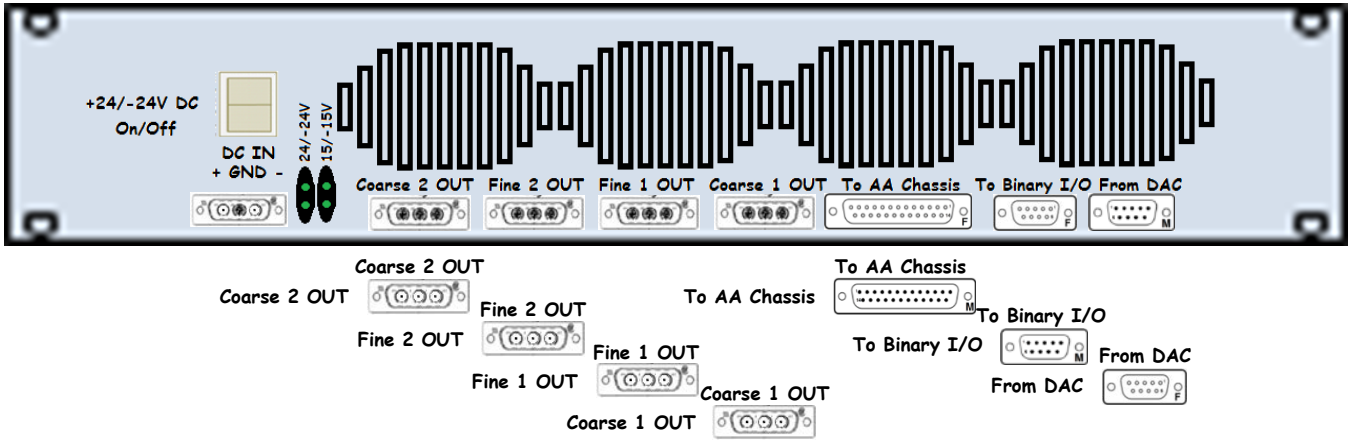
« L1-SEI-C2

HAM2 ISI Coil Driver Pod 1 and Pod 2 | D0902744 | S1103300 | ±24VDC



D0902744

Front



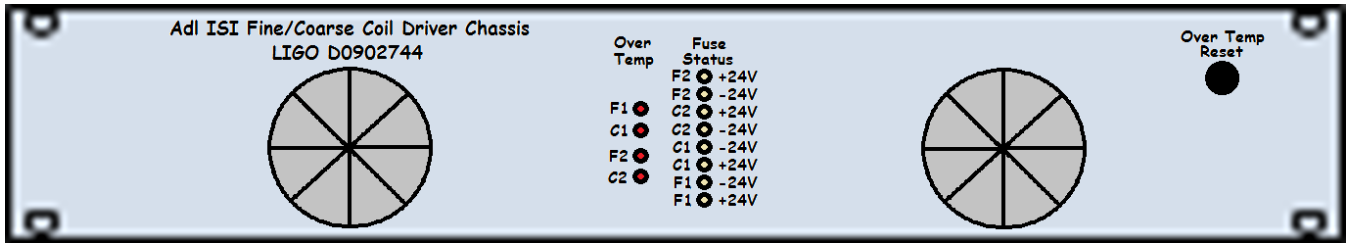
S1103300

Rear

D0902744 - S1103332

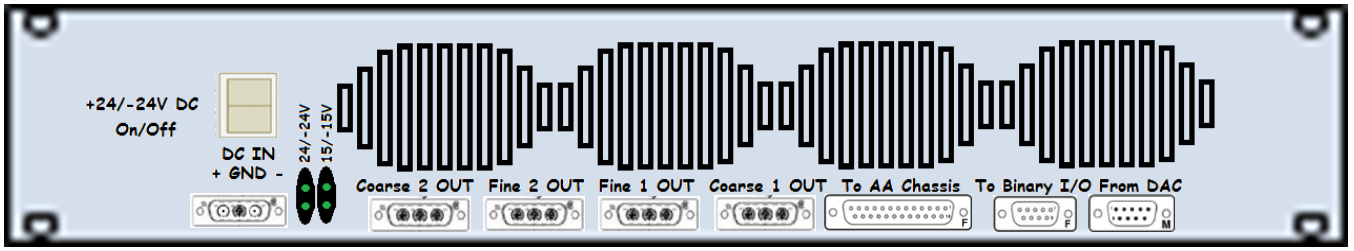
« L1-SEI-C2

HAM2 ISI Coil Driver Pod 3 | D0902744 | S1103332 | ±24VDC



D0902744

Front



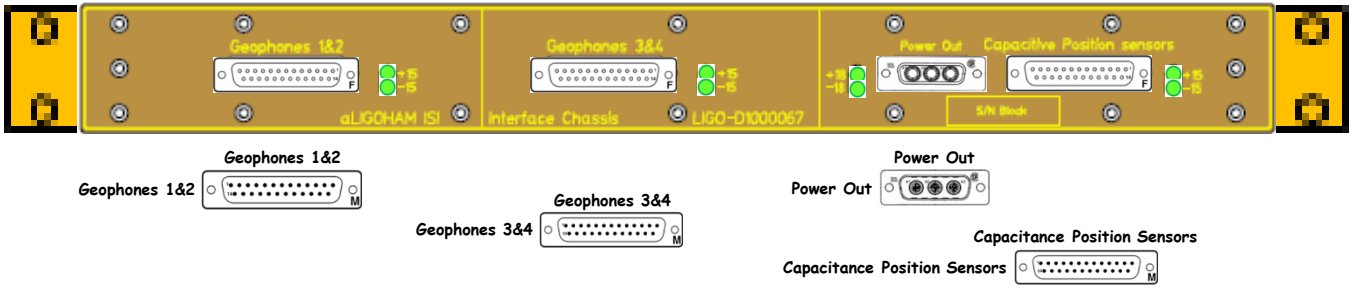
S1103332

Rear

D1000067 - S1107436

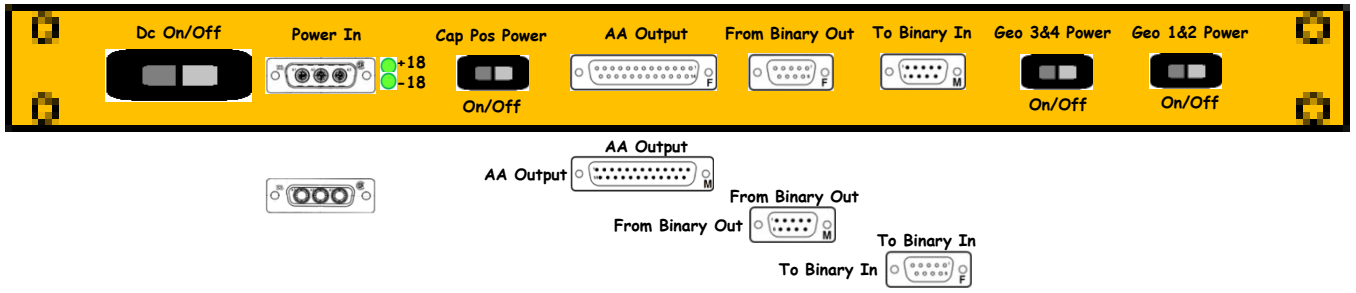
[<< L1-SEI-C2]

HAM3 ISI Interface Chassis | D1000067 | S1107436 | ±18VDC



D1000067

Front



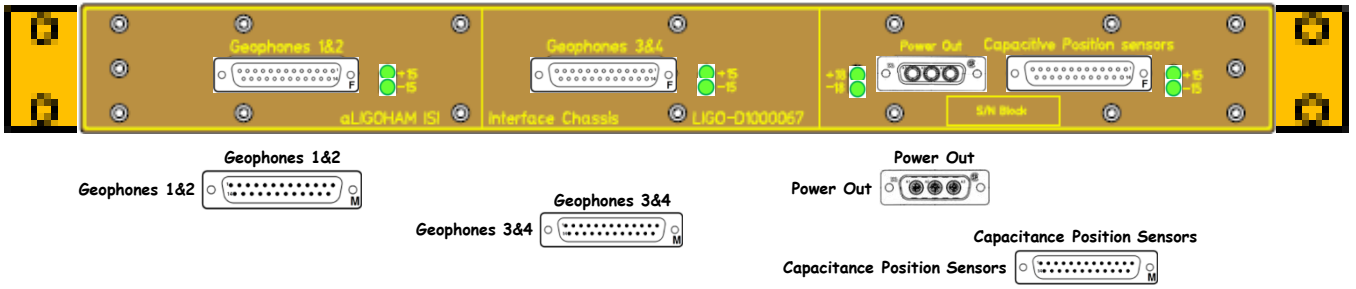
S1107436

Rear

D1000067 - S1200668

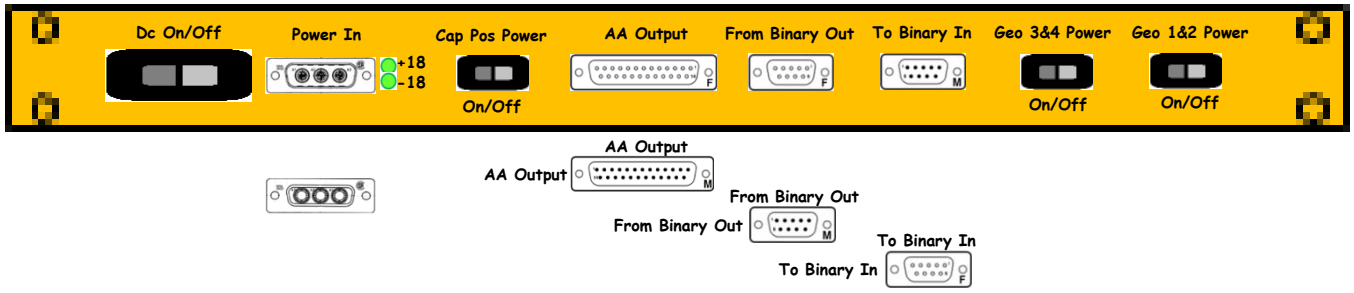
[<< L1-SEI-C2]

HAM3 ISI Interface Chassis | D1000067 | S1200668 | ±18VDC



D1000067

Front



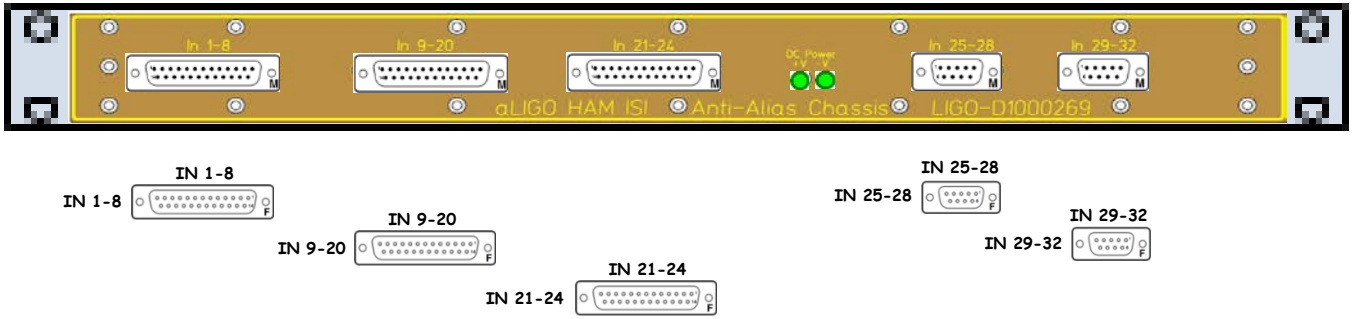
S1200668

Rear

D1000269 - S1104632

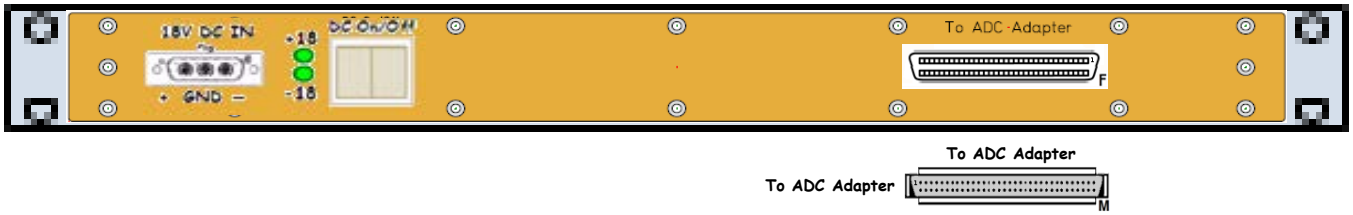
[<< L1-SEI-C2]

HAM3 ISI Anti-Alias Chassis | D1000269 | S1104632 | ±18VDC



[D1000269]

Front



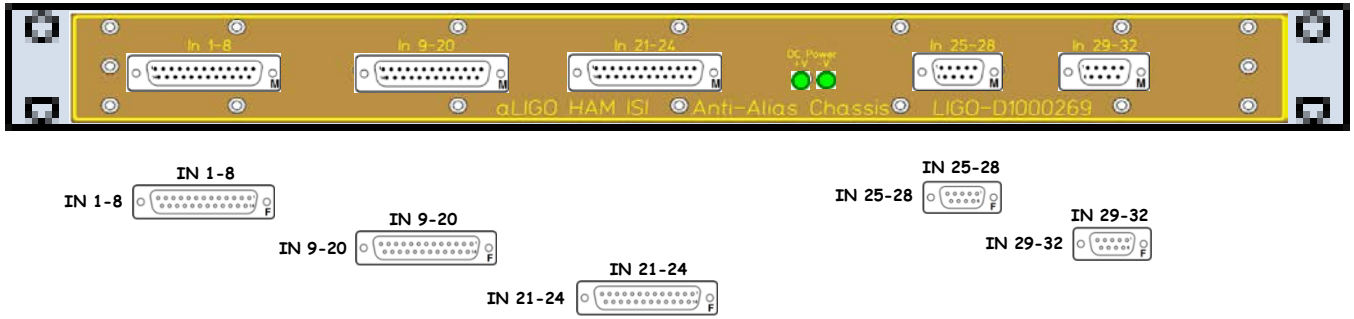
[S1104632]

Rear

D1000269 - S1104635

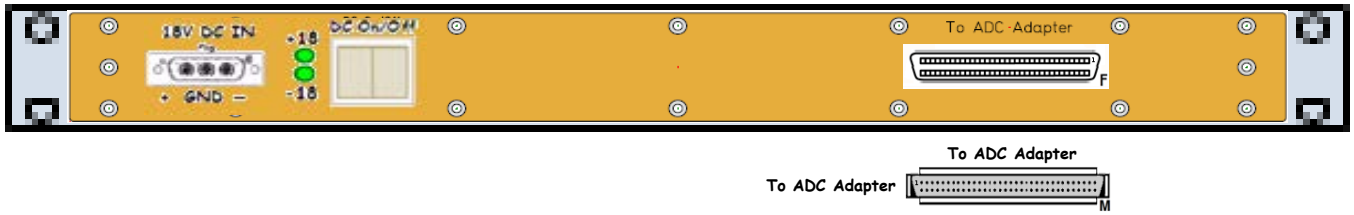
[<< L1-SEI-C2]

HAM3 ISI Anti-Alias Chassis | D1000269 | S1104635 | ±18VDC



[D1000269]

Front



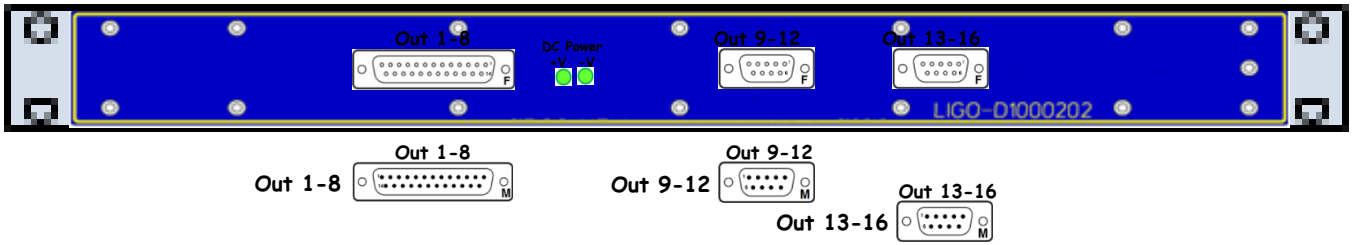
[S1104635]

Rear

D1100202 - S1104573

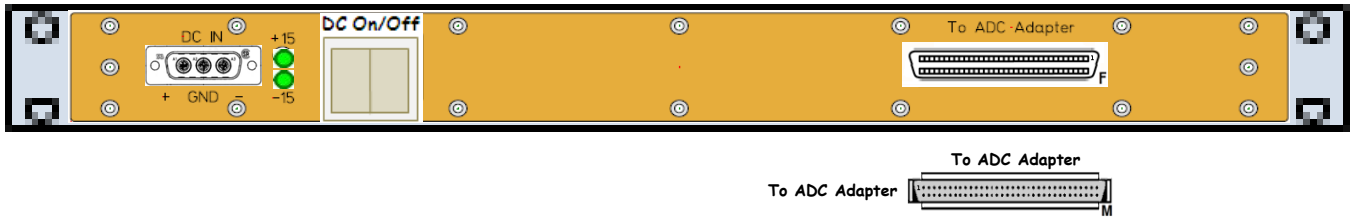
LIGO
<< L1-SEI-C2

HAM3 HEPI Anti-Image Chassis | D1100202 | S1104573 | ±18VDC



D1100202

Front



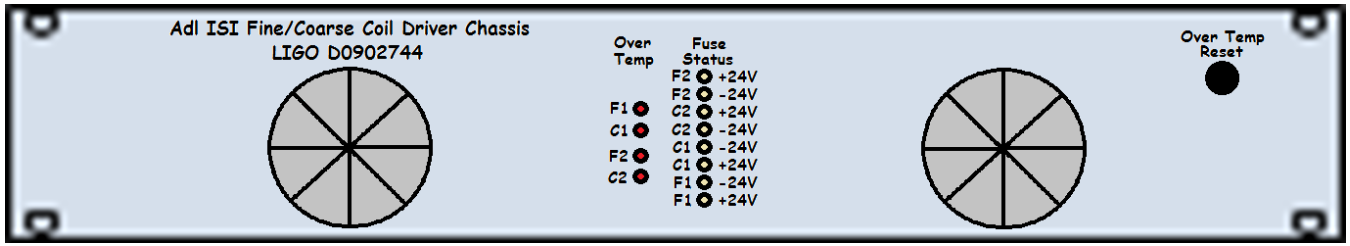
S1104573

Rear

D0902744 - S1103306

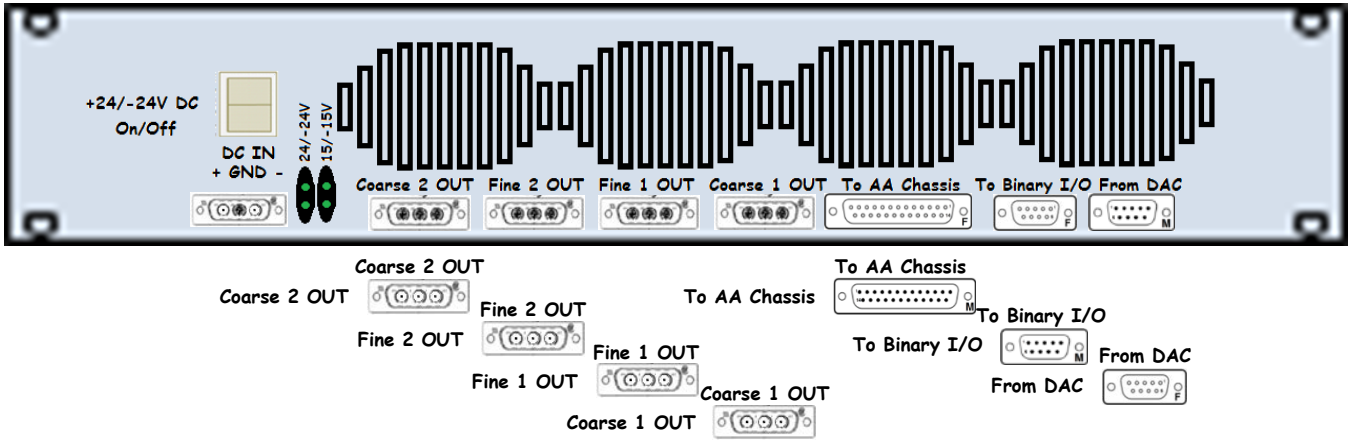
« L1-SEI-C2

HAM3 ISI Coil Driver Pod 1 and Pod 2 | D0902744 | S1103306 | ±24VDC



D0902744

Front



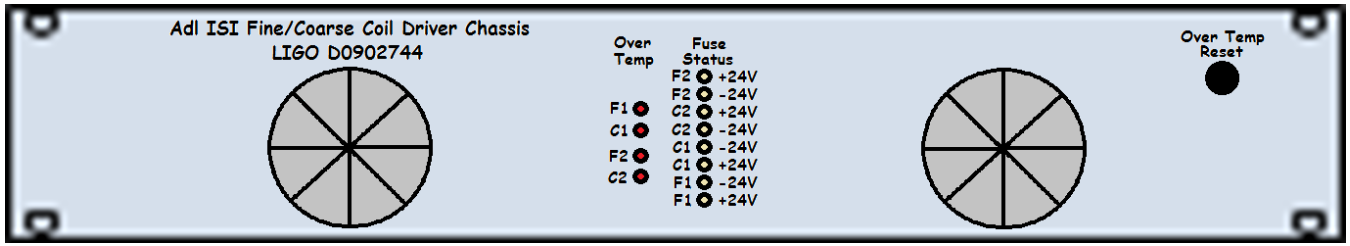
S1103306

Rear

D0902744 - S1103304

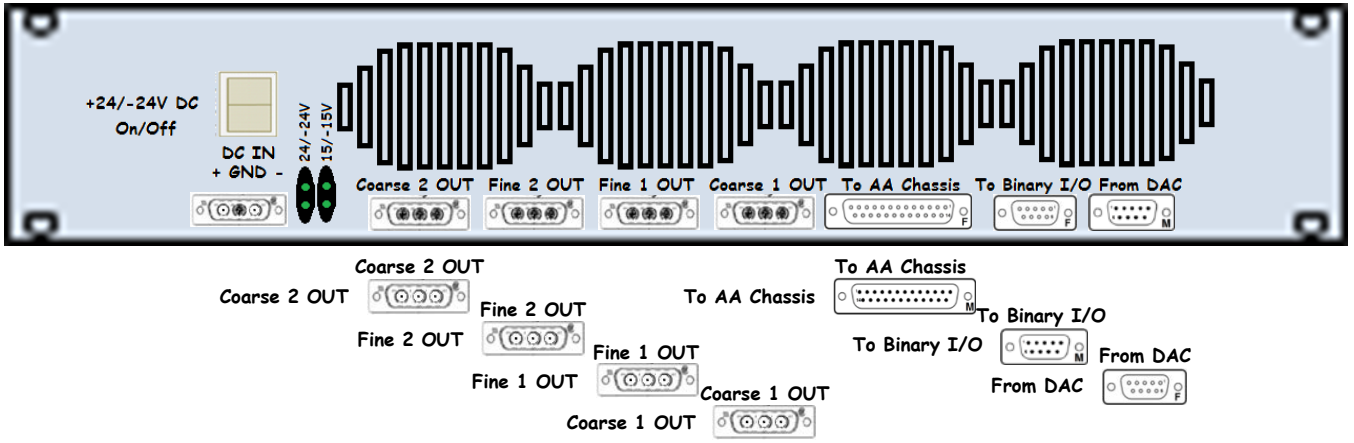
LIGO
<< L1-SEI-C2

HAM3 ISI Coil Driver Pod 3 | D0902744 | S1103304 | ±24VDC



D0902744

Front



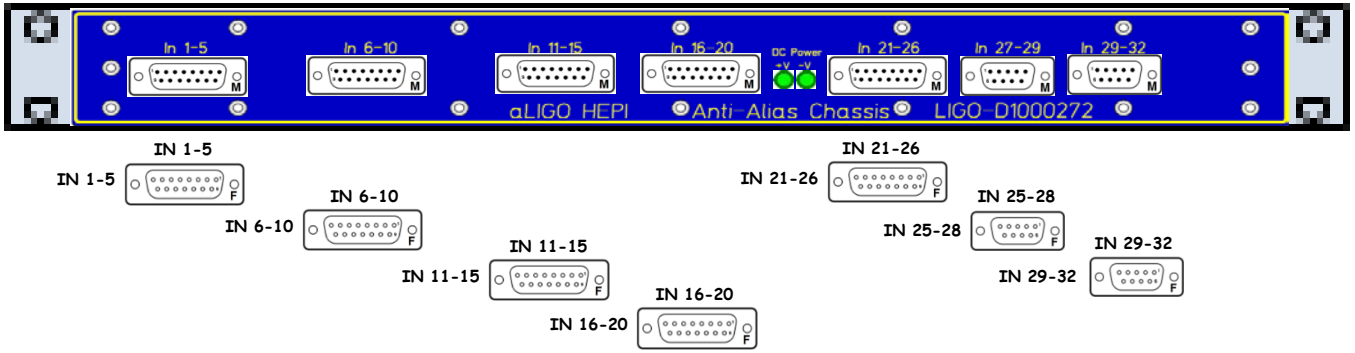
S1103304

Rear

D1000272 - S1104616

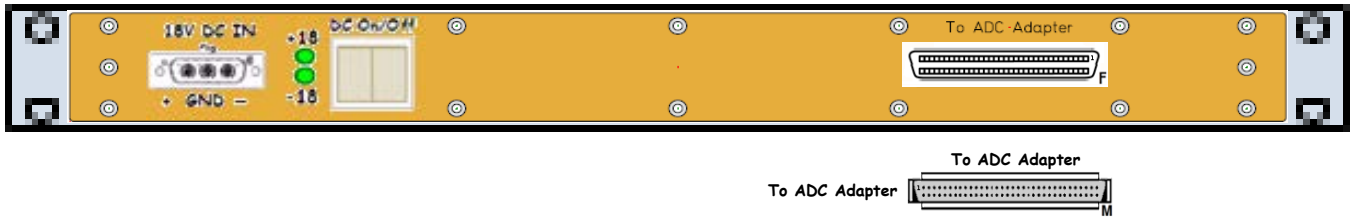
[<< L1-SEI-C2]

HAM3 HEPI Anti-Alias Chassis | D1000272 | S1104616 | ±18VDC



D1000272

Front



S1104616

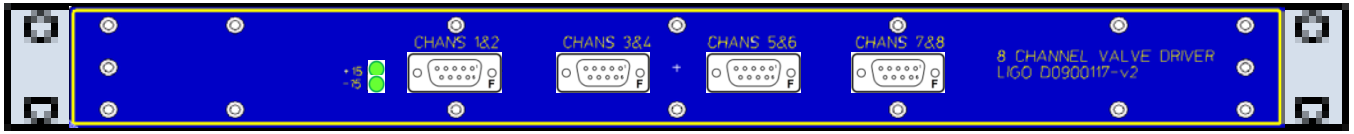
Rear

D0900117 - S0900275

LIGO
<< L1-SEI-C2

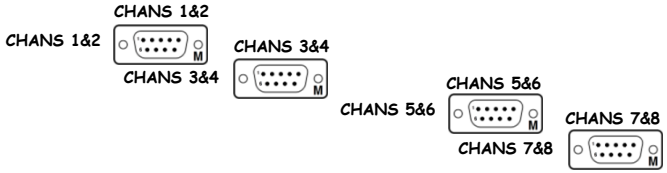
HAM2 HEPI 8-Channel Valve Driver | D0900117 | S0900275 | ±18VDC

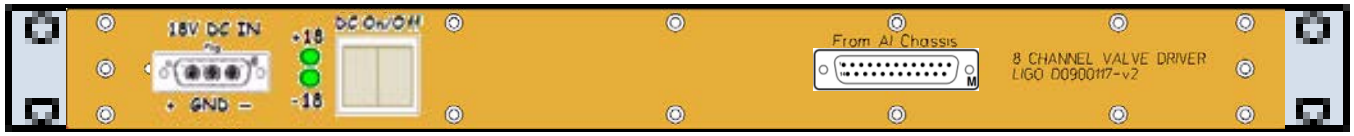
HAM2



D0900117

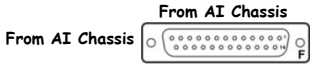
Front





S0900275

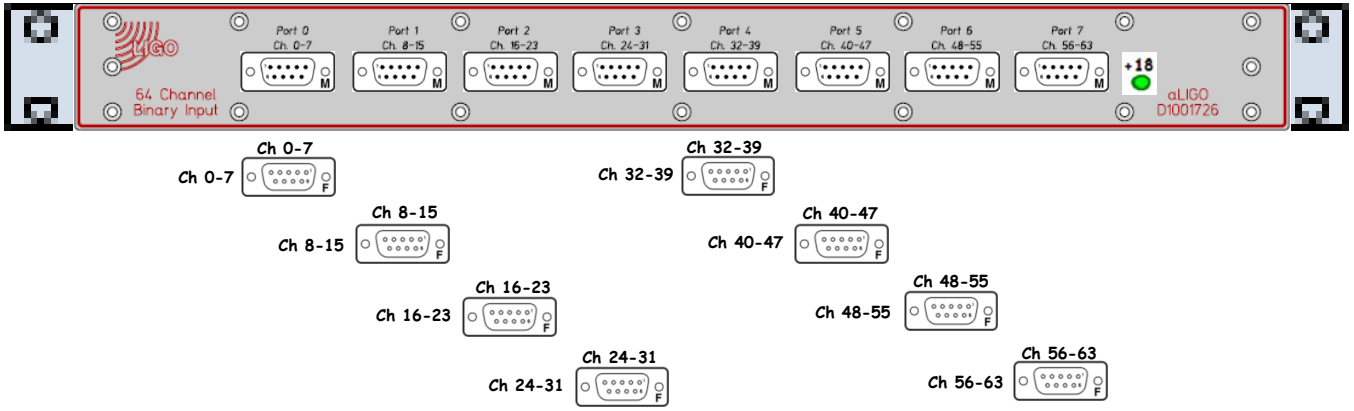
Rear



D0900117 is part of D0901338

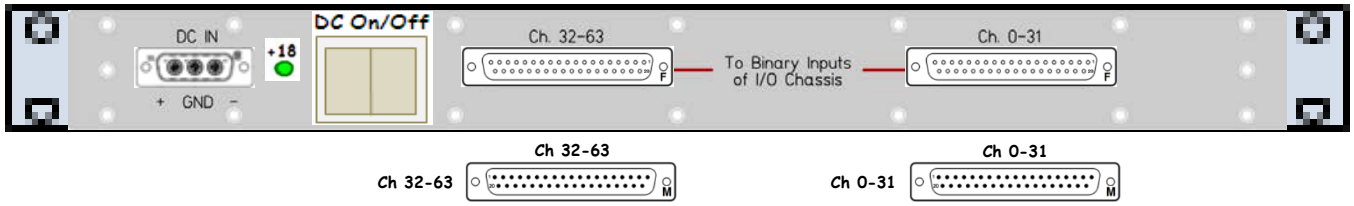
D1001726 - S1101286

HAM2 HEPI Binary Input Chassis | D1001726 | S1101286 | +18VDC



D1001726

Front



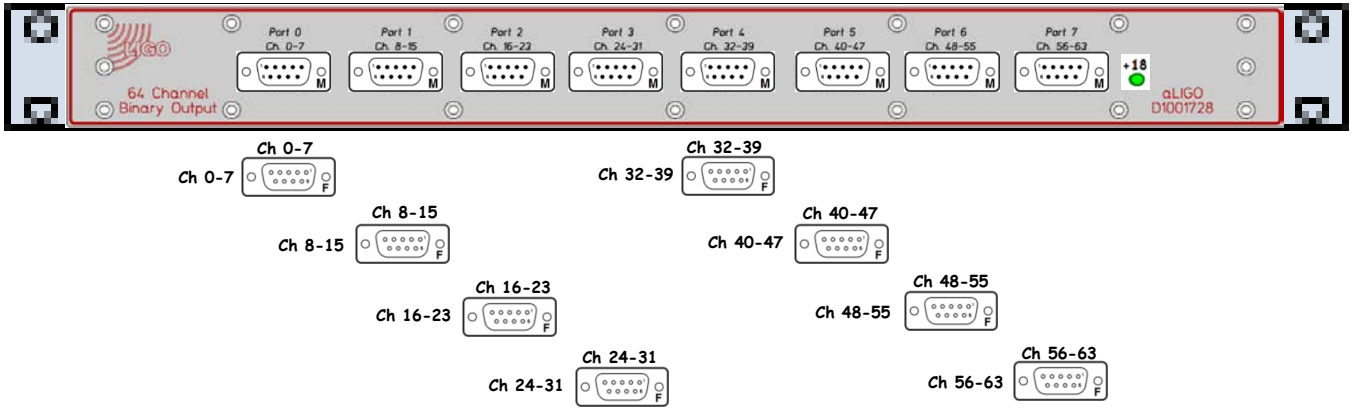
S1101286

Rear

D1001728 - S1101321

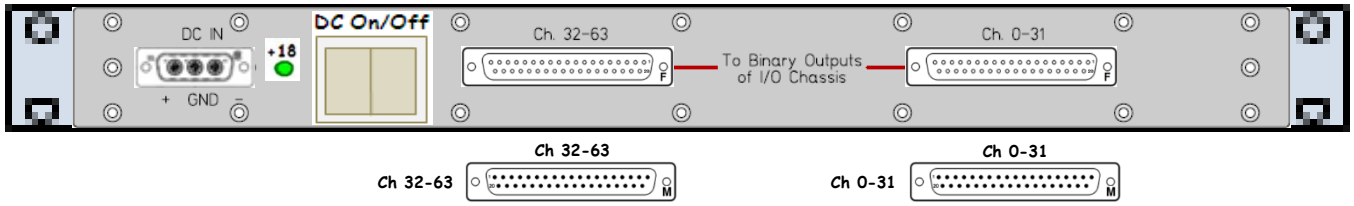
[<< L1-SEI-C2]

HAM2/3 HEPI Binary Output Chassis | D1001728 | S1101321 | +18VDC



D1001728

Front



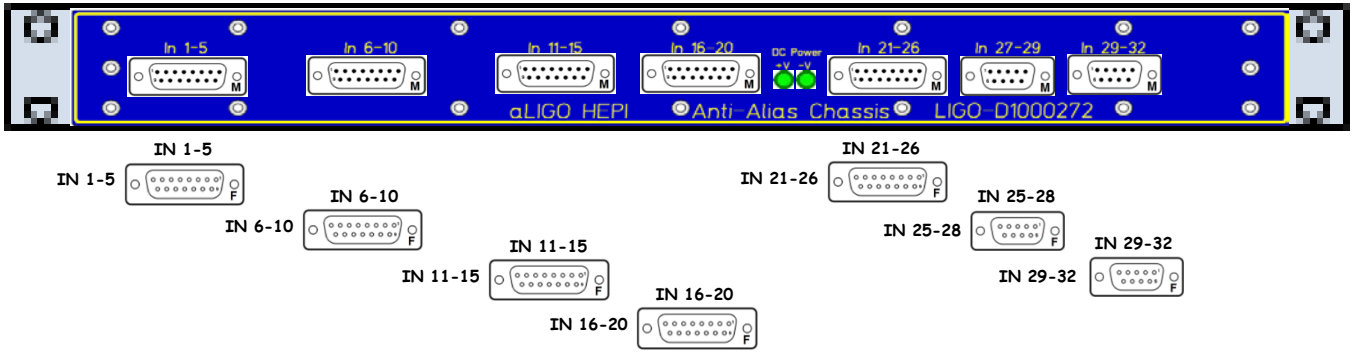
S1101321

Rear

D1000272 - S1104615

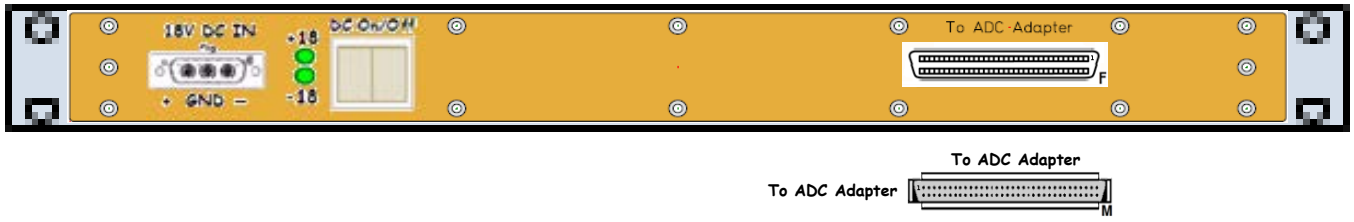
[<< L1-SEI-C2]

HAM3 HEPI Anti-Alias Chassis | D1000272 | S1104615 | ±18VDC



D1000272

Front



S1104615

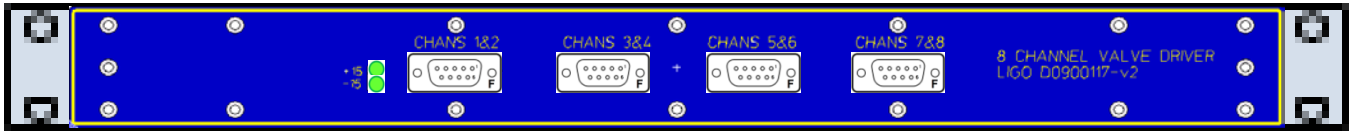
Rear

D0900117 - S0900291

LIGO
<< L1-SEI-C2

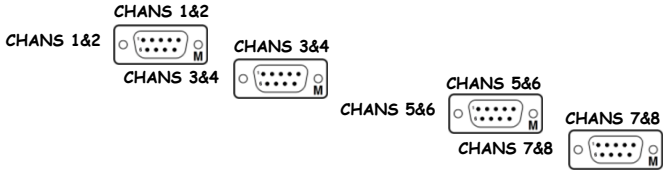
HAM3 HEPI 8-Channel Valve Driver | D0900117 | S0900291 | ±18VDC

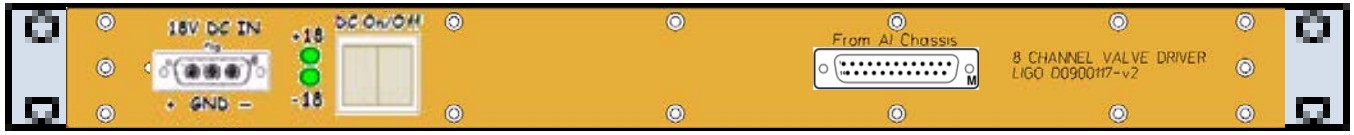
HAM3



D0900117

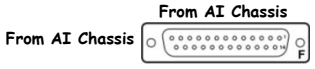
Front





S0900291

Rear



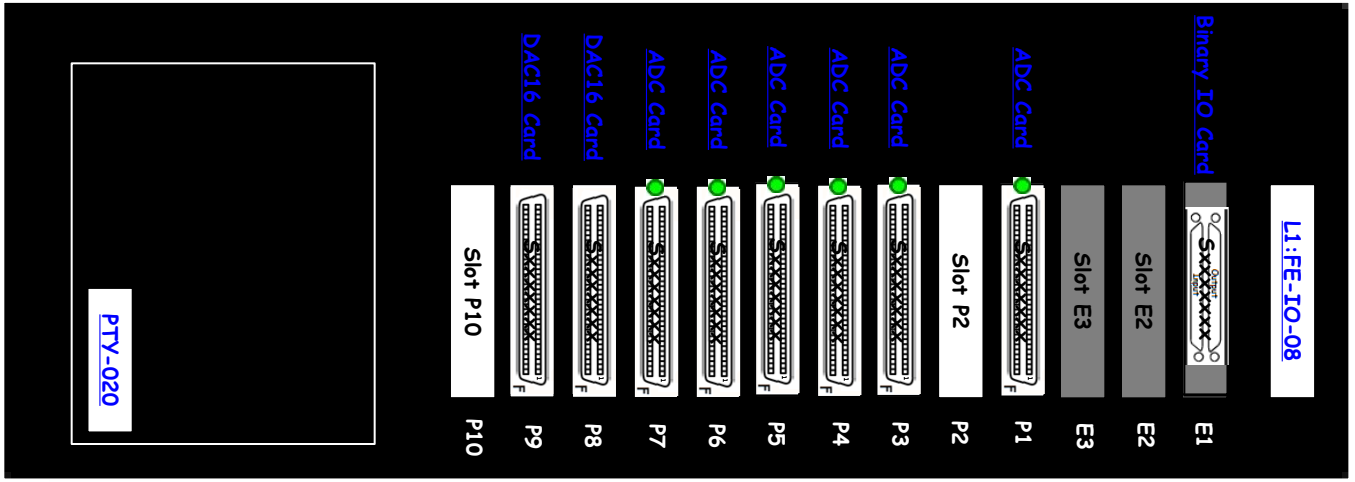
D0900117 is part of D0901338

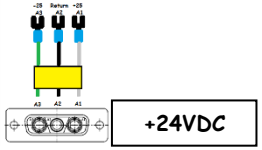
l1seiham23 - D1001715 - S1001145

« L1-SEI-C2

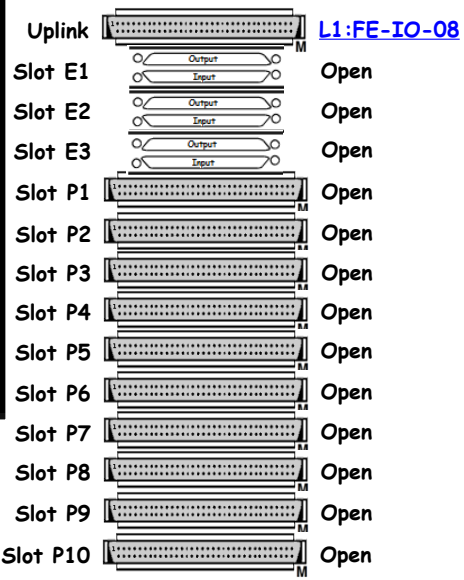
l1seiham23 – I/O Extension Chassis | D1001715 | S1001145 | +24VDC

D1001715
Front





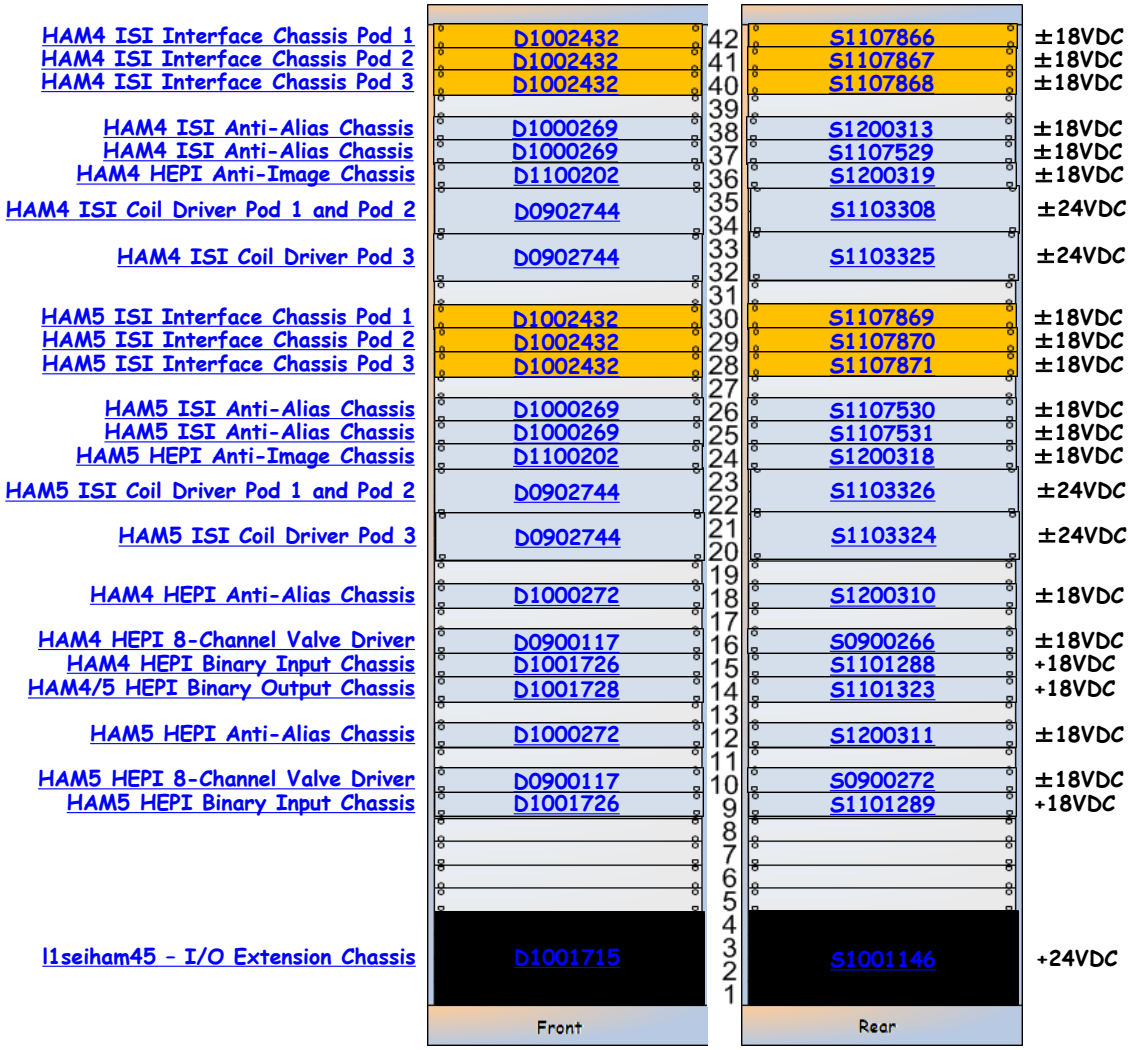
S1001145
Rear



L1-SEI-C3

[<< CER]

SEI HAM4 and HAM5 ISI and HEPI Rack Layout (D1201114) (S1200745)



SEI-C3 is part of D1000298

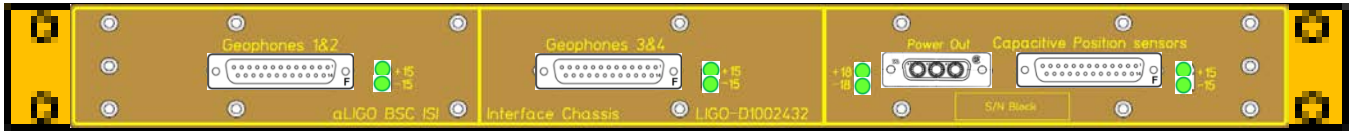
L1-SEI-C3 Details

SEI-C3 is part of D1000298

D1002432 - S1107866

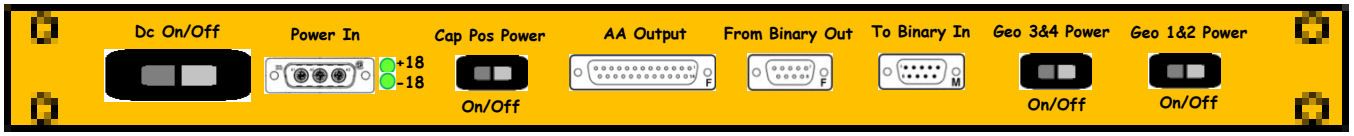
« L1-SEI-C3

HAM4 ISI Interface Chassis Pod 1 | D1002432 | S1107866 | ±18VDC



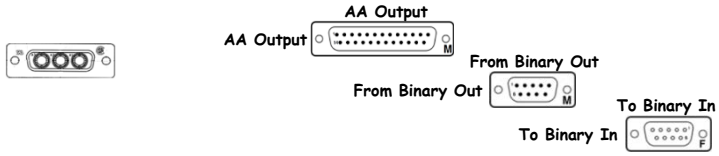
D1002432

Front



S1107866

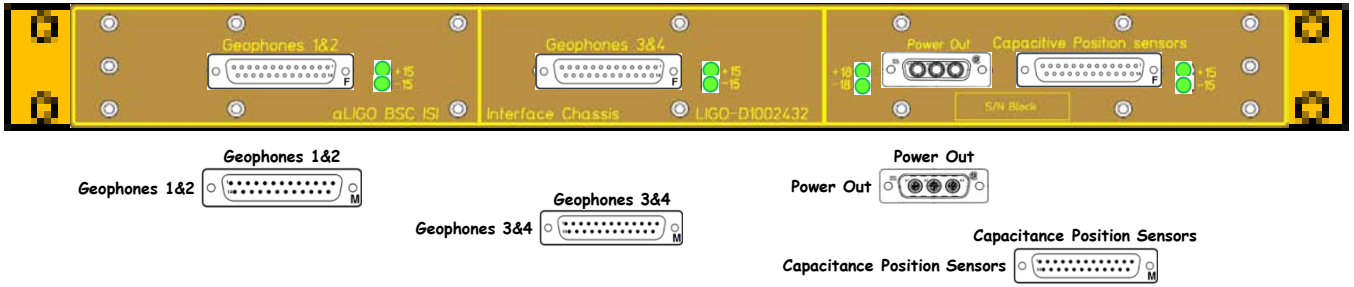
Rear



D1002432 - S1107867

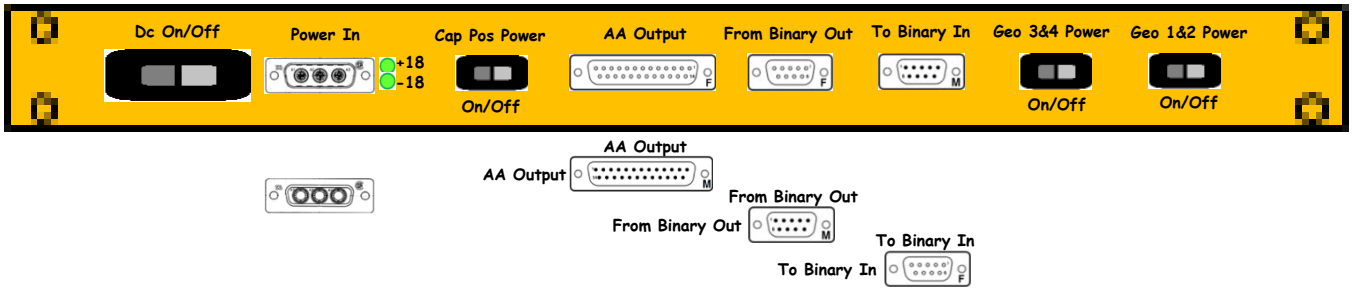
« L1-SEI-C3

HAM4 ISI Interface Chassis Pod 2 | D1002432 | S1107867 | ±18VDC



D1002432

Front



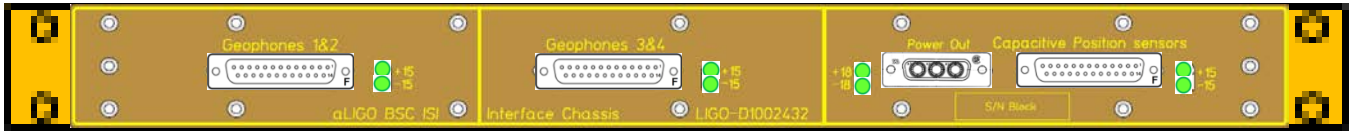
S1107867

Rear

D1002432 - S1107868

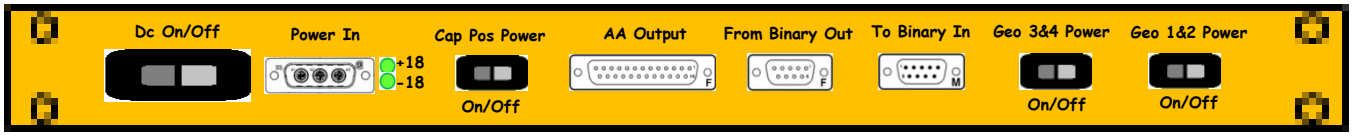
« L1-SEI-C3

HAM4 ISI Interface Chassis Pod 3 | D1002432 | S1107868 | ±18VDC



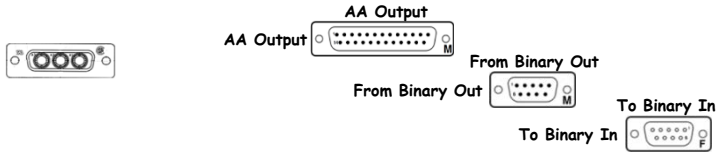
D1002432

Front



S1107868

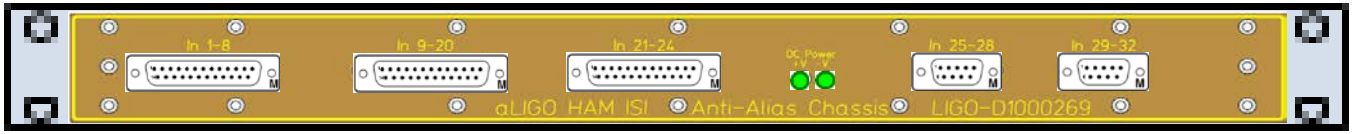
Rear



D1000269 - S1200313

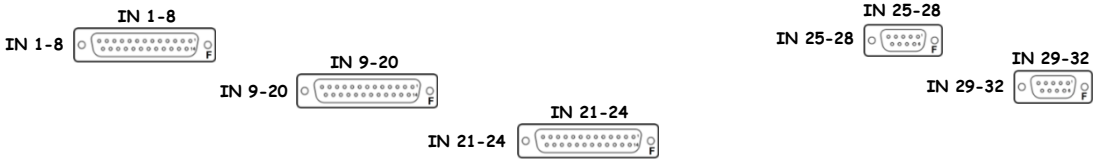
« L1-SEI-C3

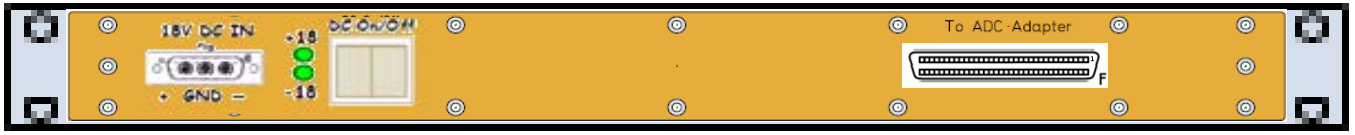
HAM4 ISI Anti-Alias Chassis D1000269 S1200313 ±18VDC



D1000269

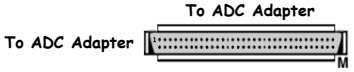
Front





S1200313

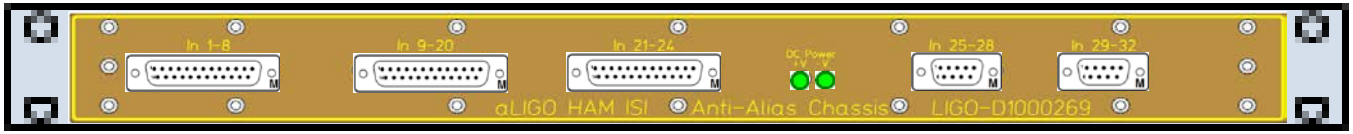
Rear



D1000269 - S1107529

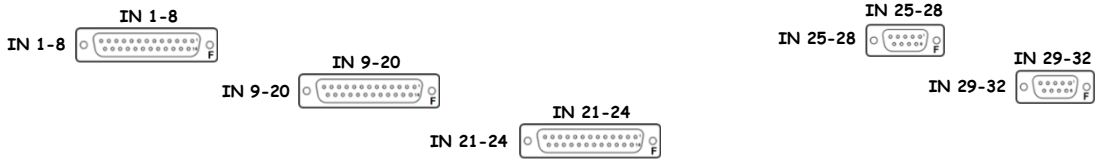
[<< L1-SEI-C3]

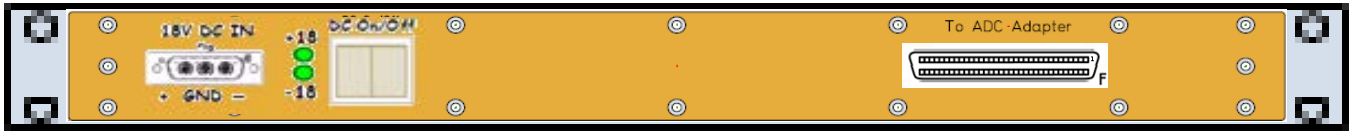
HAM4 ISI Anti-Alias Chassis D1000269 S1107529 ±18VDC



D1000269

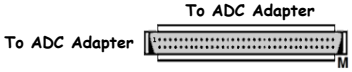
Front





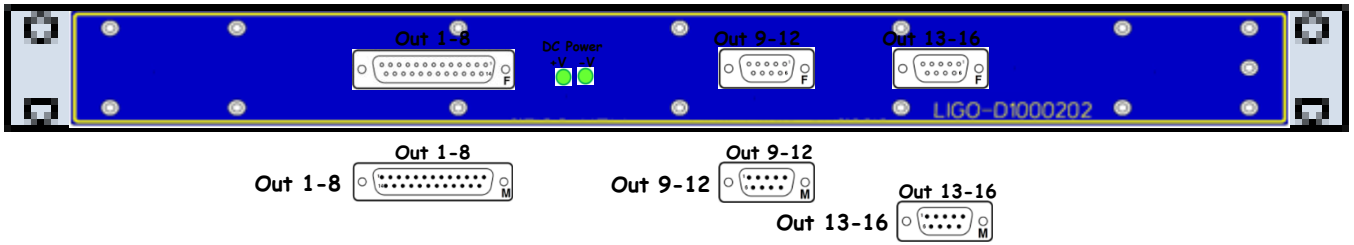
S1107529

Rear



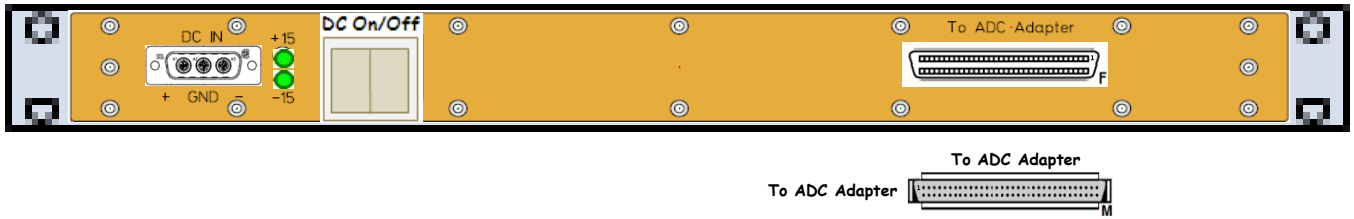
D1100202 - S1200319

HAM4 HEPI Anti-Image Chassis | D1100202 | S1200319 | ±18VDC



D1100202

Front



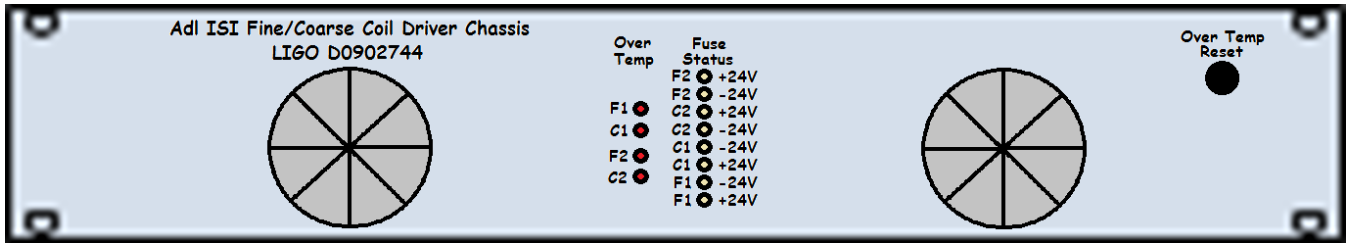
S1200319

Rear

D0902744 - S1103308

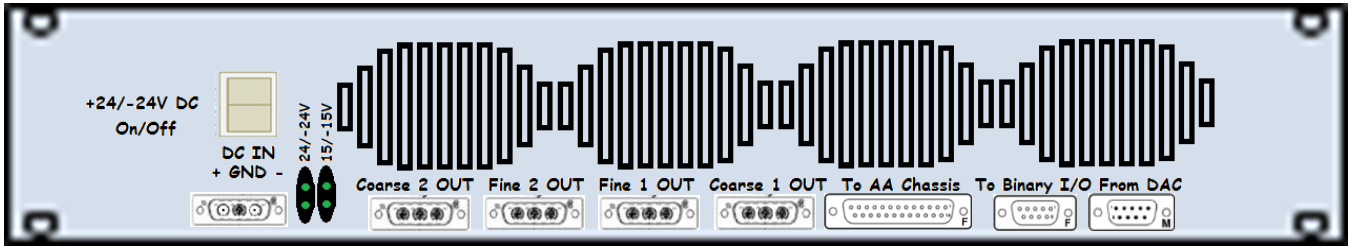
« L1-SEI-C3

HAM4 ISI Coil Driver Pod 1 and Pod 2 | D0902744 | S1103308 | ±24VDC



D0902744

Front



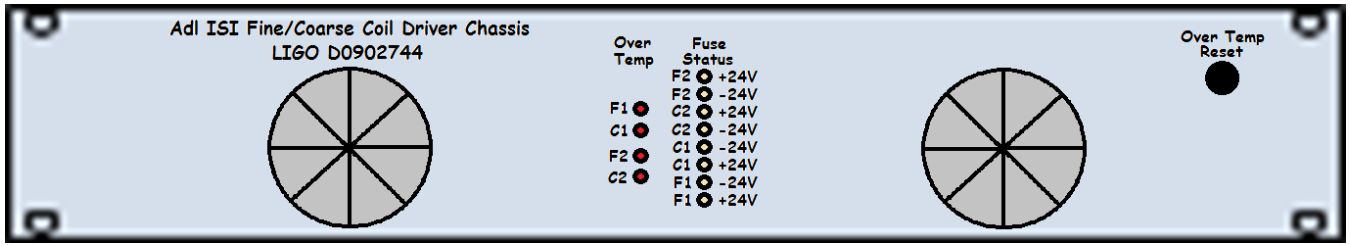
S1103308

Rear

D0902744 - S1103325

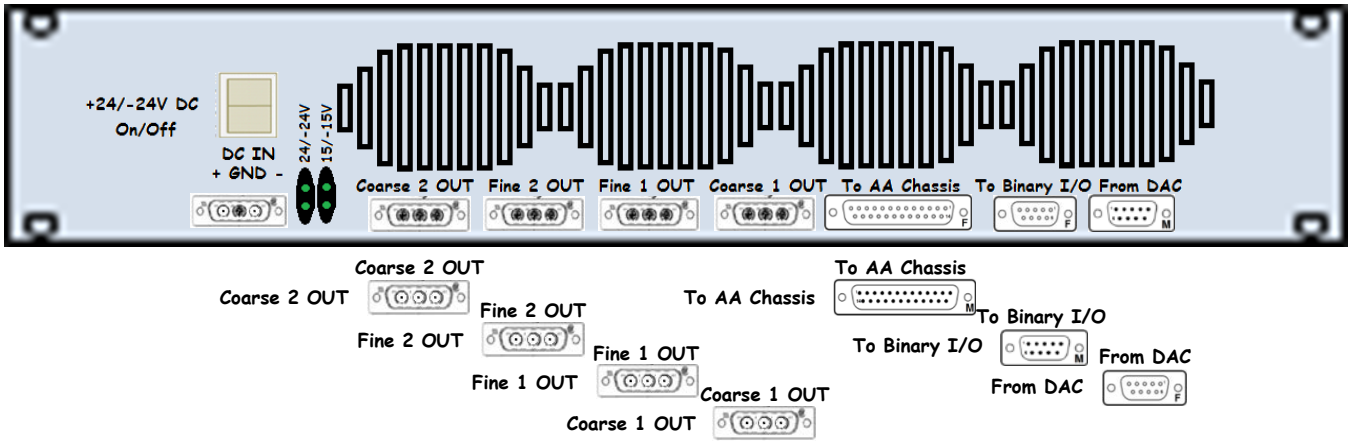
[<< L1-SEI-C3]

HAM4 ISI Coil Driver Pod 3 | D0902744 | S1103325 | ±24VDC



D0902744

Front



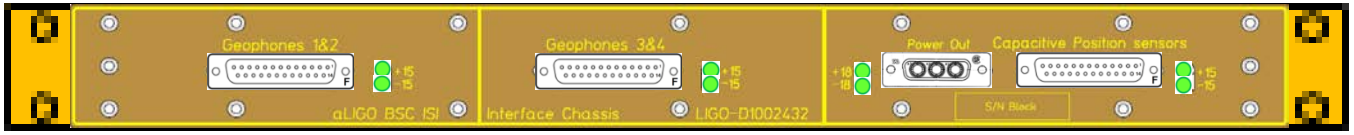
S1103325

Rear

D1002432 - S1107869

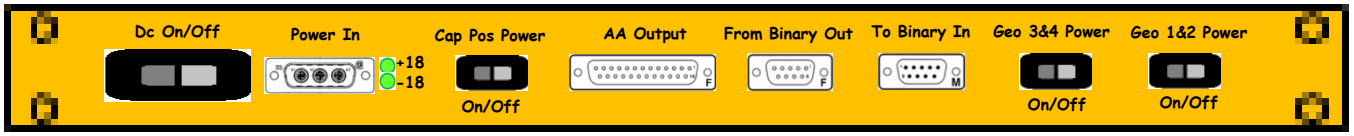
« L1-SEI-C3

HAM5 ISI Interface Chassis Pod 1 | D1002432 | S1107869 | ±18VDC



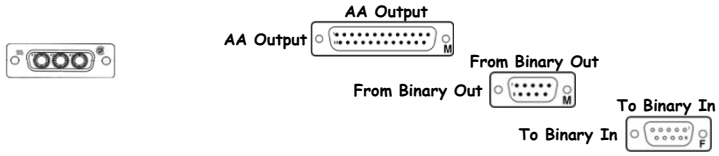
D1002432

Front



S1107869

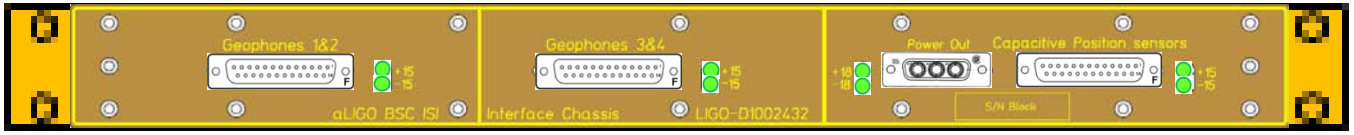
Rear



D1002432 - S1107870

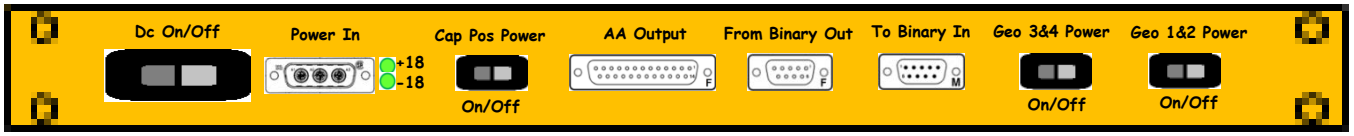
[<< L1-SEI-C3]

HAM5 ISI Interface Chassis Pod 2 | D1002432 | S1107870 | ±18VDC



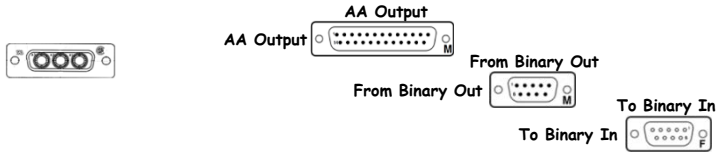
D1002432

Front



S1107870

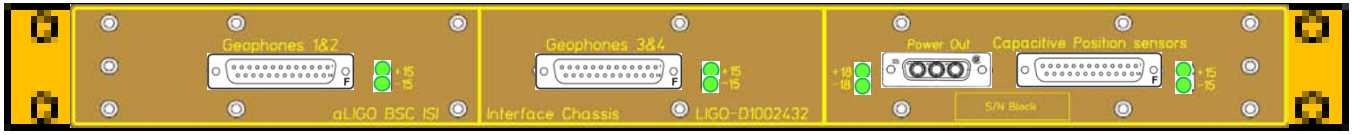
Rear



D1002432 - S1107871

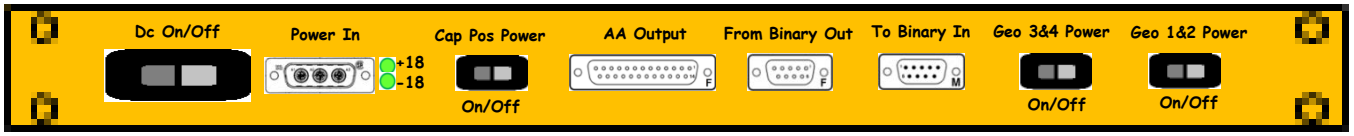
[<< L1-SEI-C3]

HAM5 ISI Interface Chassis Pod 3 | D1002432 | S1107871 | ±18VDC



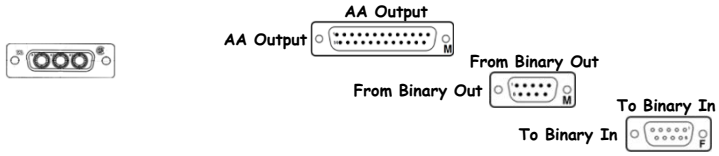
D1002432

Front



S1107871

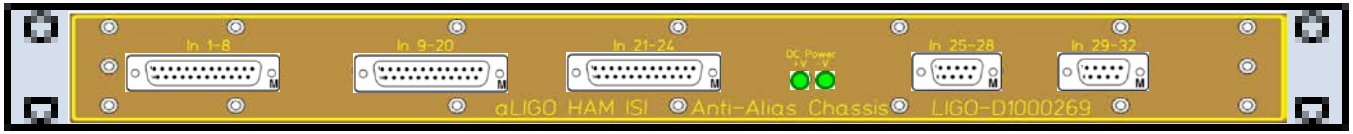
Rear



D1000269 - S1107530

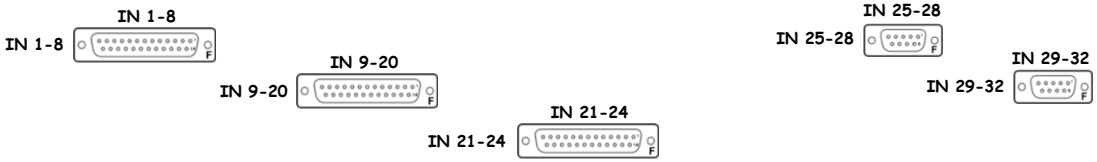
[<< L1-SEI-C3]

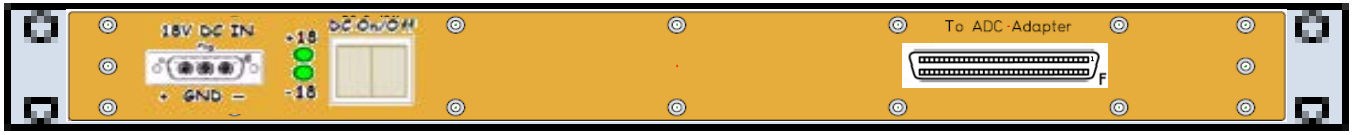
HAM5 ISI Anti-Alias Chassis D1000269 S1107530 ±18VDC



D1000269

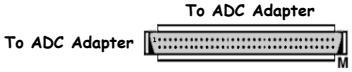
Front





S1107530

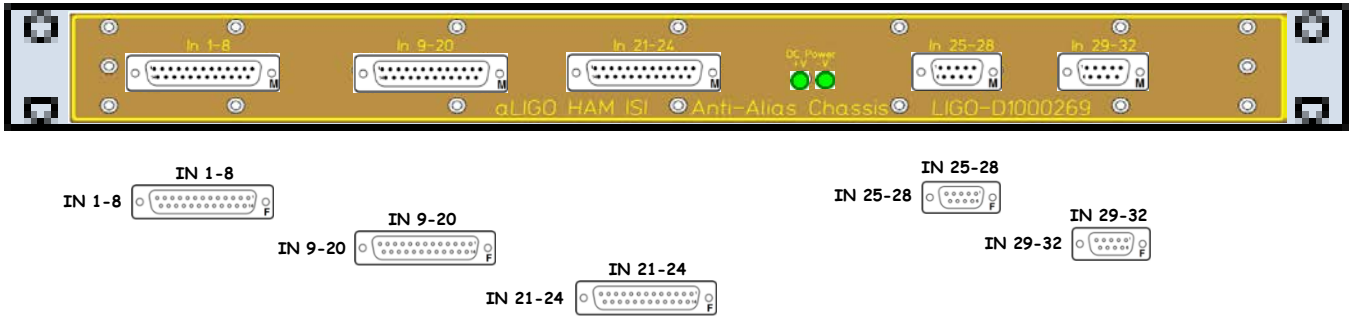
Rear



D1000269 - S1107531

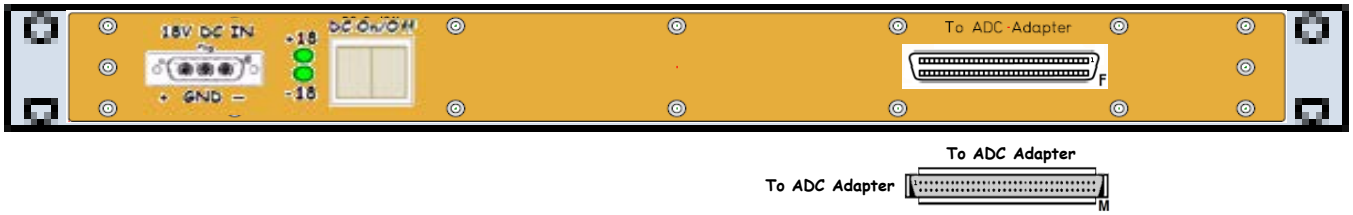
[<< L1-SEI-C3]

HAM5 ISI Anti-Alias Chassis | D1000269 | S1107531 | ±18VDC



[D1000269]

Front



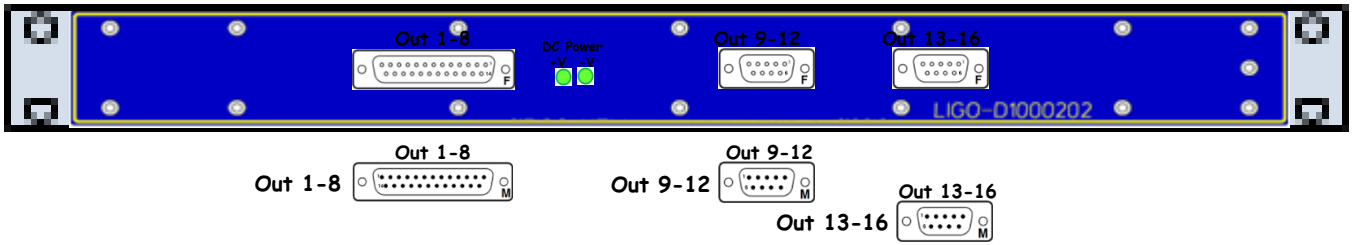
[S1107531]

Rear

D1100202 - S1200318

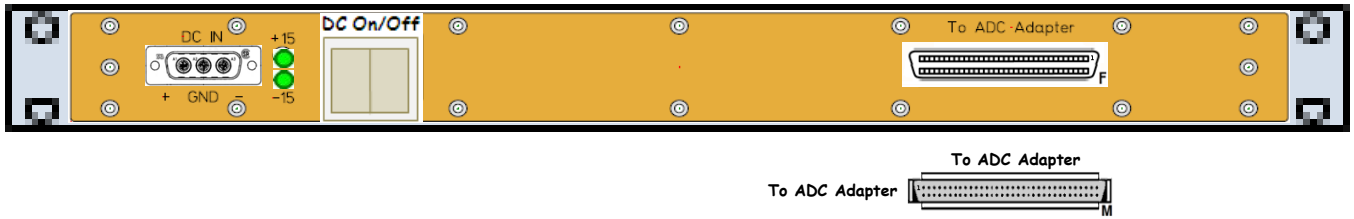
LIGO
<< L1-SEI-C3

HAM5 HEPI Anti-Image Chassis | D1100202 | S1200318 | ±18VDC



D1100202

Front



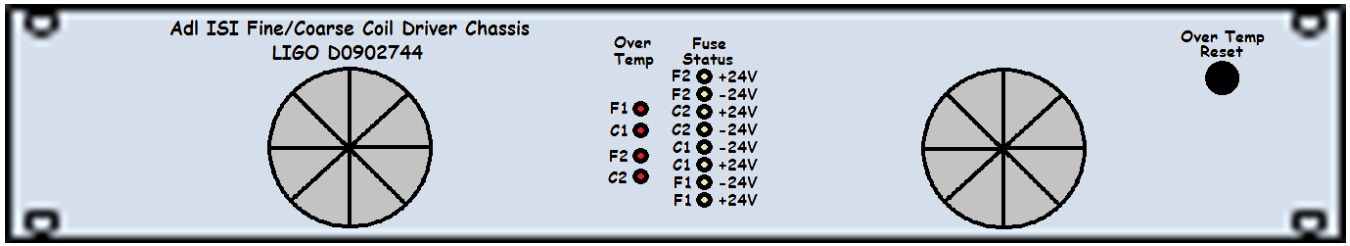
S1200318

Rear

D0902744 - S1103326

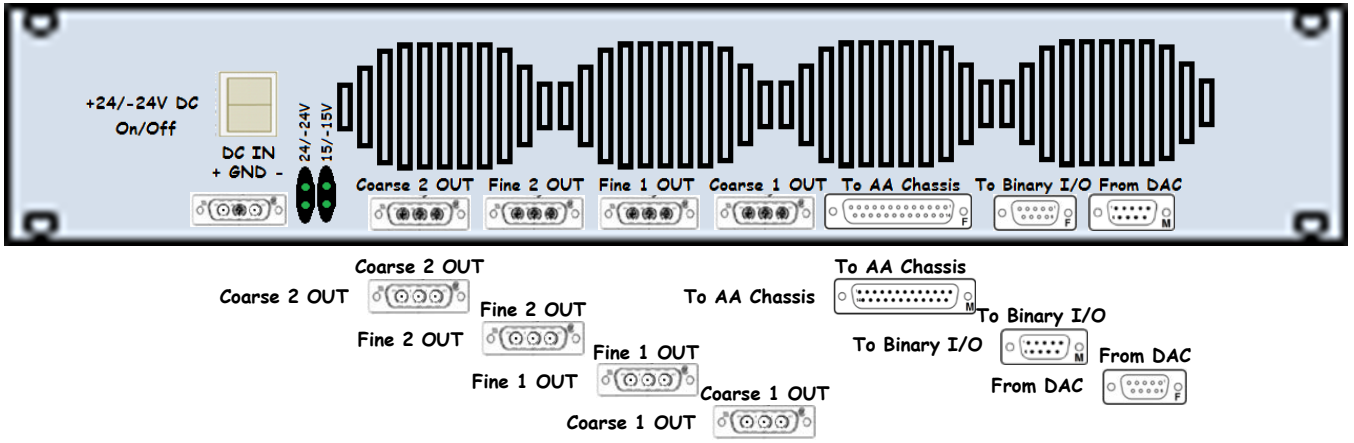
[<< L1-SEI-C3]

HAM5 ISI Coil Driver Pod 1 and Pod 2 | D0902744 | S1103326 | ±24VDC



D0902744

Front



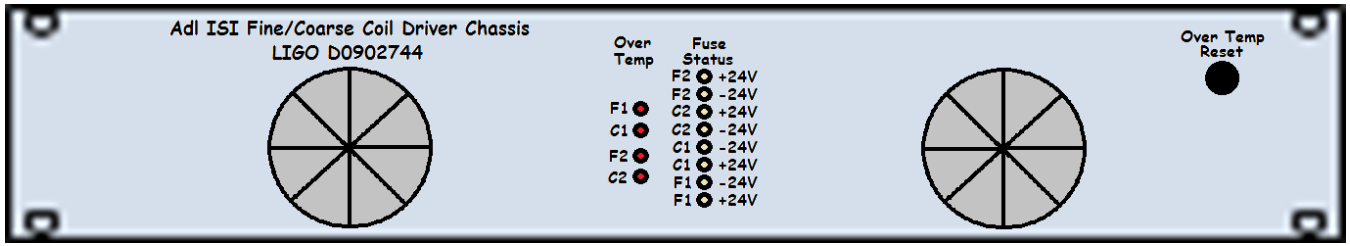
S1103326

Rear

D0902744 - S1103324

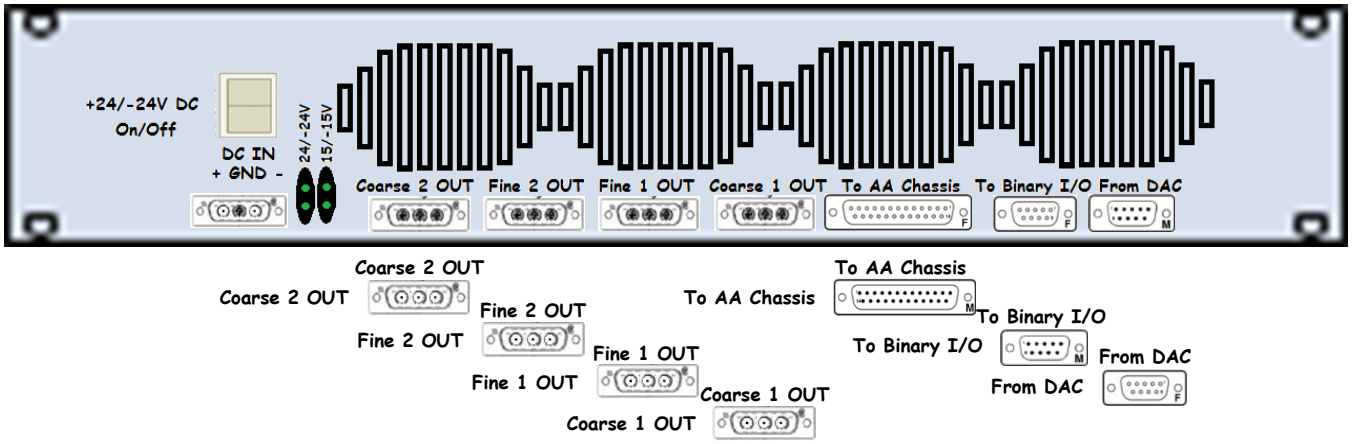
LIGO
<< L1-SEI-C3

HAM5 ISI Coil Driver Pod 3 | D0902744 | S1103324 | ±24VDC



D0902744

Front



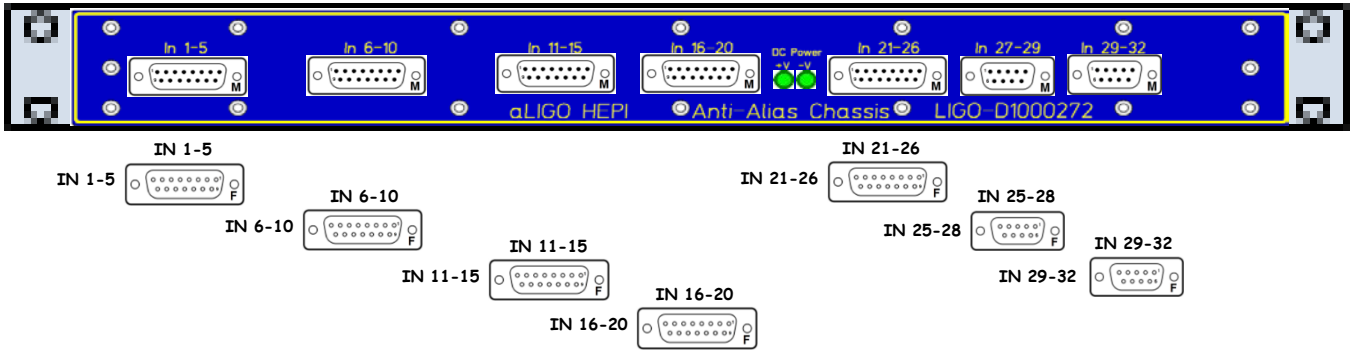
S1103324

Rear

D1000272 - S1200310

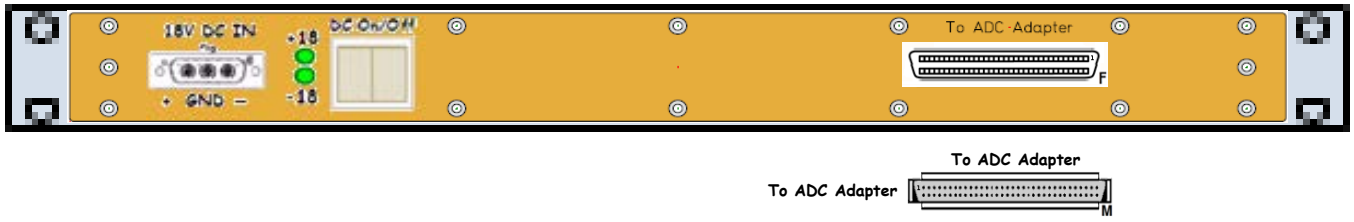
[<< L1-SEI-C3]

HAM4 HEPI Anti-Alias Chassis | D1000272 | S1200310 | ±18VDC



D1000272

Front



S1200310

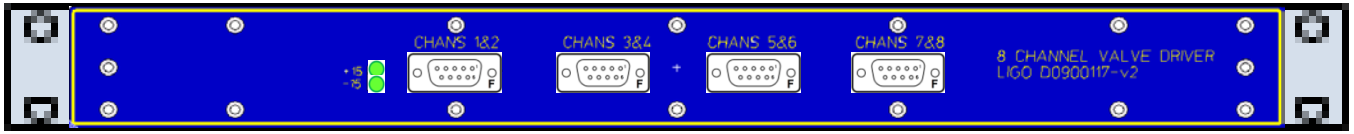
Rear

D0900117 - S0900266

LIGO
<< L1-SEI-C3

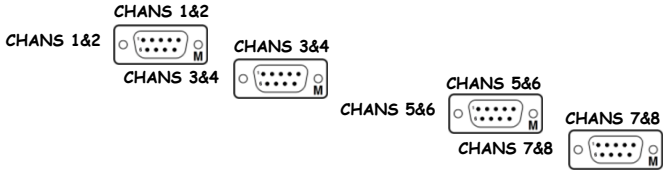
HAM4 HEPI 8-Channel Valve Driver | D0900117 | S0900266 | ±18VDC

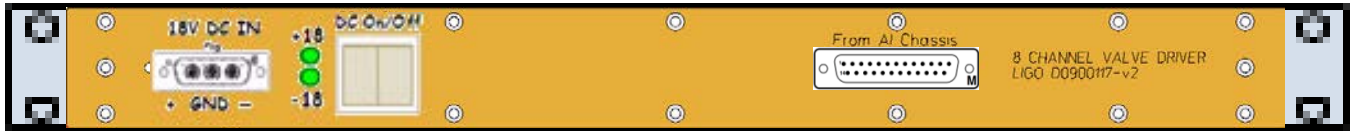
HAM4



D0900117

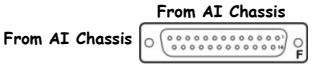
Front





S0900266

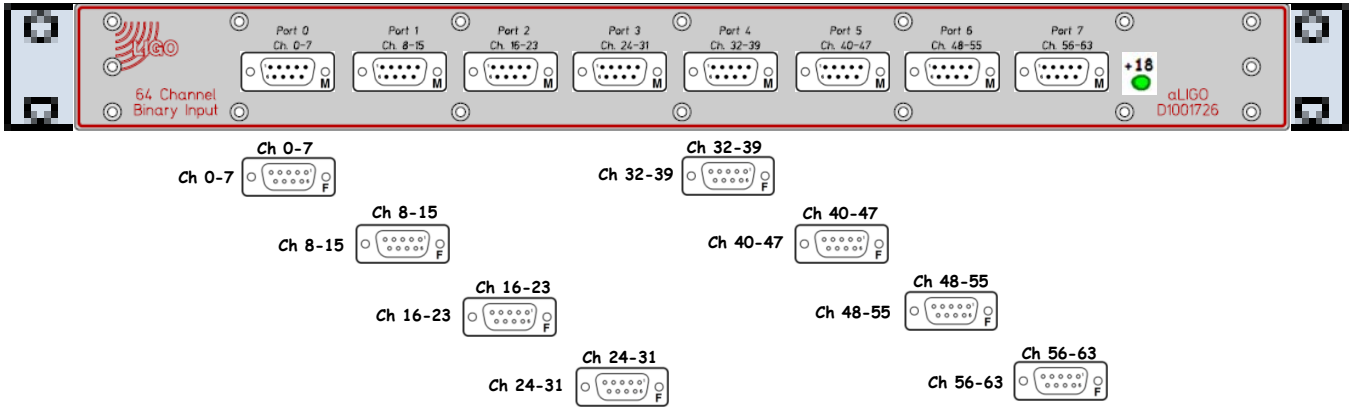
Rear



D0900117 is part of D0901338

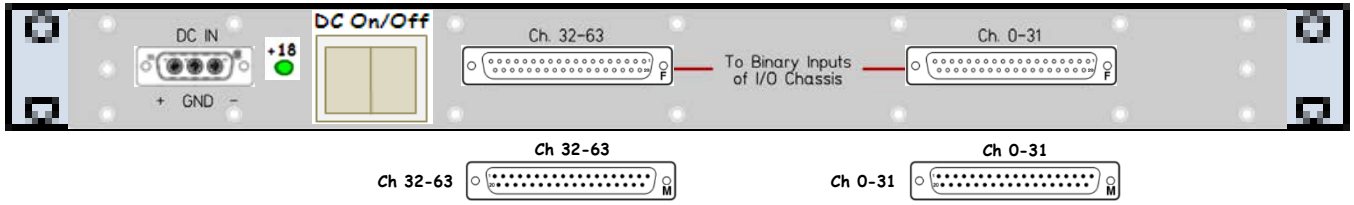
D1001726 - S1101288

HAM4 HEPI Binary Input Chassis | D1001726 | S1101288 | +18VDC



D1001726

Front



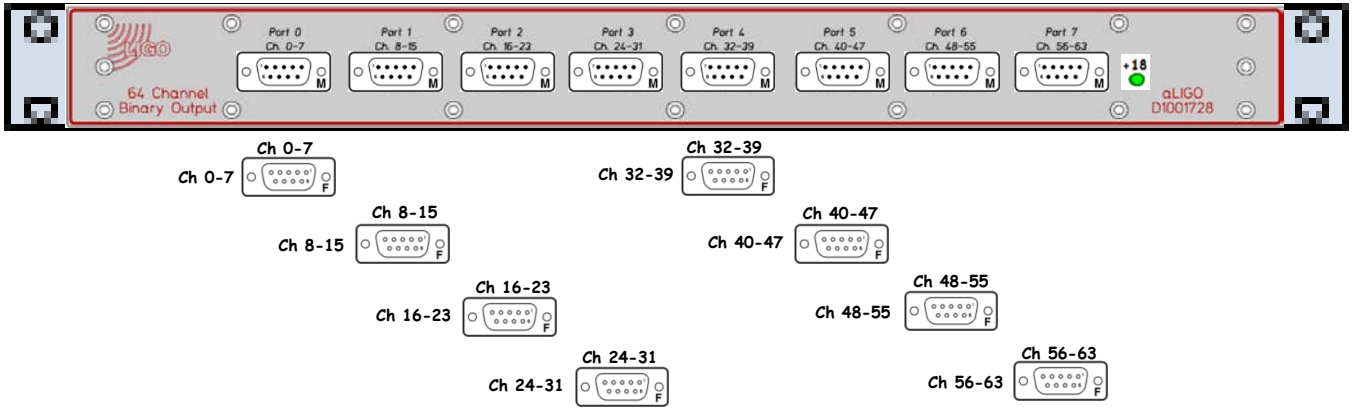
S1101288

Rear

D1001728 - S1101323

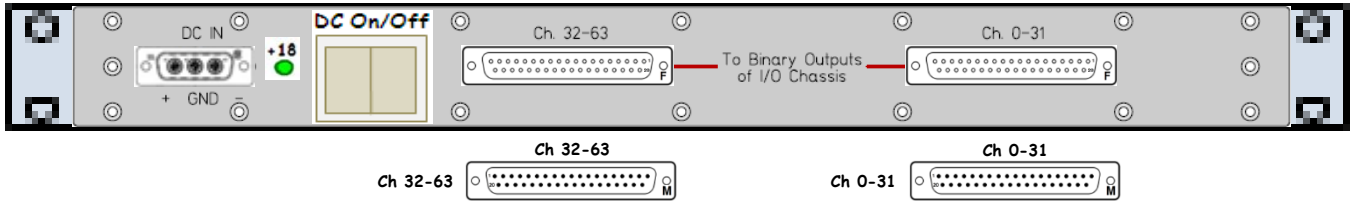
« L1-SEI-C3

HAM4/5 HEPI Binary Output Chassis | D1001728 | S1101323 | +18VDC



D1001728

Front



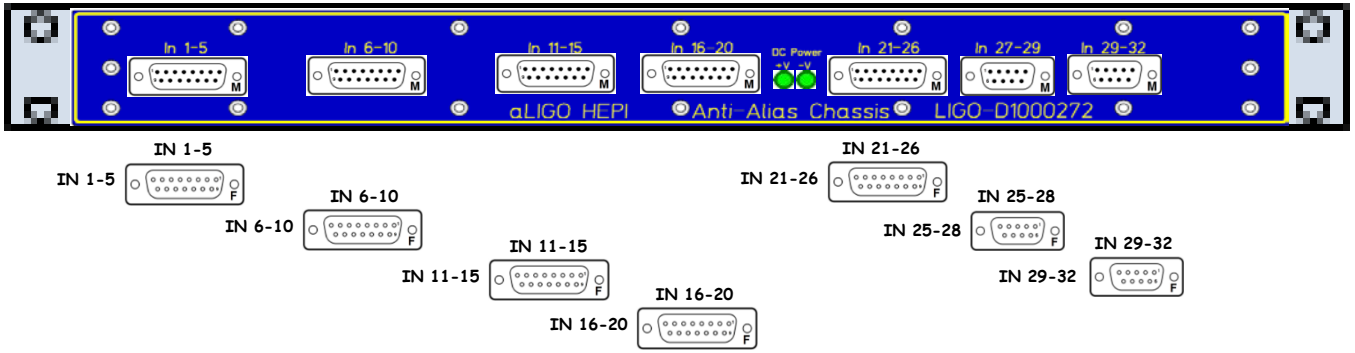
S1101323

Rear

D1000272 - S1200311

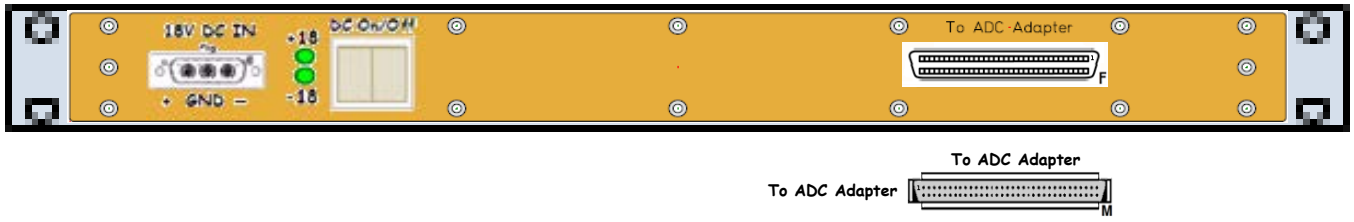
[<< L1-SEI-C3]

HAM5 HEPI Anti-Alias Chassis | D1000272 | S1200311 | ±18VDC



D1000272

Front



S1200311

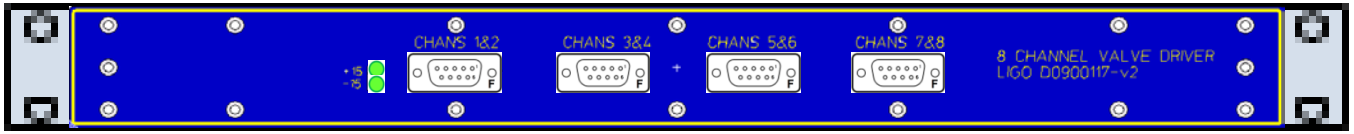
Rear

D0900117 - S0900272

LIGO
<< L1-SEI-C3

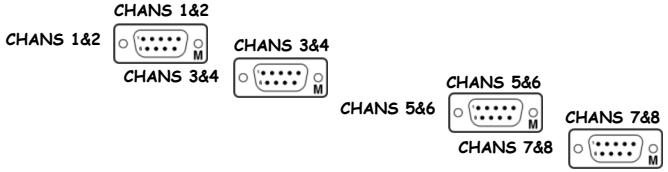
HAM5 HEPI 8-Channel Valve Driver | D0900117 | S0900272 | ±18VDC

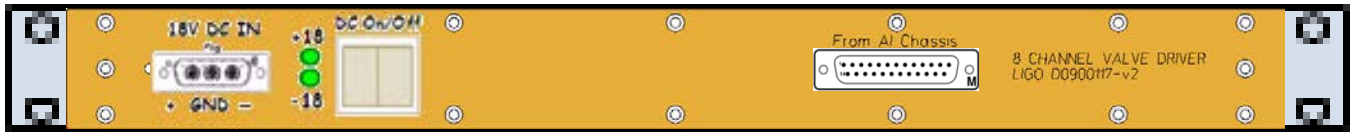
HAM5



D0900117

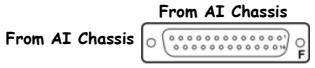
Front





S0900272

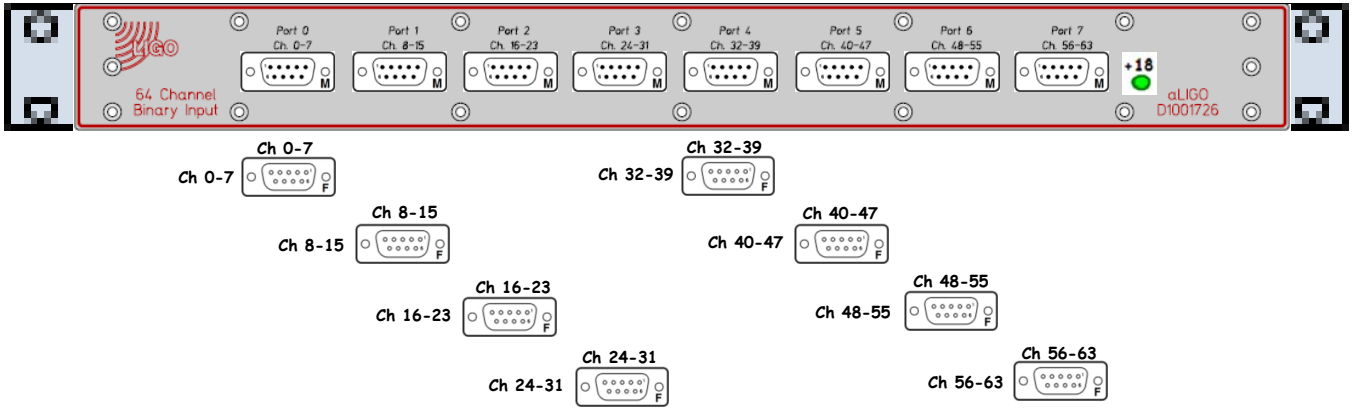
Rear



D0900117 is part of D0901338

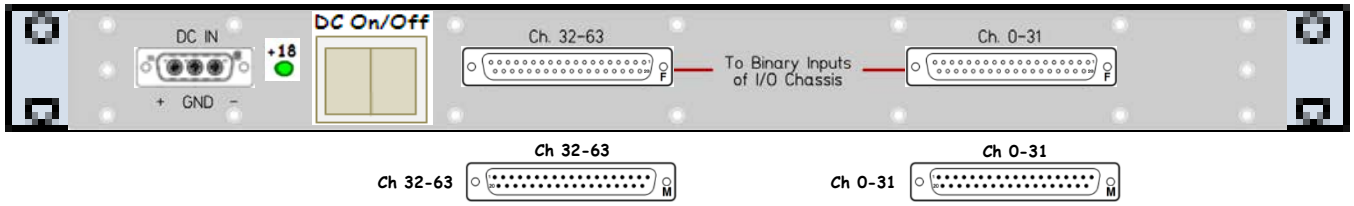
D1001726 - S1101289

HAM5 HEPI Binary Input Chassis | D1001726 | S1101289 | +18VDC



D1001726

Front



S1101289

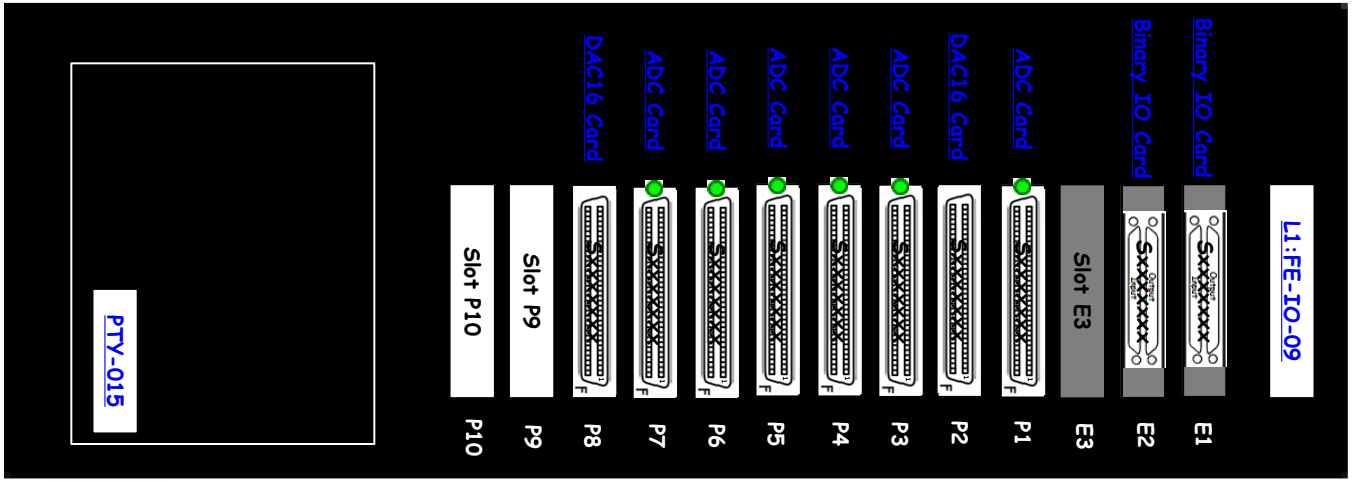
Rear

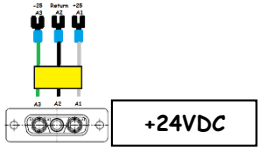
l1susham45 - D1001715 - S1001146

« L1-SEI-C3

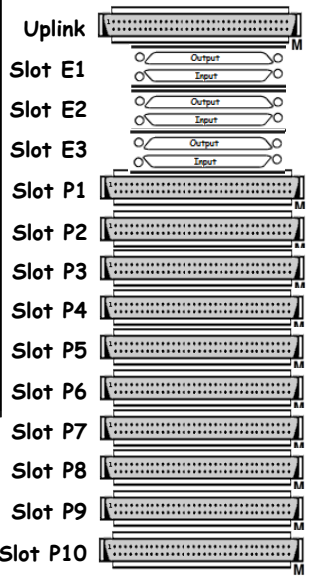
l1seiham45 – I/O Extension Chassis | D1001715 | S1001146 | +24VDC

D1001715
Front





S1001146
Rear

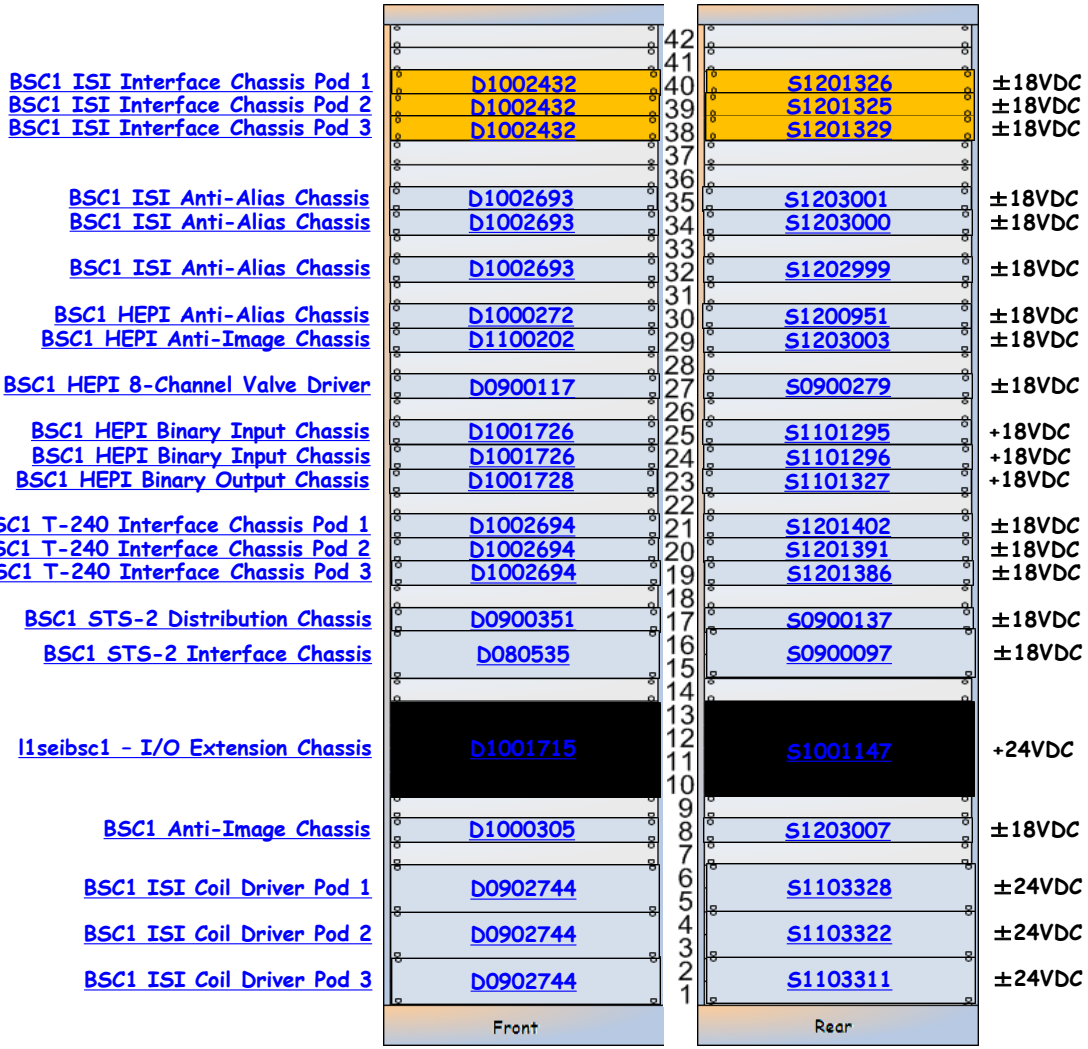


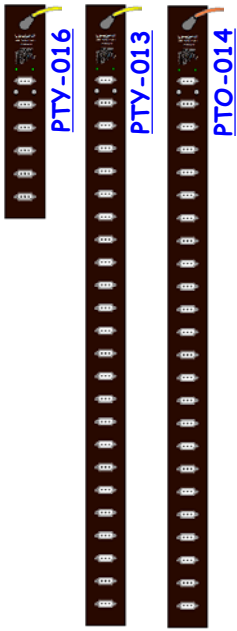
L1-SEI-C4

LIGO

<< CER

SEI BSC1 ISI and HEPI Rack Layout (D1201115) (S1200746)





SEI-C4 is part of D0901301

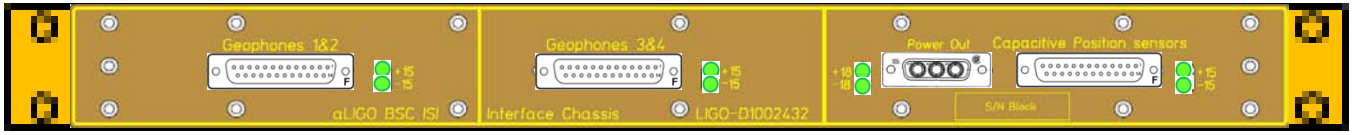
L1-SEI-C4 Details

SEI-C4 is part of D0901301

D1002432 - S1201326

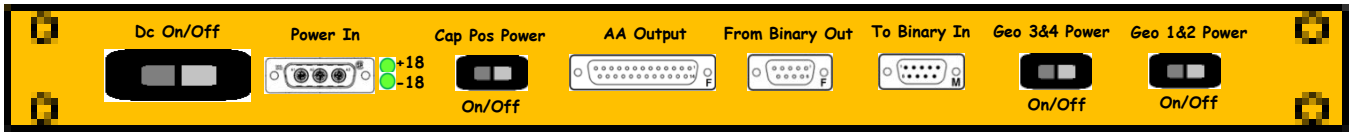
[<< L1-SEI-C4]

BSC1 ISI Interface Chassis Pod 1 | D1002432 | S1201326 | ±18VDC



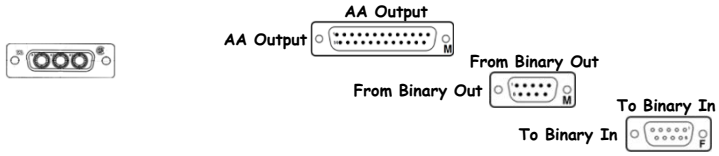
D1002432

Front



S1201326

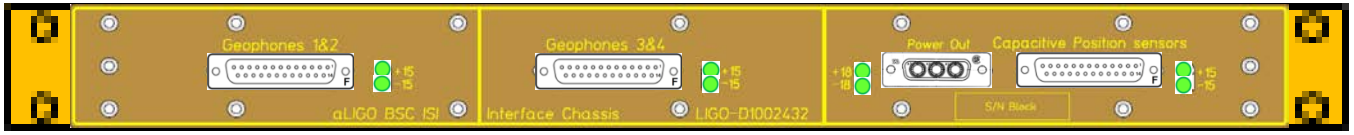
Rear



D1002432 - S1201325

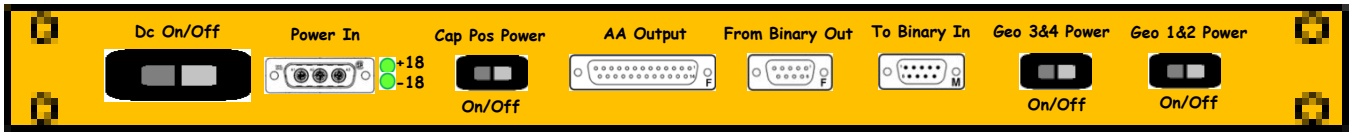
« L1-SEI-C4

BSC1 ISI Interface Chassis Pod 2 D1002432 S1201325 ±18VDC



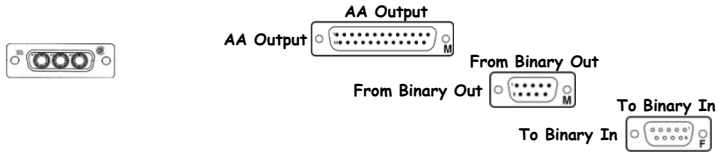
D1002432

Front



S1201325

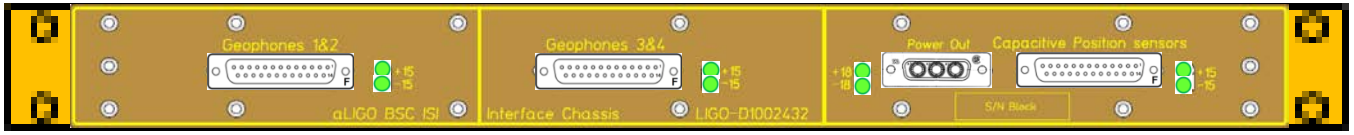
Rear



D1002432 - S1201329

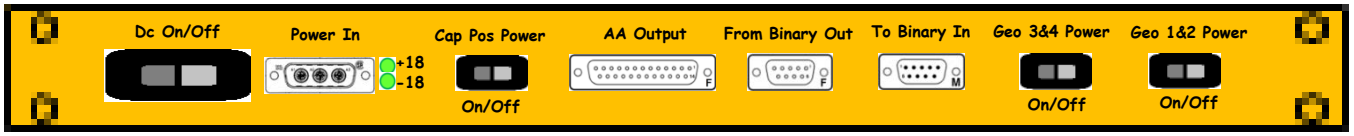
« L1-SEI-C4

BSC1 ISI Interface Chassis Pod 3 D1002432 S1201329 ±18VDC



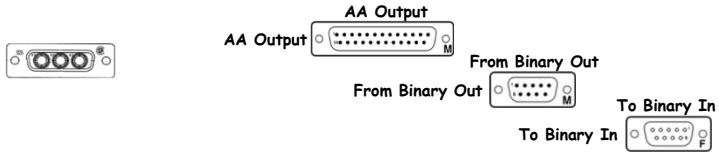
D1002432

Front



S1201329

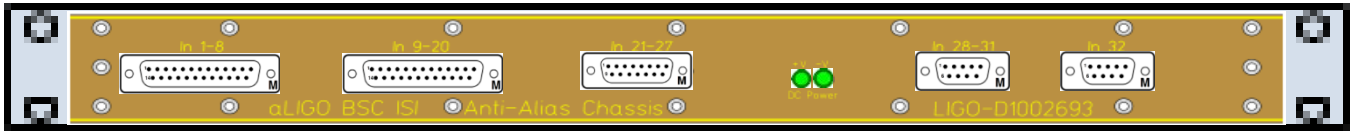
Rear



D1002693 - S1203001

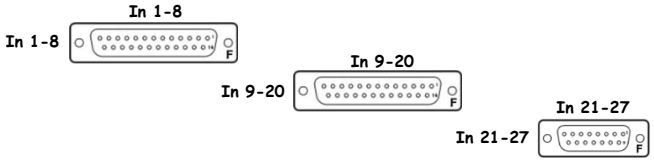
LIGO
<< L1-SEI-C4

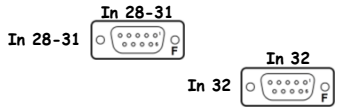
BSC1 ISI Anti-Alias Chassis | D1002693 | S1203001 | ±18VDC

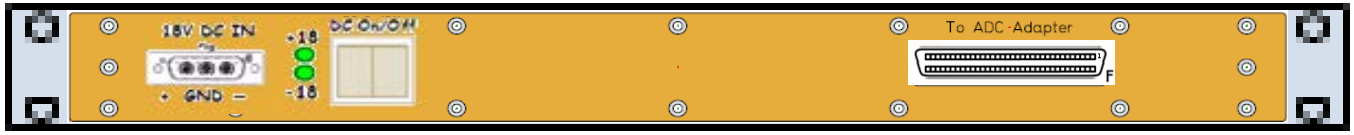


D1002693

Front

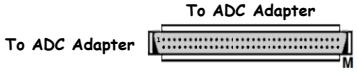






S1203001

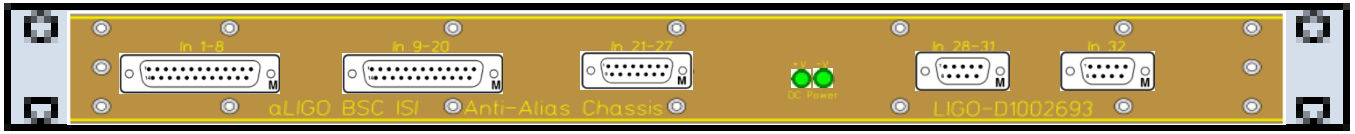
Rear



D1002693 - S1203000

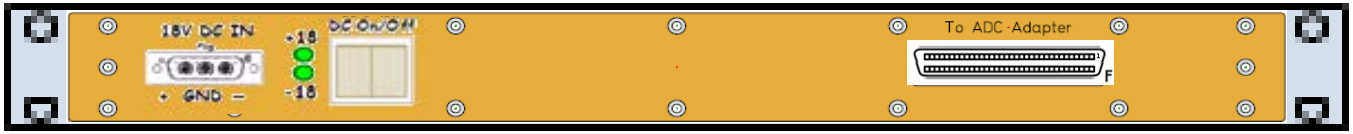
[<< L1-SEI-C4]

BSC1 ISI Anti-Alias Chassis | D1002693 | S1203000 | ±18VDC



D1002693

Front



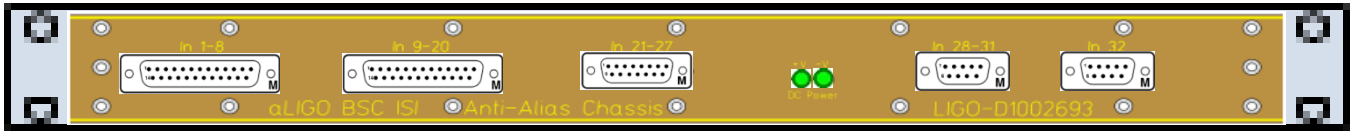
S1203000

Rear

D1002693 - S1202999

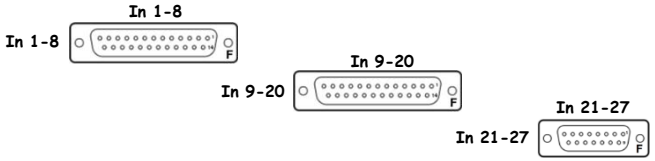
LIGO
<< L1-SEI-C4

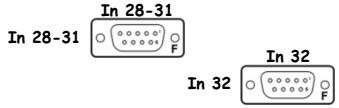
BSC1 ISI Anti-Alias Chassis | D1002693 | S1202999 | ±18VDC

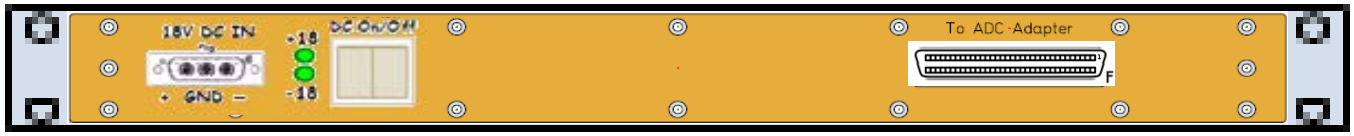


D1002693

Front

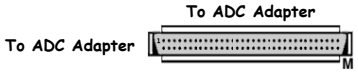






S1202999

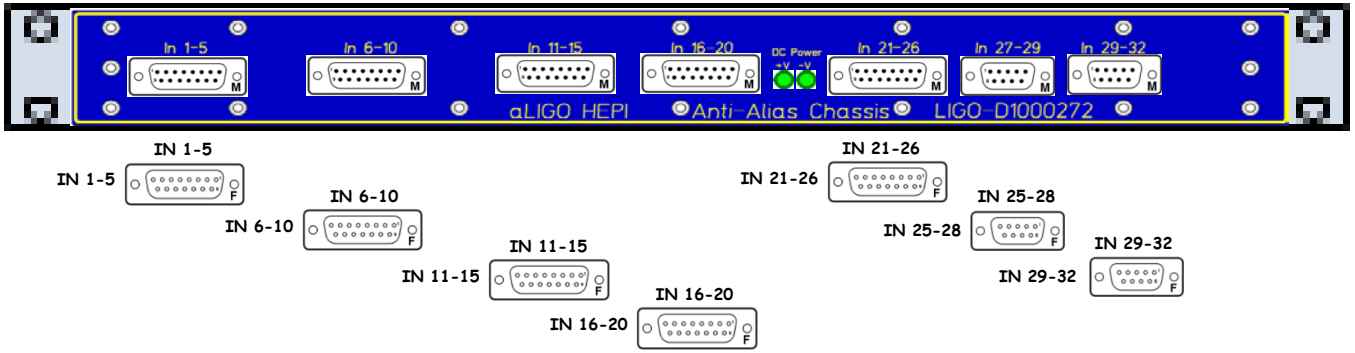
Rear



D1000272 - S1200951

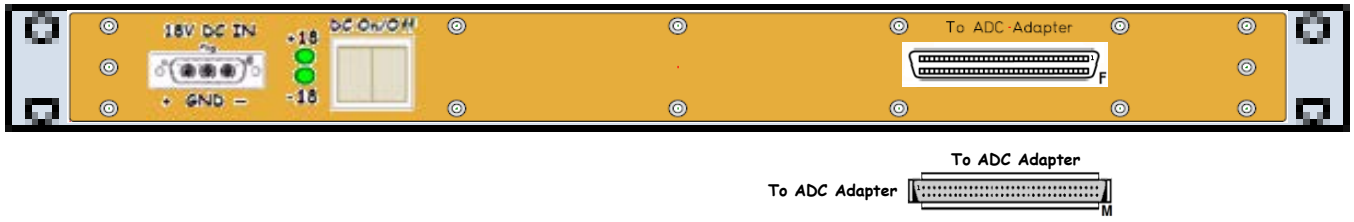
LIGO
<< L1-SEI-C4

BSC1 HEPI Anti-Alias Chassis | D1000272 | S1200951 | ±18VDC



D1000272

Front



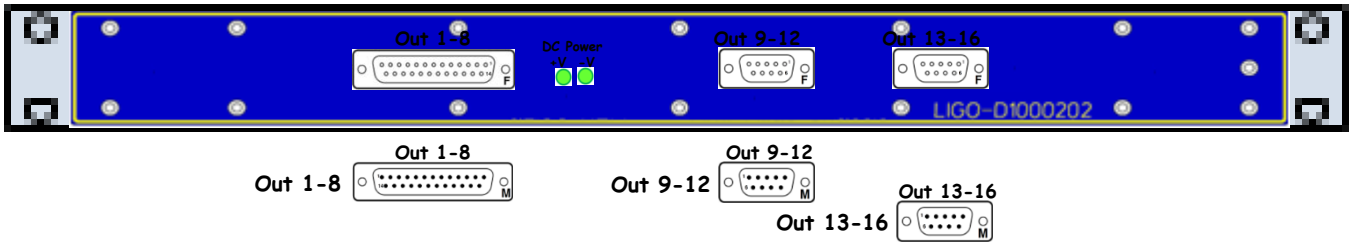
S1200951

Rear

D1100202 - S1203003

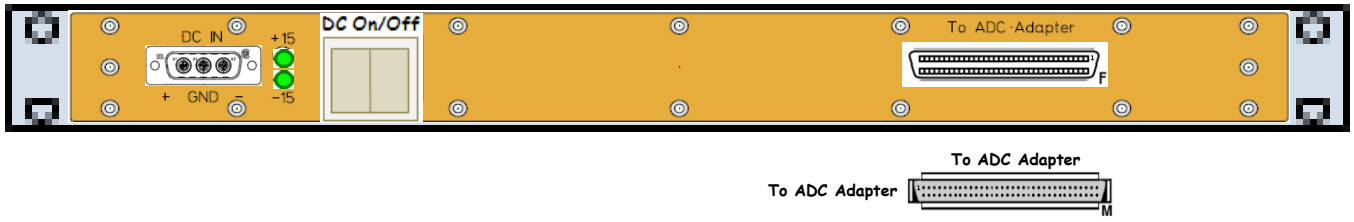
LIGO
<< L1-SEI-C4

BSC1 HEPI Anti-Image Chassis | D1100202 | S1203003 | ±18VDC



D1100202

Front



S1203003

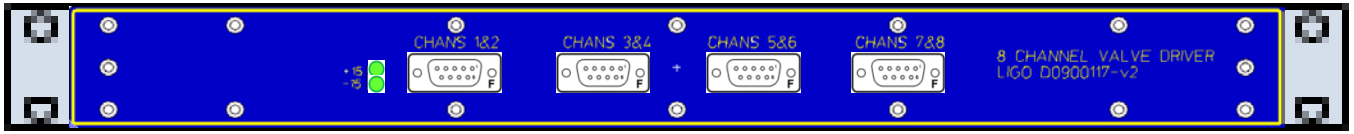
Rear

D0900117 - S0900279

LIGO
<< L1-SEI-C4

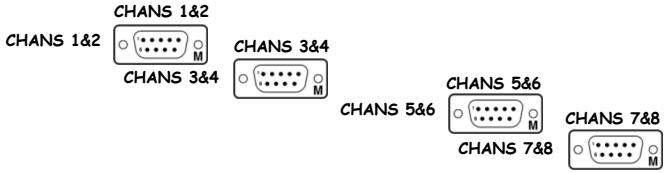
BSC1 HEPI 8-Channel Valve Driver | D0900117 | S0900279 | ±18VDC

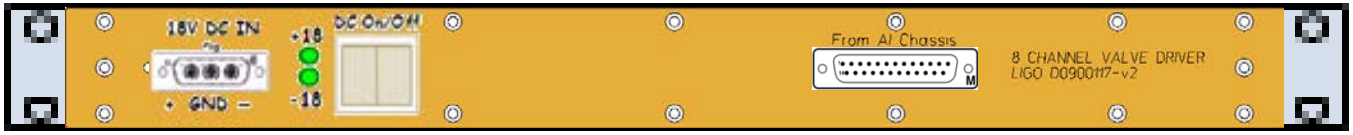
BSC1



D0900117

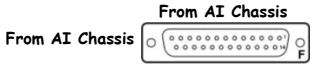
Front





S0900279

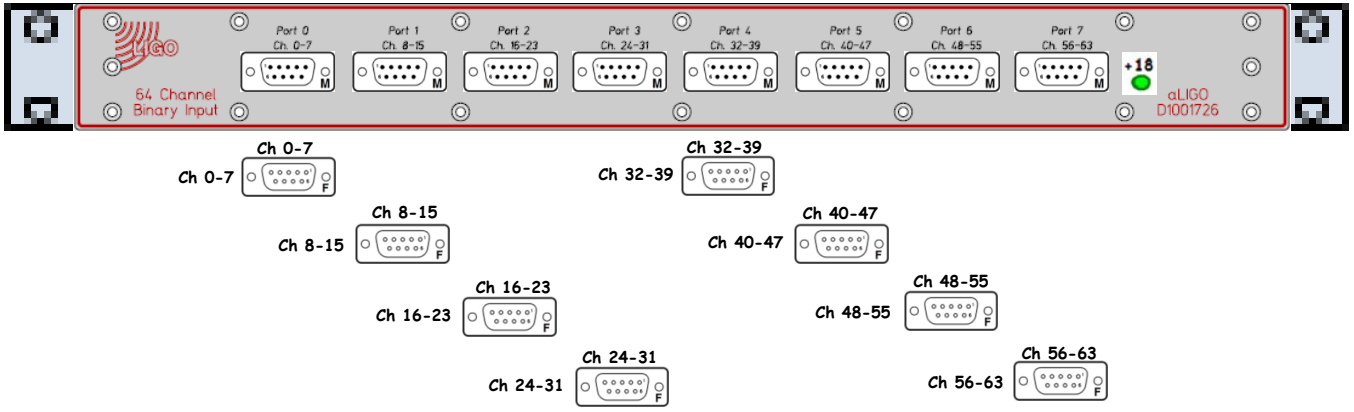
Rear



D0900117 is part of D0901338

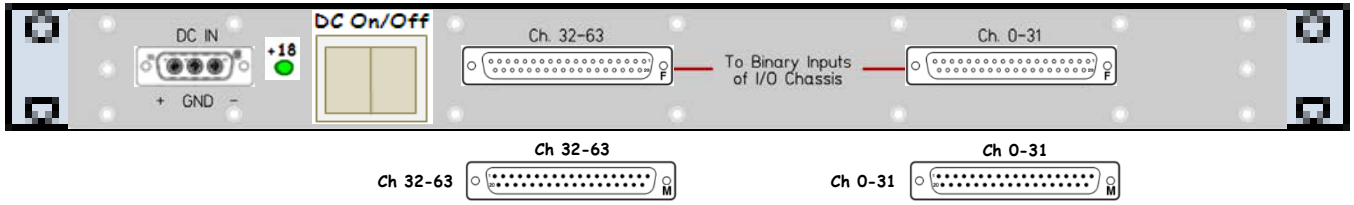
D1001726 - S1101295

BSC1 HEPI Binary Input Chassis | D1001726 | S1101295 | +18VDC



D1001726

Front

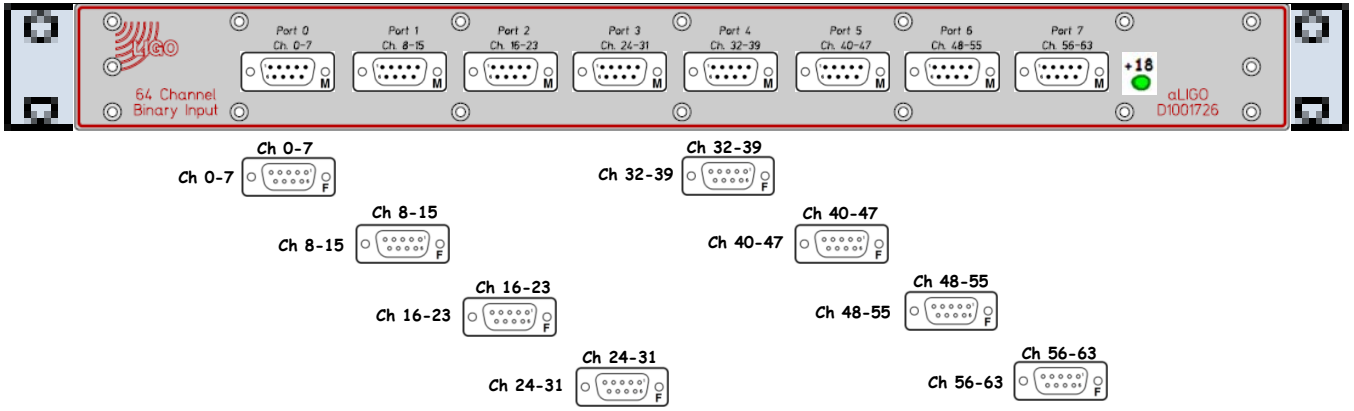


S1101295

Rear

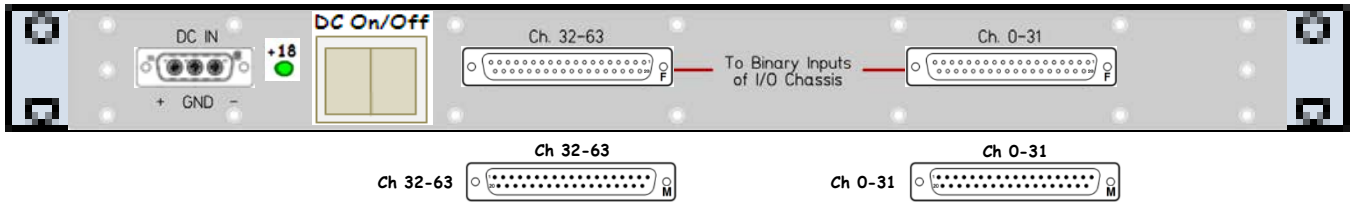
D1001726 - S1101296

BSC1 HEPI Binary Input Chassis | D1001726 | S1101296 | +18VDC



D1001726

Front



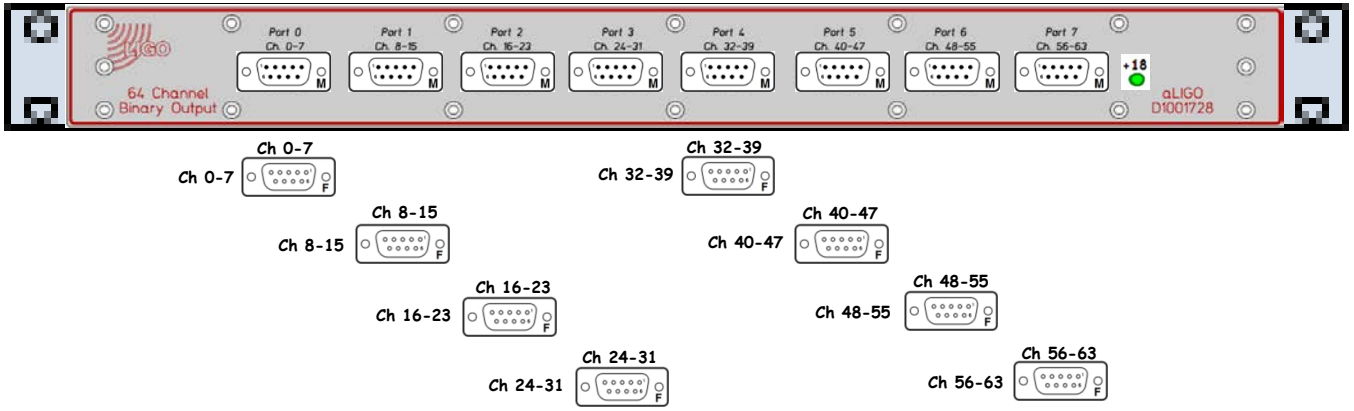
S1101296

Rear

D1001728 - S1101327

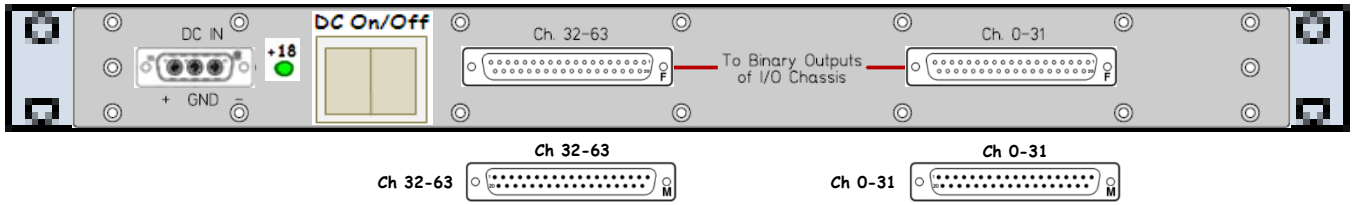
[<< L1-SEI-C4]

BSC1 HEPI Binary Output Chassis | D1001728 | S1101327 | +18VDC



D1001728

Front



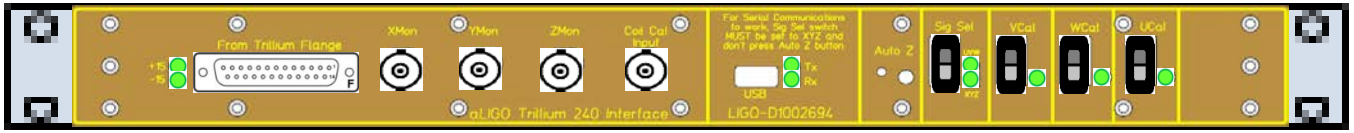
S1101327

Rear

D1002694 - S1201402

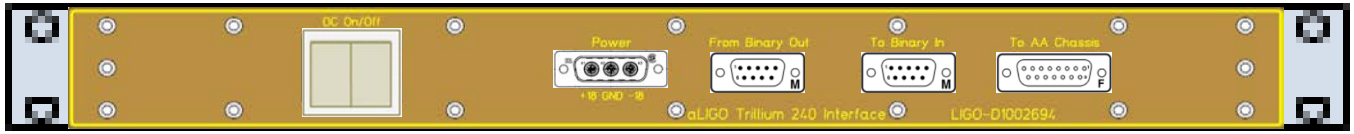
[<< L1-SEI-C4]

BSC1 T-240 Interface Chassis Pod 1 | D1002694 | S1201402 | ±18VDC



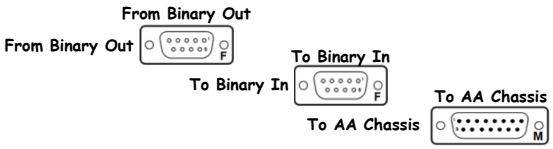
D1002694

Front



S1201402

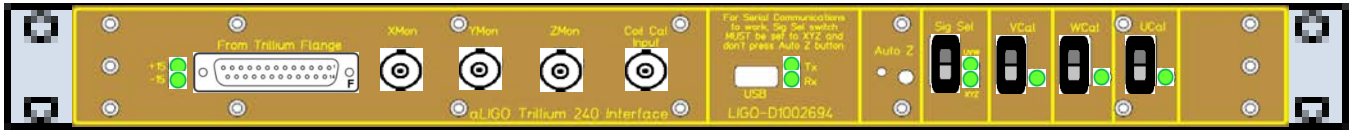
Rear



D1002694 - S1201391

[<< L1-SEI-C4]

BSC1 T-240 Interface Chassis Pod 2 | D1002694 | S1201391 | ±18VDC

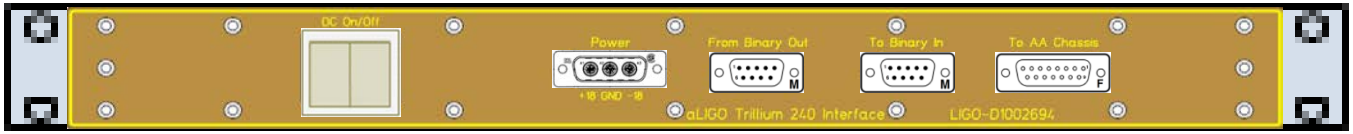


D1002694

Front

From Trillium Flange

From Trillium Flange



S1201391

Rear

From Binary Out

From Binary Out

To Binary In

To Binary In

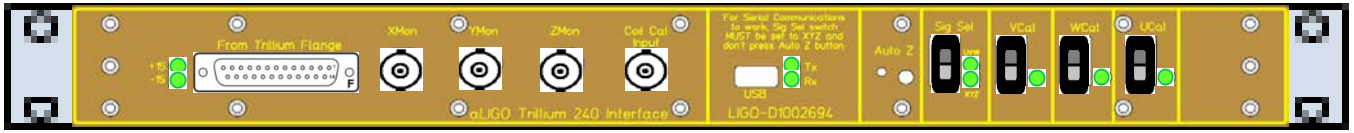
To AA Chassis

To AA Chassis

D1002694 - S12011386

[<< L1-SEI-C4]

BSC1 T-240 Interface Chassis Pod 3 | D1002694 | S1201386 | ±18VDC

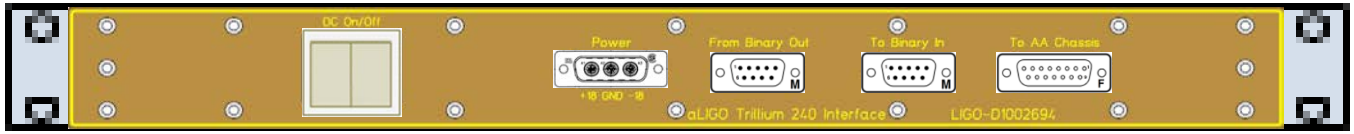


D1002694

Front

From Trillium Flange

From Trillium Flange



S1201386

Rear

From Binary Out

From Binary Out

To Binary In

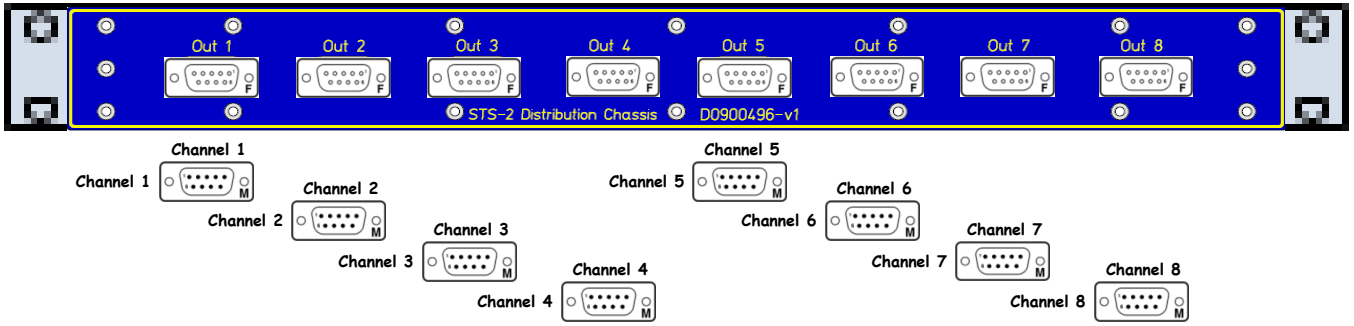
To Binary In

To AA Chassis

To AA Chassis

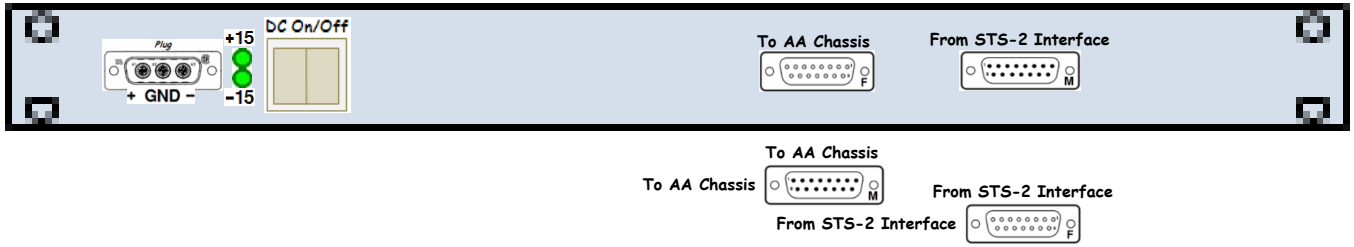
D0900351 - S0900137

BSC1 STS-2 Distribution Chassis | D0900351 | S0900137 | ±18VDC



D0900351

Front

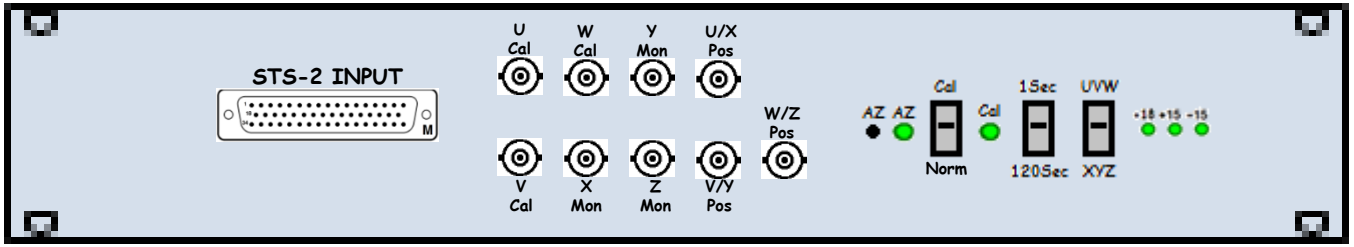


S0900137

Rear

D080535 - S0900097

BSC1 STS-2 Interface Chassis | D080535 | S0900097 | ±18VDC

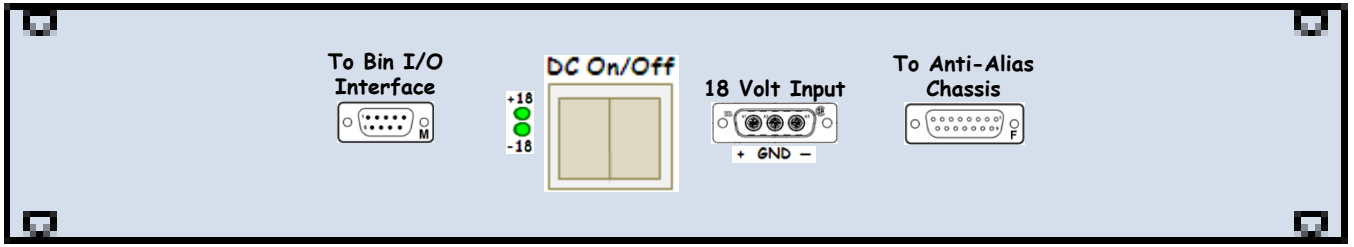


D080535

Front

STS-2 INPUT

STS-2 INPUT



S0900097

Rear

To Bin I/O

To Bin I/O

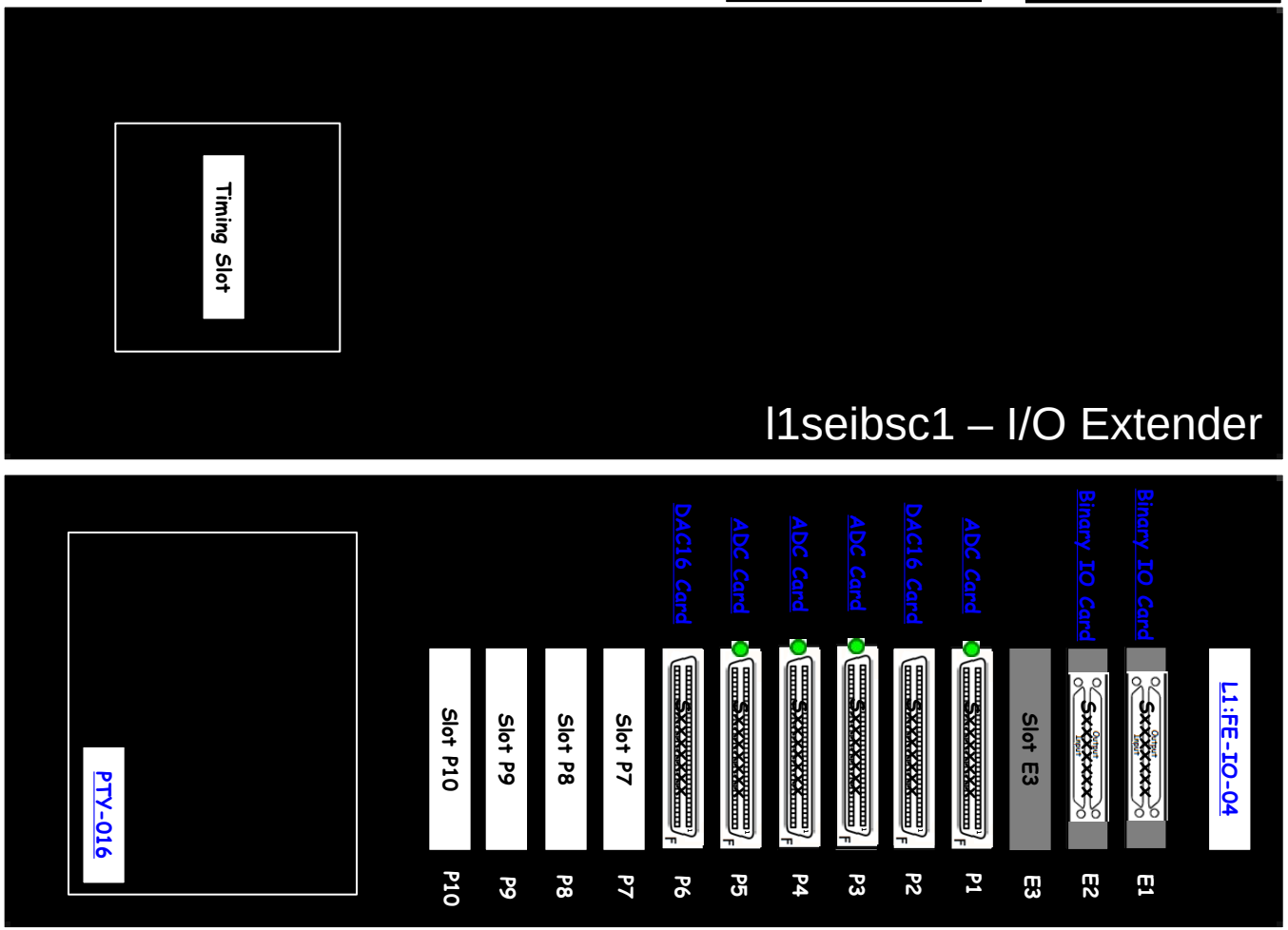
To Anti-Alias

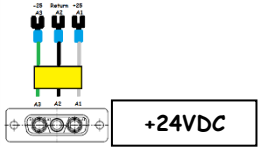
To Anti-Alias

l1seibsc1 - D1001715 - S1001147

« L1-SEI-C4

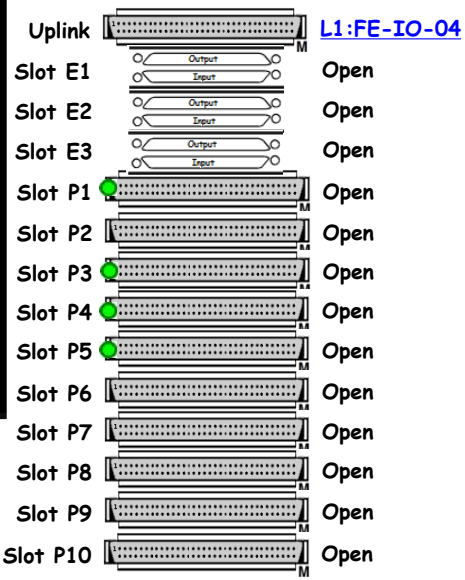
l1seibsc1 – I/O Extension Chassis | D1001715 | S1001147 | +24VDC





D1001715
Front

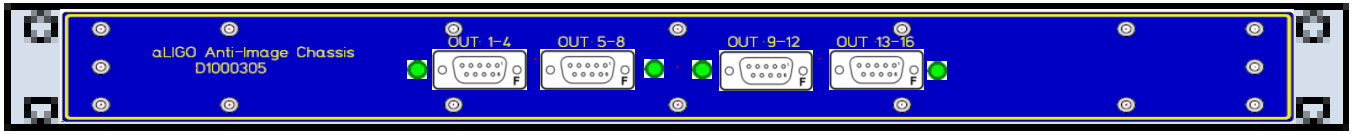
S1001147
Rear



D1000305 - S1203007

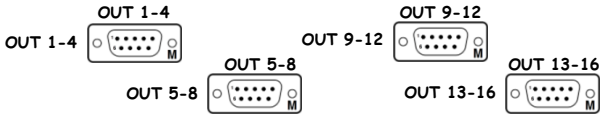
[<< L1-SEI-C4]

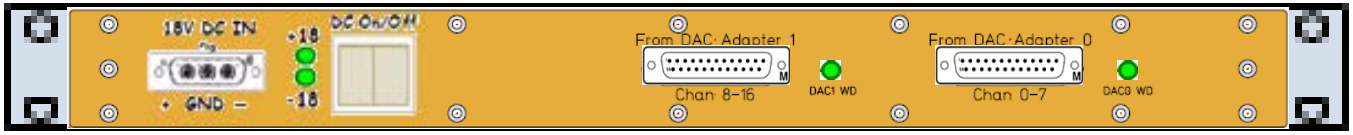
BSC1 Anti-Image Chassis | D1000305 | S1203007 | ±18VDC



D1000305

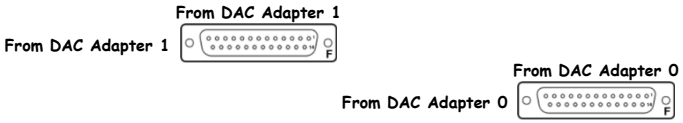
Front





S1203007

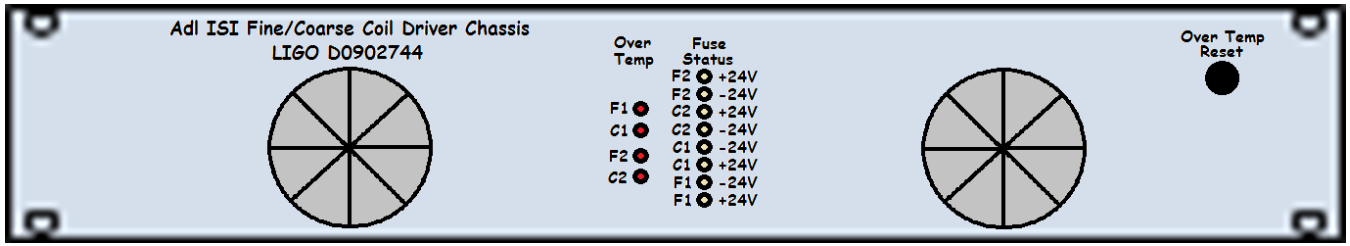
Rear



D0902744 - S1103328

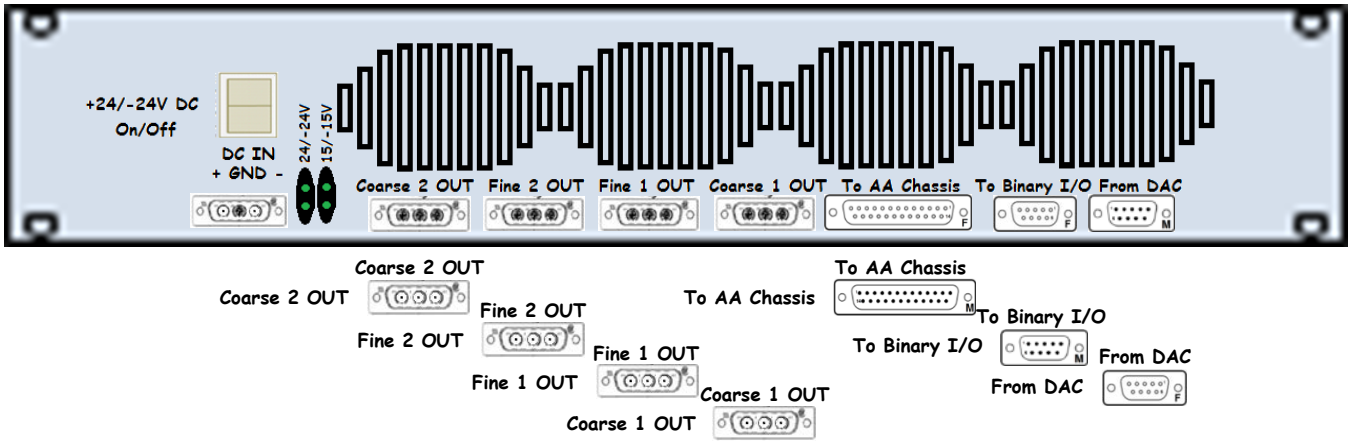
[<< L1-SEI-C4]

BSC1 ISI Coil Driver Pod 1 | D0902744 | S1103328 | ±24VDC



D0902744

Front



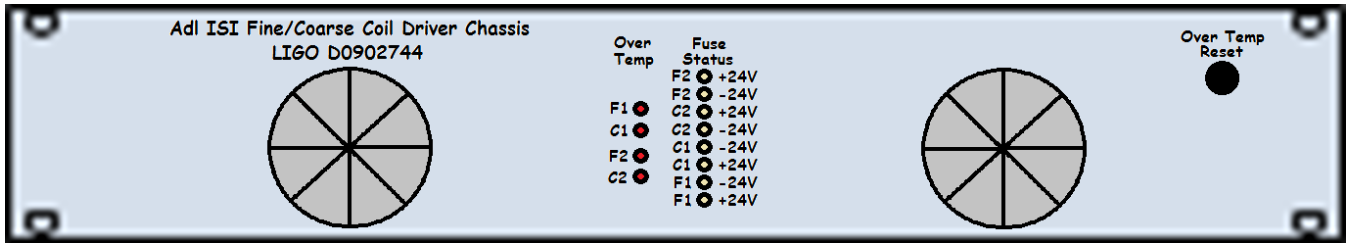
S1103328

Rear

D0902744 - S1103322

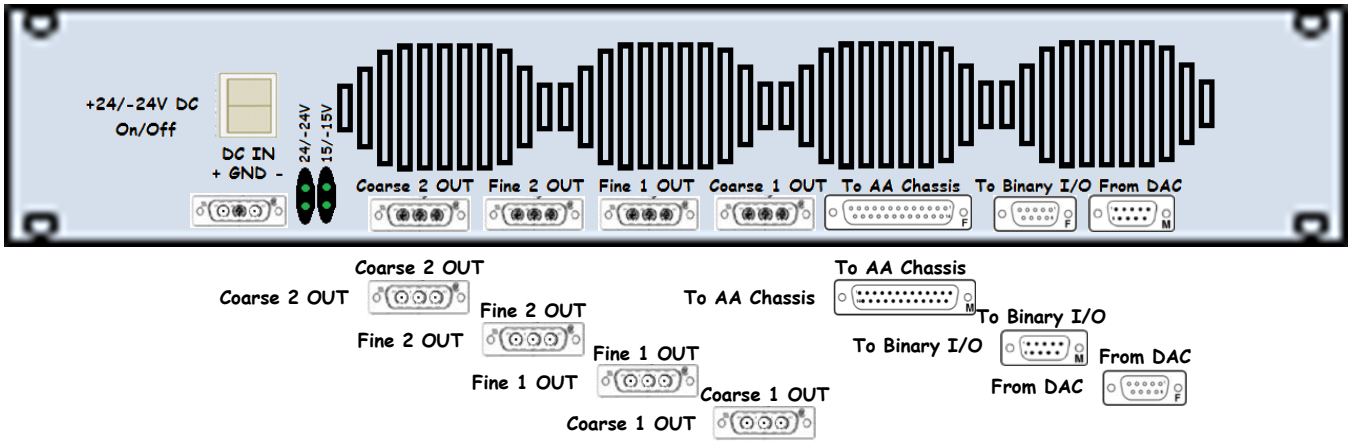
[<< L1-SEI-C4]

BSC1 ISI Coil Driver Pod 2 | D0902744 | S1103322 | ±24VDC



D0902744

Front

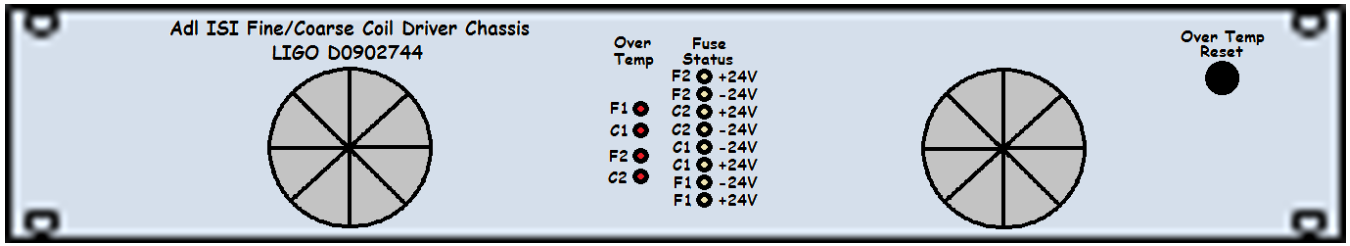


S1103322

Rear

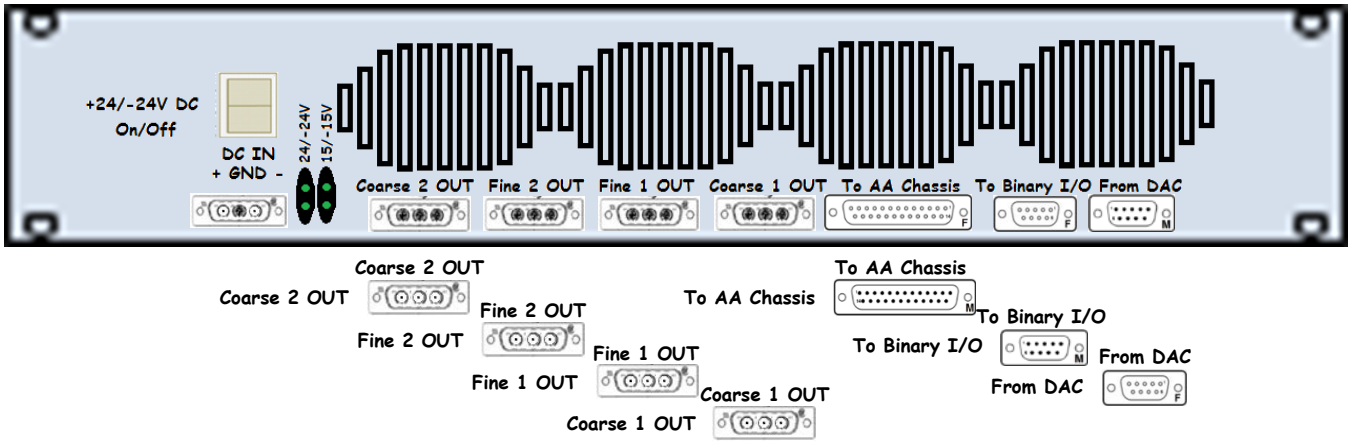
D0902744 - S1103311

BSC1 ISI Coil Driver Pod 1 | D0902744 | S1103311 | ±24VDC



D0902744

Front



S1103311

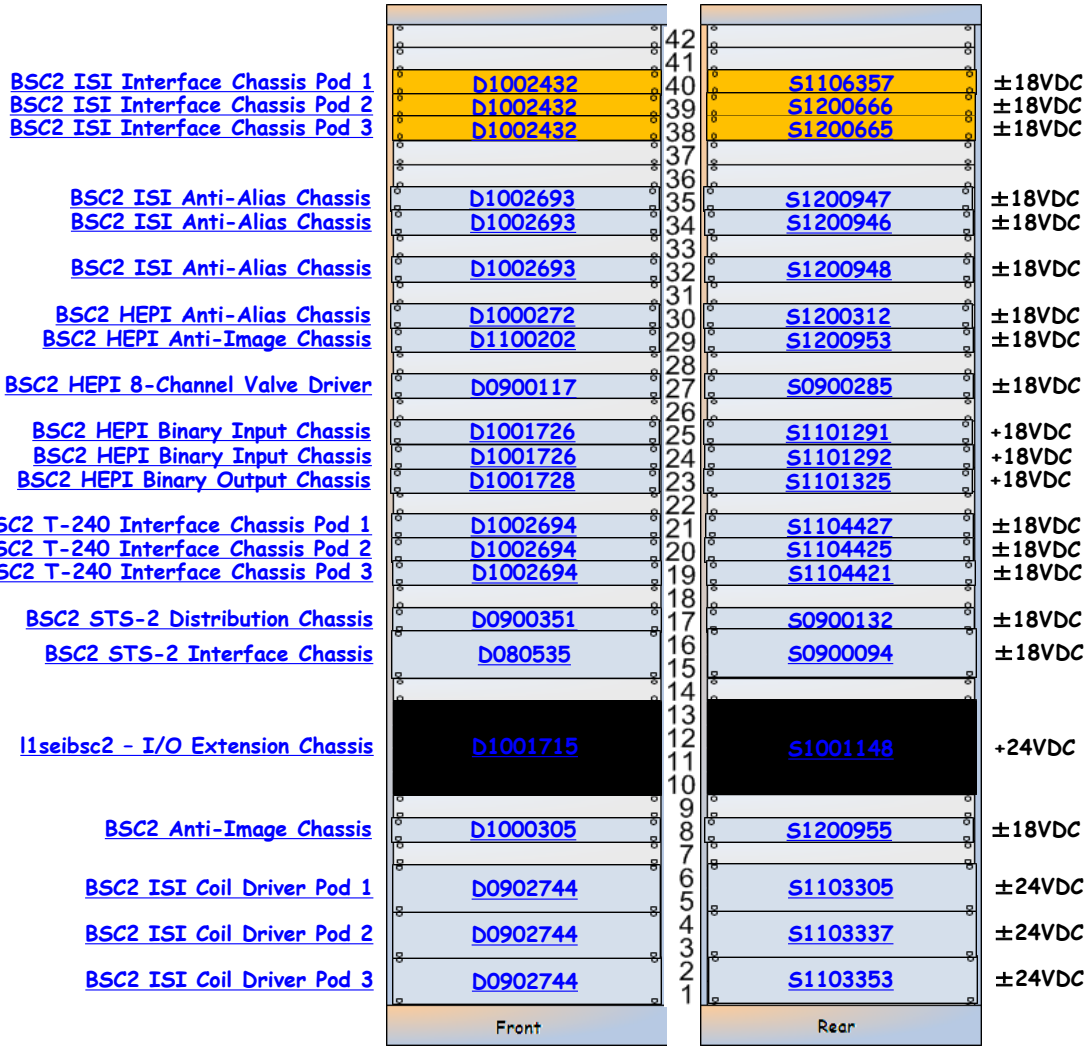
Rear

L1-SEI-C5

LIGO

<< CER

SEI BSC2 ISI and HEPI Rack Layout (D1201116) (S1200747)



SEI-C5 is part of D0901301

L1-SEI-C5 Details

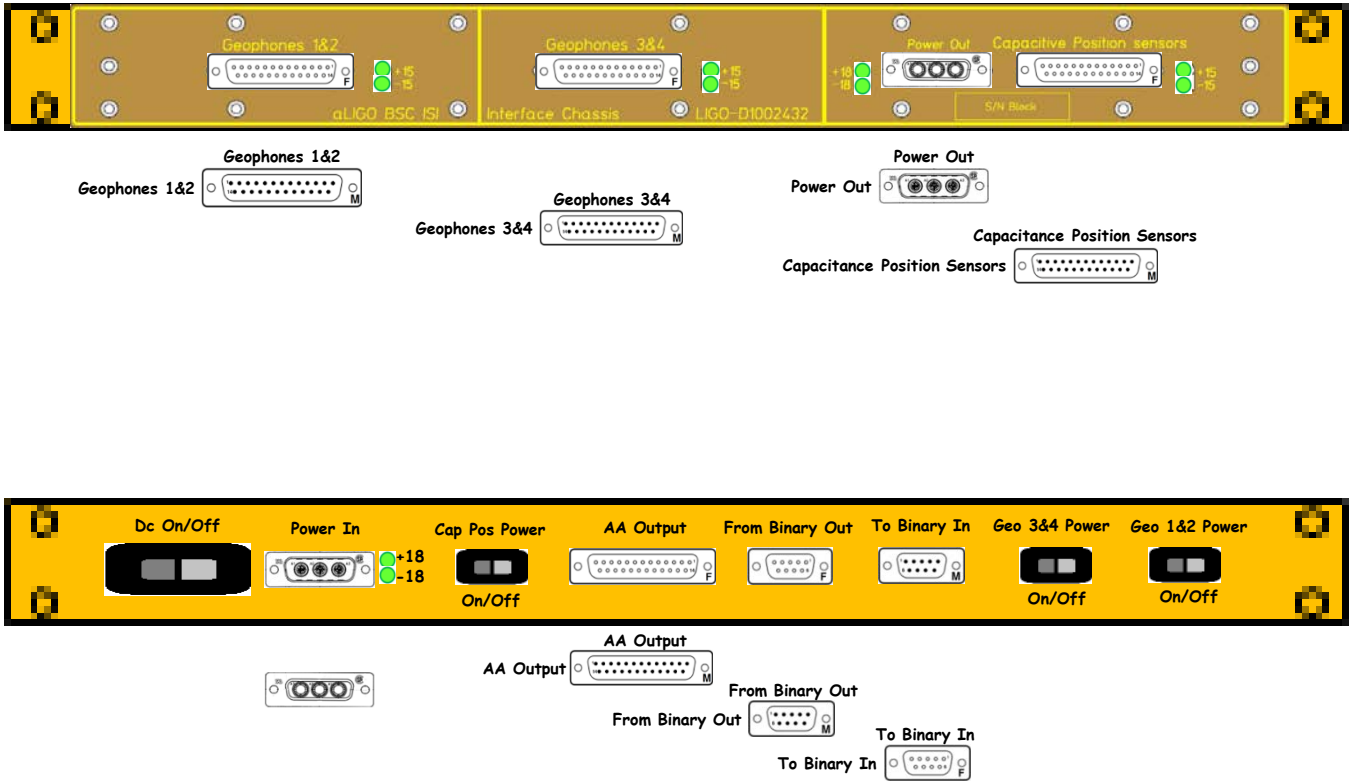
L1-SEI-C5 Details

SEI-C5 is part of D0901301

D1002432 - S1106357

[<< L1-SEI-C5]

BSC2 ISI Interface Chassis Pod 1 | D1002432 | S1106357 | ±18VDC



D1002432

Front

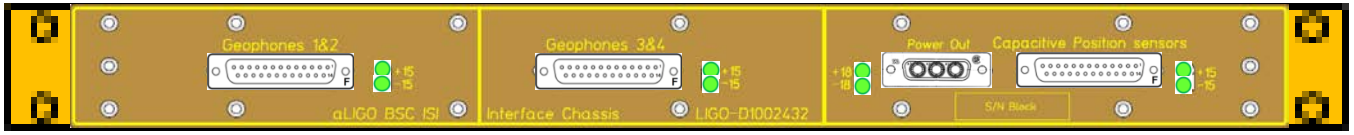
S1106357

Rear

D1002432 - S1200666

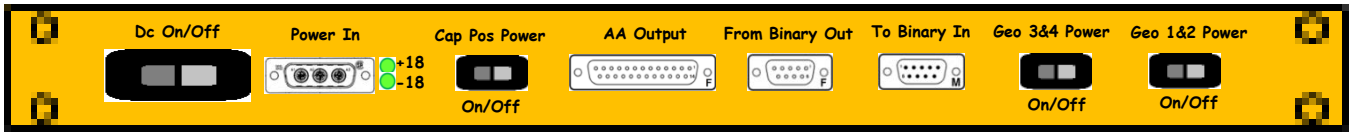
[<< L1-SEI-C5]

BSC2 ISI Interface Chassis Pod 2 | D1002432 | S1200666 | ±18VDC



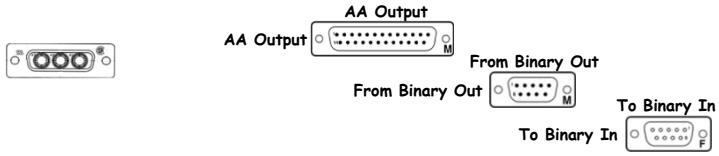
D1002432

Front



S1200666

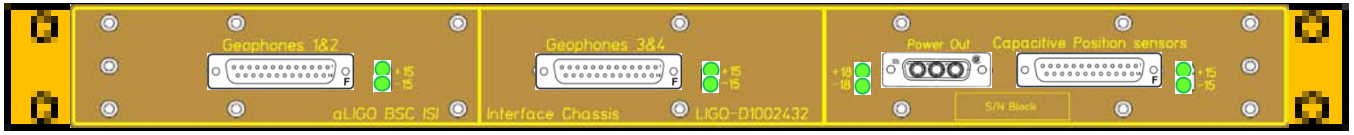
Rear



D1002432 - S1200665

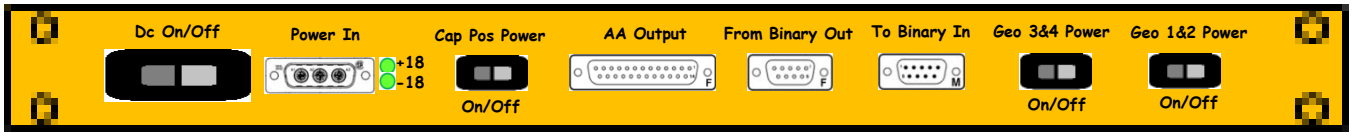
[<< L1-SEI-C5]

BSC2 ISI Interface Chassis Pod 3 | D1002432 | S1200665 | ±18VDC



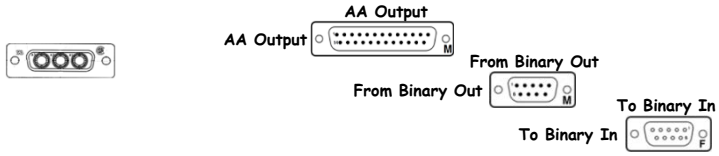
D1002432

Front



S1200665

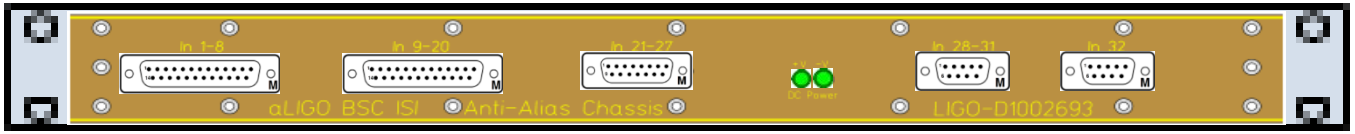
Rear



D1002693 - S1200947

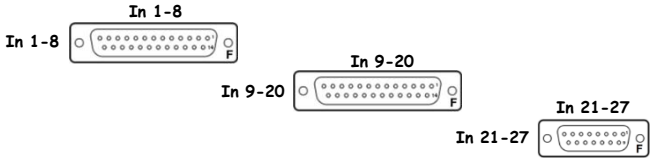
[<< L1-SEI-C5]

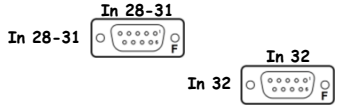
BSC2 ISI Anti-Alias Chassis | D1002693 | S1200947 | ±18VDC

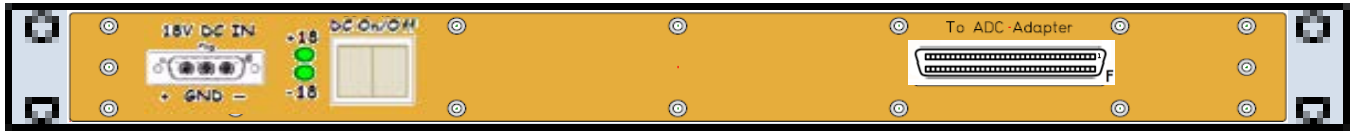


D1002693

Front

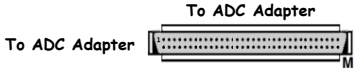






S1200947

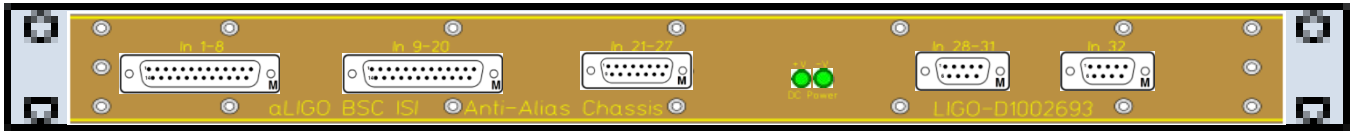
Rear



D1002693 - S1200946

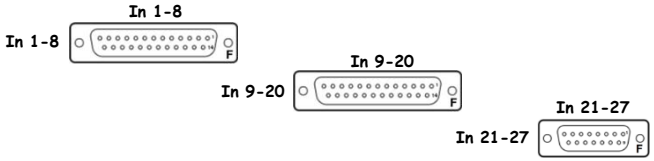
LIGO
<< L1-SEI-C5

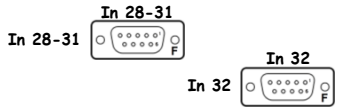
BSC2 ISI Anti-Alias Chassis | D1002693 | S1200946 | ±18VDC

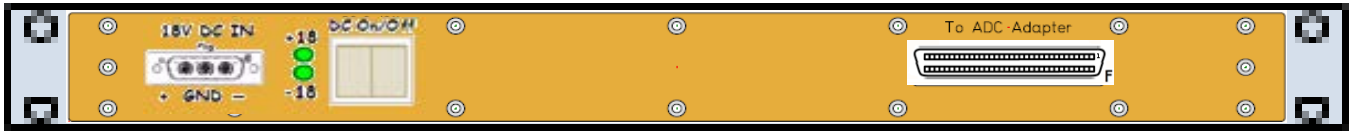


D1002693

Front

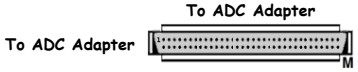






S1200946

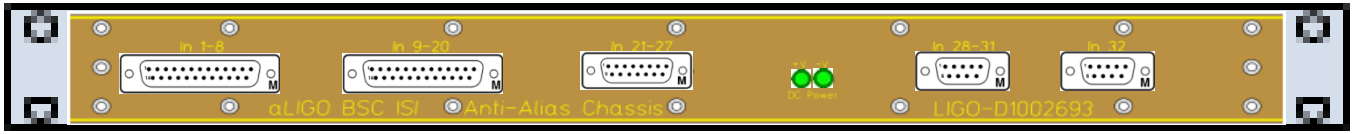
Rear



D1002693 - S1200948

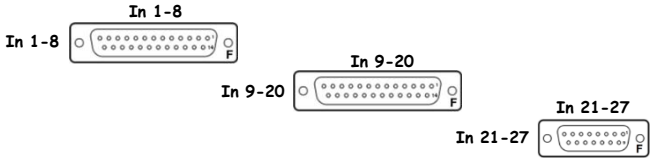
[<< L1-SEI-C5]

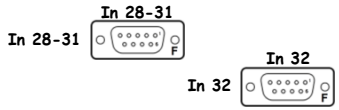
BSC2 ISI Anti-Alias Chassis | D1002693 | S1200948 | ±18VDC

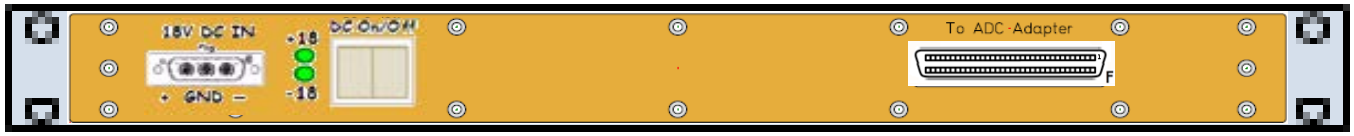


D1002693

Front

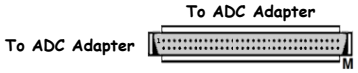






S1200948

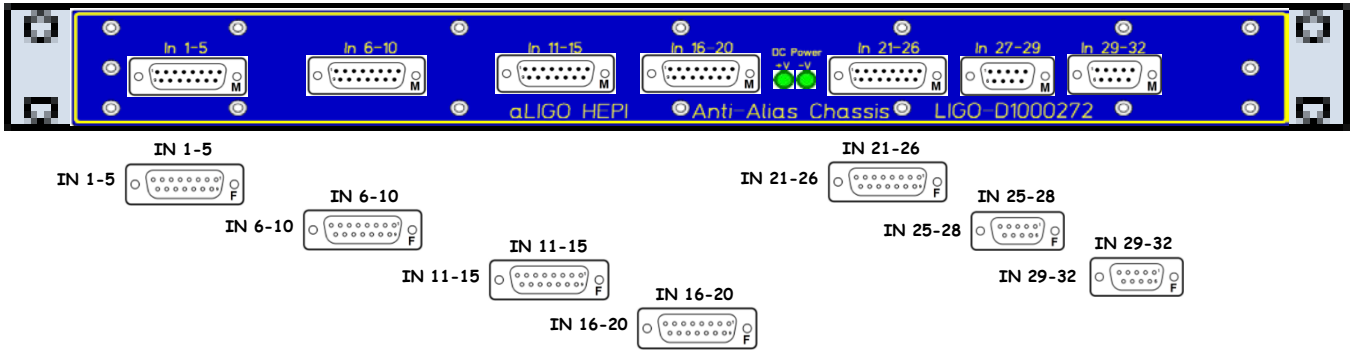
Rear



D1000272 - S1200312

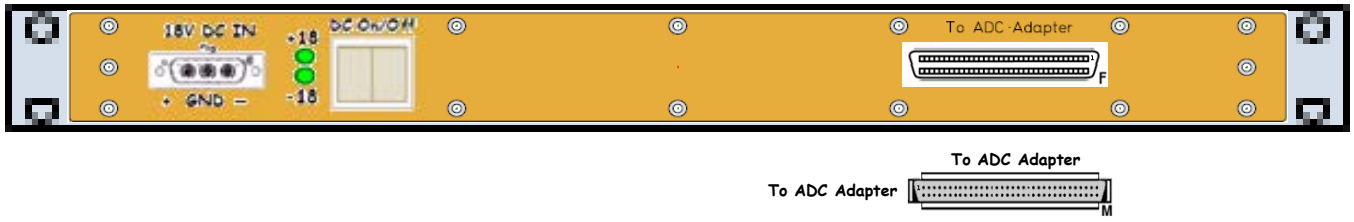
[<< L1-SEI-C5]

BSC2 HEPI Anti-Alias Chassis | D1000272 | S1200312 | ±18VDC



D1000272

Front

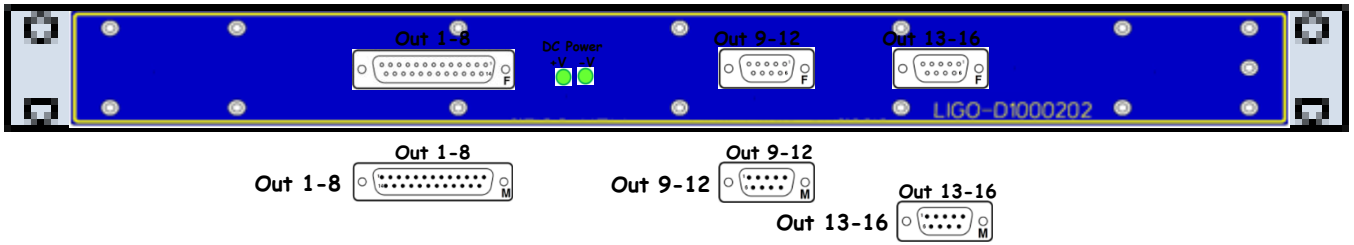


S1200312

Rear

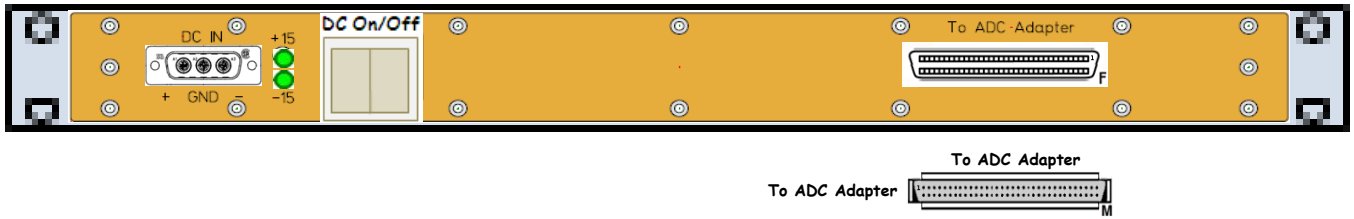
D1100202 - S1200953

BSC2 HEPI Anti-Image Chassis | D1100202 | S1200953 | ±18VDC



D1100202

Front



S1200953

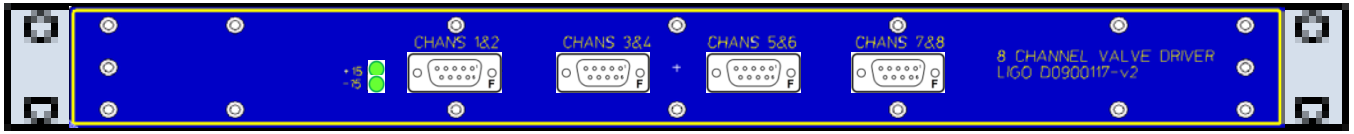
Rear

D0900117 - S0900285

LIGO
<< L1-SEI-C5

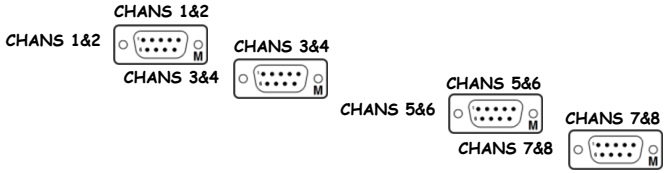
BSC2 HEPI 8-Channel Valve Driver | D0900117 | S0900285 | ±18VDC

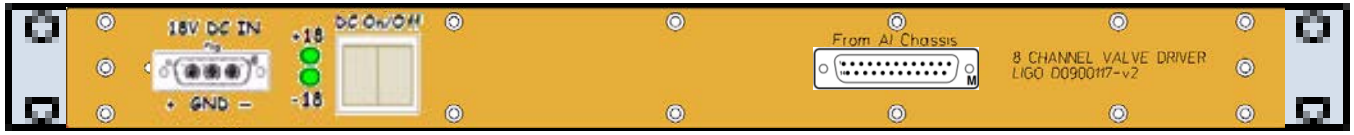
BSC2



D0900117

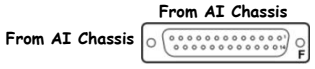
Front





S0900285

Rear

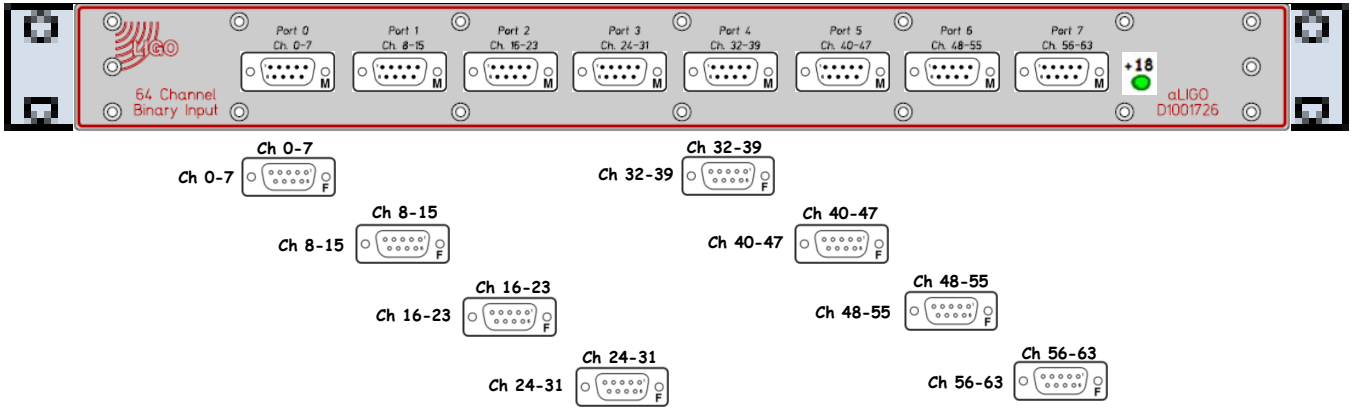


D0900117 is part of D0901338

D1001726 - S1101291

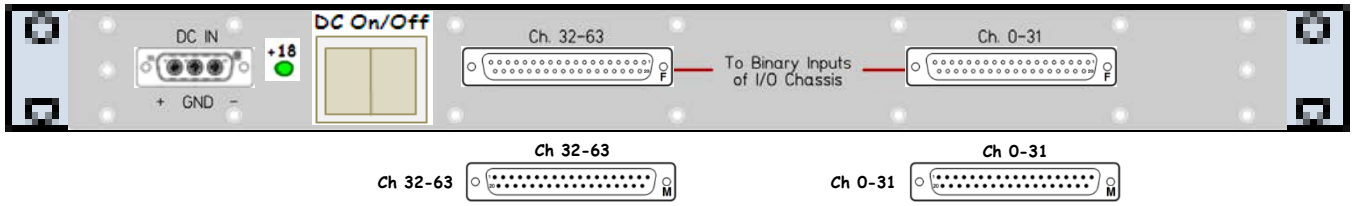
« L1-SEI-C5

BSC2 HEPI Binary Input Chassis | D1001726 | S1101291 | +18VDC



D1001726

Front

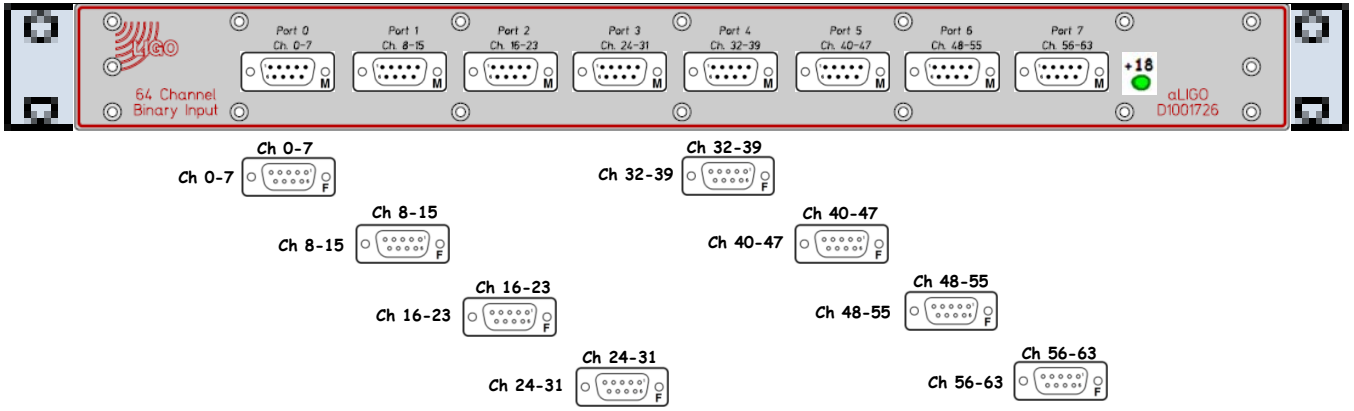


S1101291

Rear

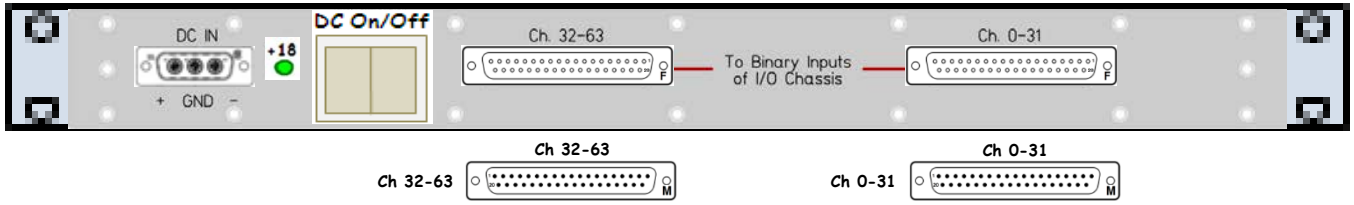
D1001726 - S1101292

BSC2 HEPI Binary Input Chassis | D1001726 | S1101292 | +18VDC



D1001726

Front



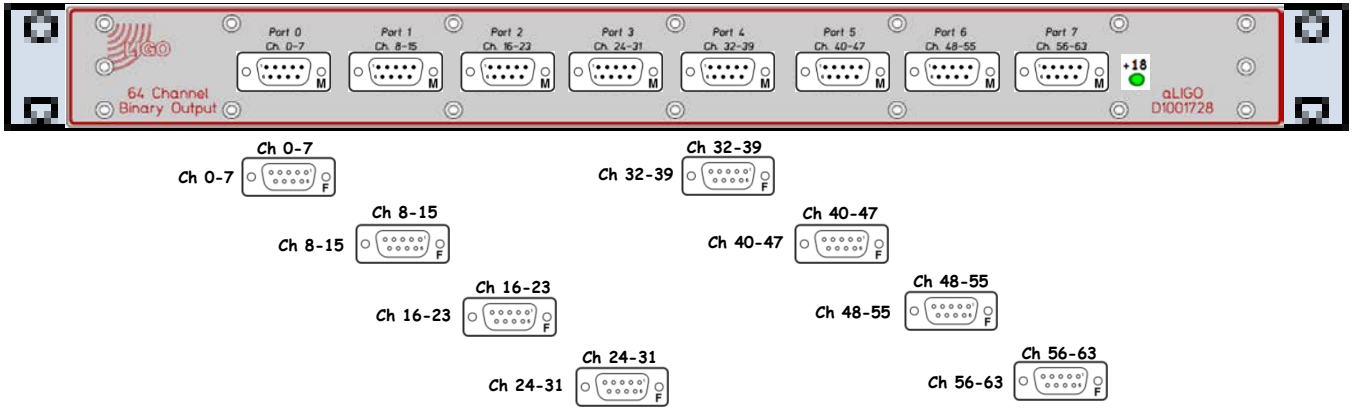
S1101292

Rear

D1001728 - S1101325

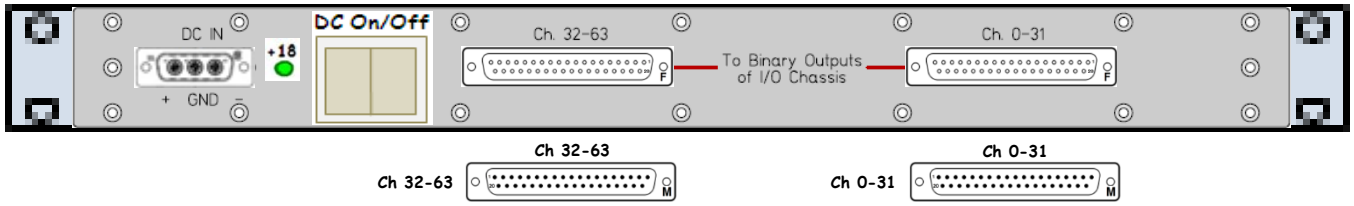
LIGO
<< L1-SEI-C5

BSC2 HEPI Binary Output Chassis | D1001728 | S1101325 | +18VDC



D1001728

Front



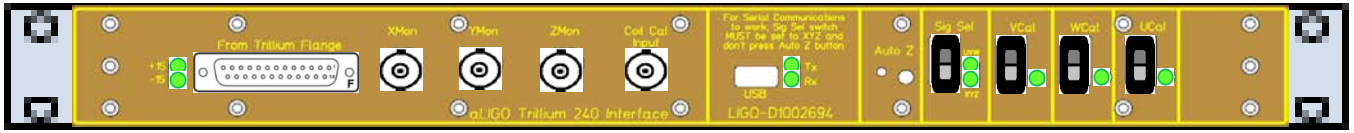
S1101325

Rear

D1002694 - S1104427

[<< L1-SEI-C5]

BSC2 T-240 Interface Chassis Pod 1 | D1002694 | S1104427 | ±18VDC

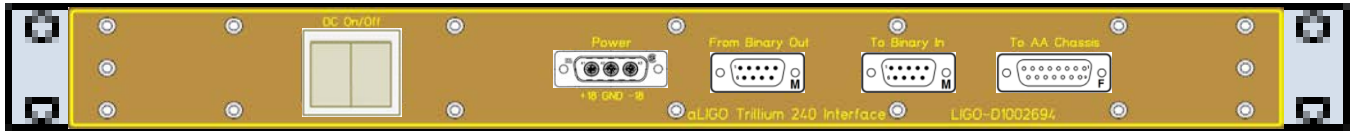


D1002694

Front

From Trillium Flange

From Trillium Flange



S1104427

Rear

From Binary Out

From Binary Out

To Binary In

To Binary In

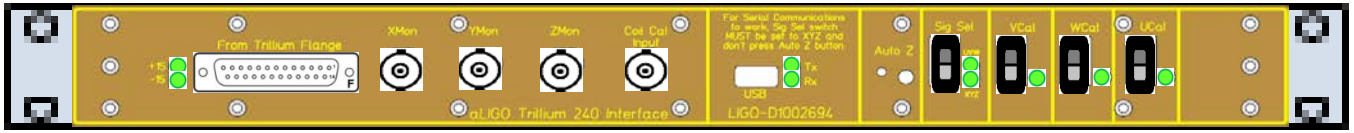
To AA Chassis

To AA Chassis

D1002694 - S1104425

[<< L1-SEI-C5]

BSC2 T-240 Interface Chassis Pod 2 | D1002694 | S1104425 | ±18VDC

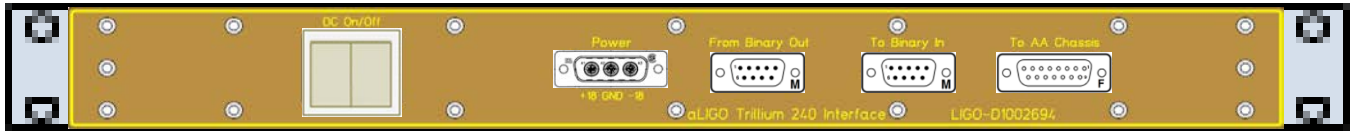


D1002694

Front

From Trillium Flange

From Trillium Flange



S1104425

Rear

From Binary Out

From Binary Out

To Binary In

To Binary In

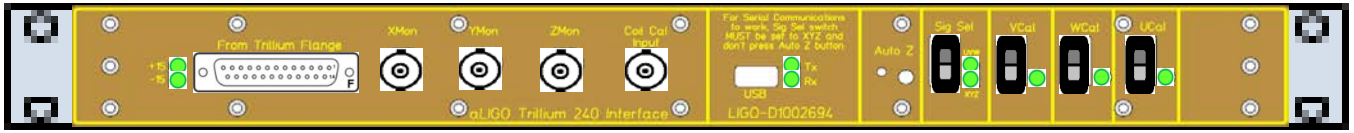
To AA Chassis

To AA Chassis

D1002694 - S1104421

[<< L1-SEI-C5]

BSC2 T-240 Interface Chassis Pod 3 | D1002694 | S1104421 | ±18VDC

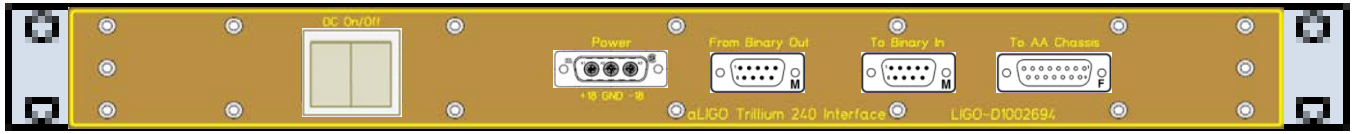


D1002694

Front

From Trillium Flange

From Trillium Flange



S1104421

Rear

From Binary Out

From Binary Out

To Binary In

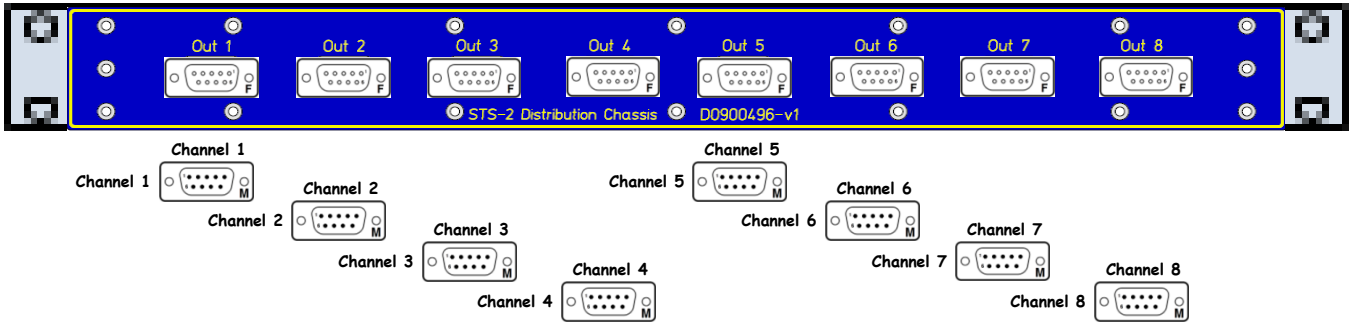
To Binary In

To AA Chassis

To AA Chassis

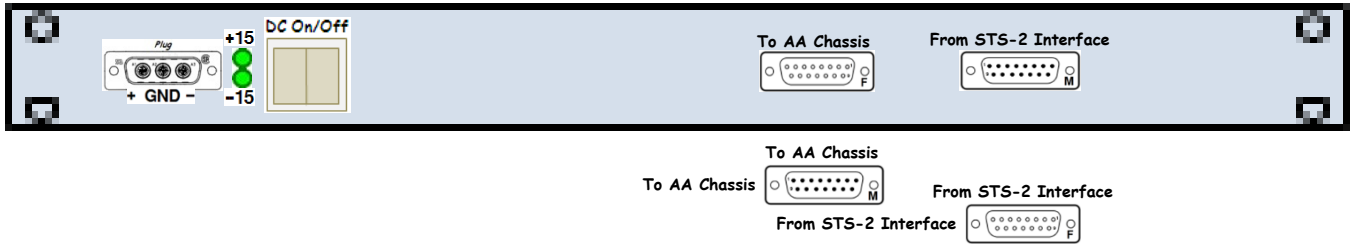
D0900351 - S0900132

BSC2 STS-2 Distribution Chassis | D0900351 | S0900132 | ±18VDC



D0900351

Front

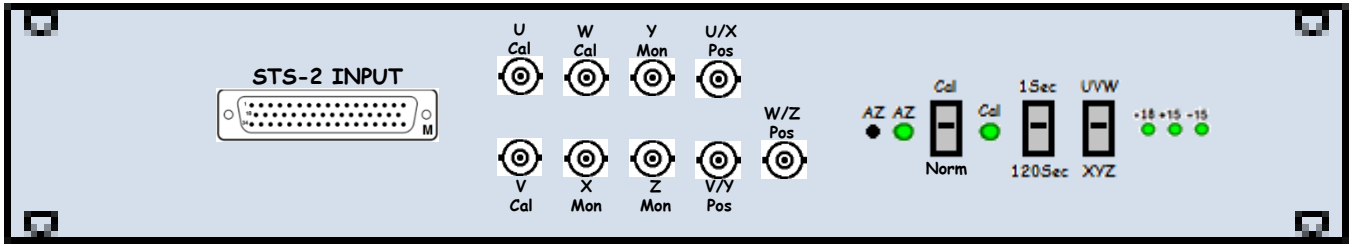


S0900132

Rear

D080535 - S0900094

BSC2 STS-2 Interface Chassis | D080535 | S0900094 | ±18VDC

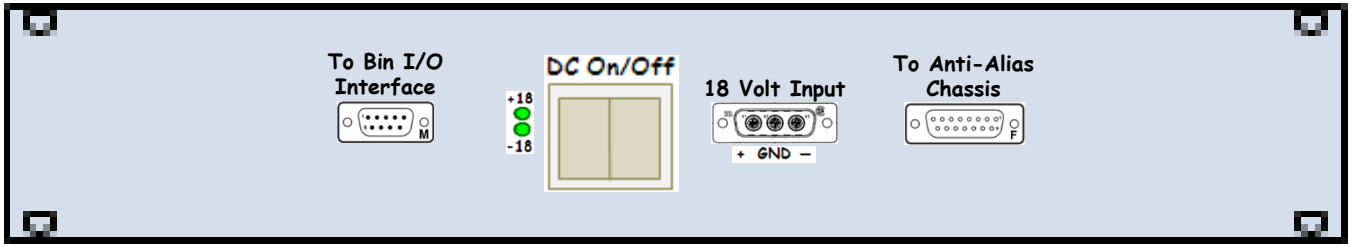


D080535

Front

STS-2 INPUT

STS-2 INPUT



S0900094

Rear

To Bin I/O

To Bin I/O

To Anti-Alias

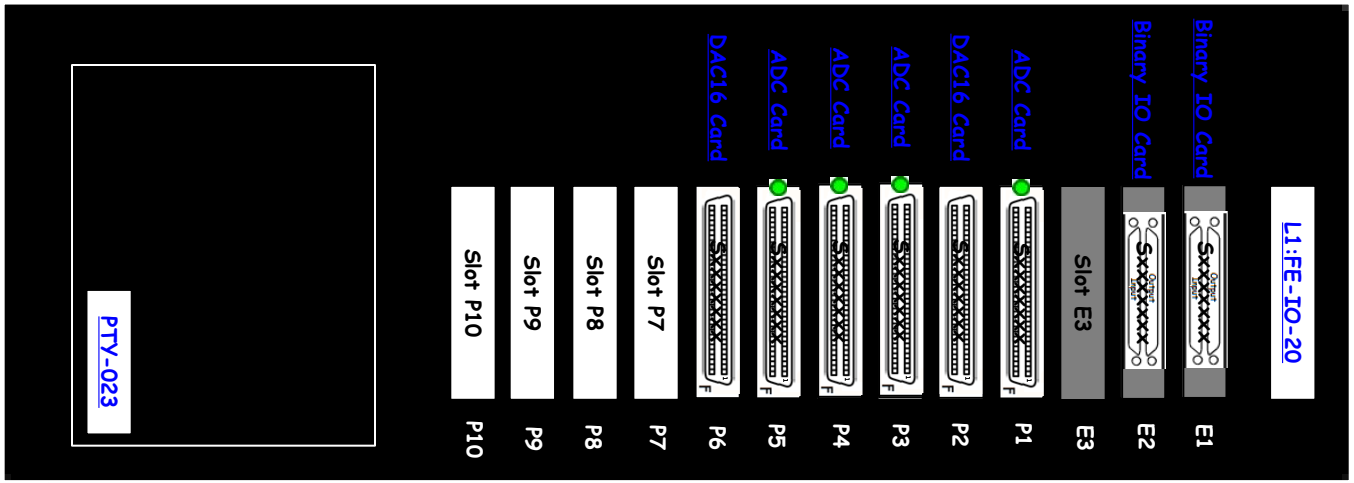
To Anti-Alias

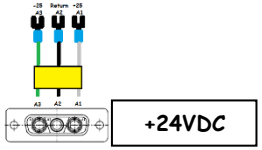
l1seibsc2 - D1001715 - S1001148

« L1-SEI-C5

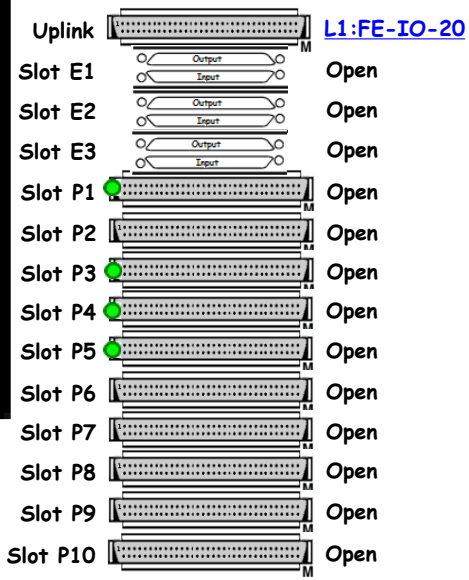
l1seibsc2 – I/O Extension Chassis | D1001715 | S1001148 | +24VDC

D1001715
Front



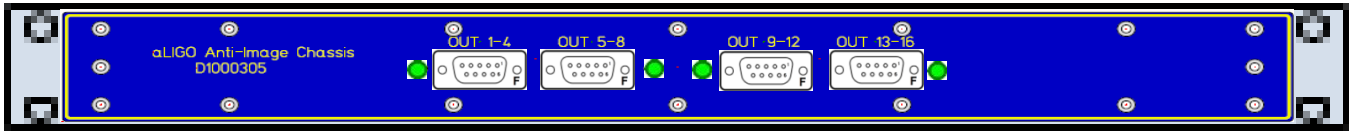


S1001148
Rear



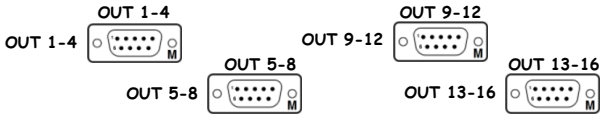
D1000305 - S1200955

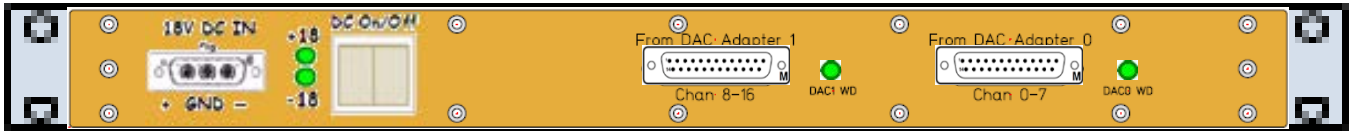
BSC2 Anti-Image Chassis | D1000305 | S1200955 | ±18VDC



D1000305

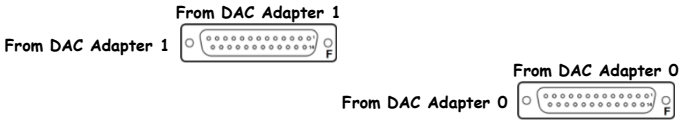
Front





S1200955

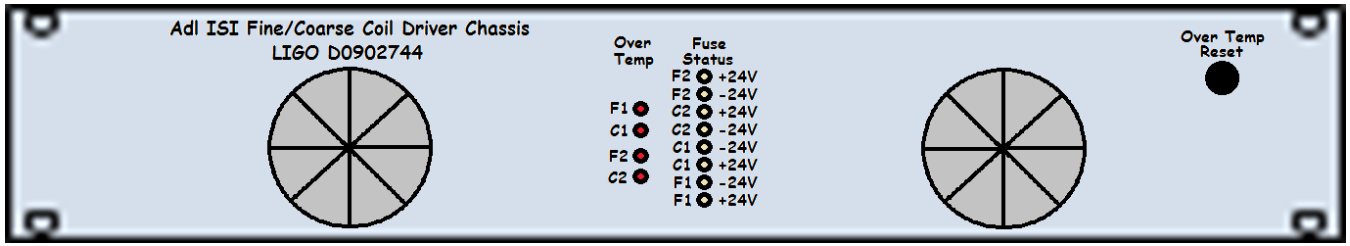
Rear



D0902744 - S1103305

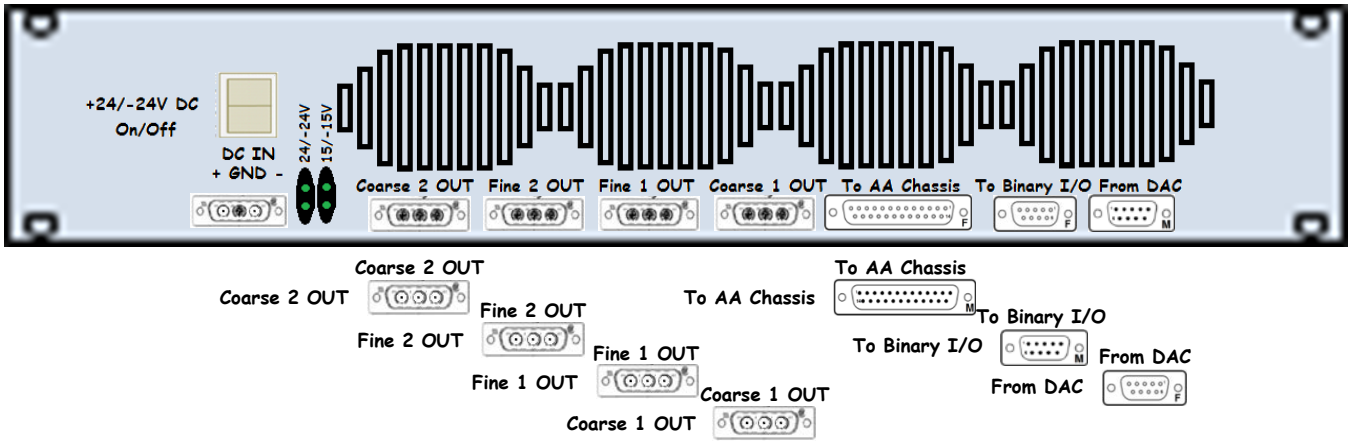
« L1-SEI-C5

BSC2 ISI Coil Driver Pod 1 | D0902744 | S1103305 | ±24VDC



D0902744

Front



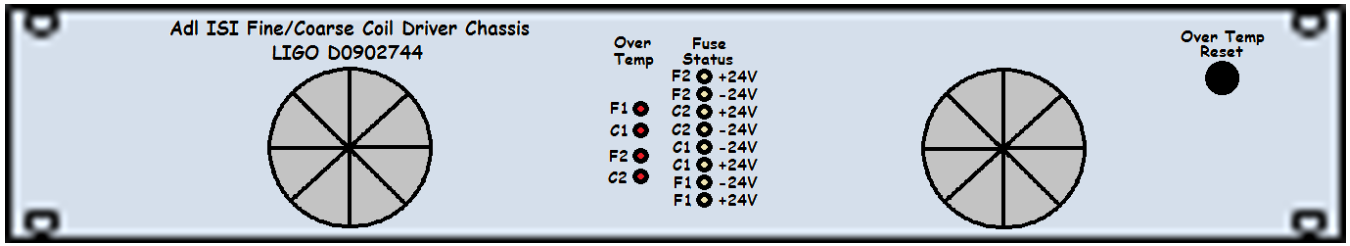
S1103305

Rear

D0902744 - S1103337

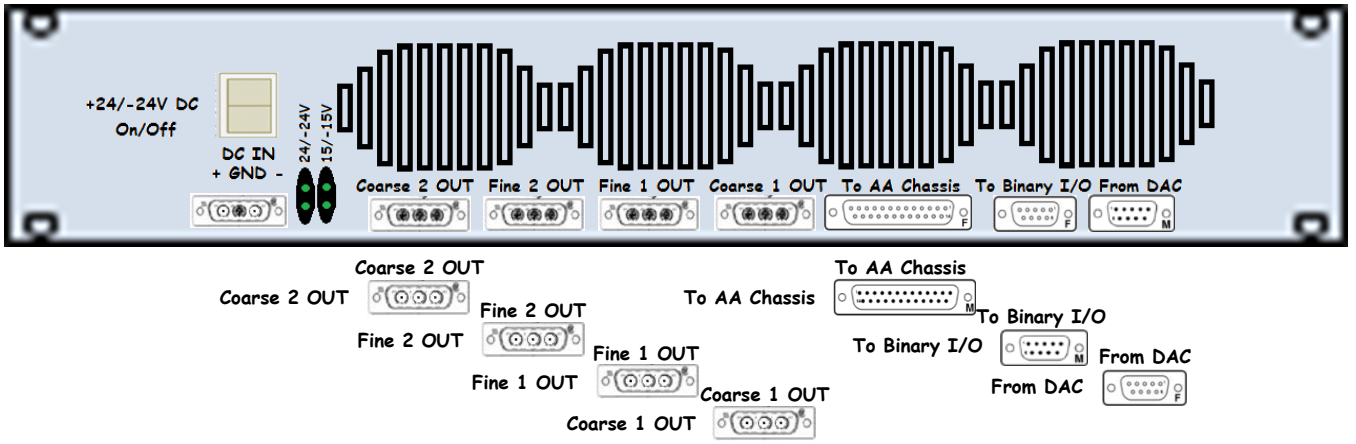
[<< L1-SEI-C5]

BSC2 ISI Coil Driver Pod 2 | D0902744 | S1103337 | ±24VDC



D0902744

Front



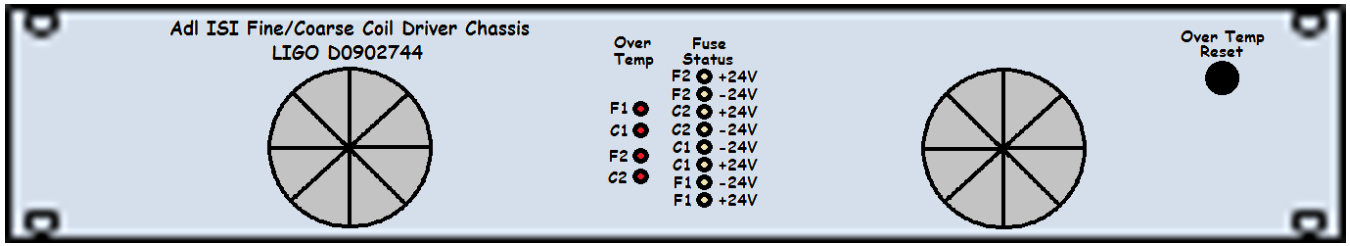
S1103337

Rear

D0902744 - S1103353

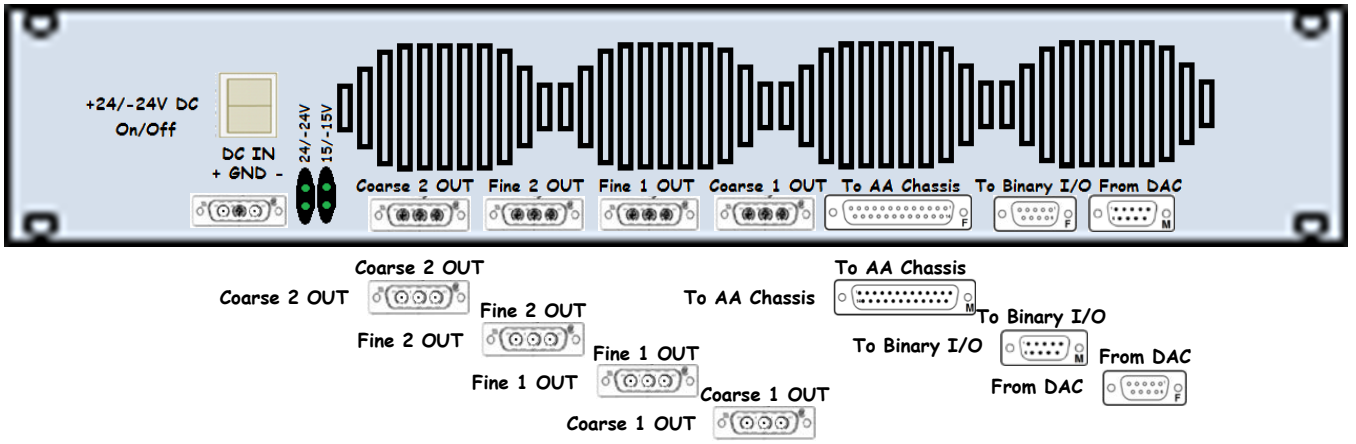
« L1-SEI-C5

BSC2 ISI Coil Driver Pod 1 | D0902744 | S1103353 | ±24VDC



D0902744

Front



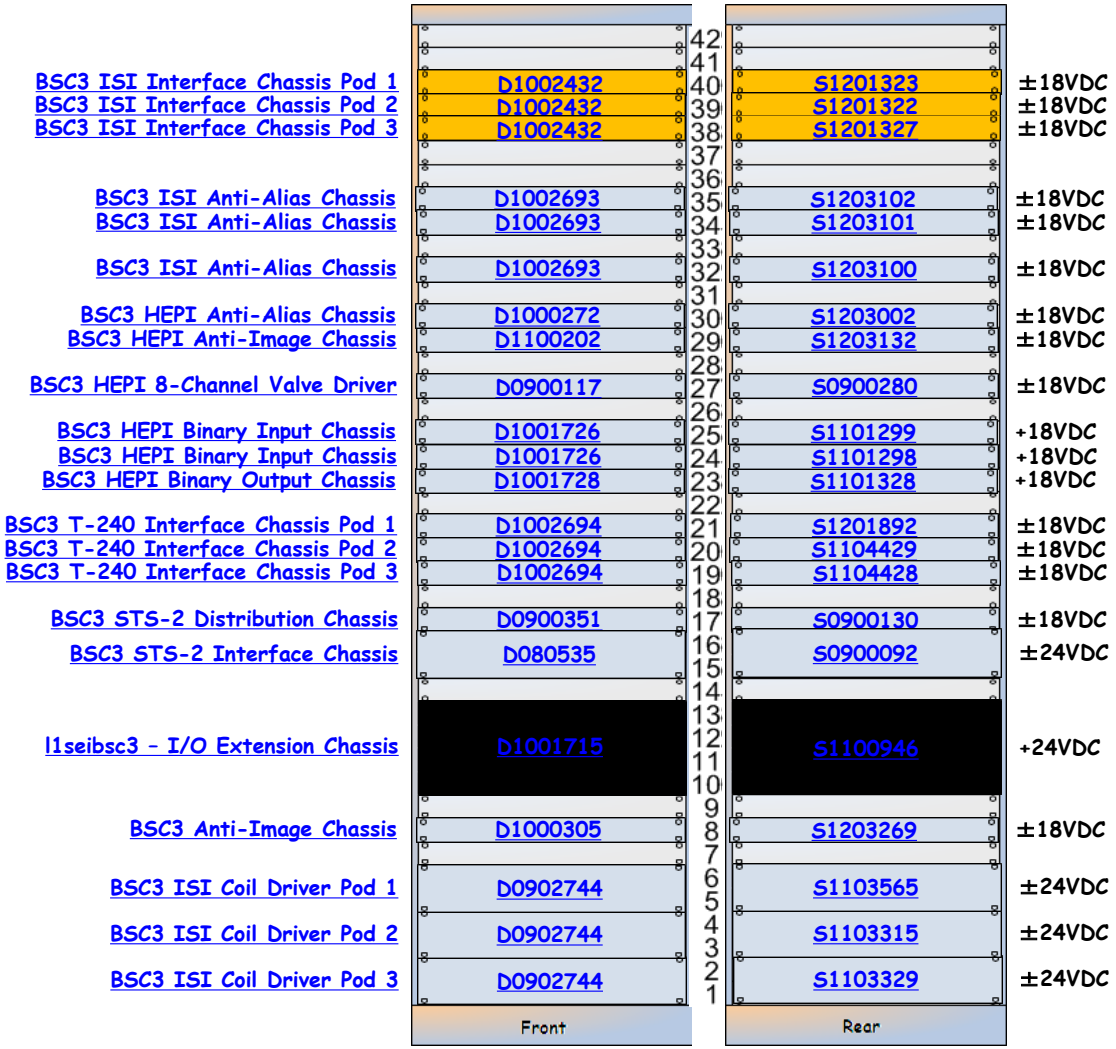
S1103353

Rear

L1-SEI-C6

[<< CER]

SEI BSC3 ISI and HEPI Rack Layout (D1201117) (S1200748)



SEI-C6 is part of D0901301

L1-SEI-C6 Details

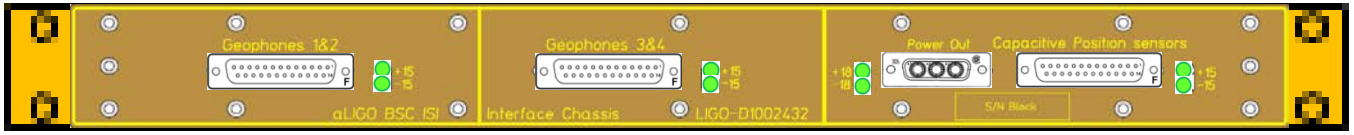
L1-SEI-C6 Details

SEI-C6 is part of D0901301

D1002432 - S1201323

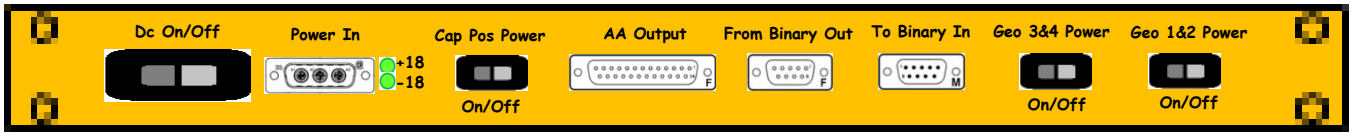
[<< L1-SEI-C6]

BSC3 ISI Interface Chassis Pod 1 | D1002432 | S1201323 | ±18VDC



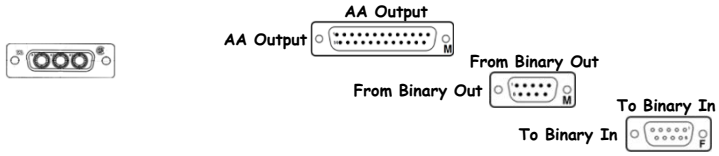
D1002432

Front



S1201323

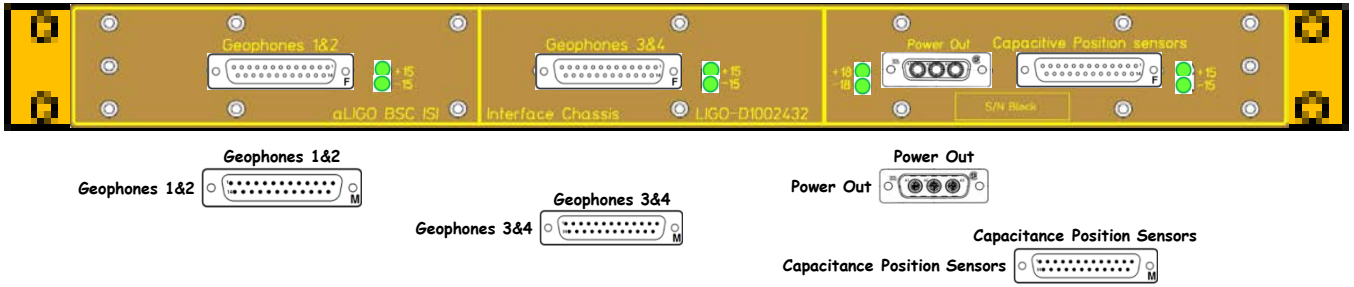
Rear



D1002432 - S1201322

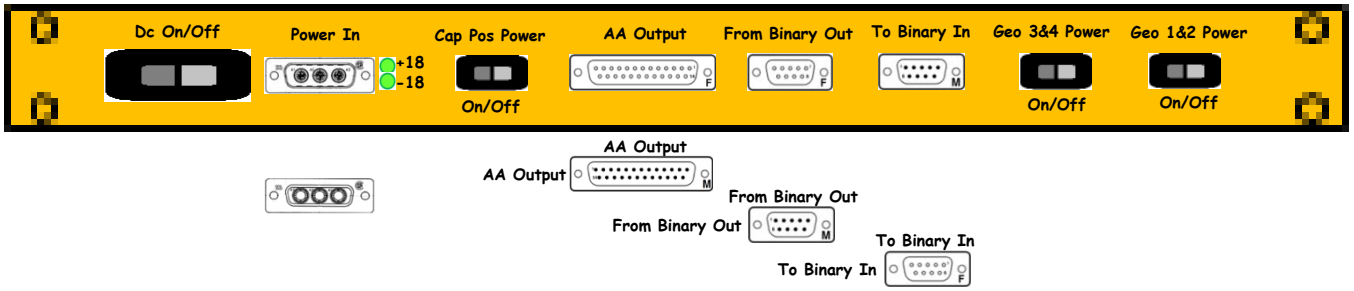
[<< L1-SEI-C6]

BSC3 ISI Interface Chassis Pod 2 | D1002432 | S1201322 | ±18VDC



[D1002432]

Front



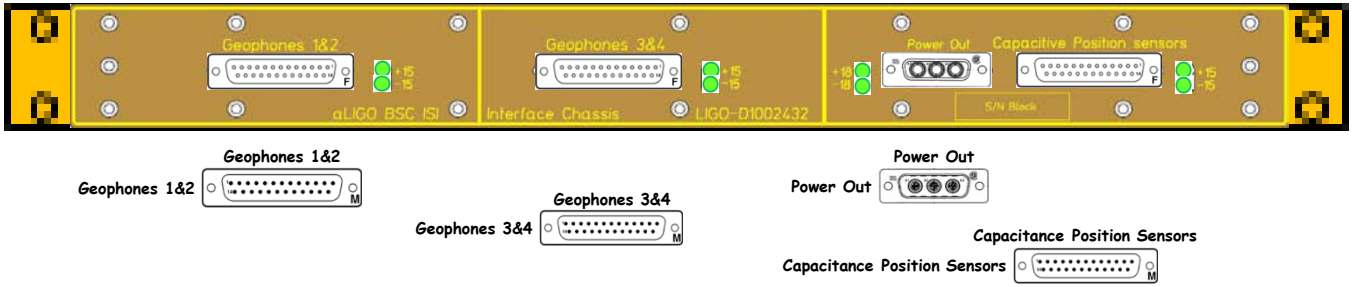
[S1201322]

Rear

D1002432 - S1201327

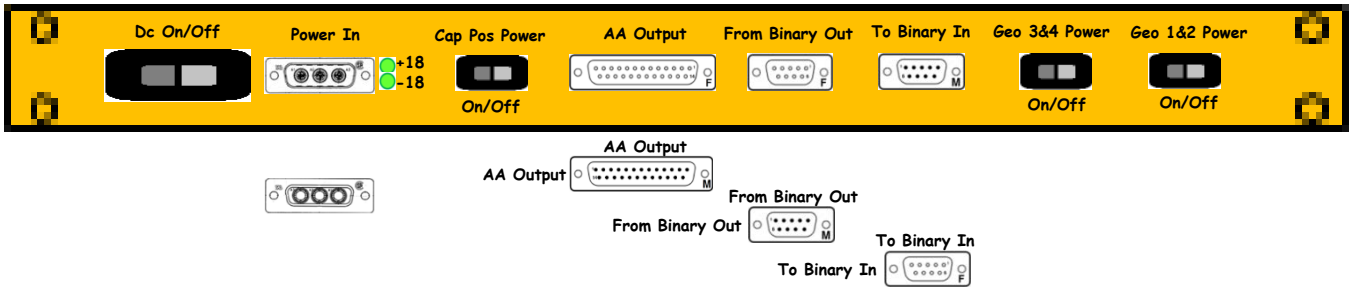
« L1-SEI-C6

BSC3 ISI Interface Chassis Pod 3 D1002432 S1201327 ±18VDC



D1002432

Front



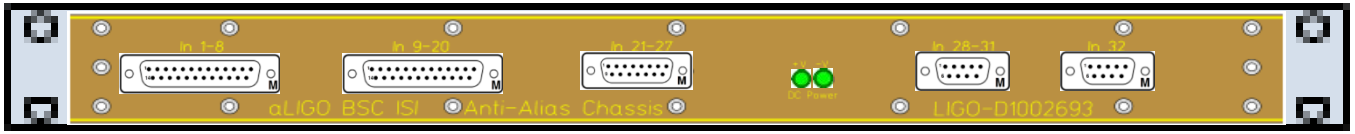
S1201327

Rear

D1002693 - S1203102

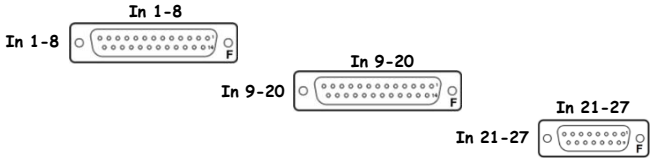
[<< L1-SEI-C6]

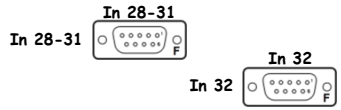
BSC3 ISI Anti-Alias Chassis | D1002693 | S1203102 | ±18VDC

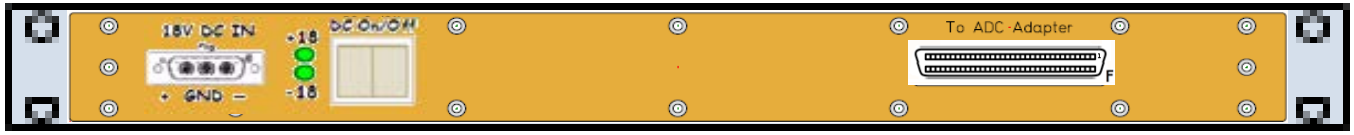


D1002693

Front

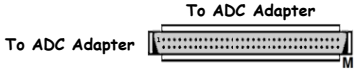






S1203102

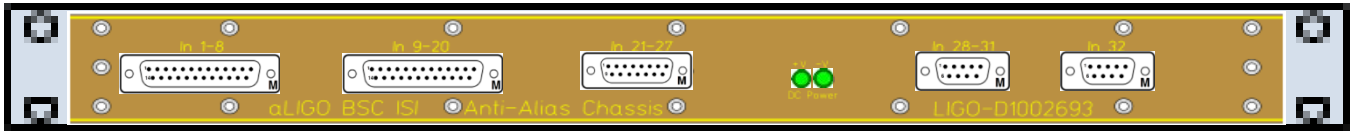
Rear



D1002693 - S1203101

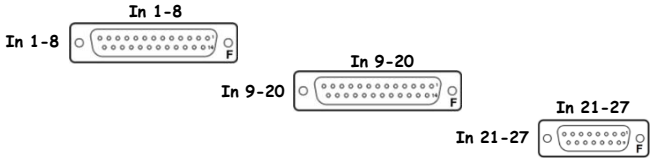
LIGO
<< L1-SEI-C6

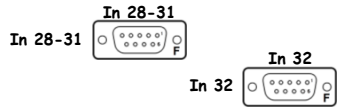
BSC3 ISI Anti-Alias Chassis | D1002693 | S1203101 | ±18VDC

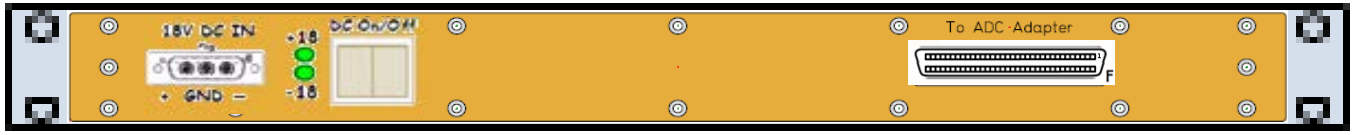


D1002693

Front

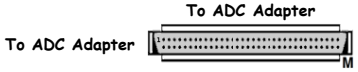






S1203101

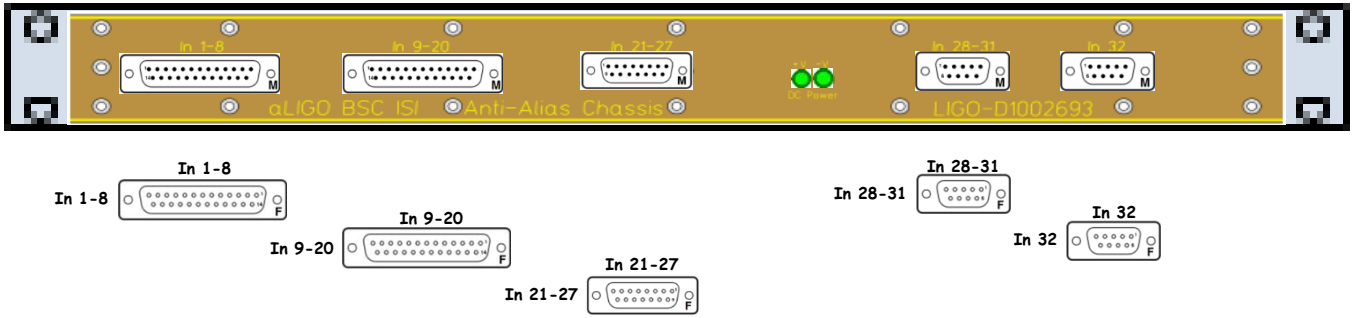
Rear



D1002693 - S1203100

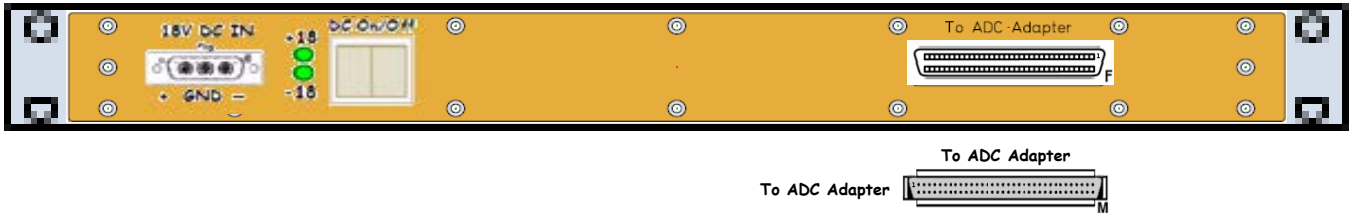
« L1-SEI-C6

BSC3 ISI Anti-Alias Chassis | D1002693 | S1203100 | ±18VDC



D1002693

Front



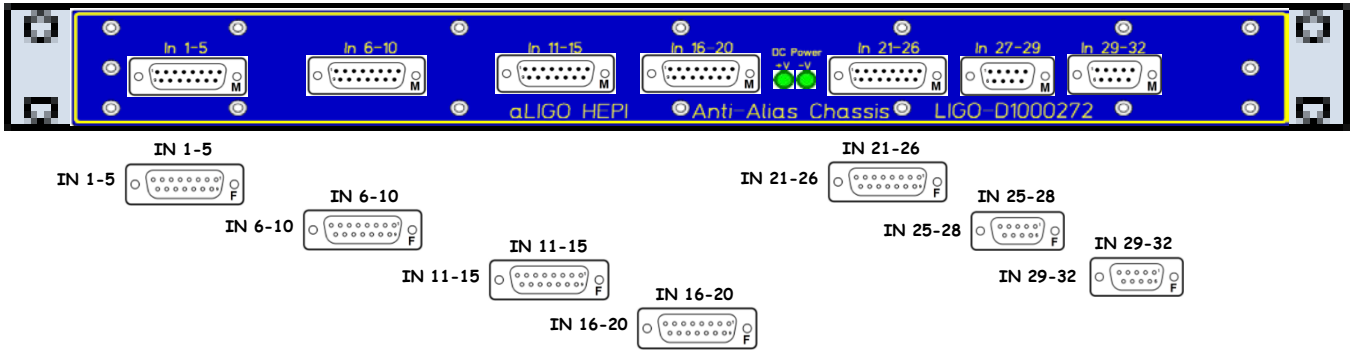
S1203100

Rear

D1000272 - S1203002

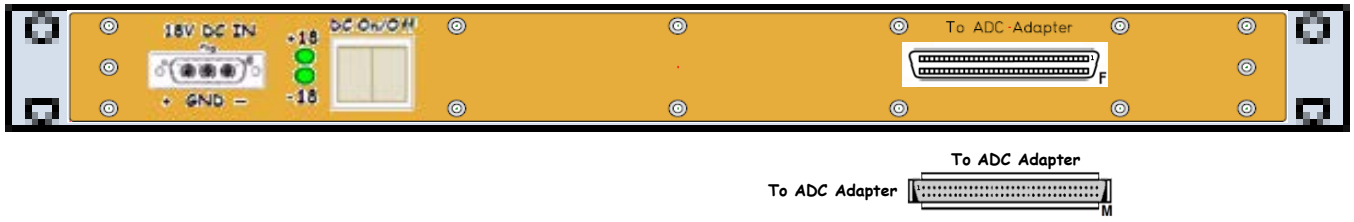
[<< L1-SEI-C6]

BSC3 HEPI Anti-Alias Chassis | D1000272 | S1203002 | ±18VDC



D1000272

Front

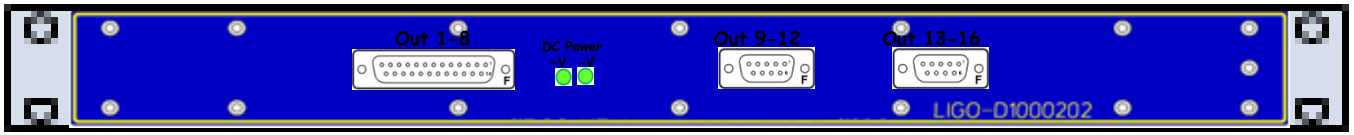


S1203002

Rear

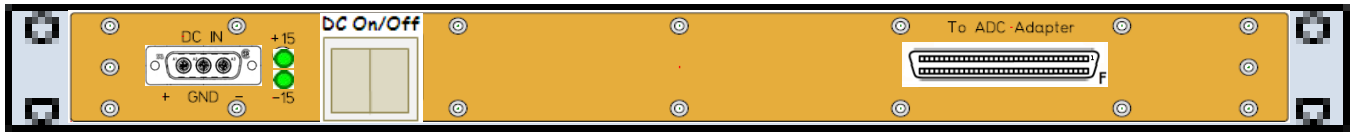
D1100202 - S1203132

BSC3 HEPI Anti-Image Chassis | D1100202 | S1203132 | ±18VDC



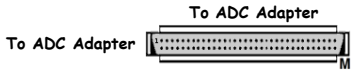
D1100202

Front



S1203132

Rear

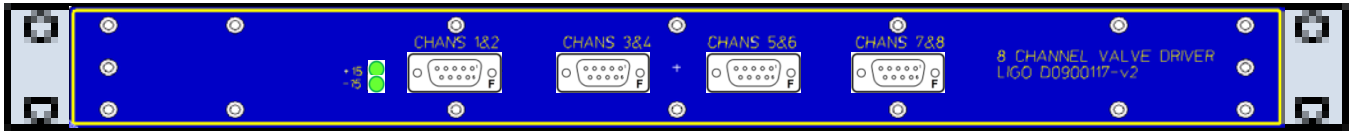


D0900117 - S0900280

LIGO
<< L1-SEI-C6

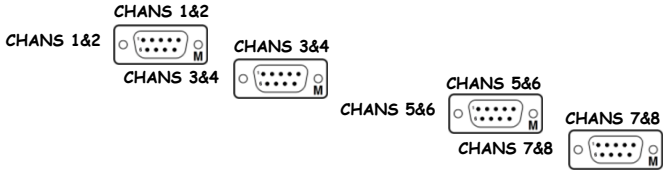
BSC3 HEPI 8-Channel Valve Driver | D0900117 | S0900280 | ±18VDC

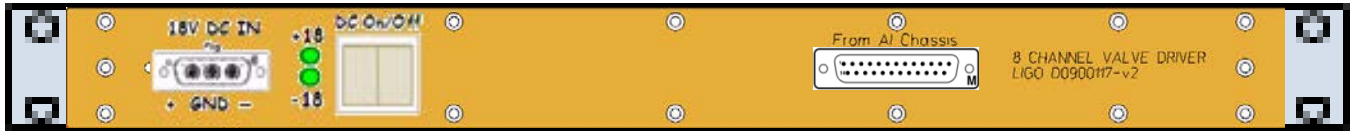
BSC3



D0900117

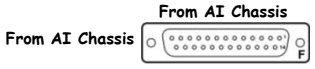
Front





S0900280

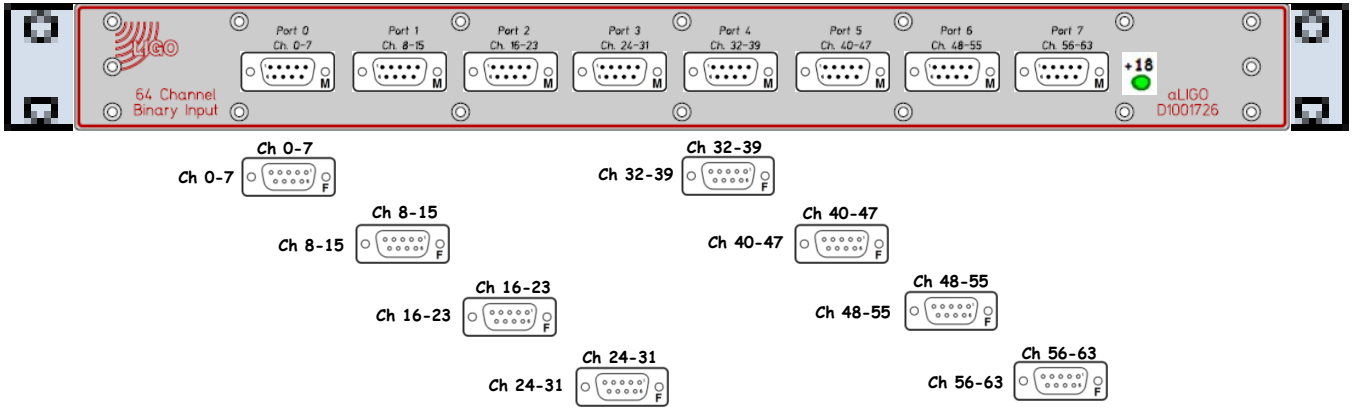
Rear



D0900117 is part of D0901338

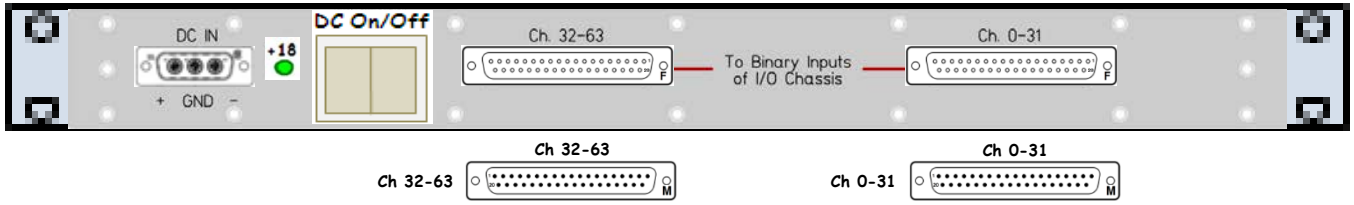
D1001726 - S1101299

BSC3 HEPI Binary Input Chassis | D1001726 | S1101299 | +18VDC



D1001726

Front



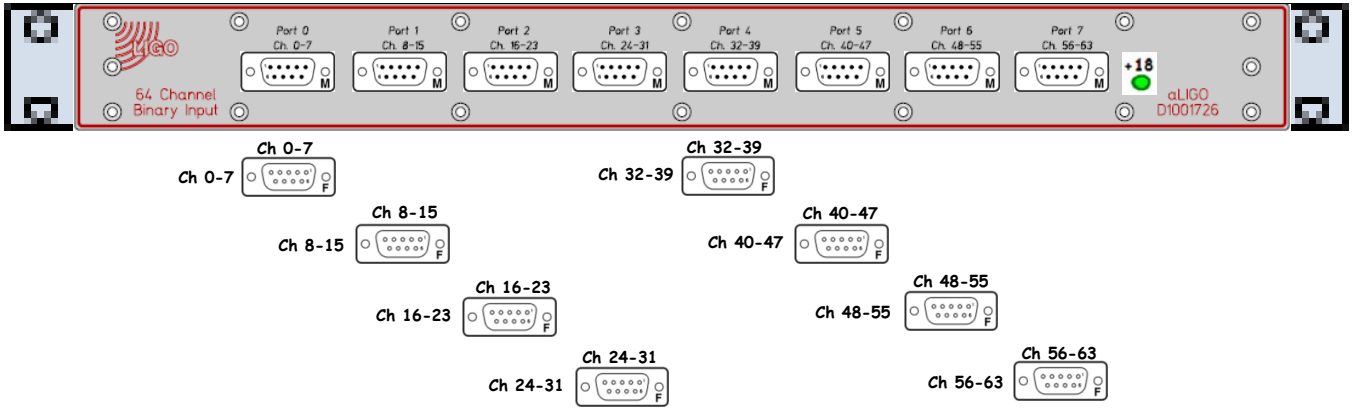
S1101299

Rear

D1001726 - S1101298

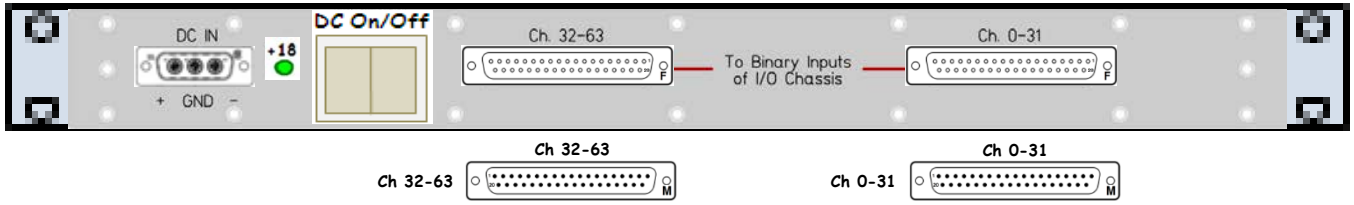
[<< L1-SEI-C6]

BSC3 HEPI Binary Input Chassis | D1001726 | S1101298 | +18VDC



D1001726

Front

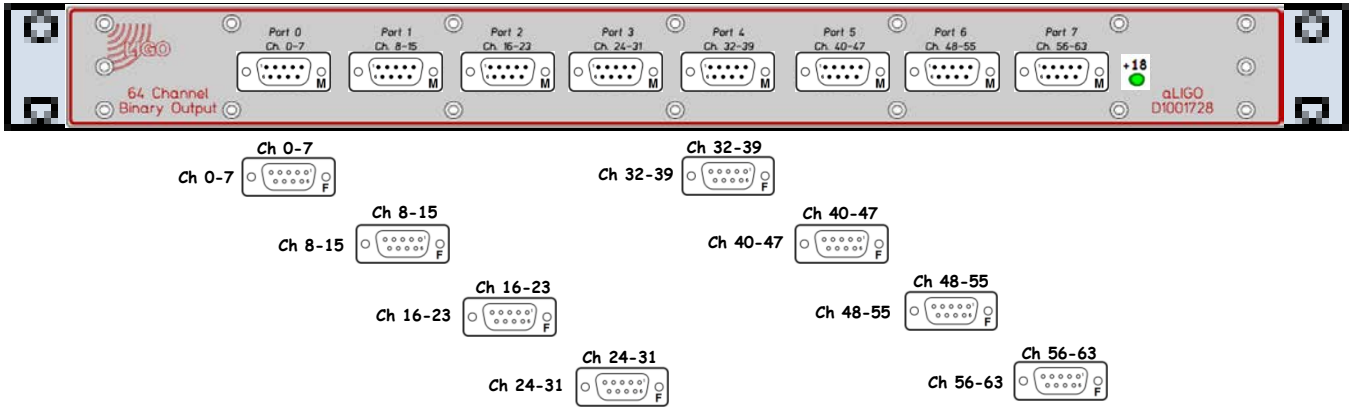


S1101298

Rear

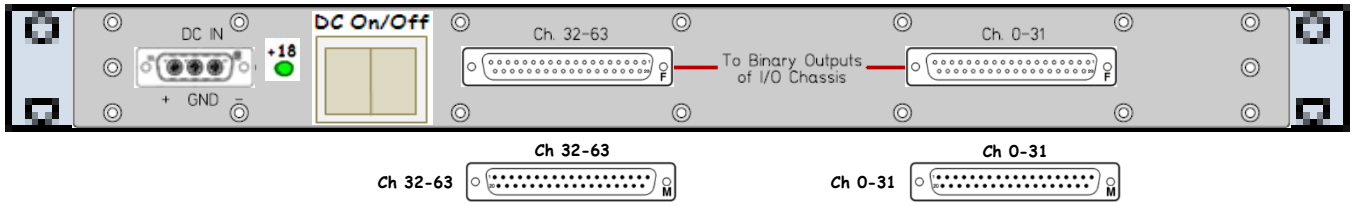
D1001728 - S1101328

BSC3 HEPI Binary Output Chassis | D1001728 | S1101328 | +18VDC



D1001728

Front



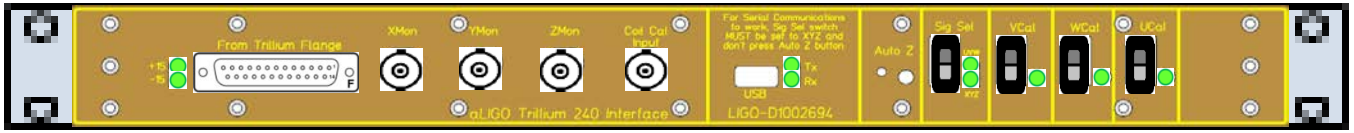
S1101328

Rear

D1002694 - S1201892

[<< L1-SEI-C6]

BSC3 T-240 Interface Chassis Pod 1 | D1002694 | S1201892 | ±18VDC

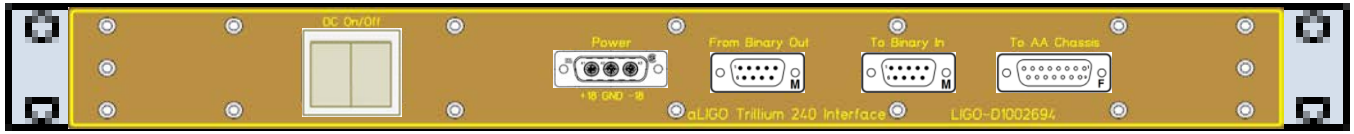


D1002694

Front

From Trillium Flange

From Trillium Flange



S1201892

Rear

From Binary Out

From Binary Out

To Binary In

To Binary In

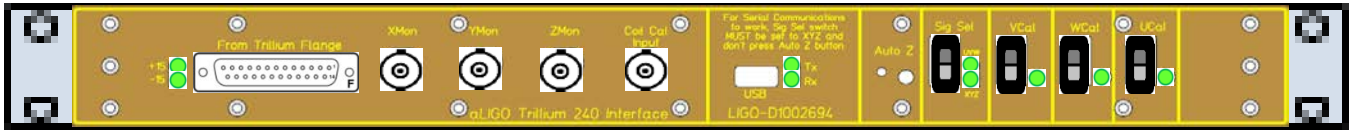
To AA Chassis

To AA Chassis

D1002694 - S1104429

[<< L1-SEI-C6]

BSC3 T-240 Interface Chassis Pod 2 | D1002694 | S1104429 | ±18VDC

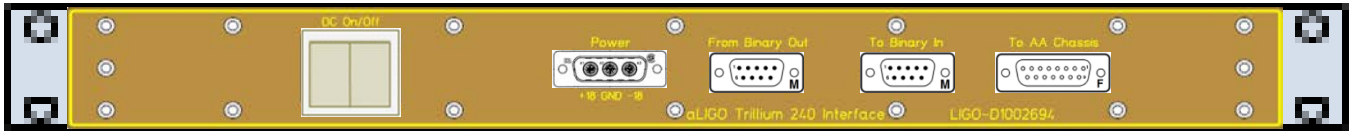


D1002694

Front

From Trillium Flange

From Trillium Flange



S1104429

Rear

From Binary Out

From Binary Out

To Binary In

To Binary In

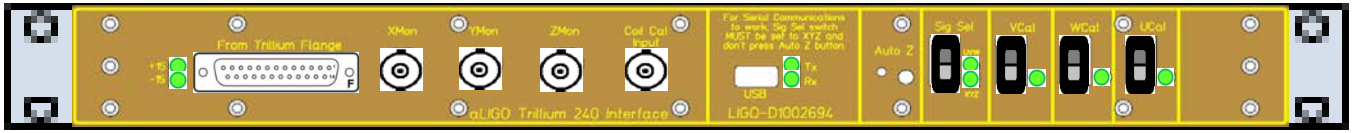
To AA Chassis

To AA Chassis

D1002694 - S1104428

[<< L1-SEI-C6]

BSC3 T-240 Interface Chassis Pod 3 | D1002694 | S1104428 | ±18VDC

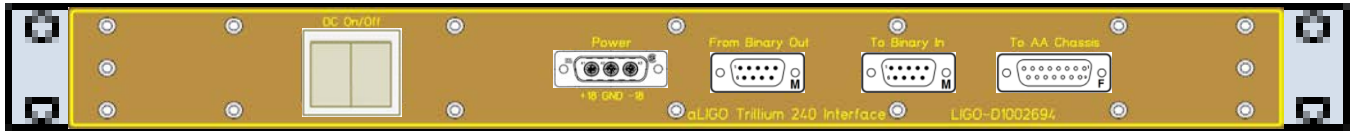


D1002694

Front

From Trillium Flange

From Trillium Flange



S1104428

Rear

From Binary Out

From Binary Out

To Binary In

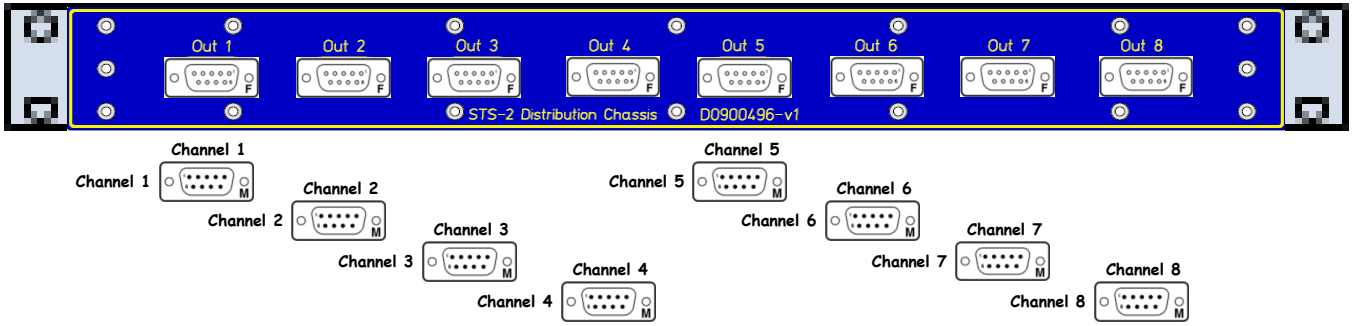
To Binary In

To AA Chassis

To AA Chassis

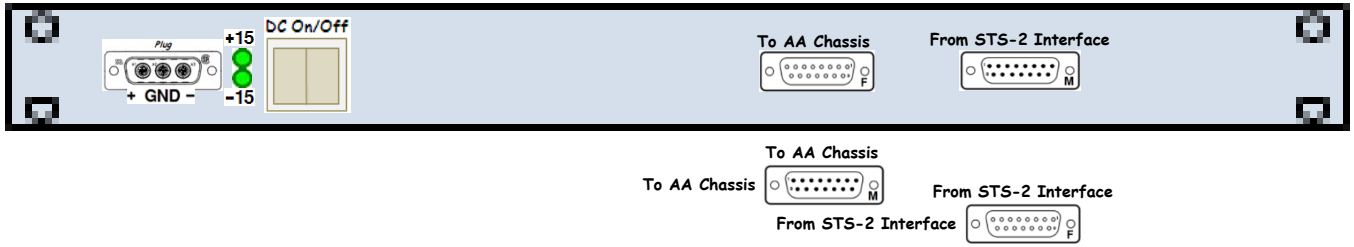
D0900351 - S0900130

BSC3 STS-2 Distribution Chassis | D0900351 | S0900130 | ±18VDC



D0900351

Front

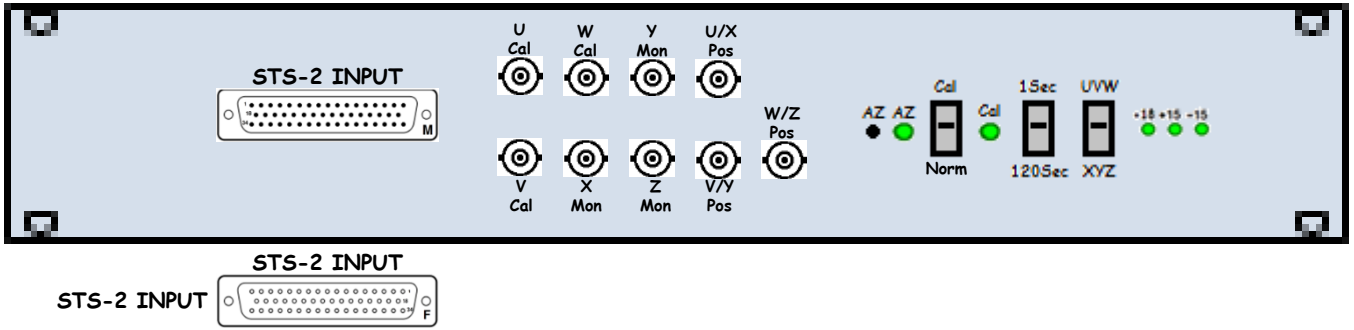


S0900130

Rear

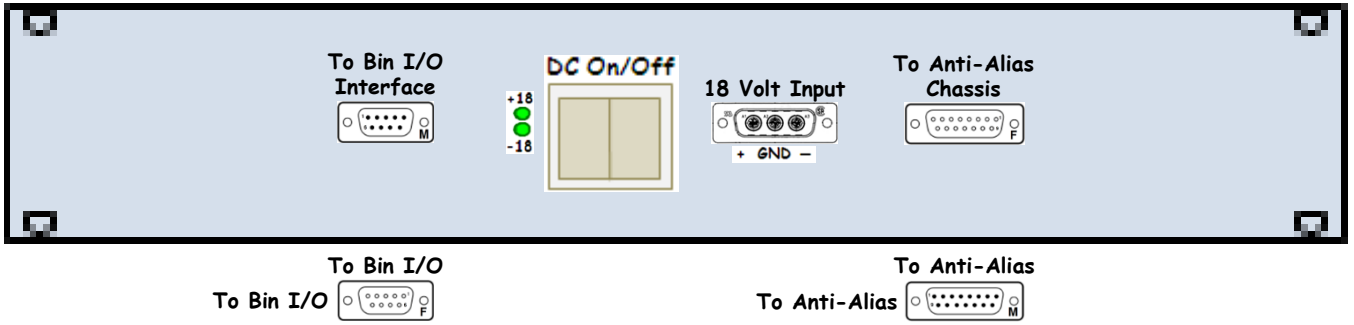
D080535 - S0900092

BSC3 STS-2 Interface Chassis | D080535 | S0900092 | ±18VDC



D080535

Front



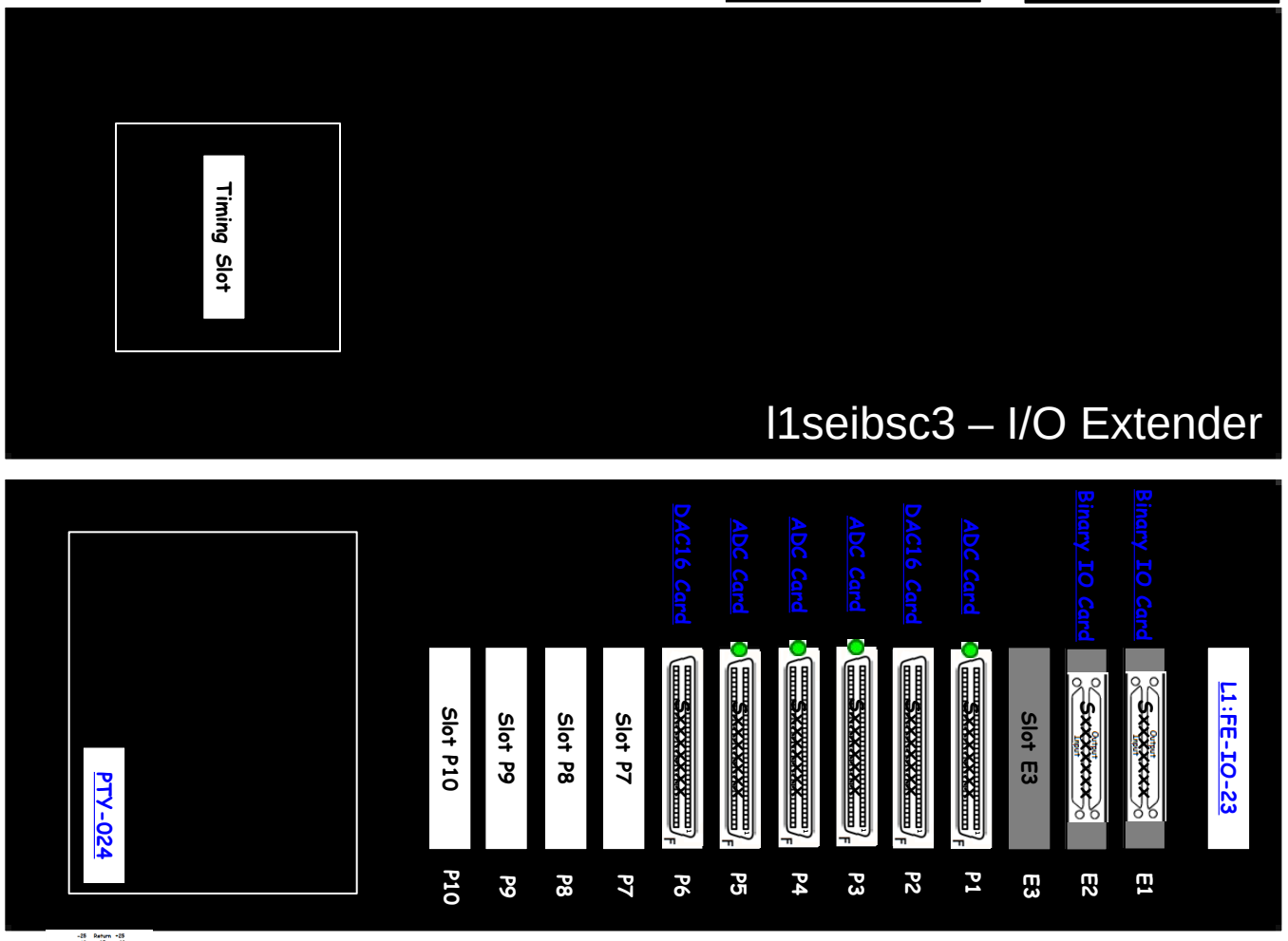
S0900092

Rear

l1seibsc3 - D1001715 - S1100946

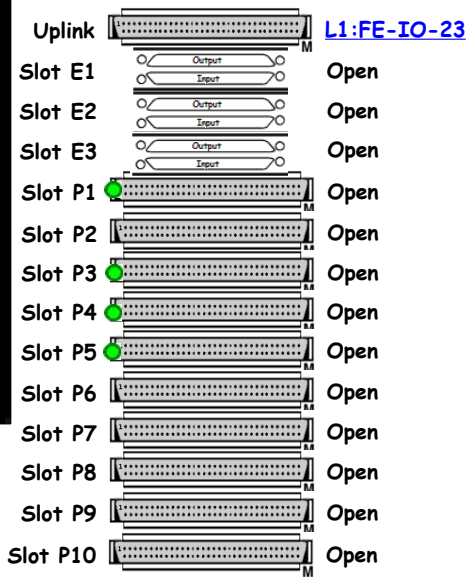
« L1-SEI-C6

l1seibsc3 – I/O Extension Chassis | D1001715 | S1100946 | +24VDC



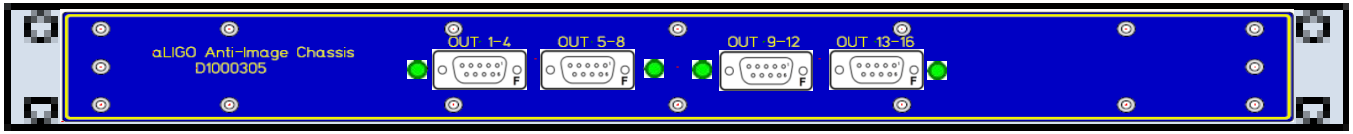
D1001715
Front

S1100946
Rear



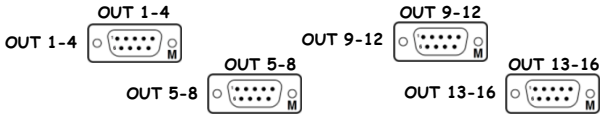
D1000305 - S1203269

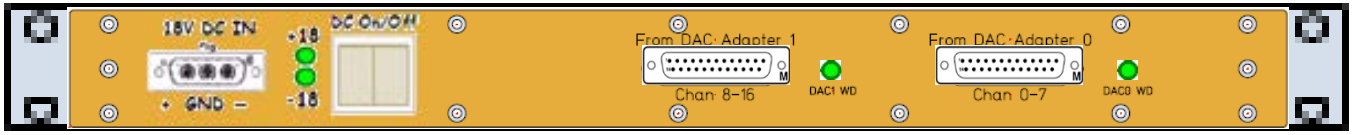
BSC3 Anti-Image Chassis | D1000305 | S1203269 | ±18VDC



D1000305

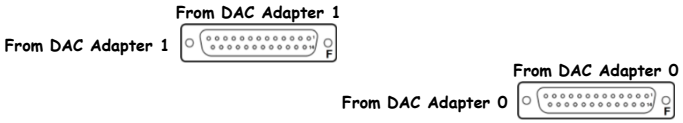
Front





S1203269

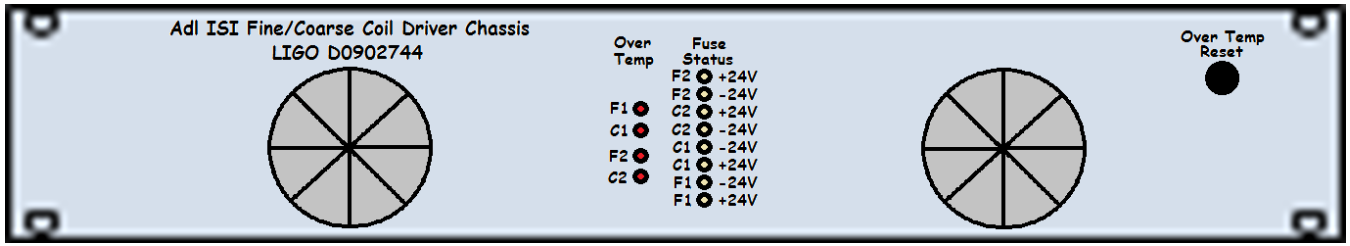
Rear



D0902744 - S1103565

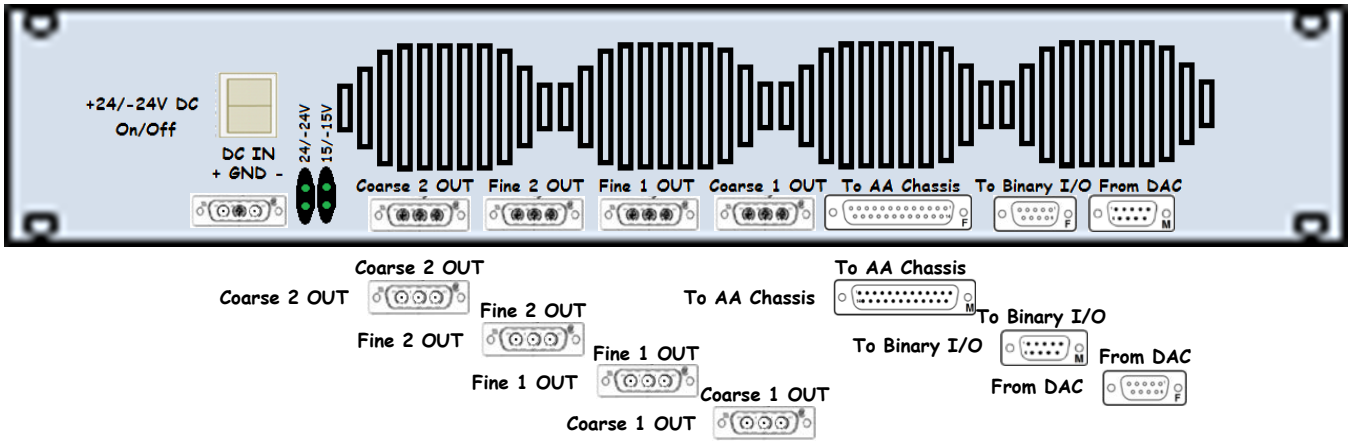
[<< L1-SEI-C6]

BSC3 ISI Coil Driver Pod 1 | D0902744 | S1103565 | ±24VDC



D0902744

Front



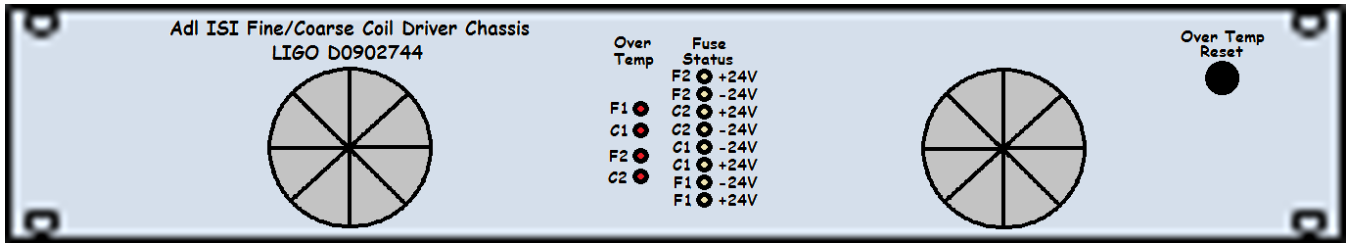
S1103565

Rear

D0902744 - S1103315

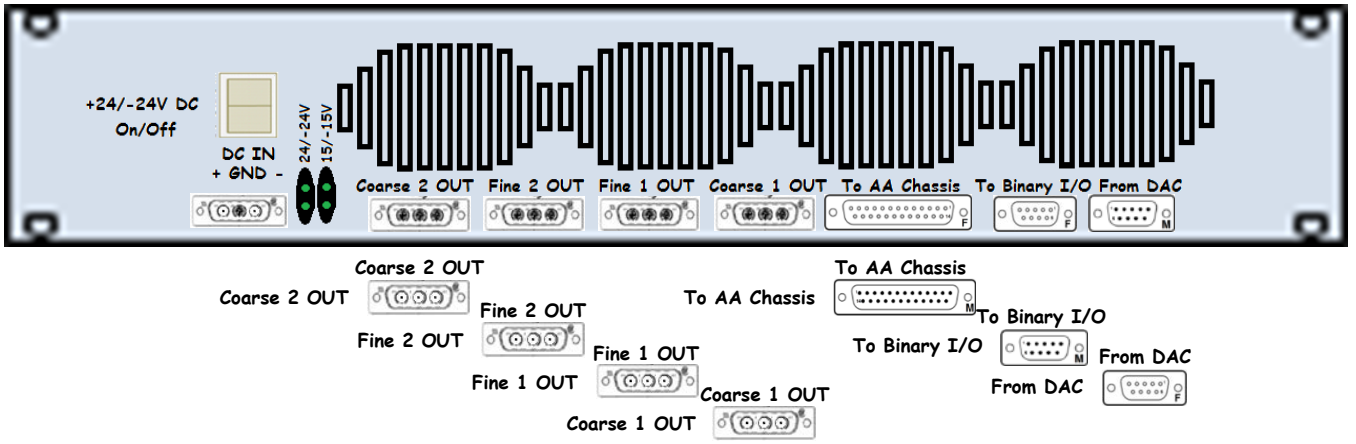
[<< L1-SEI-C6]

BSC3 ISI Coil Driver Pod 2 | D0902744 | S1103315 | ±24VDC



D0902744

Front



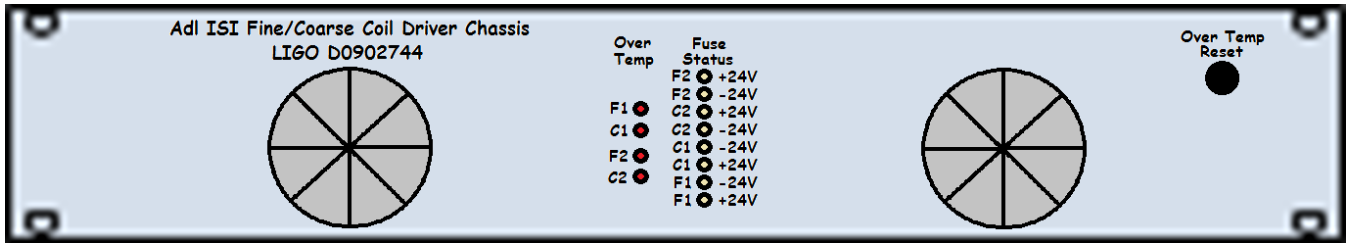
S1103315

Rear

D0902744 - S1103329

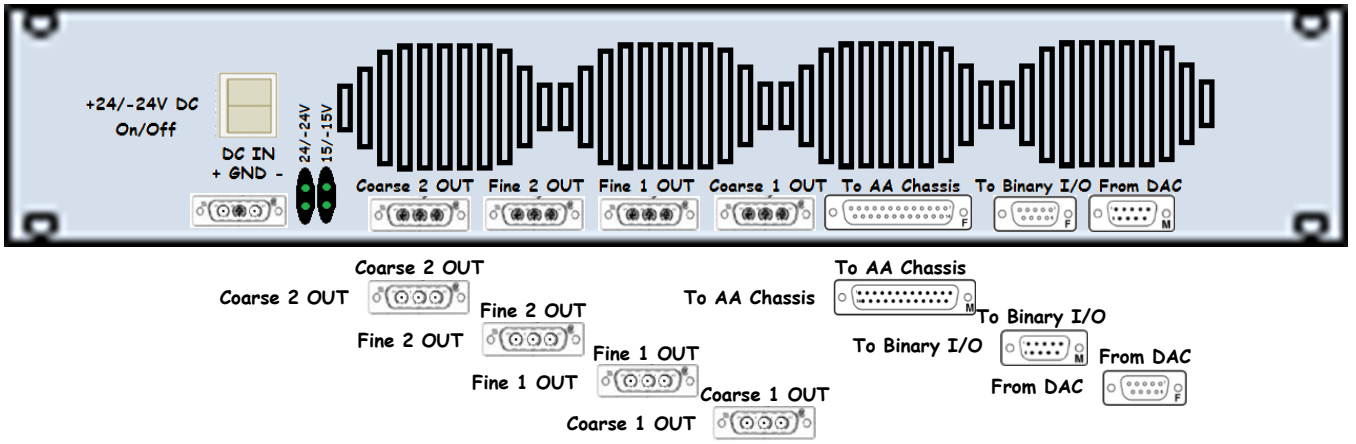
[<< L1-SEI-C6]

BSC3 ISI Coil Driver Pod 1 | D0902744 | S1103329 | ±24VDC



D0902744

Front

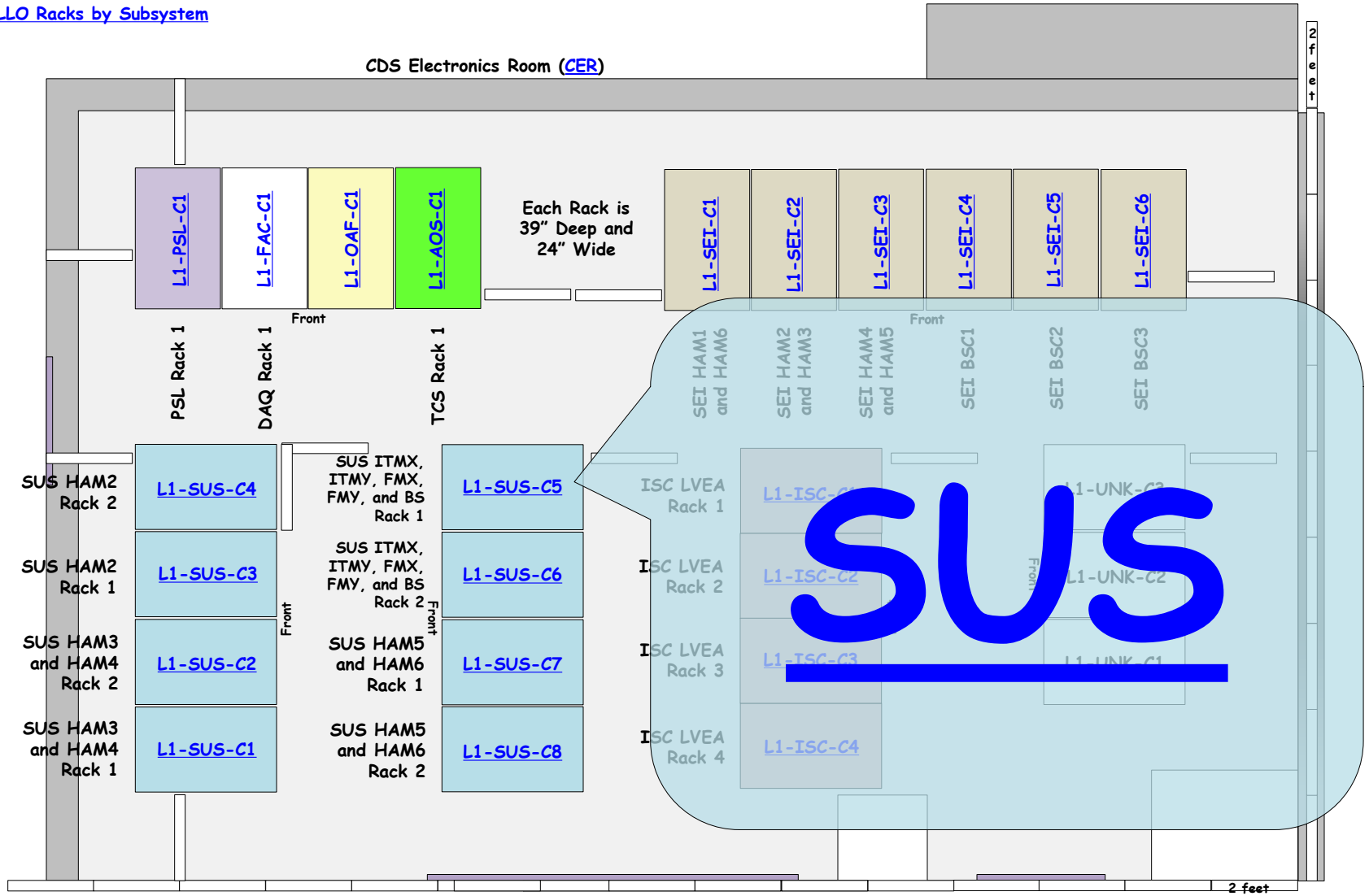


S1103329

Rear

Subsystem: SUS (Suspensions)

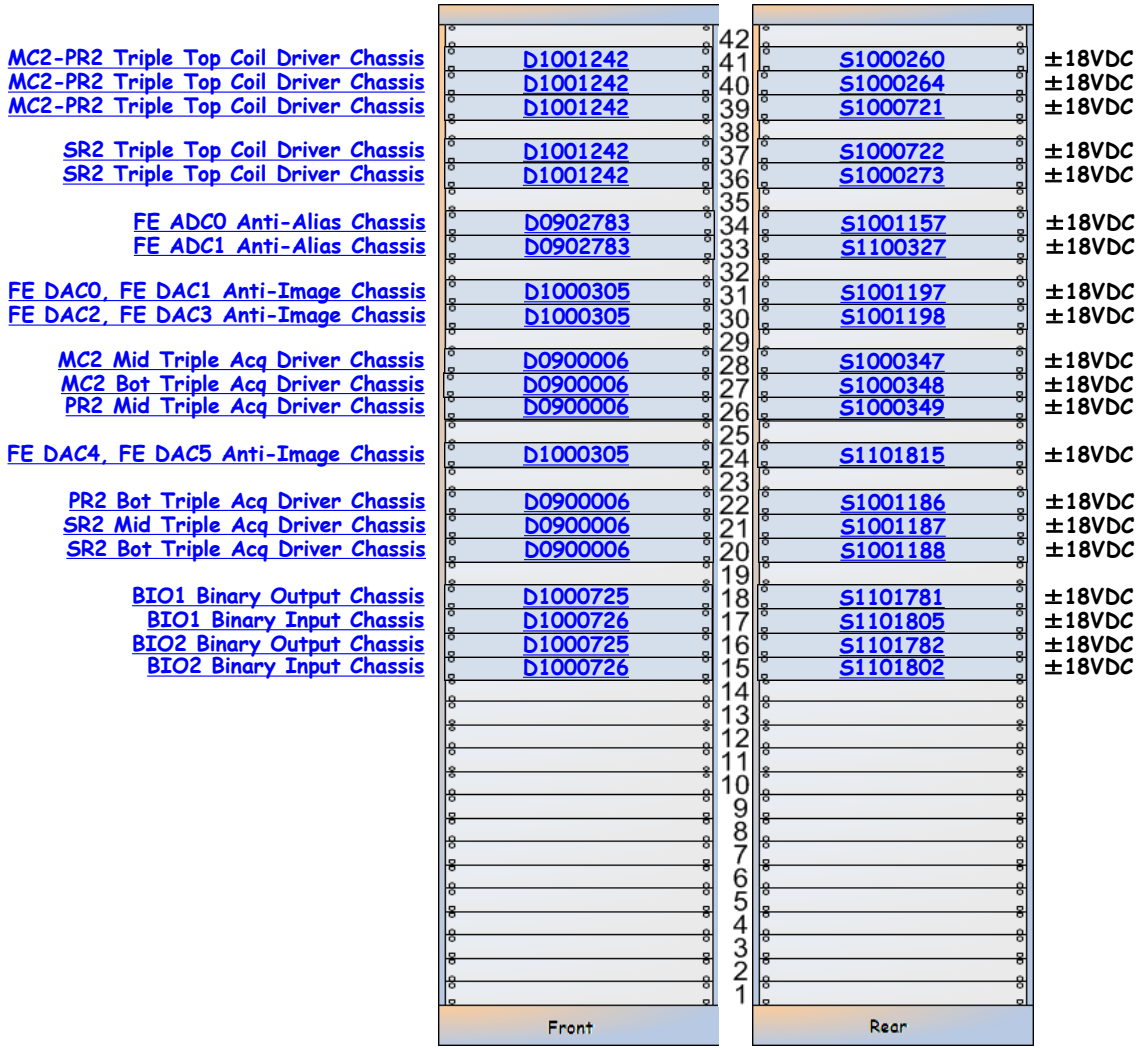
[<< LLO Racks by Subsystem]



L1-SUS-C1 – S1104062

[<< CER]

SUS HAM3 and HAM4 Rack 1 (of 2) Layout (D1200856) (S1104062)



PTO-008

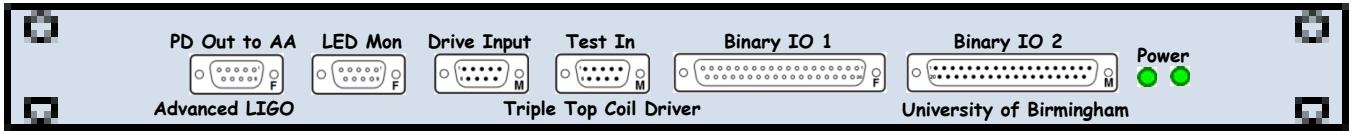
SUS-C1 is part of D1000599.

L1-SUS-C1 Details

D1001242 - S1000260

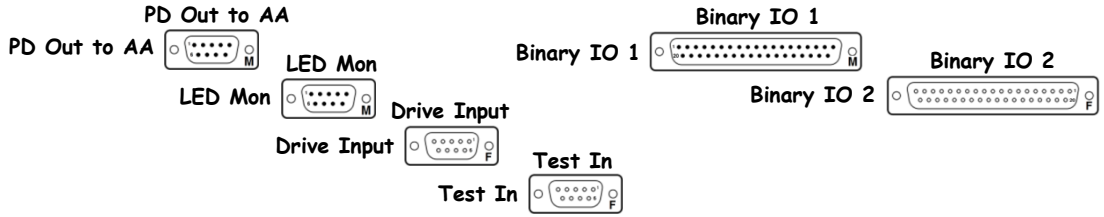
[<< L1-SUS-C1]

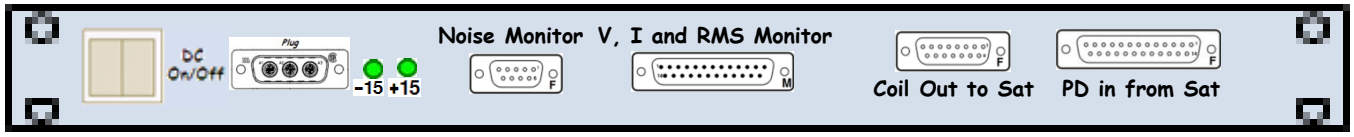
MC2-PR2 Triple Top Coil Driver Chassis [D1001242] [S1000260] ±18VDC



[D1001242]

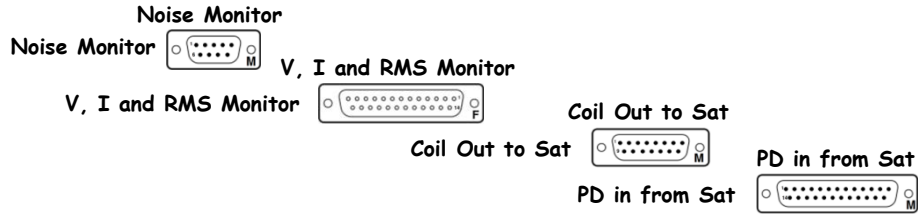
Front





[S1000260]

Rear



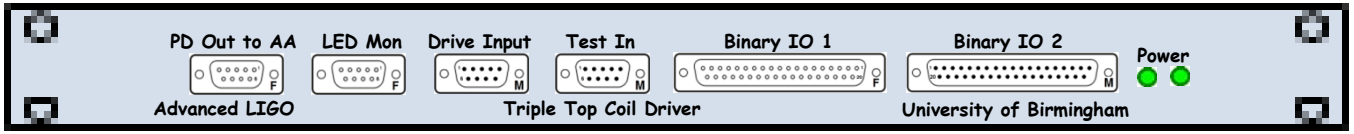
[Driver Board: D0902747]

[Monitor Board: D070480]

D1001242 - S1000264

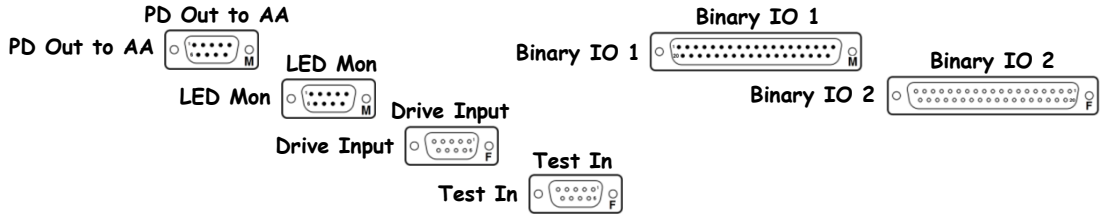
« L1-SUS-C1

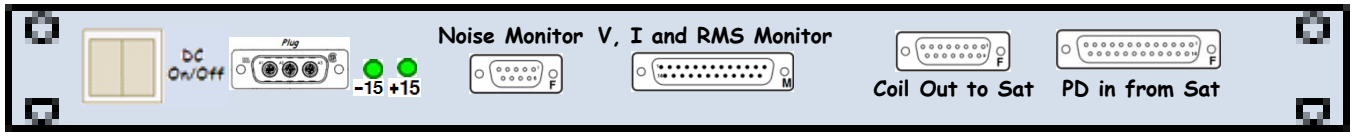
MC2-PR2 Triple Top Coil Driver Chassis D1001242 S1000264 ±18VDC



D1001242

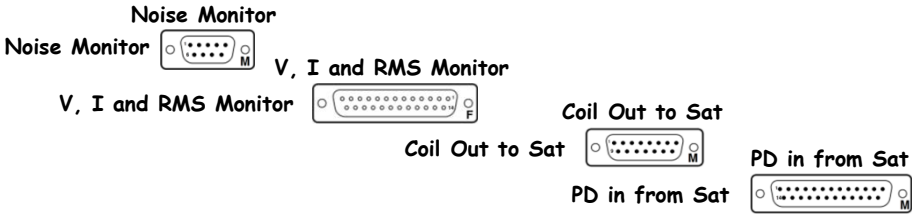
Front





S1000264

Rear



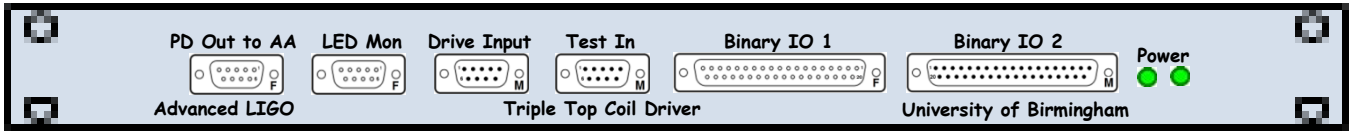
Driver Board: D0902747

Monitor Board: D070480

D1001242 - S1000721

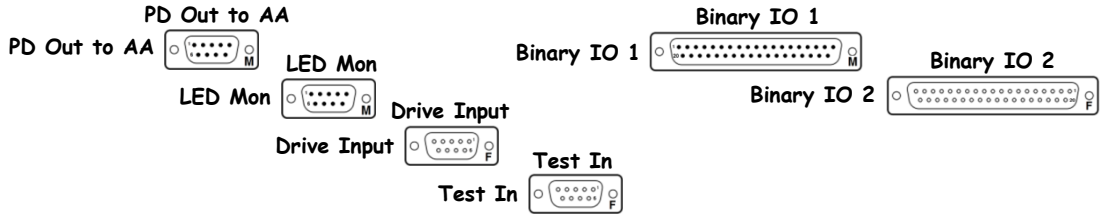
« L1-SUS-C1

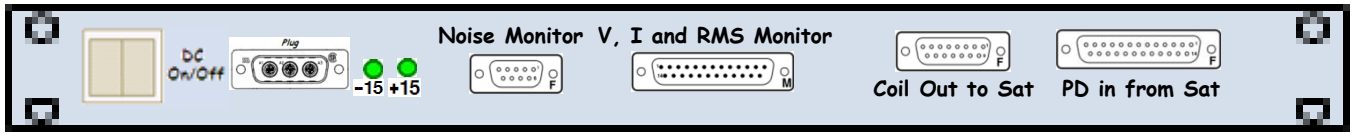
MC2-PR2 Triple Top Coil Driver Chassis D1001242 S1000721 ±18VDC



D1001242

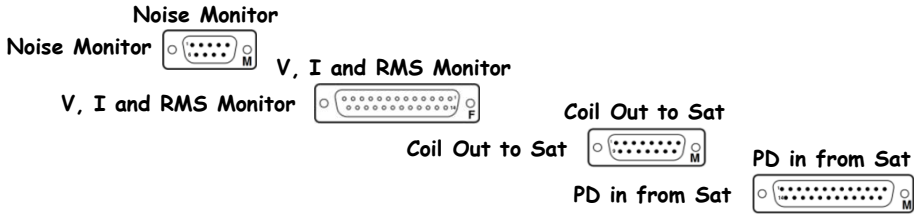
Front





S1000721

Rear



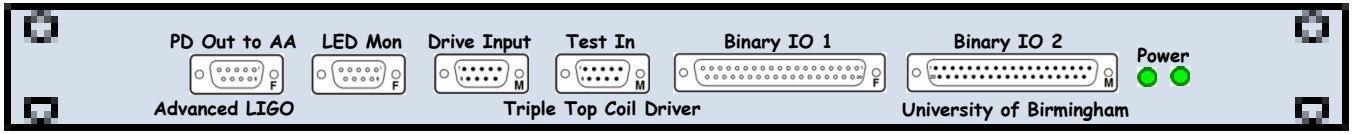
Driver Board: D0902747

Monitor Board: D070480

D1001242 - S1000722

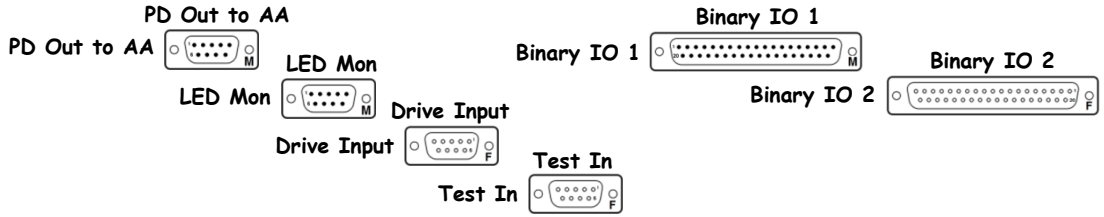
[<< L1-SUS-C1]

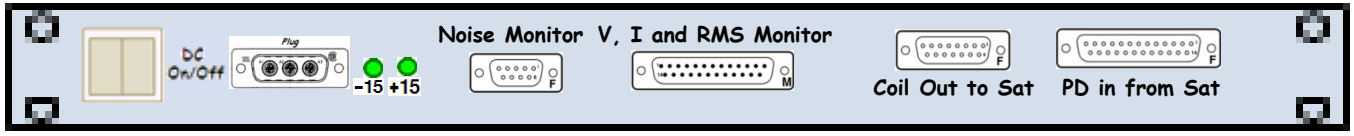
SR2 Triple Top Coil Driver Chassis [D1001242] [S1000722] ±18VDC



[D1001242]

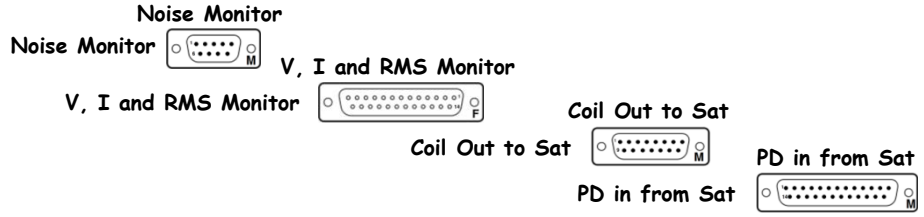
Front





[S1000722]

Rear



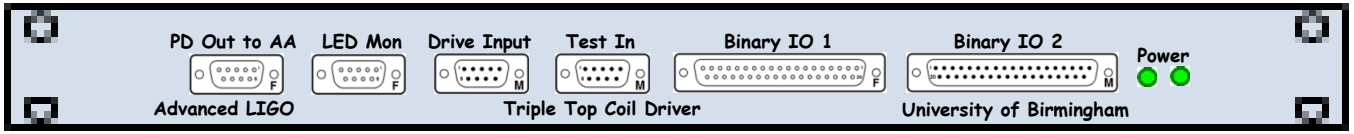
[Driver Board: D0902747]

[Monitor Board: D070480]

D1001242 - S1000273

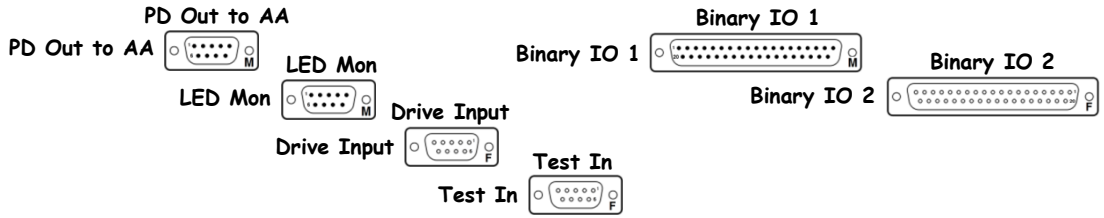
[<< L1-SUS-C1]

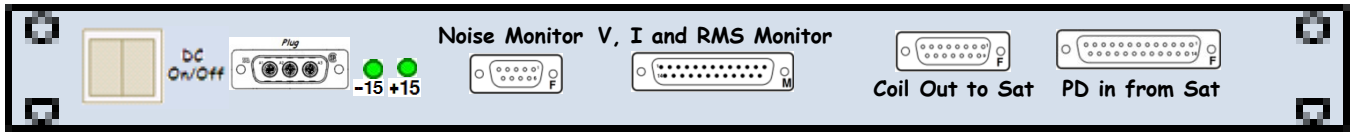
SR2 Triple Top Coil Driver Chassis [D1001242] [S1000273] ±18VDC



[D1001242]

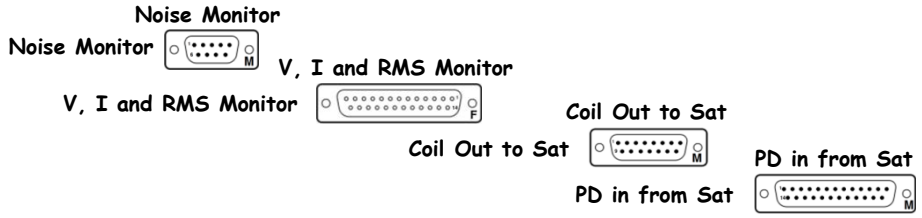
Front





[S1000273]

Rear

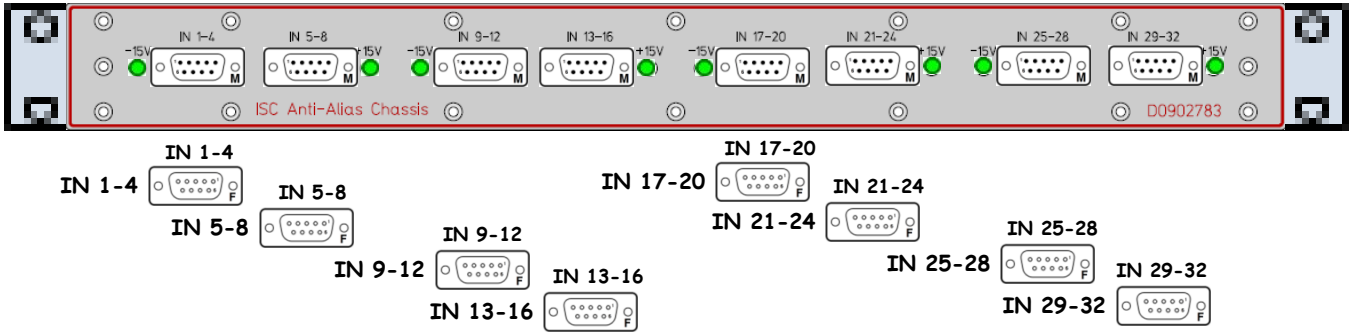


[Driver Board: D0902747]

[Monitor Board: D070480]

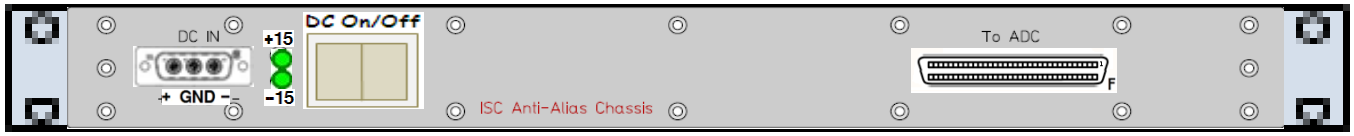
D0902783 - S1001157

FE ADC0 Anti-Alias Chassis | D0902783 | S1001157 | ±18VDC



D0902783

Front

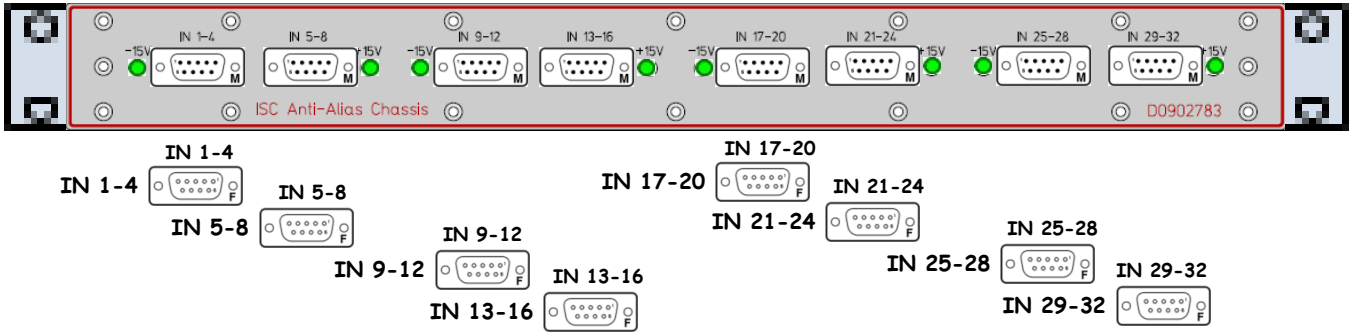


S1001157

Rear

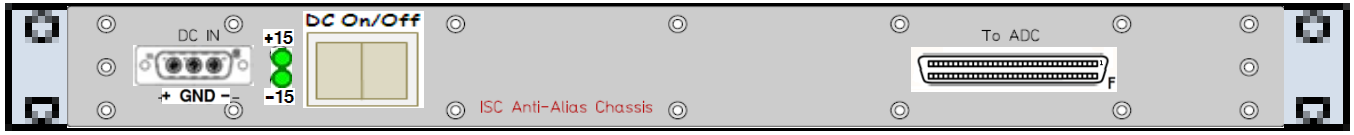
D0902783 - S1100327

FE ADC1 Anti-Alias Chassis | D0902783 | S1100327 | ±18VDC



D0902783

Front



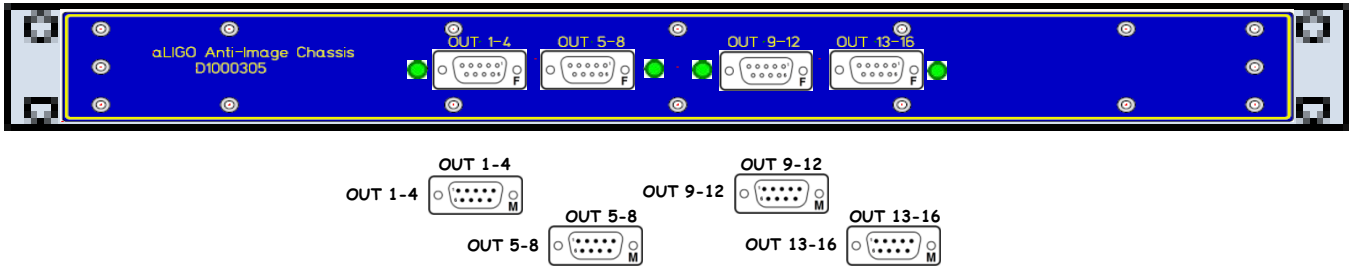
S1100327

Rear

D1000305 - S1001197

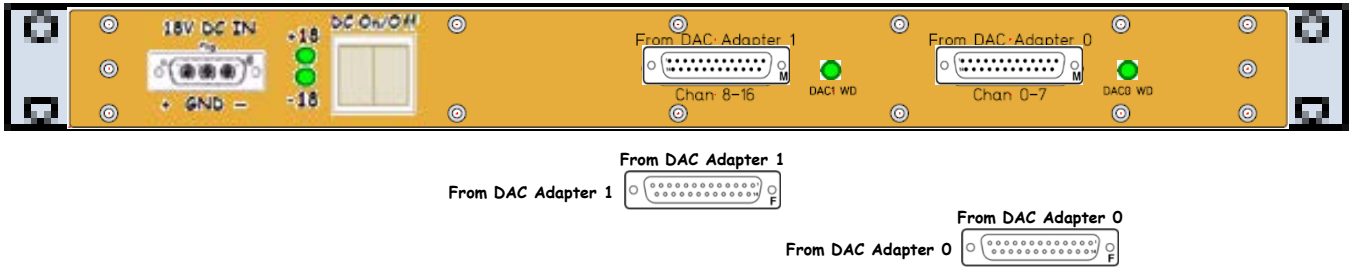
[<< L1-SUS-C1]

FE DAC0, FE DAC1 Anti-Image Chassis | D1000305 | S1001197 | ±18VDC



D1000305

Front



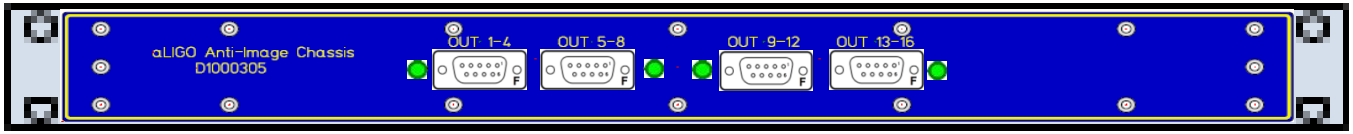
S1001197

Rear

D1000305 - S1001198

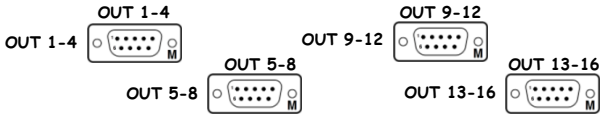
[<< L1-SUS-C1]

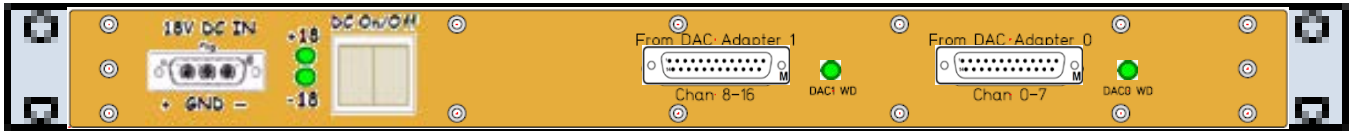
FE DAC2, FE DAC3 Anti-Image Chassis | D1000305 | S1001198 | ±18VDC



D1000305

Front





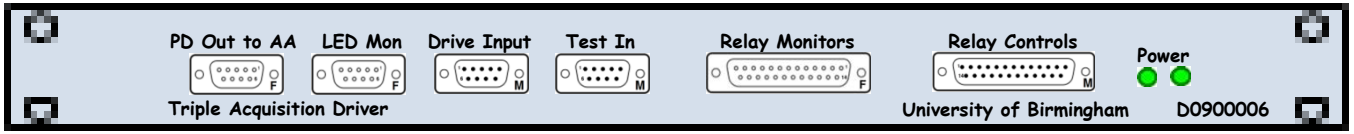
S1001198

Rear

D0900006 - S1000347

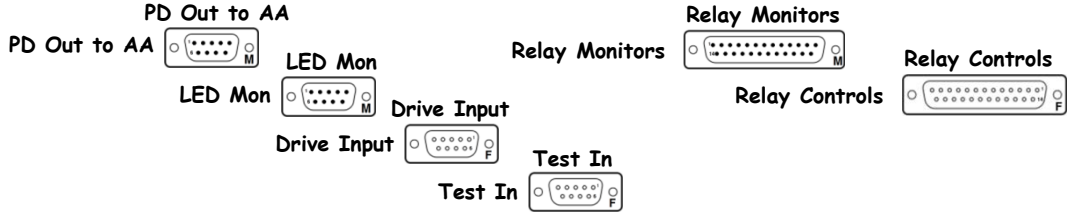
[<< L1-SUS-C1]

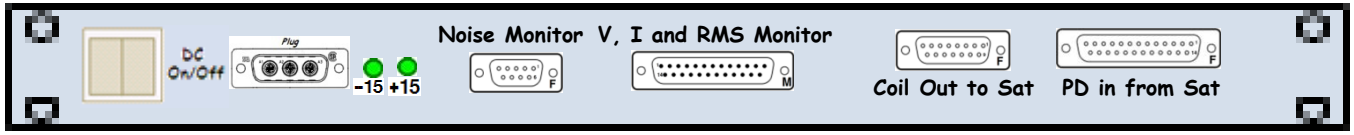
MC2 Mid Triple Acq Driver Chassis [D0900006] [S1000347] ±18VDC



[D0900006]

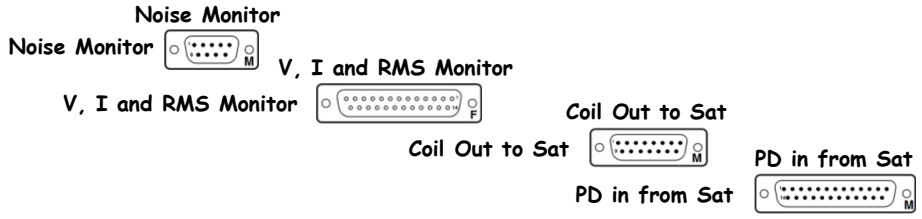
Front





[S1000347]

Rear

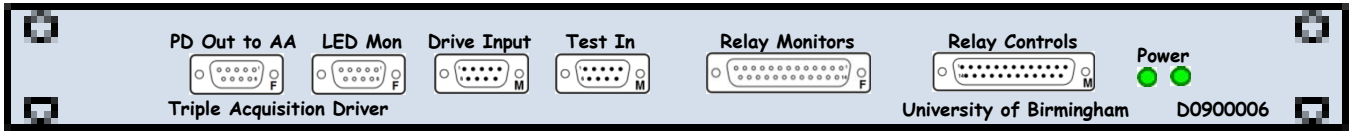


[Driver Board: D0901047]
[Monitor Board: D070480]

D0900006 - S1000348

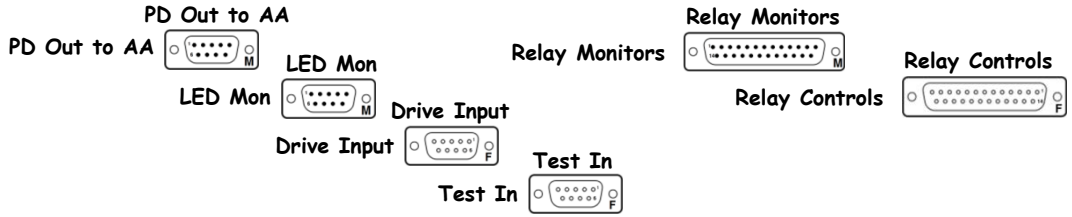
« L1-SUS-C1

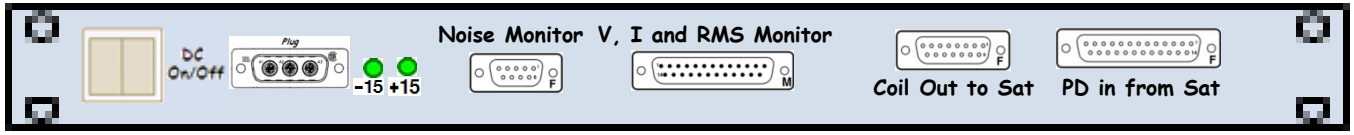
MC2 Bot Triple Acq Driver Chassis D0900006 S1000348 ±18VDC



D0900006

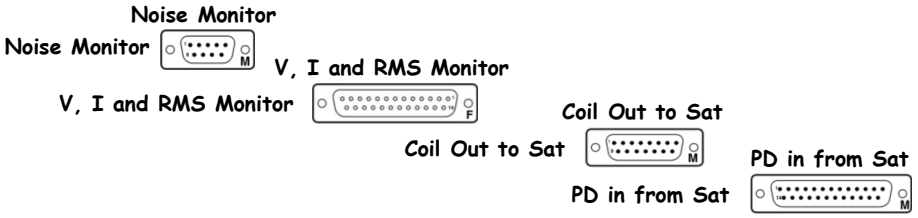
Front





S1000348

Rear

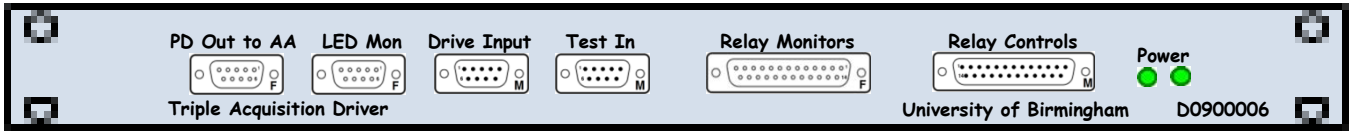


Driver Board: D0901047
Monitor Board: D070480

D0900006 - S1000349

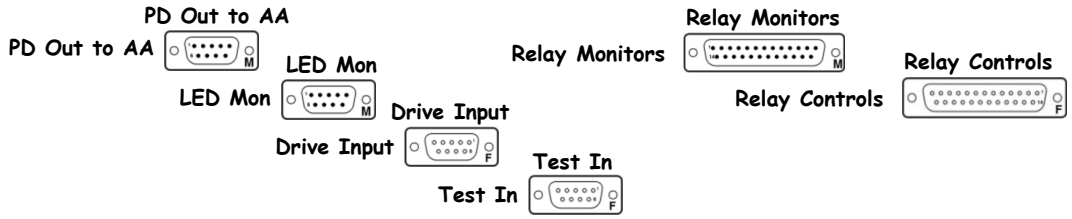
[<< L1-SUS-C1]

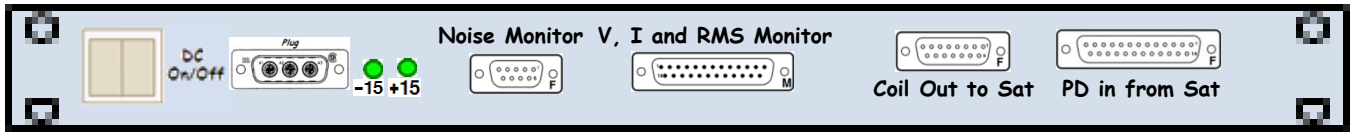
PR2 Mid Triple Acq Driver Chassis [D0900006] [S1000349] ±18VDC



[D0900006]

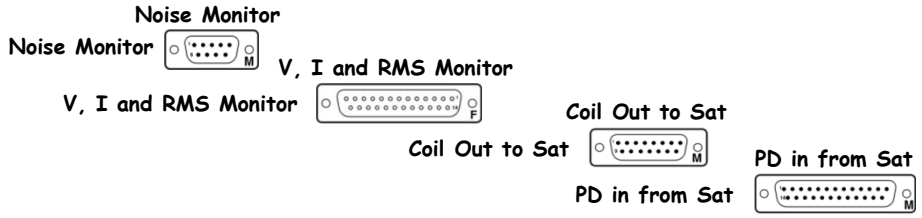
Front





[S1000349]

Rear

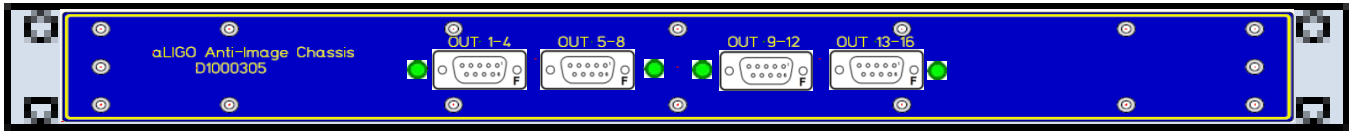


[Driver Board: D0901047]
[Monitor Board: D070480]

D1000305 - S1001815

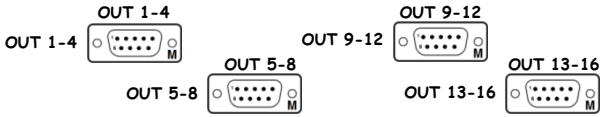
[<< L1-SUS-C1]

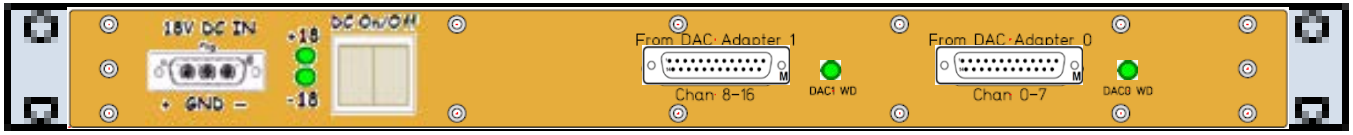
FE DAC4, FE DAC5 Anti-Image Chassis | D1000305 | S1101815 | ±18VDC



D1000305

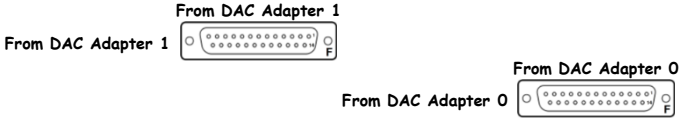
Front





S1101815

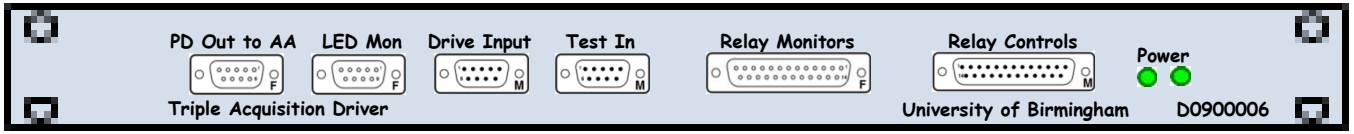
Rear



D0900006 - S1001186

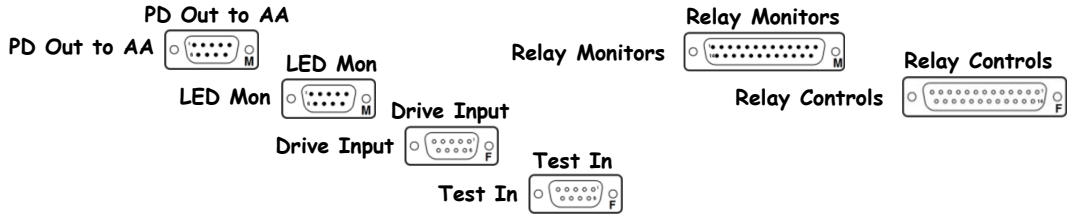
[<< L1-SUS-C1]

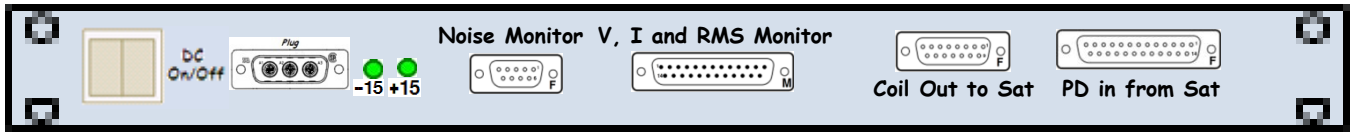
PR2 Bot Triple Acq Driver Chassis [D0900006] [S1001186] ±18VDC



[D0900006]

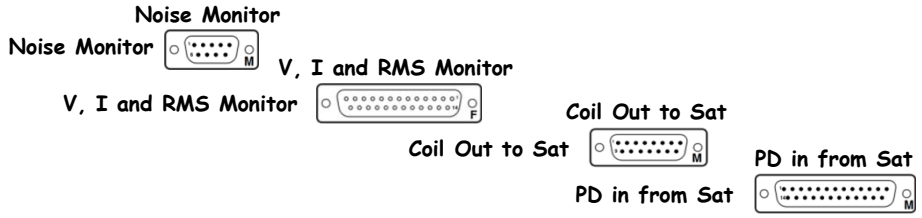
Front





[S1001186]

Rear

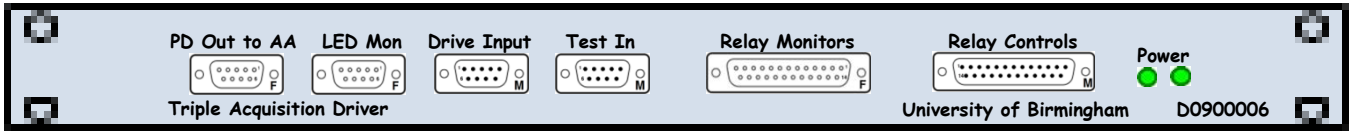


[Driver Board: D0901047]
[Monitor Board: D070480]

D0900006 - S1001187

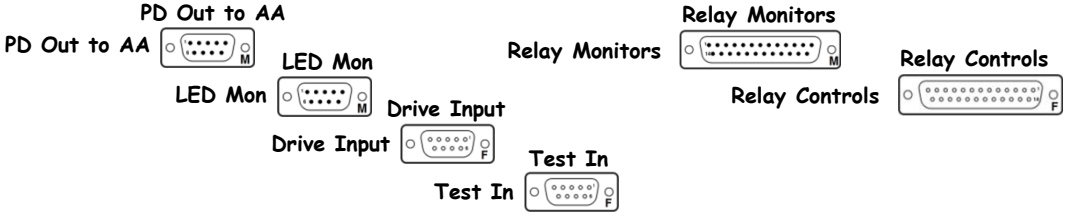
[<< L1-SUS-C1]

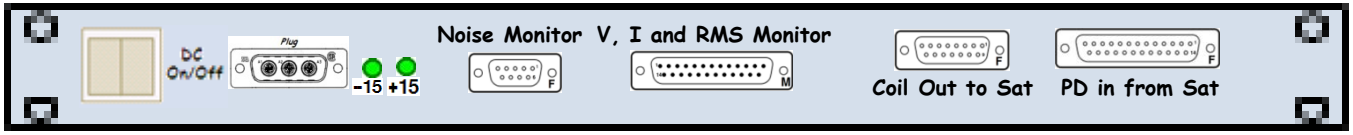
SR2 Mid Triple Acq Driver Chassis [D0900006] [S1001187] ±18VDC



[D0900006]

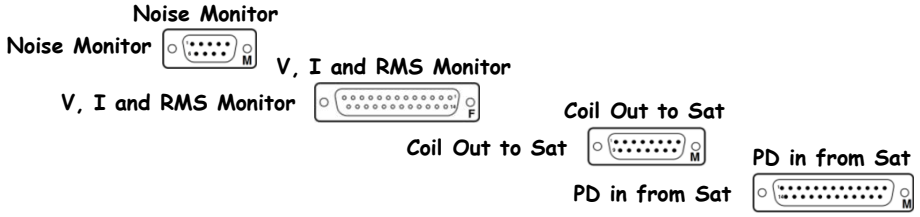
Front





[S1001187]

Rear

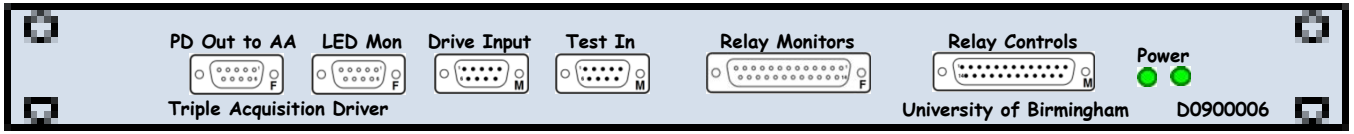


[Driver Board: D0901047]
[Monitor Board: D070480]

D0900006 - S1001188

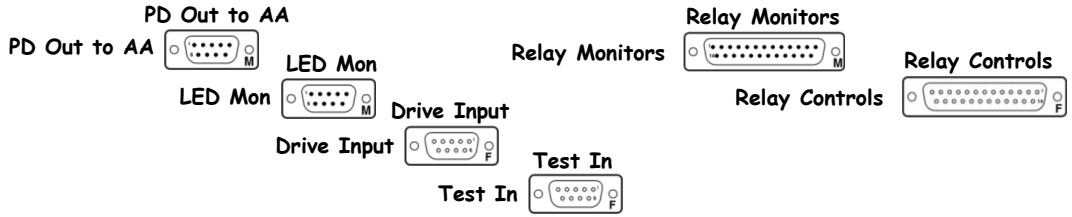
« L1-SUS-C1

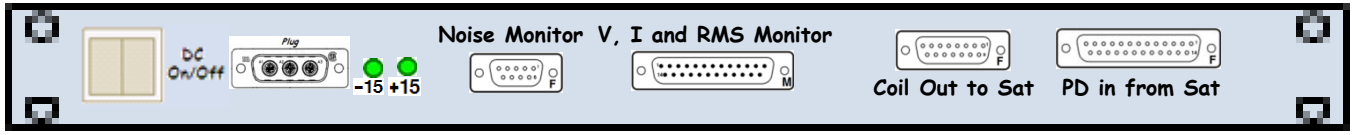
SR2 Bot Triple Acq Driver Chassis D0900006 S1001188 ±18VDC



D0900006

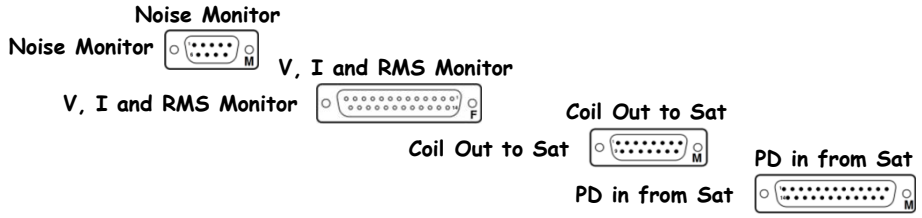
Front





S1001188

Rear

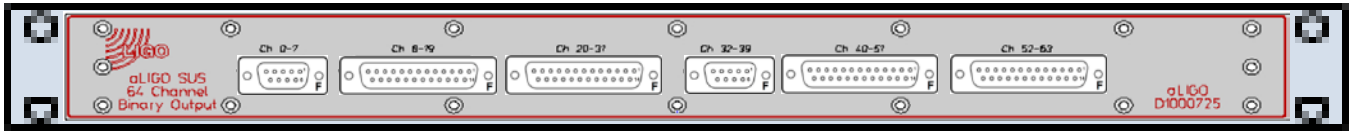


Driver Board: D0901047
Monitor Board: D070480

D1000725 - S1101781

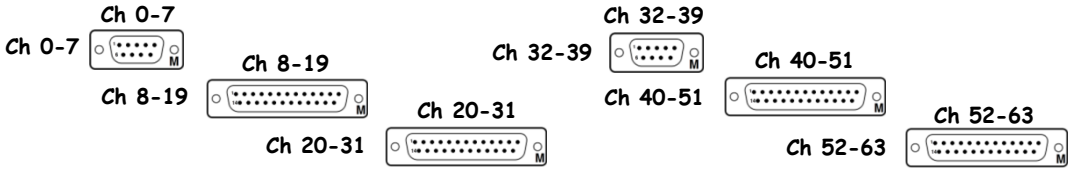
« L1-SUS-C1

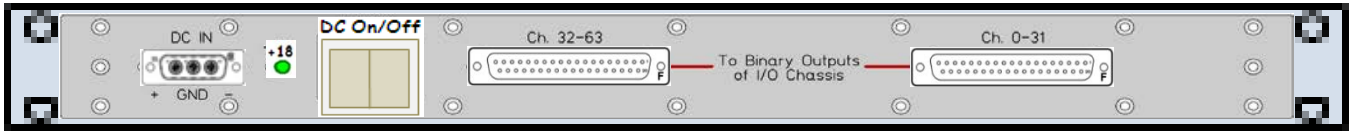
BIO1 Binary Output Chassis | D1000725 | S1101781 | ±18VDC



D1000725

Front



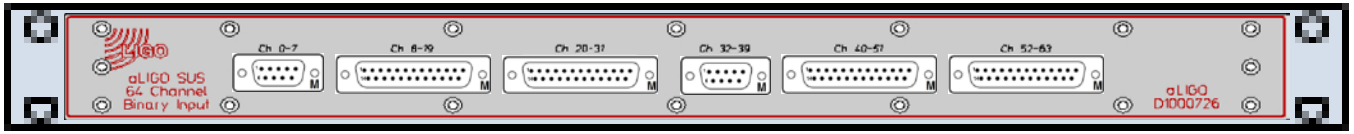


S1101781

Rear

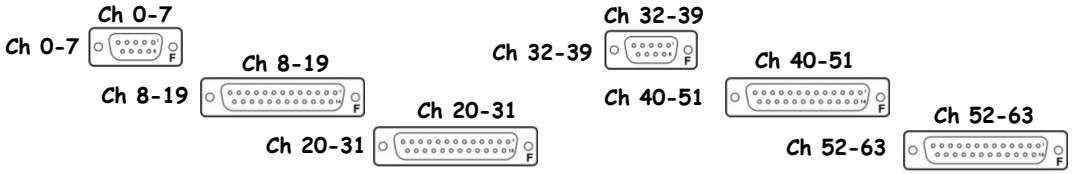
D1000726 - S1101805

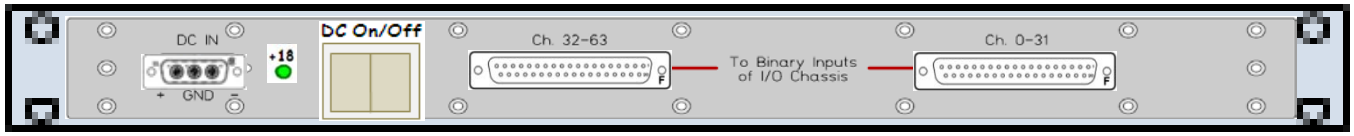
BIO1 Binary Input Chassis | D1000726 | S1101805 | ±18VDC



D1000726

Front





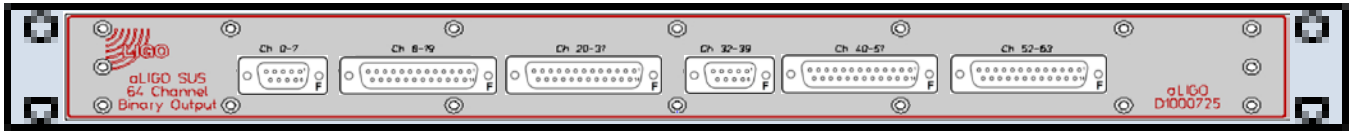
S1101805

Rear

D1000725 - S1101782

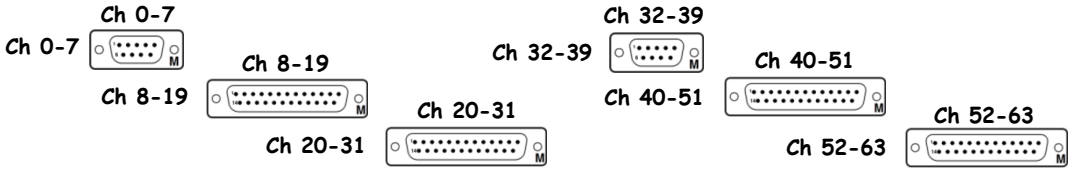
« L1-SUS-C1

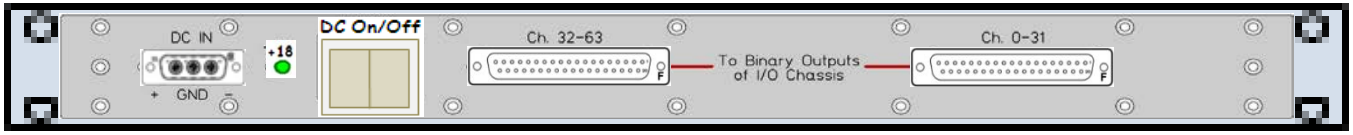
BIO2 Binary Output Chassis | D1000725 | S1101782 | ±18VDC



D1000725

Front



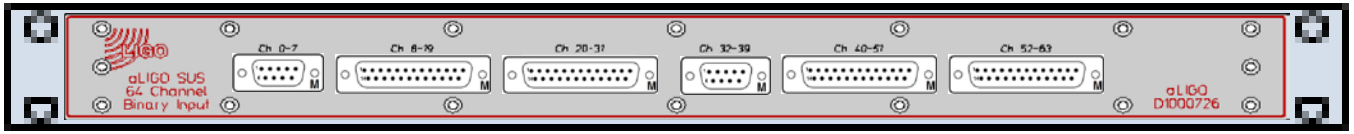


S1101782

Rear

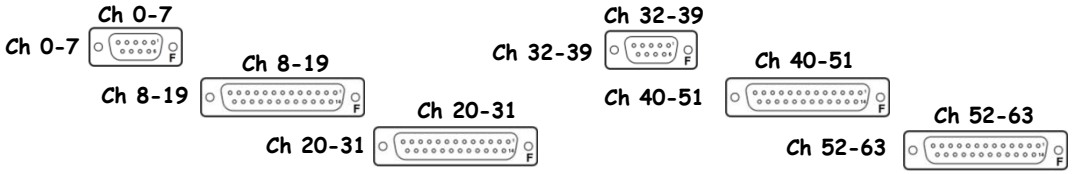
D1000726 - S1101802

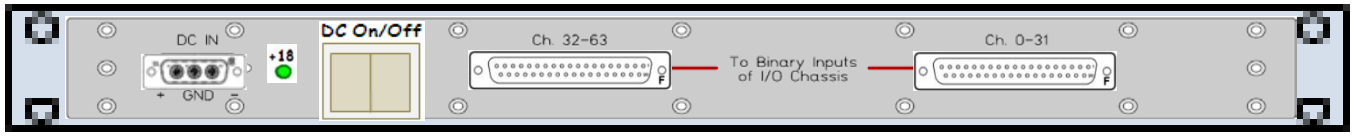
BIO2 Binary Input Chassis | D1000726 | S1101802 | ±18VDC



D1000726

Front





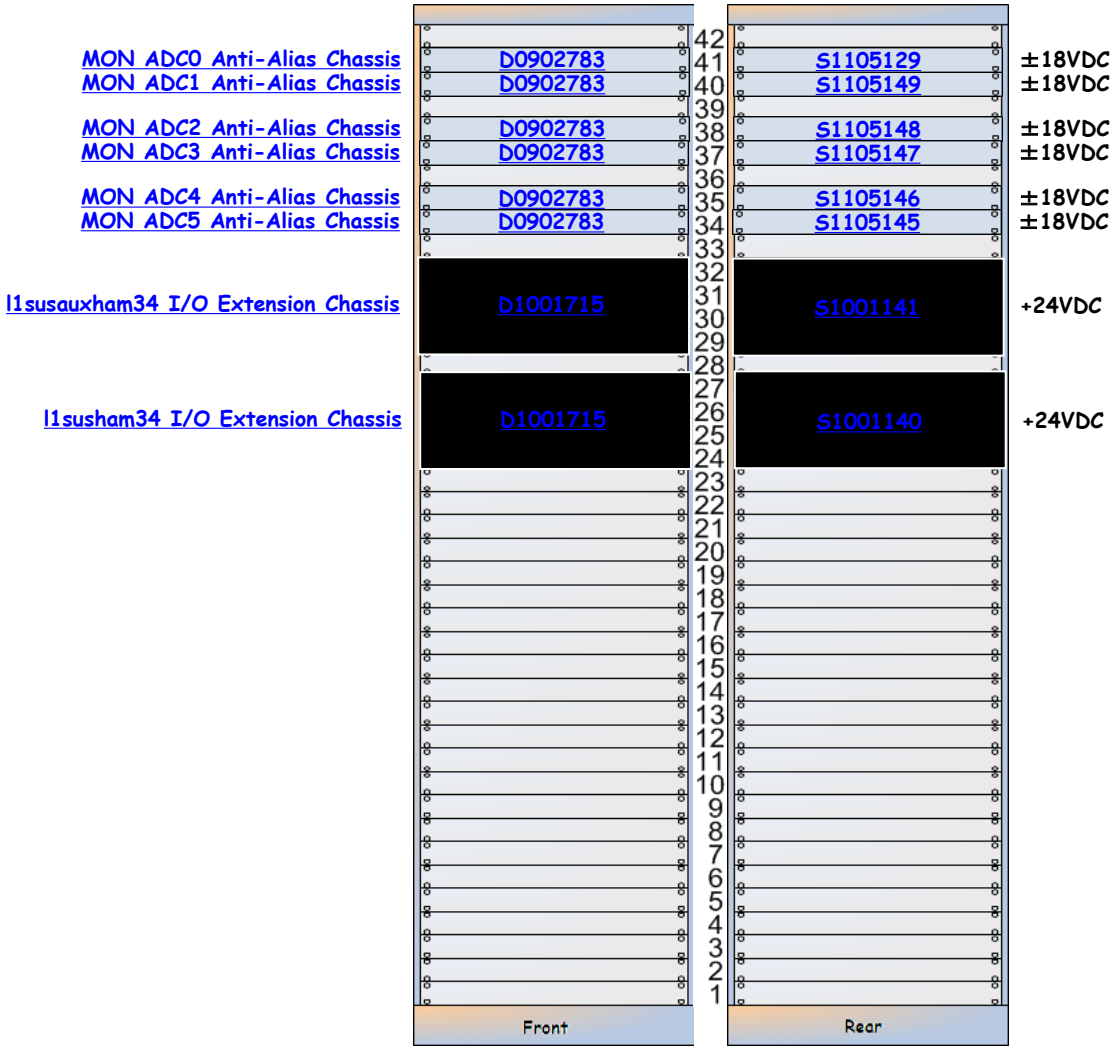
S1101802

Rear

L1-SUS-C2 – S1104356

[<< CER]

SUS HAM3 and HAM4 Rack 2 (of 2) Layout (D1200859) (S1104356)

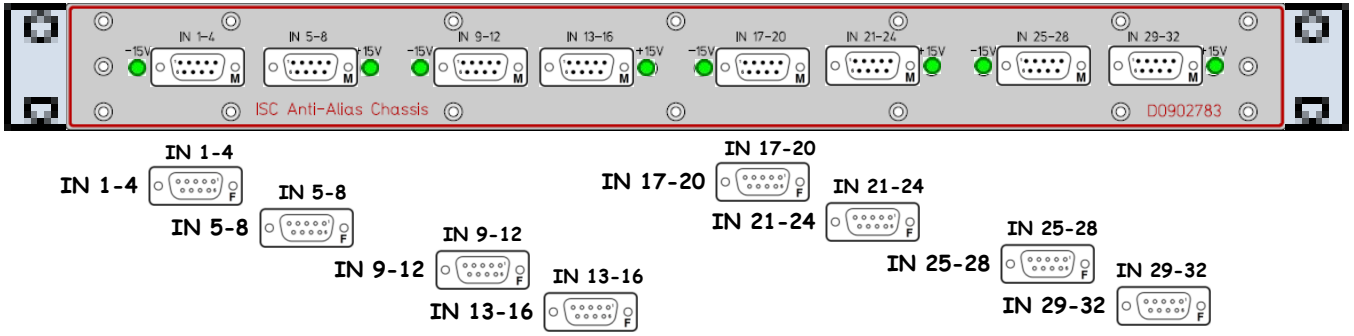


SUS-C2 is part of D1000599.

L1-SUS-C2 Details

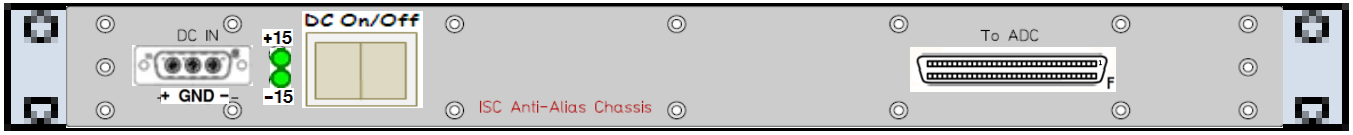
D0902783 - S1105129

FE ADC1 Anti-Alias Chassis | D0902783 | S1105129 | ±18VDC



D0902783

Front



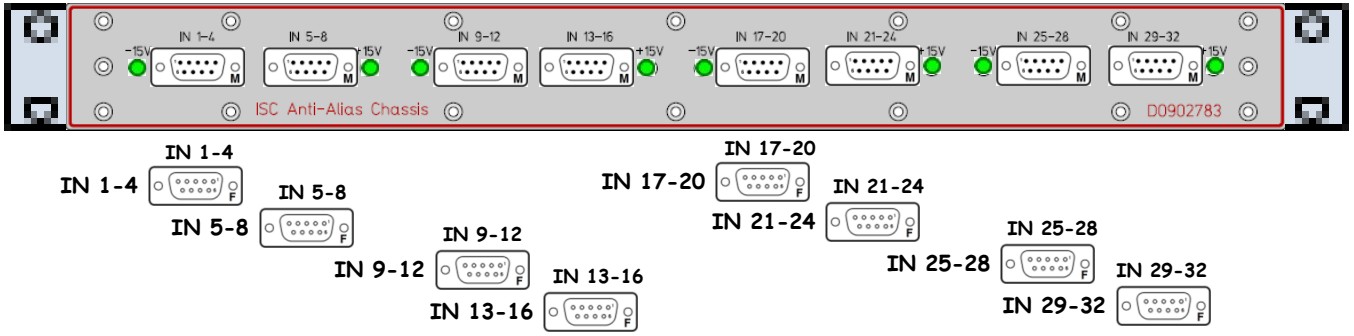
S1105129

Rear

D0902783 - S1105149

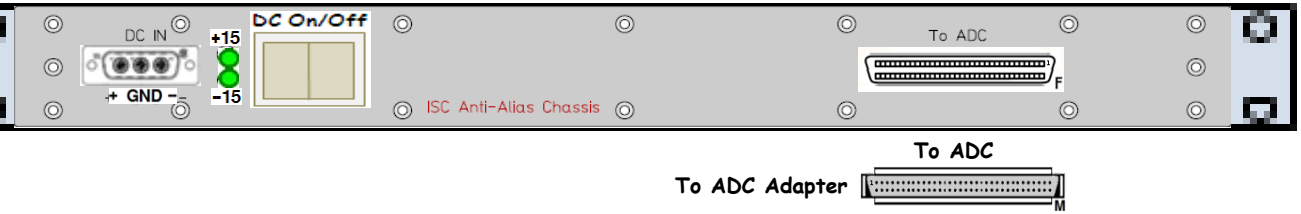
« L1-SUS-C2

FE ADC1 Anti-Alias Chassis | D0902783 | S1105149 | ±18VDC



D0902783

Front



S1105149

Rear

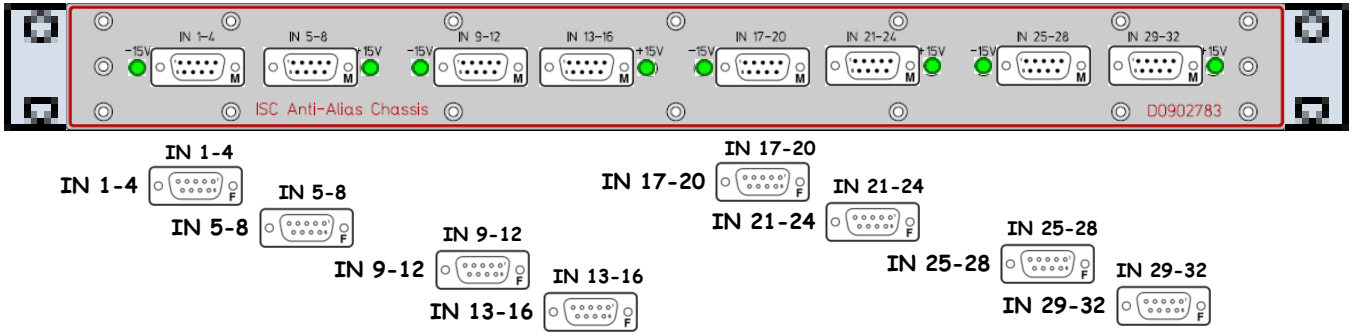
To ADC

To ADC Adapter

D0902783 - S1105148

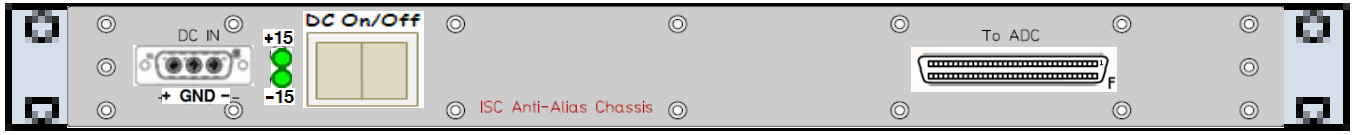
« L1-SUS-C2

FE ADC1 Anti-Alias Chassis | D0902783 | S1105148 | ±18VDC



D0902783

Front

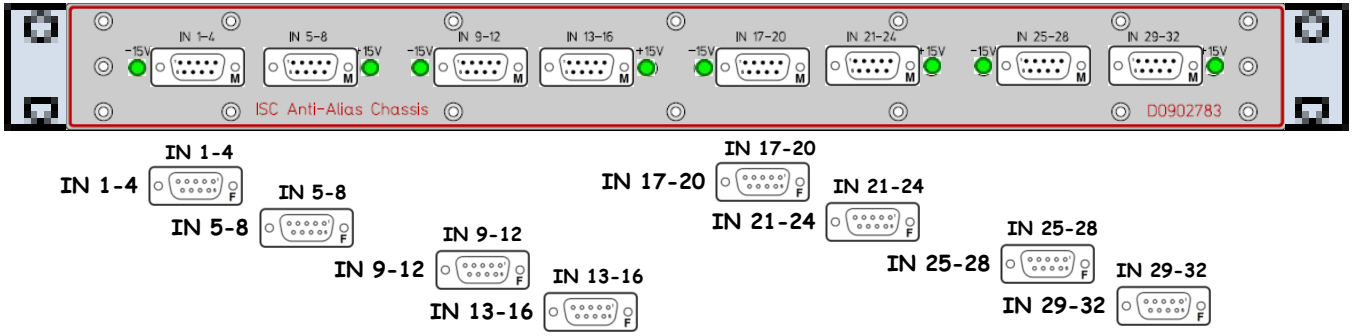


S1105148

Rear

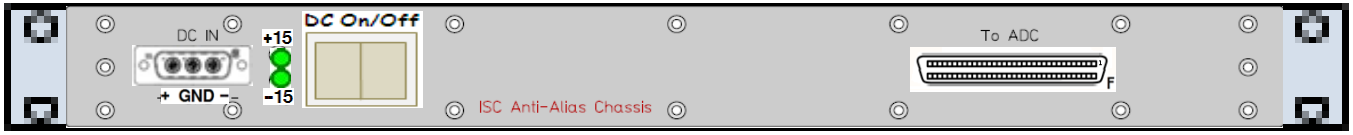
D0902783 - S1105147

FE ADC1 Anti-Alias Chassis | D0902783 | S1105147 | ±18VDC



D0902783

Front

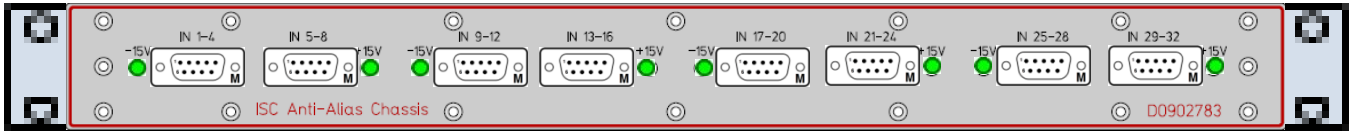


S1105147

Rear

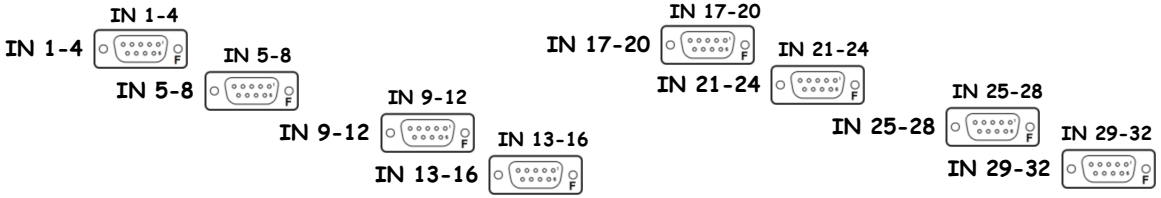
D0902783 - S1105146

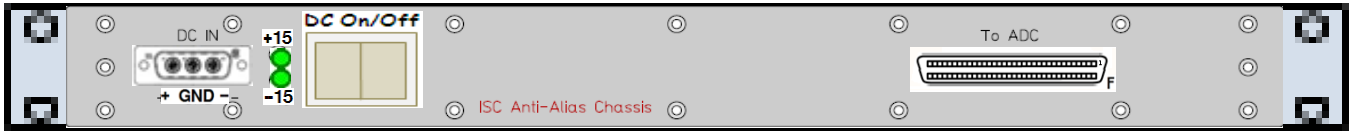
FE ADC1 Anti-Alias Chassis | D0902783 | S1105146 | ±18VDC



D0902783

Front



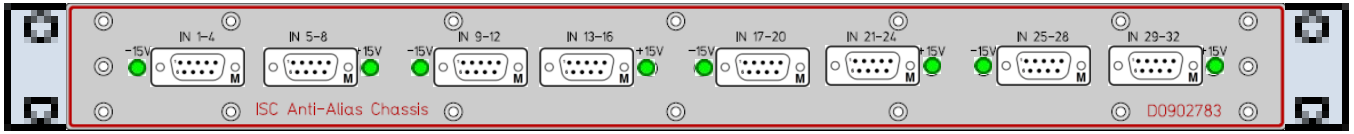


S1105146

Rear

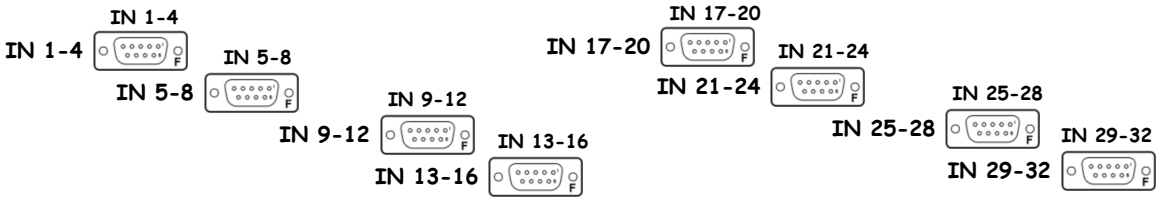
D0902783 - S1105145

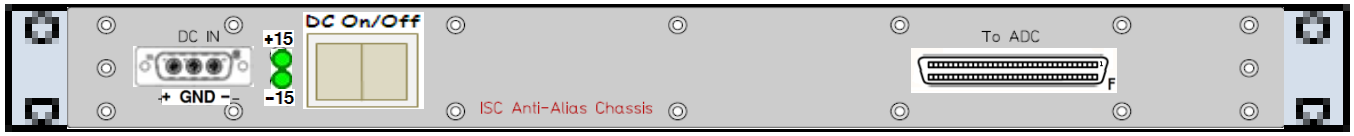
FE ADC1 Anti-Alias Chassis | D0902783 | S1105145 | ±18VDC



D0902783

Front





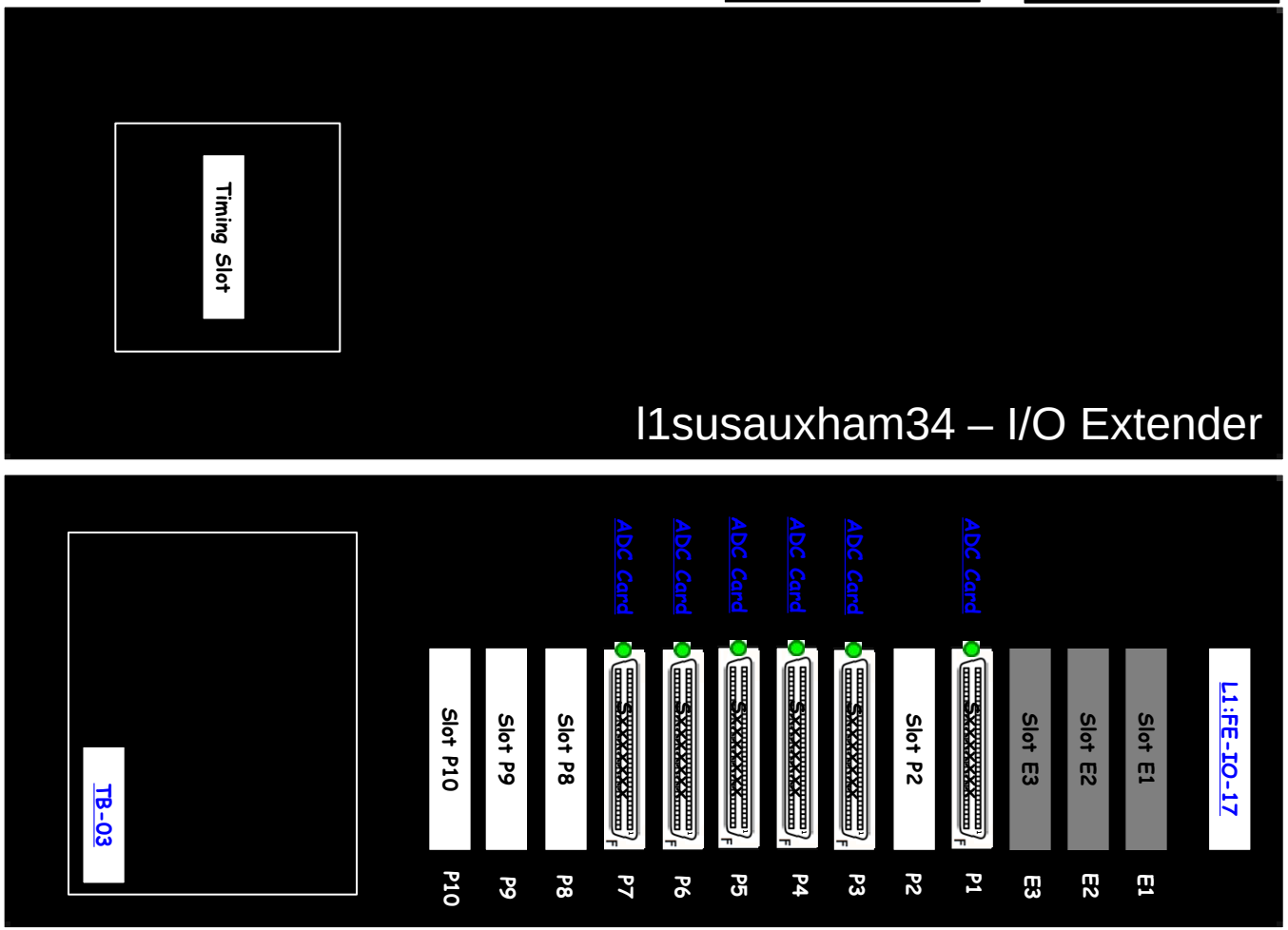
S1105145

Rear

l1susauxham34 - D1001715 - S1001141

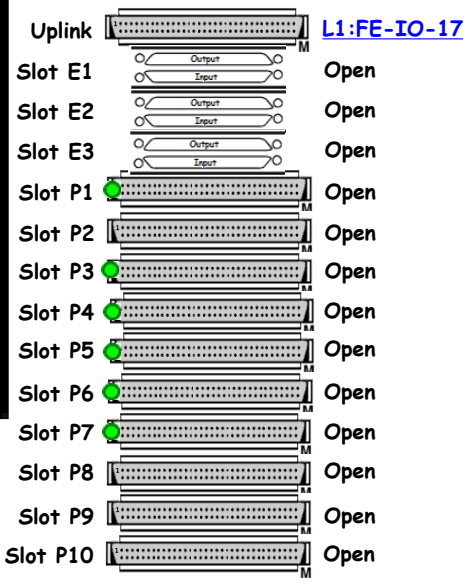
« L1-SUS-C2

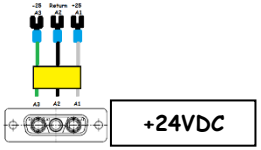
l1susauxham34 I/O Extension Chassis | D1001715 | S1001141 | +24VDC



D1001715
Front

S1001141
Rear





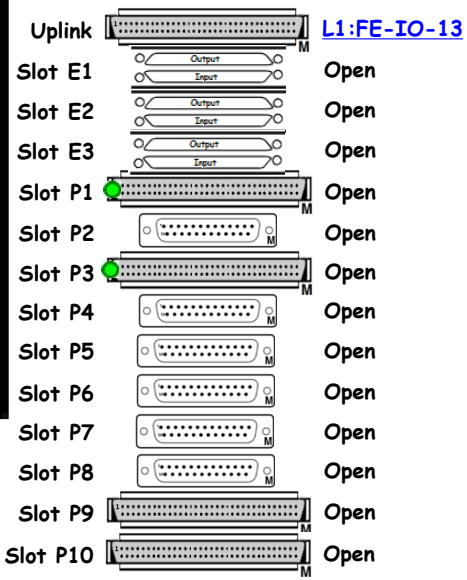
l1susham34 - D1001715 - S1001140

« L1-SUS-C2

l1susham34 I/O Extension Chassis | D1001715 | S1001140 | +24VDC

D1001715
Front

S1001140
Rear

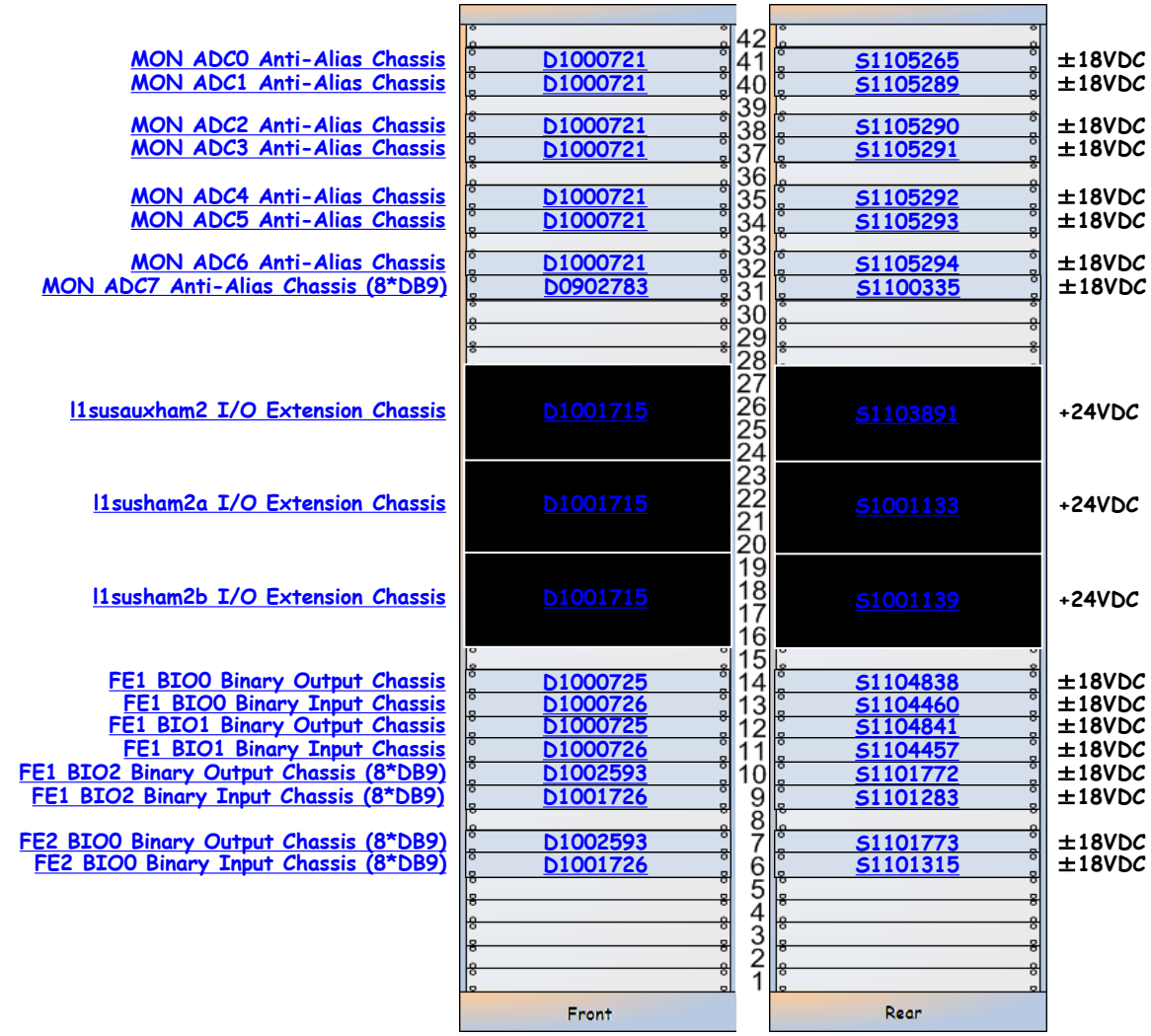


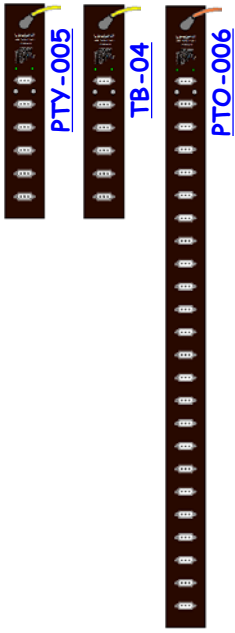
L1-SUS-C3 - S1104357

LIGO

<< CER

SUS HAM2 Rack 1 (of 2) Layout (D1200864) (S1104357)





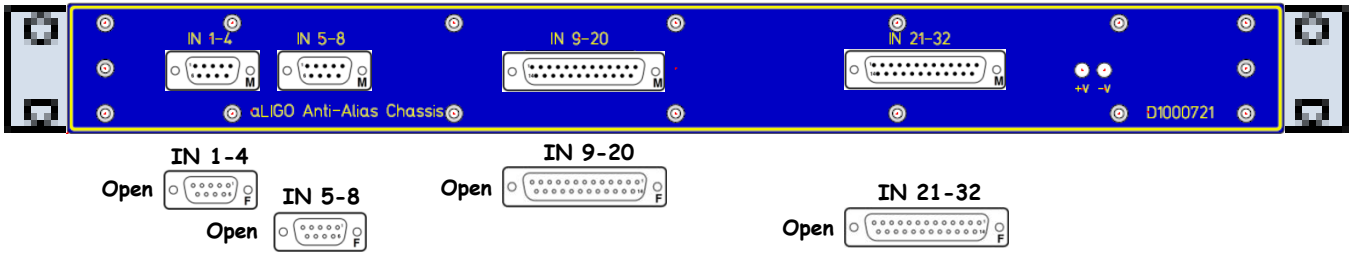
SUS-C3 is part of D0902810.

L1-SUS-C3 Details

D1000721 - S1105265

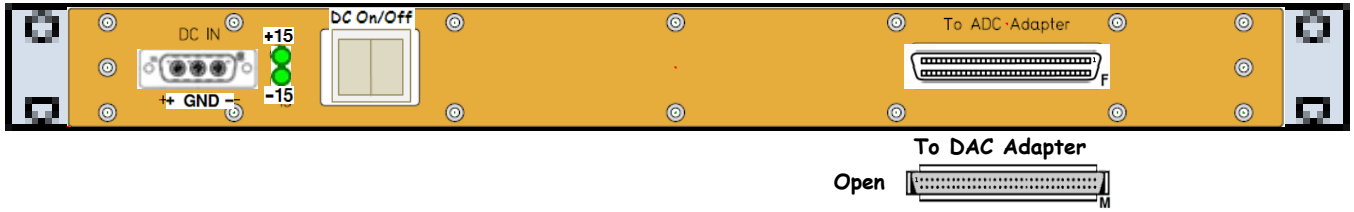
<< L1-SUS-C3

MON ADC0 Anti-Alias Chassis | D1000721 | S1105265 | ±18VDC



D1000721

Front



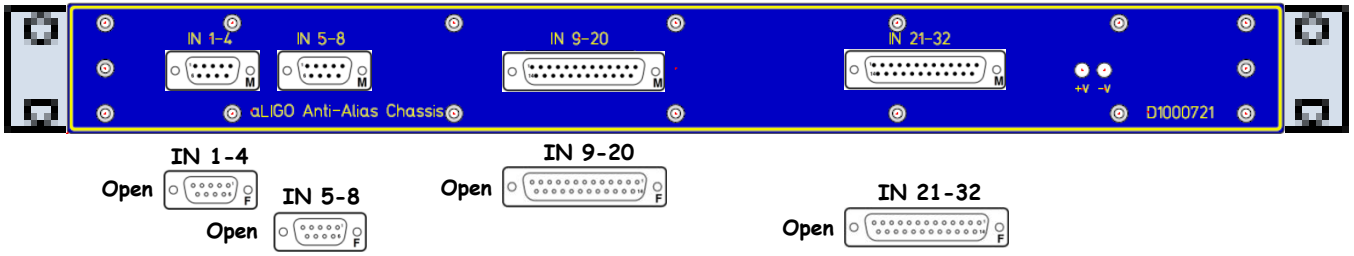
S1105265

Rear

D1000721 - S1105289

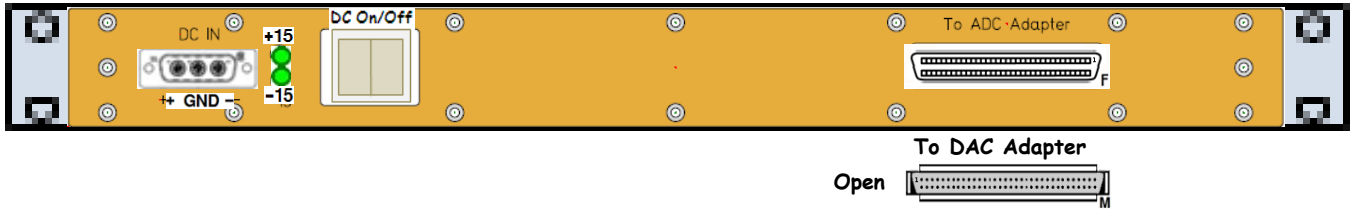
<< L1-SUS-C3

MON ADC1 Anti-Alias Chassis | D1000721 | S1105289 | ±18VDC



D1000721

Front

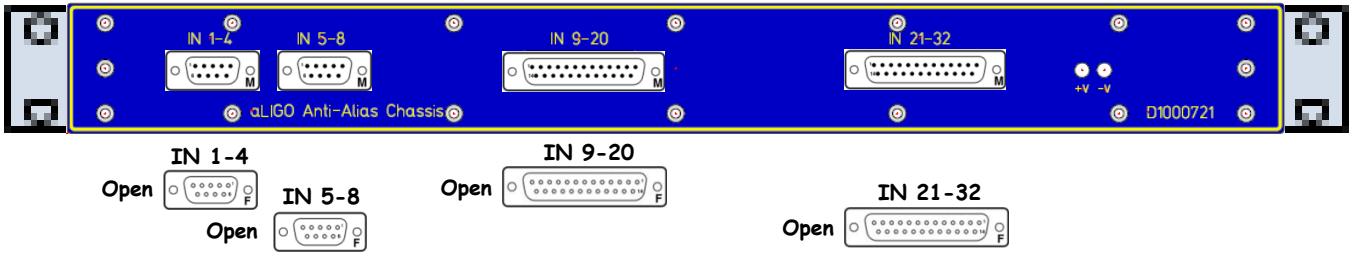


S1105289

Rear

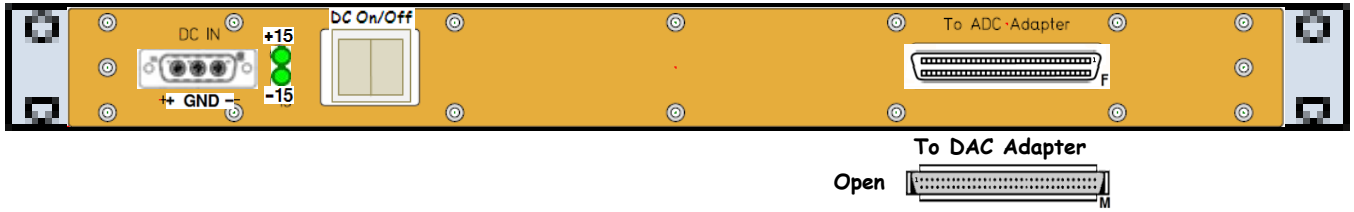
D1000721 - S1105290

MON ADC2 Anti-Alias Chassis | D1000721 | S1105290 | ±18VDC



D1000721

Front



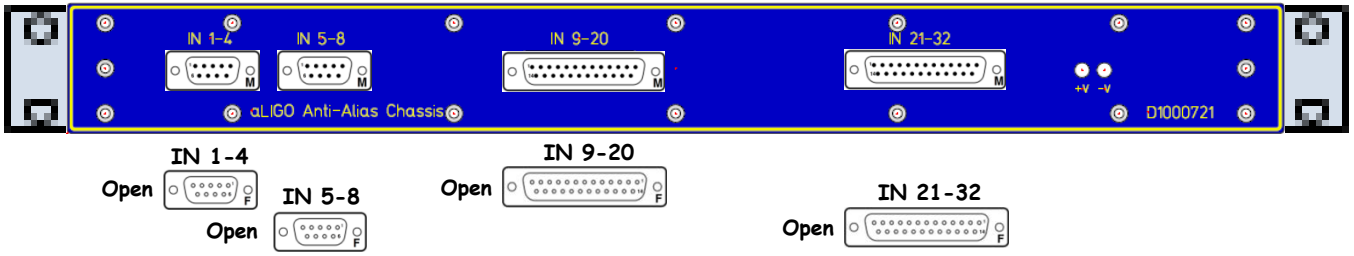
S1105290

Rear

D1000721 - S1105291

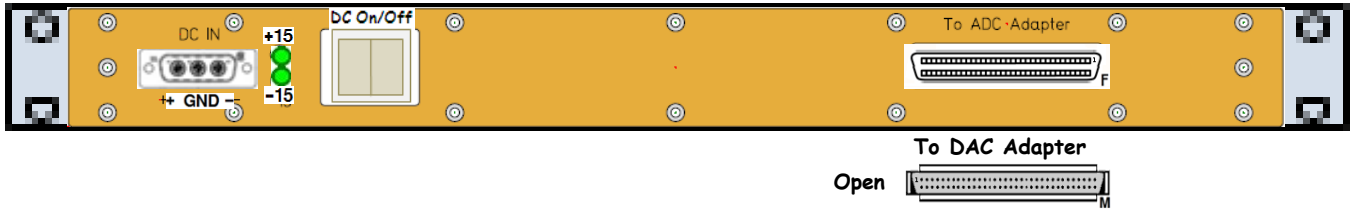
[<< L1-SUS-C3]

MON ADC3 Anti-Alias Chassis | D1000721 | S1105291 | ±18VDC



D1000721

Front



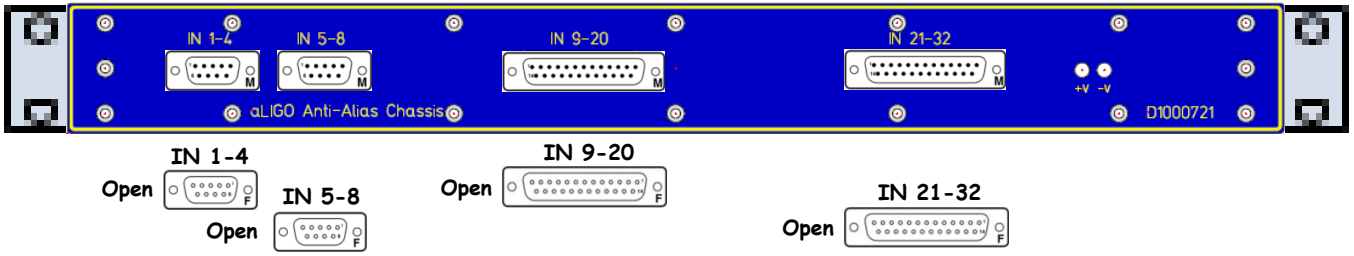
S1105291

Rear

D1000721 - S1105292

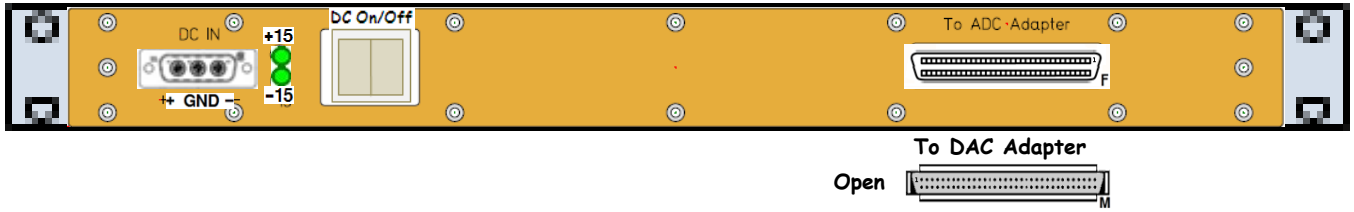
[<< L1-SUS-C3]

MON ADC4 Anti-Alias Chassis | D1000721 | S1105292 | ±18VDC



D1000721

Front

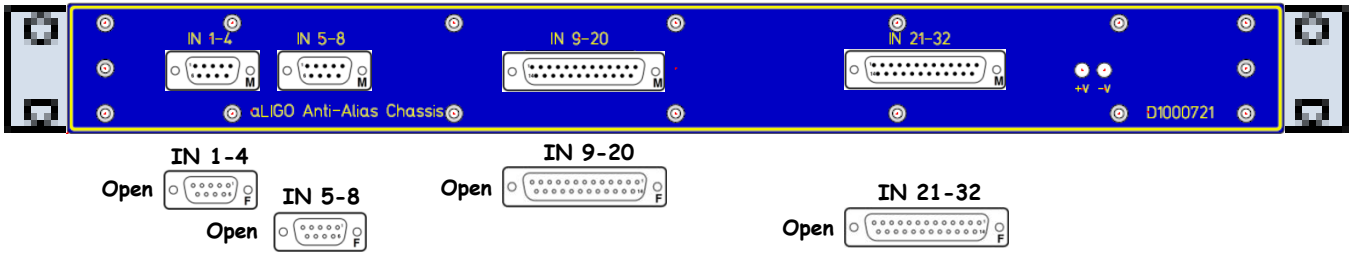


S1105292

Rear

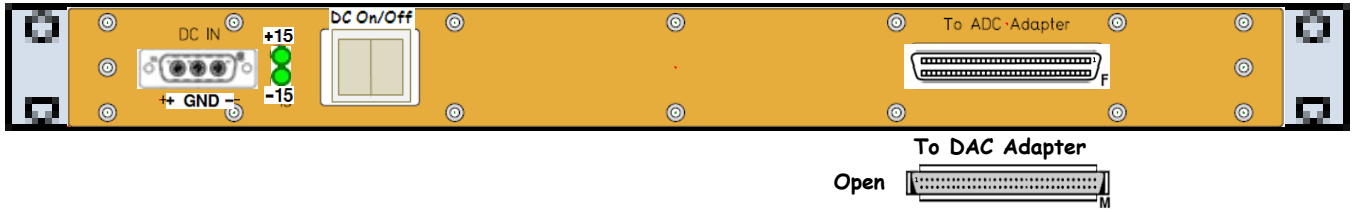
D1000721 - S1105293

MON ADC5 Anti-Alias Chassis | D1000721 | S1105293 | ±18VDC



D1000721

Front

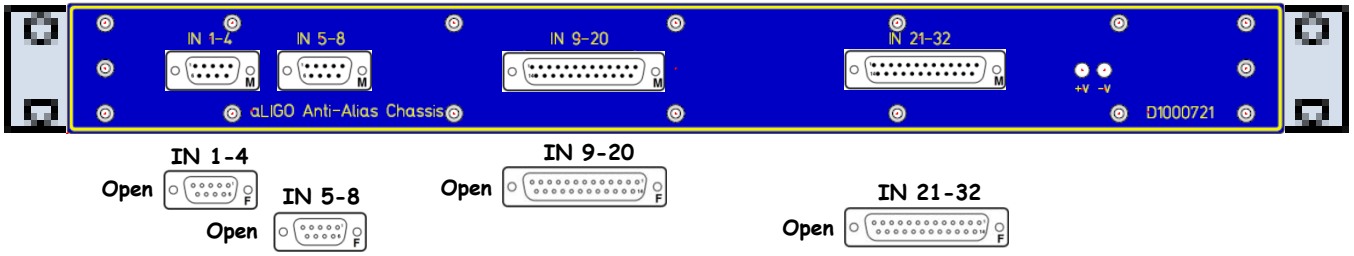


S1105293

Rear

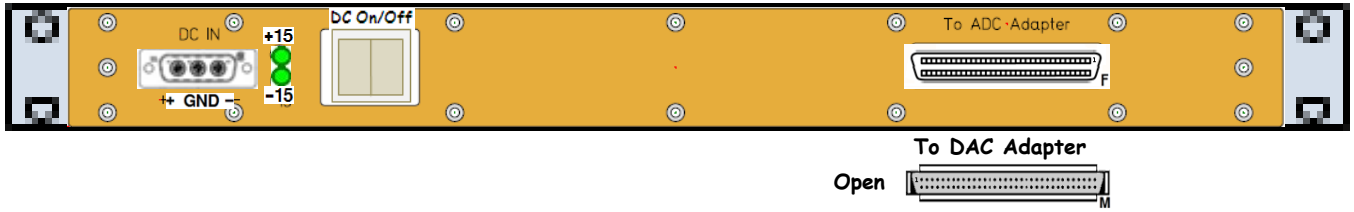
D1000721 - S1105294

MON ADC6 Anti-Alias Chassis | D1000721 | S1105294 | ±18VDC



D1000721

Front



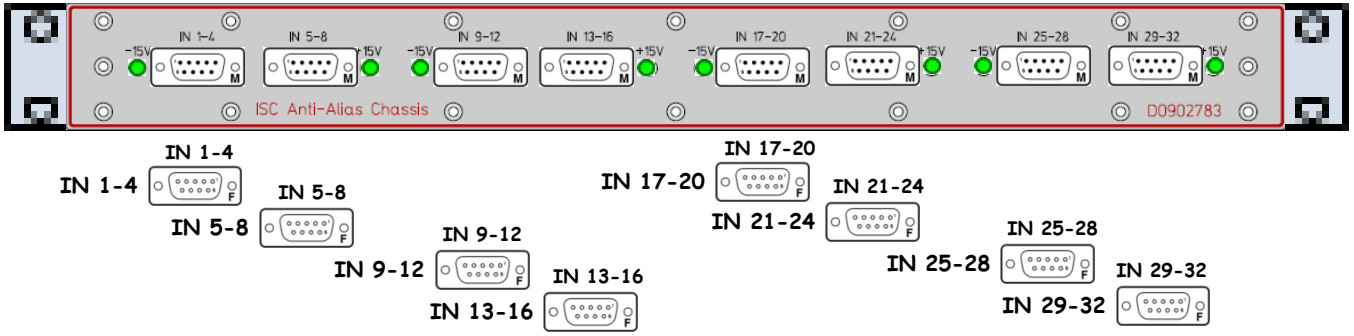
S1105294

Rear

D0902783 - S1100335

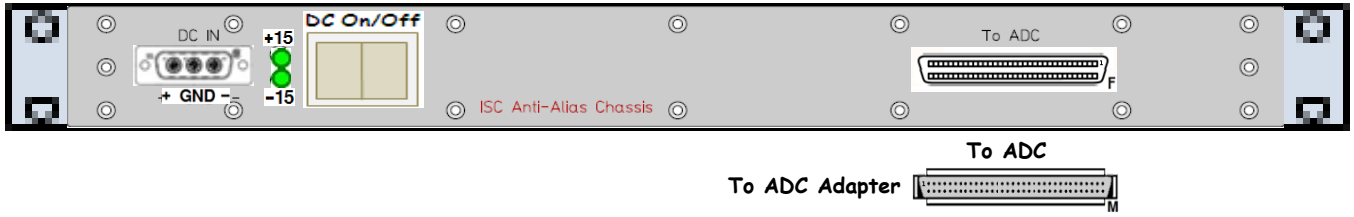
« L1-SUS-C3

MON ADC7 Anti-Alias Chassis (8*DB9) D0902783 S1100335 ±18VDC



D0902783

Front



S1100335

Rear

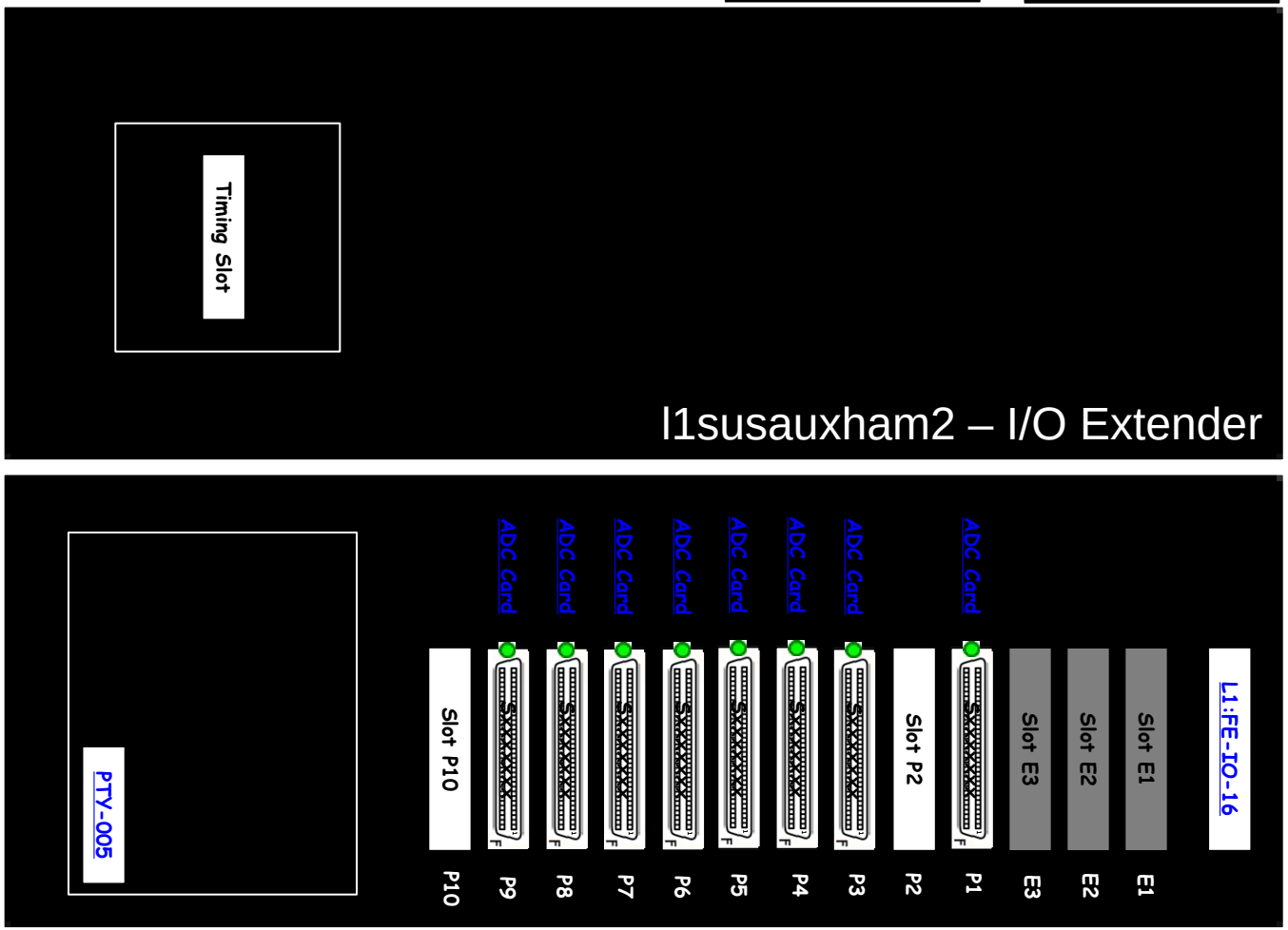
To ADC

To ADC Adapter

l1susauxham2 - D1001715 - S1003891

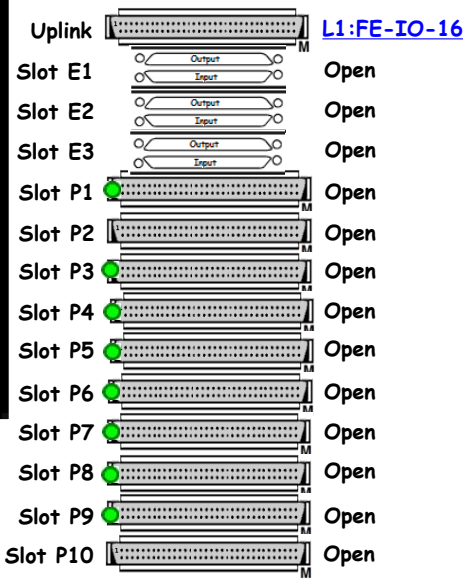
« L1-SUS-C3

l1susauxham2 I/O Extension Chassis | D1001715 | S1003891 | +24VDC



D1001715
Front

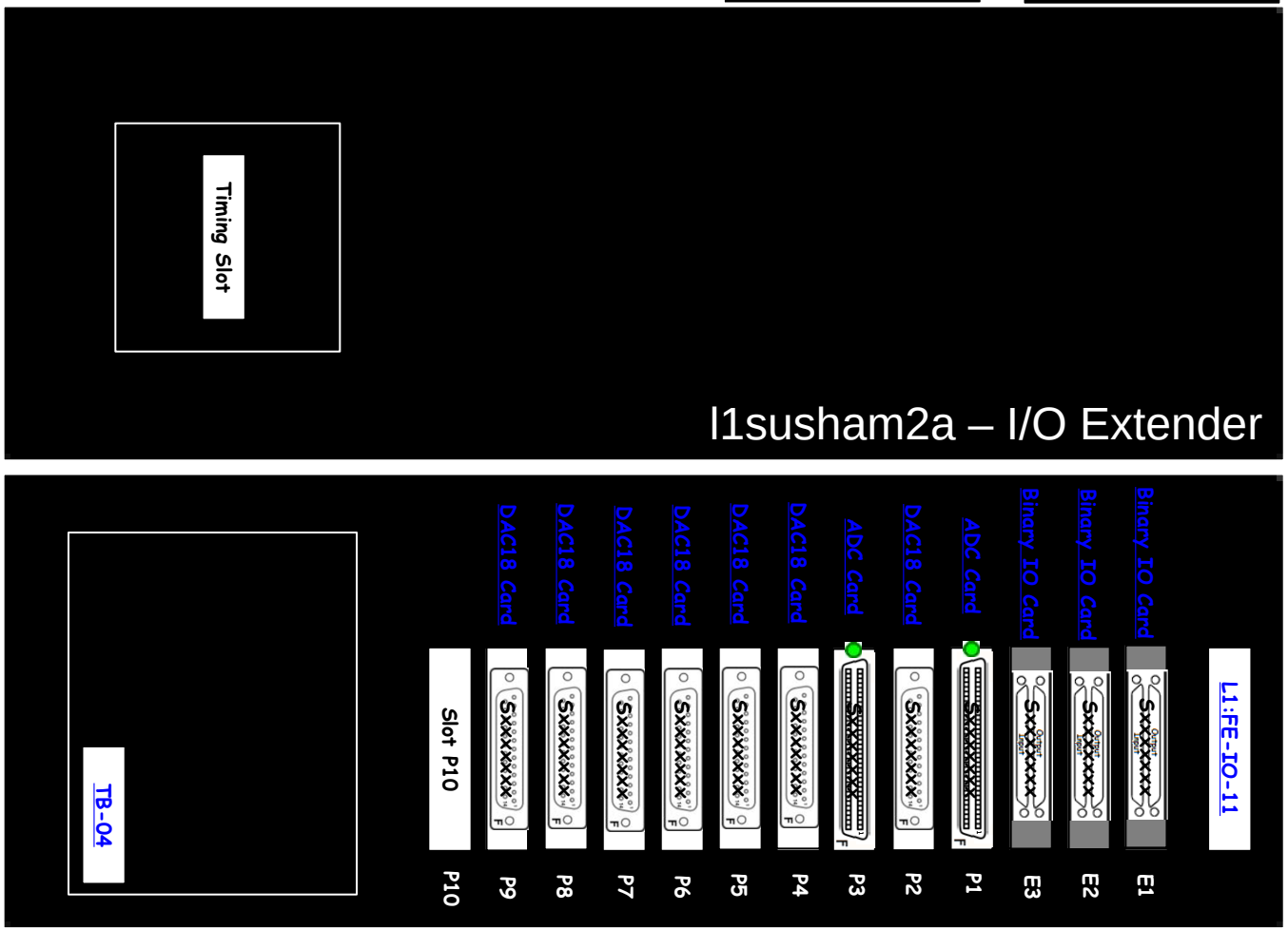
S1003891
Rear



l1susham2a - D1001715 - S1001133

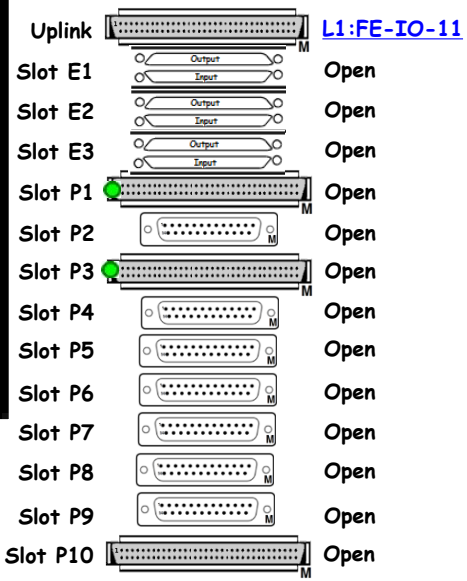
[<< L1-SUS-C3]

l1susham2a IO Extension Chassis | D1001715 | S1001133 | +24VDC



D1001715
Front

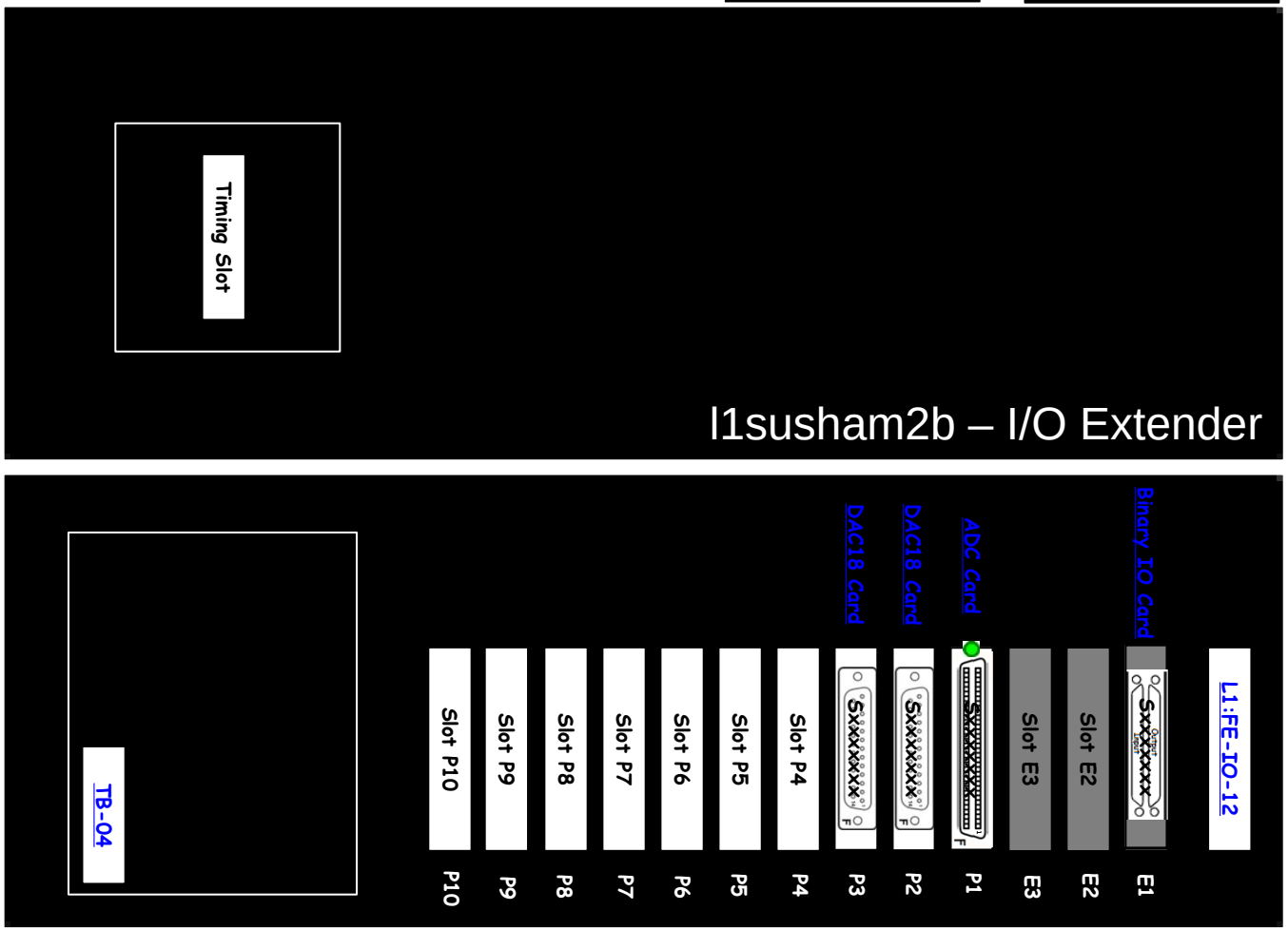
S1001133
Rear



l1susham2b - D1001715 - S1001139

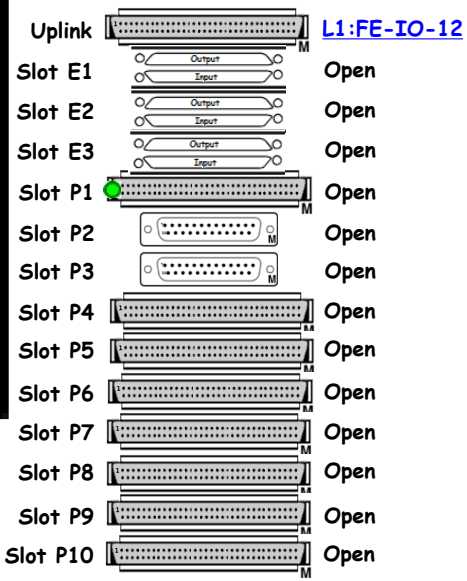
[<< L1-SUS-C3]

l1susham2b IO Extension Chassis | D1001715 | S1001139 | +24VDC



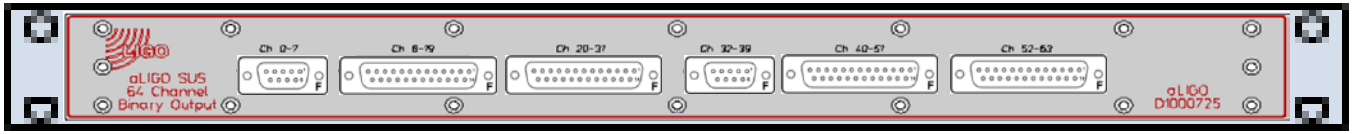
D1001715
Front

S1001139
Rear



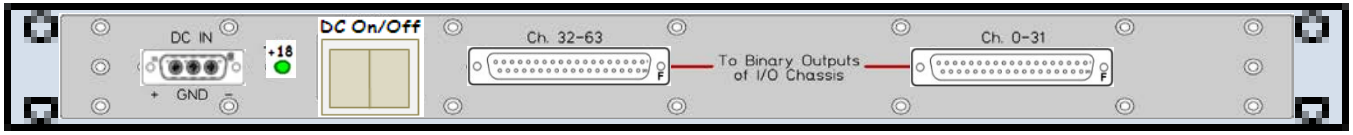
D1000725 - S1104838

FE1 BIO0 Binary Output Chassis | D1000725 | S1104838 | ±18VDC



D1000725

Front

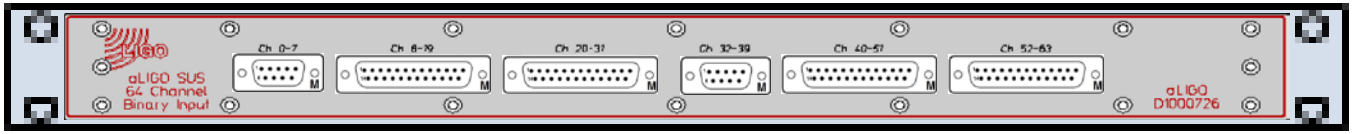


S1104838

Rear

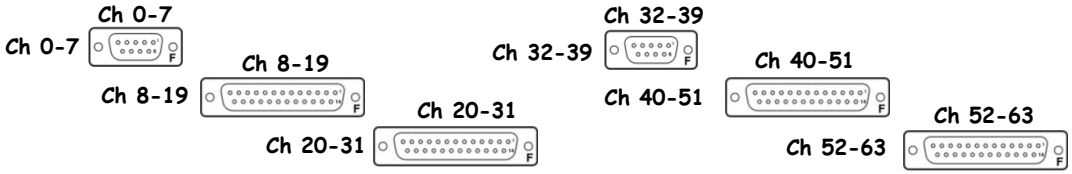
D1000726 - S1104460

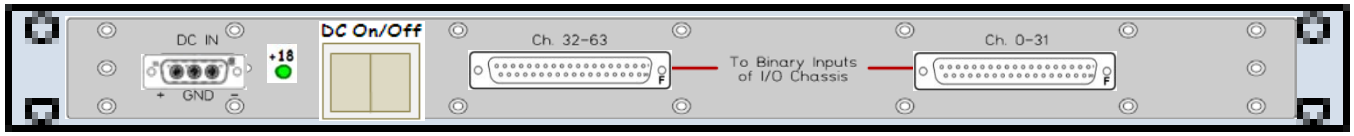
FE1 BIO0 Binary Input Chassis | D1000726 | S1104460 | ±18VDC



D1000726

Front



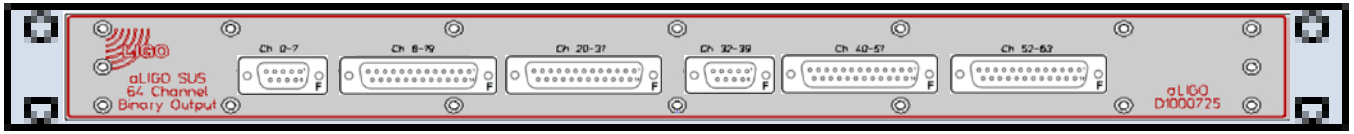


S1104460

Rear

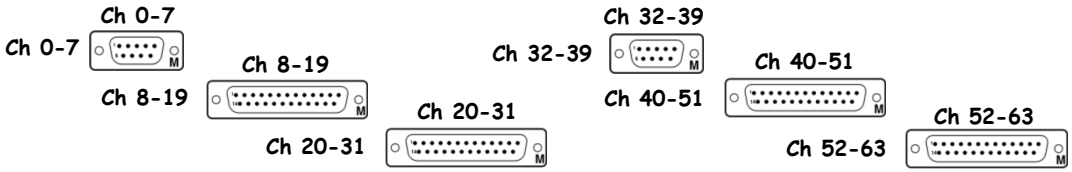
D1000725 - S1104841

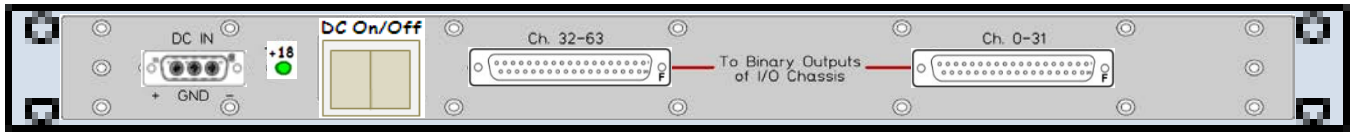
FE1 BIO1 Binary Output Chassis | D1000725 | S1104841 | ±18VDC



D1000725

Front





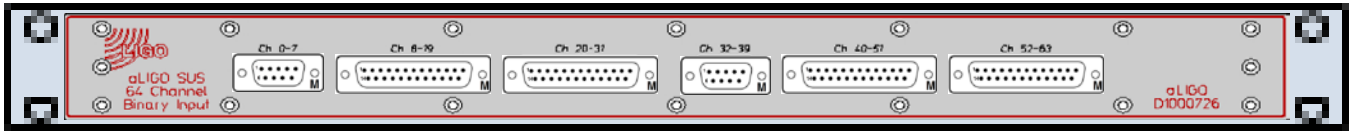
S1104841

Rear

D1000726 - S1104457

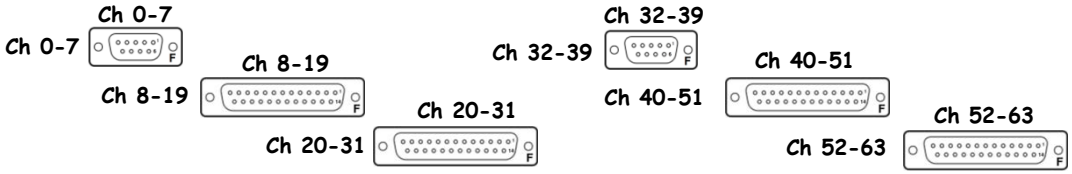
« L1-SUS-C3

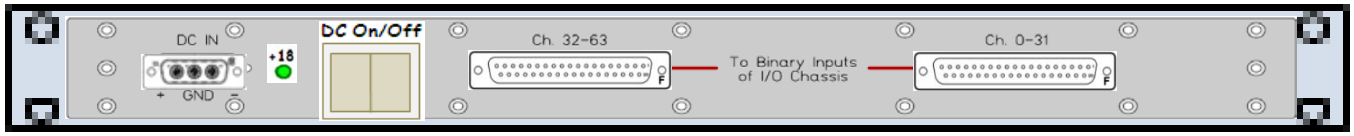
FE1 BIO1 Binary Input Chassis | D1000726 | S1104457 | ±18VDC



D1000726

Front





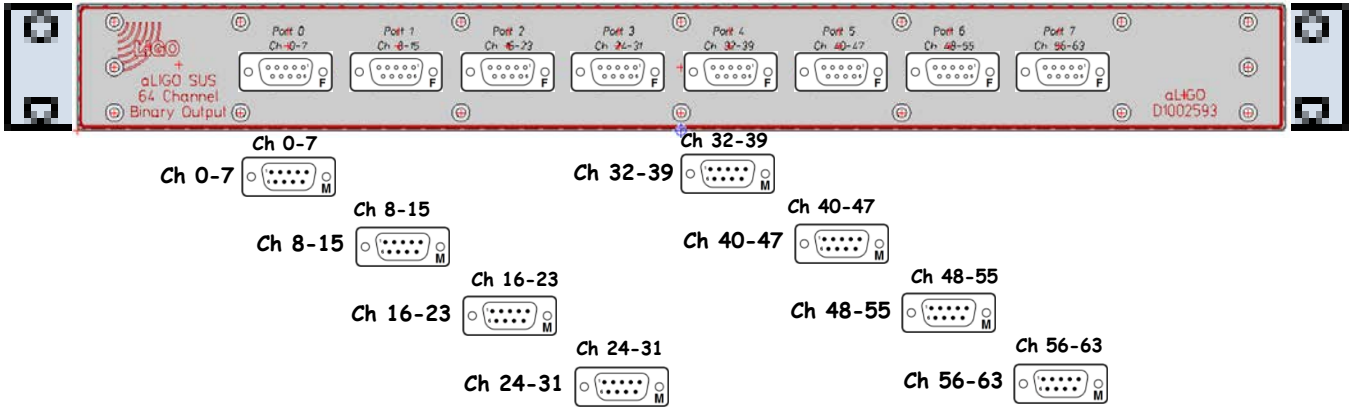
S1104457

Rear

D1002593 - S1101772

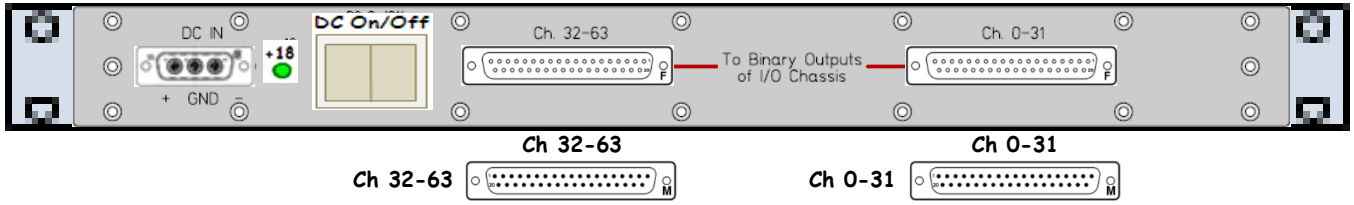
[<< L1-SUS-C3]

FE1 BIO2 Binary Output Chassis (8*DB9) D1002593 S1101772 ±18VDC



D1002593

Front



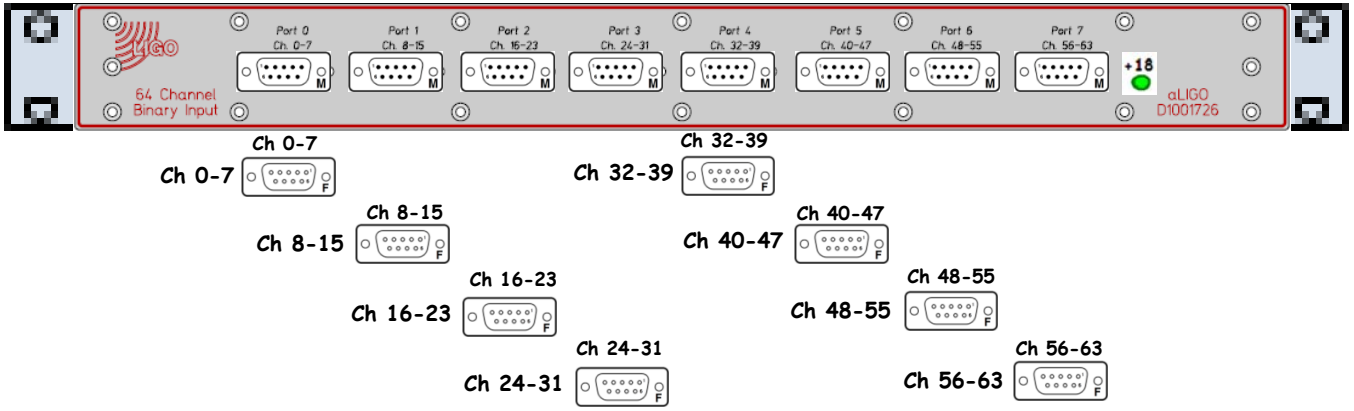
S1101772

Rear

D1001726 - S1101283

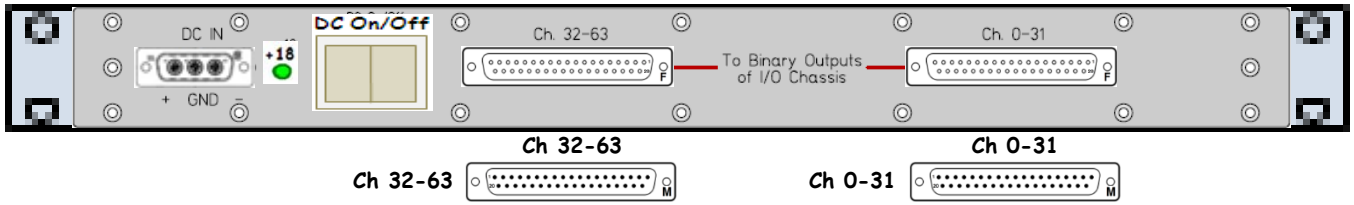
[<< L1-SUS-C3]

FE1 BIO2 Binary Input Chassis (8*DB9) | D1001726 | S1101283 | ±18VDC



D1001726

Front



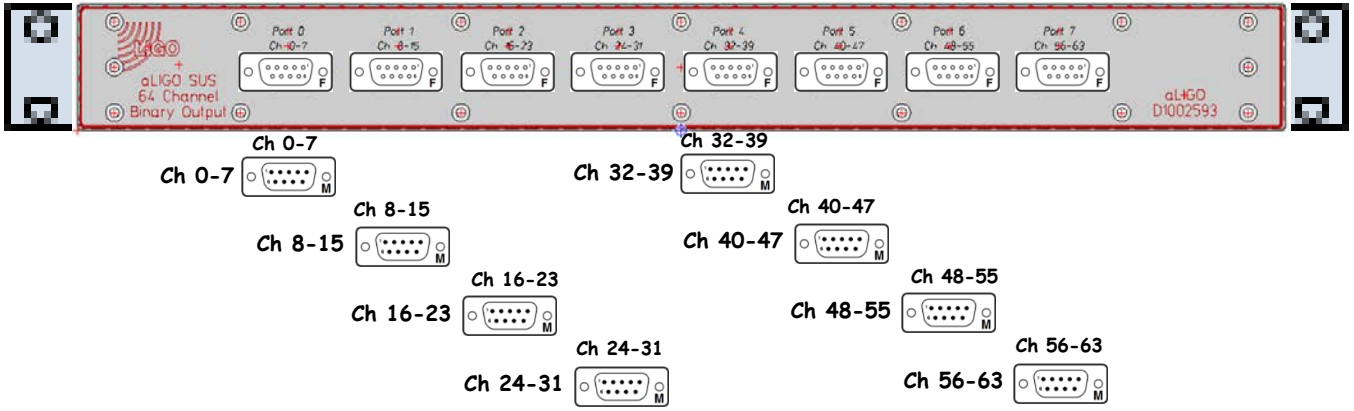
S1101283

Rear

D1002593 - S1101773

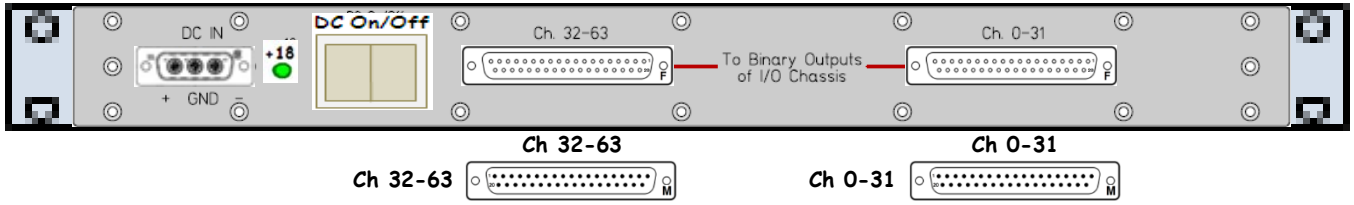
« L1-SUS-C3

FE2 BIO0 Binary Output Chassis (8*DB9) | D1002593 | S1101773 | ±18VDC



D1002593

Front



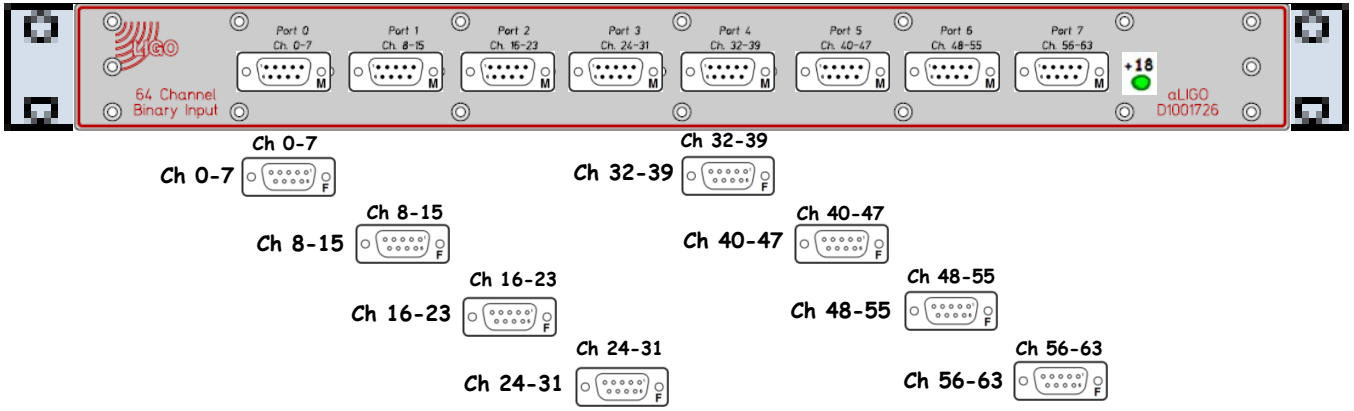
S1101773

Rear

D1001726 - S1101315

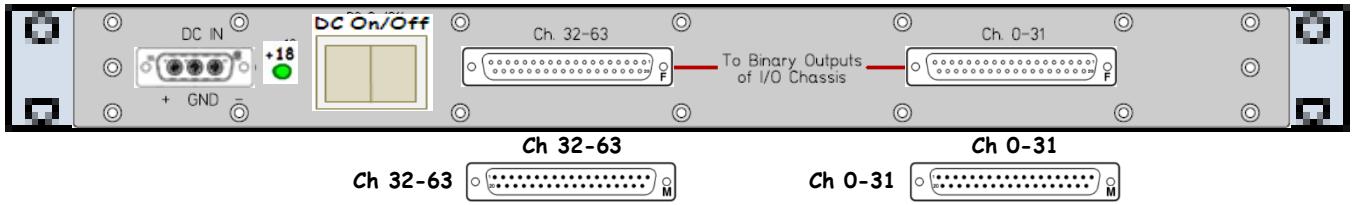
« L1-SUS-C3

FE2 BIO0 Binary Input Chassis (8*DB9) | D1001726 | S1101315 | ±18VDC



D1001726

Front



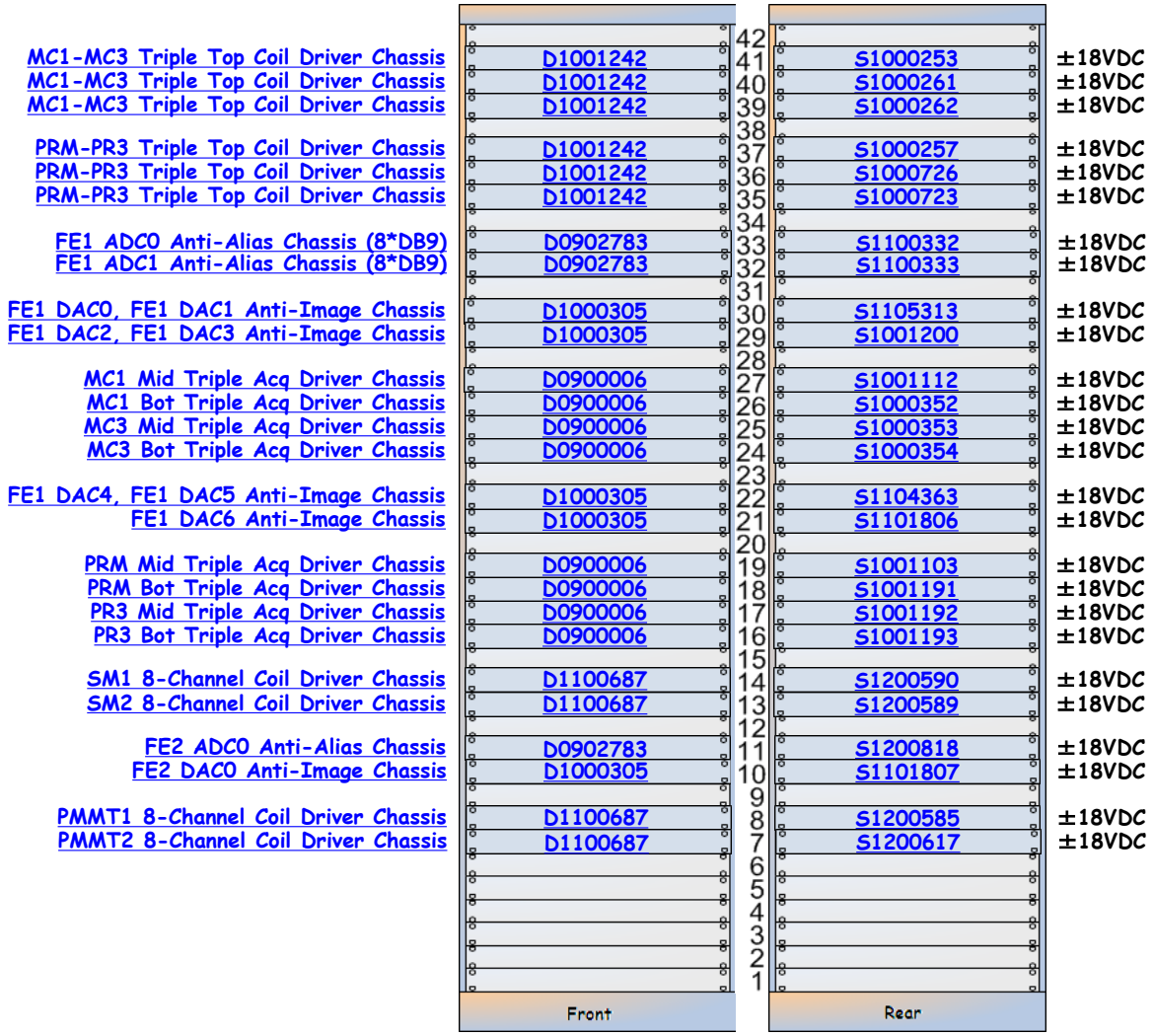
S1101315

Rear

L1-SUS-C4 – S1104058

[<< CER]

SUS HAM2 Rack 2 (of 2) Layout (D1200867) (S1104358)



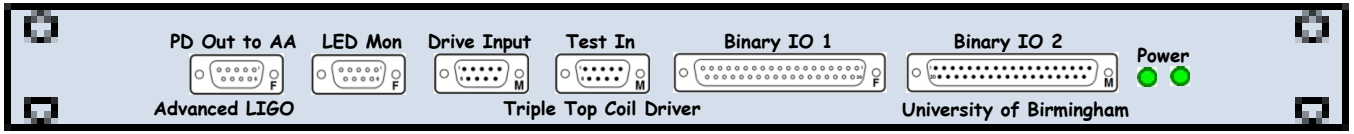
SUS-C4 is part of D0902810.

L1-SUS-C4 Details

D1001242 - S1000253

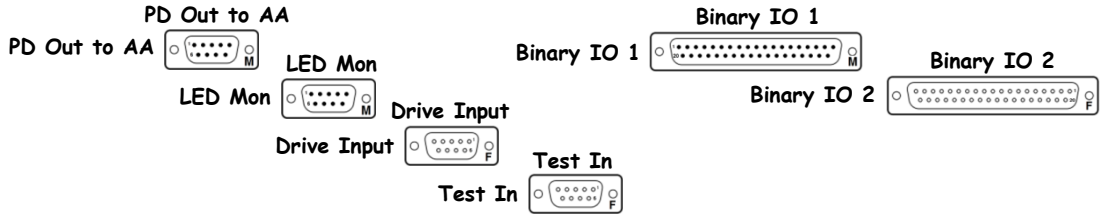
[<< L1-SUS-C4]

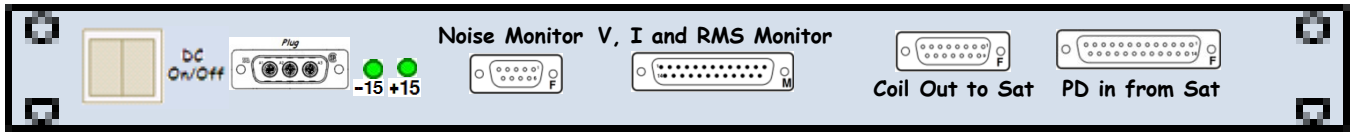
MC1-MC3 Triple Top Coil Driver Chassis [D1001242] [S1000253] ±18VDC



[D1001242]

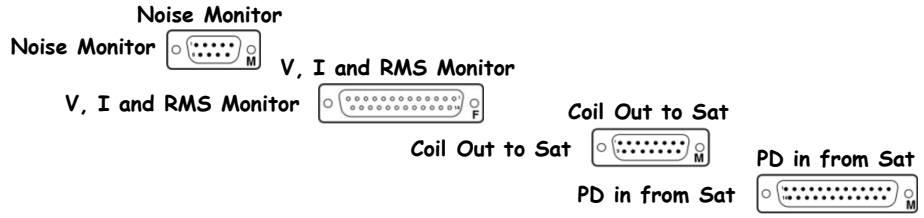
Front





[S1000253]

Rear



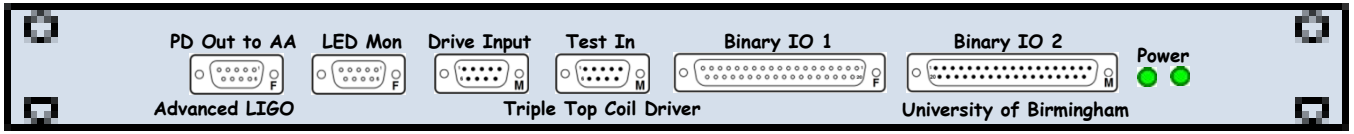
[Driver Board: D0902747]

[Monitor Board: D070480]

D1001242 - S1000261

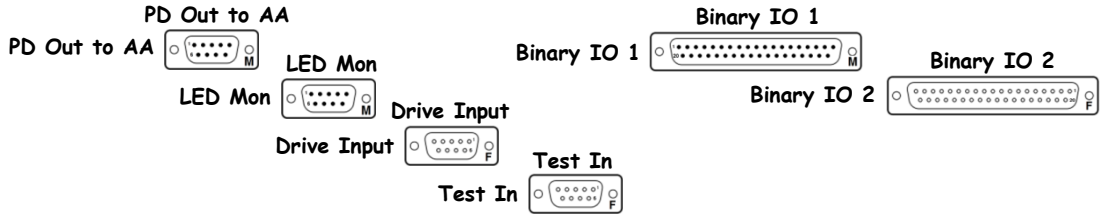
[<< L1-SUS-C4]

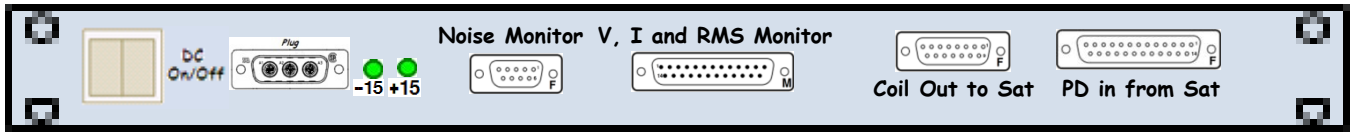
MC1-MC3 Triple Top Coil Driver Chassis [D1001242] [S1000261] ±18VDC



[D1001242]

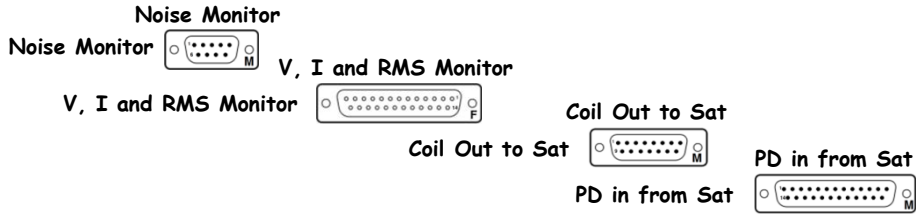
Front





[S1000261]

Rear



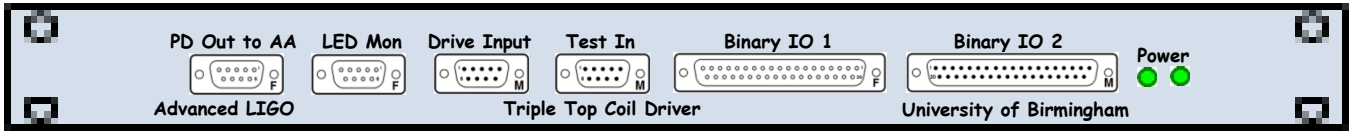
[Driver Board: D0902747]

[Monitor Board: D070480]

D1001242 - S1000262

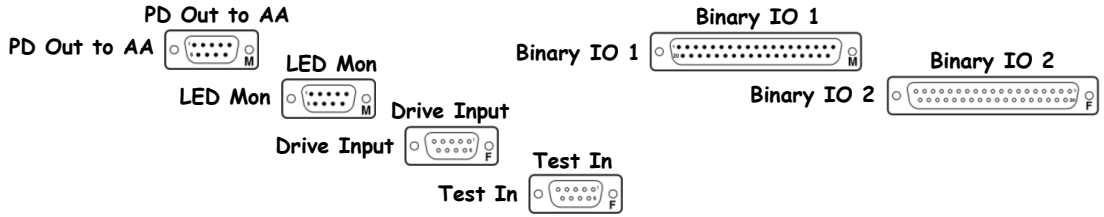
[<< L1-SUS-C4]

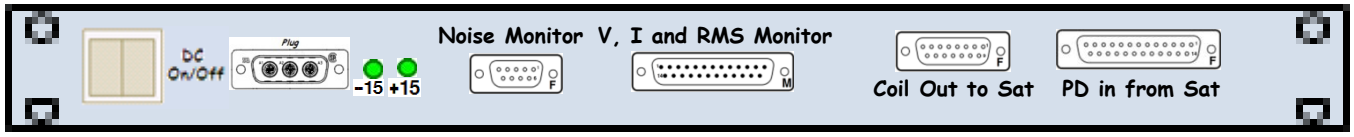
MC1-MC3 Triple Top Coil Driver Chassis [D1001242] [S1000262] ±18VDC



[D1001242]

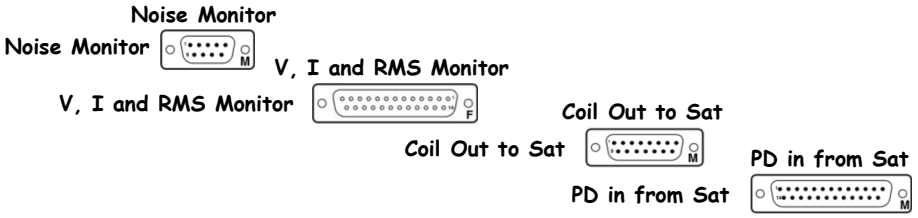
Front





[S1000262]

Rear



[Driver Board: D0902747]

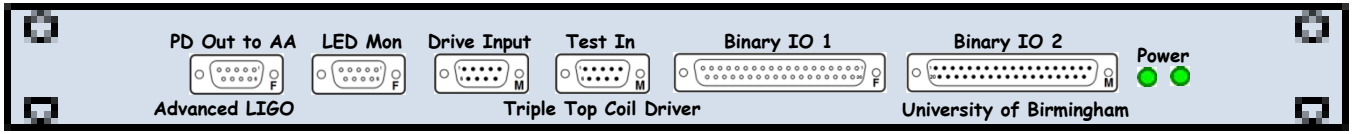
[Monitor Board: D070480]

D1001242 - S1000257

LIGO

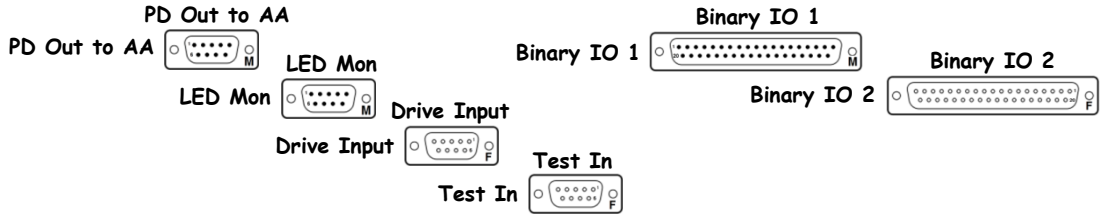
<< L1-SUS-C4

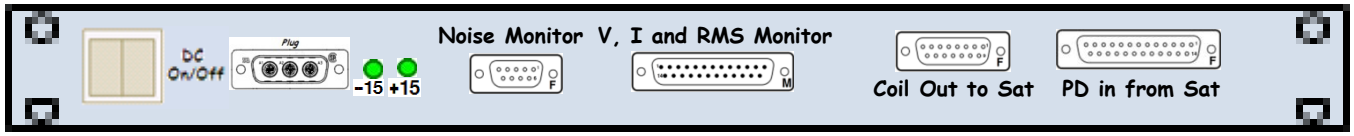
PRM-PR3 Triple Top Coil Driver Chassis D1001242 S1000257 ±18VDC



D1001242

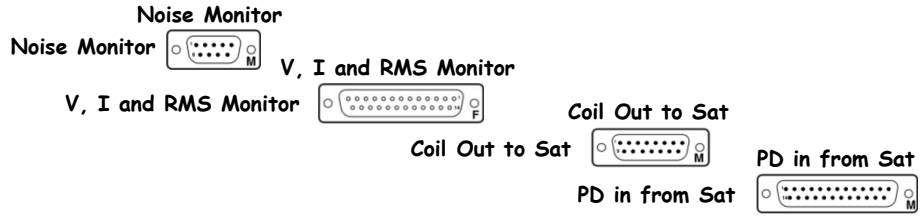
Front





S1000257

Rear



Driver Board: D0902747

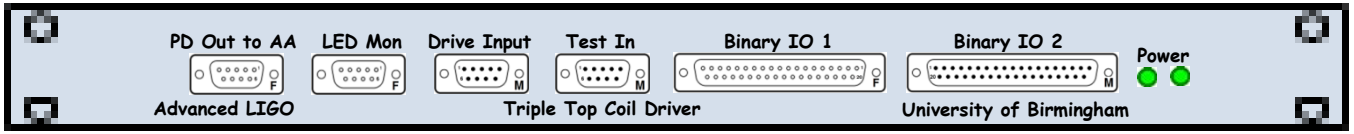
Monitor Board: D070480

D1001242 - S1000726

LIGO

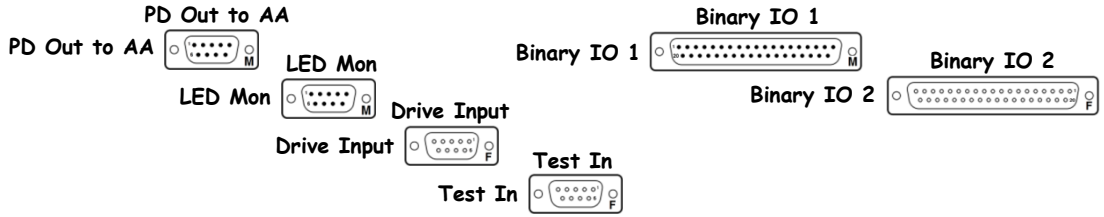
<< L1-SUS-C4

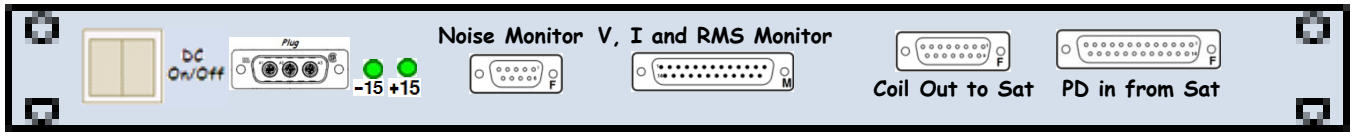
PRM-PR3 Triple Top Coil Driver Chassis D1001242 S1000726 ±18VDC



D1001242

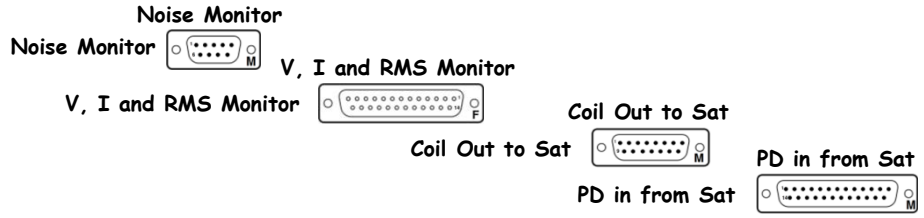
Front





S1000726

Rear



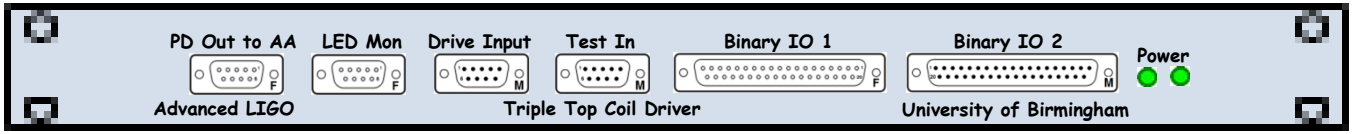
Driver Board: D0902747

Monitor Board: D070480

D1001242 - S1000723

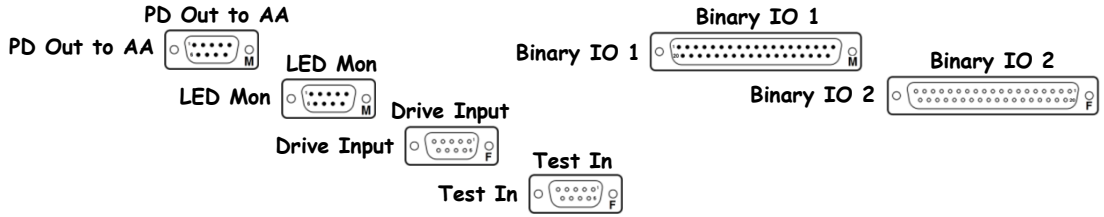
« L1-SUS-C4

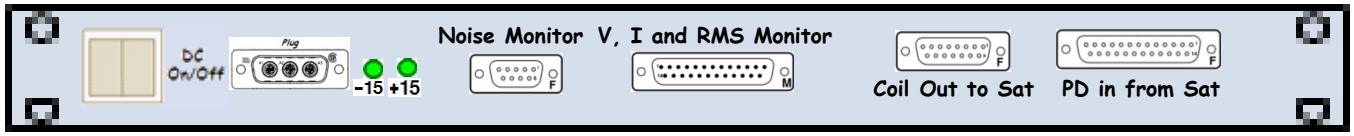
PRM-PR3 Triple Top Coil Driver Chassis D1001242 S1000723 ±18VDC



D1001242

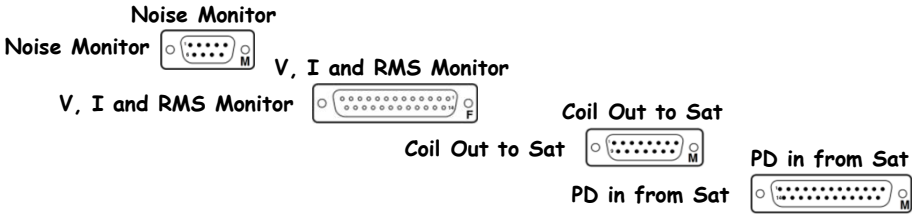
Front





S1000723

Rear



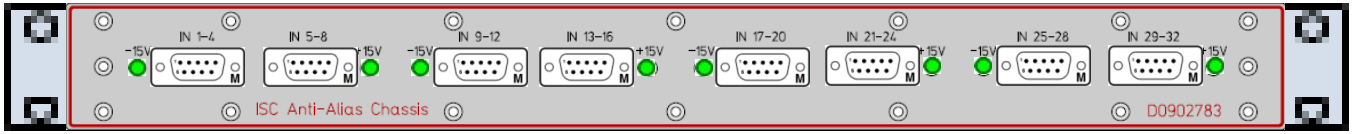
Driver Board: D0902747

Monitor Board: D070480

D0902783 - S1100332

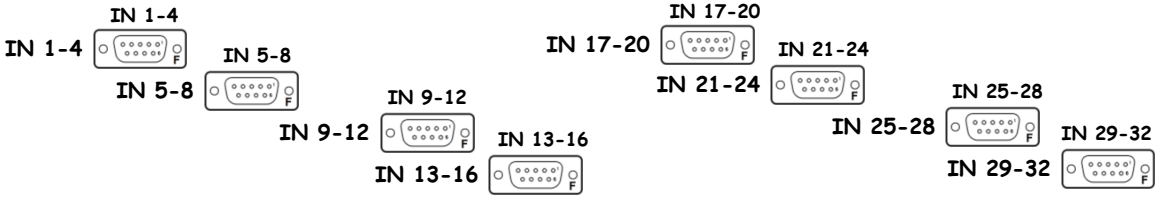
« L1-SUS-C4

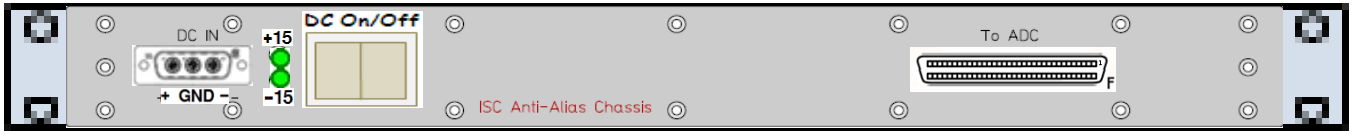
FE1 ADC0 Anti-Alias Chassis (8*DB9) D0902783 S1100332 ±18VDC



D0902783

Front



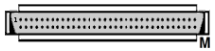


S1100332

Rear

To ADC

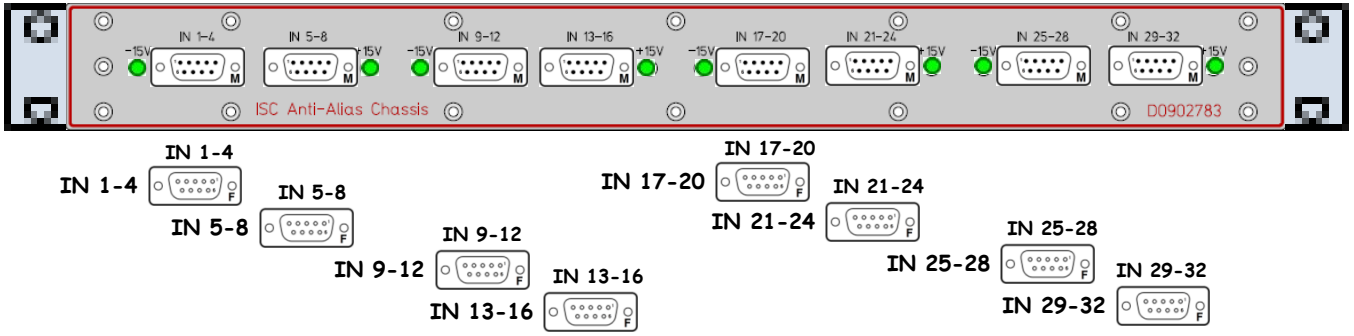
To ADC Adapter



D0902783 - S1100333

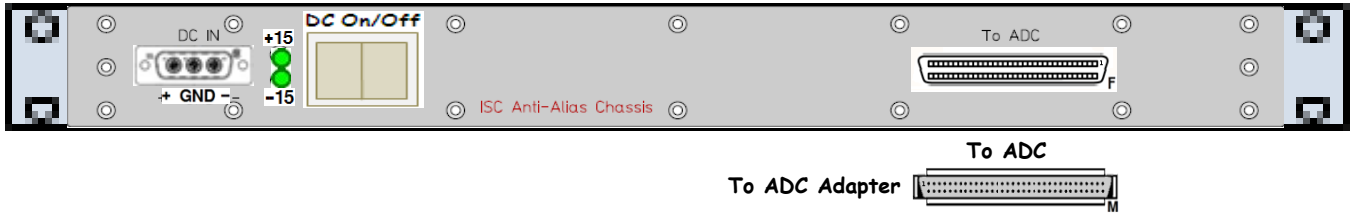
« L1-SUS-C4

FE1 ADC1 Anti-Alias Chassis (8*DB9) | D0902783 | S1100333 | ±18VDC



D0902783

Front



S1100333

Rear

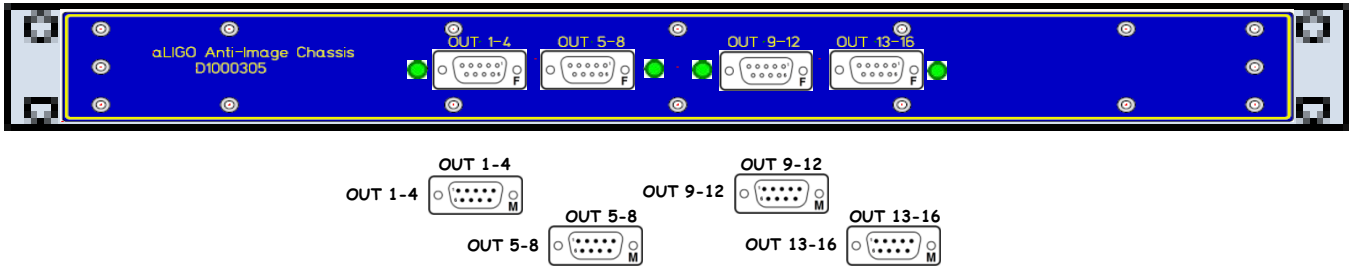
To ADC

To ADC Adapter

D1000305 - S1105313

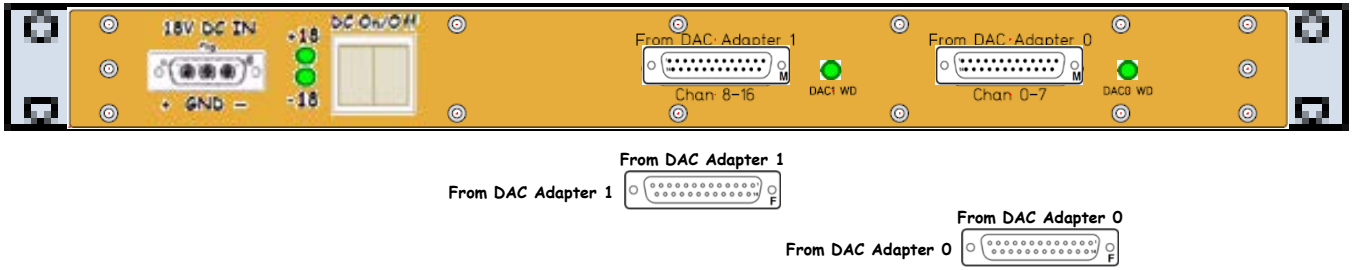
[<< L1-SUS-C4]

FE1 DAC0, FE1 DAC1 Anti-Image Chassis | D1000305 | S1105313 | ±18VDC



D1000305

Front



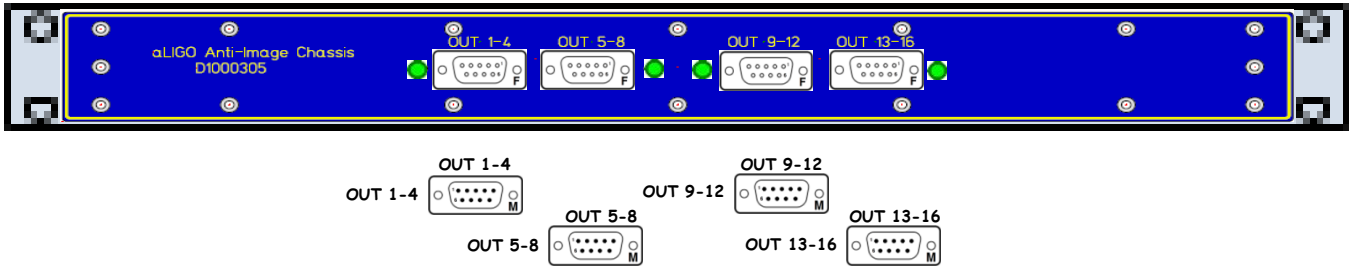
S1105313

Rear

D1000305 - S1001200

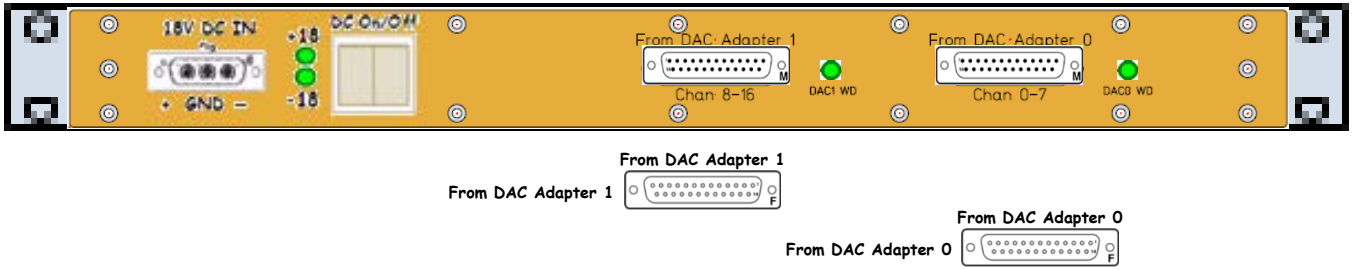
« L1-SUS-C4

FE1 DAC2, FE1 DAC3 Anti-Image Chassis | D1000305 | S1001200 | ±18VDC



D1000305

Front



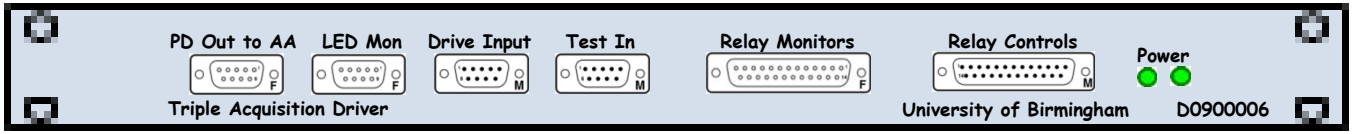
S1001200

Rear

D0900006 - S1001112

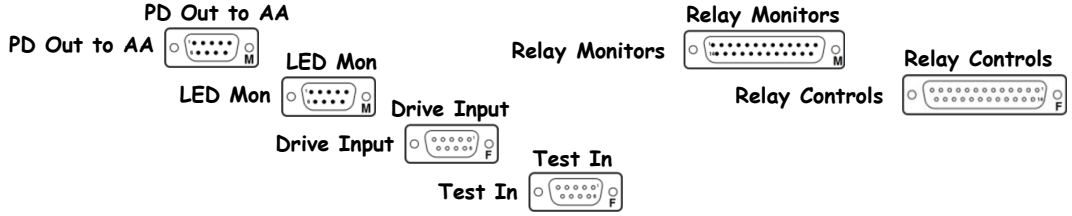
[<< L1-SUS-C4]

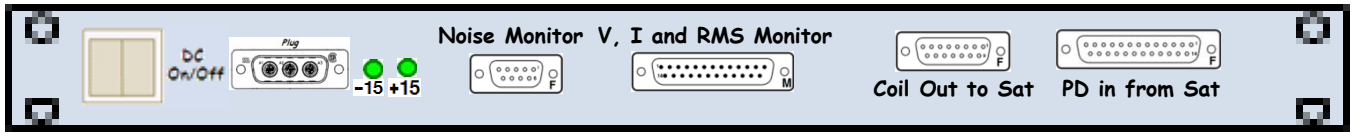
MC1 Mid Triple Acq Driver Chassis [D0900006] [S1000347] ±18VDC



[D0900006]

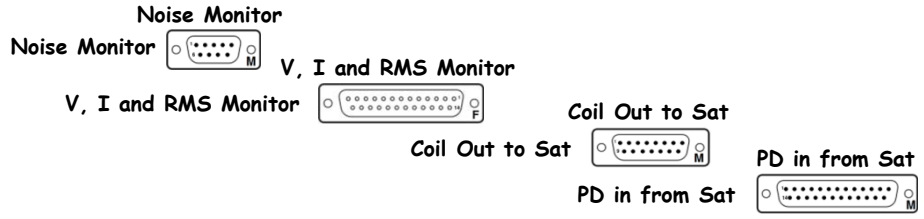
Front





[S1001112]

Rear

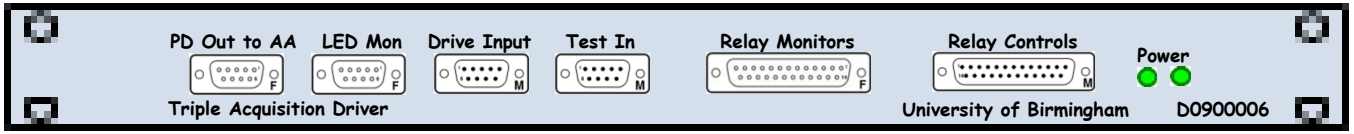


[Driver Board: D0901047]
[Monitor Board: D070480]

D0900006 - S1000352

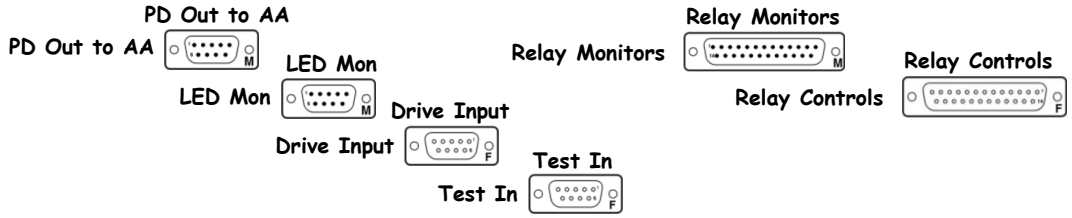
[<< L1-SUS-C4]

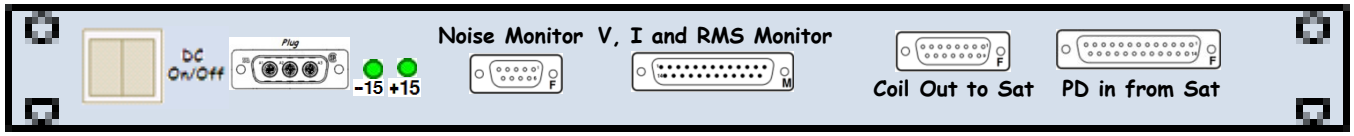
MC1 Bot Triple Acq Driver Chassis [D0900006] [S1000352] ±18VDC



[D0900006]

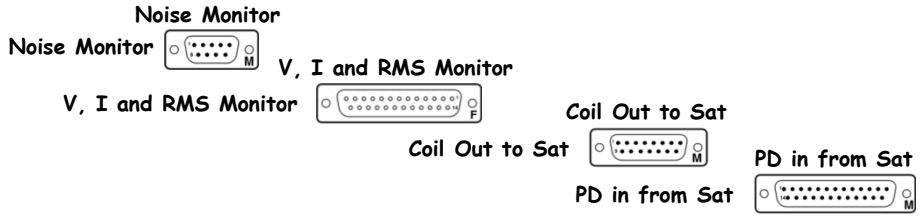
Front





[S1000352]

Rear

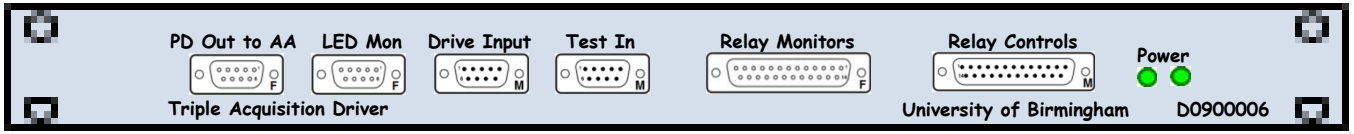


[Driver Board: D0901047]
[Monitor Board: D070480]

D0900006 - S1000353

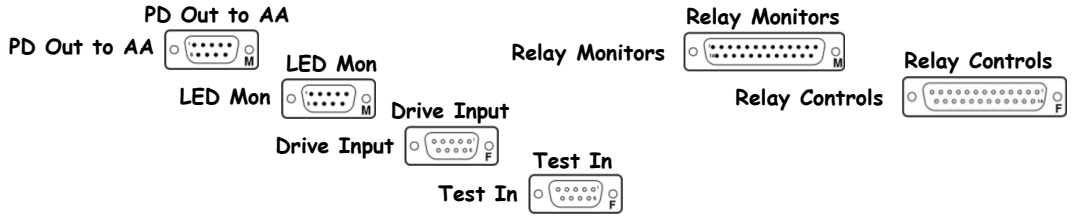
« L1-SUS-C4

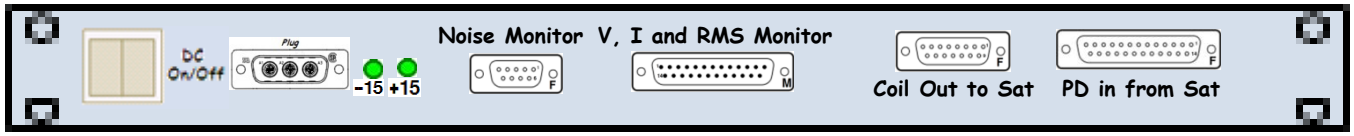
MC3 Mid Triple Acq Driver Chassis D0900006 S1000353 ±18VDC



D0900006

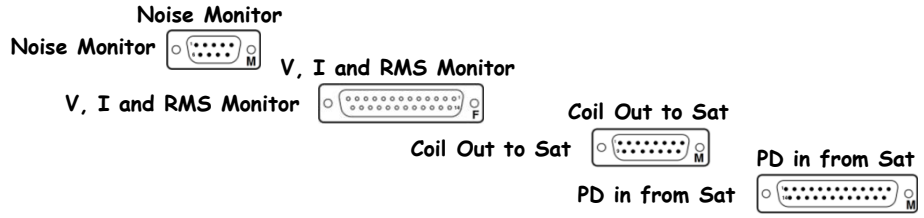
Front





S1000353

Rear

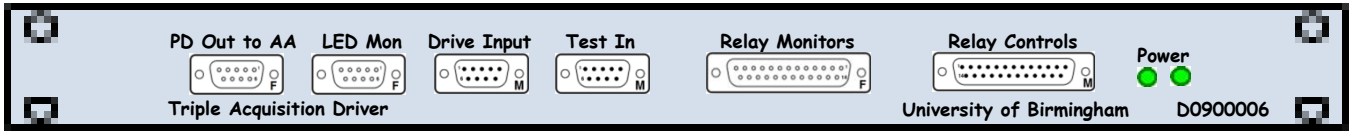


Driver Board: D0901047
Monitor Board: D070480

D0900006 - S1000354

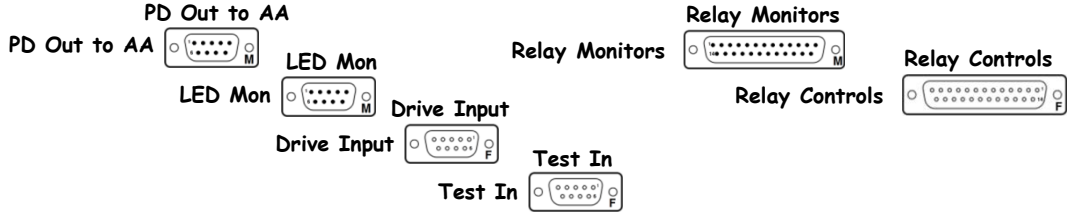
[<< L1-SUS-C4]

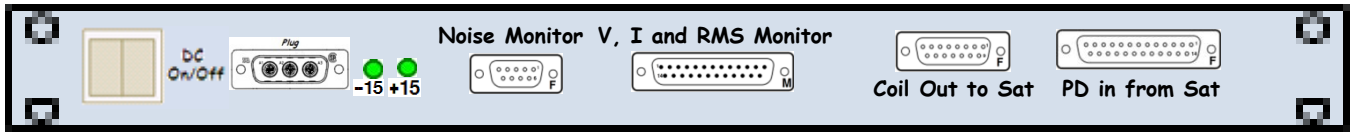
MC3 Bot Triple Acq Driver Chassis [D0900006] [S1000354] ±18VDC



[D0900006]

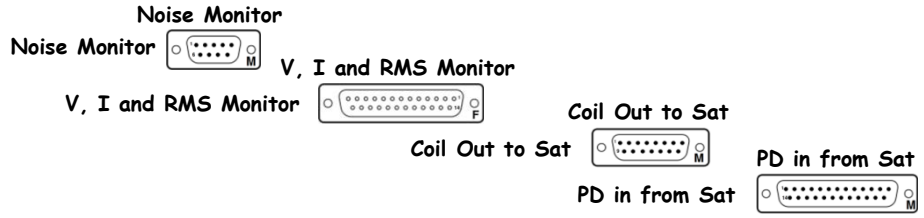
Front





[S1000354]

Rear

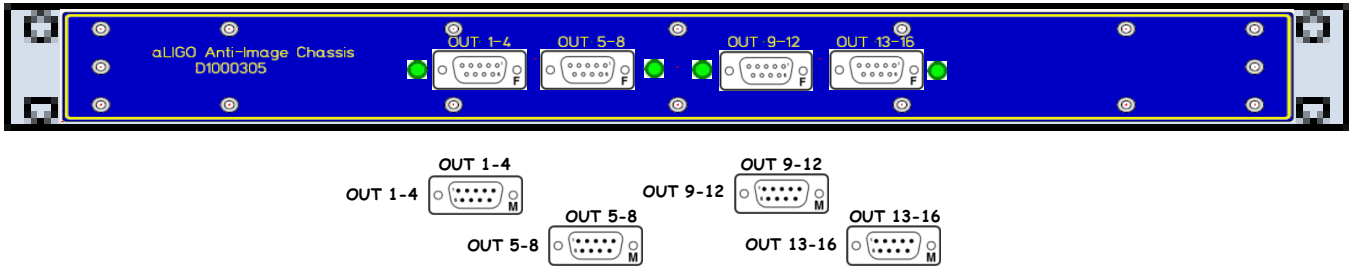


[Driver Board: D0901047]
[Monitor Board: D070480]

D1000305 - S1104363

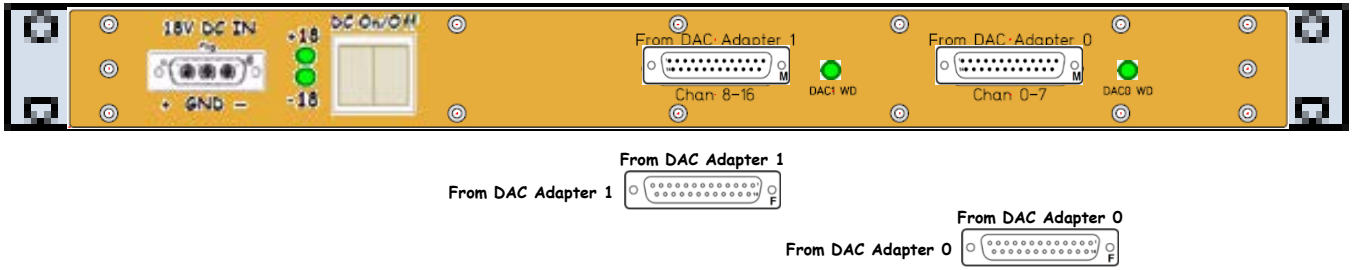
[<< L1-SUS-C4]

FE1 DAC4, FE1 DAC5 Anti-Image Chassis | D1000305 | S1104363 | ±18VDC



D1000305

Front



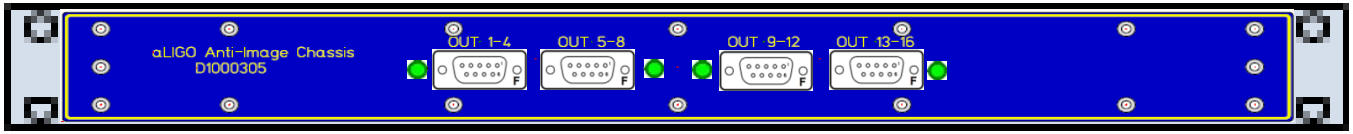
S1104363

Rear

D1000305 - S1101806

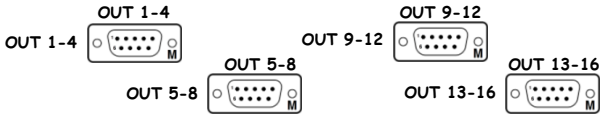
[<< L1-SUS-C4]

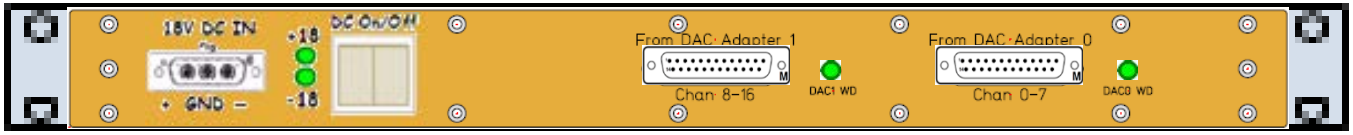
FE1 DAC6 Anti-Image Chassis | D1000305 | S1101806 | ±18VDC



D1000305

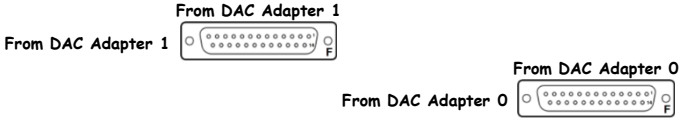
Front





S1101806

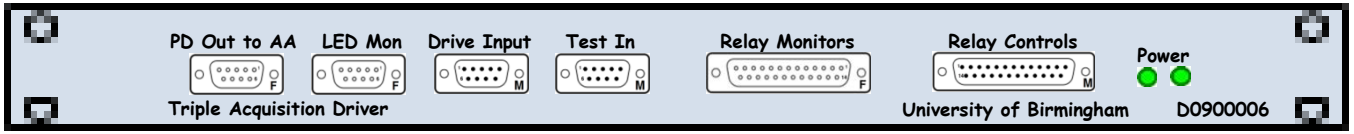
Rear



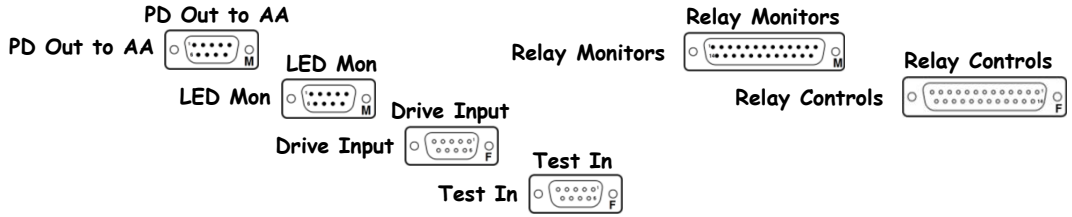
D0900006 - S1001103

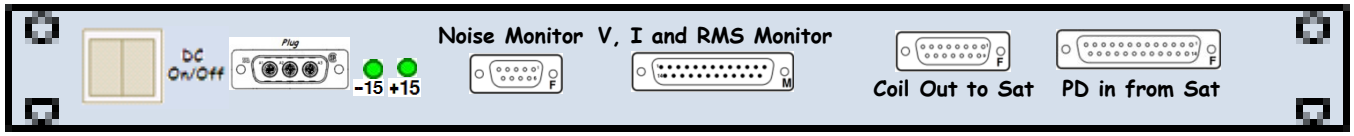
LIGO
<< L1-SUS-C4

PRM Mid Triple Acq Driver Chassis D0900006 S1001103 ±18VDC

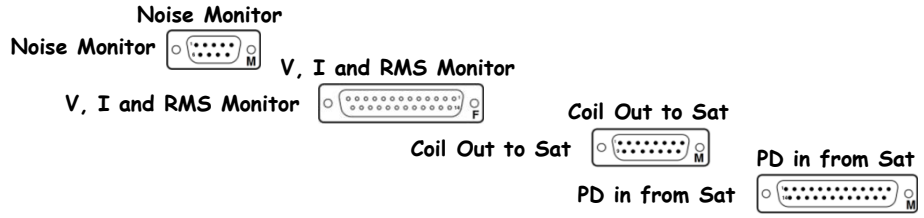


D0900006
Front





S1001103
Rear

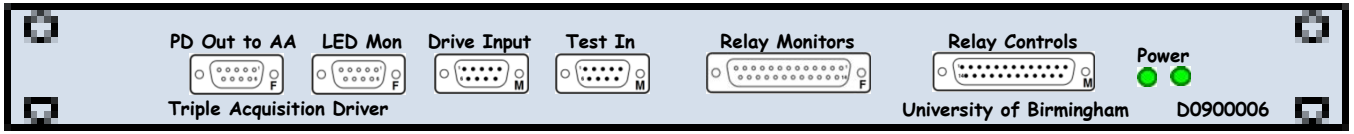


Driver Board: D0901047
Monitor Board: D070480

D0900006 - S1001191

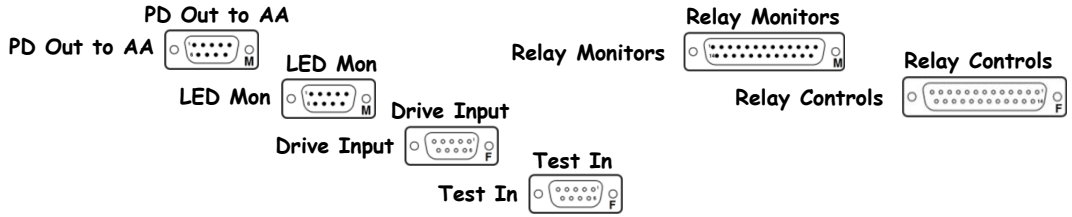
« L1-SUS-C4

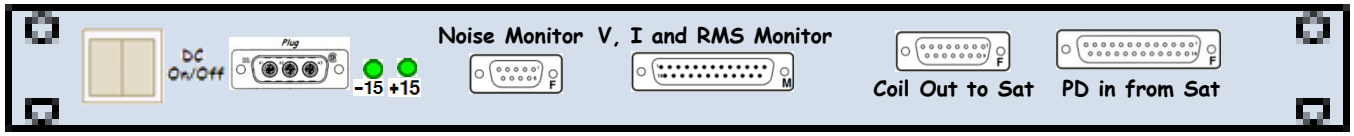
PRM Bot Triple Acq Driver Chassis D0900006 S1001191 ±18VDC



D0900006

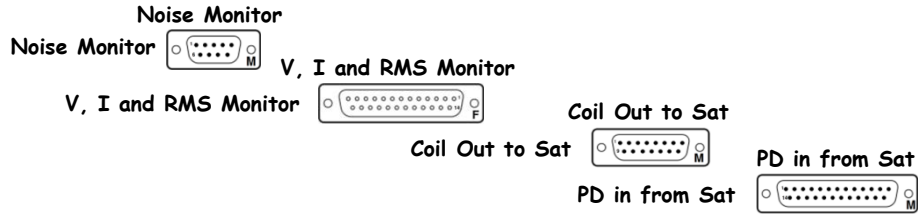
Front





S1001191

Rear

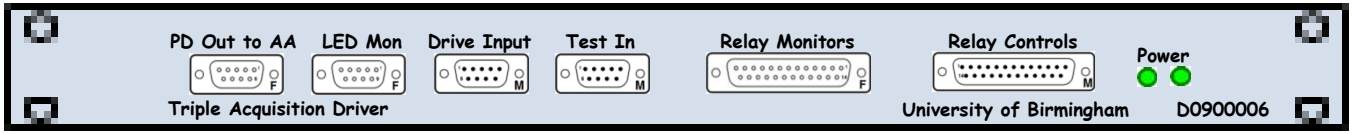


Driver Board: D0901047
Monitor Board: D070480

D0900006 - S1001192

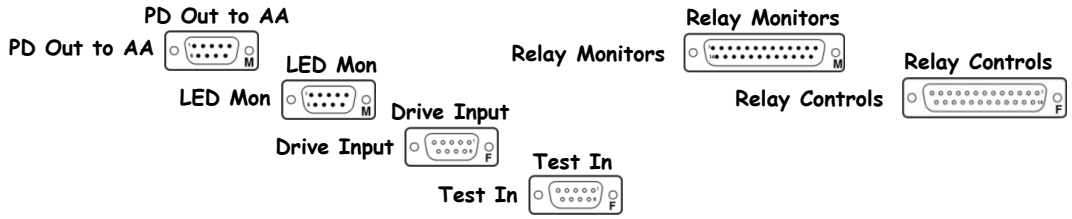
[<< L1-SUS-C4]

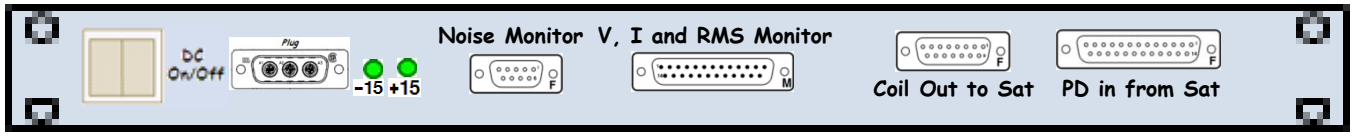
PR3 Mid Triple Acq Driver Chassis [D0900006] [S1001192] ±18VDC



[D0900006]

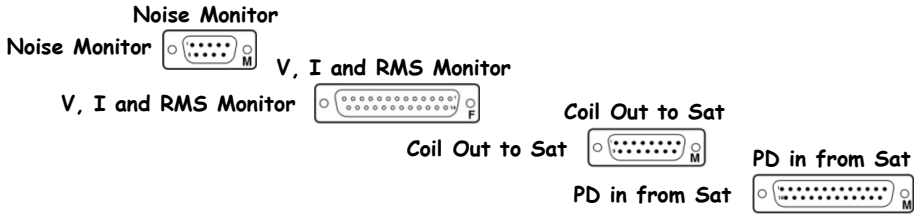
Front





[S1001192]

Rear

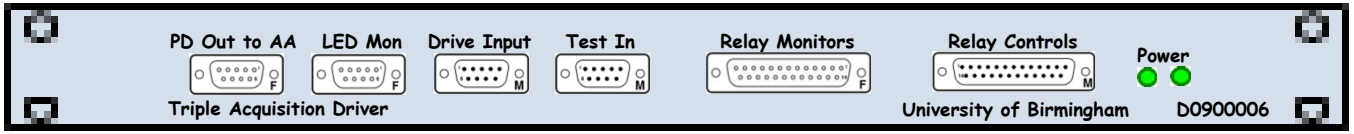


[Driver Board: D0901047]
[Monitor Board: D070480]

D0900006 - S1001193

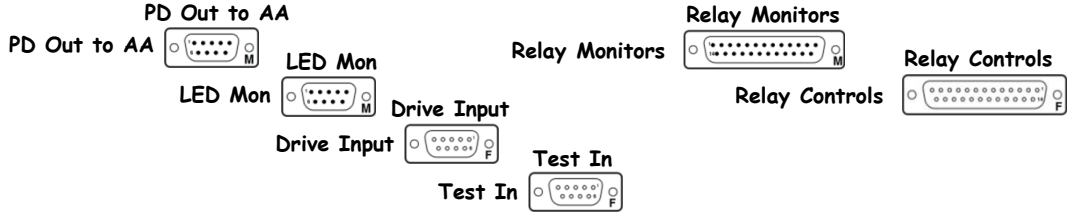
[<< L1-SUS-C4]

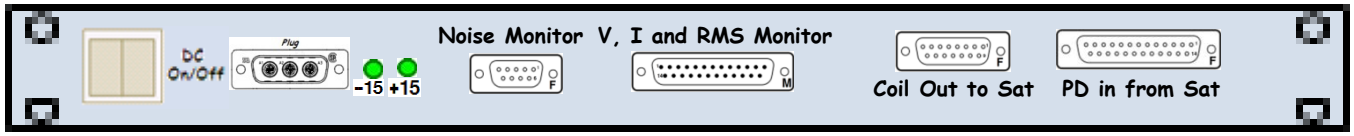
PR3 Bot Triple Acq Driver Chassis [D0900006] [S1001193] ±18VDC



[D0900006]

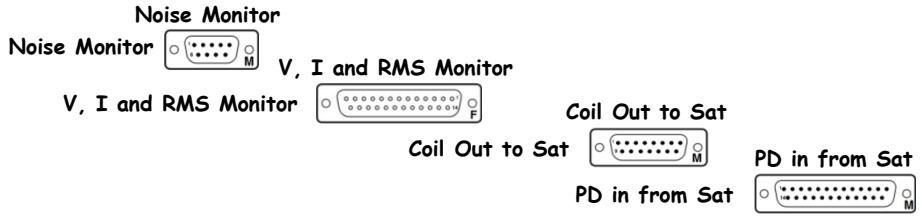
Front





[S1001193]

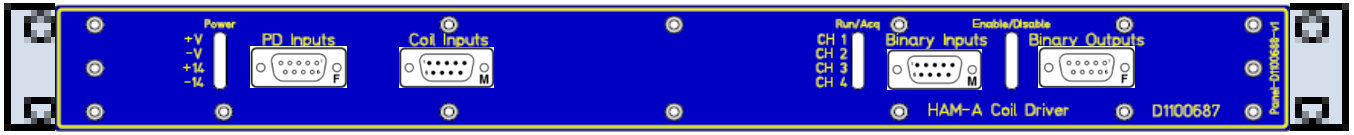
Rear



[Driver Board: D0901047]
[Monitor Board: D070480]

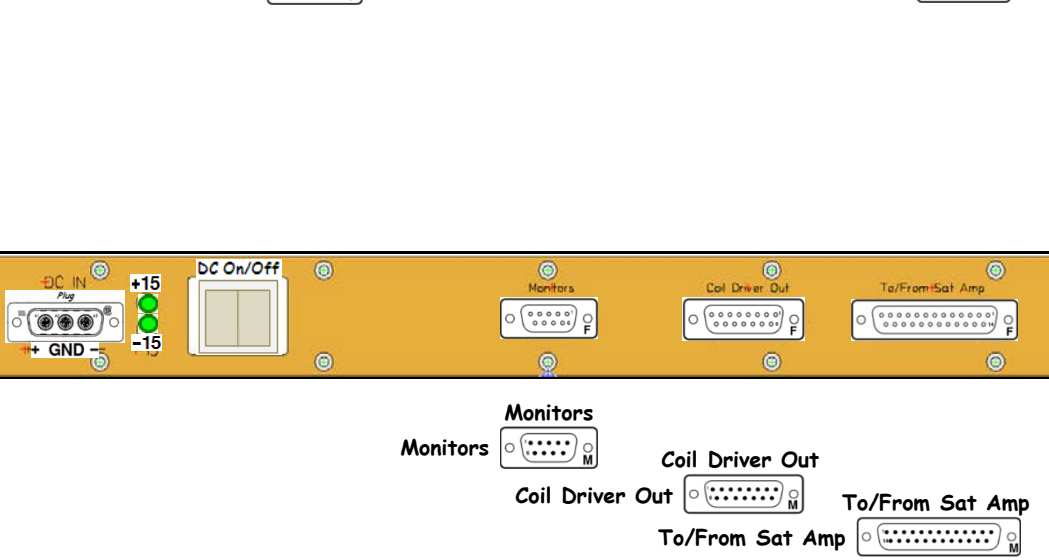
D1100687 - S1200590

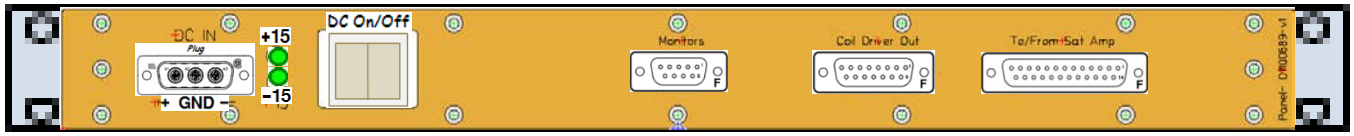
SM1 8-Channel Coil Driver Chassis | D1100687 | S1200590 | ±18VDC



D1100687

Front



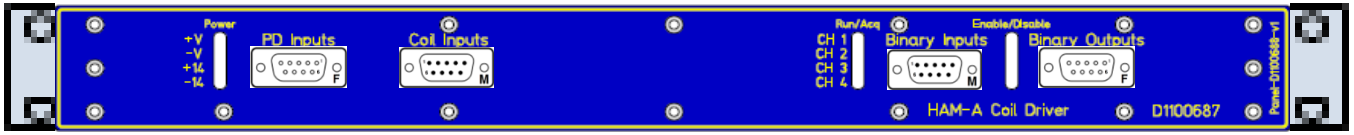


S1200590

Rear

D1100687 - S1200589

SM2 8-Channel Coil Driver Chassis | D1100687 | S1200589 | ±18VDC



D1100687

Front

PD Inputs

PD Inputs

Coil Inputs

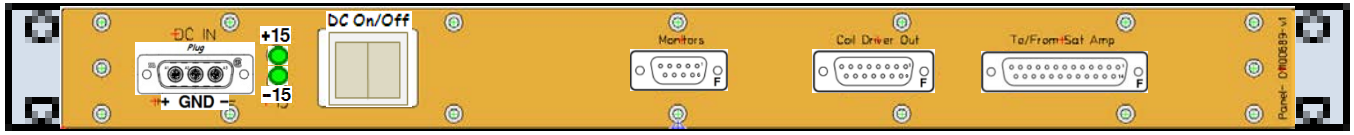
Coil Inputs

Binary Inputs

Binary Inputs

Binary Outputs

Binary Outputs



S1200589

Rear

Monitors

Monitors

Coil Driver Out

Coil Driver Out

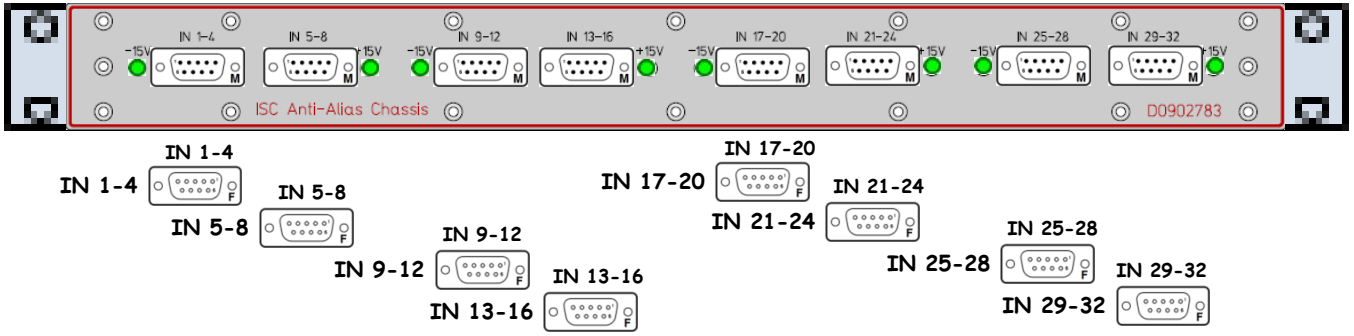
To/From Sat Amp

To/From Sat Amp

D0902783 - S1200818

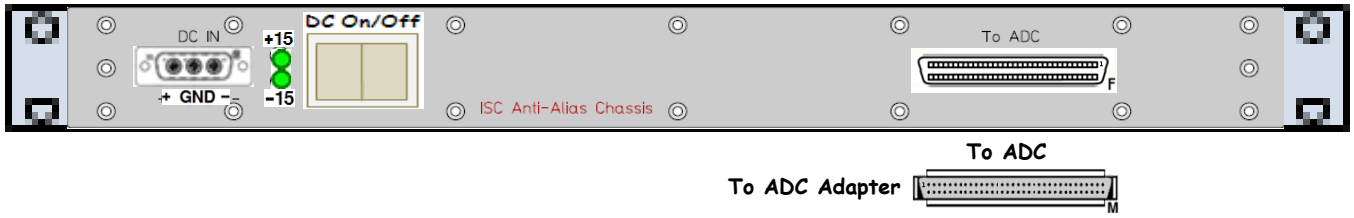
« L1-SUS-C4

FE2 ADC0 Anti-Alias Chassis | D0902783 | S1200818 | ±18VDC



D0902783

Front



S1200818

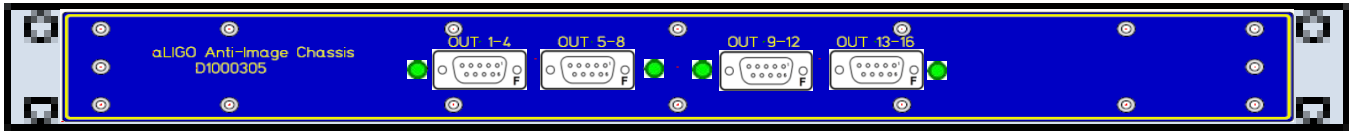
Rear

To ADC

To ADC Adapter

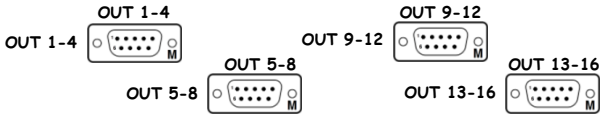
D1000305 - S1101807

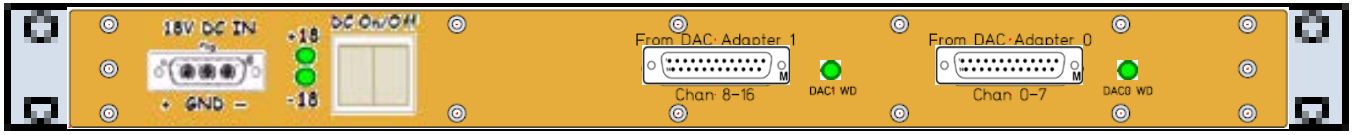
FE2 DAC0 Anti-Image Chassis | D1000305 | S1101807 | ±18VDC



D1000305

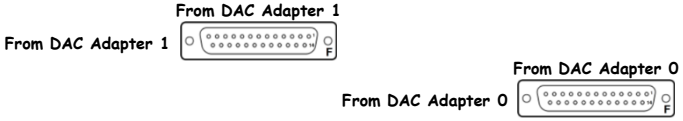
Front





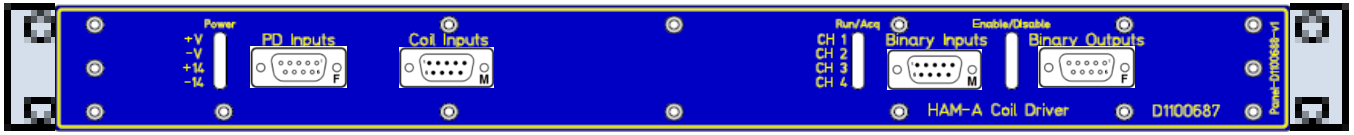
S1101807

Rear



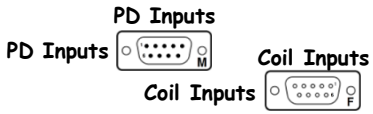
D1100687 - S1200585

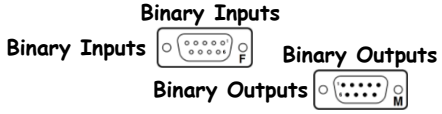
PMMT1 8-Channel Coil Driver Chassis | D1100687 | S1200585 | ±18VDC

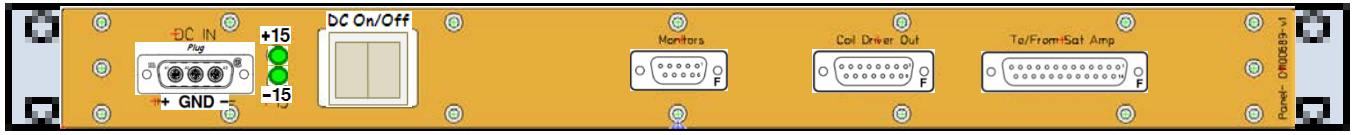


D1100687

Front

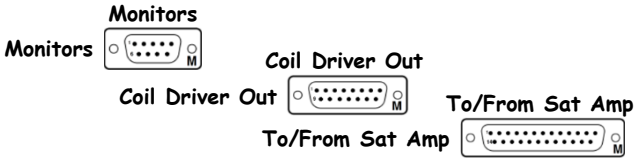






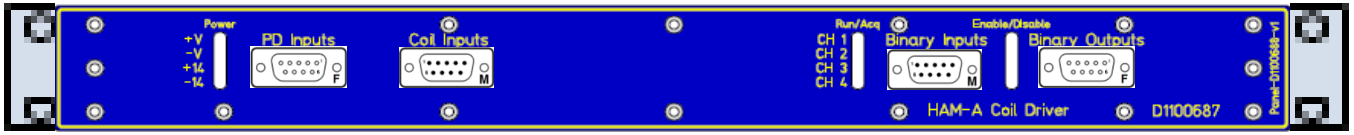
S1200585

Rear



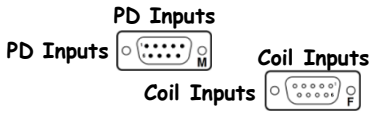
D1100687 - S1200617

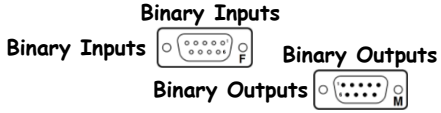
PMMT2 8-Channel Coil Driver Chassis | D1100687 | S1200617 | ±18VDC

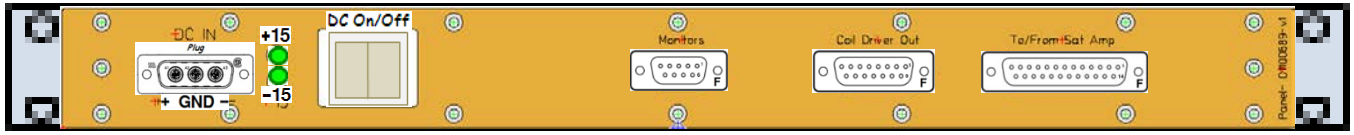


D1100687

Front

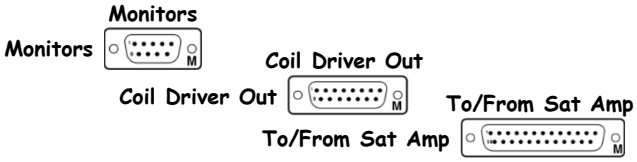






S1200617

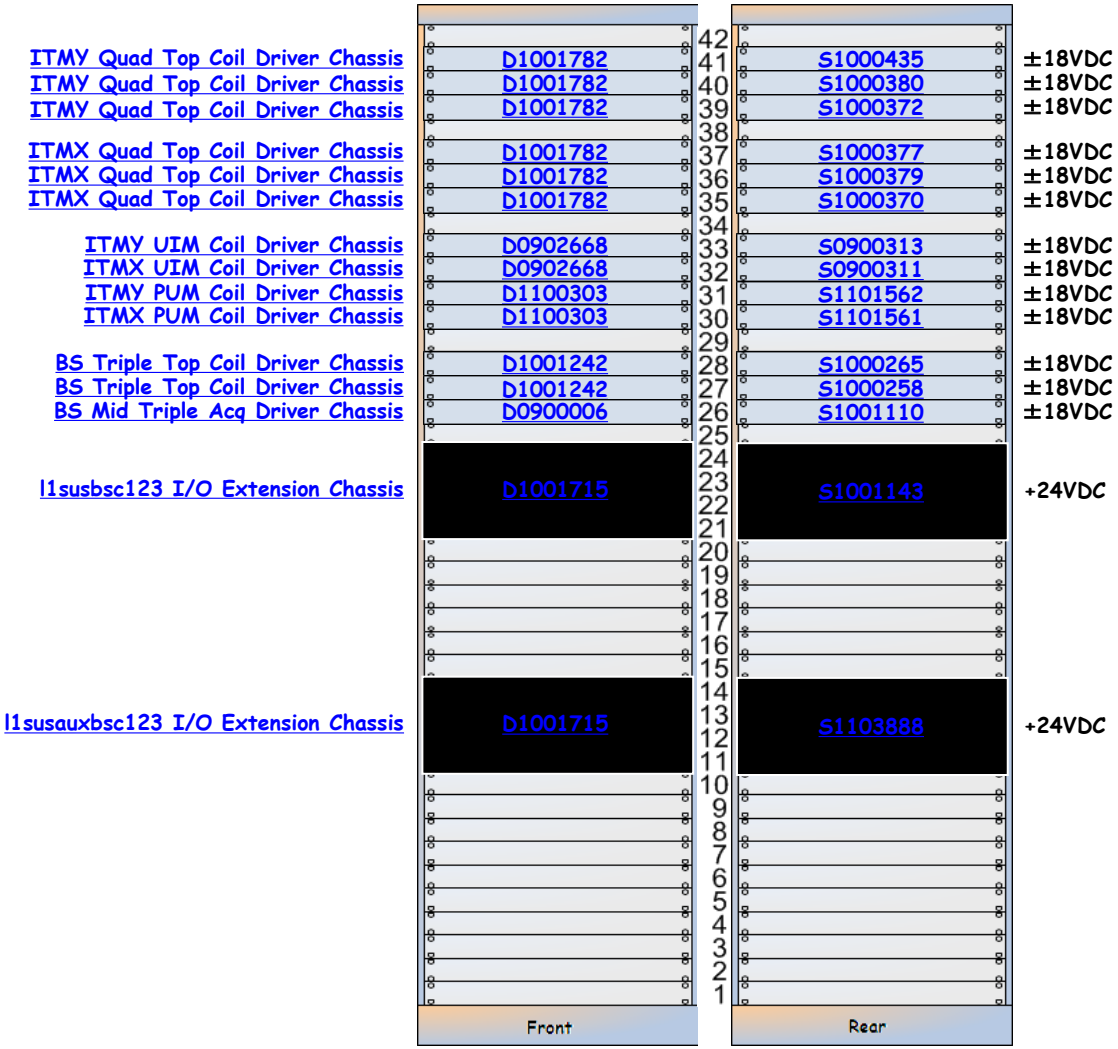
Rear

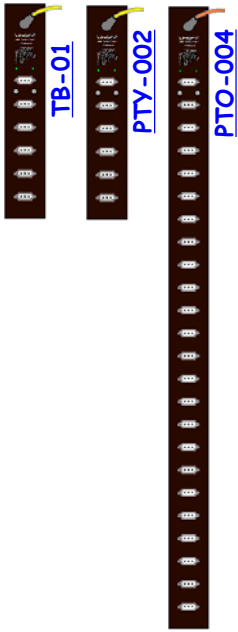


L1-SUS-C5 - S1105375

[<< CER]

SUS ITMX, ITMY, and BS Rack 1 (of 2) Layout (D1200874) (S1105375)





SUS-C5 is part of D1100022.

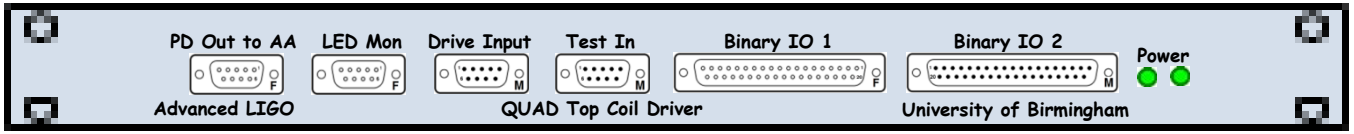
L1-SUS-C5 Details

SUS-C5 is part of D1100022.

D1001782 - S1000435

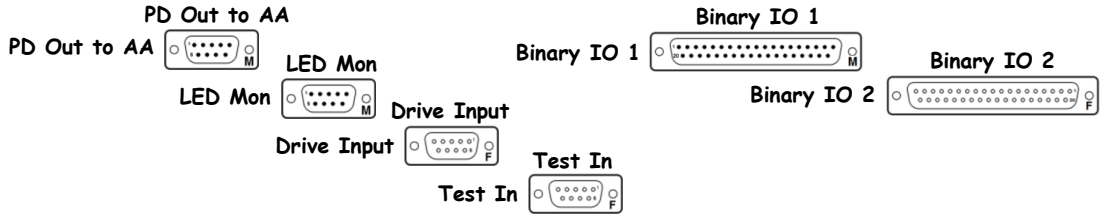
[<< L1-SUS-C5]

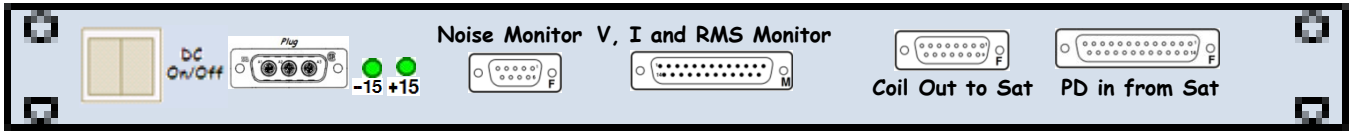
ITMY Quad Top Coil Driver Chassis [D1001782] [S1000435] ±18VDC



[D1001782]

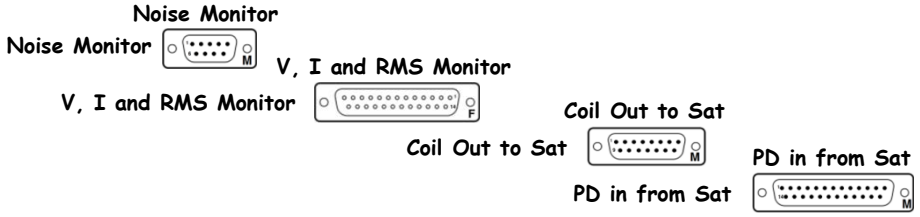
Front





[S1000435]

Rear

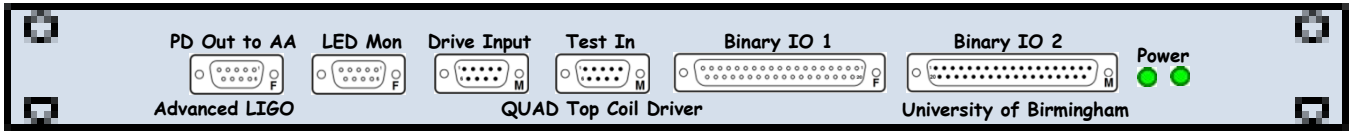


[Driver Board: D0902747]
[Monitor Board: D070480]

D1001782 - S1000380

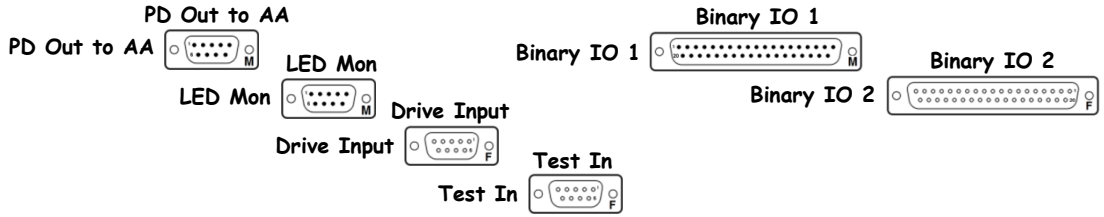
[<< L1-SUS-C5]

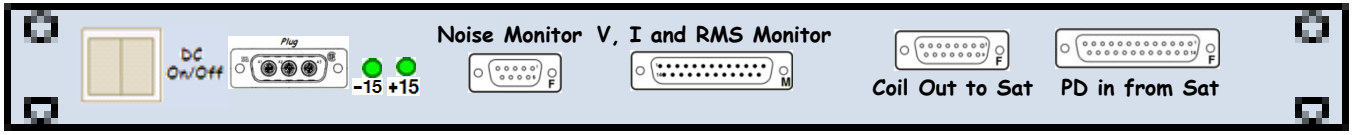
ITMY Quad Top Coil Driver Chassis [D1001782] [S1000380] ±18VDC



[D1001782]

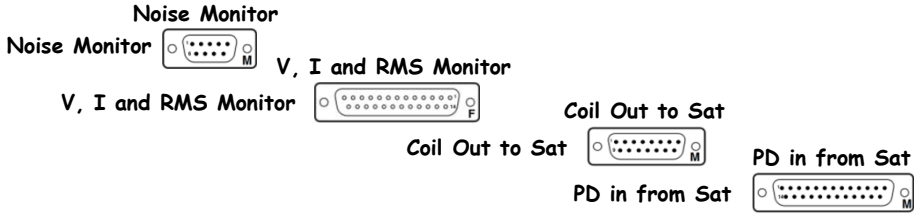
Front





[S1000380]

Rear

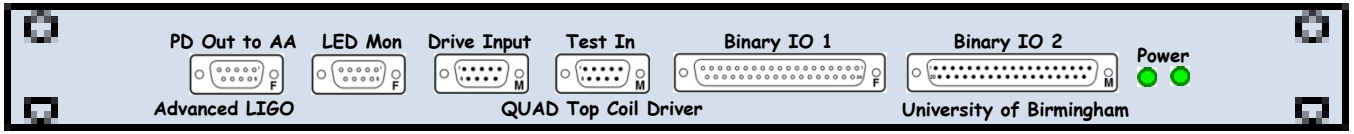


[Driver Board: D0902747]
[Monitor Board: D070480]

D1001782 - S1000372

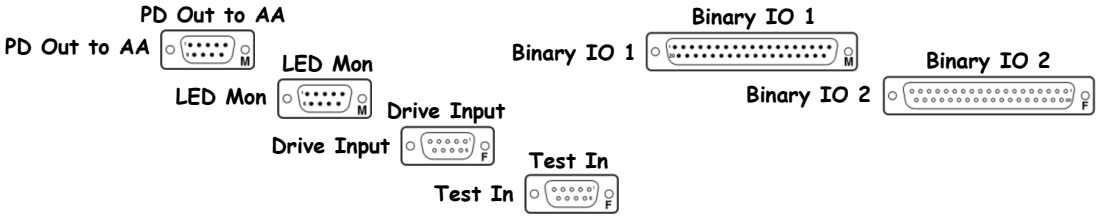
[<< L1-SUS-C5]

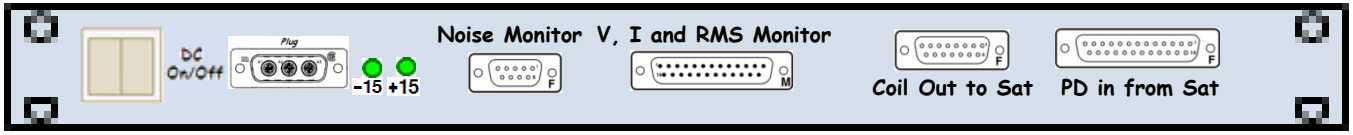
ITMY Quad Top Coil Driver Chassis [D1001782] [S1000372] ±18VDC



[D1001782]

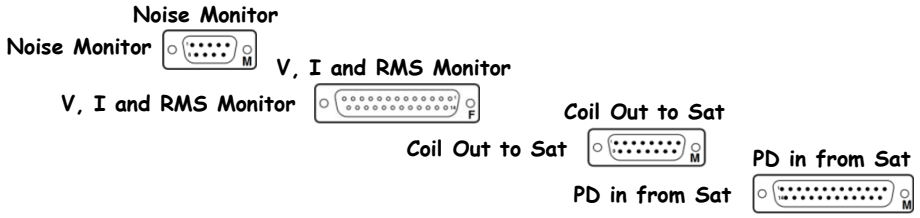
Front





[S1000372]

Rear

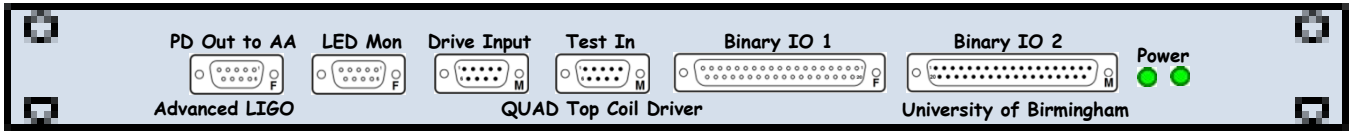


[Driver Board: D0902747]
[Monitor Board: D070480]

D1001782 - S1000377

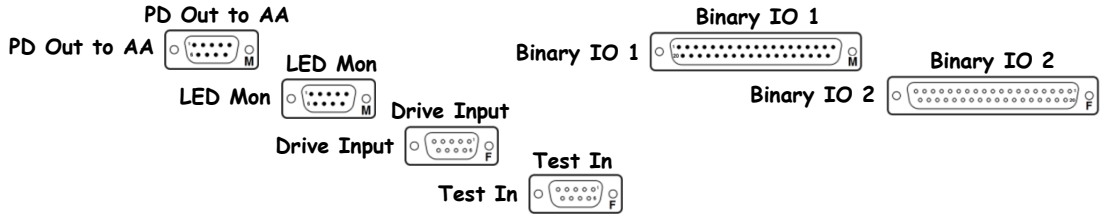
[<< L1-SUS-C5]

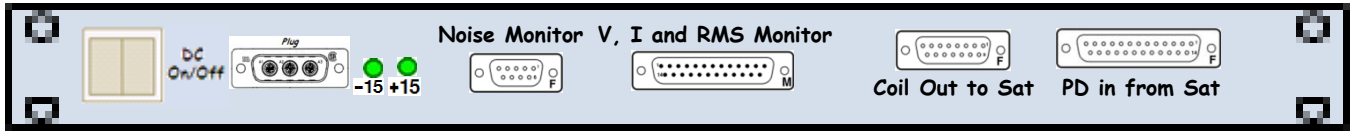
ITMX Quad Top Coil Driver Chassis [D1001782] [S1000377] ±18VDC



[D1001782]

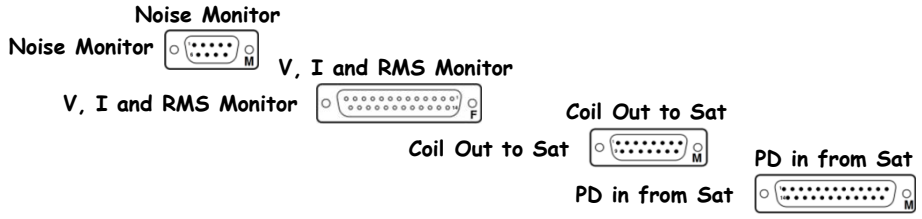
Front





[S1000377]

Rear

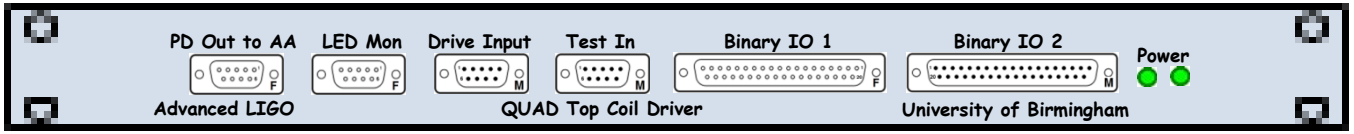


[Driver Board: D0902747]
[Monitor Board: D070480]

D1001782 - S1000379

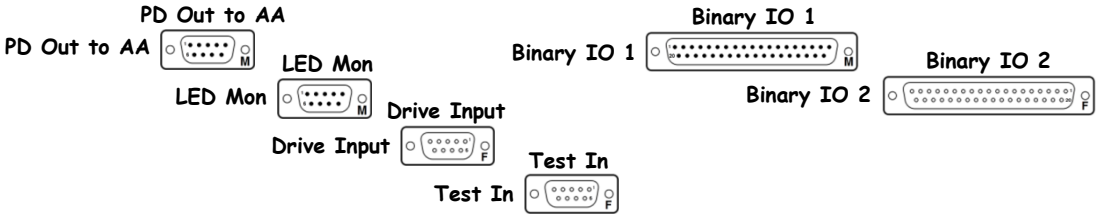
[<< L1-SUS-C5]

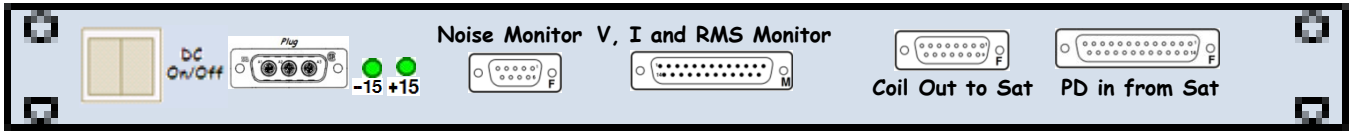
ITMX Quad Top Coil Driver Chassis [D1001782] [S1000379] ±18VDC



[D1001782]

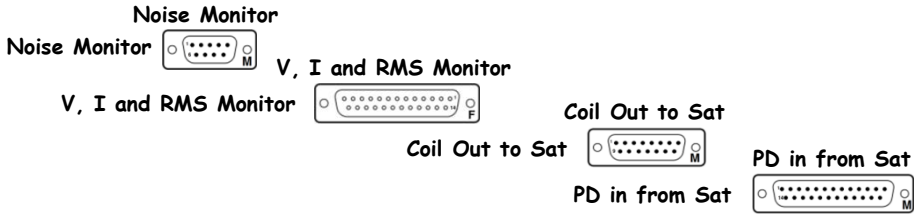
Front





[S1000379]

Rear

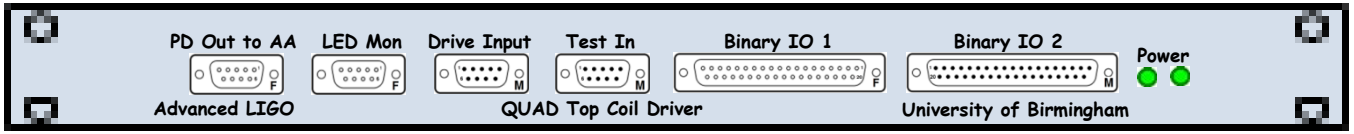


[Driver Board: D0902747]
[Monitor Board: D070480]

D1001782 - S1000370

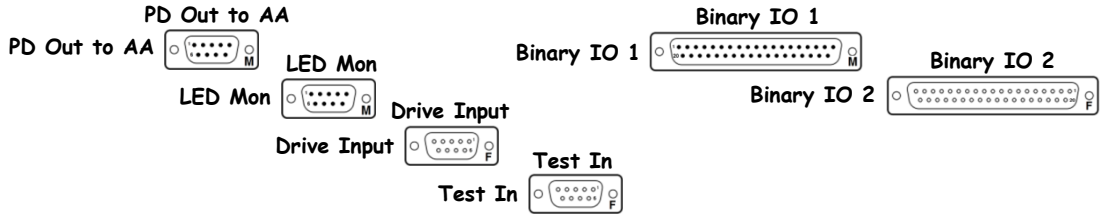
[<< L1-SUS-C5]

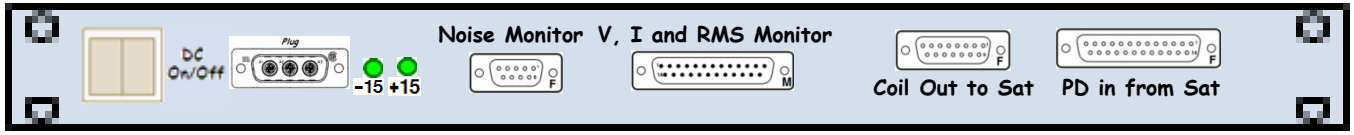
ITMX Quad Top Coil Driver Chassis [D1001782] [S1000370] ±18VDC



[D1001782]

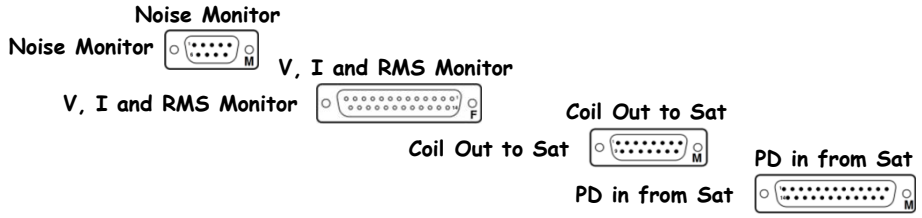
Front





[S1000370]

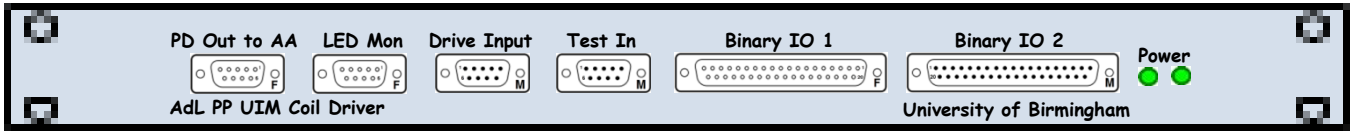
Rear



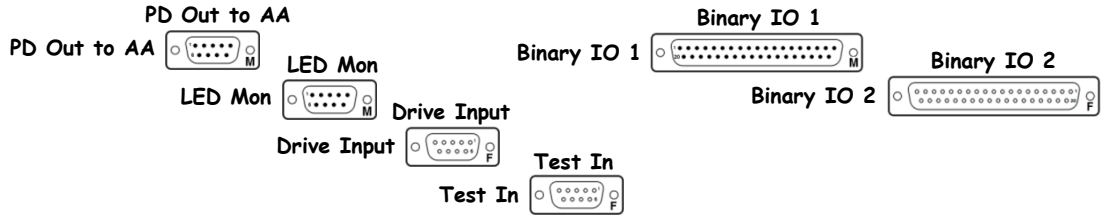
[Driver Board: D0902747]
[Monitor Board: D070480]

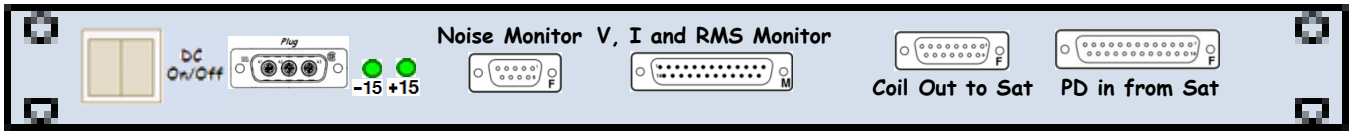
D0902668 - S0900313

ITMY UIM Coil Driver Chassis D0902668 S0900313 ±18VDC



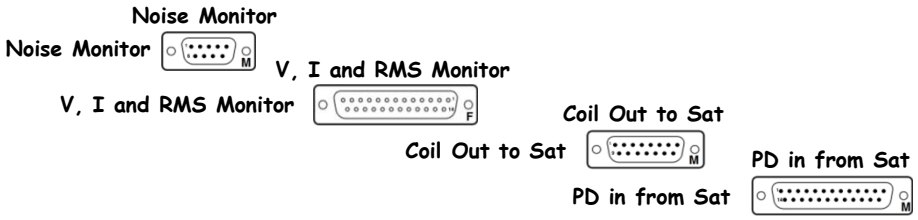
D070481
D070480
Front





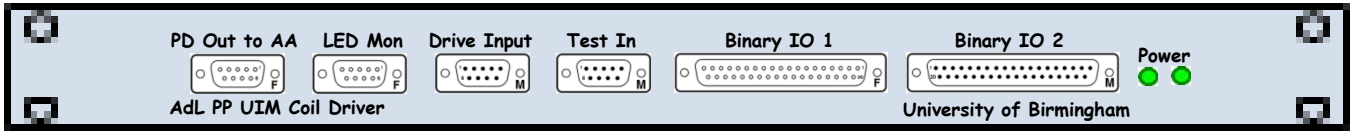
S0900313

Rear

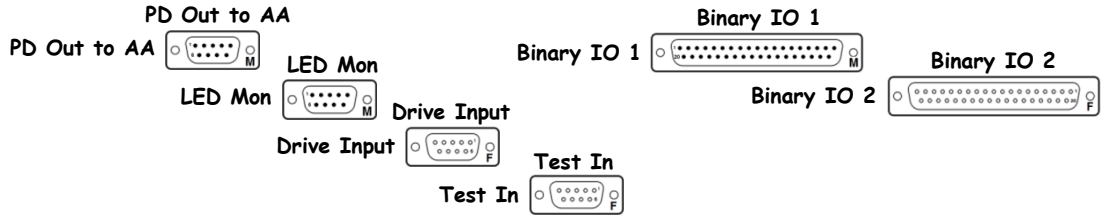


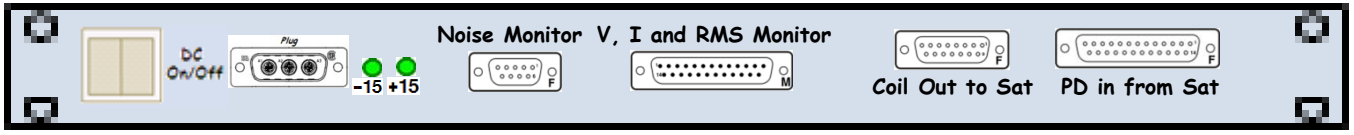
D0902668 - S0900311

ITMX UIM Coil Driver Chassis D0902668 S0900311 ±18VDC



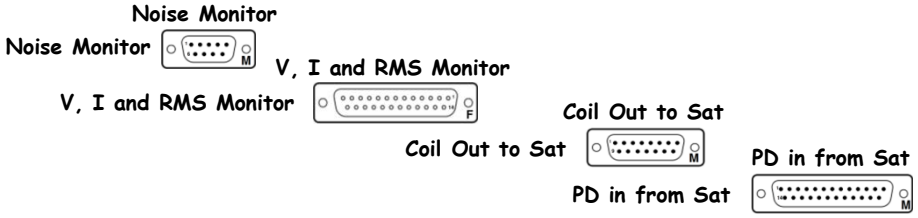
D070481
D070480
Front





S0900311

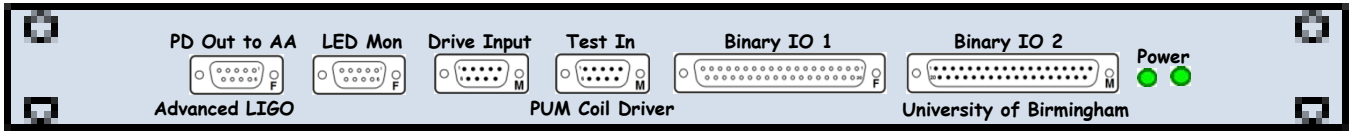
Rear



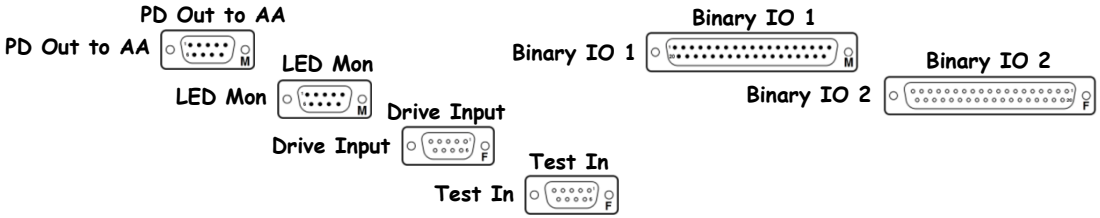
D1100303 - S1101562

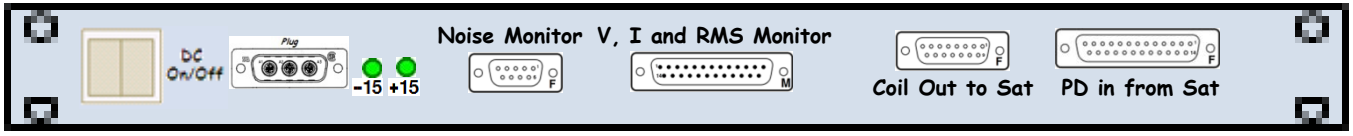
[<< L1-SUS-C5]

ITMY PUM Coil Driver Chassis [D1100303] [S1101562] ±18VDC



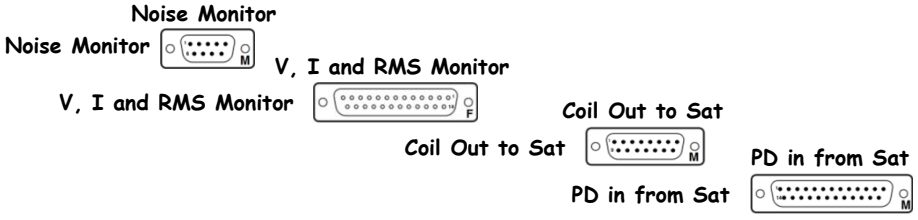
[D070483]
[D070480]
Front





[S1101562]

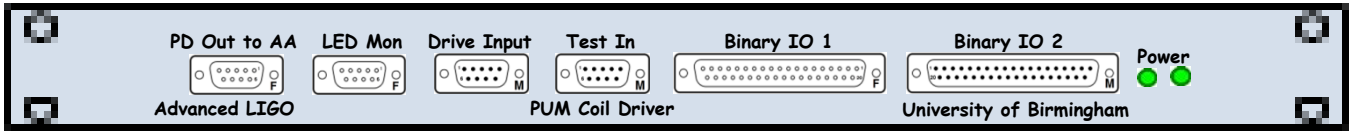
Rear



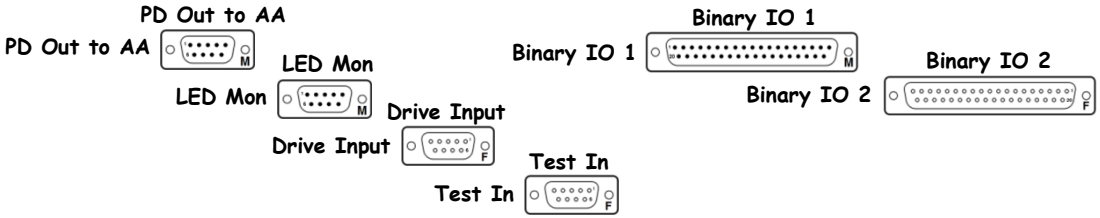
D1100303 – S1101561

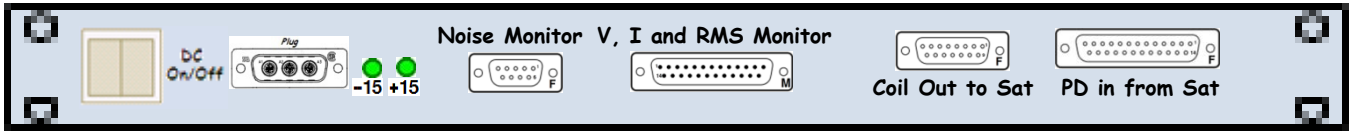
[<< L1-SUS-C5]

ITMX PUM Coil Driver Chassis [D1100303] [S1101561] ±18VDC



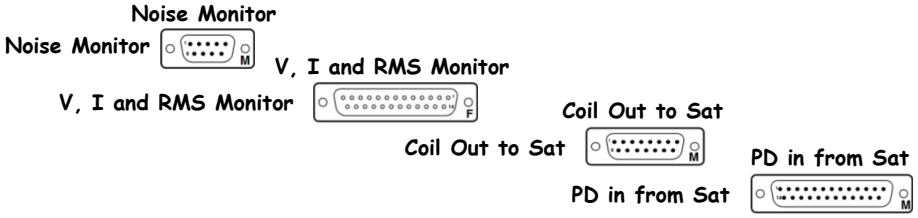
[D070483]
[D070480]
Front





[S1101561]

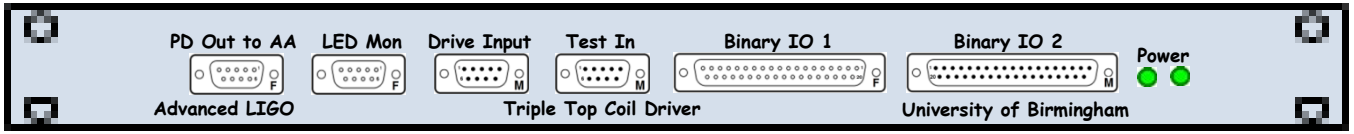
Rear



D1001242 - S1000265

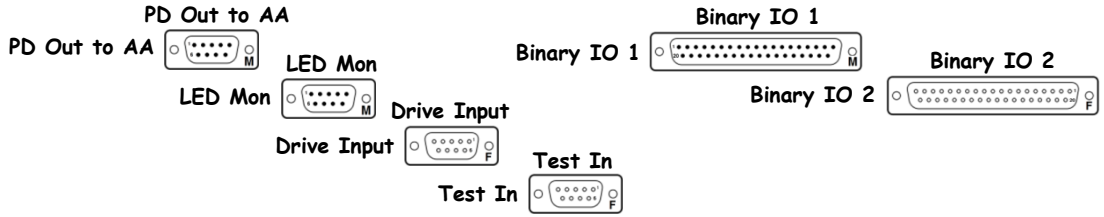
LIGO
<< L1-SUS-C5

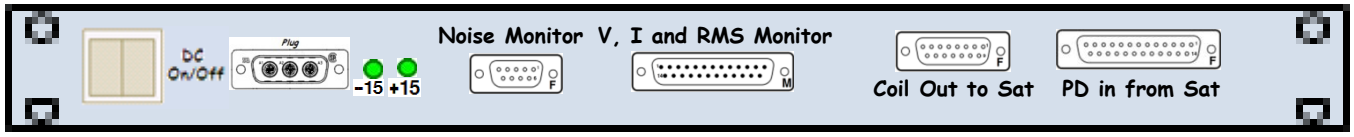
BS Triple Top Coil Driver Chassis D1001242 S1000265 ±18VDC



D1001242

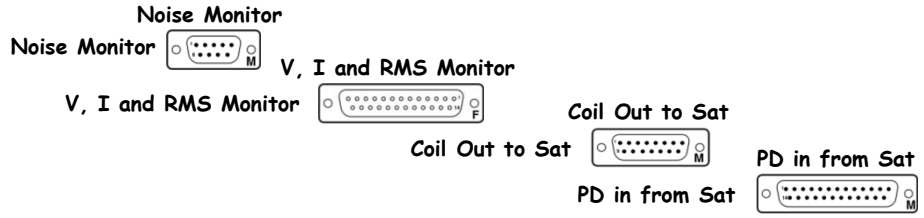
Front





S1000265

Rear



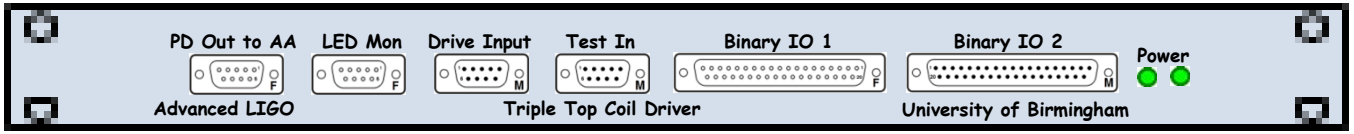
Driver Board: D0902747

Monitor Board: D070480

D1001242 - S1000258

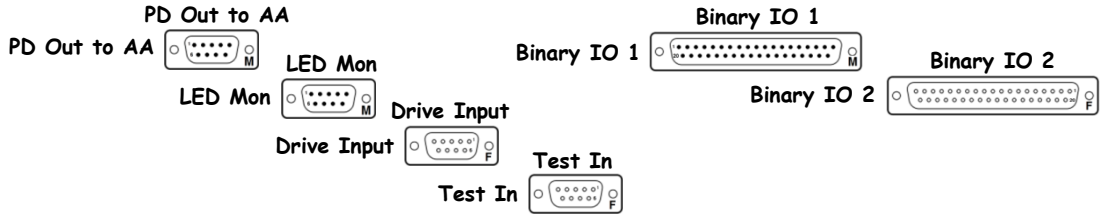
« L1-SUS-C5

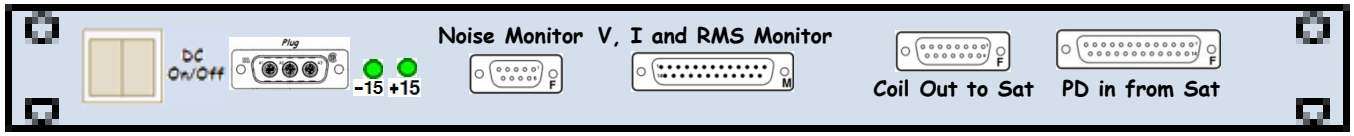
BS Triple Top Coil Driver Chassis D1001242 S1000258 ±18VDC



D1001242

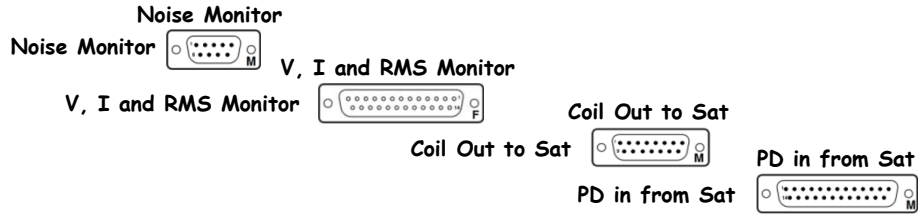
Front





S1000258

Rear



Driver Board: D0902747

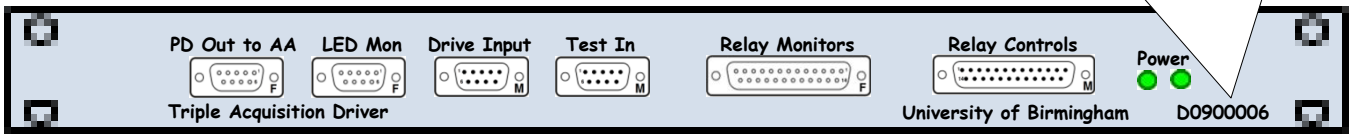
Monitor Board: D070480

D0900006 -S1001110

LIGO
<< L1-SUS-C5

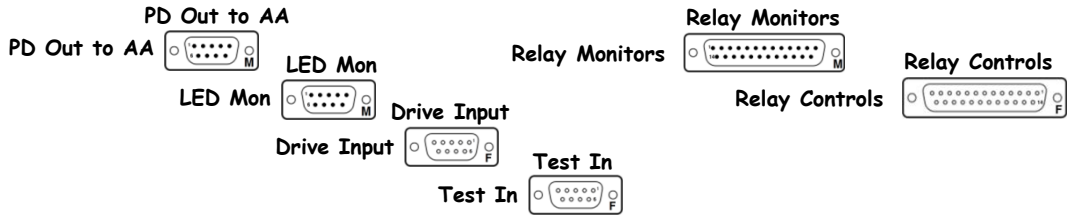
BS Mid Triple Acq Driver Chassis D0900006 S1001110 ±18VDC

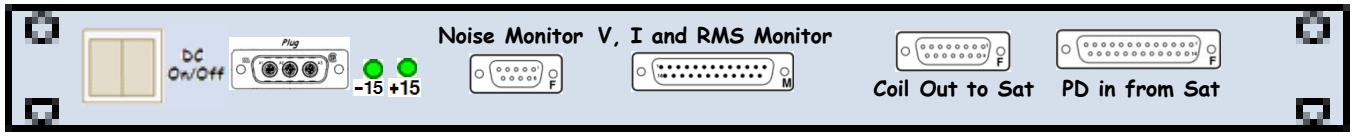
This number is actually correct. The DocDB part number is erroneously D090006 because it got assigned before the Wizards decided there would be 5 digits, and they won't fix if. I've asked.



D0900006

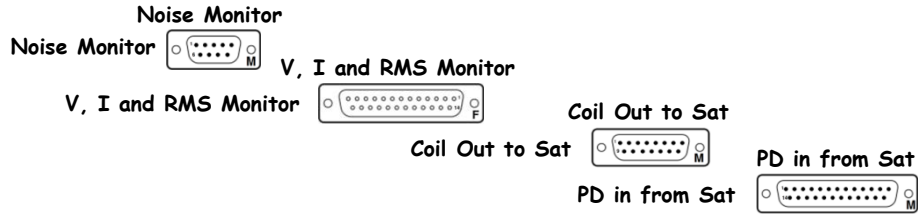
Front





S1001110

Rear



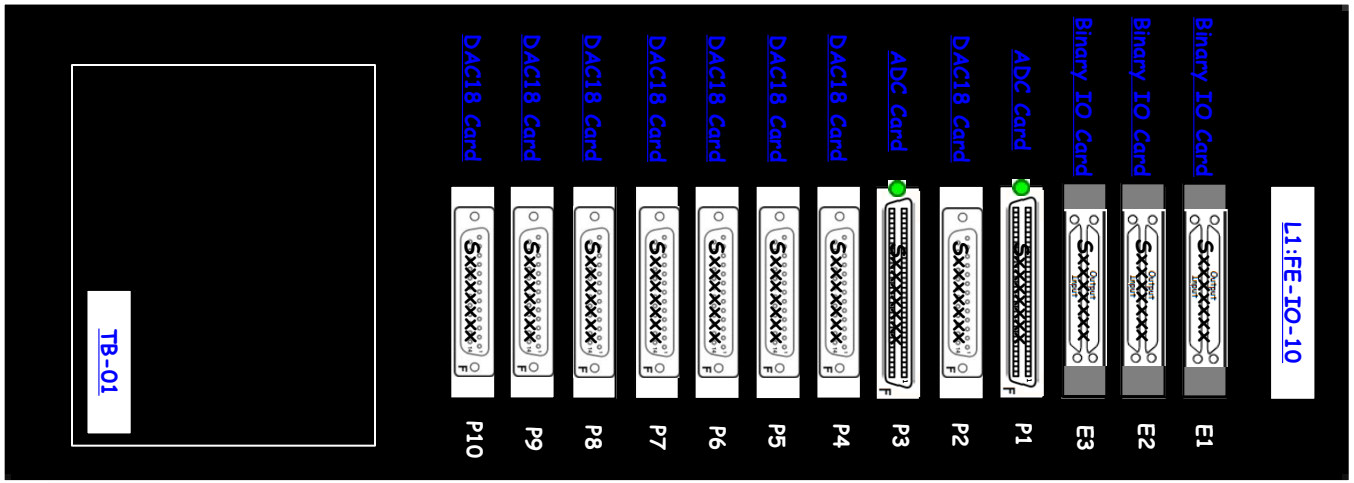
Driver Board: D0901047
Monitor Board: D070480

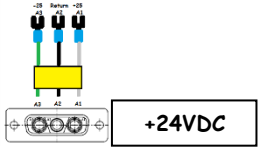
l1susbsc123 - D1001715 - S1001143

LIGO
<< L1-SUS-C5

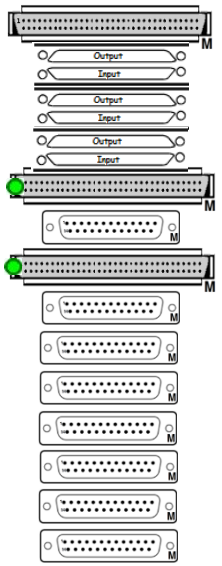
l1susbsc123 I/O Extension Chassis | D1001715 | S1001143 | +24VDC

D1001715
Front





S1001143
Rear

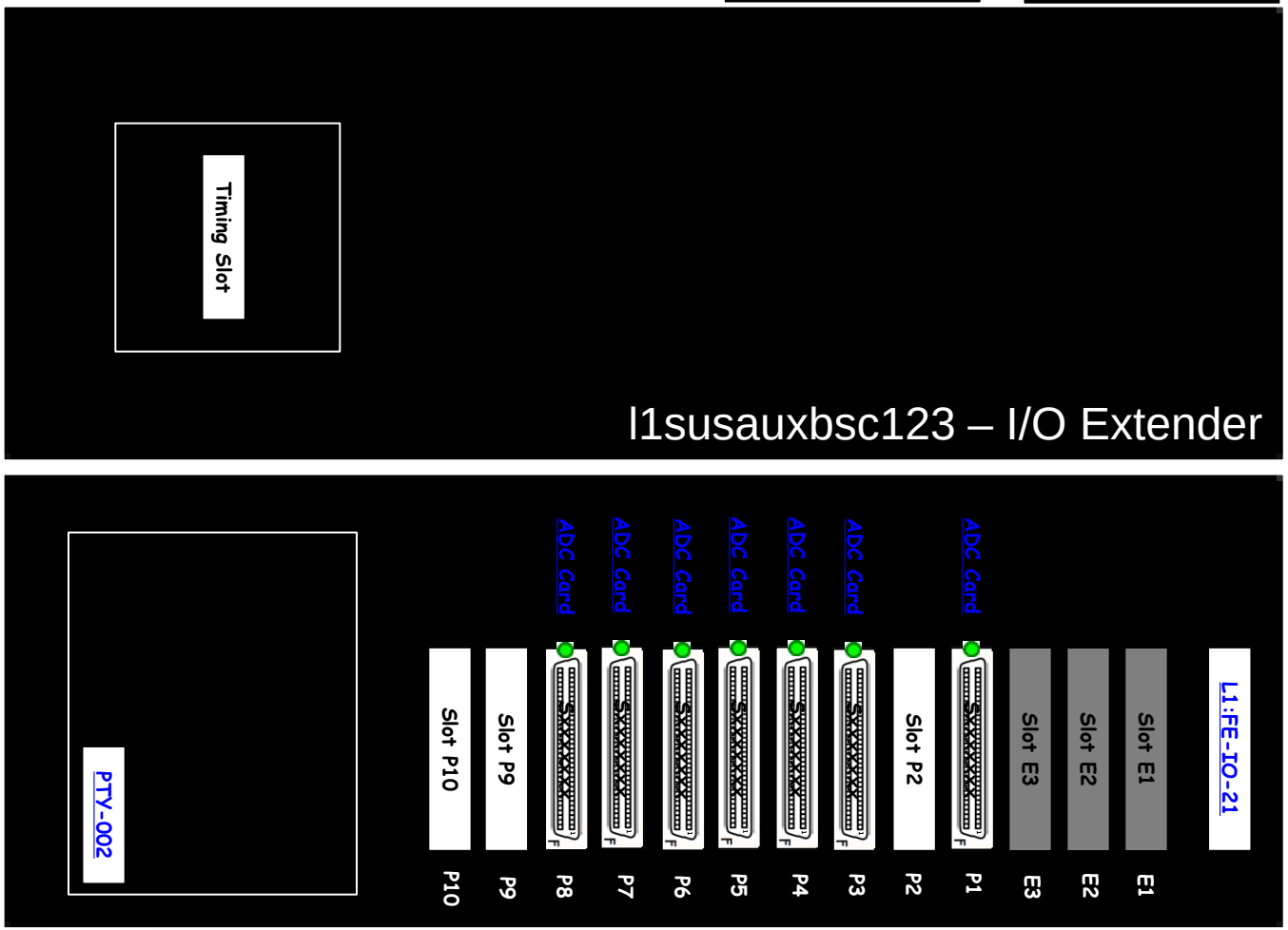


Uplink	L1:FE-IO-10
Slot E1	Open
Slot E2	Open
Slot E3	Open
Slot P1	Open
Slot P2	Open
Slot P3	Open
Slot P4	Open
Slot P5	Open
Slot P6	Open
Slot P7	Open
Slot P8	Open
Slot P9	Open
Slot P10	Open

l1susauxbsc123 - D1001715 - S1103888

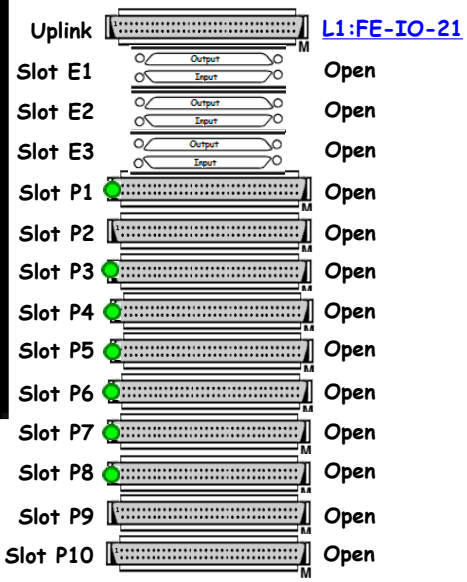
LIGO
<< L1-SUS-C5

l1susauxbsc123 I/O Extension Chassis | D1001715 | S1103888 | +24VDC



D1001715
Front

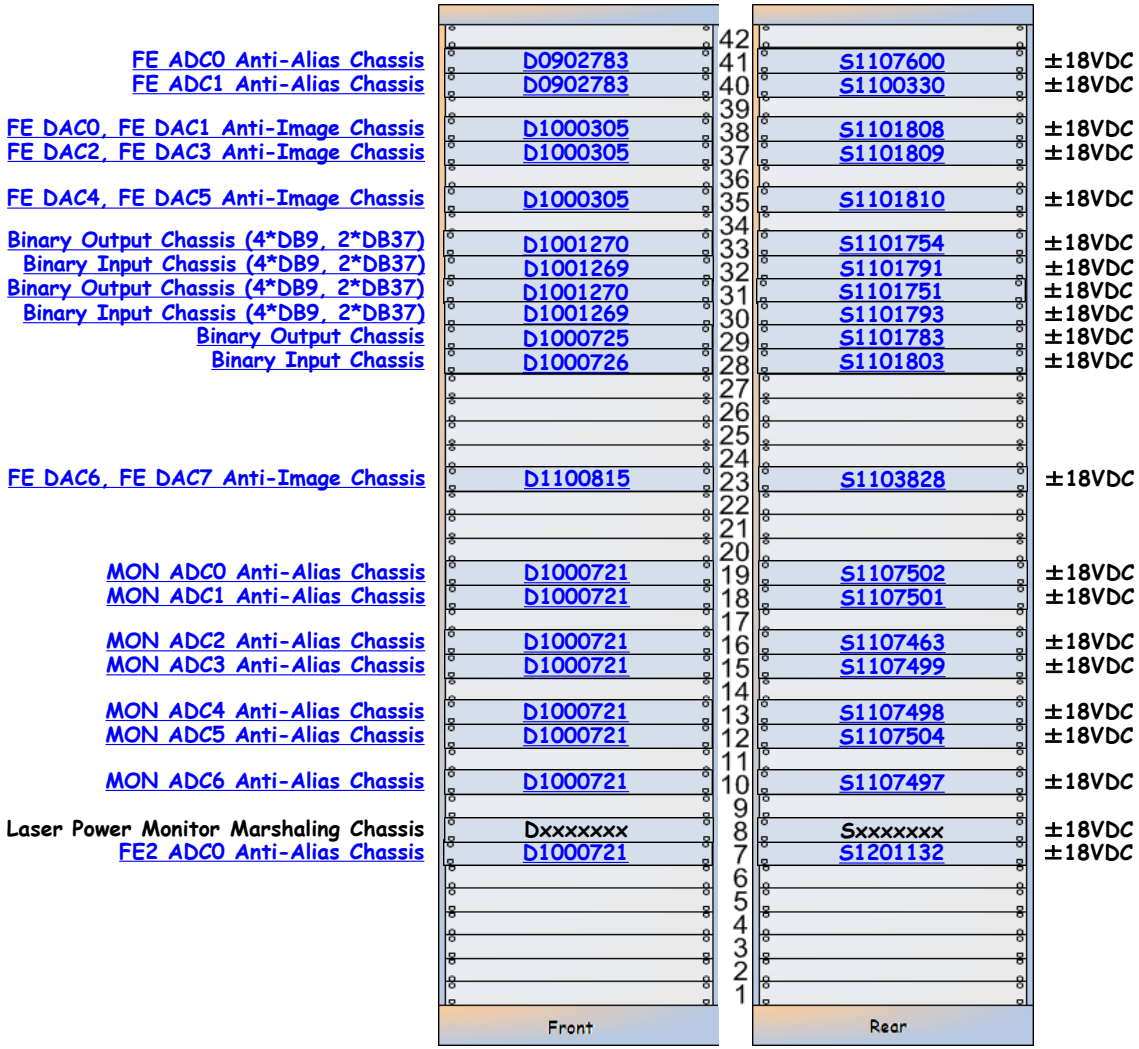
S1103888
Rear



L1-SUS-C6 – S1105376

LIGO
<< CER

SUS ITMX, ITMY, and BS Rack 2 (of 2) Layout (D1200875) (S1105376)

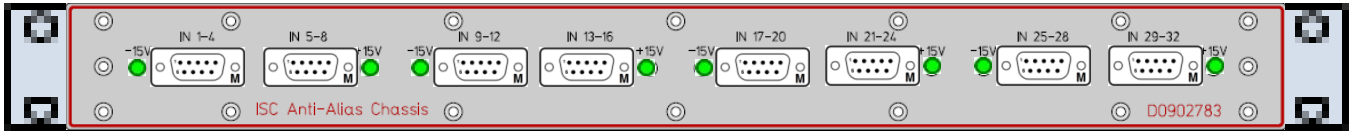


SUS-C6 is part of D1100022.

L1-SUS-C6 Details

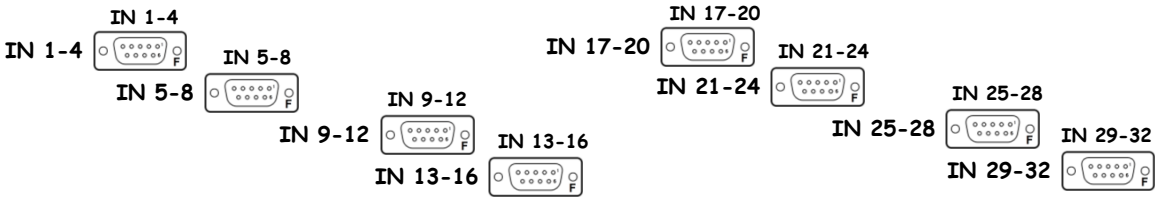
D0902783 - S1107600

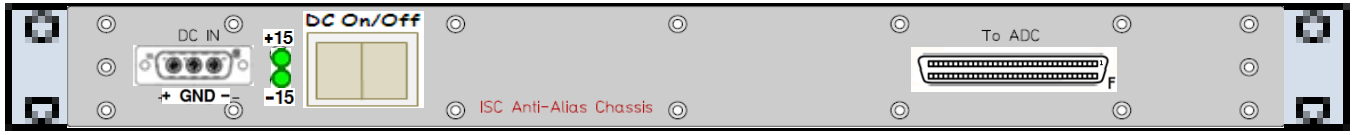
FE ADC0 Anti-Alias Chassis | D0902783 | S1107600 | ±18VDC



D0902783

Front



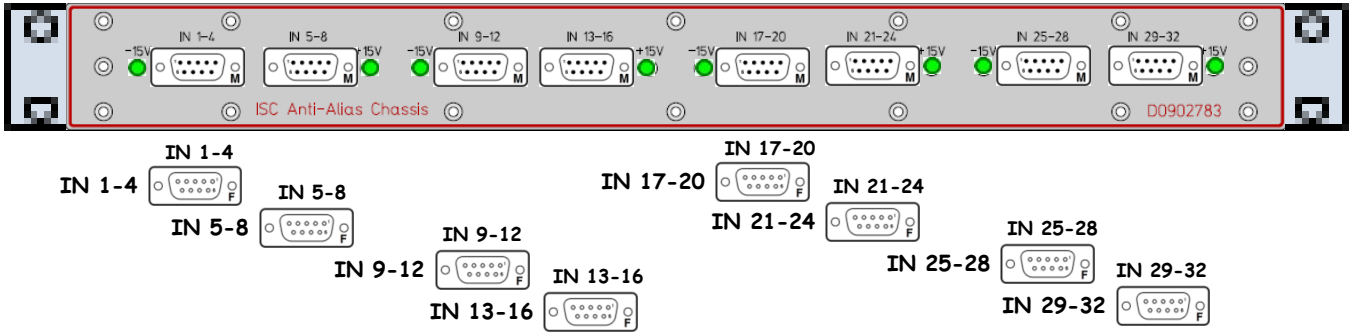


S1107600

Rear

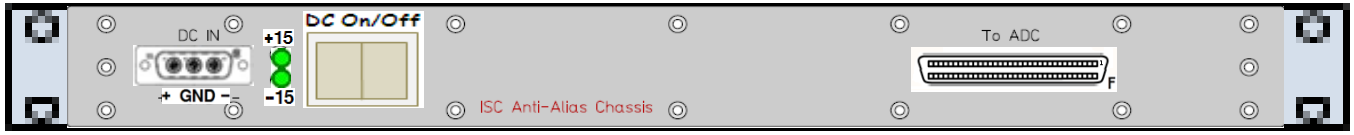
D0902783 - S1100330

FE ADC1 Anti-Alias Chassis | D0902783 | S1100330 | ±18VDC



D0902783

Front



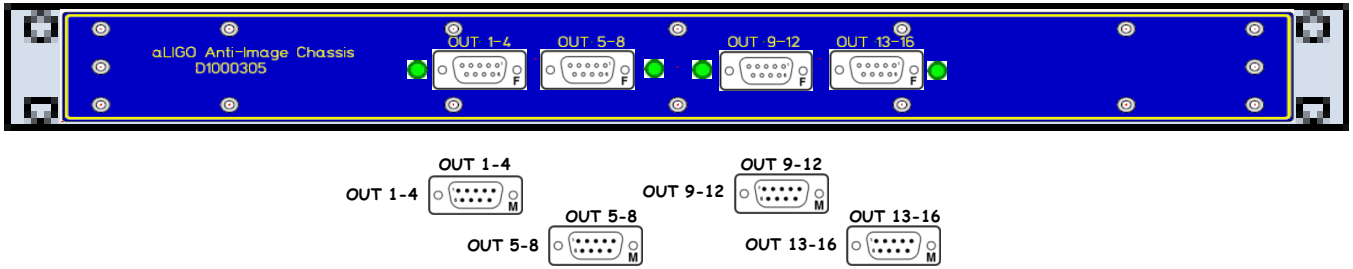
S1100330

Rear

D1000305 - S1101808

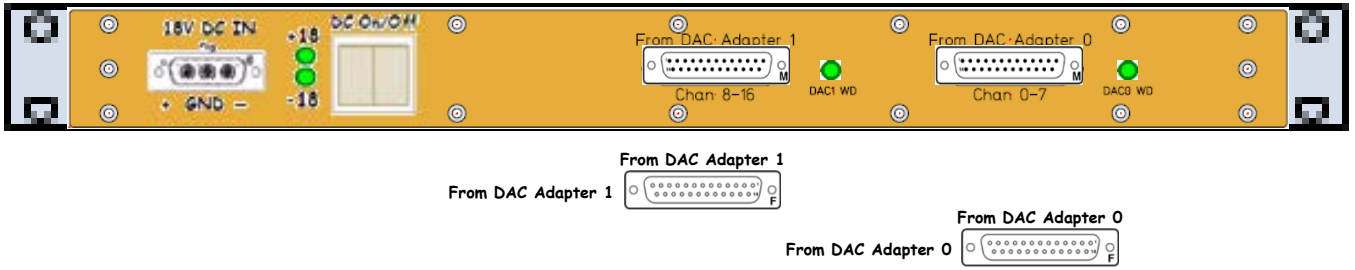
[<< L1-SUS-C6]

FE1 DAC0, FE1 DAC1 Anti-Image Chassis | D1000305 | S1101808 | ±18VDC



D1000305

Front



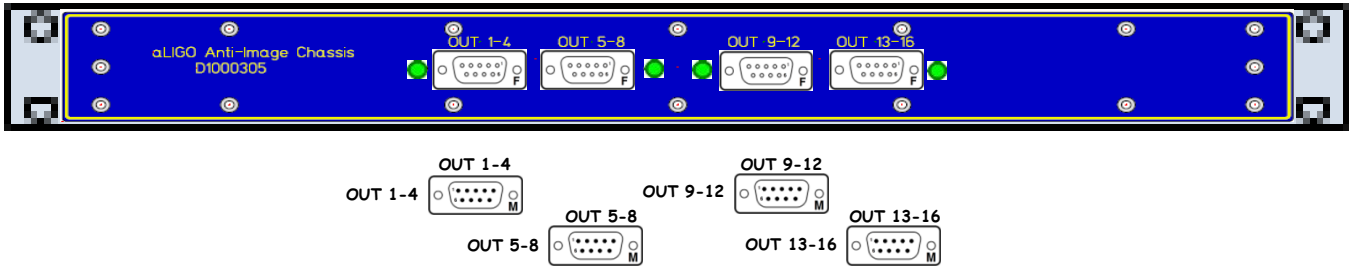
S1101808

Rear

D1000305 - S1101809

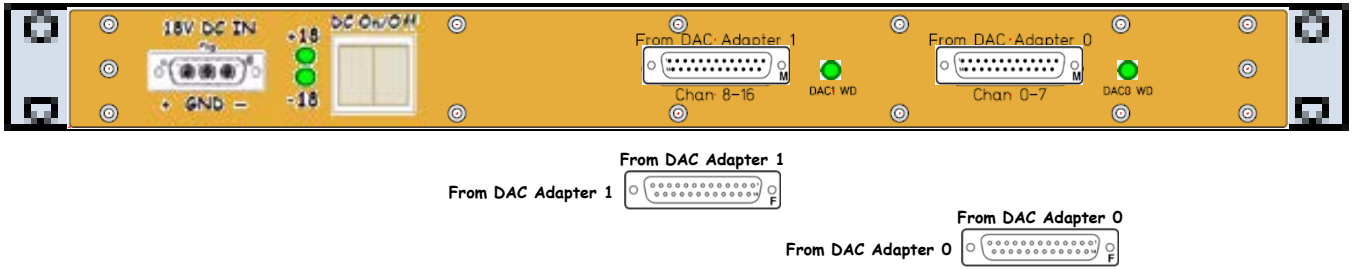
[<< L1-SUS-C6]

FE DAC2, FE DAC3 Anti-Image Chassis | D1000305 | S1101809 | ±18VDC



D1000305

Front



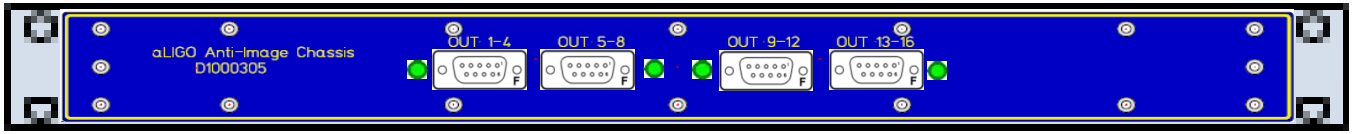
S1101809

Rear

D1000305 - S1101810

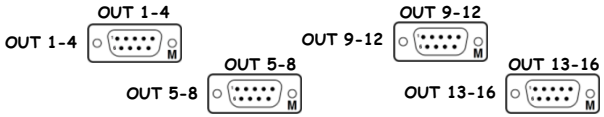
[<< L1-SUS-C6]

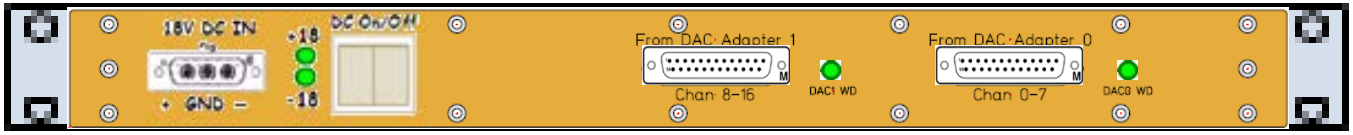
FE DAC4, FE DAC5 Anti-Image Chassis | D1000305 | S1101810 | ±18VDC



D1000305

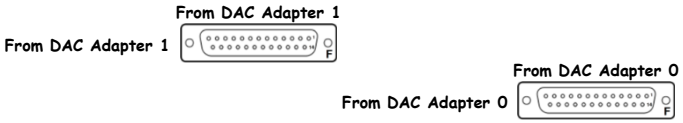
Front





S1101810

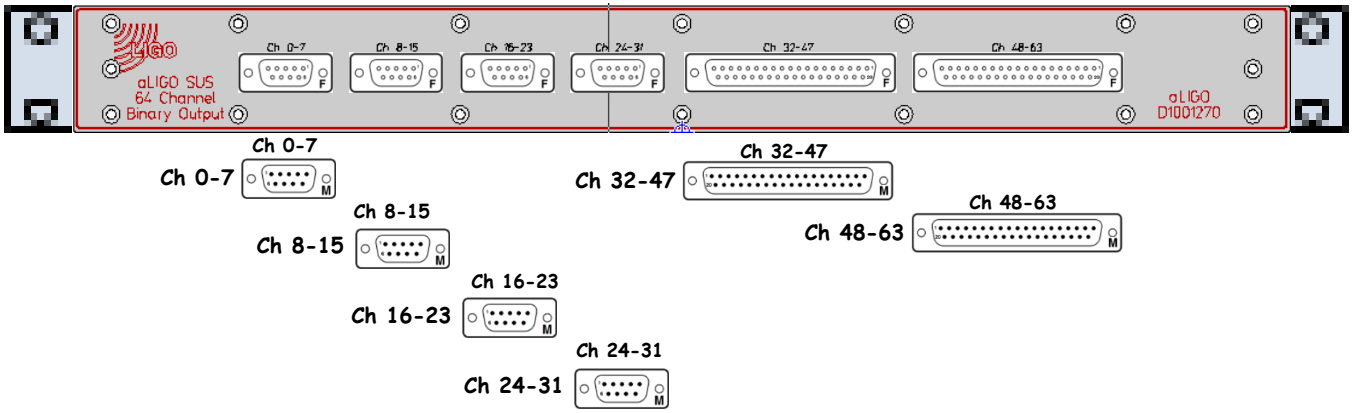
Rear



D1001270 - S1101754

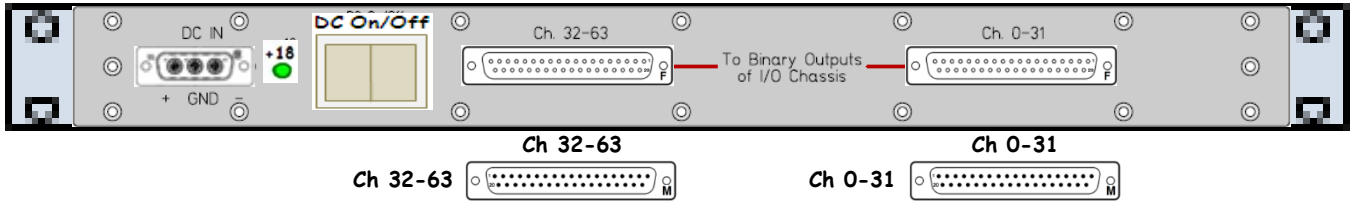
« L1-SUS-C6

Binary Output Chassis (4*DB9, 2*DB37) D1001270 S1101754 ±18VDC



D1001270

Front



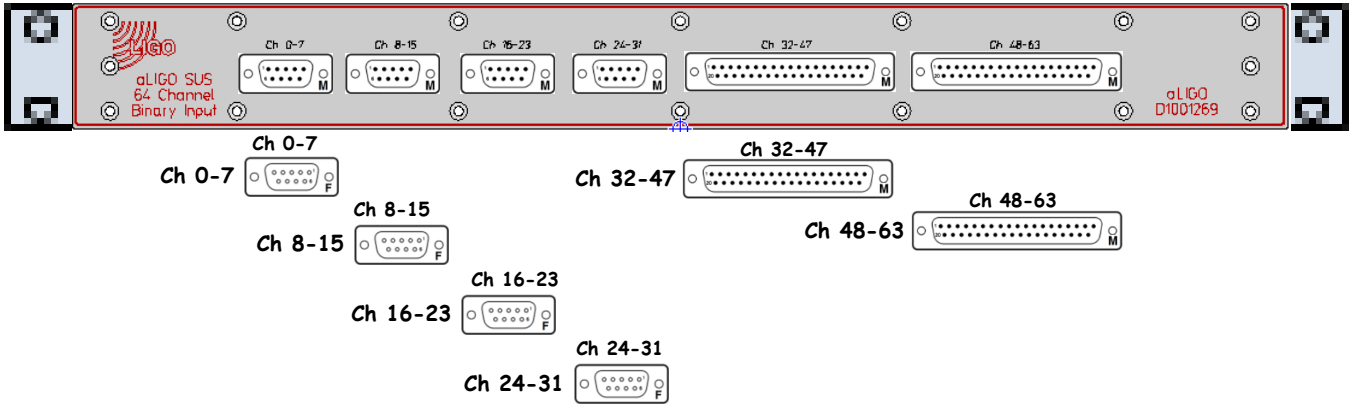
S1101754

Rear

D1001269 – S1101791

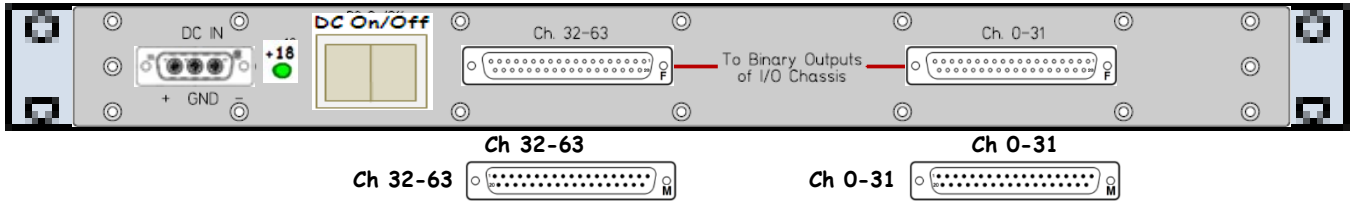
« L1-SUS-C6

Binary Input Chassis (4*DB9, 2*DB37) | D1001270 | S1101791 | ±18VDC



D1001270

Front



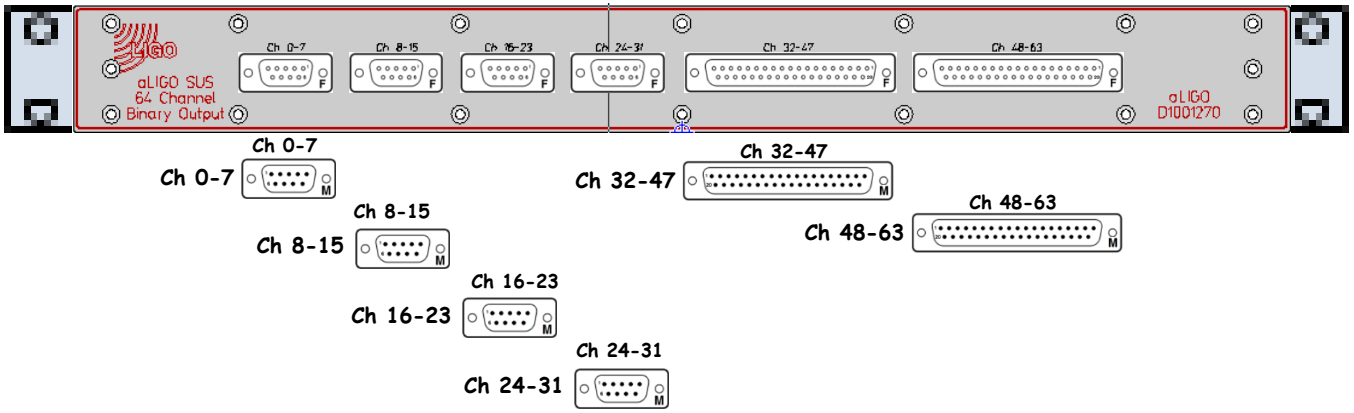
S1101791

Rear

D1001270 - S1101751

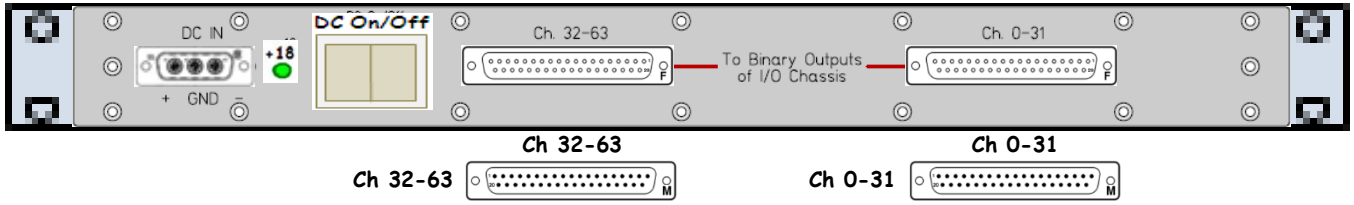
« L1-SUS-C6

Binary Output Chassis (4*DB9, 2*DB37) D1001270 S1101751 ±18VDC



D1001270

Front



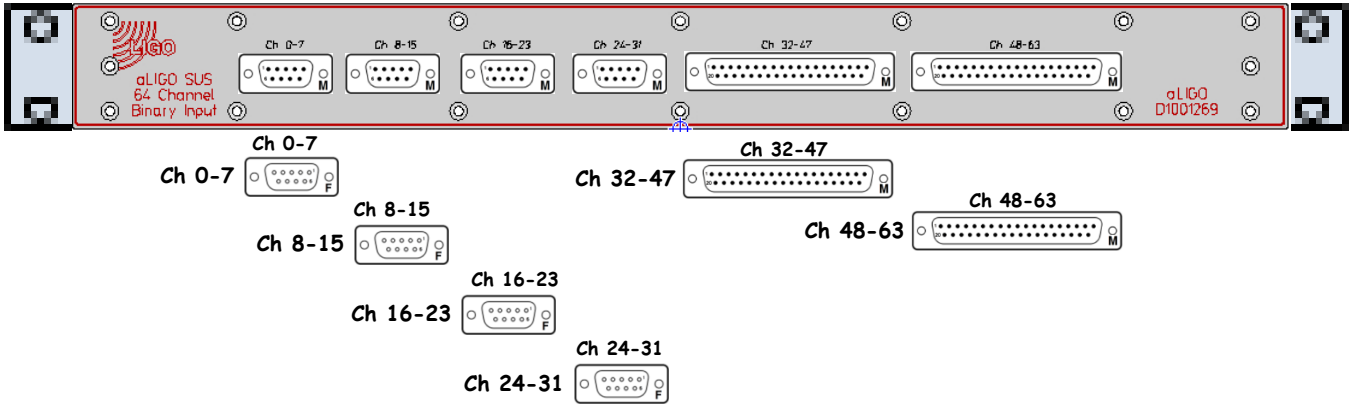
S1101751

Rear

D1001269 - S1101793

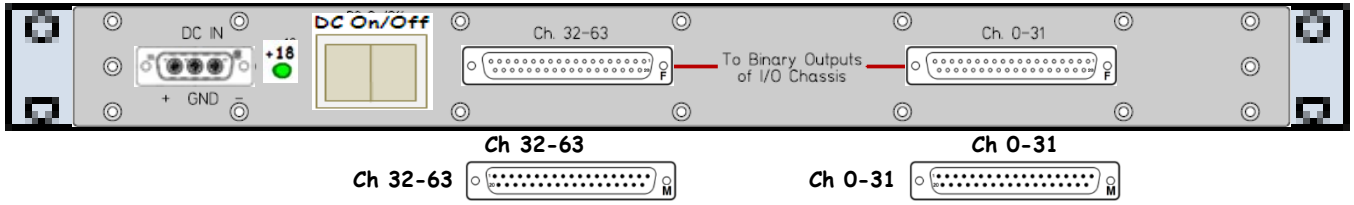
[<< L1-SUS-C6]

Binary Input Chassis (4*DB9, 2*DB37) | D1001270 | S1101793 | ±18VDC



D1001270

Front



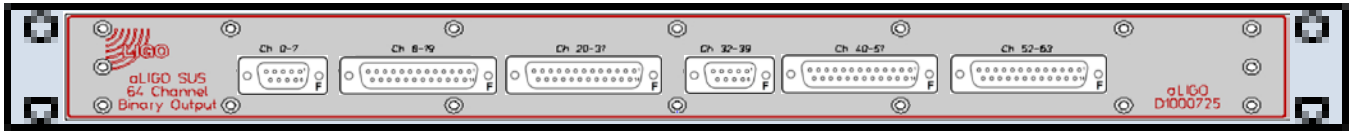
S1101793

Rear

D1000725 - S1101783

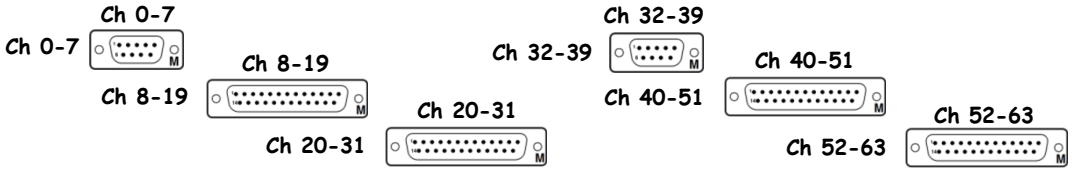
« L1-SUS-C6

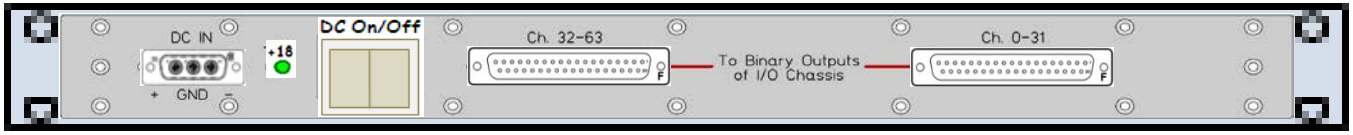
Binary Output Chassis | D1000725 | S1101783 | ±18VDC



D1000725

Front





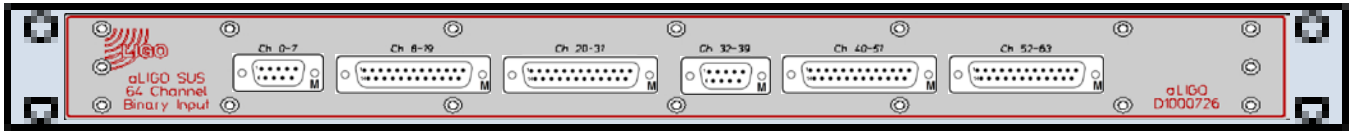
S1101783

Rear

D1000726 - S1101803

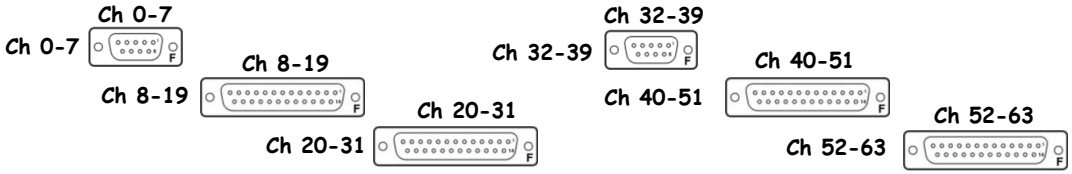
[<< L1-SUS-C6]

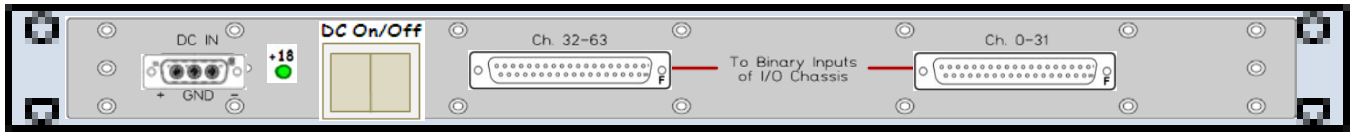
Binary Input Chassis | D1000726 | S1101803 | ±18VDC



D1000726

Front





S1101803

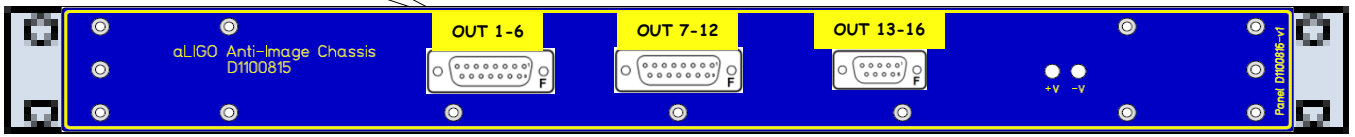
Rear

D1100815 – S1103825

[<< L1-SUS-C6]

FE DAC6, FE DAC7 Anti-Image Chassis | D1100815 | S1103828 | ±18VDC

D1100815 is an AI, which means it has OUTPUTS, not INPUTS. The labels are incorrect.



D1100815

Front

OUT 1-6

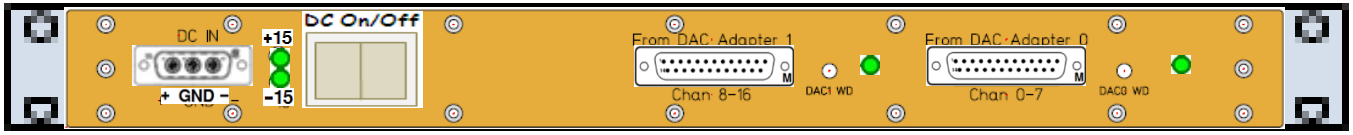
OUT 1-6

OUT 7-12

OUT 7-12

OUT 13-16

OUT 13-16



S1103828

Rear

From DAC Adapter 1

From DAC Adapter 1

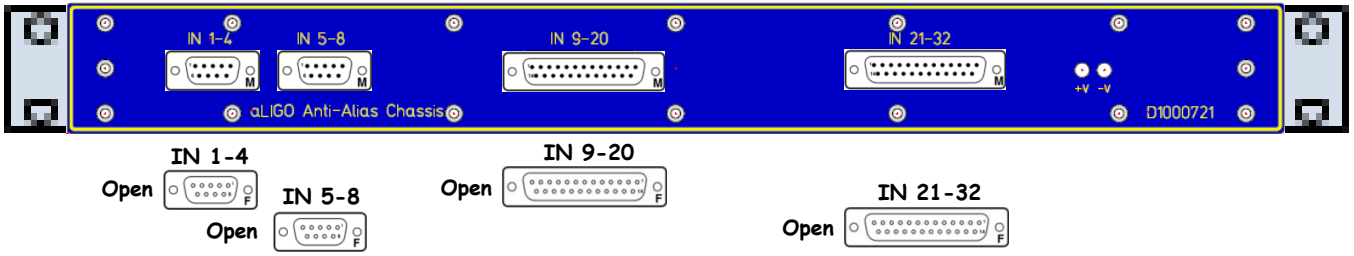
From DAC Adapter 0

From DAC Adapter 0

D1000721 - S1107502

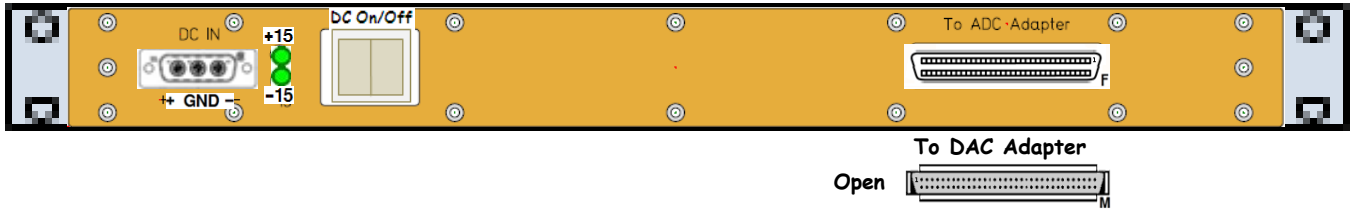
« L1-SUS-C6

MON ADC0 Anti-Alias Chassis | D1000721 | S1107502 | ±18VDC



D1000721

Front



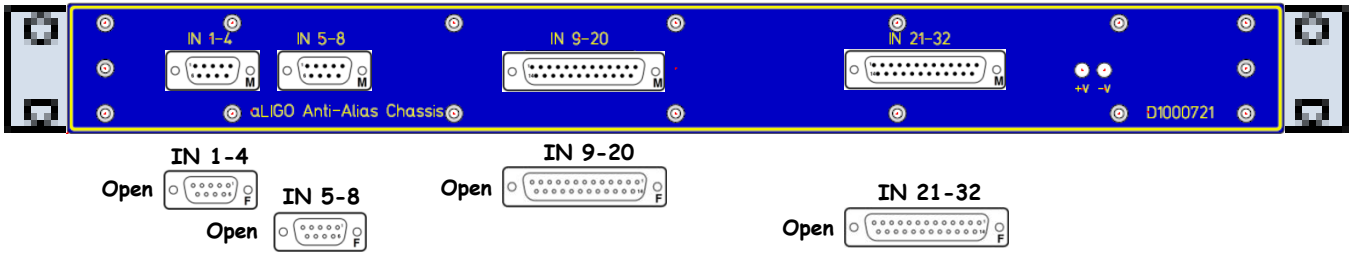
S1107502

Rear

D1000721 - S1107501

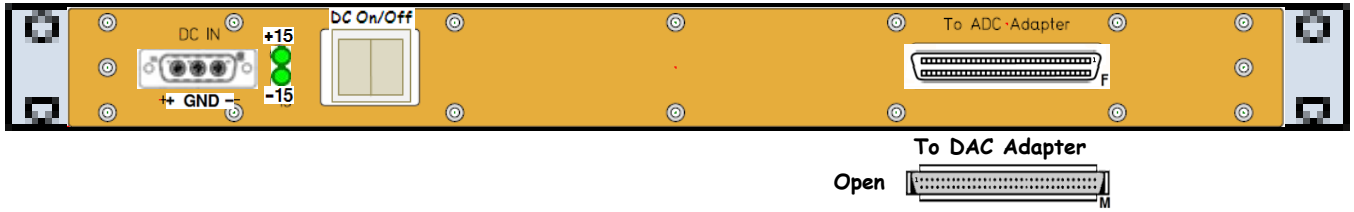
[<< L1-SUS-C6]

MON ADC1 Anti-Alias Chassis | D1000721 | S1107501 | ±18VDC



D1000721

Front



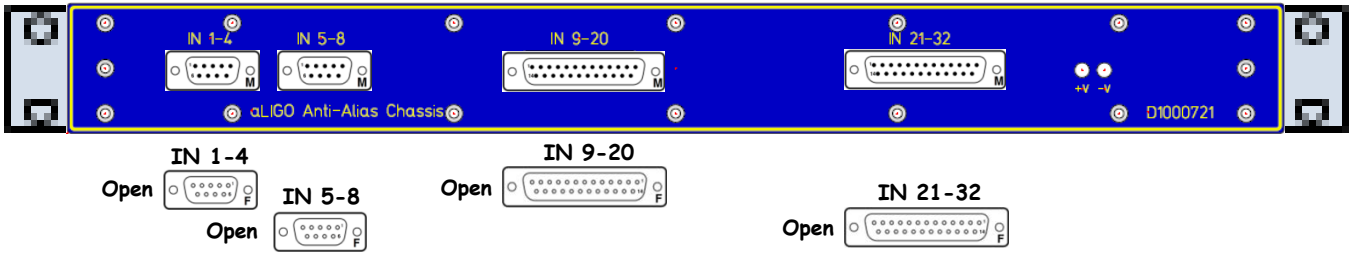
S1107501

Rear

D1000721 - S1107463

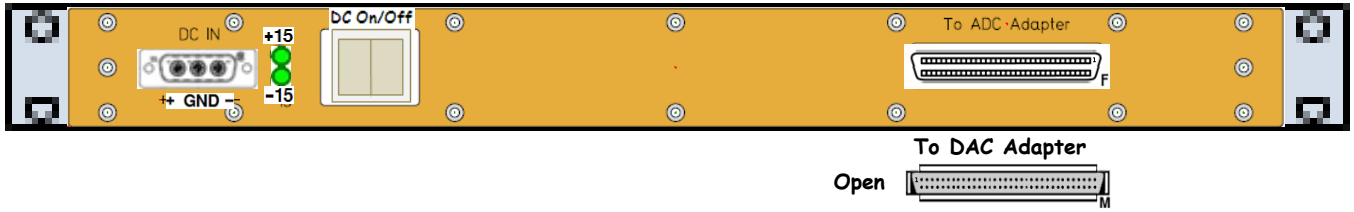
[<< L1-SUS-C6]

MON ADC2 Anti-Alias Chassis | D1000721 | S1107463 | ±18VDC



D1000721

Front



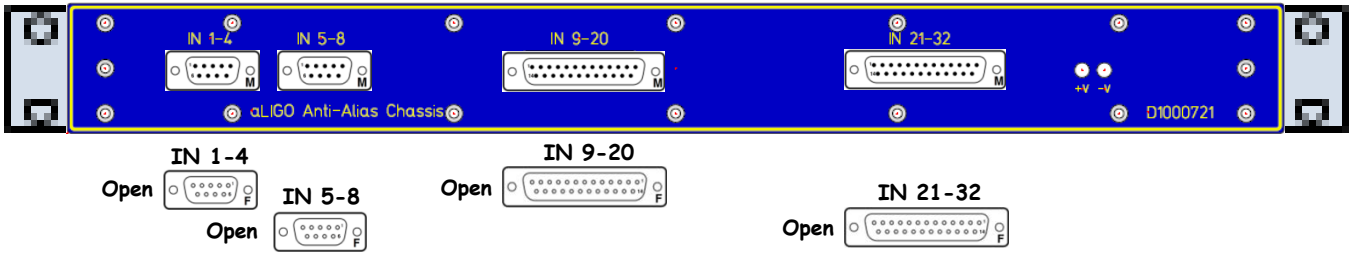
S1107463

Rear

D1000721 - S1107499

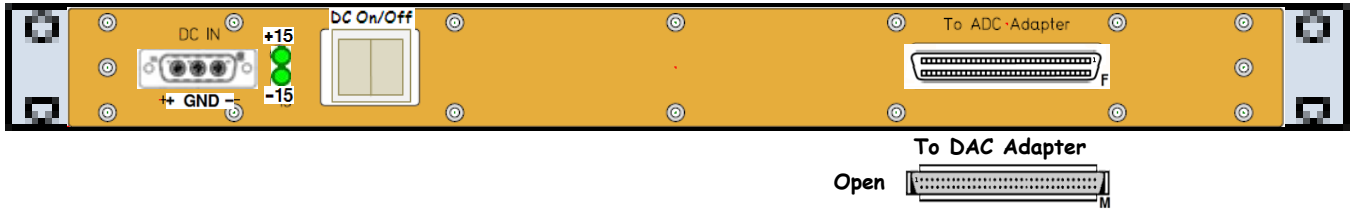
[<< L1-SUS-C6]

MON ADC3 Anti-Alias Chassis | D1000721 | S1107499 | ±18VDC



D1000721

Front



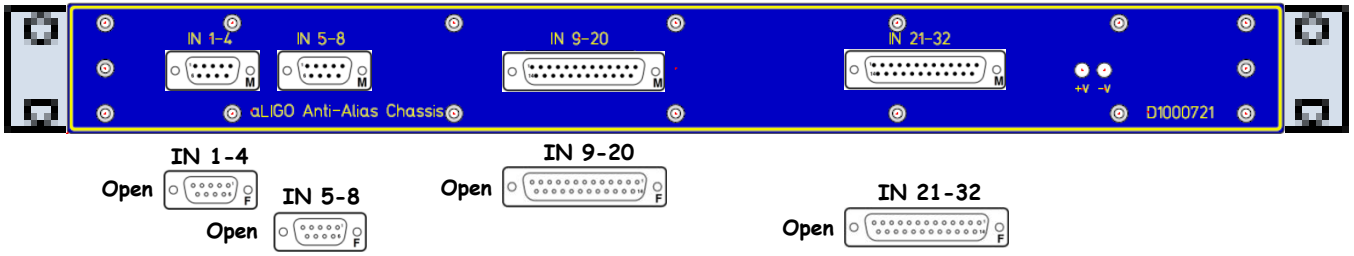
S1107499

Rear

D1000721 - S1107498

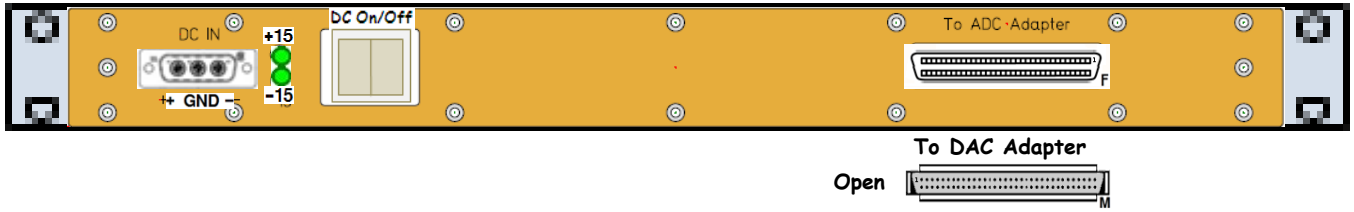
[<< L1-SUS-C6]

MON ADC4 Anti-Alias Chassis | D1000721 | S1107498 | ±18VDC



D1000721

Front



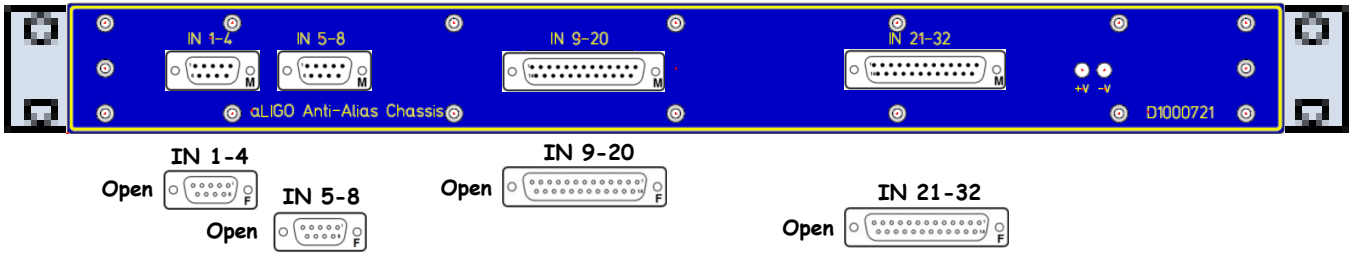
S1107498

Rear

D1000721 - S1107504

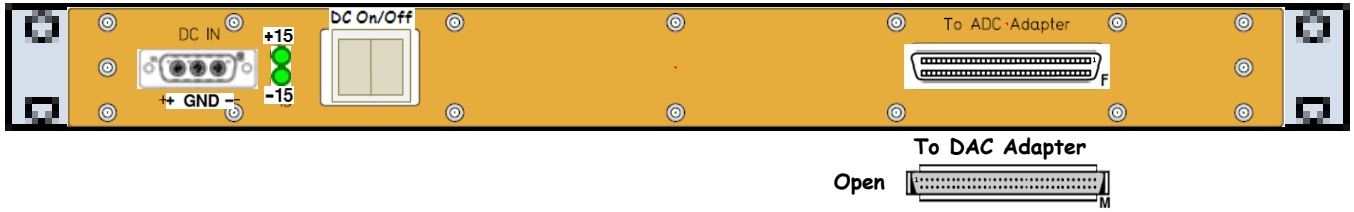
LIGO
<< L1-SUS-C6

MON ADC5 Anti-Alias Chassis | D1000721 | S1107504 | ±18VDC



D1000721

Front



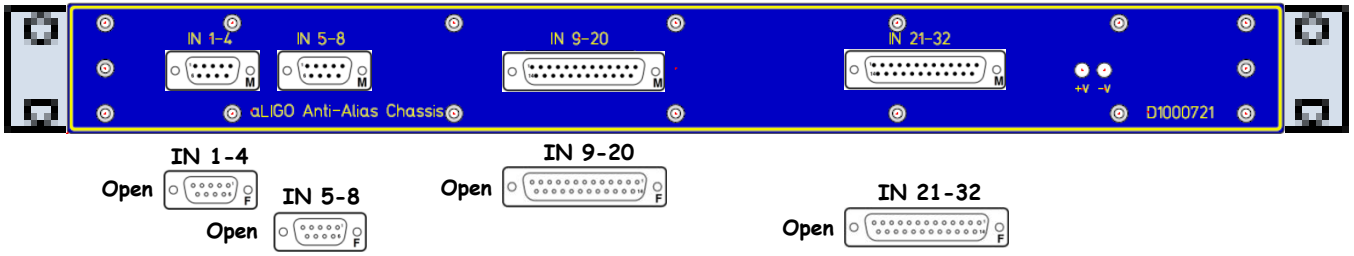
S1107504

Rear

D1000721 - S1107497

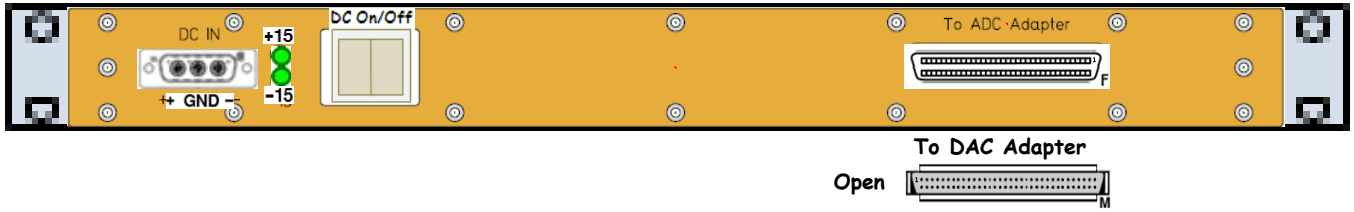
[<< L1-SUS-C6]

MON ADC6 Anti-Alias Chassis | D1000721 | S1107497 | ±18VDC



D1000721

Front

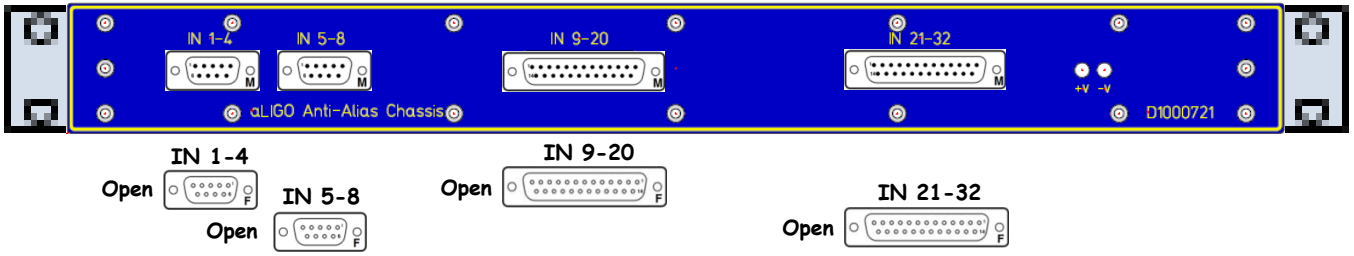


S1107497

Rear

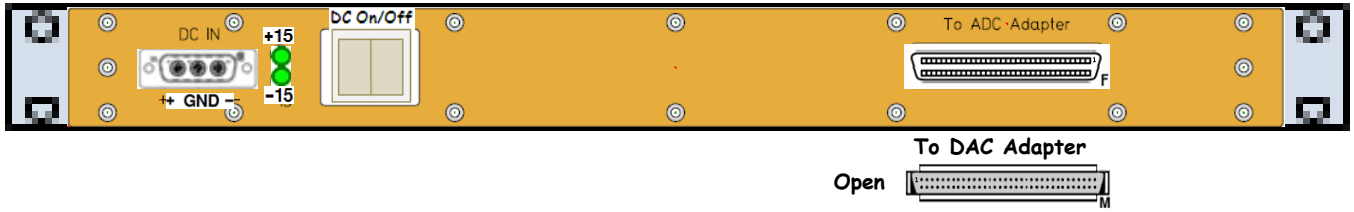
D1000721 - S1201132

FE2 ADC0 Anti-Alias Chassis | D1000721 | S1201132 | ±18VDC



D1000721

Front



S1201132

Rear

L1-SUS-C7 - S1105377

LIGO
<< CER

SUS HAM5 and HAM6 Rack 1 (of 2) Layout (D1200876) (S1105377)

	Front		Rear	
SR3-SRM Triple Top Coil Driver Chassis	D1001242	42		
SR3-SRM Triple Top Coil Driver Chassis	D1001242	41	S1000255	±18VDC
SR3-SRM Triple Top Coil Driver Chassis	D1001242	40	S1000268	±18VDC
		39	S1100254	±18VDC
OMC Triple Top Coil Driver Chassis	D1100304	38		
OMC Triple Top Coil Driver Chassis	D1100304	37	S1101565	±18VDC
		36	S1101567	±18VDC
FE ADC0 Anti-Alias Chassis	D0902783	35		
FE ADC1 Anti-Alias Chassis	D0902783	34	S1001149	±18VDC
		33	S1100328	±18VDC
FE DAC0, FE DAC1 Anti-Image Chassis	D1000305	32		
FE DAC2, FE DAC3 Anti-Image Chassis	D1000305	31	S1101812	±18VDC
		30	S1101813	±18VDC
SR3 Mid Triple Acq Driver Chassis	D0900006	29		
SR3 Bot Triple Acq Driver Chassis	D0900006	28	S1001190	±18VDC
SRM Mid Triple Acq Driver Chassis	D0900006	27	S1001105	±18VDC
		26	S1001189	±18VDC
FE DAC4 Anti-Image Chassis	D1000305	25		
		24	S1101814	±18VDC
SRM Bot Triple Acq Driver Chassis	D0900006	23		
		22	S1001106	±18VDC
Binary Output Chassis	D1000725	21		
Binary Input Chassis	D1000726	20	S1201244	±18VDC
Binary Output Chassis (8*DB9)	D1002593	19	S1201497	±18VDC
Binary Input Chassis (8*DB9)	D1001726	18	S1101774	±18VDC
		17	S1101316	±18VDC
		16		
		15		
		14		
		13		
		12		
		11		
		10		
		9		
		8		
		7		
		6		
		5		
		4		
		3		
		2		
		1		

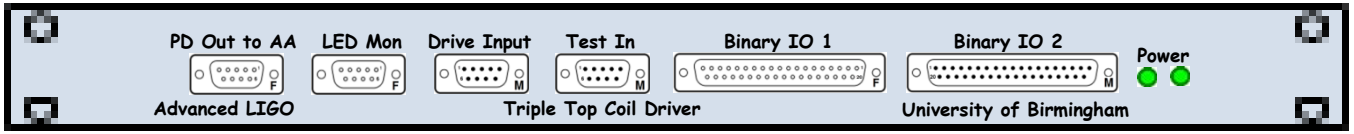
SUS-C7 is part of D1002740.

L1-SUS-C7 Details

D1001242 - S1000255

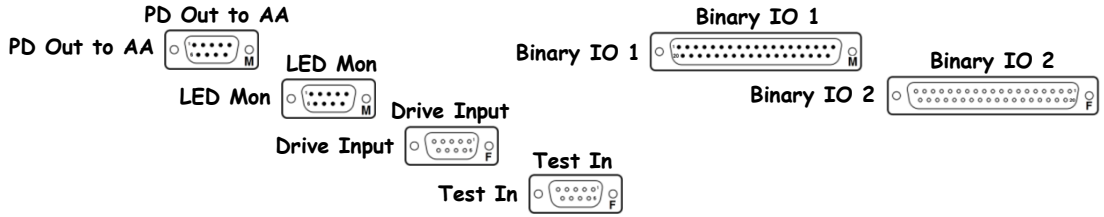
« L1-SUS-C7

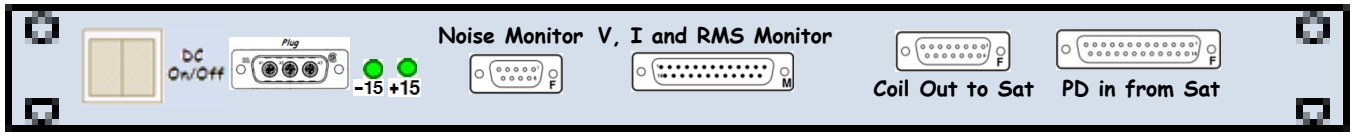
SR3-SRM Triple Top Coil Driver Chassis D1001242 S1000255 ±18VDC



D1001242

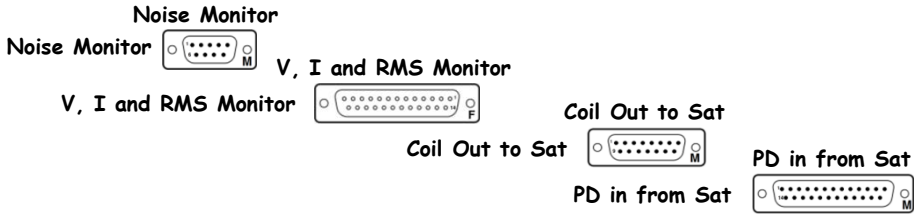
Front





S1000255

Rear



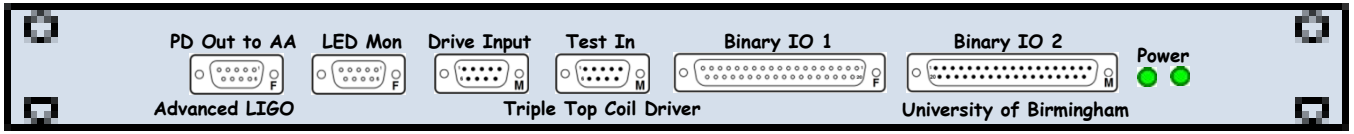
Driver Board: D0902747

Monitor Board: D070480

D1001242 - S1000268

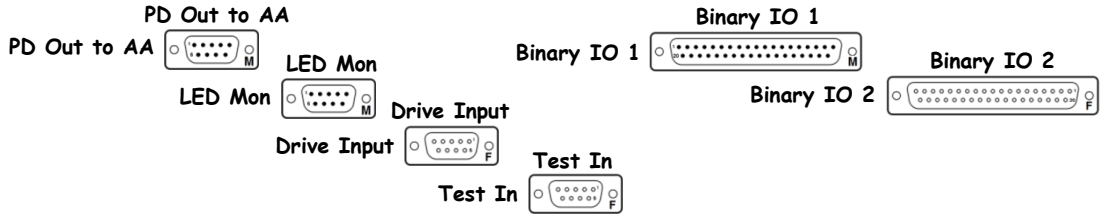
« L1-SUS-C7

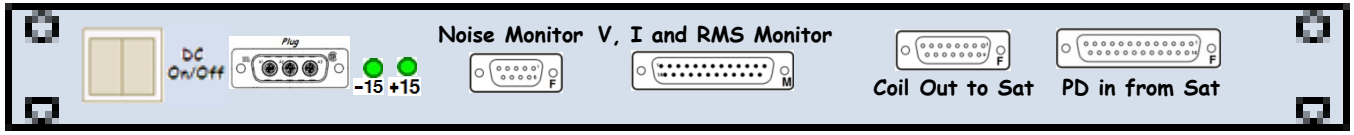
SR3-SRM Triple Top Coil Driver Chassis D1001242 S1000268 ±18VDC



D1001242

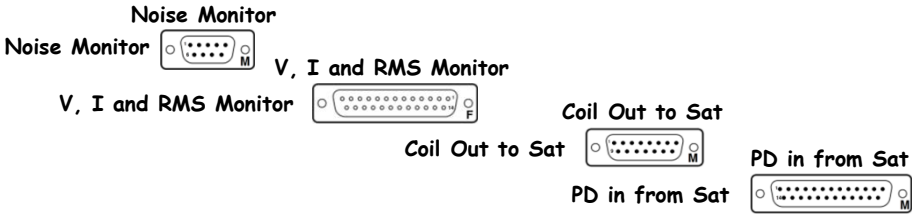
Front





S1000268

Rear



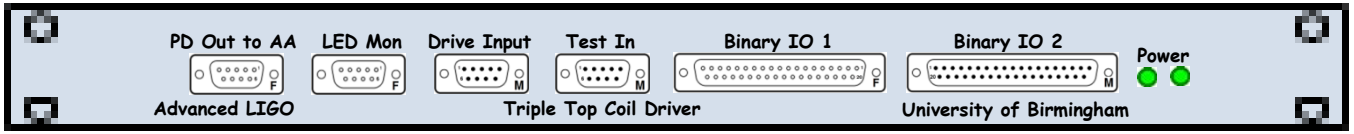
Driver Board: D0902747

Monitor Board: D070480

D1001242 - S1100254

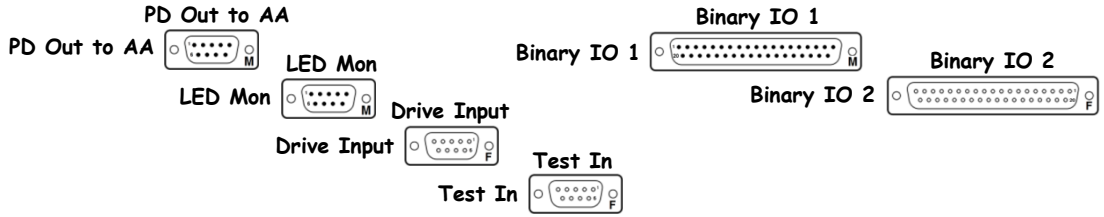
« L1-SUS-C7

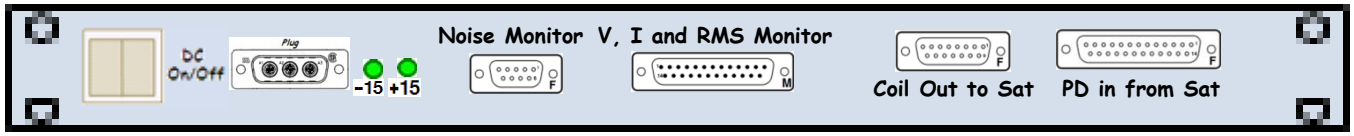
SR3-SRM Triple Top Coil Driver Chassis D1001242 S1100254 ±18VDC



D1001242

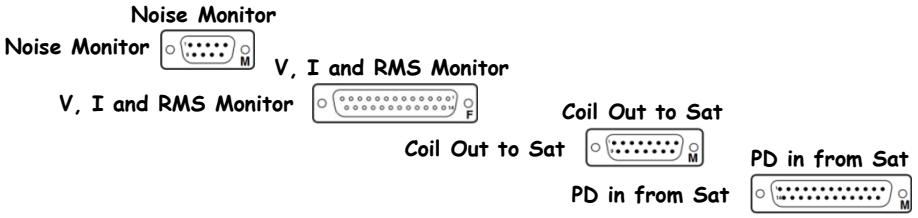
Front





S1100254

Rear



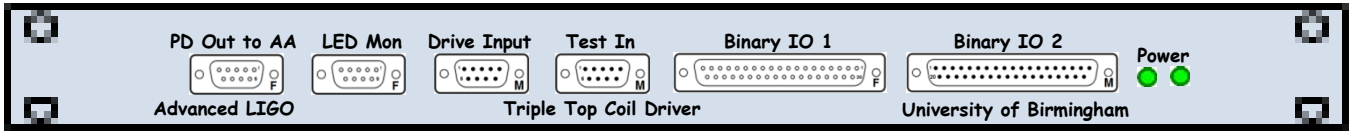
Driver Board: D0902747

Monitor Board: D070480

D1100304 - S1101565

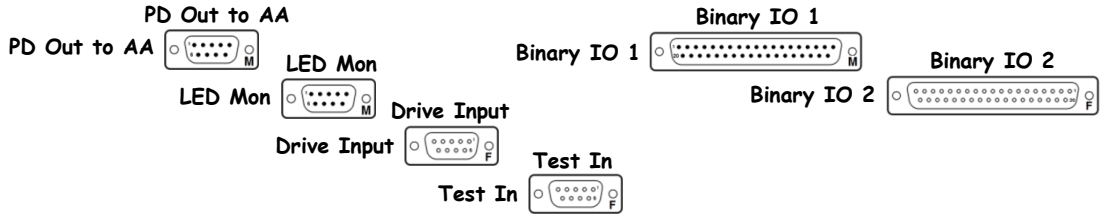
[<< L1-SUS-C7]

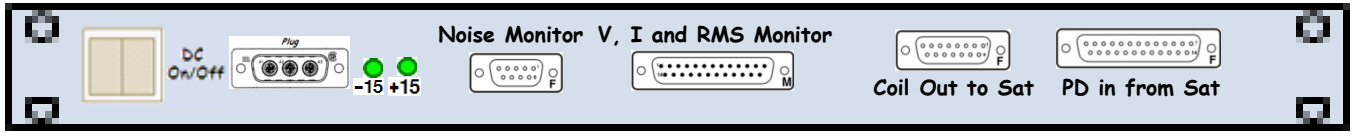
OMC Triple Top Coil Driver Chassis [D1100304] [S1101565] ±18VDC



[D1100304]

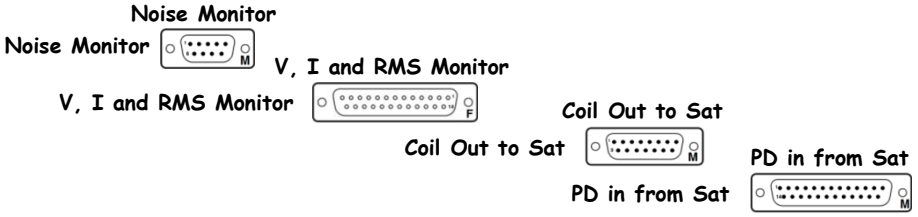
Front





[S1101565]

Rear



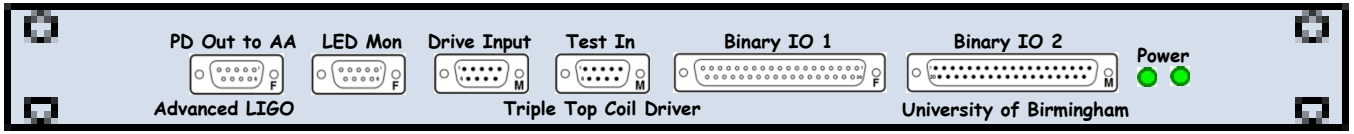
[Driver Board: D0902747]

[Monitor Board: D070480]

D1100304 - S1101567

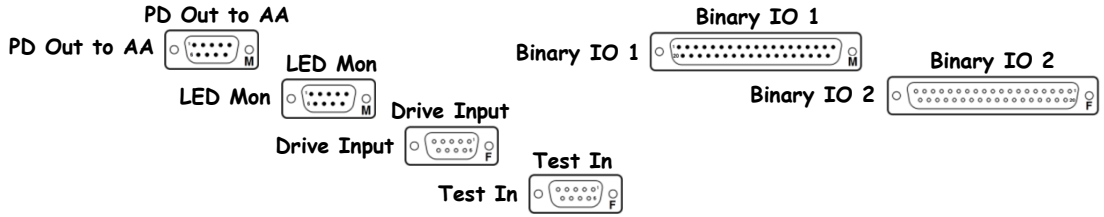
« L1-SUS-C7

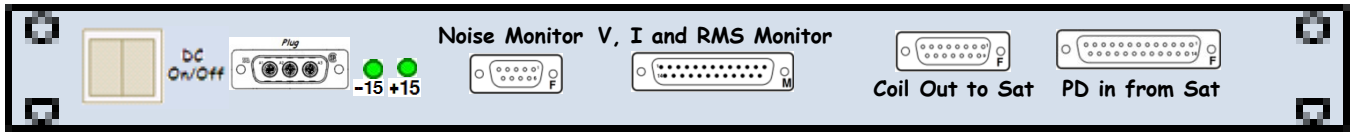
OMC Triple Top Coil Driver Chassis D1100304 S1101567 ±18VDC



D1100304

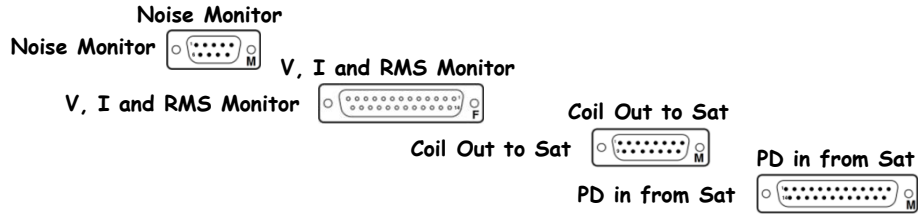
Front





S1101567

Rear

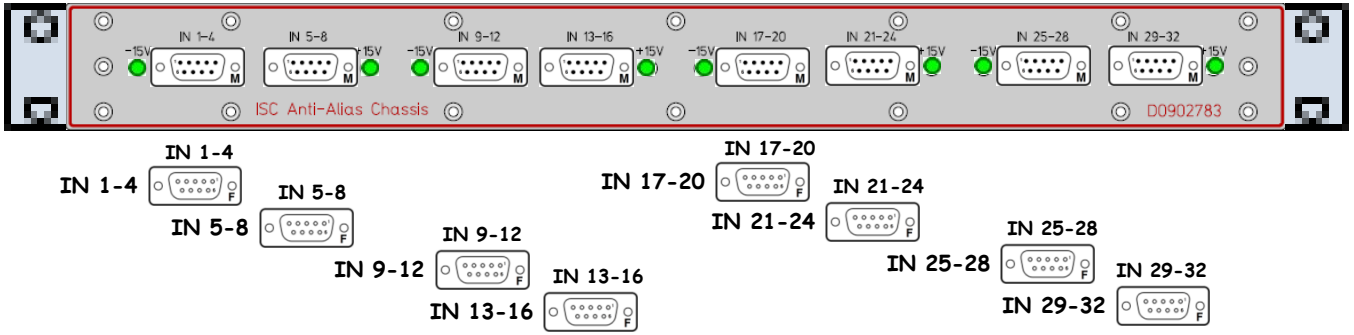


Driver Board: D0902747

Monitor Board: D070480

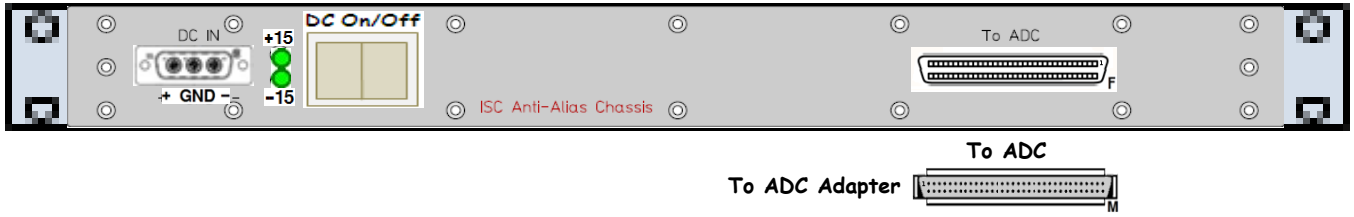
D0902783 - S1001149

FE ADC0 Anti-Alias Chassis | D0902783 | S1001149 | ±18VDC



D0902783

Front



S1001149

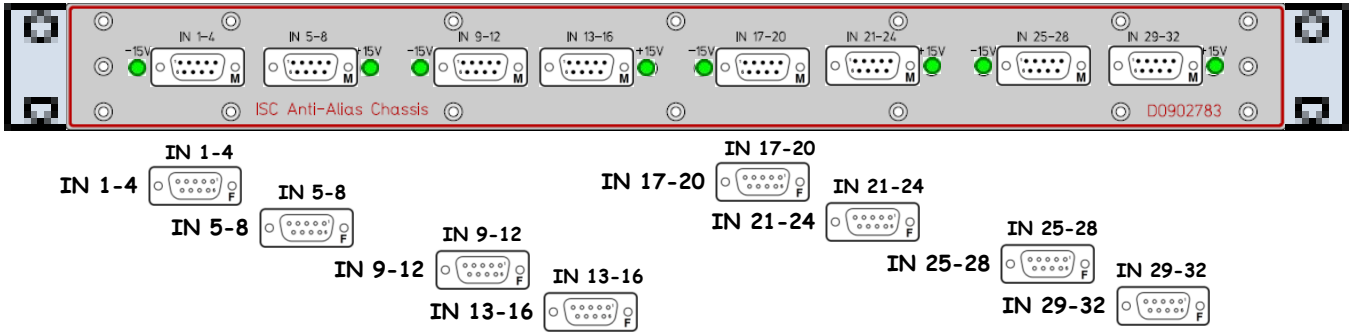
Rear

To ADC

To ADC Adapter

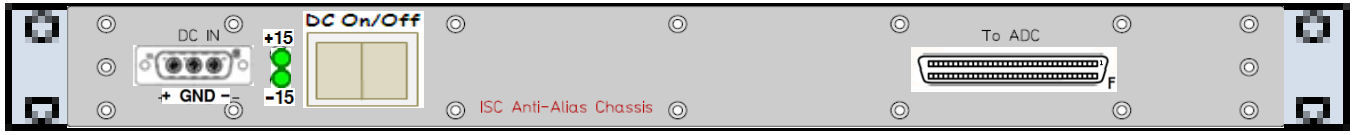
D0902783 - S1100328

FE ADC1 Anti-Alias Chassis | D0902783 | S1100328 | ±18VDC



D0902783

Front



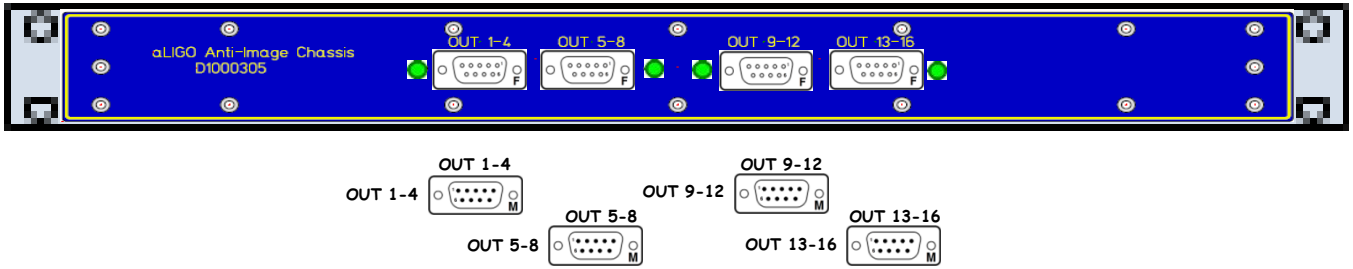
S1100328

Rear

D1000305 - S1101812

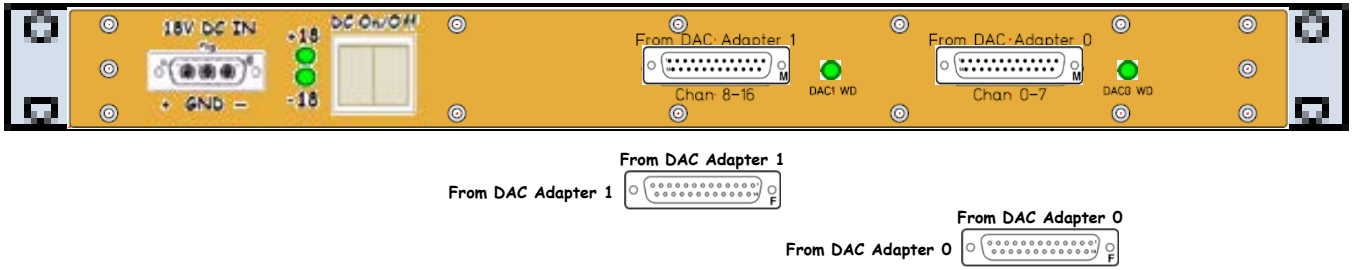
[<< L1-SUS-C7]

FE1 DAC0, FE1 DAC1 Anti-Image Chassis | D1000305 | S1101812 | ±18VDC



D1000305

Front



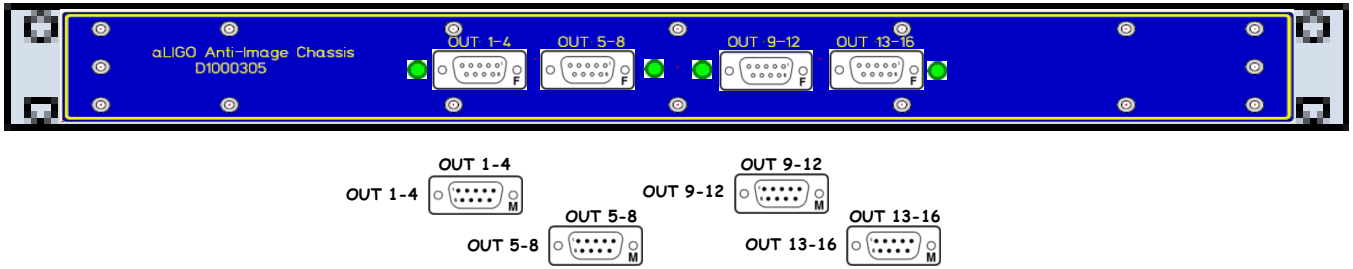
S1101812

Rear

D1000305 - S1101813

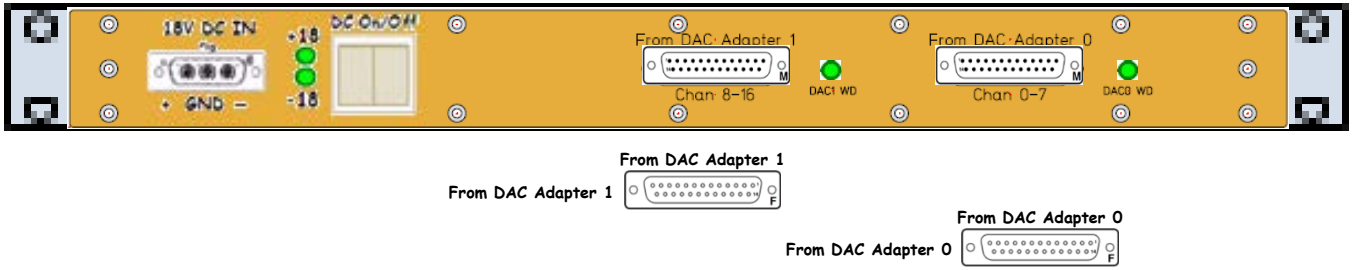
[<< L1-SUS-C7]

FE DAC2, FE DAC3 Anti-Image Chassis | D1000305 | S1101813 | ±18VDC



D1000305

Front



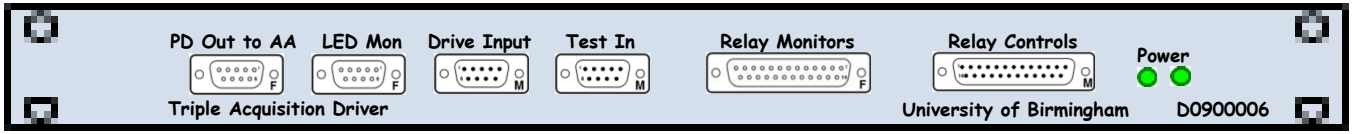
S1101813

Rear

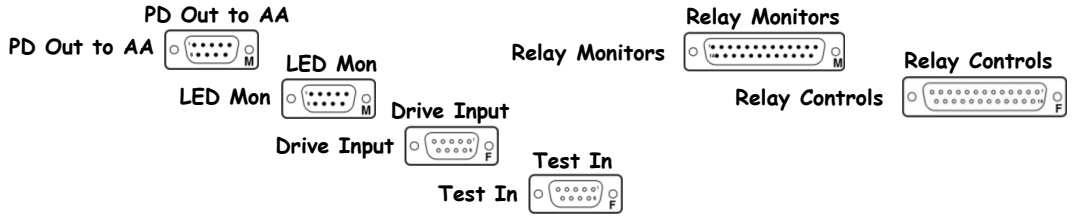
D0900006 - S1001190

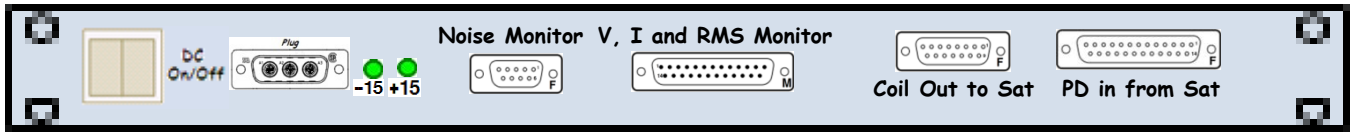
LIGO
<< L1-SUS-C7

SR3 Mid Triple Acq Driver Chassis D0900006 S1001190 ±18VDC

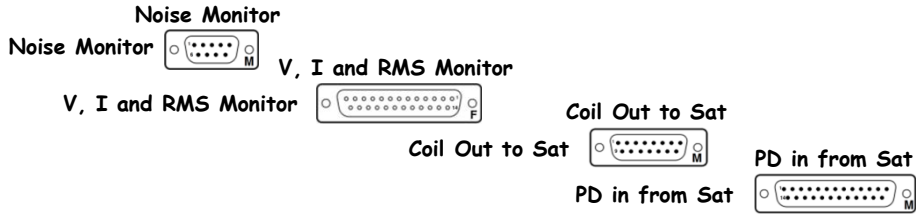


D0900006
Front





S1001190
Rear

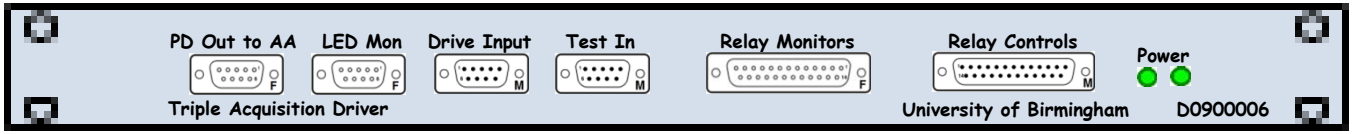


Driver Board: D0901047
Monitor Board: D070480

D0900006 - S1001105

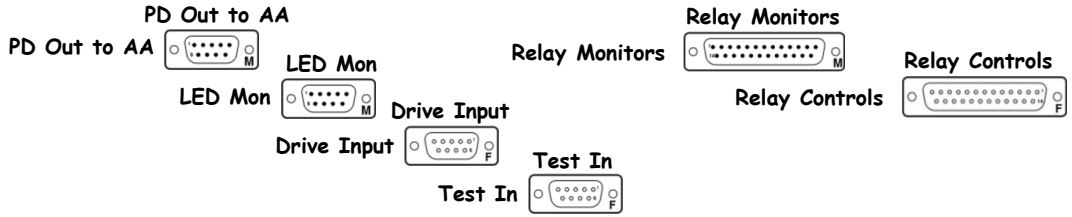
[<< L1-SUS-C7]

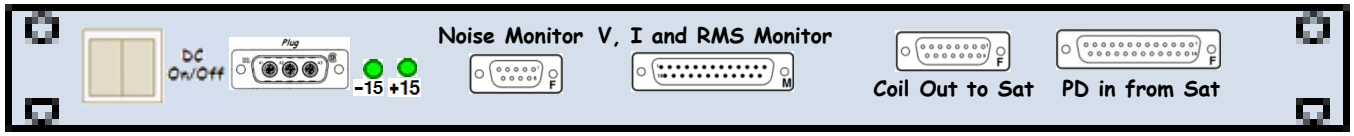
SR3 Bot Triple Acq Driver Chassis D0900006 S1001105 ±18VDC



D0900006

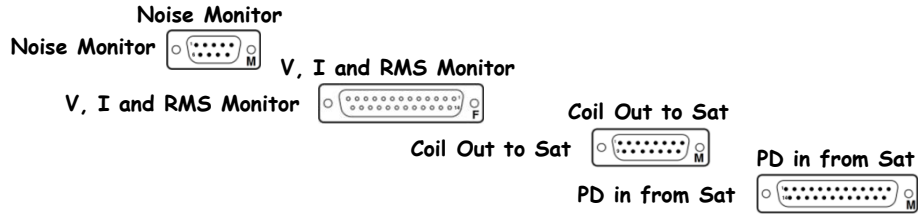
Front





S1001105

Rear

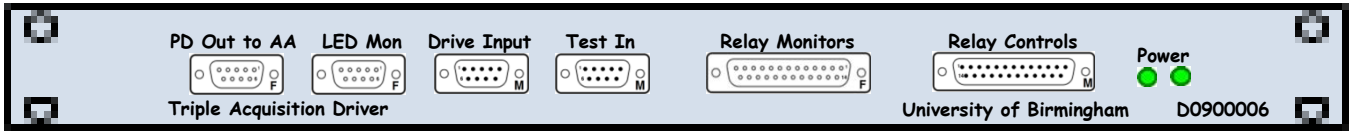


[Driver Board: D0901047]
[Monitor Board: D070480]

D0900006 - S1001189

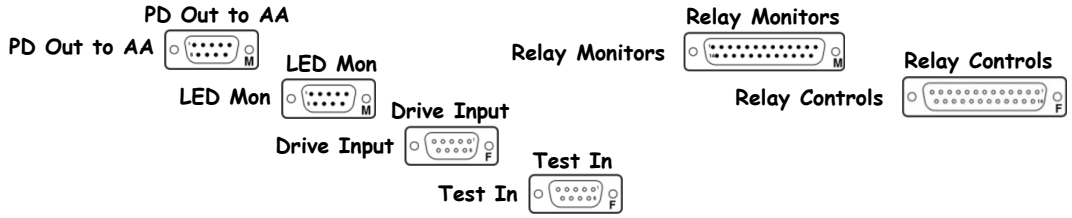
[<< L1-SUS-C7]

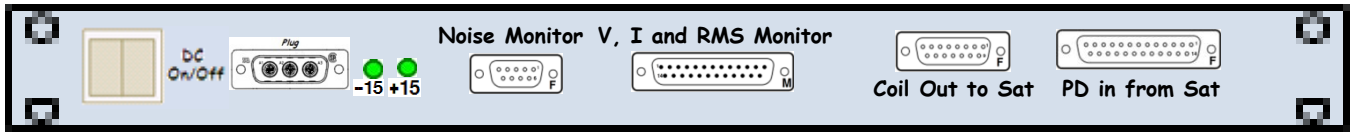
SRM Mid Triple Acq Driver Chassis [D0900006] [S1001189] ±18VDC



[D0900006]

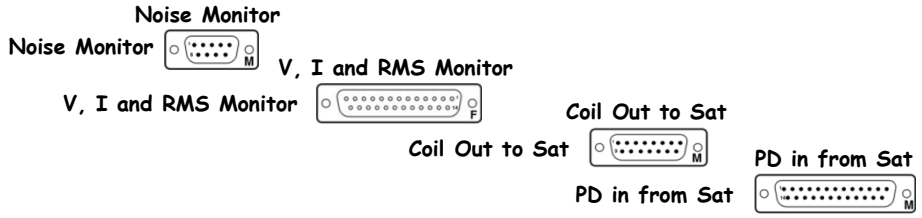
Front





[S1001189]

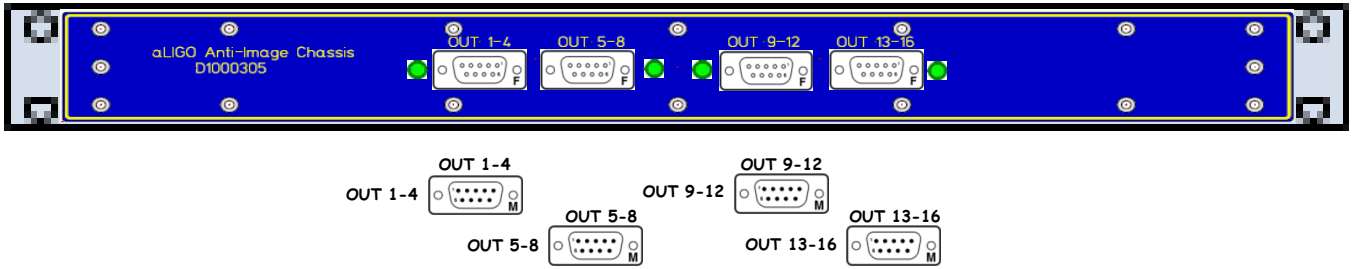
Rear



[Driver Board: D0901047]
[Monitor Board: D070480]

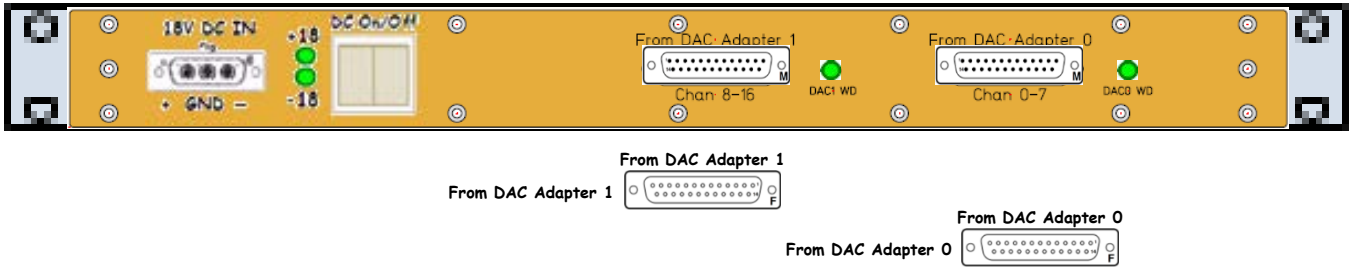
D1000305 - S1101814

FE DAC4 Anti-Image Chassis | D1000305 | S1101814 | ±18VDC



D1000305

Front



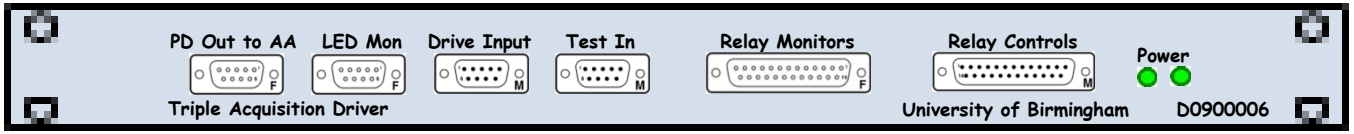
S1101814

Rear

D0900006 - S1001106

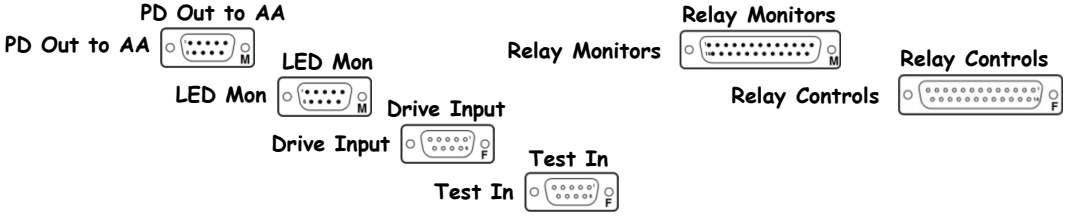
[<< L1-SUS-C7]

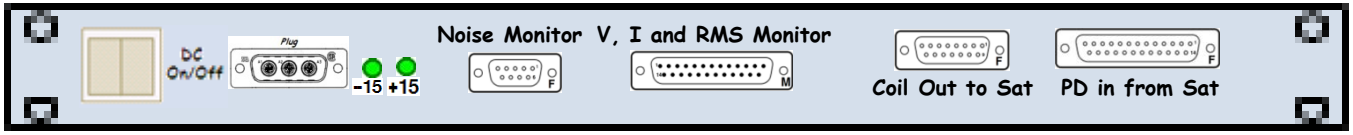
SRM Bot Triple Acq Driver Chassis [D0900006] [S1001106] ±18VDC



[D0900006]

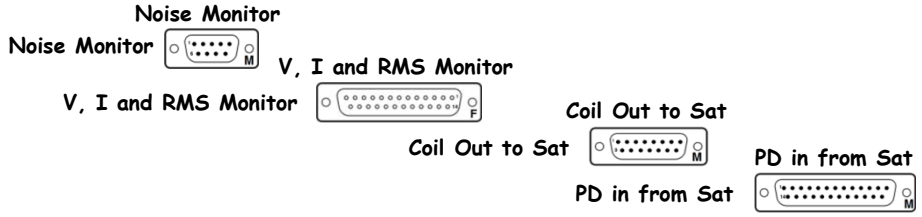
Front





[S1001106]

Rear

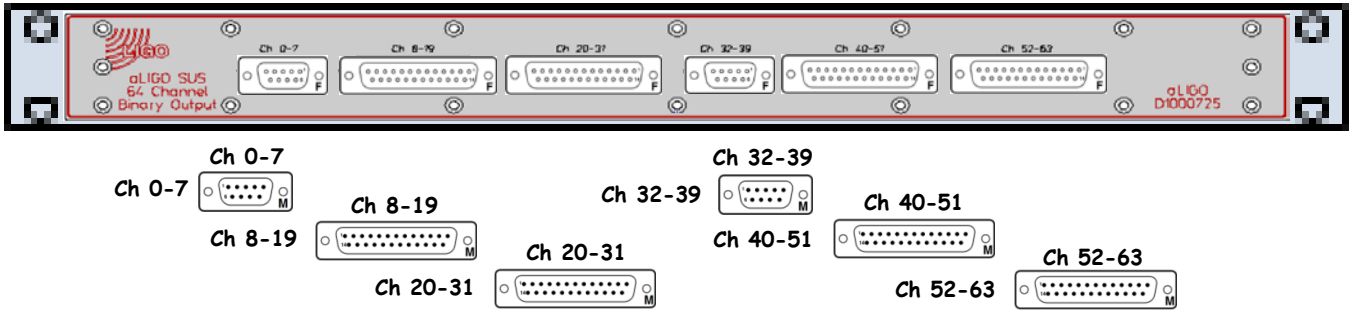


[Driver Board: D0901047]
[Monitor Board: D070480]

D1000725 - S1201244

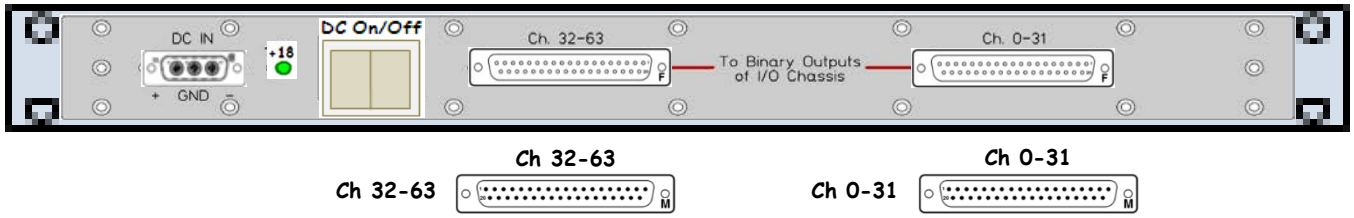
« L1-SUS-C7

Binary Output Chassis | D1000725 | S1201244 | ±18VDC



D1000725

Front



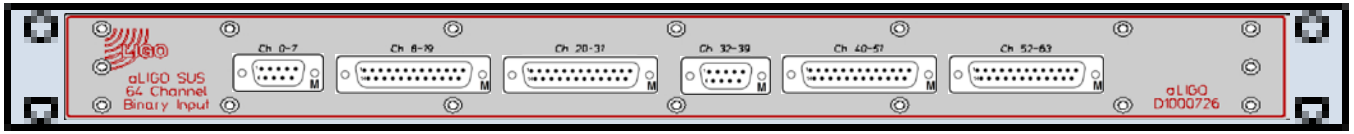
S1201244

Rear

D1000726 - S1201497

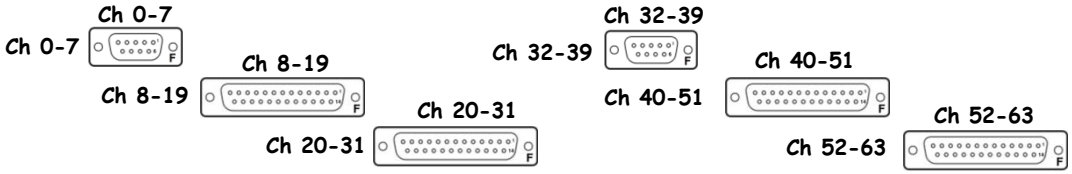
[<< L1-SUS-C7]

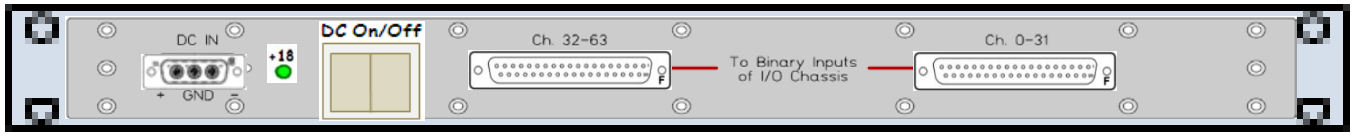
Binary Input Chassis | D1000726 | S1201497 | ±18VDC



D1000726

Front





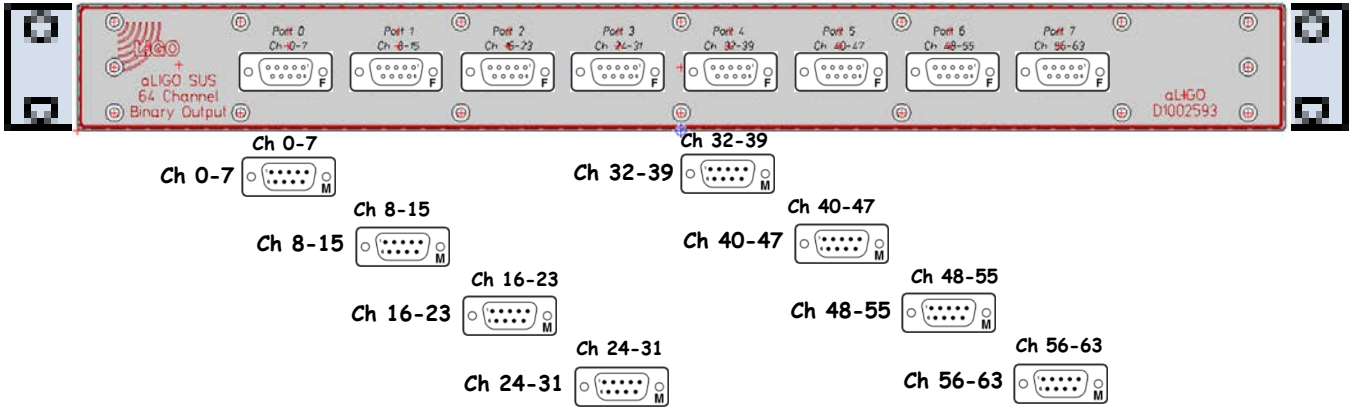
S1201497

Rear

D1002593 - S1101774

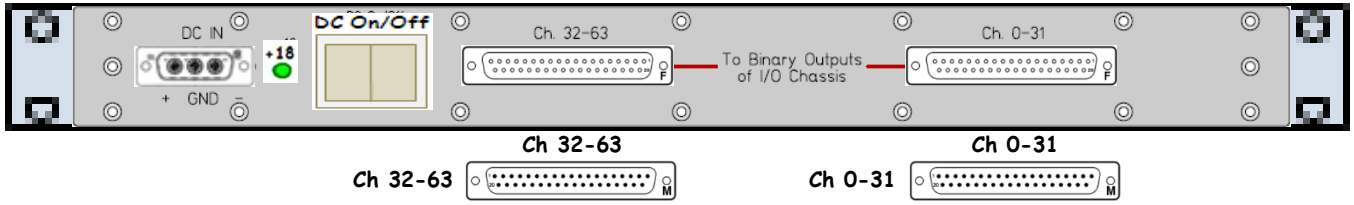
[<< L1-SUS-C7]

Binary Output Chassis (8*DB9) | D1002593 | S1101774 | ±18VDC



D1002593

Front



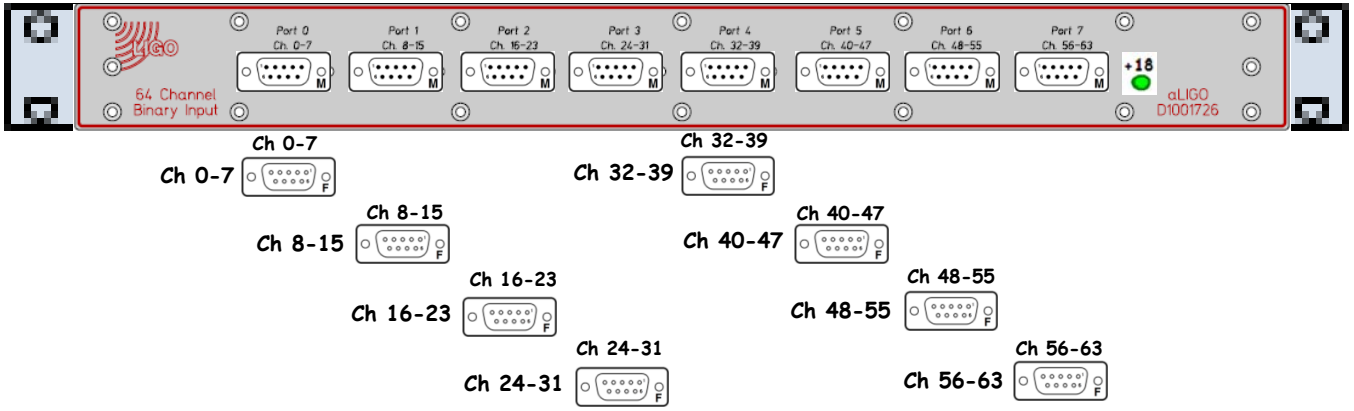
S1101774

Rear

D1001726 – S1101316

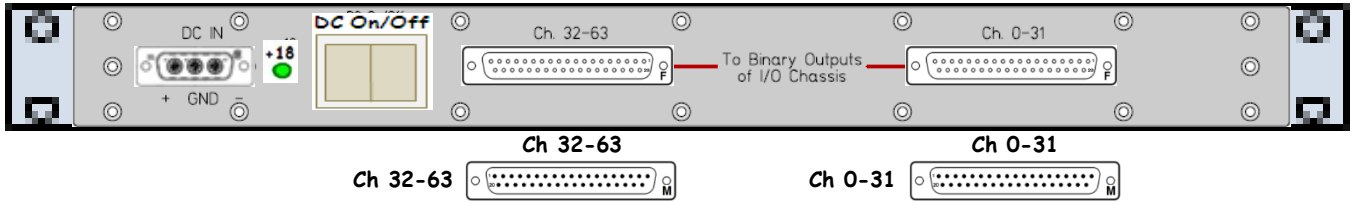
« L1-SUS-C7

Binary Input Chassis (8*DB9) | D1001726 | S1101316 | ±18VDC



D1001726

Front



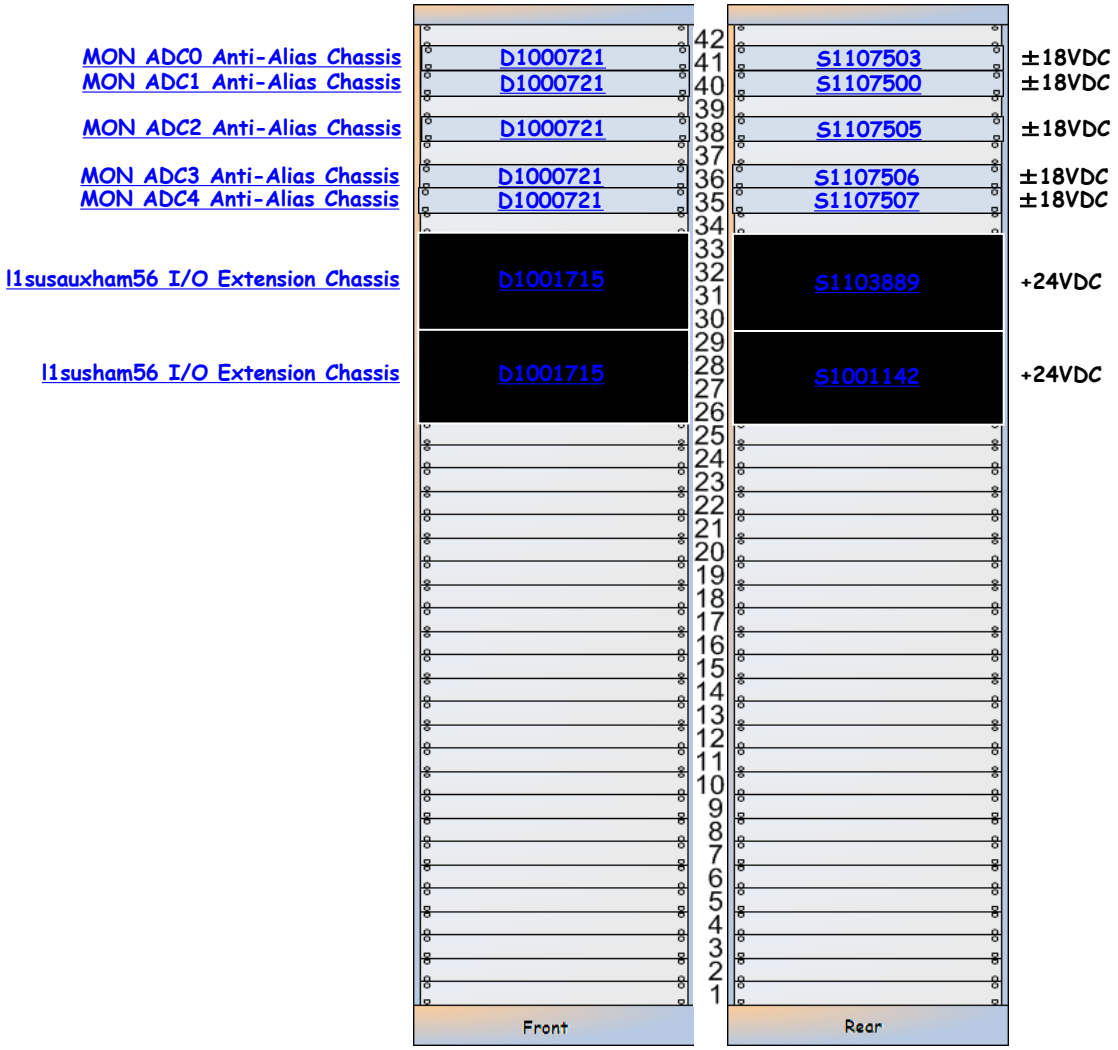
S1101316

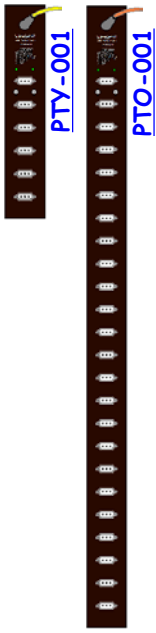
Rear

L1-SUS-C8 - S1105378

[<< CER]

SUS HAM5 and HAM6 Rack 2 (of 2) Layout (D1200877) (S1105378)





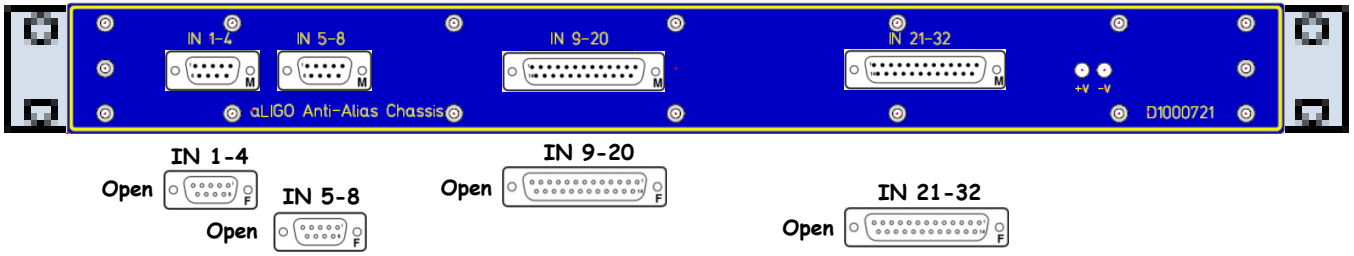
SUS-C8 is part of D1002740.

L1-SUS-C8 Details

D1000721 - S1107503

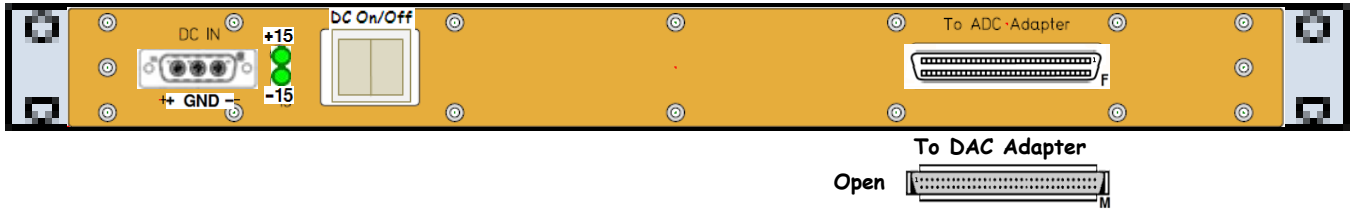
[<< L1-SUS-C8]

MON ADC0 Anti-Alias Chassis | D1000721 | S1107503 | ±18VDC



D1000721

Front



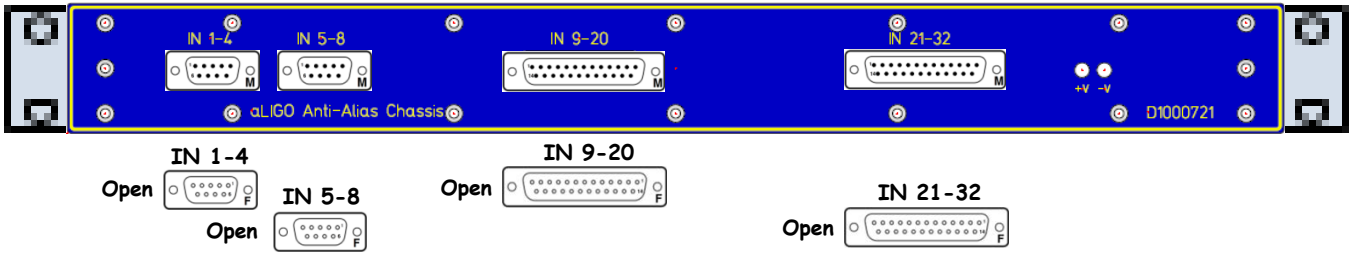
S1107503

Rear

D1000721 - S1107500

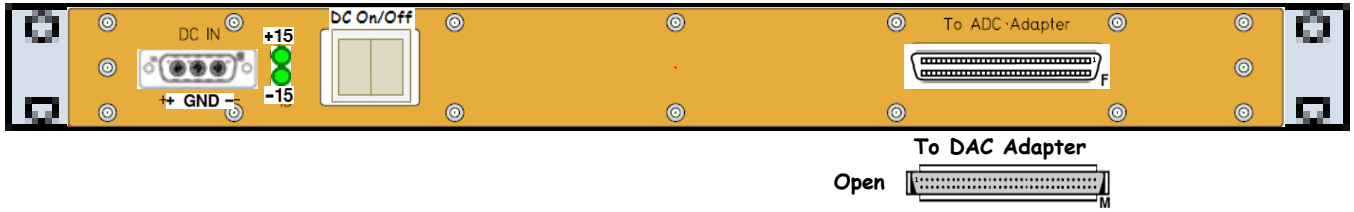
[<< L1-SUS-C8]

MON ADC1 Anti-Alias Chassis | D1000721 | S1107500 | ±18VDC



D1000721

Front



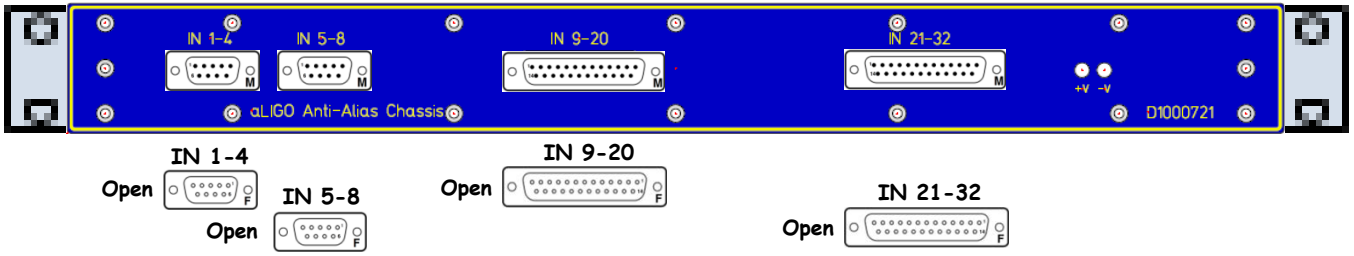
S1107500

Rear

D1000721 - S1107505

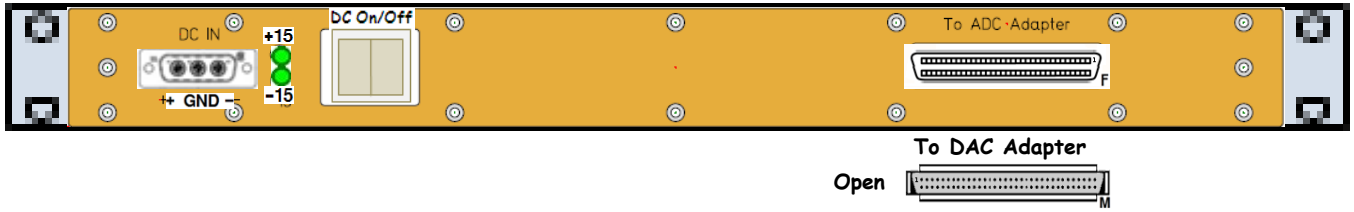
[<< L1-SUS-C8]

MON ADC2 Anti-Alias Chassis | D1000721 | S1107505 | ±18VDC



D1000721

Front



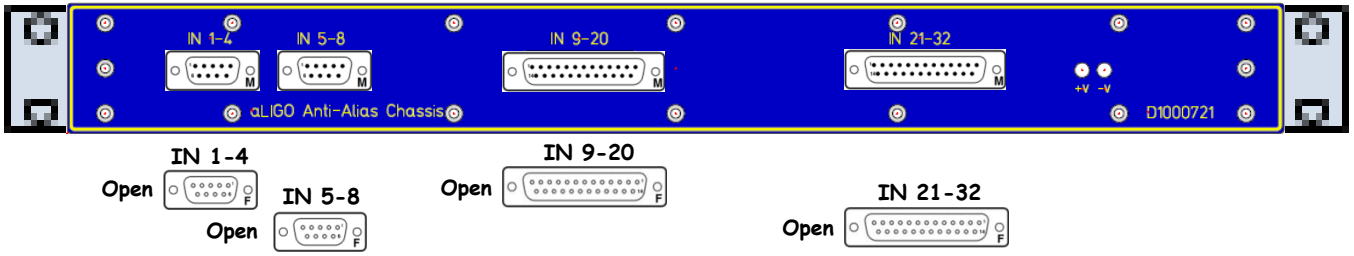
S1107505

Rear

D1000721 - S1107506

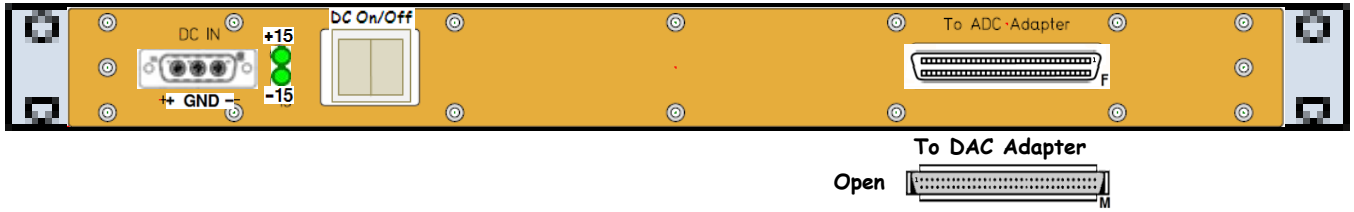
[<< L1-SUS-C8]

MON ADC3 Anti-Alias Chassis | D1000721 | S1107506 | ±18VDC



D1000721

Front



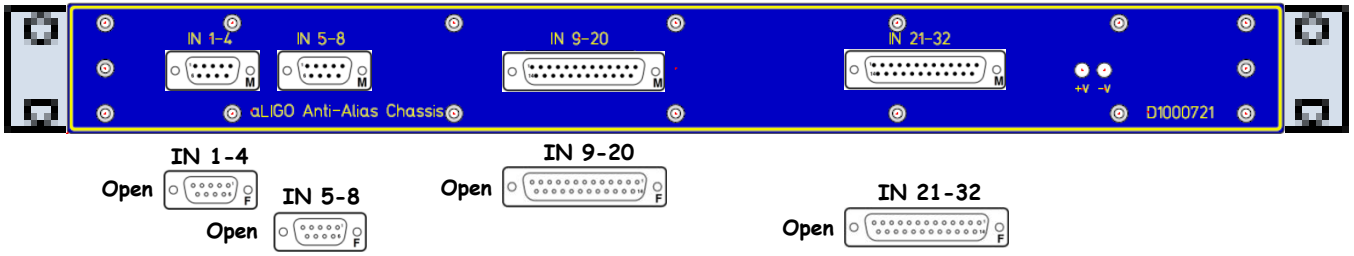
S1107506

Rear

D1000721 - S1107507

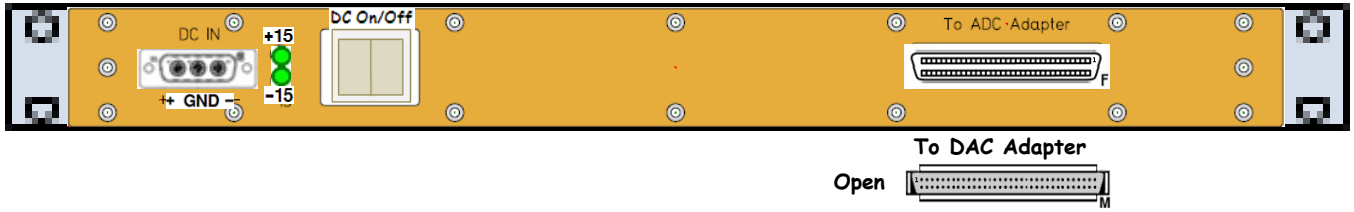
« L1-SUS-C8

MON ADC4 Anti-Alias Chassis | D1000721 | S1107507 | ±18VDC



D1000721

Front



S1107507

Rear

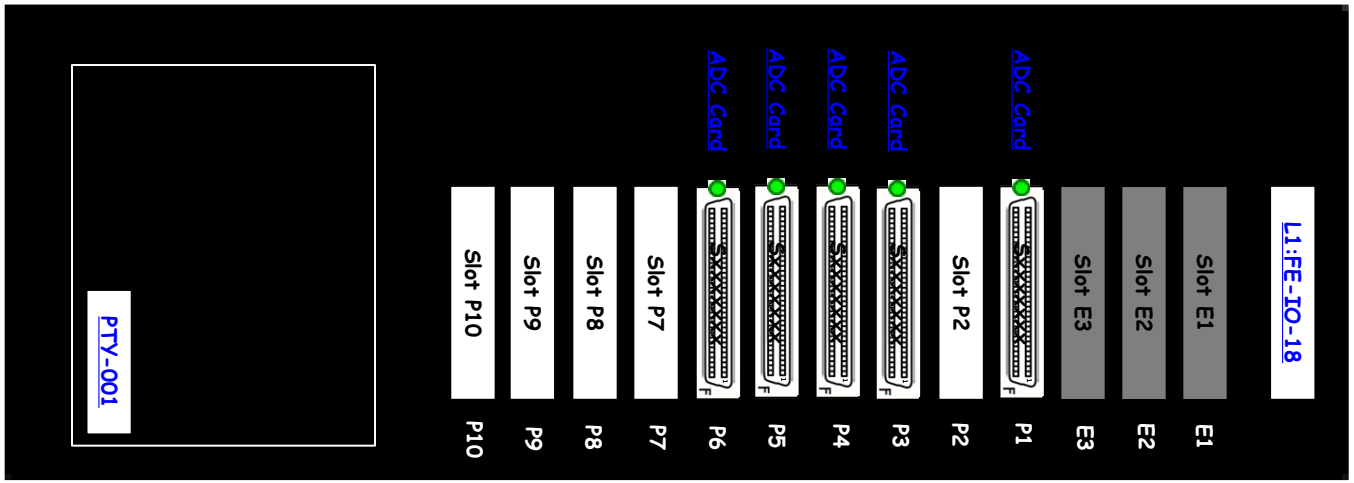
D1001715 - S1103889

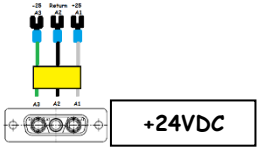
« L1-SUS-C8

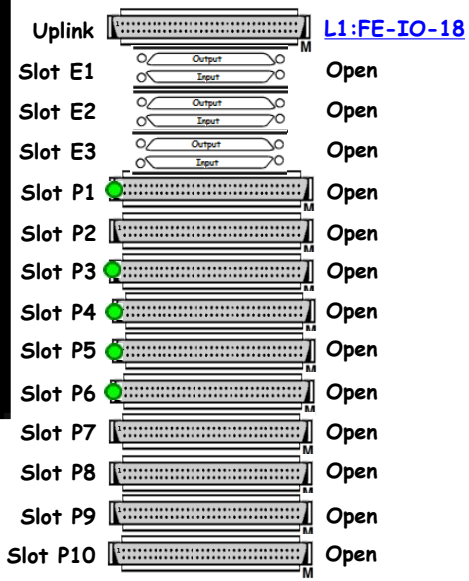
l1susauxham56 I/O Extension Chassis | D1001715 | S1103889 | +24VDC

D1001715
Front

S1103889
Rear



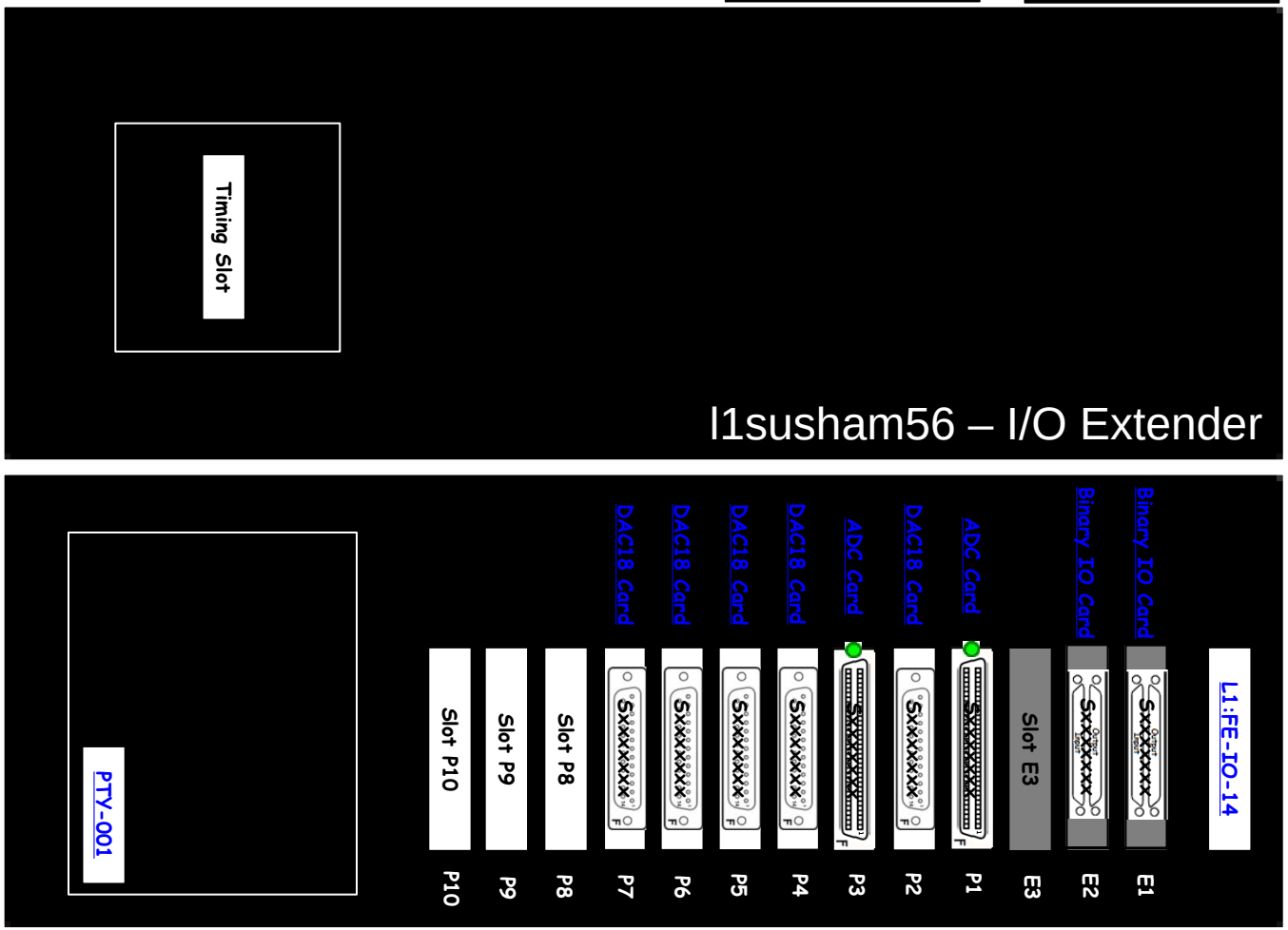




D1001715 - S1001142

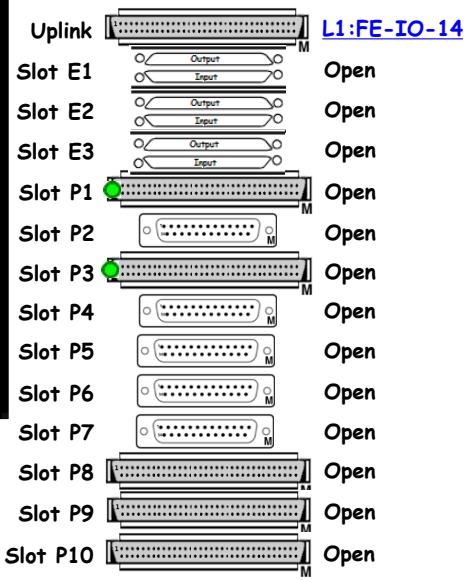
[<< L1-SUS-C8]

l1susham56 I/O Extension Chassis | D1001715 | S1001142 | +24VDC



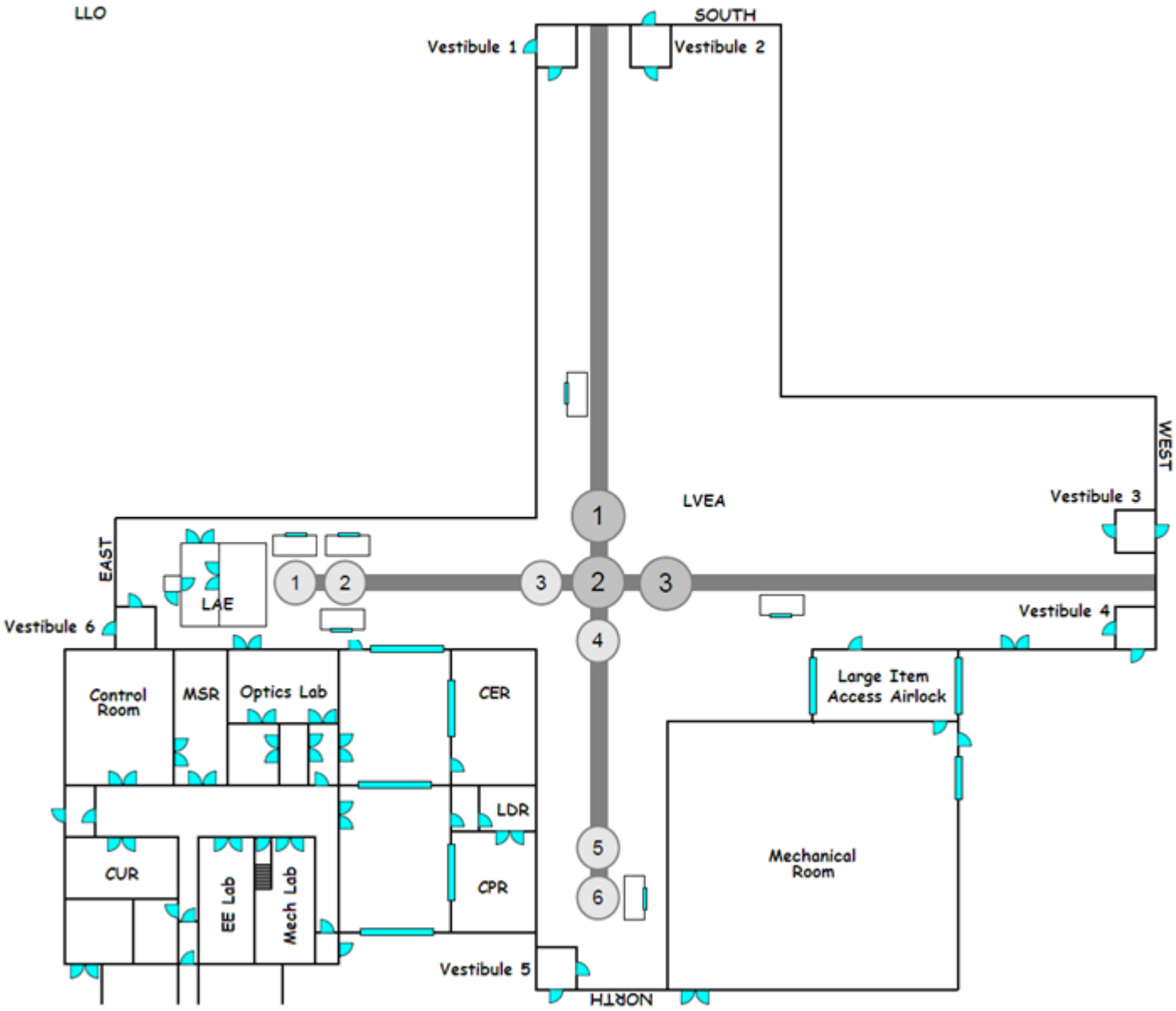
D1001715
Front

S1001142
Rear

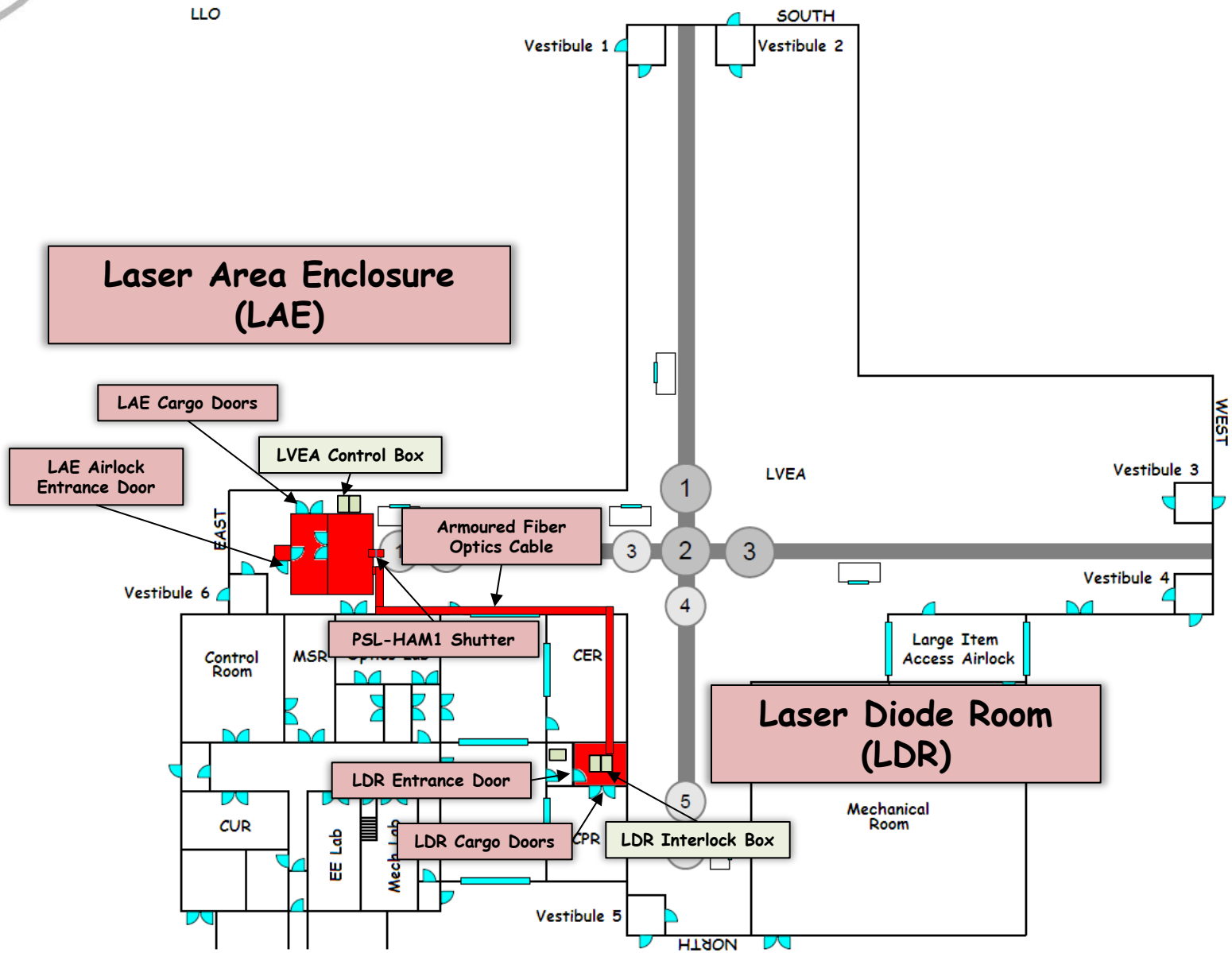


17 Field Racks are in the LVEA, including the Vacuum Racks.
See D1003141) at LLO and D1002704 at LHO.

LVEA Access Points



PSL / LDR Laser Hazard Zones

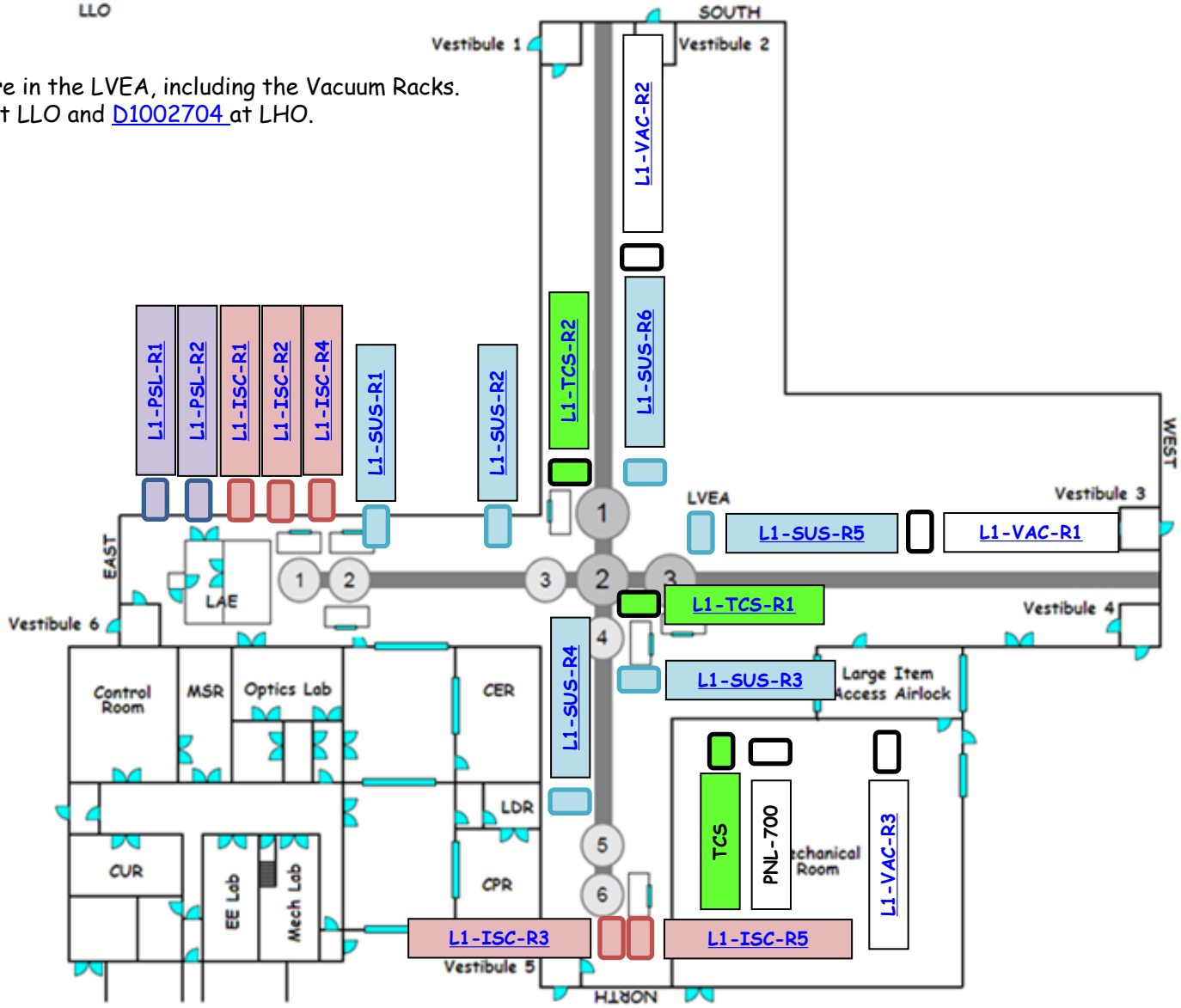


LVEA Racks

LIGO
<< LLO Corner Station

LLO

18 Field Racks are in the LVEA, including the Vacuum Racks.
See D1003141) at LLO and D1002704 at LHO.



LVEA Racks

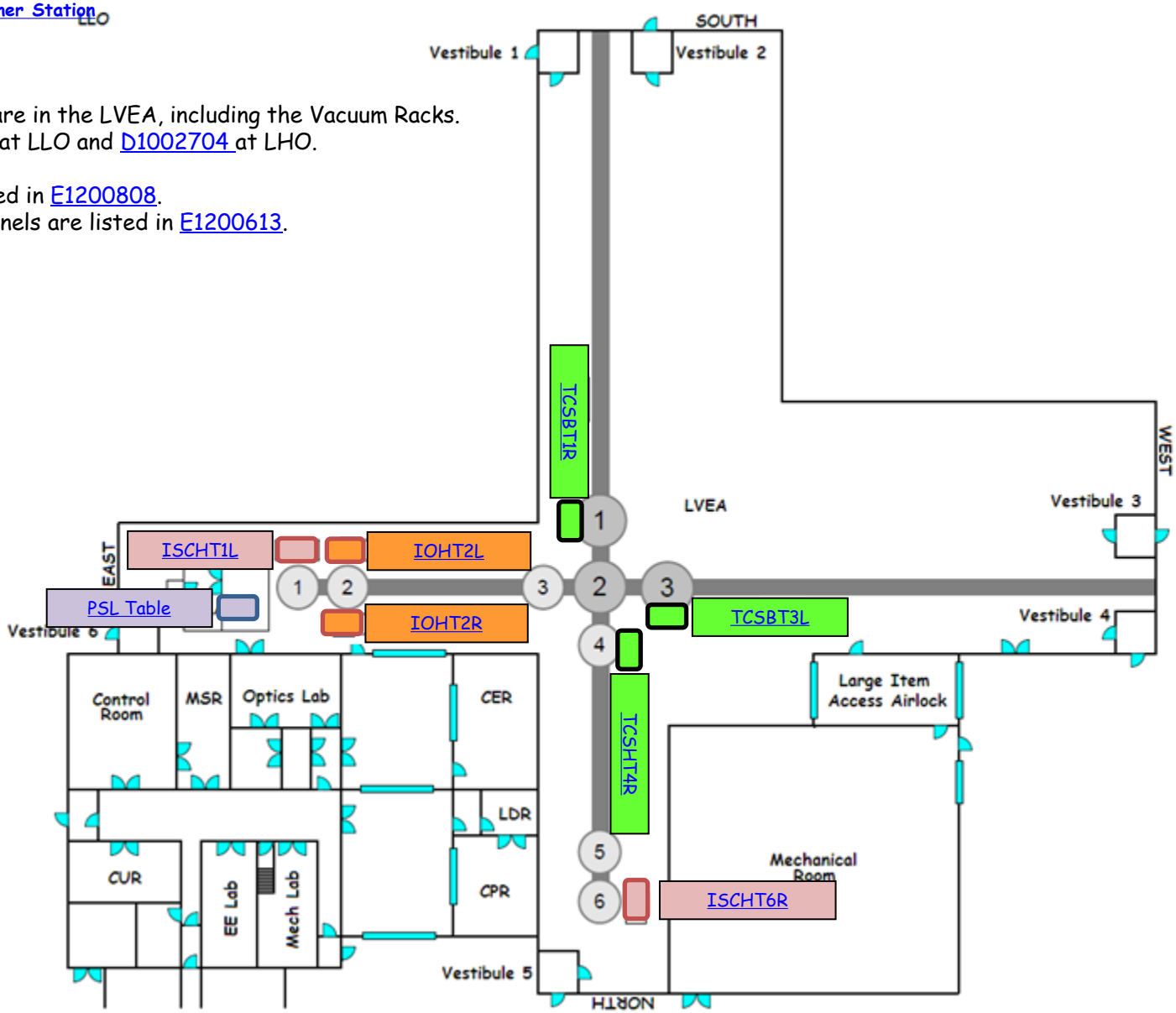
<< LLO Racks by AREA
<< LLO Racks by Subsystems

PSL Rack 1 (L1-PSL-R1)	ISC IMC/ALS Rack (L1-ISC-R1)	SUS HAM2 Rack (L1-SUS-R1)	TCS X Rack (L1-TCS-R1)	LVEA X-ARM VAC (L1-VAC-R1)
PSL Rack 2 (L1-PSL-R2)	ISC HAM1 and HAM3 Rack (L1-ISC-R2)	SUS HAM3 and BSC2 (BS) Rack (L1-SUS-R2)	TCS Y Rack (L1-TCS-R2)	LVEA Y-ARM VAC (L1-VAC-R2)
	ISC HAM6 Rack (L1-ISC-R3)	SUS HAM4 Rack (L1-SUS-R3)	TCS Chillers Rack (L1-TCS-M1)	LVEA Mech VAC (L1-VAC-R3)
	ISC HAM1 and HAM3 Racks (L1-ISC-R4)	SUS HAM5 Rack (L1-SUS-R4)		Vacuum ION PUMP Controllers (L1-PNL-600)
	ISC HAM6 Rack (L1-ISC-R5)	SUS BSC3 (ITMX and FMX) Rack (L1-SUS-R5)		
		SUS BSC1 (ITMY and FMY) Rack (L1-SUS-R6)		

LVEA Tables

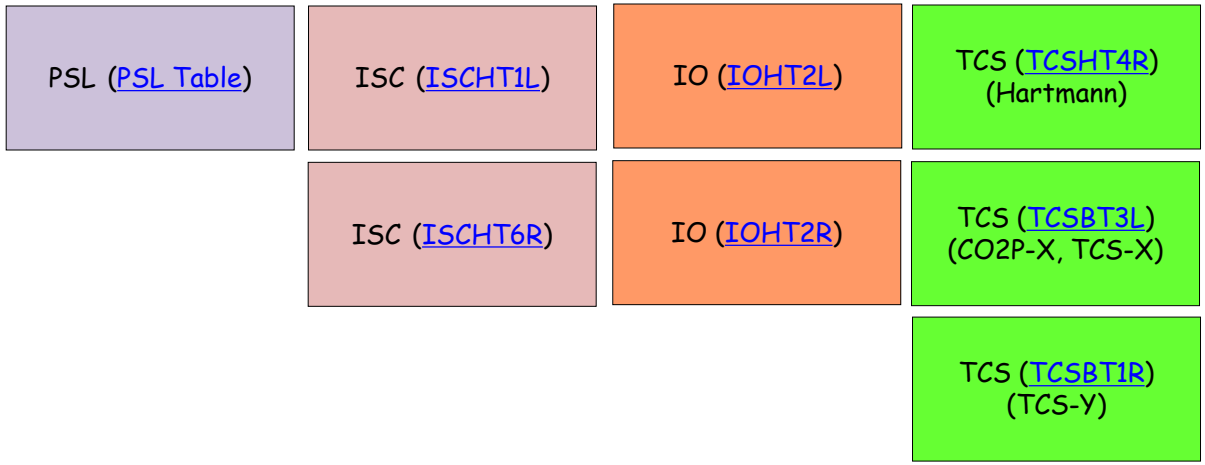
18 Field Racks are in the LVEA, including the Vacuum Racks.
See D1003141) at LLO and D1002704 at LHO.

Tables are named in E1200808.
Tables Patch Panels are listed in E1200613.



LVEA Tables

LIGO
<< LLO Racks by AREA



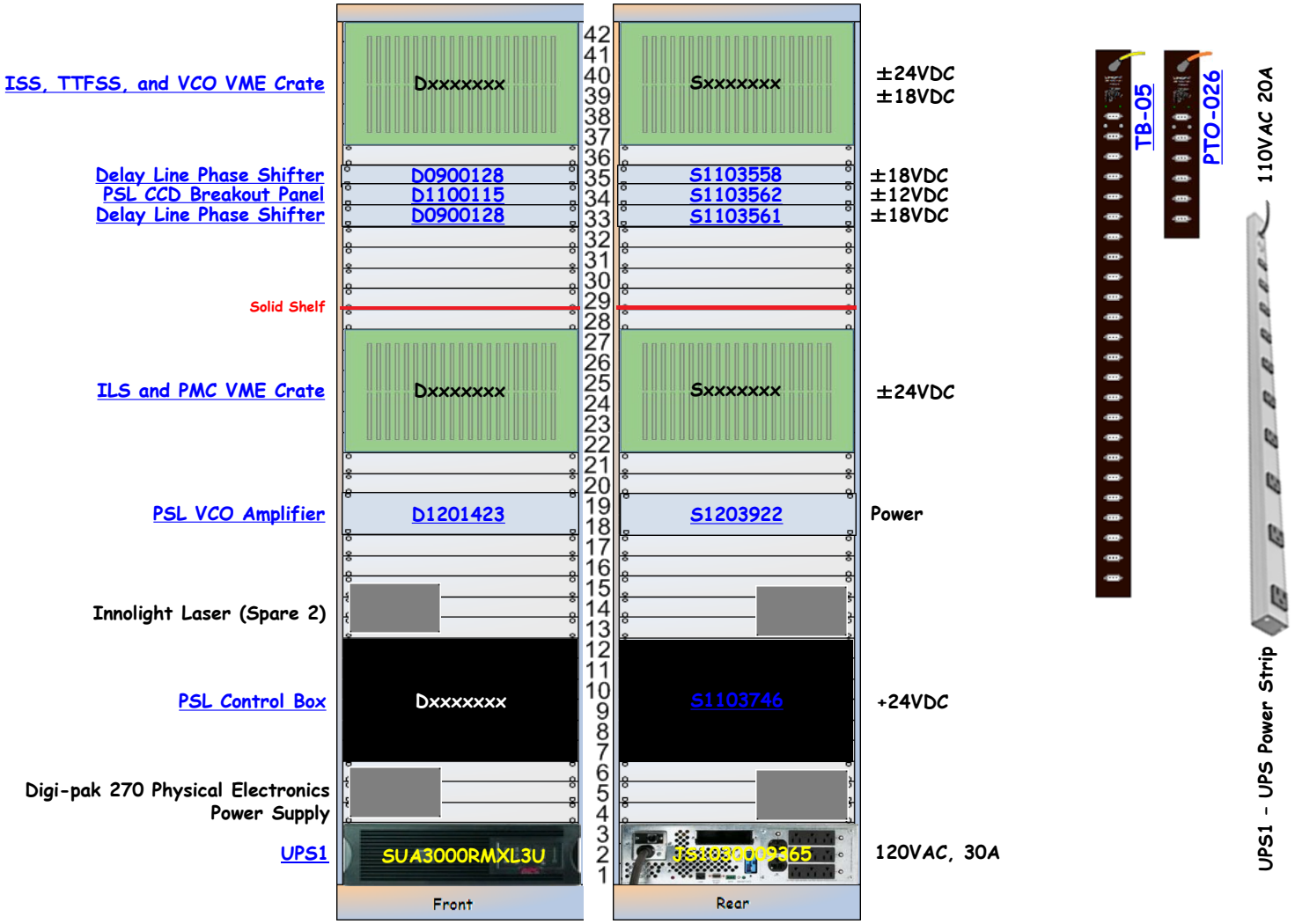
3' X 5' Table Layout (D1200973)

4' X 8' Table Layout (D1201022)

L1-PSL-R1

[<< LVEA Racks]

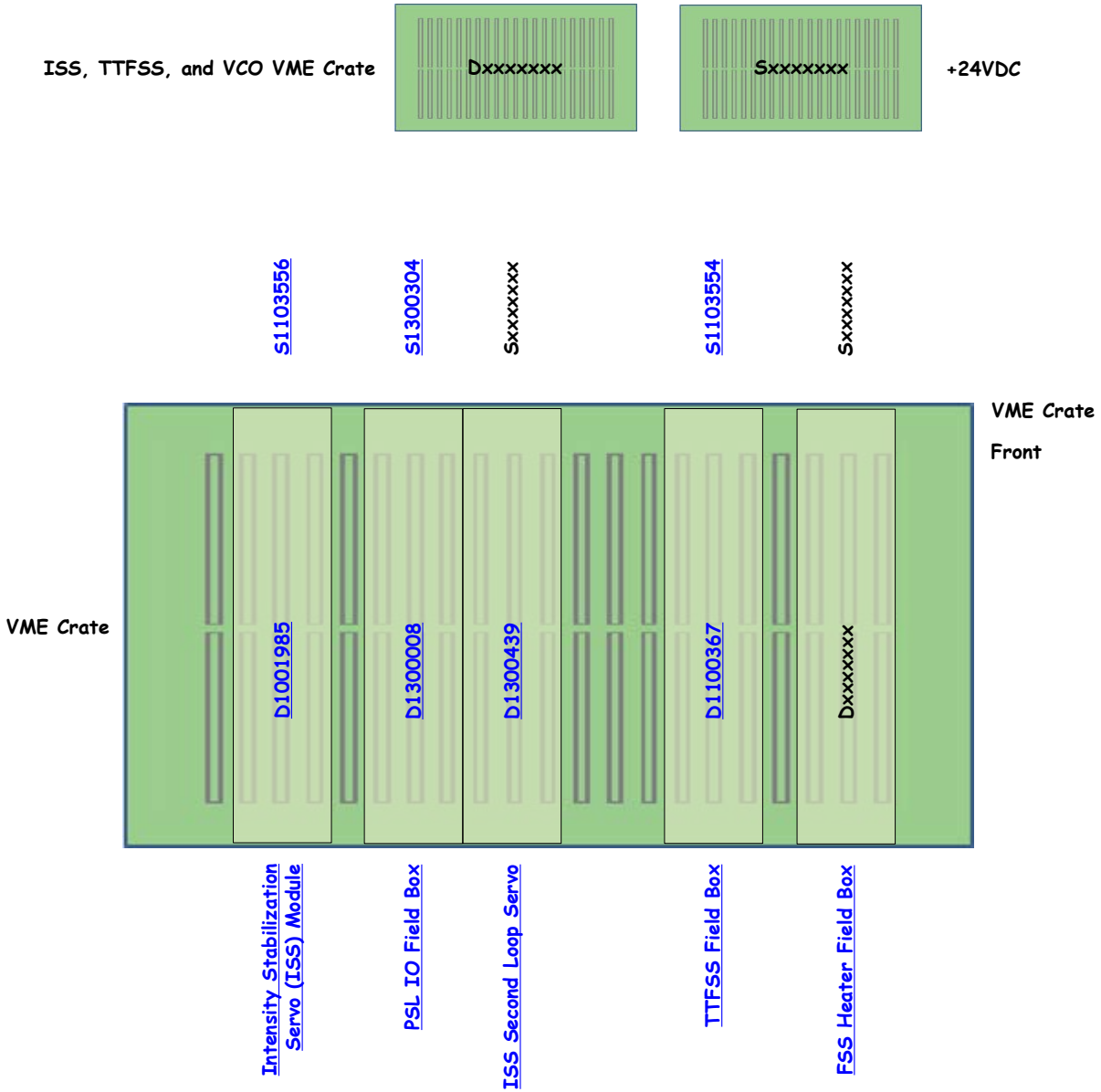
PSL Rack 1 Layout (D1201120) (S1202978)



L1-PSL-R1 Details

ISS, TTFSS, and VCO VME Crate

[<< L1-PSL-R1]



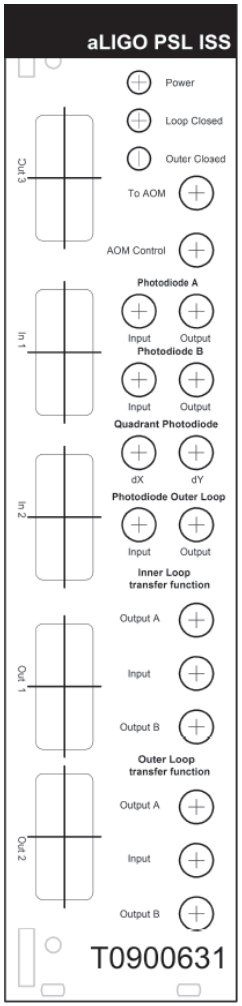
D1001985 - S1103556

[<< ISS, TTFSS, and VCO VME Crate]

Intensity Stabilization Servo (ISS) Module

D1001985

S1103556

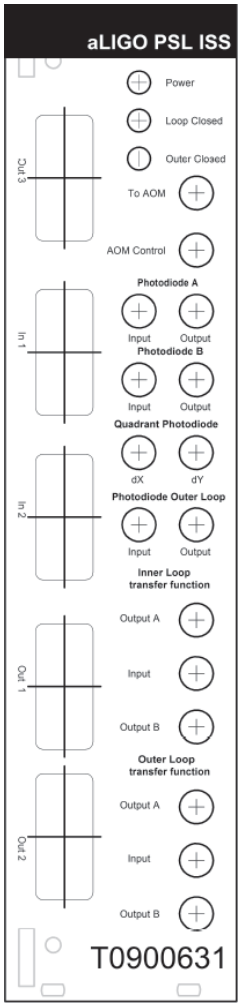


See also Txxxxxxx

D1300008 - S1300304

[<< ISS, TTFSS, and VCO VME Crate]

PSL IO Field Box | D1300008 | S1300304

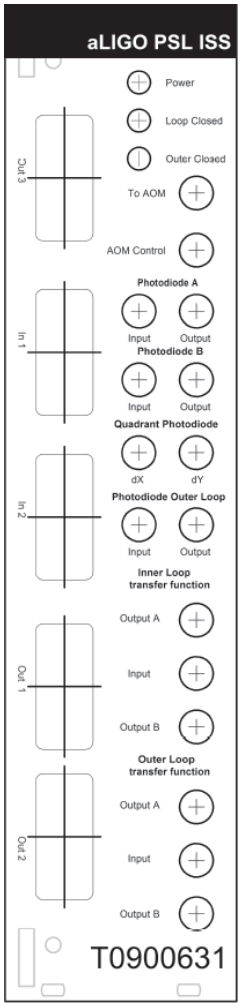


See also Txxxxxxx

D1300439 - Sxxxxxxx

[<< ISS, TTFSS, and VCO VME Crate]

ISS Second Loop Servo | D1300439 | **Sxxxxxxx**

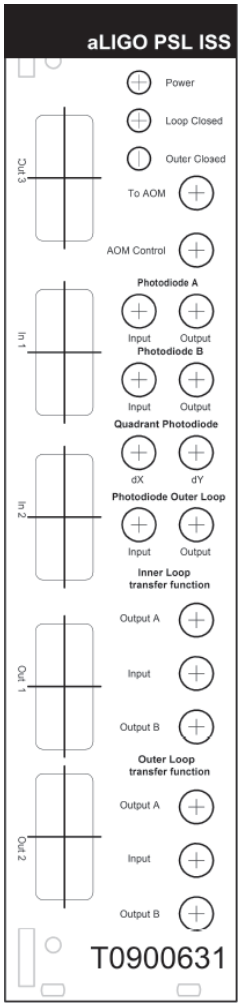


See also Txxxxxxx

D1100367 - S1103554

[<< ISS, TTFSS, and VCO VME Crate]

TTFSS Field Box | D1100367 | S1103554

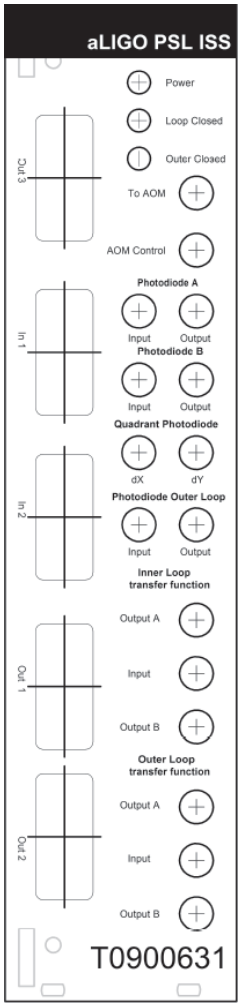


See also Txxxxxxx

Dxxxxxxx - Sxxxxxxx

[<< ISS, TTFSS, and VCO VME Crate]

FSS Heater Field Box | Dxxxxxxx | Sxxxxxxx

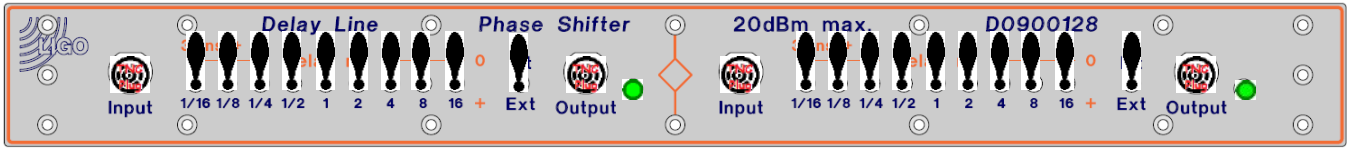


See also Txxxxxxx

D0900128 - S1103558

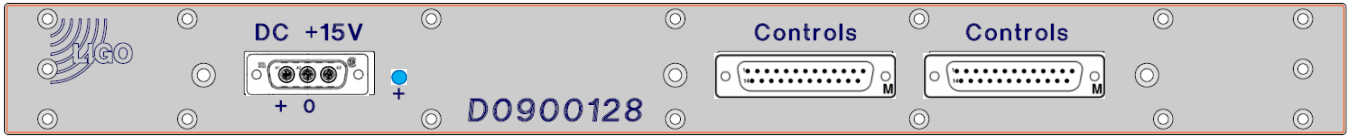
[<< L1-PSL-R1]

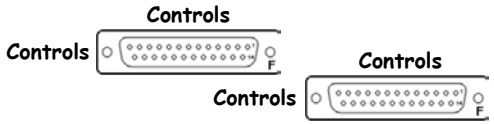
Delay Line Phase Shifter | D0900128 | S1103558 | +15VDC



D0900128

Front





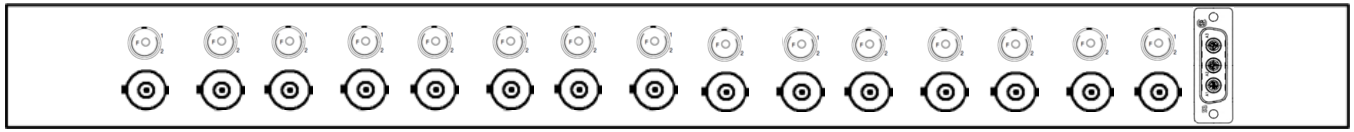
S1103558

Rear

D1100115 - S1103562

« L1-PSL-R1

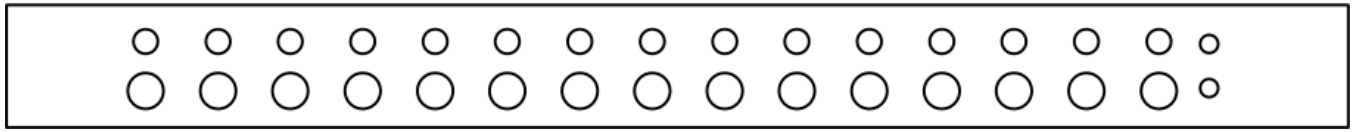
PSL CCD Breakout Panel | D1100115 | S1103562 | ±12VDC



D1100115

Front

±12VDC



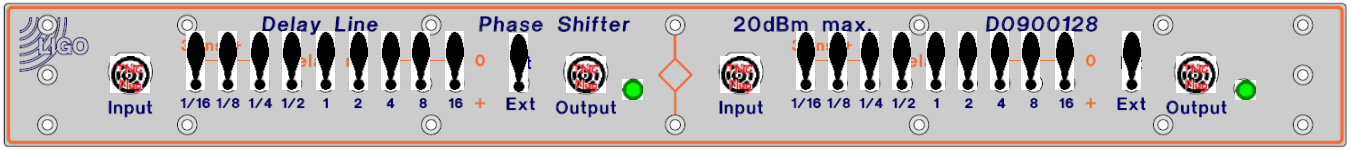
S1103562

Rear

D0900128 - S1103561

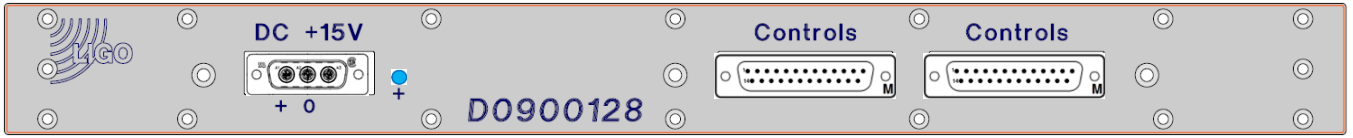
[<< L1-PSL-R1]

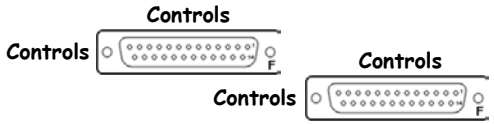
Delay Line Phase Shifter | D0900128 | S1103561 | +15VDC



D0900128

Front



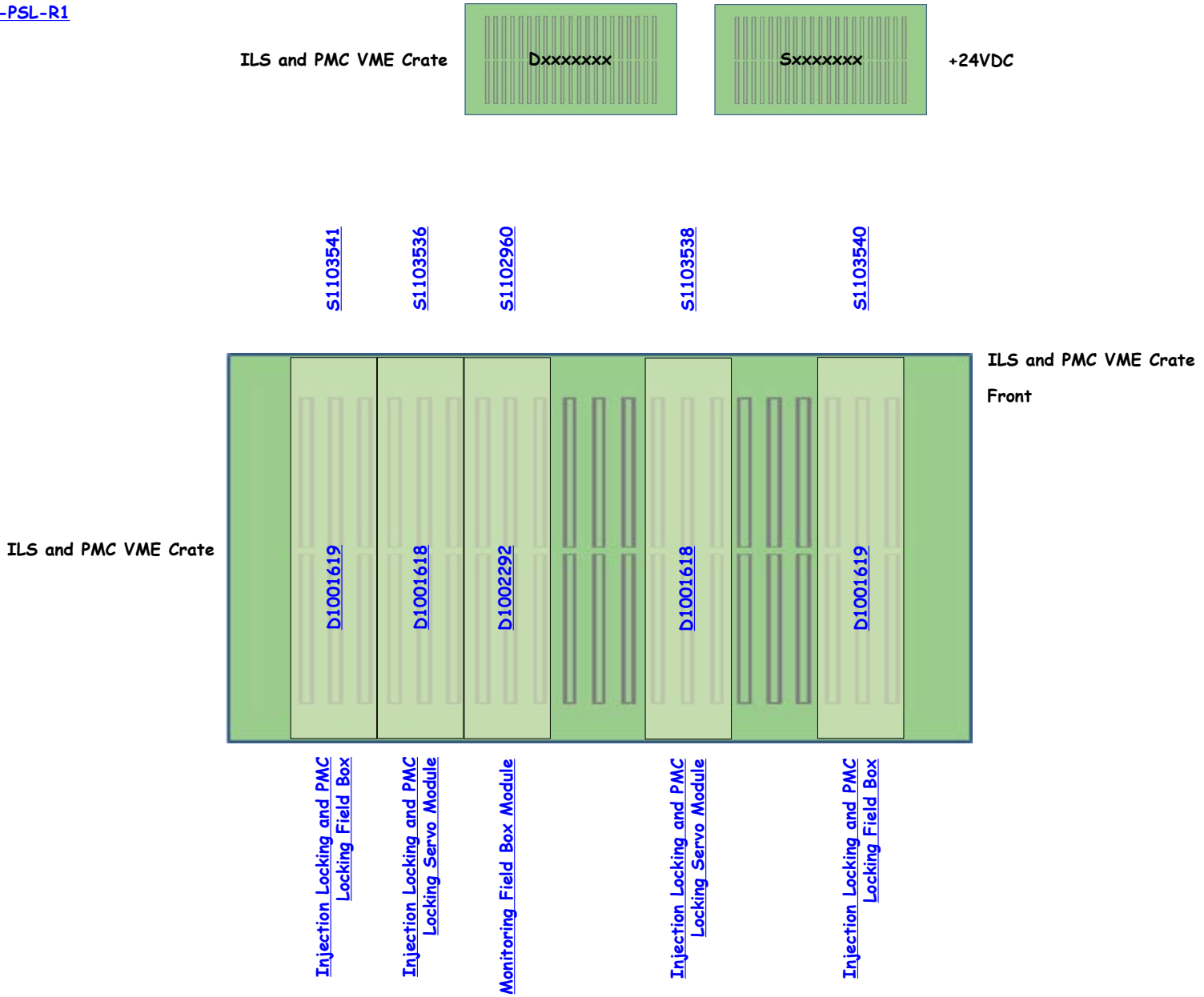


S1103561

Rear

ILS and PMC VME Crate

[<< L1-PSL-R1]



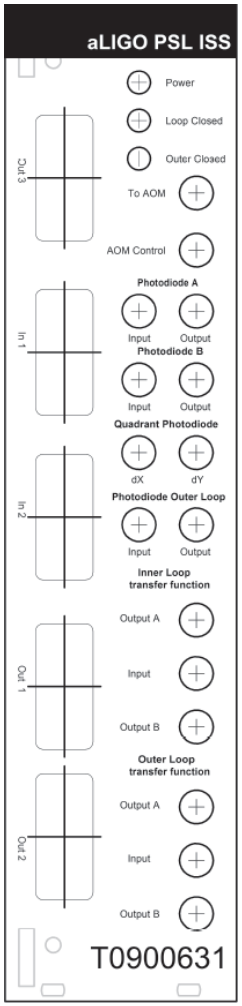
D1001619 - S1103541

[<< ILS and PMC VME Crate]

Injection Locking and PMC Locking Field Box

D1001619

S1103541



See also Txxxxxxx

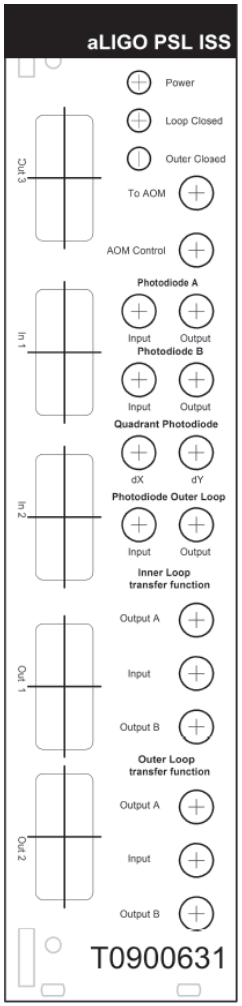
D1001618 - S1103536

[<< ILS and PMC VME Crate]

Injection Locking and PMC Locking Servo Module

D1001618

S1103536



See also Txxxxxxx

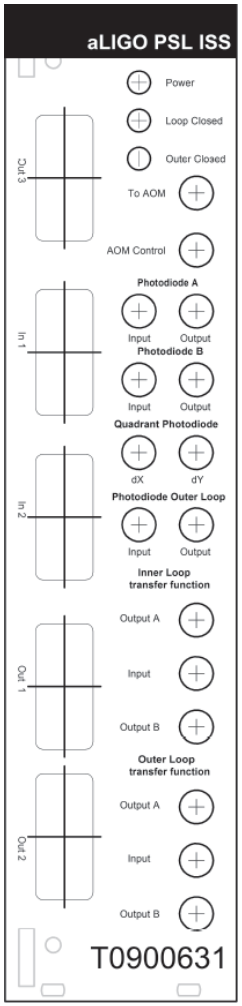
D1002292 - S1102960

[<< ILS and PMC VME Crate]

Injection Locking and PMC Locking Servo Module

D1002292

S1102960



See also Txxxxxxx

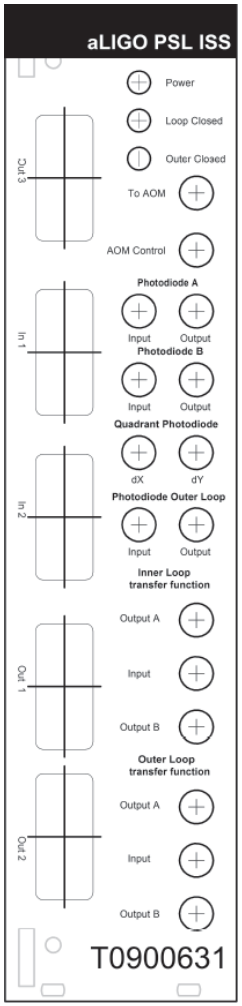
D1001618 - S1103538

[<< ILS and PMC VME Crate]

Injection Locking and PMC Locking Servo Module

D1001618

S1103538



See also Txxxxxxx

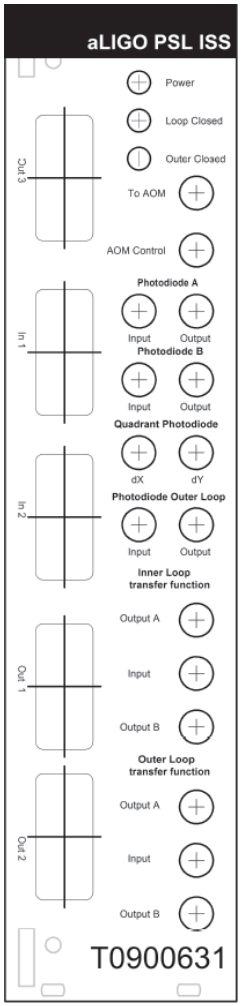
D1001619 - S1103540

[<< ILS and PMC VME Crate]

Injection Locking and PMC Locking Field Box

D1001619

S1103540

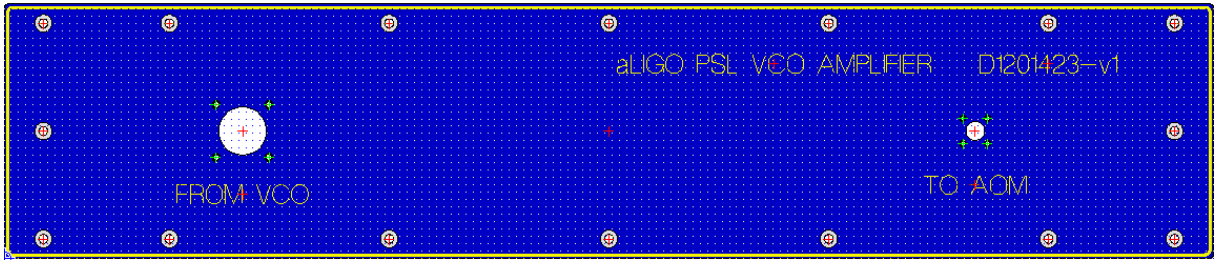


See also Txxxxxxx

D1201423 - S1203922

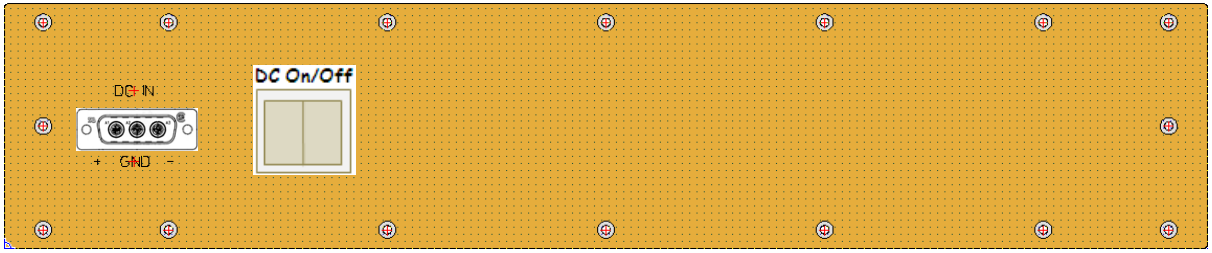
[<< L1-PSL-R1]

PSL VCO Amplifier | D1201423 | S1203922 | Power



D1201423

Front



S1203922

Rear

Dxxxxxx - S1103746

« L1-PSL-R1

PSL Control Box [redacted] S1103746 +24VDC

PSL Control Box

S1103746

Front

SUA3000RMXL3U – JS1030009365 UPS

[<< L1-PSL-R1]

UPS1

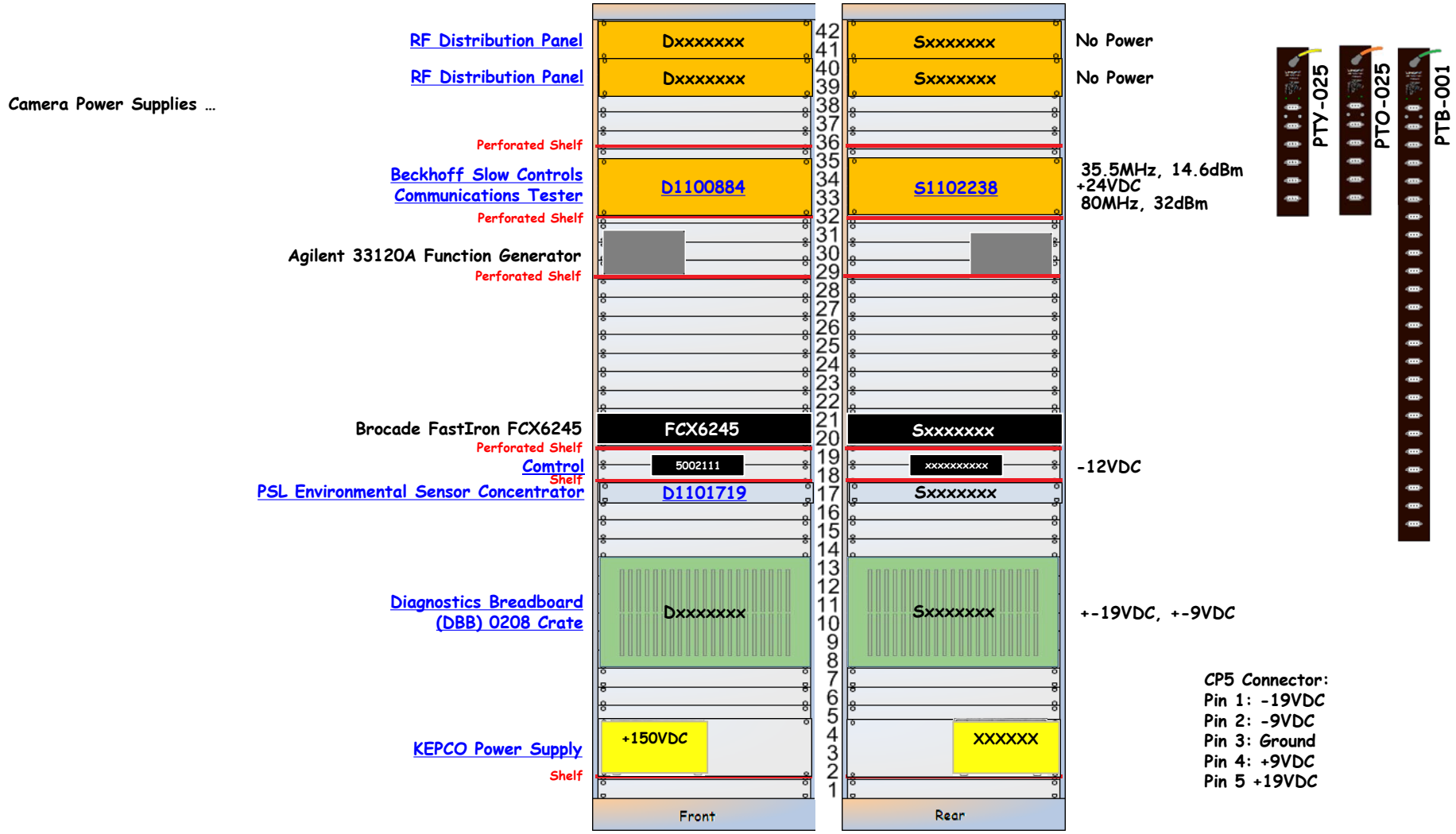
120VAC, 30A

NEMA L5-30P

L1-PSL-R2

[<< LVEA Racks]

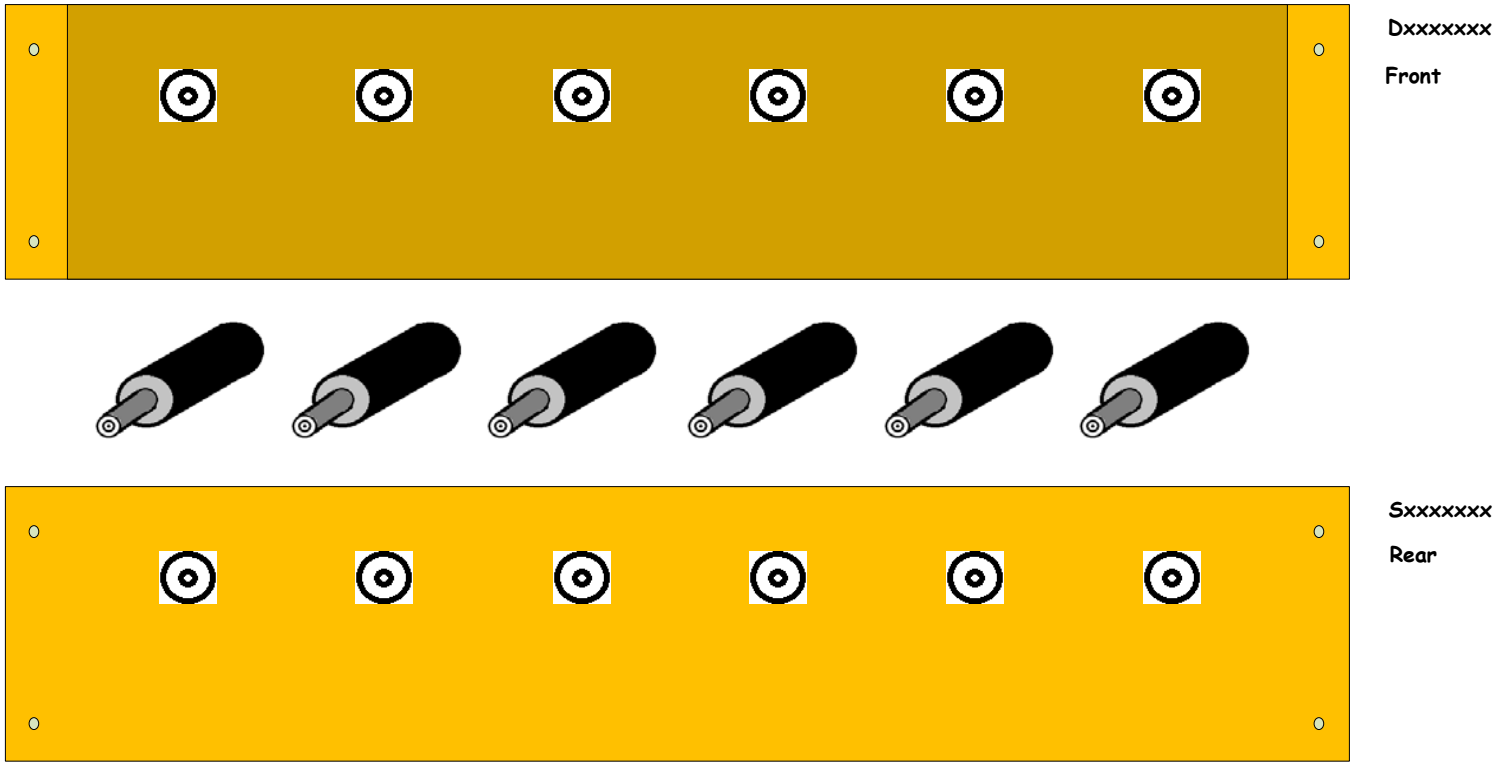
PSL Rack 2 Layout (D1201121) (S1202979)



RF Distribution Panel

LIGO
<< L1-PSL-R2

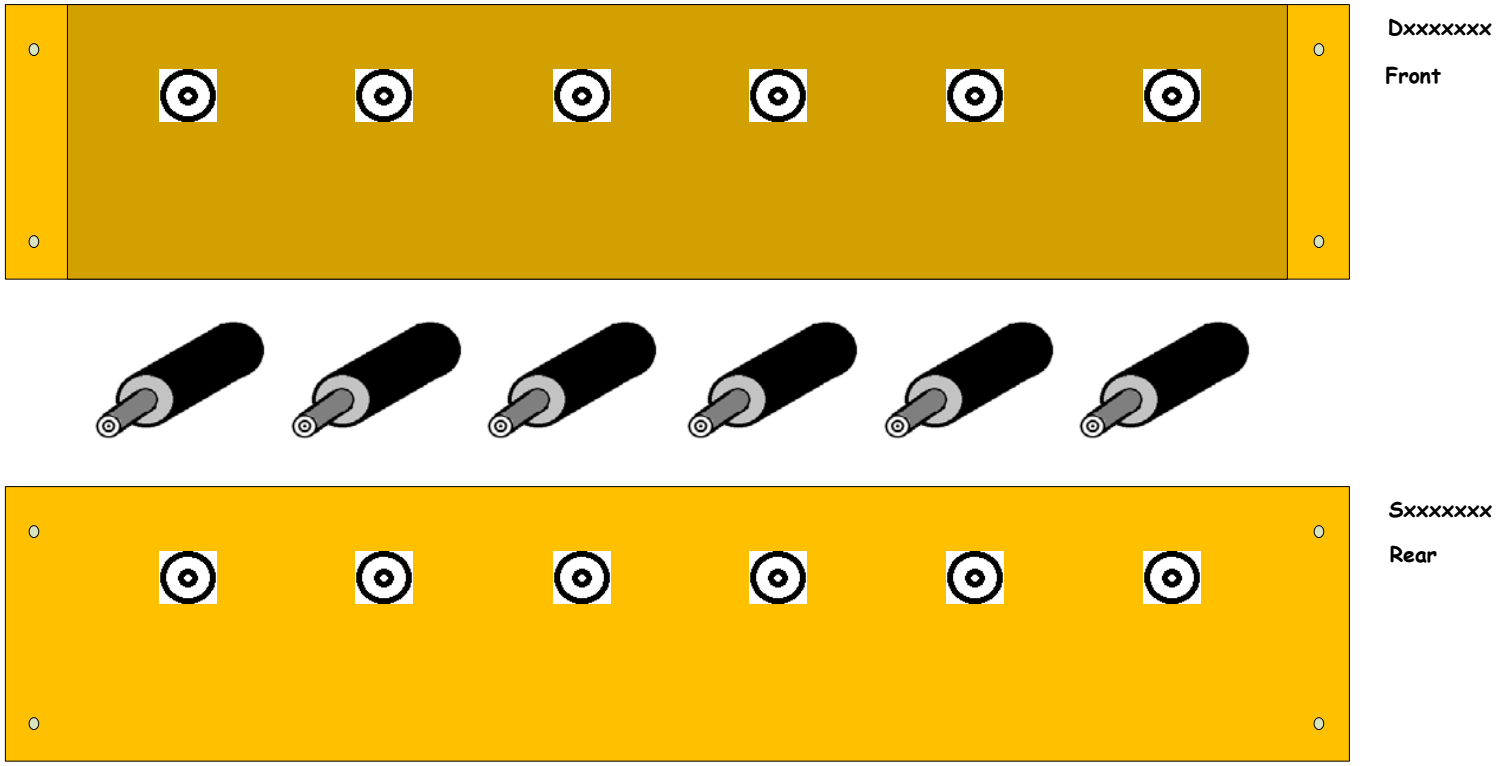
RF Distribution Panel | Dxxxxxxx | Sxxxxxxx | No Power



RF Distribution Panel

LIGO
<< L1-PSL-R2

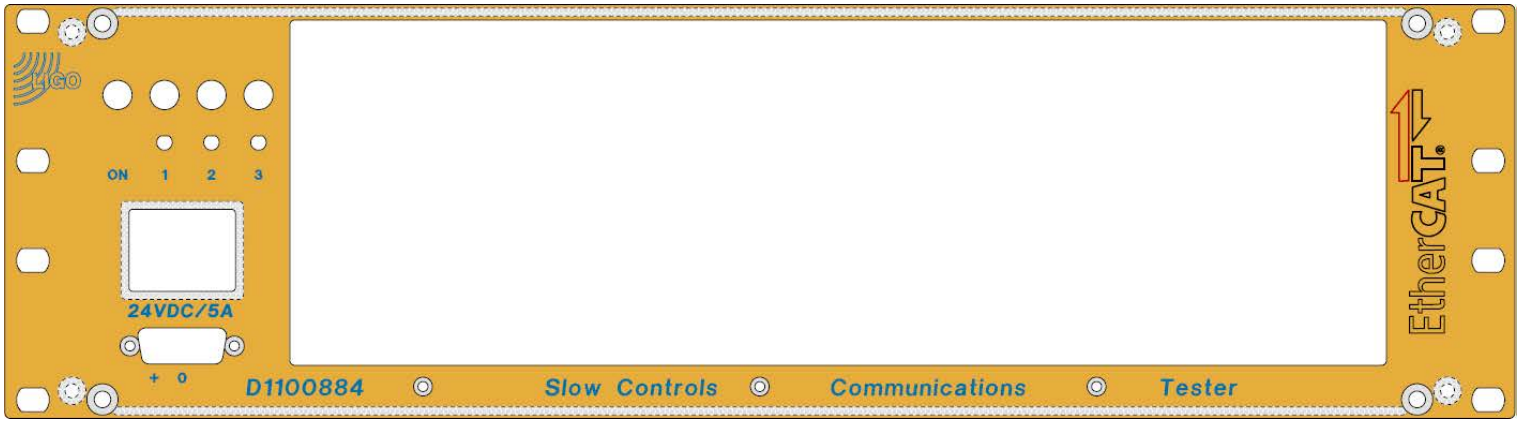
RF Distribution Panel | Dxxxxxxx | Sxxxxxxx | No Power



D2200884 - S1102238

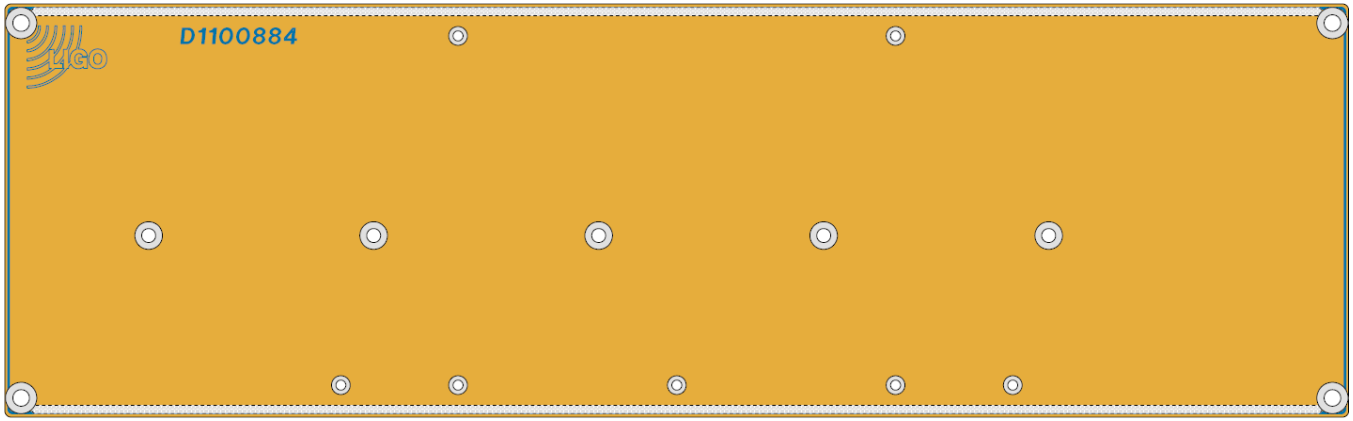
[<< L1-PSL-R2]

Beckhoff Slow Controls Communications Tester | [D1100884] | [S1102238] | +24VDC



[D1100884]

[Front: D1100890]



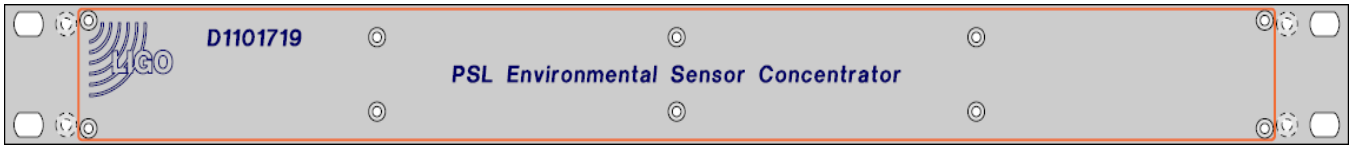
[S1102238]

[Rear: D1100891]

D1101719 - Sxxxxxxx

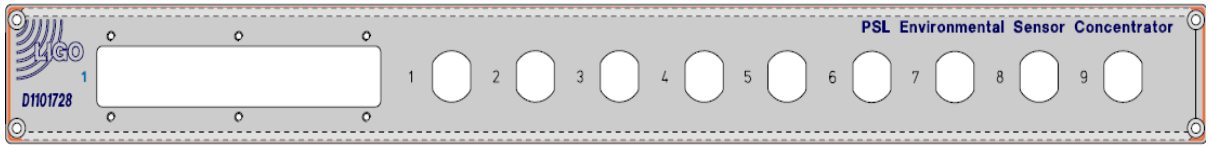
[<< L1-PSL-R2]

PSL Environmental Sensor Concentrator | D1101719 | Sxxxxxxx | ±18VDC



D1101719

Front



Sxxxxxxx

Rear (D1101728)

L1-PSL-R2 – Comtrol Interface

[<< L1-PSL-R2]

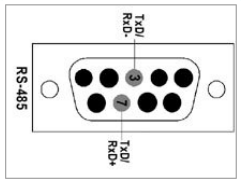
Comtrol | 5002111 | xxxxxxxxxx | -12VDC

[Comtrol DeviceMaster 4 with DB9 Ports]

MAC Address:
00-C0-4E-07-3F-5D

IP Address:
10/110.60.??

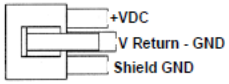
DeviceMaster 4 with DB9 ports



4-Port Power Supply

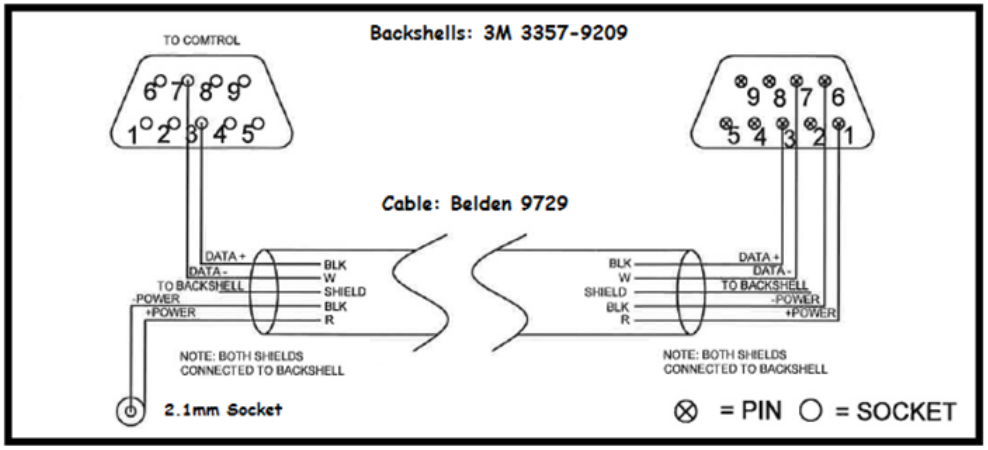
This table provides the specifications for the power supply shipped with the DeviceMaster 4-port.

Comtrol Power Supply: 4-Port	
Input line frequency	47 - 63 Hz
Input line voltage	90 - 260 VAC
Output voltage	24VDC
Output current	500 mA @ 24VDC



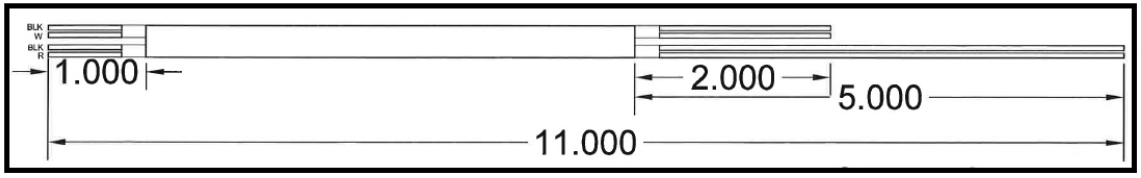
Housing Molex P/N:
39-01-4030
Pins Molex P/N:
44485-1211

3M Shell 3357-9209



3M Shell 3357-9209

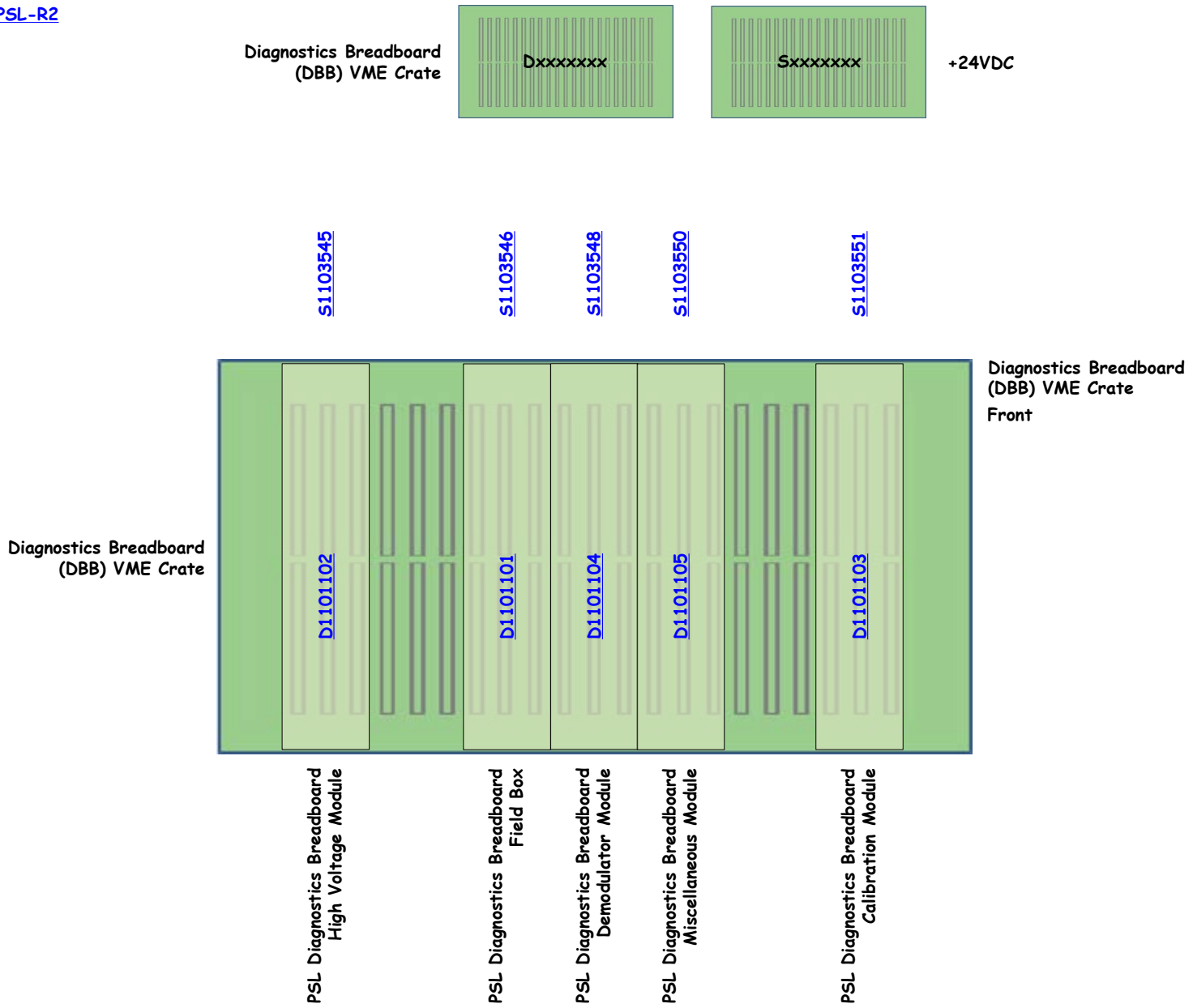
2.1mm Socket
(Note polarity)



2.1mm Plug
(Note polarity)

Diagnostics Breadboard (DBB) 0208 Crate

LIGO
<< L1-PSL-R2



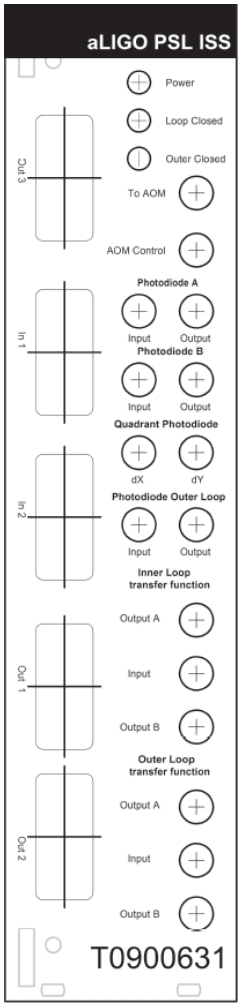
D1101102 – S1103545

[<< Diagnostics Breadboard (DBB) VME Crate]

PSL Diagnostics Breadboard
High Voltage Module

D1101102

S1103545



[See also T0900631]

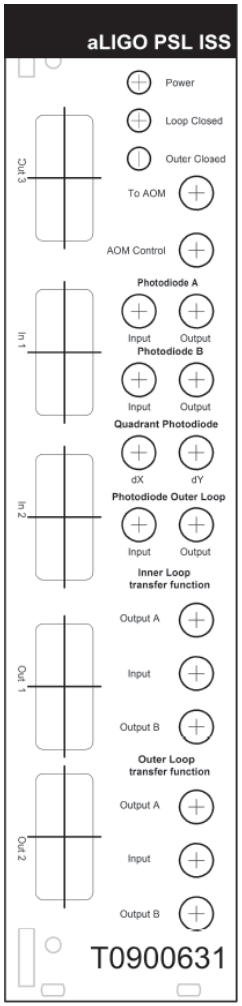
D1101101 – S1103546

[<< Diagnostics Breadboard (DBB) VME Crate]

PSL Diagnostics Breadboard Field Box

D1101101

S1103546



[See also T0900631]

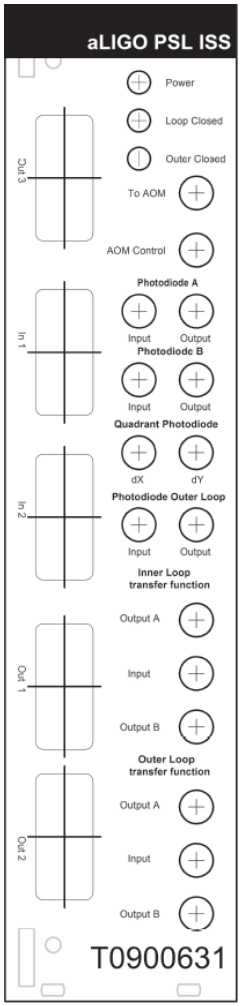
D1101104 - S1103548

[<< Diagnostics Breadboard (DBB) VME Crate]

PSL Diagnostics Breadboard
Demodulator Module

D1101104

S1103548



[See also T0900631]

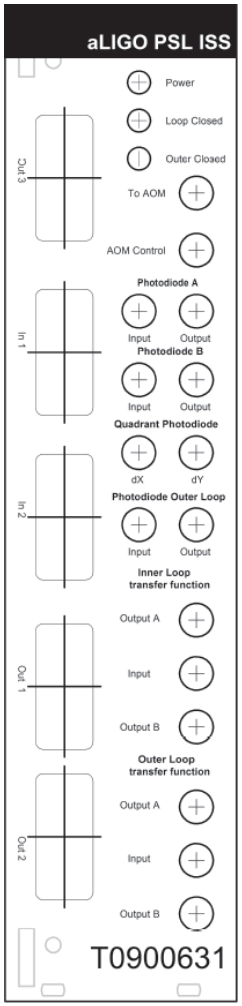
D1101105 - S1103550

[<< Diagnostics Breadboard (DBB) VME Crate]

PSL Diagnostics Breadboard
Miscellaneous Module

D1101105

S1103550



[See also T0900631]

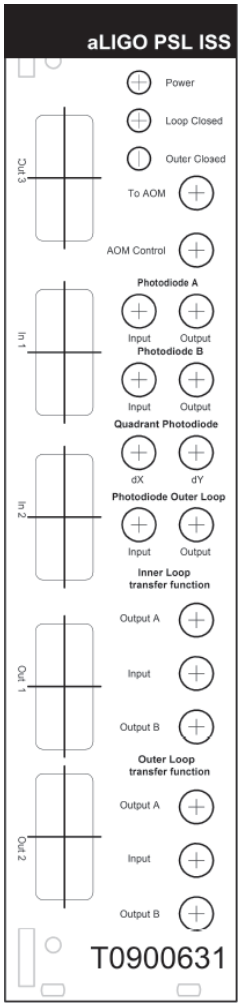
D1101103 - S1103551

[<< Diagnostics Breadboard (DBB) VME Crate]

PSL Diagnostics Breadboard
Calibration Module

D1101103

S1103551

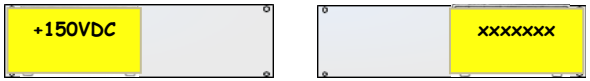


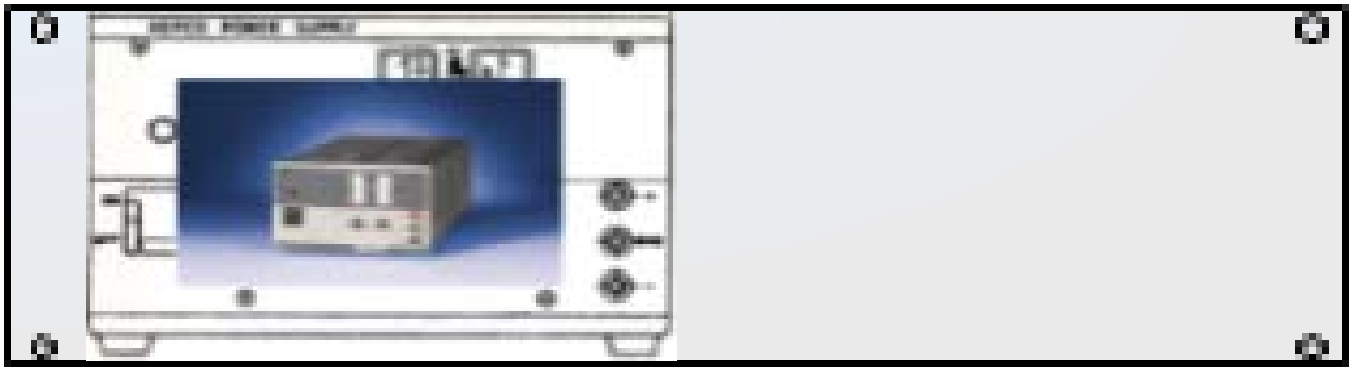
[See also T0900631]

KEPCO Power Supply

[<< L1-PSL-R2]

KEPCO Power Supply

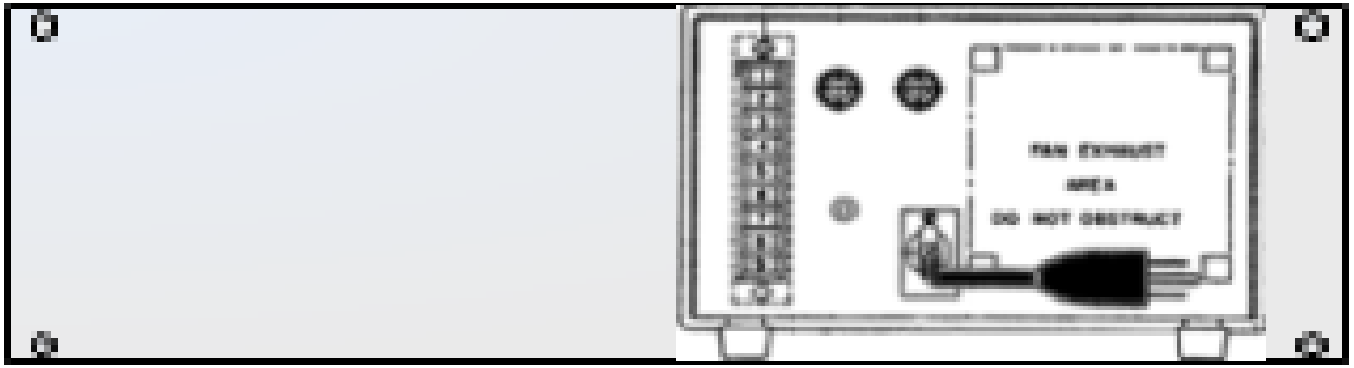




[JQE]

Front

KEPCO JQE 150-1.5
+150VDC

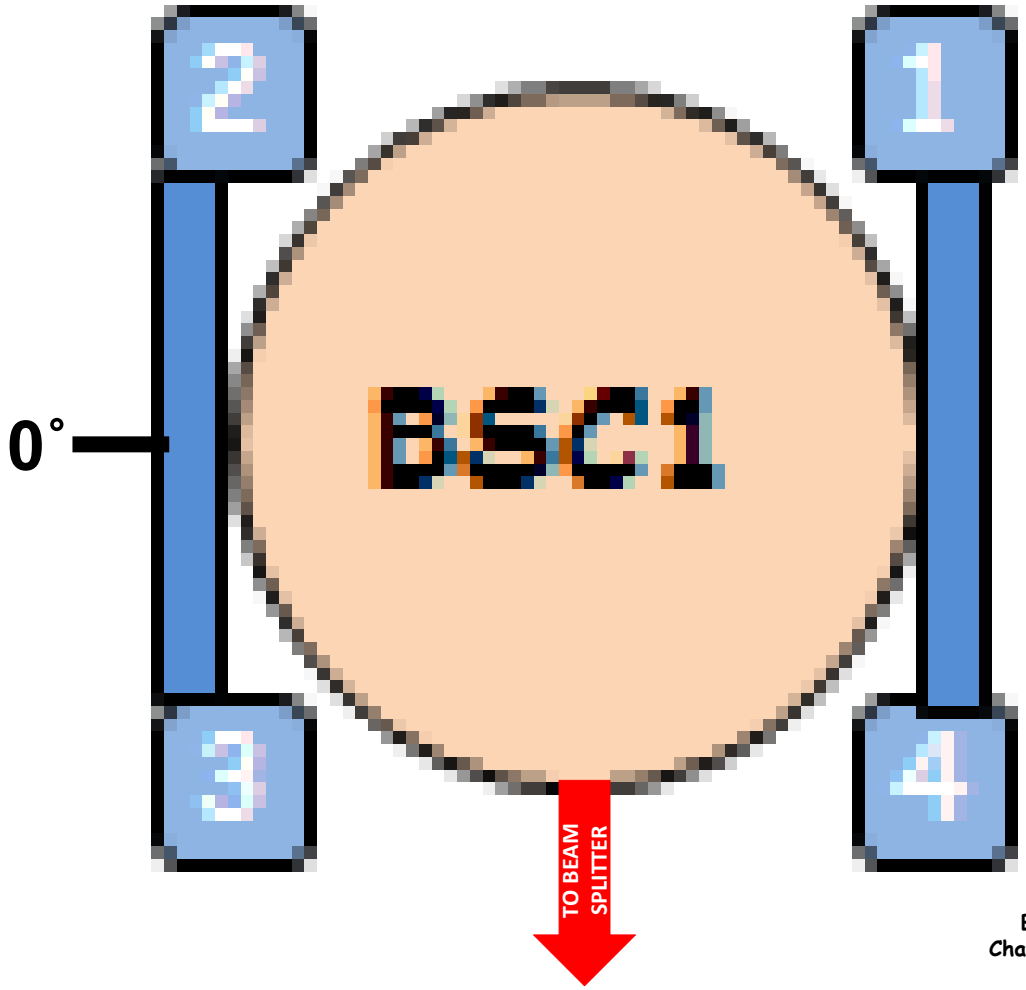


Rear

KEPCO JQE 150-1.5
Hxxxxx

BSC1 Chamber Elements (ITMY)

LIGO
<< Chambers



BSC1 Mid-size ION Pump	75IP-BSC1
BSC1 Turbo Pump	75IP-BSC1
BSC1 Scroll Pump	75IP-BSC1

BSC1 Annulus ION Pump	75IP-BSC1
BSC1 Parani Gauge	75IPBSC1
BSC1 Cold Cathode	75IPBSC1

BSC1 Top Level Chamber Assembly	D0900442
BSC1 Drawing	D0900443
BSC1 Viewports	T1000746
BSC1 Flanges	D1003088
BSC1 HEPI	75IP-BSC1
BSC1 CPS	75IP-BSC1

BSC1 Annulus Ion Pump

LIGO

<< BSC1 Chamber Elements

BSC` Annulus ION Pump

Controller

BSC1 Annulus Ion Pump Controller

LIGO

<< BSC1 Chamber Elements

BSC1 Annulus ION Pump Controller | 929-7000

MiniVac Controller

Model 929-0196
Model 929-0197

Input/Output Interconnections

All input/output signals are accessible at J001 accessory connector. With the provided P001 mating connector make the connections with AWG 24 (0.2 mm^2) - or smaller wire - to the pins indicated in the following figure to obtain the desired capability.

Input signals

Pin 3-7 Remote high voltage ON/OFF or high voltage interlock; requires a permanent closed pin contact.

NOTE

Pin 3-7 must be shorted to allow the high voltage output if no remote/interlock contact is connected.

Output signals

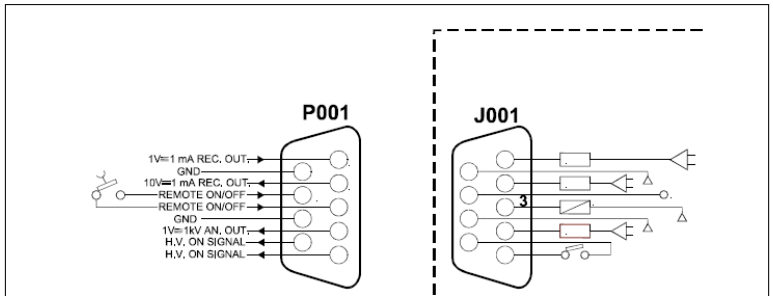
Pin 1-6 Current recorder output 1 (pin 1 signal out, pin 6 ground). The output voltage 0 to + 10 Vdc is proportional to the pump current 0 to 10 mA (e.g. 10 Vdc correspond to 10 mA). The resolution is 10 mV minimum (corresponding to 10 µA).

The front panel REC.OUT connector is a duplicate of this signal on a BNC connector.

Pin 2-6 Current recorder output 2 (pin 2 signal out, pin 6 ground). The output voltage 0 to + 10 Vdc is proportional to the pump current 0 to 1 mA (e.g. 10 Vdc correspond to 1 mA). The resolution is 10 mV minimum (corresponding to 1 µA).

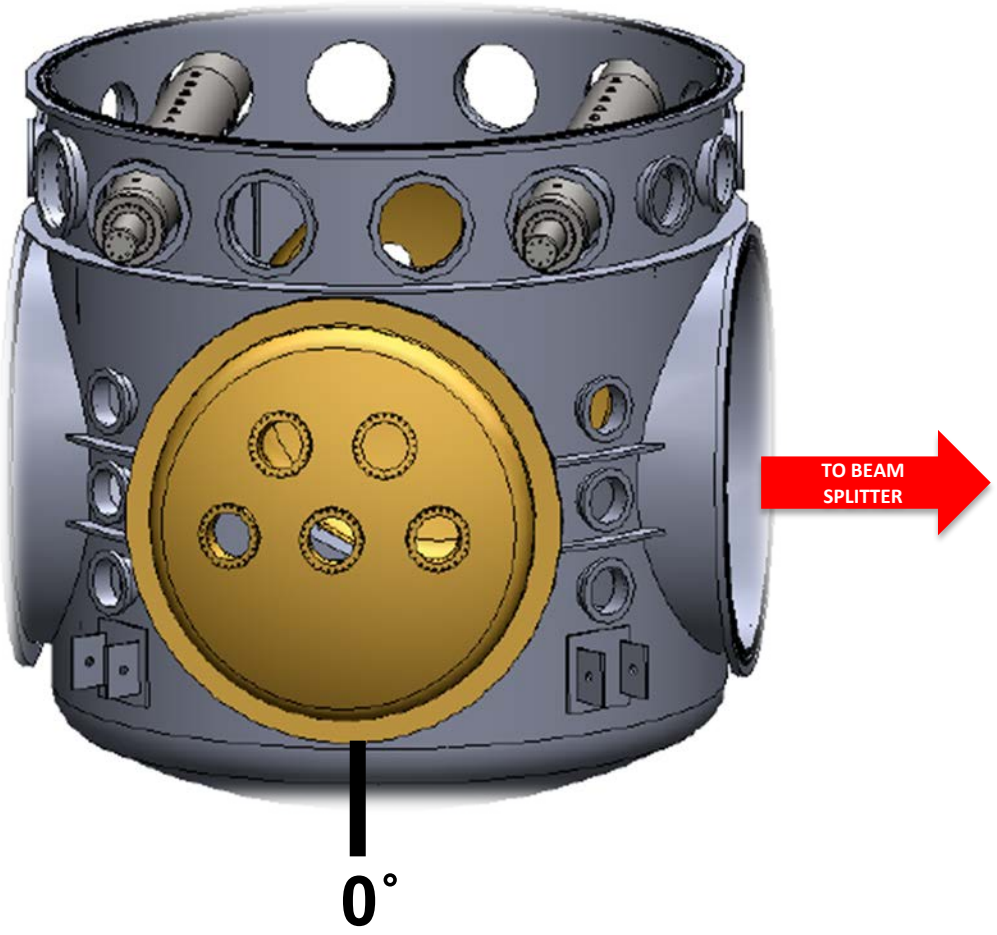
Pin 4-8 Voltage recorder output (pin 4 signal out, pin 8 ground). The output voltage 0 to 5 V is proportional to the controller high voltage output 0 to 5 kV (e.g. 1 V corresponds to 1 kV in linear mode).

Pin 5-9 High voltage indication contact. This pure contact (which carries 1 A at 250 Vac and 0.2 A at 30 Vdc) is open when the high voltage is off and closes when the high voltage in on.



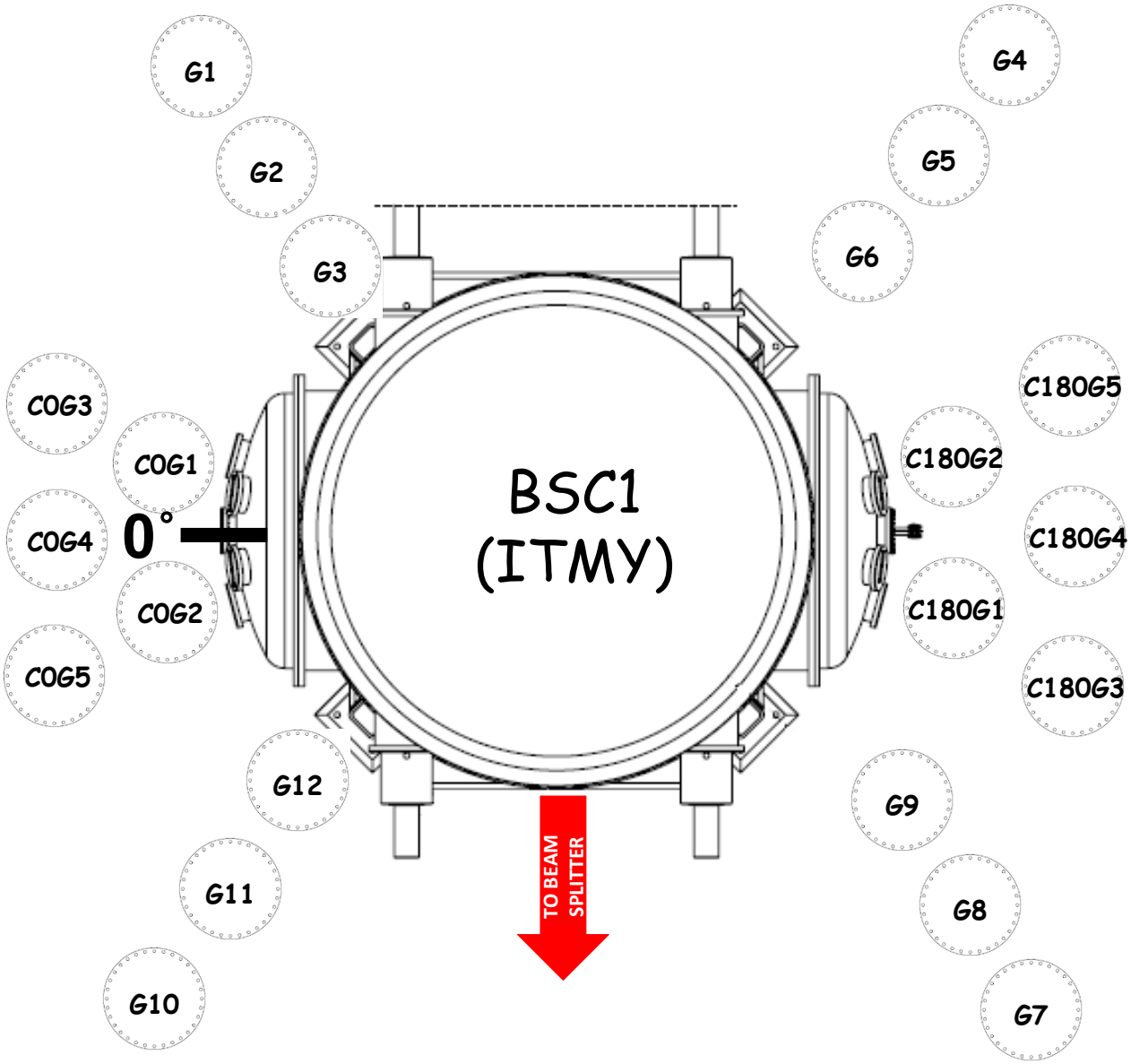
BSC1 Chamber Drawing (ITMY)

[<< BSC1 Chamber Elements]

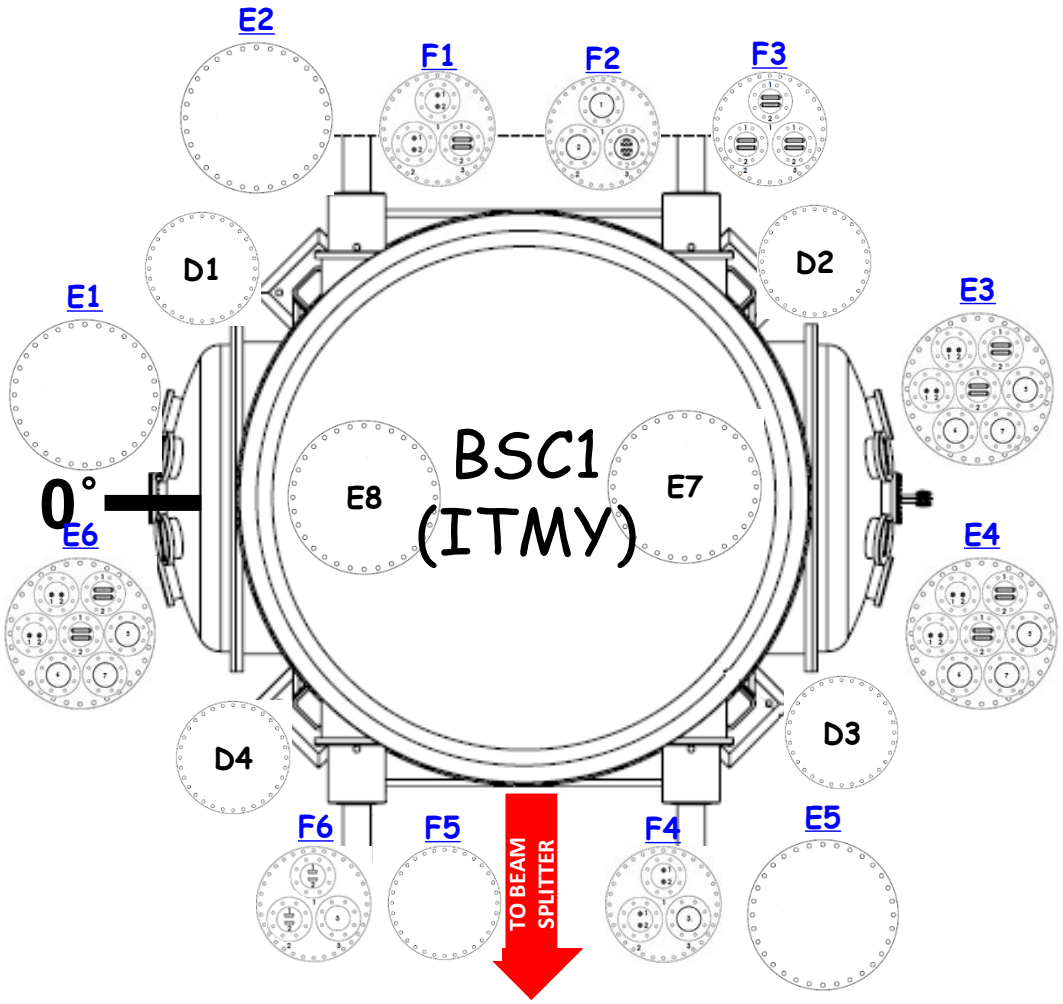


BSC1 Chamber Viewports (ITMY)

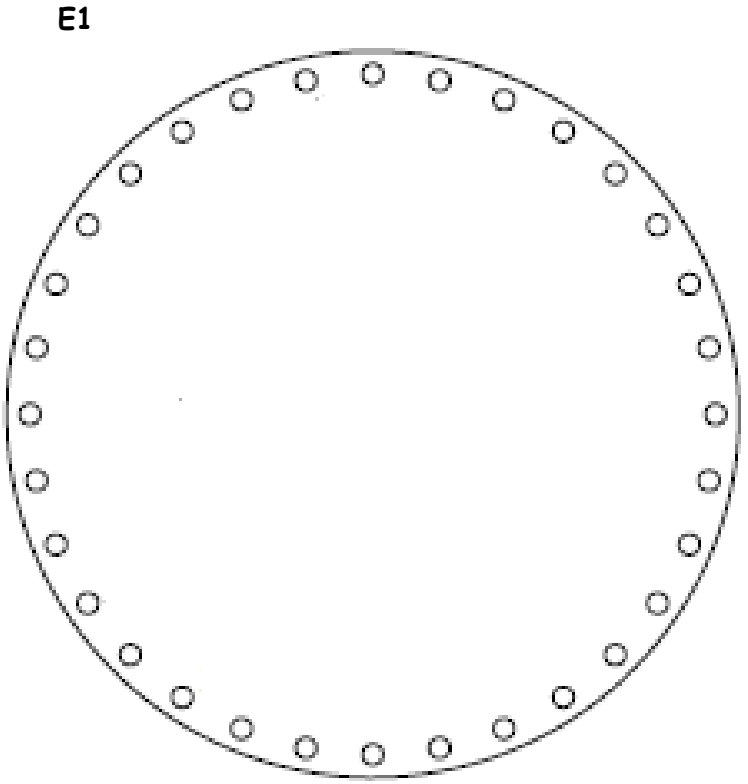
[<< BSC1 Chamber Elements]



BSC1 Chamber Flanges (ITMY)



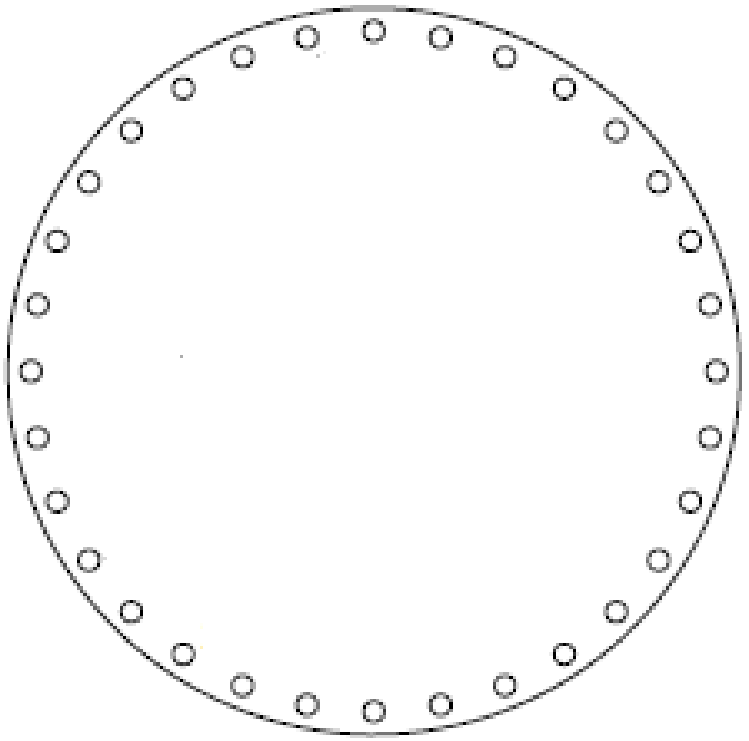
BSC1 Chamber Flange E1



BSC1 Chamber Flange E2

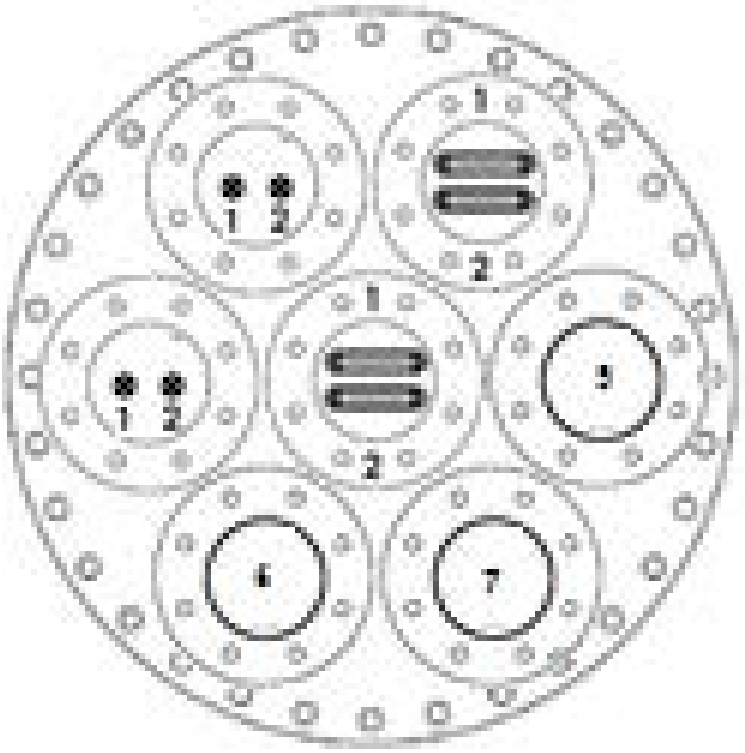
<< BSC1 Chamber Flanges

E2



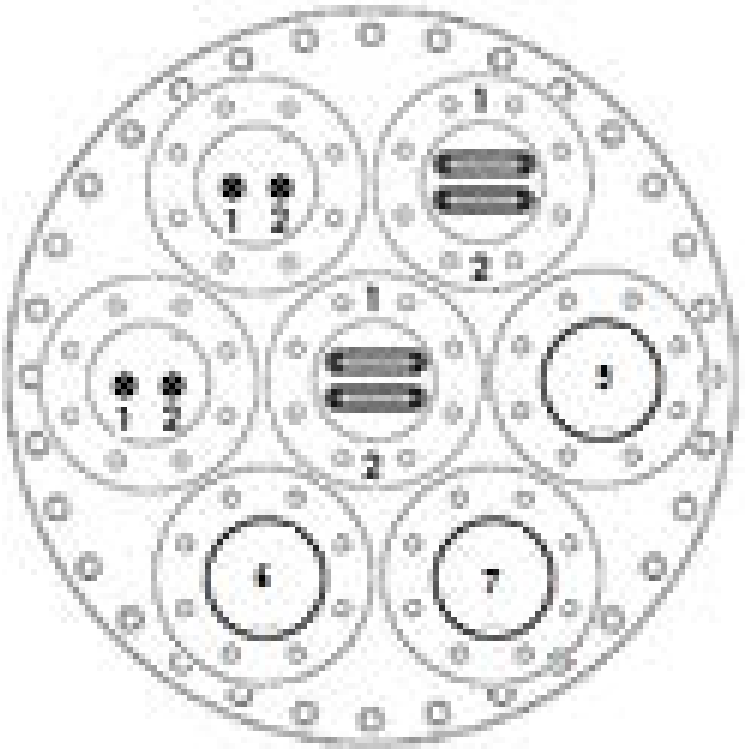
BSC1 Chamber Flange E3

E3



BSC1 Chamber Flange E4

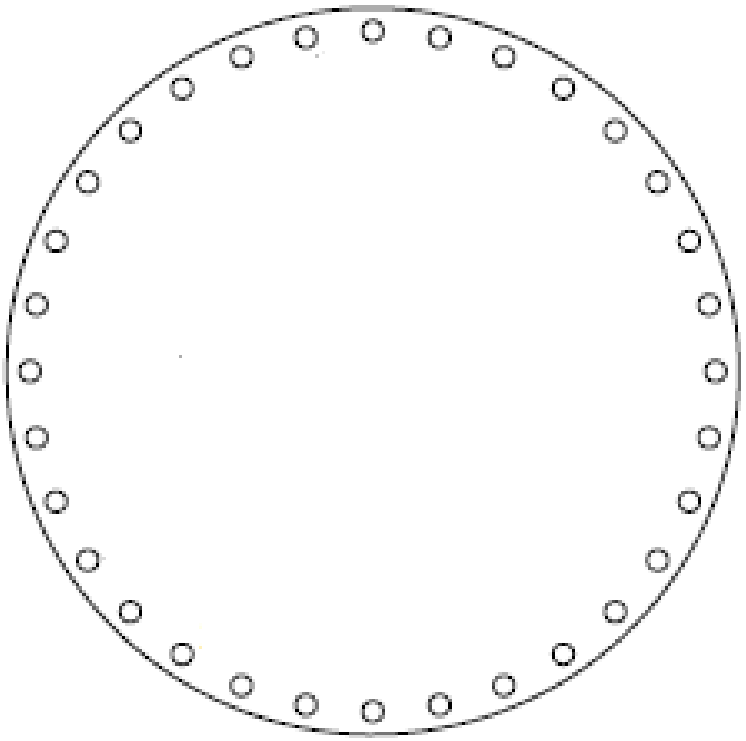
E4



BSC1 Chamber Flange E5

<< BSC1 Chamber Flanges

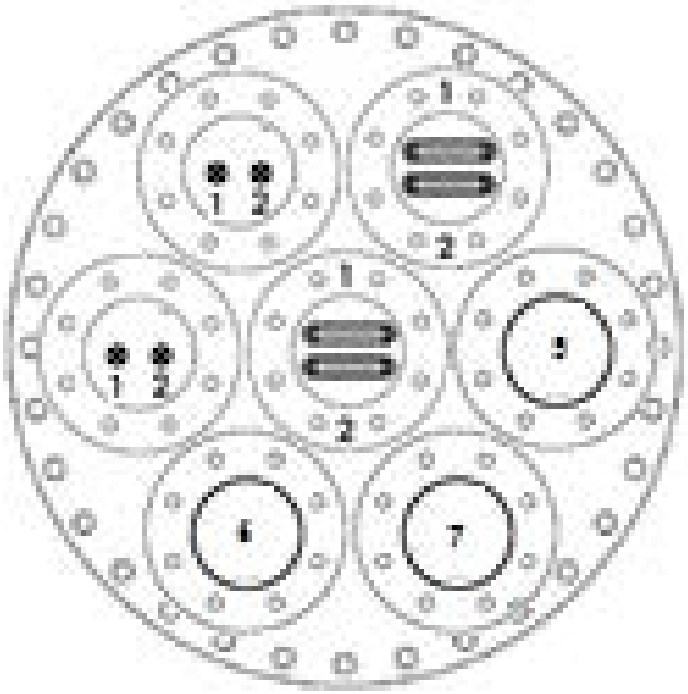
E5



BSC1 Chamber Flange E6

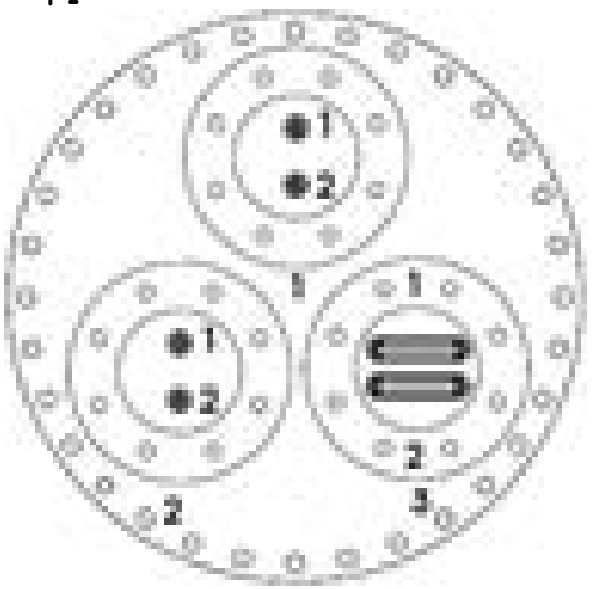
<< BSC1 Chamber Flanges

E6



BSC1 Chamber Flange F1

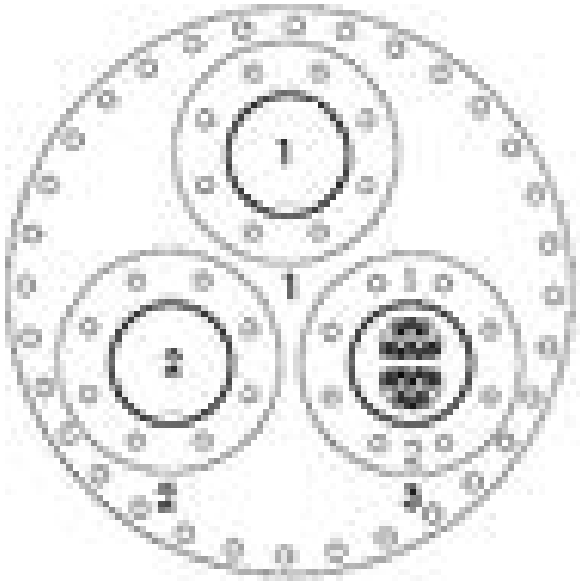
F1



BSC1 Chamber Flange F2

<< BSC1 Chamber Flanges

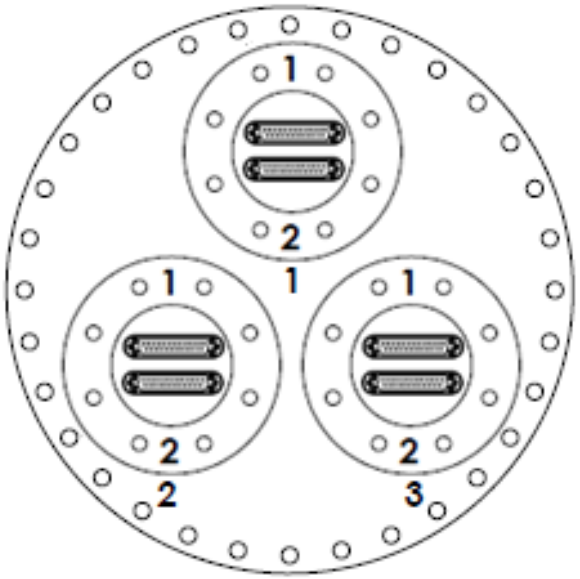
F2



BSC1 Chamber Flange F3

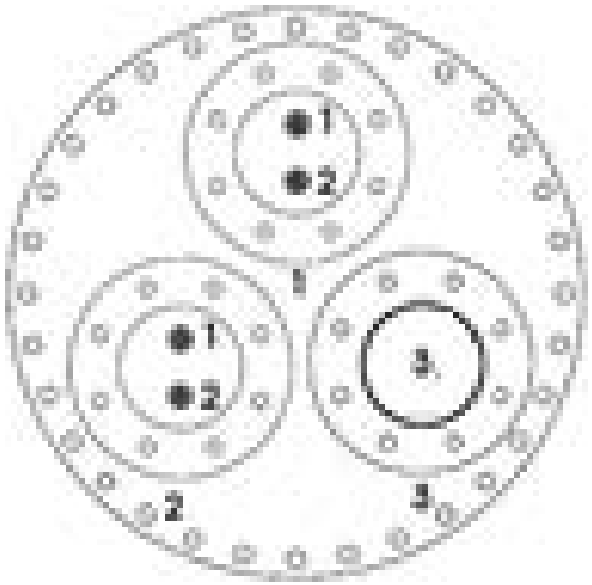
<< BSC1 Chamber Flanges

F3



BSC1 Chamber Flange F4

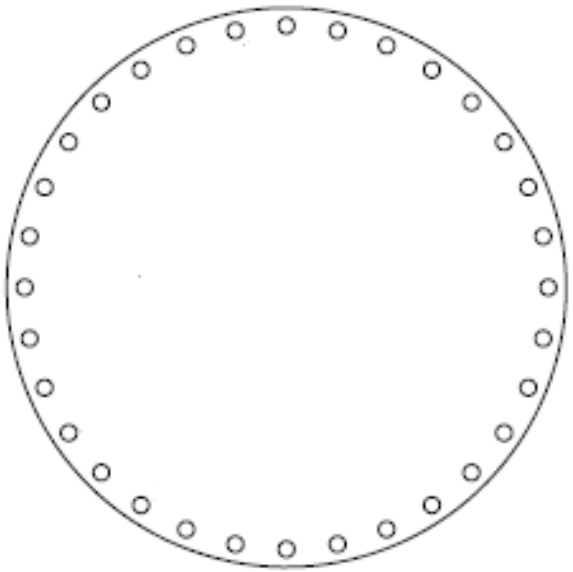
F4



BSC1 Chamber Flange F5

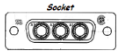
<< BSC1 Chamber Flanges

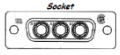
F5

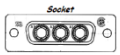


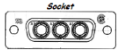
BSC1 Chamber Flange F6

[<< BSC1 Chamber Flanges]

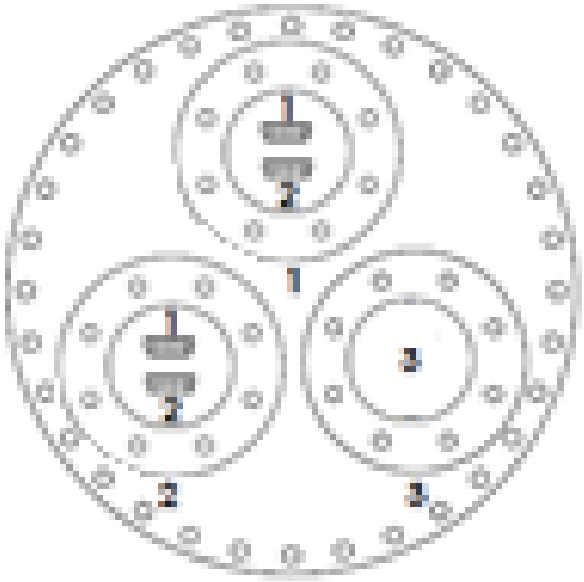
F6-1-1  F6-1-1

F6-1-2  F6-1-2

F6-2-1  F6-2-1

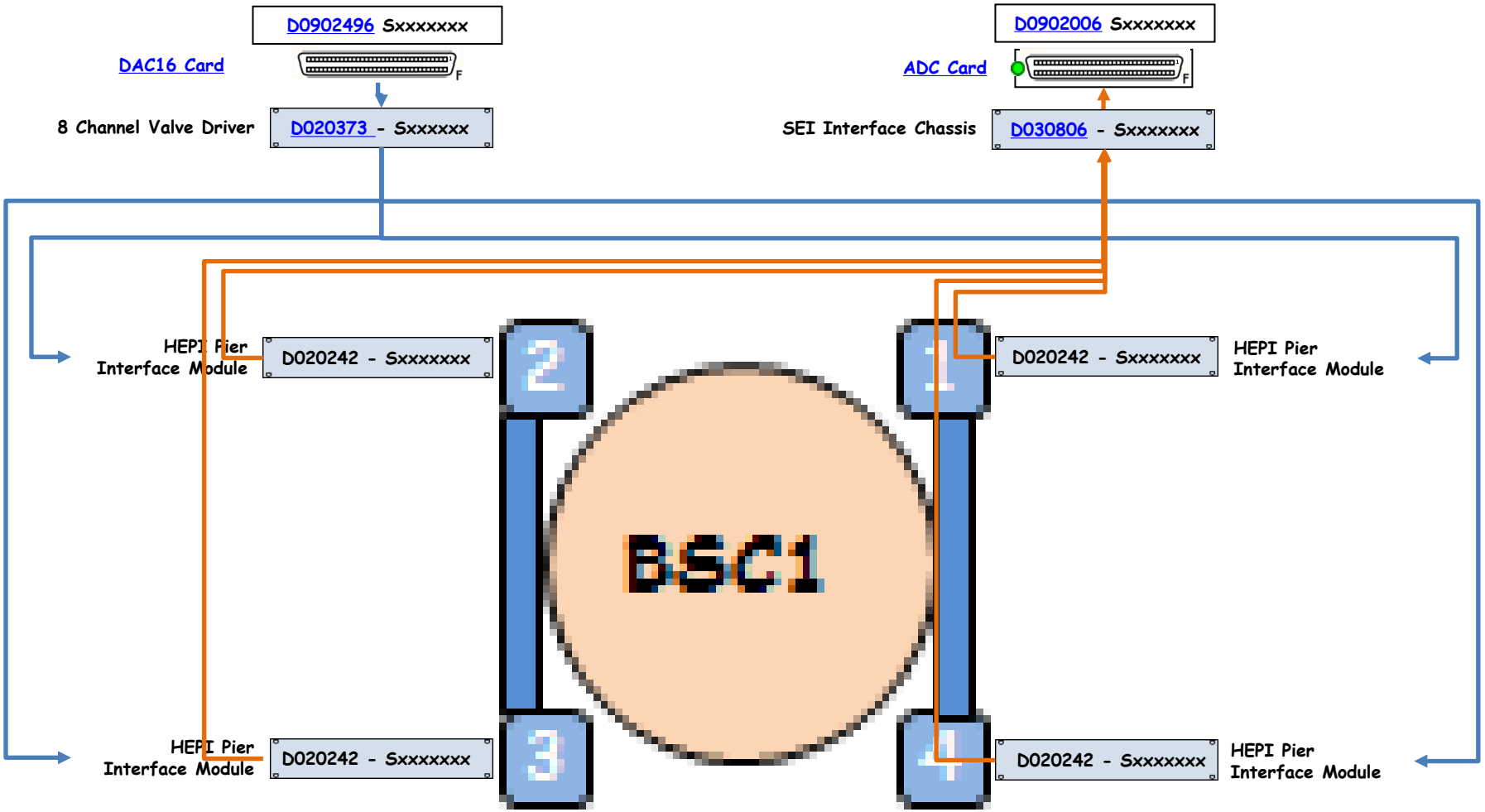
F6-2-2  F6-2-2

F6



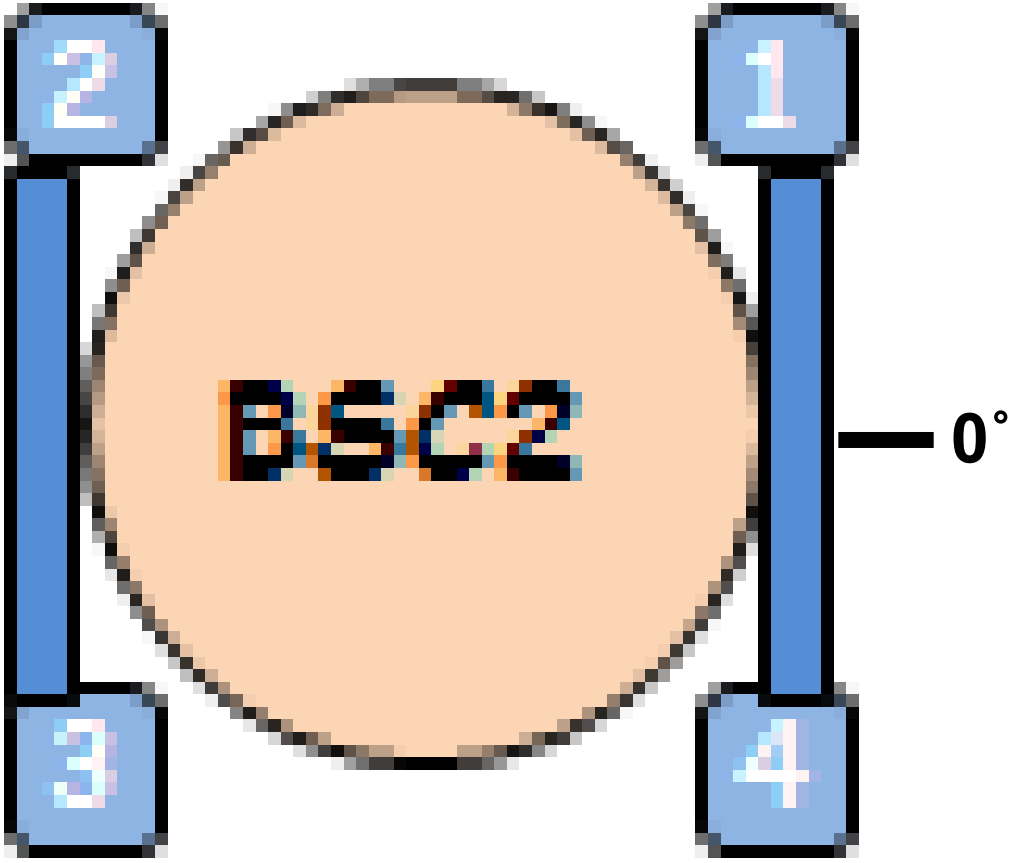
BSC1 HEPI

LIGO
<< BSC1 Chamber Elements



BSC2 Chamber Elements (BS)

[<< Chambers]



BSC2 Mid-size ION Pump	75IP-BSC2
BSC2 Turbo Pump	75IP-BSC2
BSC2 Scroll Pump	75IP-BSC2

BSC2 Annulus ION Pump	75IP-BSC2
BSC2 Parani Gauge	75IPBSC2
BSC2 Cold Cathode	75IPBSC2

BSC2 Top Level Chamber Assembly	D0900428
BSC2 Drawing	D0900429
BSC2 Viewports	T1000746
BSC2 Flanges	D1003089
BSC2 HEPI	75IP-BSC2
BSC2 CPS	75IP-BSC2

BSC2 Annulus Ion Pump

LIGO

<< BSC2 Chamber Elements

BSC2 Annulus ION Pump | Controller

BSC2 Annulus Ion Pump Controller

LIGO

<< BSC2 Chamber Elements

BSC2 Annulus ION Pump Controller | 929-7000

MiniVac Controller

Model 929-0196
Model 929-0197

Input/Output Interconnections

All input/output signals are accessible at J001 accessory connector. With the provided P001 mating connector make the connections with AWG 24 (0.2 mm^2) - or smaller wire - to the pins indicated in the following figure to obtain the desired capability.

Input signals

Pin 3-7 Remote high voltage ON/OFF or high voltage interlock; requires a permanent closed pin contact.

NOTE

Pin 3-7 must be shorted to allow the high voltage output if no remote/interlock contact is connected.

Output signals

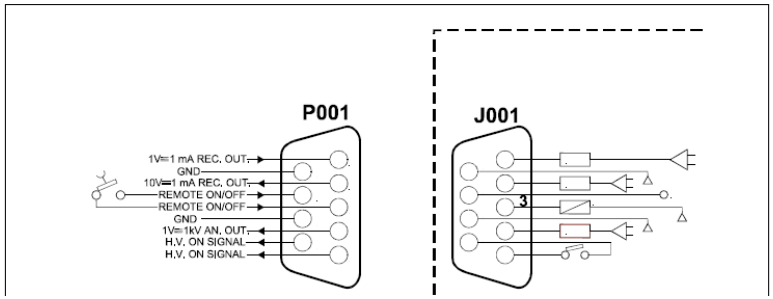
Pin 1-6 Current recorder output 1 (pin 1 signal out, pin 6 ground). The output voltage 0 to + 10 Vdc is proportional to the pump current 0 to 10 mA (e.g. 10 Vdc correspond to 10 mA). The resolution is 10 mV minimum (corresponding to 10 µA).

The front panel REC.OUT connector is a duplicate of this signal on a BNC connector.

Pin 2-6 Current recorder output 2 (pin 2 signal out, pin 6 ground). The output voltage 0 to + 10 Vdc is proportional to the pump current 0 to 1 mA (e.g. 10 Vdc correspond to 1 mA). The resolution is 10 mV minimum (corresponding to 1 µA).

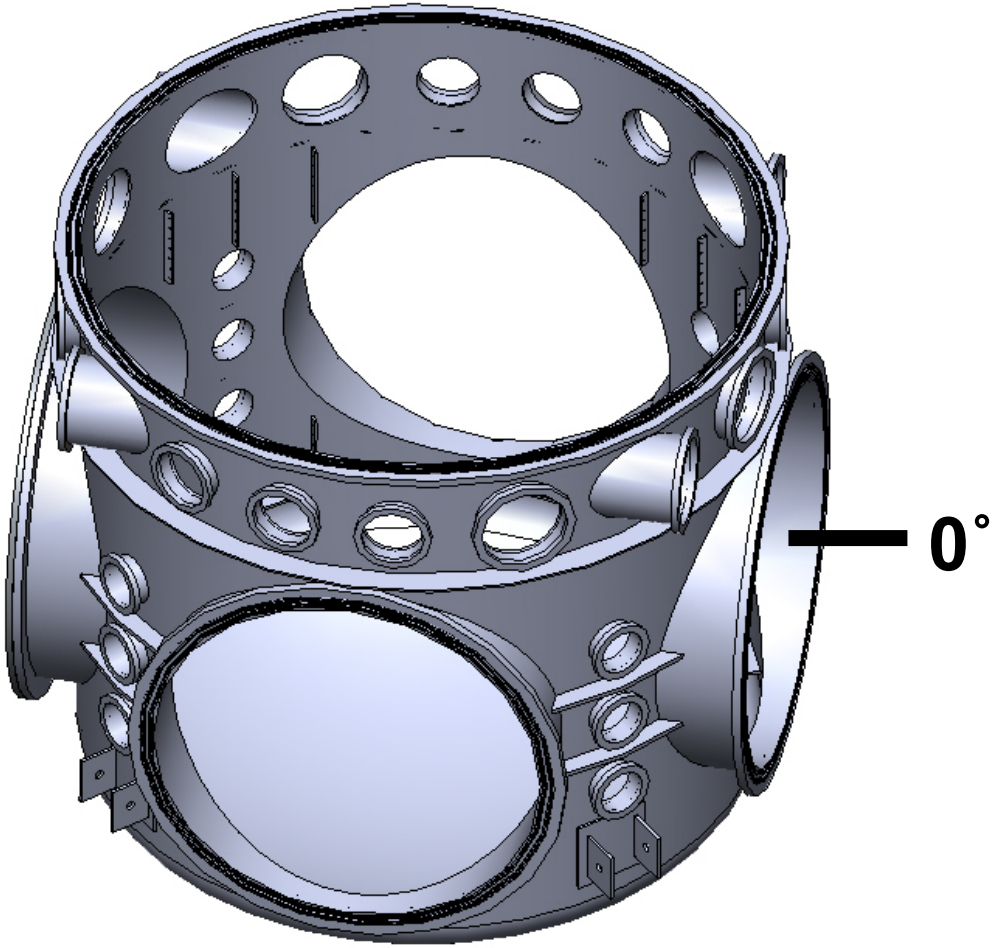
Pin 4-8 Voltage recorder output (pin 4 signal out, pin 8 ground). The output voltage 0 to 5 V is proportional to the controller high voltage output 0 to 5 kV (e.g. 1 V corresponds to 1 kV in linear mode).

Pin 5-9 High voltage indication contact. This pure contact (which carries 1 A at 250 Vac and 0.2 A at 30 Vdc) is open when the high voltage is off and closes when the high voltage in on.



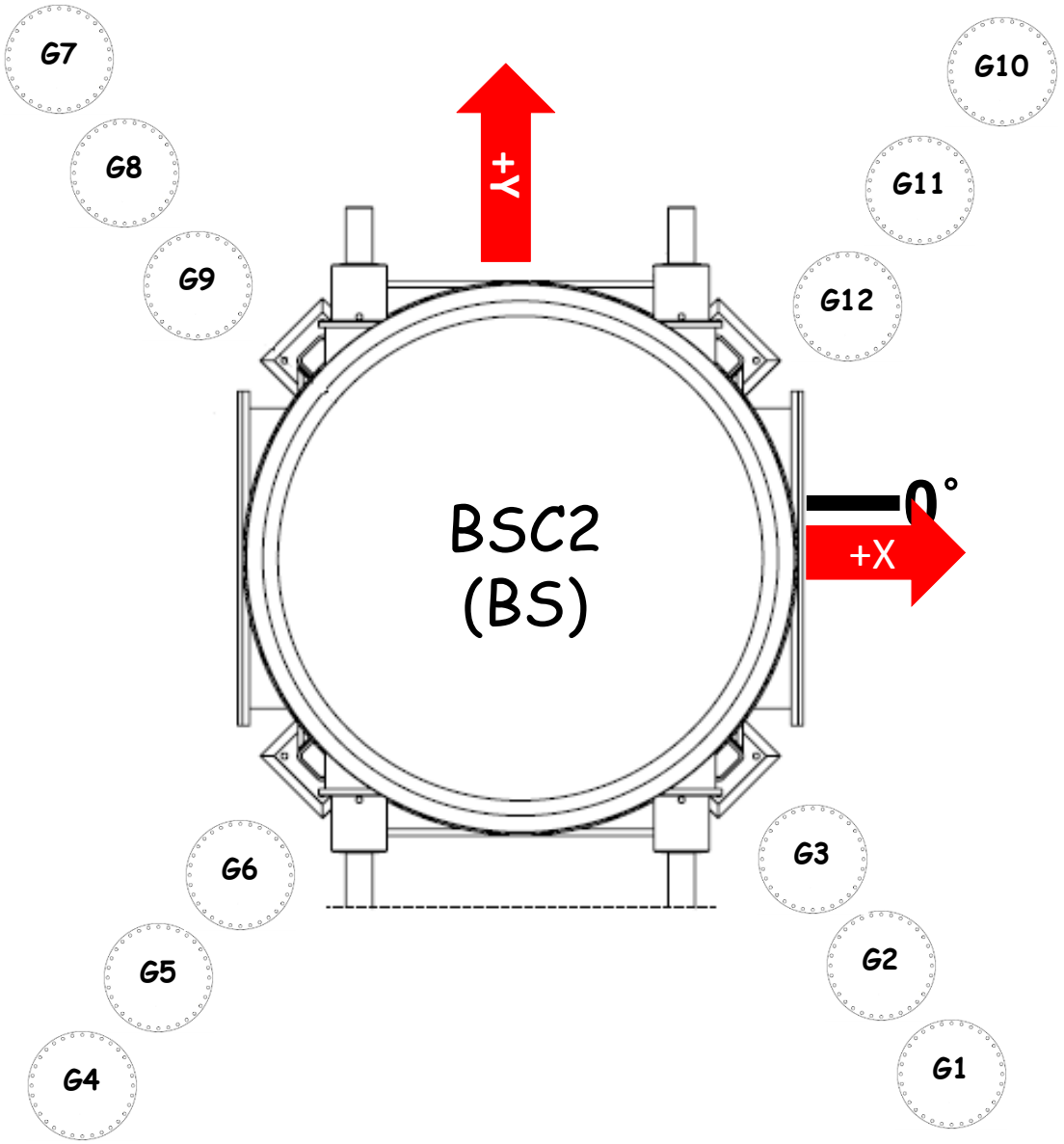
BSC2 Chamber Drawing (BS)

[<< BSC2 Chamber Elements]



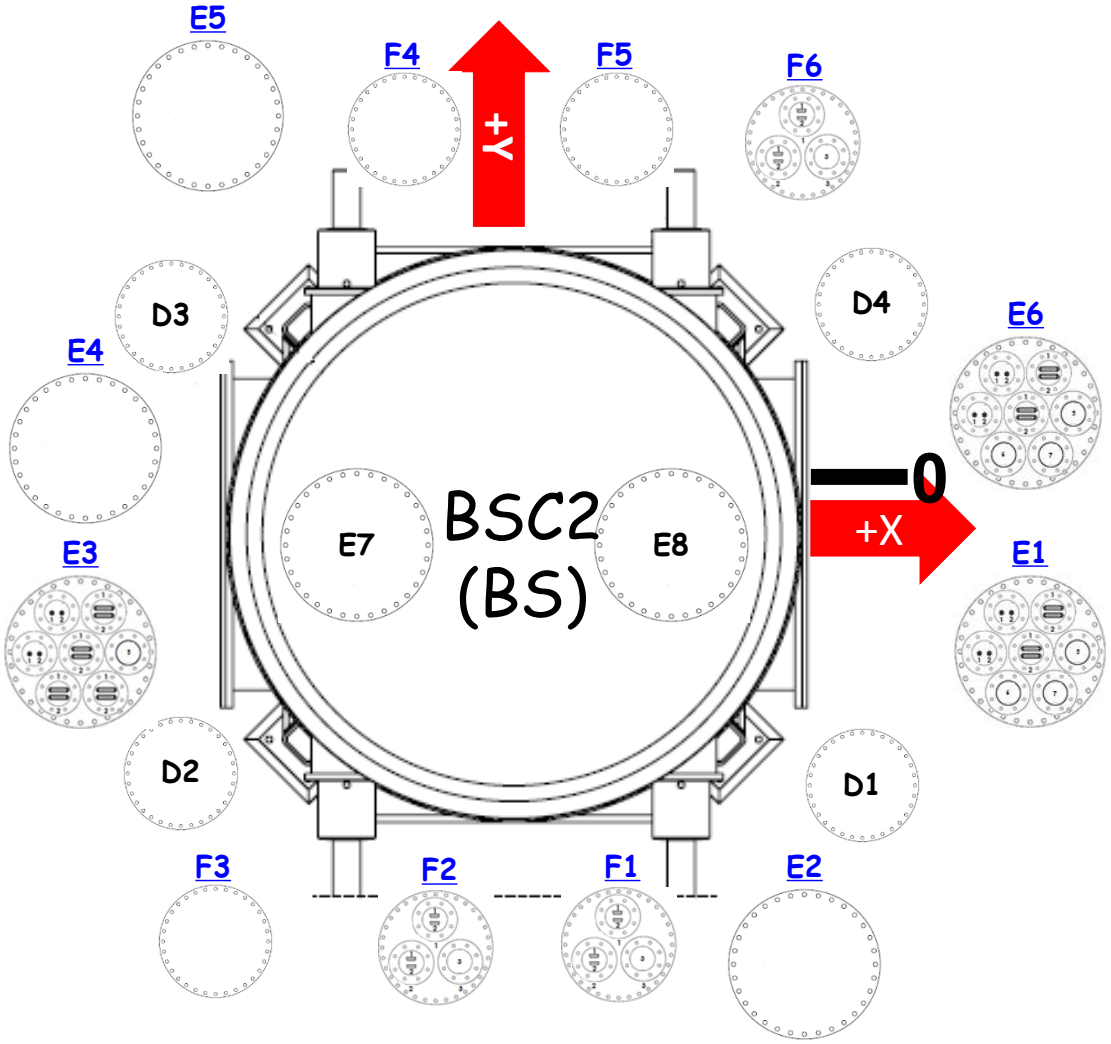
BSC2 Chamber Viewports (BS)

<< BSC2 Chamber Elements



BSC2 Chamber Flanges (BS)

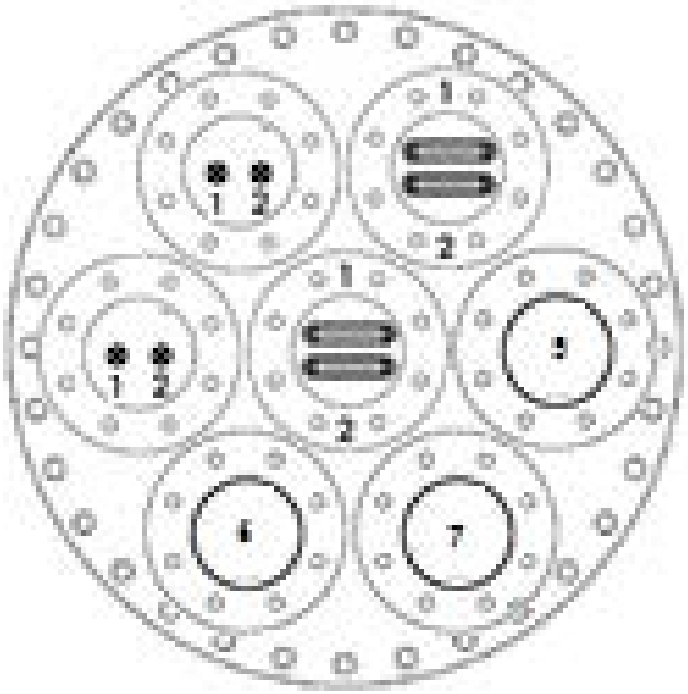
LIGO
<< BSC2 Chamber Elements



BSC2 Chamber Flange E1

<< BSC2 Chamber Flanges

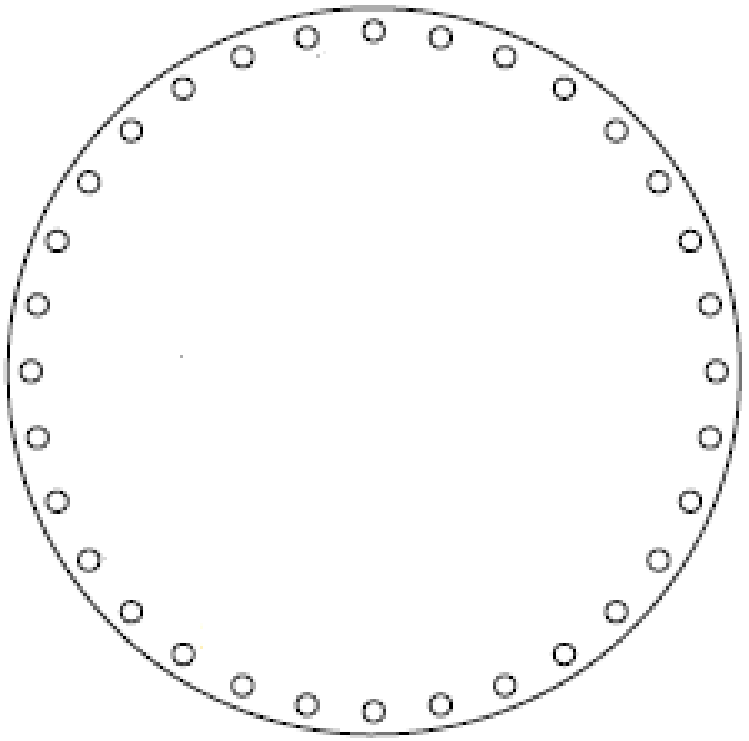
E1



BSC2 Chamber Flange E2

<< BSC2 Chamber Flanges

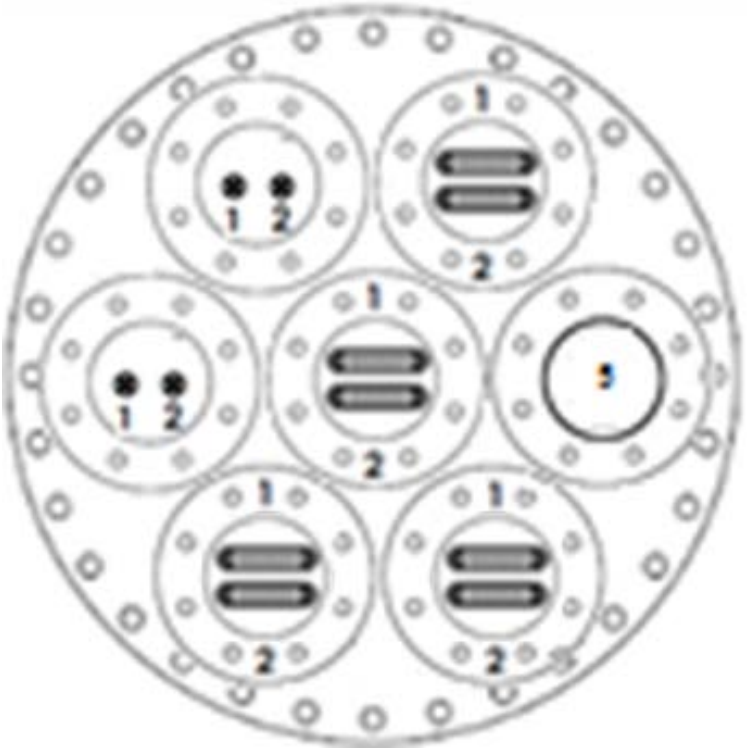
E2



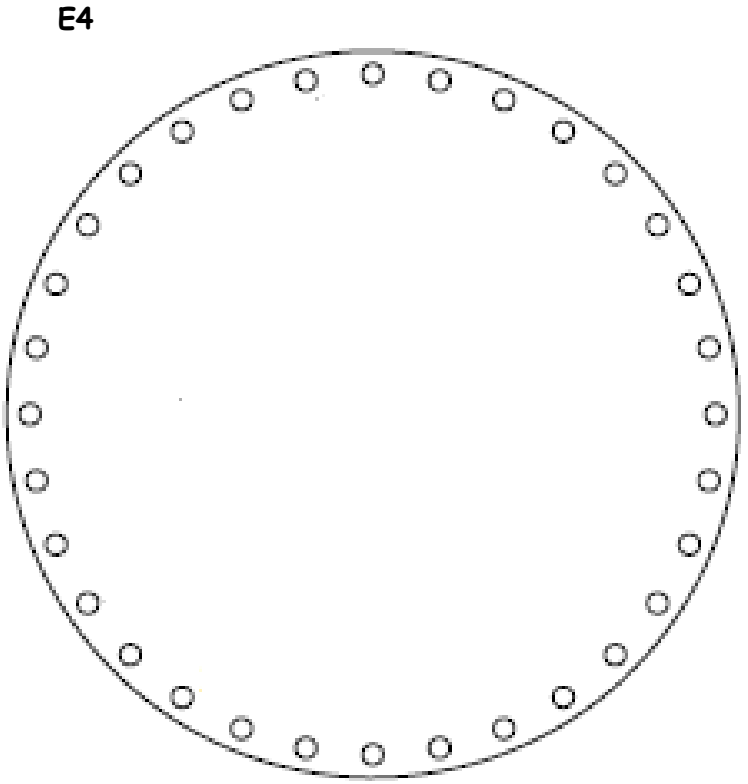
BSC2 Chamber Flange E3

<< BSC2 Chamber Flanges

E3



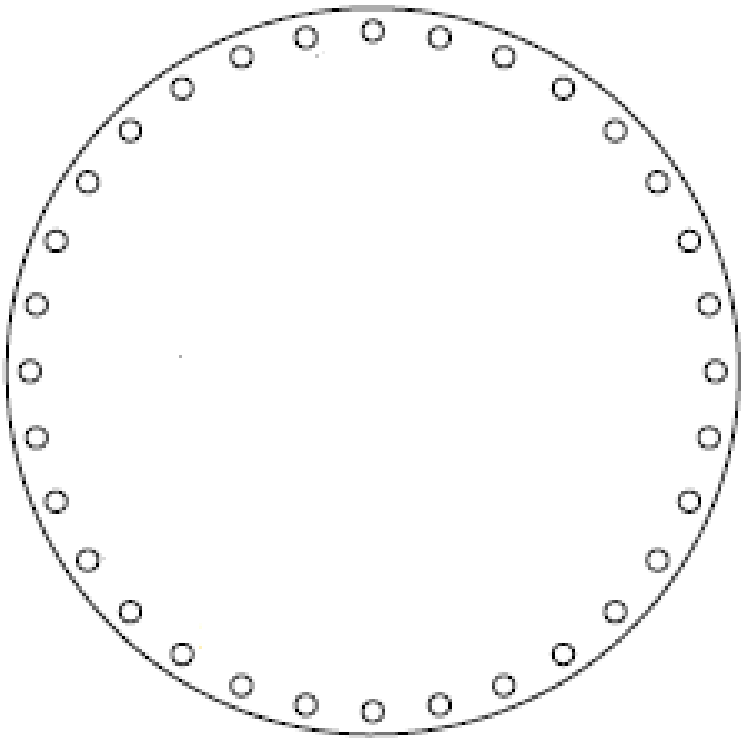
BSC2 Chamber Flange E4



BSC2 Chamber Flange E5

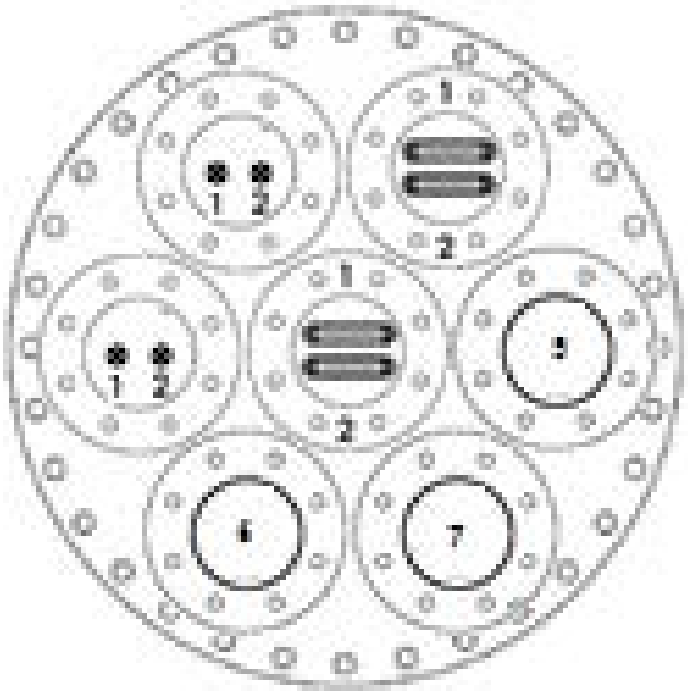
<< BSC2 Chamber Flanges

E5



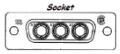
BSC2 Chamber Flange E6

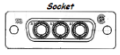
E6

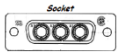


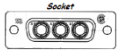
BSC2 Chamber Flange F1

[<< BSC2 Chamber Flanges]

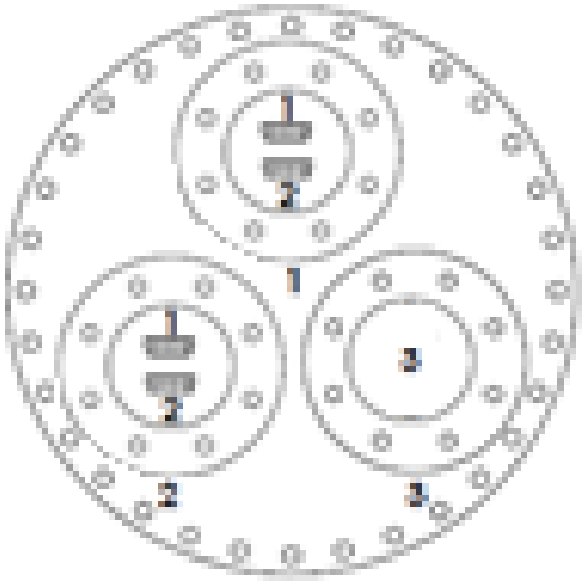
F6-1-1  F6-1-1

F6-1-2  F6-1-2

F6-2-1  F6-2-1

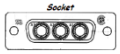
F6-2-2  F6-2-2

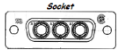
F1

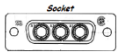


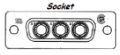
BSC2 Chamber Flange F2

[<< BSC2 Chamber Flanges]

F6-1-1  F6-1-1

F6-1-2  F6-1-2

F6-2-1  F6-2-1

F6-2-2  F6-2-2

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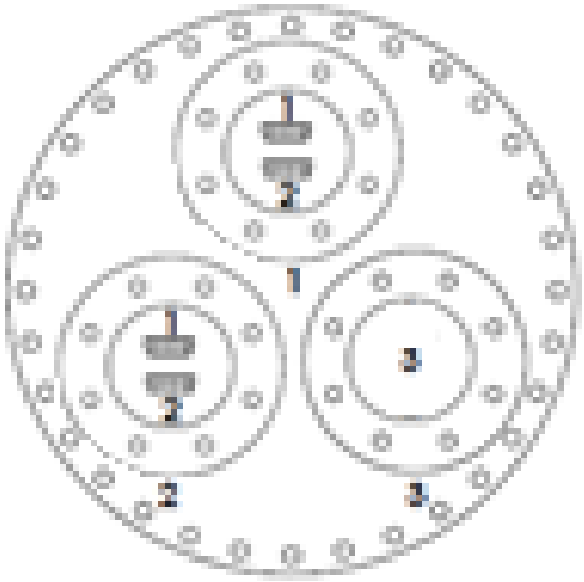
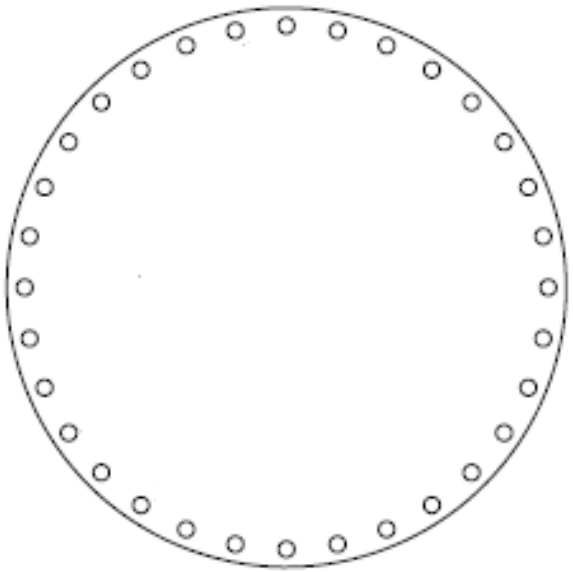


BSC2 Chamber Flange F3

<< BSC2 Chamber Flanges

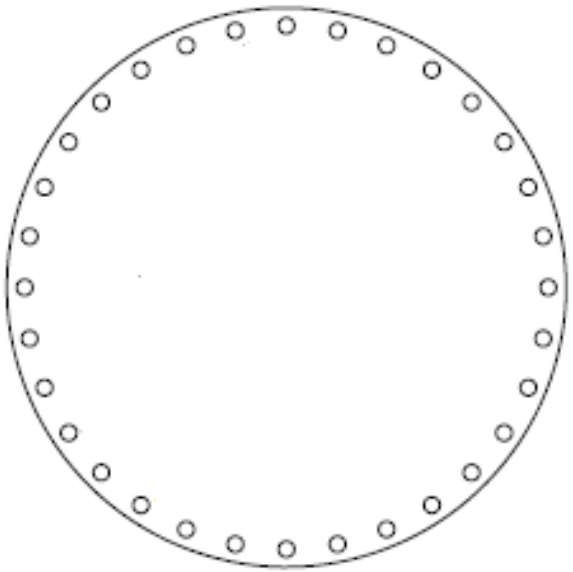
F3



BSC2 Chamber Flange F4

<< BSC2 Chamber Flanges

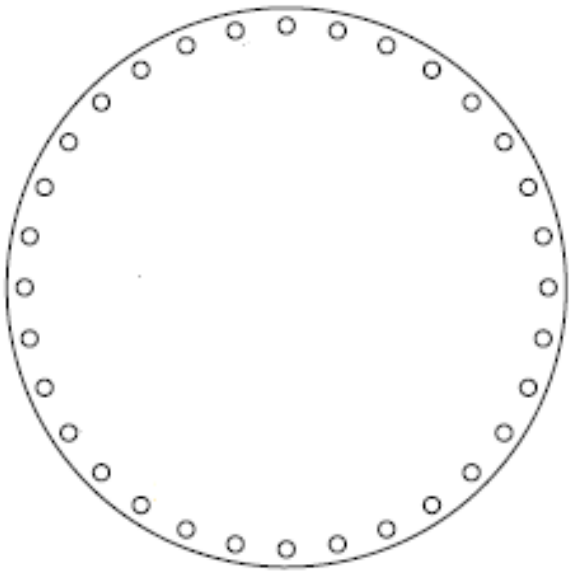
F4



BSC2 Chamber Flange F5

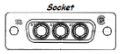
<< BSC2 Chamber Flanges

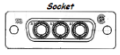
F5

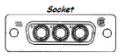


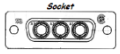
BSC2 Chamber Flange F6

[<< BSC2 Chamber Flanges]

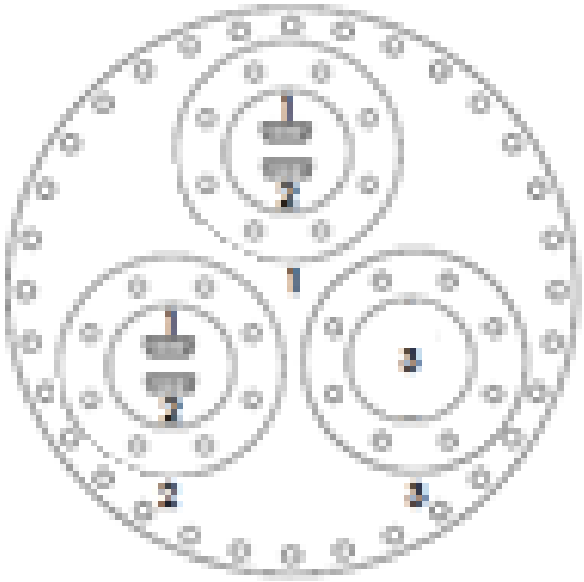
F6-1-1  F6-1-1

F6-1-2  F6-1-2

F6-2-1  F6-2-1

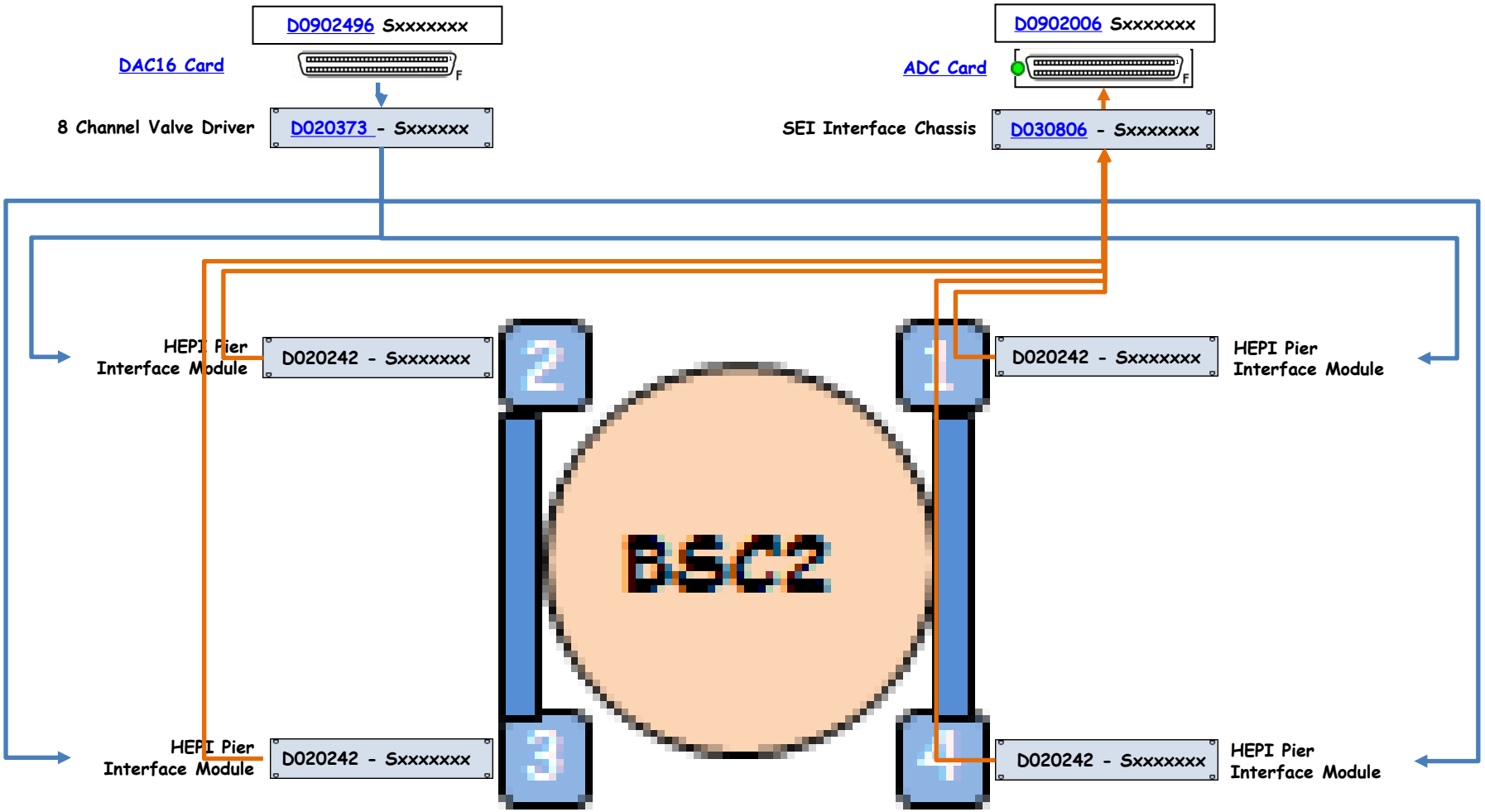
F6-2-2  F6-2-2

F6



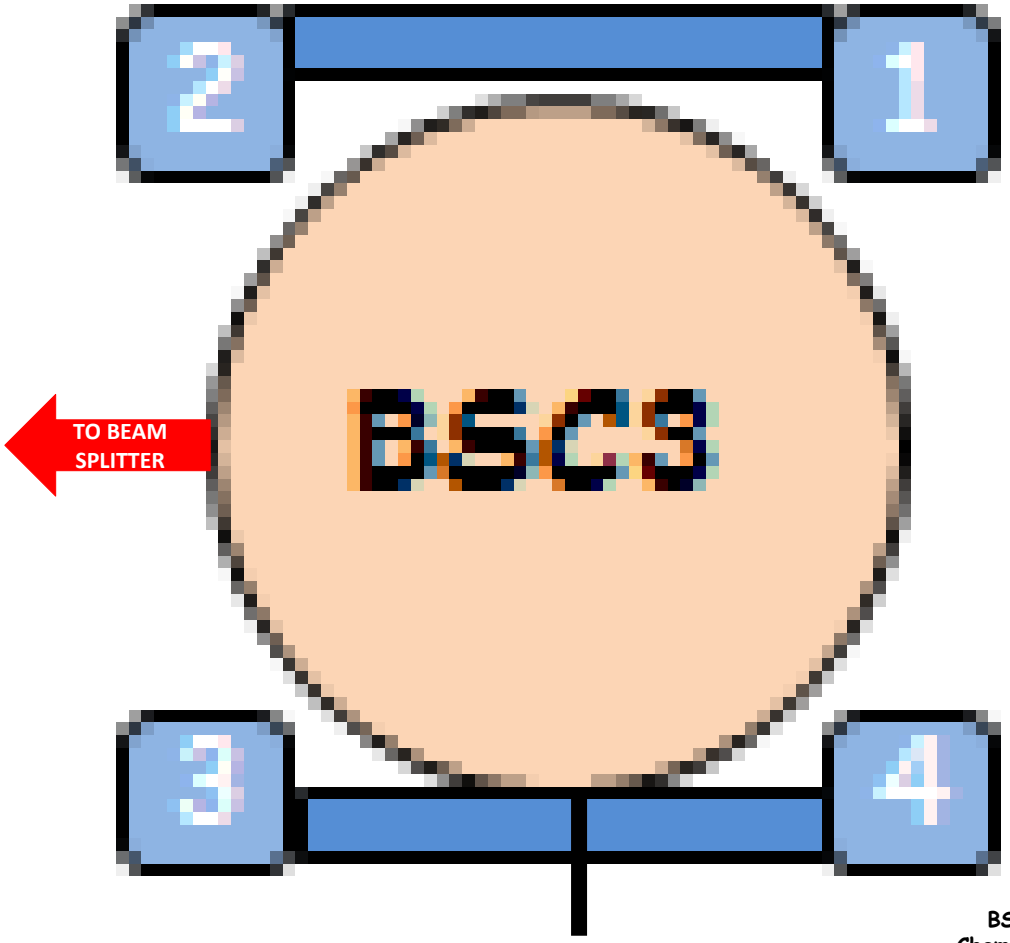
BSC2 HEPI

LIGO
<< BSC2 Chamber Elements



BSC3 Chamber Elements (ITMX)

[<< Chambers]



BSC3 Mid-size ION Pump	75IP-BSC3
BSC3 Turbo Pump	75IP-BSC3
BSC3 Scroll Pump	75IP-BSC3

BSC3 Annulus ION Pump	75IP-BSC3
BSC3 Parani Gauge	75IPBSC3
BSC3 Cold Cathode	75IPBSC3

BSC3 Top Level Chamber Assembly	D0900492
BSC3 Drawing	D0900493
BSC3 Viewports	T1000746
BSC3 Flanges	D1003090
BSC3 HEPI	75IP-BSC3
BSC3 CPS	75IP-BSC3

BSC3 Annulus Ion Pump

LIGO

<< BSC3 Chamber Elements

BSC3 Annulus ION Pump

Controller

BSC3 Annulus Ion Pump Controller

LIGO

<< BSC3 Chamber Elements

BSC3 Annulus ION Pump Controller | 929-7000

MiniVac Controller

Model 929-0196
Model 929-0197

Input/Output Interconnections

All input/output signals are accessible at J001 accessory connector. With the provided P001 mating connector make the connections with AWG 24 (0.2 mm^2) - or smaller wire - to the pins indicated in the following figure to obtain the desired capability.

Input signals

Pin 3-7 Remote high voltage ON/OFF or high voltage interlock; requires a permanent closed pin contact.

NOTE

Pin 3-7 must be shorted to allow the high voltage output if no remote/interlock contact is connected.

Output signals

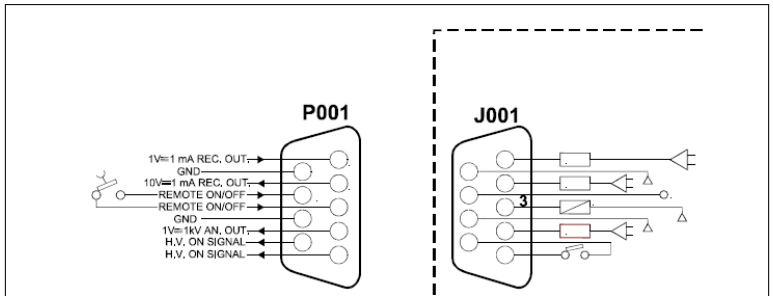
Pin 1-6 Current recorder output 1 (pin 1 signal out, pin 6 ground). The output voltage 0 to + 10 Vdc is proportional to the pump current 0 to 10 mA (e.g. 10 Vdc correspond to 10 mA). The resolution is 10 mV minimum (corresponding to 10 µA).

The front panel REC.OUT connector is a duplicate of this signal on a BNC connector.

Pin 2-6 Current recorder output 2 (pin 2 signal out, pin 6 ground). The output voltage 0 to + 10 Vdc is proportional to the pump current 0 to 1 mA (e.g. 10 Vdc correspond to 1 mA). The resolution is 10 mV minimum (corresponding to 1 µA).

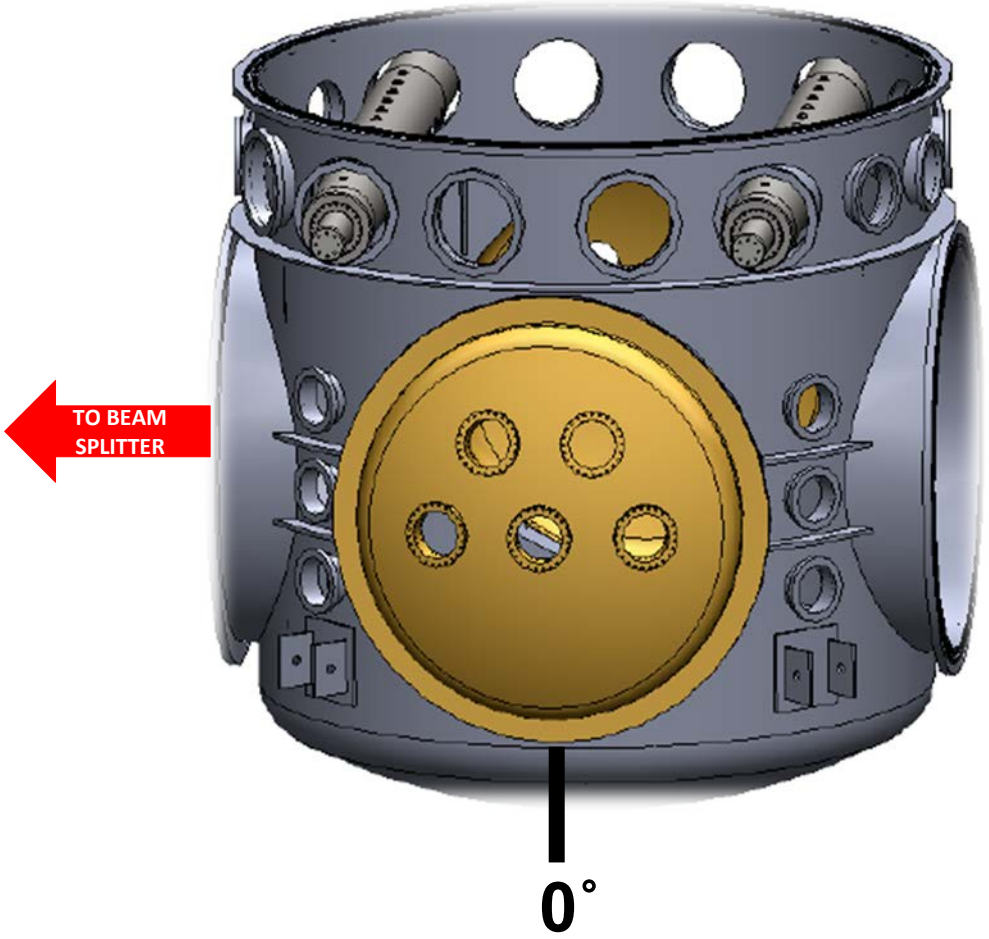
Pin 4-8 Voltage recorder output (pin 4 signal out, pin 8 ground). The output voltage 0 to 5 V is proportional to the controller high voltage output 0 to 5 kV (e.g. 1 V corresponds to 1 kV in linear mode).

Pin 5-9 High voltage indication contact. This pure contact (which carries 1 A at 250 Vac and 0.2 A at 30 Vdc) is open when the high voltage is off and closes when the high voltage in on.



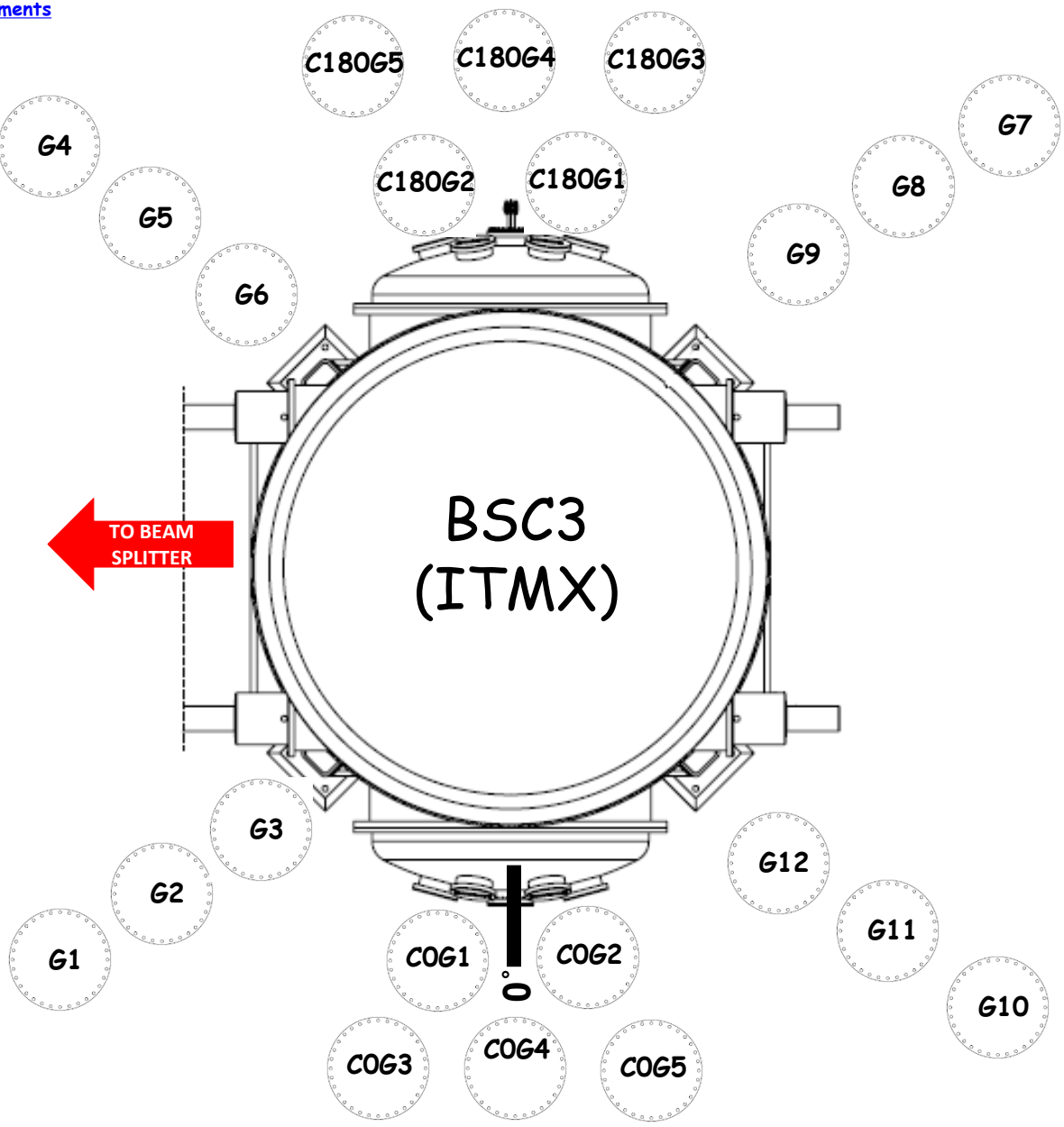
BSC3 Chamber Drawing (ITMX)

LIGO
<< BSC3 Chamber Elements



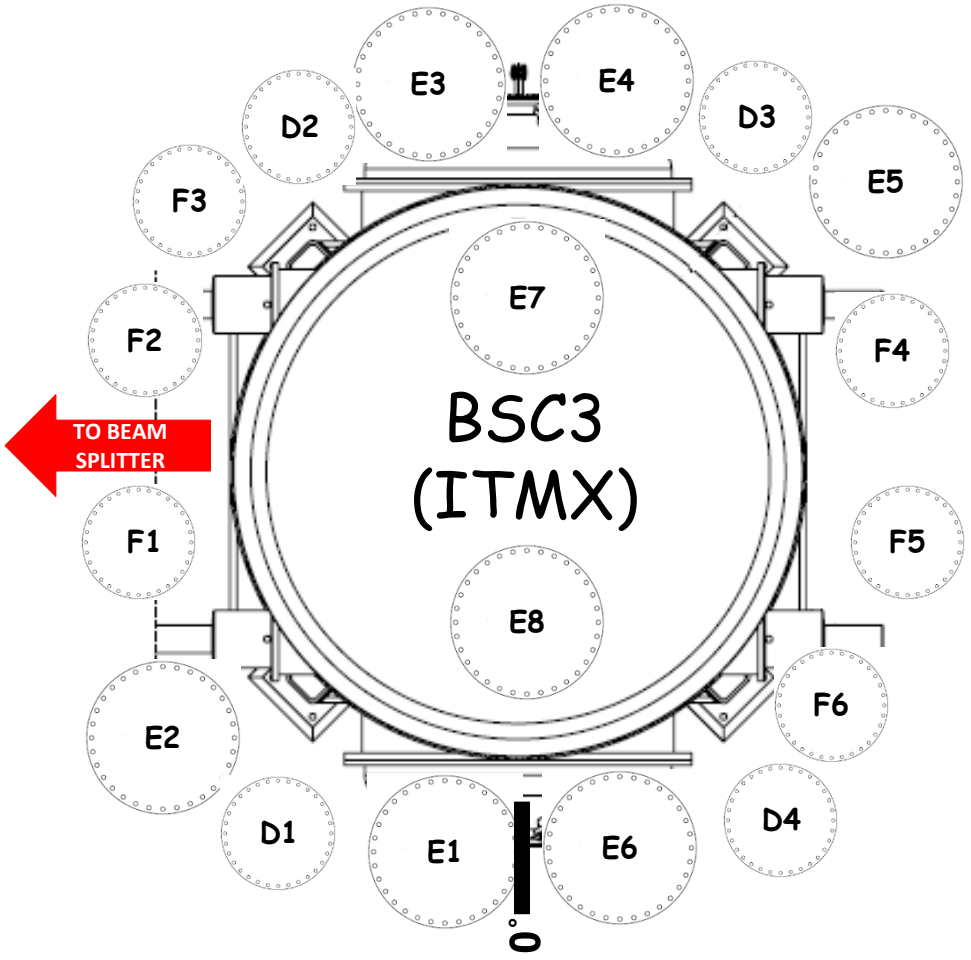
BSC3 Chamber Viewports (ITMX)

<< BSC3 Chamber Elements



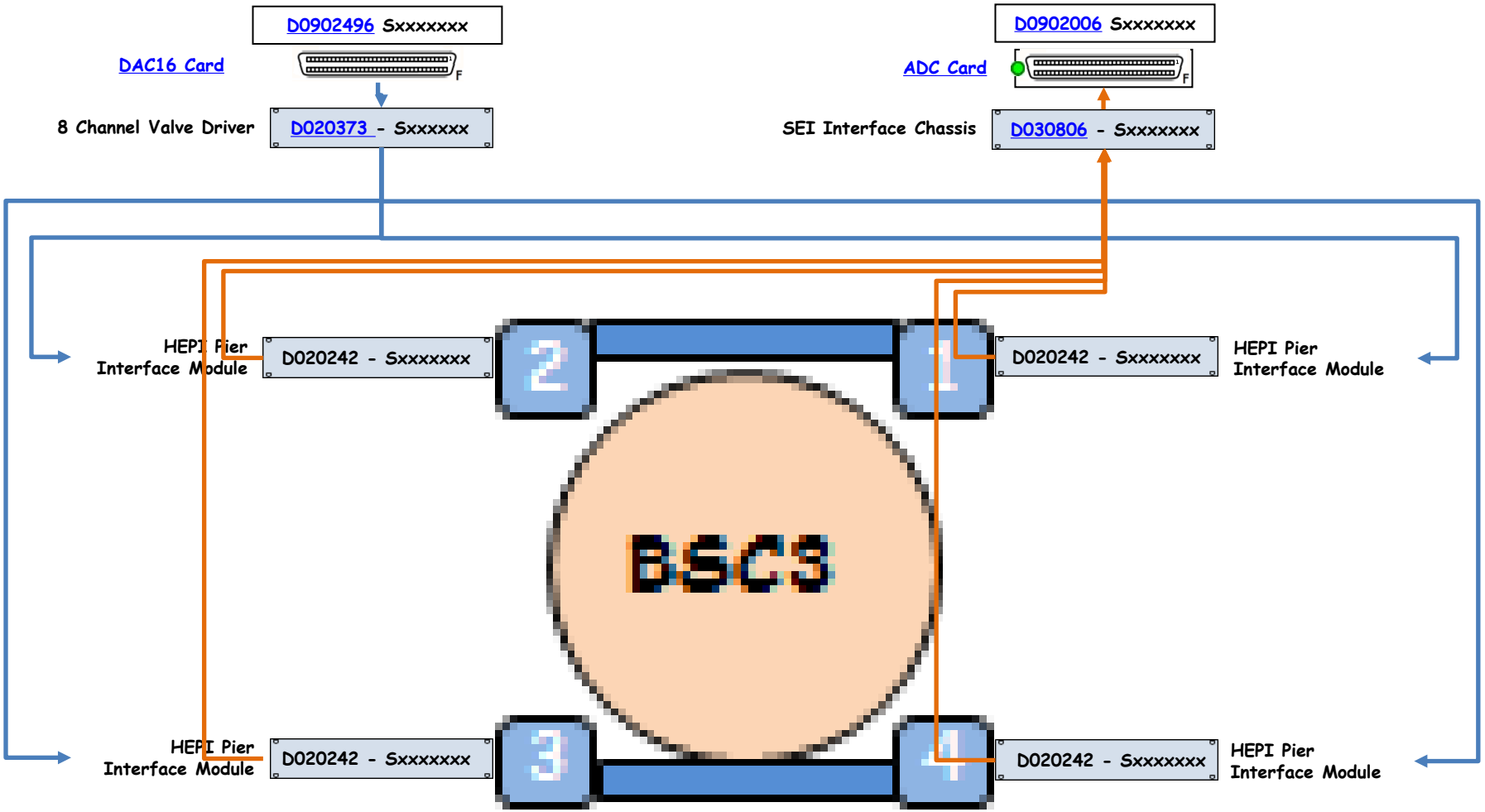
BSC3 Chamber Flanges (ITMX)

<< BSC3 Chamber Elements



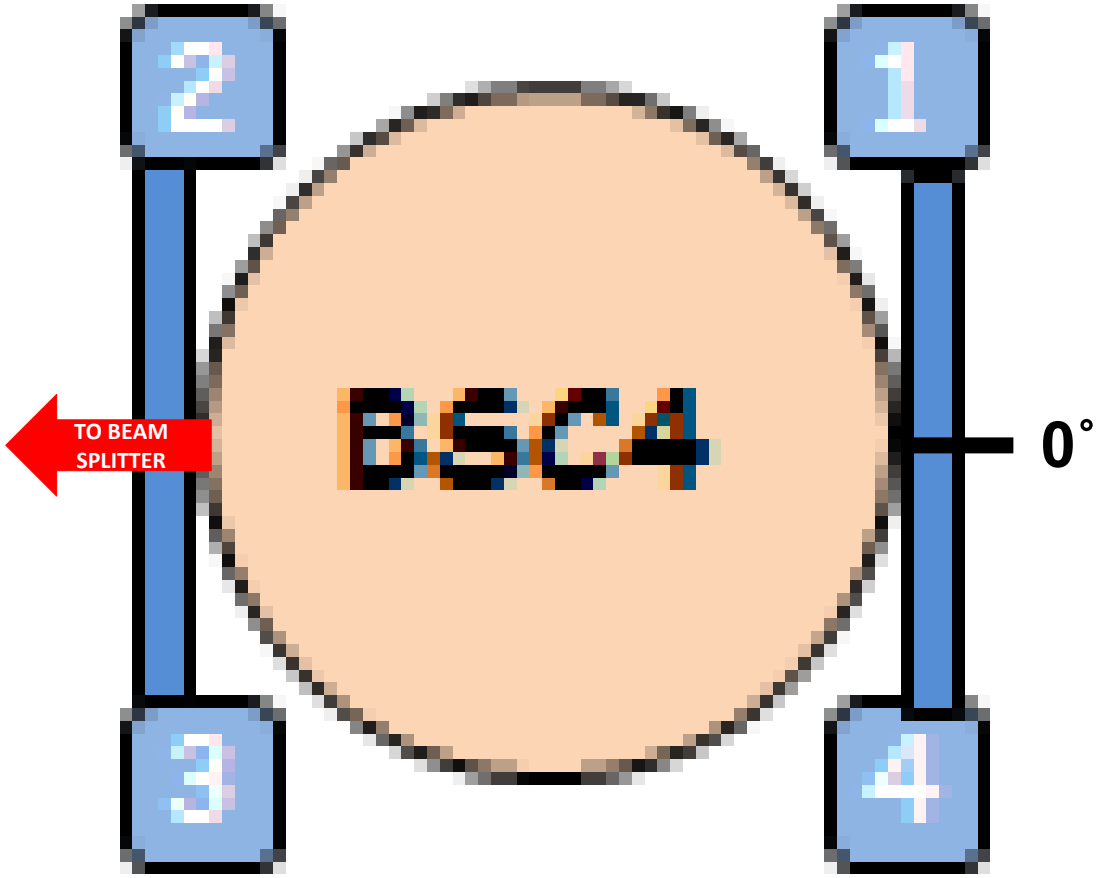
BSC3 HEPI

LIGO
<< BSC3 Chamber Elements



BSC4 Chamber Elements (ETMX)

[<< Chambers]



BSC4 Mid-size ION Pump	75IP-BSC4
BSC4 Turbo Pump	75IP-BSC4
BSC4 Scroll Pump	75IP-BSC4

BSC4 Annulus ION Pump	75IP-BSC4
BSC4 Parani Gauge	75IPBSC4
BSC4 Cold Cathode	75IPBSC4

BSC4 Top Level Chamber Assembly	D0900471
BSC4 Drawing	D0900473
BSC4 Viewports	T1000746
BSC4 Flanges	D1003091
BSC4 HEPI	75IP-BSC4
BSC4 CPS	75IP-BSC4

BSC4 Annulus Ion Pump

LIGO

<< BSC4 Chamber Elements

BSC4 Annulus ION Pump | Controller

BSC4 Annulus Ion Pump Controller

LIGO

<< BSC4 Chamber Elements

BSC4 Annulus ION Pump Controller | 929-7000

MiniVac Controller

Model 929-0196
Model 929-0197

Input/Output Interconnections

All input/output signals are accessible at J001 accessory connector. With the provided P001 mating connector make the connections with AWG 24 (0.2 mm^2) - or smaller wire - to the pins indicated in the following figure to obtain the desired capability.

Input signals

Pin 3-7 Remote high voltage ON/OFF or high voltage interlock; requires a permanent closed pin contact.

NOTE

Pin 3-7 must be shorted to allow the high voltage output if no remote/interlock contact is connected.

Output signals

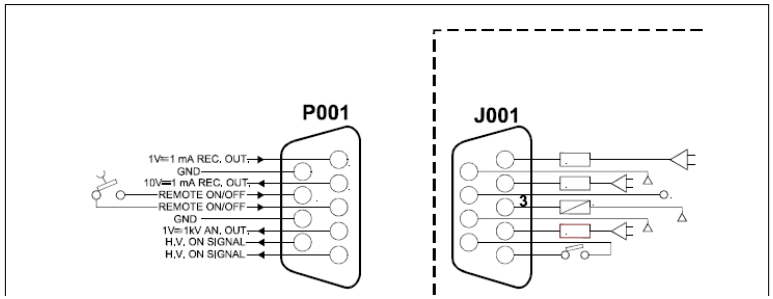
Pin 1-6 Current recorder output 1 (pin 1 signal out, pin 6 ground). The output voltage 0 to + 10 Vdc is proportional to the pump current 0 to 10 mA (e.g. 10 Vdc correspond to 10 mA). The resolution is 10 mV minimum (corresponding to 10 µA).

The front panel REC.OUT connector is a duplicate of this signal on a BNC connector.

Pin 2-6 Current recorder output 2 (pin 2 signal out, pin 6 ground). The output voltage 0 to + 10 Vdc is proportional to the pump current 0 to 1 mA (e.g. 10 Vdc correspond to 1 mA). The resolution is 10 mV minimum (corresponding to 1 µA).

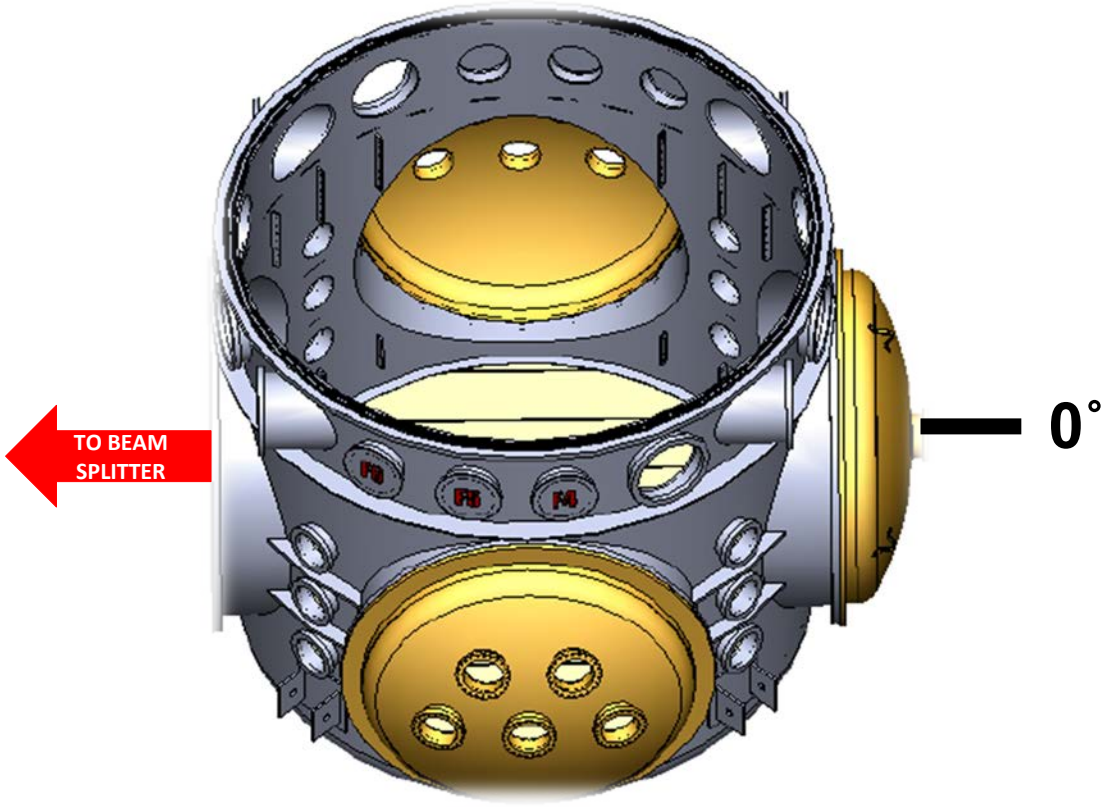
Pin 4-8 Voltage recorder output (pin 4 signal out, pin 8 ground). The output voltage 0 to 5 V is proportional to the controller high voltage output 0 to 5 kV (e.g. 1 V corresponds to 1 kV in linear mode).

Pin 5-9 High voltage indication contact. This pure contact (which carries 1 A at 250 Vac and 0.2 A at 30 Vdc) is open when the high voltage is off and closes when the high voltage in on.



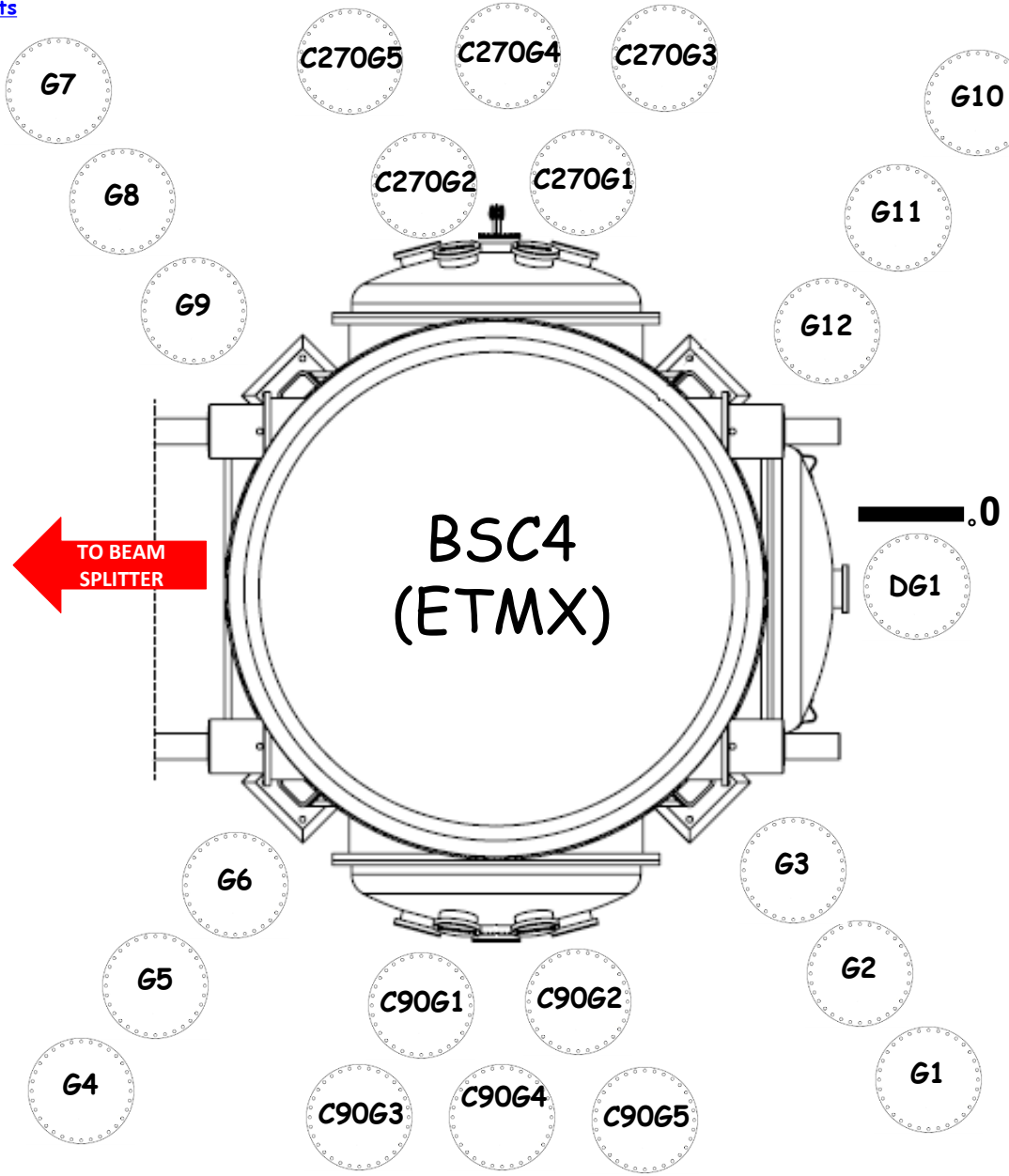
BSC4 Chamber Drawing (ETMX)

[<< BSC4 Chamber Elements]



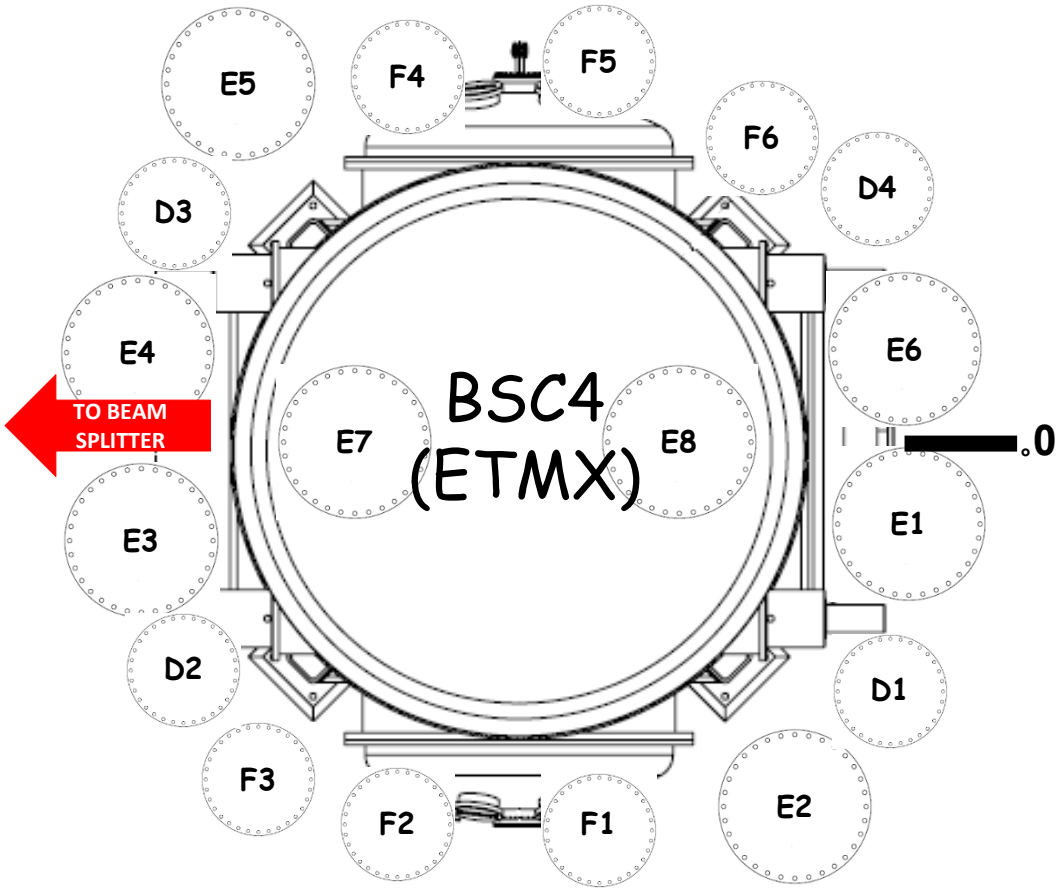
BSC4 Chamber Viewports (ETMX)

<< BSC4 Chamber Elements



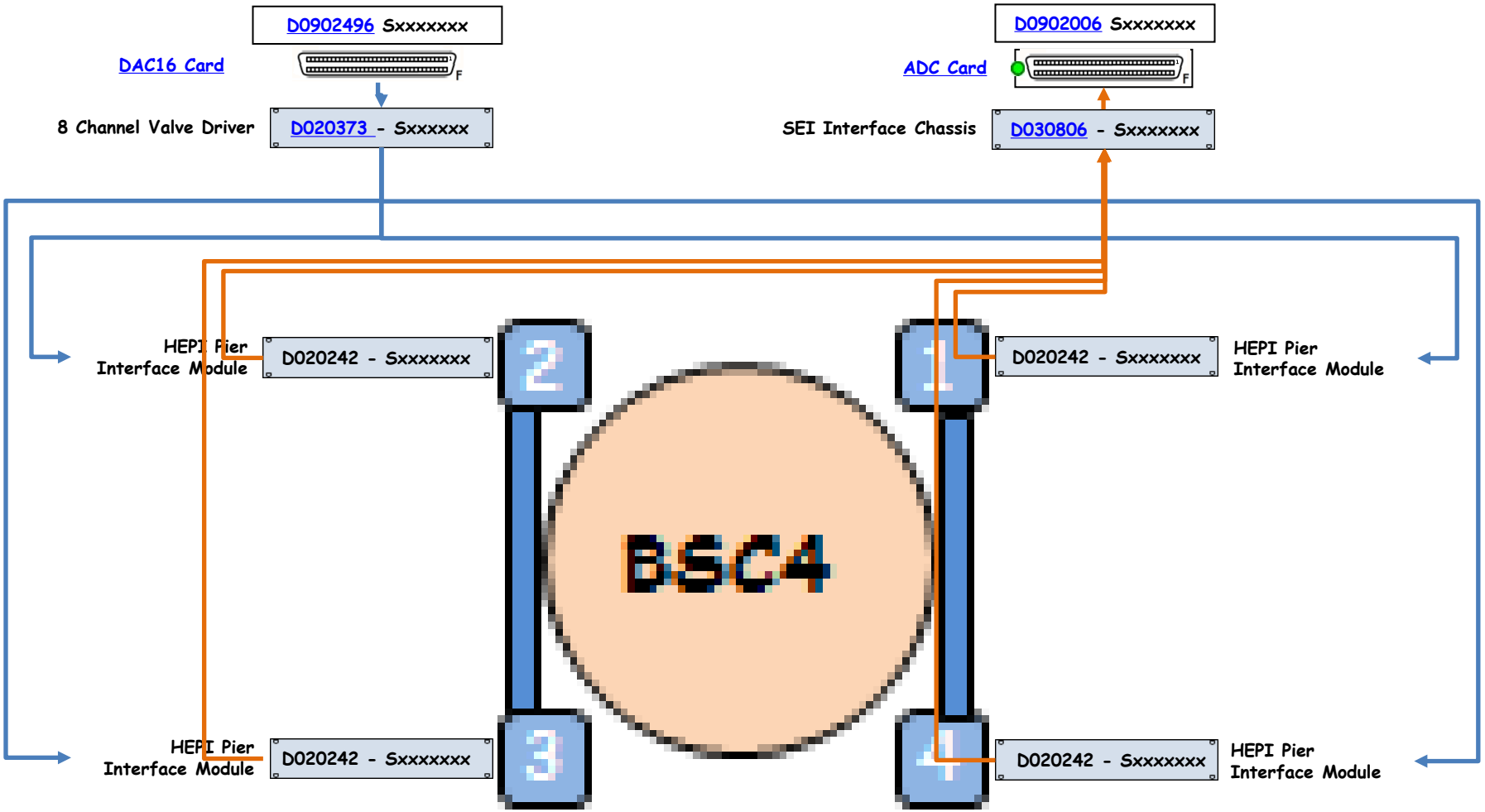
BSC4 Chamber Flanges (ETMX)

<< BSC4 Chamber Elements



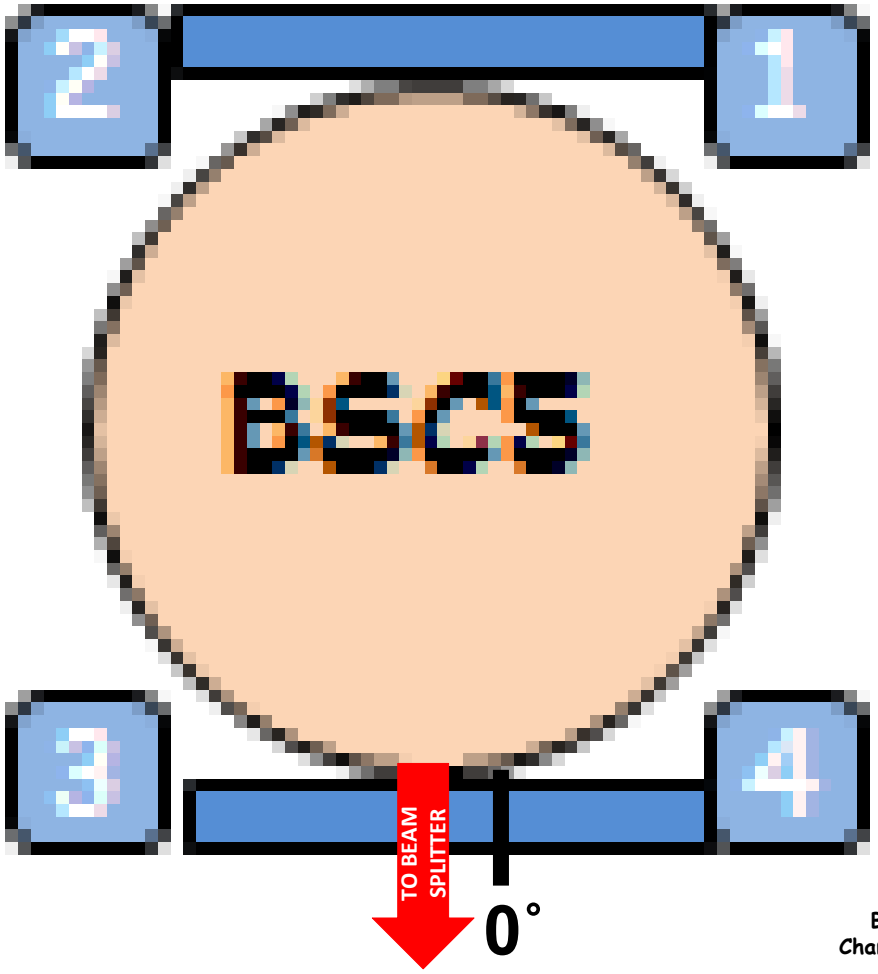
BSC4 HEPI

LIGO
<< BSC4 Chamber Elements



BSC5 Chamber Elements (ETMY)

[<< Chambers]



BSC5 Mid-size ION Pump	75IP-BSC5
BSC5 Turbo Pump	75IP-BSC5
BSC5 Scroll Pump	75IP-BSC5

BSC5 Annulus ION Pump	75IP-BSC5
BSC5 Parani Gauge	75IPBSC5
BSC5 Cold Cathode	75IPBSC5

BSC5 Top Level Chamber Assembly	D0900506
BSC5 Drawing	D0900507
BSC5 Viewports	T1000746
BSC5 Flanges	D1003092
BSC5 HEPI	75IP-BSC5
BSC5 CPS	75IP-BSC5

BSC5 Annulus Ion Pump

LIGO

<< BSC5 Chamber Elements

BSC5 Annulus ION Pump

Controller

BSC5 Annulus Ion Pump Controller

LIGO

<< BSC5 Chamber Elements

BSC5 Annulus ION Pump Controller | 929-7000

MiniVac Controller

Model 929-0196
Model 929-0197

Input/Output Interconnections

All input/output signals are accessible at J001 accessory connector. With the provided P001 mating connector make the connections with AWG 24 (0.2 mm^2) - or smaller wire - to the pins indicated in the following figure to obtain the desired capability.

Input signals

Pin 3-7 Remote high voltage ON/OFF or high voltage interlock; requires a permanent closed pin contact.

NOTE

Pin 3-7 must be shorted to allow the high voltage output if no remote/interlock contact is connected.

Output signals

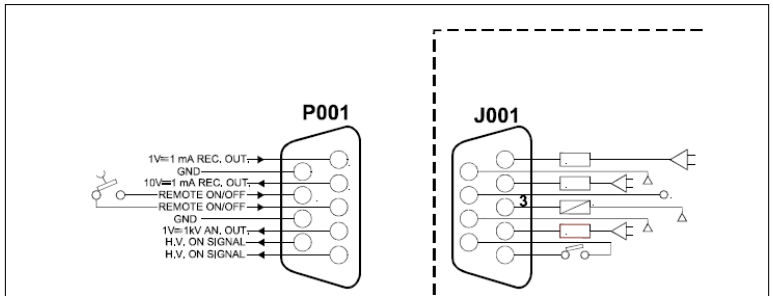
Pin 1-6 Current recorder output 1 (pin 1 signal out, pin 6 ground). The output voltage 0 to + 10 Vdc is proportional to the pump current 0 to 10 mA (e.g. 10 Vdc correspond to 10 mA). The resolution is 10 mV minimum (corresponding to 10 µA).

The front panel REC.OUT connector is a duplicate of this signal on a BNC connector.

Pin 2-6 Current recorder output 2 (pin 2 signal out, pin 6 ground). The output voltage 0 to + 10 Vdc is proportional to the pump current 0 to 1 mA (e.g. 10 Vdc correspond to 1 mA). The resolution is 10 mV minimum (corresponding to 1 µA).

Pin 4-8 Voltage recorder output (pin 4 signal out, pin 8 ground). The output voltage 0 to 5 V is proportional to the controller high voltage output 0 to 5 kV (e.g. 1 V corresponds to 1 kV in linear mode).

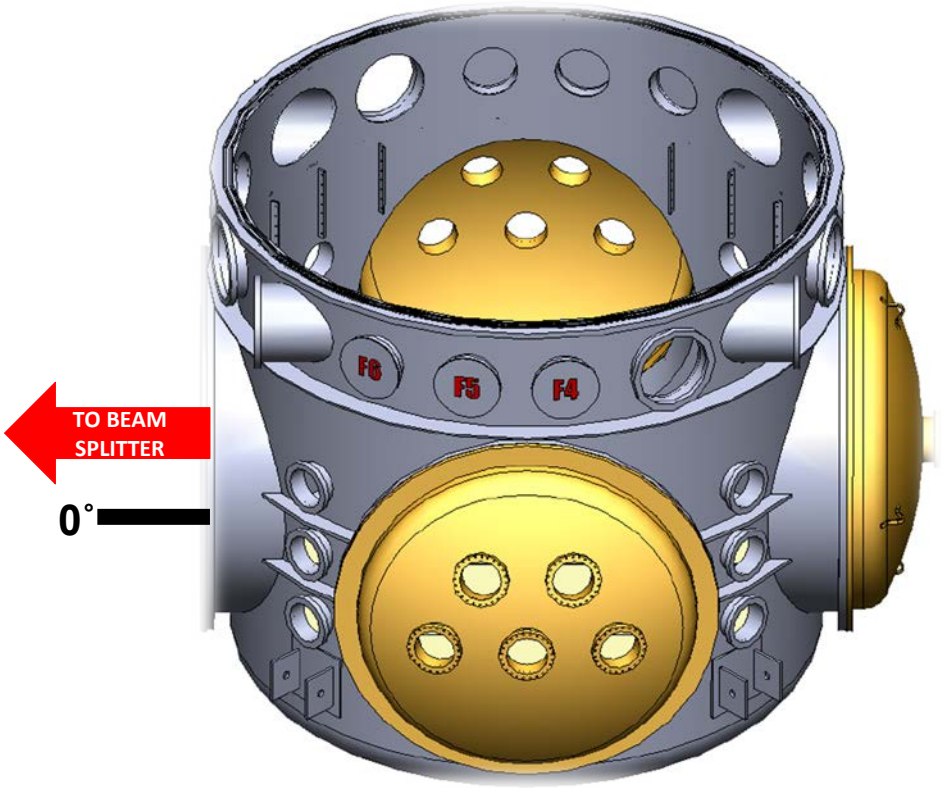
Pin 5-9 High voltage indication contact. This pure contact (which carries 1 A at 250 Vac and 0.2 A at 30 Vdc) is open when the high voltage is off and closes when the high voltage in on.



BSC5 Chamber Drawing (ETMY)

LIGO

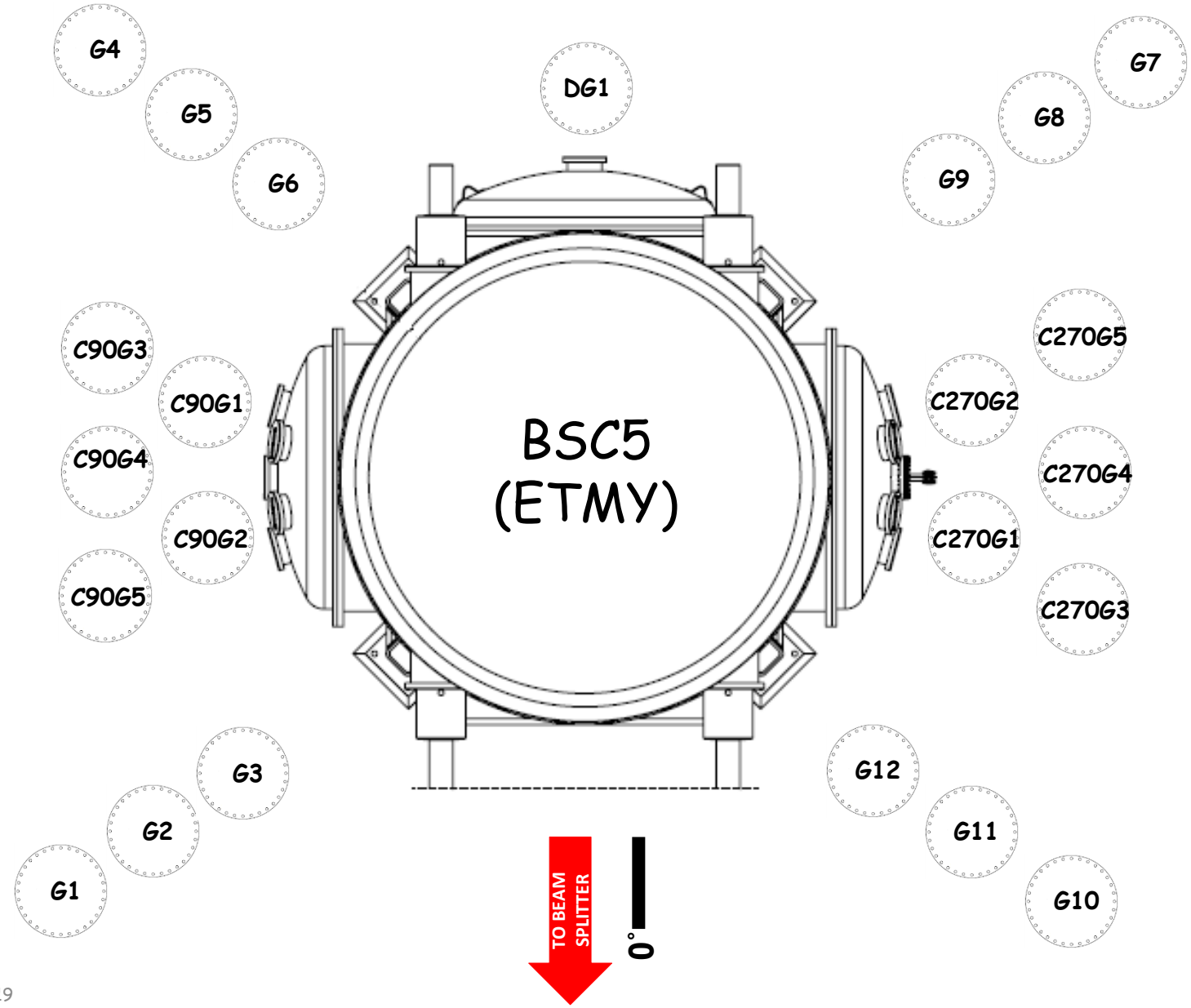
<< BSC5 Chamber Elements



BSC5 Chamber Viewports (ETMY)

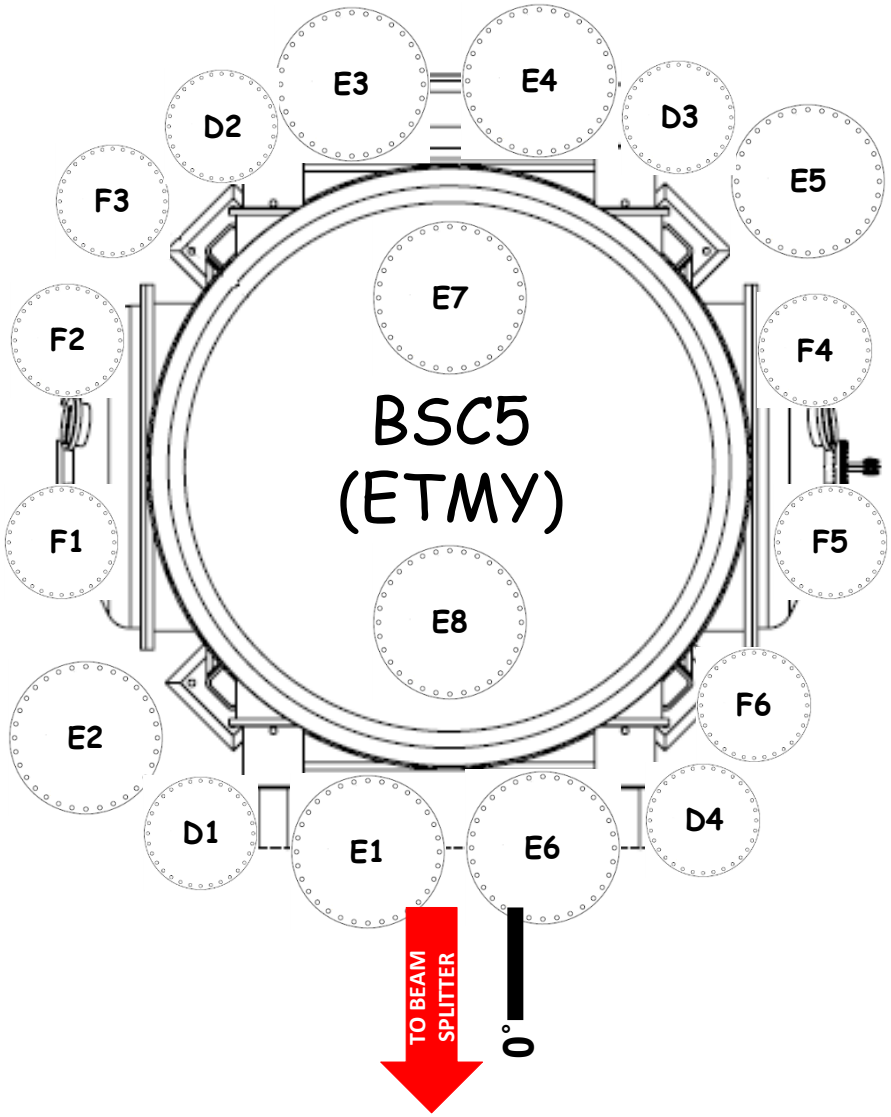
LIGO

<< BSC5 Chamber Elements



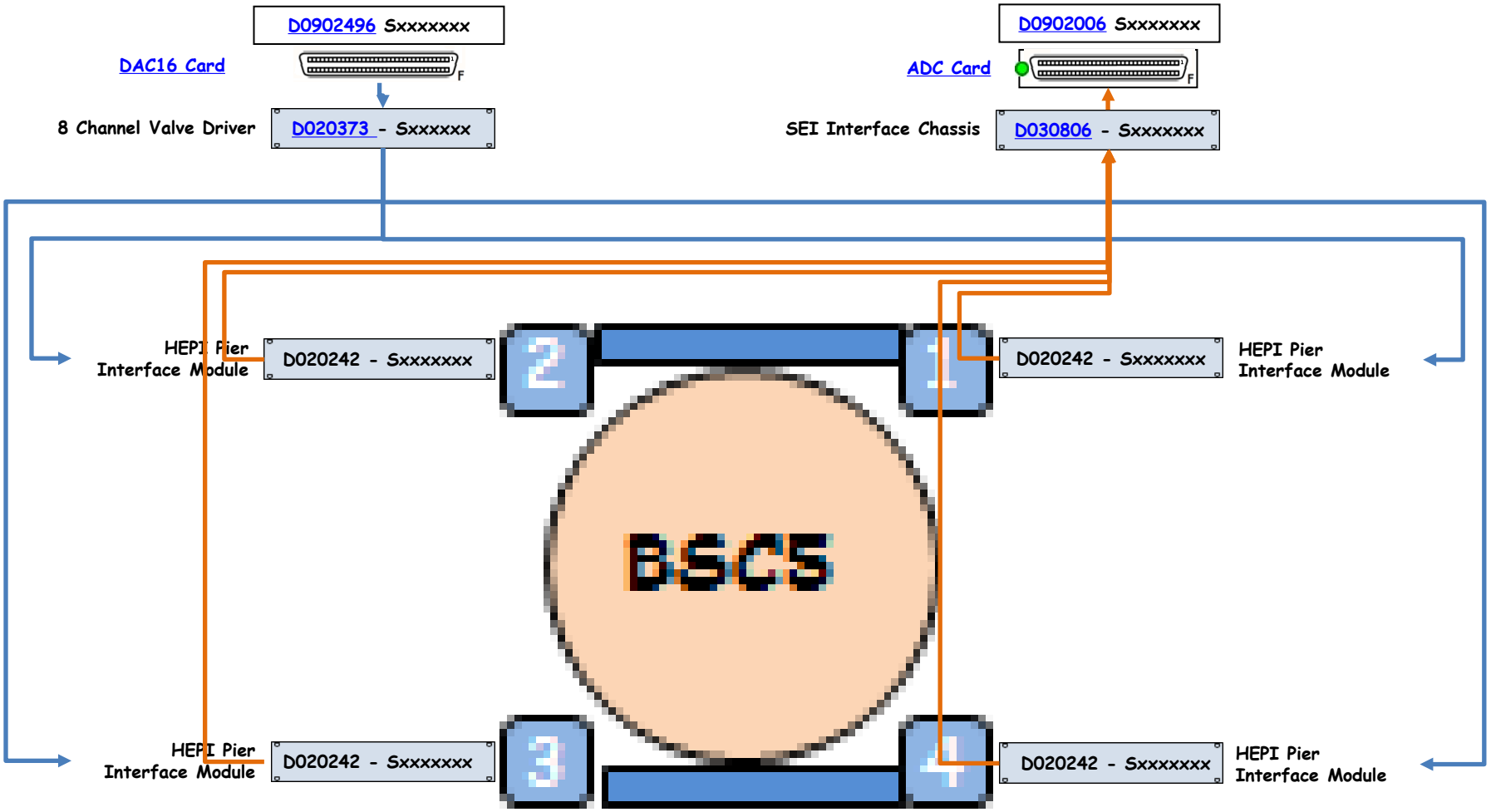
BSC5 Chamber Flanges (ETMY)

[<< BSC5 Chamber Elements]



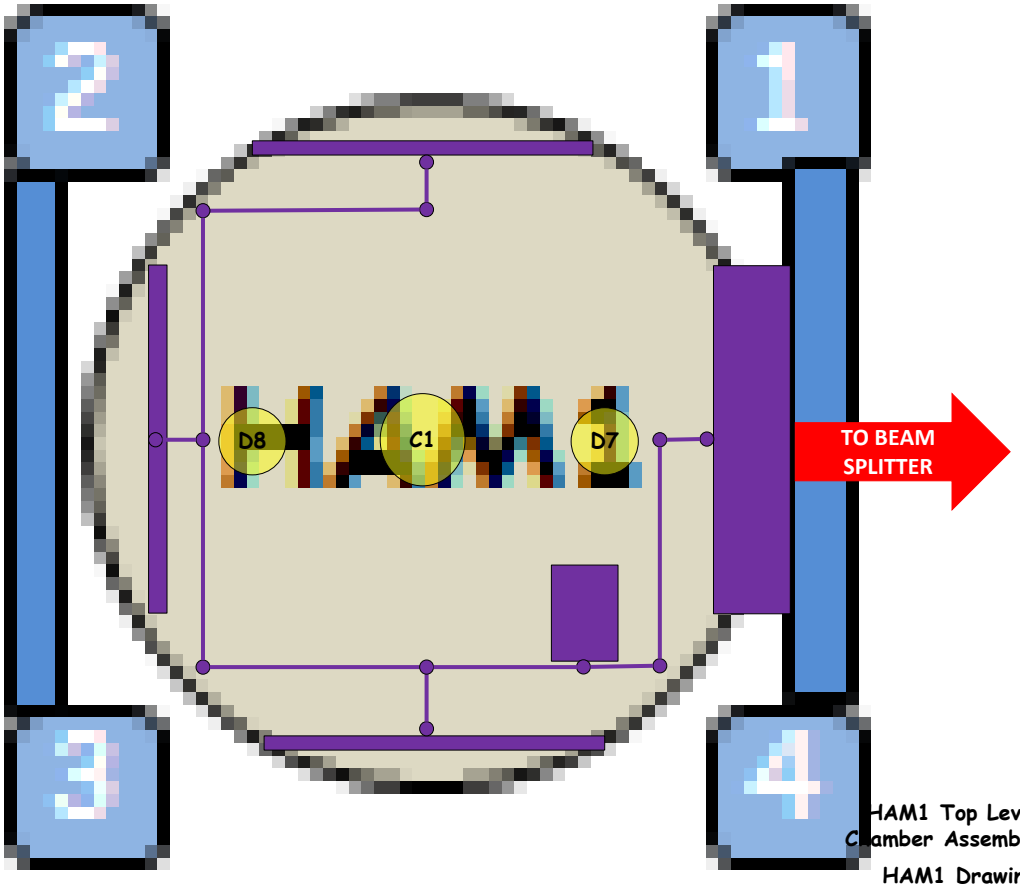
BSC5 HEPI

LIGO
<< BSC5 Chamber Elements



HAM1 Chamber Elements

[<< Chambers]



HAM1 Mid-size ION Pump	75IP-HAM1
HAM1 Turbo Pump	75IP-HAM1
HAM1 Scroll Pump	75IP-HAM1

HAM1 Annulus ION Pump	75IP-HAM1
HAM1 Parani Gauge	75IPHAM1
HAM1 Cold Cathode	75IPHAM1

HAM1 Top Level Chamber Assembly	D0901809
HAM1 Drawing	D0901810
HAM1 Viewports	T1000746
HAM1 Flanges	D1002884
HAM1 HEPI	75IP-HAM1
HAM1 CPS	75IP-HAM1

HAM1 Annulus Ion Pump

LIGO

<< HAM1 Chamber Elements

HAM1 Annulus ION Pump

Controller

HAM1 Annulus Ion Pump Controller

LIGO

<< HAM1 Chamber Elements

HAM1 Annulus ION Pump Controller | 929-7000

MiniVac Controller

Model 929-0196
Model 929-0197

Input/Output Interconnections

All input/output signals are accessible at J001 accessory connector. With the provided P001 mating connector make the connections with AWG 24 (0.2 mm^2) - or smaller wire - to the pins indicated in the following figure to obtain the desired capability.

Input signals

Pin 3-7 Remote high voltage ON/OFF or high voltage interlock; requires a permanent closed pin contact.

NOTE

Pin 3-7 must be shorted to allow the high voltage output if no remote/interlock contact is connected.

Output signals

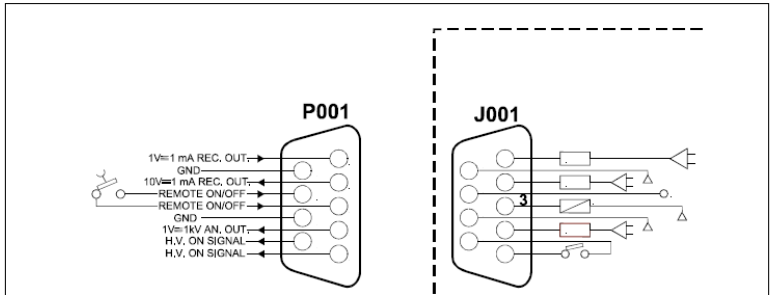
Pin 1-6 Current recorder output 1 (pin 1 signal out, pin 6 ground). The output voltage 0 to + 10 Vdc is proportional to the pump current 0 to 10 mA (e.g. 10 Vdc correspond to 10 mA). The resolution is 10 mV minimum (corresponding to 10 µA).

The front panel REC.OUT connector is a duplicate of this signal on a BNC connector.

Pin 2-6 Current recorder output 2 (pin 2 signal out, pin 6 ground). The output voltage 0 to + 10 Vdc is proportional to the pump current 0 to 1 mA (e.g. 10 Vdc correspond to 1 mA). The resolution is 10 mV minimum (corresponding to 1 µA).

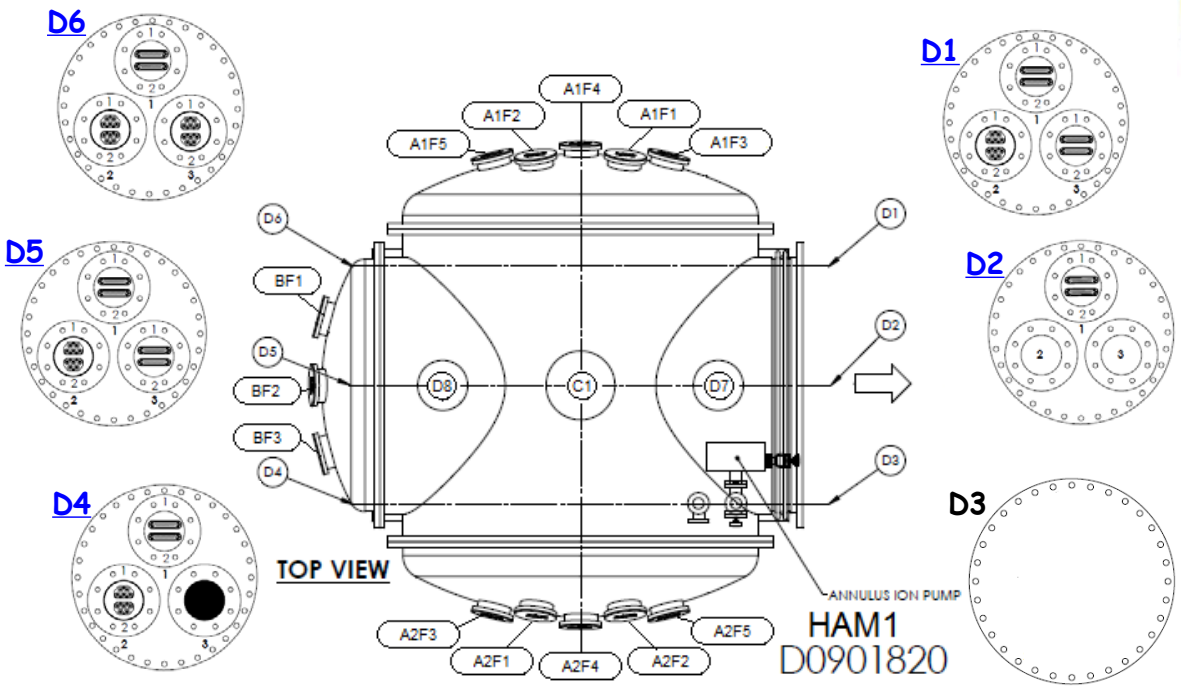
Pin 4-8 Voltage recorder output (pin 4 signal out, pin 8 ground). The output voltage 0 to 5 V is proportional to the controller high voltage output 0 to 5 kV (e.g. 1 V corresponds to 1 kV in linear mode).

Pin 5-9 High voltage indication contact. This pure contact (which carries 1 A at 250 Vac and 0.2 A at 30 Vdc) is open when the high voltage is off and closes when the high voltage in on.



HAM1 Flanges

<< HAM1 Chamber Elements

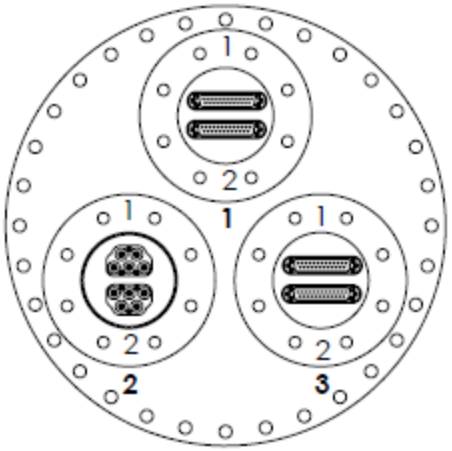


Drawing: D0901820

Flanges: D1002884

Viewports: D1002884

HAM1 D1 Flange



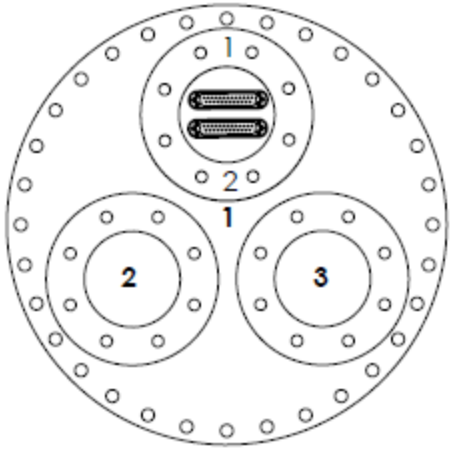
HEPI Pier Module

HEPI Pier Interface Module

HEPI Pier Module

HEPI Pier Interface Module

HAM1 D2 Flange



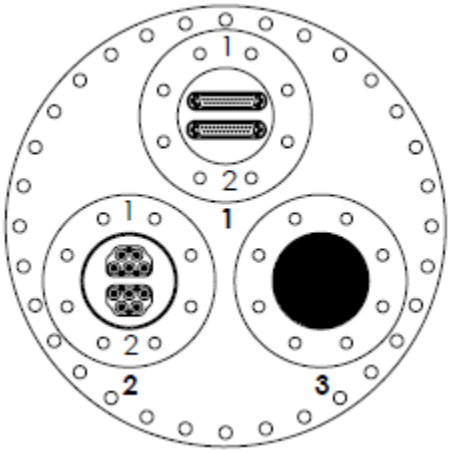
HEPI Pier Module

HEPI Pier Interface Module

HEPI Pier Module

HEPI Pier Interface Module

HAM1 D4 Flange



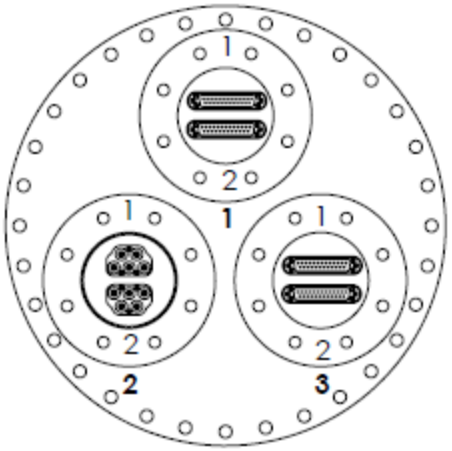
HEPI Pier Module

HEPI Pier Interface Module

HEPI Pier Module

HEPI Pier Interface Module

HAM1 D5 Flange



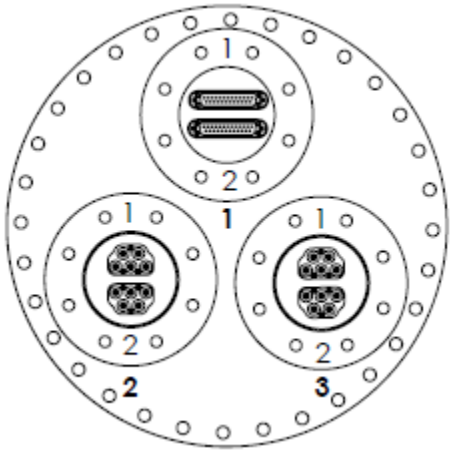
HEPI Pier Module

HEPI Pier Interface Module

HEPI Pier Module

HEPI Pier Interface Module

HAM1 D6 Flange



HEPI Pier Module

HEPI Pier Interface Module

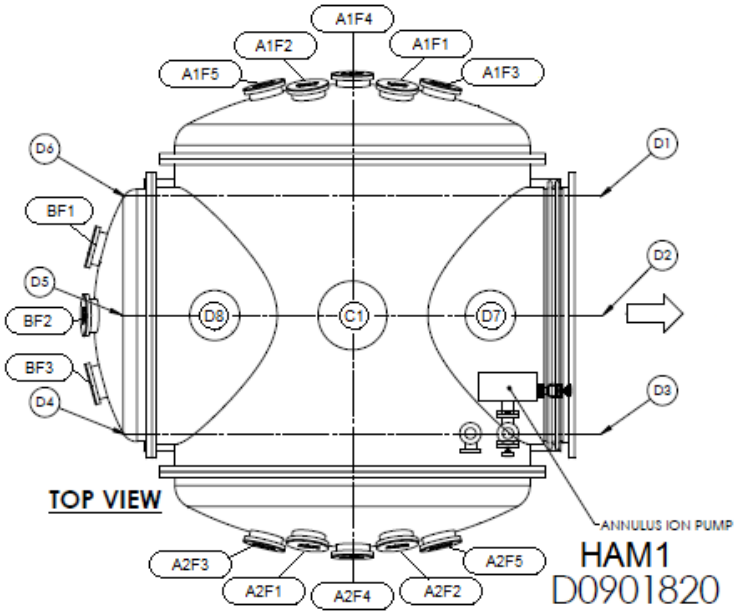
HEPI Pier Module

HEPI Pier Interface Module

HAM1 Viewports

A1F1 A1F2 A1F3 A1F4 A1F5

BF1
BF2
BF3



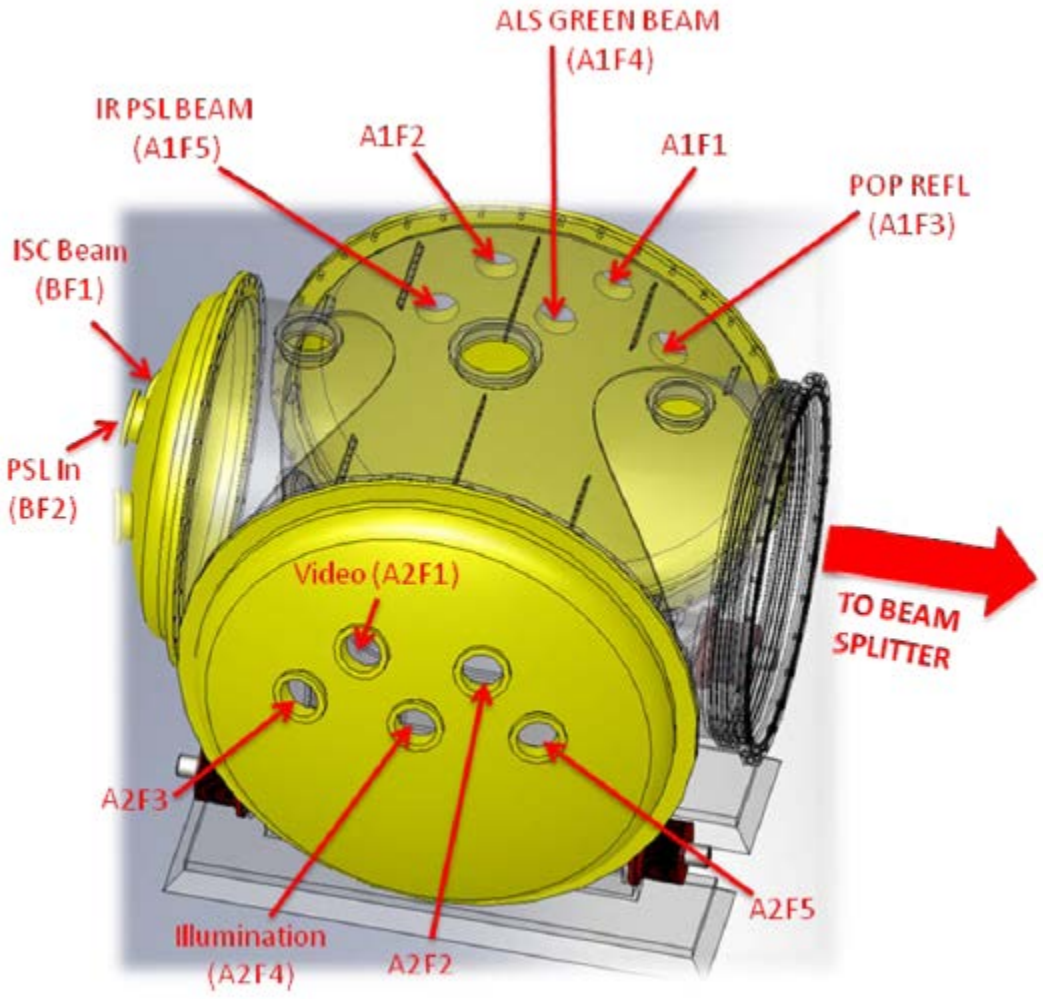
D8 C1 D7

Drawing: D0901820
Viewports: T1000746

A2F1 A2F2 A2F3 A2F4 A2F5

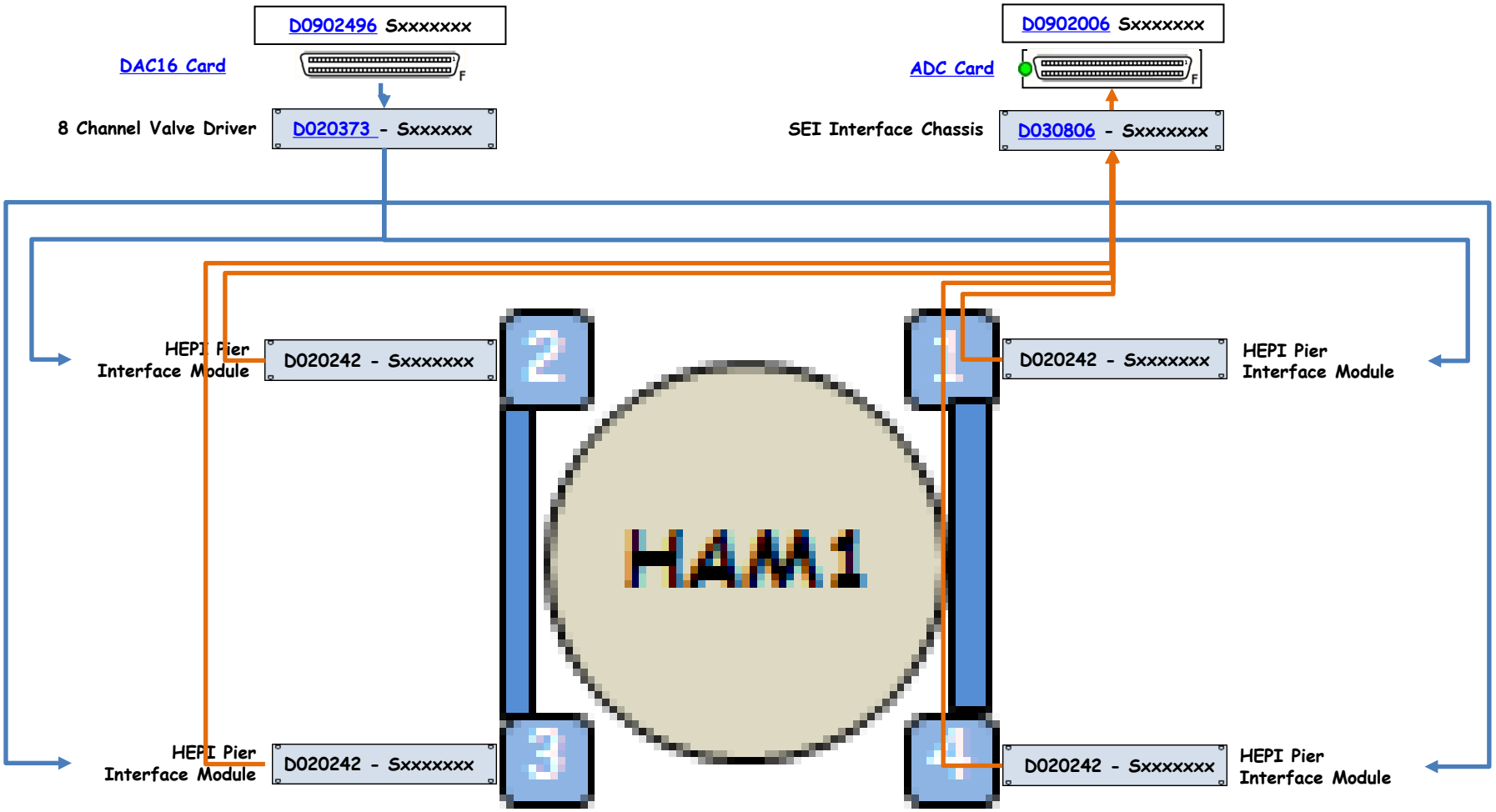
HAM1 Viewports

LIGO
<< HAM1 Flanges

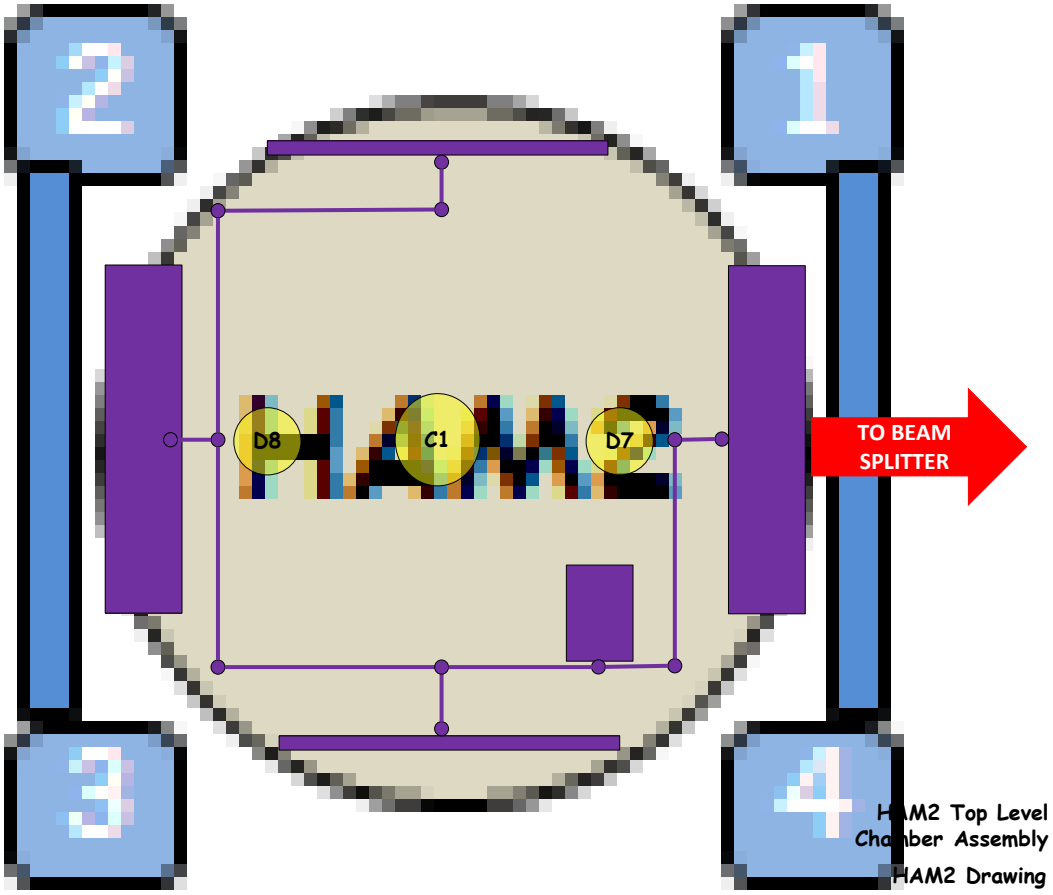


HAM1 HEPI

LIGO
<< HAM1 Chamber Elements



HAM2 Chamber Elements



HAM2 Mid-size ION Pump	75IP-HAM2
HAM2 Turbo Pump	75IP-HAM2
HAM2 Scroll Pump	75IP-HAM2

HAM2 Annulus ION Pump	75IP-HAM2
HAM2 Parani Gauge	75IPHAM2
HAM2 Cold Cathode	75IPHAM2

HAM2 Top Level Chamber Assembly	D0900365
HAM2 Drawing	D0900366
HAM2 Viewports	T1000746
HAM2 Flanges	D1002885
HAM2 HEPI	75IP-HAM2
HAM2 CPS	75IP-HAM2

HAM2 Annulus Ion Pump

LIGO

<< HAM2 Chamber Elements

HAM2 Annulus ION Pump

Controller

HAM2 Annulus Ion Pump Controller

LIGO

<< HAM2 Chamber Elements

HAM2 Annulus ION Pump Controller | 929-7000

MiniVac Controller

Model 929-0196
Model 929-0197

Input/Output Interconnections

All input/output signals are accessible at J001 accessory connector. With the provided P001 mating connector make the connections with AWG 24 (0.2 mm^2) - or smaller wire - to the pins indicated in the following figure to obtain the desired capability.

Input signals

Pin 3-7 Remote high voltage ON/OFF or high voltage interlock; requires a permanent closed pin contact.

NOTE

Pin 3-7 must be shorted to allow the high voltage output if no remote/interlock contact is connected.

Output signals

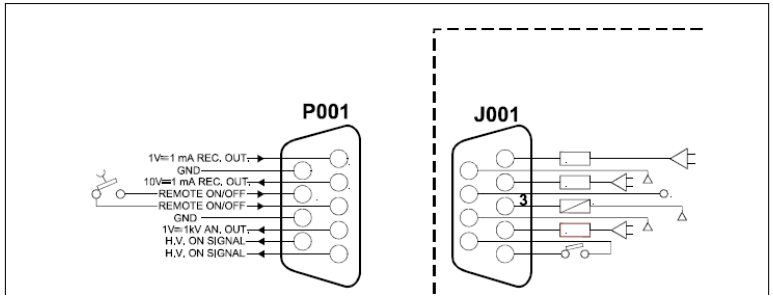
Pin 1-6 Current recorder output 1 (pin 1 signal out, pin 6 ground). The output voltage 0 to + 10 Vdc is proportional to the pump current 0 to 10 mA (e.g. 10 Vdc correspond to 10 mA). The resolution is 10 mV minimum (corresponding to 10 µA).

The front panel REC.OUT connector is a duplicate of this signal on a BNC connector.

Pin 2-6 Current recorder output 2 (pin 2 signal out, pin 6 ground). The output voltage 0 to + 10 Vdc is proportional to the pump current 0 to 1 mA (e.g. 10 Vdc correspond to 1 mA). The resolution is 10 mV minimum (corresponding to 1 µA).

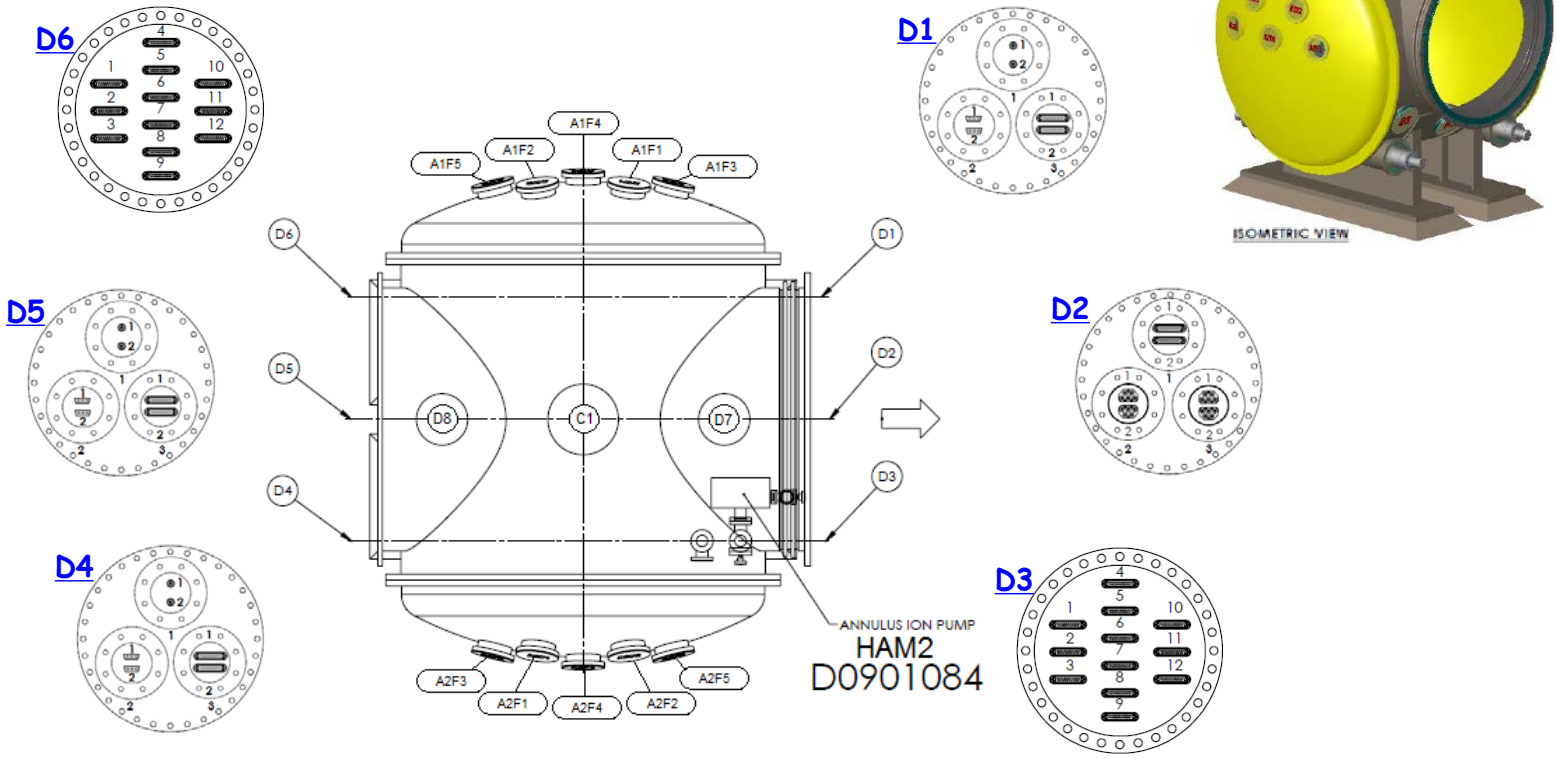
Pin 4-8 Voltage recorder output (pin 4 signal out, pin 8 ground). The output voltage 0 to 5 V is proportional to the controller high voltage output 0 to 5 kV (e.g. 1 V corresponds to 1 kV in linear mode).

Pin 5-9 High voltage indication contact. This pure contact (which carries 1 A at 250 Vac and 0.2 A at 30 Vdc) is open when the high voltage is off and closes when the high voltage in on.



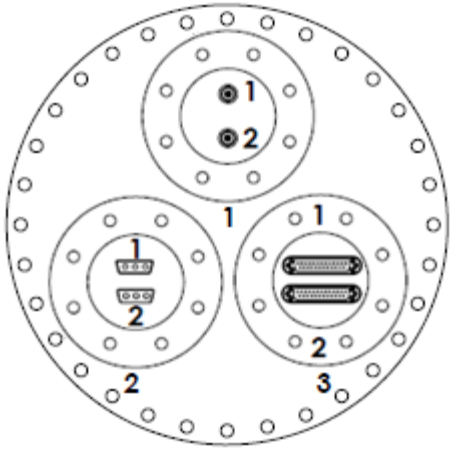
HAM2 Flanges

<< HAM2 Chamber Elements



Drawing: D0901084
Flanges: D1002885

HAM2 D1 Flange



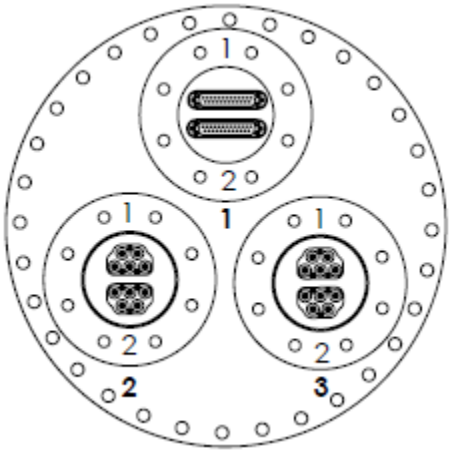
HEPI Pier Module

HEPI Pier Interface Module

HEPI Pier Module

HEPI Pier Interface Module

HAM2 D2 Flange



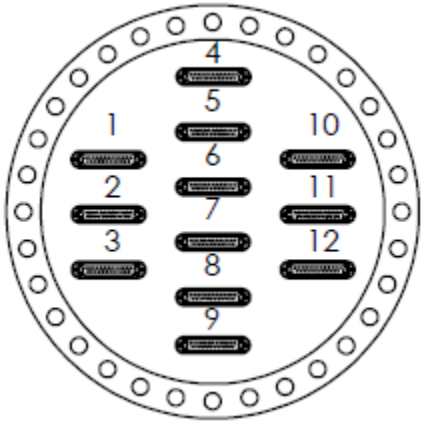
HEPI Pier Module

HEPI Pier Interface Module

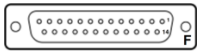
HEPI Pier Module

HEPI Pier Interface Module

HAM2 D3 Flange

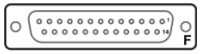


HEPI Pier Module



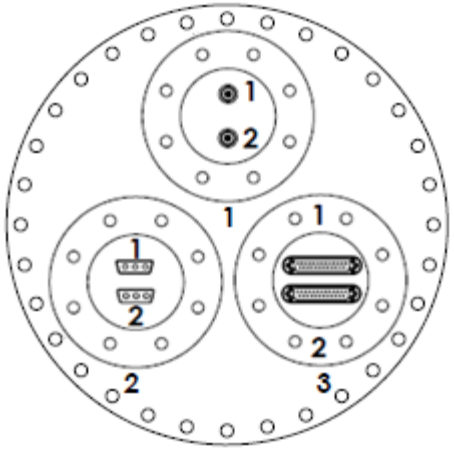
HEPI Pier Interface Module

HEPI Pier Module



HEPI Pier Interface Module

HAM2 D4 Flange



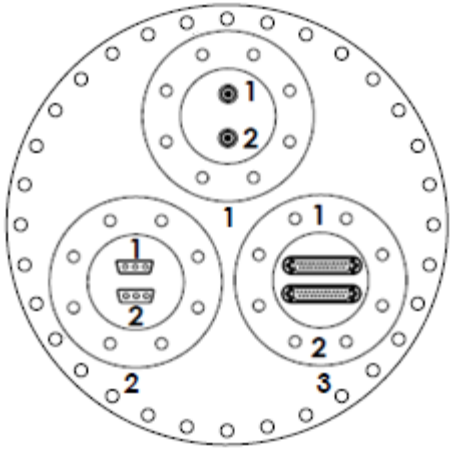
HEPI Pier Module

HEPI Pier Interface Module

HEPI Pier Module

HEPI Pier Interface Module

HAM2 D5 Flange



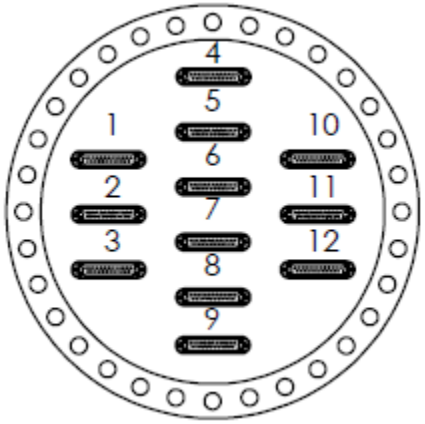
HEPI Pier Module

HEPI Pier Interface Module

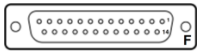
HEPI Pier Module

HEPI Pier Interface Module

HAM2 D6 Flange

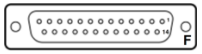


HEPI Pier Module



HEPI Pier Interface Module

HEPI Pier Module

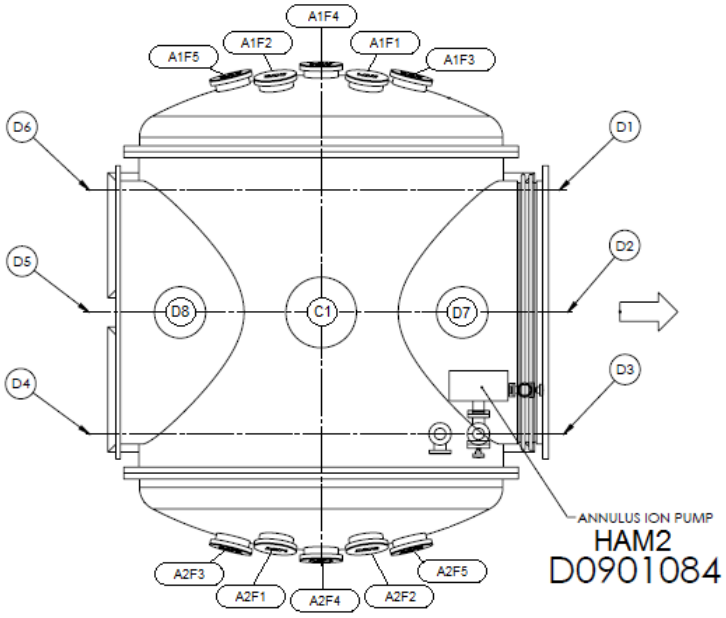


HEPI Pier Interface Module

HAM2 Viewports

<< HAM2 Chamber Elements

A1F1 A1F2 A1F3 A1F4 A1F5



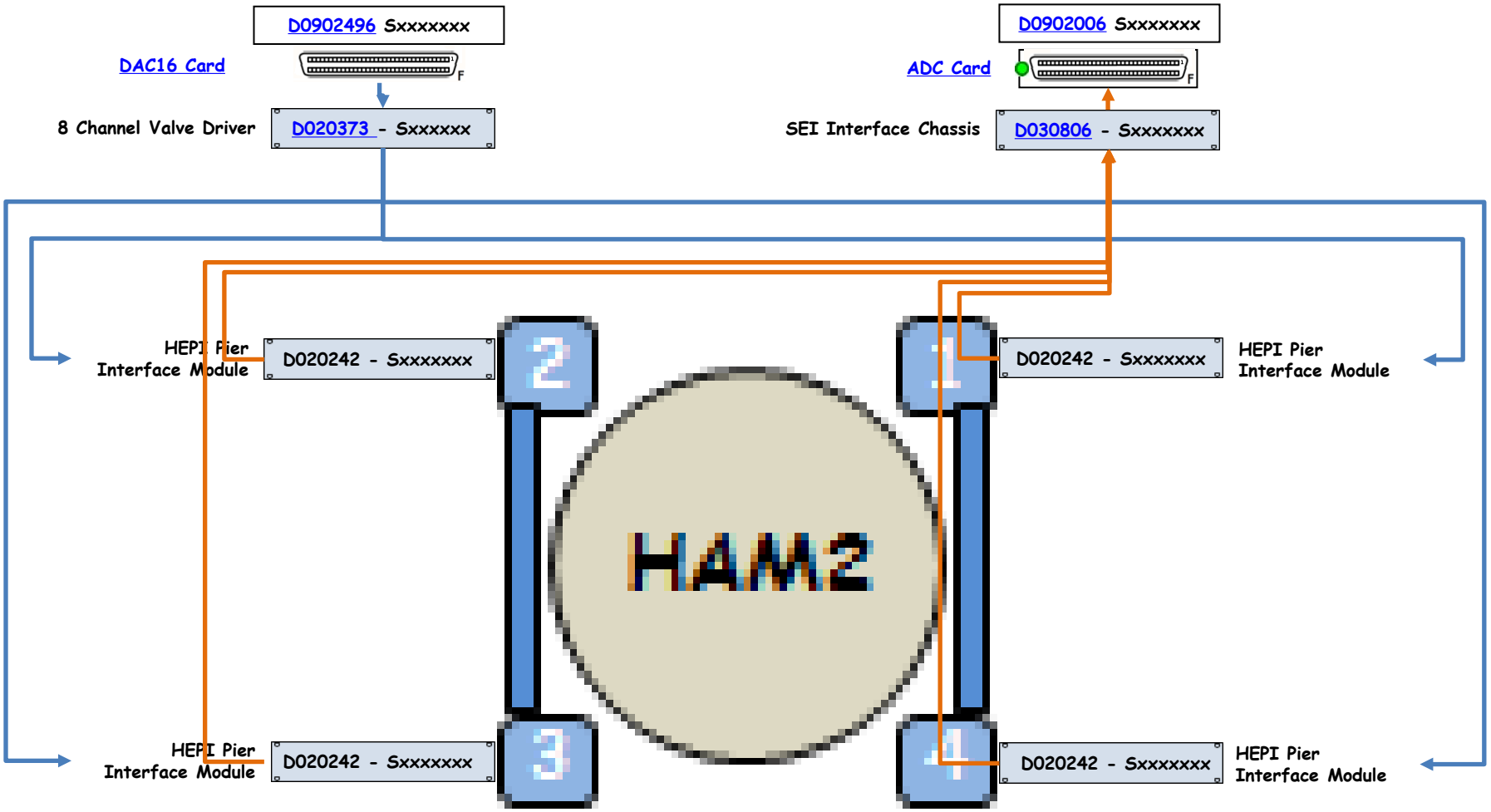
D8 C1 D7

Drawing: D0901084
Viewports: T1000746

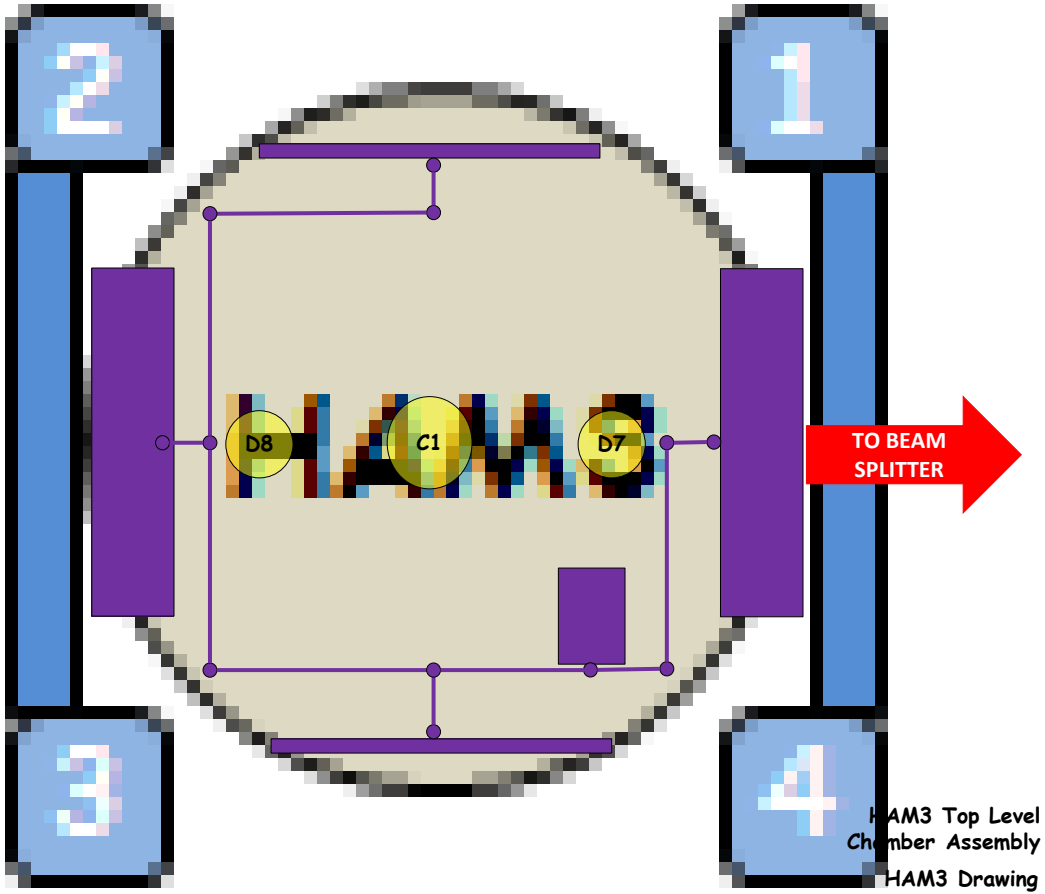
A2F1 A2F2 A2F3 A2F4 A2F5

HAM2 HEPI

« HAM2 Chamber Elements



HAM3 Chamber Elements



HAM3 Top Level Chamber Assembly	D0900520
HAM3 Drawing	D0900521
HAM3 Viewports	T1000746
HAM3 Flanges	D1002886
HAM3 HEPI	75IP-HAM3
HAM3 CPS	75IP-HAM3

HAM3 Annulus ION Pump	75IP-HAM3
HAM3 Parani Gauge	75IPHAM3
HAM3 Cold Cathode	75IPHAM3

HAM3 Mid-size ION Pump	75IP-HAM3
HAM3 Turbo Pump	75IP-HAM3
HAM3 Scroll Pump	75IP-HAM3

HAM3 Annulus Ion Pump

LIGO
<< HAM3 Chamber Elements
HAM3 Annulus ION Pump
Controller

HAM3 Annulus Ion Pump Controller

LIGO

<< HAM3 Chamber Elements

HAM3 Annulus ION Pump Controller | 929-7000

MiniVac Controller

Model 929-0196
Model 929-0197

Input/Output Interconnections

All input/output signals are accessible at J001 accessory connector. With the provided P001 mating connector make the connections with AWG 24 (0.2 mm^2) - or smaller wire - to the pins indicated in the following figure to obtain the desired capability.

Input signals

Pin 3-7 Remote high voltage ON/OFF or high voltage interlock; requires a permanent closed pin contact.

NOTE

Pin 3-7 must be shorted to allow the high voltage output if no remote/interlock contact is connected.

Output signals

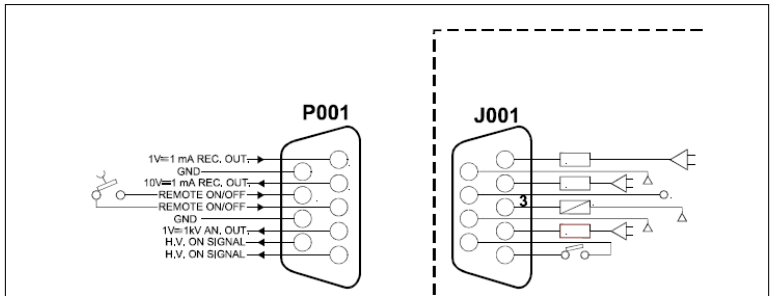
Pin 1-6 Current recorder output 1 (pin 1 signal out, pin 6 ground). The output voltage 0 to + 10 Vdc is proportional to the pump current 0 to 10 mA (e.g. 10 Vdc correspond to 10 mA). The resolution is 10 mV minimum (corresponding to 10 µA).

The front panel REC.OUT connector is a duplicate of this signal on a BNC connector.

Pin 2-6 Current recorder output 2 (pin 2 signal out, pin 6 ground). The output voltage 0 to + 10 Vdc is proportional to the pump current 0 to 1 mA (e.g. 10 Vdc correspond to 1 mA). The resolution is 10 mV minimum (corresponding to 1 µA).

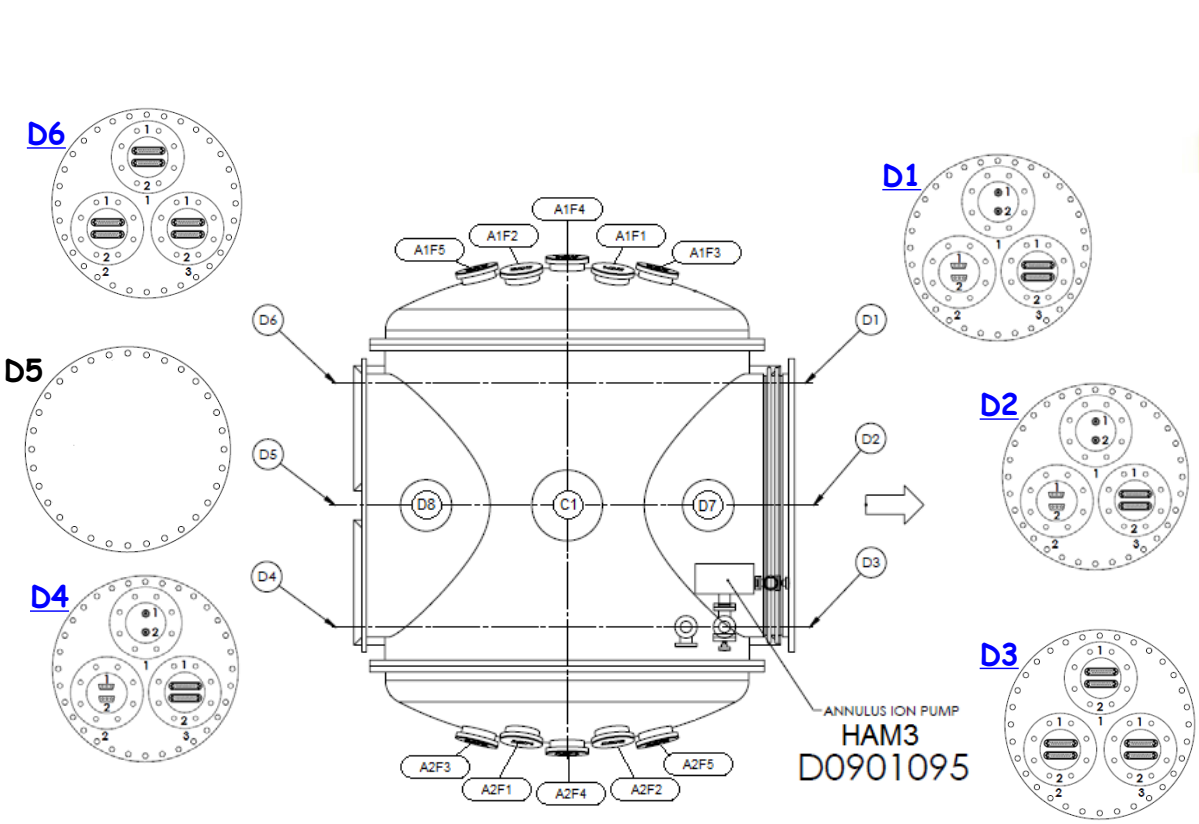
Pin 4-8 Voltage recorder output (pin 4 signal out, pin 8 ground). The output voltage 0 to 5 V is proportional to the controller high voltage output 0 to 5 kV (e.g. 1 V corresponds to 1 kV in linear mode).

Pin 5-9 High voltage indication contact. This pure contact (which carries 1 A at 250 Vac and 0.2 A at 30 Vdc) is open when the high voltage is off and closes when the high voltage in on.



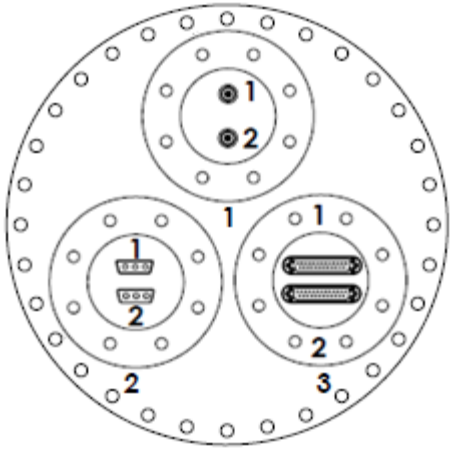
HAM3 Flanges

<< HAM3 Chamber Elements



Drawing: D0901095
Flanges: D1002886

HAM3 D1 Flange



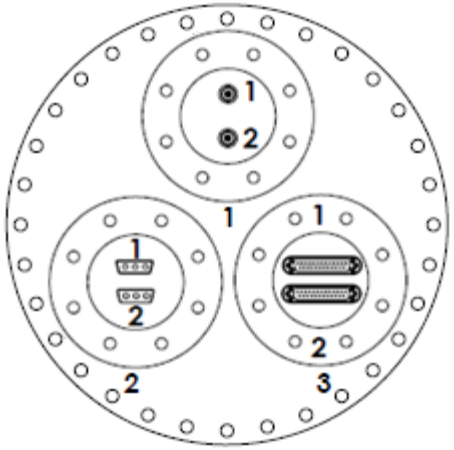
HEPI Pier Module

HEPI Pier Interface Module

HEPI Pier Module

HEPI Pier Interface Module

HAM3 D2 Flange



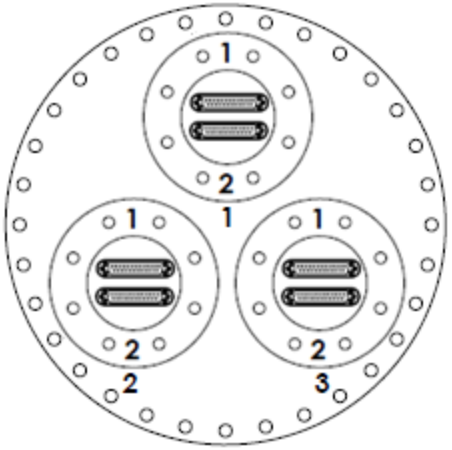
HEPI Pier Module

HEPI Pier Interface Module

HEPI Pier Module

HEPI Pier Interface Module

HAM3 D3 Flange



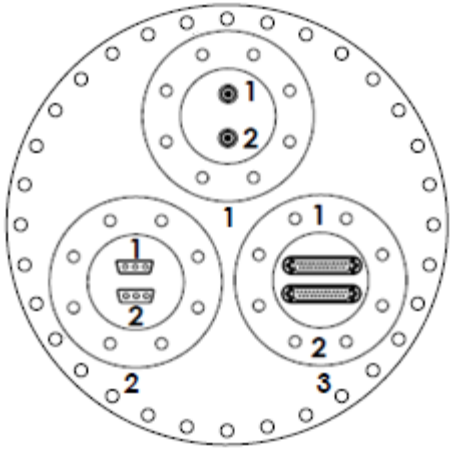
HEPI Pier Module

HEPI Pier Interface Module

HEPI Pier Module

HEPI Pier Interface Module

HAM3 D4 Flange



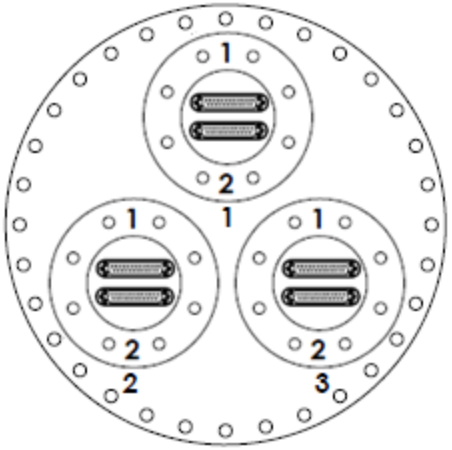
HEPI Pier Module

HEPI Pier Interface Module

HEPI Pier Module

HEPI Pier Interface Module

HAM3 D6 Flange



HEPI Pier Module

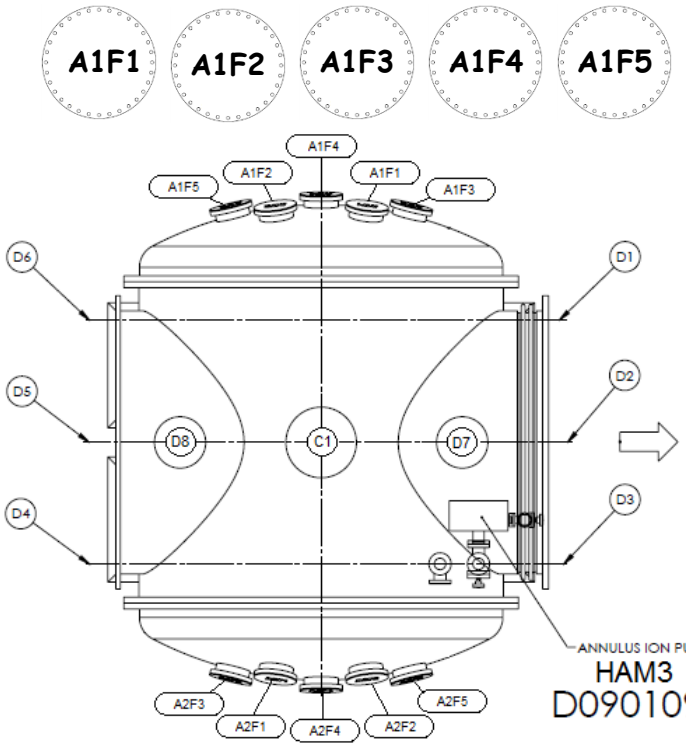
HEPI Pier Interface Module

HEPI Pier Module

HEPI Pier Interface Module

HAM3 Viewports

[<< HAM3 Chamber Elements]



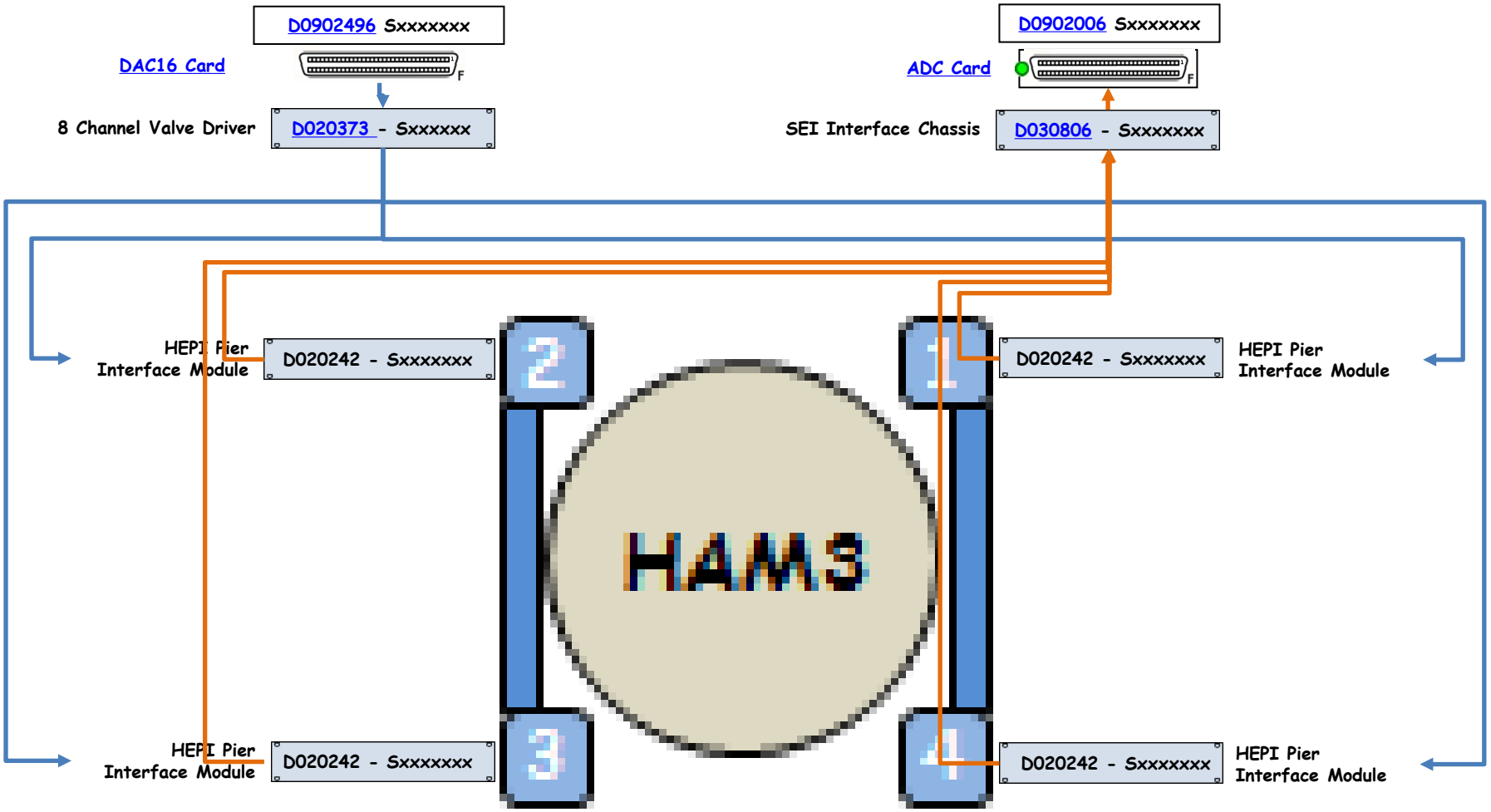
D8 C1 D7

Drawing: [D0901095]
Viewports: [T1000746]

A2F1 A2F2 A2F3 A2F4 A2F5

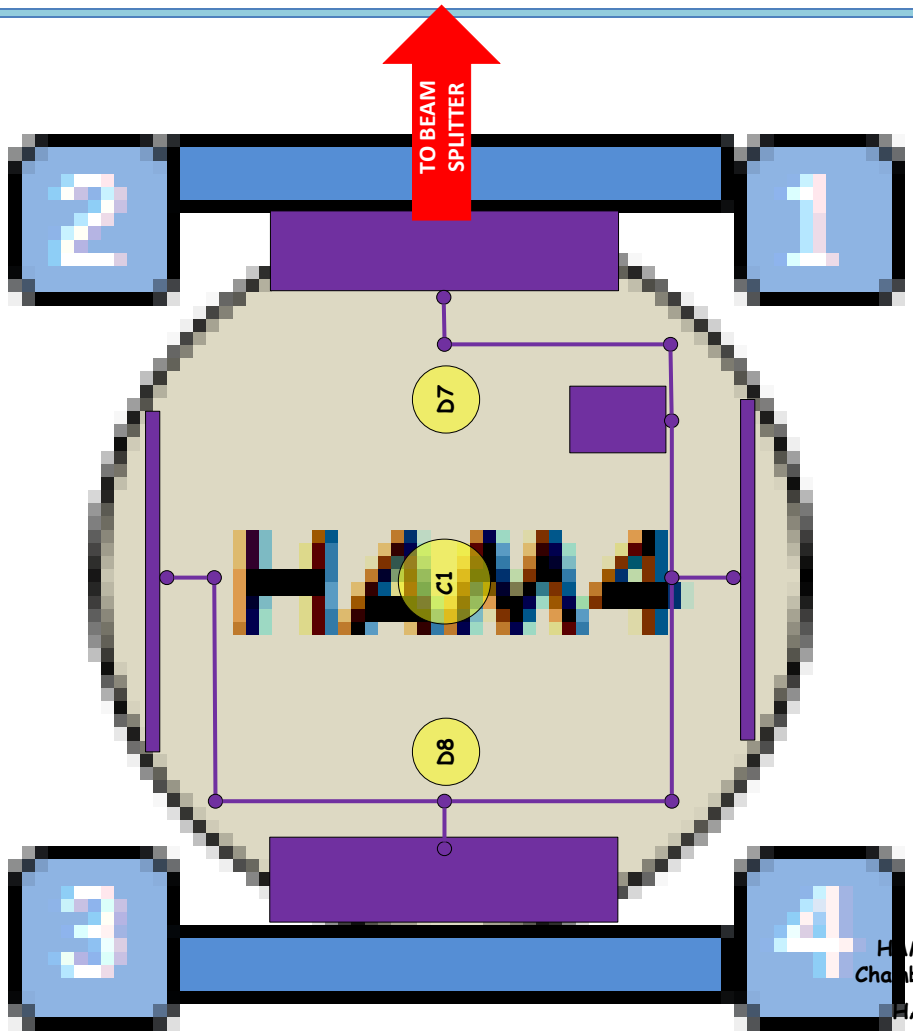
HAM3 HEPI

« HAM3 Chamber Elements



HAM4 Chamber Elements

LIGO
<< Chambers



HAM4 Mid-size ION Pump	75IP-HAM4
HAM4 Turbo Pump	75IP-HAM4
HAM4 Scroll Pump	75IP-HAM4

HAM4 Annulus ION Pump	75IP-HAM4
HAM4 Parani Gauge	75IPHAM4
HAM4 Cold Cathode	75IPHAM4

HAM4 Top Level Chamber Assembly	D0900421
HAM4 Drawing	D0900422
HAM4 Viewports	T1000746
HAM4 Flanges	D1002887
HAM4 HEPI	75IP-HAM4
HAM4 CPS	75IP-HAM4

HAM4 Annulus Ion Pump

LIGO

<< HAM4 Chamber Elements

HAM4 Annulus ION Pump

Controller

HAM4 Annulus Ion Pump Controller

[<< HAM4 Chamber Elements]

HAM4 Annulus ION Pump Controller | 929-7000

MiniVac Controller

Model 929-0196
Model 929-0197

Input/Output Interconnections

All input/output signals are accessible at J001 accessory connector. With the provided P001 mating connector make the connections with AWG 24 (0.2 mm^2) - or smaller wire - to the pins indicated in the following figure to obtain the desired capability.

Input signals

Pin 3-7 Remote high voltage ON/OFF or high voltage interlock; requires a permanent closed pin contact.

NOTE

Pin 3-7 must be shorted to allow the high voltage output if no remote/interlock contact is connected.

Output signals

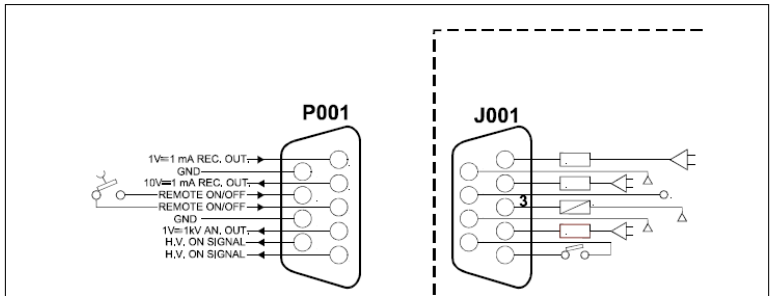
Pin 1-6 Current recorder output 1 (pin 1 signal out, pin 6 ground). The output voltage 0 to + 10 Vdc is proportional to the pump current 0 to 10 mA (e.g. 10 Vdc correspond to 10 mA). The resolution is 10 mV minimum (corresponding to 10 µA).

The front panel REC.OUT connector is a duplicate of this signal on a BNC connector.

Pin 2-6 Current recorder output 2 (pin 2 signal out, pin 6 ground). The output voltage 0 to + 10 Vdc is proportional to the pump current 0 to 1 mA (e.g. 10 Vdc correspond to 1 mA). The resolution is 10 mV minimum (corresponding to 1 µA).

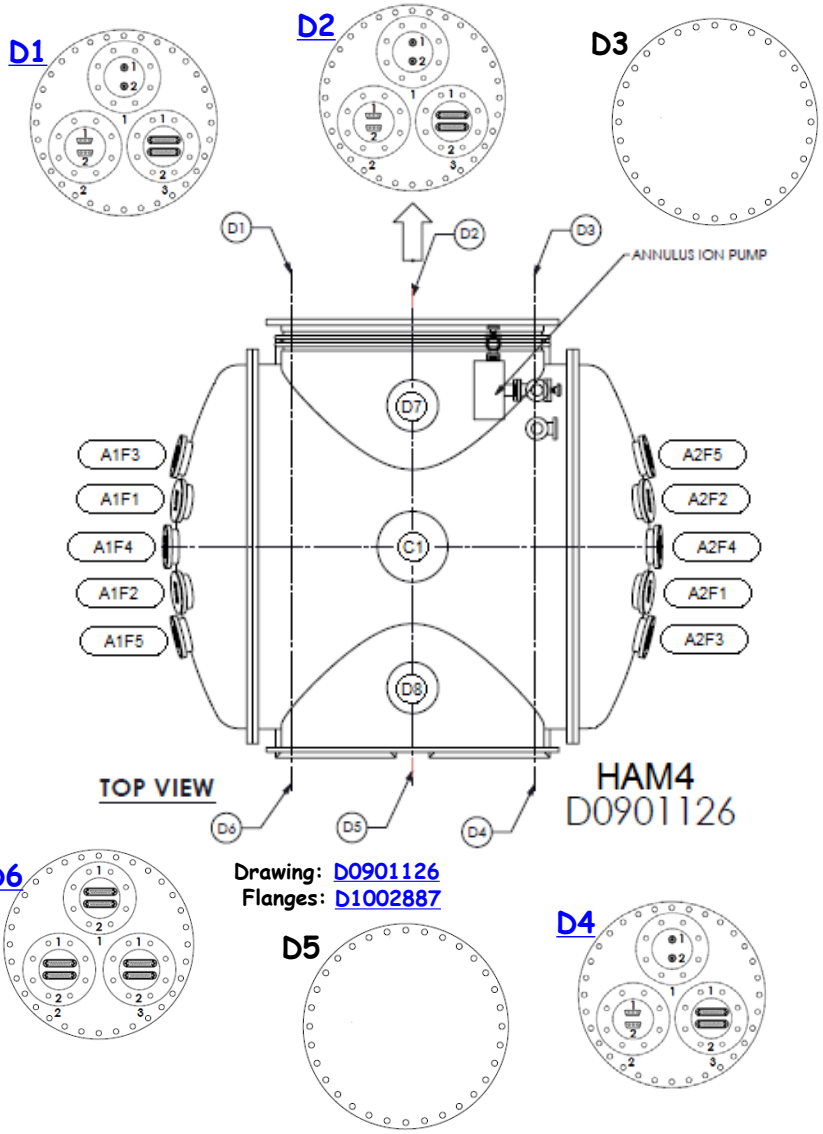
Pin 4-8 Voltage recorder output (pin 4 signal out, pin 8 ground). The output voltage 0 to 5 V is proportional to the controller high voltage output 0 to 5 kV (e.g. 1 V corresponds to 1 kV in linear mode).

Pin 5-9 High voltage indication contact. This pure contact (which carries 1 A at 250 Vac and 0.2 A at 30 Vdc) is open when the high voltage is off and closes when the high voltage in on.



HAM4 Flanges

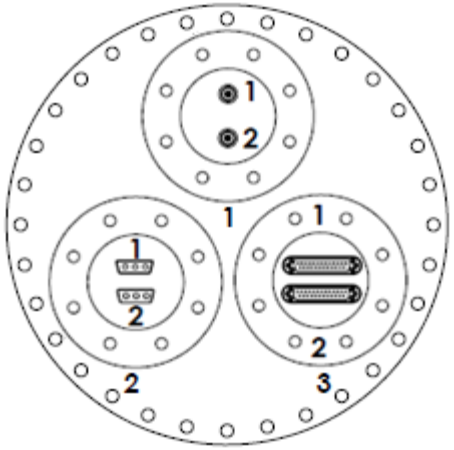
<< HAM4 Chamber Elements



Drawing: D0901126
Flanges: D1002887

ISOMETRIC VIEW

HAM4 D1 Flange



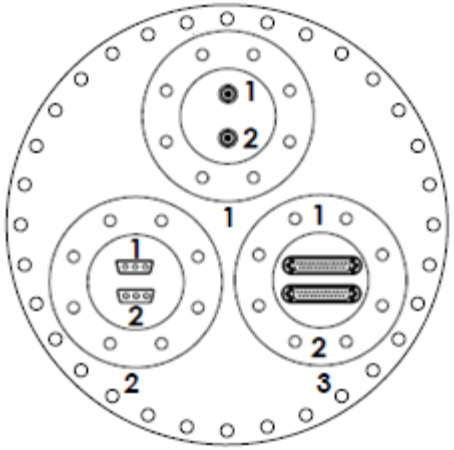
HEPI Pier Module

HEPI Pier Interface Module

HEPI Pier Module

HEPI Pier Interface Module

HAM4 D2 Flange



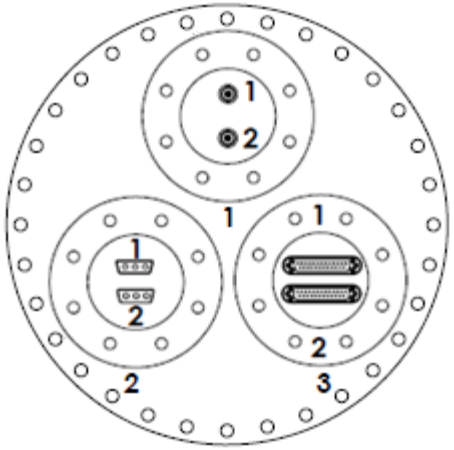
HEPI Pier Module

HEPI Pier Interface Module

HEPI Pier Module

HEPI Pier Interface Module

HAM4 D4 Flange



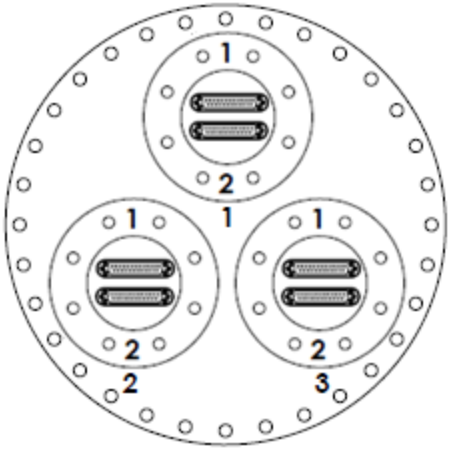
HEPI Pier Module

HEPI Pier Interface Module

HEPI Pier Module

HEPI Pier Interface Module

HAM4 D6 Flange



HEPI Pier Module

HEPI Pier Interface Module

HEPI Pier Module

HEPI Pier Interface Module

HAM4 Viewports

[<< HAM4 Chamber Elements]

D7

C1

D8

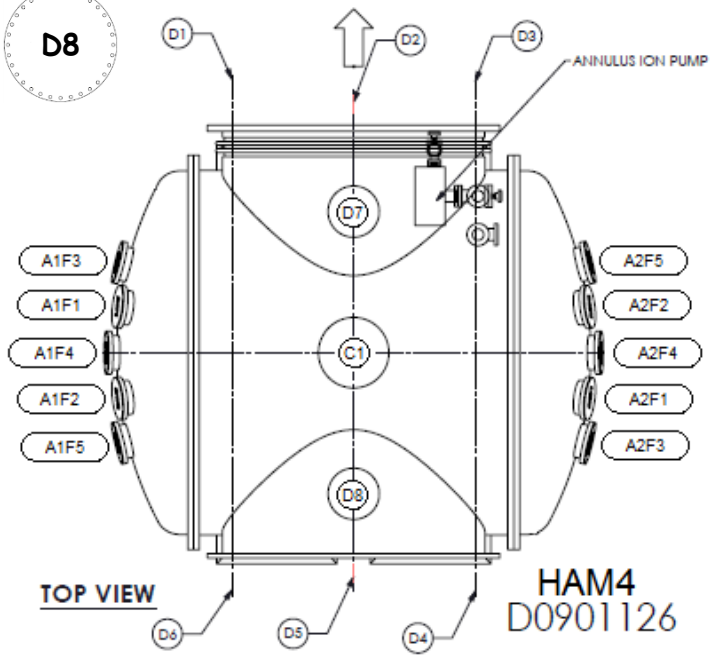
A1F1

A1F2

A1F3

A1F4

A1F5



Drawing: D0901126
Viewports: T1000746

A2F1

A2F2

A2F3

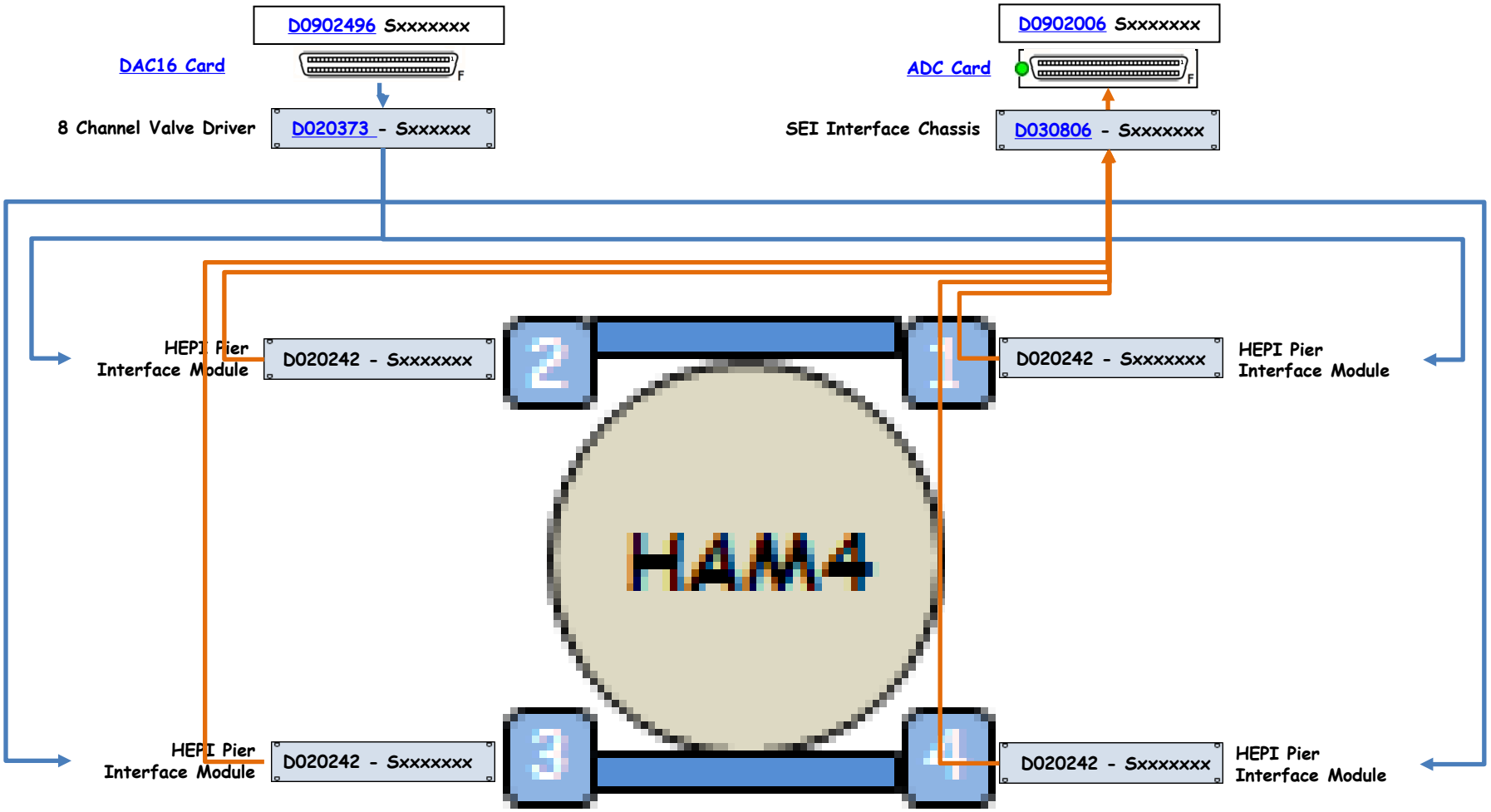
A2F4

A2F5

ISOMETRIC VIEW

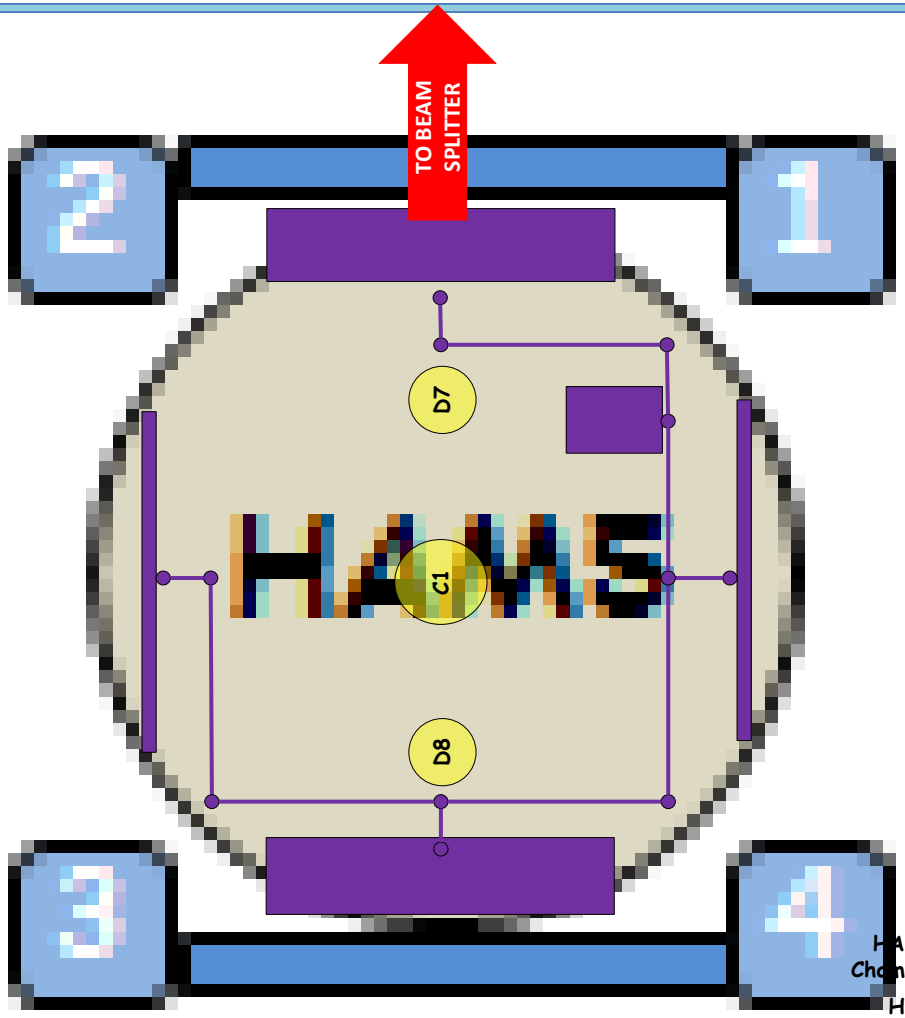
HAM4 HEPI

LIGO
<< HAM4 Chamber Elements



HAM5 Chamber Elements

[<< Chambers]



HAM5 Top Level Chamber Assembly	D0900456
HAM5 Drawing	D0900457
HAM5 Viewports	T1000746
HAM5 Flanges	D1002888
HAM5 HEPI	75IP-HAM5
HAM5 CPS	75IP-HAM5

HAM5 Annulus ION Pump	75IP-HAM5
HAM5 Parani Gauge	75IPHAM5
HAM5 Cold Cathode	75IPHAM5

HAM5 Mid-size ION Pump	75IP-HAM5
HAM5 Turbo Pump	75IP-HAM5
HAM5 Scroll Pump	75IP-HAM5

HAM5 Annulus Ion Pump

LIGO

<< HAM5 Chamber Elements

HAM5 Annulus ION Pump

Controller

HAM5 Annulus Ion Pump Controller

LIGO

<< HAM5 Chamber Elements

HAM5 Annulus ION Pump Controller | 929-7000

MiniVac Controller

Model 929-0196
Model 929-0197

Input/Output Interconnections

All input/output signals are accessible at J001 accessory connector. With the provided P001 mating connector make the connections with AWG 24 (0.2 mm^2) - or smaller wire - to the pins indicated in the following figure to obtain the desired capability.

Input signals

Pin 3-7 Remote high voltage ON/OFF or high voltage interlock; requires a permanent closed pin contact.

NOTE

Pin 3-7 must be shorted to allow the high voltage output if no remote/interlock contact is connected.

Output signals

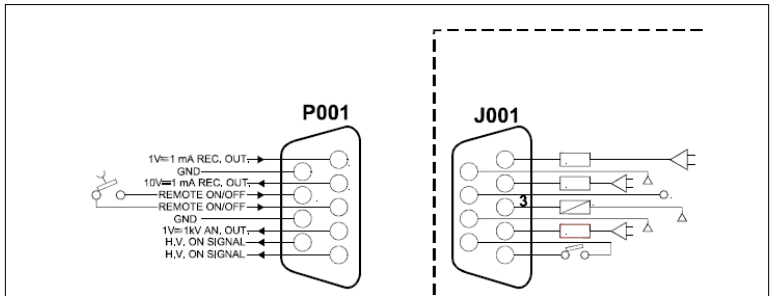
Pin 1-6 Current recorder output 1 (pin 1 signal out, pin 6 ground). The output voltage 0 to + 10 Vdc is proportional to the pump current 0 to 10 mA (e.g. 10 Vdc correspond to 10 mA). The resolution is 10 mV minimum (corresponding to 10 µA).

The front panel REC.OUT connector is a duplicate of this signal on a BNC connector.

Pin 2-6 Current recorder output 2 (pin 2 signal out, pin 6 ground). The output voltage 0 to + 10 Vdc is proportional to the pump current 0 to 1 mA (e.g. 10 Vdc correspond to 1 mA). The resolution is 10 mV minimum (corresponding to 1 µA).

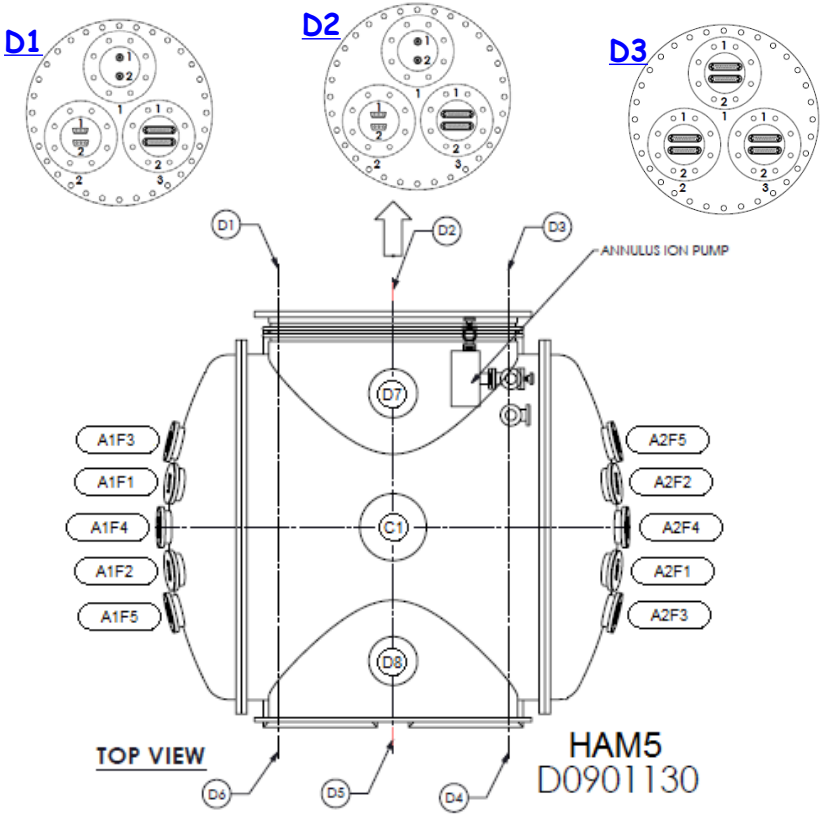
Pin 4-8 Voltage recorder output (pin 4 signal out, pin 8 ground). The output voltage 0 to 5 V is proportional to the controller high voltage output 0 to 5 kV (e.g. 1 V corresponds to 1 kV in linear mode).

Pin 5-9 High voltage indication contact. This pure contact (which carries 1 A at 250 Vac and 0.2 A at 30 Vdc) is open when the high voltage is off and closes when the high voltage in on.



HAM5 Flanges

<< HAM5 Chamber Elements



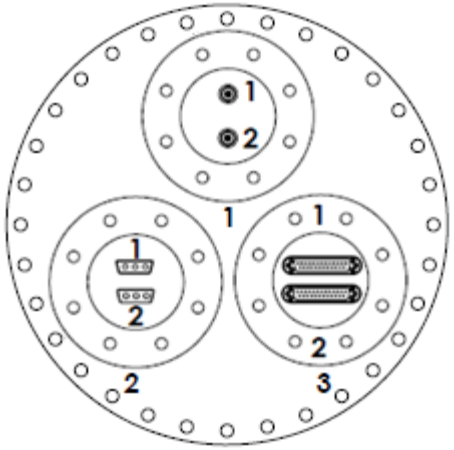
D6

Drawing: D0901130
Flanges: D1002888

D5

D4

HAM5 D1 Flange



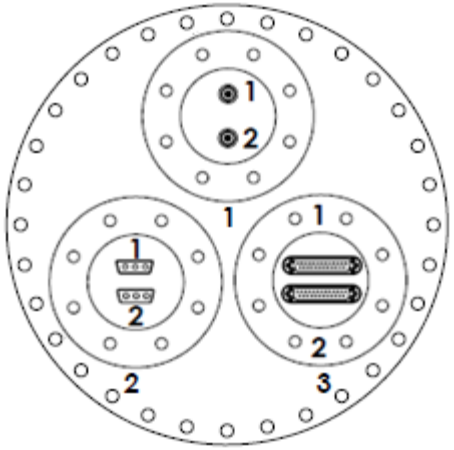
HEPI Pier Module

HEPI Pier Interface Module

HEPI Pier Module

HEPI Pier Interface Module

HAM5 D2 Flange



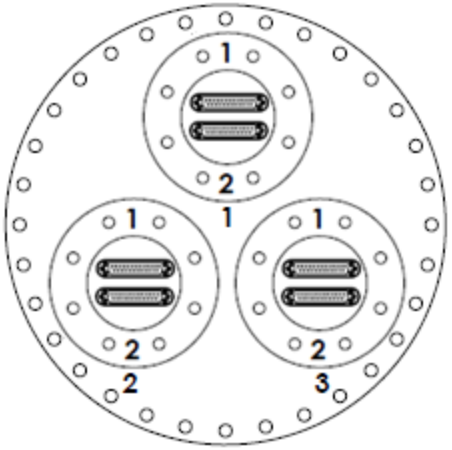
HEPI Pier Module

HEPI Pier Interface Module

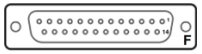
HEPI Pier Module

HEPI Pier Interface Module

HAM5 D3 Flange

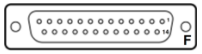


HEPI Pier Module



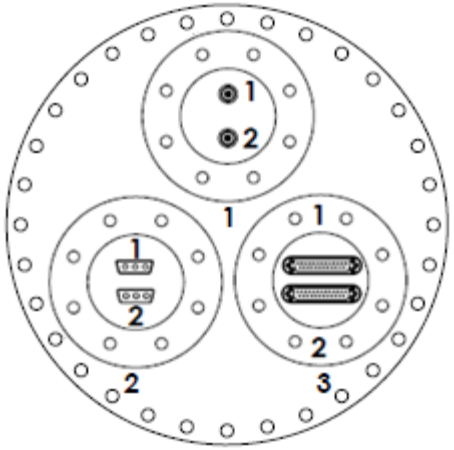
HEPI Pier Interface Module

HEPI Pier Module

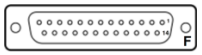


HEPI Pier Interface Module

HAM5 D4 Flange

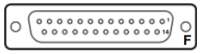


HEPI Pier Module



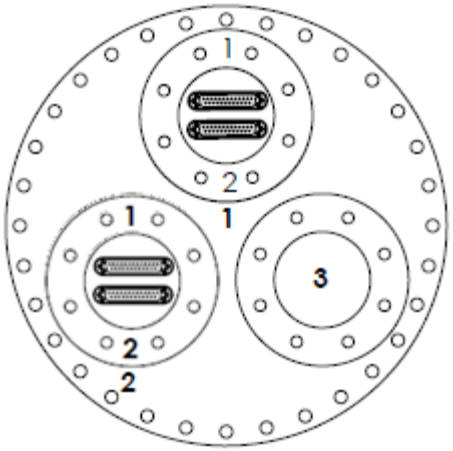
HEPI Pier Interface Module

HEPI Pier Module



HEPI Pier Interface Module

HAM5 D6 Flange



HEPI Pier Module

HEPI Pier Interface Module

HEPI Pier Module

HEPI Pier Interface Module

HAM5 Viewports

<< HAM5 Chamber Elements

D7

C1

D8

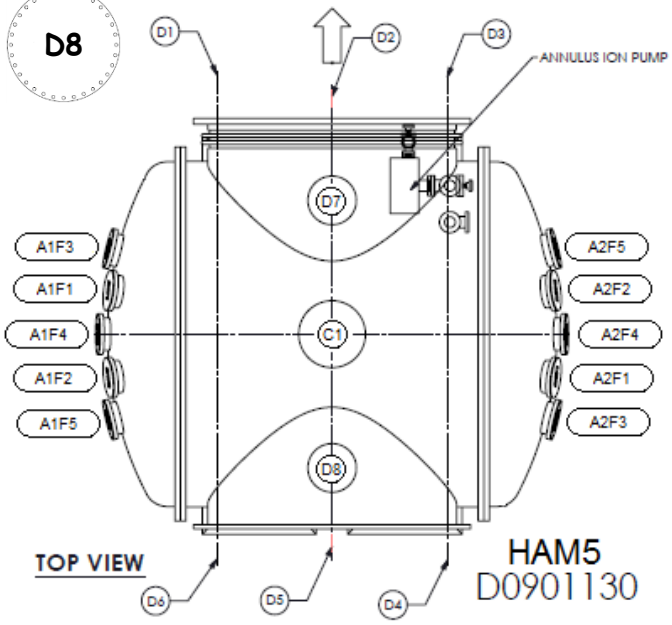
A1F1

A1F2

A1F3

A1F4

A1F5



A2F1

A2F2

A2F3

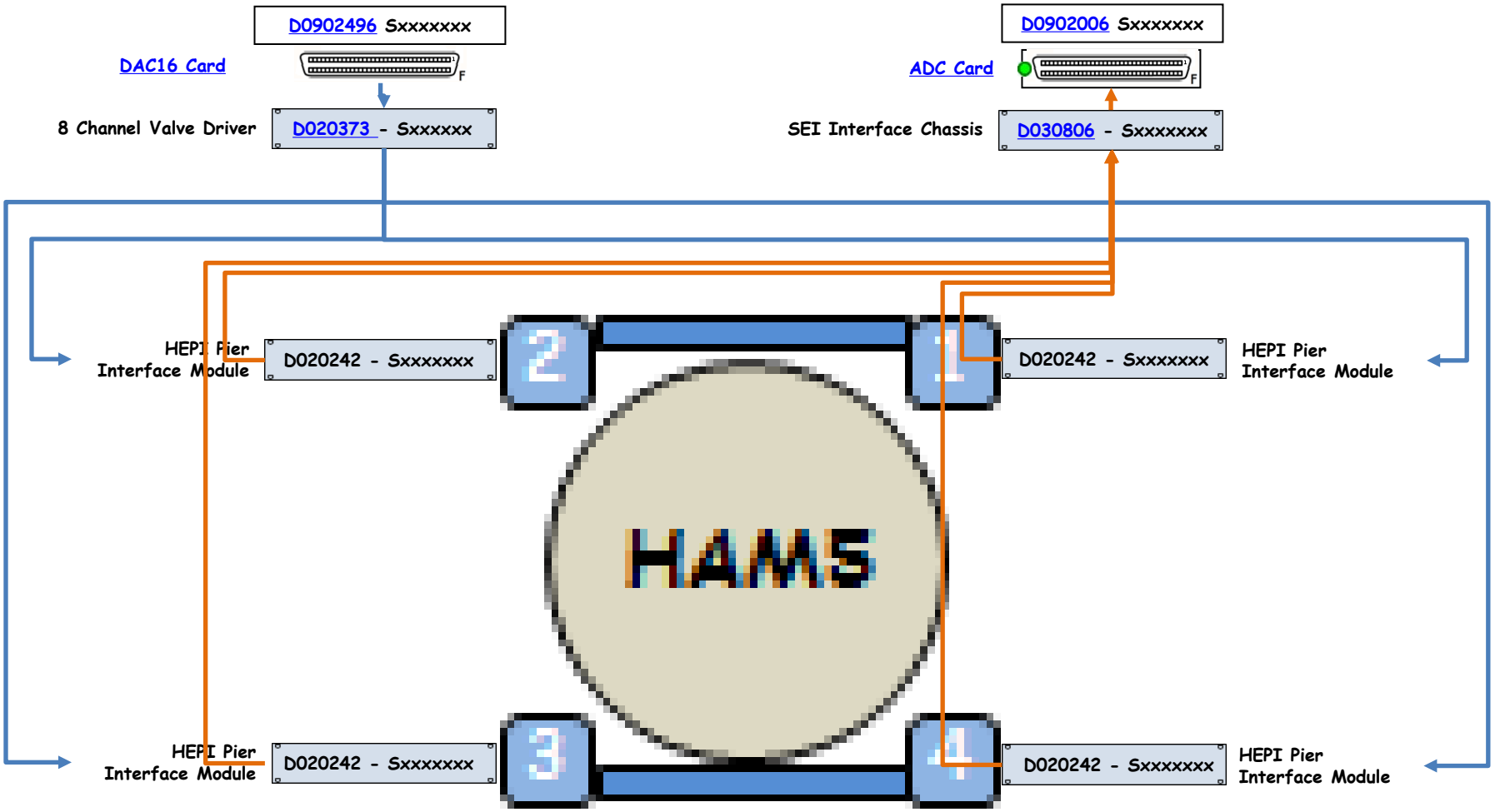
A2F4

A2F5

Drawing: D0901130
Viewports: T1000746

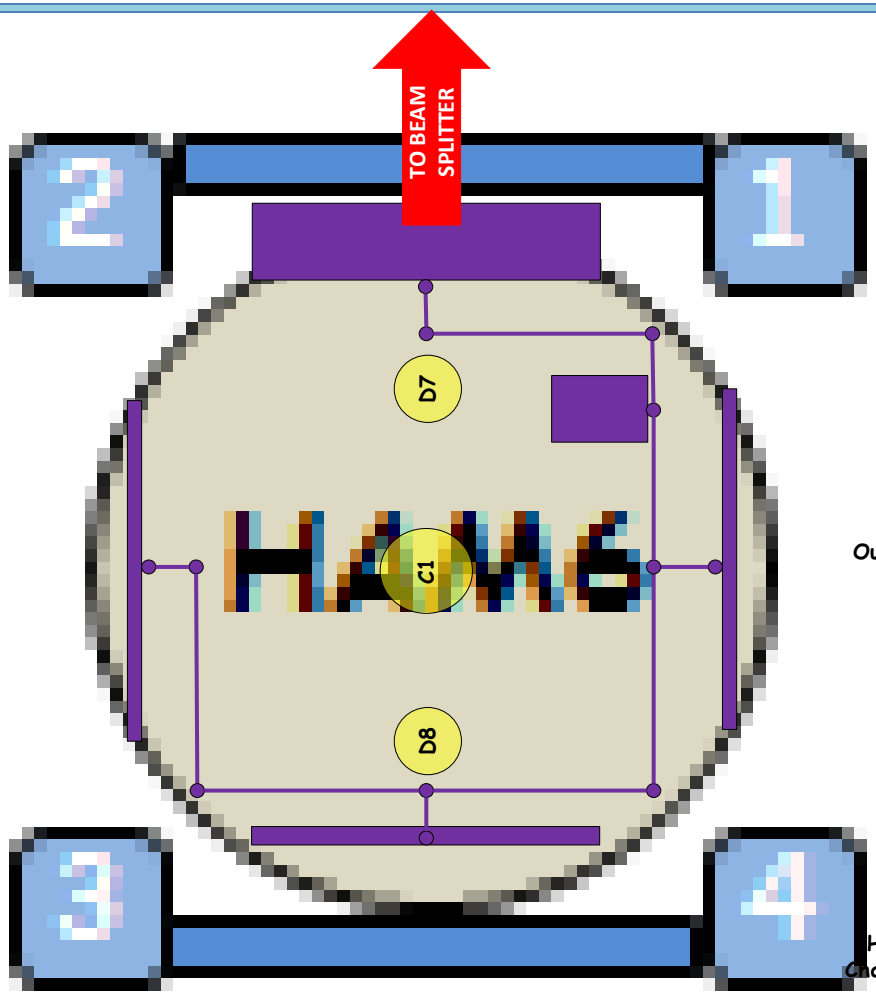
HAM5 HEPI

LIGO
<< HAM5 Chamber Elements



HAM6 Chamber Elements

[<< Chambers]



Output Optics Table (ISCHT6R): D1000342

HAM6 Top Level Chamber Assembly	D0901811
HAM6 Drawing	D0901812
HAM6 Viewports	T1000746
HAM6 Flanges	D1002890
HAM6 HEPI	75IP-HAM6
HAM6 CPS	75IP-HAM6

HAM6 Mid-size ION Pump	75IP-HAM6
HAM6 Turbo Pump	75IP-HAM6
HAM6 Scroll Pump	75IP-HAM6

HAM6 Annulus ION Pump	75IP-HAM6
HAM6 Parani Gauge	75IPHAM6
HAM6 Cold Cathode	75IPHAM6

HAM6 Annulus Ion Pump

LIGO

<< HAM6 Chamber Elements

HAM6 Annulus ION Pump

Controller

HAM6 Annulus Ion Pump Controller

[<< HAM6 Chamber Elements]

HAM6 Annulus ION Pump Controller | 929-7000

MiniVac Controller

Model 929-0196
Model 929-0197

Input/Output Interconnections

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Input signals

Pin 3-7 Remote high voltage ON/OFF or high voltage interlock; requires a permanent closed pin contact.

NOTE

Pin 3-7 must be shorted to allow the high voltage output if no remote/interlock contact is connected.

Output signals

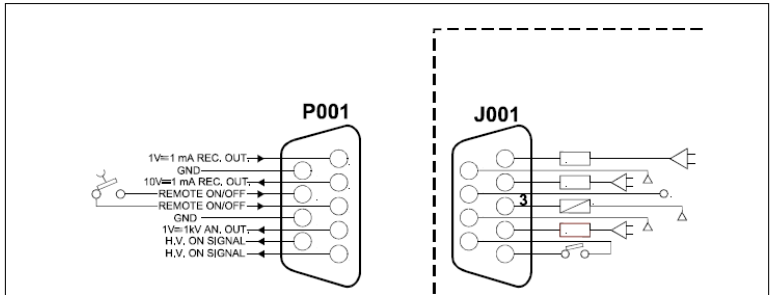
Pin 1-6 Current recorder output 1 (pin 1 signal out, pin 6 ground). The output voltage 0 to + 10 Vdc is proportional to the pump current 0 to 10 mA (e.g. 10 Vdc correspond to 10 mA). The resolution is 10 mV minimum (corresponding to 10 µA).

The front panel REC.OUT connector is a duplicate of this signal on a BNC connector.

Pin 2-6 Current recorder output 2 (pin 2 signal out, pin 6 ground). The output voltage 0 to + 10 Vdc is proportional to the pump current 0 to 1 mA (e.g. 10 Vdc correspond to 1 mA). The resolution is 10 mV minimum (corresponding to 1 µA).

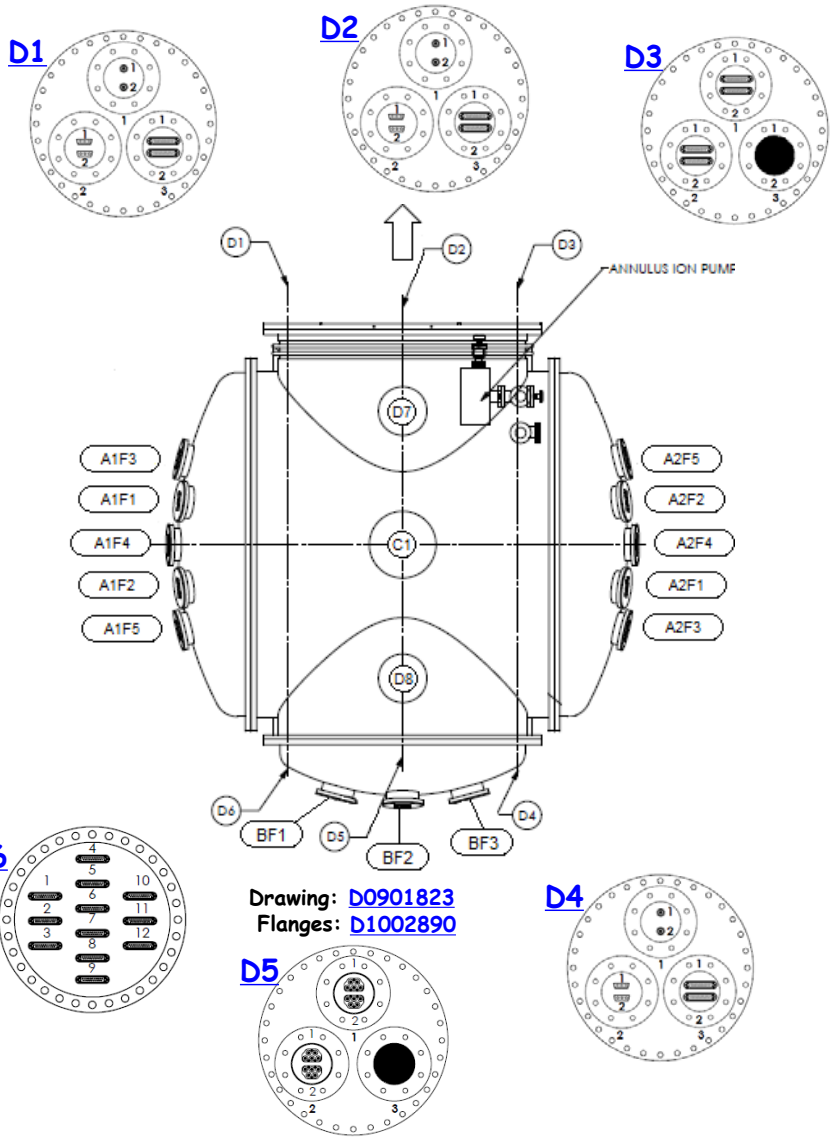
Pin 4-8 Voltage recorder output (pin 4 signal out, pin 8 ground). The output voltage 0 to 5 V is proportional to the controller high voltage output 0 to 5 kV (e.g. 1 V corresponds to 1 kV in linear mode).

Pin 5-9 High voltage indication contact. This pure contact (which carries 1 A at 250 Vac and 0.2 A at 30 Vdc) is open when the high voltage is off and closes when the high voltage in on.

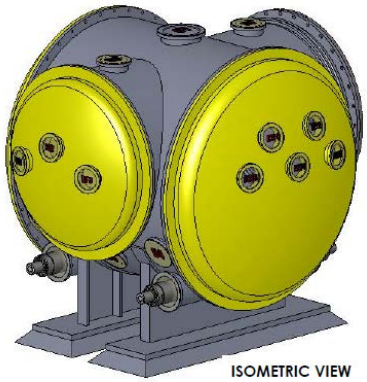


HAM6 Flanges

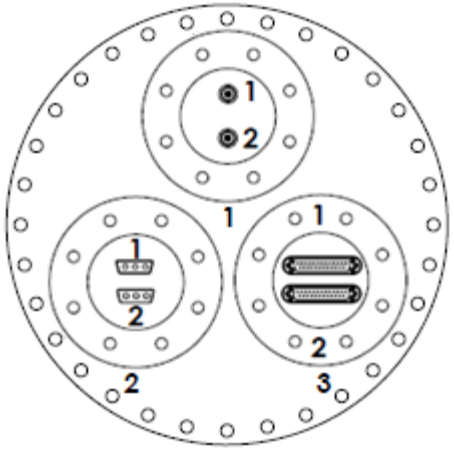
<< HAM6 Chamber Elements



Drawing: D0901823
Flanges: D1002890



HAM6 D1 Flange



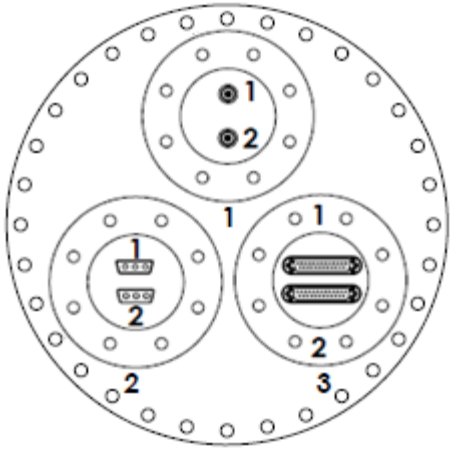
HEPI Pier Module

HEPI Pier Interface Module

HEPI Pier Module

HEPI Pier Interface Module

HAM6 D2 Flange



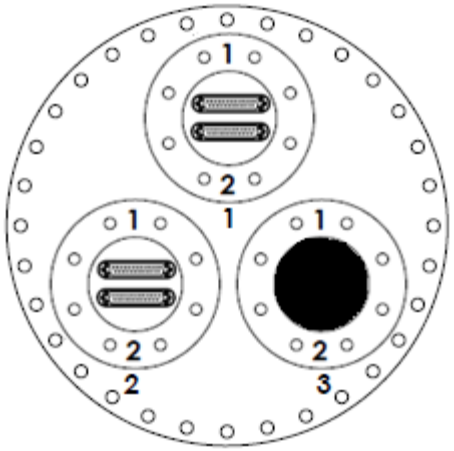
HEPI Pier Module

HEPI Pier Interface Module

HEPI Pier Module

HEPI Pier Interface Module

HAM6 D3 Flange



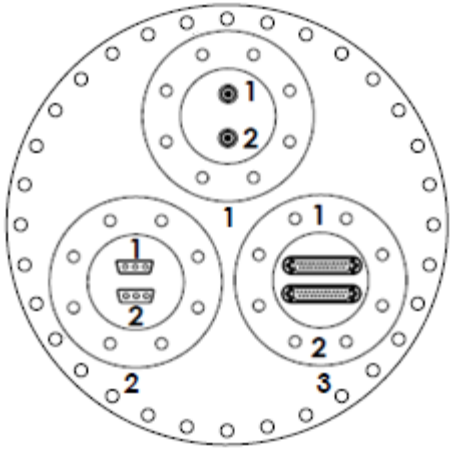
HEPI Pier Module

HEPI Pier Interface Module

HEPI Pier Module

HEPI Pier Interface Module

HAM6 D4 Flange



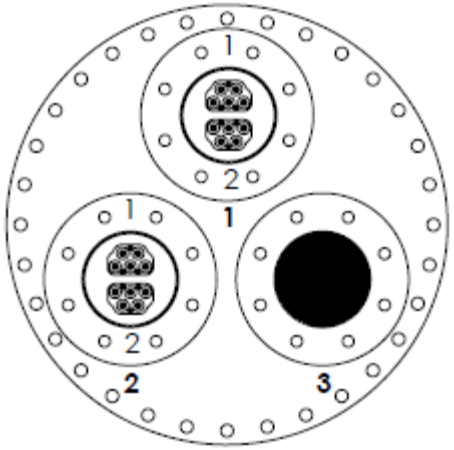
HEPI Pier Module

HEPI Pier Interface Module

HEPI Pier Module

HEPI Pier Interface Module

HAM6 D5 Flange



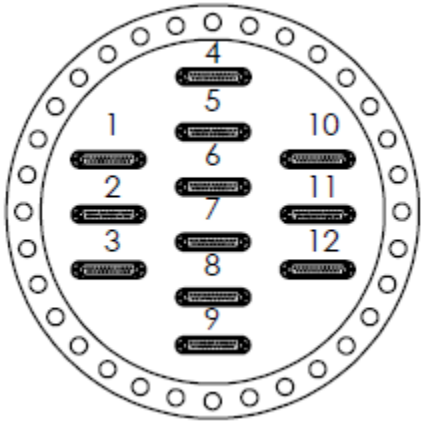
HEPI Pier Module

HEPI Pier Interface Module

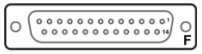
HEPI Pier Module

HEPI Pier Interface Module

HAM6 D6 Flange

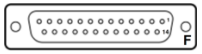


HEPI Pier Module



HEPI Pier Interface Module

HEPI Pier Module



HEPI Pier Interface Module

HAM6 Viewports

<< HAM6 Chamber Elements

D7

C1

D8

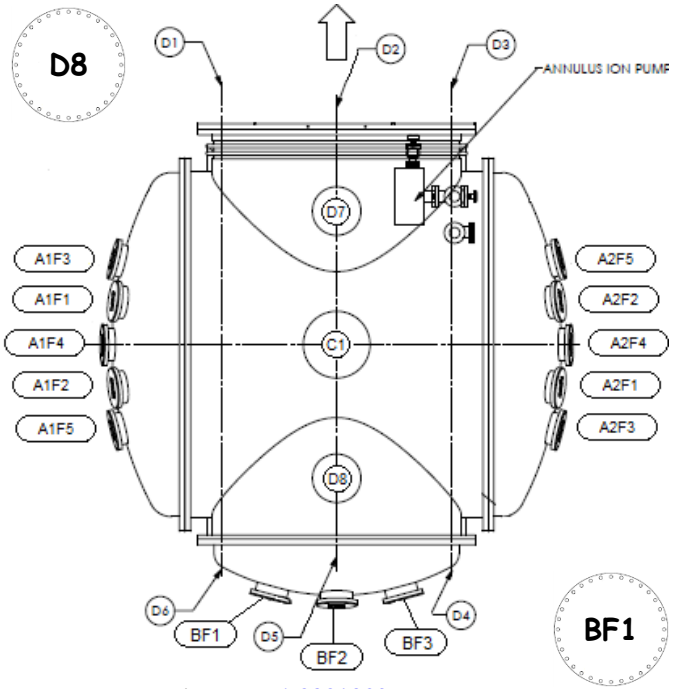
A1F1

A1F2

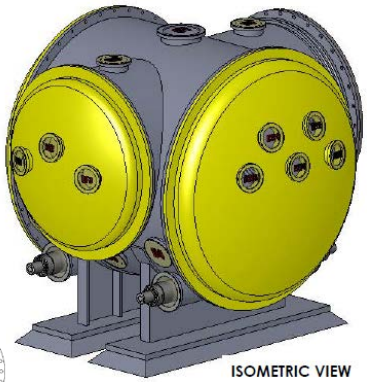
A1F3

A1F4

A1F5



Drawing: D0901823
Viewports: T1000746



A2F1

A2F2

A2F3

A2F4

A2F5

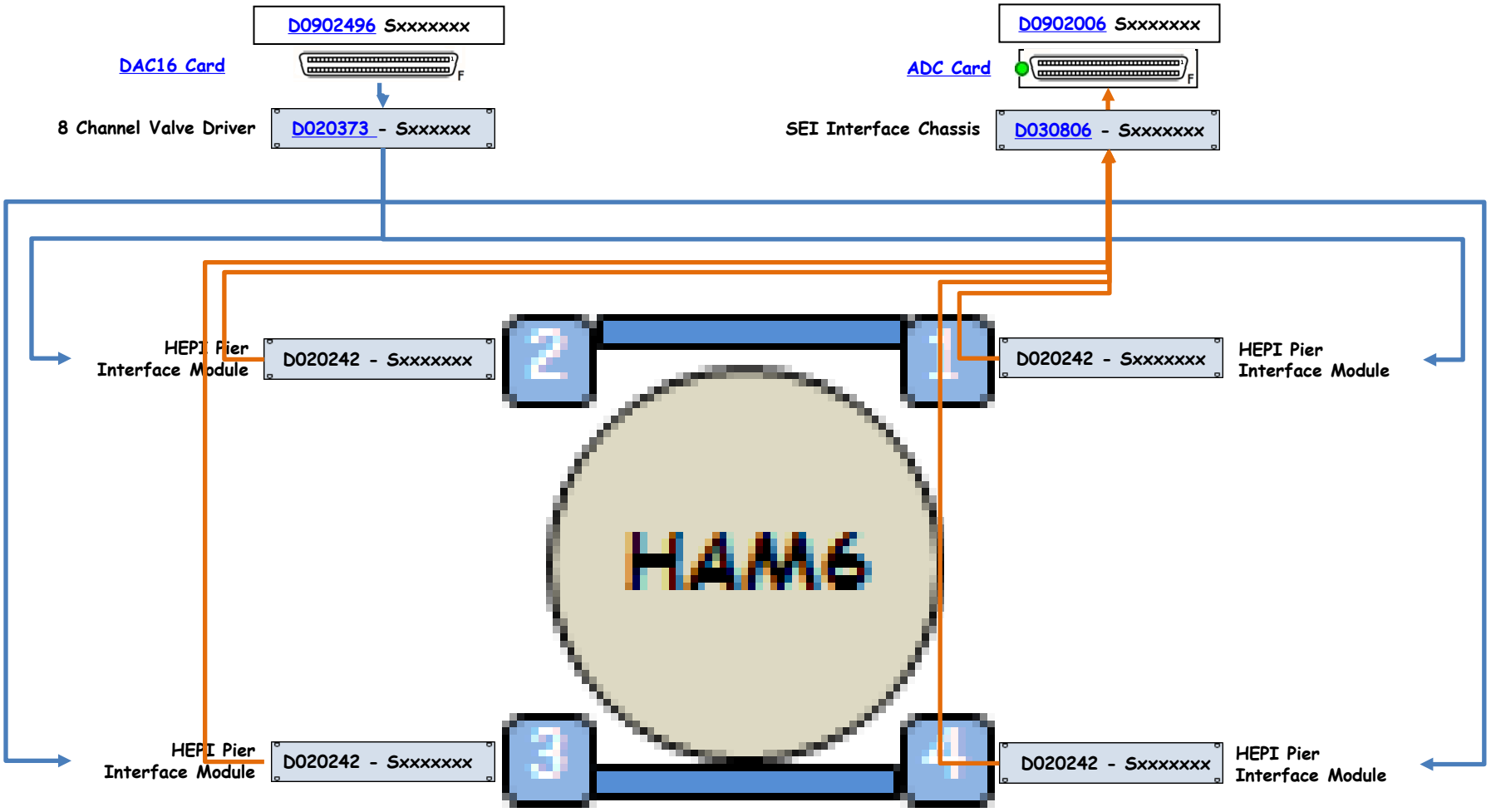
BF1

BF2

BF3

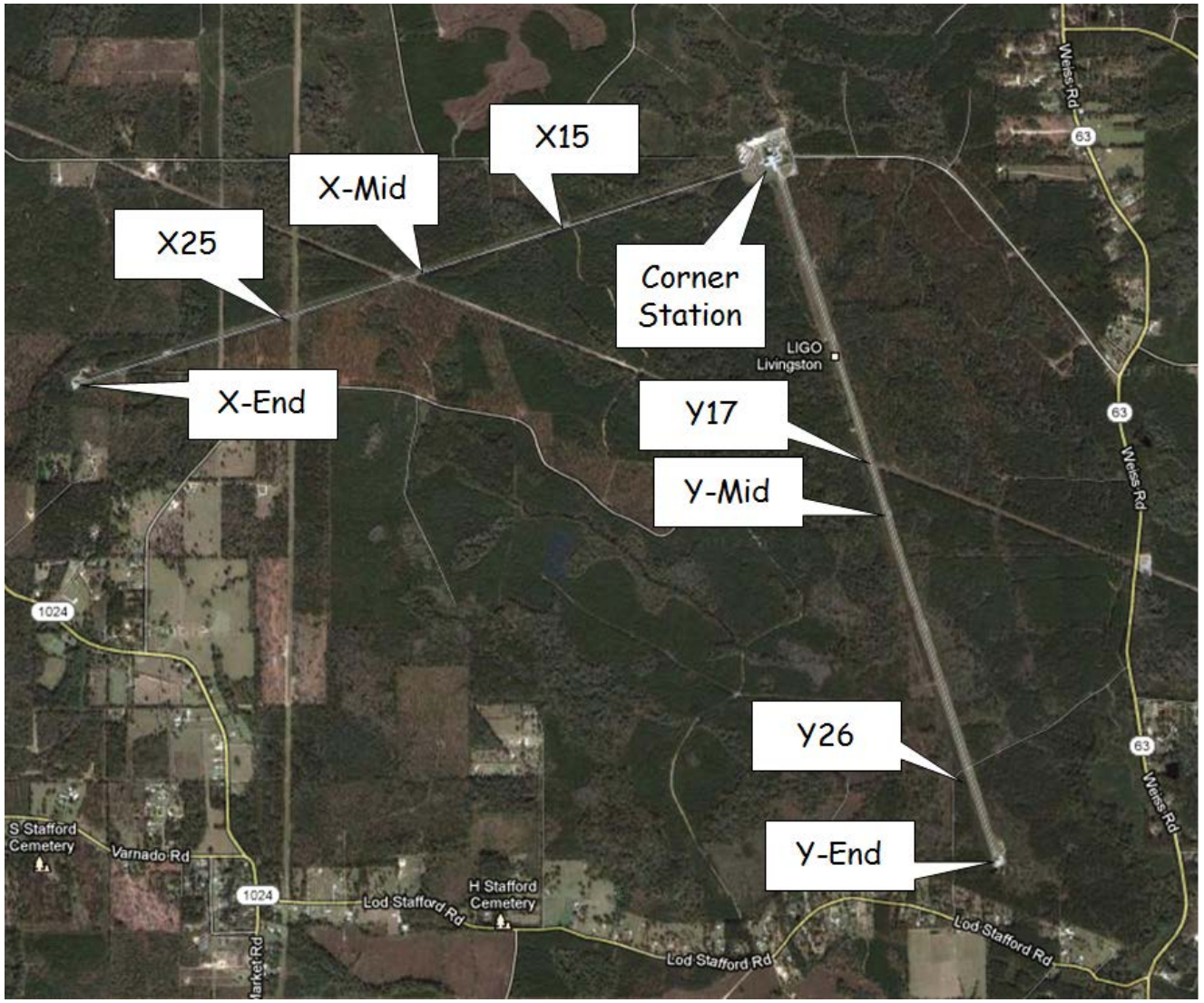
HAM6 HEPI

LIGO
<< HAM6 Chamber Elements



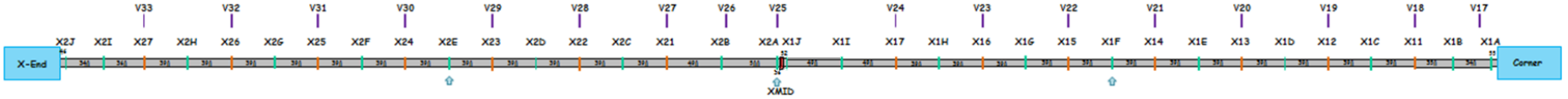
Arms

[<< Locations](#)
[<< Chambers](#)



XARM Junctions

<< Locations
<< Chambers



ARMX 4/18/2013	# of 10' Sections	Tunnel Length	Junction Width	From Center to Center	From Corner to Center	Under-ground Vault
Corner						
X1A	4+	50.5	10	55.5	55.5	17
X1B	33	330	10	340	395.5	
X11	34	340	10	350	745.5	18
X1C	38	380	10	390	1135.5	
X12	38	380	10	390	1525.5	19
X1D	38	380	10	390	1915.5	
X13	38	380	10	390	2305.5	20
X1E	38	380	10	390	2695.5	
X14	38	380	10	390	3085.5	21
X1F	38	380	10	390	3475.5	
X15	38	380	10	390	3865.5	22
X1G	38	380	10	390	4255.5	
X16	38	380	10	390	4645.5	23
X1H	38	380	10	390	5035.5	
X17	38	380	10	390	5425.5	24
X1I	48	480	10	490	5915.5	
X1J	48	480	10	490	6405.5	
XMID	2+	32	29.25	51.625	6457.125	25
X2A	1+	16.5	10	36.125	6493.25	
X2B	49	490	10	500	6993.25	
X21	48	480	10	490	7483.25	27
X2C	38	380	10	390	7873.25	
X22	38	380	10	390	8263.25	28
X2D	38	380	10	390	8653.25	
X23	38	380	10	390	9043.25	29
X2E	38	380	10	390	9433.25	
X24	38	380	10	390	9823.25	30
X2F	38	380	10	390	10213.25	
X25	38	380	10	390	10603.25	31
X2G	38	380	10	390	10993.25	
X26	38	380	10	390	11383.25	32
X2H	38	380	10	390	11773.25	
X27	38	380	10	390	12163.25	33
X2I	35	350	10	360	12523.25	
X2J	33	330	10	340	12863.25	
XEND	4+	45.5	84	92.5	12955.75	

YARM Junctions

<< Locations
<< Chambers

ARMY 4/18/2013	# of 10' Sections	Tunnel Length	Junction Width	From Center to Center	From Corner to Center	Under-ground Vault
Corner						
Y1A	3+	39.5	10	44.5	44.5	16
Y1B	33	330	10	340	384.5	
Y11	35	350	10	360	744.5	15
Y1C	38	380	10	390	1134.5	
Y12	38	380	10	390	1524.5	14
Y1D	38	380	10	390	1914.5	
Y13	38	380	10	390	2304.5	13
Y1E	38	380	10	390	2694.5	
Y14	38	380	10	390	3084.5	12
Y1F	38	380	10	390	3474.5	
Y15	38	380	10	390	3864.5	11
Y1G	38	380	10	390	4254.5	
Y16	38	380	10	390	4644.5	10
Y1H	38	380	10	390	5034.5	
Y17	38	380	10	390	5424.5	9
Y1I	48	480	10	490	5914.5	
Y1J	48	480	10	490	6404.5	
YMID	3	30	29.25	49.625	6454.125	8
Y2A	3	30	10	49.625	6503.75	
Y2B	48	480	10	490	6993.75	
Y21	48	480	10	490	7483.75	7
Y2C	38	380	10	390	7873.75	
Y22	38	380	10	390	8263.75	6
Y2D	38	380	10	390	8653.75	
Y23	38	380	10	390	9043.75	5
Y2E	38	380	10	390	9433.75	
Y24	38	380	10	390	9823.75	4
Y2F	38	380	10	390	10213.75	
Y25	38	380	10	390	10603.75	3
Y2G	38	380	10	390	10993.75	
Y26	38	380	10	390	11383.75	2
Y2H	38	380	10	390	11773.75	
Y27	38	380	10	390	12163.75	1
Y2I	35	350	10	360	12523.75	
Y2J	33	330	10	340	12863.75	
YEND	3+	43.5	84	90.5	12954.25	

L1-IOHT2L Table Layout

[<< LVEA Tables]

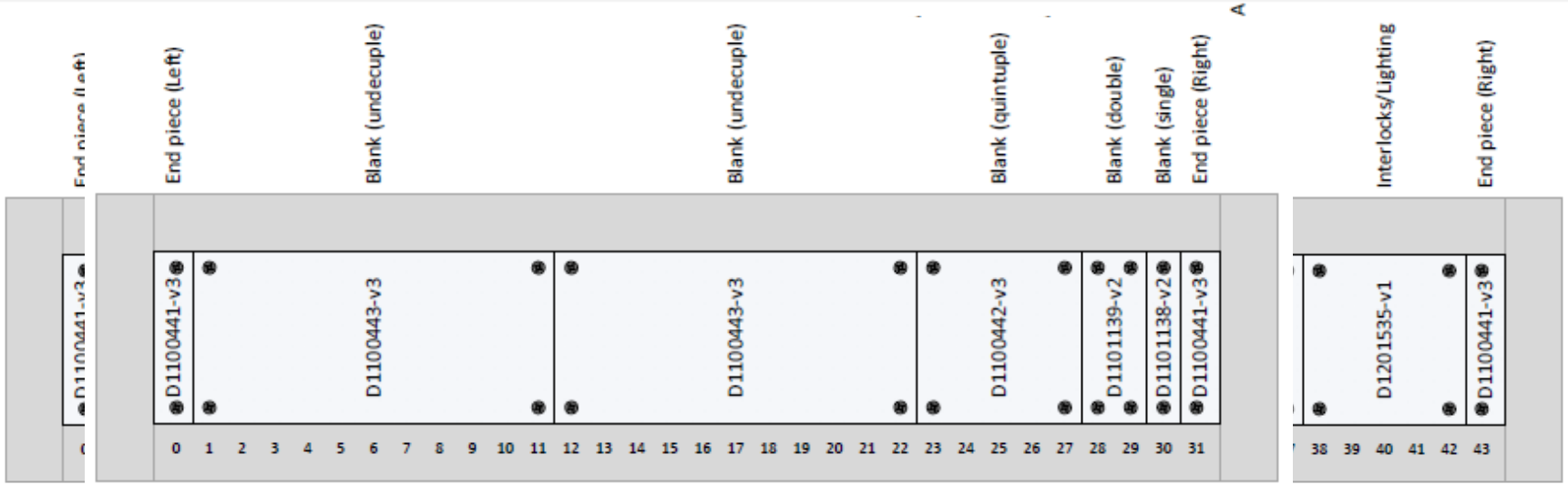
IOHT2L Table Layout (D1201531) (Sxxxxxxx)

IOHT2L is part of E1201099.

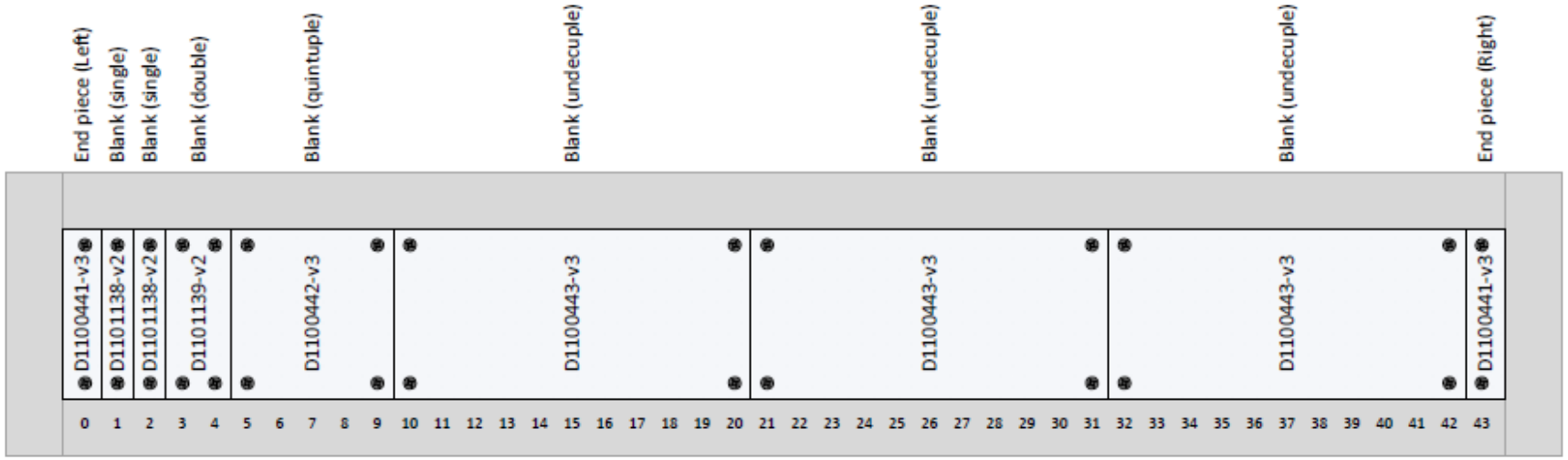
L1-IOHT2L Panel Layout

[<< LVEA Tables]

IOHT2L Panel Layout (D1201529)



Left Side



Right Side

L1-IOHT2R Table Layout

LIGO

<< LVEA Tables

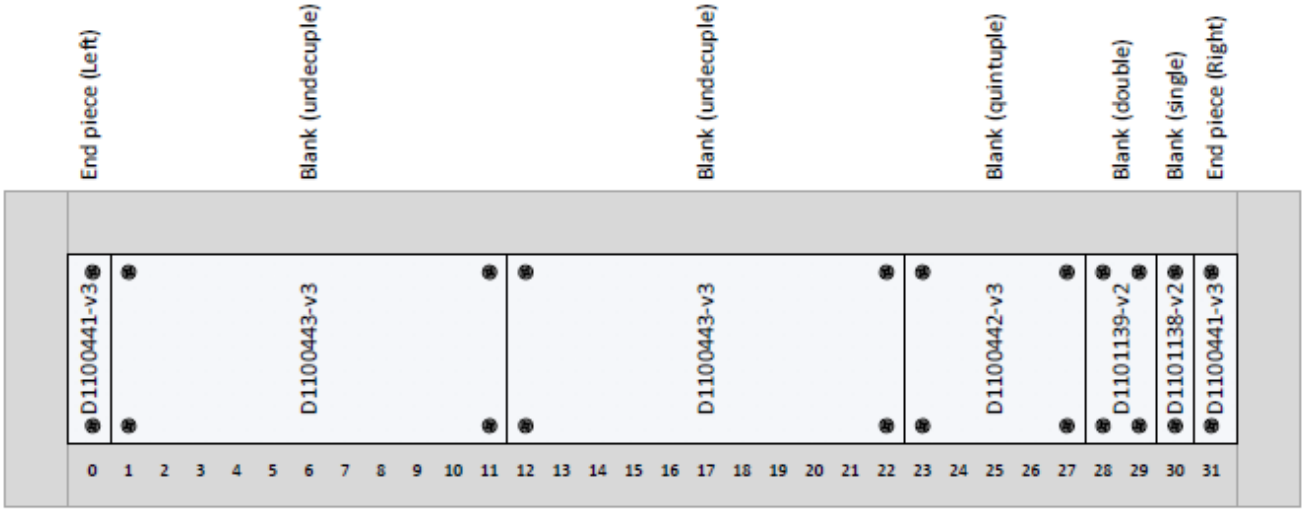
IOHT2R Table Layout (D1201532) (Sxxxxxxx)

IOHT2R is part of E1201099.

L1-IOHT2R Panel Layout

[<< LVEA Tables]

IOHT2R Panel Layout (D1201530)



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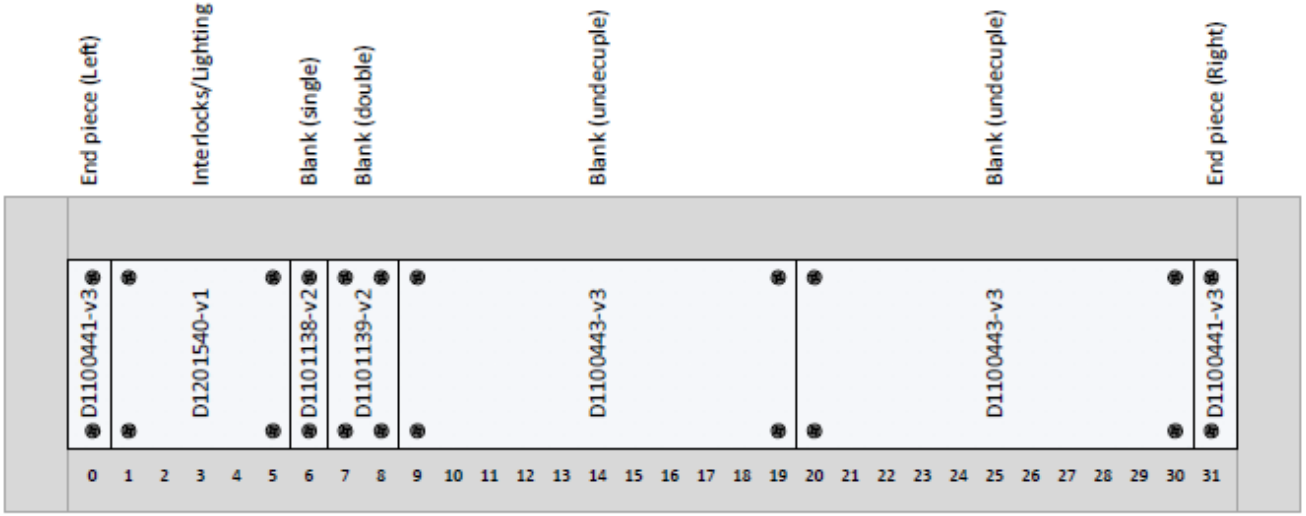


Right Side

L1-ISCHT1L Table Layout

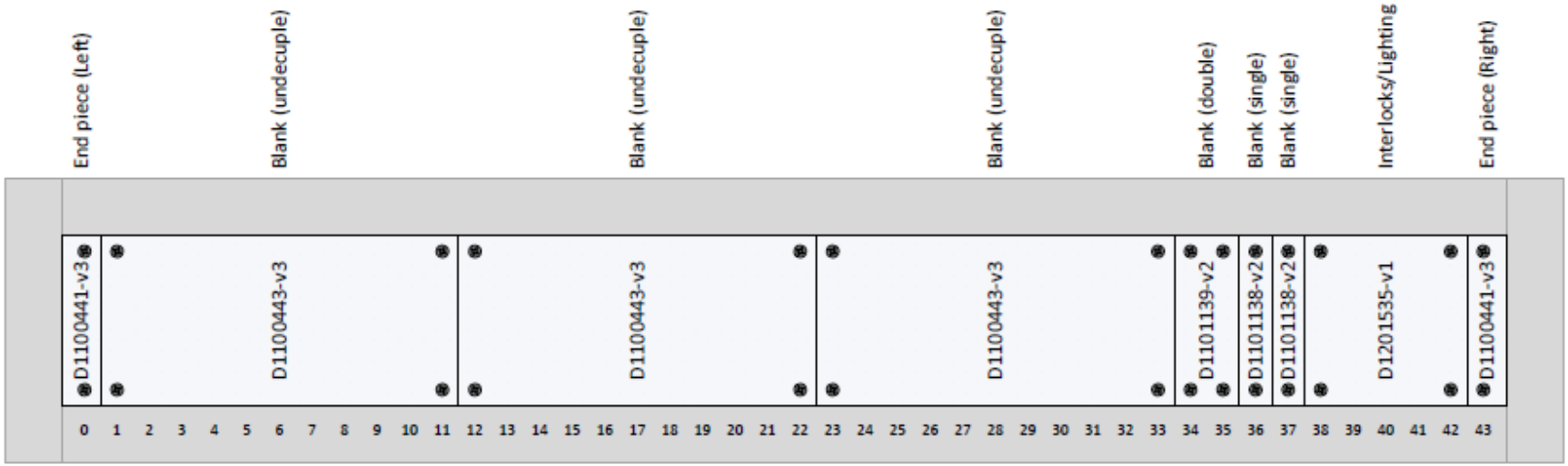
ISCHT1L Table Layout (D1201499) (Sxxxxxxx)

ISCHT1L is part of E1201099.

L1-ISCHT1L Panel Layout

[<< LVEA Tables]

ISCHT1L Panel Layout (D1201331)



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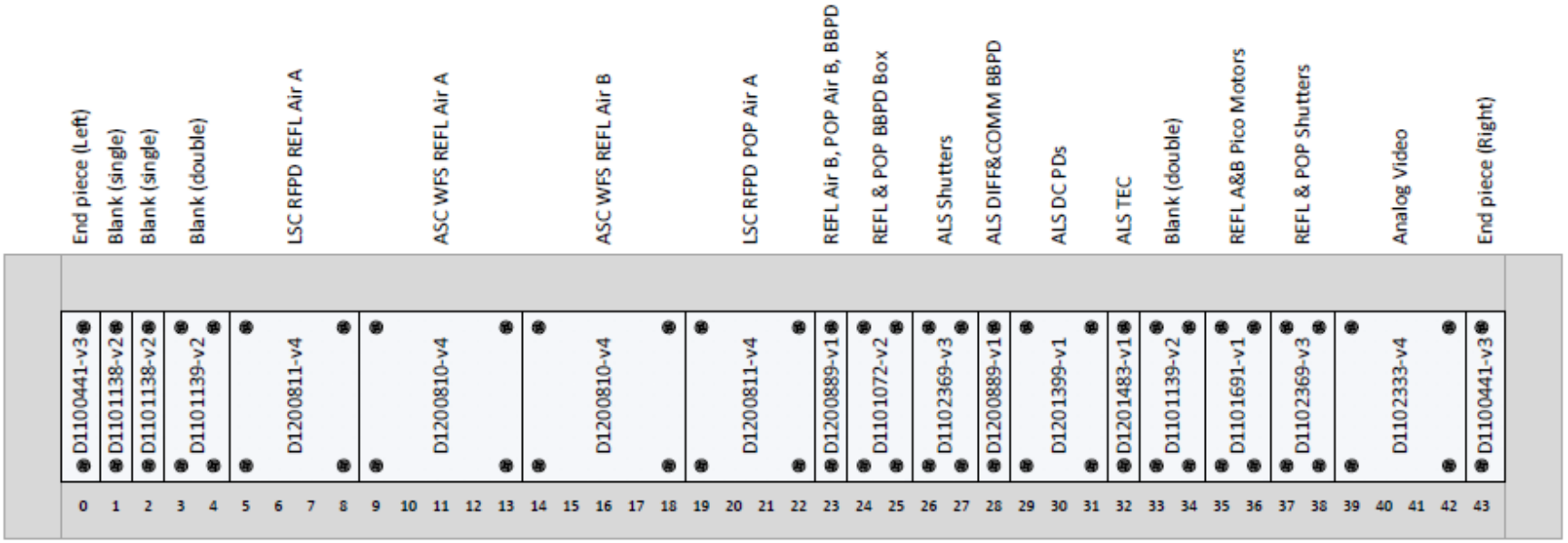


Right Side

L1-ISCHT6R Table Layout

ISCHT6R Table Layout (D1201500) (Sxxxxxxx)

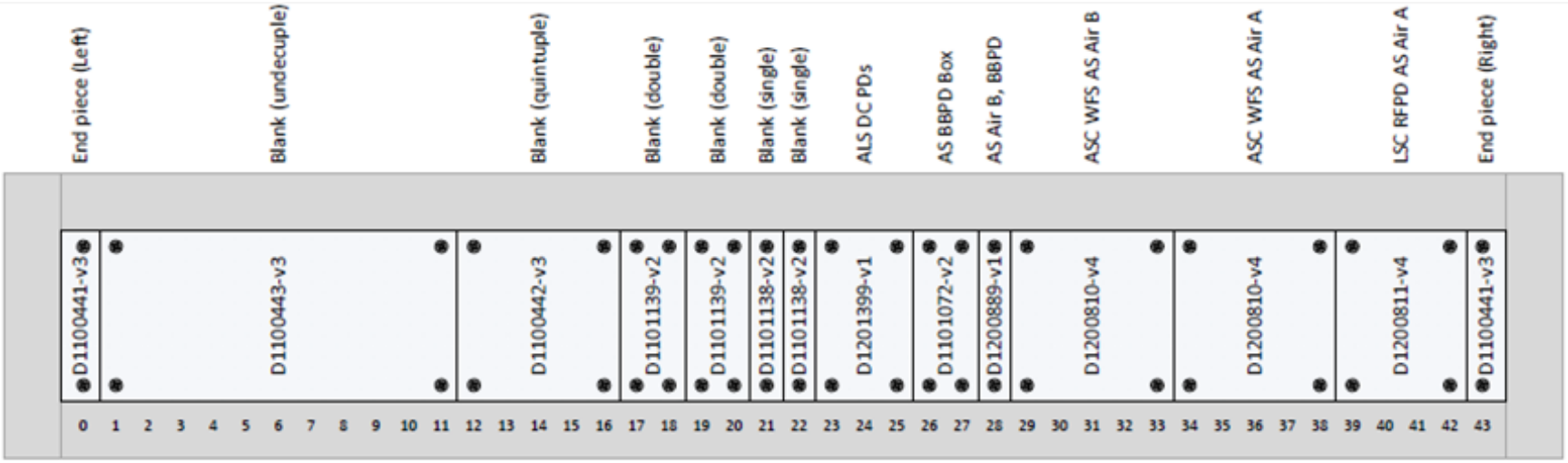
ISCHT6R is part of E1201099.

L1-ISCHT6R Panel Layout

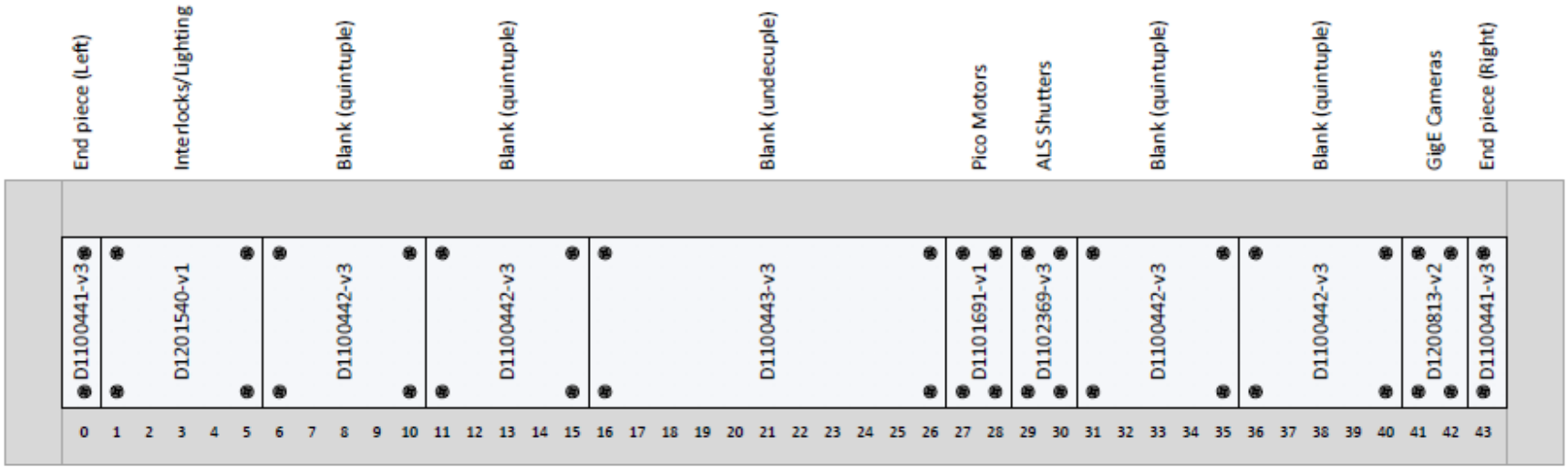
LIGO

<< LVEA Tables

ISCHT6R Panel Layout (D1201496)



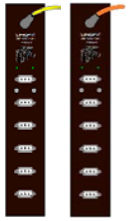
Left Side



Right Side

L1-PSL Table Layout

PSL Table Layout (D1201497) (Sxxxxxxx)



PSL Table (T0900610)

L1-TCSBT1R Table Layout

LIGO

<< LVEA Tables

TCSBT1R (TCS-Y) Table Layout (Dxxxxxxx) (Sxxxxxxx)

TCSBT1R is part of E1100892.

L1-TCSBT3L Table Layout

[<< LVEA Tables]

TCSBT3L (TCS-X) Table Layout (Dxxxxxxx) (Sxxxxxxx)

Flexible Aluminum-Armored Multiconductor Building Cable

NEC Type MC with Ground

NEC Type AC with Ground

white; four-conductor cable is black, blue, red, and white). Temperature range is 14° to 194° F. UL listed.

NEC Type MC with ground has solid Type THHN copper conductors with PVC insulation and a green PVC-insulated grounding wire, wrapped in polyester tape and an aluminum jacket. For use in NEC Class I, Division 2; Class II, Division 2; and Class III, Division 1 and 2 hazardous locations. **NEC Type AC with ground** has solid Type THHN copper conductors with PVC insulation and a fibrous covering, an uninsulated aluminum grounding wire, and an aluminum jacket.

To Order: Please select length from the available lengths listed. Maximum continuous length is 250 ft.

AWG	OD	Amps	VAC	Available Lengths, ft.		Per Ft. 1-249	Per Ft. 250-Up
NEC Type MC with Ground							
14/2	0.44"	15	600	10, 25, 50, 100, 250	6864K21	$0.86	$0.66
14/3	0.47"	15	600	10, 25, 50, 100, 250	6864K22	1.26	.97
14/4	0.49"	15	600	10, 25, 50, 100, 250	6864K23	1.69	1.27
12/2	0.48"	20	600	10, 25, 50, 100, 250	6864K24	.97	.75
12/3	0.51"	20	600	10, 25, 50, 100, 250	6864K25	1.61	1.22
12/4	0.54"	20	600	10, 25, 50, 100, 250	6864K26	1.78	1.34
10/2	0.54"	30	600	10, 25, 50, 100, 250	**6864K27**	1.85	1.40
Product Detail Flexible Aluminum-Armored Cable (Type MC), 10/2 AWG, .54", 600 VAC, with Green Ground You ordered 250 each on 08/27/13.					Ft. ADD TO ORDER In stock		
10/3	0.58"	30	600	10, 25, 50, 100, 250	6864K28	2.64	2.00
10/4	0.62"	30	600	10, 25, 50, 100, 250	6864K29	3.68	2.78

TCSBT3L is part of [E1100892].

L1-TCSHT4R Table Layout

[<< LVEA Tables]

TCSHT4R Table Layout (Dxxxxxxx) (Sxxxxxxx)

TCSHT4R is part of Exxxxxxx.

Enclosure (Table) Blank Panels

LIGO

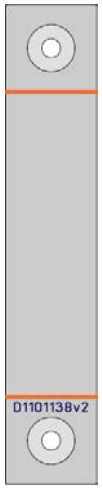
<< LVEA Tables

Enclosure (Table) Blank Panels (D1200705)

End Blank Panel

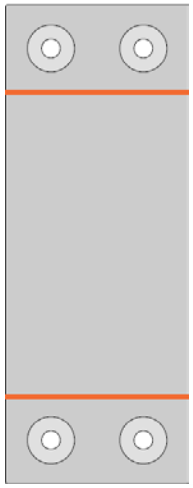
D1100441

Single Blank Panel



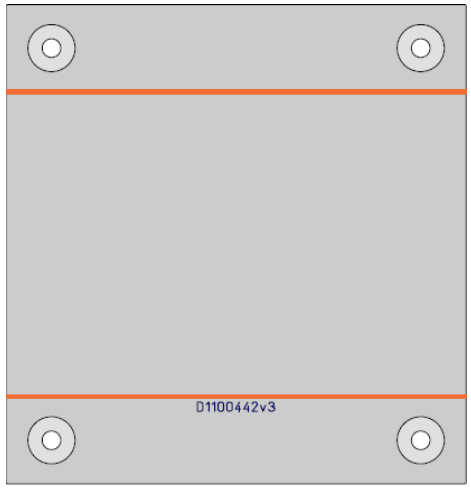
D1101138

Double Blank Panel



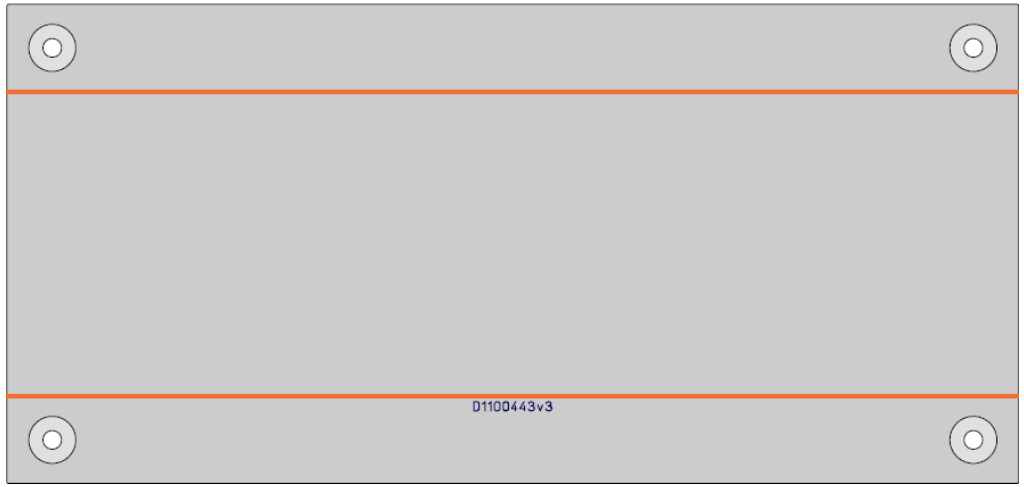
D1101139

Quintuple Blank Panel



D1100442

Undecuple Blank Panel



D1100443

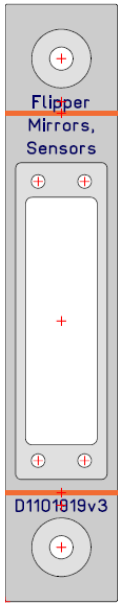
Enclosure (Table) Panels - 1

LIGO

<< LVEA Tables

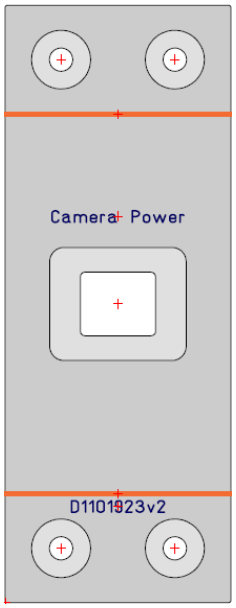
Enclosure (Table) Panels (E1200613)

Flipper Mirrors, Sensor Patch Panel



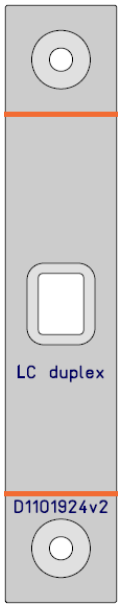
D1101919

DC Power Patch Panel



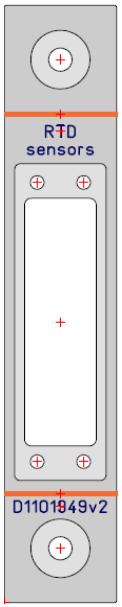
D1101923

LC Duplex Patch Panel



D1101924

RTD Sensors Patch Panel



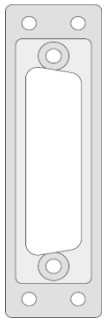
D1101949

Enclosure (Table) Panels – Picomotor Feedthru

[<< LVEA Tables]

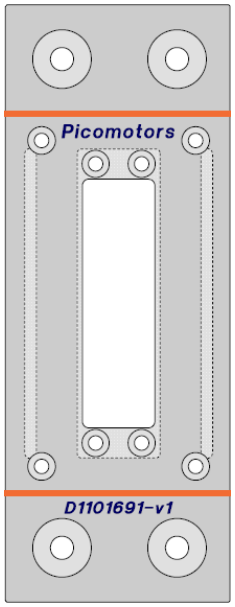
Enclosure (Table) Panels (E1200362)

Delrin Insert for DB25



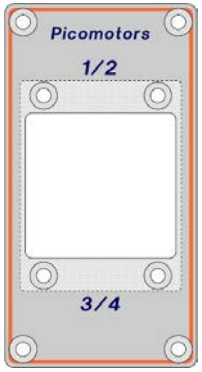
D1101690

Picomotor Breakout Front



D1101691

Picomotor Breakout Rear

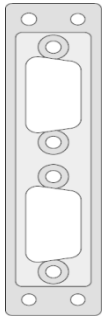


D1101692

Picomotor Breakout Side

D1101693

Delrin Insert for 2 X DB9



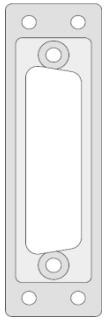
D1101669

Enclosure (Table) Panels – Templates

[<< LVEA Tables]

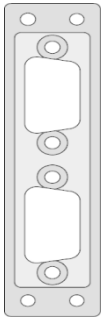
Enclosure (Table) Panels (E1200909)

Delrin Insert
for DB25



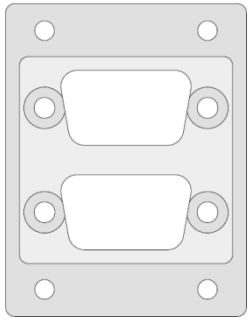
D1101690

Delrin Insert
for 2 X DB9(V)



D1101669

Delrin Insert
for 2 X DB9(H)

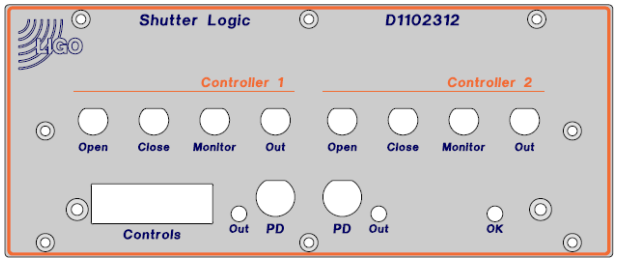


D1101699

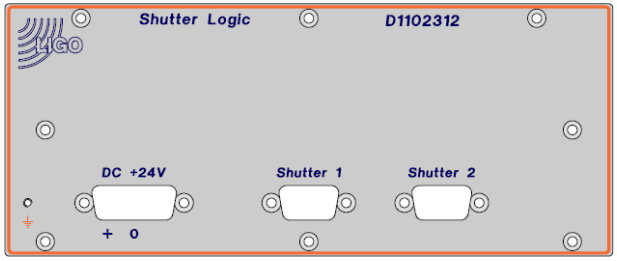
D1102312 - Sxxxxxxx

[<< LVEA Racks]

Shutter Logic | D1102312 | Sxxxxxxx | +24VDC



D1102312
Front

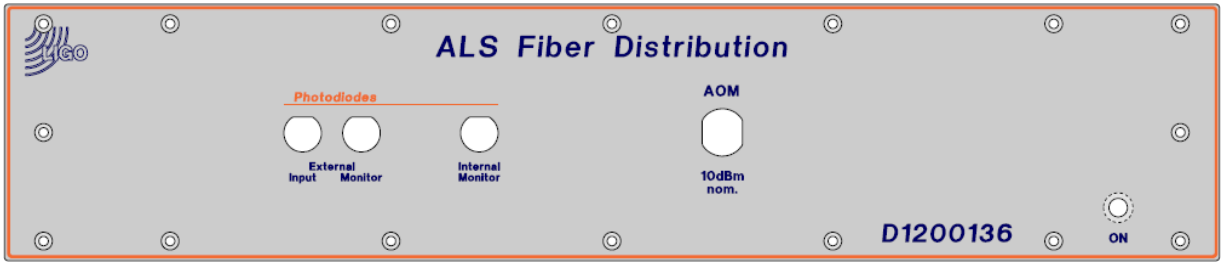


Sxxxxxxx
Rear

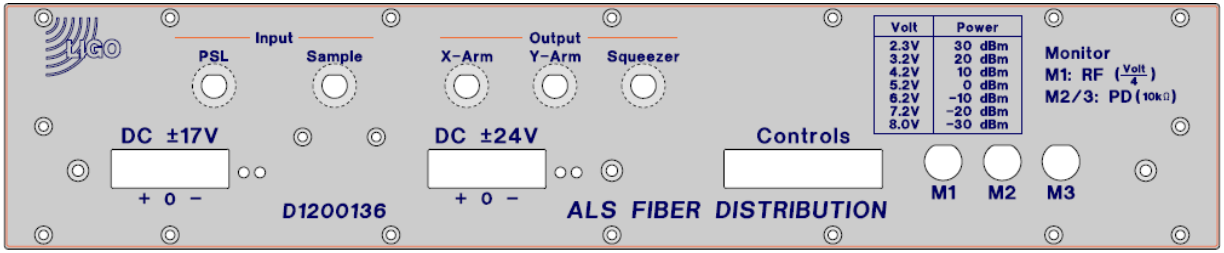
D1200136 - Sxxxxxxx

LIGO
<< LVEA Racks

ALS Fiber Distribution Chassis | D1200136 | Sxxxxxxx | +-17VDC, +-24VDC



D1200136
Front



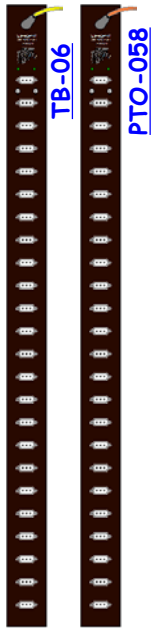
Sxxxxxxx
Rear

L1-ISC-R1

[<< LVEA Racks]

ISC IMC/ALS Rack Layout (D1001460) (S1201192)

D1200757 Sequencer — S1202564



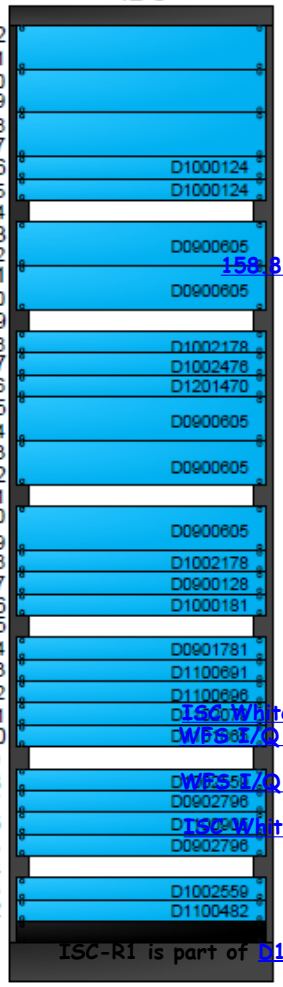
	Front		Rear	
RF Distribution Panel 10	Dxxxxxxx	42	Sxxxxxxx	No Power
		41		
RF Distribution Panel 11	Dxxxxxxx	40	Sxxxxxxx	No Power
		39		
RF Distribution Panel 12	Dxxxxxxx	38	Sxxxxxxx	No Power
		37		
		36		
24.078 MHz Distribution Amplifier	D1000124	35	S1000673	±17VDC, ±24VDC
		34		
79.4 MHz VCO (ALS)	D0900605	33	S1200576	±17VDC, ±24VDC
		32		
Dual DSUB Breakout Panel	D1201450	31	Sxxxxxxx	±15VDC
158.8 MHz Frequency Doubler	D1002178	30	S1000740	±17VDC, ±24VDC
158.8 / 79.4 MHz 2-Channel PF Discriminator	D1002476	29	S1000766	±17VDC, ±24VDC
		28		
79.4 MHz VCO (ALS)	D0900605	27	S1200575	±17VDC, ±24VDC
		26		
		25		
79.4 MHz VCO (PSL)	D0900605	24	S1200580	±17VDC, ±24VDC
		23		
158.8 MHz Frequency Doubler	D1002178	22	S1000739	±17VDC, ±24VDC
24.078 MHz Dual Delay Line	D0900128	21	S1103423	+15VDC
24.078 MHz 2-Channel Demodulator	D1000181	20	S1000788	±17VDC, ±24VDC
		19		
Mode Cleaner Servo	D0901781	18	S1102629	±17VDC, ±24VDC
		17		
LSC Demod Concentrator 1	D1100691	16	S1104005	±18VDC
ASC Demod Concentrator 1	D1100696	15	S1103984	No Power
LSC RFPD Interface	D1102079	14	S1200449	±18VDC
WFS RFPD Interface	D1101906	13	S1200429	±15VDC
		12		
ISC Whitening Chassis (ASC IMC WFS_A 24MHz)	D1002559	11	S1101612	±15VDC
		10		
WFS I/Q Demodulator (ASC IMC WFS_A 24MHz)	D0902796	9	S1000991	±15VDC
WFS Demodulator Patch Panel	D1100905	8	Sxxxxxxx	No Power
WFS I/Q Demodulator (ASC IMC WFS_B 24MHz)	D0902796	7	S1001024	±15VDC
		6		
ISC Whitening Chassis (ASC IMC WFS_A 24MHz)	D1002559	5	S1101571	±15VDC
		4		
Differential to Single-Ended Receiver	D1100482	3	S1202844	±15VDC
		2		
		1		

ISC-R1 is part of D1001460.

L1-ISC-R1

[<< LVEA Racks]

ISC IMC/ALS Rack Layout (D1001460) (S1201192)

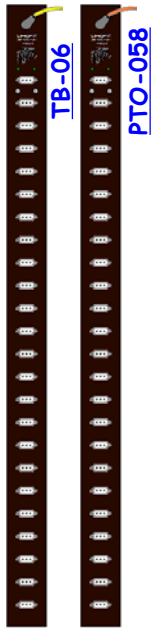


RF Distribution Panel 10
RF Distribution Panel 11
RF Distribution Panel 12
71 MHz Distribution Amplifier
24.078 MHz Distribution Amplifier
79.4 MHz FDD (ALS)
79.4 MHz VCO (ALS)
158.8 MHz Frequency Doubler
158.8 / 79.4 MHz 2-Channel PF Discriminator
Demodulator RF Distribution Panel
79.4 MHz VCO (ALS)
79.4 MHz FDD (ALS)
79.4 MHz VCO (PSL)
158.8 MHz Frequency Doubler
24.078 MHz Dual Delay Line
24.078 MHz 2-Channel Demodulator
Mode Cleaner Servo
LSC Demod Concentrator 1
ASC Demod Concentrator 1
LSC RFPD Interface
WFS RFPD Interface
ISC Whitening Chassis (ASC IMC WFS A 24MHz)
WFS I/Q Demodulator (ASC IMC WFS A 24MHz)
WFS Demodulator Patch Panel
WFS I/Q Demodulator (ASC IMC WFS B 24MHz)
ISC Whitening Chassis (ASC IMC WFS A 24MHz)
Differential to Single Ended Receiver

	Front	Rear	
42	Dxxxxxxx	Sxxxxxxx	No Power
41			
40	Dxxxxxxx	Sxxxxxxx	No Power
39			
38	Dxxxxxxx	Sxxxxxxx	No Power
37			
36	D1000124	S1000673	±17VDC, ±24VDC
35	D1000124	S1000673	±17VDC, ±24VDC
34			
33	D0900605	S1200576	±17VDC, ±24VDC
32			
31	D0900605	S1200576	±17VDC, ±24VDC
30			
29			
28	D1002178	S1000740	±17VDC, ±24VDC
27	D1002476	S1000766	±17VDC, ±24VDC
26	D1201470	Sxxxxxxx	??
25	D0900605	S1200575	±17VDC, ±24VDC
24			
23	D0900605	S1200580	±17VDC, ±24VDC
22			
21			
20	D0900605	S1200580	±17VDC, ±24VDC
19			
18	D1002178	S1000739	±17VDC, ±24VDC
17	D0900128	S1103423	+15VDC
16	D1000181	S1000788	±17VDC, ±24VDC
15			
14	D0901781	S1102629	±17VDC, ±24VDC
13	D1100691	S1104005	±18VDC
12	D1100696	S1103984	No Power
11	D1102079	S1200449	±18VDC
10	D1101865	Sxxxxxxx	±15VDC
9			
8	D1002559	S1101612	±15VDC
7	D0902796	S1000991	±15VDC
6	D1100905	Sxxxxxxx	No Power
5	D0902796	S1001024	±15VDC
4			
3	D1002559	S1101571	±15VDC
2	D1100482	S1202844	±15VDC
1			

D1200757 Sequencer

S1202564

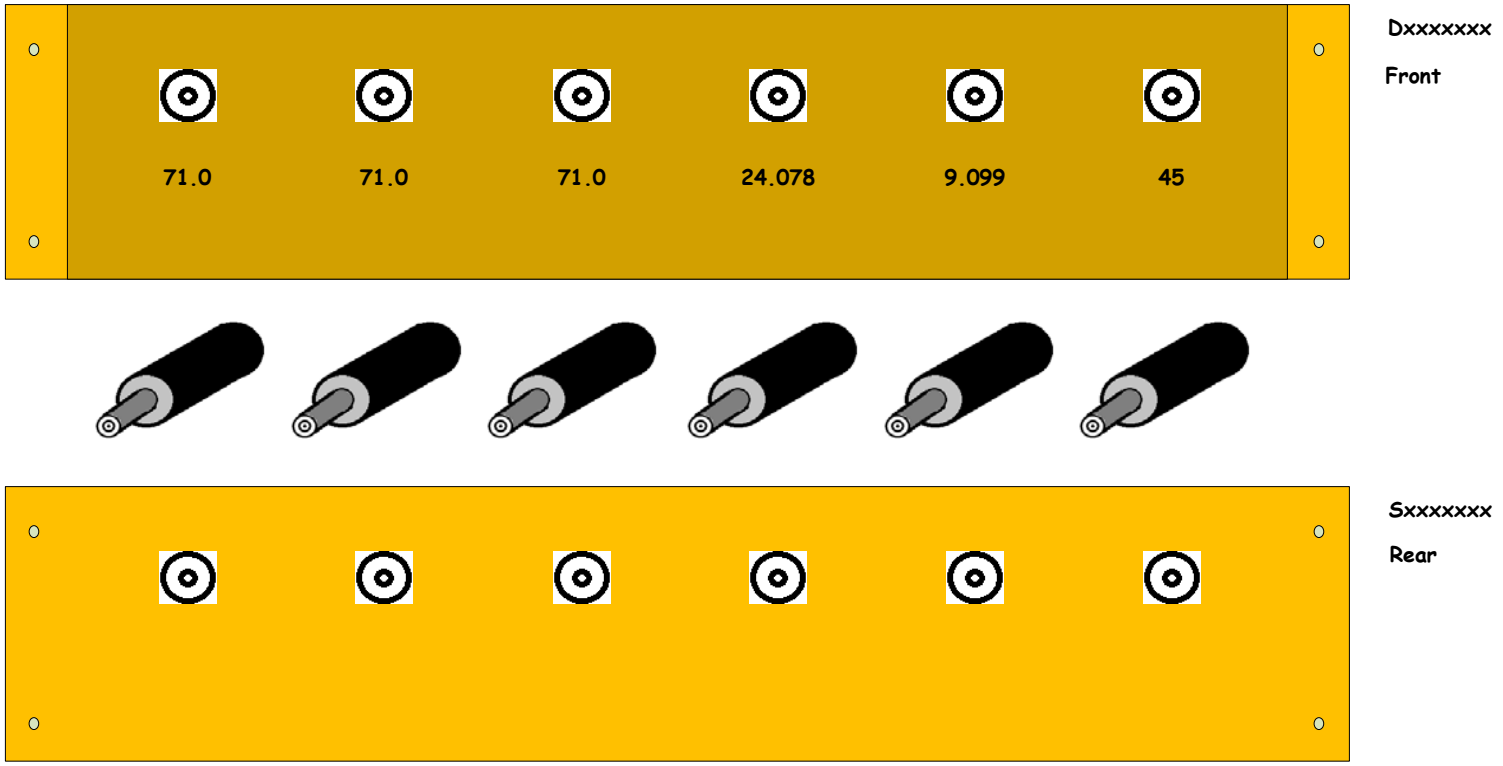


L1-ISC-R1 Details

RF Distribution Panel 10

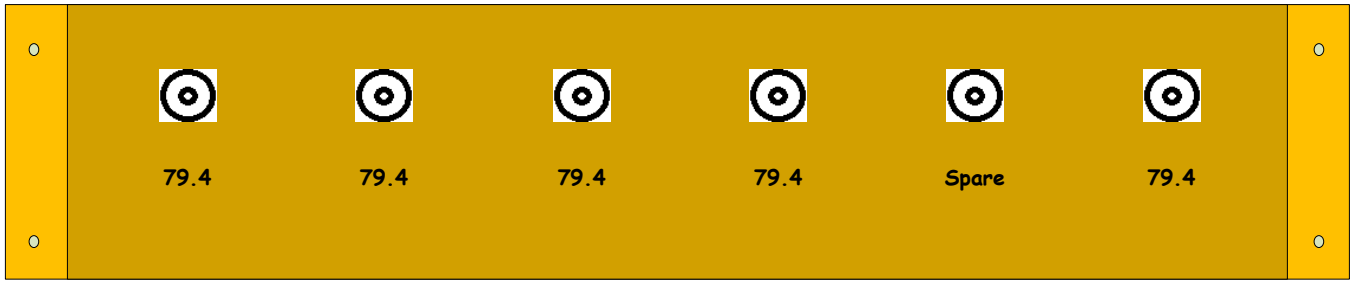
LIGO
<< L1-ISC-R1

RF Distribution Panel 10 | Dxxxxxxx | Sxxxxxxx | No Power



RF Distribution Panel 11

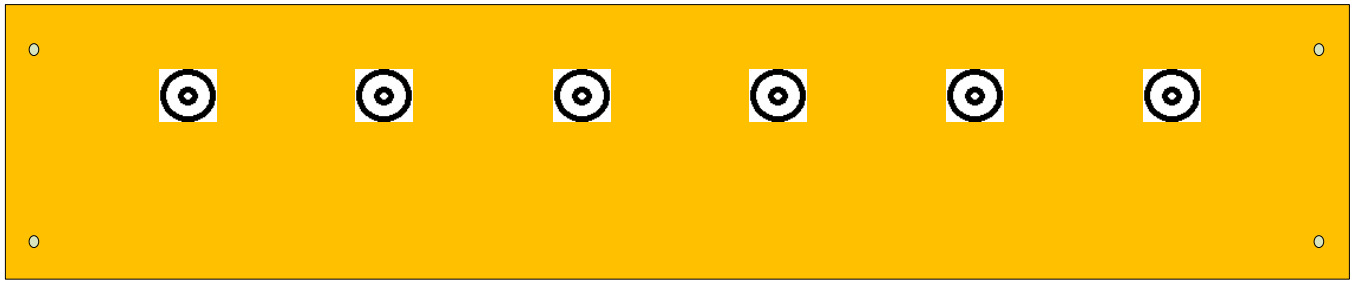
RF Distribution Panel 11 | Dxxxxxxx | Sxxxxxxx | No Power



Dxxxxxxx

Front

RF Power Splitter for PSL VCO: E1200894

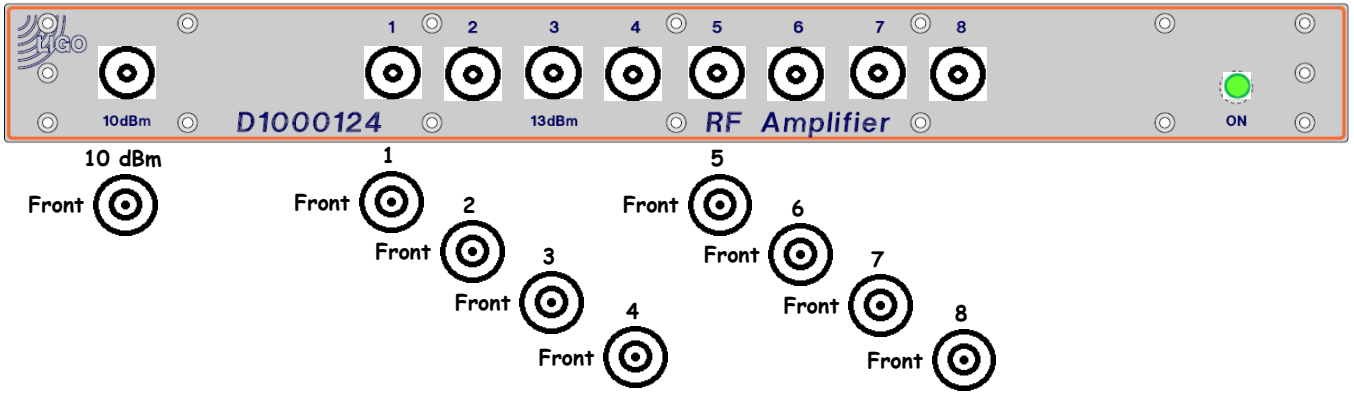


Sxxxxxxx

Rear

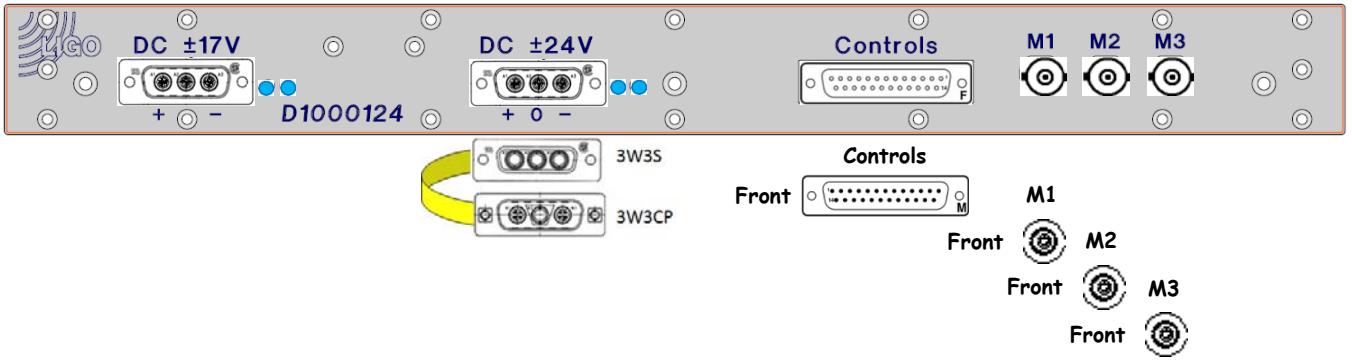
D1000124 - S1000673

24.078 MHz Distribution Amplifier | D1000124 | S1000673 | ±17VDC, ±24VDC



D1000124

Front



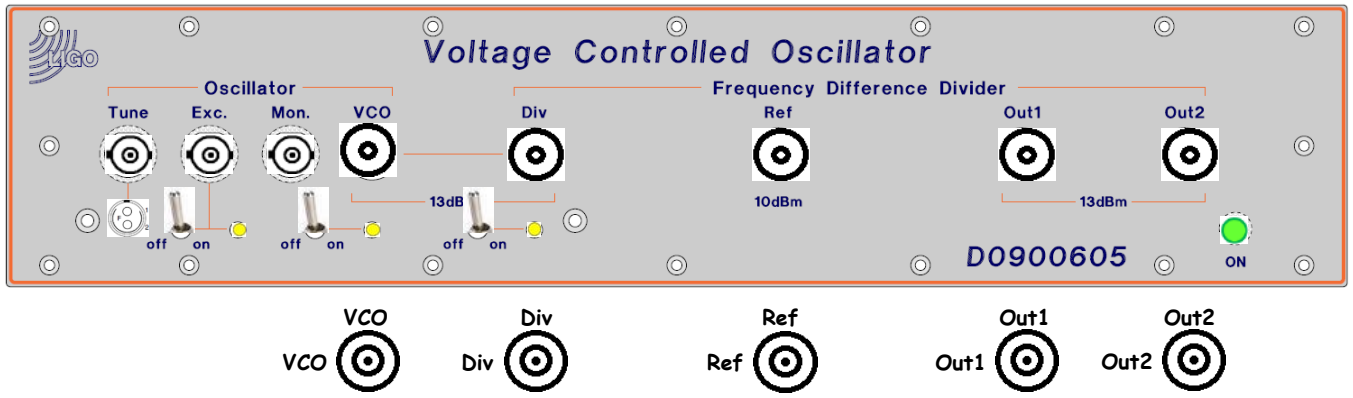
S1000673

Rear

D0900605 - S1200576

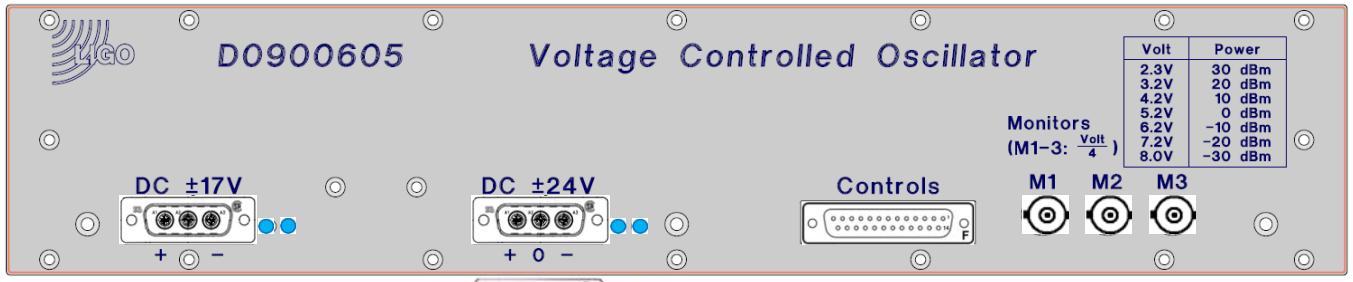
[<< L1-ISC-R1]

79.4 MHz VCO (ALS) | D0900605 | S1200576 | ±17VDC, ±24VDC



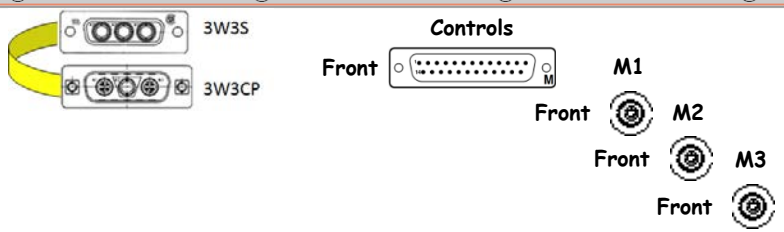
D0900605

Front



S1200576

Rear



D1201450 - Sxxxxxxx

[<< L1-ISC-R1]

Dual DSUB Breakout Panel | D1201450 | Sxxxxxxx | ±17VDC, ±24VDC

D1201450

Front

Gender Changer

Gender Changer

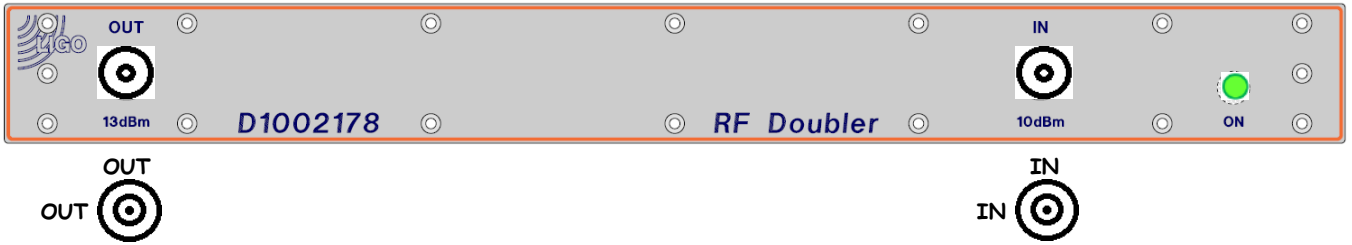
Sxxxxxxx

Rear

D1002178 - S1000740

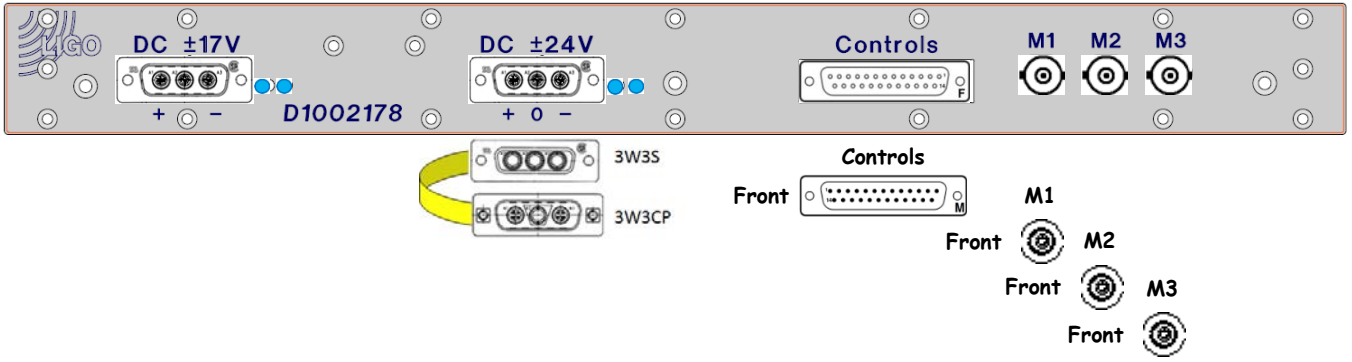
« L1-ISC-R1

24.078 MHz Distribution Amplifier | D1002178 | S1000740 | ±17VDC, ±24VDC



D1002178

Front



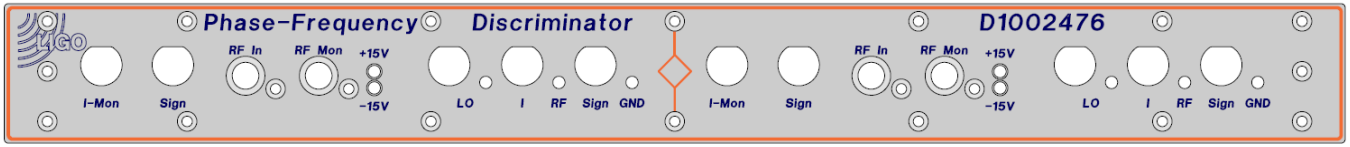
S1000740

Rear

D1002476 - S1000766

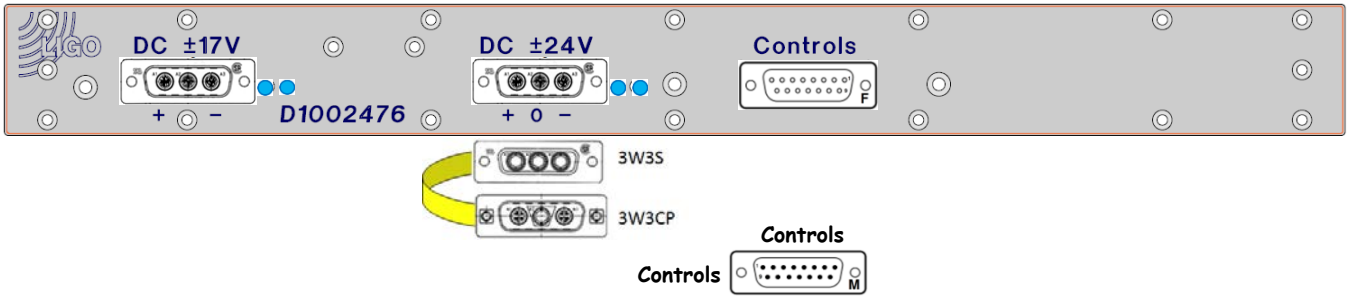
[<< L1-ISC-R1]

158.8 / 79.4 MHz 2-Channel PF Discriminator | D1002476 | S1000766 | ±17VDC, ±24VDC



D1002476

Front



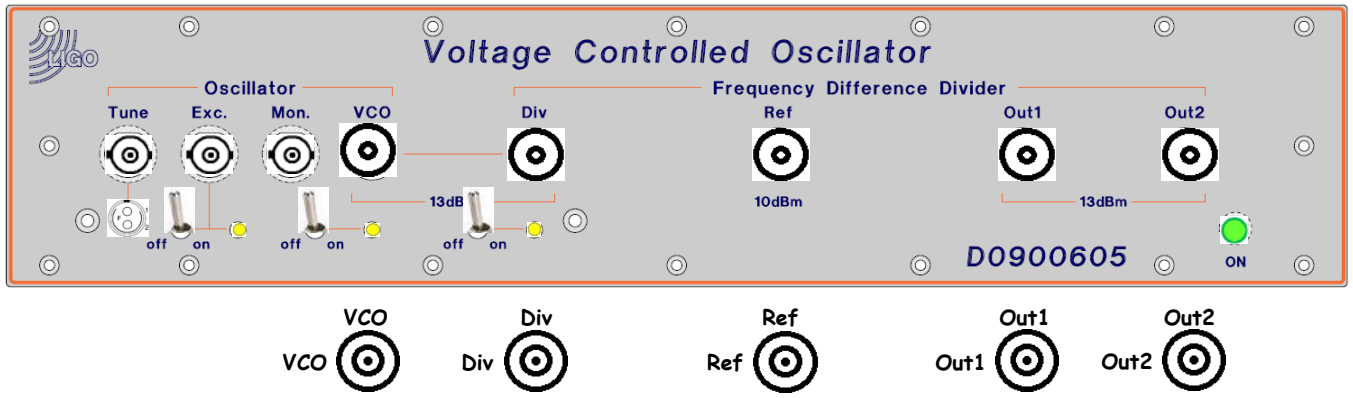
S1000766

Rear

D0900605 - S1200575

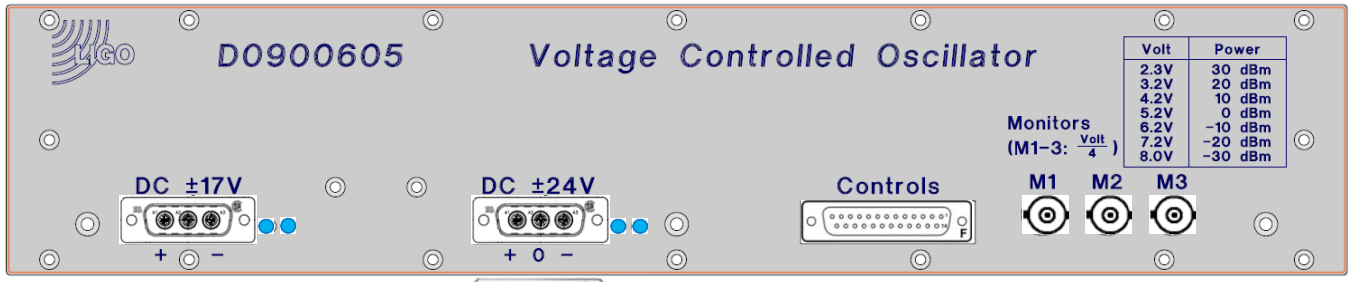
[<< L1-ISC-R1]

79.4 MHz VCO (ALS) | D0900605 | S1200575 | ±17VDC, ±24VDC



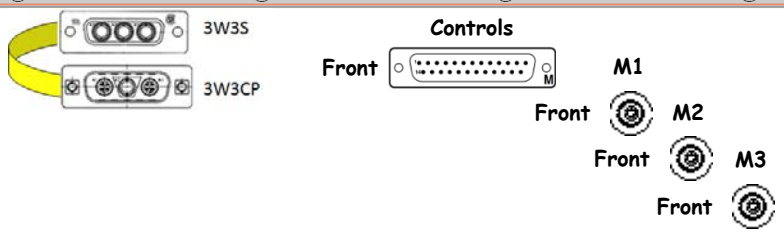
D0900605

Front



S1200575

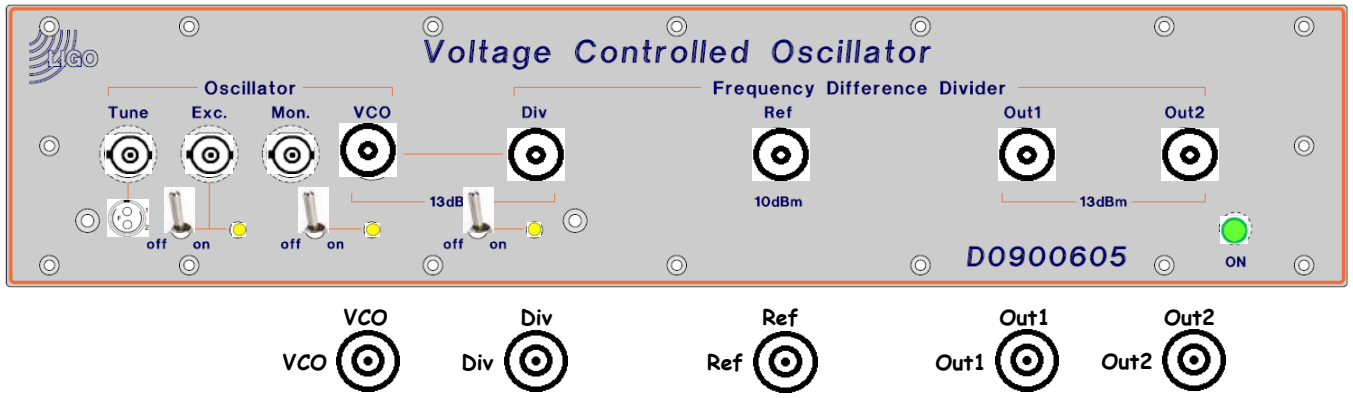
Rear



D0900605 - S1200580

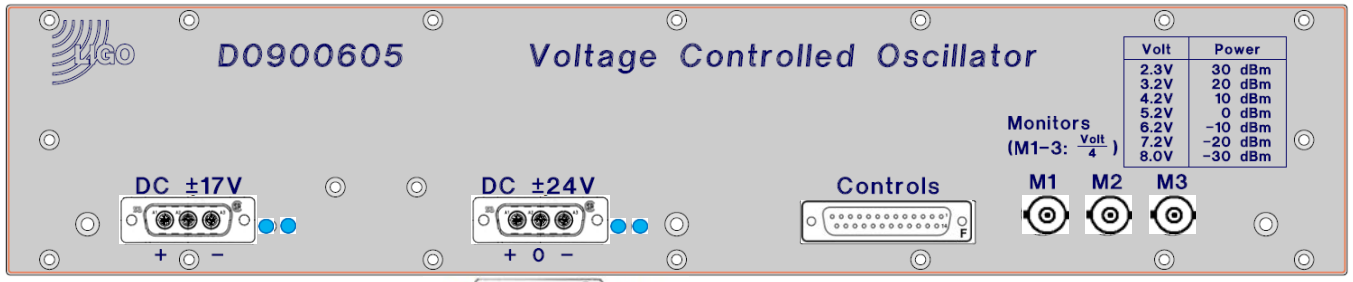
« L1-ISC-R1

79.4 MHz VCO (ALS) | D0900605 | S1200580 | ±17VDC, ±24VDC



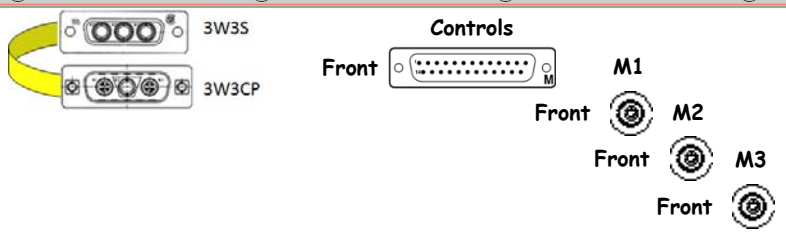
D0900605

Front



S1200580

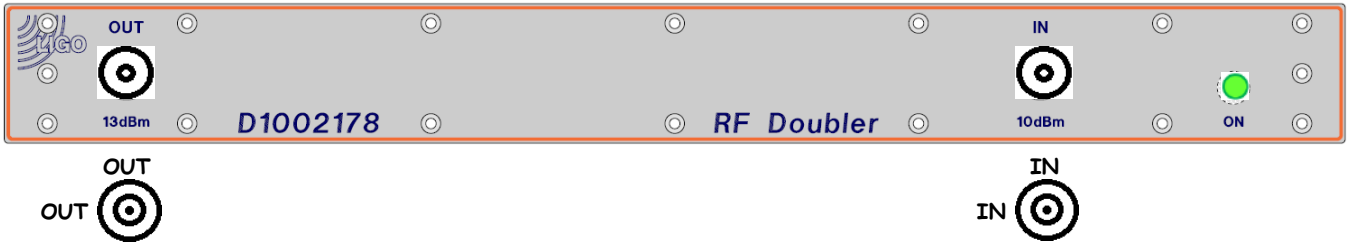
Rear



D1002178 - S1000739

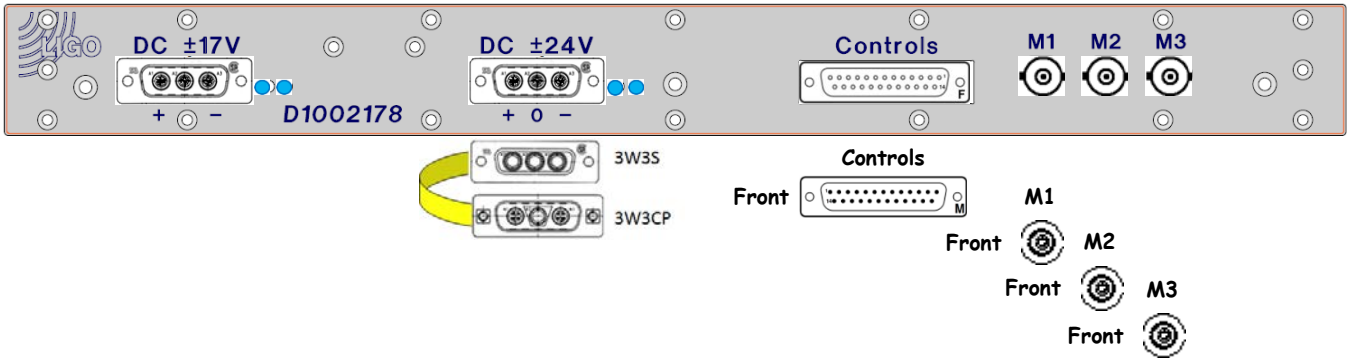
« L1-ISC-R1

24.078 MHz Distribution Amplifier | D1002178 | S1000739 | ±17VDC, ±24VDC



D1002178

Front



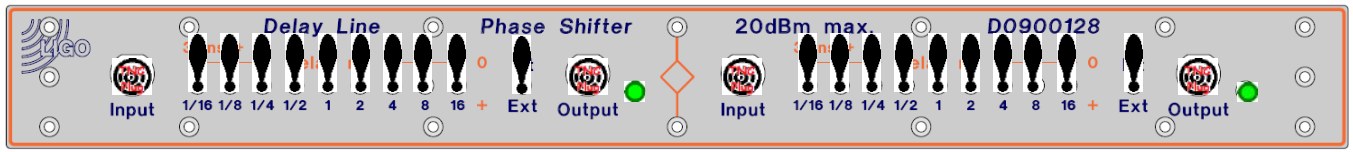
S1000739

Rear

D0900128 - S1103423

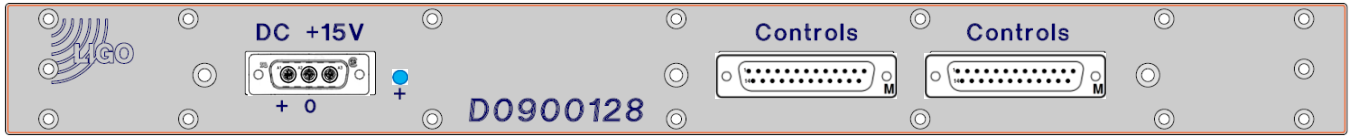
[<< L1-ISC-R1]

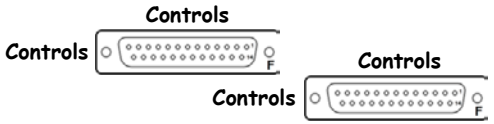
24.078 MHz Dual Delay Line | D0900128 | S1103423 | +15VDC



D0900128

Front





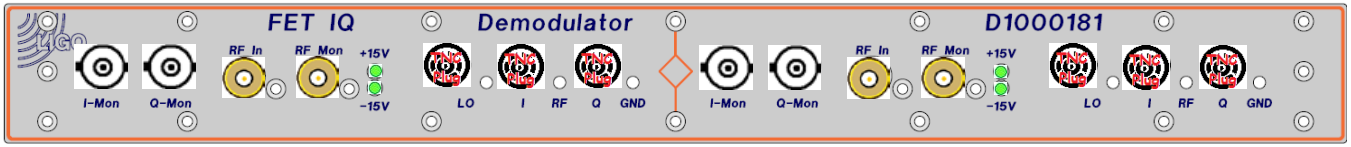
S1103423

Rear

D1000181 - S1000788

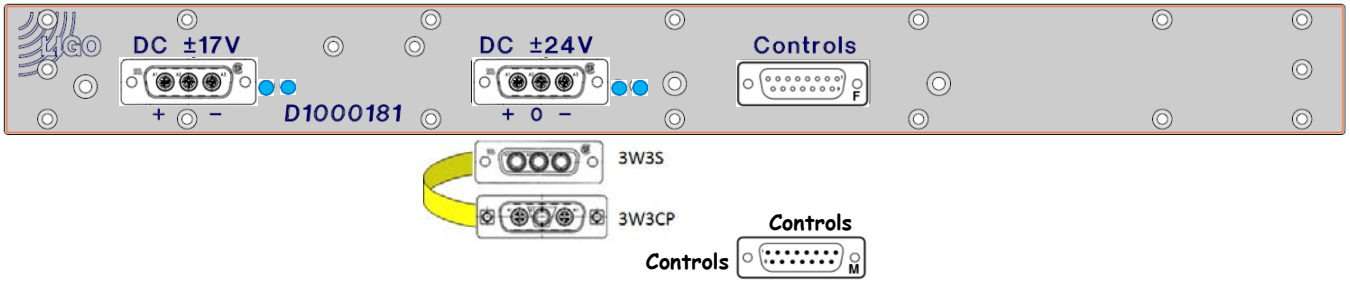
LIGO
<< L1-ISC-R1

24.078 MHz 2-Channel Demodulator | D1000181 | S1000788 | ±17VDC, ±24VDC



D1000181

Front



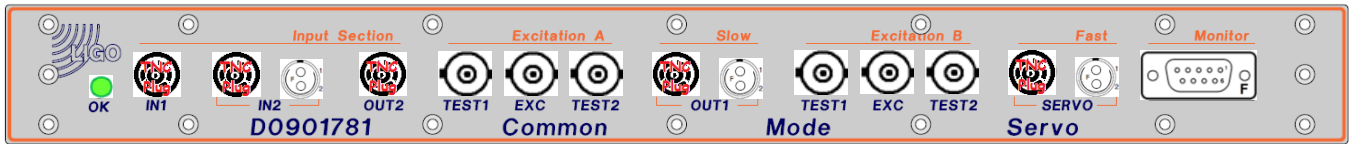
S1000788

Rear

D0901781 - S1102629

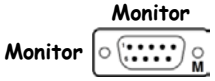
« L1-ISC-R1

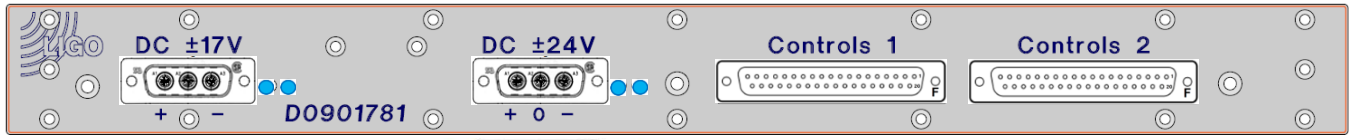
Mode Cleaner Servo | D0901781 | S1102629 | ±17VDC, ±24VDC



D0901781

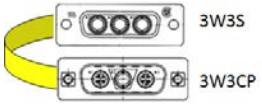
Front

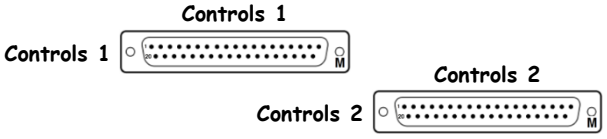




S1102629

Rear

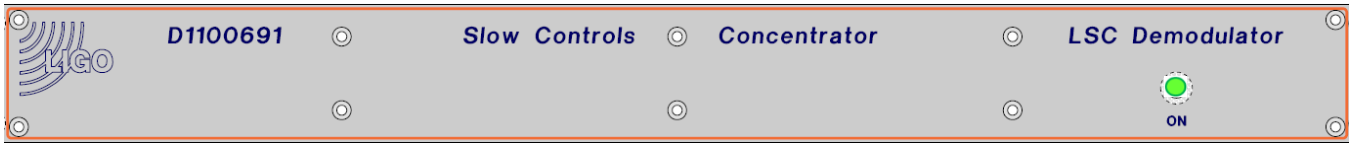




D1100691 - S1104005

[<< L1-ISC-R1]

LSC Demod Concentrator 1 | D1100691 | S1104005 | ±18VDC

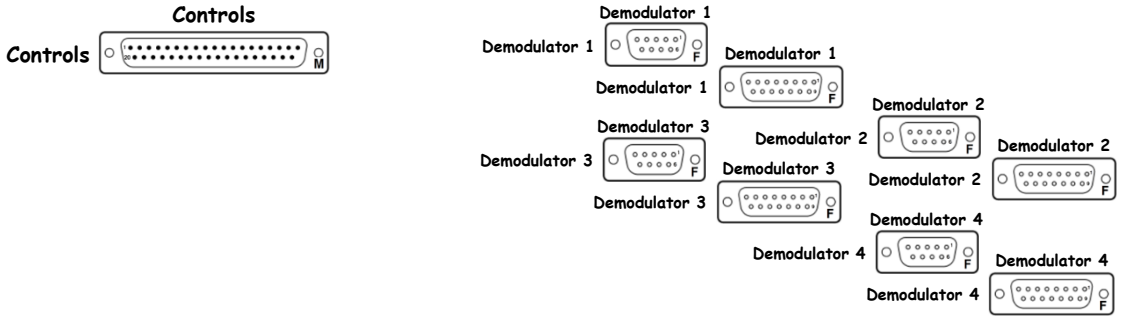


D1100691

Front

S1104005

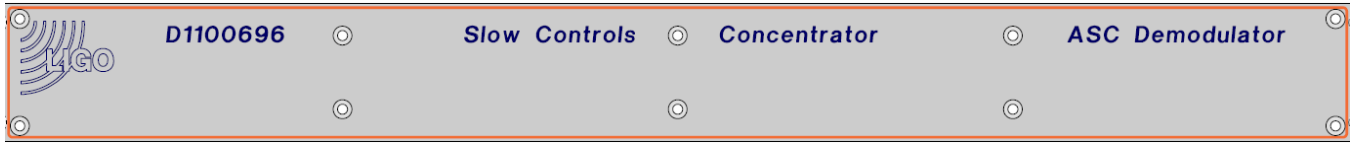
Rear



D1100696 - S1103984

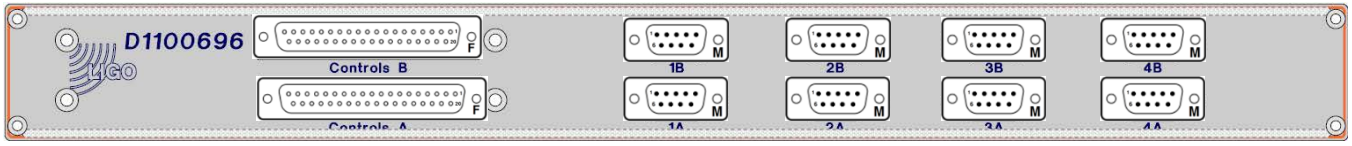
[<< L1-ISC-R1]

ASC Demod Concentrator 1 | D1100696 | S1103984 | No Power



D1100696

Front



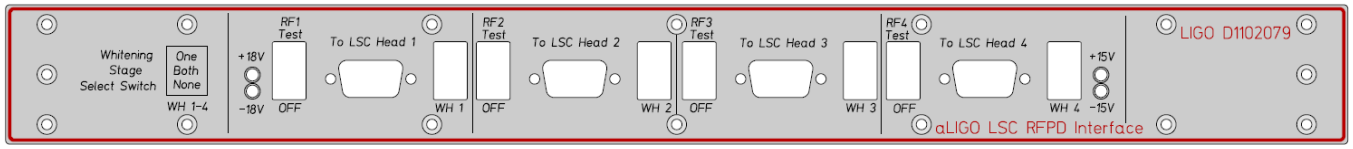
S1103984

Rear

D1102079 - Sxxxxxxx

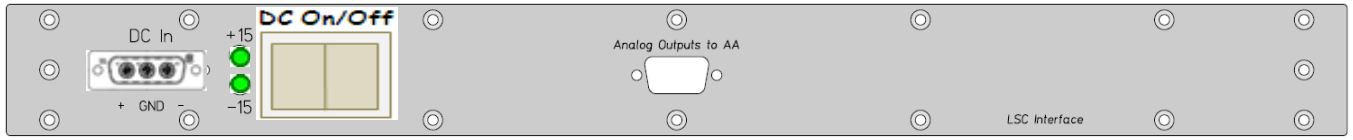
[<< L1-ISC-R1]

LSC RFPD Interface | D1102079 | Sxxxxxxx | ±18VDC



D1102079

Front



Sxxxxxxx

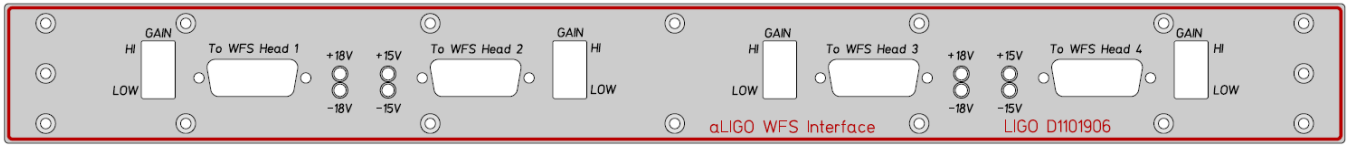
Rear

D1101906 - Sxxxxxxx

[<< L1-ISC-R1]

WFS RFPD Interface | D1101906 | Sxxxxxxx | ±15VDC

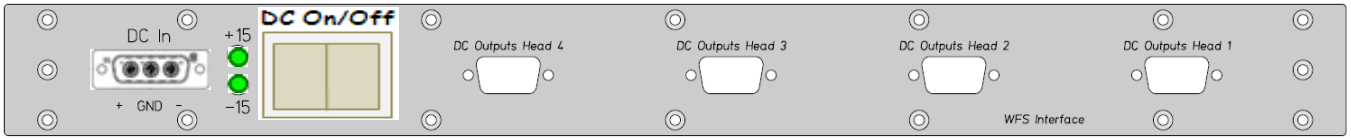
D1101905



D1101906

Front

D1101908

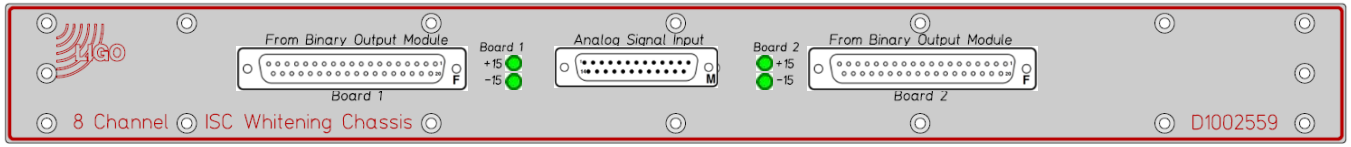


Sxxxxxxx

Rear

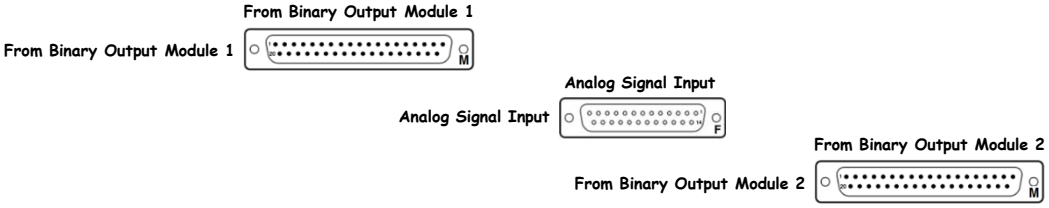
D1002559 - S1101612

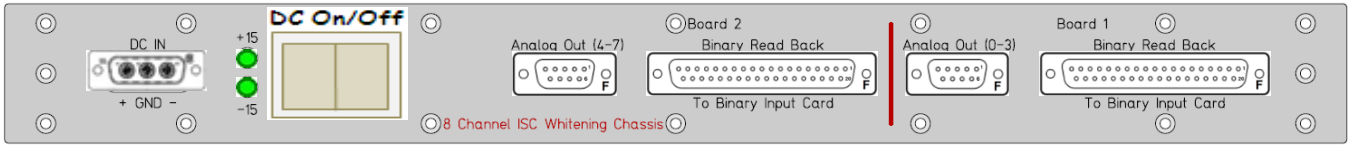
[<< L1-ISC-R1](#) ISC Whitening Chassis (ASC IMC WFS_A 24MHz) [D1002559](#) [S1101612](#) ±15VDC



[D1002559](#)

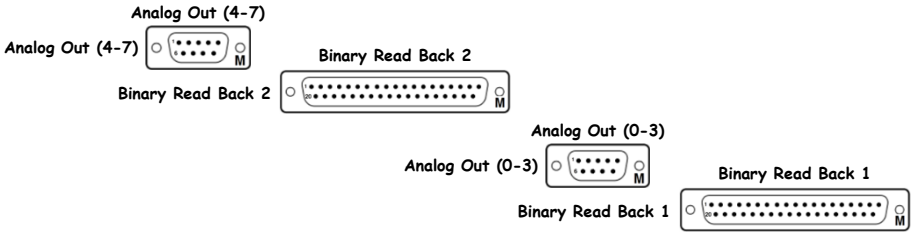
Front





[S1101612](#)

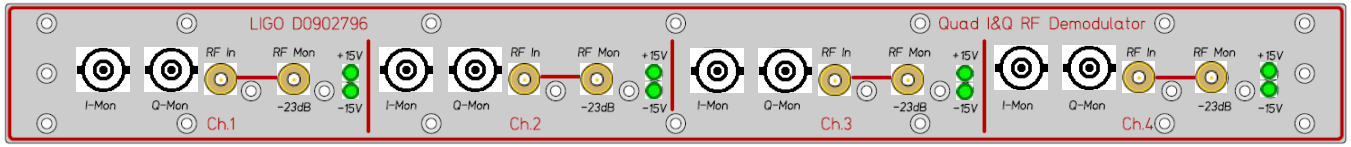
Rear



D0902796 - S1000991

[<< L1-ISC-R1](#)

ISC Whitening Chassis (ASC IMC WFS_A 24MHz) | D0902796 | S1000991 | ±15VDC

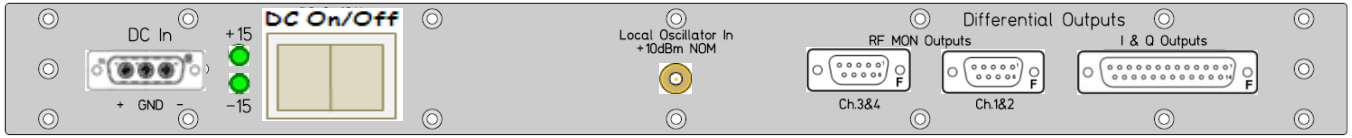


D0902796

Front

D1002032

LSC



Sxxxxxxx

Rear

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

M

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

M

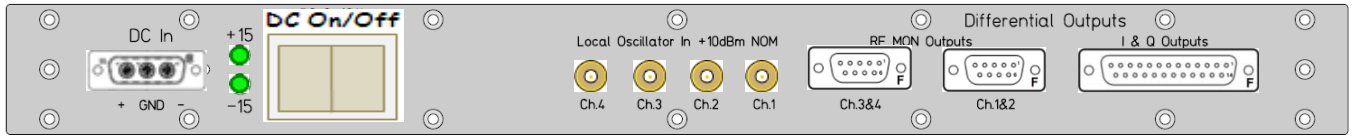
I & Q Outputs

I & Q Outputs

M

D1002031

WFS



Sxxxxxxx

Rear

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

M

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

M

I & Q Outputs

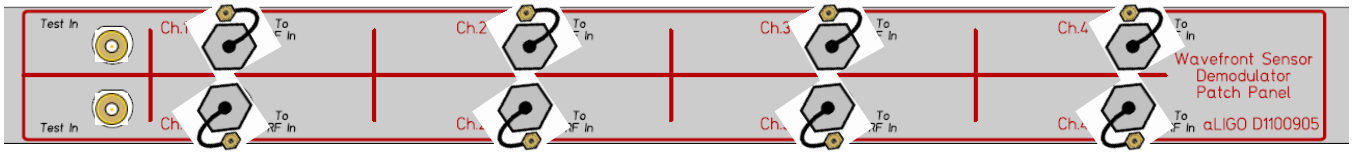
I & Q Outputs

M

D1100905 - Sxxxxxxx

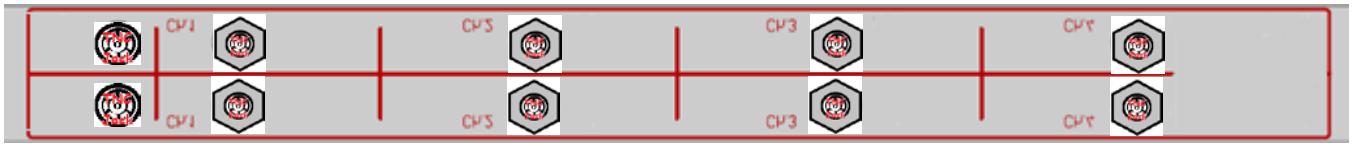
[<< L1-ISC-R1]

WFS Demodulator Patch Panel | D1100905 | Sxxxxxxx | No Power



D1100905

Front



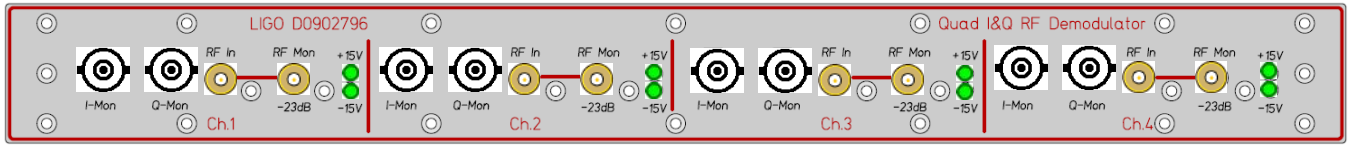
Sxxxxxxx

Rear

D0902796 - S1001024

« L1-ISC-R1

ISC Whitening Chassis (ASC IMC WFS_B 24MHz) | D0902796 | S1001024 | ±15VDC

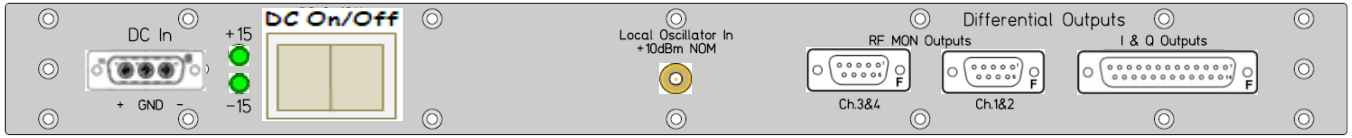


D0902796

Front

D1002032

LSC



Sxxxxxxx

Rear

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

M

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

M

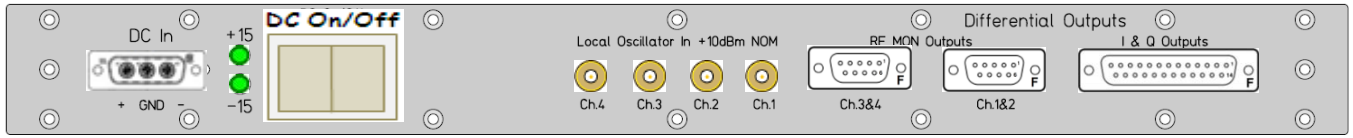
I & Q Outputs

I & Q Outputs

M

D1002031

WFS



Sxxxxxxx

Rear

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

M

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

M

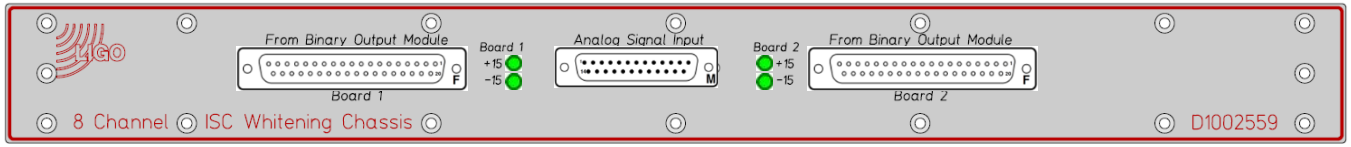
I & Q Outputs

I & Q Outputs

M

D1002559 - S1101571

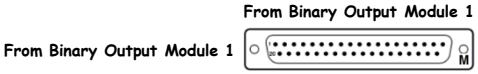
<< L1-ISC-R1 ISC Whitening Chassis (ASC IMC WFS_A 24MHz) D1002559 S1101571 ±15VDC



D1002559

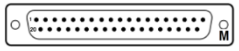
Front

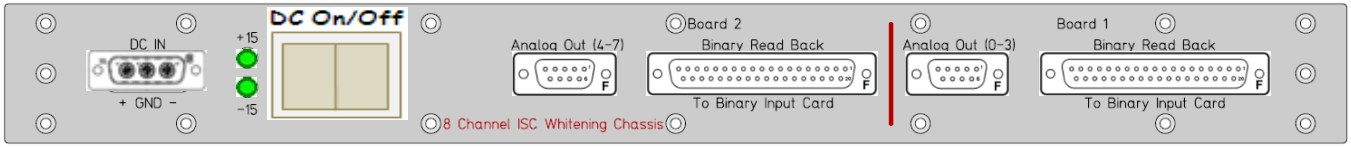
From Binary Output Module 1



Analog Signal Input

From Binary Output Module 2

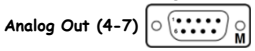




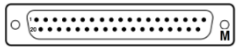
S1101571

Rear

Analog Out (4-7)

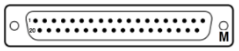


Binary Read Back 2



Analog Out (0-3)

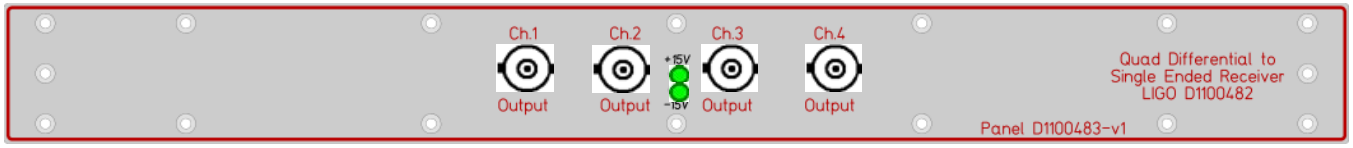
Binary Read Back 1



D1100482 - S1202844

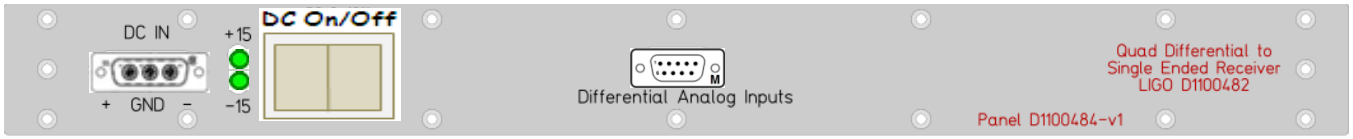
[<< L1-ISC-R1]

Differential to Single-Ended Receiver | D1100482 | S1202844 | ±15VDC



D1100482

Front



S1202844

Rear

Diff Inputs

Diff Inputs

L1-ISC-R2

[<< LVEA Racks]

ISC HAM1 and HAM3 Rack Layout (D1001425) (S1201193)

D1200757 Sequencer

S1202569

PTY-048

PTO-059

	Front		Rear	
42	Dxxxxxxx	42	Sxxxxxxx	No Power
41		41		
40	Dxxxxxxx	40	Sxxxxxxx	No Power
39		39		
38	D1000124	38	S1000665	±17VDC, ±24VDC
37	D1000124	37	S1000658	±17VDC, ±24VDC
36	D0900128	36	S1103416	+15VDC
35		35		
34	D1000181	34	S1000784	±17VDC, ±24VDC
33		33		
32	D1002559	32	S1101620	±15VDC
31		31		
30	D0902796	30	S1001004	±15VDC
29	D1100956	29	Sxxxxxxx	No Power
28	D0902796	28	S1001007	±15VDC
27		27		
26	D1002559	26	S1101624	±15VDC
25		25		
24	D0902796	24	S1001012	±15VDC
23	D1100956	23	Sxxxxxxx	No Power
22	D1002559	22	S1101625	±15VDC
21		21		
20	D1002559	20	S1101596	±15VDC
19		19		
18	D0902796	18	S1001030	±15VDC
17	D1100905	17	Sxxxxxxx	No Power
16	D0902796	16	S1000986	±15VDC
15		15		
14	D1002559	14	S1101167	±15VDC
13		13		
12	D1002559	12	S1101621	±15VDC
11		11		
10	D0902796	10	S1000987	±15VDC
9	D1100905	9	Sxxxxxxx	No Power
8	D0902796	8	S1000990	±15VDC
7		7		
6	D1002559	6	S1101609	±15VDC
5		5		
4	D0902796	4	S1000973	±15VDC
3	D1100905	3	Sxxxxxxx	No Power
2	D1002559	2	S1101597	±15VDC
1		1		

RF Distribution Panel 13

RF Distribution Panel 14

45 MHz Distribution Amplifier

9.099/8.684 MHz Distribution Amplifier

9.099/8.684 MHz Dual Delay Line

9.099/8.684 MHz 2-Channel Demodulator

ISC Whitening (LSC POPAIR A 9&45, LSC REFLAIR A 45)

LSC I/Q Demodulator (LSC POPAIR A 9&45, LSC REFLAIR A 45)

LSC Demodulator Patch Panel

LSC I/Q Demodulator (LSC POPAIR B 18&90, LSC REFLAIR B 27&135)

ISC Whitening (LSC POPAIR B 18&90, LSC REFLAIR B 27&135)

LSC I/Q Demodulator (LSC POP, LSC REFL)

LSC Demodulator Patch Panel

ISC Whitening (LSC POP, LSC REFL)

ISC Whitening (ASC REFLAIR A 9MHz)

WFS I/Q Demodulator (ASC REFLAIR A 9MHz)

WFS Demodulator Patch Panel

WFS I/Q Demodulator (ASC REFLAIR A 45MHz)

ISC Whitening (ASC REFLAIR A 45MHz)

ISC Whitening (ASC REFLAIR B 9MHz)

WFS I/Q Demodulator (ASC REFLAIR B 9MHz)

WFS Demodulator Patch Panel

WFS I/Q Demodulator (ASC REFLAIR B 45MHz)

ISC Whitening (ASC REFLAIR B 45MHz)

WFS I/Q Demodulator (Spare AIR to VAC)

WFS Demodulator Patch Panel

ISC Whitening (Spare AIR to VAC)

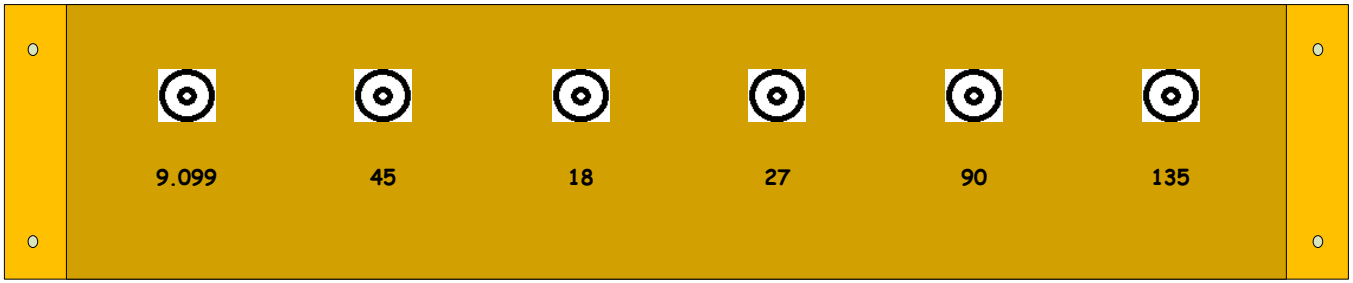
ISC-R2 is part of D1001425.

L1-ISC-R2 Details

RF Distribution Panel 13

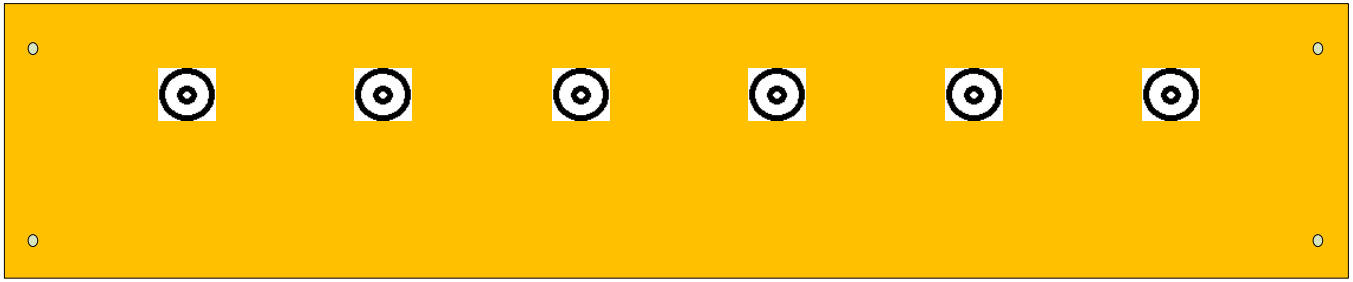
[<< L1-ISC-R2]

RF Distribution Panel 13 | Dxxxxxxx | Sxxxxxxx | No Power



Dxxxxxxx

Front



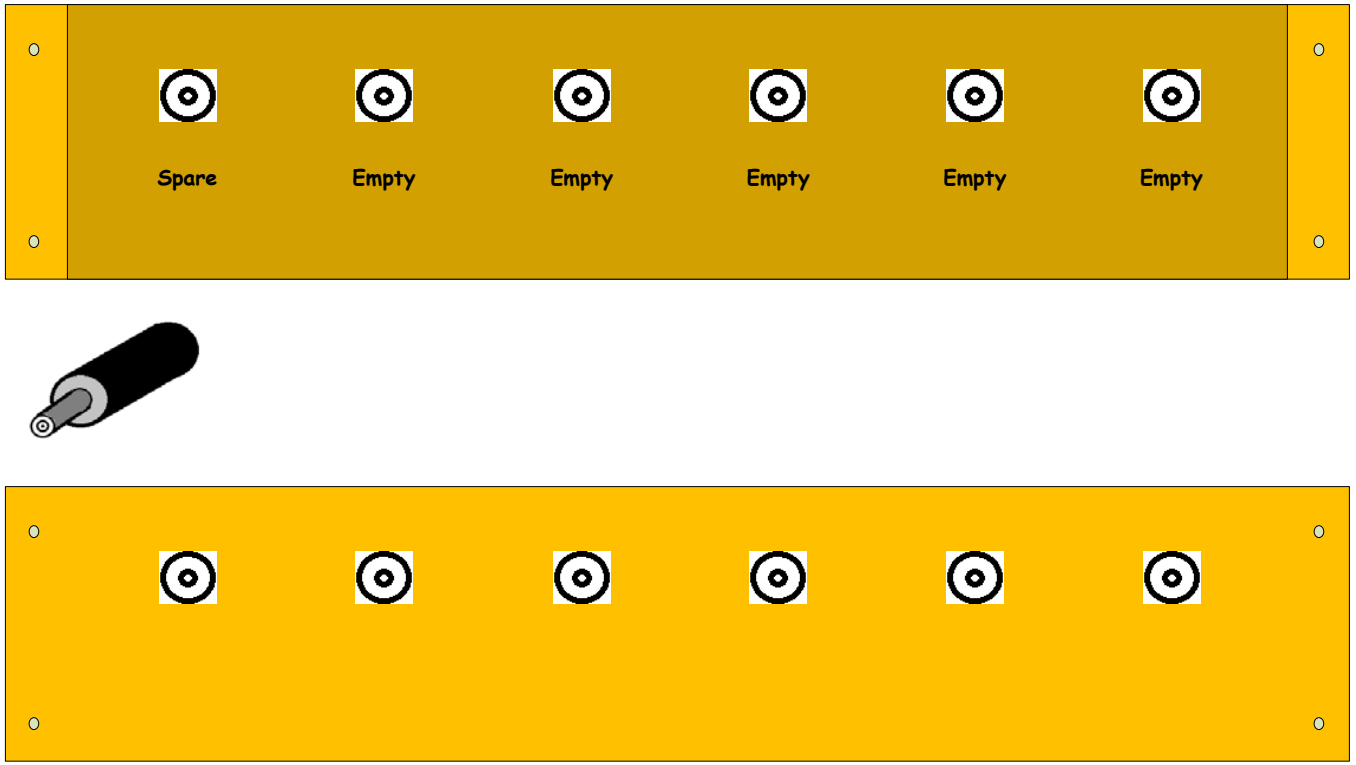
Sxxxxxxx

Rear

RF Distribution Panel 14

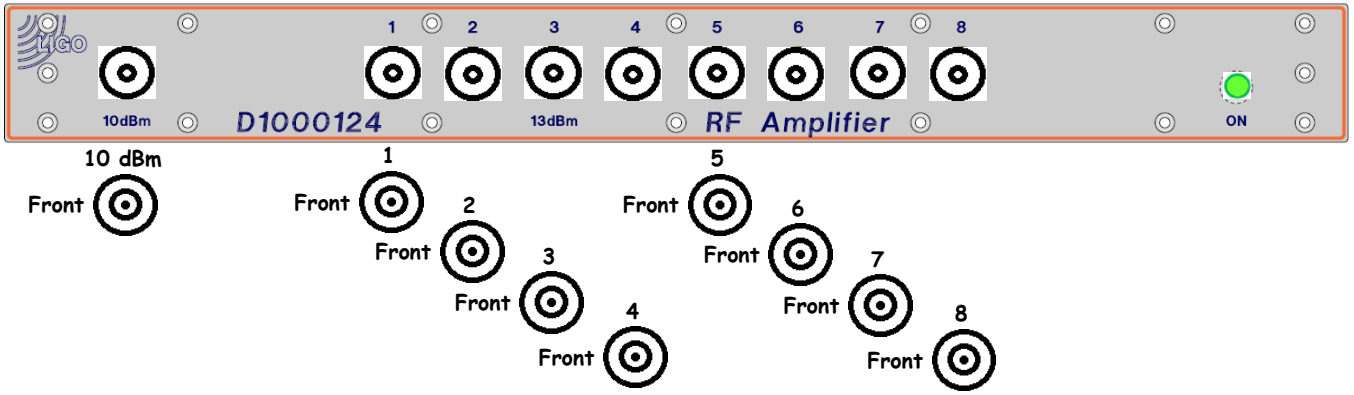
[<< L1-ISC-R2]

RF Distribution Panel 14 | Dxxxxxxx | Sxxxxxxx | No Power



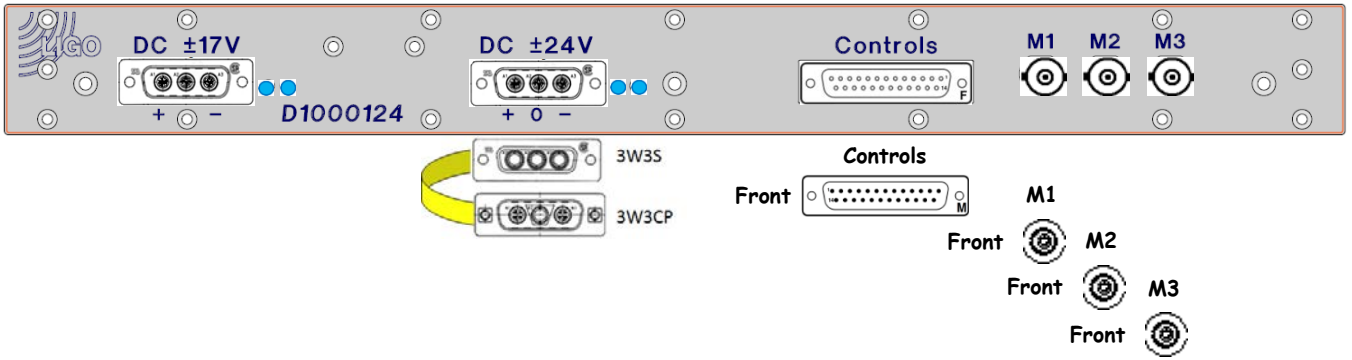
D1000124 - S1000665

45 MHz Distribution Amplifier | D1000124 | S1000665 | ±17VDC, ±24VDC



D1000124

Front



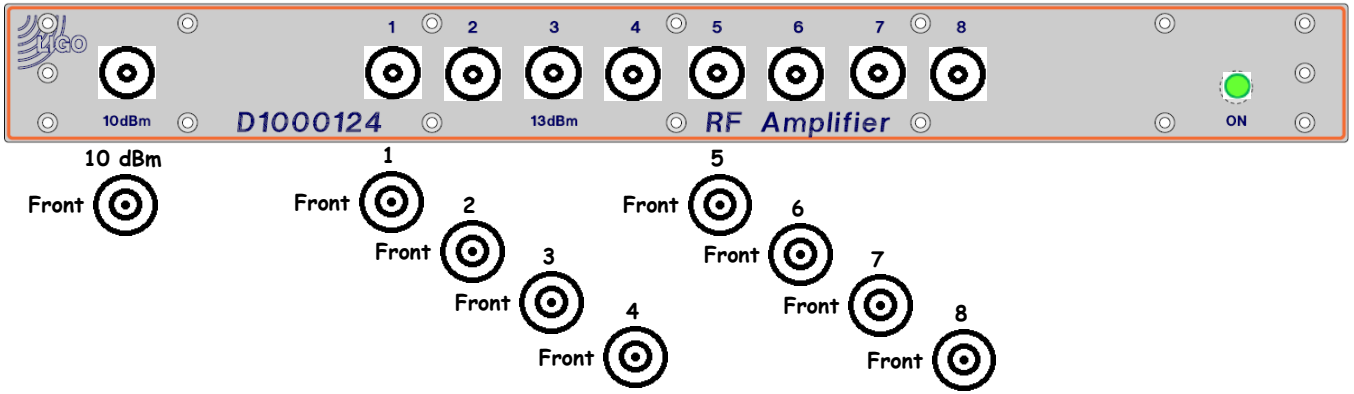
S1000665

Rear

D1000124 - S1000658

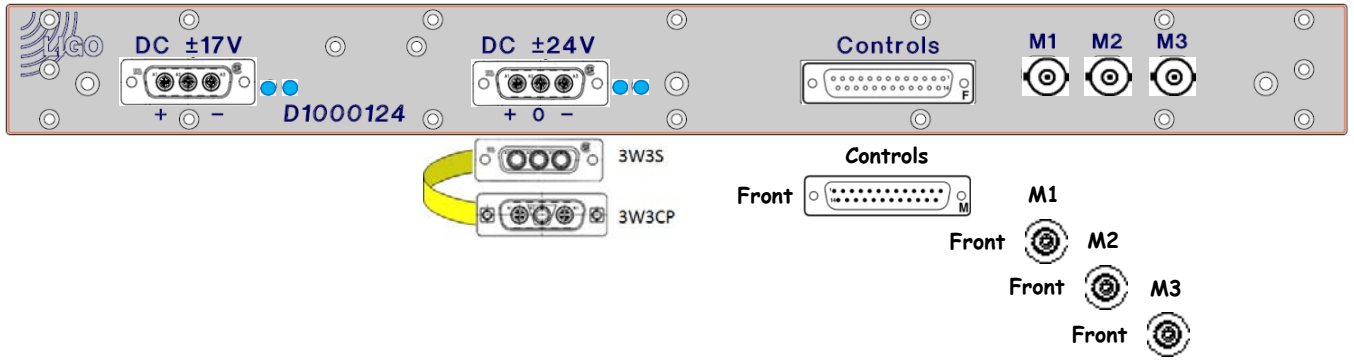
« L1-ISC-R2

9.099/8.684 MHz Distribution Amplifier | D1000124 | S1000658 | ±17VDC, ±24VDC



D1000124

Front



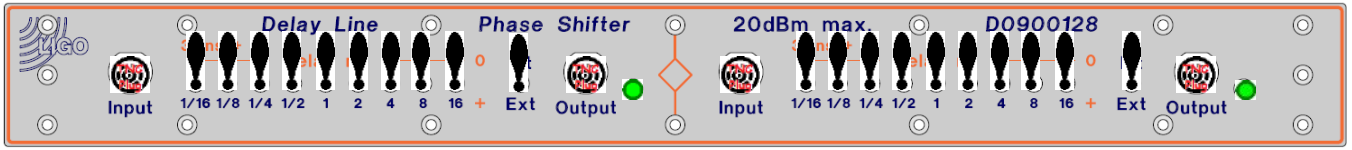
S1000658

Rear

D0900128 - S1103416

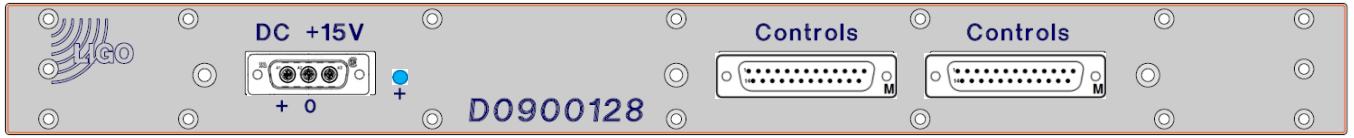
[<< L1-ISC-R2]

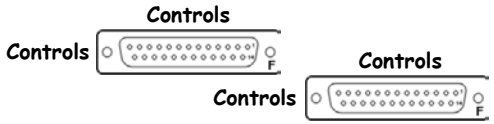
9.099/8.684 MHz Dual Delay Line | D0900128 | S1103416 | +15VDC



D0900128

Front





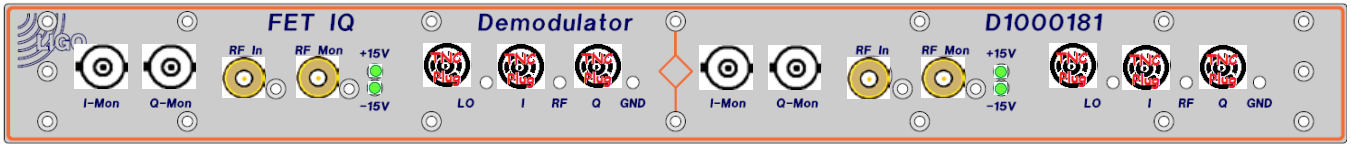
S1103416

Rear

D1000181 - S1000784

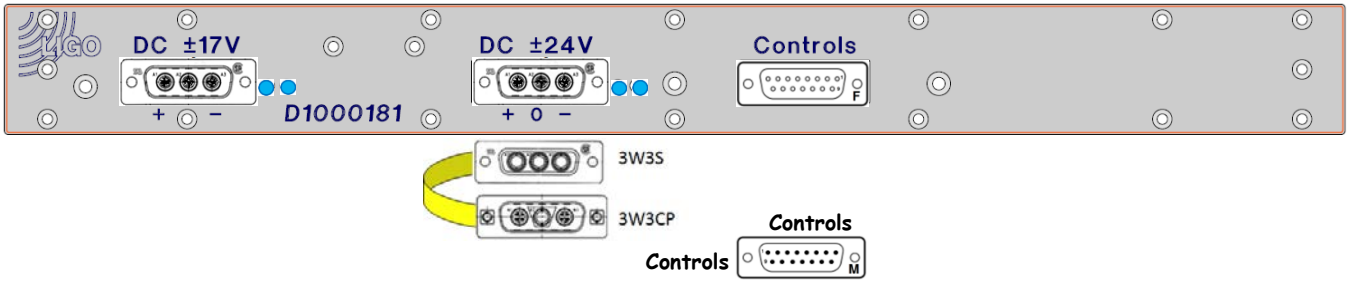
[<< L1-ISC-R2]

9.099/8.684 MHz 2-Channel Demodulator | D1000181 | S1000784 | ±17VDC, ±24VDC



D1000181

Front



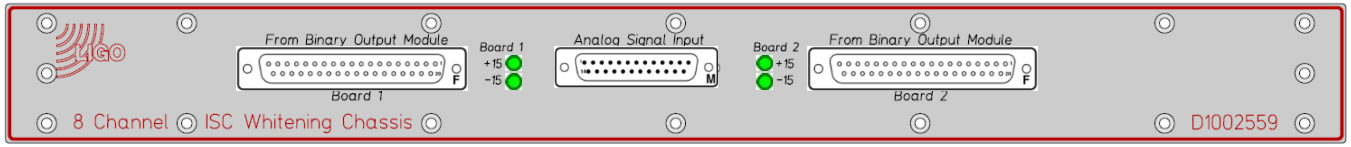
S1000784

Rear

D1002559 - S1101620

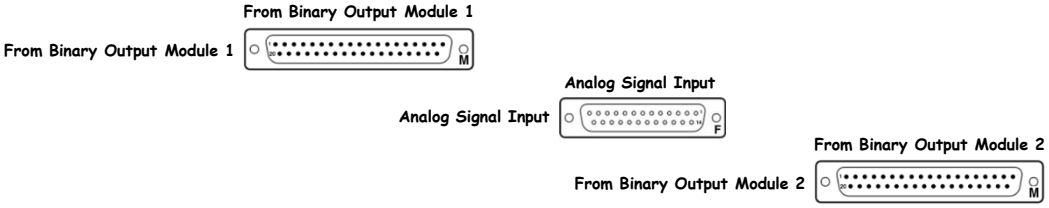
[<< L1-ISC-R2]

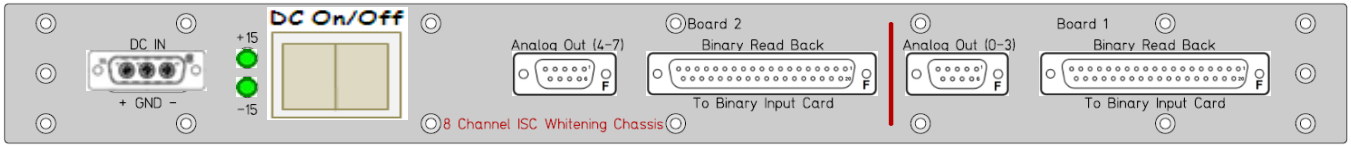
ISC Whitening (LSC POPAIR A 9&45, LSC REFLAIR A 45) D1002559 S1101620 ±15VDC



D1002559

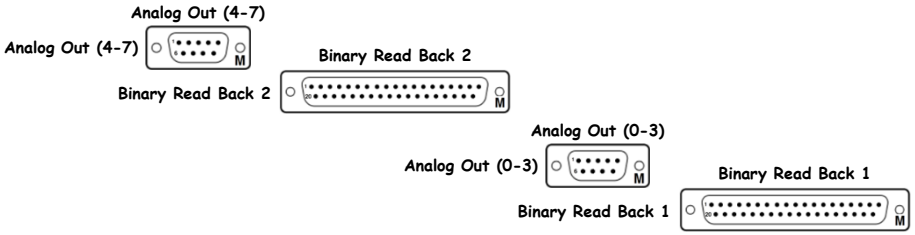
Front





S1101620

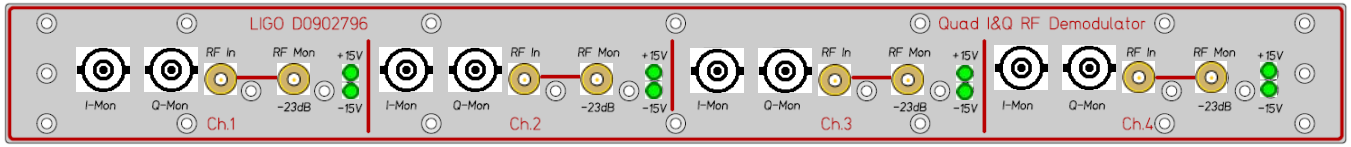
Rear



D0902796 - S1001004

[<< L1-ISC-R2]

LSC I/Q Demodulator (LSC POPAIR A 9&45, LSC REFLAIR A 45) D0902796 S1001004 ±15VDC

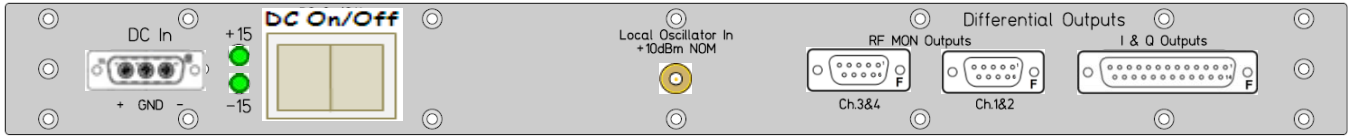


D0902796

Front

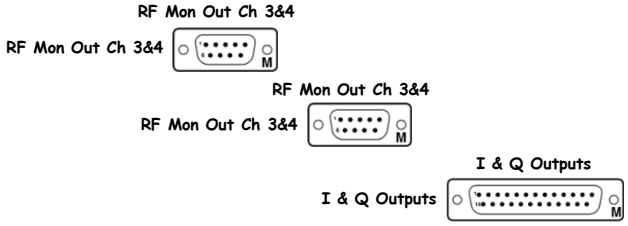
D1002032

LSC



S1001004

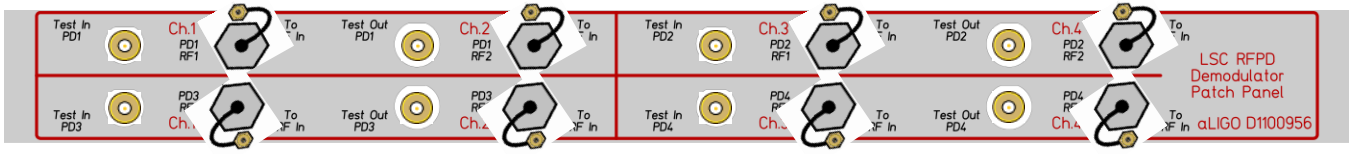
Rear



D1100956 - Sxxxxxxx

[<< L1-ISC-R2]

LSC Demodulator Patch Panel | D1100956 | Sxxxxxxx | No Power



D1100956

Front

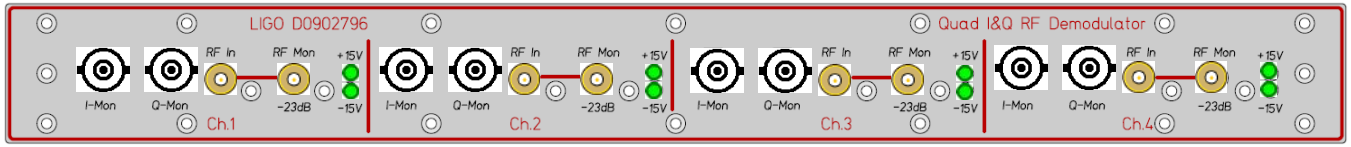
Sxxxxxxx

Rear

D0902796 - S1001007

[<< L1-ISC-R2]

LSC I/Q Demodulator (LSC POPAIR B 18&90, LSC REFLAIR B 27&135) D0902796 S1001007 ±15VDC

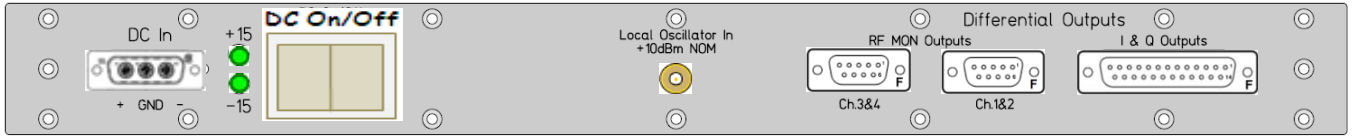


D0902796

Front

D1002032

LSC



S1001007

Rear

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

M

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

M

I & Q Outputs

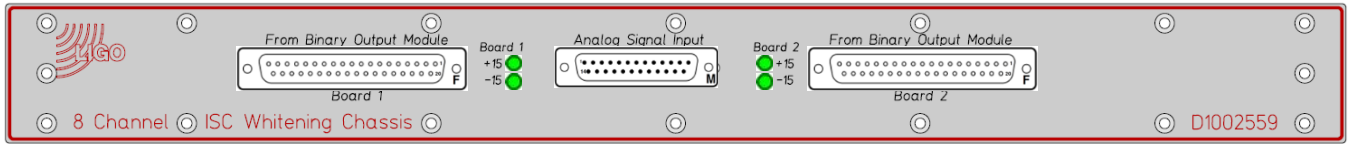
I & Q Outputs

M

D1002559 - S1101624

[<< L1-ISC-R2](#)

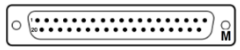
ISC Whitening (LSC POPAIR B 18&90, LSC REFLAIR B 27&135) [D1002559](#) [S1101624](#) ±15VDC



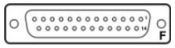
[D1002559](#)

Front

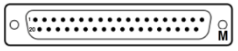
From Binary Output Module 1

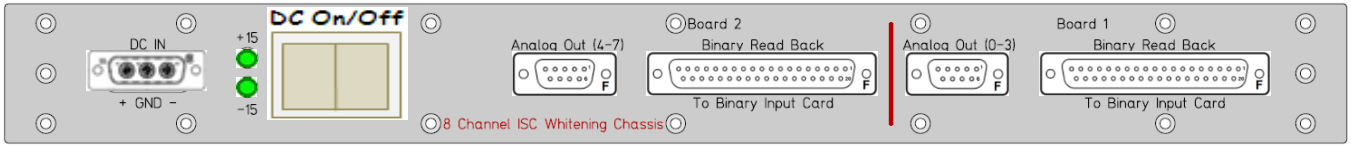


Analog Signal Input



From Binary Output Module 2

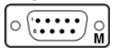




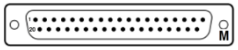
[S1101624](#)

Rear

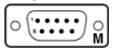
Analog Out (4-7)



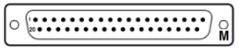
Binary Read Back 2



Analog Out (0-3)



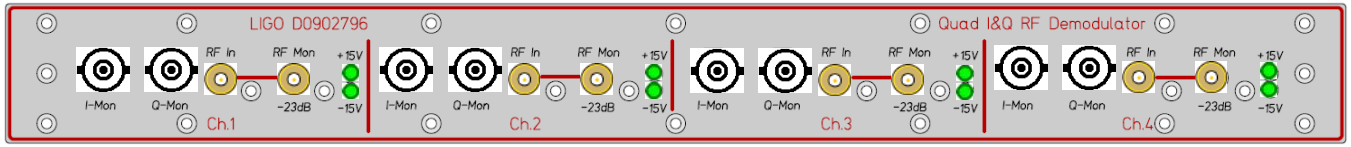
Binary Read Back 1



D0902796 - S1001012

« L1-ISC-R2

LSC I/Q Demodulator (LSC POP, LSC REFL) D0902796 S1001012 ±15VDC

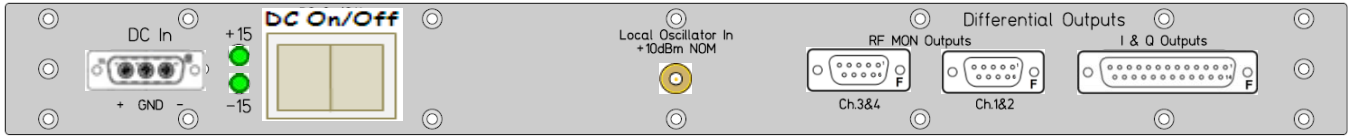


D0902796

Front

D1002032

LSC

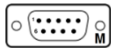


S1001012

Rear

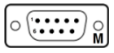
RF Mon Out Ch 3&4

RF Mon Out Ch 3&4



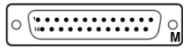
RF Mon Out Ch 3&4

RF Mon Out Ch 3&4



I & Q Outputs

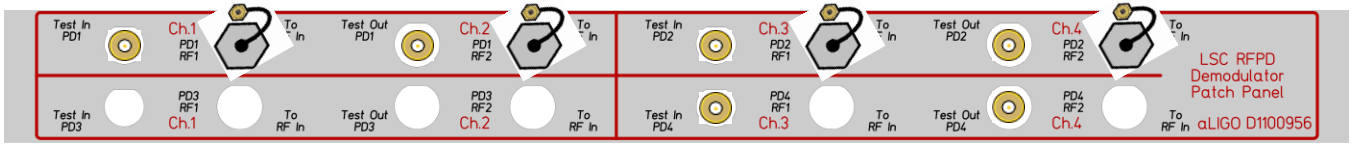
I & Q Outputs



D1100956 - Sxxxxxxx

[<< L1-ISC-R2]

LSC Demodulator Patch Panel | D1100956 | Sxxxxxxx | No Power



D1100956

Front

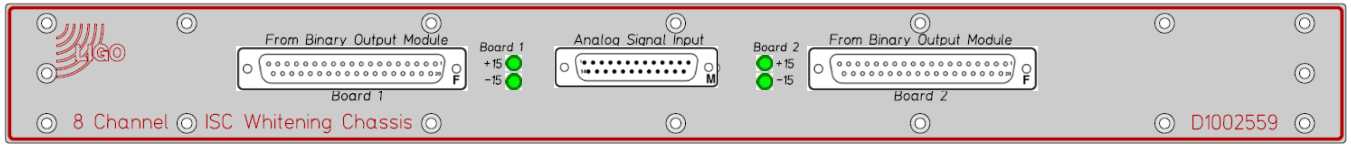
Sxxxxxxx

Rear

D1002559 - S1101625

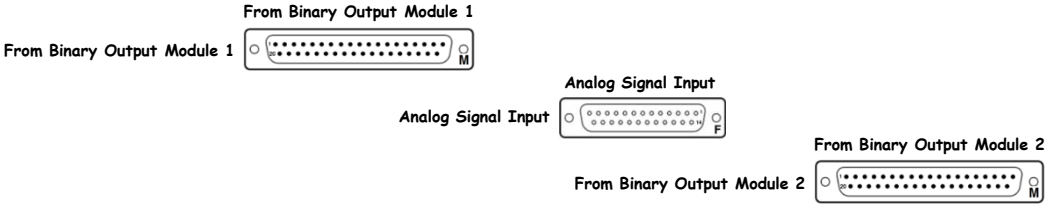
[<< L1-ISC-R2]

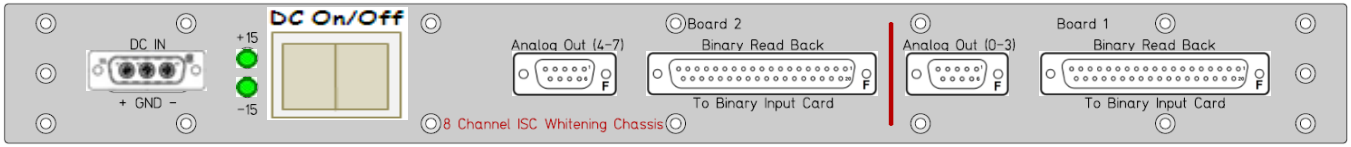
ISC Whitening (LSC POP, LSC REFL) | D1002559 | S1101625 | ±15VDC



D1002559

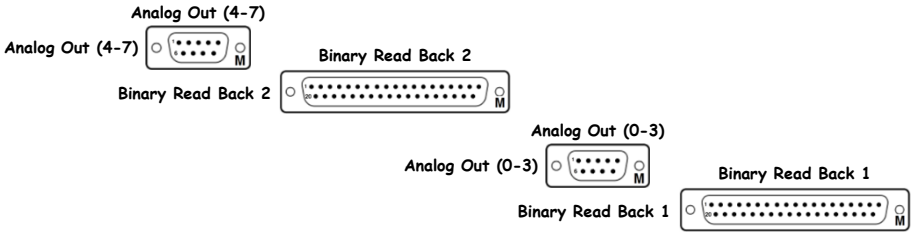
Front





S1101625

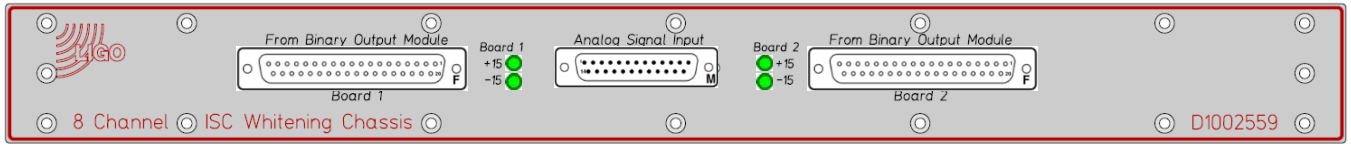
Rear



D1002559 - S1101596

[<< L1-ISC-R2]

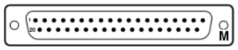
ISC Whitening (ASC REFLAIR A 9MHz) | D1002559 | S1101596 | ±15VDC



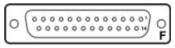
D1002559

Front

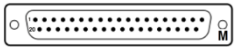
From Binary Output Module 1

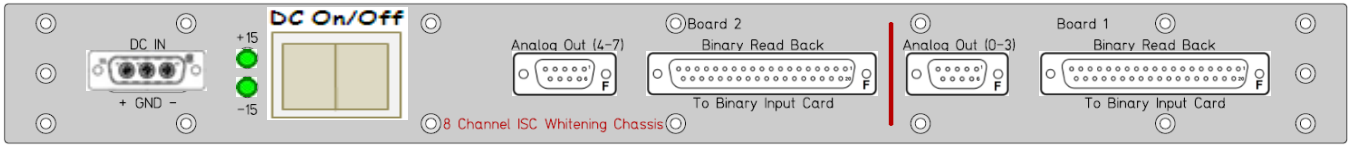


Analog Signal Input



From Binary Output Module 2

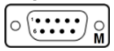




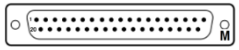
S1101596

Rear

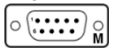
Analog Out (4-7)



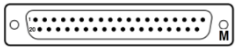
Binary Read Back 2



Analog Out (0-3)



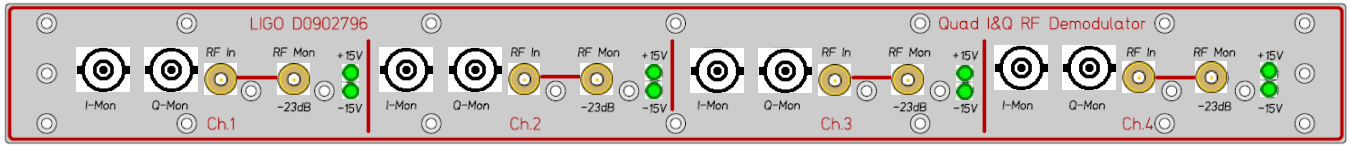
Binary Read Back 1



D0902796 - S1001030

« L1-ISC-R2

WFS I/Q Demodulator (ASC REFLAIR A 9MHz) D0902796 S1001030 ±15VDC

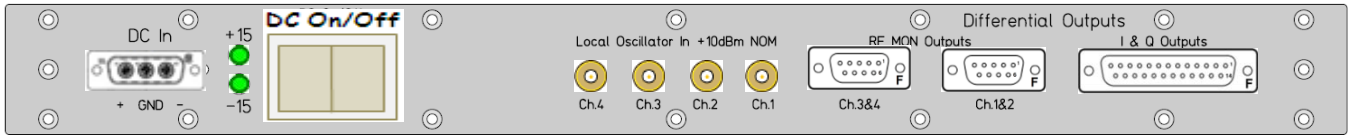


D0902796

Front

D1002031

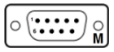
WFS



S1001030

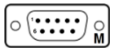
Rear

RF Mon Out Ch 3&4



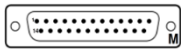
RF Mon Out Ch 3&4

RF Mon Out Ch 3&4



RF Mon Out Ch 3&4

I & Q Outputs

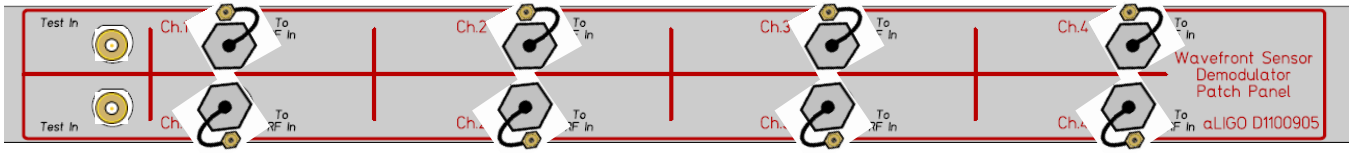


I & Q Outputs

D1100905 – Sxxxxxxx

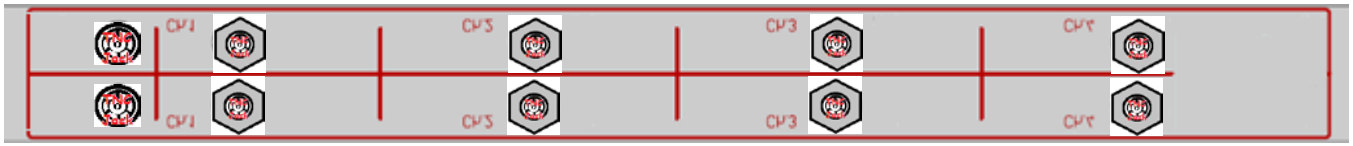
[<< L1-ISC-R2]

WFS Demodulator Patch Panel | D1100905 | Sxxxxxxx | No Power



D1100905

Front



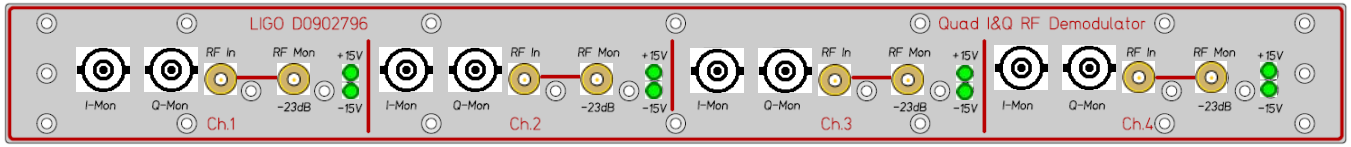
Sxxxxxxx

Rear

D0902796 - S1000986

[<< L1-ISC-R2]

WFS I/Q Demodulator (ASC REFLAIR A 45MHz) | D0902796 | S1000986 | ±15VDC

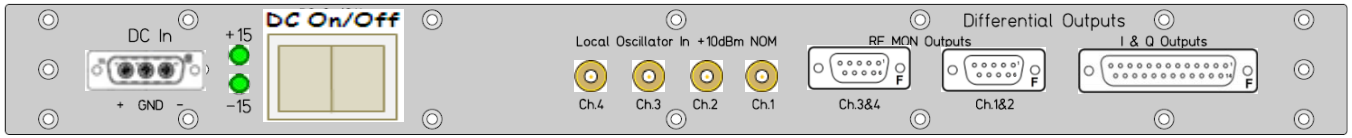


D0902796

Front

D1002031

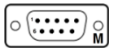
WFS



S1000986

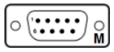
Rear

RF Mon Out Ch 3&4



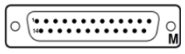
RF Mon Out Ch 3&4

RF Mon Out Ch 3&4



RF Mon Out Ch 3&4

I & Q Outputs

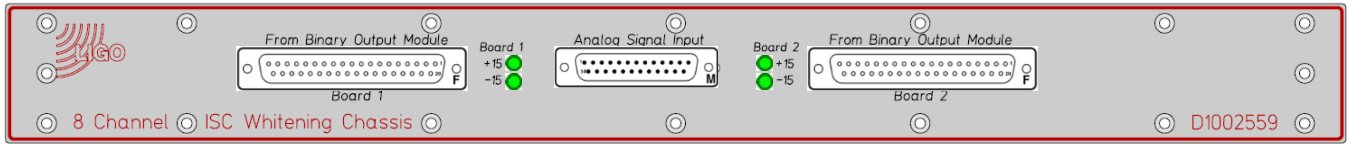


I & Q Outputs

D1002559 - S1101167

[<< L1-ISC-R2]

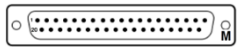
ISC Whitening (ASC REFLAIR A 45MHz) | D1002559 | S1101167 | ±15VDC



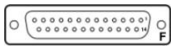
D1002559

Front

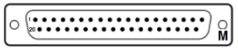
From Binary Output Module 1

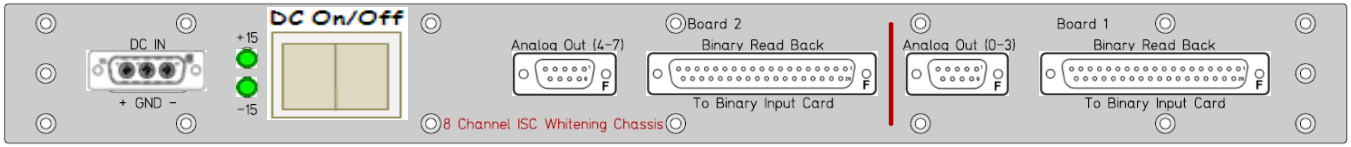


Analog Signal Input



From Binary Output Module 2

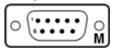




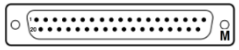
S1101167

Rear

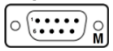
Analog Out (4-7)



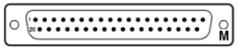
Binary Read Back 2



Analog Out (0-3)



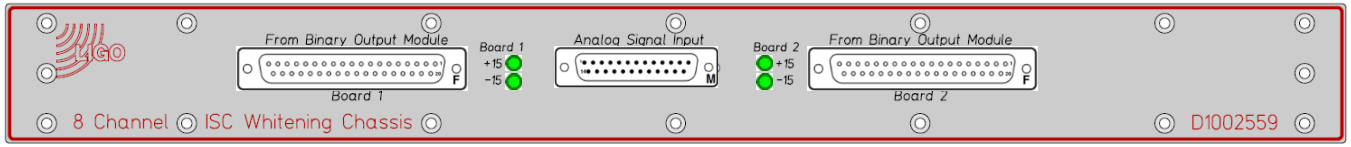
Binary Read Back 1



D1002559 - S1101621

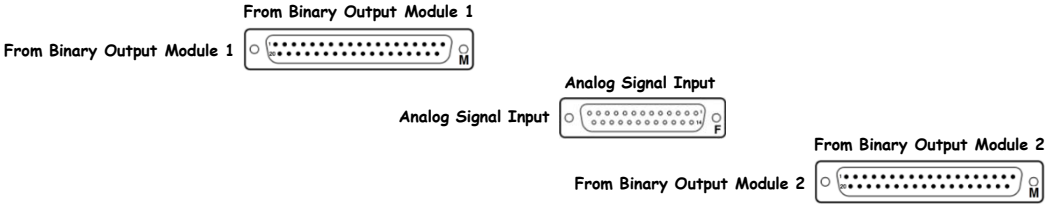
[<< L1-ISC-R2]

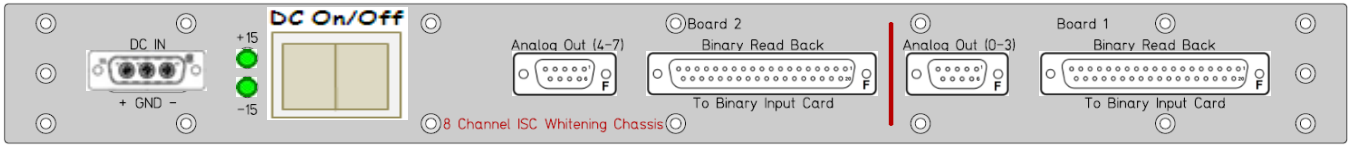
ISC Whitening (ASC REFLAIR B 9MHz) | D1002559 | S1101621 | ±15VDC



D1002559

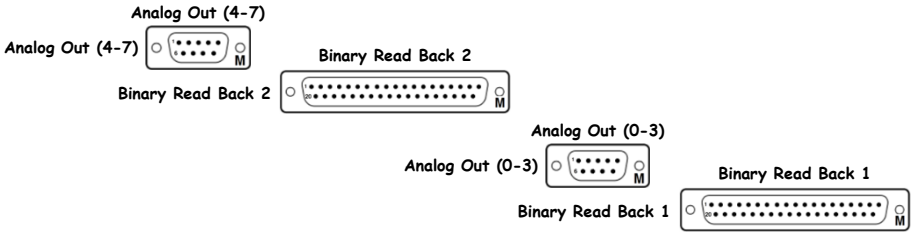
Front





S1101621

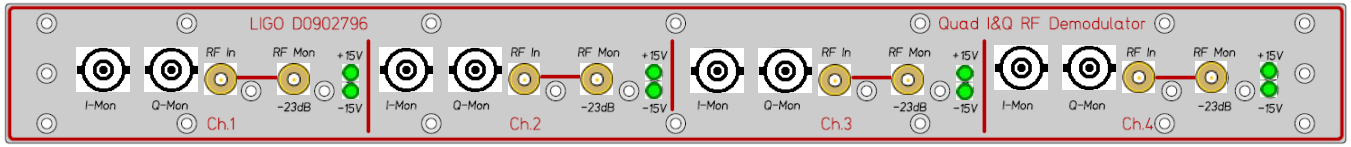
Rear



D0902796 - S1000987

« L1-ISC-R2

WFS I/Q Demodulator (ASC REFLAIR B 9MHz) D0902796 S1000987 ±15VDC

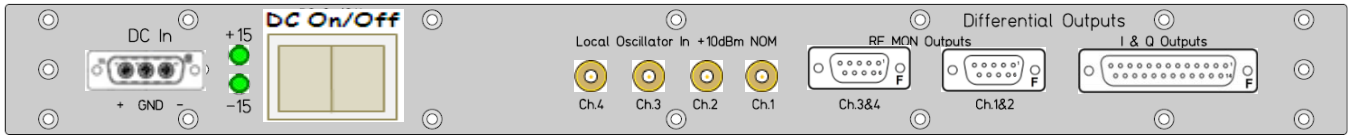


D0902796

Front

D1002031

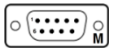
WFS



S1000987

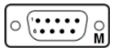
Rear

RF Mon Out Ch 3&4



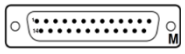
RF Mon Out Ch 3&4

RF Mon Out Ch 3&4



RF Mon Out Ch 3&4

I & Q Outputs

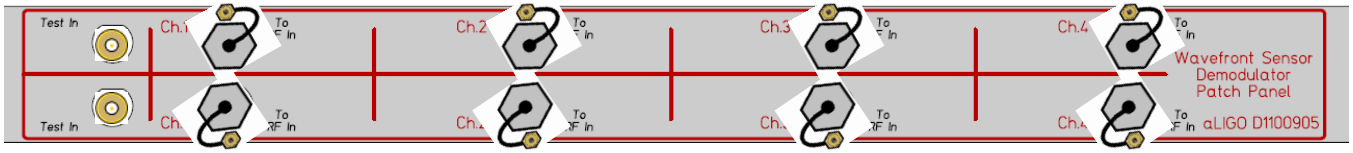


I & Q Outputs

D1100905 – Sxxxxxxx

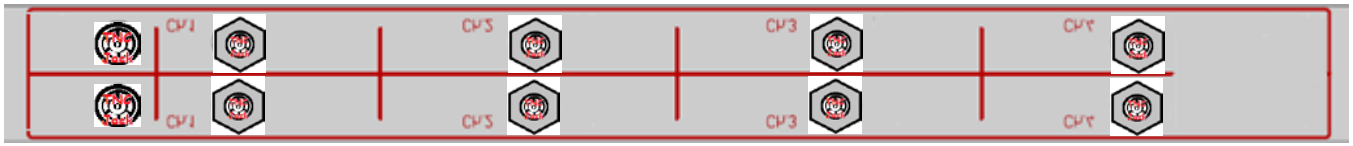
LIGO
<< L1-ISC-R2

WFS Demodulator Patch Panel | D1100905 | Sxxxxxxx | No Power



D1100905

Front



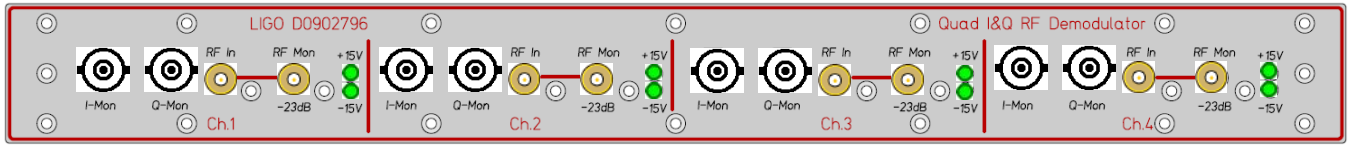
Sxxxxxxx

Rear

D0902796 - S1000990

« L1-ISC-R2

WFS I/Q Demodulator (ASC REFLAIR B 45MHz) D0902796 S1000990 ±15VDC

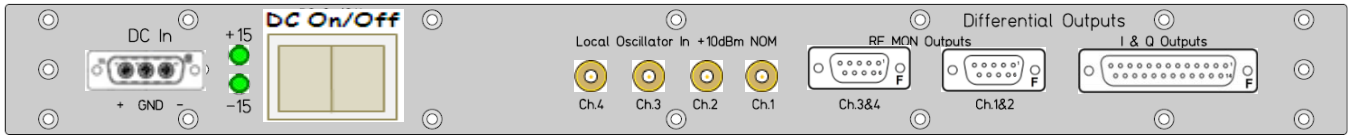


D0902796

Front

D1002031

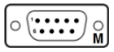
WFS



S1000990

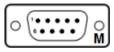
Rear

RF Mon Out Ch 3&4



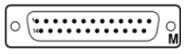
RF Mon Out Ch 3&4

RF Mon Out Ch 3&4



RF Mon Out Ch 3&4

I & Q Outputs

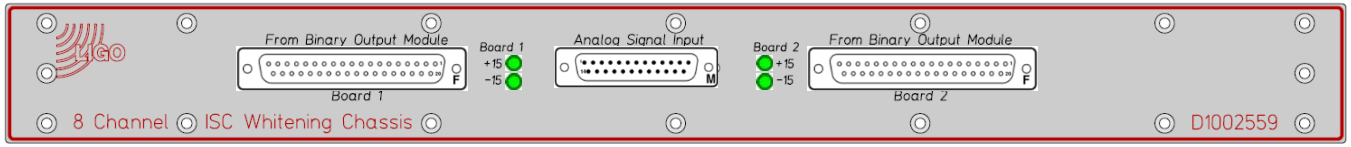


I & Q Outputs

D1002559 - S1101609

[<< L1-ISC-R2]

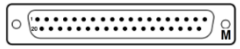
ISC Whitening (ASC REFLAIR B 45MHz) | D1002559 | S1101609 | ±15VDC



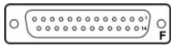
D1002559

Front

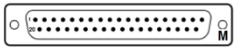
From Binary Output Module 1

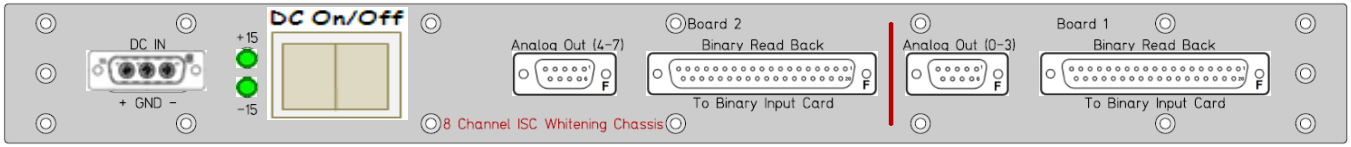


Analog Signal Input



From Binary Output Module 2

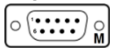




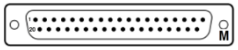
S1101609

Rear

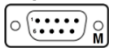
Analog Out (4-7)



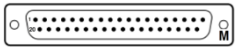
Binary Read Back 2



Analog Out (0-3)



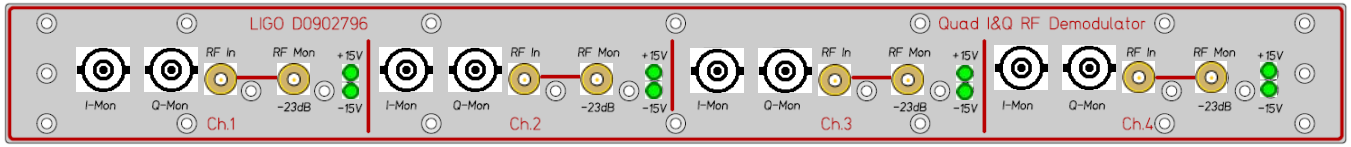
Binary Read Back 1



D0902796 - S1000973

[<< L1-ISC-R2]

WFS I/Q Demodulator (Spare AIR to VAC) | D0902796 | S1000973 | ±15VDC

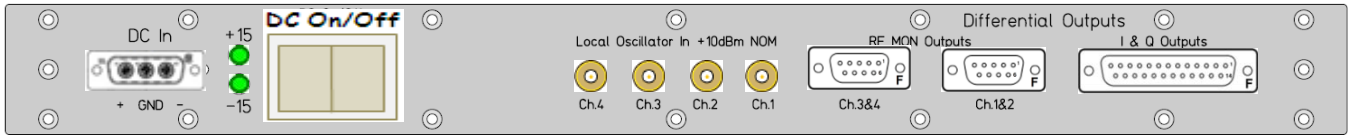


D0902796

Front

D1002031

WFS

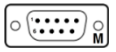


S1000973

Rear

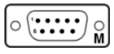
RF Mon Out Ch 3&4

RF Mon Out Ch 3&4



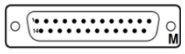
RF Mon Out Ch 3&4

RF Mon Out Ch 3&4



I & Q Outputs

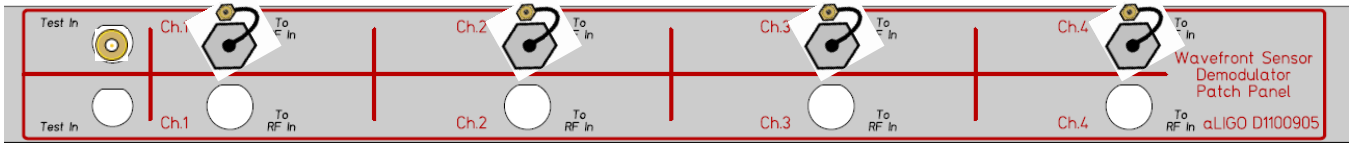
I & Q Outputs



D1100905 - Sxxxxxxx

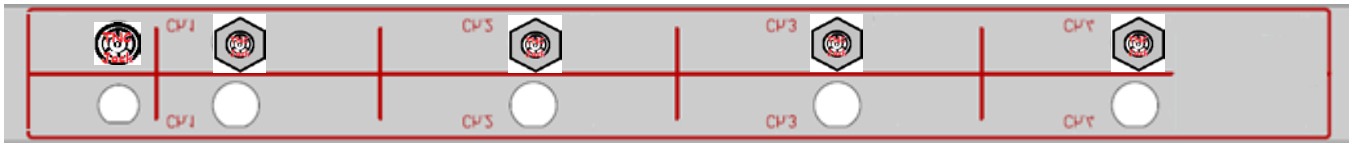
LIGO
<< L1-ISC-R2

WFS Demodulator Patch Panel | D1100905 | Sxxxxxxx | No Power



D1100905

Front



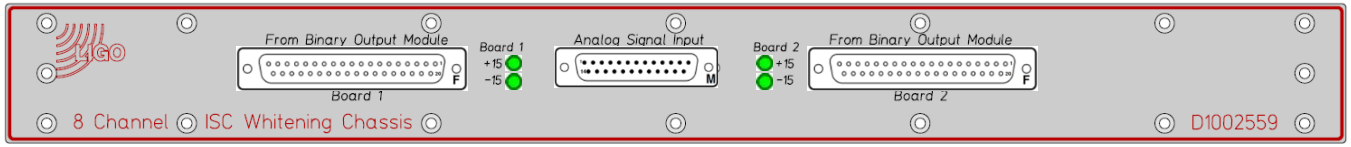
Sxxxxxxx

Rear

D1002559 - S1101597

[<< L1-ISC-R2]

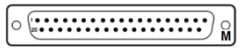
ISC Whitening (Spare AIR to VAC) | D1002559 | S1101597 | ±15VDC



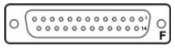
D1002559

Front

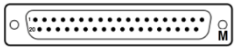
From Binary Output Module 1

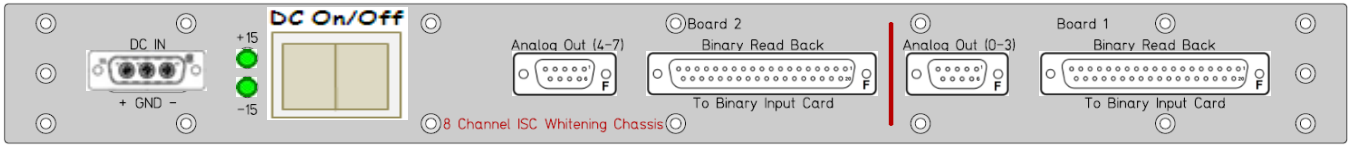


Analog Signal Input



From Binary Output Module 2

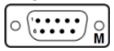




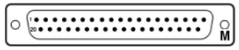
S1101597

Rear

Analog Out (4-7)

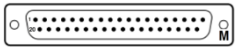


Binary Read Back 2



Analog Out (0-3)

Binary Read Back 1



L1-ISC-R3

[<< LVEA Racks]

ISC HAM6 Rack Layout (D1001426) (S1201194)

D1200757 Sequencer S1202561

PTY-048 PTO-059

	Front		Rear	
RF Distribution Panel 15	Dxxxxxxx	42	Sxxxxxxx	No Power
		41		
RF Distribution Panel 16	Dxxxxxxx	40	Sxxxxxxx	No Power
		39		
		38		
9.099/8.684 MHz Distribution Amplifier	D1000124	37	S1000659	±17VDC, ±24VDC
		36		
36 MHz Distribution Amplifier	D1000124	35	S1000663	±17VDC, ±24VDC
		34		
45 MHz Distribution Amplifier	D1000124	33	S1000666	±17VDC, ±24VDC
		32		
ISC Whitening (ASC ASAIR A 36MHz)	D1002559	31	S1101575	±15VDC
		30		
WFS I/Q Demodulator (ASC ASAIR A 36MHz)	D0902796	29	S1001033	±15VDC
WFS Demodulator Patch Panel	D1100905	28	Sxxxxxxx	No Power
WFS I/Q Demodulator (ASC ASAIR A 45MHz)	D0902796	27	S1001027	±15VDC
		26		
ISC Whitening (ASC ASAIR A 45MHz)	D1002559	25	S1101588	±15VDC
		24		
ISC Whitening (Spare AIR to VAC)	D1002559	23	S1101589	±15VDC
		22		
WFS I/Q Demodulator (Spare AIR to VAC)	D0902796	21	S1000983	±15VDC
WFS Demodulator Patch Panel	D1100905	20	Sxxxxxxx	No Power
		19		
ISC Whitening (ASC ASAIR B 36MHz)	D1002559	18	S1101598	±15VDC
		17		
WFS I/Q Demodulator (ASC ASAIR B 36MHz)	D0902796	16	S1000988	±15VDC
WFS Demodulator Patch Panel	D1100905	15	Sxxxxxxx	No Power
WFS I/Q Demodulator (ASC ASAIR B 45MHz)	D0902796	14	S1001025	±15VDC
		13		
ISC Whitening (ASC ASAIR B 45MHz)	D1002559	12	S1101610	±15VDC
		11		
ISC Whitening (LSC ASAIR A 45, B 18, B 90MHz)	D1002559	10	S1101592	±15VDC
		9		
LSC I/Q Demodulator (LSC ASAIR A 45, B 18, B 90MHz)	D0902796	8	S1001001	±15VDC
WFS Demodulator Patch Panel	D1100905	7	Sxxxxxxx	No Power
		6		
		5		
		4		
		3		
		2		
		1		

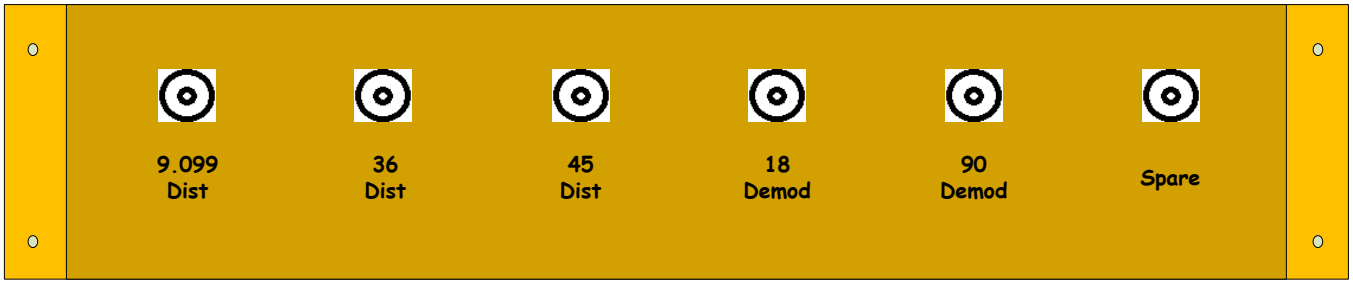
ISC-R3 is part of D1001426

L1-ISC-R3 Details

RF Distribution Panel 15

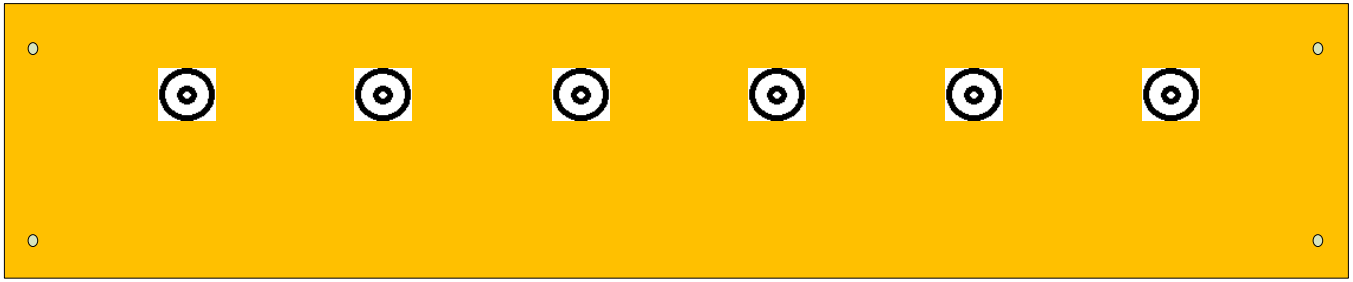
[<< L1-ISC-R3]

RF Distribution Panel 15 | Dxxxxxxx | Sxxxxxxx | No Power



Dxxxxxxx

Front



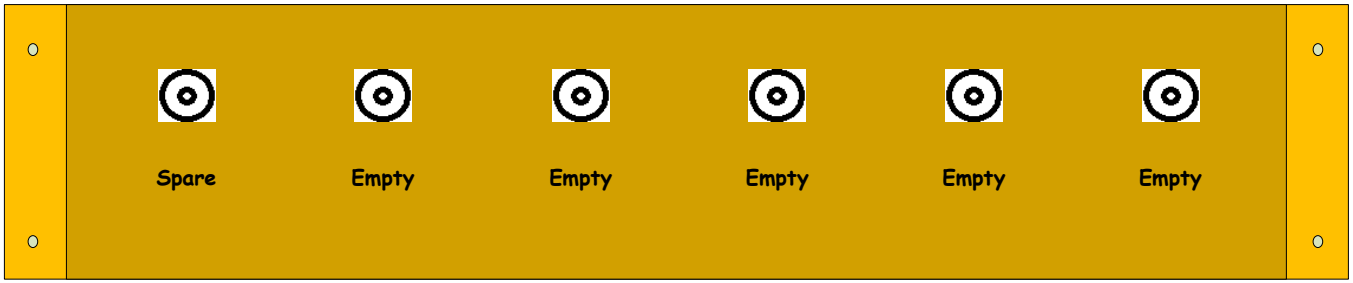
Sxxxxxxx

Rear

RF Distribution Panel 16

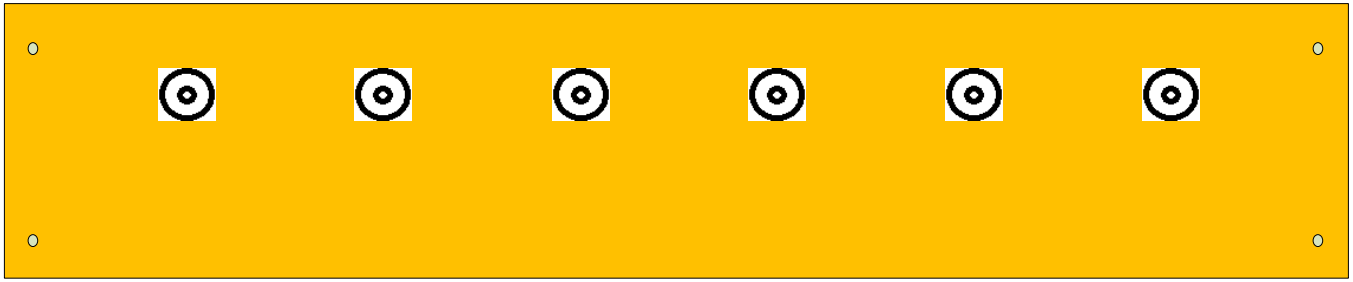
LIGO
<< L1-ISC-R3

RF Distribution Panel 16 | Dxxxxxxx | Sxxxxxxx | No Power



Dxxxxxxx

Front



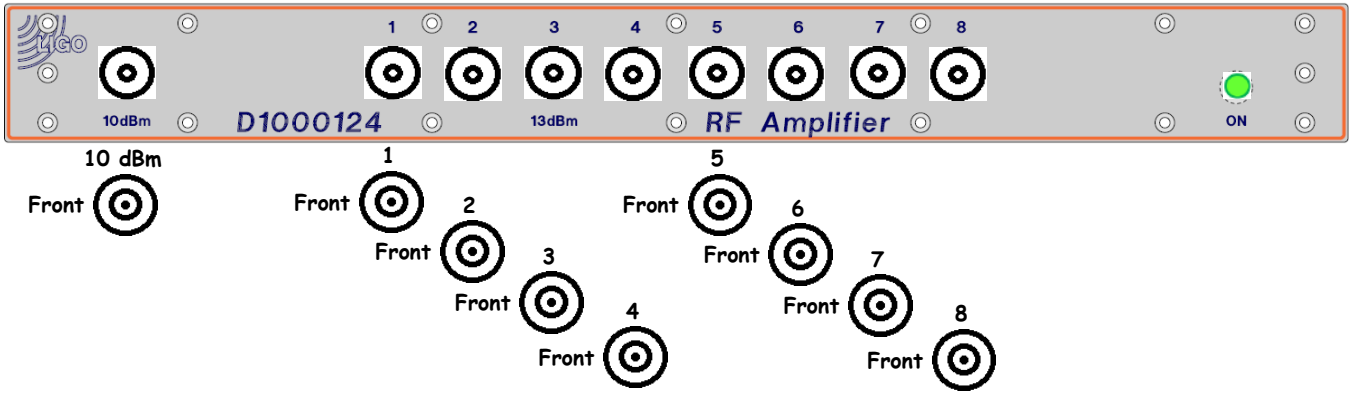
Sxxxxxxx

Rear

D1000124 - S1000659

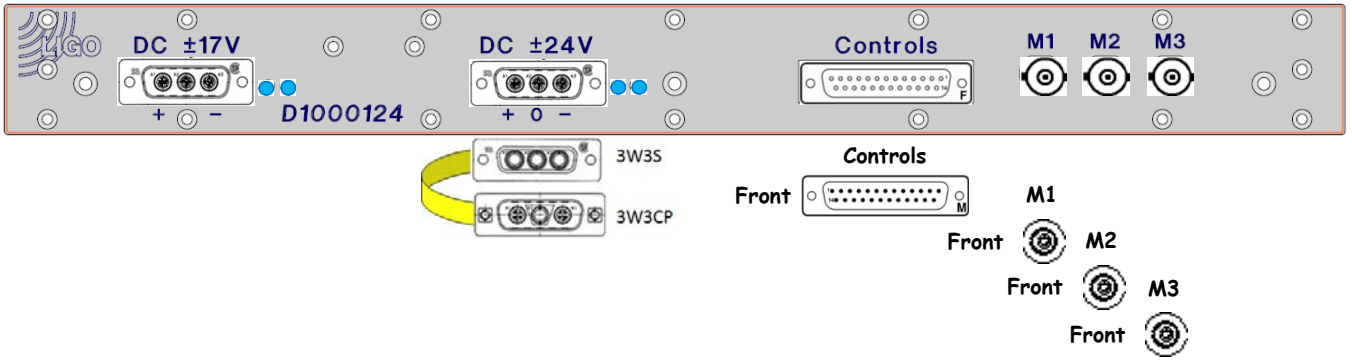
<< L1-ISC-R3

9.099/8.684 MHz Distribution Amplifier | D1000124 | S1000659 | ±17VDC, ±24VDC



D1000124

Front

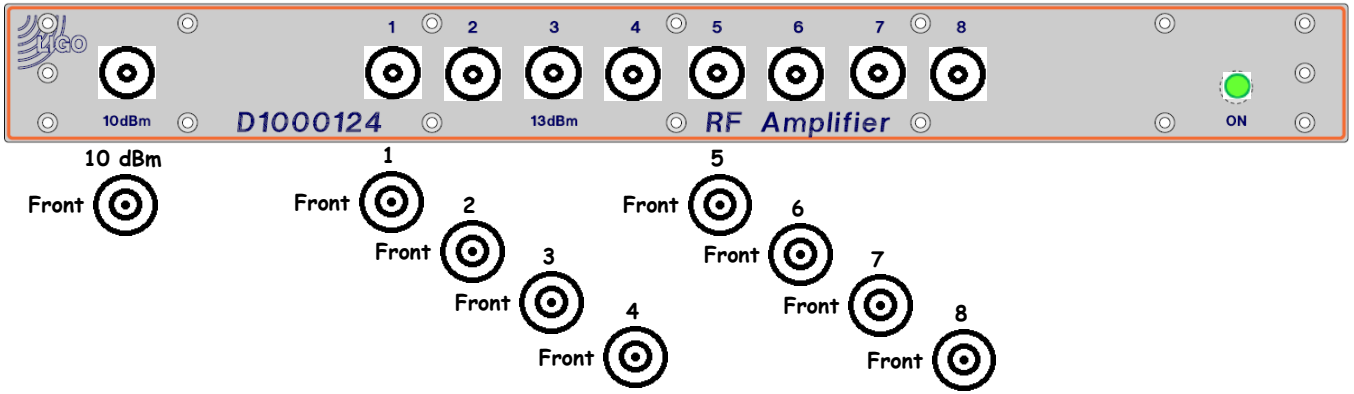


S1000659

Rear

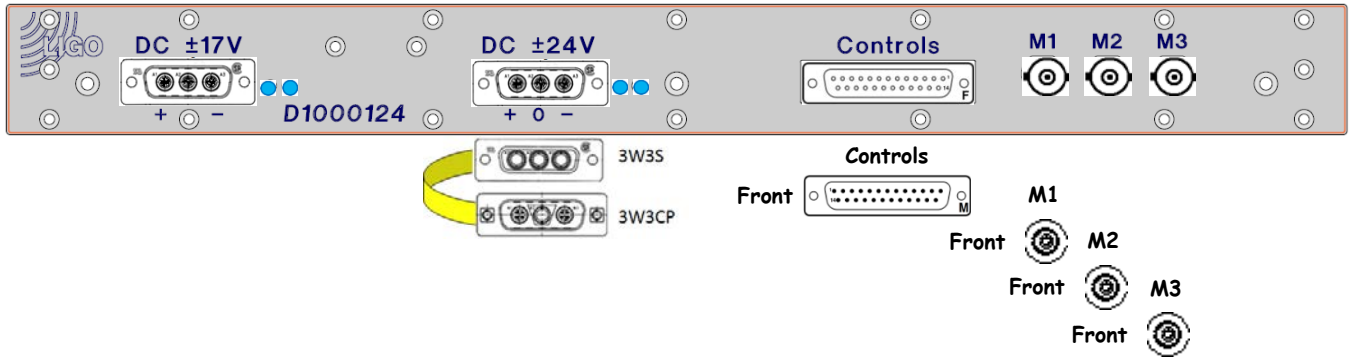
D1000124 - S1000663

36 MHz Distribution Amplifier | D1000124 | S1000663 | ±17VDC, ±24VDC



D1000124

Front

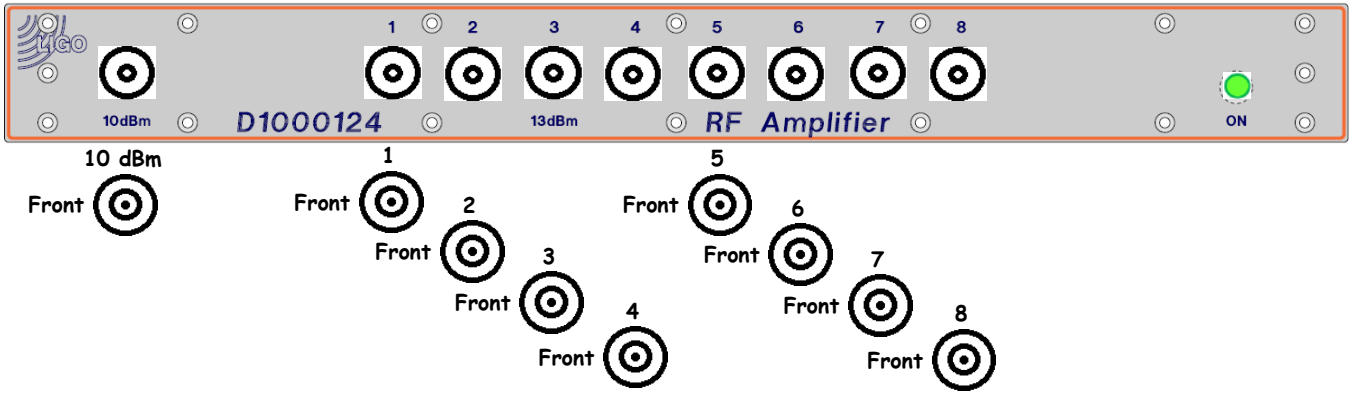


S1000663

Rear

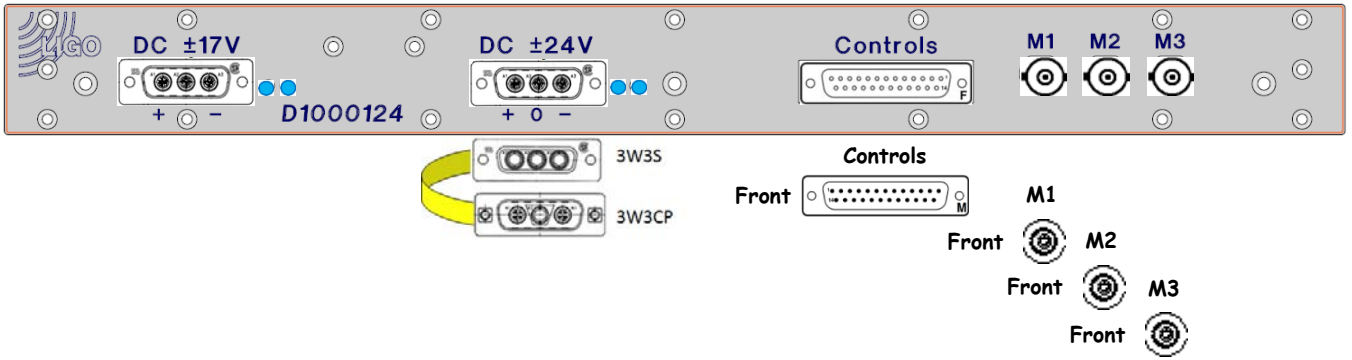
D1000124 - S1000666

45 MHz Distribution Amplifier | D1000124 | S1000666 | ±17VDC, ±24VDC



D1000124

Front



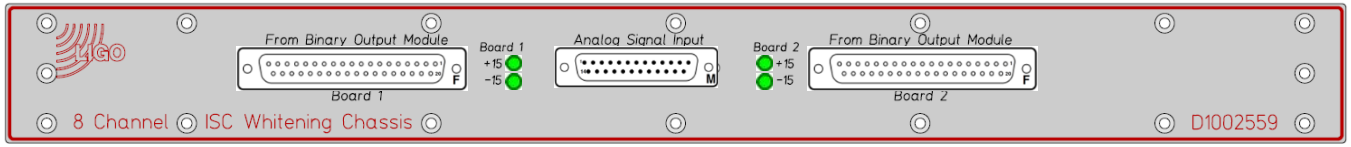
S1000666

Rear

D1002559 - S1101575

[<< L1-ISC-R3]

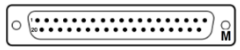
ISC Whitening (ASC ASAIR A 36MHz) | D1002559 | S1101575 | ±15VDC



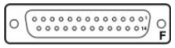
D1002559

Front

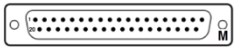
From Binary Output Module 1

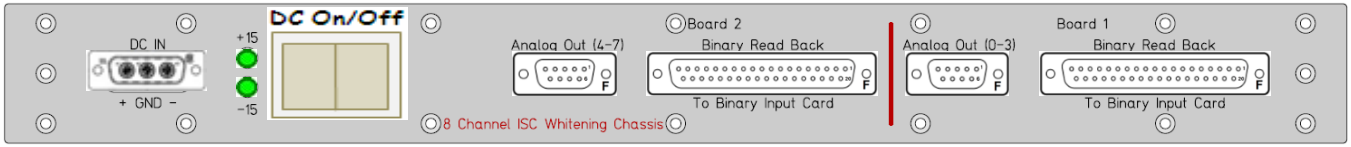


Analog Signal Input



From Binary Output Module 2

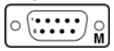




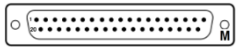
S1101575

Rear

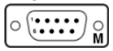
Analog Out (4-7)



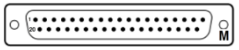
Binary Read Back 2



Analog Out (0-3)



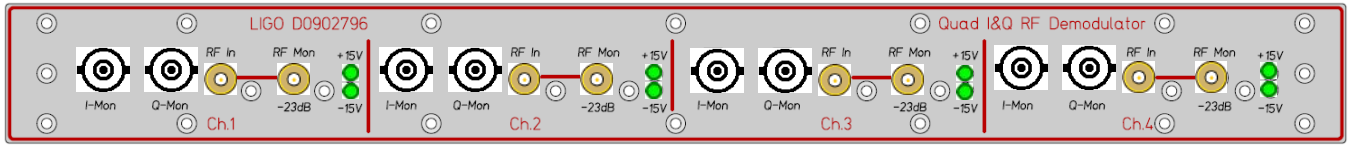
Binary Read Back 1



D0902796 - S1001033

[<< L1-ISC-R3]

WFS I/Q Demodulator (ASC ASAIR A 36MHz) D0902796 S1001033 ±15VDC

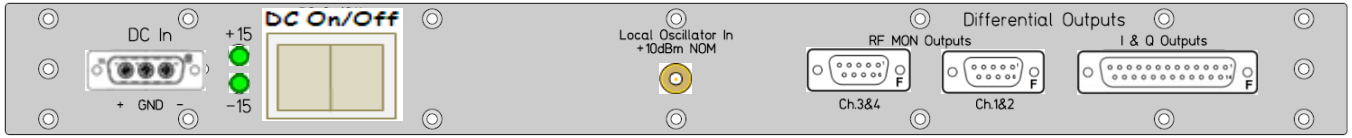


D0902796

Front

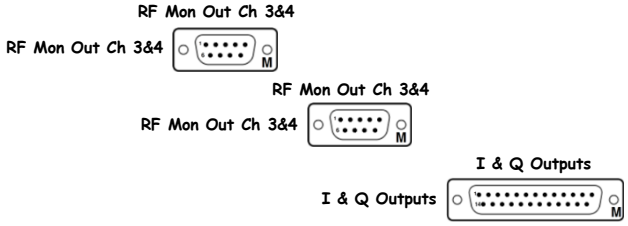
D1002032

LSC



S1001033

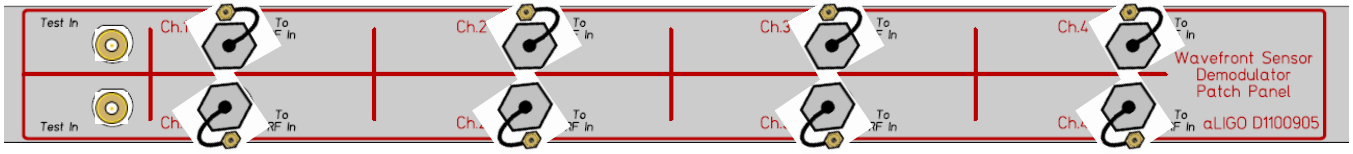
Rear



D1100905 – Sxxxxxxx

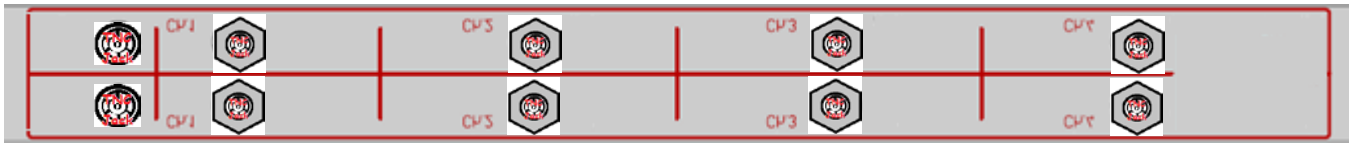
[<< L1-ISC-R3]

WFS Demodulator Patch Panel | D1100905 | Sxxxxxxx | No Power



D1100905

Front



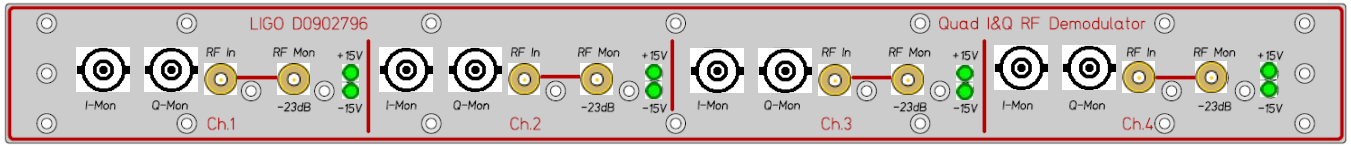
Sxxxxxxx

Rear

D0902796 - S1001027

[<< L1-ISC-R3]

WFS I/Q Demodulator (ASC ASAIR A 45MHz) D0902796 S1001027 ±15VDC

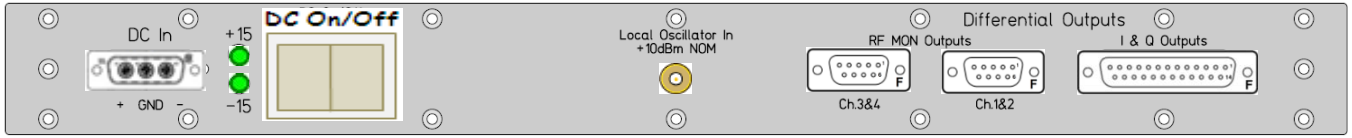


D0902796

Front

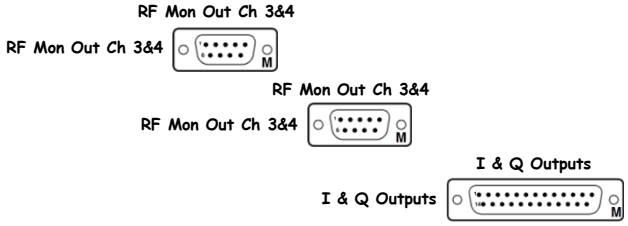
D1002032

LSC



S1001027

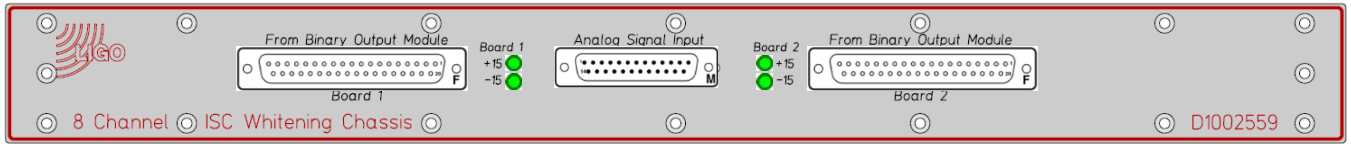
Rear



D1002559 - S1101588

[<< L1-ISC-R3]

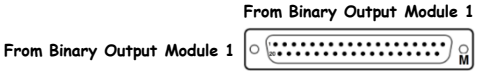
ISC Whitening (ASC ASAIR A 45MHz) D1002559 S1101588 ±15VDC



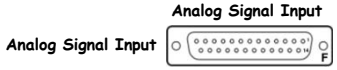
D1002559

Front

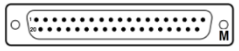
From Binary Output Module 1

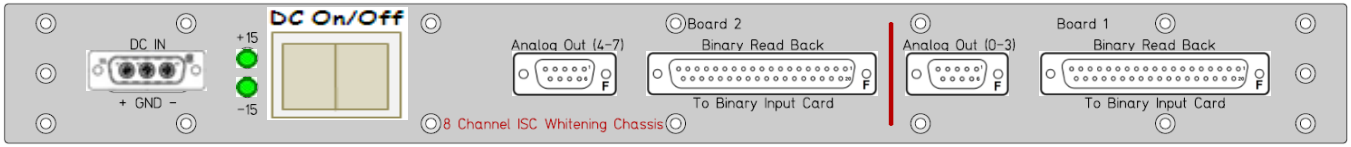


Analog Signal Input



From Binary Output Module 2

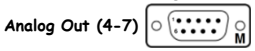




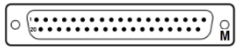
S1101588

Rear

Analog Out (4-7)

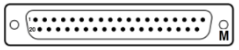


Binary Read Back 2



Analog Out (0-3)

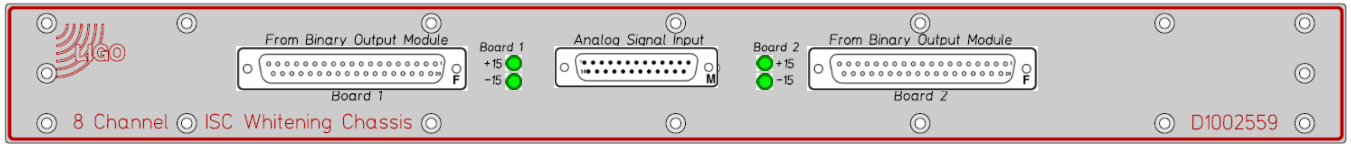
Binary Read Back 1



D1002559 - S1101589

[<< L1-ISC-R3]

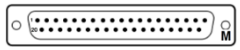
ISC Whitening (Spare AIR to VAC) D1002559 S1101589 ±15VDC



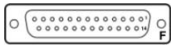
D1002559

Front

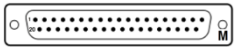
From Binary Output Module 1

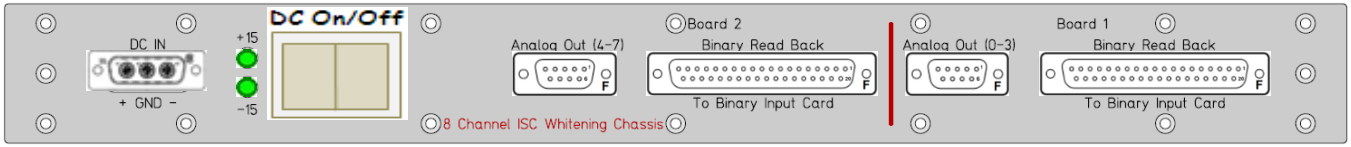


Analog Signal Input



From Binary Output Module 2

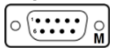




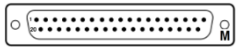
S1101589

Rear

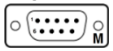
Analog Out (4-7)



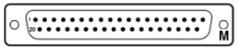
Binary Read Back 2



Analog Out (0-3)



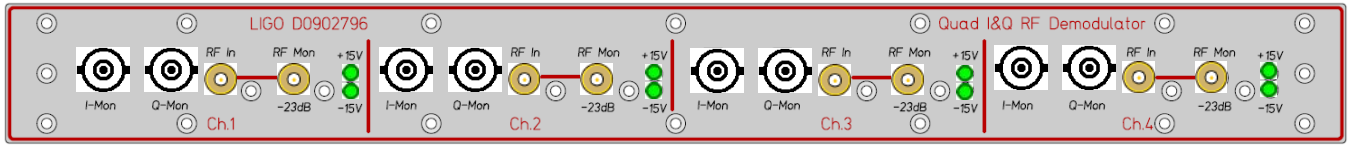
Binary Read Back 1



D0902796 - S1000983

[<< L1-ISC-R3]

WFS I/Q Demodulator (Spare AIR to VAC) | D0902796 | S1000983 | ±15VDC

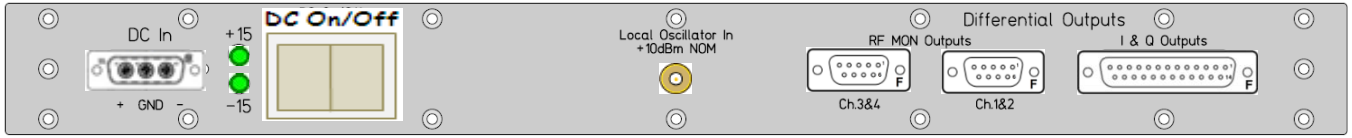


D0902796

Front

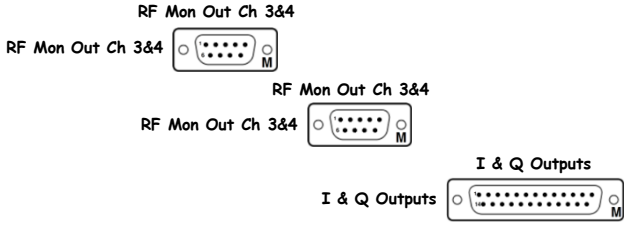
D1002032

LSC



S1000983

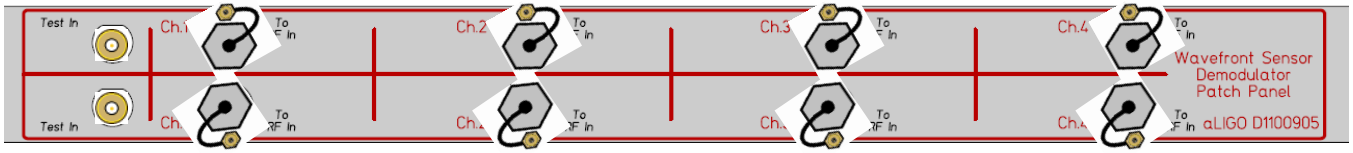
Rear



D1100905 – Sxxxxxxx

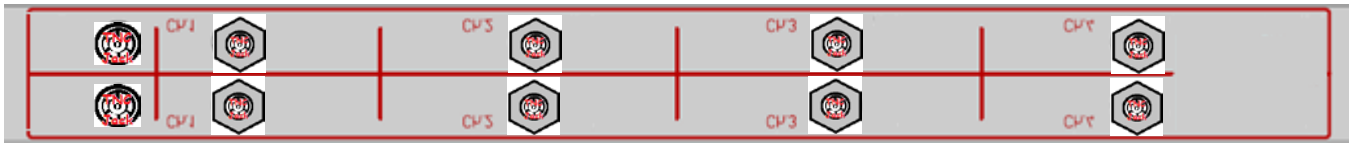
LIGO
<< L1-ISC-R3

WFS Demodulator Patch Panel | D1100905 | Sxxxxxxx | No Power



D1100905

Front



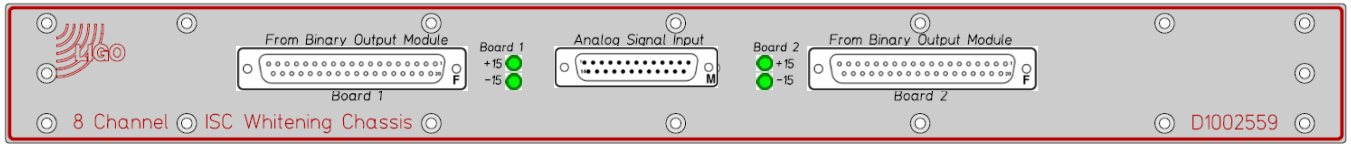
Sxxxxxxx

Rear

D1002559 - S1101598

[<< L1-ISC-R3]

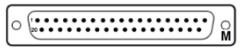
ISC Whitening (ASC ASAIR B 36MHz) D1002559 S1101598 ±15VDC



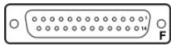
D1002559

Front

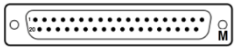
From Binary Output Module 1

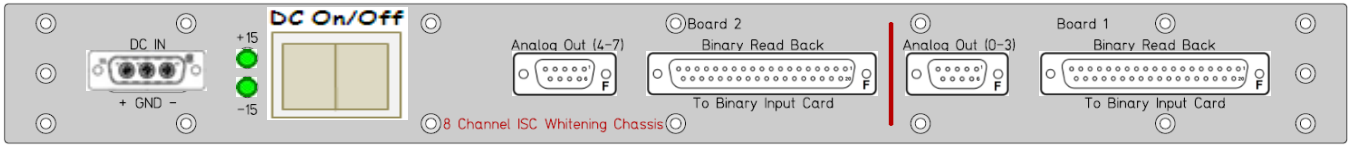


Analog Signal Input



From Binary Output Module 2

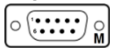




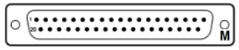
S1101598

Rear

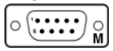
Analog Out (4-7)



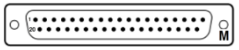
Binary Read Back 2



Analog Out (0-3)



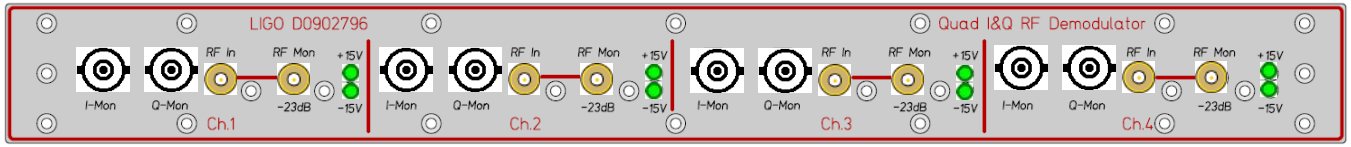
Binary Read Back 1



D0902796 - S1000988

[<< L1-ISC-R3]

WFS I/Q Demodulator (ASC ASAIR B 36MHz) | D0902796 | S1000988 | ±15VDC

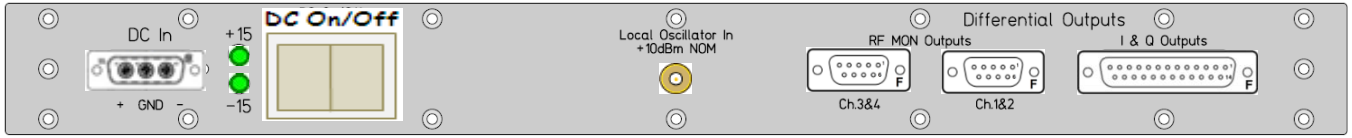


D0902796

Front

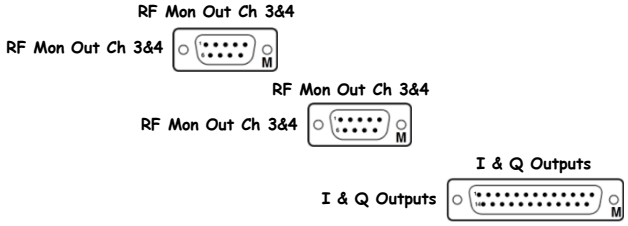
D1002032

LSC



S1000988

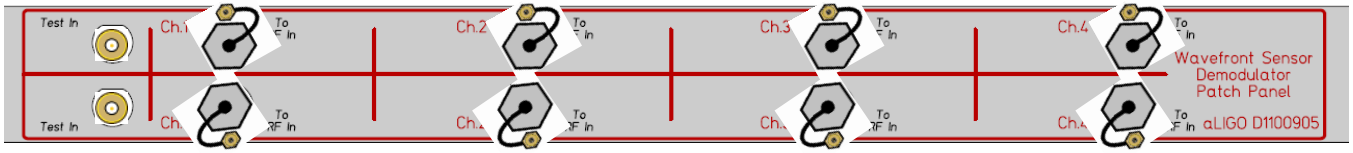
Rear



D1100905 – Sxxxxxxx

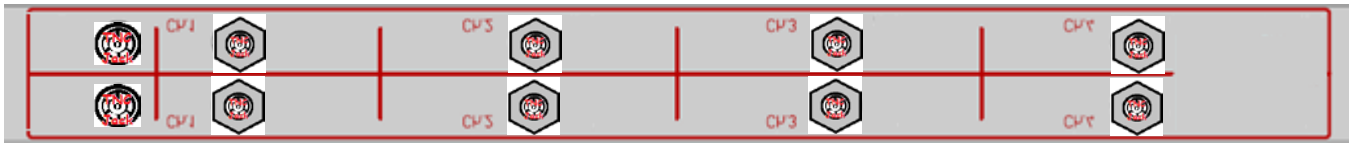
LIGO
<< L1-ISC-R3

WFS Demodulator Patch Panel | D1100905 | Sxxxxxxx | No Power



D1100905

Front



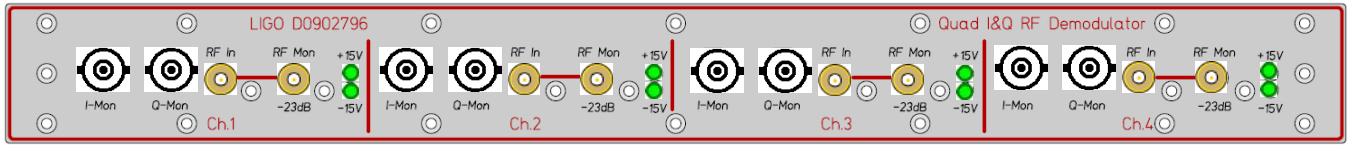
Sxxxxxxx

Rear

D0902796 - S1001025

[<< L1-ISC-R3]

WFS I/Q Demodulator (ASC ASAIR B 45MHz) | D0902796 | S1001025 | ±15VDC

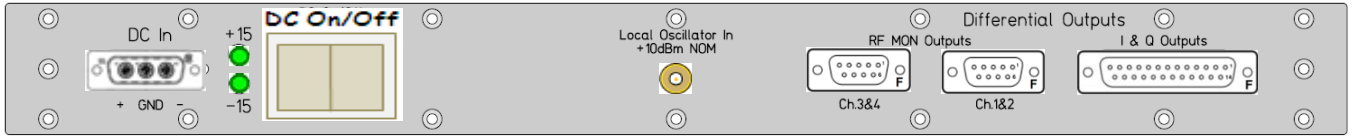


D0902796

Front

D1002032

LSC



S1001025

Rear

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

M

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

M

I & Q Outputs

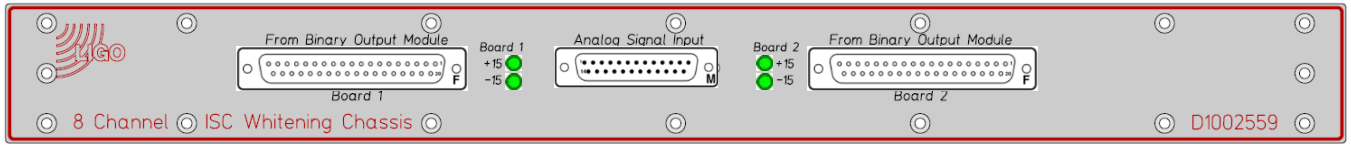
I & Q Outputs

M

D1002559 - S1101610

[<< L1-ISC-R3]

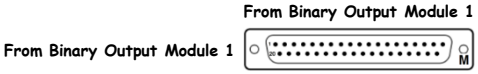
ISC Whitening (ASC ASAIR B 45MHz) D1002559 S1101610 ±15VDC



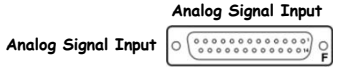
D1002559

Front

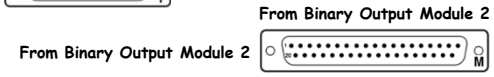
From Binary Output Module 1

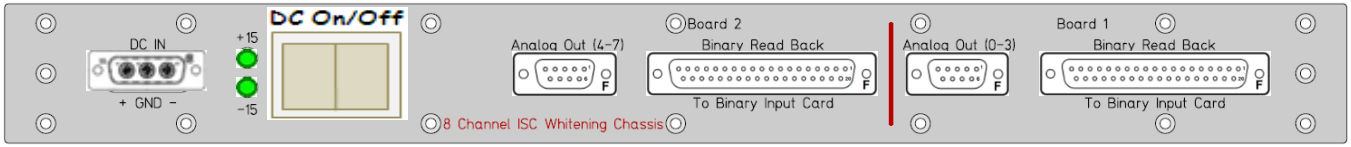


Analog Signal Input



From Binary Output Module 2

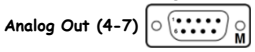




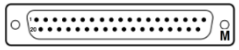
S1101610

Rear

Analog Out (4-7)

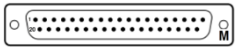


Binary Read Back 2



Analog Out (0-3)

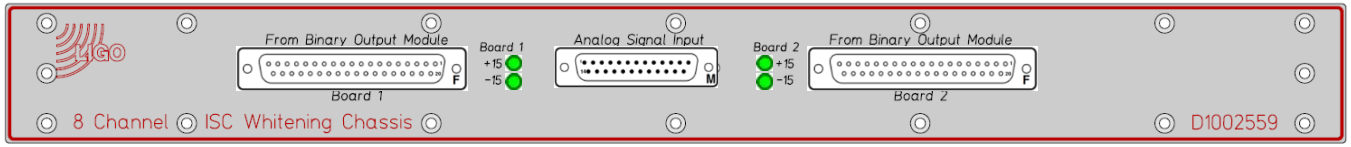
Binary Read Back 1



D1002559 - S1101592

[<< L1-ISC-R3]

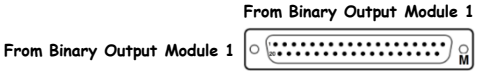
ISC Whitening (LSC ASAIR A 45, B 18, B 90MHz) D1002559 S1101592 ±15VDC



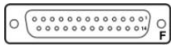
D1002559

Front

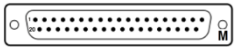
From Binary Output Module 1

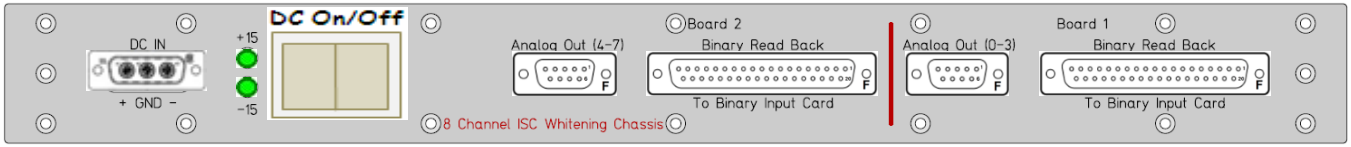


Analog Signal Input



From Binary Output Module 2

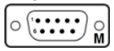




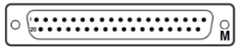
S1101592

Rear

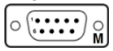
Analog Out (4-7)



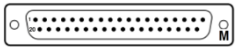
Binary Read Back 2



Analog Out (0-3)



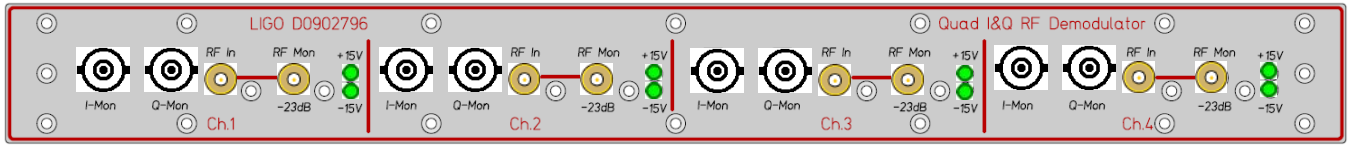
Binary Read Back 1



D0902796 - S1001001

[<< L1-ISC-R3]

LSC I/Q Demodulator (LSC ASAIR A 45, B 18, B 90MHz) D0902796 S1001001 ±15VDC

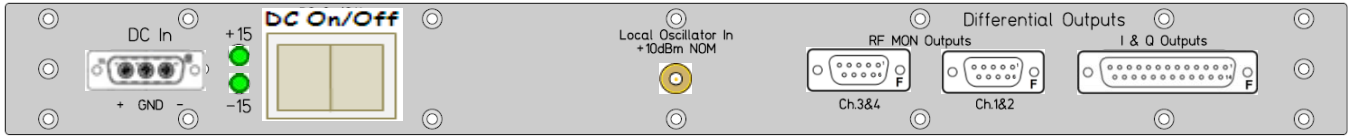


D0902796

Front

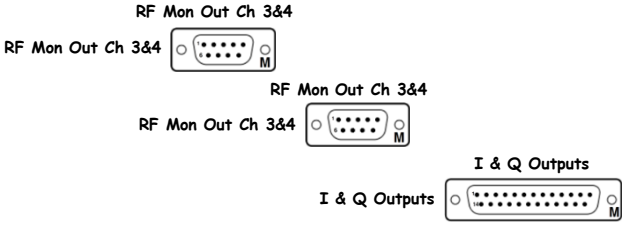
D1002032

LSC



S1001001

Rear



L1-ISC-R4

[<< LVEA Racks]

ISC HAM1 and HAM3 Rack Layout (D1101904) (S1201195)

D1200757 Sequencer S1202544

PTY-049 PTO-060

LSC Demod Concentrator 2	D1100691	42	S1104007	±18VDC
LSC Demod Concentrator 3	D1100691	41	S1104006	±18VDC
ASC Demod Concentrator 2	D1100696	40	S1103987	No Power
ASC Demod Concentrator 3	D1100696	39	S1103985	No Power
LSC RFPD Interface	D1102079	38	S1200323	±18VDC
WFS RFPD Interface	D1101906	37	S1200428	±15VDC
		36		
ALS Fiber Distribution	D1200136	35	S1202531	±17VDC, ±24VDC
		34		
		33		
ISC Whitening Chassis (IM4 TRANS/ISS QPD)	D1002559	32	S1101599	±15VDC
Dual QPD Transimpedance Amp (IM4 TRANS/ISS QPD)	D1002481	31	S1102824	±15VDC
		30		
ISC Whitening Chassis (MC2 TRANS/-)	D1002559	29	S1101611	±15VDC
Dual QPD Transimpedance Amp (MC2 TRANS/-	D1002481	28	S1102812	±15VDC
		27		
ISC Whitening Chassis (POP_A/POP_B)	D1002559	26	S1101586	±15VDC
Dual QPD Transimpedance Amp (POP_A/POP_B)	D1002481	25	S1102814	±15VDC
		24		
SUS Satellite Amp (HAM1 Ti[illegible]nit)	D1002818	23	S1200172	??
		22		
Auxiliary Signals [illegible]entrator 1	D1102065	21	S1200549	±17VDC
Auxiliary Sig[illegible]Concentrator 3	D1201345	20	S1300242	±17VDC
		19		
[illegible]on Mode Summing Chassis	D1200148	18	Sxxxxxxx	??
		17		
Common Mode Servo	D0901781	16	S1102623	±17VDC, ±24VDC
		15		
		14		
BNC Patch Panel	PPD32-BNCB50IS	13	Sxxxxxxx	No Power
		12		
		11		
		10		
		9		
		8		
		7		
		6		
		5		
		4		
		3		
ISC Whitening Filter Controller	D1101741	2	S1201333	??
	Front	1	Rear	

EEIP?

R4=100kohm on QPD2 Board

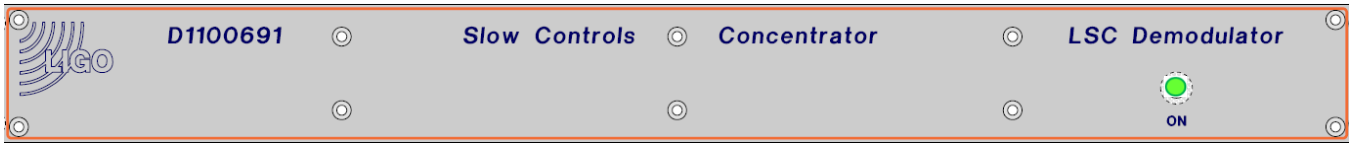
ISC-R4 is part of D1101904

L1-ISC-R4 Details

D1100691 - S1104007

[<< L1-ISC-R4]

LSC Demod Concentrator 2 | D1100691 | S1104007 | ±18VDC

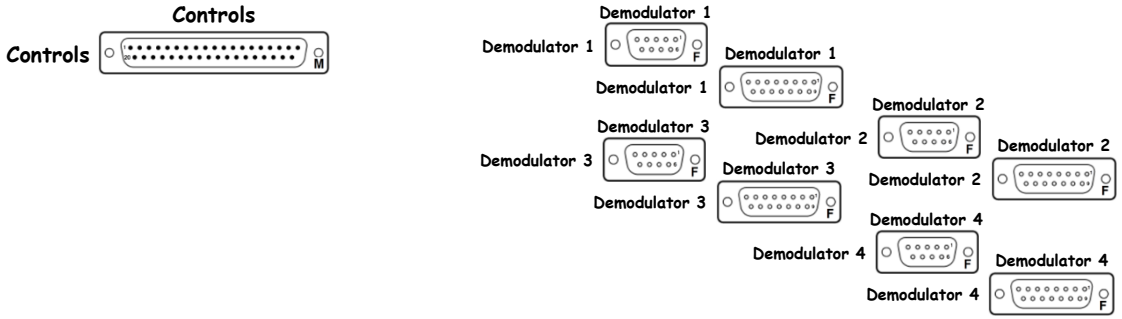


D1100691

Front

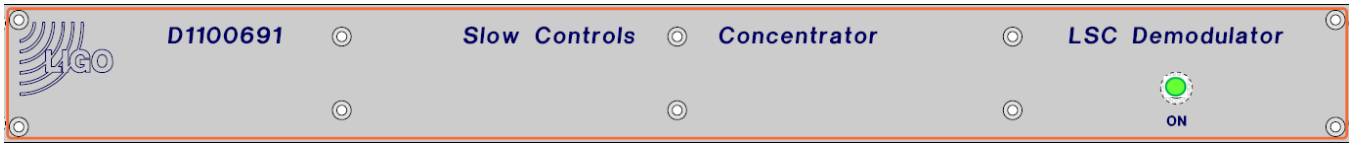
S1104007

Rear



D1100691 - S1104006

LSC Demod Concentrator 3 | D1100691 | S1104006 | ±18VDC

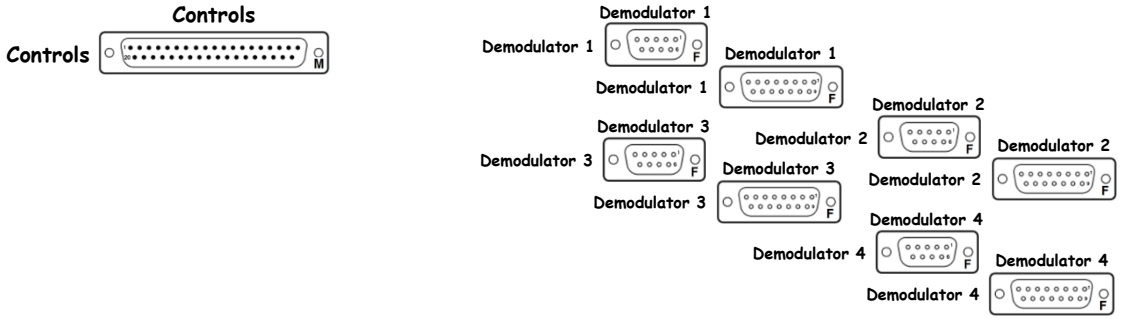


D1100691

Front

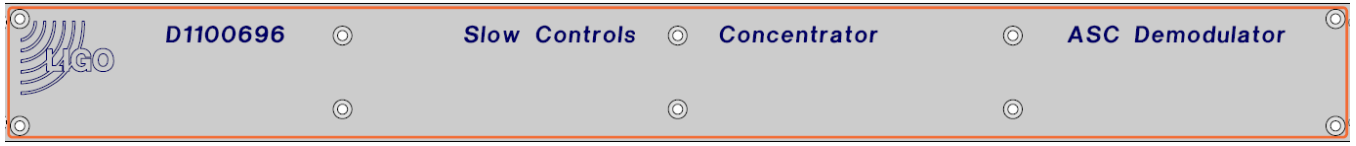
S1104006

Rear



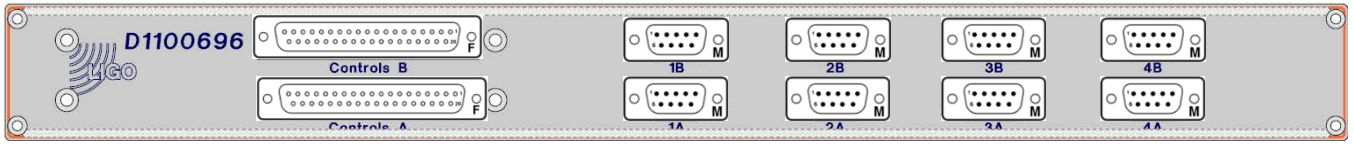
D1100696 - S1103987

ASC Demod Concentrator 2 | D1100696 | S1103987 | No Power



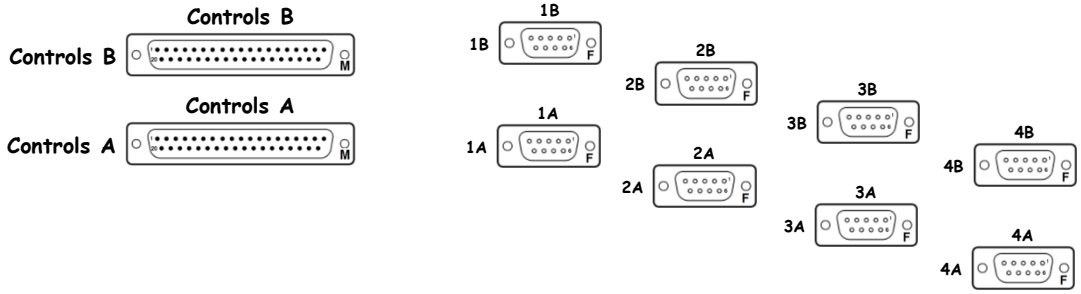
D1100696

Front



S1103987

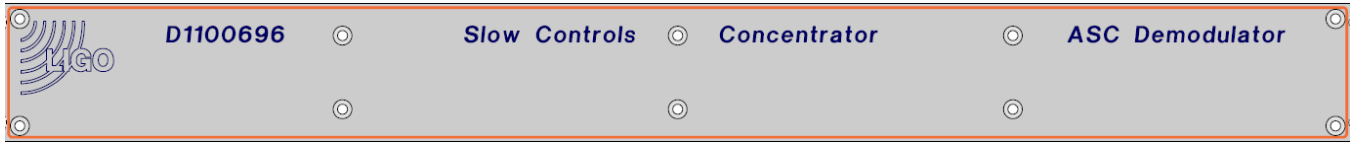
Rear



D1100696 - S1103985

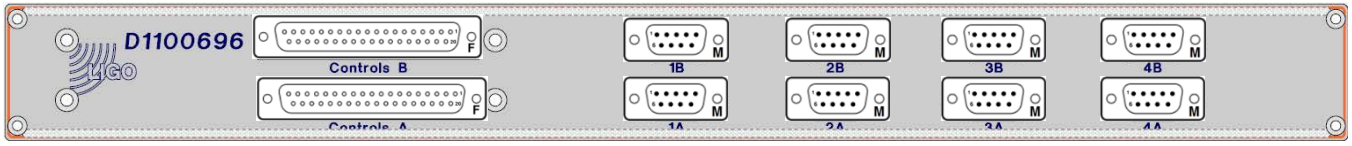
[<< L1-ISC-R4]

ASC Demod Concentrator 3 | D1100696 | S1103985 | No Power



D1100696

Front



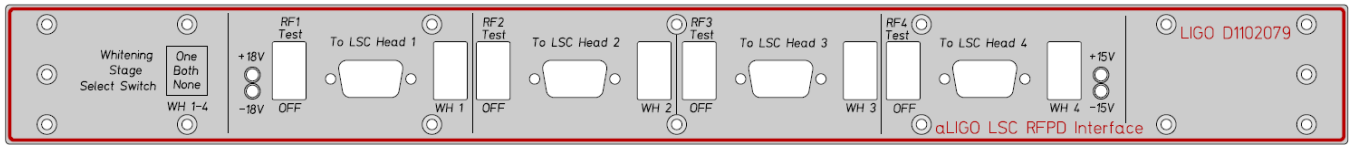
S1103985

Rear

D1102079 - S1200323

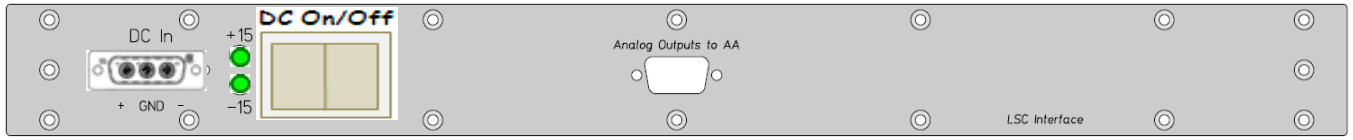
[<< L1-ISC-R4]

LSC RFPD Interface | D1102079 | S1200323 | ±18VDC



D1102079

Front



S1200323

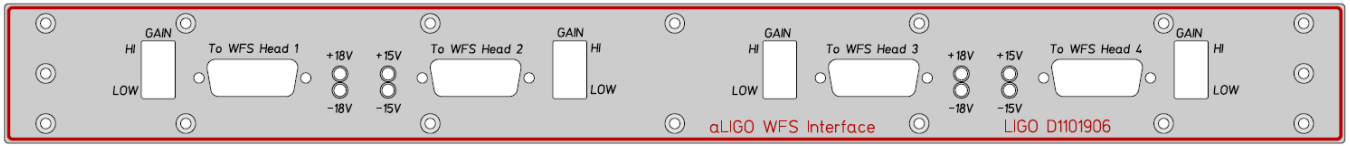
Rear

D1101906 - S1200428

[<< L1-ISC-R4]

WFS RFPD Interface | D1101906 | S1200428 | ±15VDC

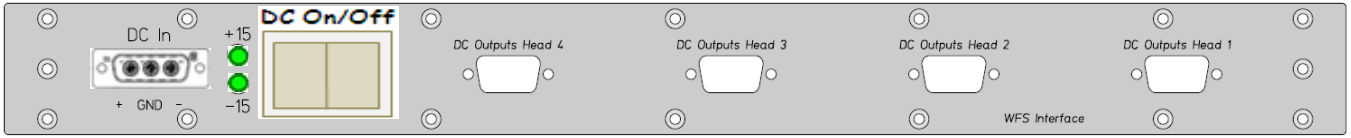
D1101905



D1101906

Front

D1101908

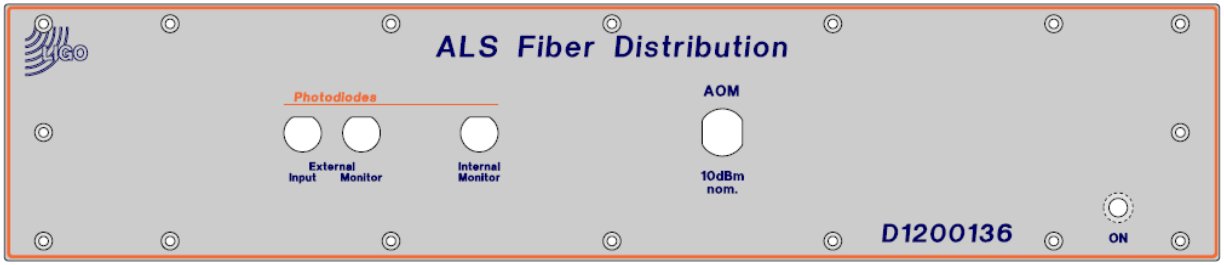


S1200428

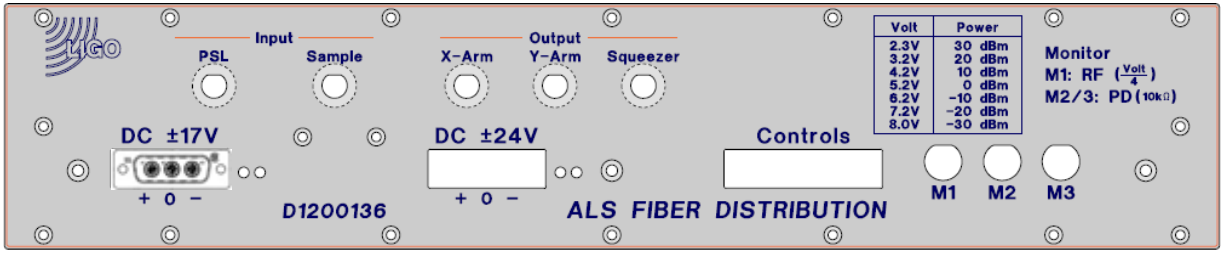
Rear

D1200136 - S1202531

ALS Fiber Distribution Chassis | D1200136 | S1202531 | +-17VDC, +-24VDC



D1200136
Front

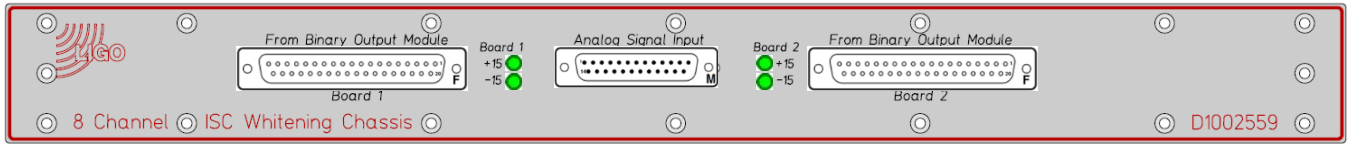


S1202531
Rear

D1002559 - S1101599

[<< L1-ISC-R4](#)

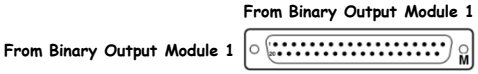
ISC Whitening Chassis (IM4 TRANS/ISS QPD) | D1002559 | S1101599 | ±15VDC



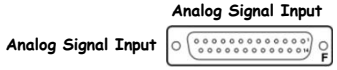
D1002559

Front

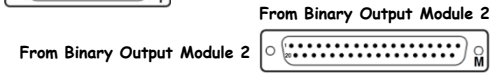
From Binary Output Module 1

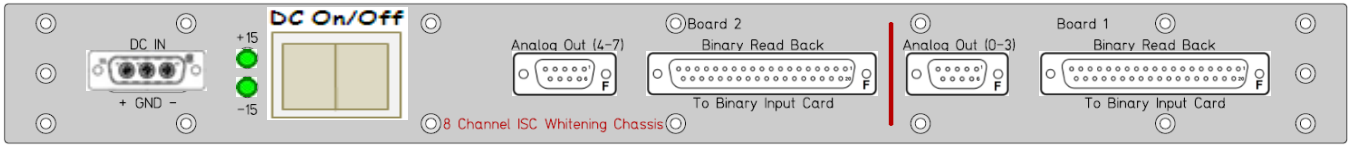


Analog Signal Input



From Binary Output Module 2

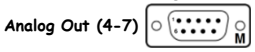




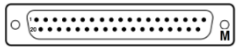
S1101599

Rear

Analog Out (4-7)

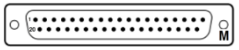


Binary Read Back 2



Analog Out (0-3)

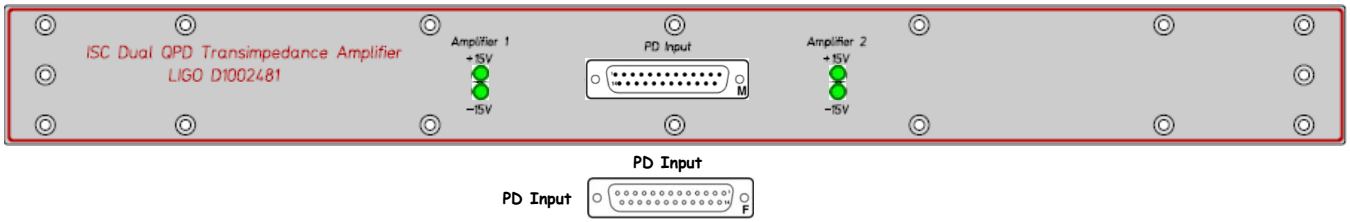
Binary Read Back 1



D1002481 - S1102824

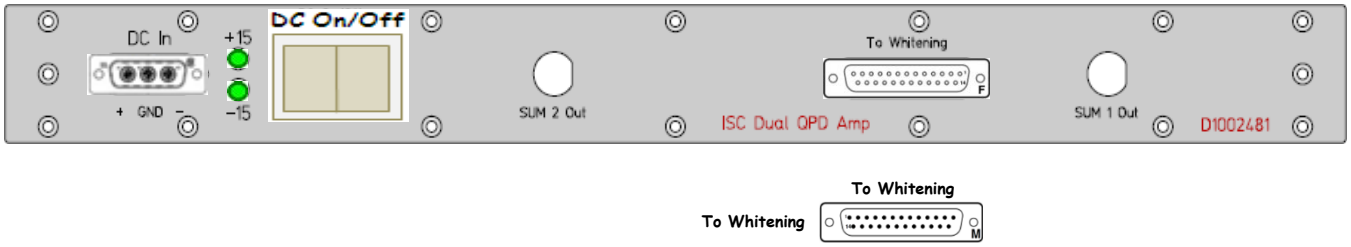
[<< L1-ISC-R4]

Dual QPD Transimpedance Amp (IM4 TRANS/ISS QPD) | D1002481 | S1102824 | ±15VDC



D1002481

Front



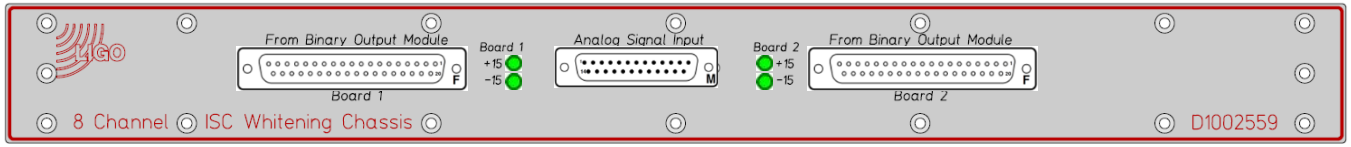
S1102824

Rear

D1002559 - S1101611

[<< L1-ISC-R4]

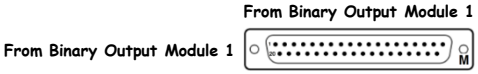
ISC Whitening Chassis (MC2 TRANS/-) | D1002559 | S1101611 | ±15VDC



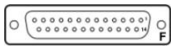
D1002559

Front

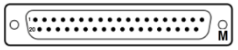
From Binary Output Module 1

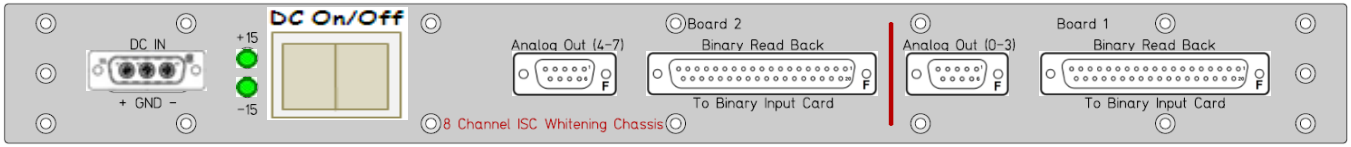


Analog Signal Input



From Binary Output Module 2

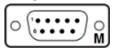




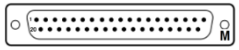
S1101611

Rear

Analog Out (4-7)

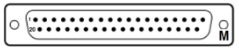


Binary Read Back 2



Analog Out (0-3)

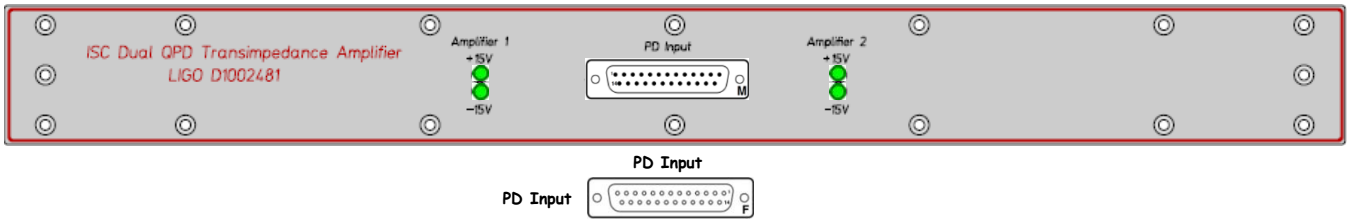
Binary Read Back 1



D1002481 - S1102812

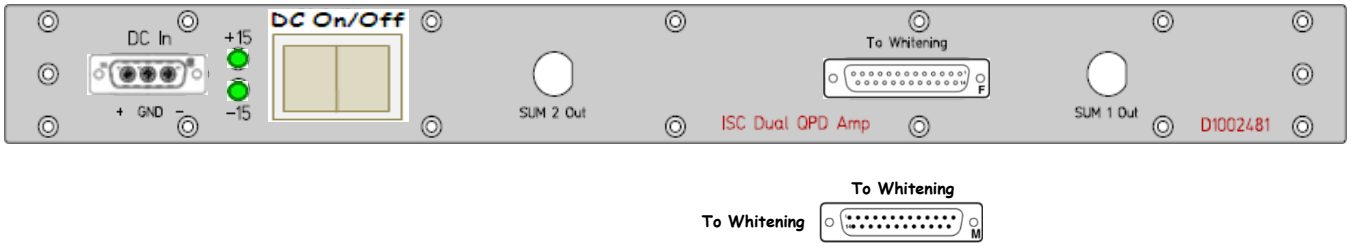
[<< L1-ISC-R4]

Dual QPD Transimpedance Amp (MC2 TRANS/- [D1002481] [S1102812] ±15VDC



[D1002481]

Front



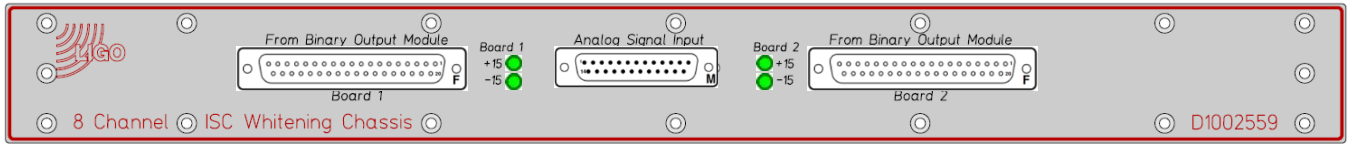
[S1102812]

Rear

D1002559 - S1101586

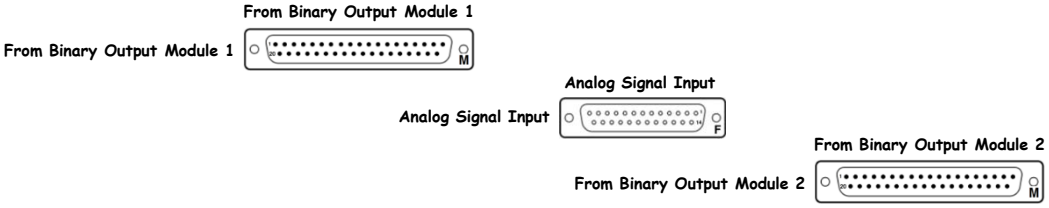
[<< L1-ISC-R4]

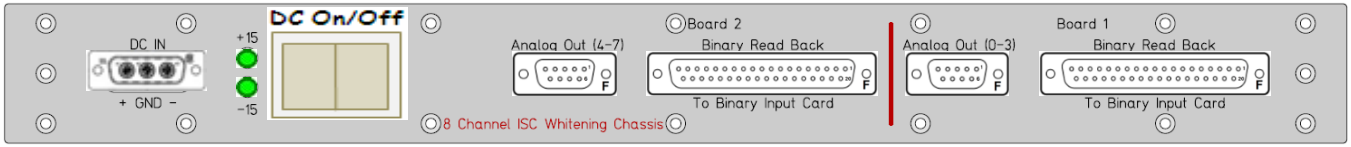
ISC Whitening Chassis (POP_A/POP_B) | D1002559 | S1101586 | ±15VDC



D1002559

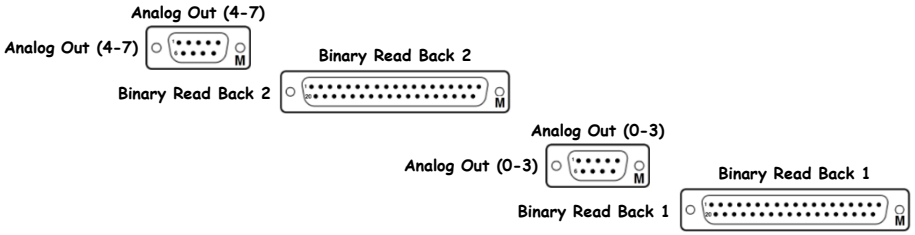
Front





S1101586

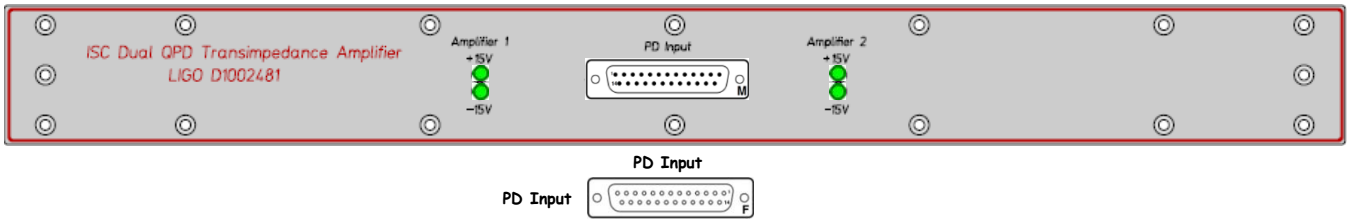
Rear



D1002481 - S1102814

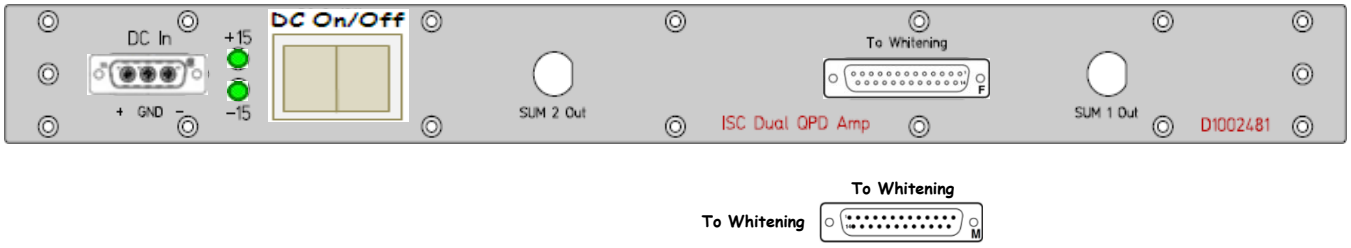
[<< L1-ISC-R4]

Dual QPD Transimpedance Amp (POP_A/POP_B) | D1002481 | S1102814 | ±15VDC



D1002481

Front



S1102814

Rear

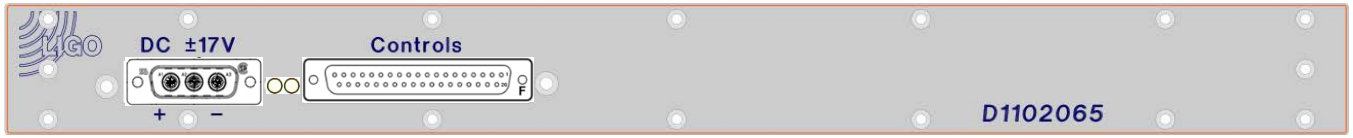
D1102065 - S1200550

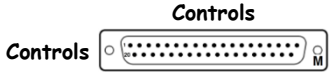
[<< L1-ISC-R4]

Auxiliary Signals Concentrator 1 | D1102065 | S1200550 | ±17VDC

D1102065

Front





S1200550

Rear

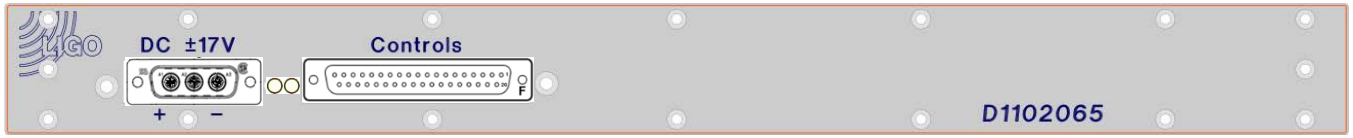
D1201345 - S1300242

[<< L1-ISC-R4]

Auxiliary Signals Concentrator 3 | D1201345 | S1300242 | ±17VDC

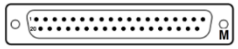
D1201345

Front



Controls

Controls



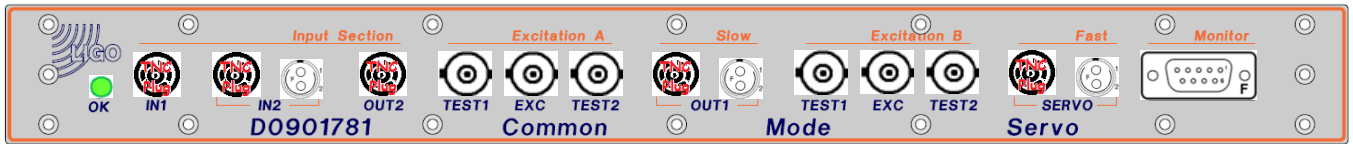
S1300242

Rear

D0901781 - S1102623

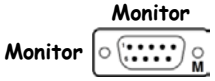
[<< L1-ISC-R4]

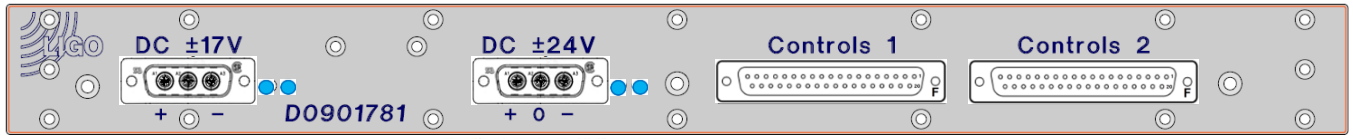
Common Mode Servo | D0901781 | S1102623 | ±17VDC, ±24VDC



D0901781

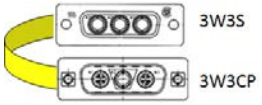
Front

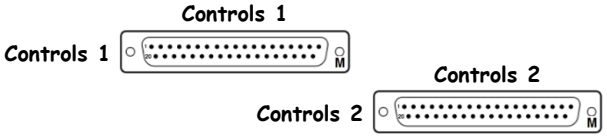




S1102623

Rear





BNC Patch Panel

LIGO
<< L1-ISC-R4

BNC Patch Panel | PPD32-BNCB50IS | Sxxxxxxx | No Power

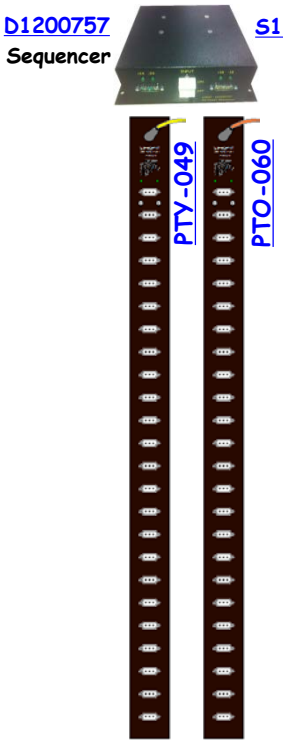
PPD16-BNCB50IS

Front

L1-ISC-R5

[<< LVEA Racks]

ISC HAM6 Rack Layout (D1200196) (S1201196)



BNC Patch Panel	PPD32-BNCB50IS	42	Sxxxxxxx	No Power
		41		
		40		
		39		
		38		
		37		
LSC Demod Concentrator 4	D1100691	36	S1104008	±18VDC
ASC Demod Concentrator 4	D1100696	35	S1103983	No Power
ASC Demod Concentrator 5	D1100696	34	S1103986	No Power
		33		
LSC RFPD Interface	D1102079	32	S1200463	±18VDC
		31		
WFS RFPD Interface	D1101906	30	S1200443	±15VDC
		29		
SUS Satellite Amp (HAM1 Tip/Tilt)	D1002818	28	S1105381	±15VDC
		27		
SUS Satellite Amp (HAM1 Tip/Tilt)	D1002818	26	S1200168	±15VDC
		25		
Dual QPD Transimpedance Amp (ASC OMCR A&B)	D1002481	24	S1102830	±15VDC
		23		
ISC Whitening Chassis (ASC OMCR A&B)	D1002559	22	S1101608	±15VDC
		21		
Dual QPD Transimpedance Amp (ASC AS C)	D1002481	20	S1102834	±15VDC
		19		
ISC Whitening Chassis (ASC AS C, OMC DCPD A&B)	D1002559	18	S1101164	±15VDC
		17		
Auxiliary Signals Concentrator 1	D1102065	16	S1200550	±17VDC
Auxiliary Signals Concentrator 4	D1201349	15	S1300245	±17VDC
		14		
OMC HV/LV Piezo Driver Chassis	D1300485	13	S1301186	±17VDC
Dual D-Sub Breakout Panel	D1201450	12	Sxxxxxxx	±17VDC
		11		
Dual QPD Transimpedance Amp (ASC OMC A&B)	D1002481	10	Sxxxxxxx	±15VDC
		9		
ISC Whitening Chassis (ASC OMC A&B)	D1002559	8	S1101639	±15VDC
		7		
		6		
		5		
		4		
		3		
		2		
Perforated Shelf		1		
	Front		Rear	

ISC-R5 is part of D1200196

L1-ISC-R5 Details

BNC Patch Panel

LIGO
<< L1-ISC-R5

BNC Patch Panel | PPD32-BNCB50IS | Sxxxxxxx | No Power

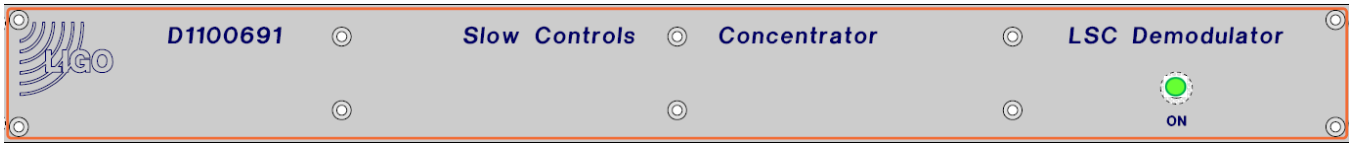
PPD16-BNCB50IS

Front

D1100691 - S1104008

[<< L1-ISC-R5]

LSC Demod Concentrator 4 | D1100691 | S1104008 | ±18VDC

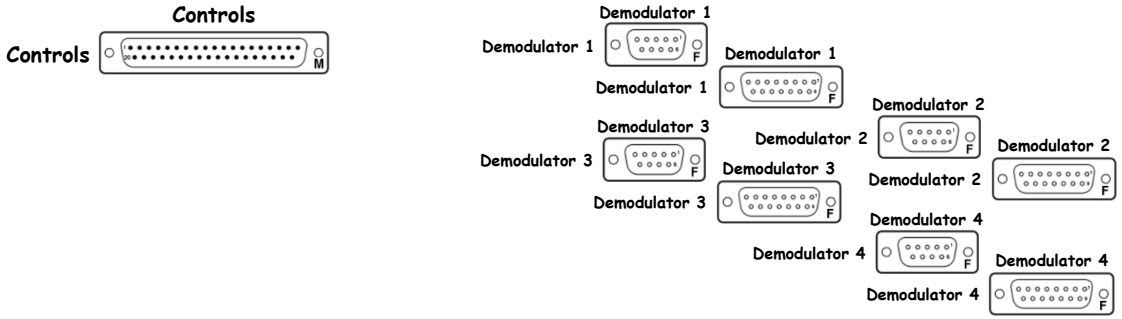


D1100691

Front

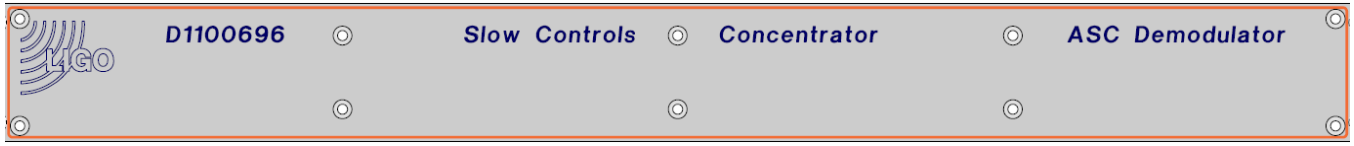
S1104008

Rear



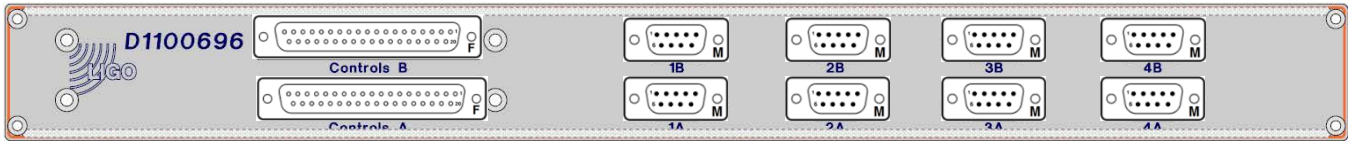
D1100696 - S1103987

ASC Demod Concentrator 4 | D1100696 | S1103983 | No Power



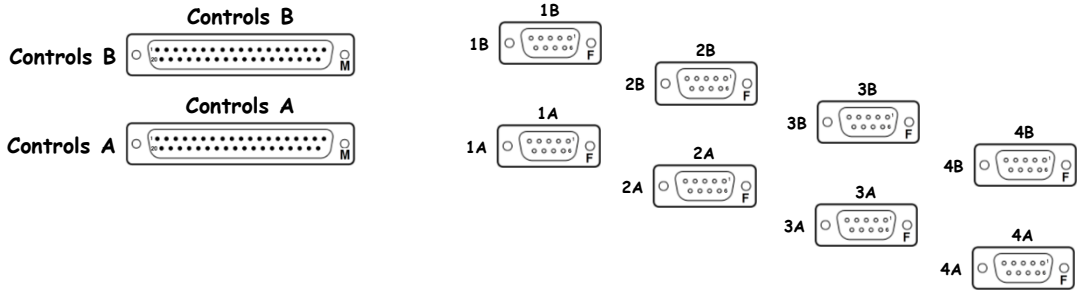
D1100696

Front



S1103983

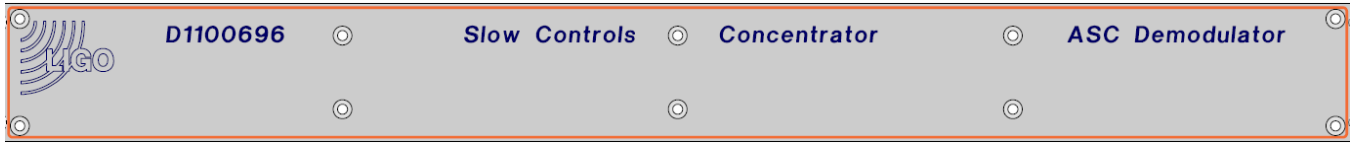
Rear



D1100696 - S1103986

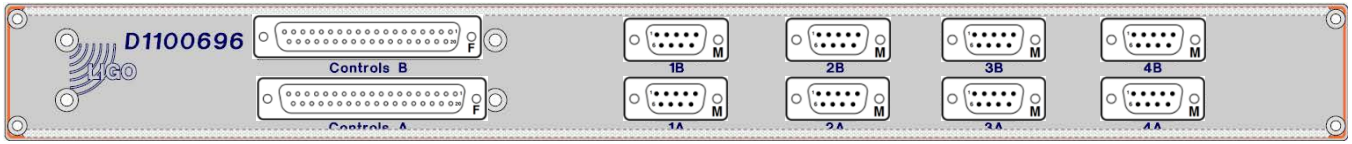
[<< L1-ISC-R5]

ASC Demod Concentrator 5 | D1100696 | S1103986 | No Power



D1100696

Front



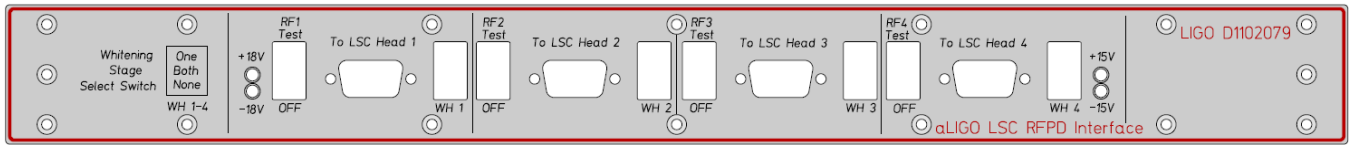
S1103986

Rear

D1102079 - S1200463

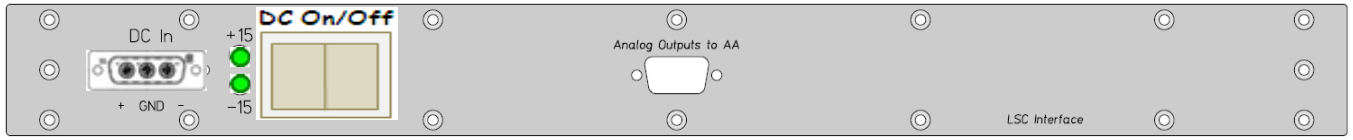
[<< L1-ISC-R5]

LSC RFPD Interface | D1102079 | S1200463 | ±18VDC



D1102079

Front



S1200463

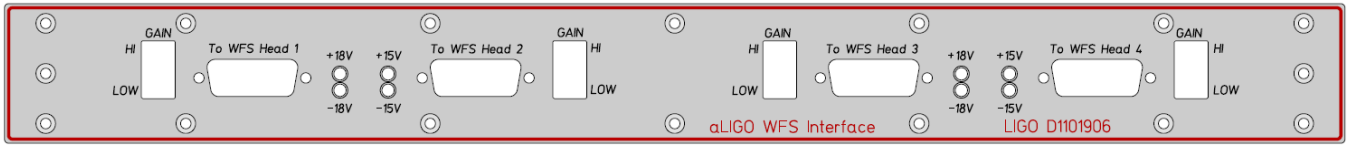
Rear

D1101906 - S1200443

[<< L1-ISC-R5]

WFS RFPD Interface | D1101906 | S1200443 | ±15VDC

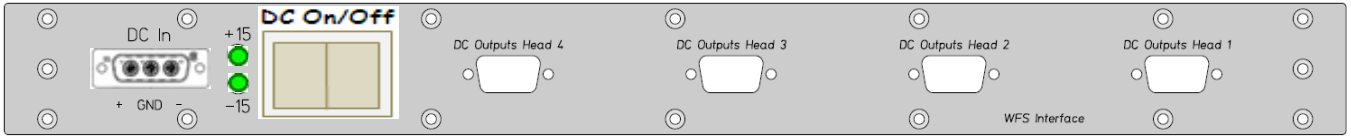
D1101905



D1101906

Front

D1101908



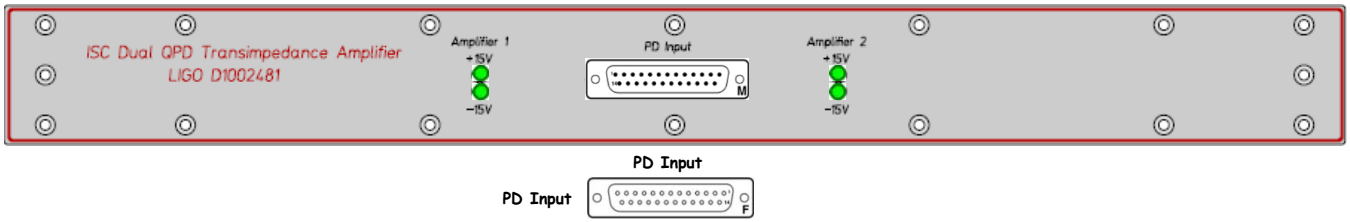
S1200443

Rear

D1002481 - S1102830

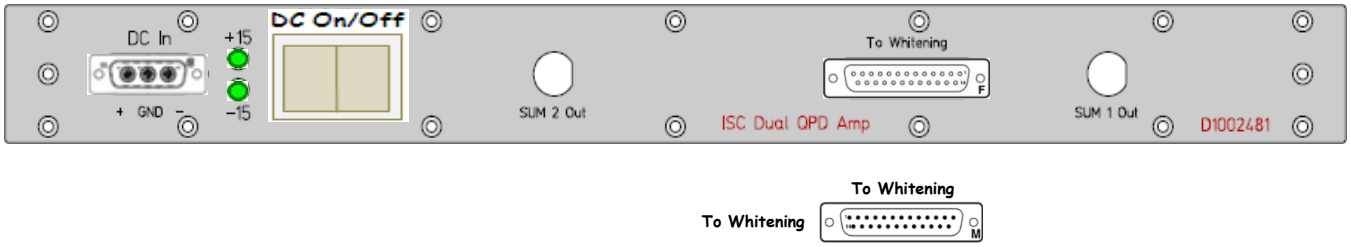
[<< L1-ISC-R5]

Dual QPD Transimpedance Amp (ASC OMCR A&B) | D1002481 | S1102830 | ±15VDC



D1002481

Front



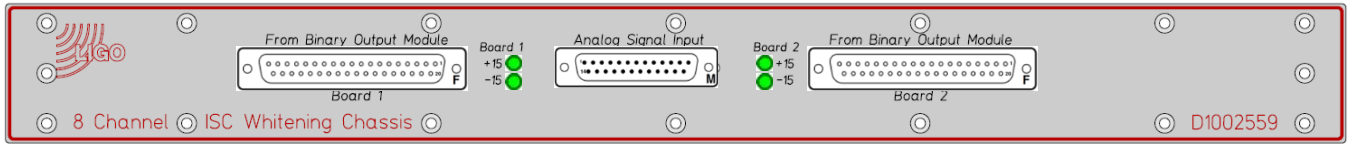
S1102830

Rear

D1002559 - S1101608

[<< L1-ISC-R5]

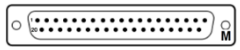
ISC Whitening Chassis (ASC OMCR A&B) | D1002559 | S1101608 | ±15VDC



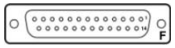
D1002559

Front

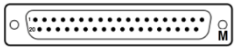
From Binary Output Module 1

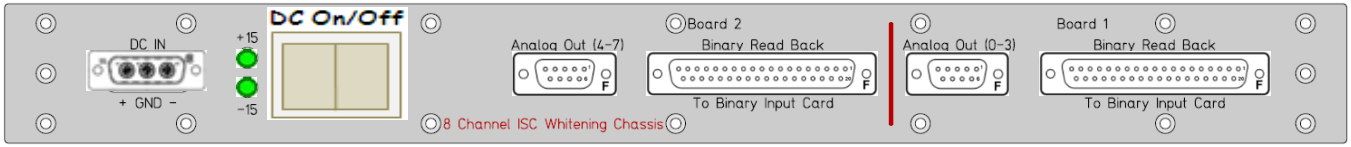


Analog Signal Input



From Binary Output Module 2

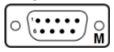




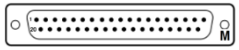
S1101608

Rear

Analog Out (4-7)

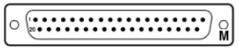


Binary Read Back 2



Analog Out (0-3)

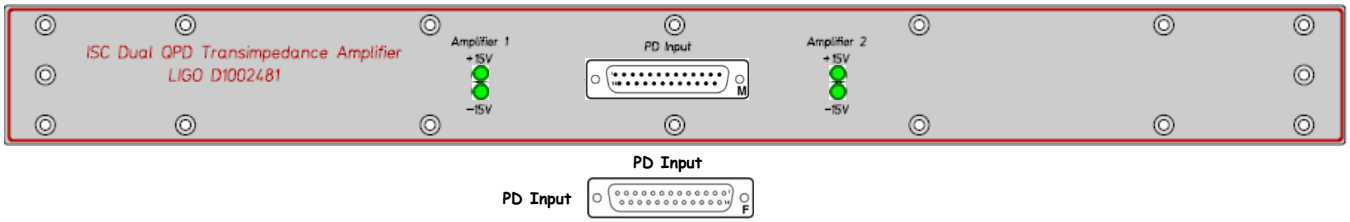
Binary Read Back 1



D1002481 - S1102834

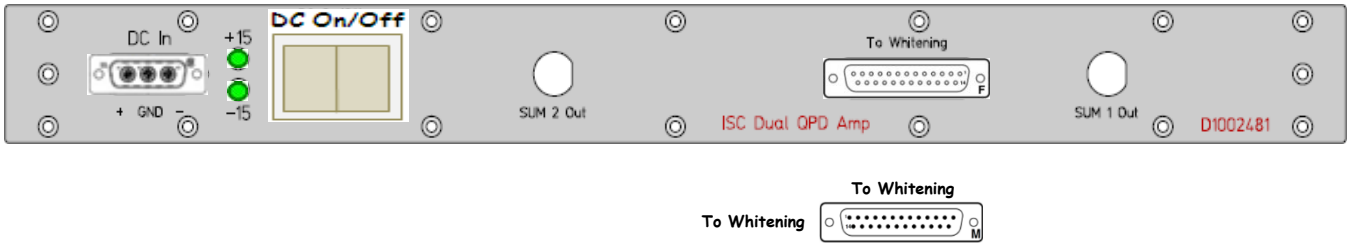
[<< L1-ISC-R5]

Dual QPD Transimpedance Amp (ASC AS C) | D1002481 | S1102834 | ±15VDC



D1002481

Front



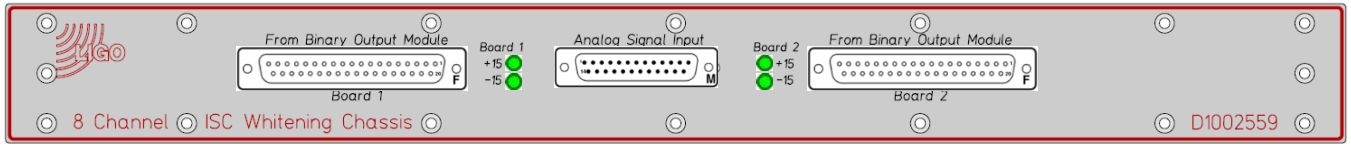
S1102834

Rear

D1002559 - S1101164

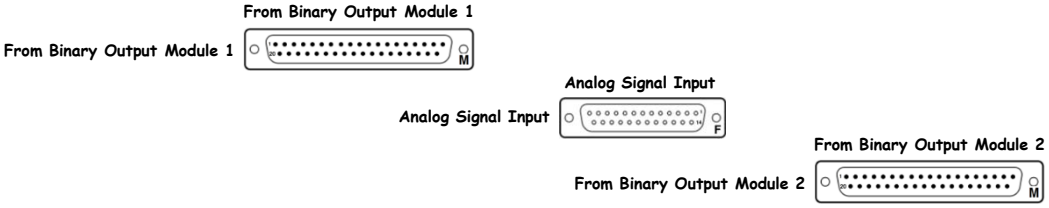
[<< L1-ISC-R5](#)

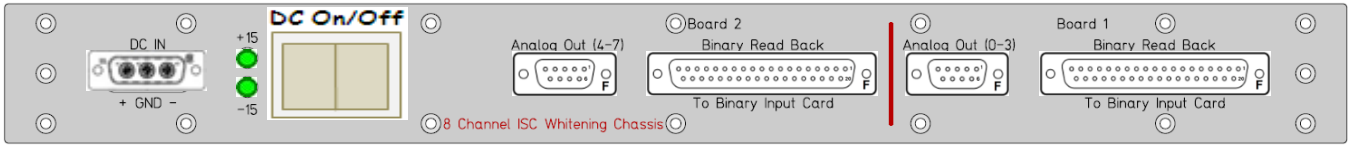
ISC Whitening Chassis (ASC AS C, OMC DCPD A&B) [D1002559](#) [S1101164](#) **±15VDC**



[D1002559](#)

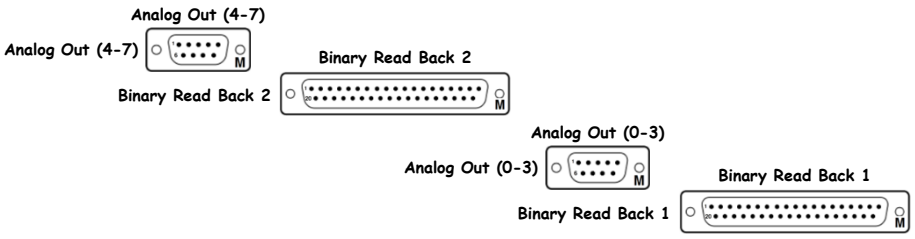
Front





[S1101164](#)

Rear



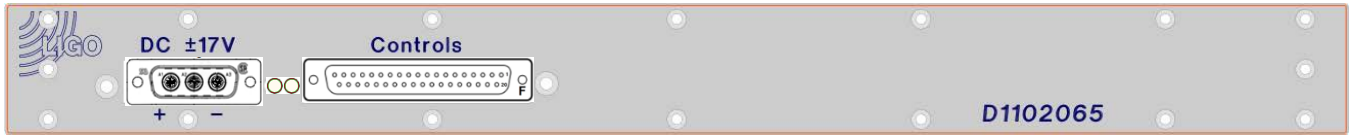
D1102065 - S1200550

« L1-ISC-R5

Auxiliary Signals Concentrator 1 | D1102065 | S1200550 | ±17VDC

D1102065

Front



S1200550

Rear

Controls

Controls

M

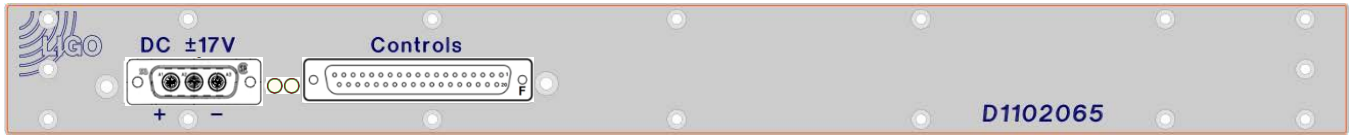
D1201349 - S1300245

[<< L1-ISC-R5]

Auxiliary Signals Concentrator 4 | D1201349 | S1300245 | ±17VDC

D1201349

Front



Controls

Controls

M

S1300245

Rear

D1201450 - Sxxxxxxx

[<< L1-ISC-R5]

Dual DSUB Breakout Panel | D1201450 | Sxxxxxxx | No Power

D1201450

Front

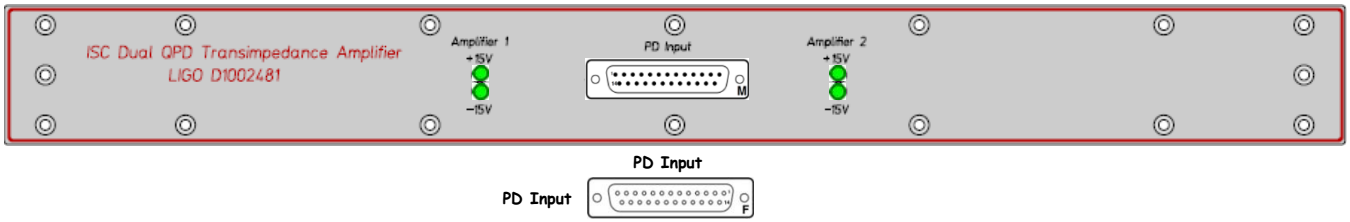
Sxxxxxxx

Rear

D1002481 – Sxxxxxxx

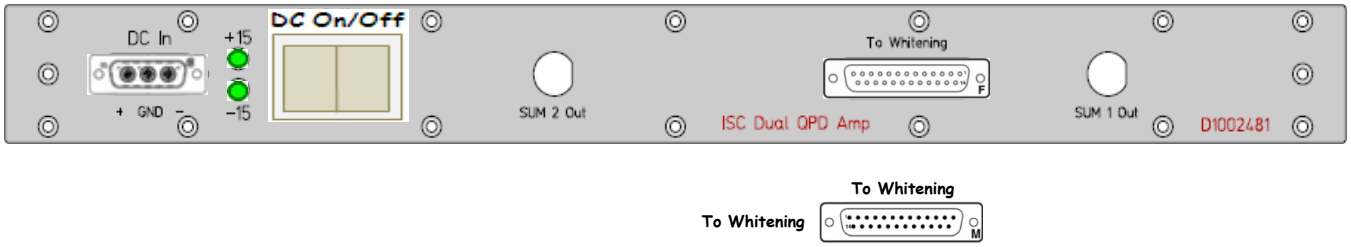
[<< L1-ISC-R5]

Dual QPD Transimpedance Amp (ASC OMC A&B) | D1002481 | Sxxxxxxx | ±15VDC



D1002481

Front



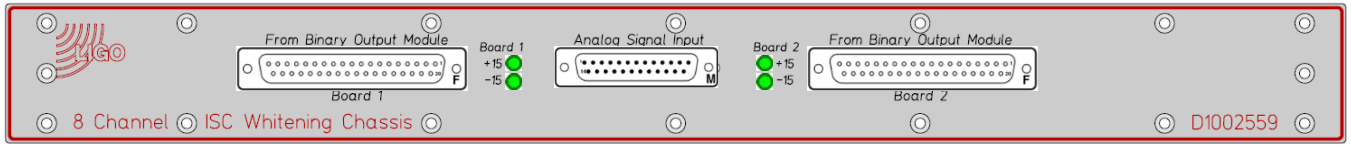
Sxxxxxxx

Rear

D1002559 - S1101639

[<< L1-ISC-R5]

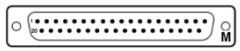
ISC Whitening Chassis (ASC OMC A&B) D1002559 S1101639 ±15VDC



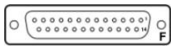
D1002559

Front

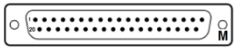
From Binary Output Module 1

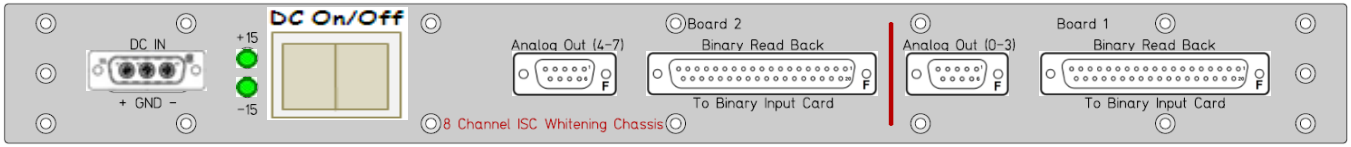


Analog Signal Input



From Binary Output Module 2

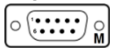




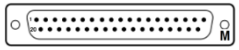
S1101639

Rear

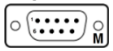
Analog Out (4-7)



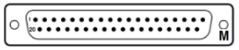
Binary Read Back 2



Analog Out (0-3)



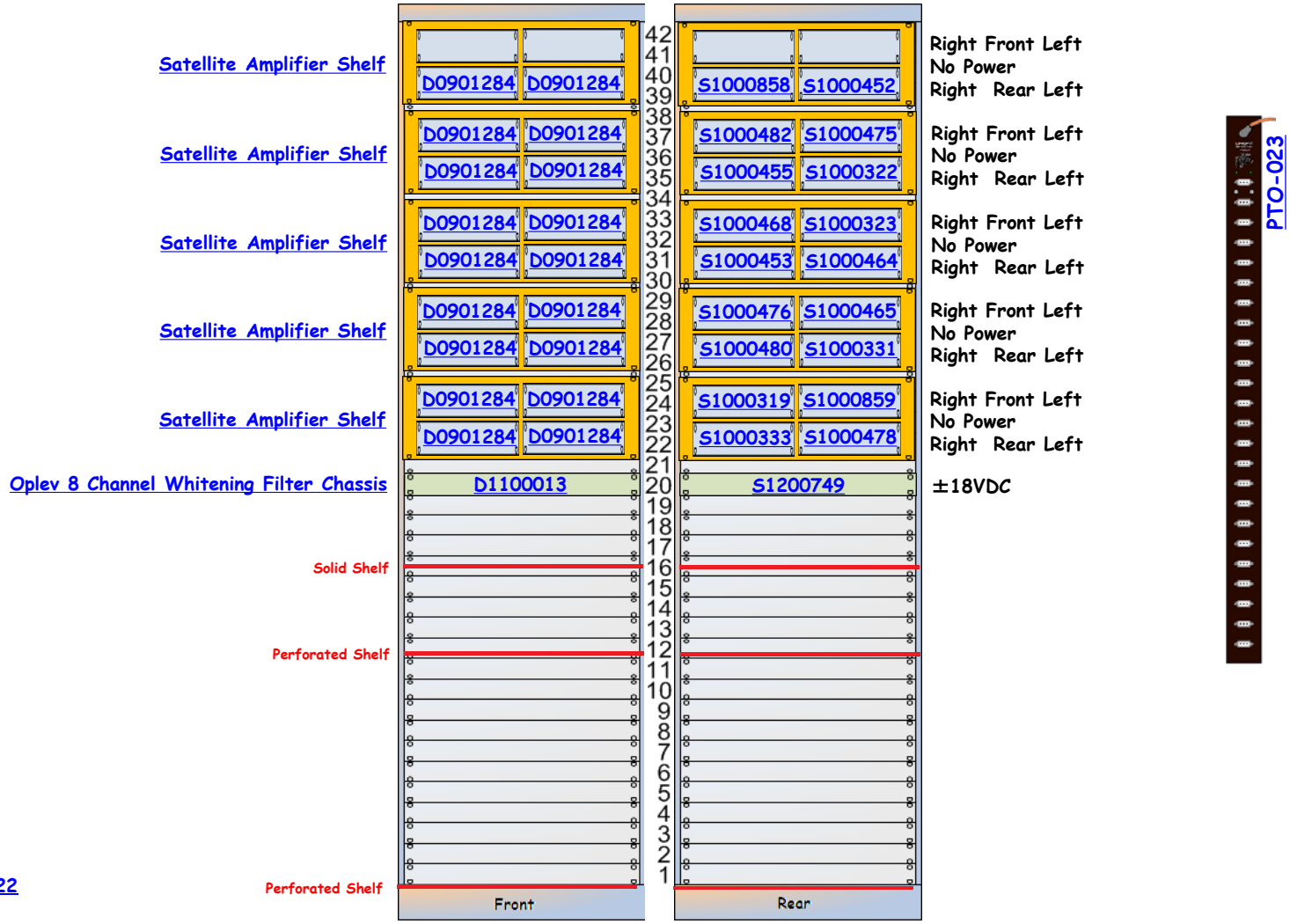
Binary Read Back 1



L1-SUS-R1

[<< LVEA Racks]

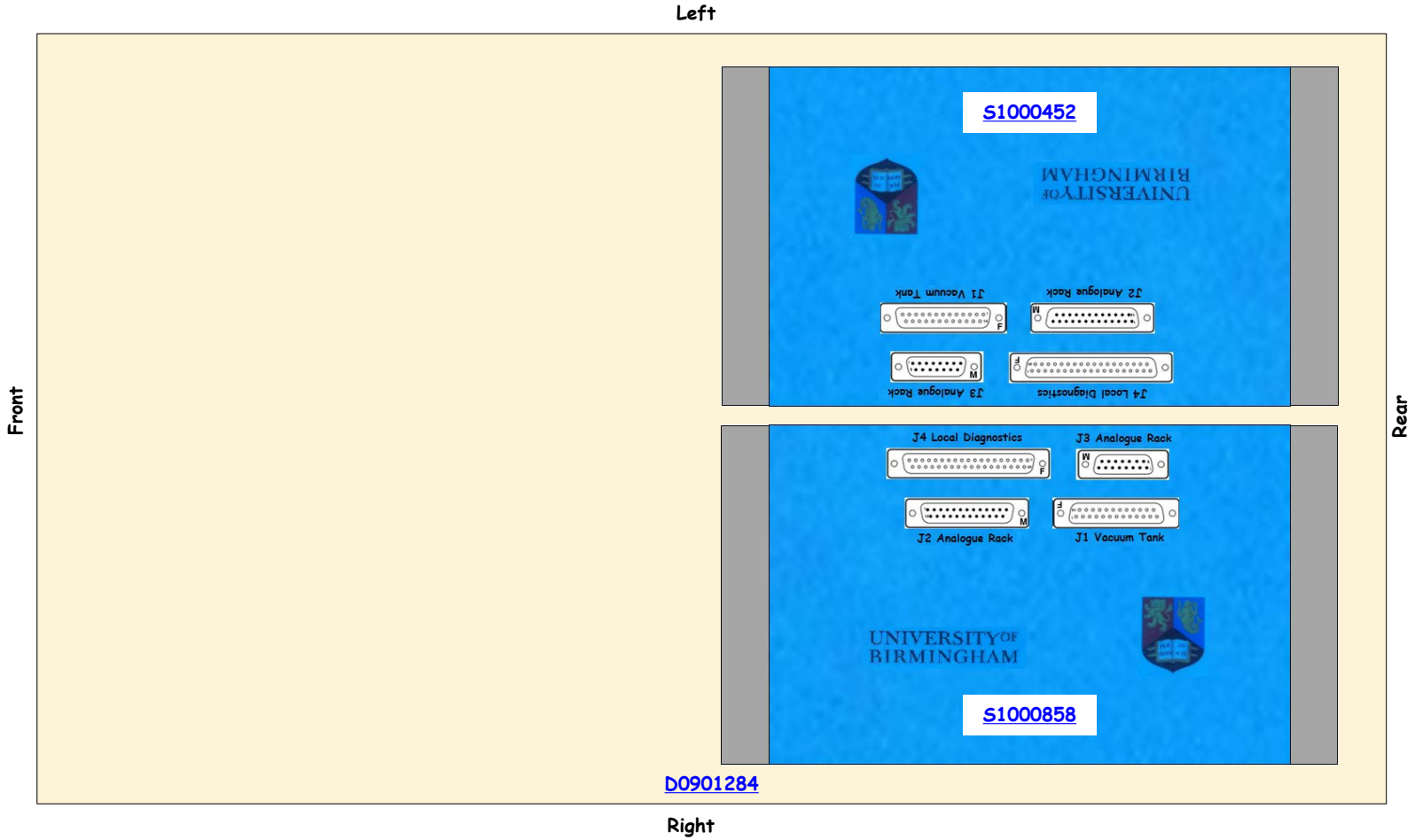
L1-SUS-R1 HAM2 Field Rack Layout (D1200879) (S1200749)



SUS-R1 is part of D1100022

D0901284 Shelf

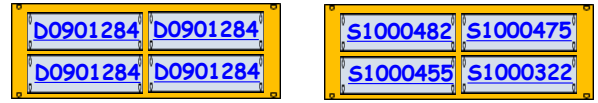
« L1-SUS-R1



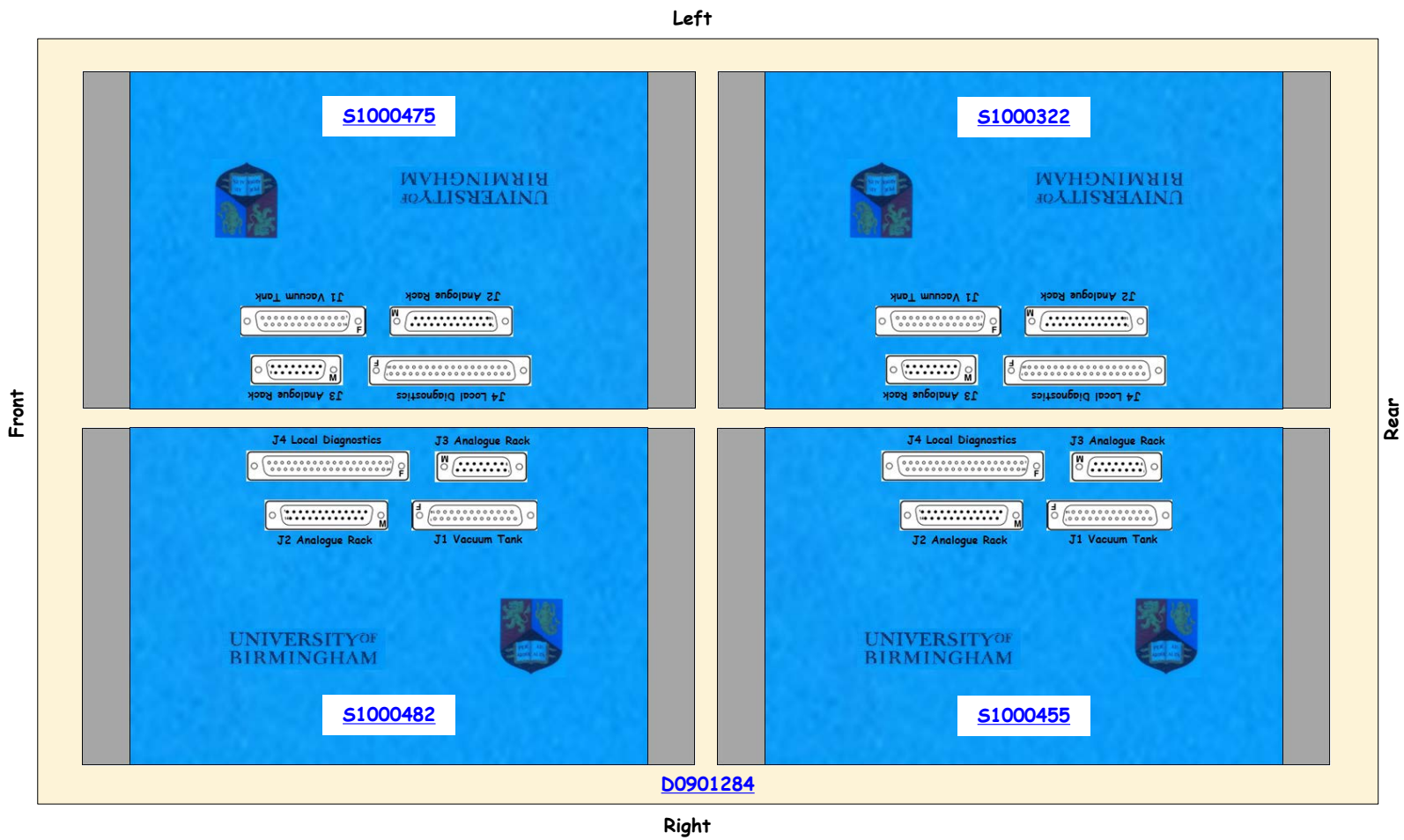
D0901284 Shelf

<< L1-SUS-R1

Satellite Amplifier Shelf



Right Front Left
No Power
Right Rear Left



D0901284 Shelf

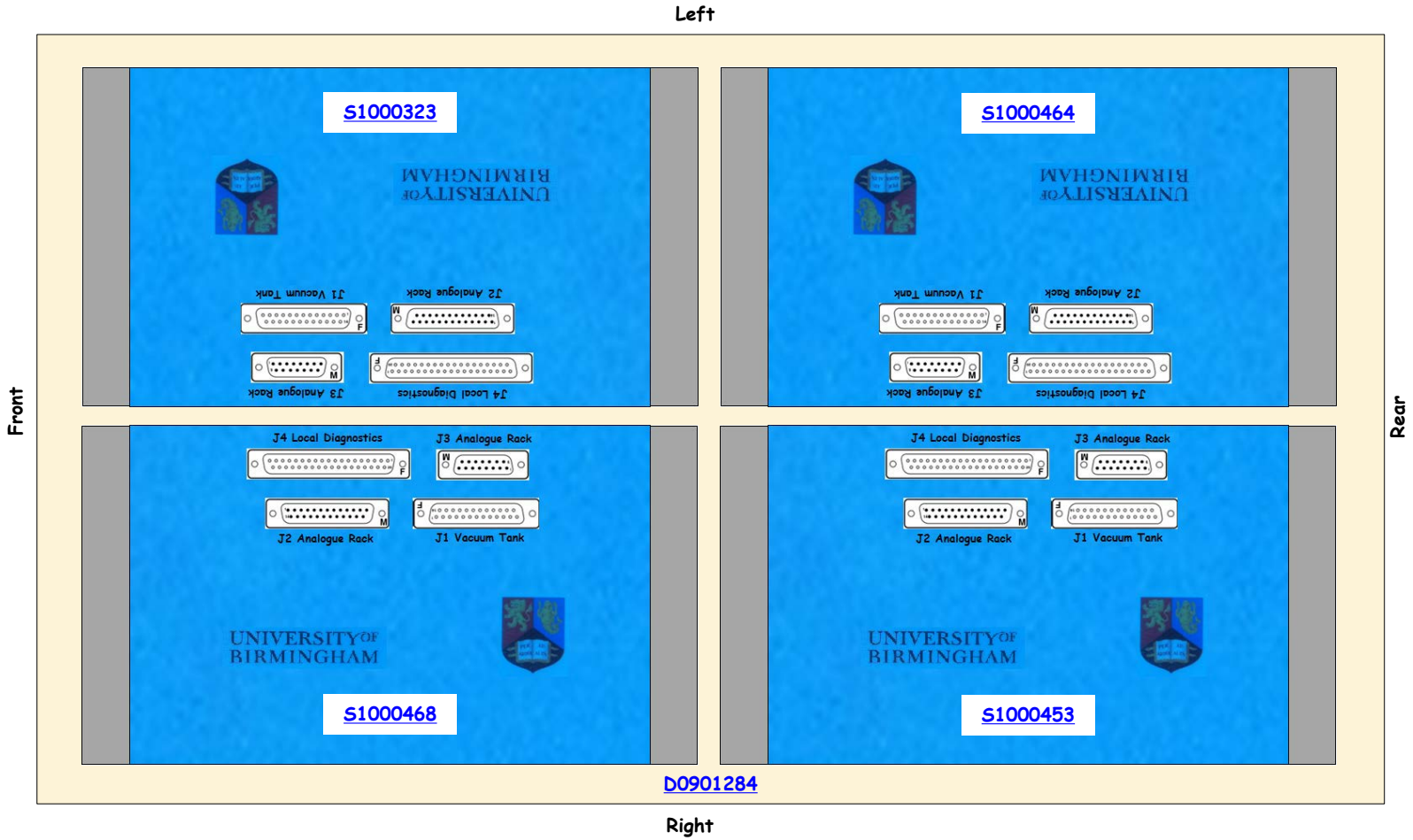
[<< L1-SUS-R1]

Satellite Amplifier Shelf

D0901284	D0901284
D0901284	D0901284

S1000468	S1000323
S1000453	S1000464

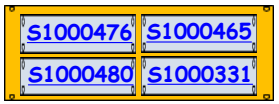
Right Front Left
No Power
Right Rear Left



D0901284 Shelf

[<< L1-SUS-R1]

Satellite Amplifier Shelf



Right Front Left
No Power
Right Rear Left

Left

Front

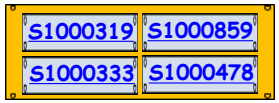
Rear

Right

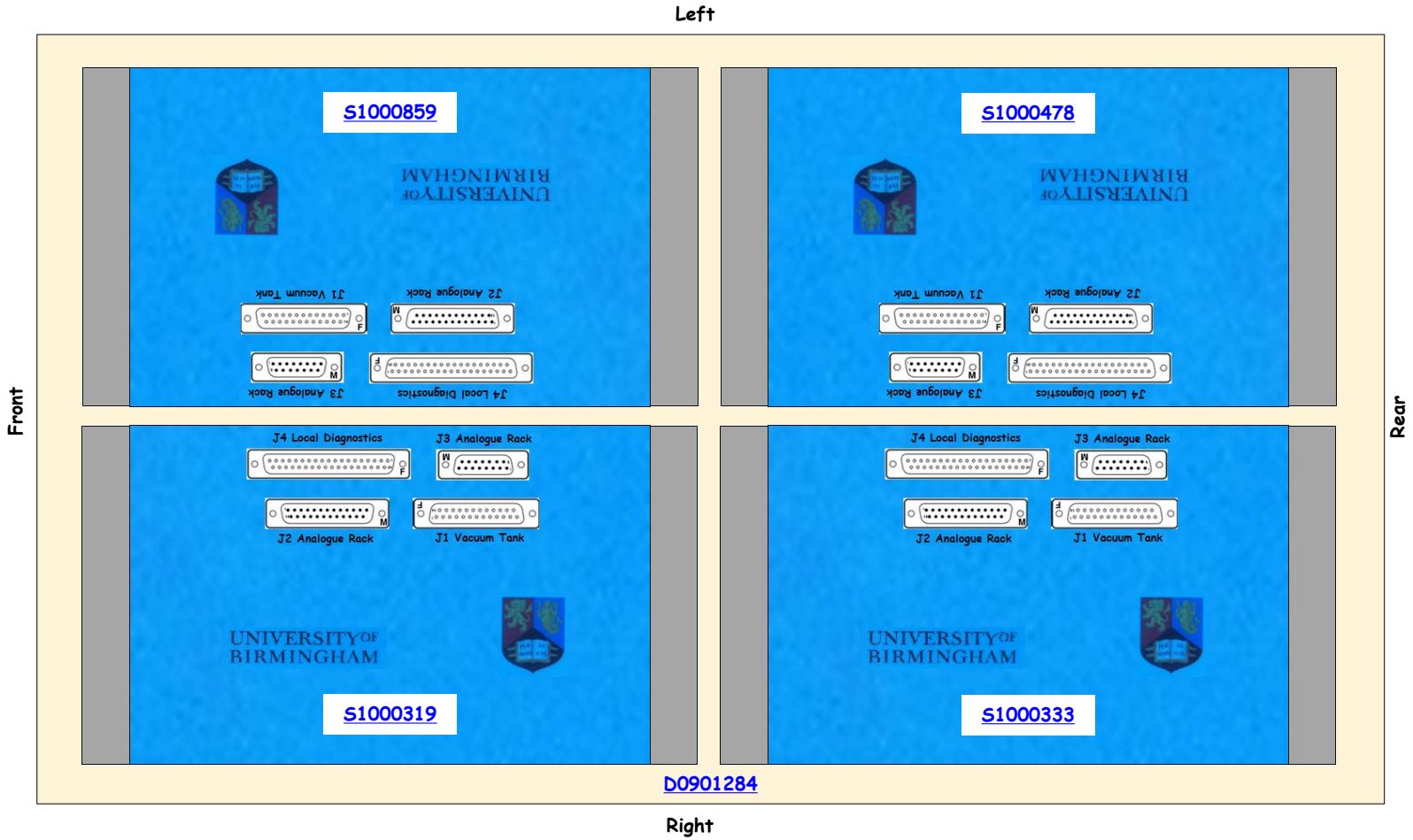
D0901284 Shelf

[<< L1-SUS-R1]

Satellite Amplifier Shelf



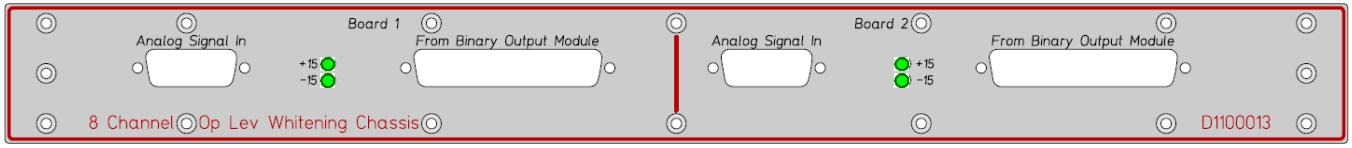
Right Front Left
No Power
Right Rear Left



D1100013-S1200749

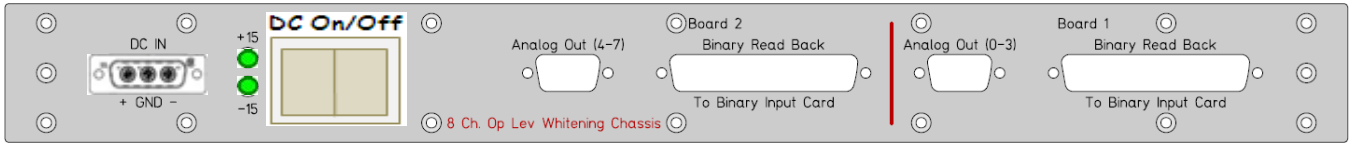
[<< L1-SUS-R1]

Oplev 8 Channel Whitening Filter Chassis D1100013 S1200749 **±18VDC**



D1100013

Front



S1200749

Rear

L1-SUS-R2

[<< LVEA Racks]

L1-SUS-R2 HAM3 and BSC2 Field Rack Layout (D1200880) (S1200750)

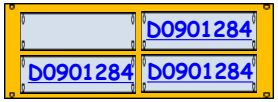
PTO-024

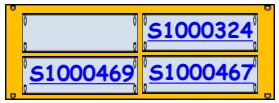
SUS-R2 is part of D1100022

D0901284 Shelf

[<< L1-SUS-R2]

Satellite Amplifier Shelf





Right Front Left
No Power
Right Rear Left

Left

Front

Rear

S1000324

S1000467

S1000469

J4 Local Diagnostics
J3 Analogue Rack
J2 Analogue Rack
J1 Vacuum Tank

UNIVERSITY OF BIRMINGHAM

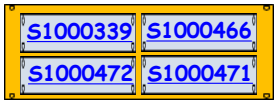
D0901284

Right

D0901284 Shelf

[<< L1-SUS-R2]

Satellite Amplifier Shelf



Right Front Left
No Power
Right Rear Left

Left

Front

Rear

S1000466

S1000471

J4 Local Diagnostics
J3 Analogue Rack
J2 Analogue Rack
J1 Vacuum Tank

UNIVERSITY OF BIRMINGHAM

S1000339

S1000472

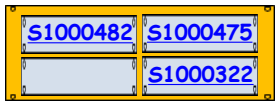
D0901284

Right

D0901284 Shelf

[<< L1-SUS-R2]

Satellite Amplifier Shelf

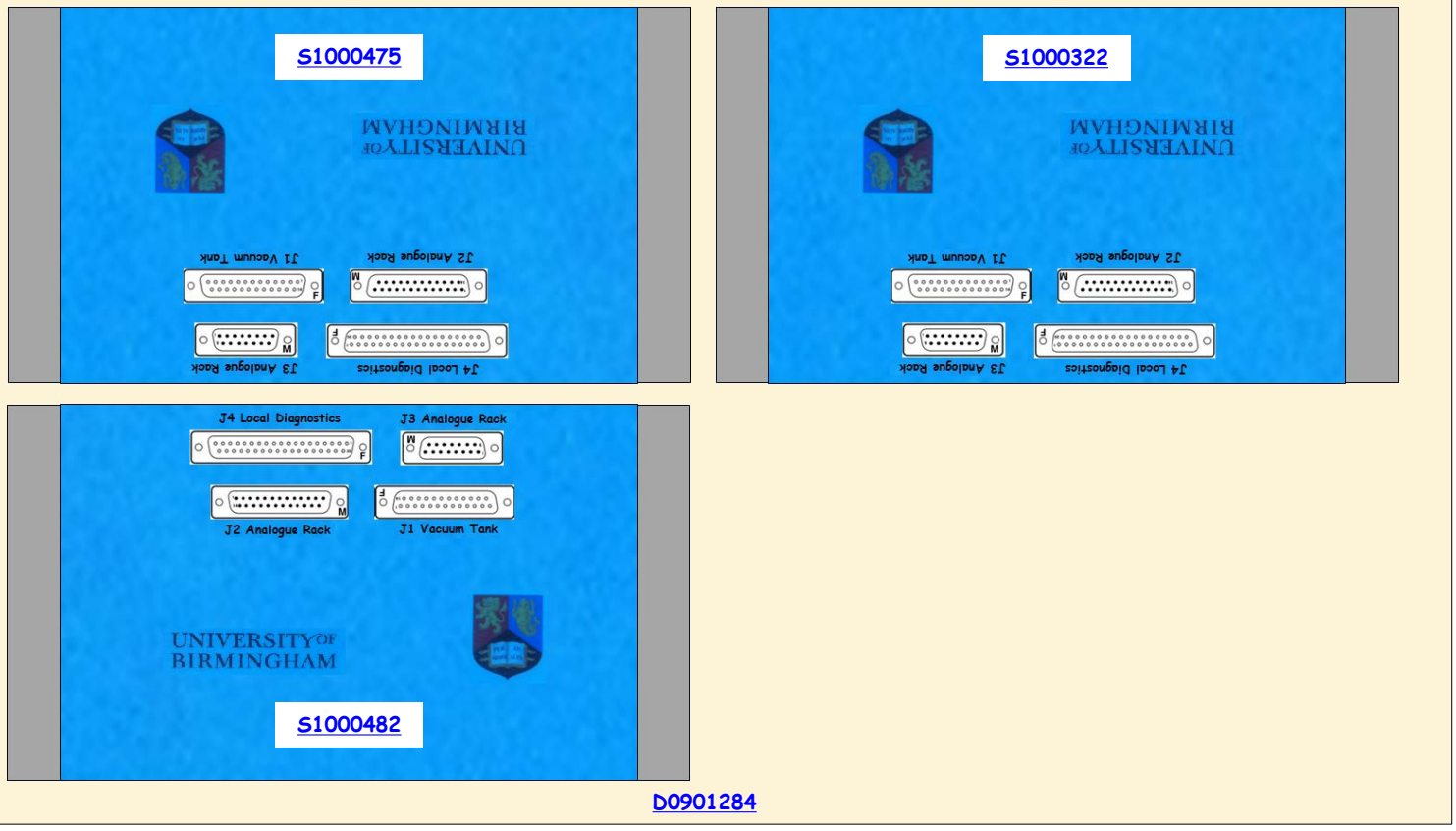


Right Front Left
No Power
Right Rear Left

Left

Front

Rear

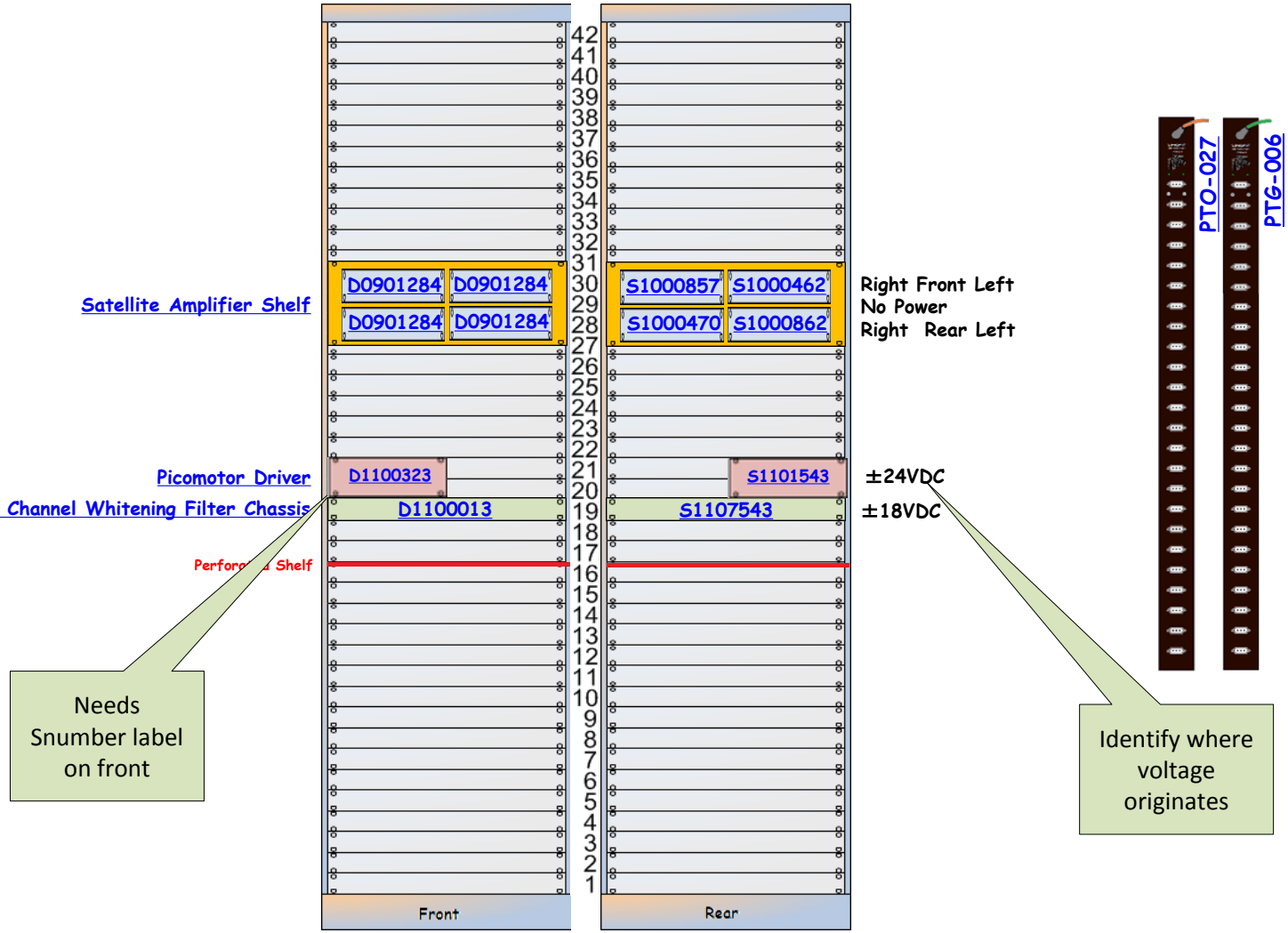


Right

L1-SUS-R3

[<< LVEA Racks]

L1-SUS-R3 HAM4 Field Rack Layout (D1200883) (S1202300)

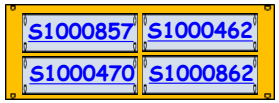


SUS-R3 is part of D1100022

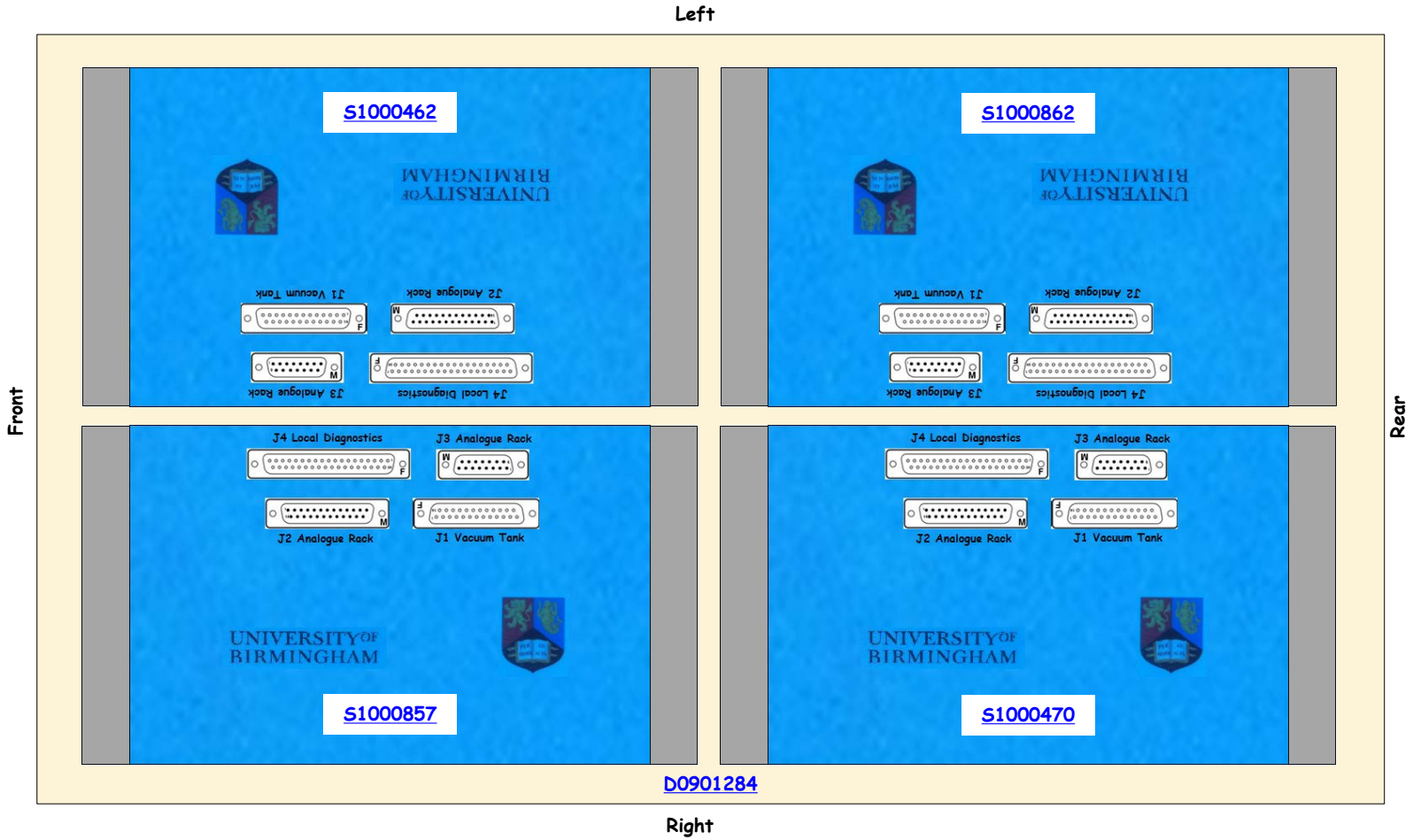
D0901284 Shelf

« L1-SUS-R3

Satellite Amplifier Shelf



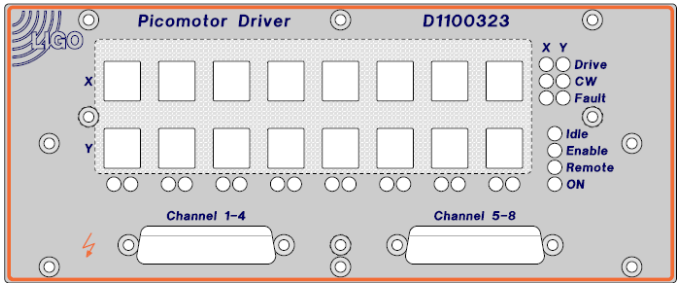
Right Front Left
No Power
Right Rear Left



D1100323-S1101543

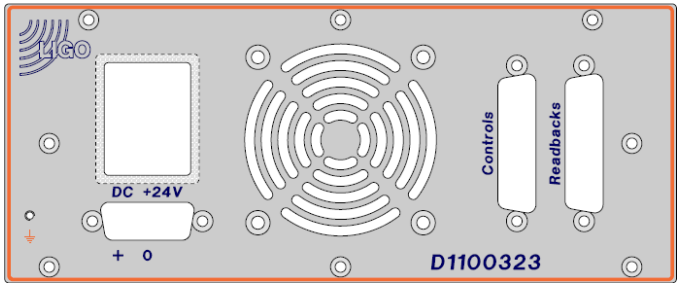
[<< L1-SUS-R3]

Picomotor Driver D1100323 S1101543 ±24VDC



D1100323

Front



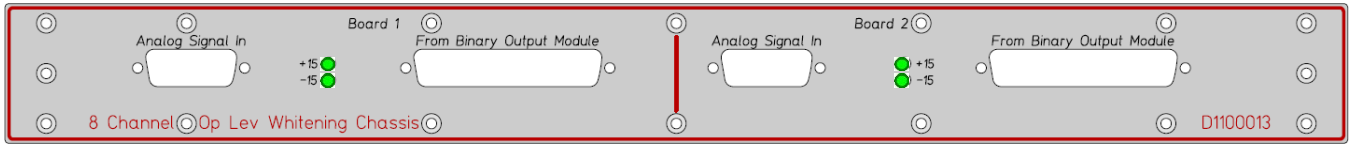
S1101543

Rear

D1100013-S1107543

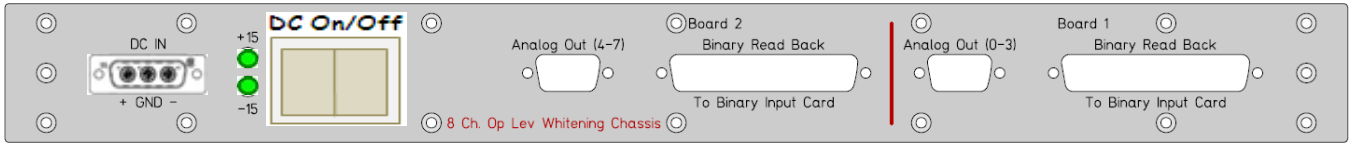
[<< L1-SUS-R3]

Oplev 8 Channel Whitening Filter Chassis D1100013 S1107543 **±18VDC**



D1100013

Front



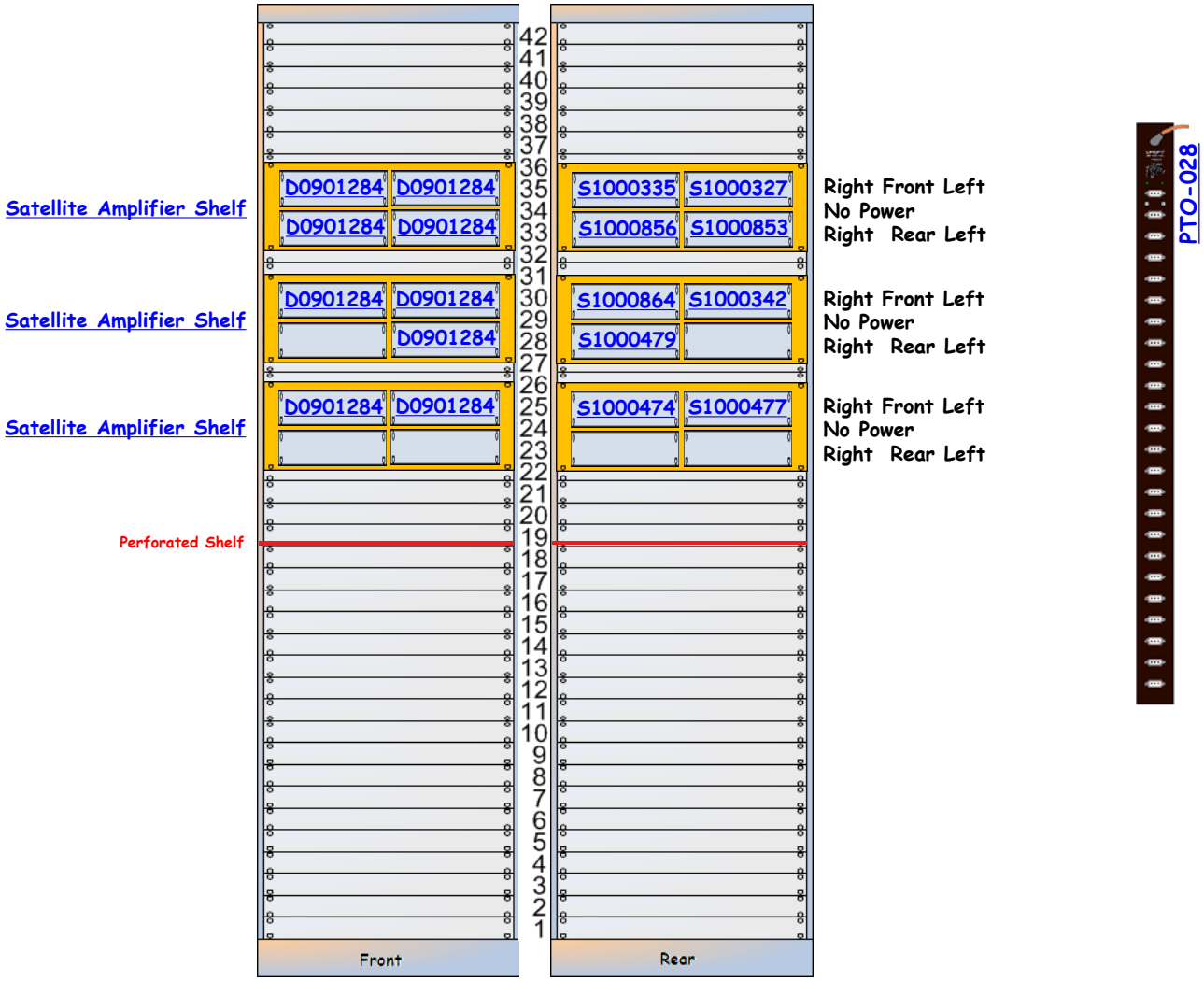
S1107543

Rear

L1-SUS-R4

« LVEA Racks

L1-SUS-R4 HAM5 Field Rack Layout (D1201134) (S1202995)



SUS-R4 is part of D1100022

D0901284 Shelf

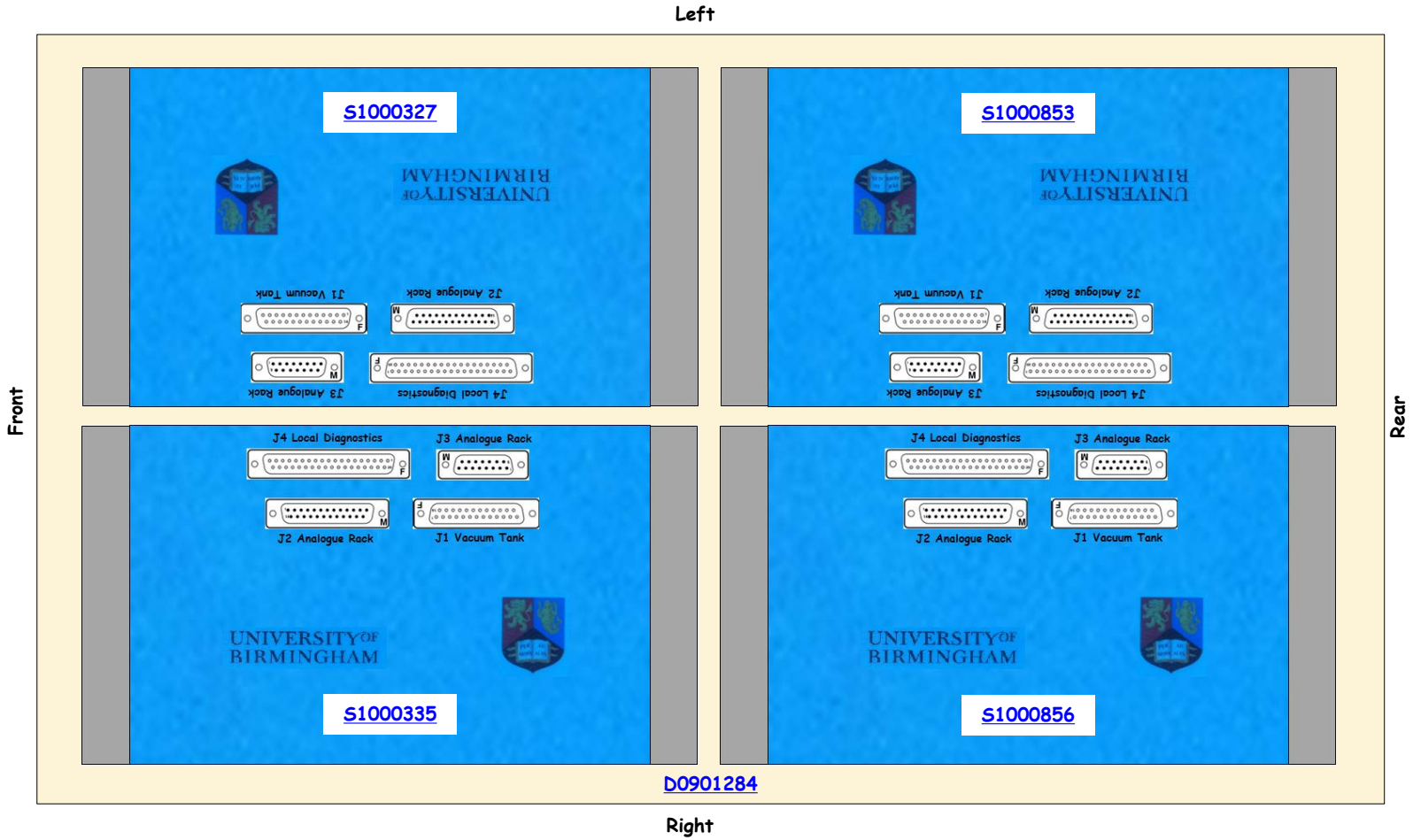
« L1-SUS-R4

Satellite Amplifier Shelf

D0901284	D0901284
D0901284	D0901284

S1000335	S1000327
S1000856	S1000853

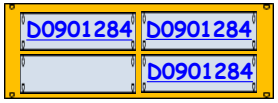
Right Front Left
No Power
Right Rear Left

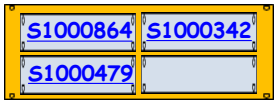


D0901284 Shelf

[<< L1-SUS-R4]

Satellite Amplifier Shelf



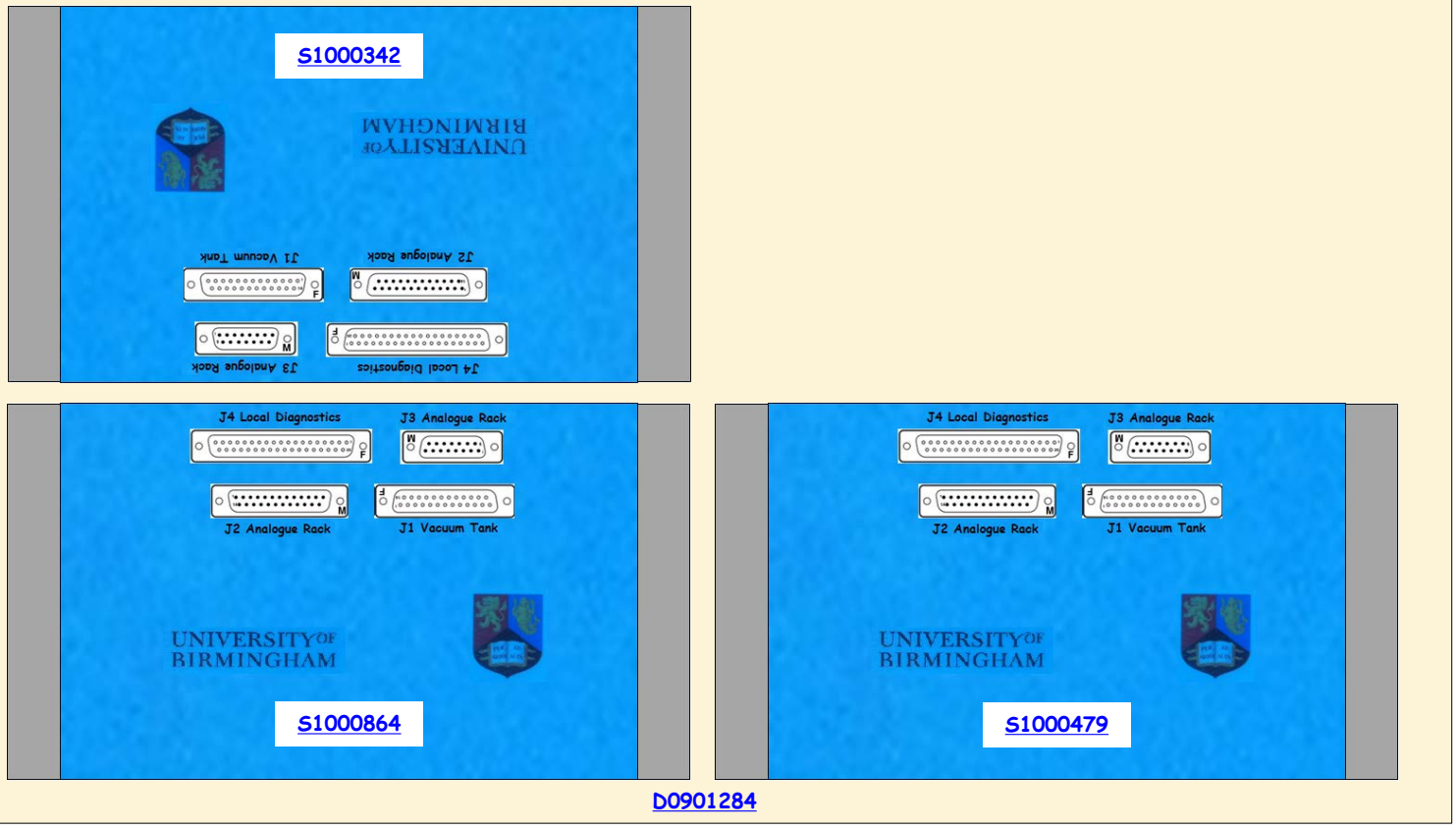


Right Front Left
No Power
Right Rear Left

Left

Front

Rear

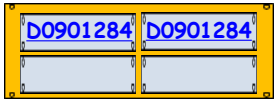


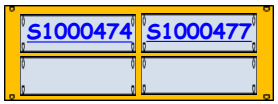
Right

D0901284 Shelf

[<< L1-SUS-R4]

Satellite Amplifier Shelf





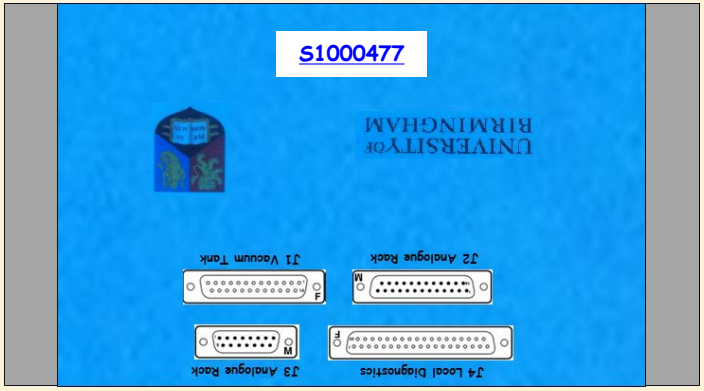
Right Front Left
No Power
Right Rear Left

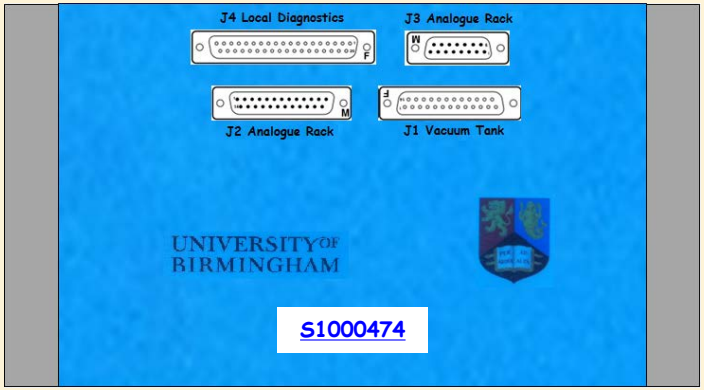
Left

Front

Rear

S1000477





S1000474

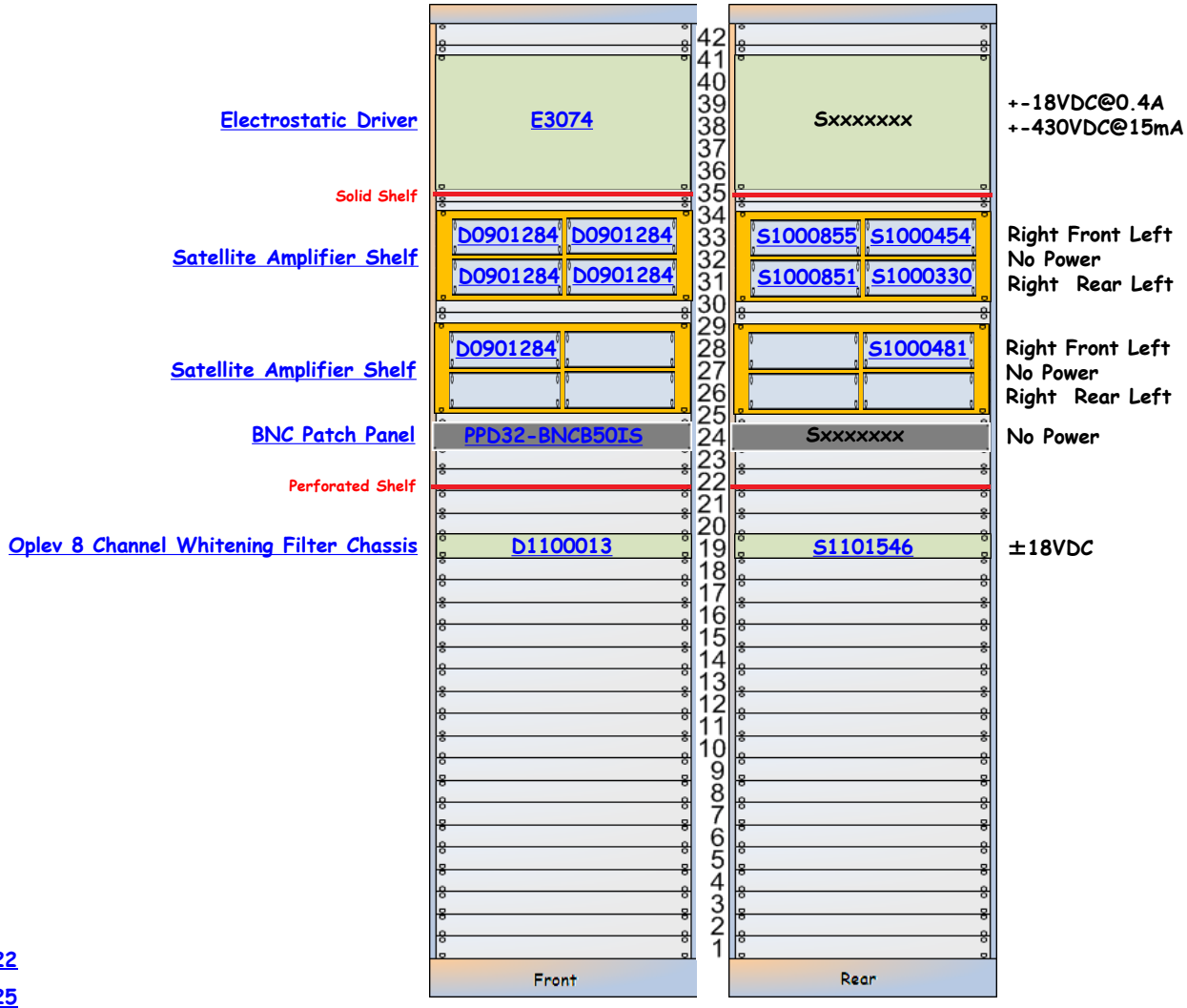
D0901284

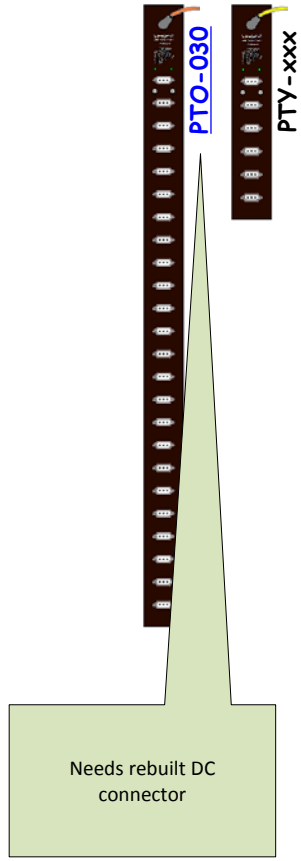
Right

L1-SUS-R5

[<< LVEA Racks]

L1-SUS-R5 BSC3 (ITMX and FMX) Field Rack Layout (D1201135) (S1202996)





SUS-R5 is part of D1100022

SUS-R5 is part of D1001725

E3074 - Sxxxxxxx

Electrostatic Driver | E3074 | Sxxxxxxx | +-18VDC@0.4A +-430VDC@15mA

E3074

Front

Sxxxxxxx

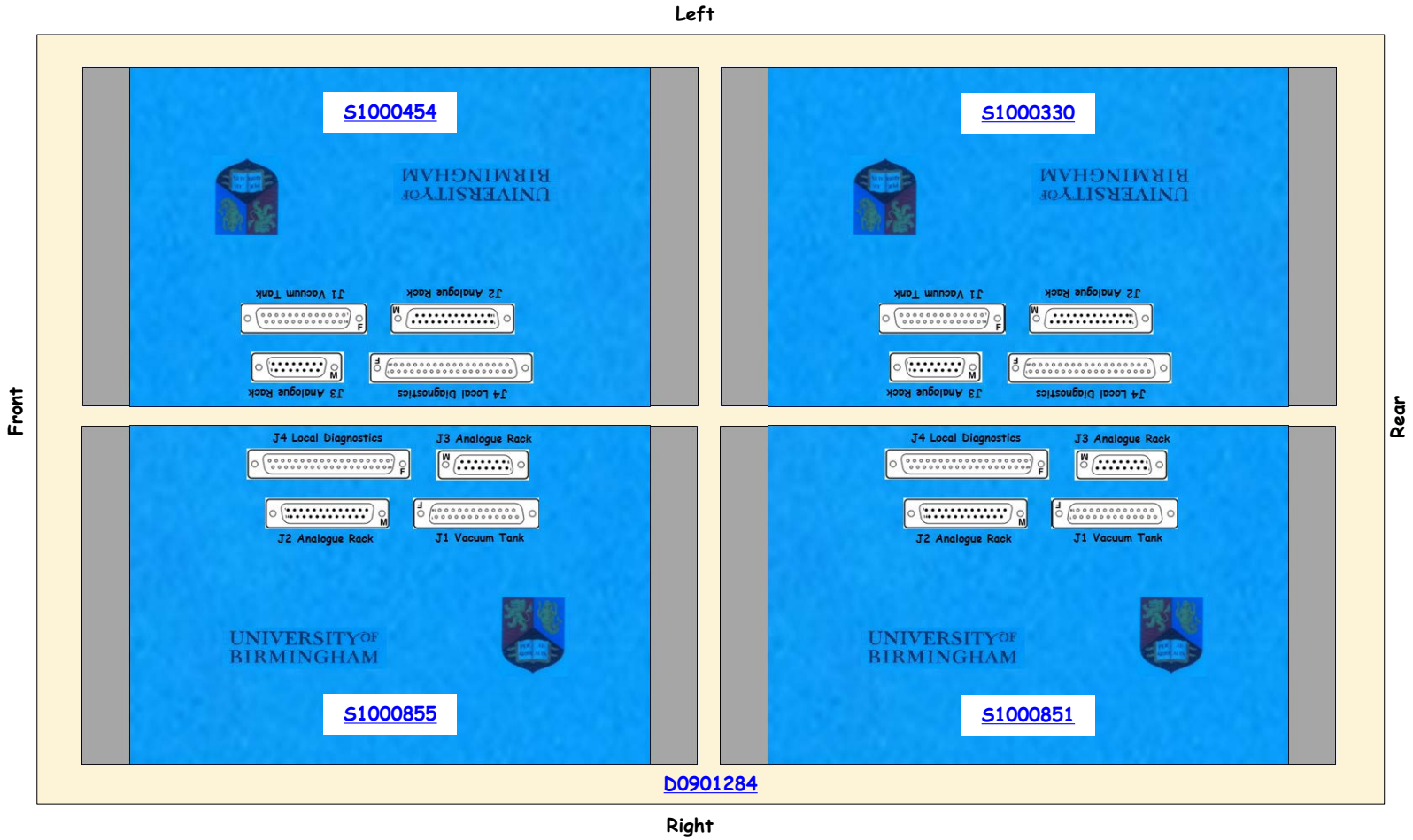
Rear

D0901284 Shelf

« L1-SUS-R5

Satellite Amplifier Shelf

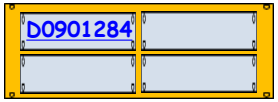
Right Front Left
No Power
Right Rear Left

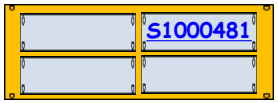


D0901284 Shelf

[<< L1-SUS-R5]

Satellite Amplifier Shelf

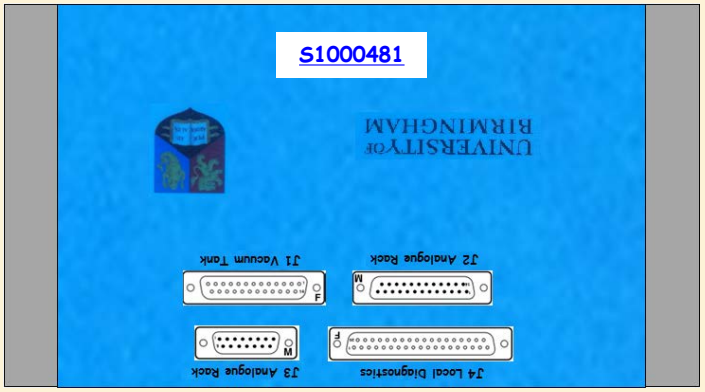




Right Front Left
No Power
Right Rear Left

Left

Front



Rear

D0901284

Right

BNC Patch Panel

LIGO
<< L1-SUS-R5

BNC Patch Panel | PPD32-BNCB50IS | Sxxxxxxx | No Power

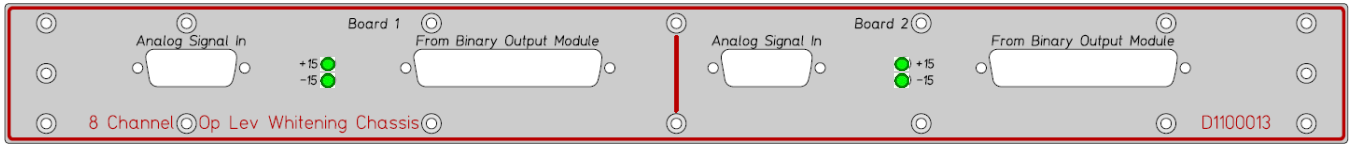
PPD16-BNCB50IS

Front

D1100013-S1101546

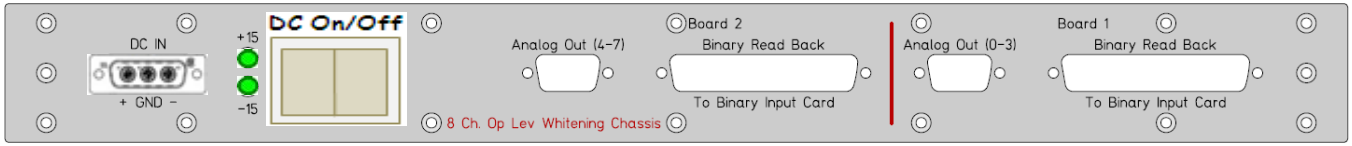
[<< L1-SUS-R5]

Oplev 8 Channel Whitening Filter Chassis D1100013 S1101546 **±18VDC**



D1100013

Front



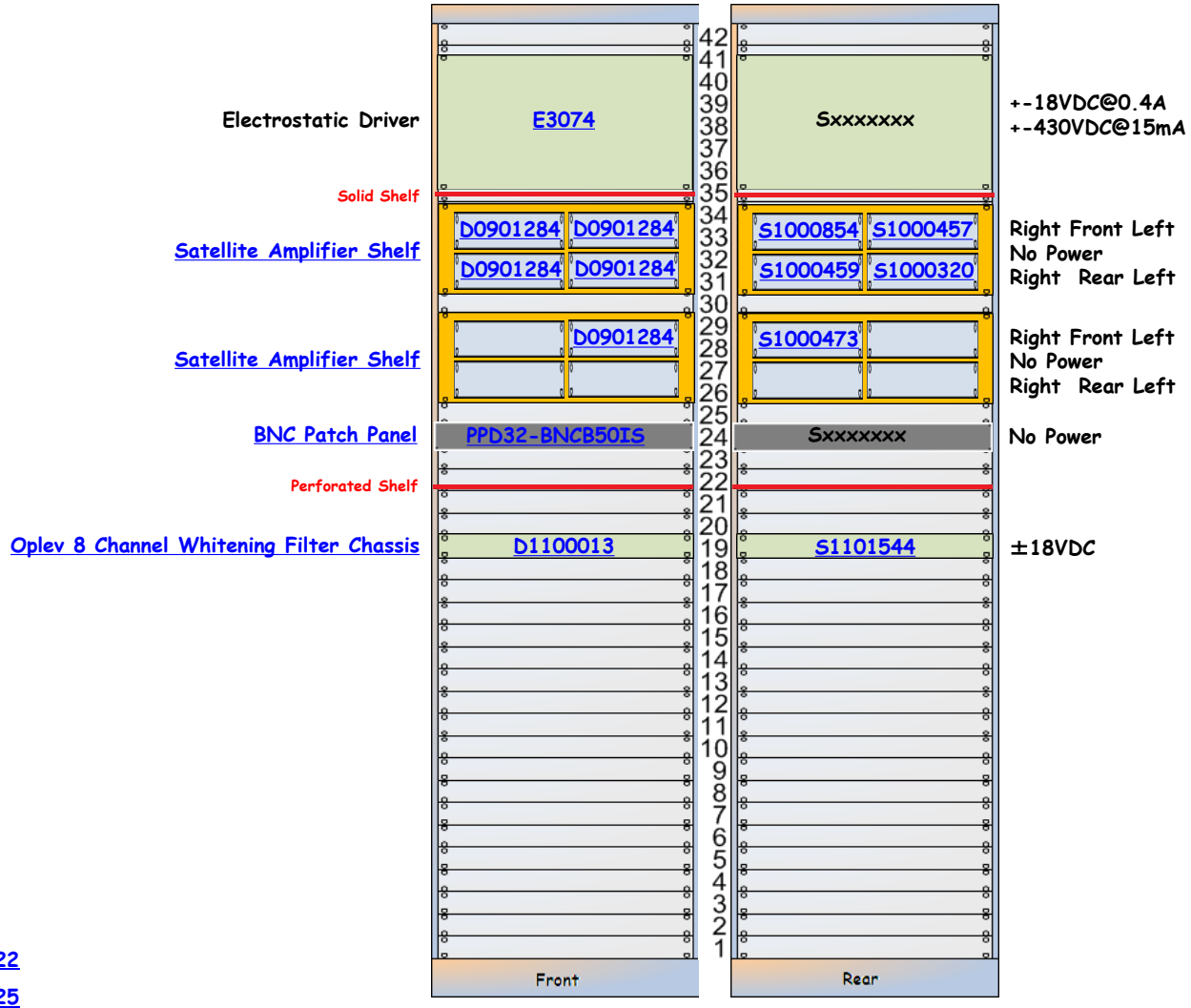
S1101546

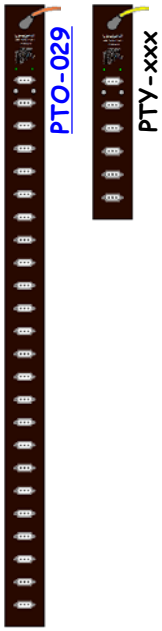
Rear

L1-SUS-R6

[<< LVEA Racks]

L1-SUS-R6 BSC1 (ITMY and FMY) Field Rack Layout (D1201136) (S1202997)





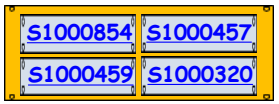
SUS-R6 is part of D1100022

SUS-R6 is part of D1001725

D0901284 Shelf

[<< L1-SUS-R6]

Satellite Amplifier Shelf



Right Front Left
No Power
Right Rear Left

Left

Front

Rear

S1000457

S1000320

J4 Local Diagnostics
J3 Analogue Rack
J2 Analogue Rack
J1 Vacuum Tank

UNIVERSITY OF BIRMINGHAM

S1000854

S1000459

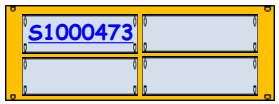
D0901284

Right

D0901284 Shelf

[<< L1-SUS-R6]

Satellite Amplifier Shelf

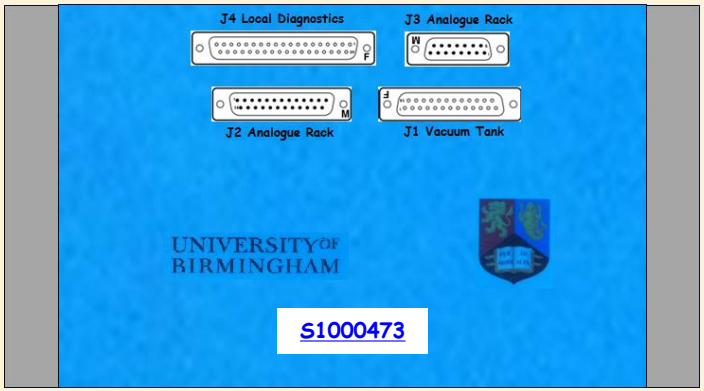


Right Front Left
No Power
Right Rear Left

Left

Front

Rear



D0901284

Right

BNC Patch Panel

LIGO
<< L1-SUS-R6

BNC Patch Panel | PPD32-BNCB50IS | Sxxxxxxx | No Power

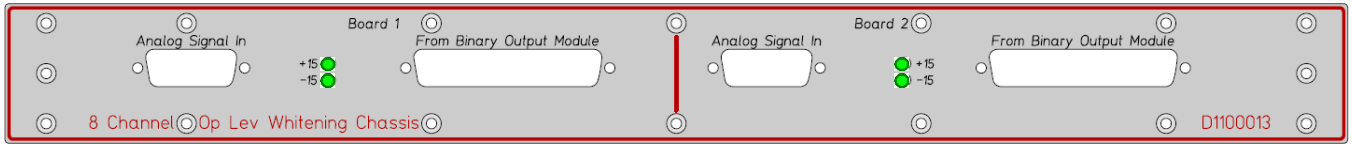
PPD16-BNCB50IS

Front

D1100013-S1101544

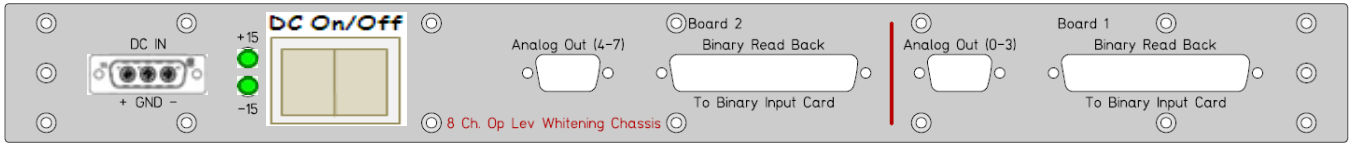
[<< L1-SUS-R6]

Oplev 8 Channel Whitening Filter Chassis D1100013 S1101544 **±18VDC**



D1100013

Front



S1101544

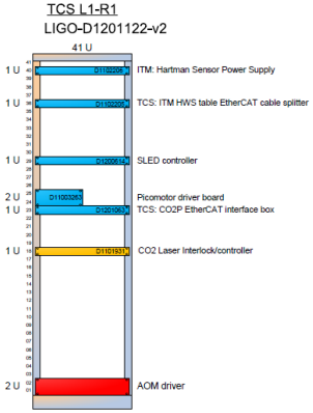
Rear

L1-TCS-R1

[<< LVEA Racks]

L1-TCS-R1 (LVEA X Direction) Field Rack Layout (D1201122) (S1202975)

D1200757 Sequencer S1202549



	Front		Rear	
Hartmann Sensor Power Distribution	D1102206	40	S1201881	±18VDC
TCS HWS Splitter Chassis	D1102205	36	S1300758	±18VDC
SLED Input Power Interlock	D1400237	34	Sxxxxxxx	±24VDC
TCS Laser Controller	D1200745	31	Sxxxxxxx	±18VDC
SLED Controller	D1200614	29	S1301734	±18VDC
Perforated Shelf		26		
Picomotor Driver	D1100323	25	S1107545	±24VDC
CO2P EtherCAT Interface Box	D1201063	23	S1203976	±18VDC
RF Distribution Amplifier	D1000124	18	S1000650	±17VDC, ±24VDC
AOM Driver	Dxxxxxxx	1	SN:	+28VDC @ 28A

TCS-R1 is part of D1200258

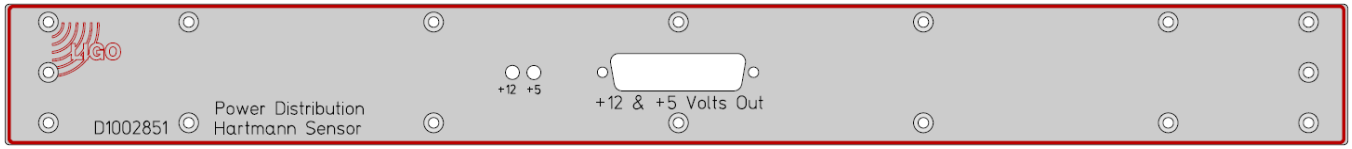
TCS-R1 is part of E1100892

SYNRAD Laser Controller UC2000
UC20067083084

D1102206-S1201881

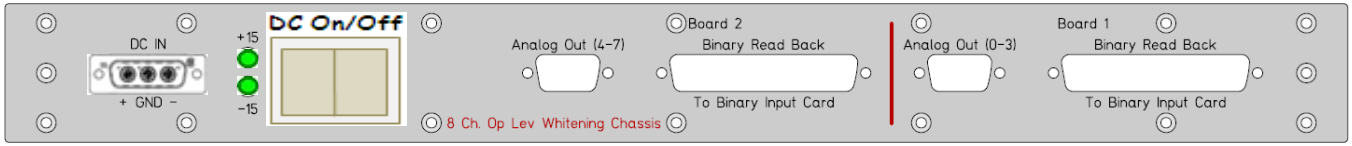
[<< L1-TCS-R1]

Hartmann Sensor Power Distribution D1102206 S1201881 **±18VDC**



D1102206

Front



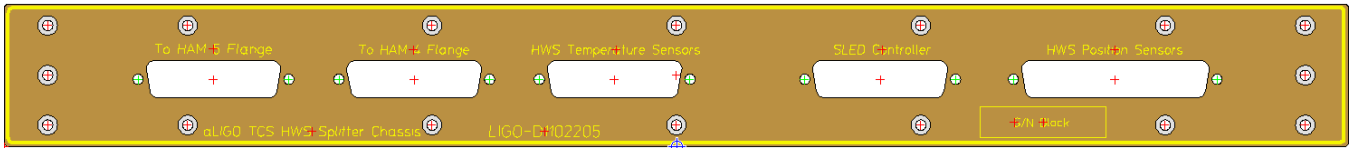
S1201881

Rear

D1102205-S1300758

[<< L1-TCS-R1]

TCS HWS Splitter Chassis | D1102205 | S1300758 | ±18VDC



D1102205

Front

S1300758

Rear

D1400237-Sxxxxxxx

LIGO
<< L1-TCS-R1

SLED Input Power Interlock | D1400237 | Sxxxxxxx | ±24VDC

D1400237

Front

Sxxxxxxx

Rear

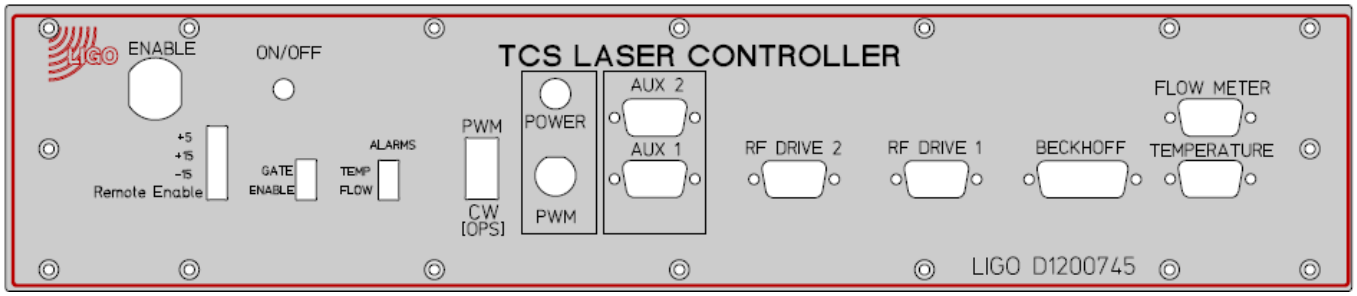
D1400237 - Hartmann SLED Input Power Interlock Box

Digi-Key HM1193-ND 8.74 x 5.75 x 4.14 Black Box
Mouser 651—2963802 Phoenix Contact Safety Relay
Conec 3003W3SXX99A30X (+3 F)
Conec 3003W3PXX99A30X (+3 M)
Conec 303W3CPXX99A30X (+1 F and 1 M)
DB9 F bulkhead mount + 2 pins
3.75” DIN rail
2 – 8-32*3/8 Screws
2 – 8-32 Nylon filled nuts
2 - #10 Flat washers

D1200745-Sxxxxxxx

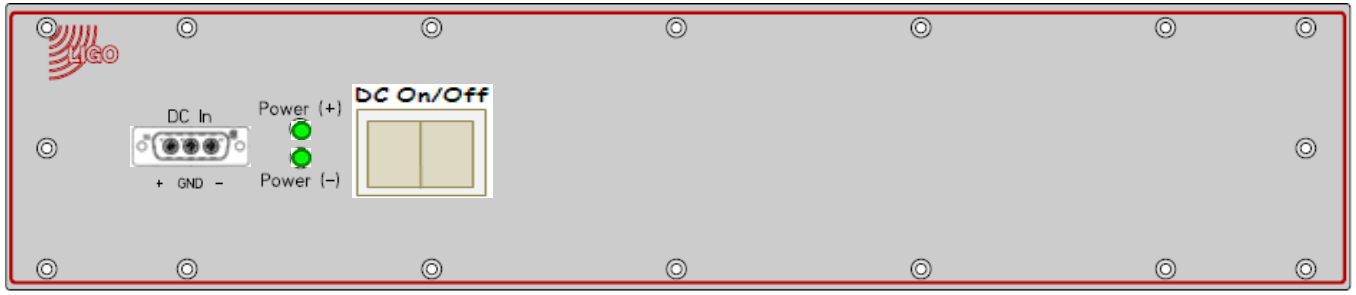
[<< L1-TCS-R1]

TCS Laser Controller | D1200745 | Sxxxxxxx | ±18VDC



D1200745

Front



Sxxxxxxx

Rear

D1200614-S1301734

LIGO
<< L1-TCS-R1

SLED Controller | D1200614 | S1301734 | ±18VDC

D1200745

Front

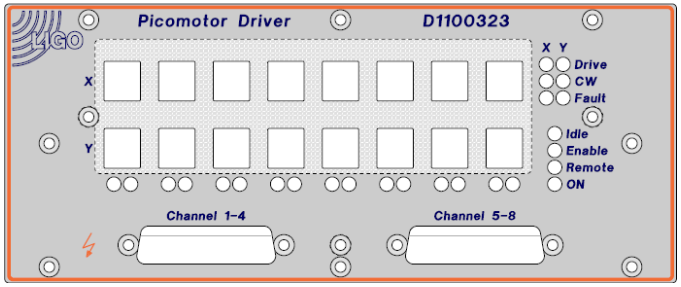
S1301734

Rear

D1100323-S1107545

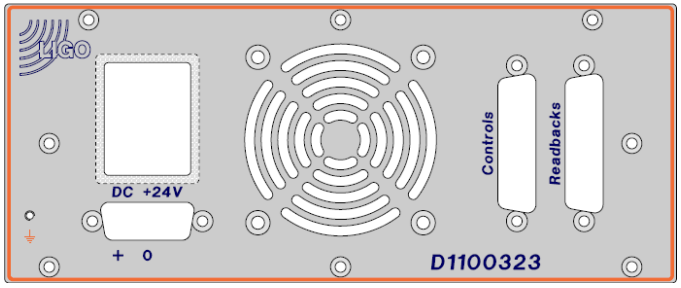
[<< L1-TCS-R1]

Picomotor Driver D1100323 S1107545 ±24VDC



D1100323

Front



S1107545

Rear

D1201063-S1203976

LIGO
<< L1-TCS-R1

TCS: CO2P EtherCAT Interface Box | D1201063 | S1203976 | ±18VDC

D1201063

Front

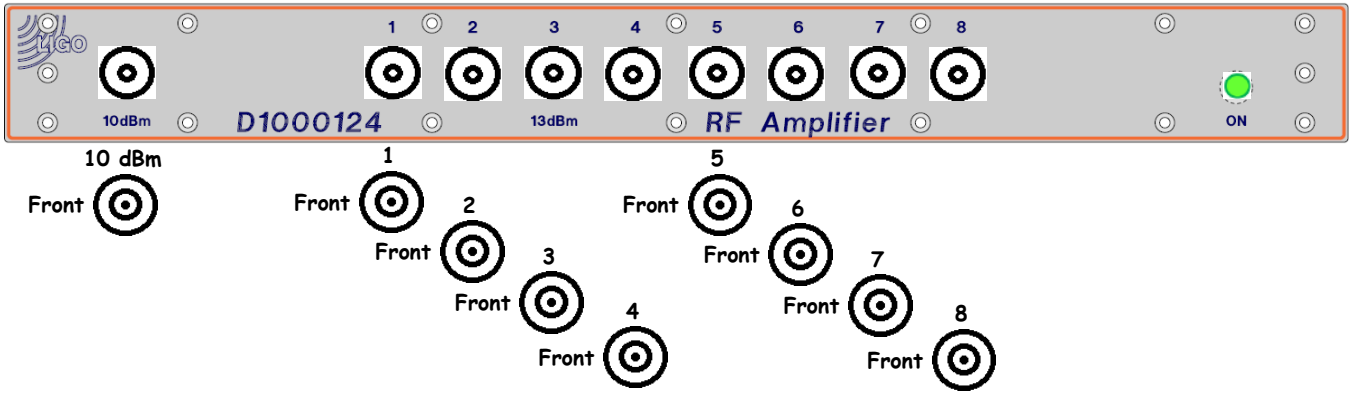
S1203976

Rear

D1000124 - S1000650

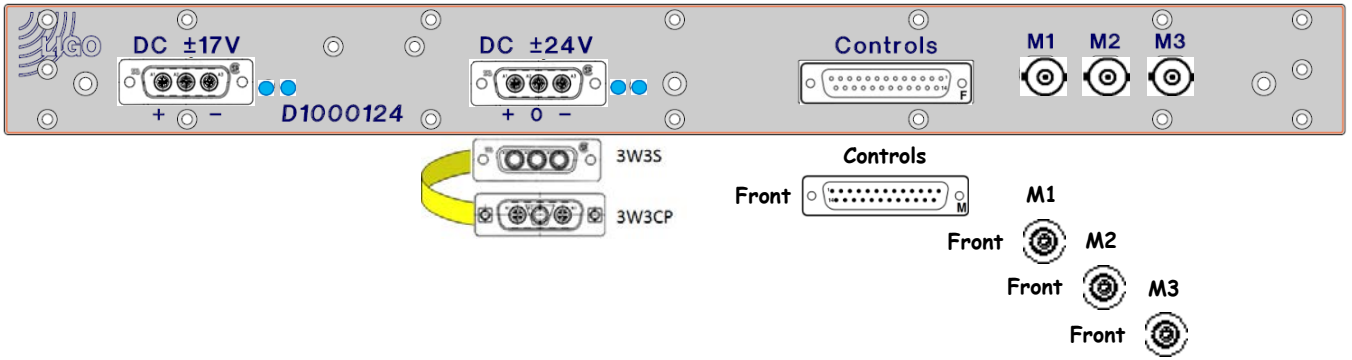
[<< L1-TCS-R1]

RF Distribution Amplifier | D1000124 | S1000650 | ±17VDC, ±24VDC



D1000124

Front



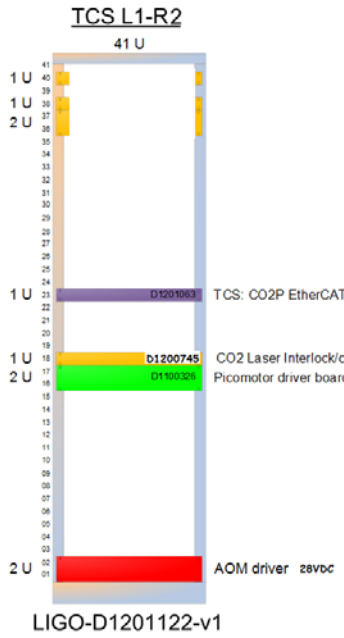
S1000650

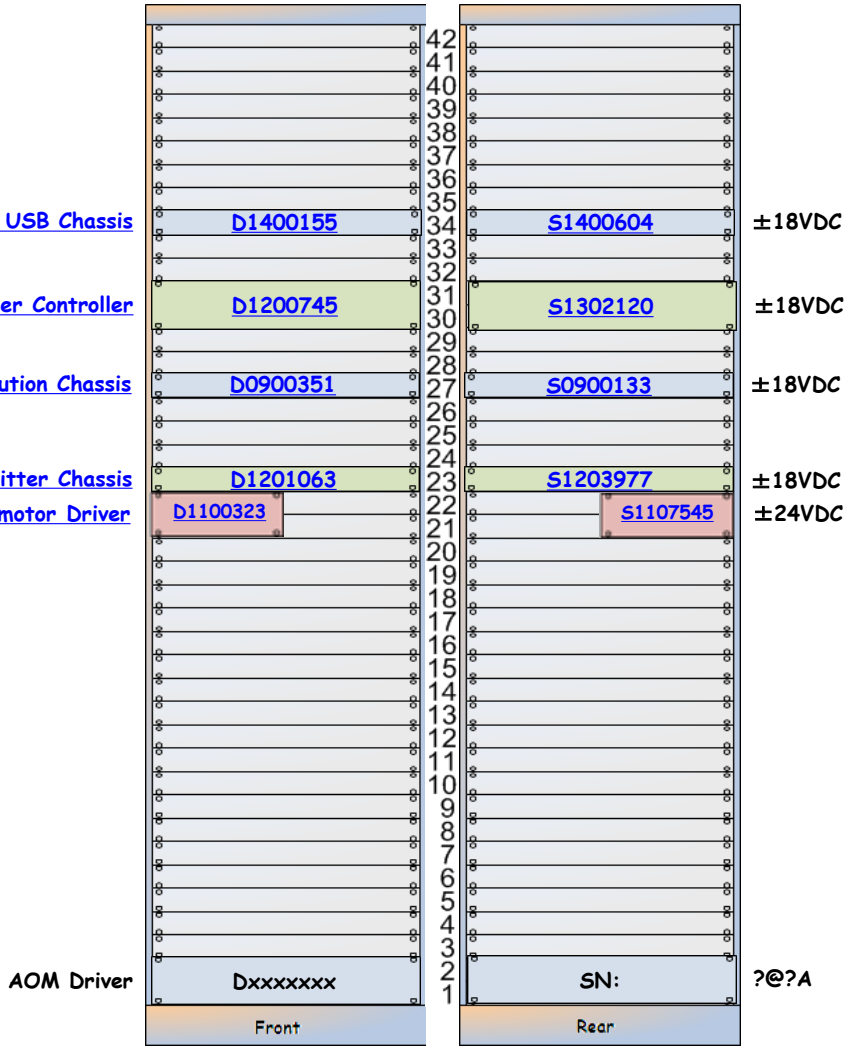
Rear

L1-TCS-R2

[<< LVEA Racks]

L1-TCS-R2 (LVEA Y Direction) Field Rack Layout (D1201123) (S1202976)





D1200757 Sequencer

S1202576

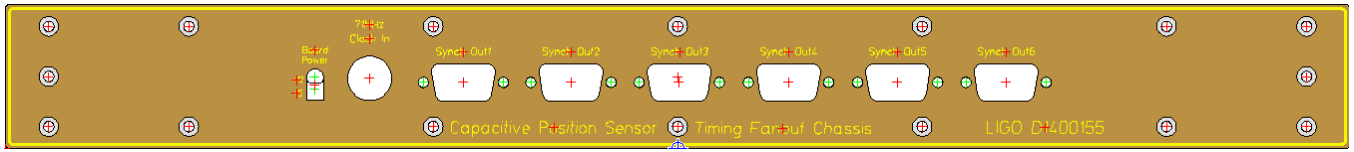
TCS-R2 is part of D1200258

TCS-R2 is part of E1100892

D1400155-S1400604

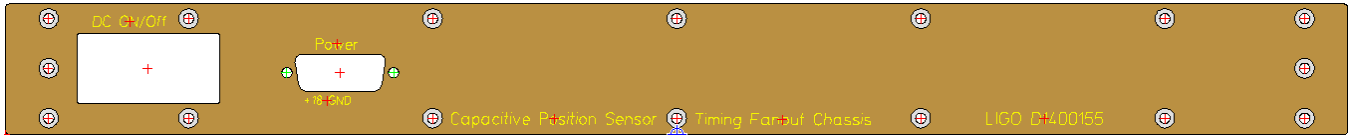
[<< L1-TCS-R2]

PSoC USB Chassis | D1400155 | S1400604 | ±18VDC



D1400155

Front



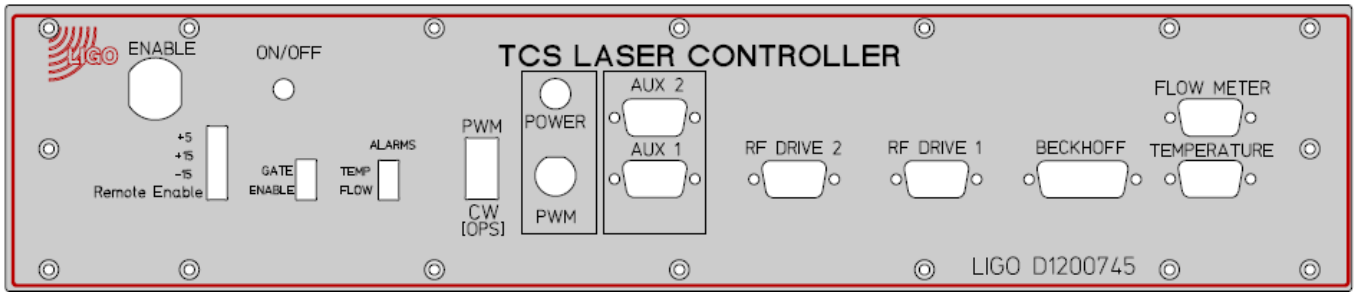
S1400604

Rear

D1200745-S1302120

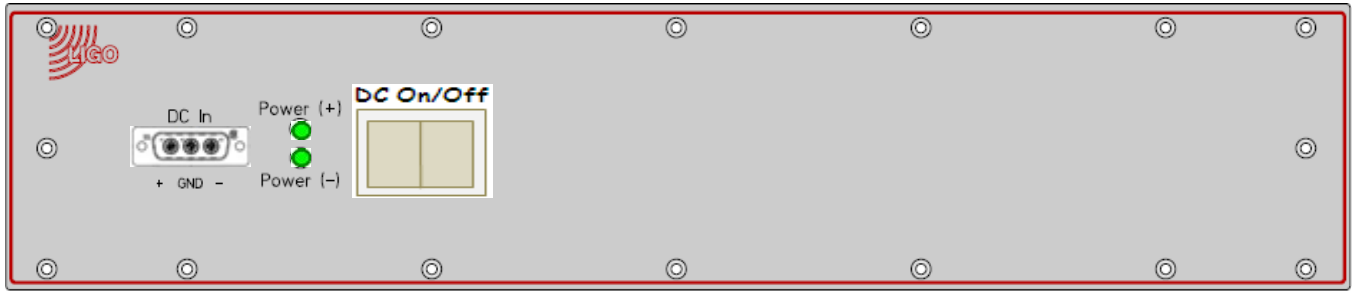
[<< L1-TCS-R2]

TCS Laser Controller | D1200745 | S1302120 | ±18VDC



D1200745

Front

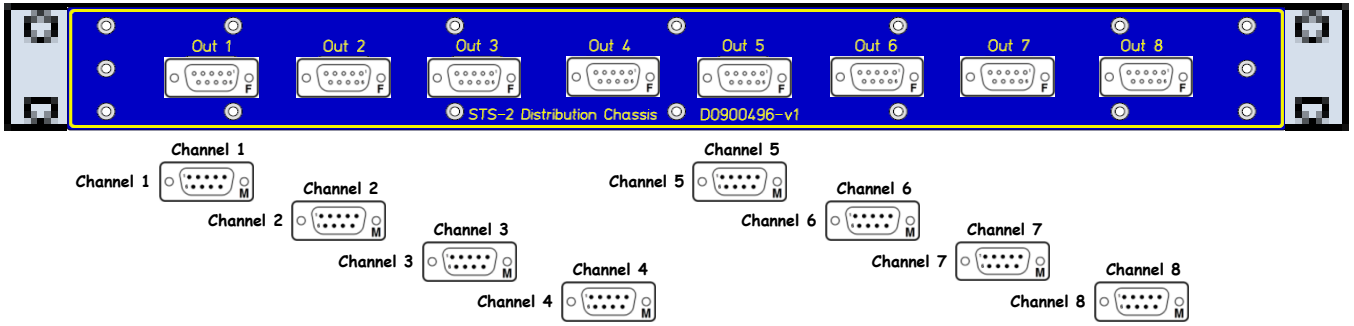


S1302120

Rear

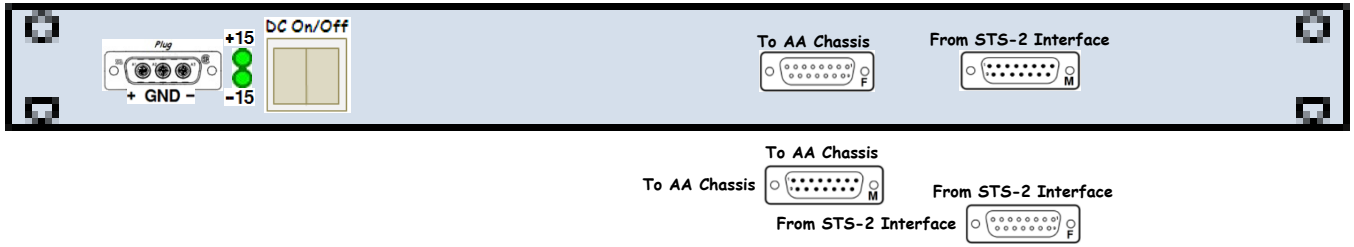
D0900351 - S0900133

STS-2 Distribution Chassis | D0900351 | S0900133 | ±18VDC



D0900351

Front



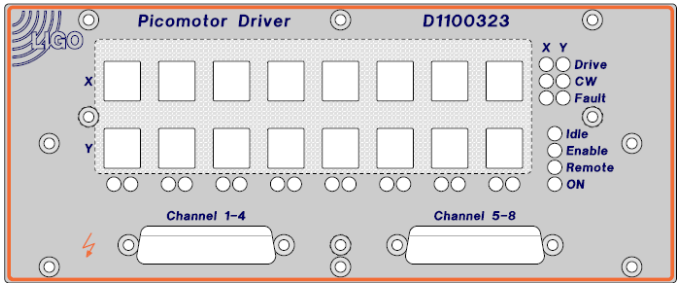
S0900133

Rear

D1100323-S1107545

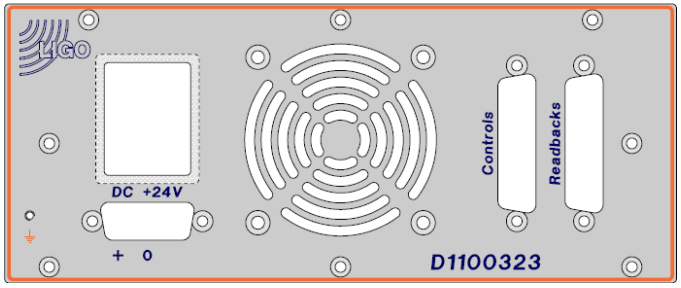
[<< L1-TCS-R2]

Picomotor Driver D1100323 S1107545 ±24VDC



D1100323

Front



S1107545

Rear

D1201063-S1203977

« L1-TCS-R2

CO2P EtherCAT Interface Box | D1201063 | S1203977 | ±18VDC

D1201063

Front

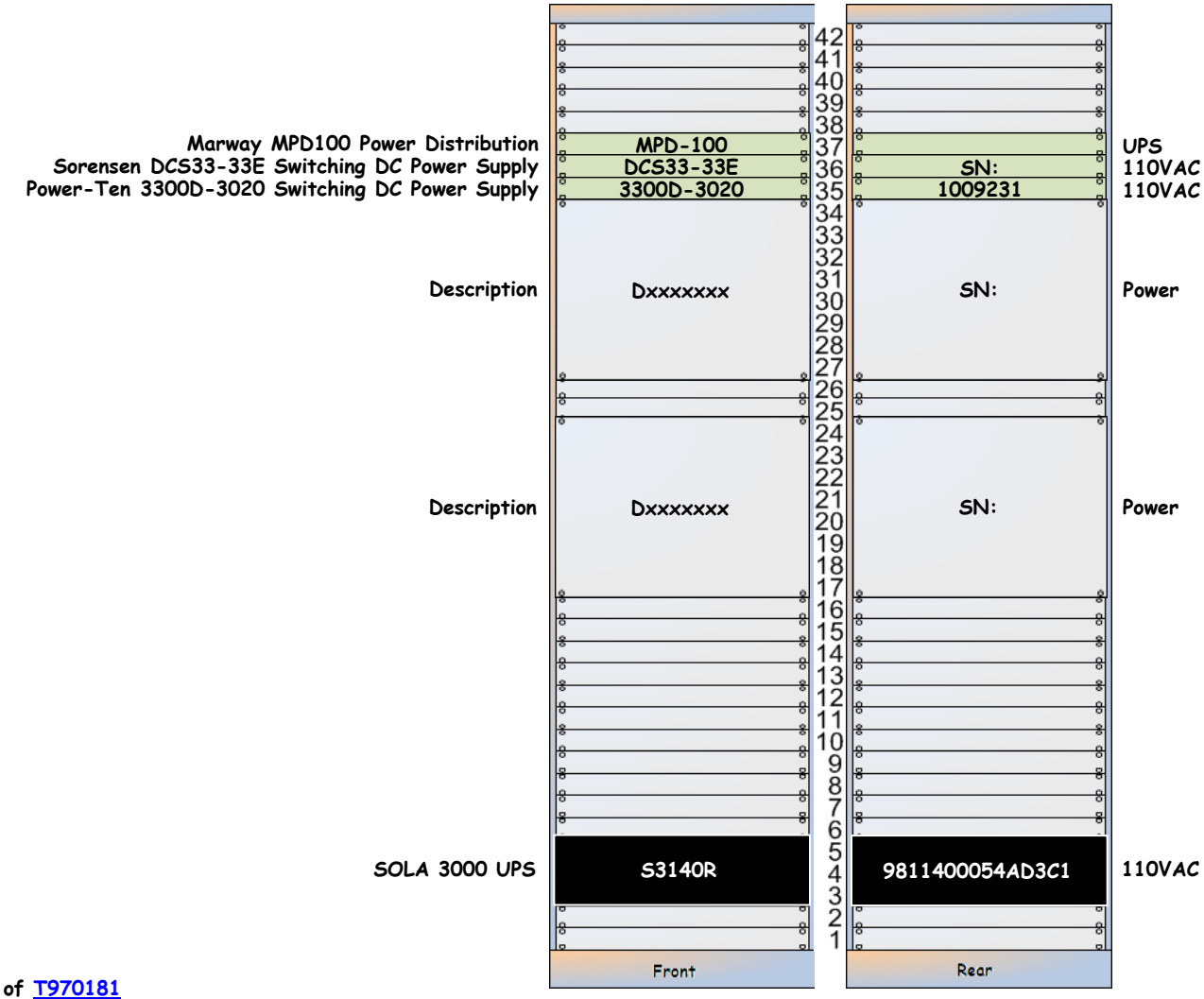
S1203977

Rear

L1-VAC-R1

[<< LVEA Racks]

L1-VAC-R1 LVEA – YARM Vacuum Rack Layout (Dxxxxxxx)

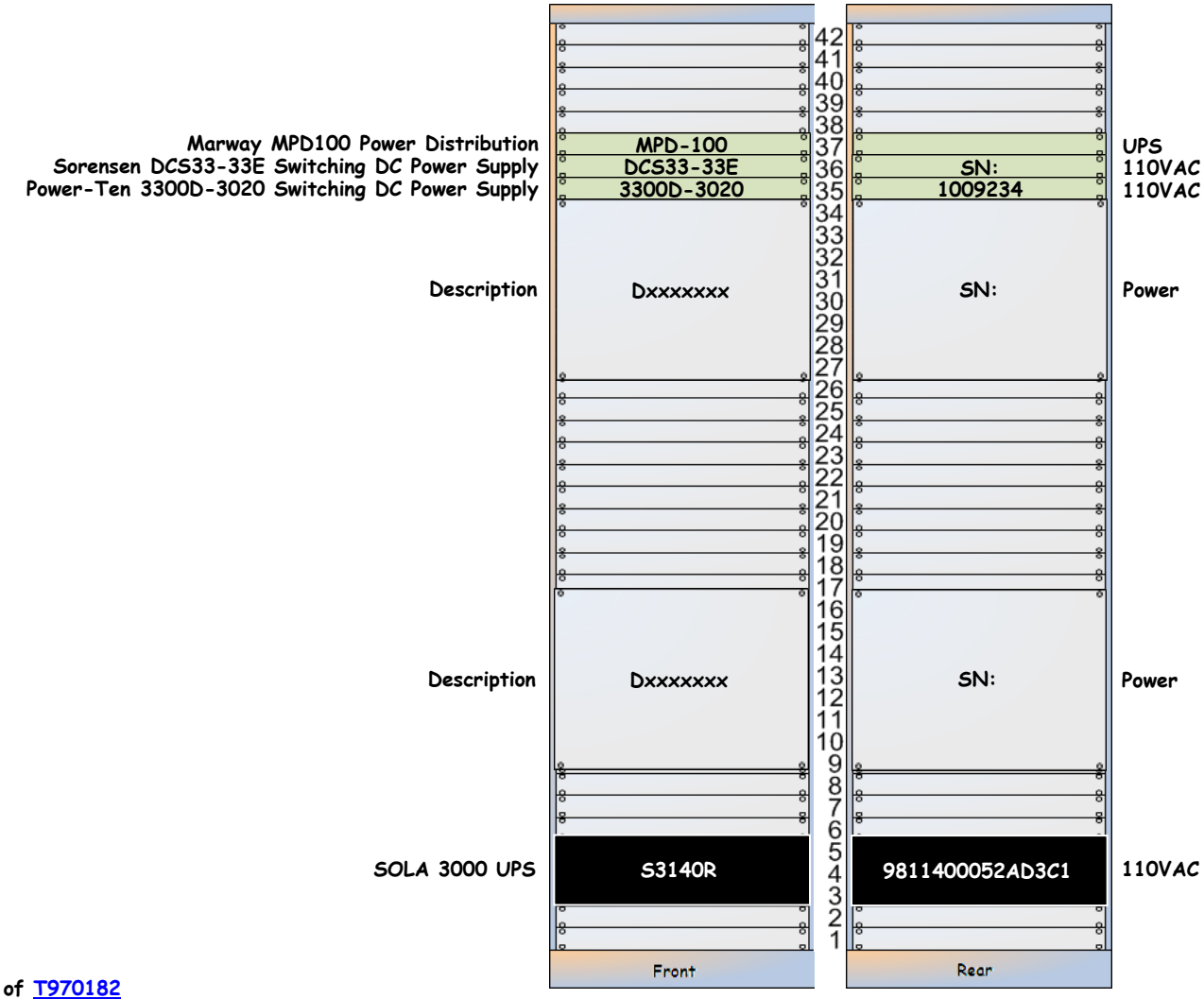


VAC-R1 is part of [T970181]

L1-VAC-R2

[<< LVEA Racks]

L1-VAC-R2 LVEA – XARM Vacuum Rack Layout (Dxxxxxxx)

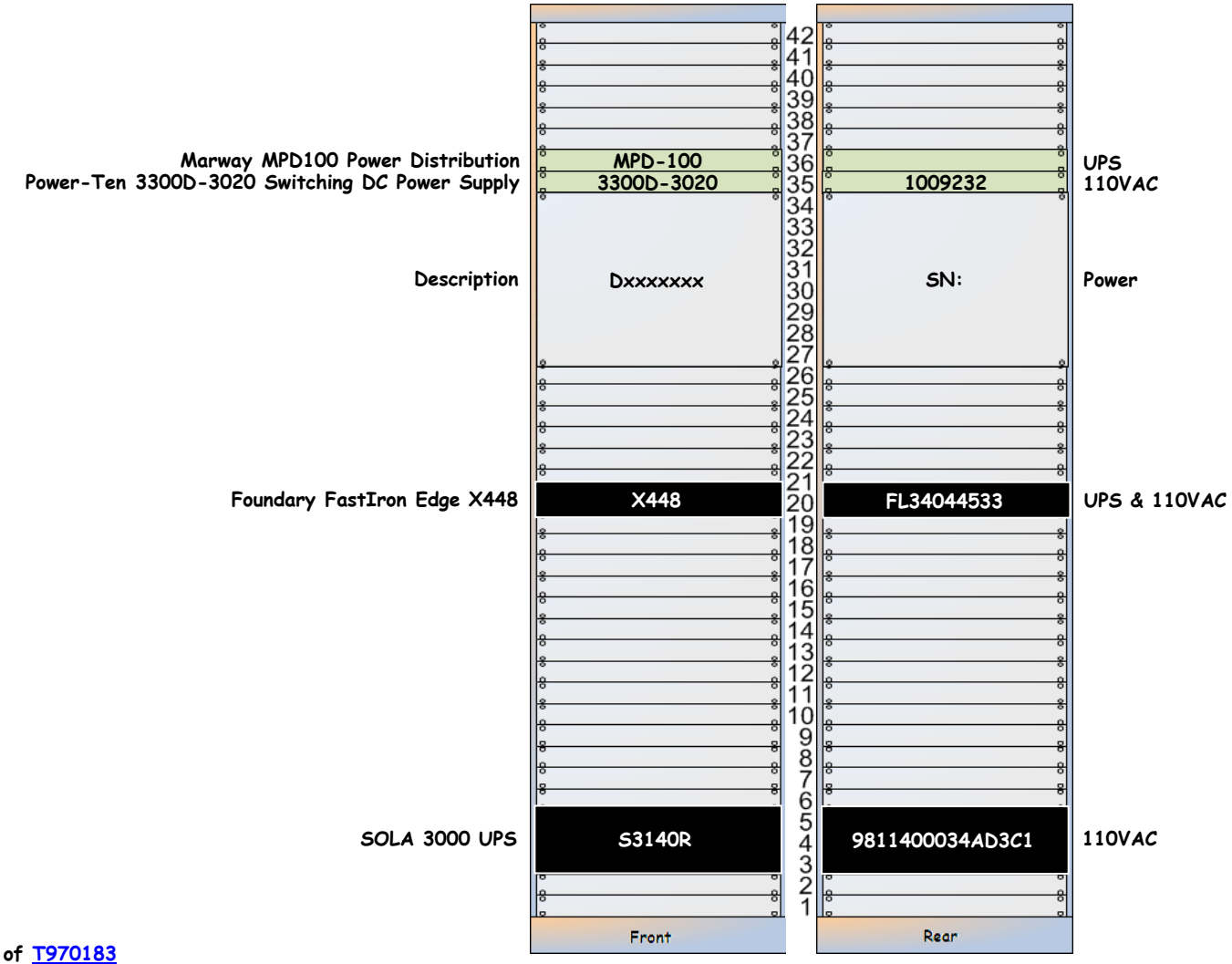


VAC-R2 is part of [T970182]

L1-VAC-R3

[<< LVEA Racks]

L1-VAC-R3 Mechanical Room Vacuum Rack Layout (Dxxxxxxx)



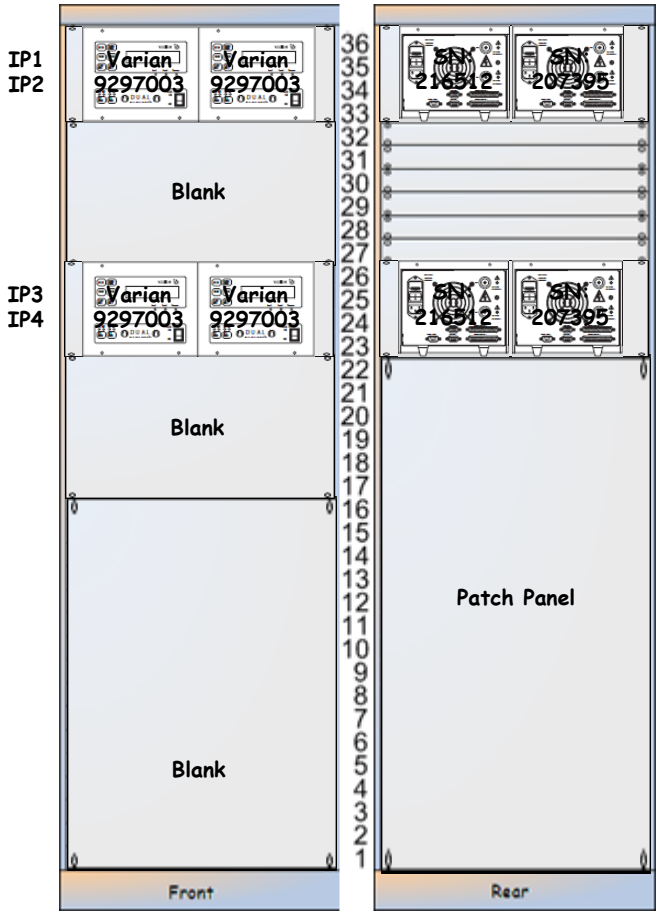
VAC-R3 is part of [T970183]

L1-PNL-600

[<< LVEA Racks]

L1-PNL-600 Mechanical Room Vacuum ION PUMPS High Voltage Controller Rack Layout (Dxxxxxxx)

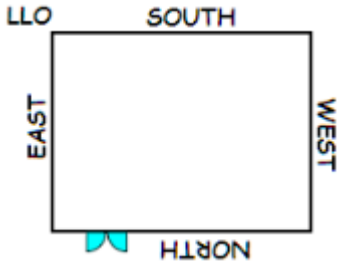
PNL-600 has 4 controllers. Each controller has its own AC circuit.

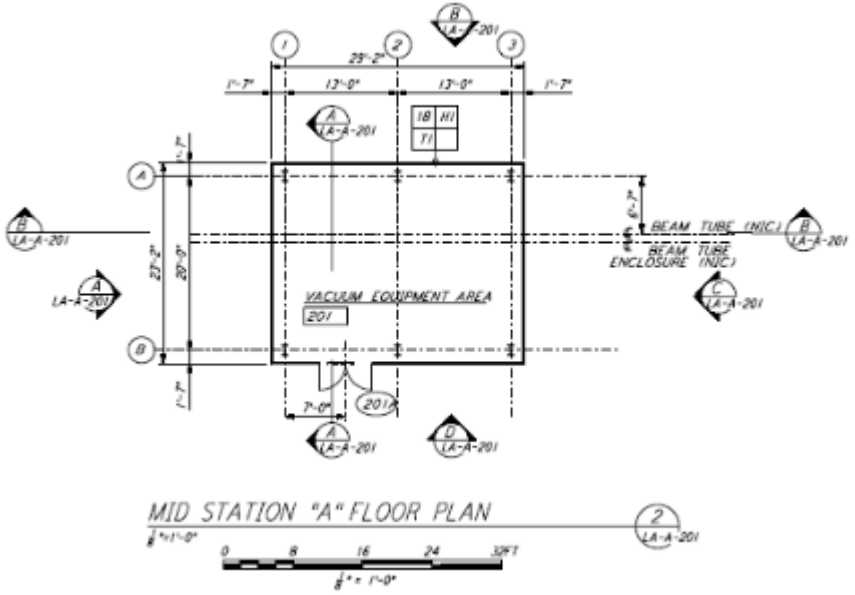


Varian Dual Ion Pump Controller
Both Positive
9297003

PNL-600 is part of Xxxxxxx

XMID

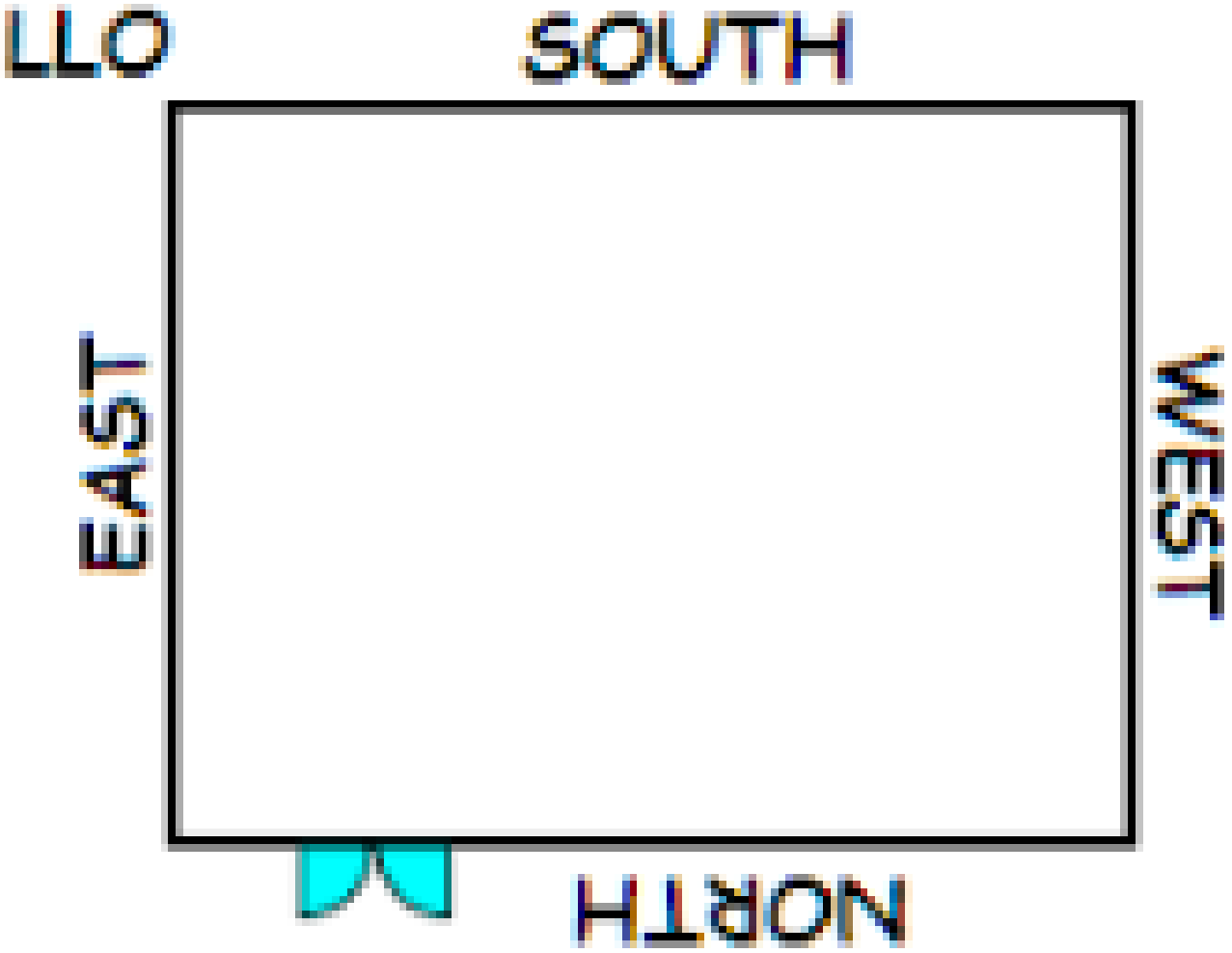




North Side View	XMID Layout
East Side View	XMID Rack
West Side View	
South Side View	

XMID Station Layout

[<< XMID Index]



XMID Station Rack

[<< XMID Index]

Sorenson DCS33-33E DCS33-33E

Transition Networks 100BASE-FX SN:

12 SM Fiber Fiber Patch Panel from Corner Station Xxxxxxx

Acromag 968EN-4008 347781D

PS5R-SB24 Power Supply SN:

APC Smart UPS 1500 Xxxxxxx

There is no UPS at XMID

All FC
12-Fiber Fiber Patch Panel A1 to Transition Networks 100BASE-FX
12-Fiber Fiber Patch Panel A2 to Transition Networks 100BASE-FX
12-Fiber Fiber Patch Panel A3 to OPEN
12-Fiber Fiber Patch Panel A4 to OPEN
12-Fiber Fiber Patch Panel A5 to OPEN
12-Fiber Fiber Patch Panel A6 to OPEN

12-Fiber Fiber Patch Panel B is Not Present

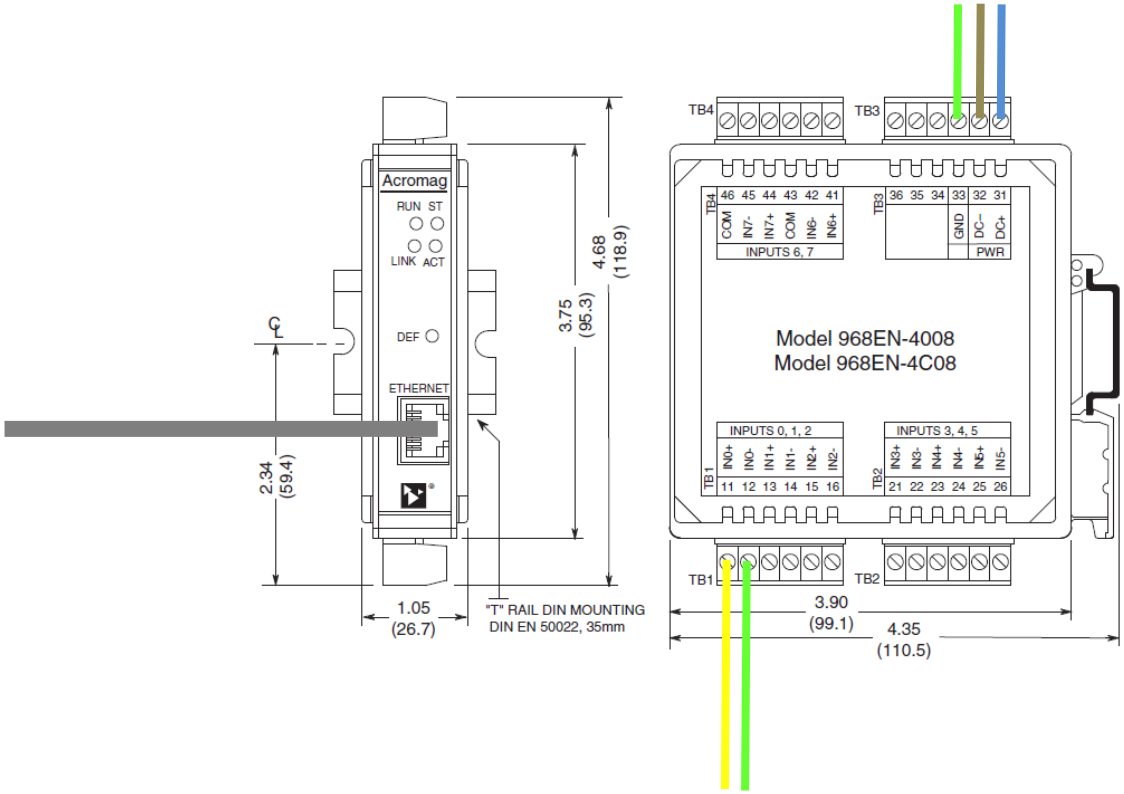
12-Fiber Fiber Patch Panel C1 to OPEN
12-Fiber Fiber Patch Panel C2 to OPEN
12-Fiber Fiber Patch Panel C3 to OPEN
12-Fiber Fiber Patch Panel C4 to OPEN
12-Fiber Fiber Patch Panel C5 to OPEN
12-Fiber Fiber Patch Panel C6 to OPEN

12-Fiber Fiber Patch Panel D is Not Present

AcroMag connected to Sensor

Acromag 968EN-4008

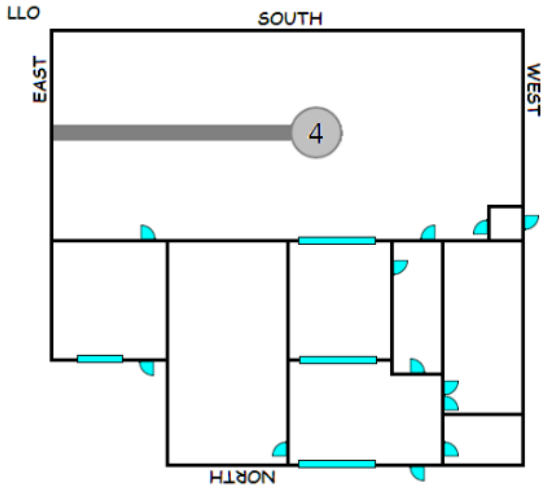
[<< XMID Rack]

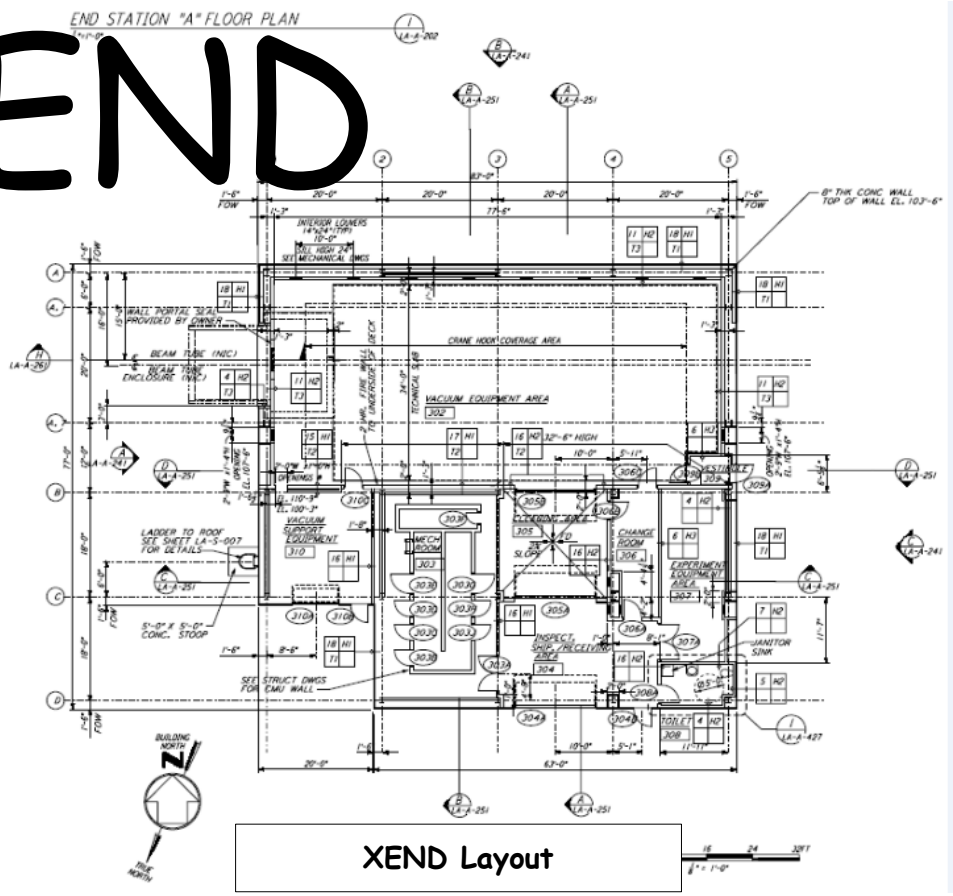


XEND Index

<< LLO Corner Station
<< LLO Racks by AREA
<< LLO CDS Components
<< XEND Aerial

XEND

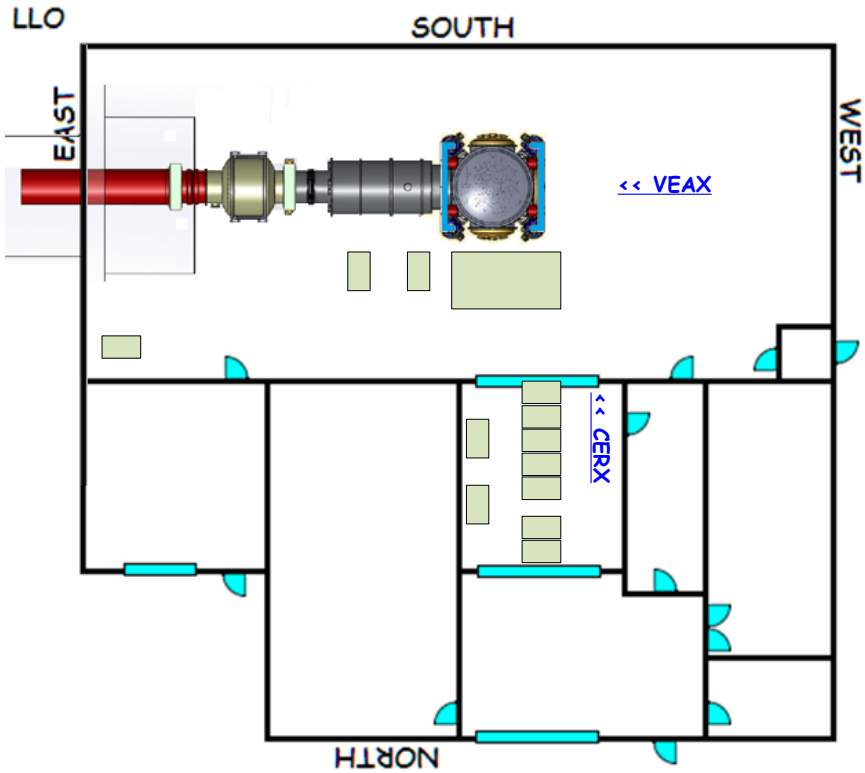




North Side View	XEND Layout
East Side View	XEND Rack Layout
West Side View	VEAX Fiber Patch Panel
South Side View	Mechanical Room

XEND Station Rack Layout

[<< XEND Index]



Mechanical Room

<< XEND Index

CP16 Connectors		
Pin	Pair	Signal
2	4	?
3	1	?
4	1	?
6	3	?
8	3	?
12	4	?
13	2	?
14	2	?

XEND Racks and Tables

<< LLO Racks by AREA
<< LLO Racks by Subsystems

DC Power Rack 1
(L1-VDC-XC1)

DC Power Rack 2
(L1-VDC-XC2)

DAQ Rack
(L1-DAQ-XC1)

ISC Rack
(L1-ISC-XC1)

ISC Field Rack
(L1-ISC-XR1)

SEI Rack
(L1-SEI-XC1)

SUS Rack 1
(L1-SUS-XC1)

SUS Rack 2
(L1-SUS-XC2)

SUS Field Rack
(L1-SUS-XR1)

TCS Rack
(L1-TCS-XC1)

Vacuum Field Rack
(L1-VAC-XR1)

Facilities Rack
(L1-FAC-XC1)

ISC Table
(ISCBT4L)

3' X 5' Table Layout (D1200973)

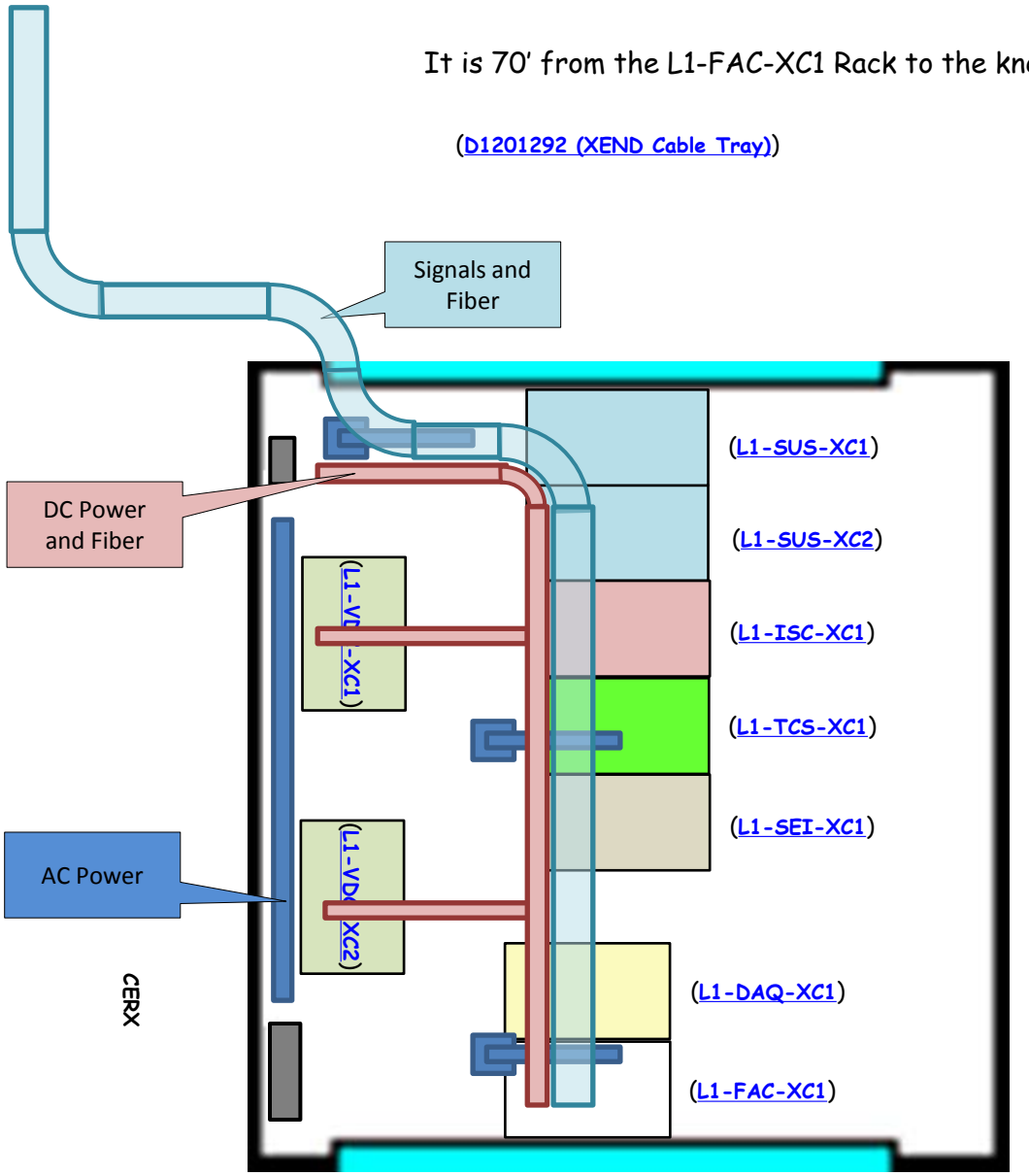
4' X 8' Table Layout (D1201022)

CERX Rack Layout

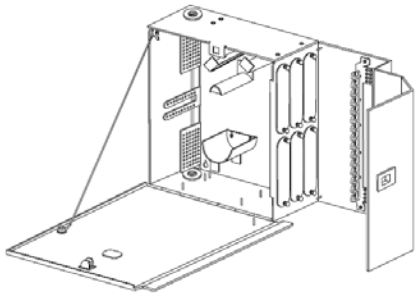
« XEND Racks

It is 70' from the L1-FAC-XC1 Rack to the knee of the waterfall in the VEAX.

(D1201292 (XEND Cable Tray))



Corning WCH-06P Fiber Panel



WCH-06P (up to 72 fibers) | Drawing CPC-220/5/33

21.25"

CCH-CP12-15T (ST) x 2

120"

13.5" x 16.062" x 5.125"

4"

5.75"

21.75"

X"

X END Fiber Patch Panel

[<< XEND Index](#)
[<< MSR Patch Panel](#)

VEAX Fiber Patch Panel | Patch Panel | Patch Panel | No Power

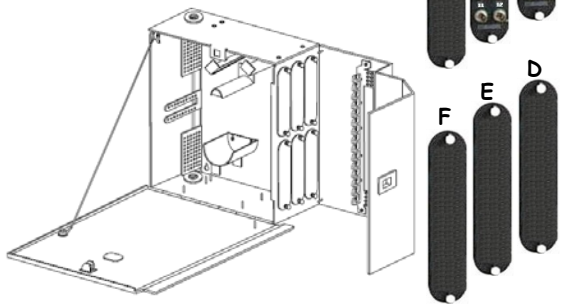
A

Port	Subjacket	Fiber	Label	Termination	Fiber Description	Outlying Destination
A01	Blue	Red	X-Fiber-15	LC	l1netfedaqx Port 21F	IP - 10.199.0.87 Netgear GSM7244 Port 21F
A02	Blue	Blue	X-Fiber-22		Empty	Bad Fiber
A03	Blue	Black	X-Fiber-16	LC	l1netfedaqx Port 21F	IP - 10.199.0.87 Netgear GSM7244 Port 21F
A04	Blue	Orange	X-Fiber-23	ST	ESTOP Comm TX To CER	From CERX to CER (3)
A05	Blue	Yellow	X-Fiber-02	ST	Phone OUT	Extension 401
A06	Blue	Green	X-Fiber-10	LC	l1fedaqx Port 6	ACC 5595 Port 6
A07	Blue	Purple	X-Fiber-01	ST	Phone IN	Extension 401
A08	Blue	Brown	X-Fiber-09	LC	l1fedaqx Port 6	ACC 5595 Port 6
A09	Blue	Tan	X-Fiber-19	ST	Security Cameras	Security Cameras
A10	Blue	Gray	X-Fiber-21	FC	ALS Light	ALS:FDC-XEND (To ISCBT4L)
A11	Blue	Teal	X-Fiber-03	ST	Security Cameras	VT7430 Optical In/Out
A12	Blue	White			Reserved for ALS Light	Reserved for ALS Light

B

Port	Subjacket	Fiber	Label	Termination	Fiber Description	Outlying Destination
B01	Orange	Red	X-Fiber-11	LC	GC 2402 Port 25F	IP - 197.168.253.20 GC 2402 Port 25F
B02	Orange	Blue	X-Fiber-17	LC	l1ecatx - SM1	L1-DAQ-XC1 D1100619 VERTEX Port
B03	Orange	Black	X-Fiber-12	LC	GC 2402 Port 25F	IP - 197.168.253.20 GC 2402 Port 25F
B04	Orange	Orange	X-Fiber-18	LC	l1ecatx - SM1	L1-DAQ-XC1 D1100619 VERTEX Port
B05	Orange	Yellow	X-Fiber-07	LC	l1lanfex Port 21F	IP - 10.199.0.13 Netgear GSM7224 Port 21F
B06	Orange	Green	X-Fiber-13	LC	D070011 INPUT Port	L1-TCS-XC1 D070011 INPUT Port
B07	Orange	Purple	X-Fiber-08	LC	l1lanfex Port 21F	IP - 10.199.0.13 Netgear GSM7224 Port 21F
B08	Orange	Brown	X-Fiber-14	LC	D070011 INPUT Port	L1-TCS-XC1 D070011 INPUT Port
B09	Orange	Tan	Empty		Empty	
B10	Orange	Gray	X-Fiber-06	LC	CDS GS624P Port 1F	IP - 10.199.0.20 GS624P Port 1F
B11	Orange	Teal	X-Fiber-05	LC	CDS GS624P Port 1F	IP - 10.199.0.20 GS624P Port 1F
B12	Orange	White	X-Fiber-22	ST	ESTOP Comm TX To CER	From CERX to CER (1)

A - ST Connectors
B - ST Connectors
C - NO Connectors
D - NO Connectors
E - NO Connectors
F - NO Connectors



WCH-06P (up to 72 fibers) | Drawing CPC-220/5/33

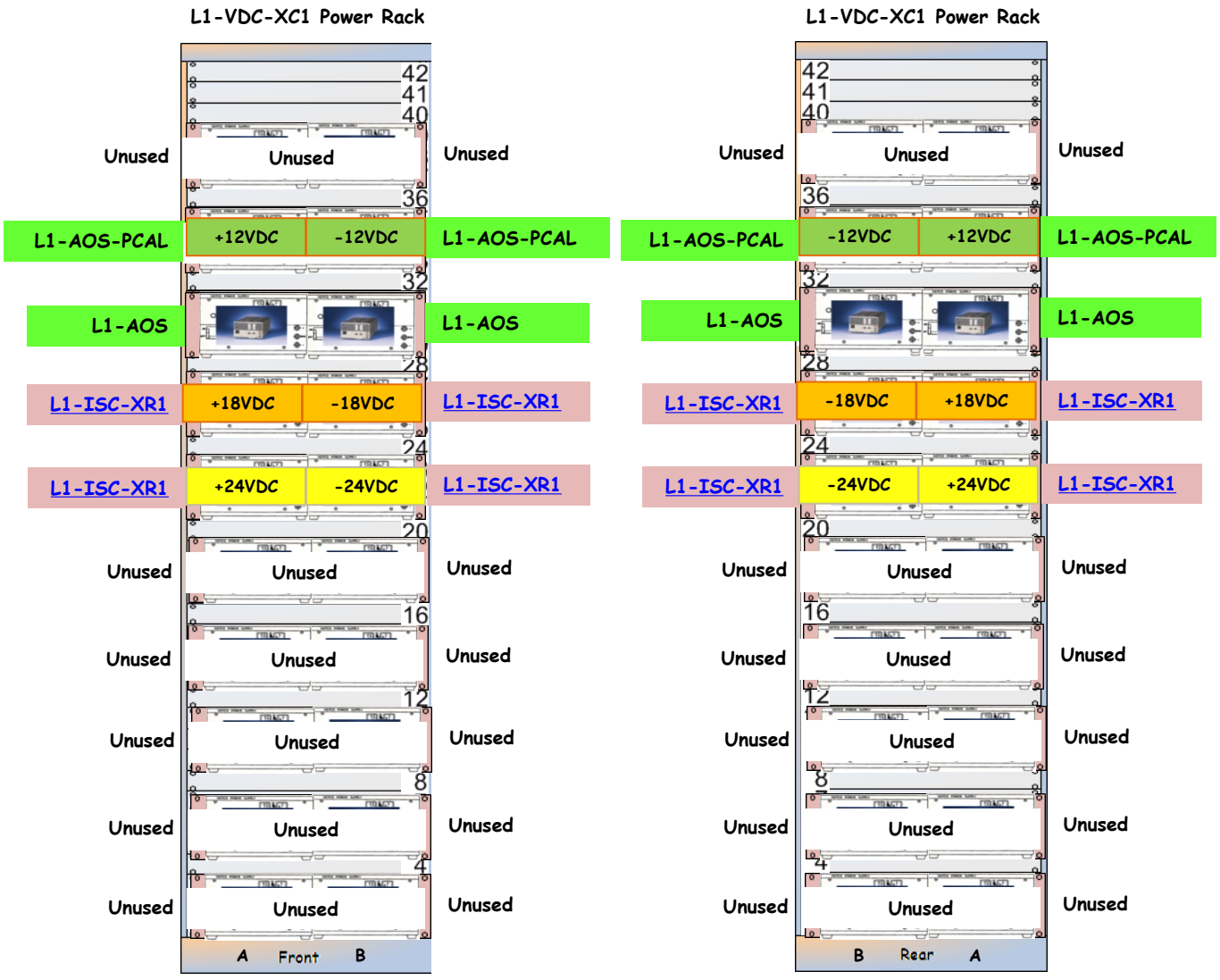
[See LIGO-E1500002](#)

[Y END Fiber Patch Panel >>](#)

L1-VDC-XC1 Power Racks – VEAX Field Supplies

<< CERX Racks
<< XEND Racks and Tables

L1-VDC-XC1 XEND Station DC Power Rack Layout (D1200897) (S1202311)



Cable Runs >>

L1-VDC-XC1 Cable Runs

LIGO

<< L1-VDC-XC1

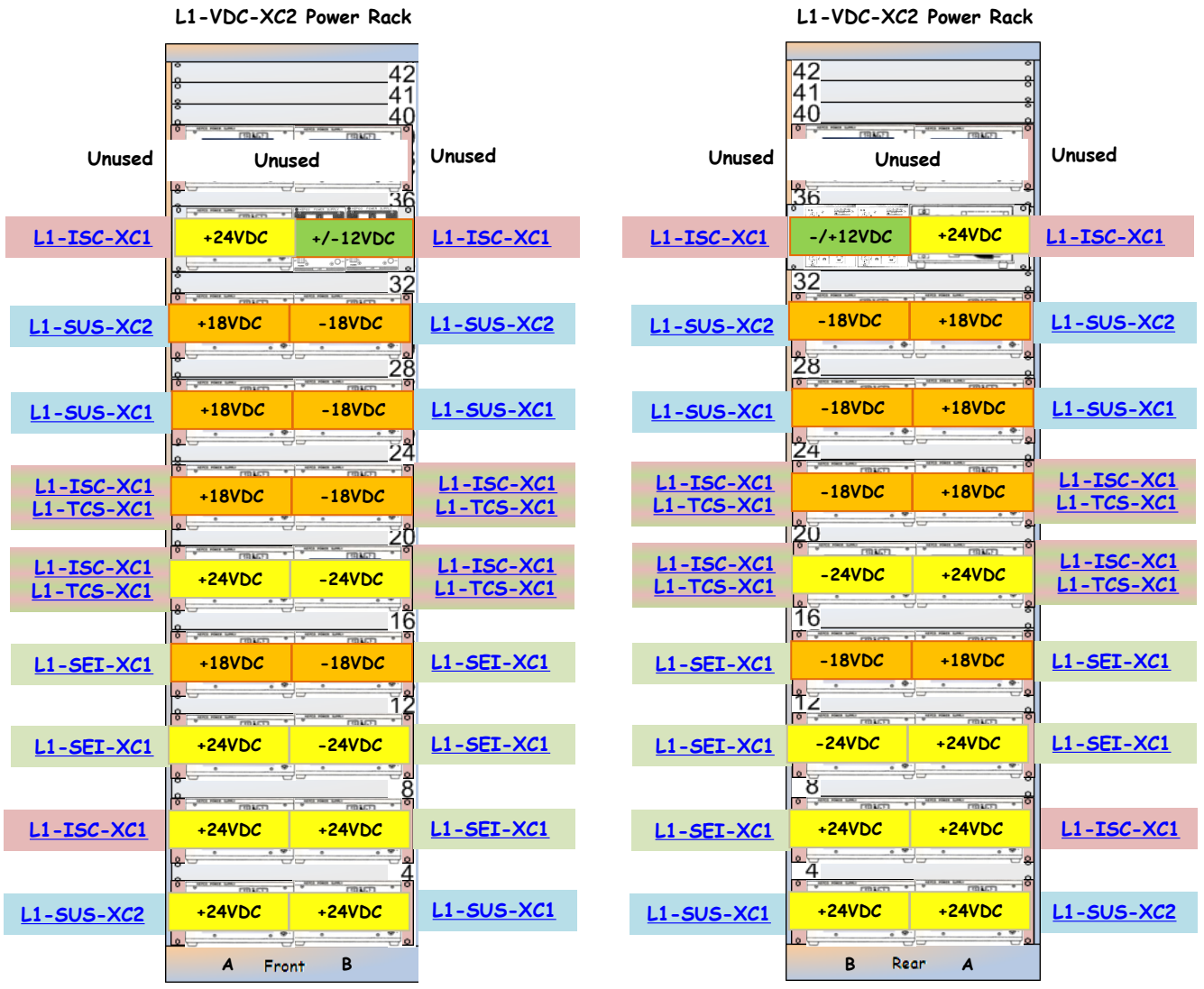
L1-VDC-XC1 XEND Station DC Cable Runs (D1200897) (S1202311)

L1-VDC-XC1 S1202311	Power Panel	Circuit	DC Power Rack	Outlet	Plug Position	Rack U	Power Supply Model	Power Supply Serial	Polarity	DC Extension Cable	Electronics Rack	Cable Length	DC Power Strip
1	CDS-X		L1-VDC-XC1	8	Top	U37-A (Left)							
2	CDS-X		L1-VDC-XC1	8	Bottom	U37-B (Right)							
3	CDS-X		L1-VDC-XC1	2	Top	U33-A (Left)	JQE 15V 12A	H114617	Plus	PTG	L1-AOS-PCAL		None
4	CDS-X		L1-VDC-XC1	2	Bottom	U33-B (Right)	JQE 15V 12A	H114627	Minus	PTG	L1-AOS-PCAL		None
5	CDS-X		L1-VDC-XC1	9	Top	U29-A (Left)	BHK 500V 80mA	A107266	Plus	PBX-003	L1-AOS		
6	CDS-X		L1-VDC-XC1	9	Bottom	U29-B (Right)	BHK 500V 80mA	A107260	Minus	PBX-003	L1-AOS		
7	CDS-X		L1-VDC-XC1	3	Top	U25-A (Left)	JQE 25V 20A	H236461	Plus	PTO-064	L1-ISC-XR1	60	PSO-xxx
8	CDS-X		L1-VDC-XC1	3	Bottom	U25-B (Right)	JQE 25V 20A	H236389	Minus	PTO-064	L1-ISC-XR1	60	PSO-xxx
9	CDS-X		L1-VDC-XC1	10	Top	U21-A (Left)	JQE 25V 10A	H222052	Plus	PTY-057	L1-ISC-XR1	60	PSY-xxx
10	CDS-X		L1-VDC-XC1	10	Bottom	U21-B (Right)	JQE 25V 10A	H192369	Minus	PTY-057	L1-ISC-XR1	60	PSY-xxx
11	CDS-X		L1-VDC-XC1	4	Top	U17-A (Left)							
12	CDS-X		L1-VDC-XC1	4	Bottom	U17-B (Right)							
13	CDS-X		L1-VDC-XC1	11	Top	U13-A (Left)							
14	CDS-X		L1-VDC-XC1	11	Bottom	U13-B (Right)							
15	CDS-X		L1-VDC-XC1	5	Top	U09-A (Left)							
16	CDS-X		L1-VDC-XC1	5	Bottom	U09-B (Right)							
17	CDS-X		L1-VDC-XC1	12	Top	U05-A (Left)							
18	CDS-X		L1-VDC-XC1	12	Bottom	U05-B (Right)							
19	CDS-X		L1-VDC-XC1	6	Top	U01-A (Left)							
20	CDS-X		L1-VDC-XC1	6	Bottom	U01-B (Right)							
D1200897													

L1-VDC-XC2 Power Racks – VEAX Supplies

<< CERX Racks
<< XEND Racks and Tables

L1-VDC-XC2 XEND Station DC Power Rack Layout (D1200898) (S1202312)



Cable Runs >>

L1-VDC-XC2 Cable Runs

LIGO

<< L1-VDC-XC2

L1-VDC-XC2 XEND Station DC Cable Runs (D1200898) (S1202312)

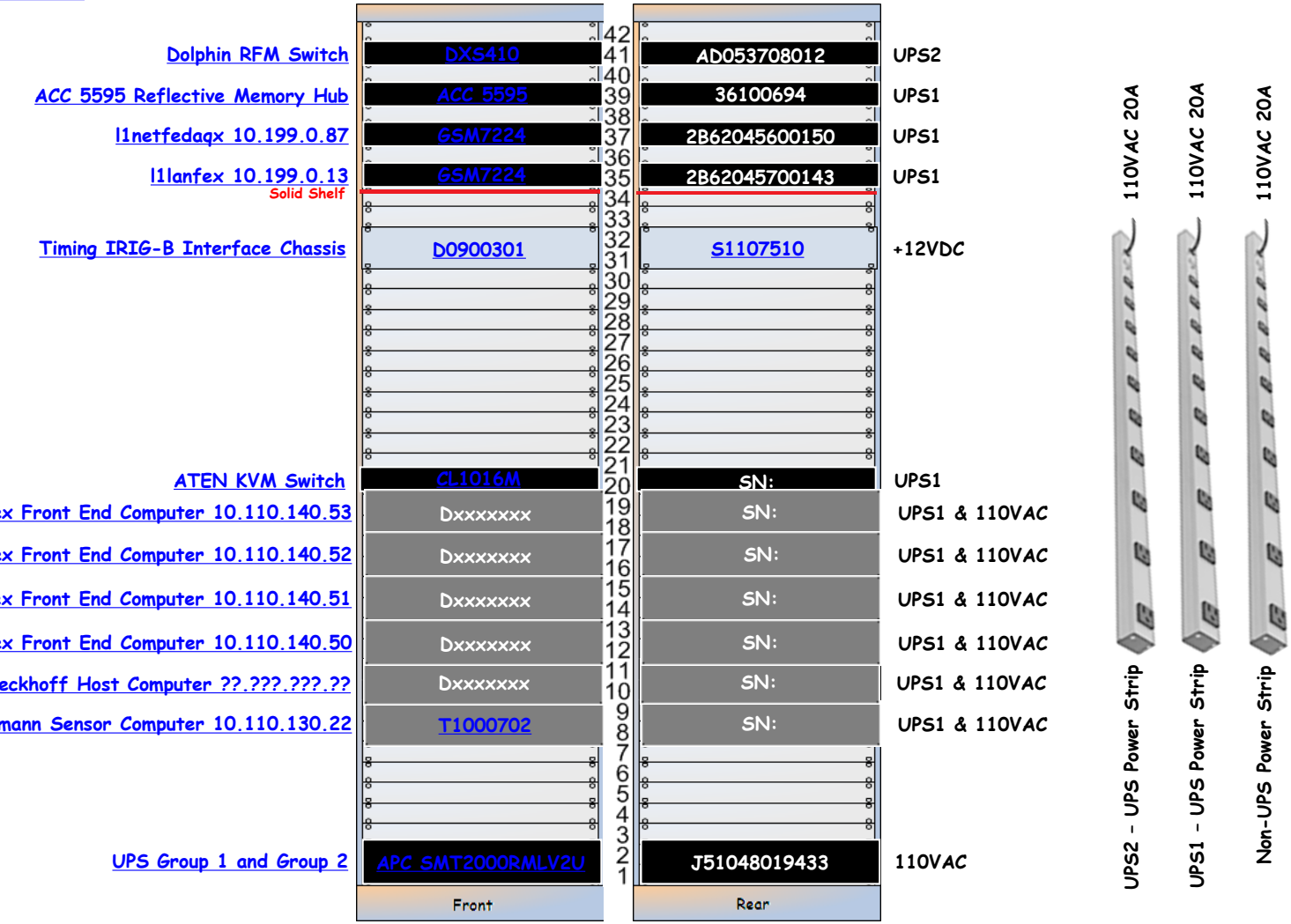
L1-VDC-XC2 S1202312	Power Panel	Circuit	DC Power Rack	Outlet	Plug Position	Rack U	Power Supply Model	Power Supply Serial	Polarity	DC Extension Cable	Electronics Rack	Cable Length	DC Power Strip
1	CDS-X		L1-VDC-XC2	8	Top	U37-A (Left)							
2	CDS-X		L1-VDC-XC2	8	Bottom	U37-B (Right)							
3	CDS-X		L1-VDC-XC2	2	Top	U33-A (Left)	JQE 25V 10A	H222053	Plus	PTY-053	L1-ISC-XC1	30	PSY-xxx
4	CDS-X		L1-VDC-XC2	2	Bottom	U33-B (Right)	JQE 15V 6A JQE 15V 6A	H214514 H214461	Plus Minus	PTG-005	L1-ISC-XC1	30	PSG-006
5	CDS-X		L1-VDC-XC2	9	Top	U29-A (Left)	JQE 25V 20A	H236497	Plus	PTO-042	L1-SUS-XC2	30	PSO-042
6	CDS-X		L1-VDC-XC2	9	Bottom	U29-B (Right)	JQE 25V 20A	H236515	Minus	PTO-042	L1-SUS-XC2	30	PSO-042
7	CDS-X		L1-VDC-XC2	3	Top	U25-A (Left)	JQE 25V 20A	H236501	Plus	PTO-043	L1-SUS-XC1	32	PSO-043
8	CDS-X		L1-VDC-XC2	3	Bottom	U25-B (Right)	JQE 25V 20A	H236473	Minus	PTO-043	L1-SUS-XC1	32	PSO-043
9	CDS-X		L1-VDC-XC2	10	Top	U21-A (Left)	JQE 25V 20A	H236510	Plus	PTO-044	L1-ISC-XC1 L1-TCS-XC1	28	PSO-044
10	CDS-X		L1-VDC-XC2	10	Bottom	U21-B (Right)	JQE 25V 20A	H236511	Minus	PTO-044	L1-ISC-XC1 L1-TCS-XC1	28	PSO-044
11	CDS-X		L1-VDC-XC2	4	Top	U17-A (Left)	JQE 25V 20A	H236493	Plus	PTY-031	L1-ISC-XC1 L1-TCS-XC1	28	PSY-031
12	CDS-X		L1-VDC-XC2	4	Bottom	U17-B (Right)	JQE 25V 20A	H236517	Minus	PTY-031	L1-ISC-XC1 L1-TCS-XC1	28	PSY-031
13	CDS-X		L1-VDC-XC2	11	Top	U13-A (Left)	JQE 25V 20A	H236505	Plus	PTO-045	L1-SEI-XC1	22	PSO-045
14	CDS-X		L1-VDC-XC2	11	Bottom	U13-B (Right)	JQE 25V 20A	H236494	Minus	PTO-045	L1-SEI-XC1	22	PSO-045
15	CDS-X		L1-VDC-XC2	5	Top	U09-A (Left)	JQE 25V 20A	H236509	Plus	PTY-032	L1-SEI-XC1	22	PSY-032
16	CDS-X		L1-VDC-XC2	5	Bottom	U09-B (Right)	JQE 25V 20A	H236492	Minus	PTY-032	L1-SEI-XC1	22	PSY-032
17	CDS-X		L1-VDC-XC2	12	Top	U05-A (Left)	JQE 25V 20A	H236482	Plus	PTY-033	L1-ISC-XC1	30	PSY-033
18	CDS-X		L1-VDC-XC2	12	Bottom	U05-B (Right)	JQE 25V 20A	H236481	Plus	PTY-034	L1-SEI-XC1	22	PSY-034
19	CDS-X		L1-VDC-XC2	6	Top	U01-A (Left)	JQE 25V 20A	H236498	Plus	PTY-035	L1-SUS-XC2	32	PSY-035
20	CDS-X		L1-VDC-XC2	6	Bottom	U01-B (Right)	JQE 25V 20A	H236514	Plus	PTY-036	L1-SUS-XC1	32	PSY-036
D1200898													

L1-DAQ-XC1

<< CERX Racks
<< XEND Racks and Tables

L1-DAQ-XC1 XEND Station Remote Rack Layout (D1201085) (S1202949)

Serial to Internet Converter
Lantronix
SDS2101, UDS2100
SN: 00204AD7A3CC
+12V Wall Wart



L1-DAQ-XC1 Details

Dolphin RFM Switch DS5410 – AD053708012

« L1-DAQ-XC1

Dolphin RFM Switch | DXS410 | AD053708012 | UPS2

ACC 5595

Front

To l1lanfey port 5

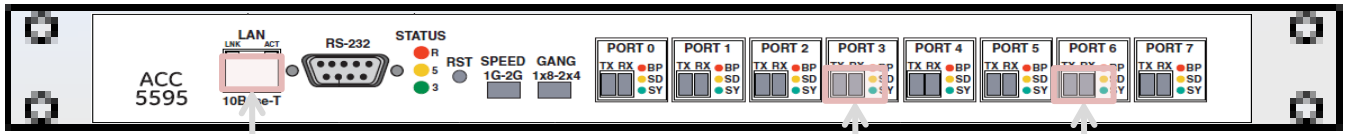
AD053708012

Rear

VMIACC-5595-224 - 36106691

« L1-DAQ-XC1

Reflective Memory Hub | ACC 5595 | 36100694 | 110VAC



ACC 5595

Front

To l1lanfey port 5

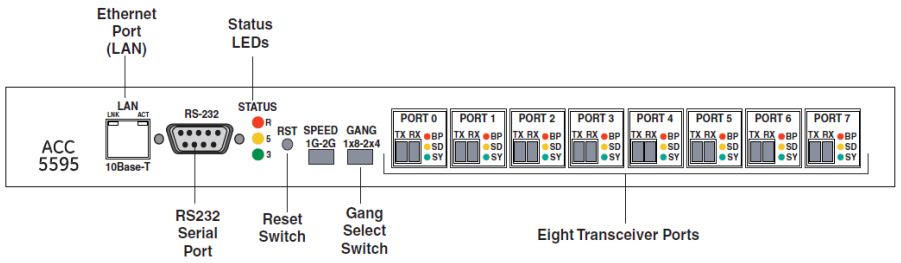
To 1X23 A3,A4

To l1pemex PCIE 5565RC

36100694

Rear

To UPS Power Strip



l1netfedaqy - GSM7224

[<< L1-DAQ-XC1]

l1netfedaqy 10.199.0.87 | GSM7224 | 2B62045600150 | 110VAC

GSM7224

Front

C0:3F:0E:86:88:E0

3 - To FE NET Port

21F - To 1X23 PP B1.B2

2B62045600150

Rear

To UPS Power Strip

l1lanfex – GSM7224

« L1-DAQ-XC1

l1lanfey 10.199.0.13 | GSM7224 | 2B62045700143 | 110VAC

GSM7224

Front

C0:3F:0E:86:88:AC

3 – To FE LAN Port

5 – To 5595 LAN 10BaseT

21F – To 1X23 PP E3 E4

2B62045700143

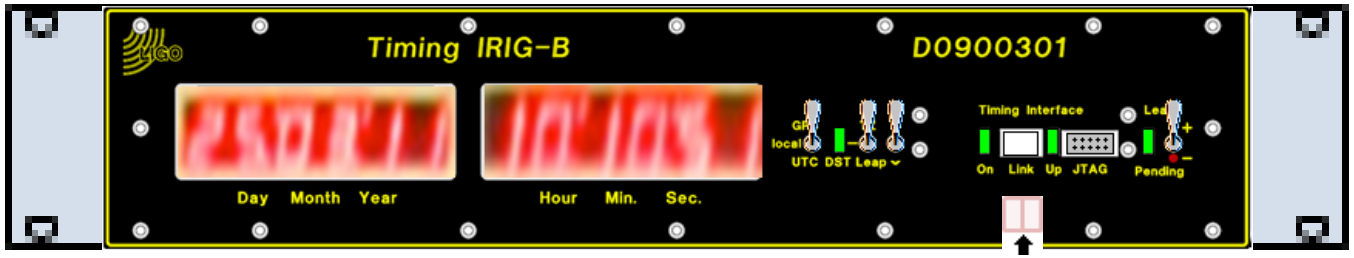
Rear

To UPS Power Strip

D0900301 - S1107510

« L1-DAQ-XC1

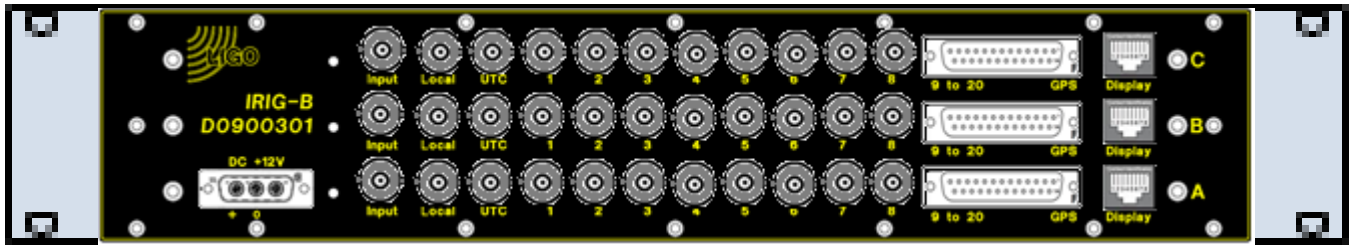
Timing IRIG-B Interface Chassis | D0900301 | S1107510 | +12VDC



D0900301

Front

Timing Fanout (No Label)



S1107510

Rear

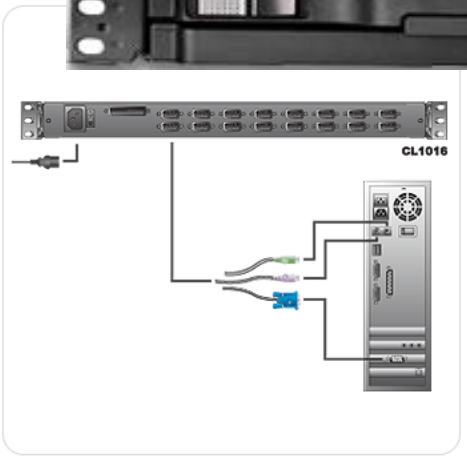
ATEN KVM Switch CL1016M

LIGO
<< L1-DAQ-XC1

ATEN KVM Switch | CL1016M | Z8A6Y132ANQ0010 | 110VAC

CL1016M

Front



Z8A6Y132ANQ0010

Rear

To UPS Power Strip

To 11pemex Front End

l1susauxex Front End

LIGO
<< L1-DAQ-XC1

l1susauxex Front End Computer 10.110.140.53 | Dxxxxxxx | SN: | UPS1 & 110VAC

l1susex Front End

[<< L1-DAQ-XC1]

l1susex Front End Computer 10.110.140.52 | Dxxxxxxx | SN: | UPS1 & 110VAC

l1seiex Front End

LIGO
<< L1-DAQ-XC1

l1seiex Front End Computer 10.110.140.51 | Dxxxxxxx | SN: | UPS1 & 110VAC

l1iscex Front End

[<< L1-DAQ-XC1]

l1iscex Front End Computer 10.110.140.50 | Dxxxxxxx | SN: | UPS1 & 110VAC

l1ecatx1 Beckhoff Host

LIGO
<< L1-DAQ-XC1

l1ecatx1 Beckhoff Host Computer ??.???.???.??

Dxxxxxxx

SN:

UPS1 & 110VAC

l1hwsx1 Hartmann Sensor

LIGO
<< L1-DAQ-XC1

l1hwsx1 Hartmann Sensor Computer 10.110.130.22 | Dxxxxxxx | SN: | UPS1 & 110VAC

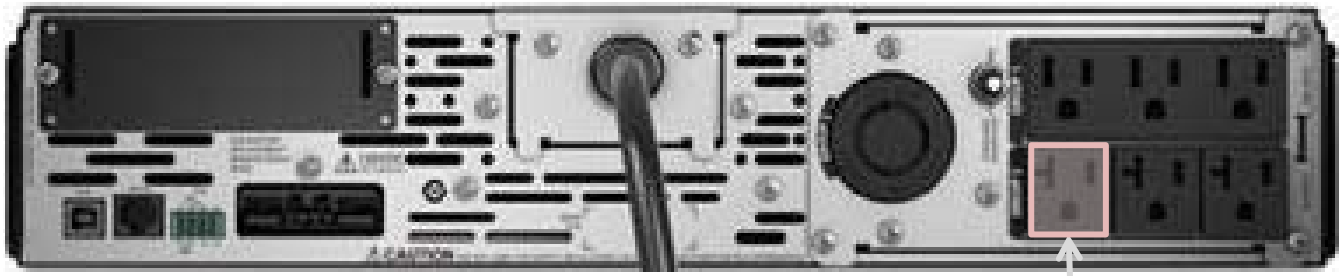
APC SMX2000RMLV2U

LIGO
<< L1-DAQ-XC1

UPS | APC SMX2000RMLV2U | JS1048019433 | 110VAC

APC SMX2000RMLV2U

Front



JS1048019433

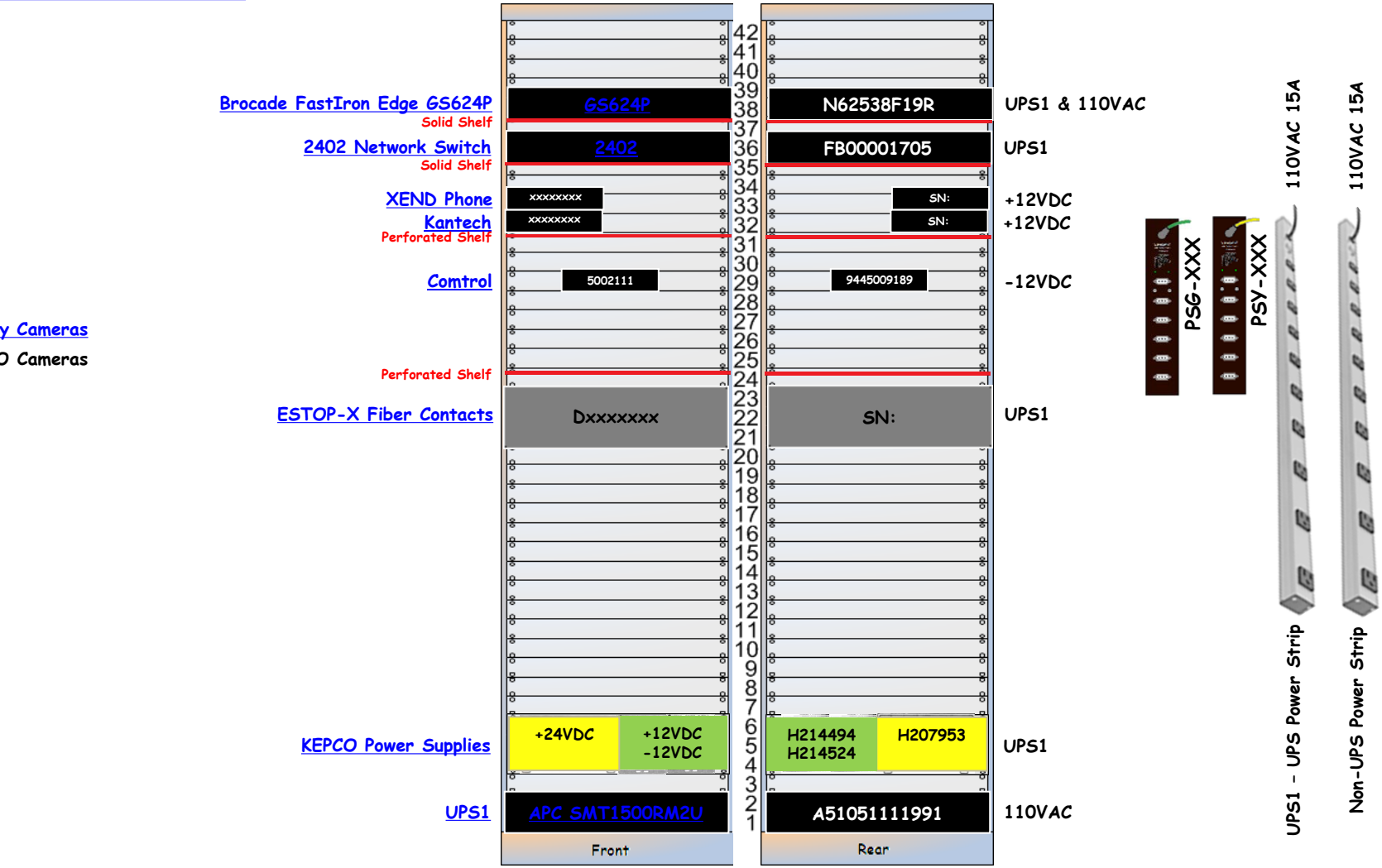
Rear

To UPS Power Strip

L1-FAC-XC1

<< CERX Racks
<< XEND Racks and Tables

L1-FAC-XC1 Facilities XEND Station Remote Rack Layout (D1201086) (S1202950)



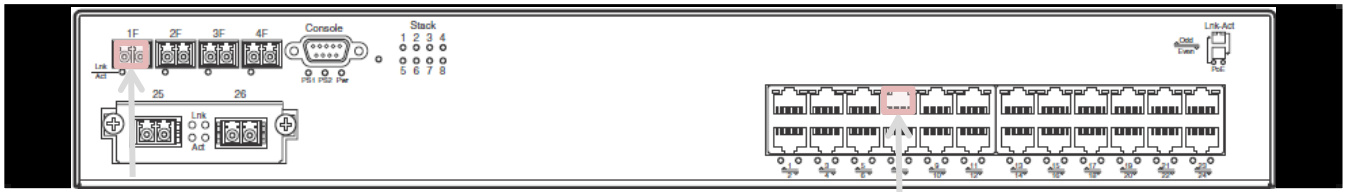
L1-FAC-XC1 Details

GS624P

LIGO

<< L1-FAC-XC1

Brocade FastIron Edge GS624P | GS624P | N62538F19R | UPS & 110VAC



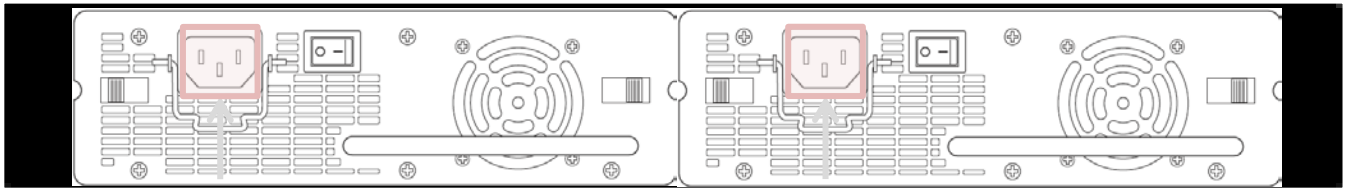
GSM7224

Front

C0:3F:0E:86:88:E0

21F – To 1X23 PP B1,B2

3 – To FE NET Port



N62538F19R

Rear

To 110 Power Strip

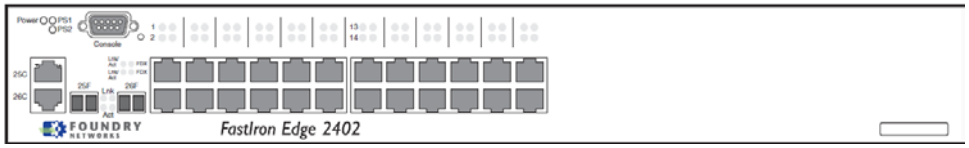
To UPS Power Strip

2402 – Network Switch

LIGO

<< L1-FAC-XC1

2402 Network Switch | 2402 | FB00001705 | 110VAC



Empty	⟷	01
Kantech???	⟷	02
Empty	⟷	03
Empty	⟷	04
Empty	⟷	05
Empty	⟷	06
Empty	⟷	07
Empty	⟷	08
Empty	⟷	09
Empty	⟷	10
Empty	⟷	11
Empty	⟷	12
Empty	⟷	13
To Seimens	⟷	14
Empty	⟷	15
Empty	⟷	16
Empty	⟷	17
Empty	⟷	18
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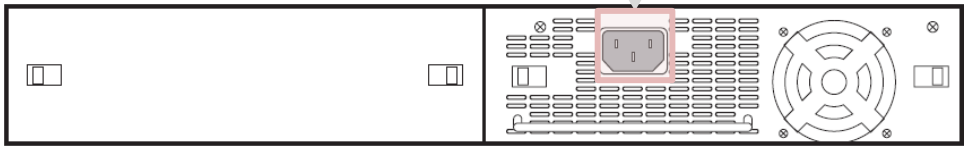
Empty	⟷	23
Empty	⟷	24

To UPS Power Strip



PS1

Empty	⟷	25C
Empty	⟷	26C
To Special Cable CSR1	⟷	25F
To 1X23 PP E1,E2	⟷	26F

Government Property Tag: G12036
192.168.253.20

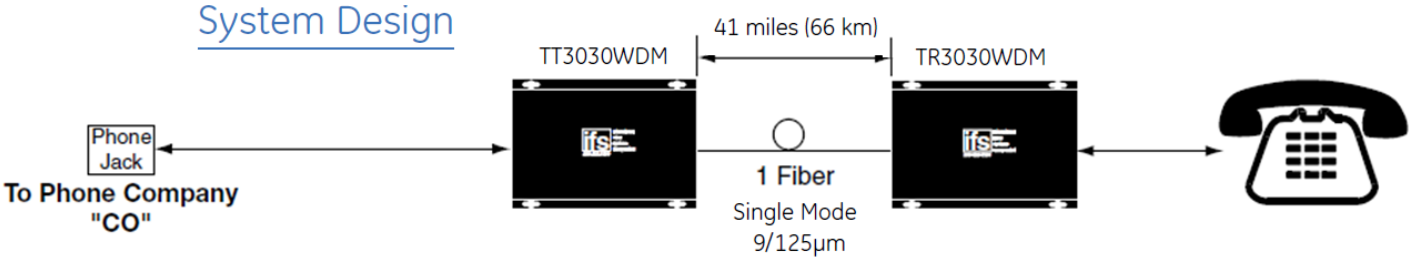
XEND Phone

[<< L1-FAC-XC1]

Phone

TR3030WDM
GE Security
Optical In/Out:
To 1X23 PP
B3,B4
Phone: Copper to
VEA
Power: 12VDC

Powered from Wall Wart from
Tripp-Lite UPS
Model BC320
9834DY0BC614000661 To 6-
Outlet Power Strip in Non-
isolated wall socket



XEND – Kantech Interface

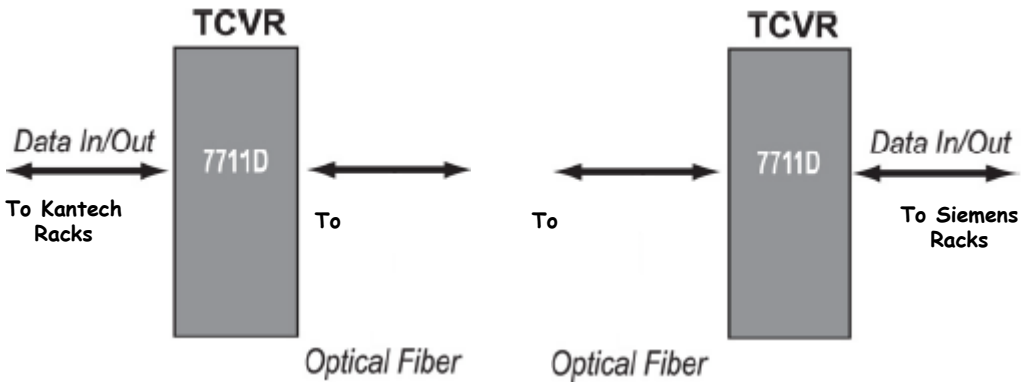
[<< L1-FAC-XC1]

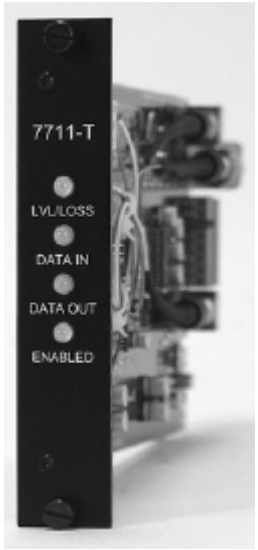
Kantech

Fiber Options
7711-R (501R)
Optical In/Out:
To 1Y23 PP D2
Power: 13.5VDC
from Wall Wart

Blue CAT5:
1=O/W and
B/W, 4=O, 7=B

Powered from
Wall Wart from
Isolated Power





XEND – Comtrol Interface

[<< L1-FAC-XC1]

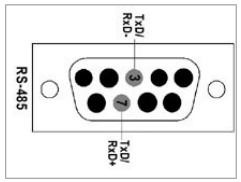
Comtrol | 5002111 | 9445009189 | -12VDC

[Comtrol DeviceMaster 4 with DB9 Ports]

MAC Address:
00-C0-4E-07-3F-5D

IP Address:
10/110.60.??

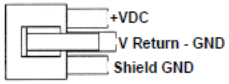
DeviceMaster 4 with DB9 ports



4-Port Power Supply

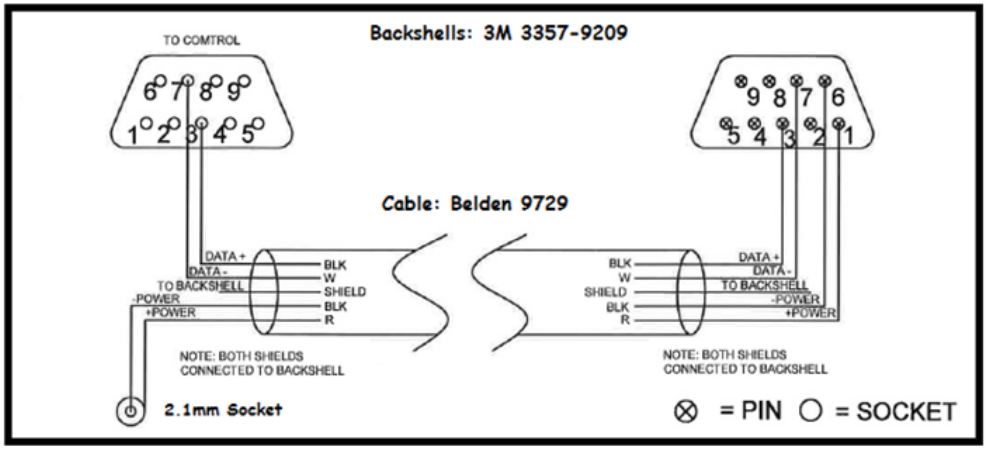
This table provides the specifications for the power supply shipped with the DeviceMaster 4-port.

Comtrol Power Supply: 4-Port	
Input line frequency	47 - 63 Hz
Input line voltage	90 - 260 VAC
Output voltage	24VDC
Output current	500 mA @ 24VDC



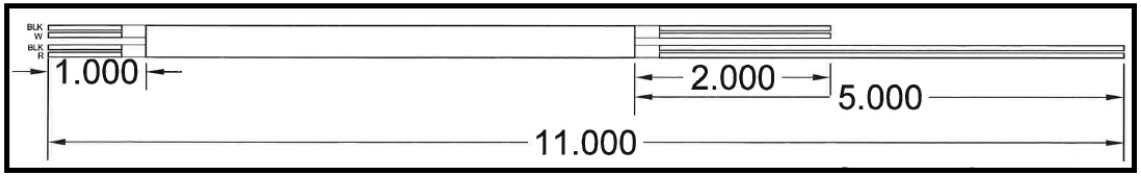
Housing Molex P/N:
39-01-4030
Pins Molex P/N:
44485-1211

3M Shell 3357-9209



3M Shell 3357-9209

2.1mm Socket
(Note polarity)



2.1mm Plug
(Note polarity)

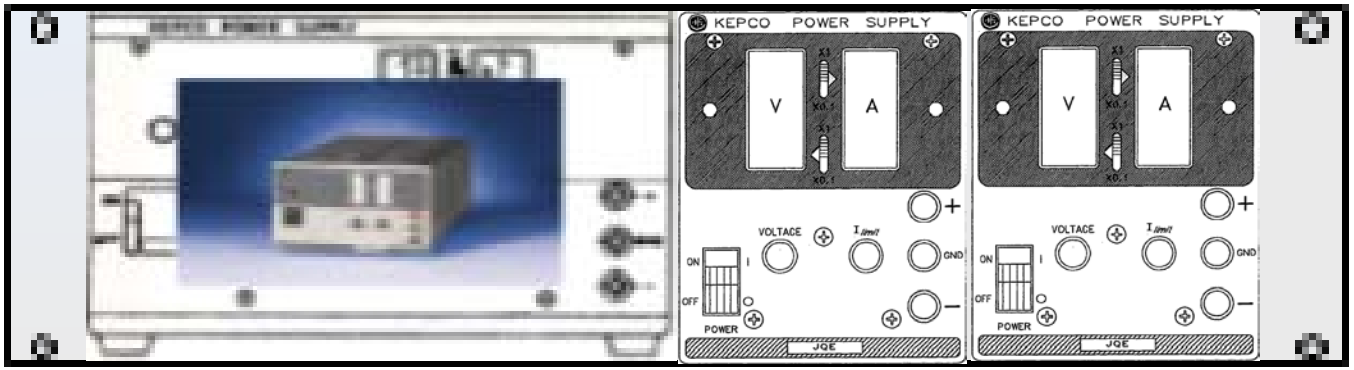
ESTOP-X Fiber Contacts

[<< L1-FAC-XC1]

ESTOP-X Fiber Contacts | Dxxxxxxx | SN: | UPS1

KEPCO Power Supplies

KEPCO Power Supplies | +24VDC | +12VDC -12VDC | H214494 H214524 | H207953 | UPS1



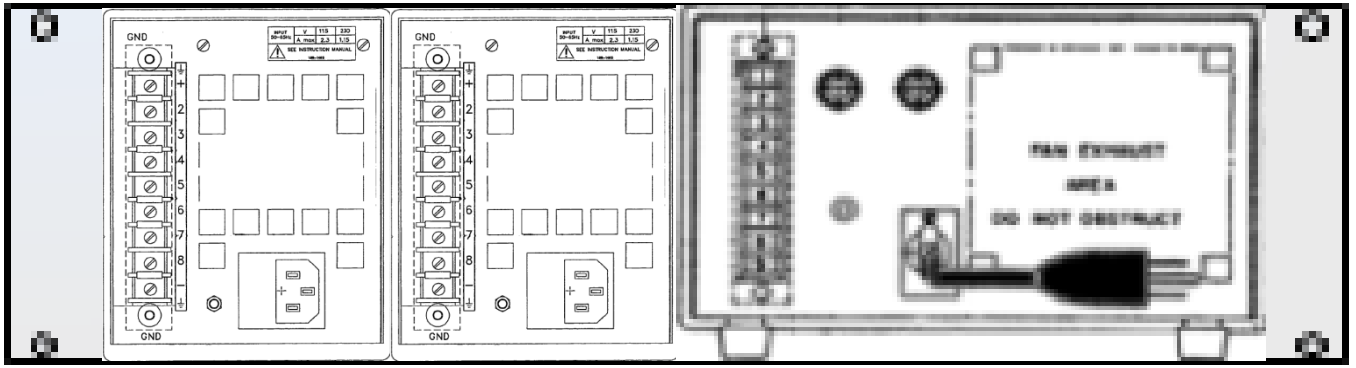
JQE

Front

KEPCO JQE 25-10 +24VDC

KEPCO JQE 15-6 +12VDC

KEPCO JQE 15-6 -12VDC



Rear

KEPCO JQE 15-6 H214524

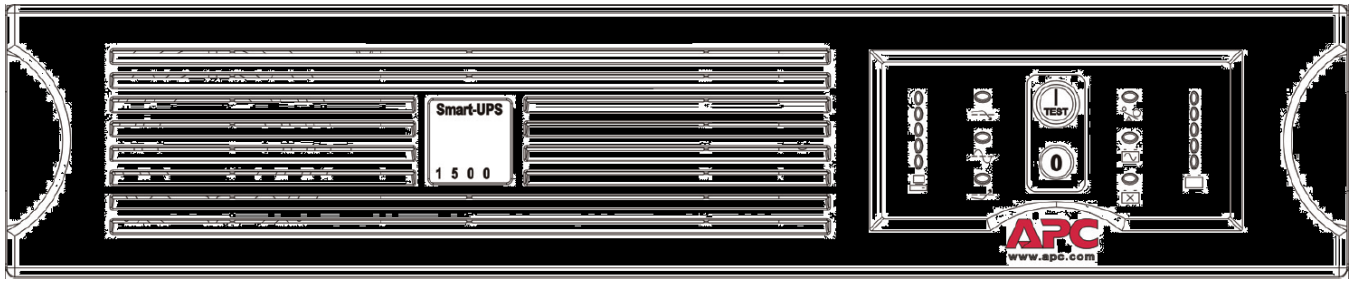
KEPCO JQE 15-6 H214494

KEPCO JQE 25-10 H207953

APC SMT1500RM2U

[<< L1-FAC-XC1]

UPS | APC SMT1500RM2U | A51051111991 | 110VAC

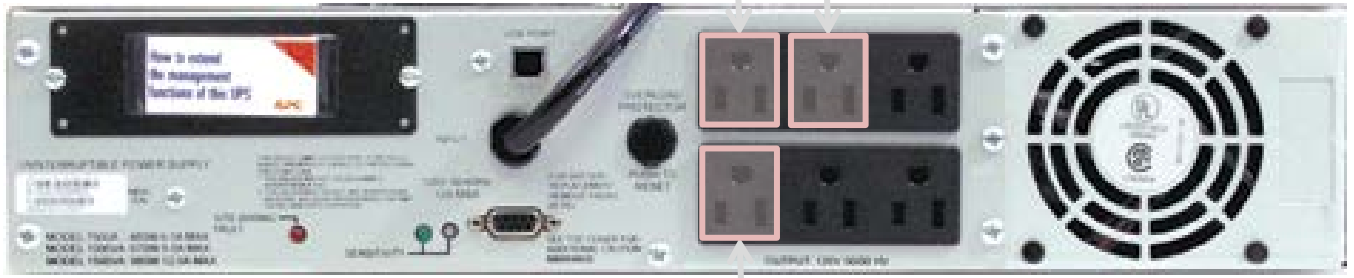


APC SMT1500RM2U

Front

To UPS Power Strip

To 2402 PS1



To 844X PS1

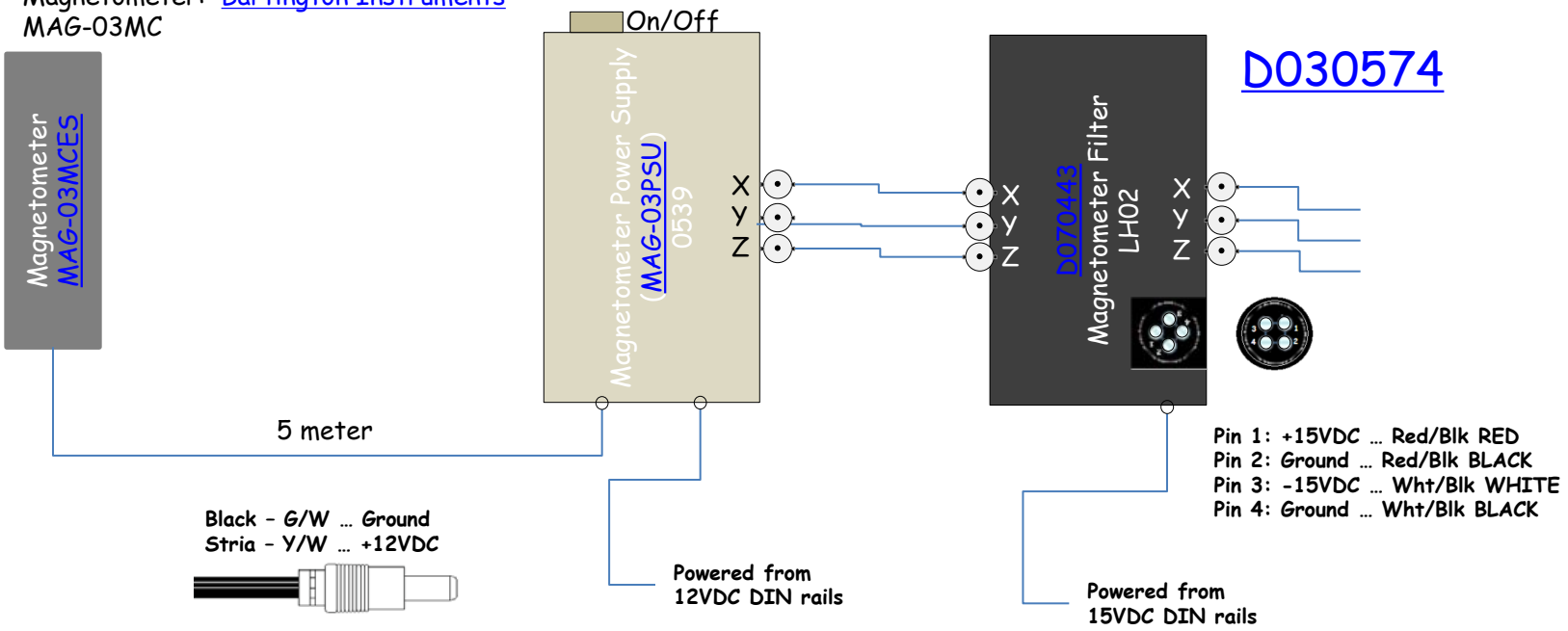
A51051111991

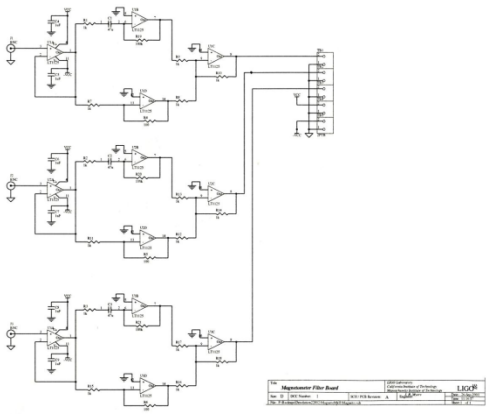
Rear

1X23 - D070443 - LH02

« L1-FAC-XC1

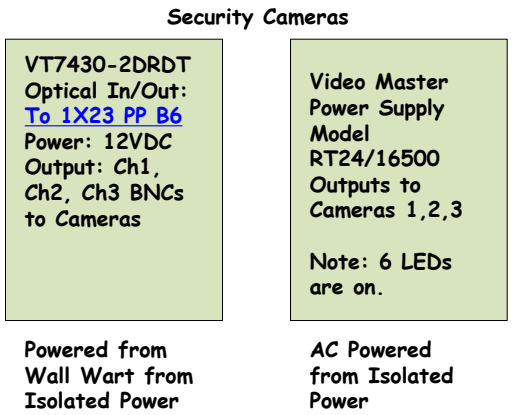
Magnetometer: Bartington Instruments
MAG-03MC





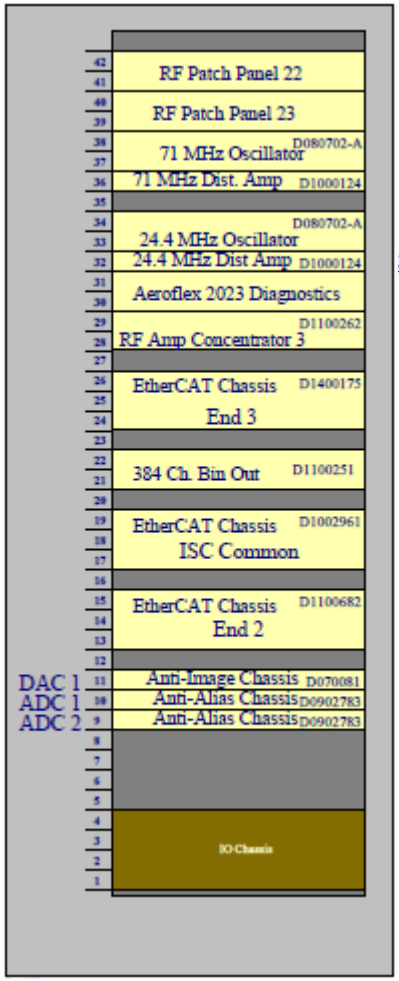
Security Cameras

LIGO
<< L1-FAC-XC1

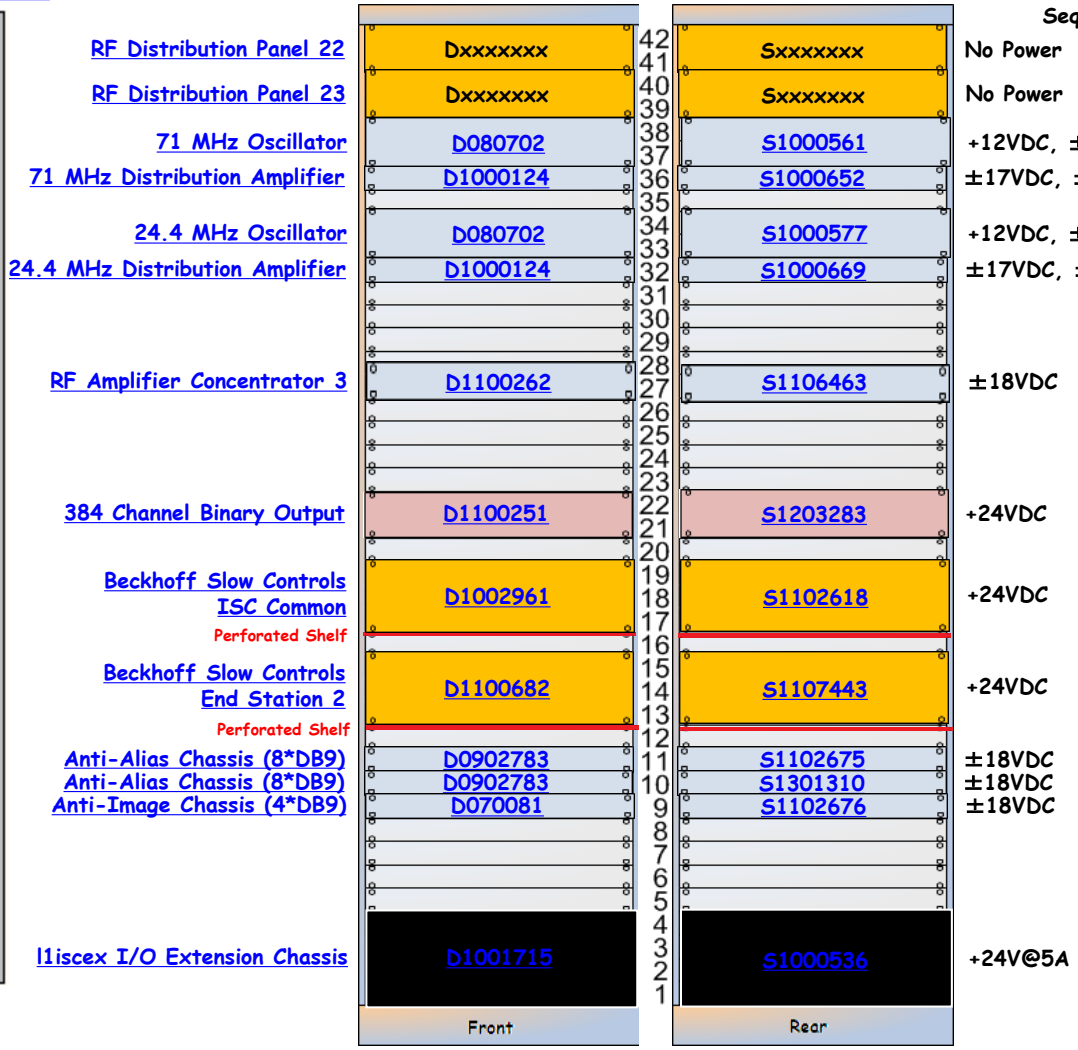


L1-ISC-XC1

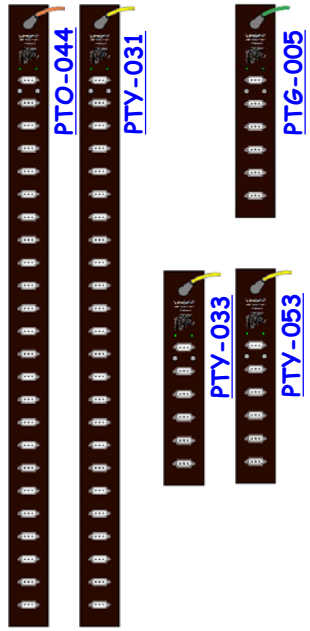
<< CERX Racks
<< XEND Racks and Tables



L1-ISC-XC1 XEND Remote Rack Layout (D1201084) (S1202948)



D1200757 Sequencer S1202548



ISC-XC1 is part of D1001459

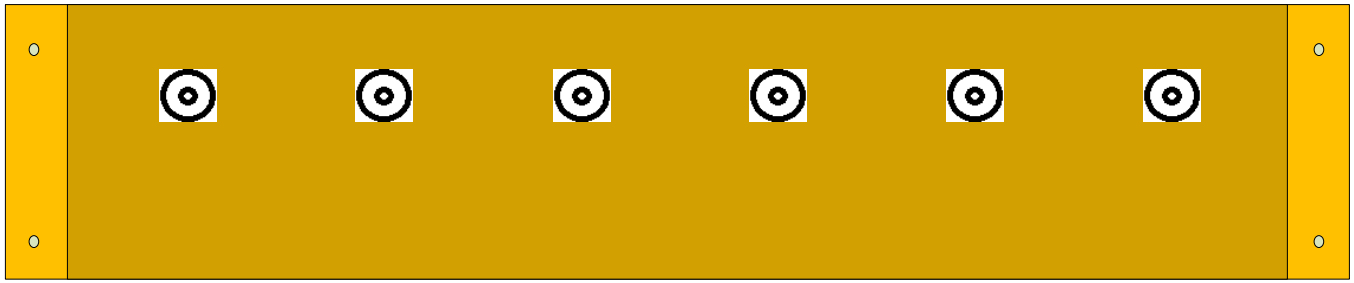
L1-ISC-XC1 Details

ISC-XC1 is part of D1001459

RF Distribution Panel 22

[<< L1-ISC-XC1]

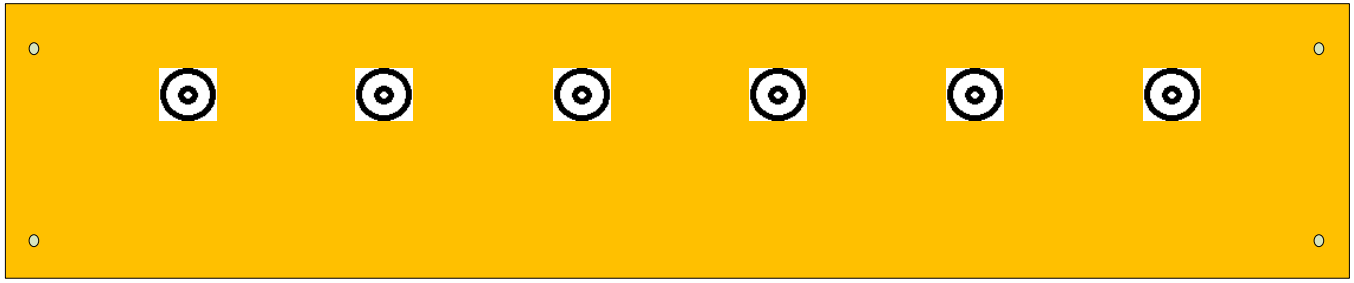
RF Distribution Panel 22 | Dxxxxxxx | Sxxxxxxx | No Power



Dxxxxxxx

Front

ALS Laser VCO | ALS Modulation | Return PCL Beat Note | SPARE | ALS Demod | Return ALS Laser VCO



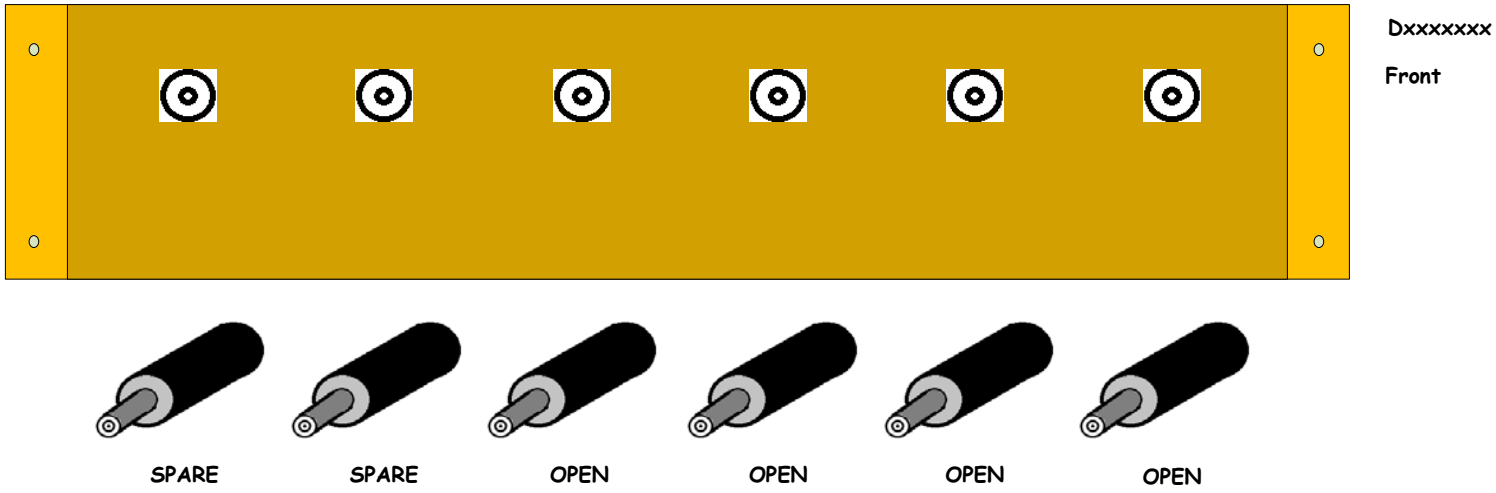
Sxxxxxxx

Rear

RF Distribution Panel 23

[<< L1-ISC-XC1]

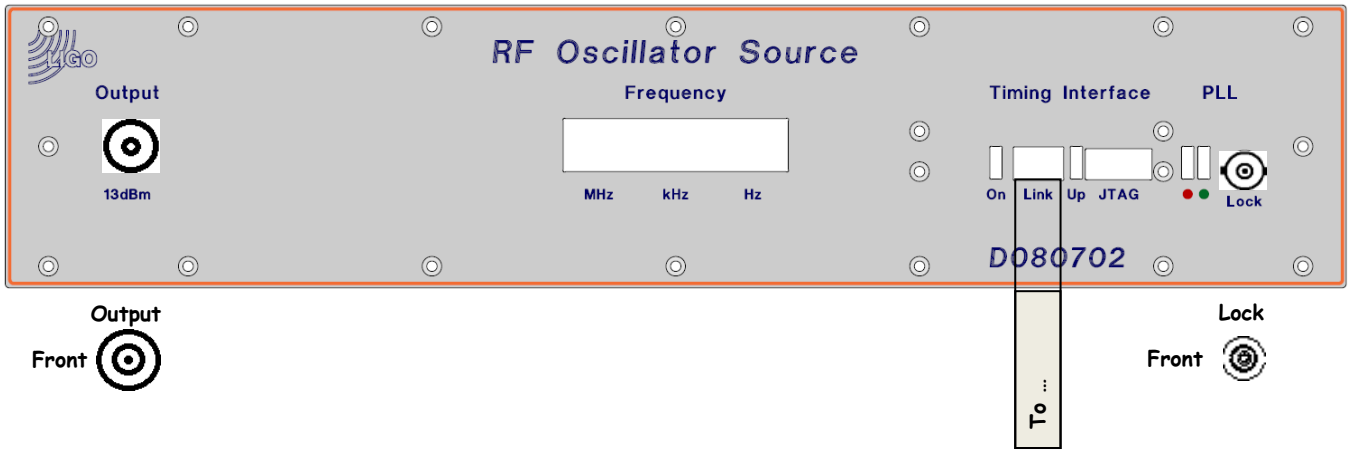
RF Distribution Panel 23 | Dxxxxxxx | Sxxxxxxx | No Power



D080702 - S1000561

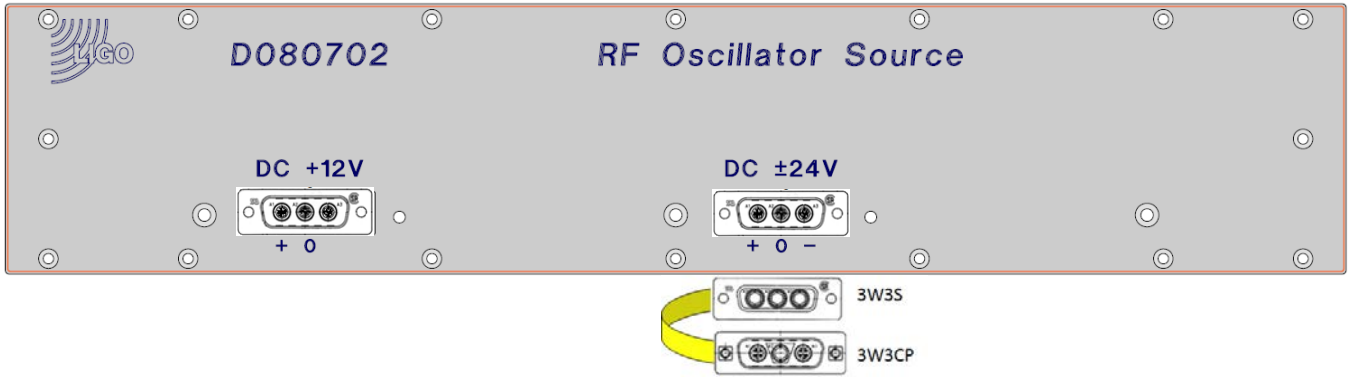
[<< L1-ISC-XC1]

71 MHz Oscillator | D080702 | S1000561 | +12VDC, ±24VDC



D080702

Front



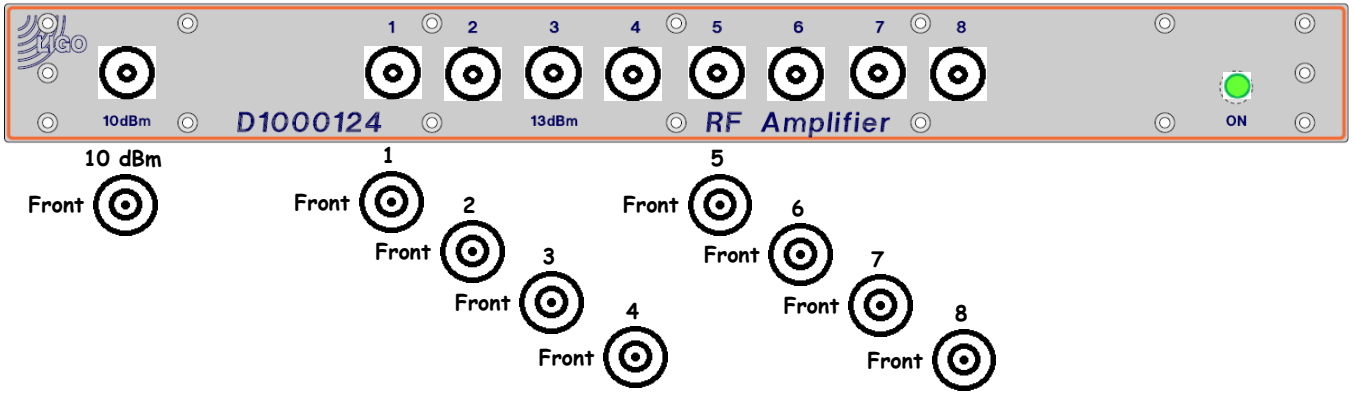
S1000561

Rear

D1000124 - S1000652

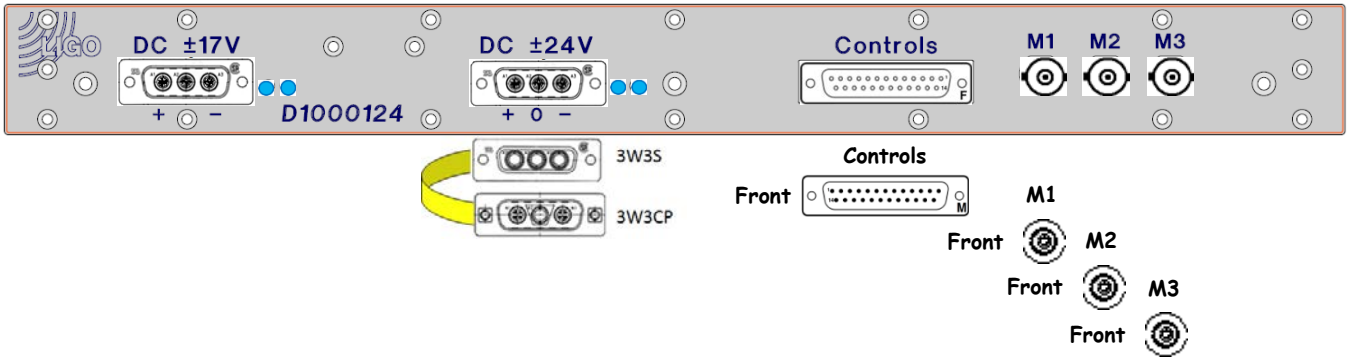
LIGO
<< L1-ISC-XC1

71 MHz Distribution Amplifier | D1000124 | S1000652 | ±17VDC, ±24VDC



D1000124

Front



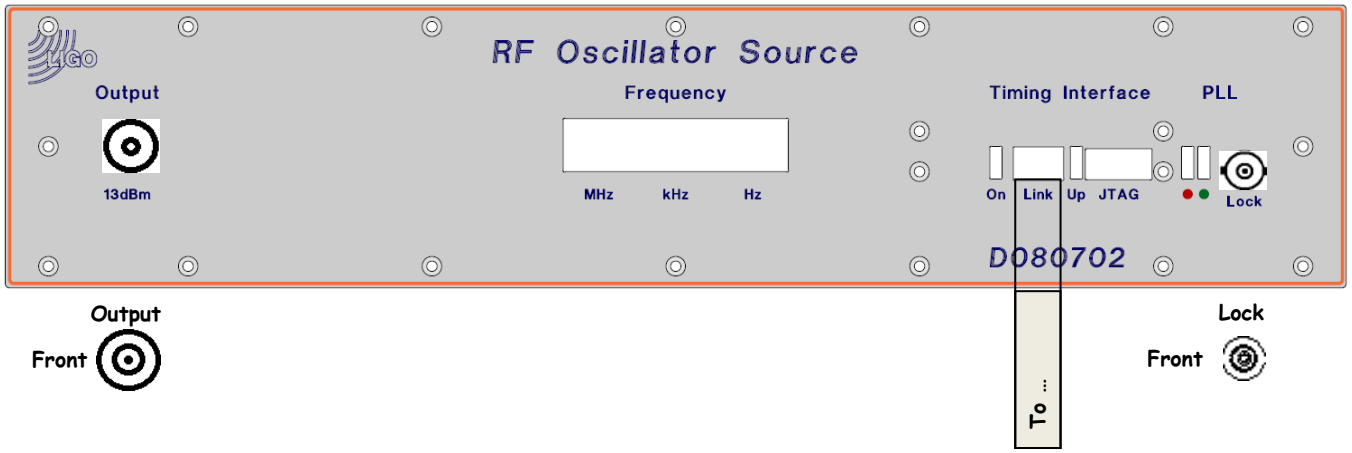
S1000652

Rear

D080702 - S1000577

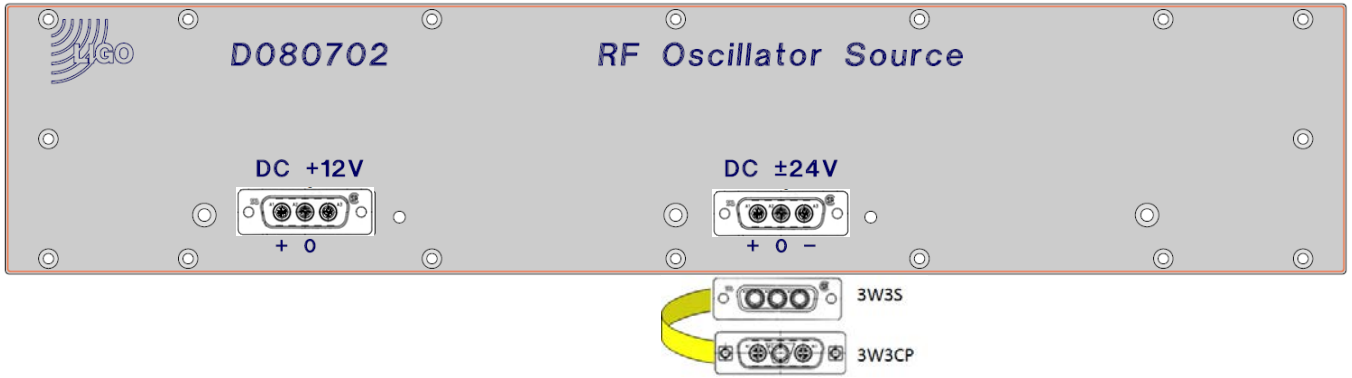
[<< L1-ISC-XC1]

24.4 MHz Oscillator | D080702 | S1000577 | +12VDC, ±24VDC



D080702

Front



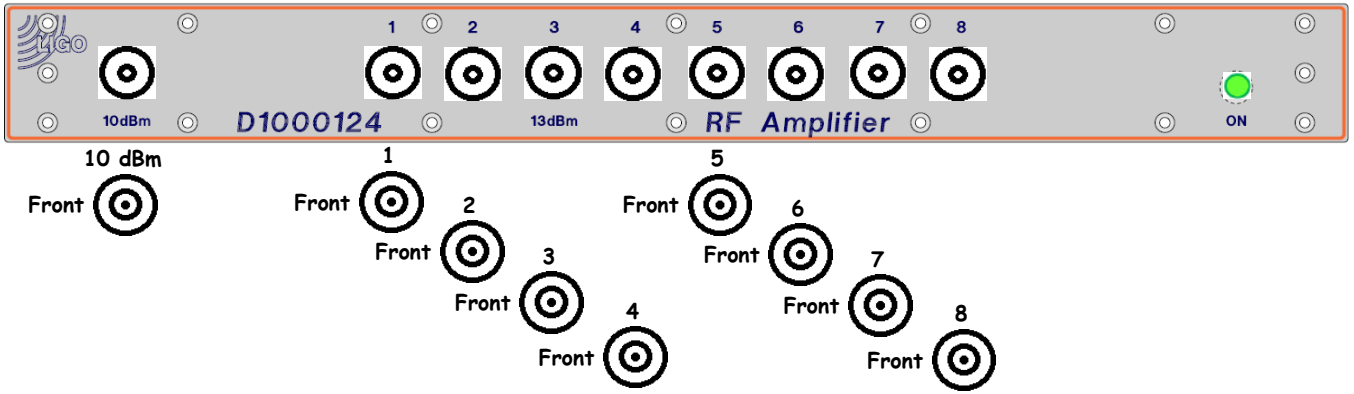
S1000577

Rear

D1000124 - S1000669

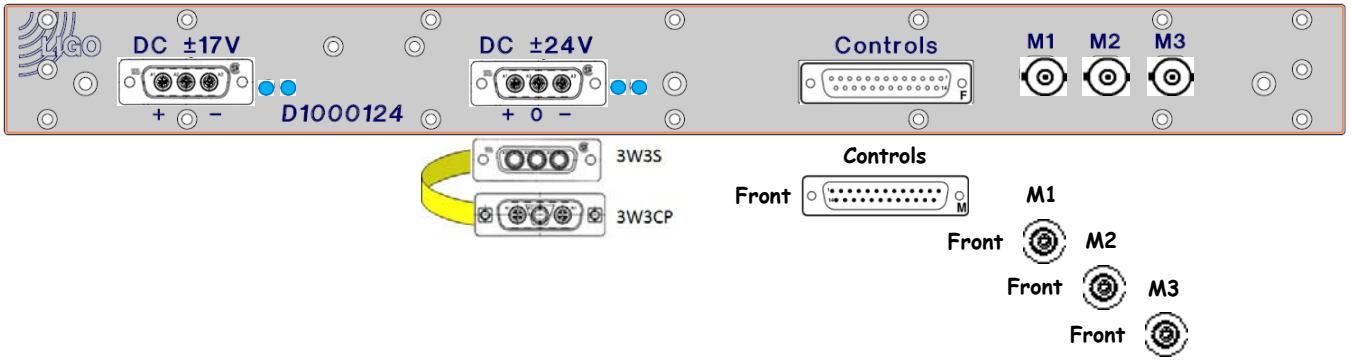
[<< L1-ISC-XC1]

24.4 MHz Distribution Amplifier | D1000124 | S1000669 | ±17VDC, ±24VDC



D1000124

Front



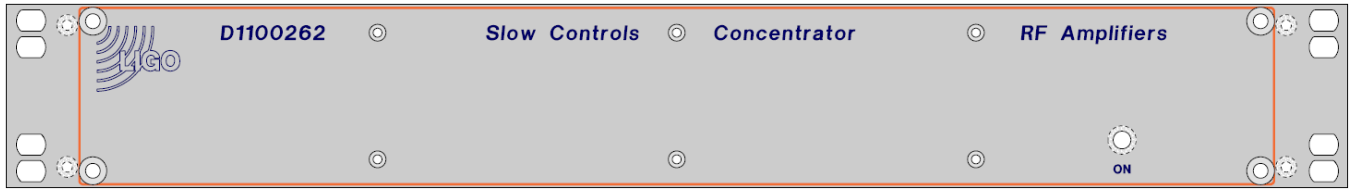
S1000669

Rear

D1100262 - S1106463

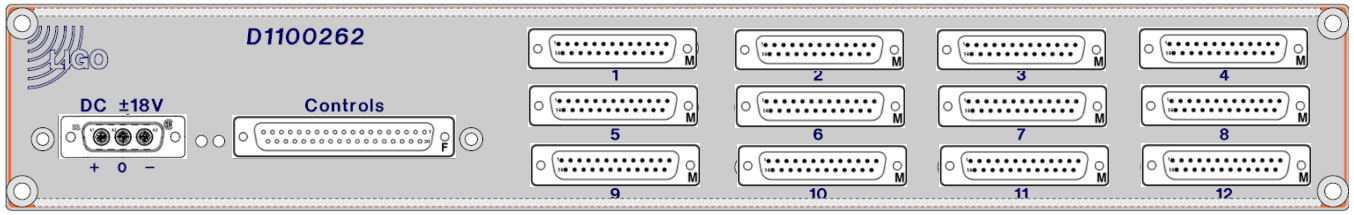
[<< L1-ISC-XC1]

RF Amplifier Concentrator 1 | D1100262 | S1106463 | ±18VDC



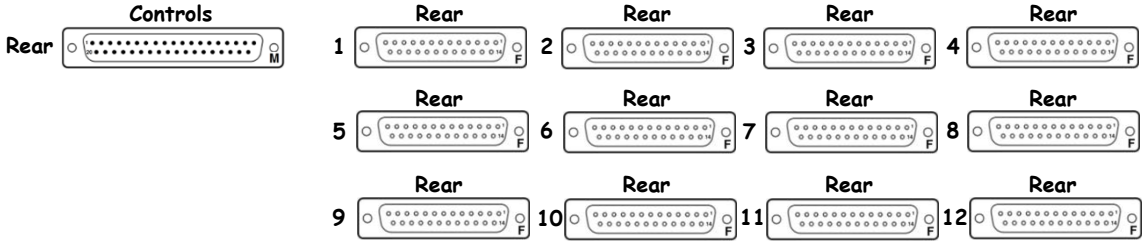
D1100262

Front



S1106463

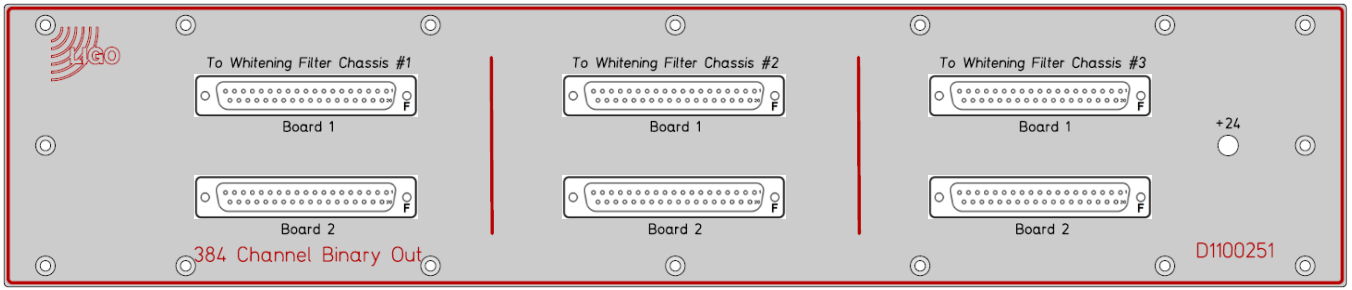
Rear



D1100251 - S1203283

[<< L1-ISC-XC1]

384 Channel Binary Output | D1100251 | S1203283 | +24VDC



D1100251

Front

Chassis 1 - Board 1 — Front

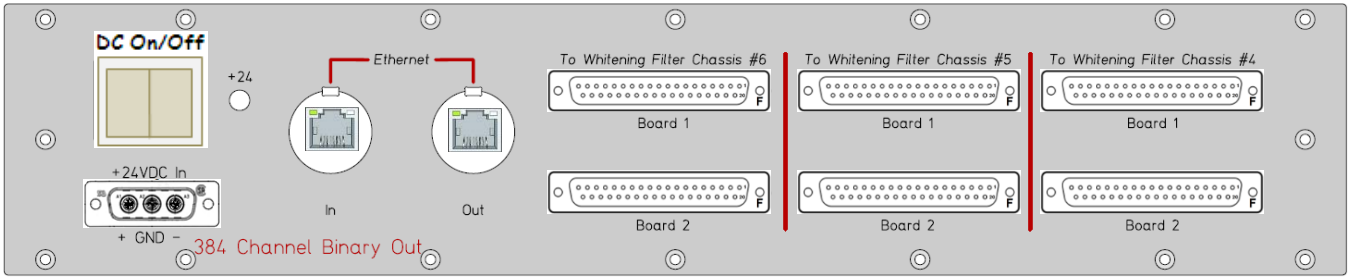
Chassis 2 - Board 1 — Front

Chassis 3 - Board 1 — Front

Chassis 1 - Board 2 — Front

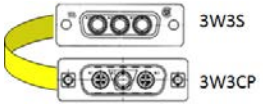
Chassis 2 - Board 2 — Front

Chassis 3 - Board 2 — Front



S1203283

Rear



Chassis 6 - Board 1 — Rear

Chassis 5 - Board 1 — Rear

Chassis 4 - Board 1 — Rear

Chassis 6 - Board 2 — Rear

Chassis 5 - Board 2 — Rear

Chassis 4 - Board 2 — Rear

In — Rear

Out — Rear

D1002961 - S1102618

[<< L1-ISC-XC1]

Beckhoff Slow Controls
ISC Common

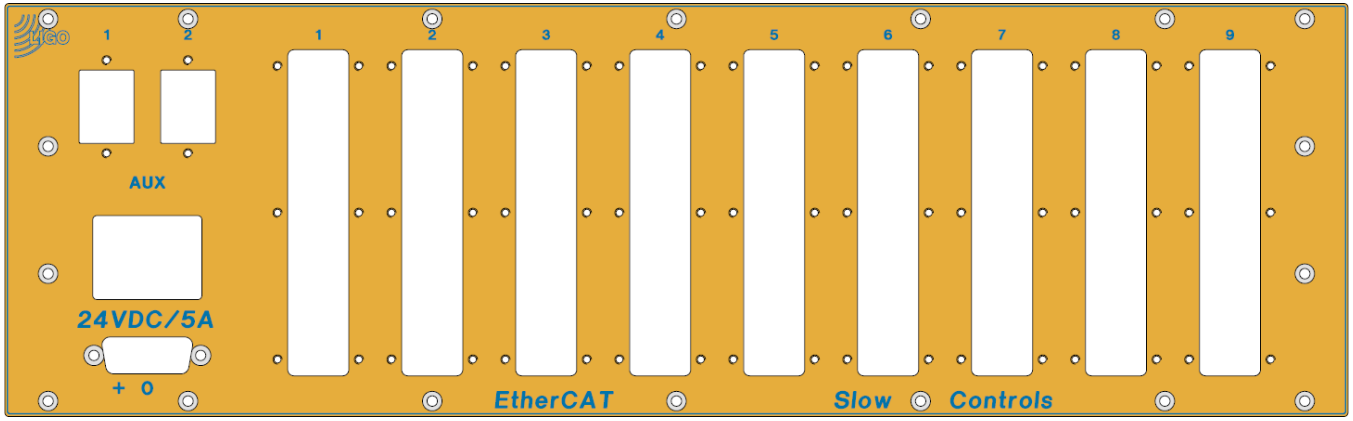
D1002961

S1102618

+24VDC

D1002961

Front: D0902553
Name: D1002962



S1102618

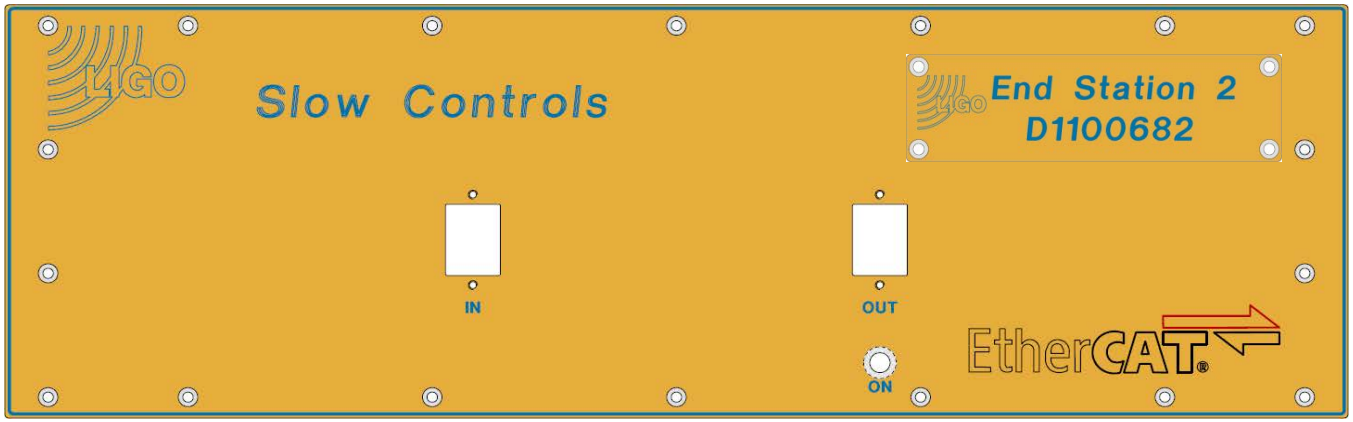
Rear: D0902554

D1100682 - S1107443

[<< L1-ISC-XC1]

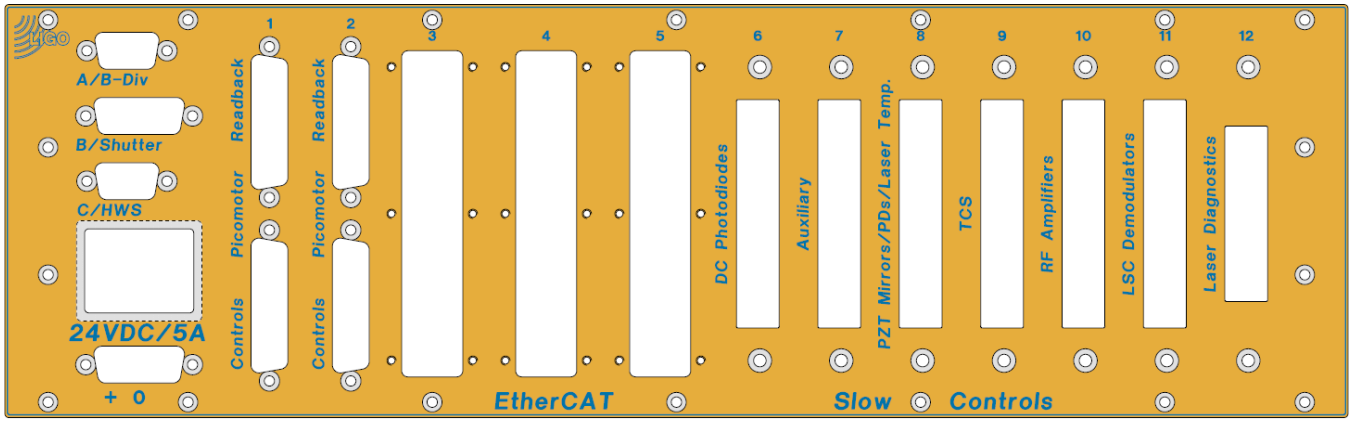
Beckhoff Slow Controls
End Station 2

D1100682 | S1107443 | +24VDC



D1100682

Front: D0902553
Name: D1101978



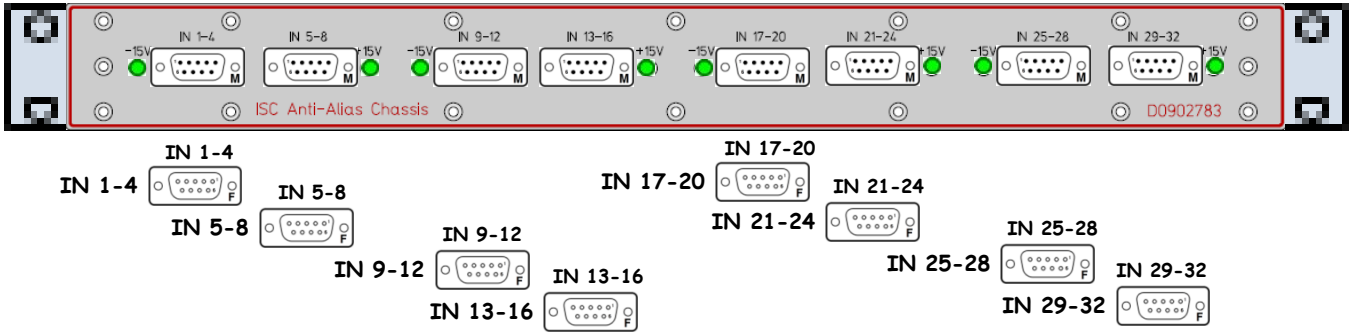
S1107443

Rear: D1101977

D0902783 - S1102675

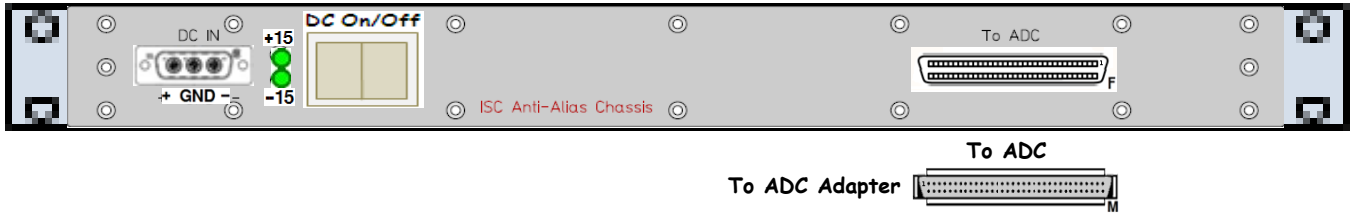
[<< L1-ISC-XC1]

Anti-Alias Chassis (8*DB9) | D0902783 | S1102675 | ±18VDC



D0902783

Front

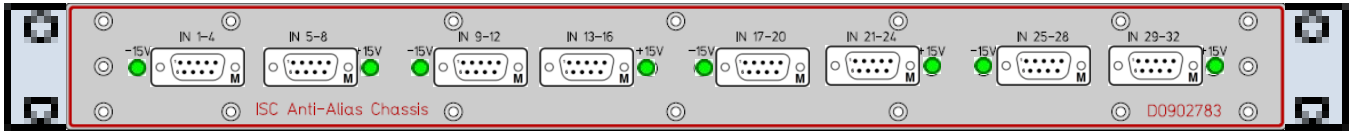


S1102675

Rear

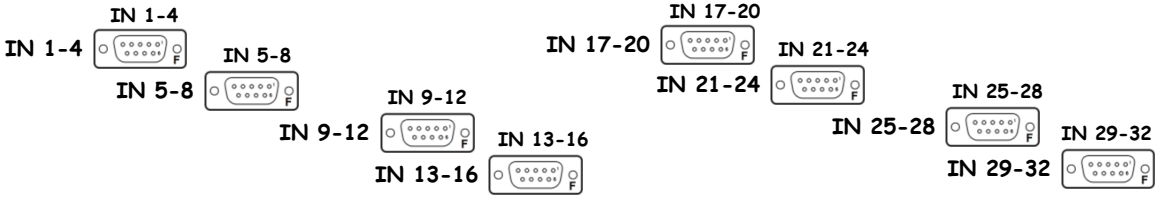
D0902783 - S1301310

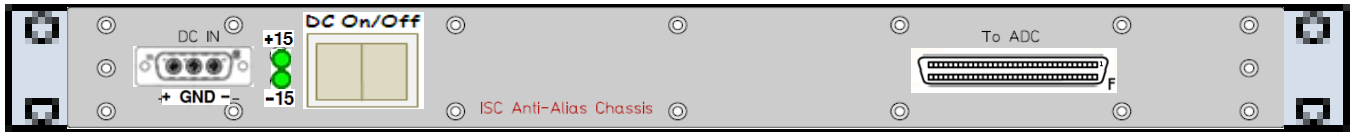
Anti-Alias Chassis (8*DB9) | D0902783 | S1301310 | ±18VDC



D0902783

Front





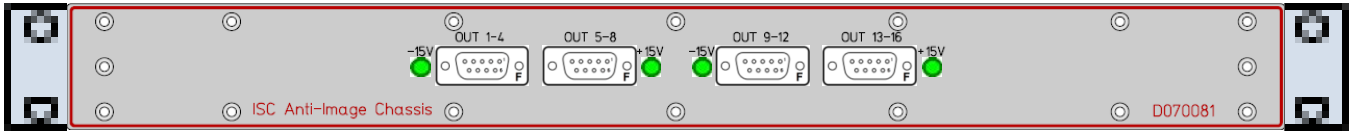
S1301310

Rear

D070081 – S1102676

[<< L1-ISC-XC1]

Anti-Image Chassis (4*DB9) | D070081 | S1102676 | ±18VDC



D070081

Front

S1102676

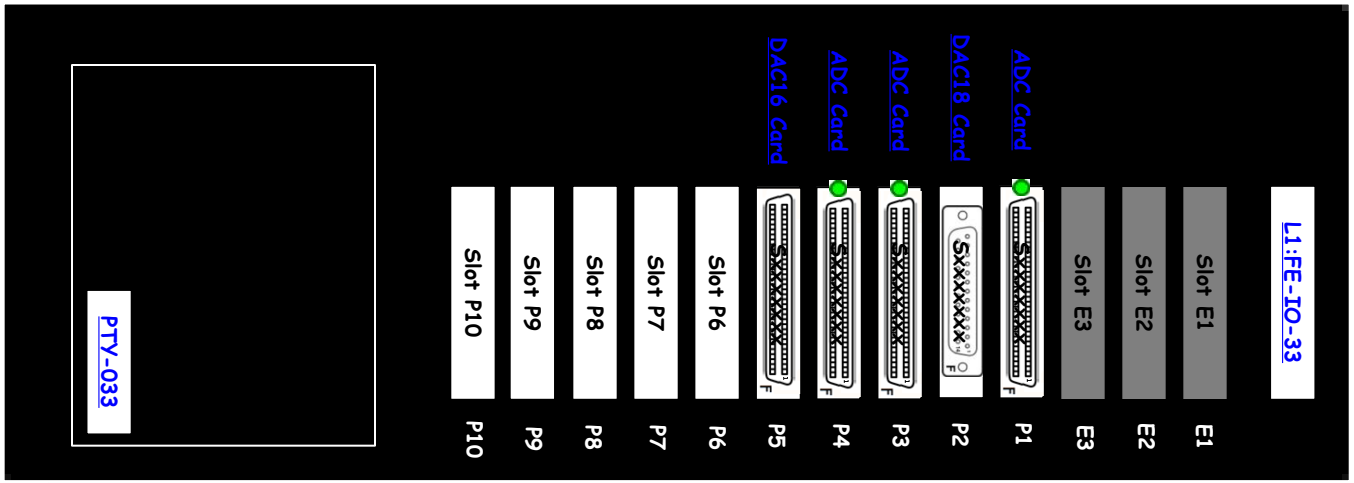
Rear

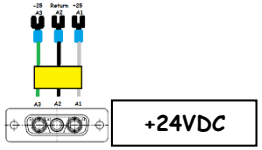
l1iscex – D1001715 – S1000536

[<< L1-ISC-XC1]

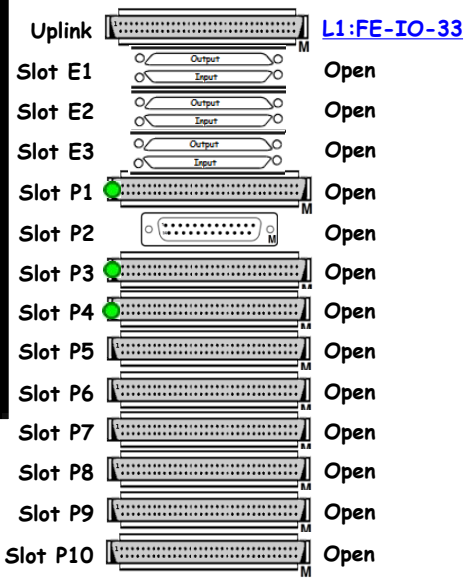
l1iscex I/O Extension Chassis | D1001715 | S1000536 | 110VAC

D1001715
Front





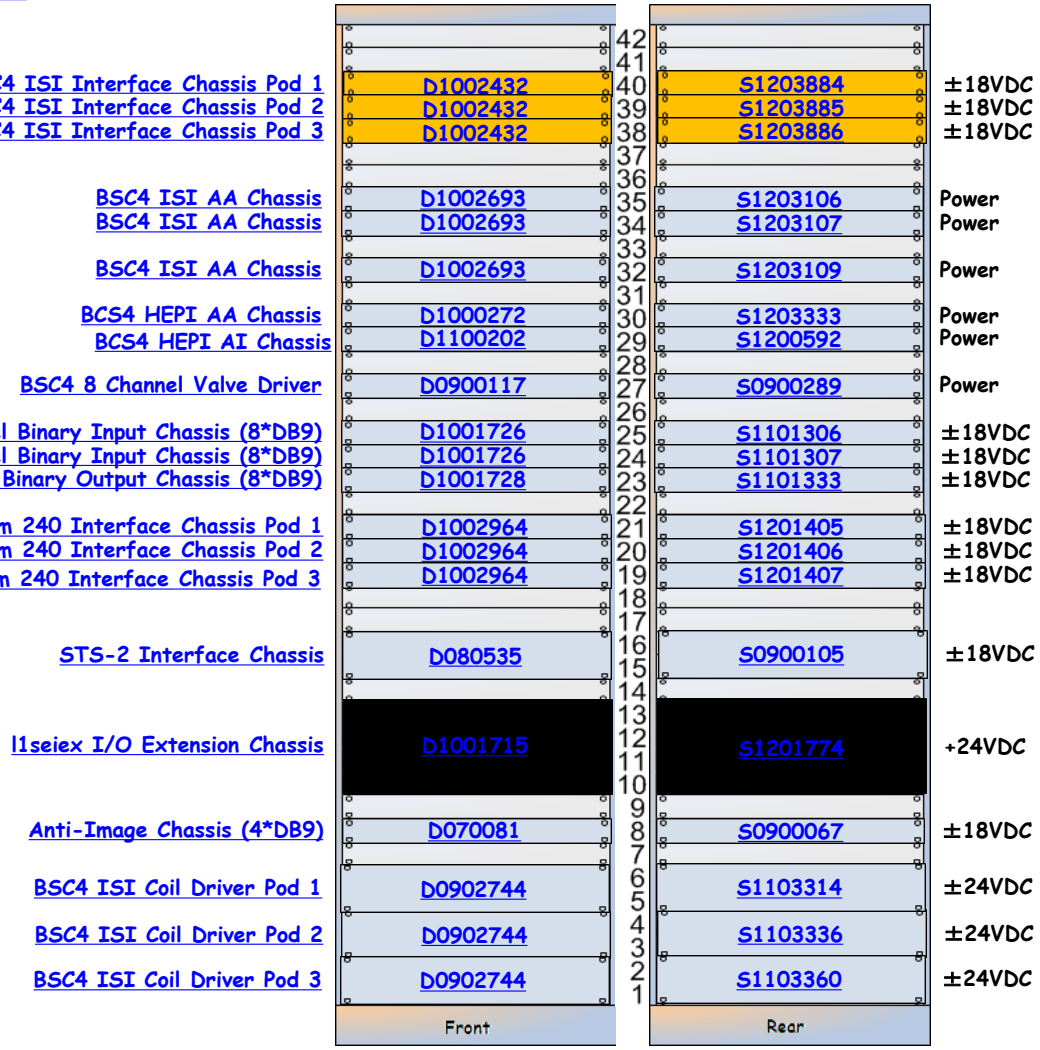
S1000536
Rear

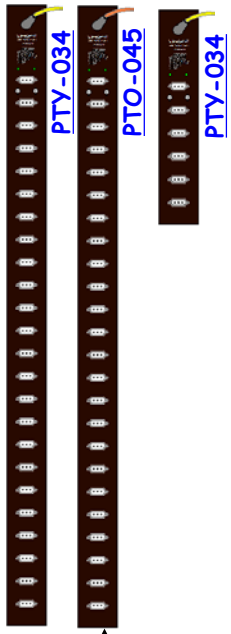


L1-SEI-XC1

<< CERX Racks
<< XEND Racks and Tables

L1-SEI-XC1 (BSC4) XEND Remote Rack 1 Layout (D1201081) (S1202945)





NOTE: One ±18VDC connector powers 4 HEPI Pods.

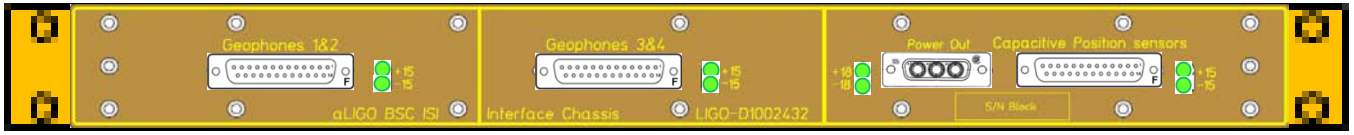
SEI-XC1 is part of D0901301

L1-SEI-XC1 Details

D1002432 - S1203884

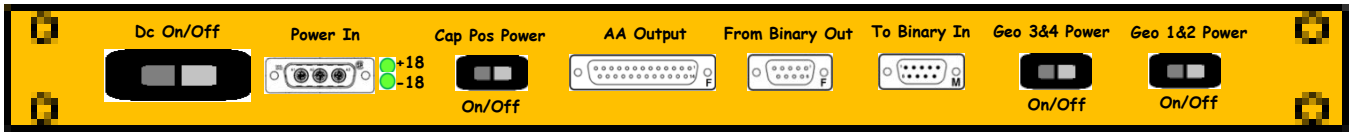
[<< L1-SEI-XC1]

BSC4 ISI Interface Chassis Pod 1 | D1002432 | S1203884 | ±18VDC



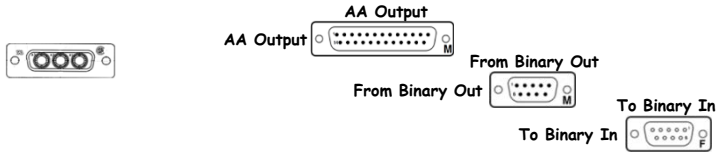
D1002432

Front



S1203884

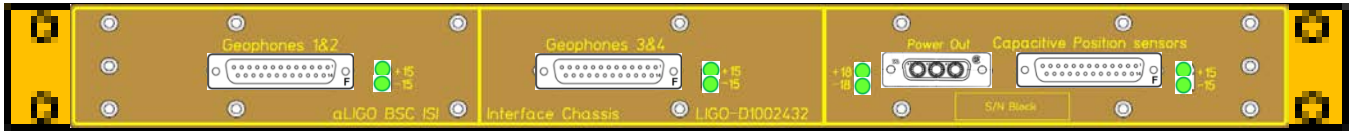
Rear



D1002432 - S1203885

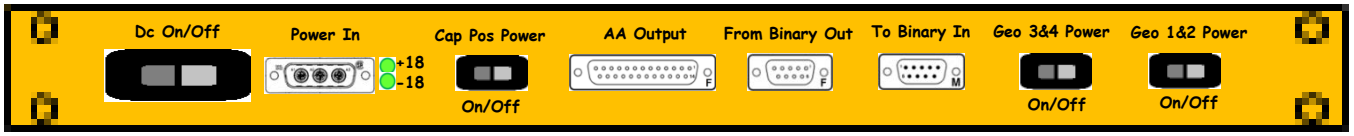
[<< L1-SEI-XC1]

BSC4 ISI Interface Chassis Pod 2 | D1002432 | S1203885 | ±18VDC



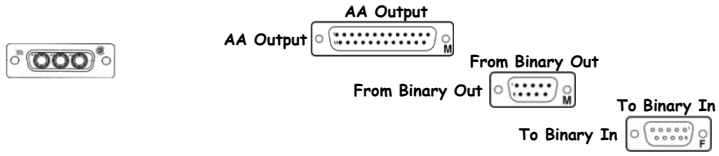
D1002432

Front



S1203885

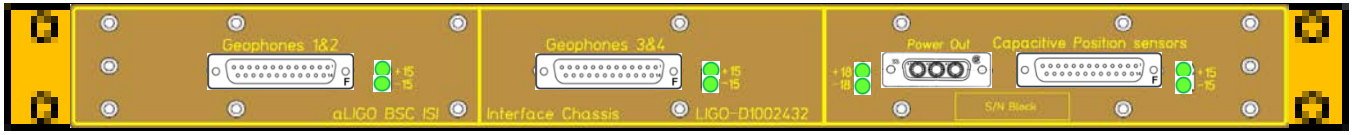
Rear



D1002432 - S1203886

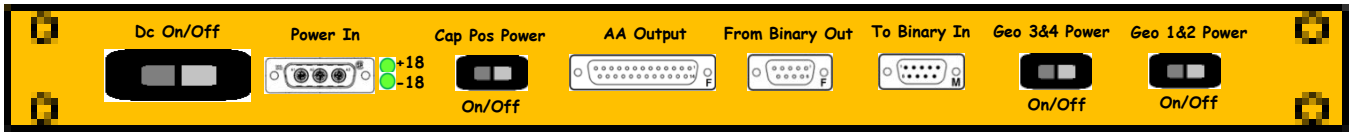
[<< L1-SEI-XC1]

BSC4 ISI Interface Chassis Pod 3 | D1002432 | S1203886 | ±18VDC



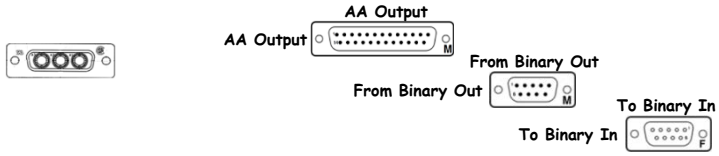
D1002432

Front



S1203886

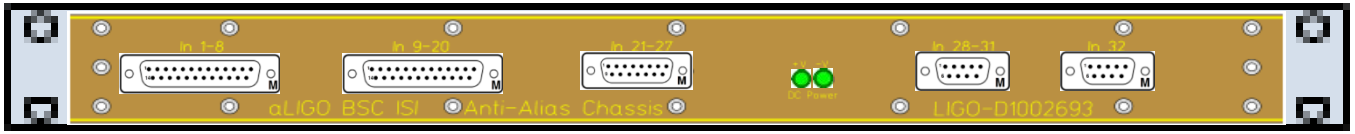
Rear



D1002693 - S1203106

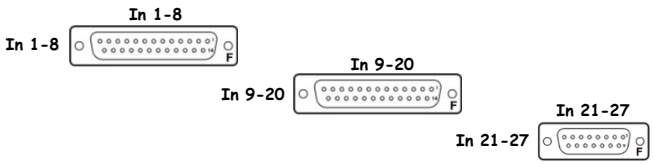
[<< L1-SEI-XC1]

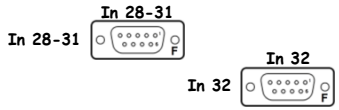
BSC4 ISI AA Chassis Pod 3 | D1002693 | S1203106 | Power

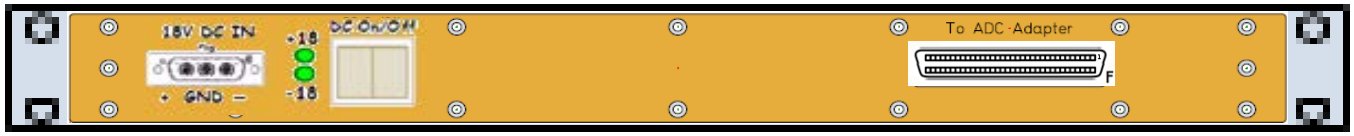


D1002693

Front

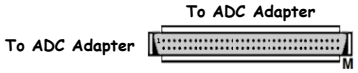






S1203106

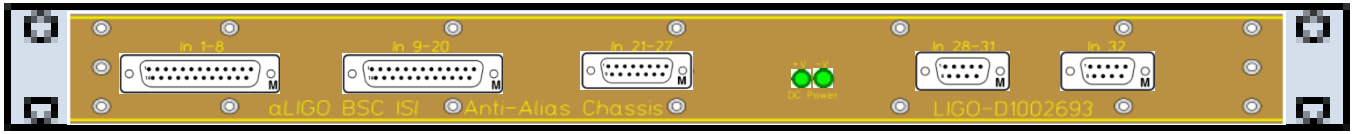
Rear



D1002693 - S1203107

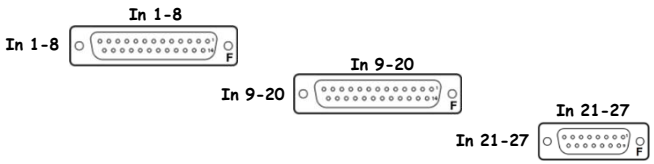
[<< L1-SEI-XC1]

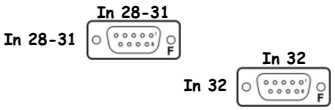
BSC4 ISI AA Chassis Pod 3 | D1002693 | S1203107 | Power

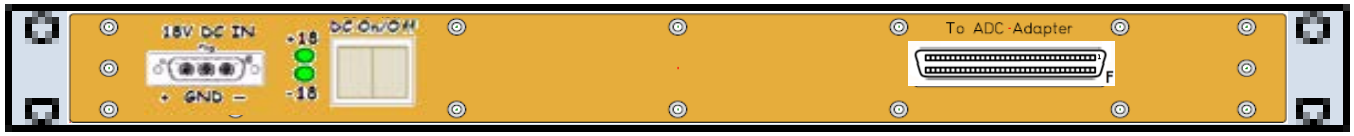


D1002693

Front

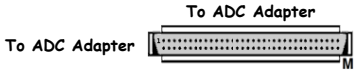






S1203107

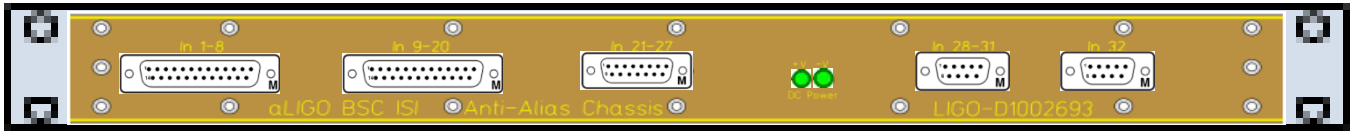
Rear



D1002693 - S1203109

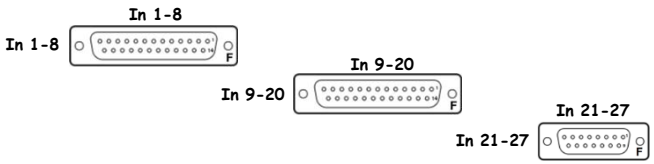
[<< L1-SEI-XC1]

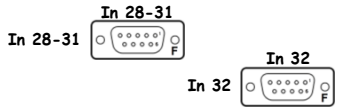
BSC4 ISI AA Chassis Pod 3 | D1002693 | S1203109 | Power

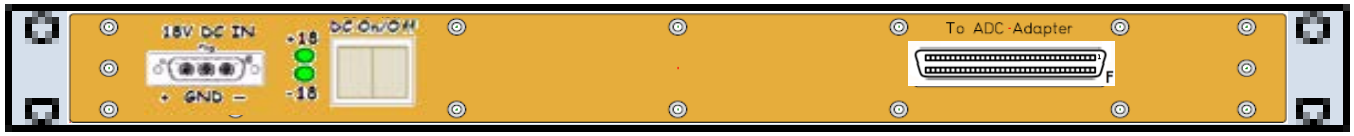


D1002693

Front

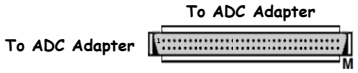






S1203109

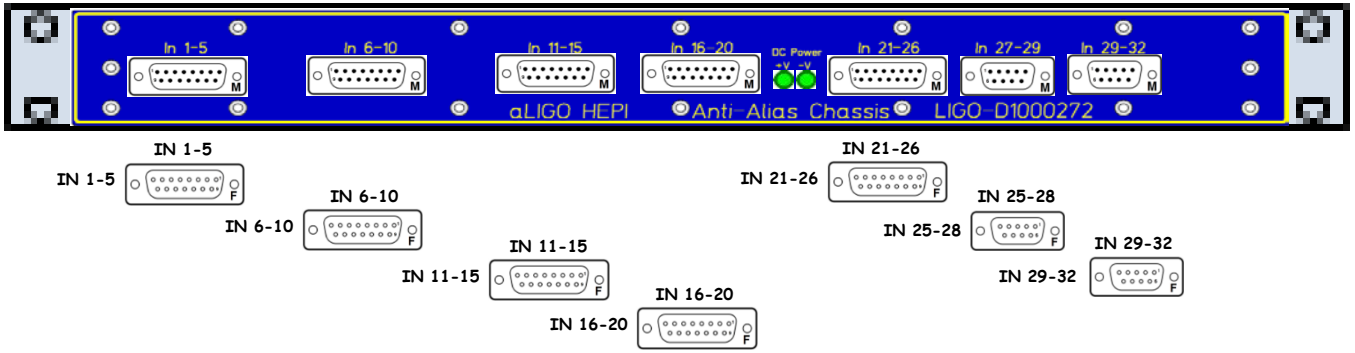
Rear



D1000272 - S1203333

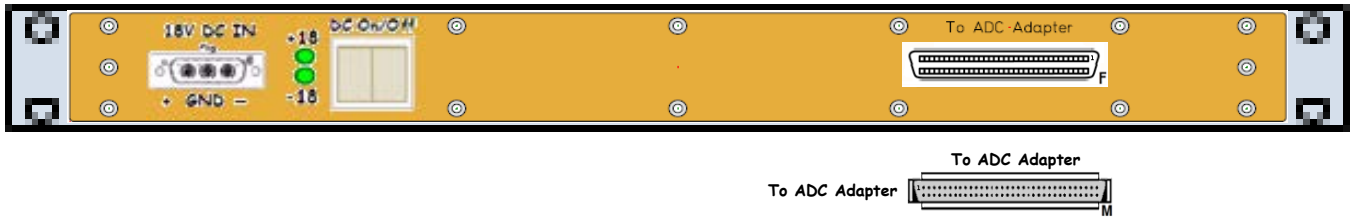
[<< L1-SEI-XC1]

BSC4 HEPI AA Chassis Pod 3 | D1000272 | S1203333 | Power



D1000272

Front



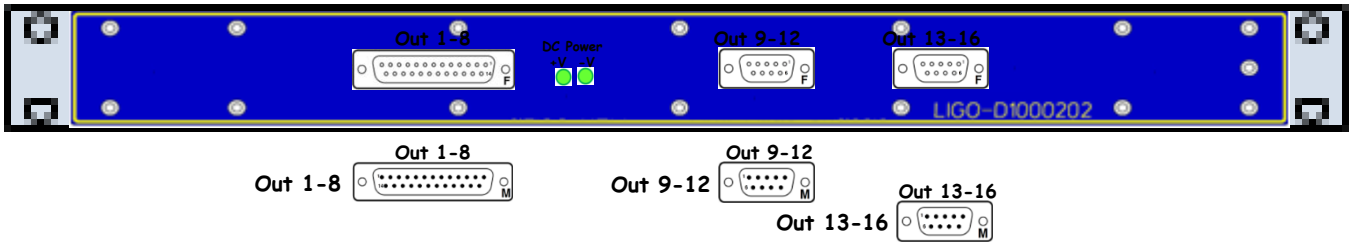
S1203333

Rear

D1100202 - S1200592

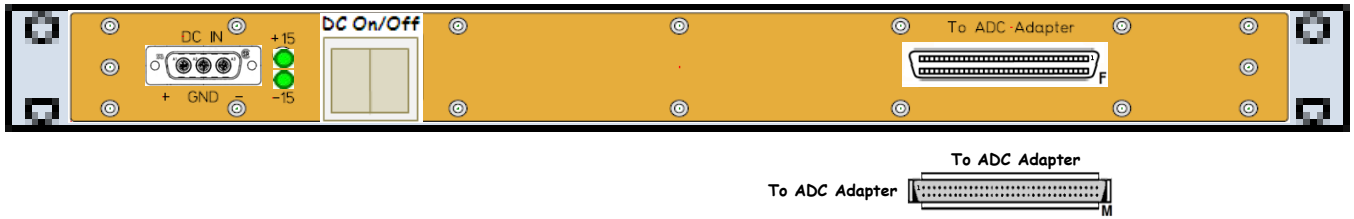
[<< L1-SEI-XC1]

BSC4 HEPI AI Chassis [D1100202] [S1200592] Power



[D1100202]

Front



[S1200592]

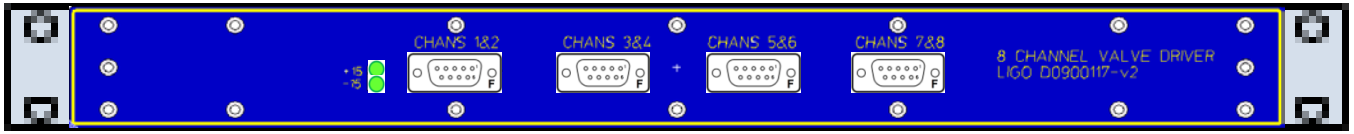
Rear

D0900117 - S0900289

[<< L1-SEI-XC1]

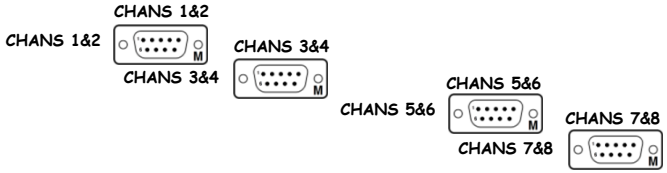
BSC4 8 Channel Valve Driver | D0900117 | S0900289 | Power

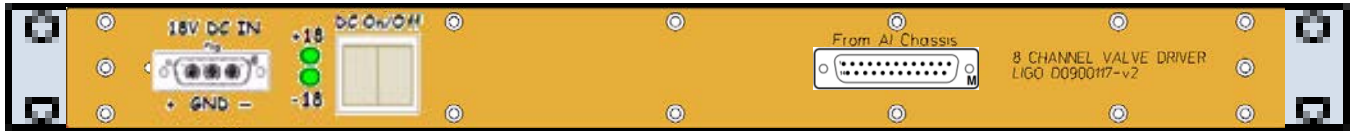
BSC4



D0900117

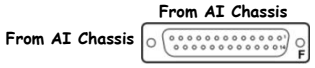
Front





S0900289

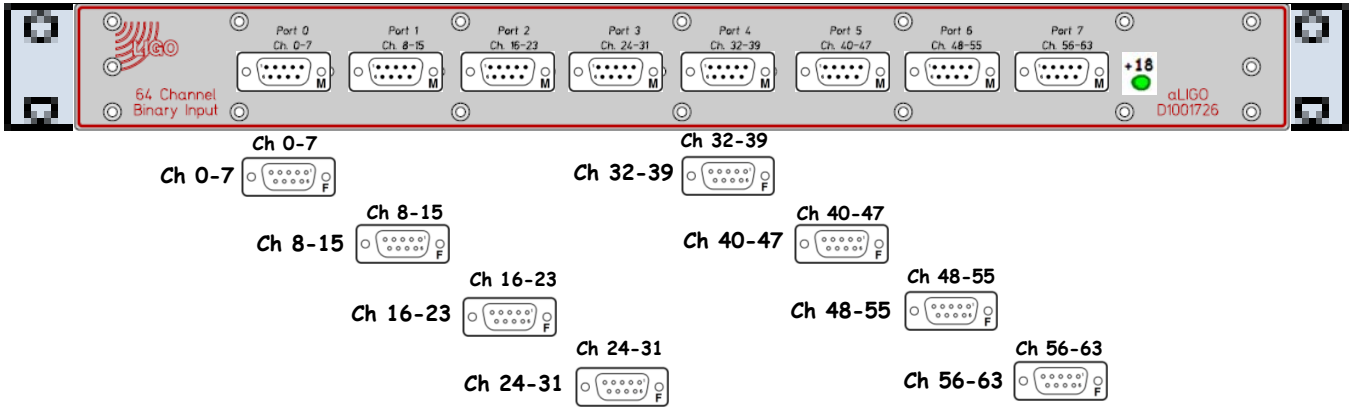
Rear



D1001726 - S1101306

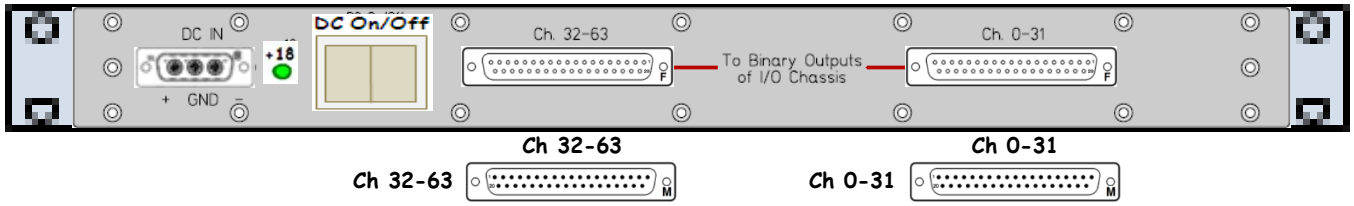
[<< L1-SEI-XC1]

64 Channel Binary Input Chassis (8*DB9) | D1001726 | S1101306 | ±18VDC



D1001726

Front



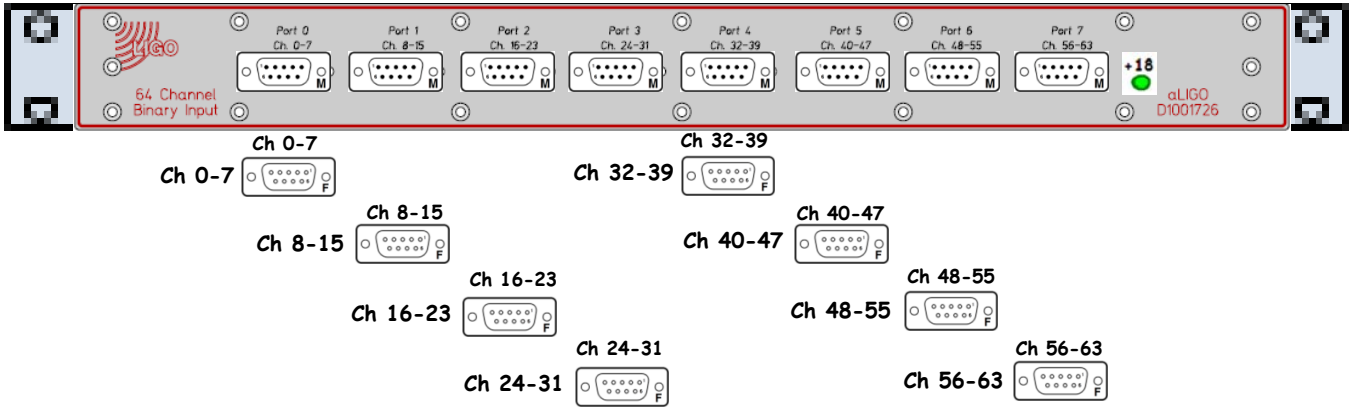
S1101306

Rear

D1001726 - S1101307

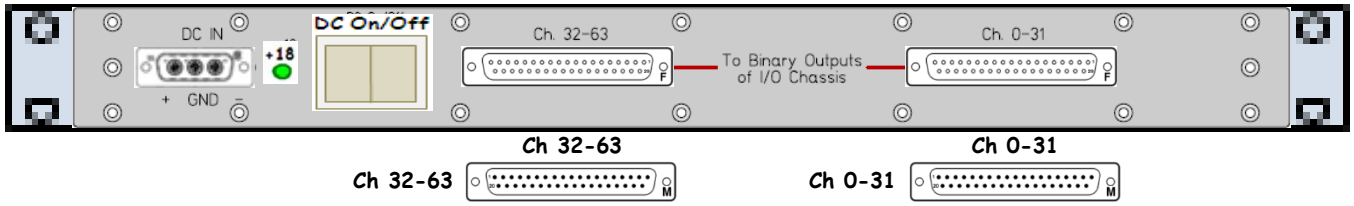
[<< L1-SEI-XC1]

64 Channel Binary Input Chassis (8*DB9) | D1001726 | S1101307 | ±18VDC



D1001726

Front



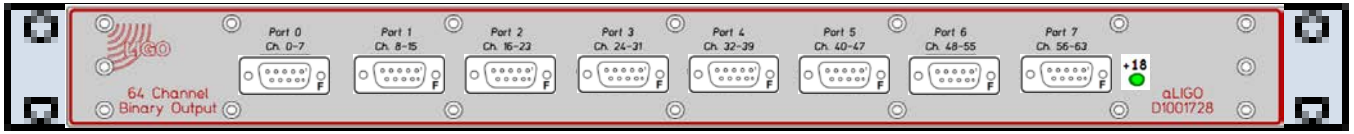
S1101307

Rear

D1001728 - S1101333

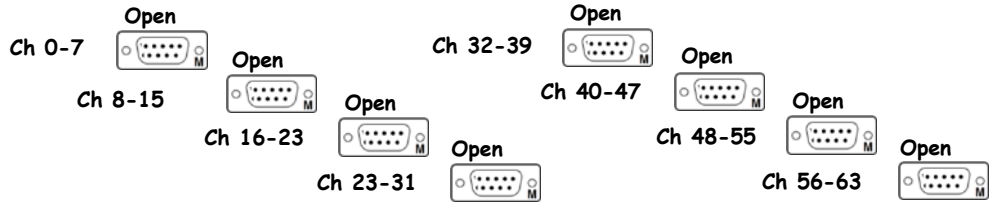
[<< L1-SEI-XC1]

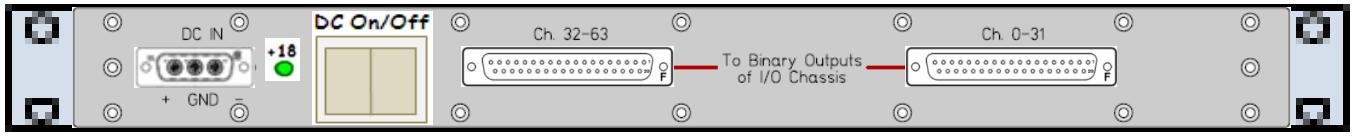
64 Channel Binary Output Chassis (8*DB9) | D1001728 | S1101333 | ±18VDC



D1001728

Front





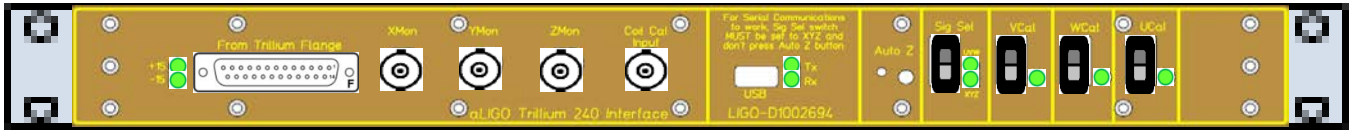
S1101333

Rear

D1002964 - S1201405

[<< L1-SEI-XC1]

Trillium 240 Interface Chassis Pod 1 | D1002964 | S1201405 | ±18VDC



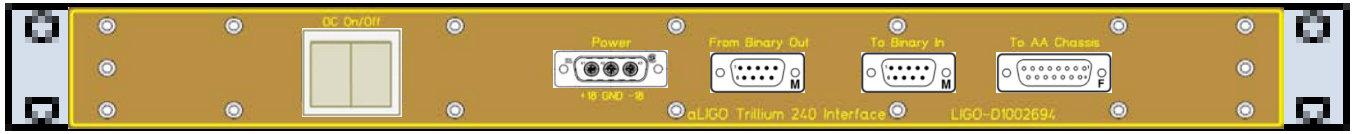
D1002694

Front

From Trillium Flange

From Trillium Flange

M



S1201405

Rear

From Binary Out

From Binary Out

F

To Binary In

To Binary In

F

To AA Chassis

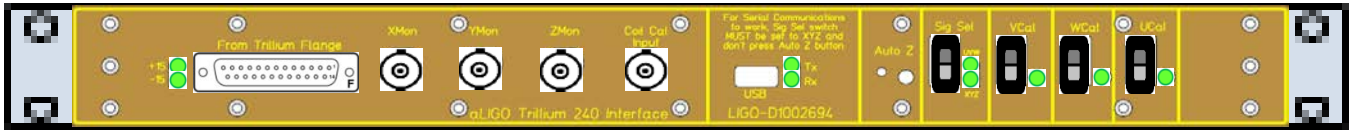
To AA Chassis

M

D1002964 – S1201406

[<< L1-SEI-XC1]

Trillium 240 Interface Chassis Pod 2 | D1002964 | S1201406 | ±18VDC

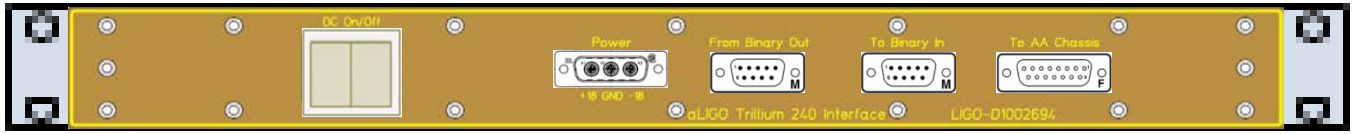


D1002694

Front

From Trillium Flange

From Trillium Flange



S1201406

Rear

From Binary Out

From Binary Out

To Binary In

To Binary In

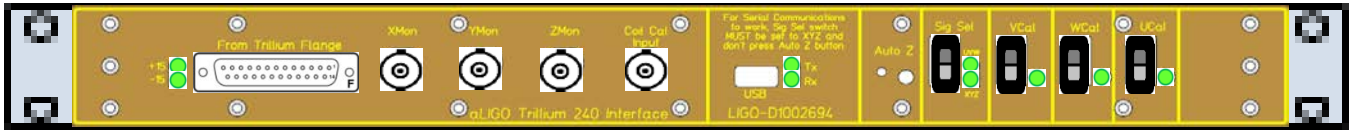
To AA Chassis

To AA Chassis

D1002964 - S1201407

[<< L1-SEI-XC1]

Trillium 240 Interface Chassis Pod 3 | D1002964 | S1201407 | ±18VDC

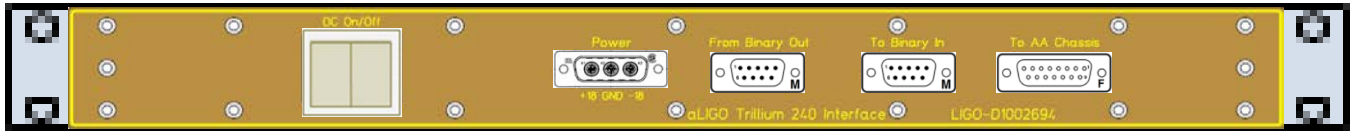


D1002694

Front

From Trillium Flange

From Trillium Flange



S1201407

Rear

From Binary Out

From Binary Out

To Binary In

To Binary In

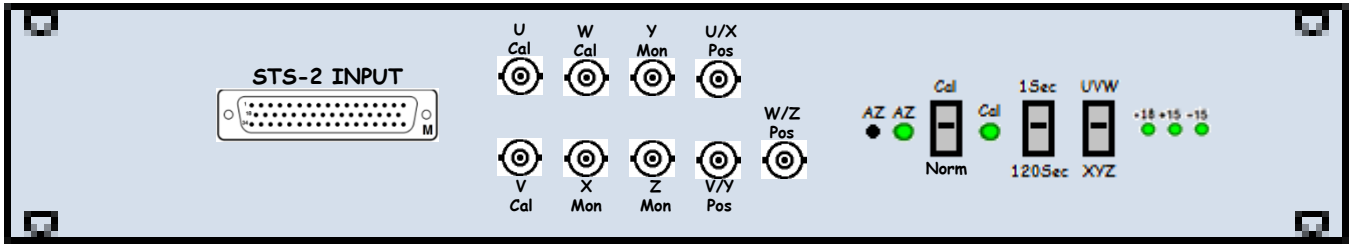
To AA Chassis

To AA Chassis

D080535 - S0900105

[<< L1-SEI-XC1]

STS-2 Interface Chassis | D080535 | S0900105 | ±18VDC

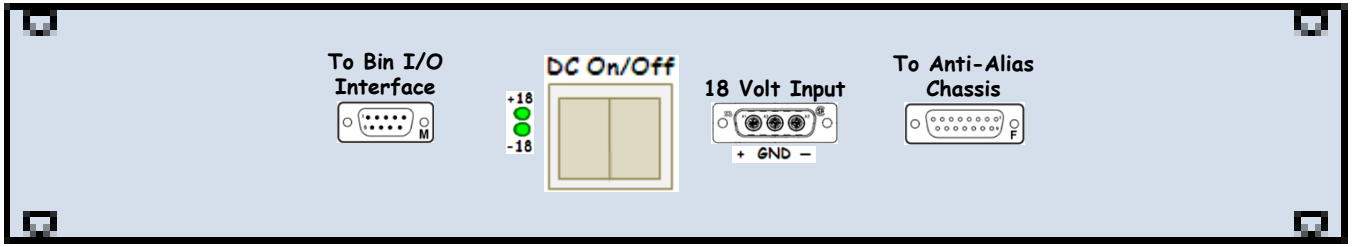


D080535

Front

STS-2 INPUT

STS-2 INPUT



S0900105

Rear

To Bin I/O

To Bin I/O

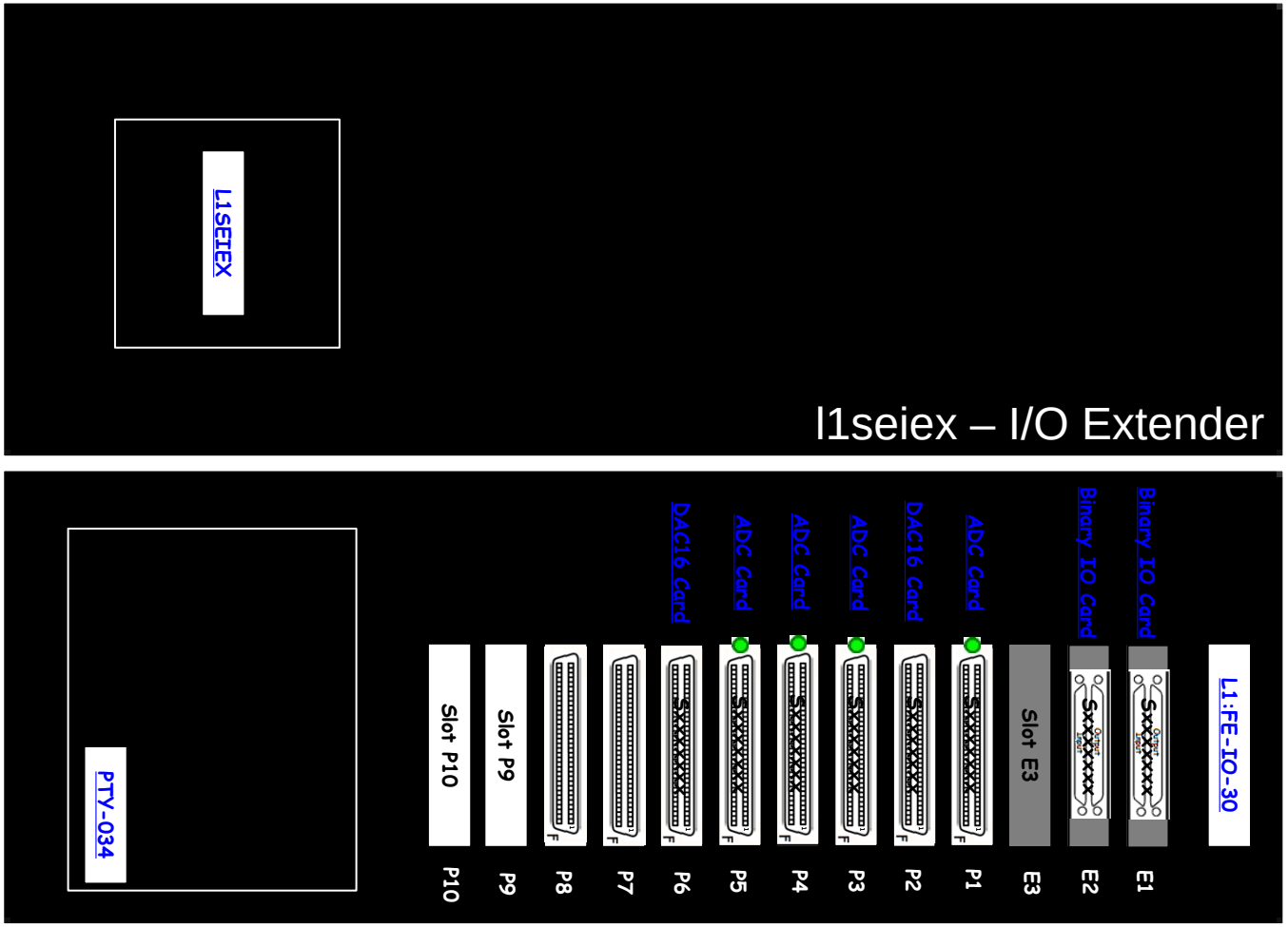
To Anti-Alias

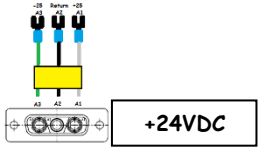
To Anti-Alias

l1seiex D1001715 - S1201774

<< L1-SEI-XC1

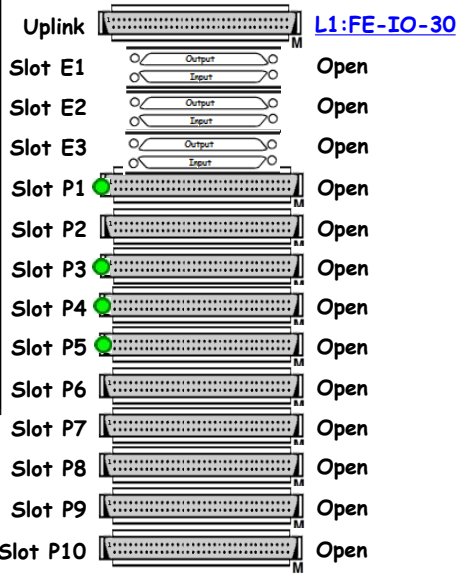
l1seiex I/O Extension Chassis | D1001715 | S1201774 | +24VDC





D1001715
Front

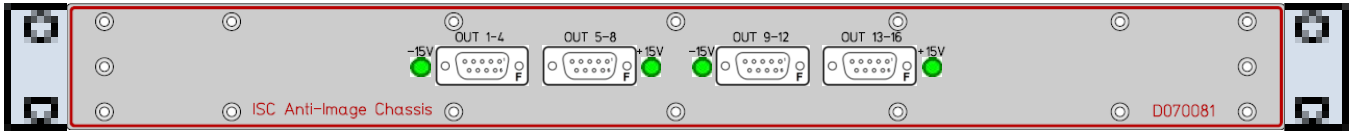
S1201774
Rear



D070081 - S0900067

[<< L1-SEI-XC1]

Anti-Image Chassis (4*DB9) | D070081 | S0900067 | ±18VDC



D070081

Front

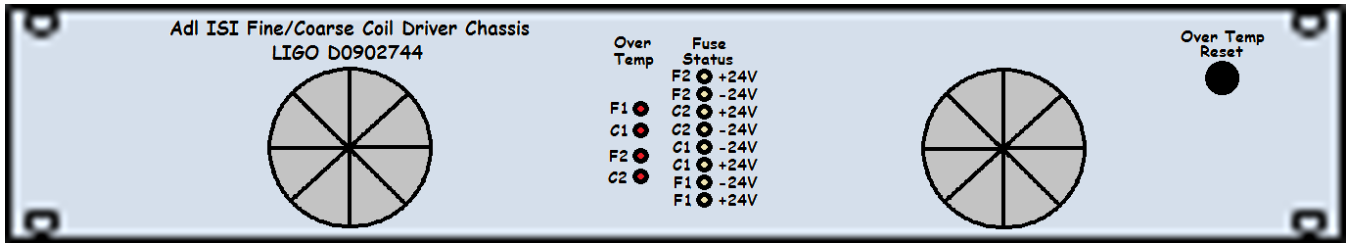
S0900067

Rear

D0902744 - S1103314

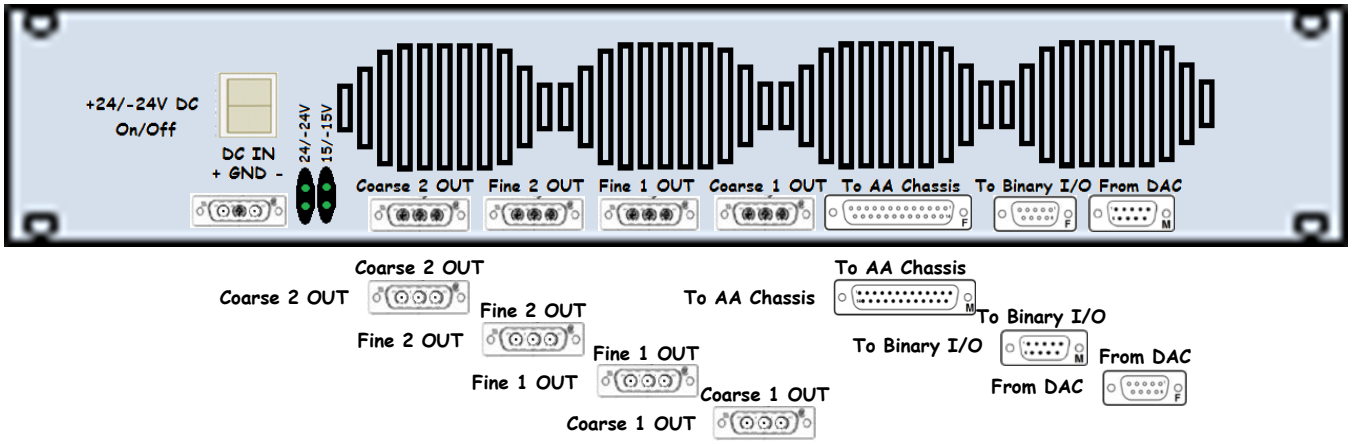
[<< L1-SEI-XC1]

BSC4 ISI Coil Driver Pod 1 | D0902744 | S1103314 | +24V@1.2A, -24V@0.8A



[D0902744]

Front



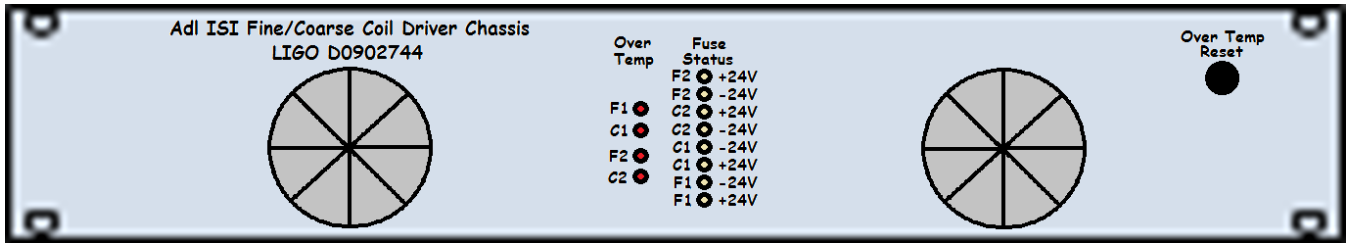
[S1103314]

Rear

D0902744 - S1103336

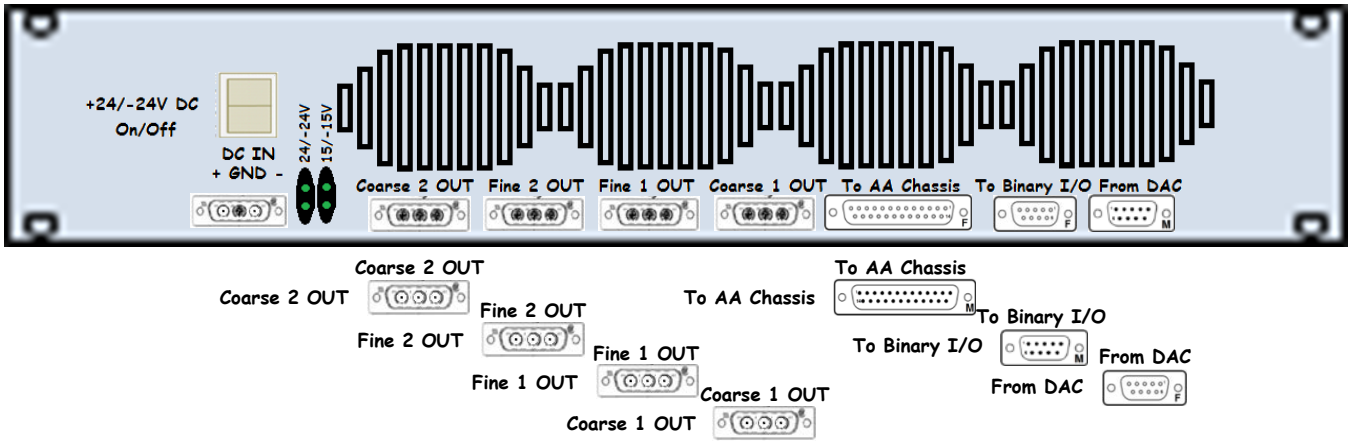
[<< L1-SEI-XC1]

BSC4 ISI Coil Driver Pod 2 | D0902744 | S1103336 | +24V@1.2A, -24V@0.8A



D0902744

Front



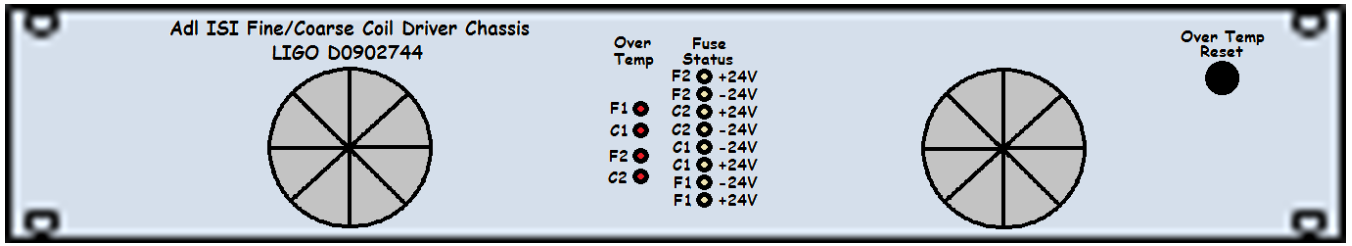
S1103336

Rear

D0902744 - S1103360

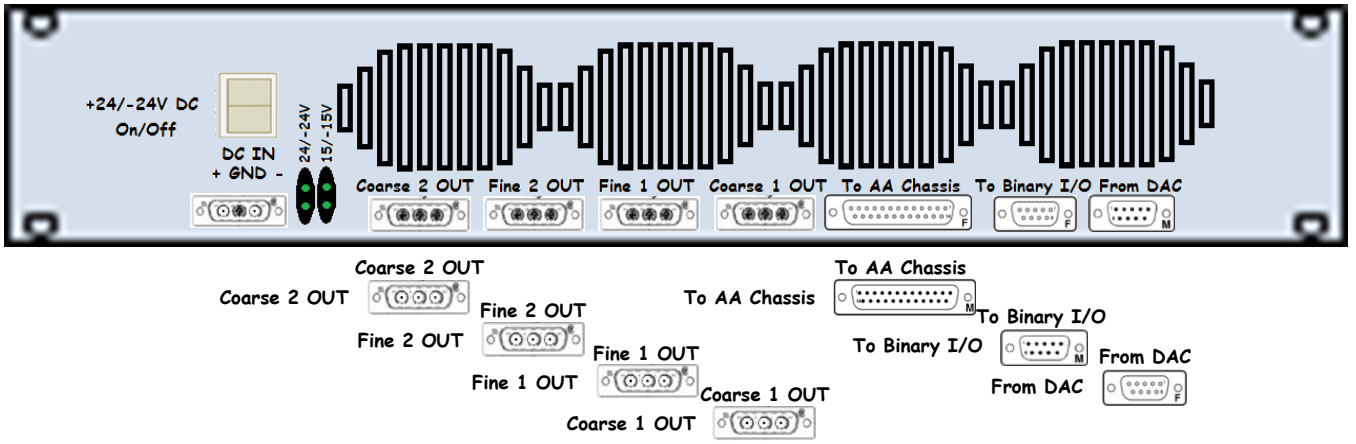
[<< L1-SEI-XC1]

BSC4 ISI Coil Driver Pod 3 | D0902744 | S1103360 | +24V@1.2A, -24V@0.8A



D0902744

Front



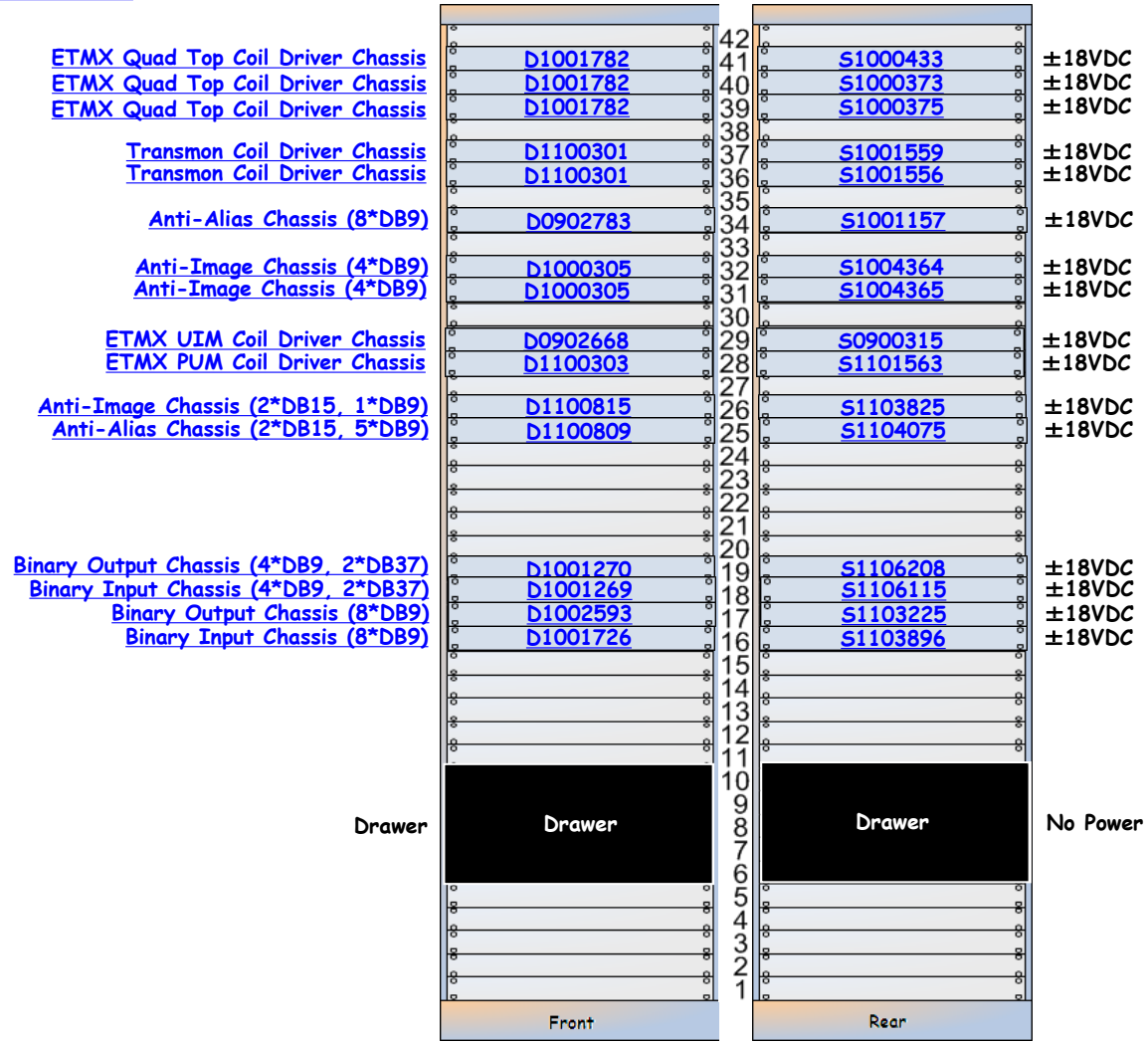
S1103360

Rear

L1-SUS-XC1

<< CERX Racks
<< XEND Racks and Tables

L1-SUS-XC1 (ETM) XEND Remote Rack 1 (of 2) Layout (D1201082) (S1202946)



PTO-043

SUS-XC1 is part of D1002741.

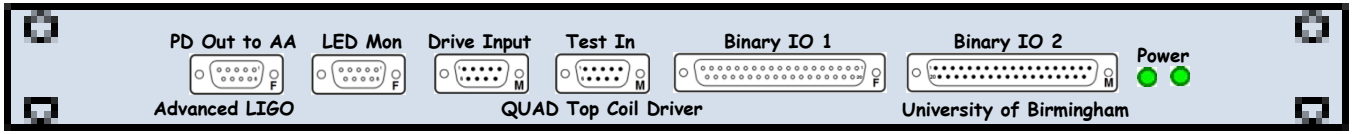
L1-SUS-XC1 Details

SUS-XC1 is part of D1002741.

D1001782 - S1000433

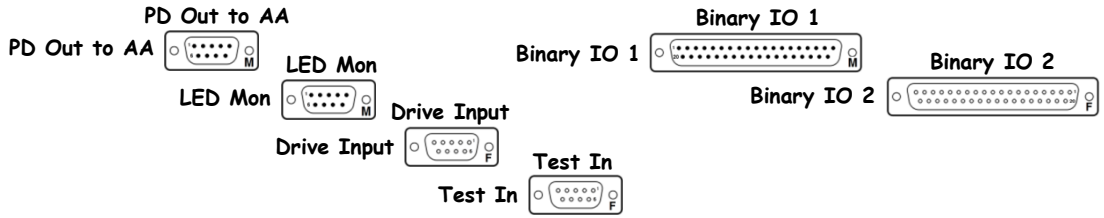
[<< L1-SUS-XC1]

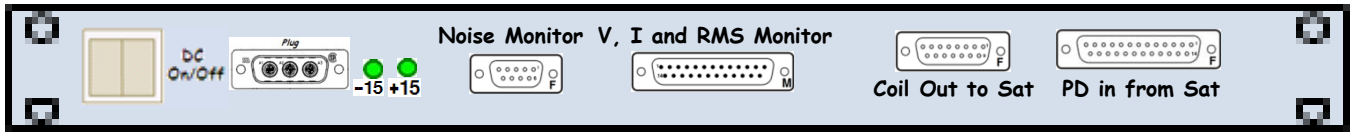
ETMX Quad Top Coil Driver Chassis [D1001782] [S1000433] ±18VDC



[D1001782]

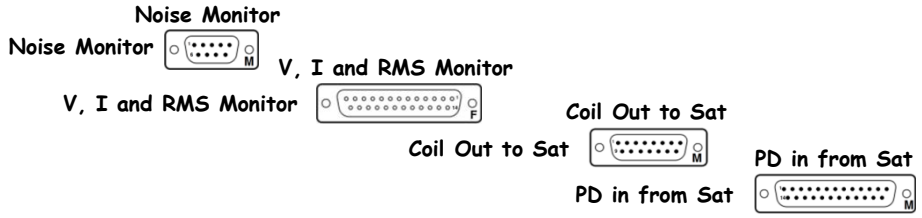
Front





[S1000433]

Rear

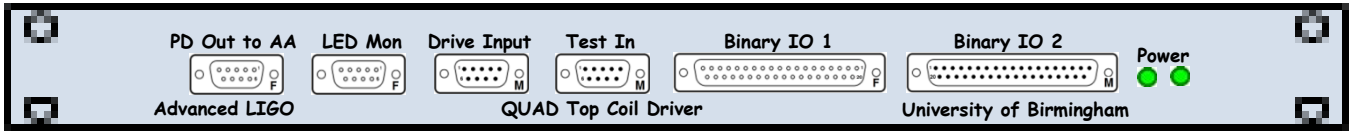


[Driver Board: D0902747]
[Monitor Board: D070480]

D1001782 - S1000373

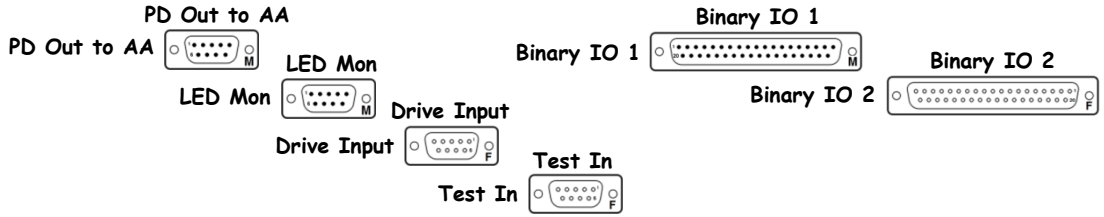
[<< L1-SUS-XC1]

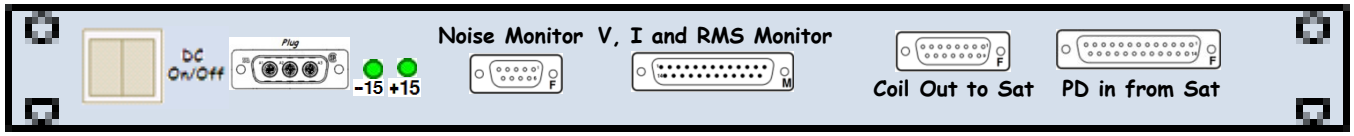
ETMX Quad Top Coil Driver Chassis [D1001782] [S1000373] ±18VDC



[D1001782]

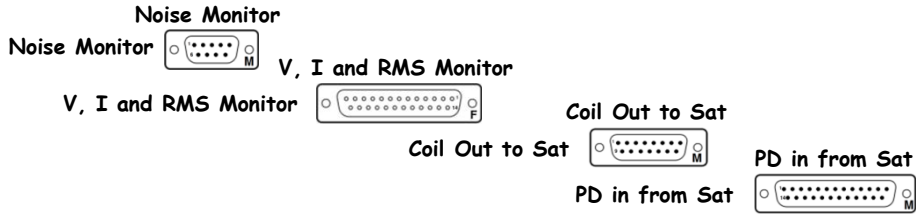
Front





[S1000373]

Rear

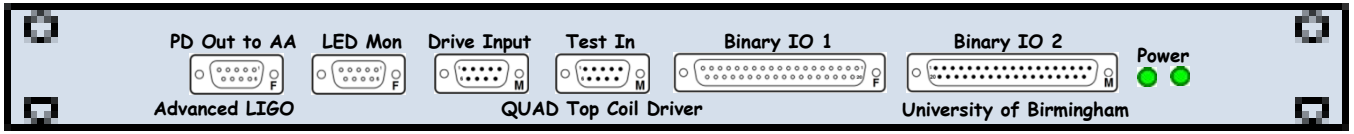


[Driver Board: D0902747]
[Monitor Board: D070480]

D1001782 - S1000375

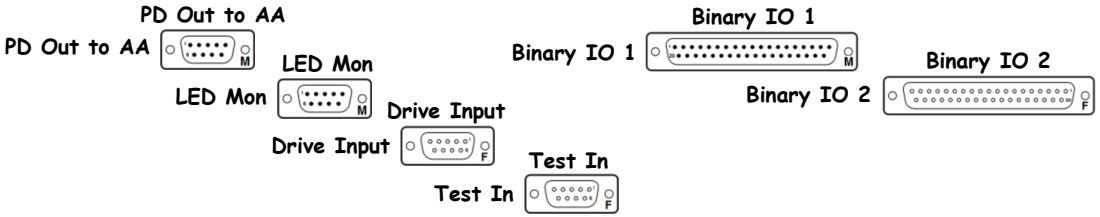
[<< L1-SUS-XC1]

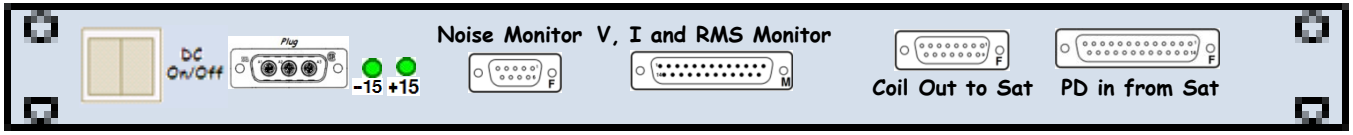
ETMX Quad Top Coil Driver Chassis [D1001782] [S1000375] ±18VDC



[D1001782]

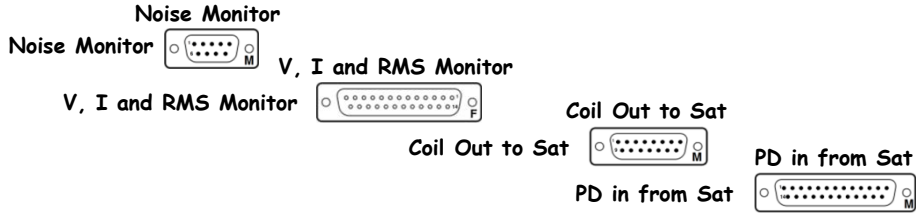
Front





[S1000375]

Rear

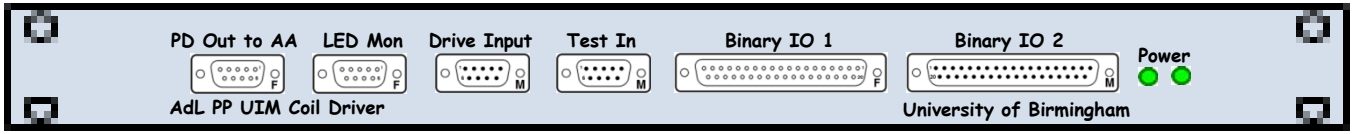


[Driver Board: D0902747]
[Monitor Board: D070480]

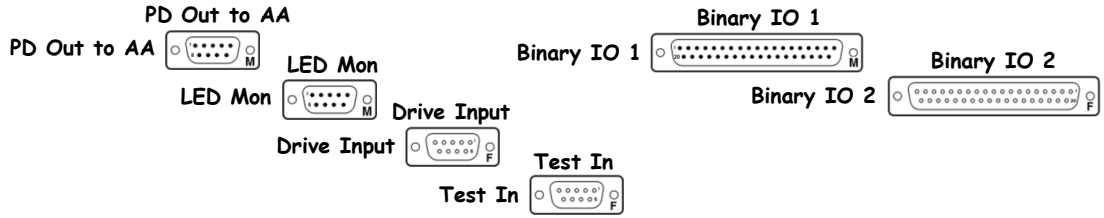
D1100301 - S1001559

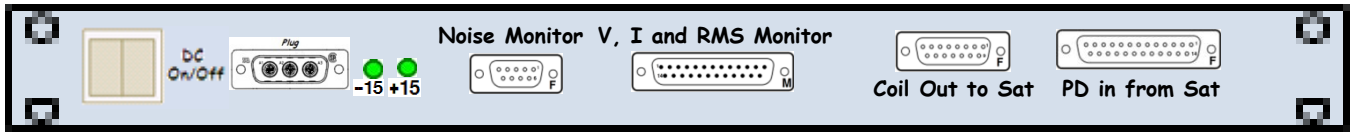
LIGO
<< L1-SUS-XC1

Transmon Coil Driver Chassis | D1100301 | S1001559 | ±18VDC



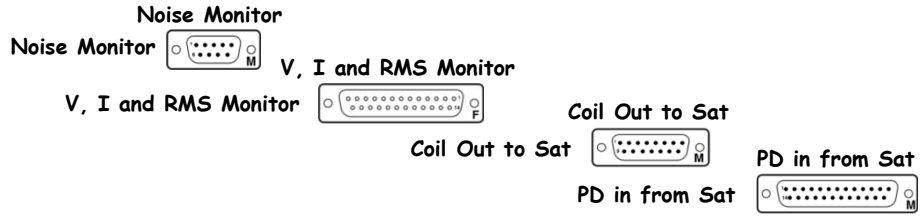
D070481
D070480
Front





S1001559

Rear



D1100301 – S1001556

LIGO
<< L1-SUS-XC1

Transmon Coil Driver Chassis | D1100301 | S1001556 | ±18VDC

D1100301

Front

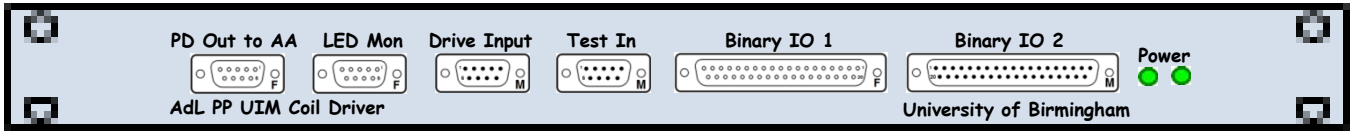
S1001556

Rear

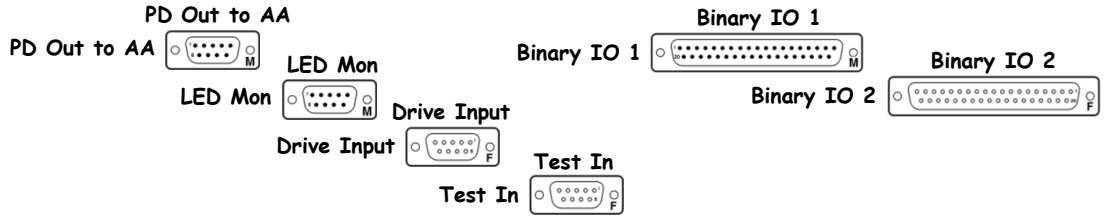
D0902668 - S0900315

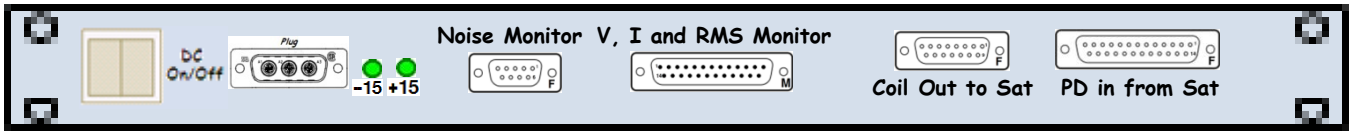
LIGO
<< L1-SUS-XC1

ETMX UIM Coil Driver Chassis D0902668 S0900315 ±18VDC



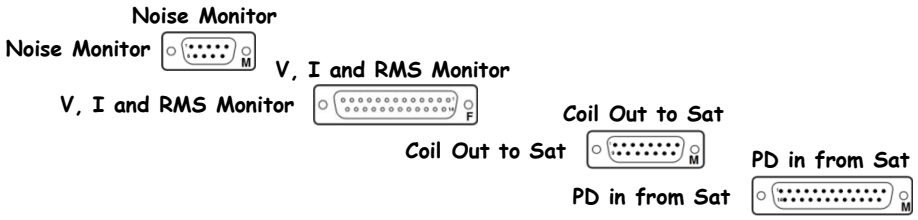
D070481
D070480
Front





S0900315

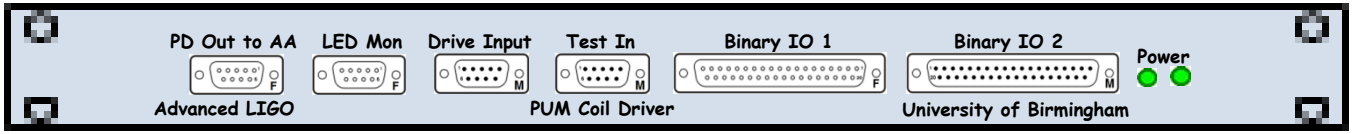
Rear



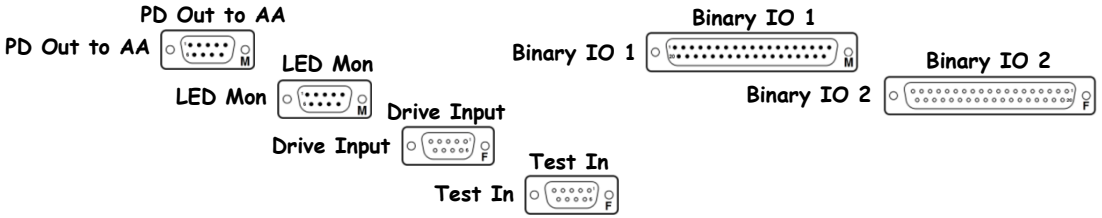
D1100303 - S1101563

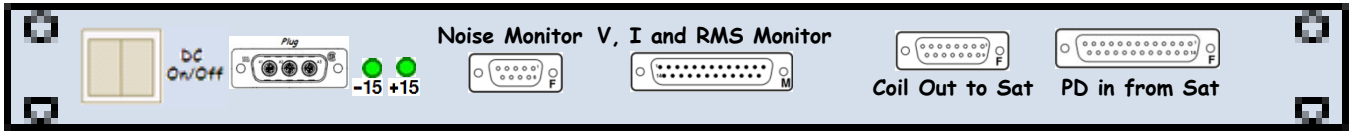
LIGO
<< L1-SUS-XC1

ETMX PUM Coil Driver Chassis D1100303 S1101563 ±18VDC



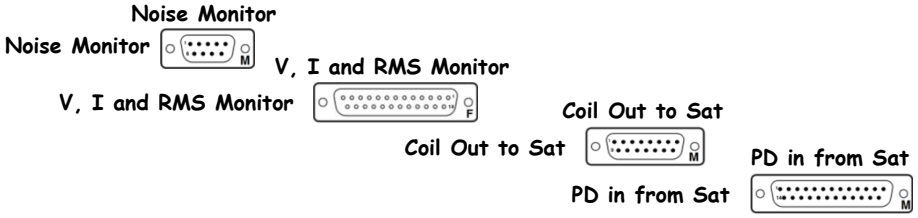
D070483
D070480
Front





S1101563

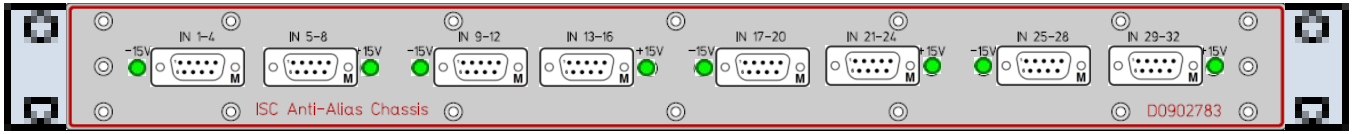
Rear



D0902783 - S1001157

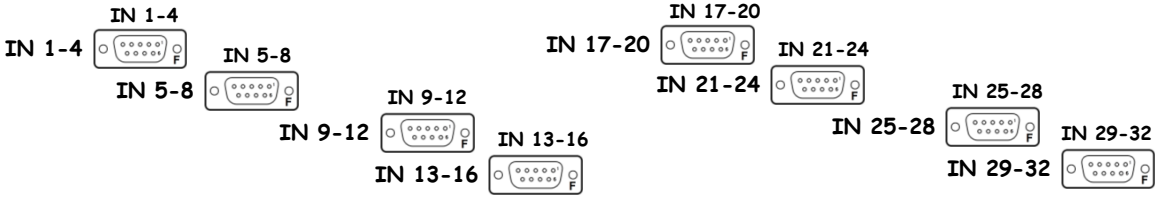
« L1-SUS-XC1

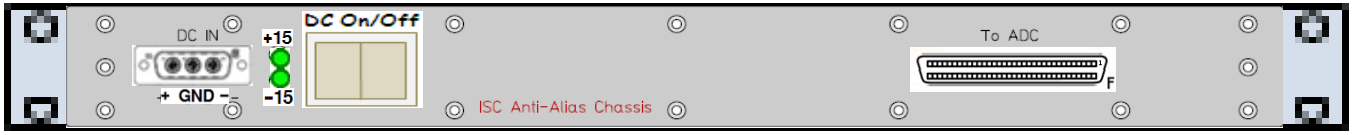
Anti-Alias Chassis (8*DB9) | D0902783 | S1001157 | ±18VDC



D0902783

Front





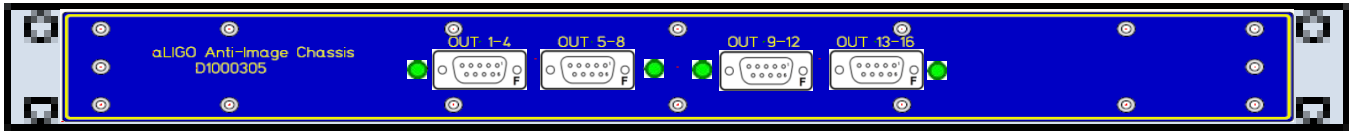
S1001157

Rear

D1000305 - S1004364

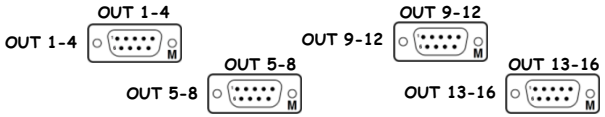
[<< L1-SUS-XC1]

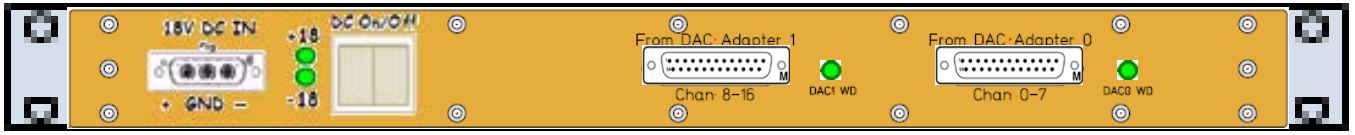
Anti-Image Chassis (4*DB9) | D1000305 | S1004364 | ±18VDC



D1000305

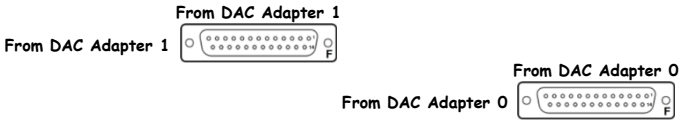
Front





S1004364

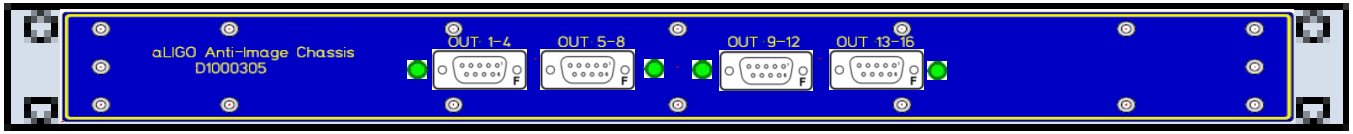
Rear



D1000305 - S1004365

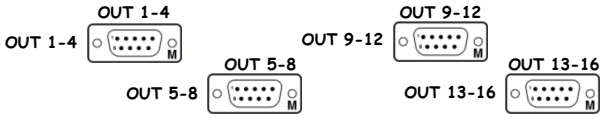
[<< L1-SUS-XC1]

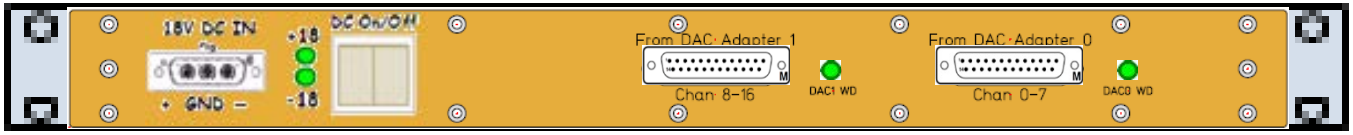
Anti-Image Chassis (4*DB9) | D1000305 | S1004365 | ±18VDC



D1000305

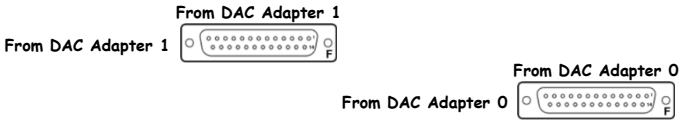
Front





S1004365

Rear

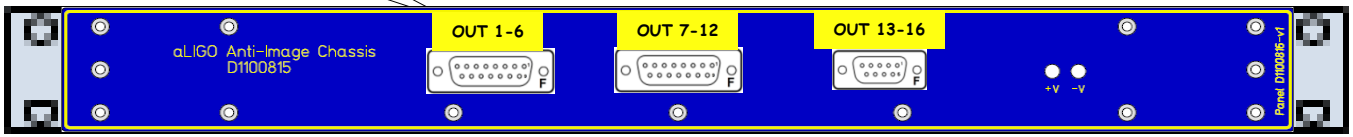


D1100815 – S1103825

[<< L1-SUS-XC1]

Anti-Image Chassis (2*DB15, 1*DB9) | D1100815 | S1103825 | ±18VDC

D1100815 is an AI, which means it has OUTPUTS, not INPUTS. The labels are incorrect.



D1100815

Front

OUT 1-6

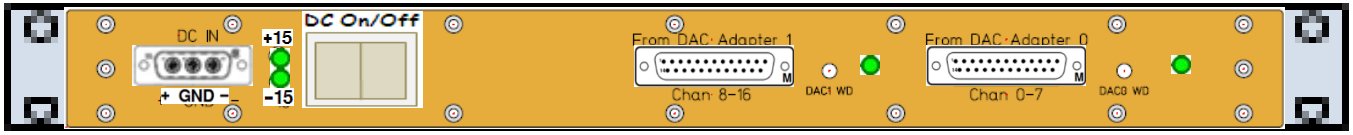
OUT 1-6

OUT 7-12

OUT 7-12

OUT 13-16

OUT 13-16



S1103825

Rear

From DAC Adapter 1

From DAC Adapter 1

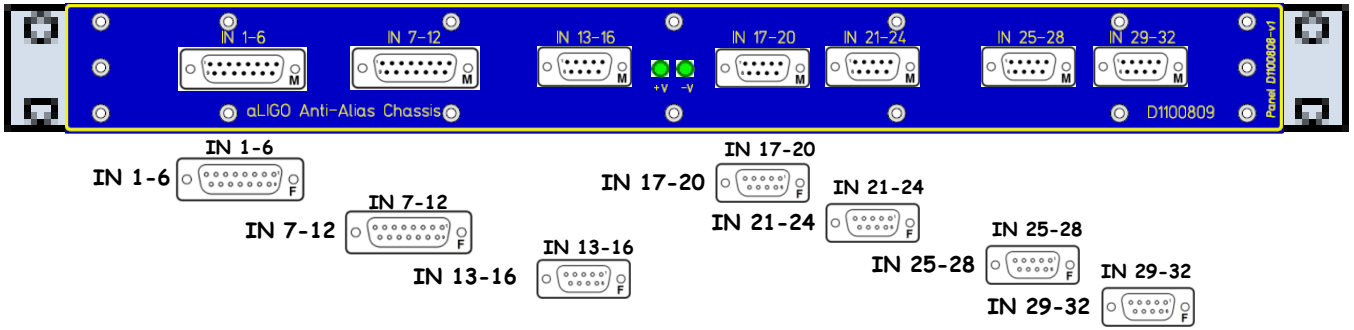
From DAC Adapter 0

From DAC Adapter 0

D1100809 - S1104075

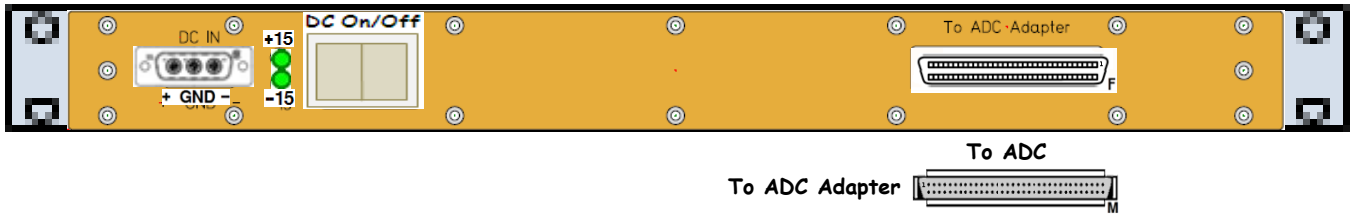
LIGO
<< L1-SUS-XC1

Anti-Alias Chassis (2*DB15, 5*DB9) | D1100809 | S1104075 | ±18VDC



D1100809

Front



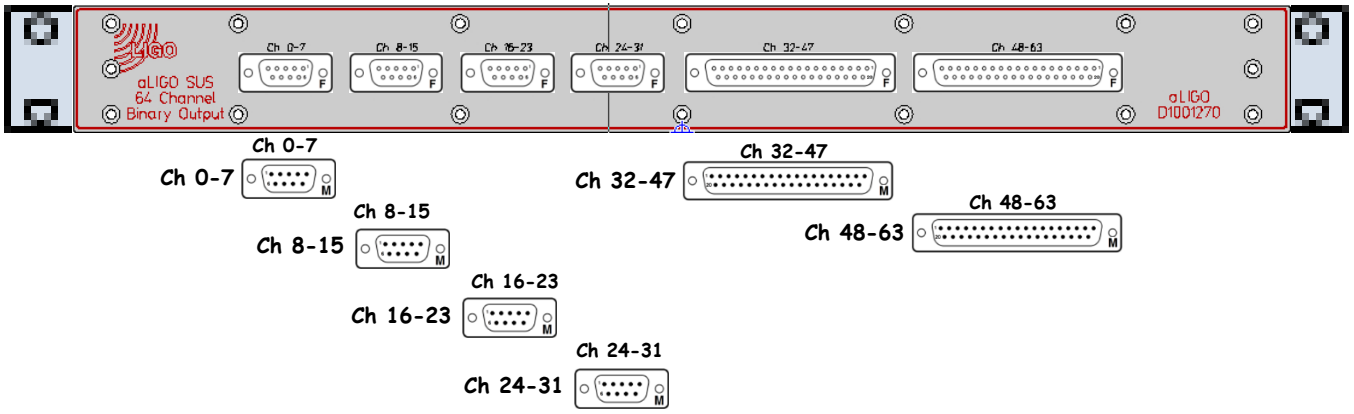
S1104075

Rear

D1001270 - S1106208

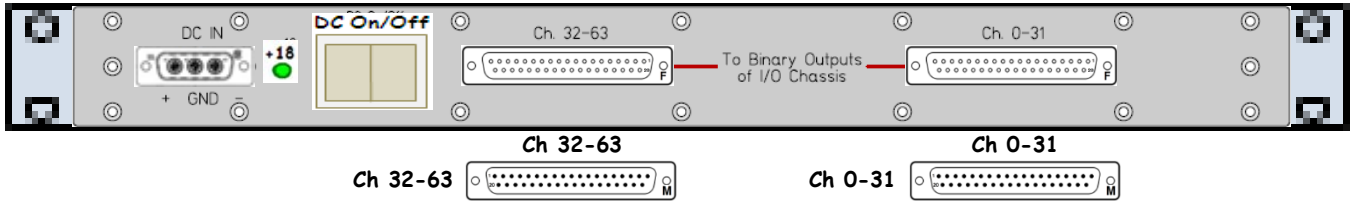
« L1-SUS-XC1

Binary Output Chassis (4*DB9, 2*DB37) | D1001270 | S1106208 | ±18VDC



D1001270

Front



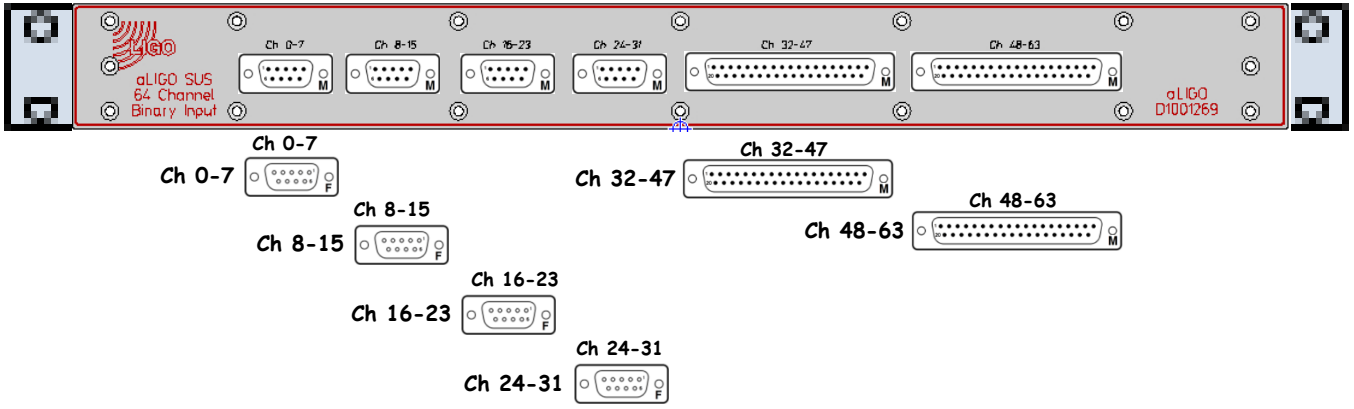
S1106208

Rear

D1001269 - S1106115

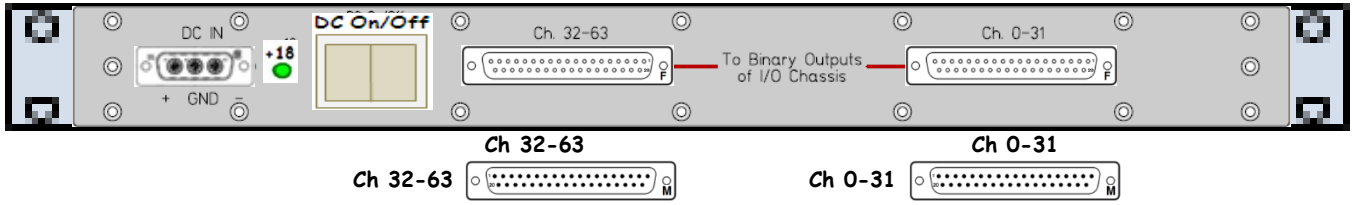
« L1-SUS-XC1

Binary Input Chassis (4*DB9, 2*DB37) | D1001270 | S1106115 | ±18VDC



D1001270

Front



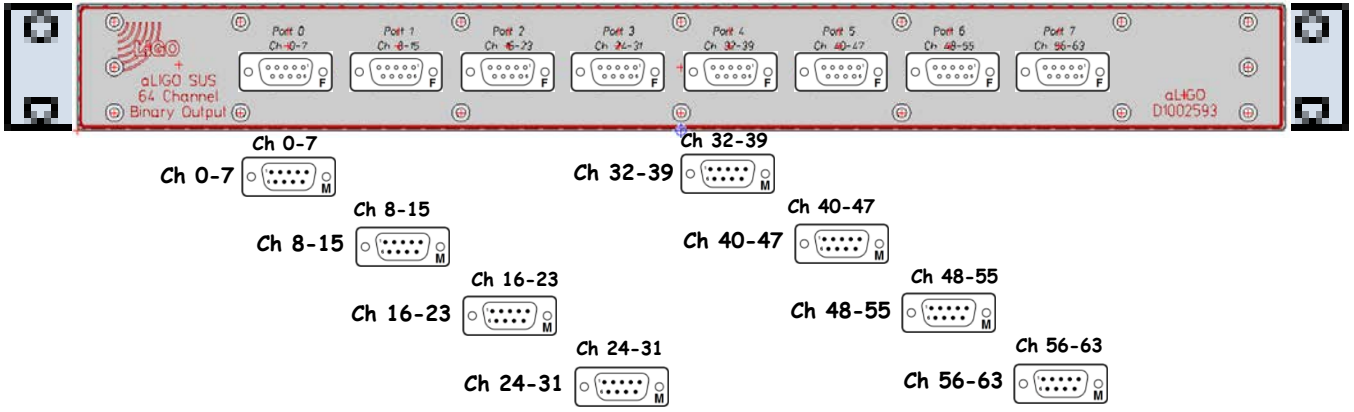
S1106115

Rear

D1002593 - S1103225

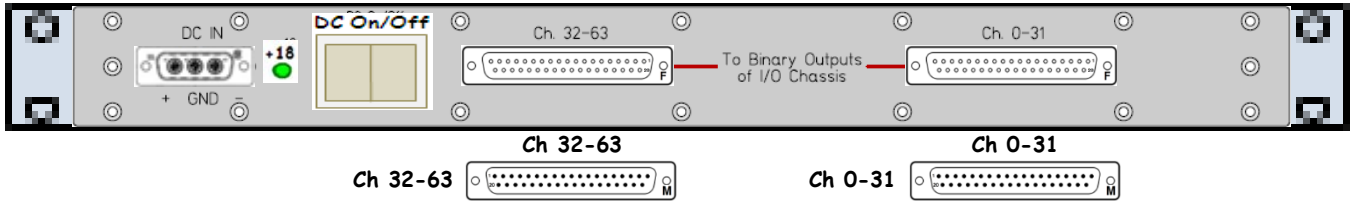
[<< L1-SUS-XC1]

Binary Output Chassis (8*DB9) | D1002593 | S1103225 | ±18VDC



D1002593

Front



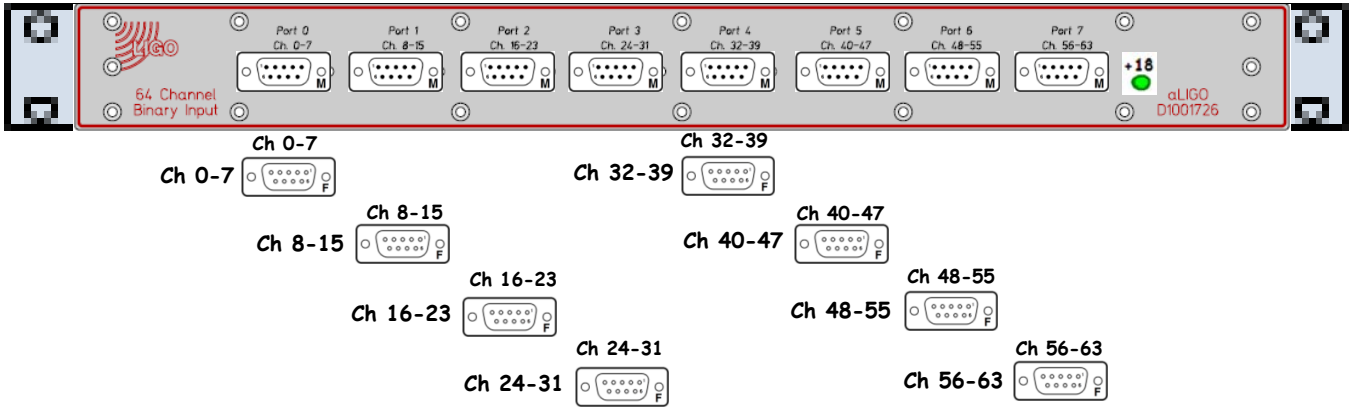
S1103225

Rear

D1001726 - S1103896

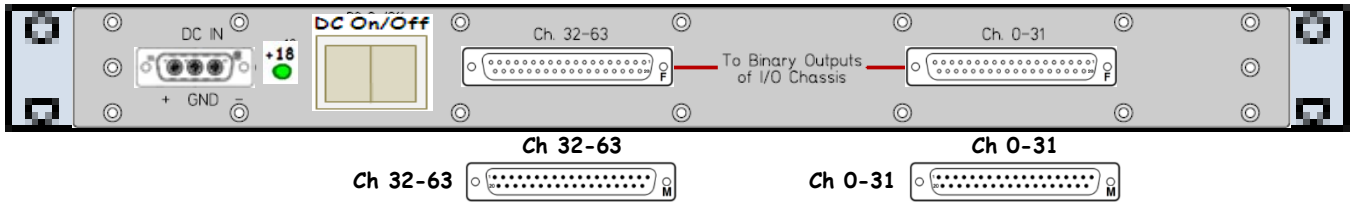
[<< L1-SUS-XC1]

Binary Input Chassis (8*DB9) | D1001726 | S1103896 | ±18VDC



D1001726

Front



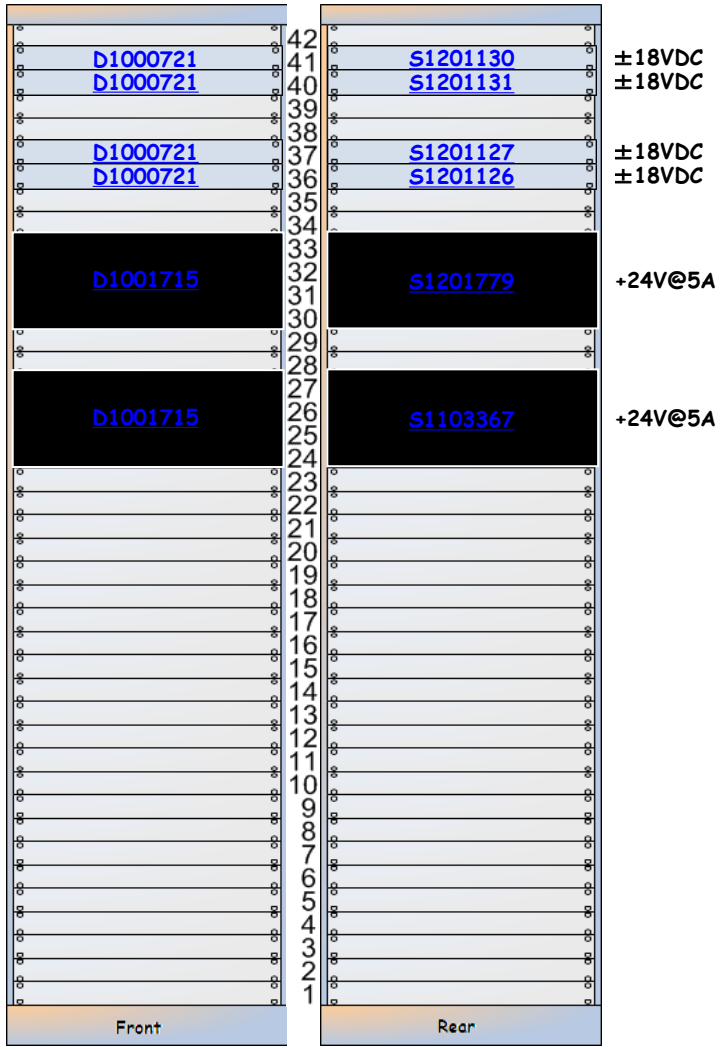
S1103896

Rear

L1-SUS-XC2

<< CERX Racks
<< XEND Racks and Tables

L1-SUS-XC1 (ETM) XEND Remote Rack 1 (of 2) Layout (D1201083) (S1202947)



SUS-XC2 is part of D1002741.

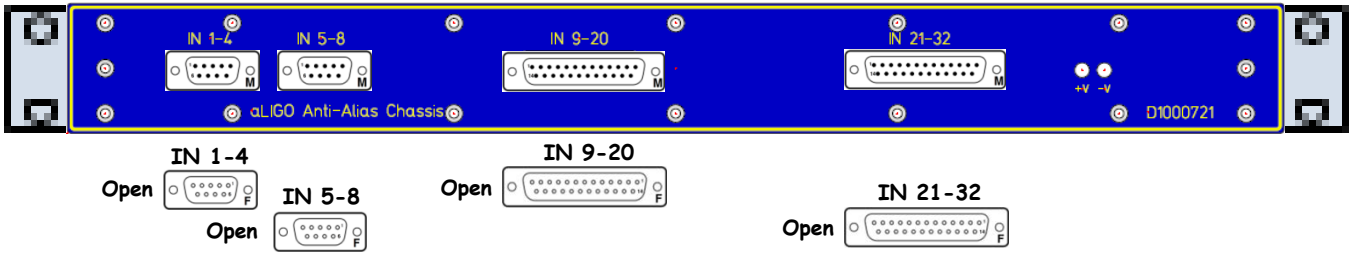
L1-SUS-XC2 Details

SUS-XC2 is part of D1002741.

D1000721 - S1201130

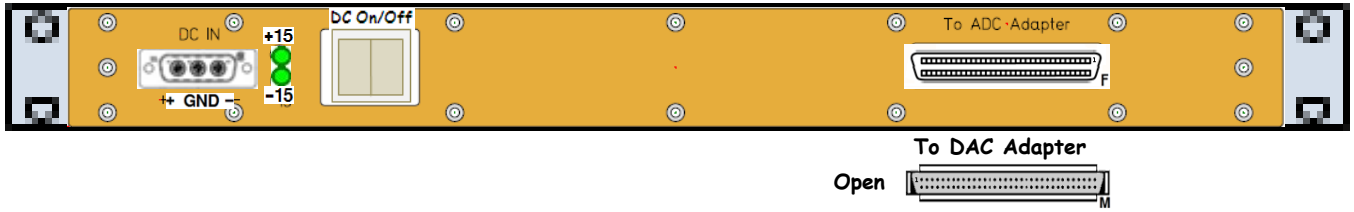
[<< L1-SUS-XC2]

SUS Anti-Alias Chassis | D1000721 | S1201130 | ±18VDC



D1000721

Front



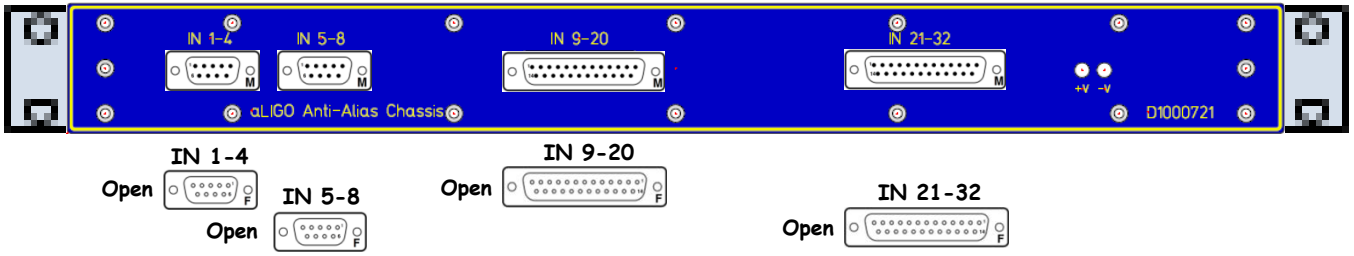
S1201130

Rear

D1000721 - S1201131

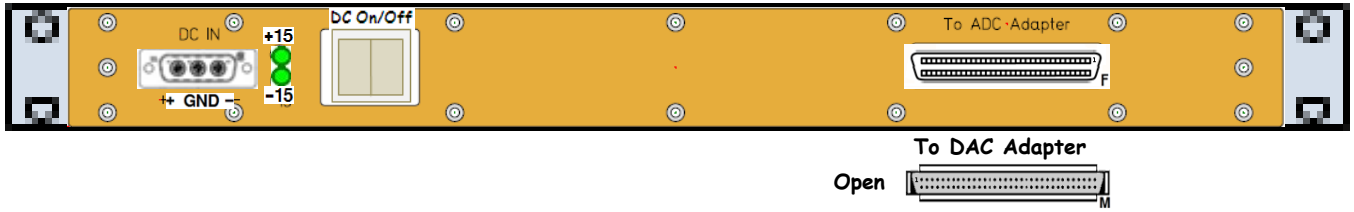
LIGO
<< L1-SUS-XC2

SUS Anti-Alias Chassis | D1000721 | S1201131 | ±18VDC



D1000721

Front



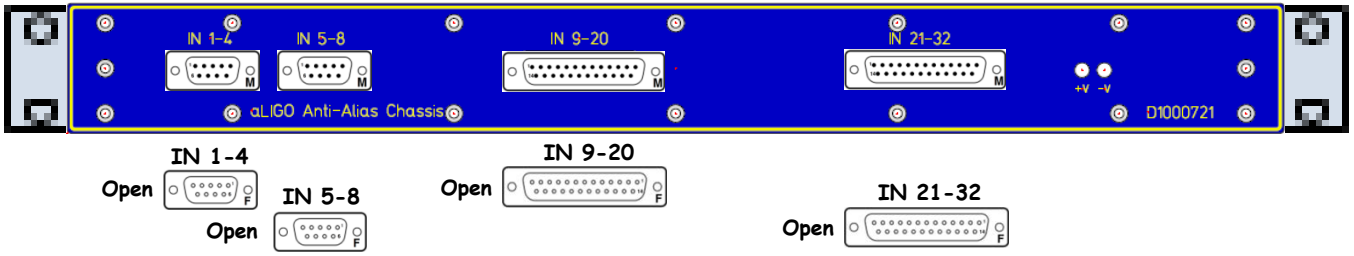
S1201131

Rear

D1000721 - S1201127

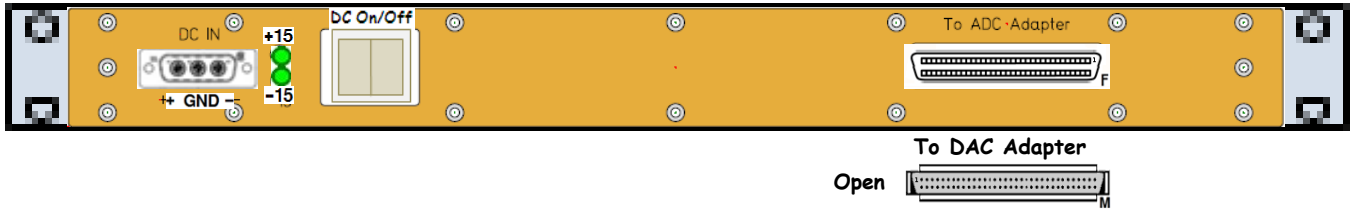
[<< L1-SUS-XC2]

SUS Anti-Alias Chassis | D1000721 | S1201127 | ±18VDC



D1000721

Front



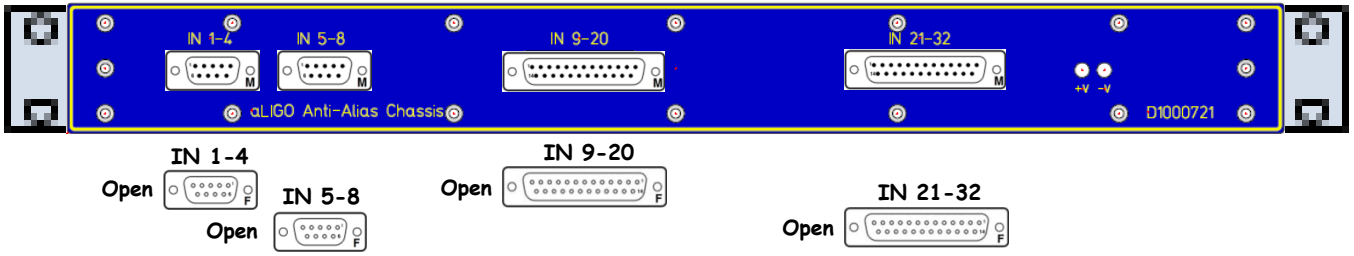
S1201127

Rear

D1000721 - S1201126

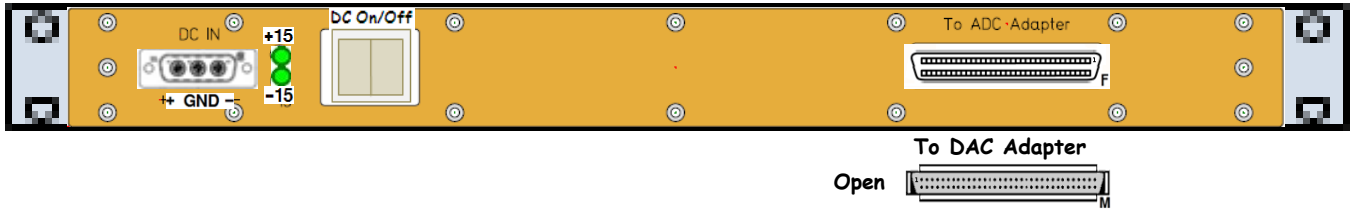
[<< L1-SUS-XC2]

SUS Anti-Alias Chassis | D1000721 | S1201126 | ±18VDC



D1000721

Front



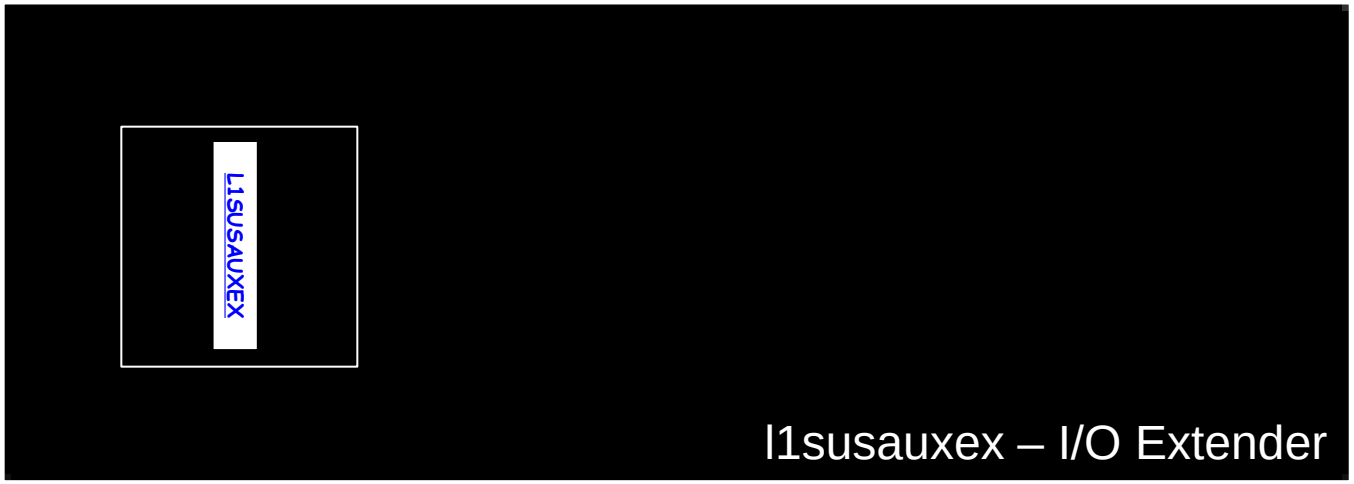
S1201126

Rear

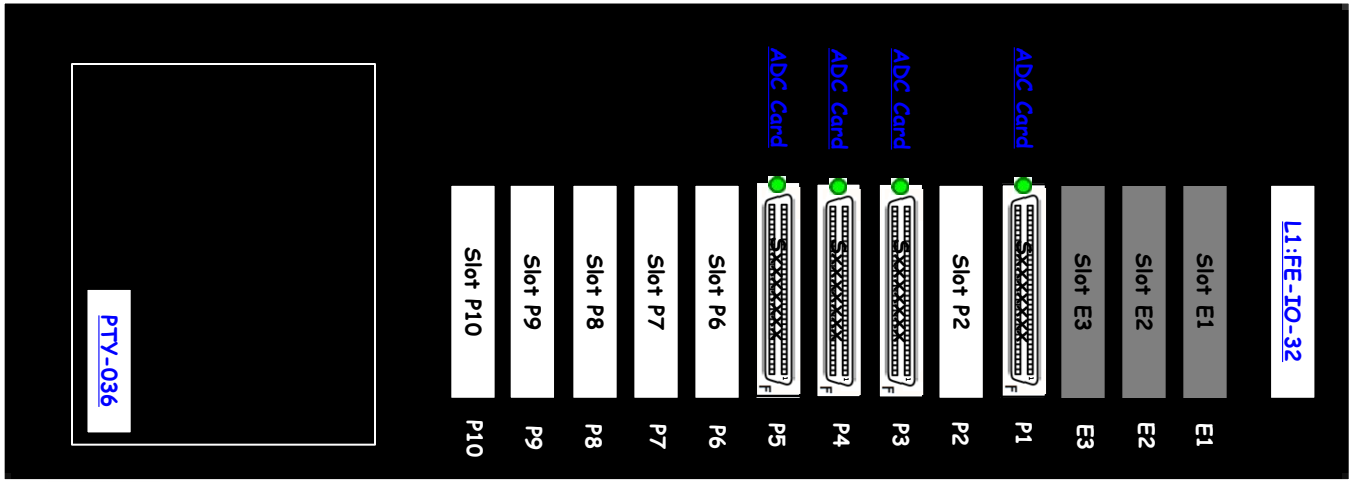
l1susauxex – D1001715 – S1201779

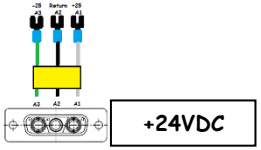
[<< L1-SUS-XC2]

l1susauxex I/O Extension Chassis | D1001715 | S1201779 | 110VAC

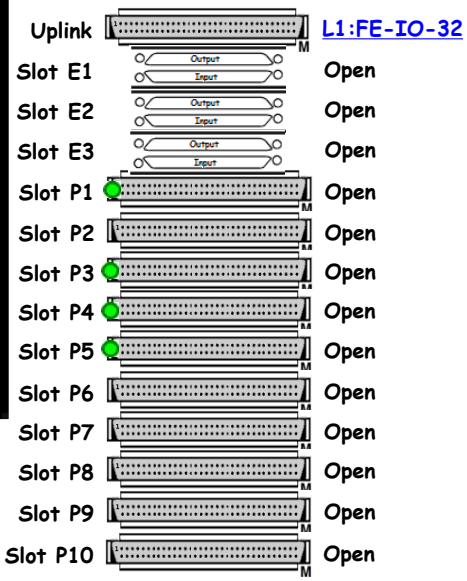


D1001715
Front





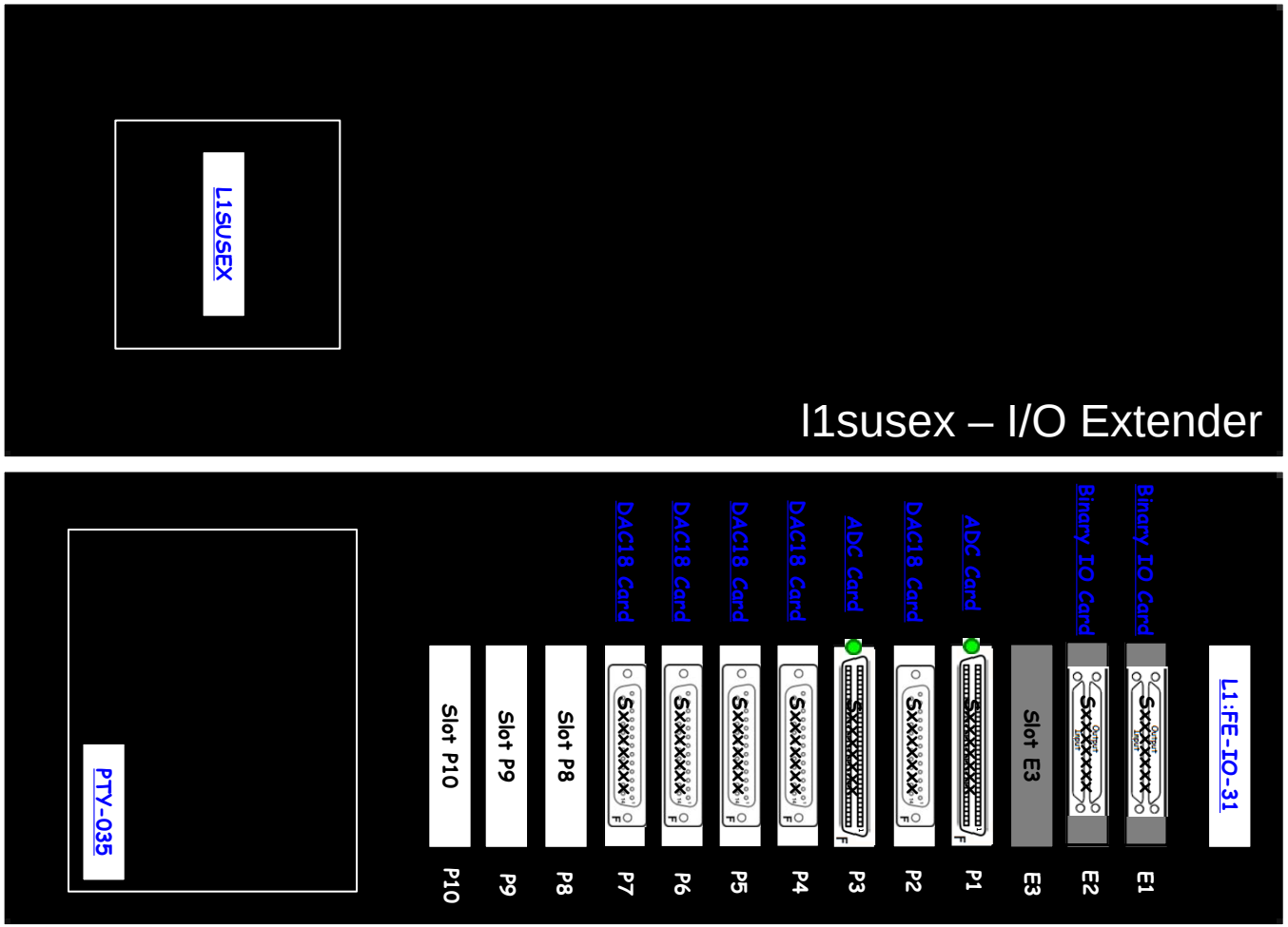
S1201779
Rear



l1susex – D1001715 – S1103367

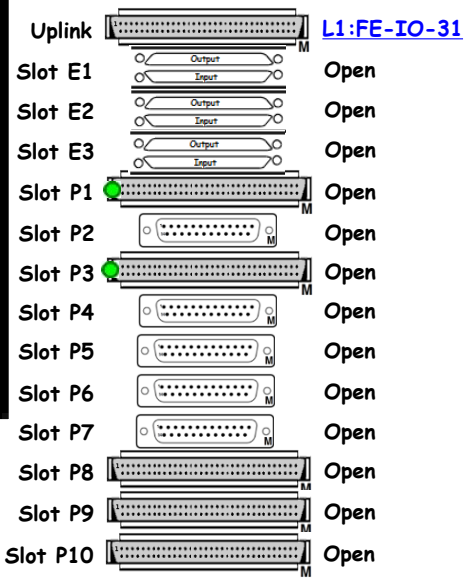
[<< L1-SUS-XC2]

l1susex I/O Extension Chassis | D1001715 | S1103367 | 110VAC



D1001715
Front

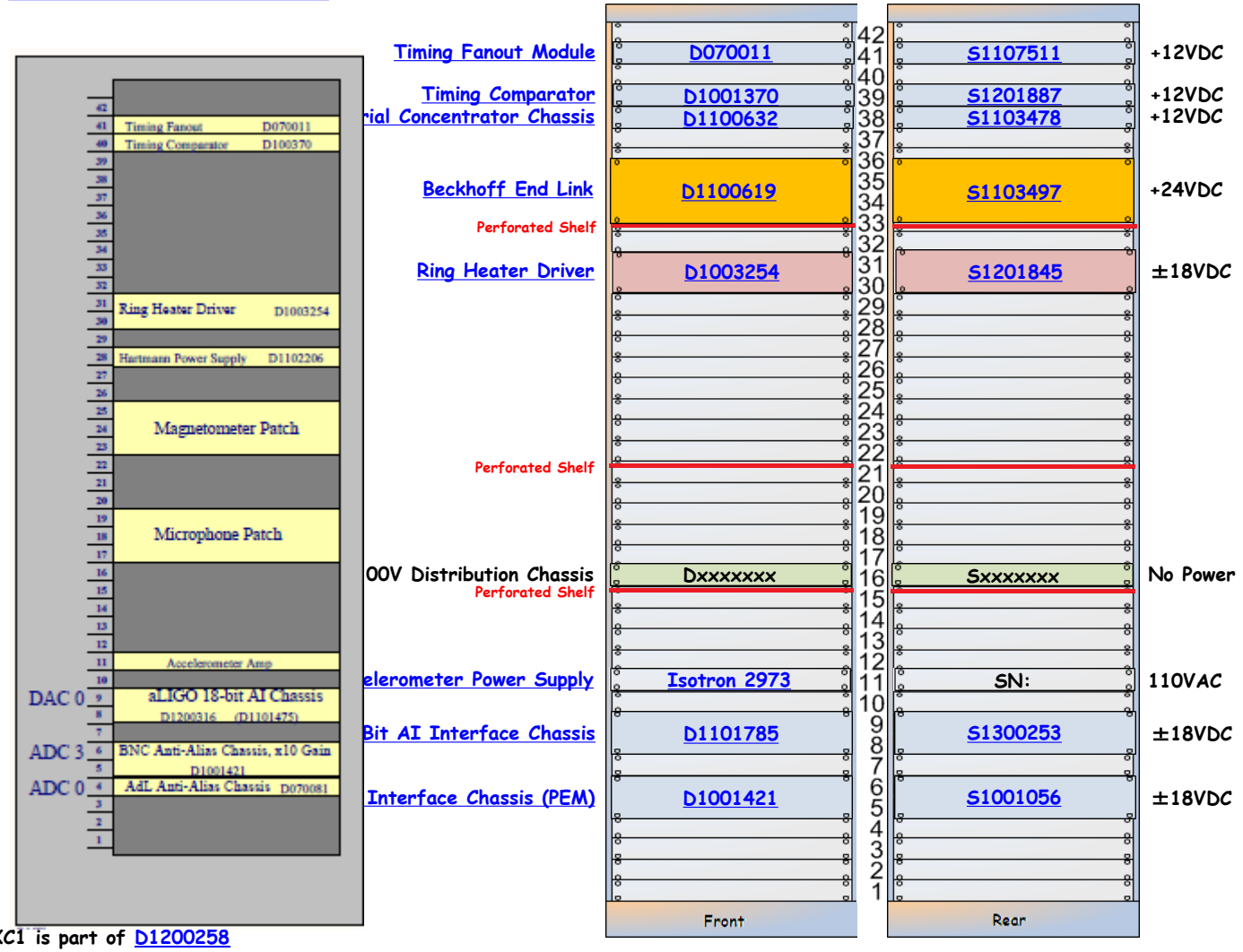
S1103367
Rear

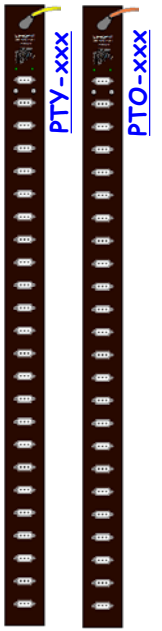


L1-TCS-XC1

<< CERX Racks
<< XEND Racks and Tables

L1-TCS-XC1 XEND Remote Rack Layout (D1201129) (S1202980)





TCS-XC1 is part of D1200258

TCS-XC1 is part of E1100894

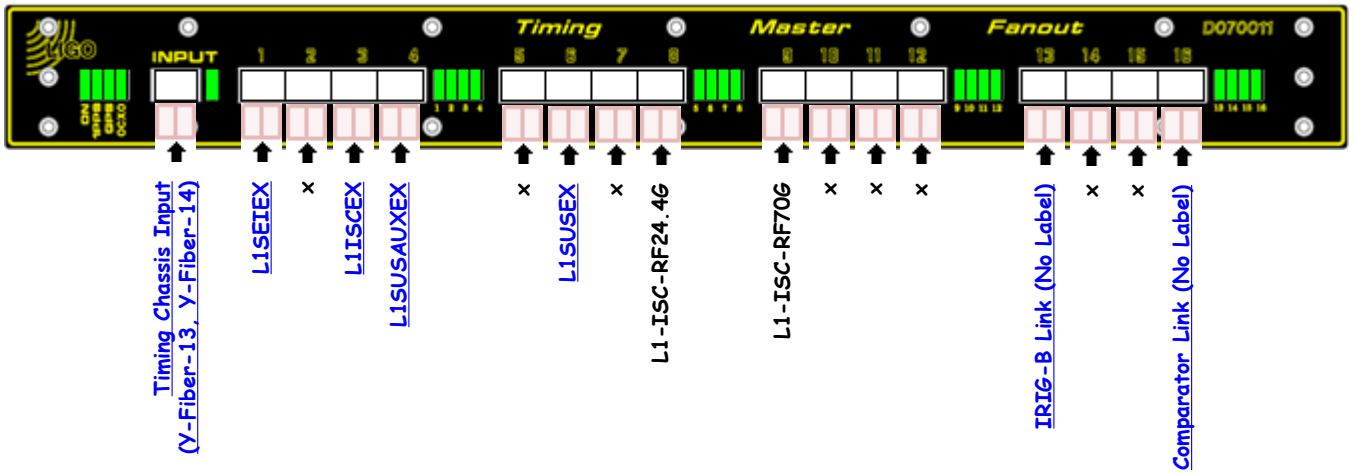
Hartmann Sensor Power Supply D1102206 S1201882 ±18VDC

L1-TCS-XC1 Details

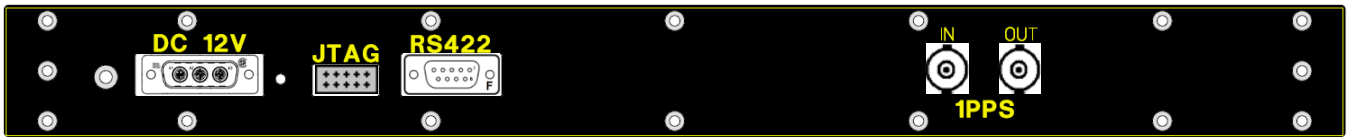
D070011 - S1107511

« L1-TCS-XC1

Timing Fanout Module | D070011 | S1107511 | +12VDC



D070011
Front



S1107511
Rear
Fanout

D1001370 - S1201891

LIGO
<< L1-TCS-XC1

Timing Comparator | D1001370 | S1201891 | +12VDC

D1001370

Front

Timing Fanout (No Label)

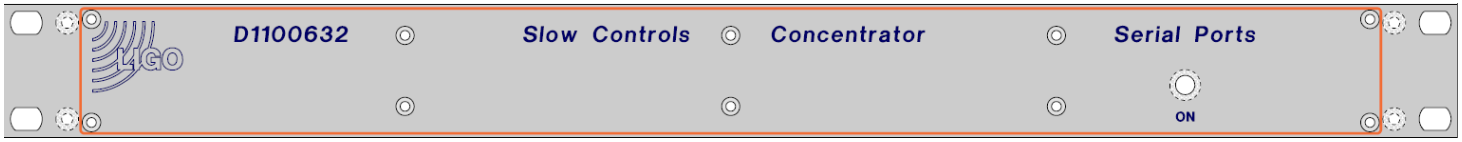
S1201891

Rear

D1100632 - S1103478

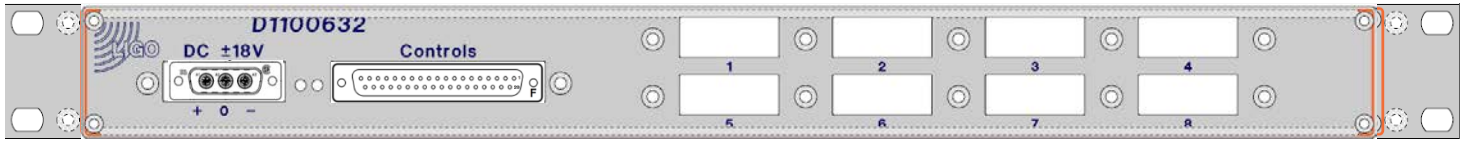
[<< L1-TCS-XC1]

Serial Port Concentrator for Timing | D1100632 | S1103478 | ±18VDC



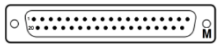
D1100632

Front



S1103478

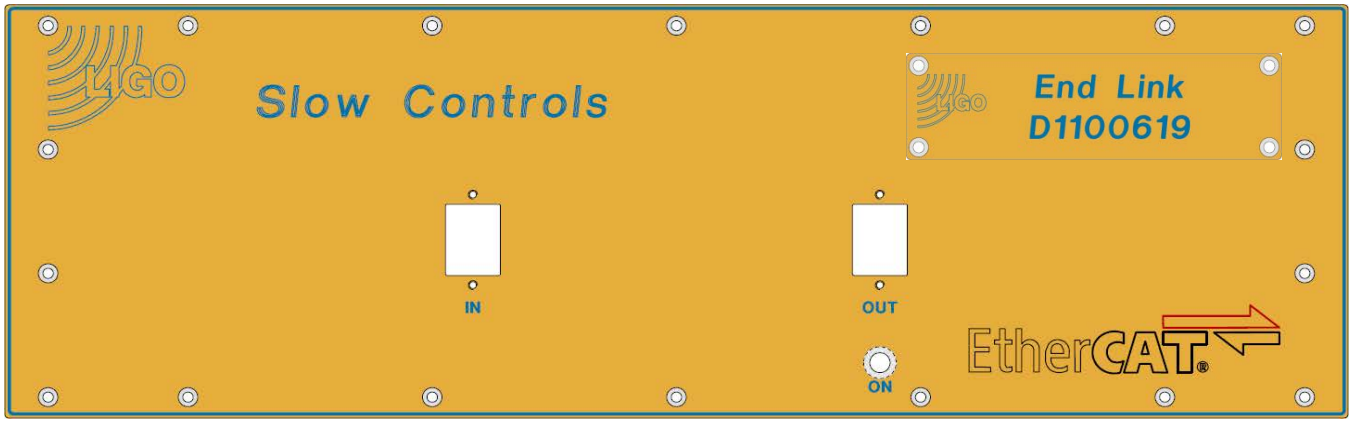
Rear



D1100619 - S1103497

<< L1-TCS-XC1

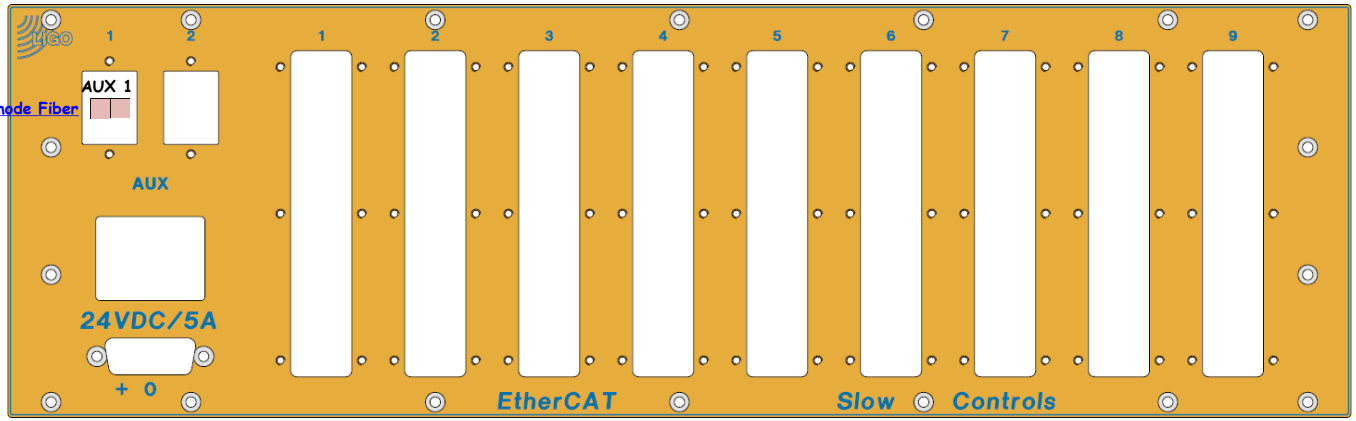
Beckhoff End Link | D1100619 | S1103497 | +24VDC



D1100619

Front: D0902553
Name: D1100667

End Link Multimode Fiber



S1103497

Rear: D0902554

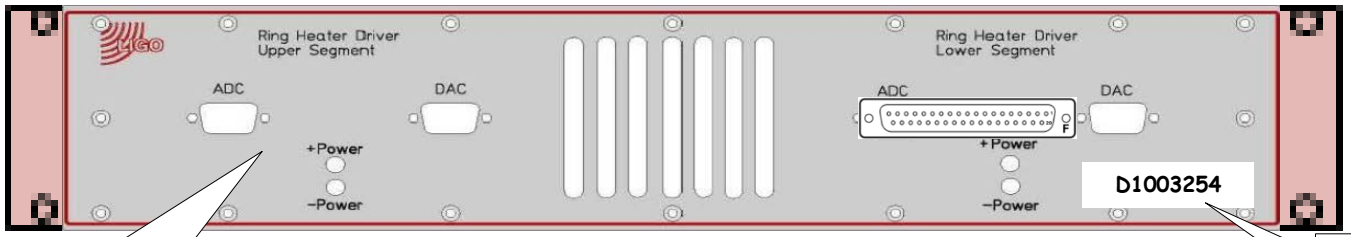
VERTEX

End Link Single Mode Fiber

D1003254 – S1201845

« L1-TCS-XC1

Ring Heater Driver | D1003254 | S1201845 | ±18VDC



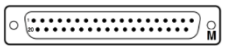
D1003254

Front

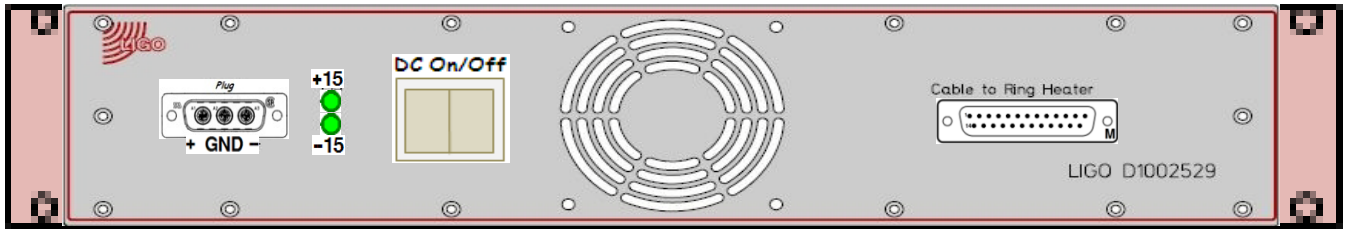
This is an early revision of the front panel. It now has one DB37M connector. 20121205 dlk

Description

Label



White label 20121205 dlk

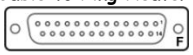


S1201845

Rear

Cable to Ring Heater

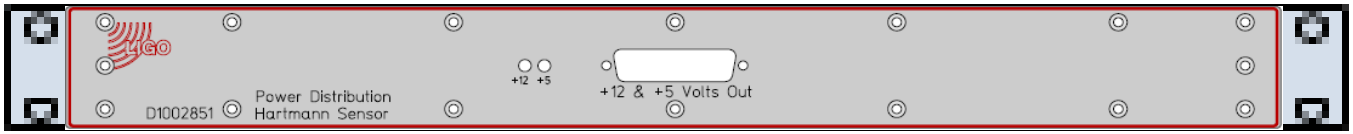
Label



D1102206 - Sxxxxxxx

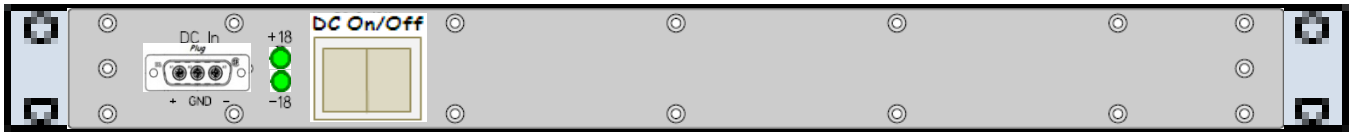
[<< L1-TCS-XC1]

Hartmann Sensor Power Supply | D1102206 | Sxxxxxxx | +12VDC



D1102206

Front



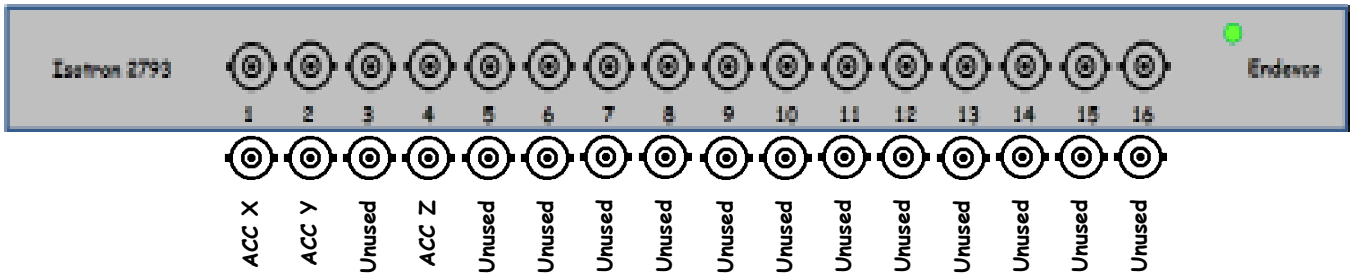
Sxxxxxxx

Rear

Endevco Isotron 2793

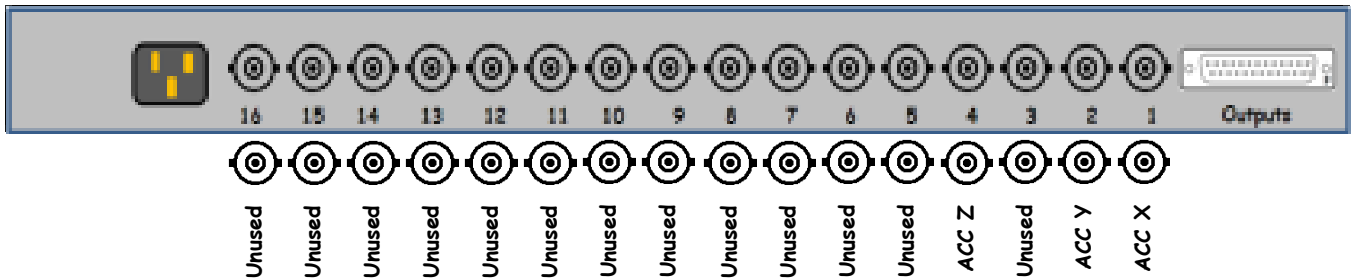
LIGO
<< L1-TCS-XC1

Accelerometer Power Supply | Isotron 2973 | SN: | 110VAC



Isotron 2973

Front



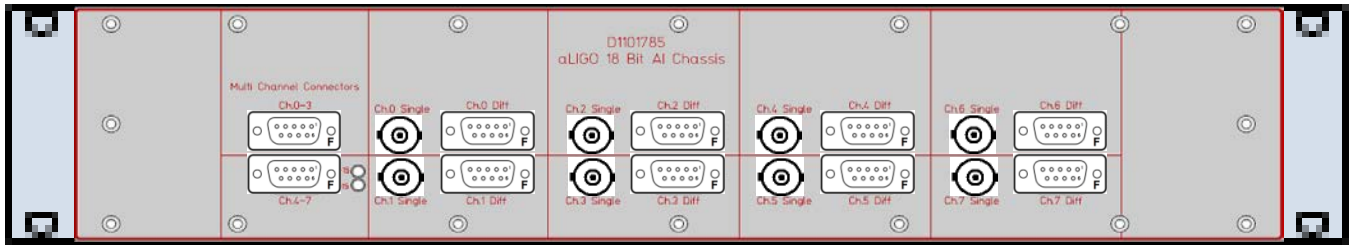
Sxxxxxxx

Rear

D1101785 - S1300253

[<< L1-TCS-XC1]

aLIGO 18 Bit AI Interface Chassis | D1101785 | S1300253 | Power



D1101785

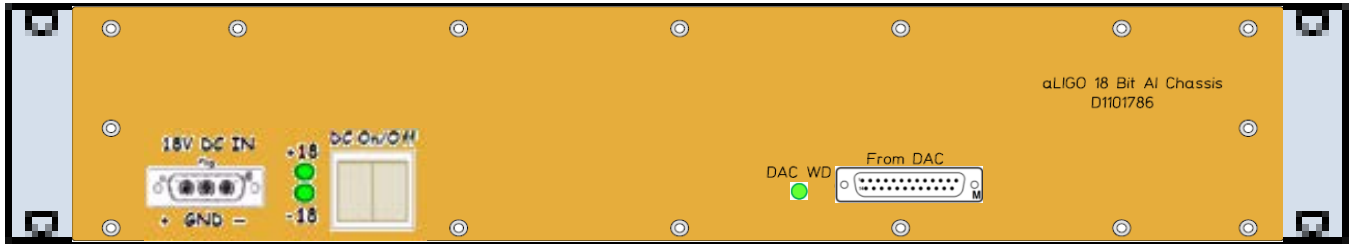
Front

Ch 0-3

Ch 0-3

Ch 4-7

Ch 4-7



S1300253

Rear

From DAC

From DAC

D1001421 – Sxxxxxxx

LIGO

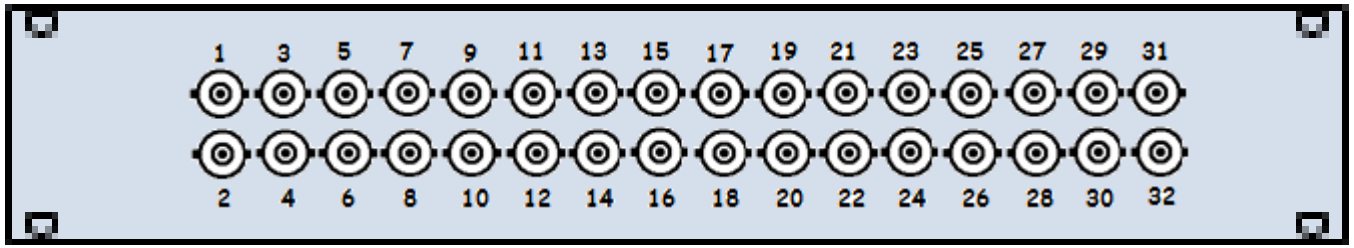
<< L1-TCS-XC1

aLIGO AA Interface Chassis
(32 BNC, x10 Gain Version)

D1001421

SN:

Power



D1001421

Front

1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31
MAG X	MAG Z	SEI Y	Isotron 1	Isotron 4	BAY MIC	OPLEV 10	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused

2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32
MAG Y	SEI X	SEI Z	Isotron 2	BSC4 MIC	BSC4 TEMP	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused

SN:

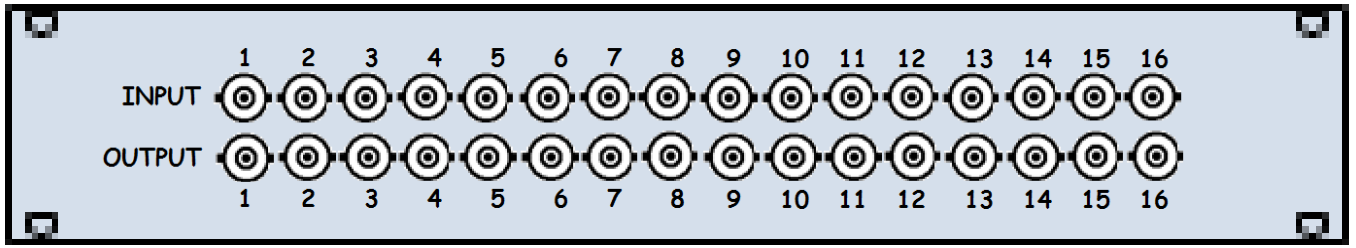
Rear

D1101363 – Sxxxxxxx

LIGO

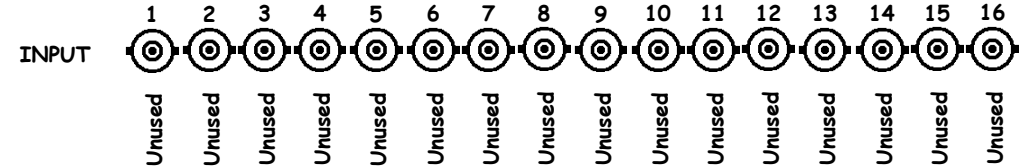
<< L1-TCS-XC1

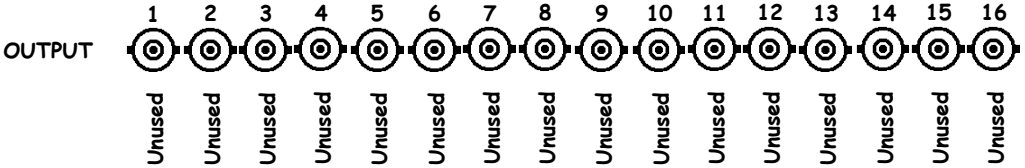
aLIGO Accelerometer Interface Chassis | D1101363 | SN: | Power



D1101363

Front





SN:

Rear

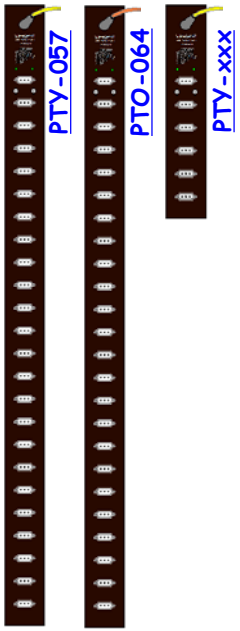
L1-ISC-XR1

LIGO

<< XEND Racks and Tables

L1-ISC-XR1 XEND Station Field Rack Layout (D1201087) (S1202951)

D1200757 Sequencer S1202568



	Front		Rear	
42	Dxxxxxxx	42	Sxxxxxxx	No Power
41		41		
40	Dxxxxxxx	40	Sxxxxxxx	No Power
39		39		
38	D0900128	38	S1103433	+15VDC
37		37		
36	D1000181	36	S1000787	±17VDC, ±24VDC
35	D1201470	35	Sxxxxxxx	No Power
34	D0900605	34	S1200577	±17VDC, ±24VDC
33		33		
32	D1002182	32	S1000752	±17VDC, ±24VDC
31	D1201294	31	S1203937	??
30	D1002476	30	S1000767	±17VDC, ±24VDC
29		29		
28	D0901781	28	S1102644	±17VDC, ±24VDC
27		27		
26	D0901781	26	S1102634	±17VDC, ±24VDC
25	D1100013	25	S1101545	±18VDC
24	D1100691	24	S1104009	±18VDC
23	D1100696	23	S1103990	No Power
22	D1102045	22	S1200534	±17VDC
21	D1102065	21	S1200551	±17VDC
20	D1201352	20	S1300250	±17VDC
19		19		
18	D1100323 / D1301017	18	S1400008 / S1107547	±24VDC, ±24VDC
17		17		
16	D1002559	16	S1101168	±15VDC
15		15		
14	D0902796	14	S1001023	±15VDC
13	D1100956	13	Sxxxxxxx	No Power
12	D0902796	12	S1000973	±15VDC
11		11		
10	D1002559	10	S1101623	±15VDC
9		9		
8	D1100749	8	S1400283	±15VDC
7	D1100482	7	S1203309	±15VDC
6		6		
5	D1002559	5	S1101164	±15VDC
4	D1002481	4	S1102831	±15VDC
3	D1002481	3	S1102825	±15VDC
2	D1002559	2	S1101165	±15VDC
1		1		

RF Distribution Panel 24
RF Distribution Panel 25
24.5 MHz Delay Line Phase Shifter
2 Channel RFPD I/Q Demod (RC & ALS)
WFS Demodulator Patch Panel
79.4 MHz VCO (ALS)
39.7 MHz Frequency Divider
RF Preamplifier
39.7 MHz 2 Channel Phase/Freq Discriminator
Common Mode Servo (ALS Laser Locking)
Common Mode Servo (ALS Cavity Locking)
Oplev 8 Channel Whitening Filter Chassis
LSC Demod Concentrator 5
ASC Demod Concentrator 6
Auxiliary Signals Concentrator 2
Auxiliary Signals Concentrator 1
Auxiliary Signals Concentrator 5
Picomotor Driver and Photodiode Amplifier
ISC Whitening Chassis
QUAD I&Q Demodulator Module
LSC RFPD Demodulator Patch Panel
QUAD I&Q Demodulator Module
ISC Whitening Chassis
Legacy WFS Interface Module
Differential to Single-Ended Converter
ISC Whitening Chassis
Dual QPD Transimpedance Amplifier
Dual QPD Transimpedance Amplifier
ISC Whitening Chassis

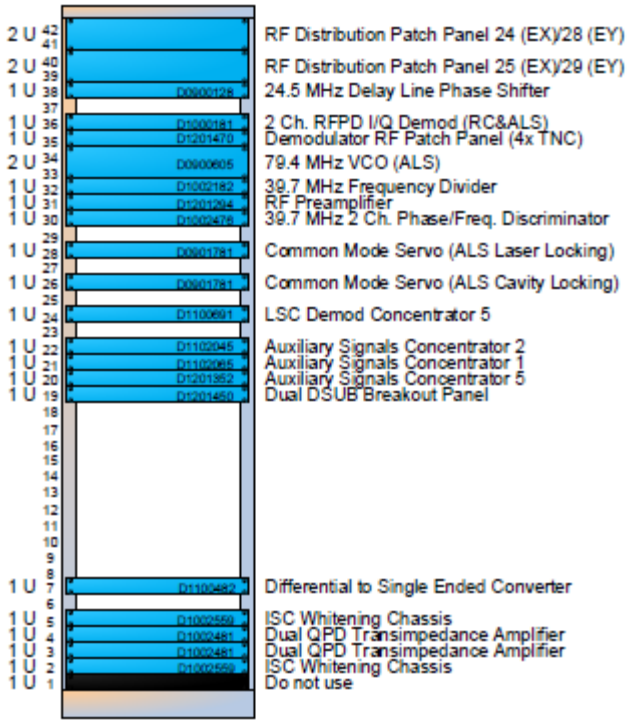
ISC-XR1 is part of D1001423

L1-ISC-XR1 Details

LIGO
<< VEAX Racks

End Station ISC Field Rack Layout

LIGO D1001423-v17

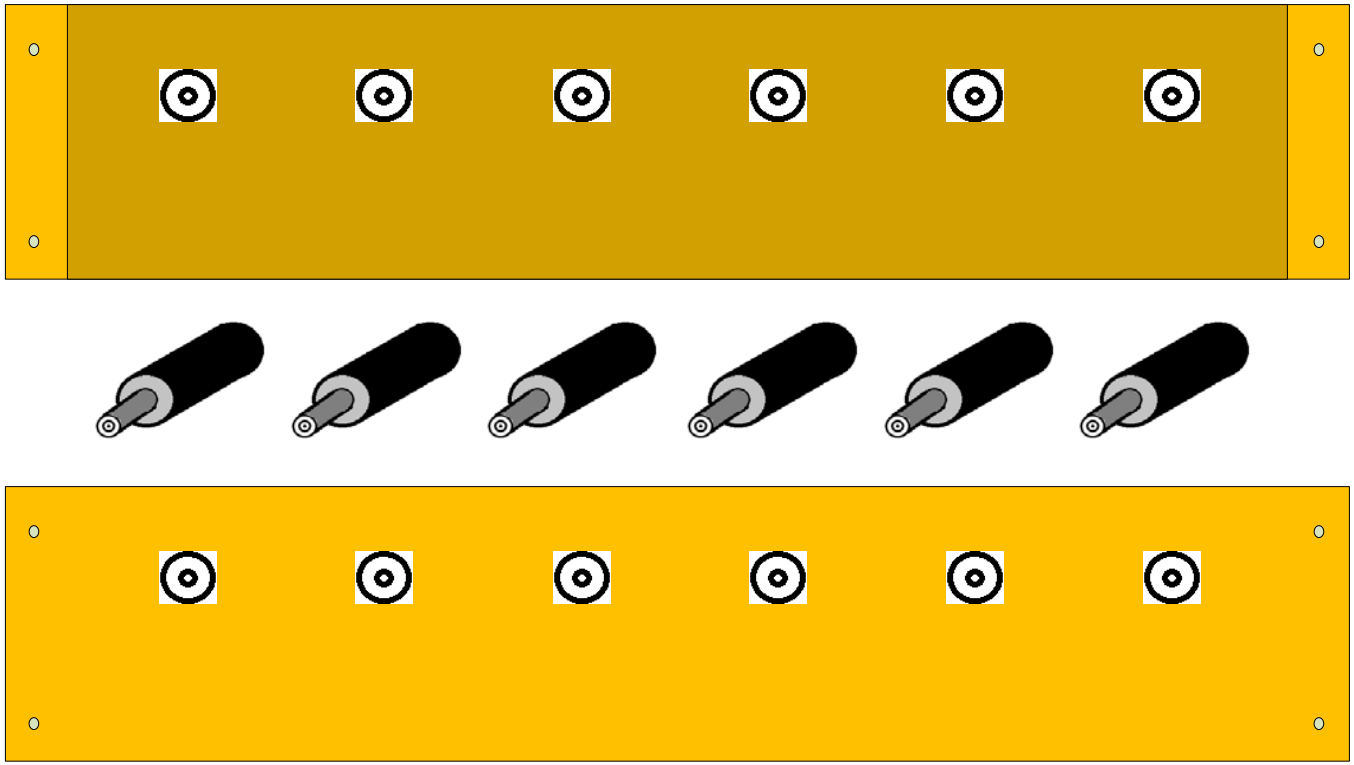


L1-ISC-XR1 Details

RF Distribution Panel 24

[<< L1-ISC-XR1]

RF Distribution Panel 24 | Dxxxxxxx | Sxxxxxxx | No Power



Dxxxxxxx

Front

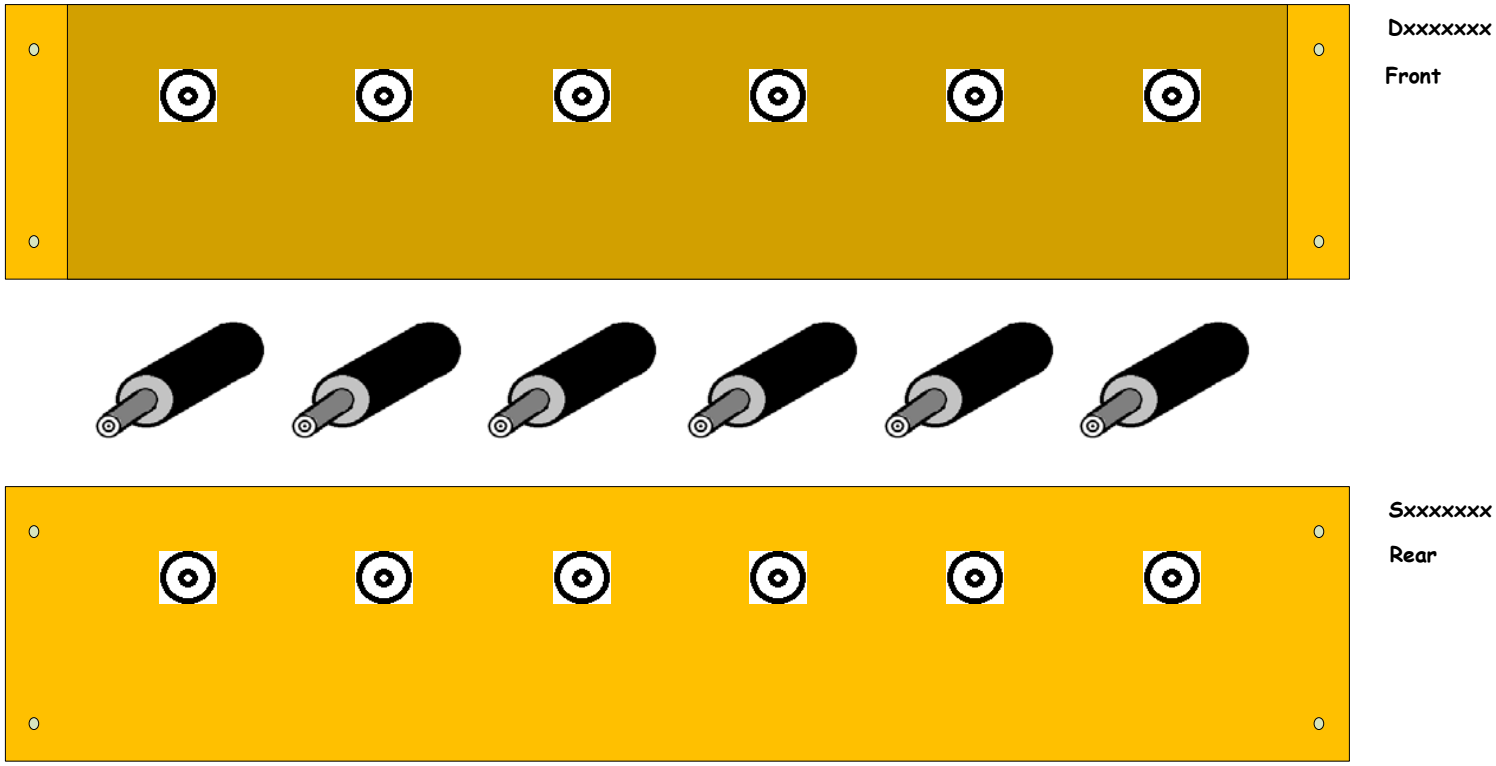
Sxxxxxxx

Rear

RF Distribution Panel 25

[<< L1-ISC-XR1]

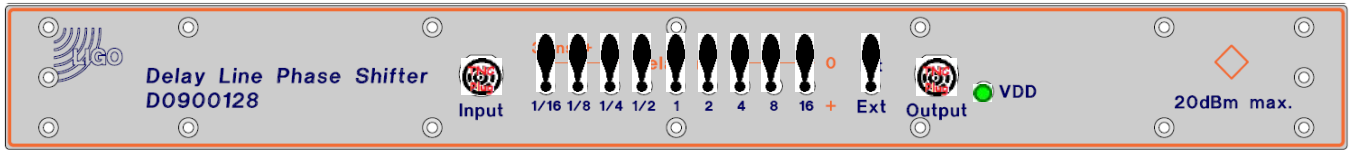
RF Distribution Panel 25 | Dxxxxxxx | Sxxxxxxx | No Power



D0900128 - S1103433

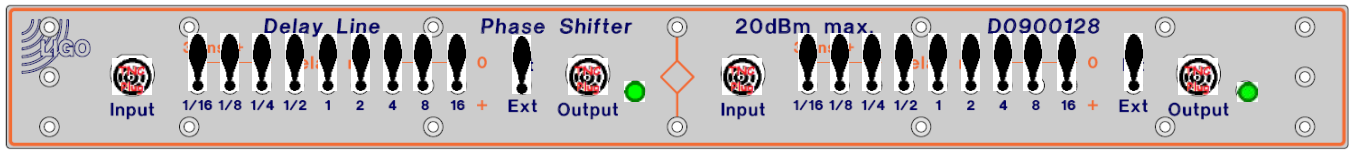
[<< L1-ISC-XR1]

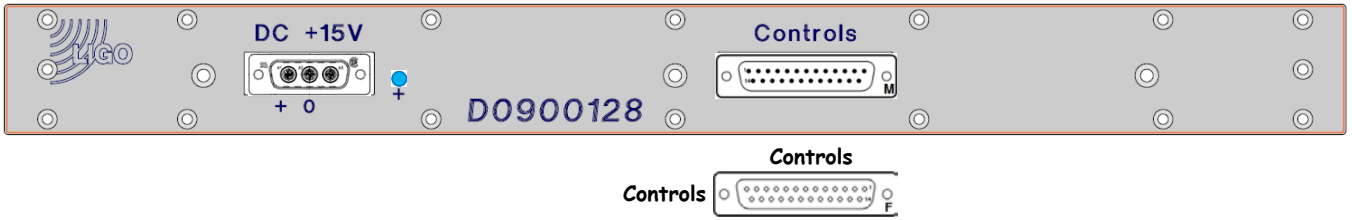
Delay Line Phase Shifter | D0900128 | S1103433 | +15VDC



D0900128

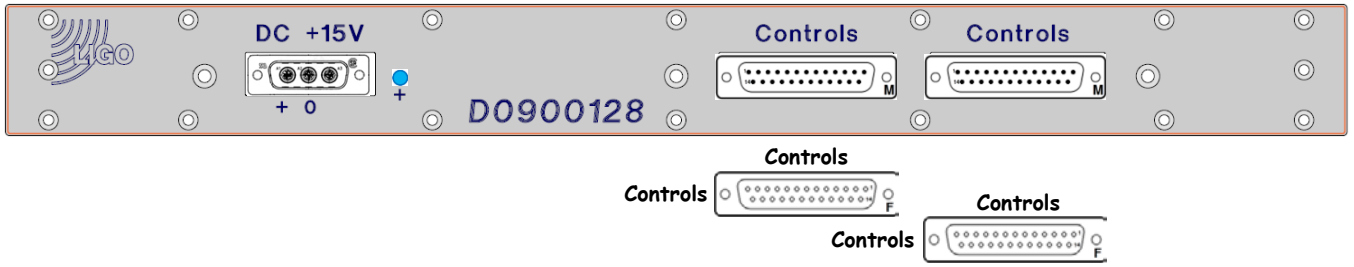
Front





S1103433

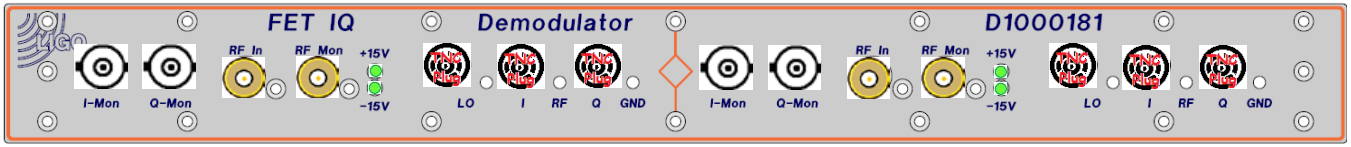
Rear



D1000181 - S1000787

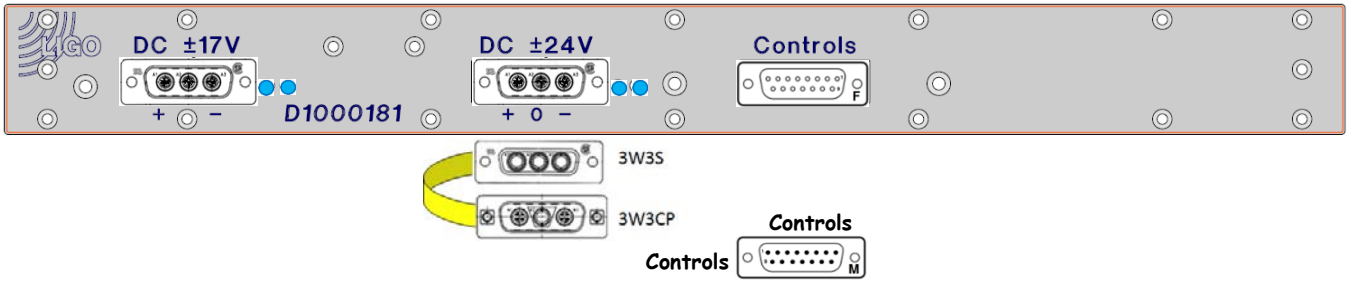
[<< L1-ISC-XR1]

2 Channel RFPD I/Q Demod (RC & ALS) | D1000181 | S1000787 | ±17VDC, ±24VDC



D1000181

Front



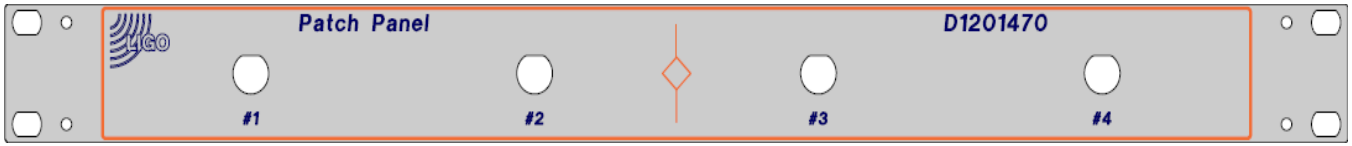
S1000787

Rear

D1201470 - Sxxxxxxx

[<< L1-ISC-XR1]

WFS Demodulator Patch Panel | D1201470 | Sxxxxxxx | No Power



D1201470

Front

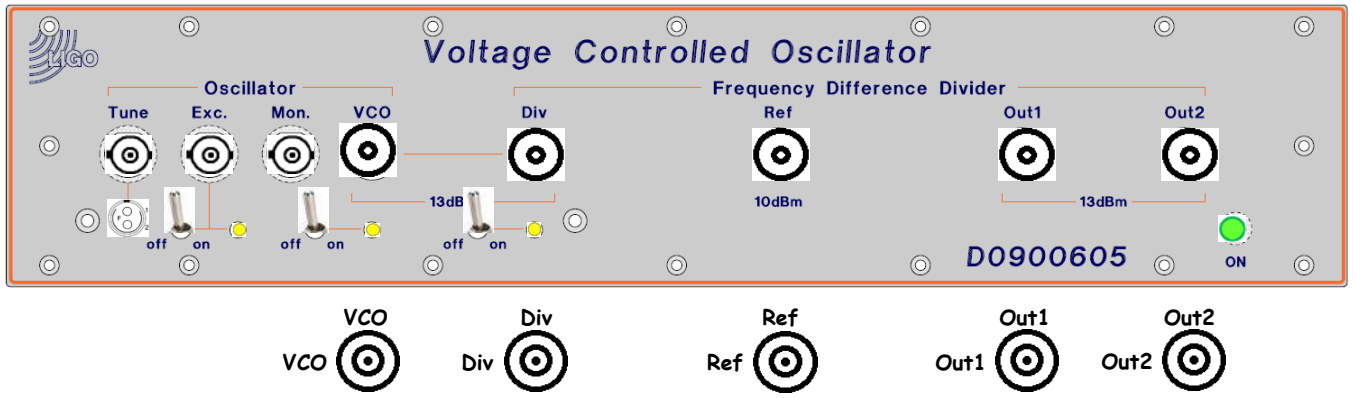
Sxxxxxxx

Rear

D0900605 - S1200577

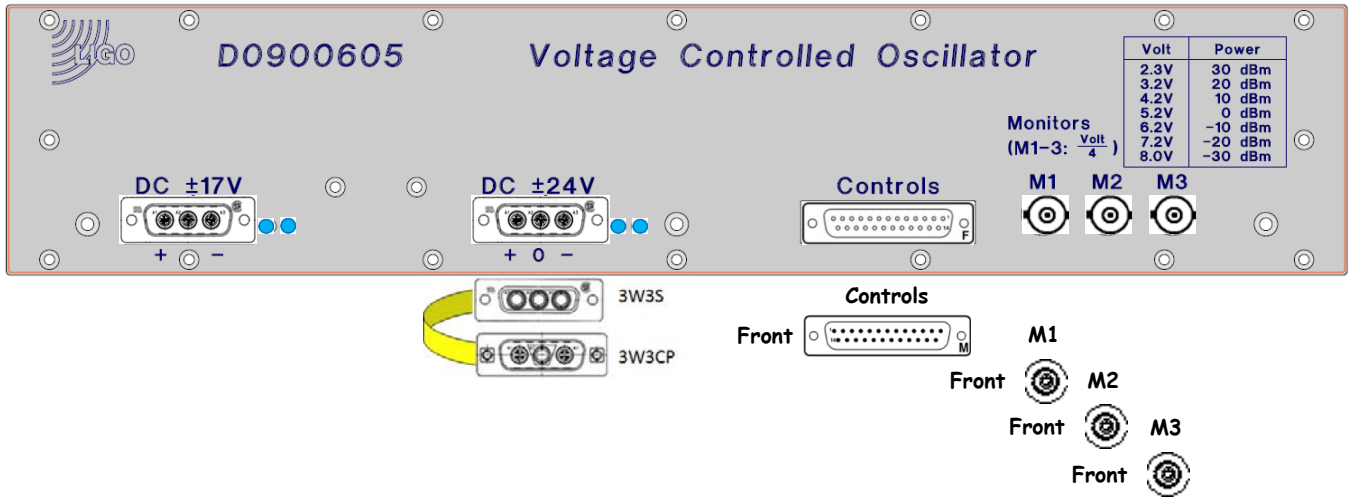
[<< L1-ISC-XR1]

79.4 MHz VCO (ALS) | D0900605 | S1200577 | ±17VDC, ±24VDC



[D0900605]

Front



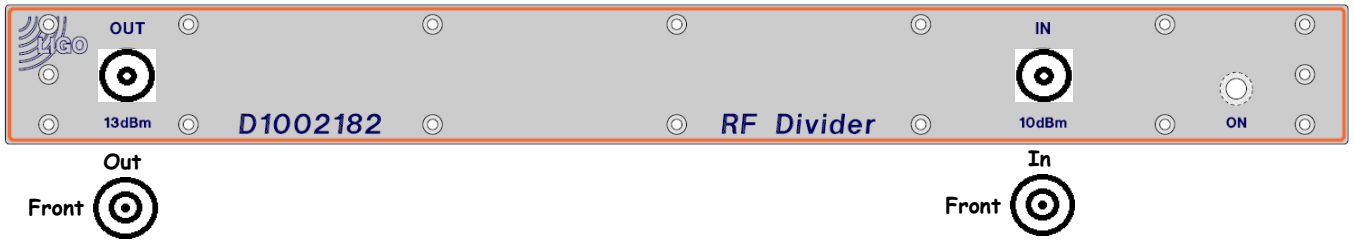
[S1200577]

Rear

D1002182 - S1000752

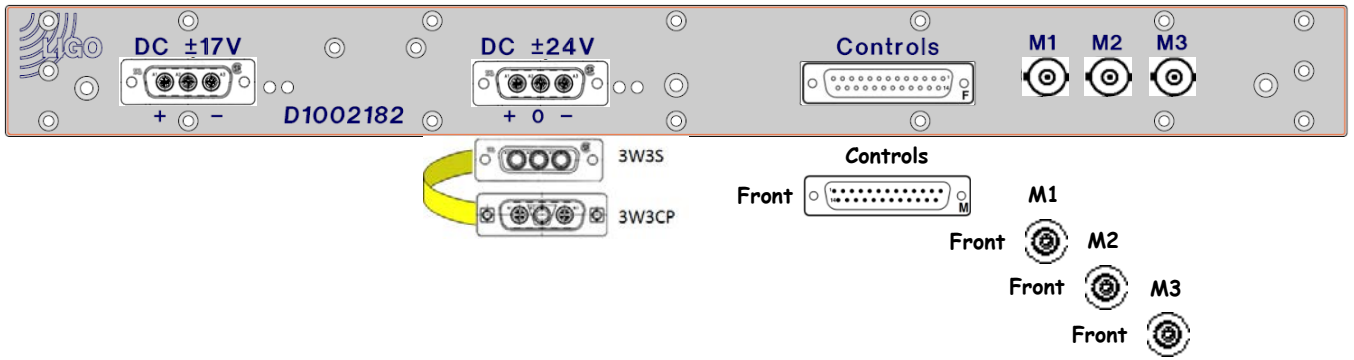
[<< L1-ISC-XR1]

39.7 MHz Frequency Divider | D1002182 | S1000752 | ±17VDC, ±24VDC



D1002182

Front



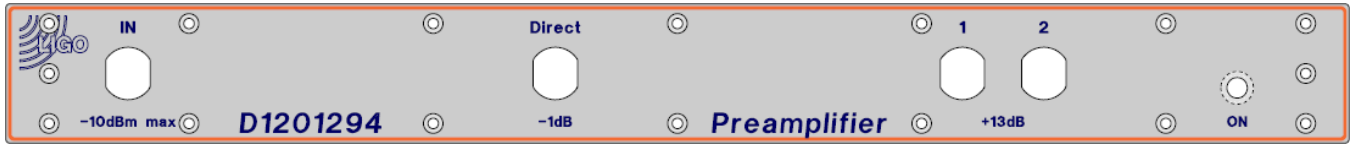
S1000752

Rear

D1201294 - S1203937

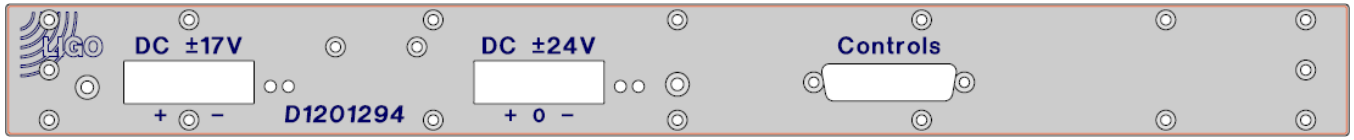
[<< L1-ISC-XR1]

RF Preamplifier | D1201294 | S1203937 | ±18V



D1201294

Front



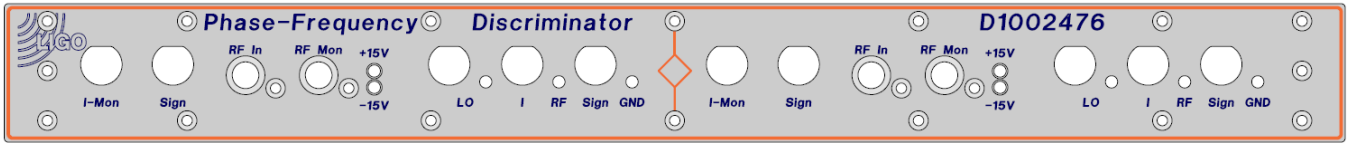
S1203937

Rear

D1002476 - S1000767

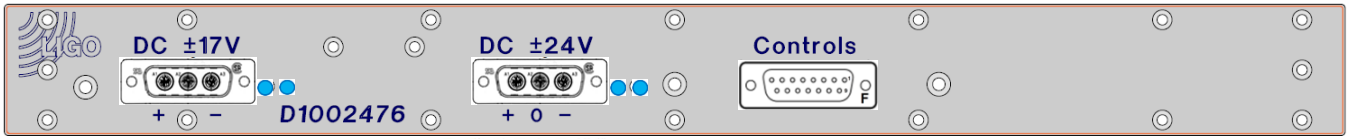
[<< L1-ISC-XR1]

39.7 MHz 2 Channel Phase/Freq Discriminator | D1002476 | S1000767 | ±17VDC, ±24VDC



D1002476

Front



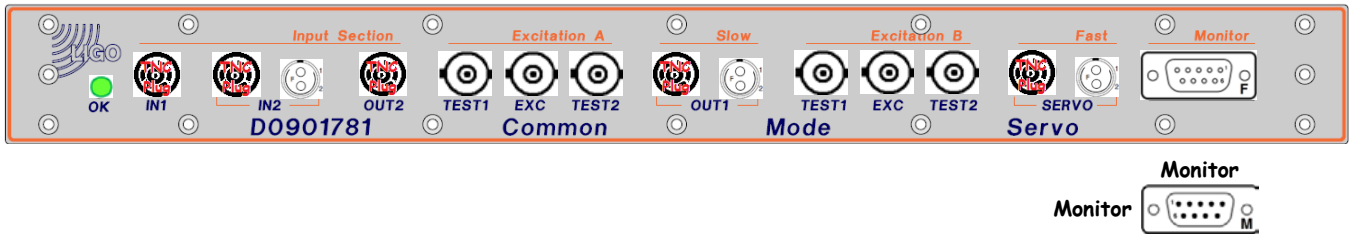
S1000767

Rear

D0901781 - S1102644

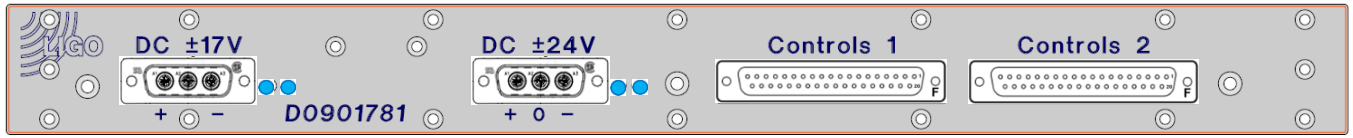
« L1-ISC-XR1

Common Mode Servo (ALS Laser Locking) | D0901781 | S1102644 | ±17VDC, ±24VDC



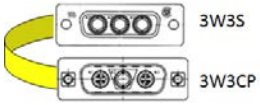
D0901781

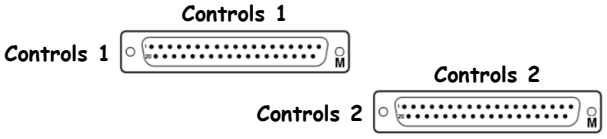
Front



S1102644

Rear

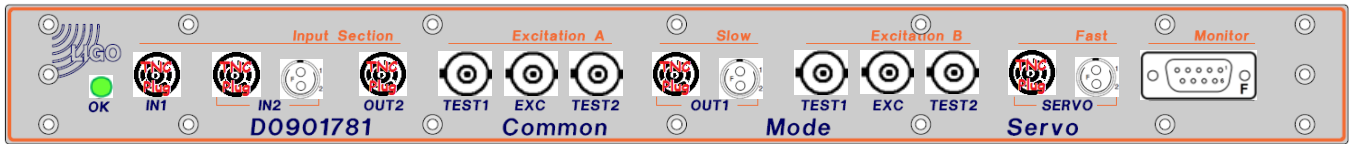




D0901781 - S1102634

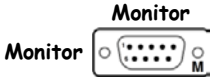
[<< L1-ISC-XR1]

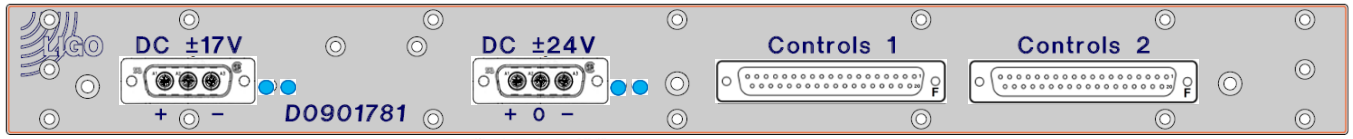
Common Mode Servo (ALS Cavity Locking) | D0901781 | S1102634 | ±17VDC, ±24VDC



D0901781

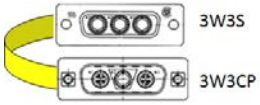
Front

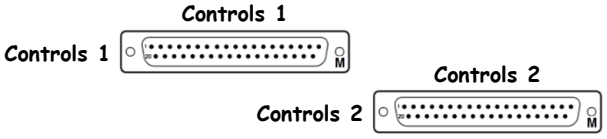




S1102634

Rear

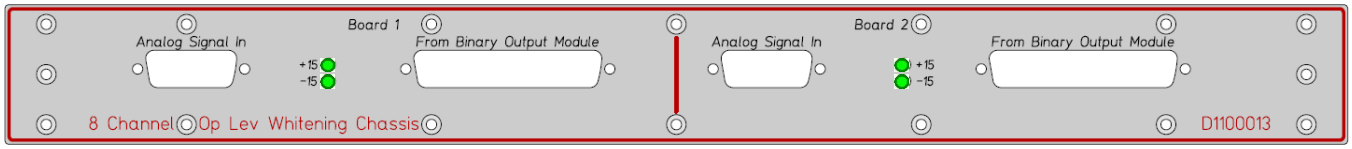




D1100013 - S1101545

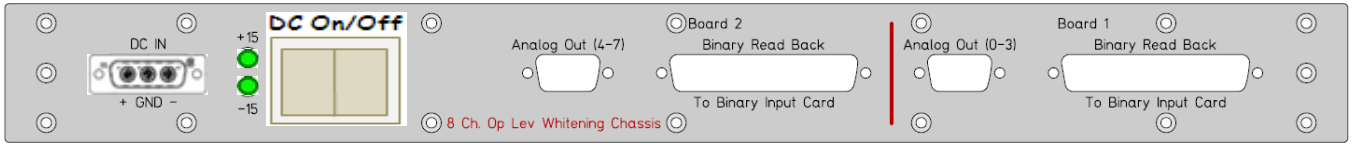
[<< L1-ISC-XR1]

Oplev 8 Channel Whitening Filter Chassis D1100013 S1101545 **±18VDC**



D1100013

Front



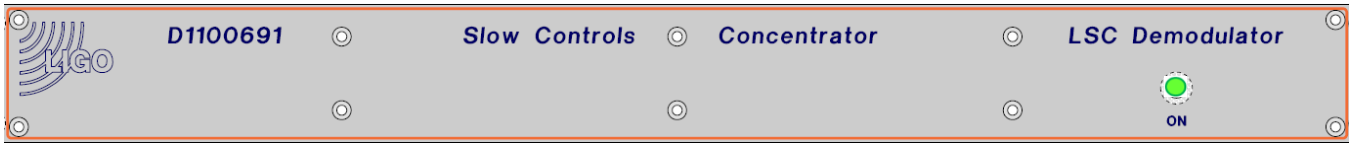
S1101545

Rear

D1100691 - S1104009

[<< L1-ISC-XR1]

LSC Demod Concentrator 5 | D1100691 | S1104009 | ±18VDC

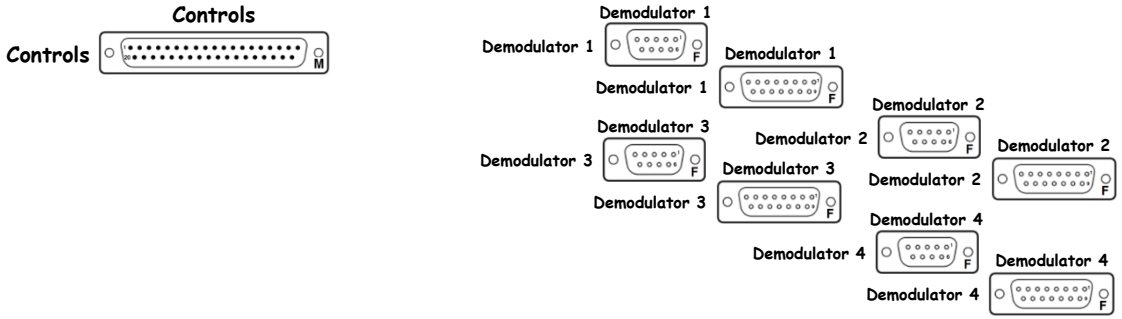


D1100691

Front

S1104009

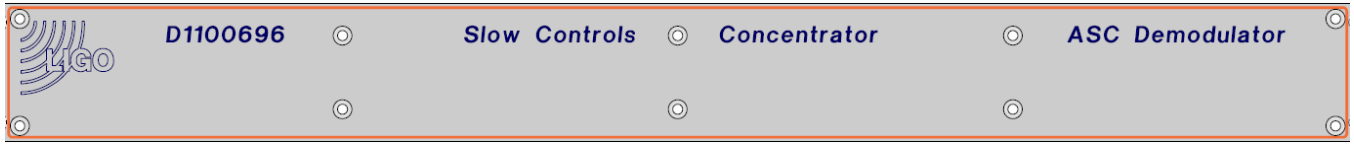
Rear



D1100696 - S1103990

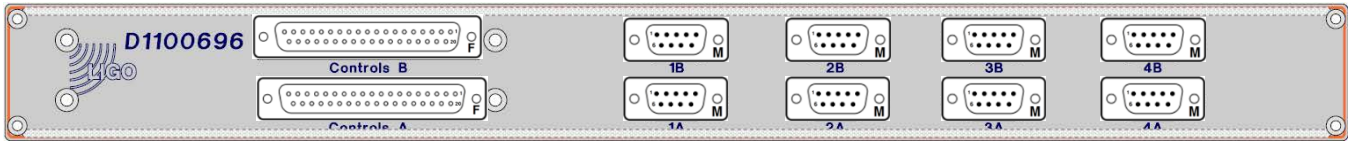
[<< L1-ISC-XR1]

ASC Demod Concentrator 6 | D1100696 | S1103990 | No Power



D1100696

Front



S1103990

Rear

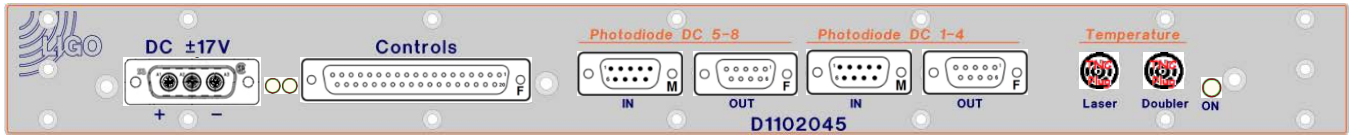
D1102045 - S1200534

[<< L1-ISC-XR1]

Auxiliary Signals Concentrator 2 | D1102045 | S1200534 | ±17VDC

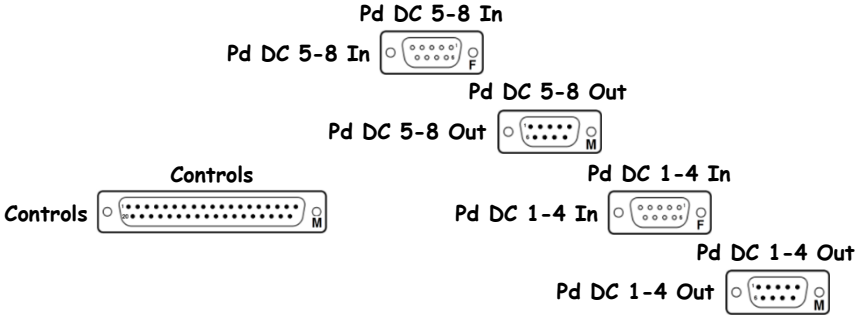
[D1102045]

Front



[S1200534]

Rear



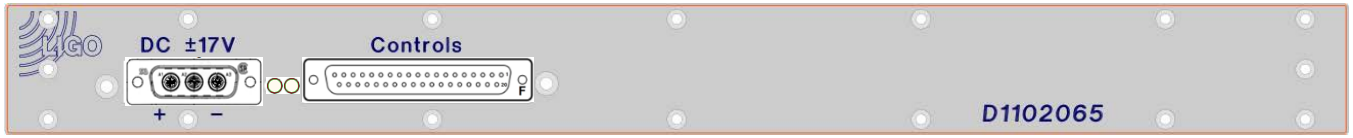
D1102065 - S1200551

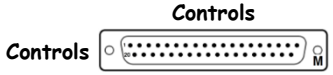
[<< L1-ISC-XR1]

Auxiliary Signals Concentrator 5 | D1102065 | S1200551 | ±17VDC

D1102065

Front





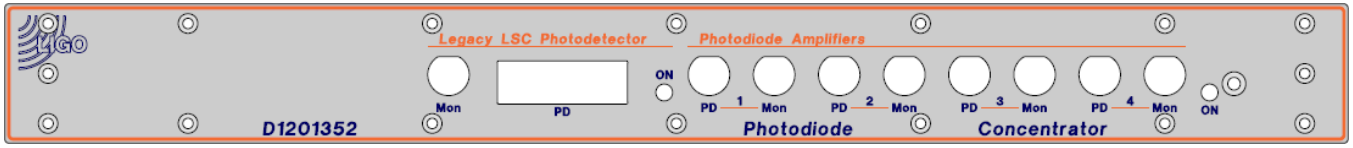
S1200551

Rear

D1201352 - S1300250

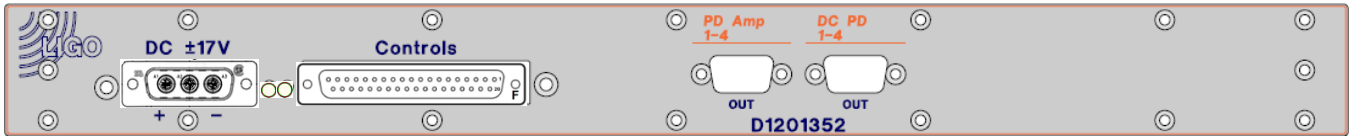
[<< L1-ISC-XR1]

Auxiliary Signals Concentrator 5 | D1201352 | S1300250 | ±17VDC



[D1201352]

Front



Controls

Controls

M

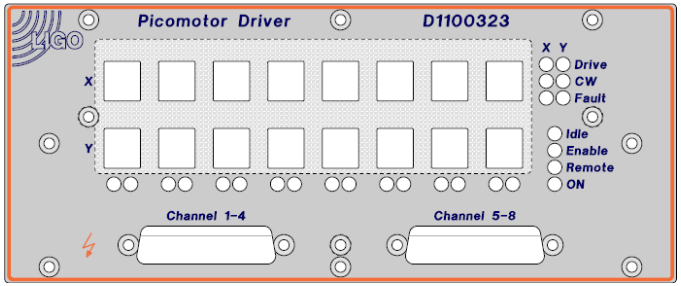
[S1300250]

Rear

D1100323 - S1107547

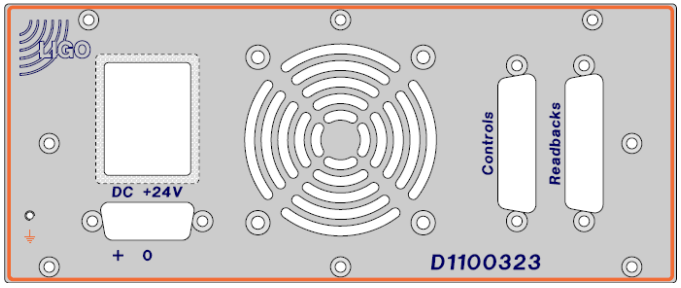
« L1-ISC-XR1

Picomotor Driver and Photodiode Amplifier | D1100323 | D1301017 | S1400008 | S1107547 | ±24VDC, ±24VDC



D1100323

Front



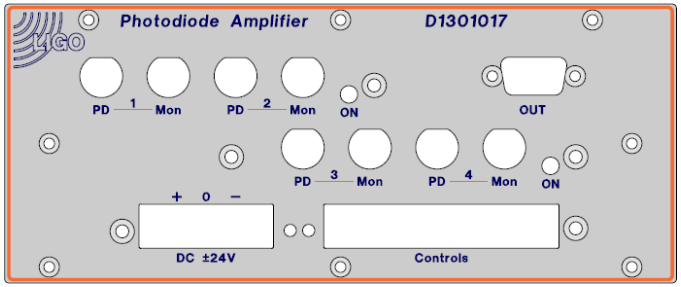
S1107547

Rear

D1301017 - S1400008

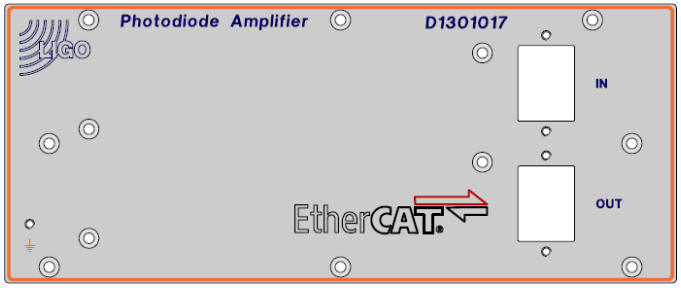
[<< L1-ISC-XR1]

Picomotor Driver and Photodiode Amplifier | D1100323 | D1301017 | S1400008 | S1107547 | ±24VDC, ±24VDC



D1301017

Front



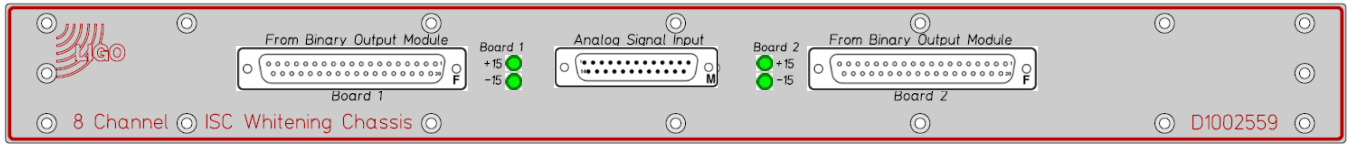
S1400008

Rear

D1002559 - S1101168

[<< L1-ISC-XR1]

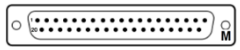
ISC Whitening Chassis | D1002559 | S1101168 | ±15VDC



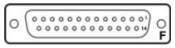
D1002559

Front

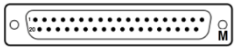
From Binary Output Module 1

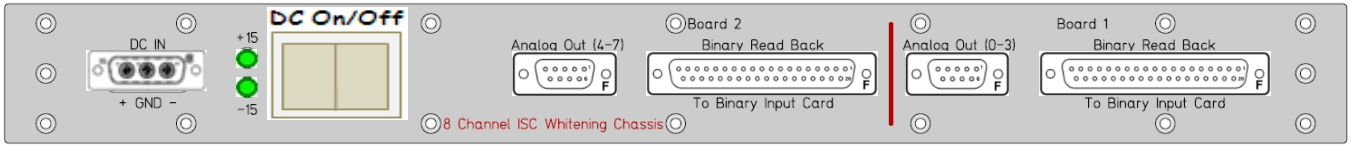


Analog Signal Input



From Binary Output Module 2

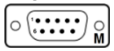




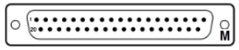
S1101168

Rear

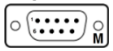
Analog Out (4-7)



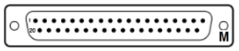
Binary Read Back 2



Analog Out (0-3)



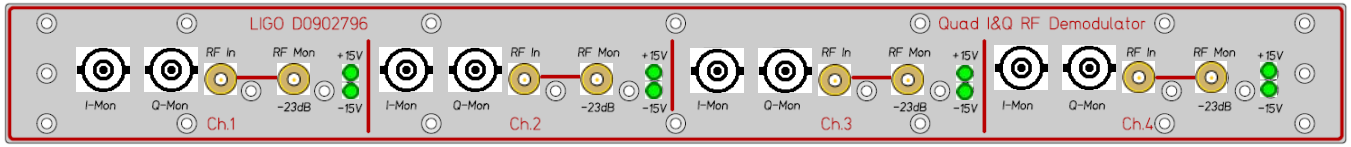
Binary Read Back 1



D0902796 - S1001023

[<< L1-ISC-XR1]

QUAD I&Q Demodulator Module | D0902796 | S1001023 | ±15VDC

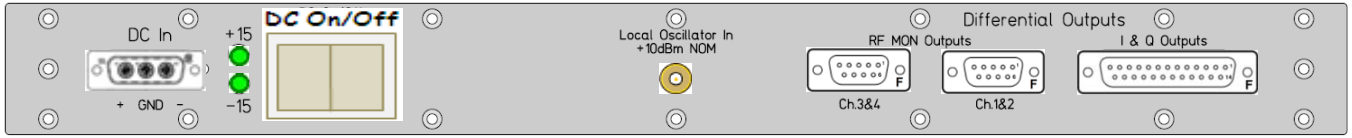


D0902796

Front

D1002032

LSC



S1001023

Rear

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

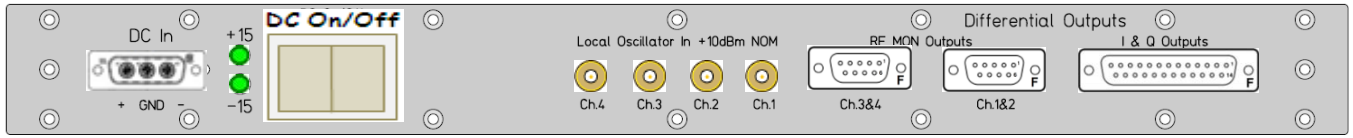
RF Mon Out Ch 3&4

I & Q Outputs

I & Q Outputs

D1002031

WFS



S1001023

Rear

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

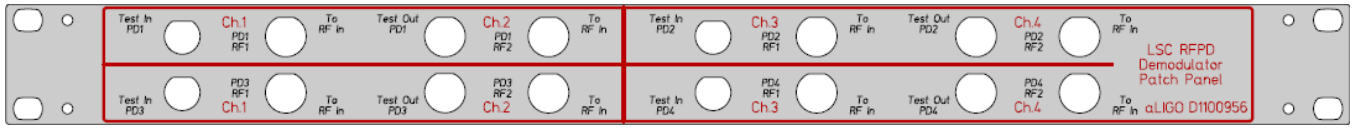
I & Q Outputs

I & Q Outputs

D1100956 - Sxxxxxxx

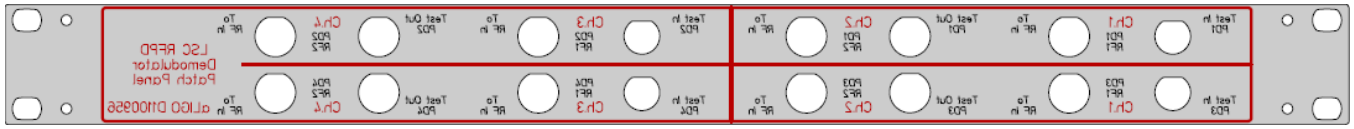
[<< L1-ISC-XR1]

LSC RFPD Demodulator Patch Panel | D1100956 | Sxxxxxxx | No Power



D1100956

Front



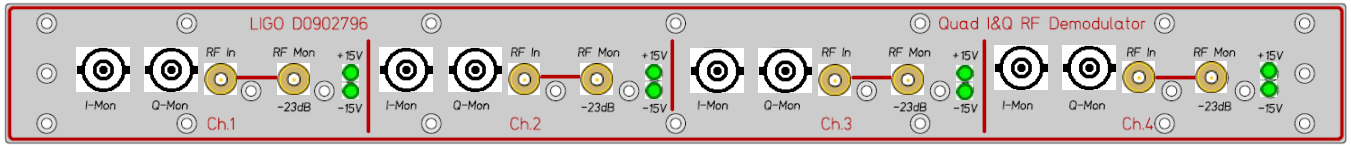
Sxxxxxxx

Rear

D0902796 - S1000973

[<< L1-ISC-XR1]

QUAD I&Q Demodulator Module | D0902796 | S1000973 | ±15VDC

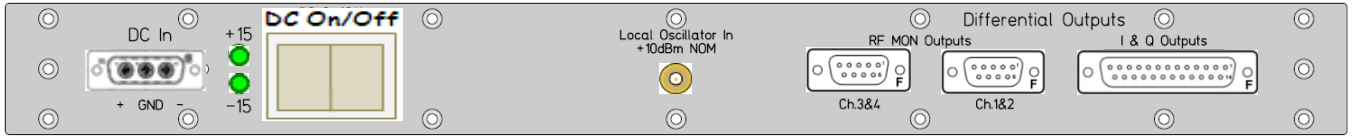


D0902796

Front

D1002032

LSC



S1000973

Rear

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

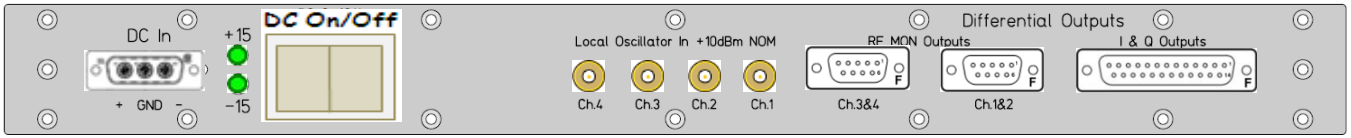
RF Mon Out Ch 3&4

I & Q Outputs

I & Q Outputs

D1002031

WFS



S1000973

Rear

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

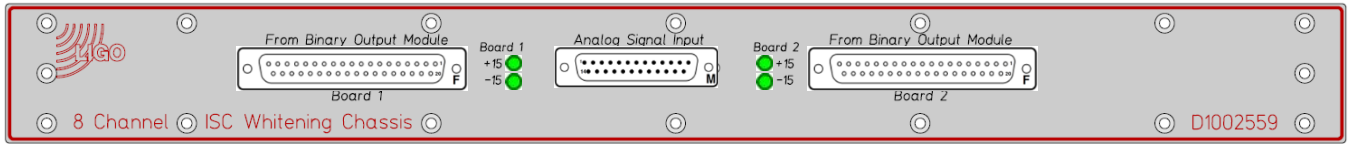
I & Q Outputs

I & Q Outputs

D1002559 - S1101623

[<< L1-ISC-XR1]

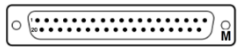
ISC Whitening Chassis | D1002559 | S1101623 | ±15VDC



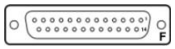
D1002559

Front

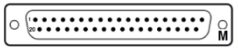
From Binary Output Module 1

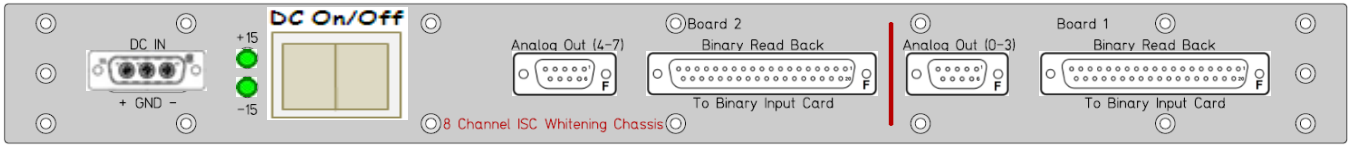


Analog Signal Input



From Binary Output Module 2

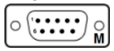




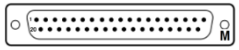
S1101623

Rear

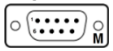
Analog Out (4-7)



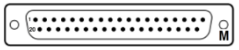
Binary Read Back 2



Analog Out (0-3)



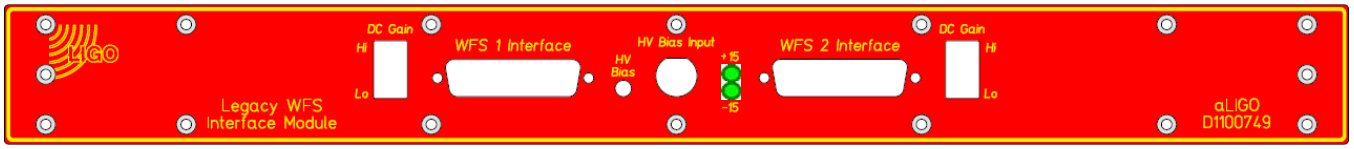
Binary Read Back 1



D1100749 - S1400283

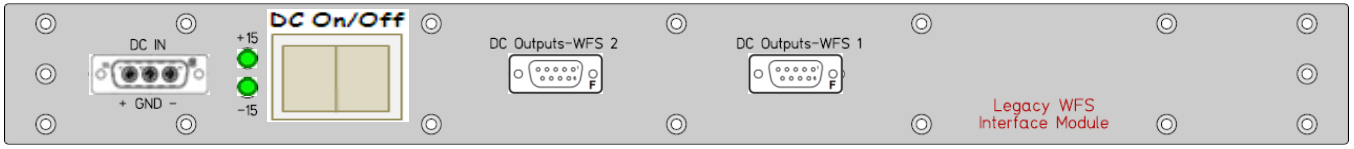
[<< L1-ISC-XR1]

Legacy WFS Interface Module | D1100749 | S1400283 | ±15VDC



D1100749

Front



S1400283

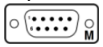
Rear

DC Outputs-WFS 2

WFS 2

DC Outputs-WFS 1

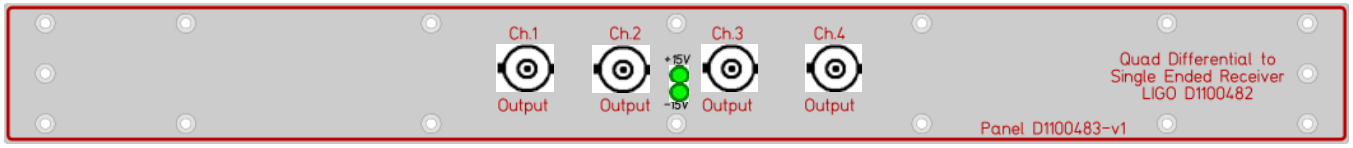
WFS 1



D1100482 - S1203309

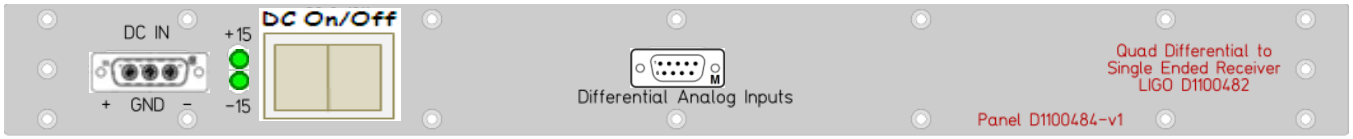
[<< L1-ISC-XR1]

Differential to Single-Ended Receiver | D1100482 | S1203309 | ±15VDC



D1100482

Front



S1203309

Rear

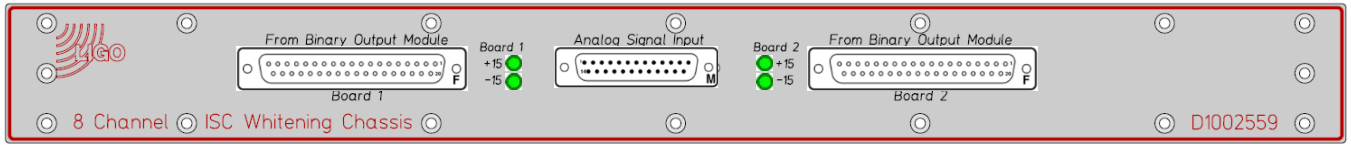
Diff Inputs

Diff Inputs

D1002559 - S1101164

[<< L1-ISC-XR1]

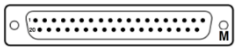
ISC Whitening Chassis | D1002559 | S1101164 | ±15VDC



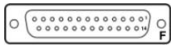
D1002559

Front

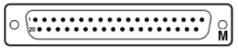
From Binary Output Module 1

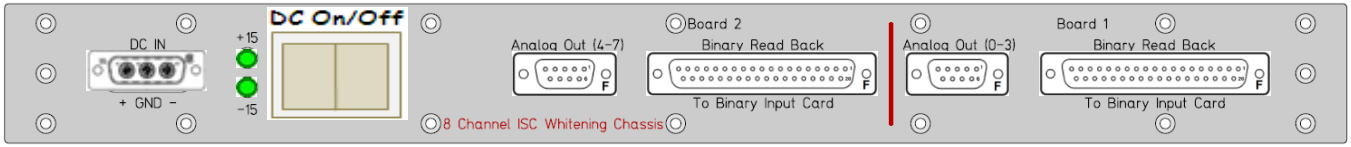


Analog Signal Input



From Binary Output Module 2

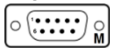




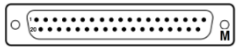
S1101164

Rear

Analog Out (4-7)

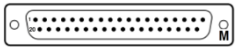


Binary Read Back 2



Analog Out (0-3)

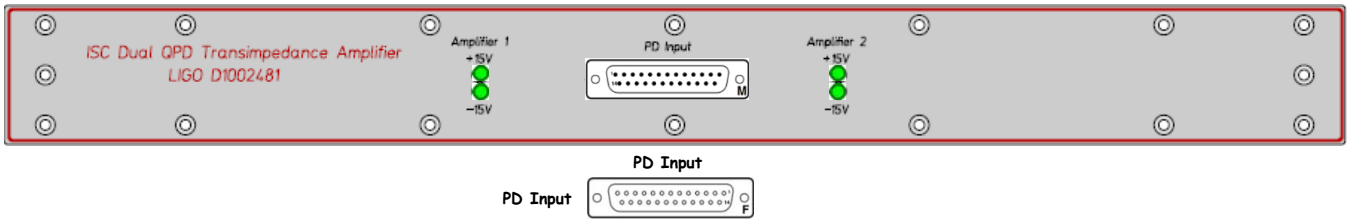
Binary Read Back 1



D1002481 - S1102831

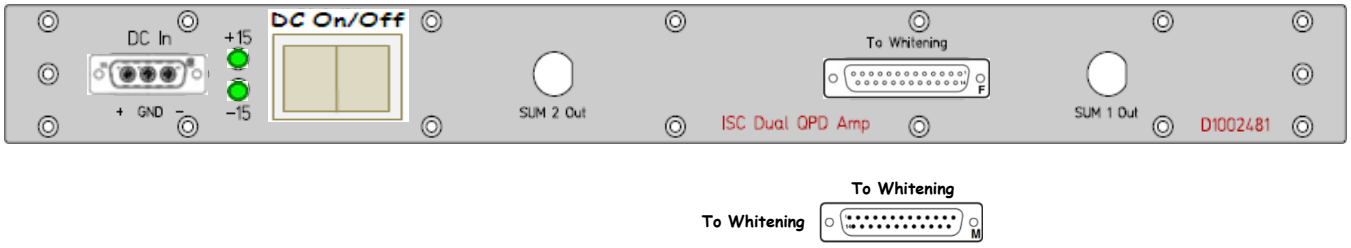
[<< L1-ISC-XR1]

Dual QPD Transimpedance Amp (ASC OMCR A&B) D1002481 S1102831 ±15VDC



D1002481

Front



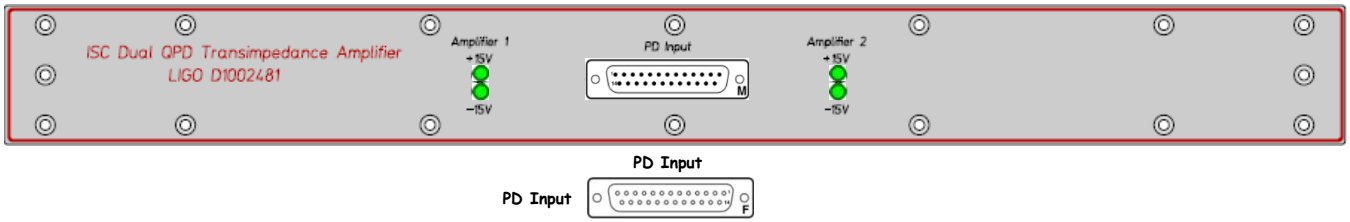
S1102831

Rear

D1002481 - S1102825

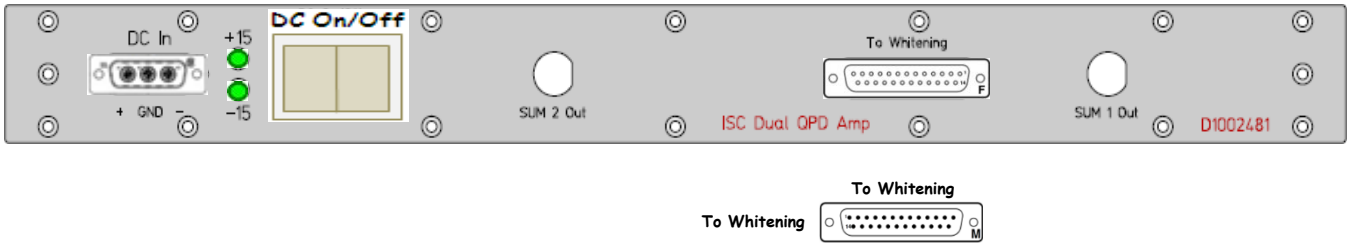
[<< L1-ISC-XR1]

Dual QPD Transimpedance Amp (ASC OMCR A&B) | D1002481 | S1102825 | ±15VDC



D1002481

Front



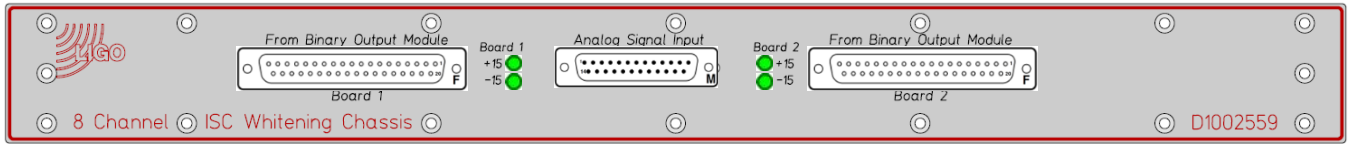
S1102825

Rear

D1002559 - S1101165

[<< L1-ISC-XR1]

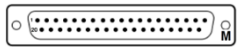
ISC Whitening Chassis | D1002559 | S1101165 | ±15VDC



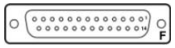
D1002559

Front

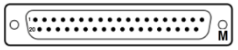
From Binary Output Module 1

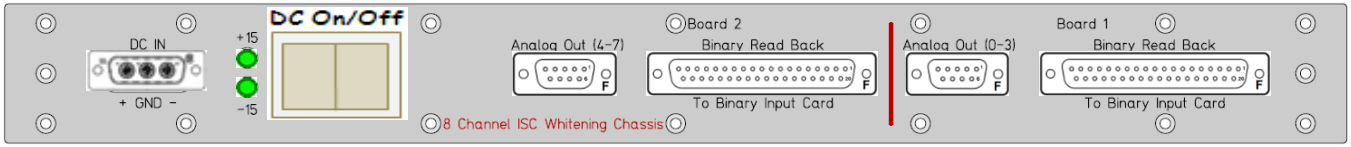


Analog Signal Input



From Binary Output Module 2

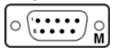




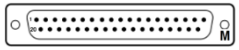
S1101165

Rear

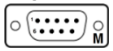
Analog Out (4-7)



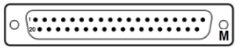
Binary Read Back 2



Analog Out (0-3)



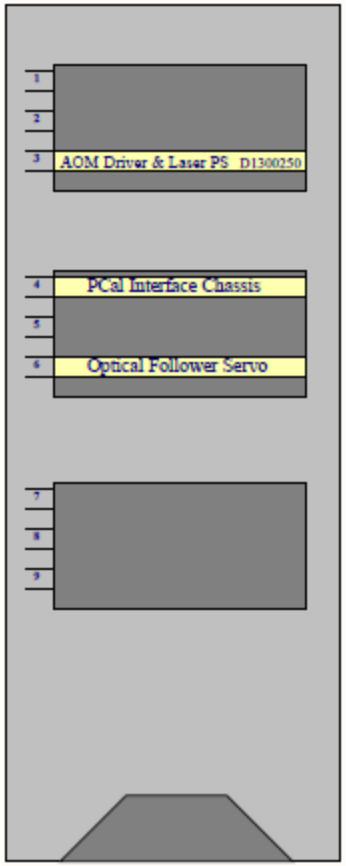
Binary Read Back 1



L1-PCAL-XR1 Details

L1-PCAL-XR1 Details

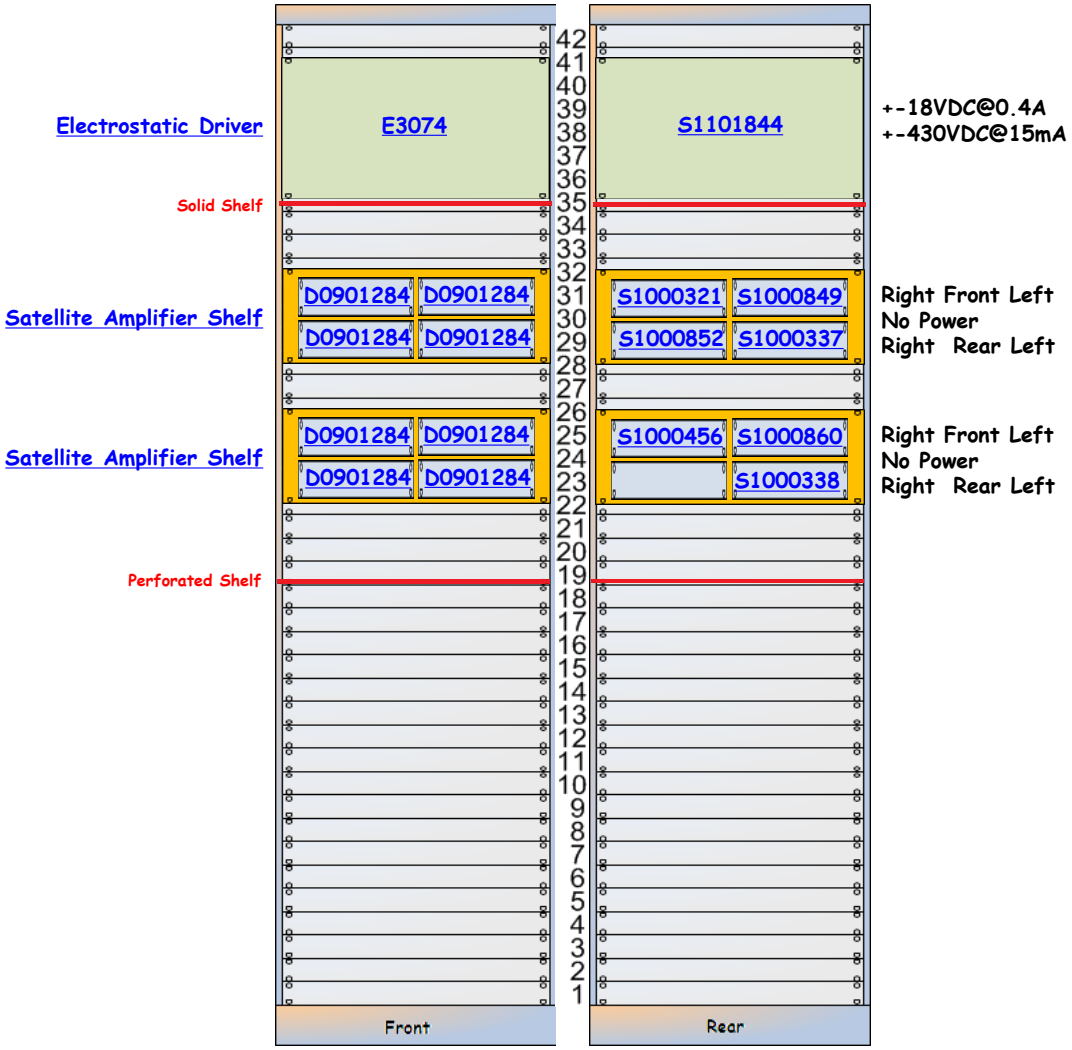
LIGO
<< L1-PCAL-XR1



L1-SUS-XR1

[<< XEND Racks and Tables]

L1-SUS-XR1 XEND Station Field Rack Layout (D1201131) (S1202993)



SUS-XR1 is part of D1002741.

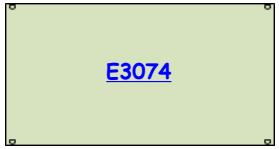
L1-SUS-XR1 Details

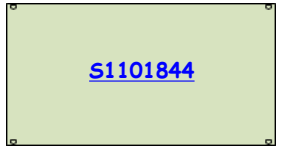
SUS-XR1 is part of D1002741.

E3074 - S1101844

[<< L1-SUS-XR1]

Electrostatic Driver





+-18VDC@0.4A
+-430VDC@15mA

[E3074]

Front

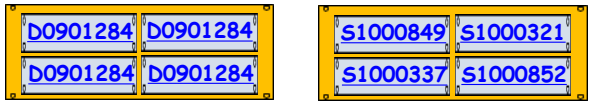
[S1101844]

Rear

D0901284 Shelf

[<< L1-SUS-XR1]

Satellite Amplifier Shelf

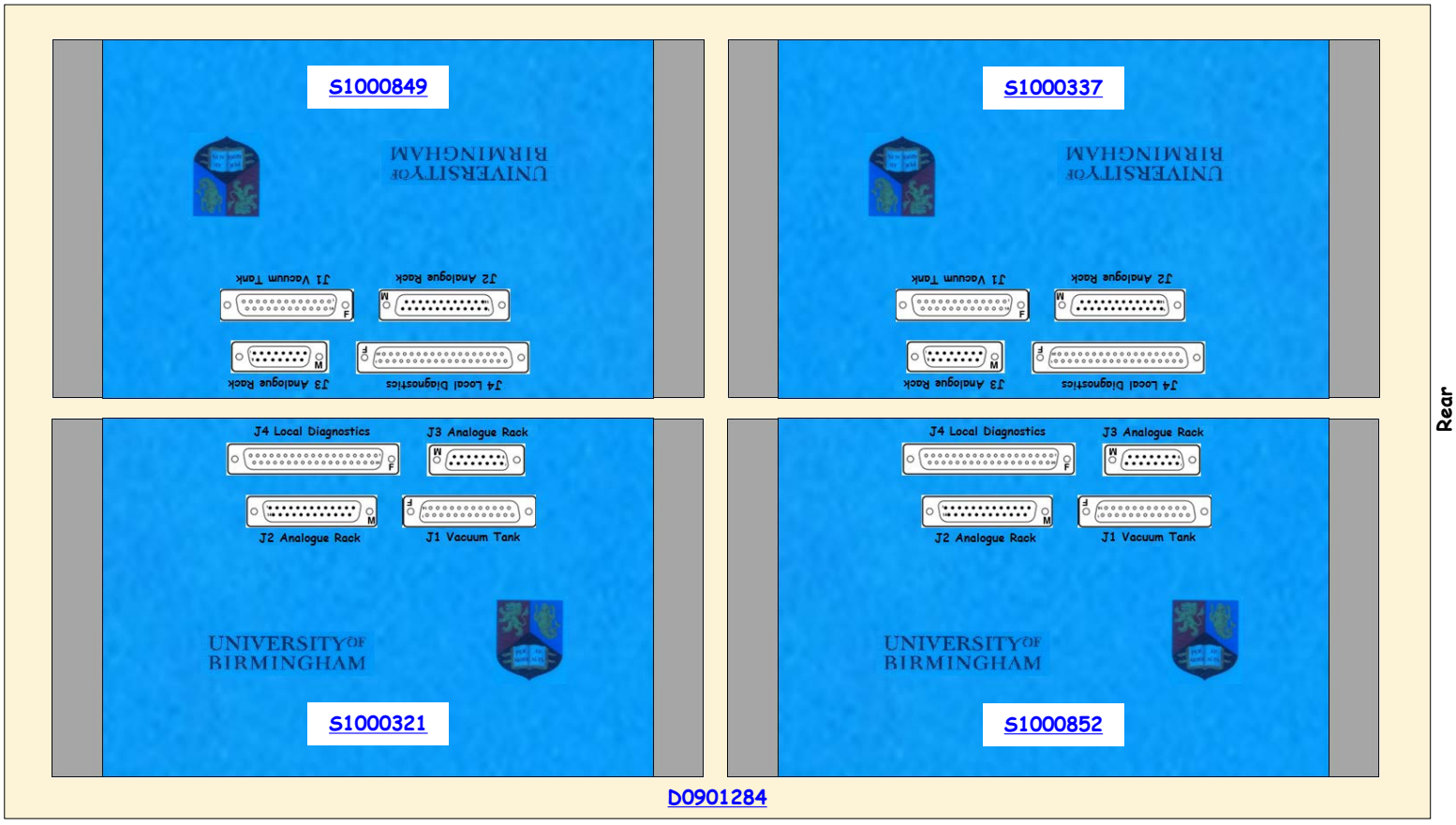


Right Front Left
No Power
Right Rear Left

Left

Front

Rear

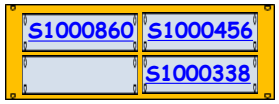


Right

D0901284 Shelf

[<< L1-SUS-XR1]

Satellite Amplifier Shelf



Right Front Left
No Power
Right Rear Left

Left

Front

Rear

S1000860

S1000338

S1000456

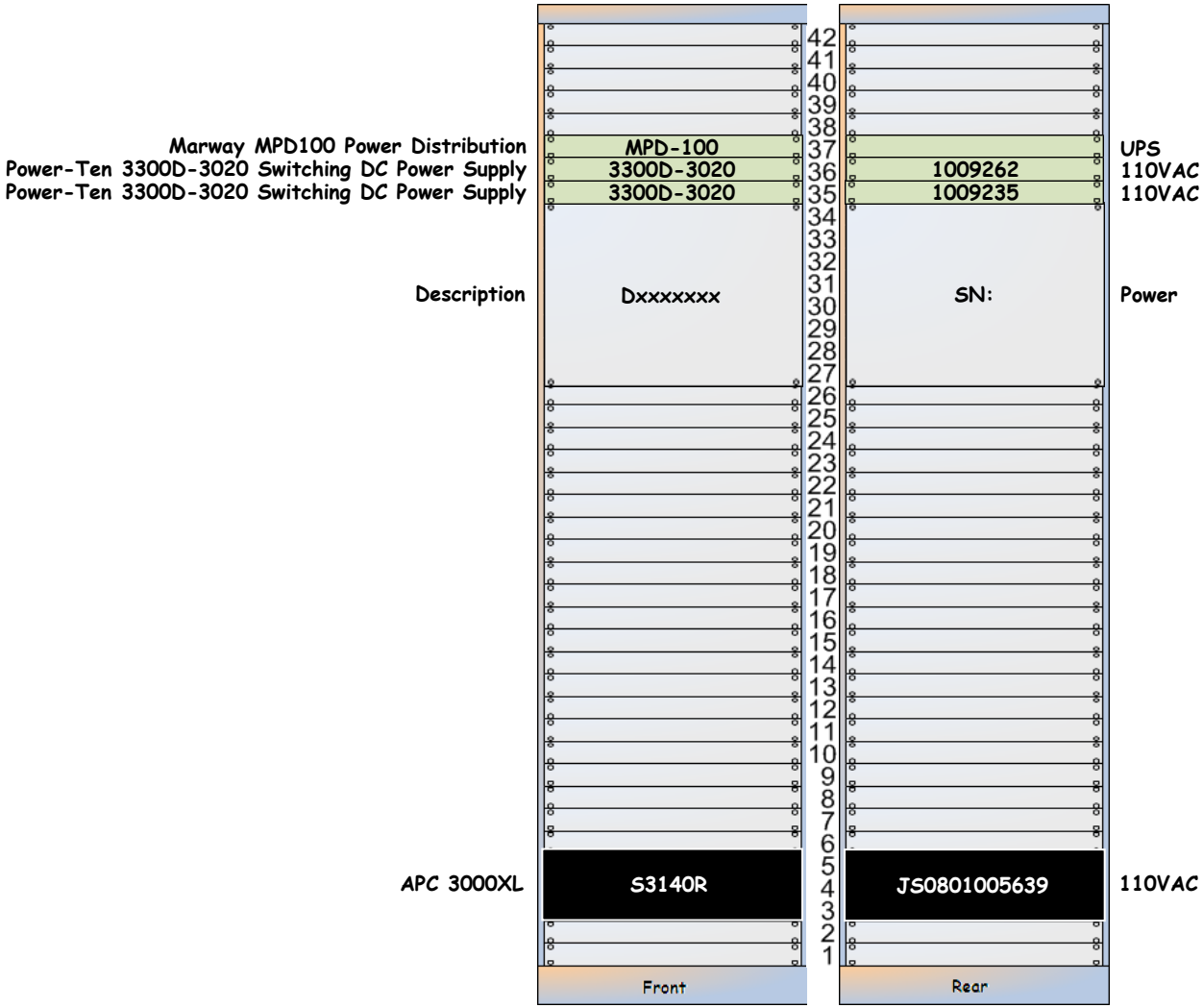
J4 Local Diagnostics
J3 Analogue Rack
J2 Analogue Rack
J1 Vacuum Tank

D0901284

Right

L1-VAC-XR1

L1-VAC-XR1 XEND Vacuum Rack Layout (Dxxxxxxx)



L1-VAC-XR1 Details

Marway MPD100 Power Distribution MPD-100 UPS

[<< L1-VAC-XR1]

Power-Ten 3300D-3020 Switching DC Power Supply | 3300D-3020 | 1009262 | 110VAC

Power-Ten 3300D-3020 Switching DC Power Supply | 3300D-3020 | 1009235 | 110VAC

L1-VAC-XR1

[<< L1-VAC-XR1]

Description | Dxxxxxxx | SN: | Power

CentreCom 210TS

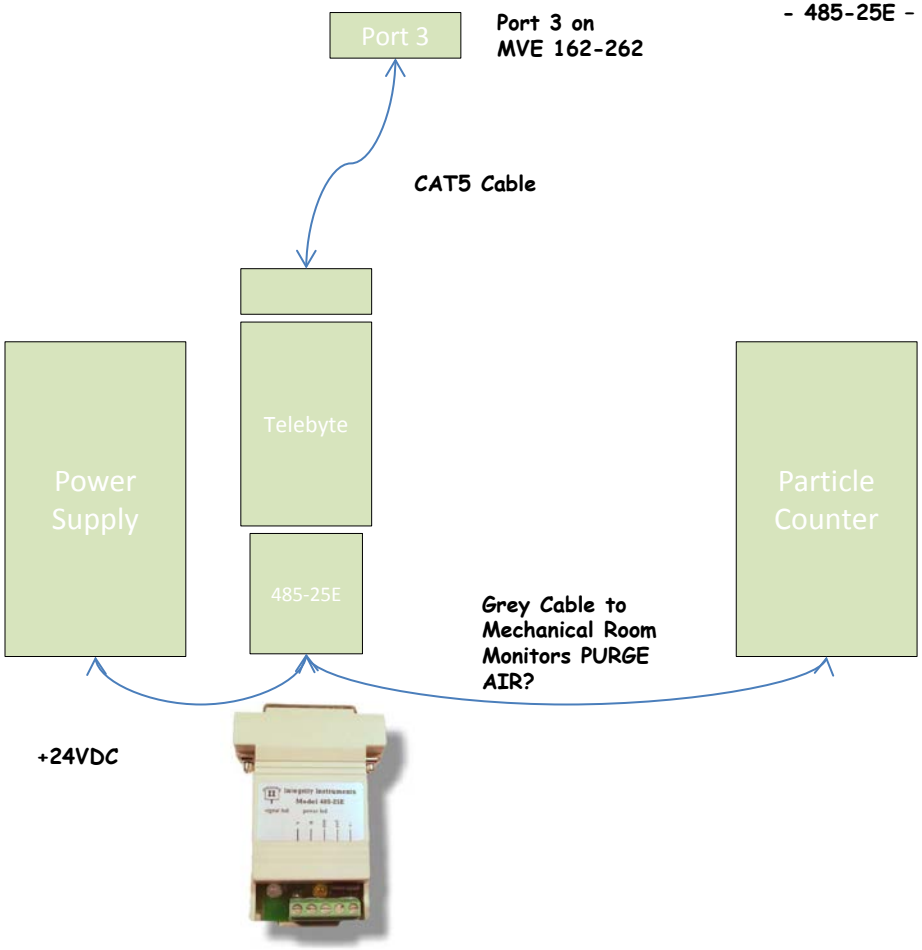
L1-VAC-XR1

[<< L1-VAC-XR1]

APC 3000XL | S3140R | JS0801005639 | 110VAC

L1-VAC-XR1

Particle Counter
- Located in Mechanical Room
- +24VDC comes from Power-Ten 1009235
- 485-25E – Telebyte – Cat5 – 162-262 Port 3



L1-ISCBT4R Table Layout

[<< XEND Racks and Tables]

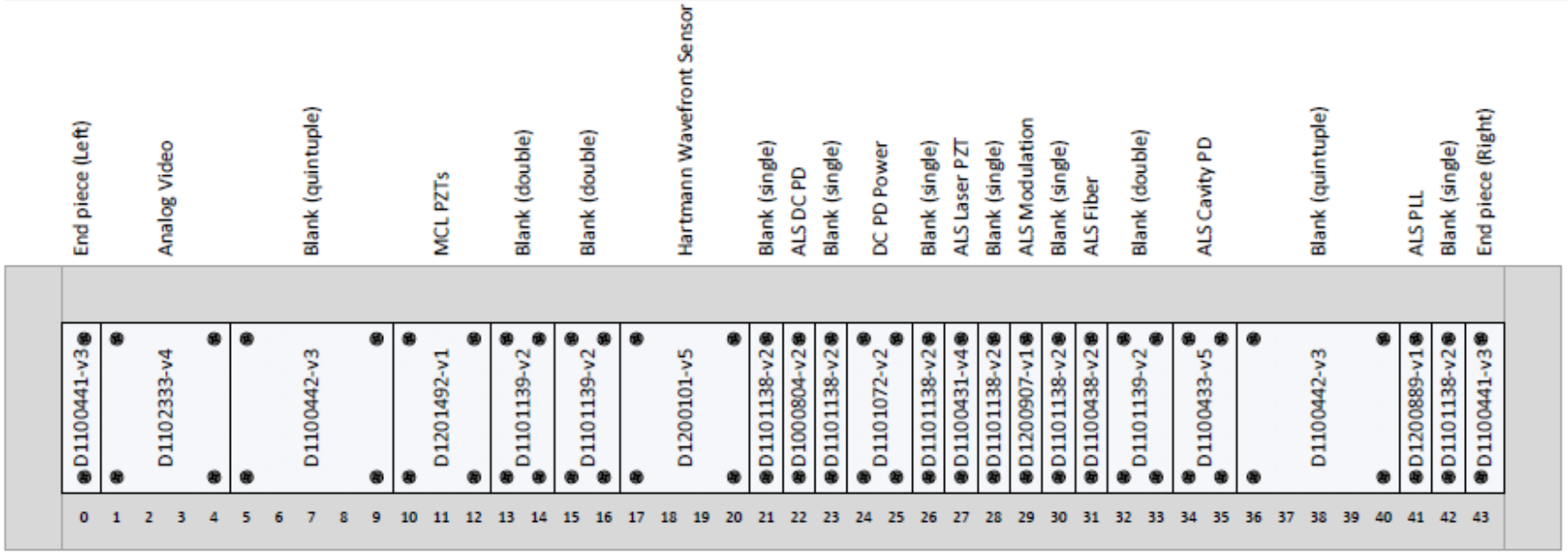
ISCBT4R Table Layout (Dxxxxxxx) **(Sxxxxxxx)**

ISCBT4R is part of Exxxxxxx.

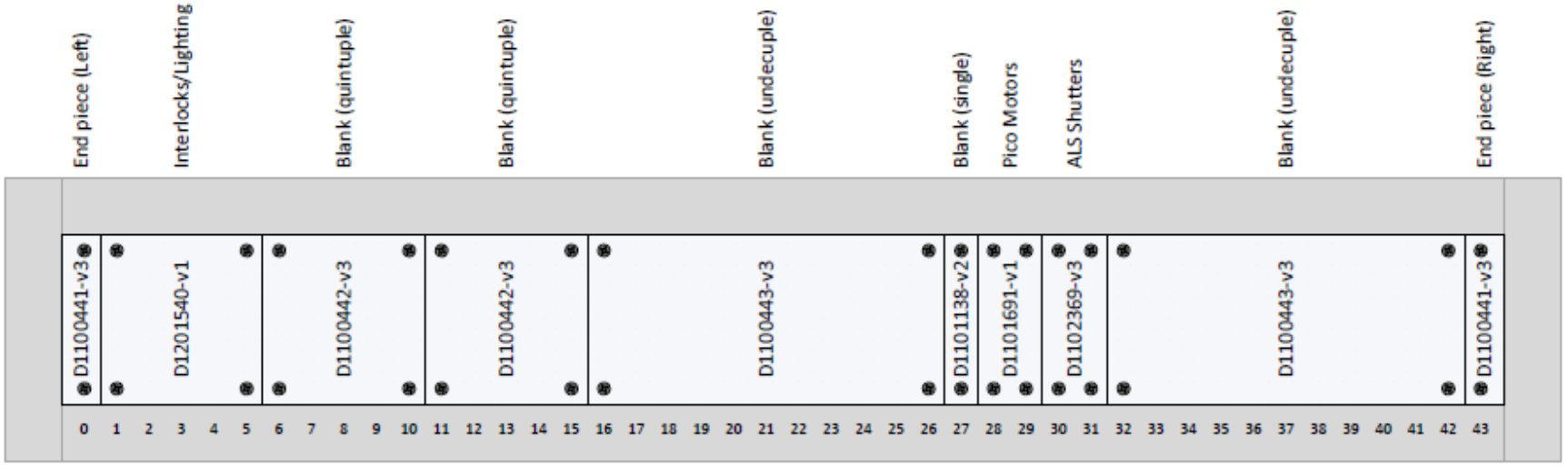
L1-ISCBT4R Panel Layout

[<< XEND Tables]

ISCBT4R Panel Layout (D1201495)



Left Side

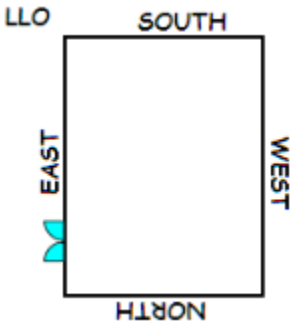


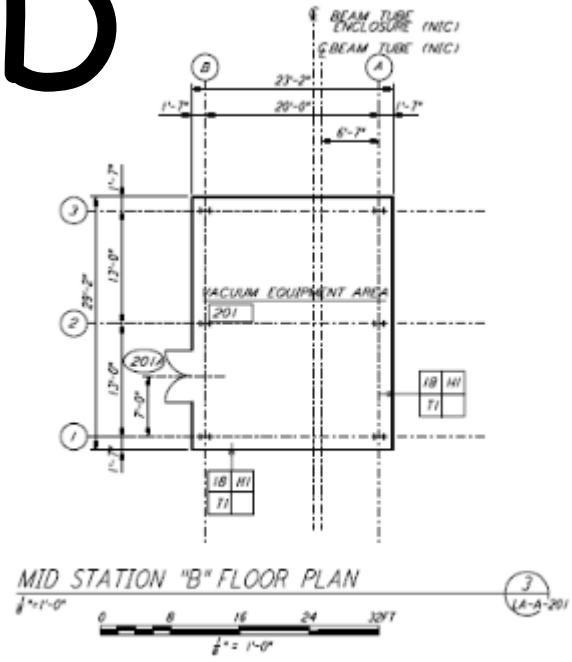
Right Side

YMID Station Index

<< Locations
<< Chambers

YMID

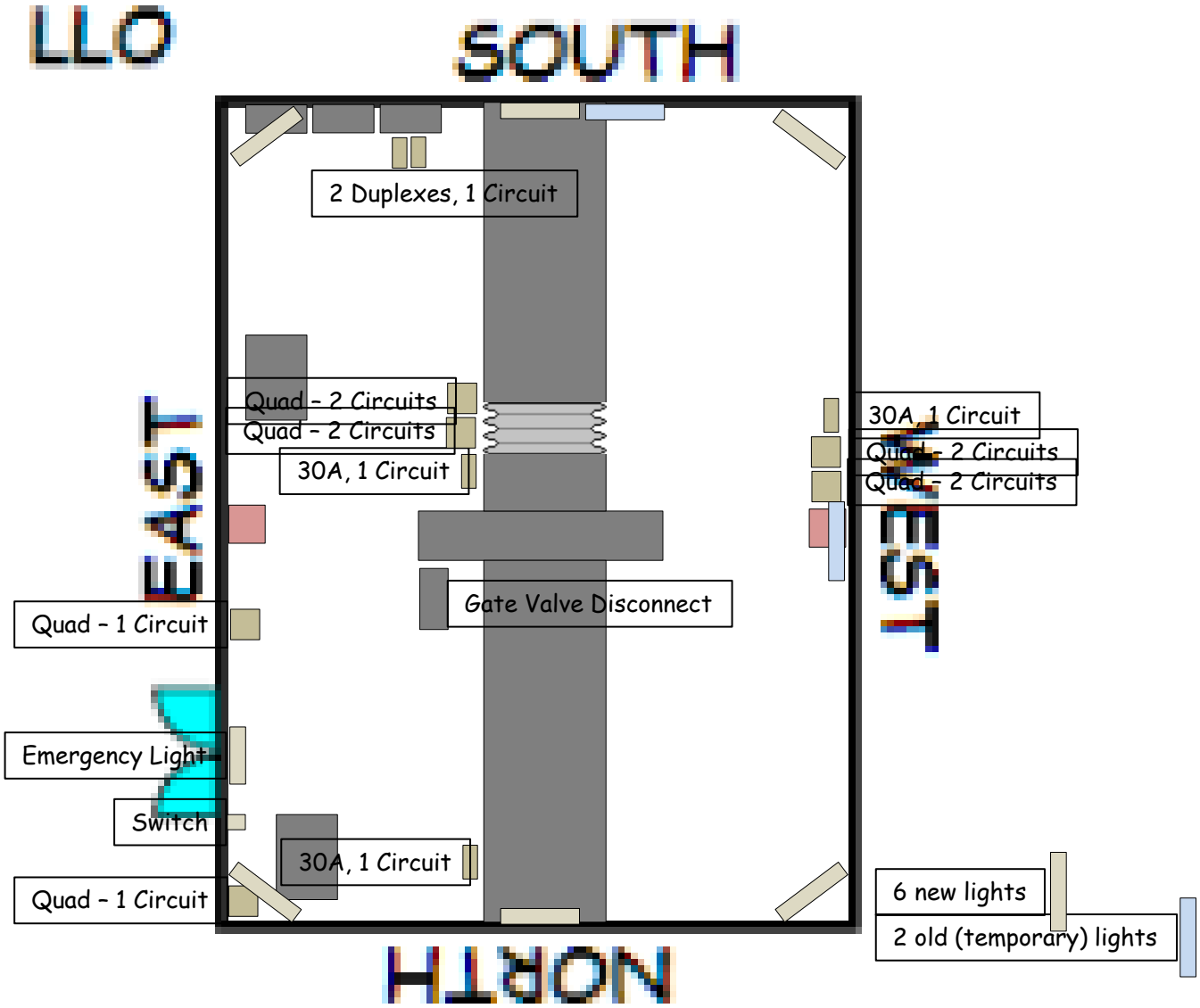




North Side View	YMID Layout
East Side View	YMID Rack
West Side View	
South Side View	

YMID Station Layout

[<< YMID Index]



YMID Station Rack

[<< YMID Index]

All SC
6-Fiber Fiber Patch Blue Fiber (Marked 1610) to Cisco Port 4
6-Fiber Fiber Patch Orange Fiber (Marked 1510) to Cisco Port 4
6-Fiber Fiber Patch Green Fiber (Marked Extra) to Nothing
6-Fiber Fiber Patch Brown Fiber (Marked Extra) to Nothing
6-Fiber Fiber Patch Grey Fiber (Marked Extra) to Nothing
6-Fiber Fiber Patch White Fiber (Marked Extra) to Nothing

TPE-111GI-A – Orange cable to Brocade AP650
TPE-111GI-A – Blue CAT6 cable to Level One Media Converter

NetGear Port 1 - AcroMag
NetGear Port 2 – Level One Media Converter
NetGear Port 3 – Open
NetGear Port 4 – Laptop Computer

All FC
12-Fiber Fiber Patch Panel A1 to OPEN
12-Fiber Fiber Patch Panel A2 to OPEN
12-Fiber Fiber Patch Panel A3 to OPEN
12-Fiber Fiber Patch Panel A4 to OPEN
12-Fiber Fiber Patch Panel A5 to OPEN
12-Fiber Fiber Patch Panel A6 to OPEN

12-Fiber Fiber Patch Panel B is Not Present

12-Fiber Fiber Patch Panel C1 to Level One Media Converter
12-Fiber Fiber Patch Panel C2 to Level One Media Converter
12-Fiber Fiber Patch Panel C3 to OPEN
12-Fiber Fiber Patch Panel C4 to OPEN
12-Fiber Fiber Patch Panel C5 to OPEN
12-Fiber Fiber Patch Panel C6 to OPEN

12-Fiber Fiber Patch Panel D is Not Present

AcroMag connected to Sensor

Brocade AP650 SN:

Sorenson DCS33-33E DCS33-33E

6-Fiber Fiber Patch Panel Xxxxxxx

TrendNet TPE-111GI-A SN:

Level One Media Converter E100BTXFX05

NetGear GS108 SN:

Cisco ME3400 SN:

12 SM Fiber Fiber Patch Panel from Corner Station Xxxxxxx

AcroMag SN:

Sensor SN:

APC Smart UPS 1500 Xxxxxxx

TrendNet TPE-111GI-A

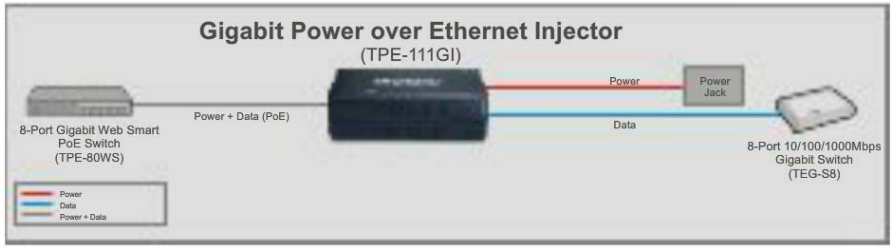
[<< YMID Rack]

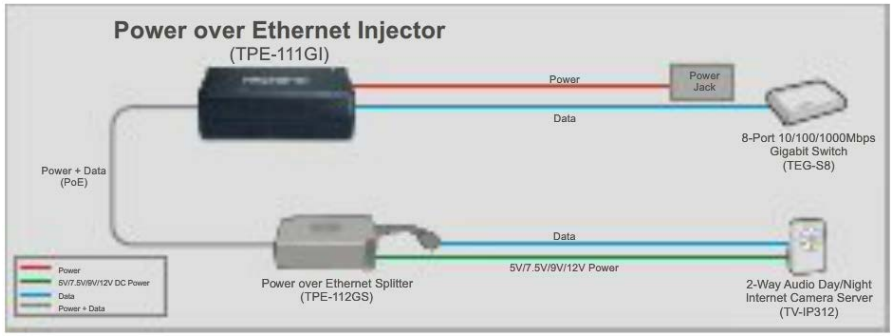
Gigabit Power over Ethernet (PoE) Injector

TPE-111GI (V1.0R)

The Gigabit Power over Ethernet Injector (TPE-111GI) combines electrical power with a Gigabit network data signal to product a Gigabit Power over Ethernet (PoE) signal. Connect this device to a non-PoE switch and then run a Gigabit PoE cable for up to 100 meters (328 Ft.) to network most PoE devices.

No need to buy a PoE switch—use existing open ports from a non-PoE switch to network PoE devices. Save installation and equipment cost when installing TRENDnet PoE access points and IP cameras in remote locations. No need to install PoE devices near a power outlet. This compact device safeguards valuable network equipment with short circuit protection. Quickly create an integrated PoE and non-PoE network at Gigabit speeds.

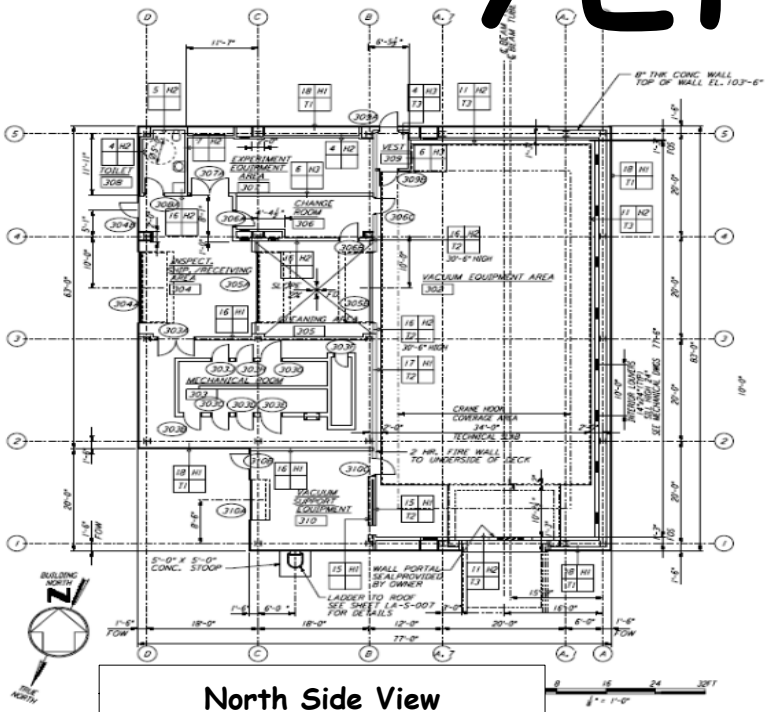


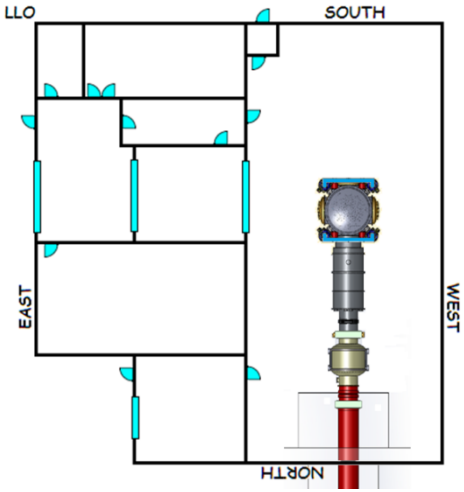


YEND Index

<< LLO Corner Station
<< LLO Racks by AREA
<< LLO CDS Components
<< YEND Aerial

YEND

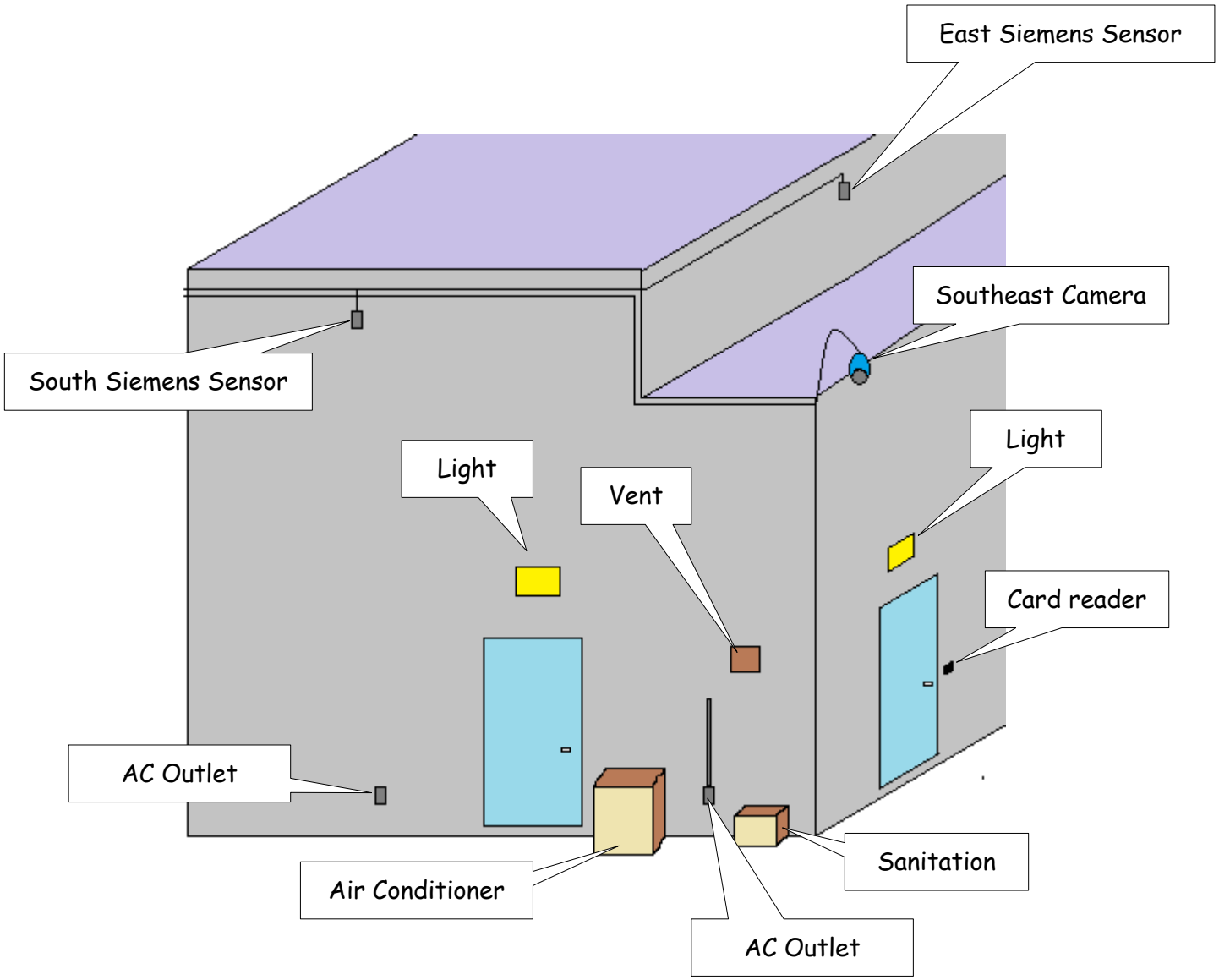




North Side View	YEND Layout
East Side View	YEND Rack Layout
West Side View	VEAY Fiber Patch Panel
South Side View	YEND Roof Junction Box

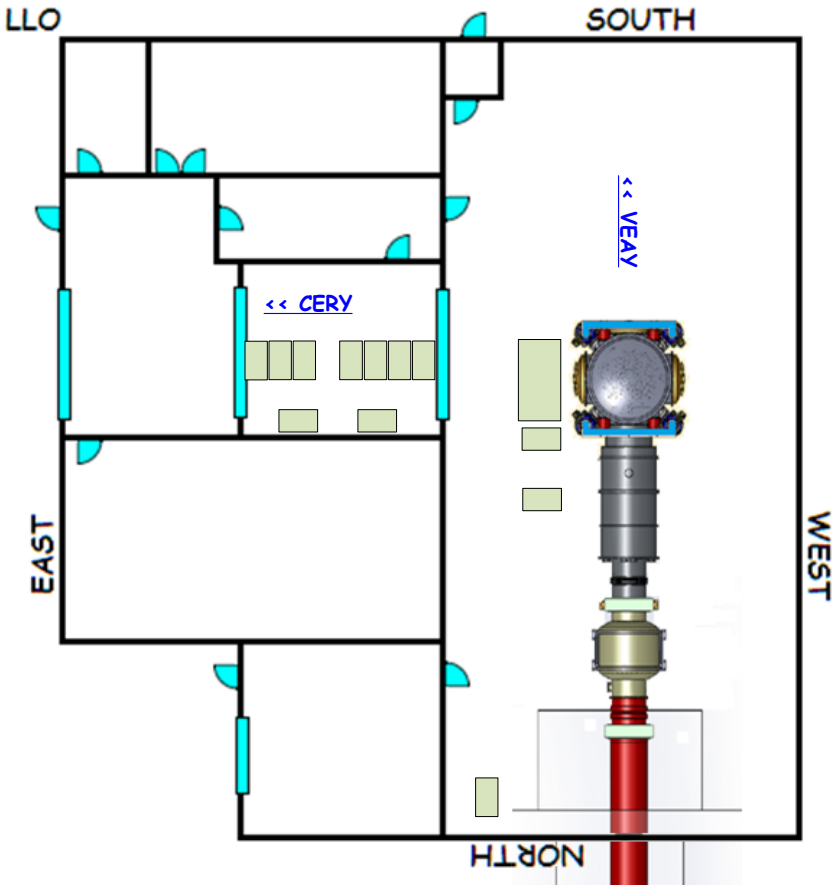
YEND South Side View

[<< YEND Index]



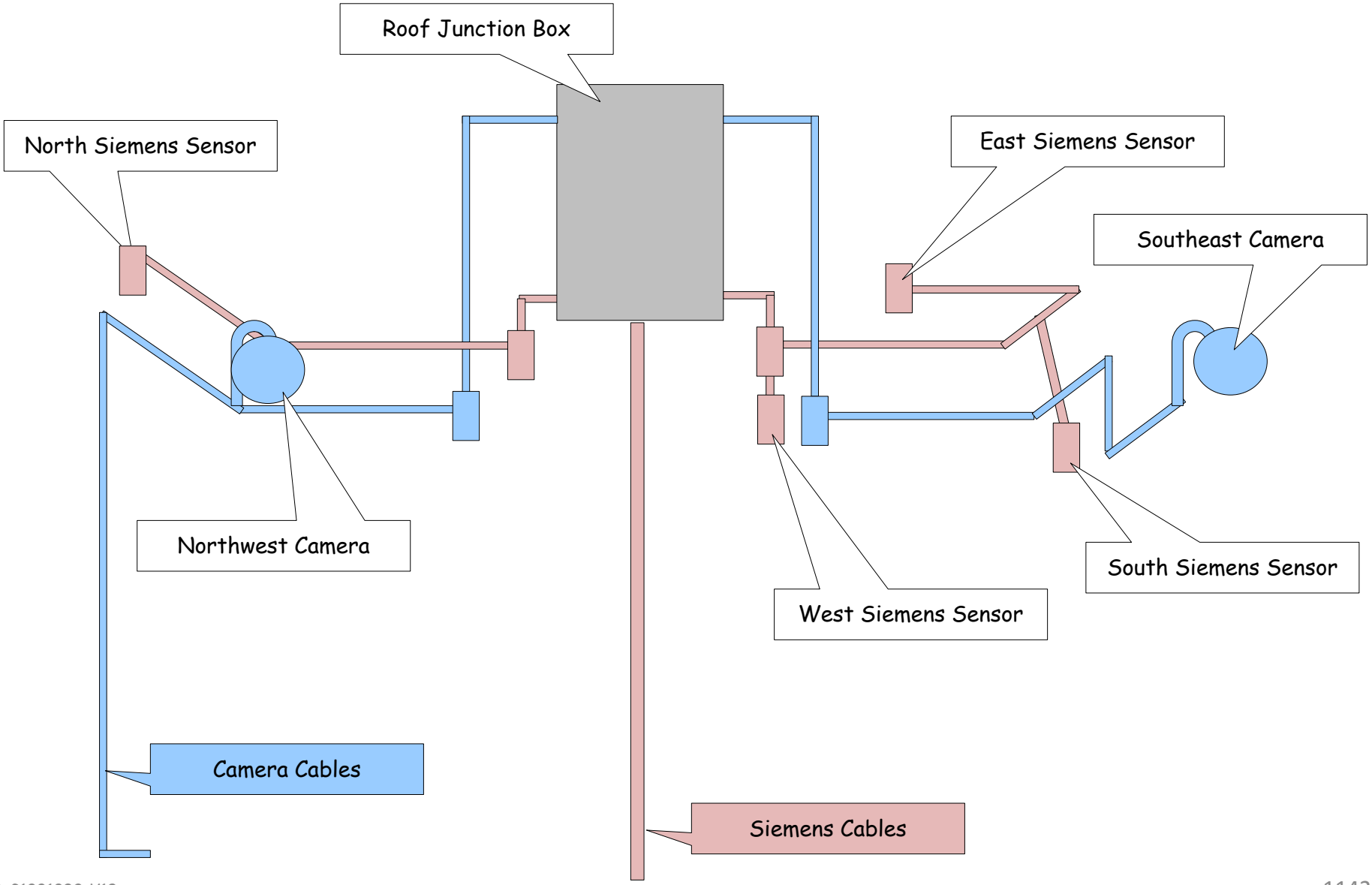
YEND Station Rack Layout

[<< YEND Index]



YEND Roof Junction Box

[<< YEND Index]



YEND Racks and Tables

<< LLO Racks by AREA
<< LLO Racks by Subsystems

DC Power Rack 1 (L1-VDC-YC1)

DAQ Rack (L1-DAQ-YC1)

ISC Rack (L1-ISC-YC1)

SEI Rack (L1-SEI-YC1)

SUS Rack 1 (L1-SUS-YC1)

TCS Rack (L1-TCS-YC1)

DC Power Rack 2 (L1-VDC-YC2)

ISC Field Rack (L1-ISC-YR1)

SUS Rack 2 (L1-SUS-YC2)

SUS Field Rack (L1-SUS-YR1)

Vacuum Field Rack (L1-VAC-YR1)

ISC Table (ISCBT5R)

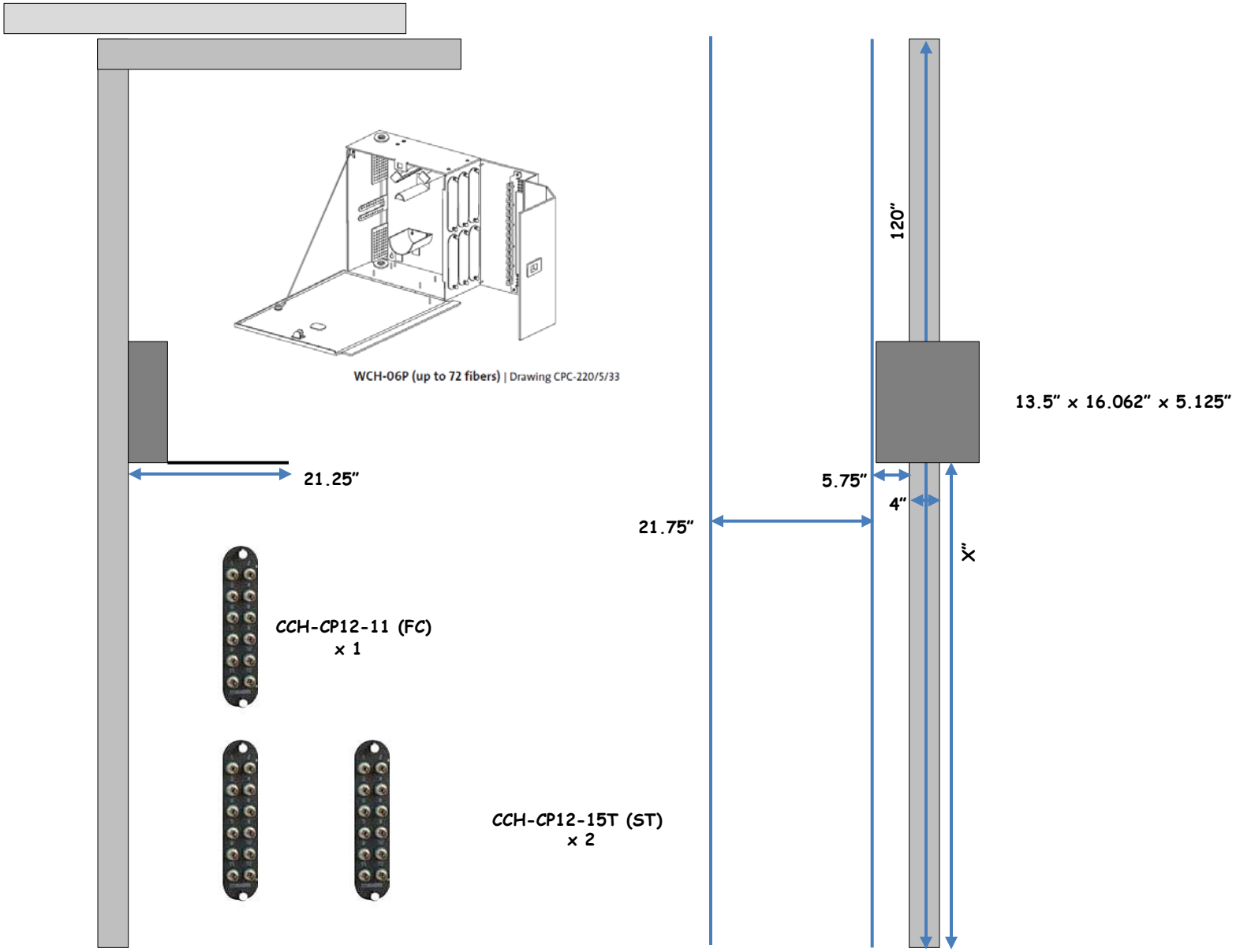
3' X 5' Table Layout (D1200973)

4' X 8' Table Layout (D1201022)

Facilities Rack (L1-FAC-YC1)

Corning WCH-06P Fiber Panel

WCH-06P (up to 72 fibers) | Drawing CPC-220/5/33



Y END Fiber Patch Panel

[<< YEND Index](#)
[<< MSR Patch Panel](#)

VEAY Fiber Patch Panel | Patch Panel | Patch Panel | No Power

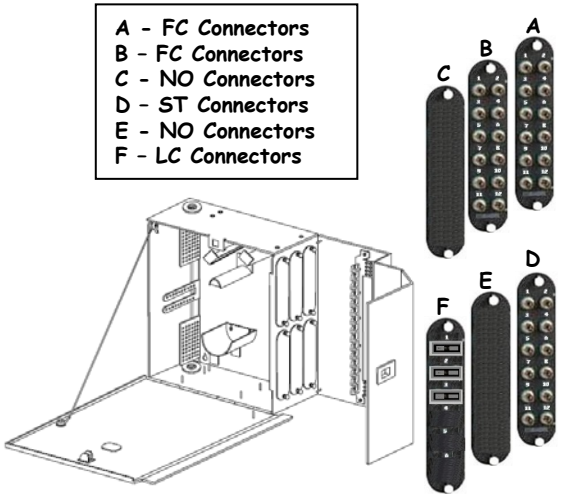
A

Port	Subjacket	Fiber	Label	Termination	Fiber Description	Outlying Destination
A01	Blue	B-Blue	Y-Fiber-21	LC	l1ecaty SM1	L1-DAQ-YC1 D1100619 VERTEX Port
A02	Blue	A-Blue	Y-Fiber-05	LC	l1lanfey Port 21F	IP - 10.199.0.88 Netgear GSM7224 Port 21F
A03	Blue	B-Orange	Y-Fiber-01	ST	Phone In/Out	TR3030WDM - Extension 151
A04	Blue	A-Orange	Y-Fiber-06	LC	l1lanfey Port 21F	IP - 10.199.0.88 Netgear GSM7224 Port 21F
A05	Blue	B-Green	Empty			
A06	Blue	A-Green	Y-Fiber-10	LC	CDS GS624P Port 1F	IP - 10.199.0.21 GS624P Port 1F
A07	Blue	B-Brown	Empty		Empty	Bad Fiber
A08	Blue	A-Brown	Y-Fiber-09	LC	CDS GS624P Port 1F	IP - 10.199.0.21 GS624P Port 1F
A09	Blue	B-Grey	Y-Fiber-33	ST	ESTOP Comm TX to CER	From CERY to CER (1)
A10	Blue	A-Grey	Y-Fiber-15	LC	l1fedaqy Port 6	ACC 5595 Port 6
A11	Blue	B-White	Y-Fiber-29	ST	Video Cameras	VT5030
A12	Blue	A-White	Y-Fiber-16	LC	l1fedaqy Port 6	ACC 5595 Port 6

B

Port	Subjacket	Fiber	Label	Termination	Fiber Description	Outlying Destination
B01	Orange	E-Blue	Y-Fiber-08	LC	l1netfedaqy Port 21F	IP - 10.199.0.14 Netgear GSM7224 Port 21F
B02	Orange	D-Blue	Y-Fiber-02	ST	Security Cameras	VT7430 - 2DRDT
B03	Orange	E-Orange	Y-Fiber-07	LC	l1netfedaqy Port 21F	IP - 10.199.0.14 Netgear GSM7224 Port 21F
B04	Orange	D-Orange	Y-Fiber-32	ST	ESTOP Comm RX From CERY	From CER to CERY (3)
B05	Orange	E-Green	Y-Fiber-17	LC	GC 2402 Port 26F	IP - 197.168.253.30 GC 2402 Port 26F
B06	Orange	D-Green	Y-Fiber-18	LC	GC 2402 Port 26F	IP - 197.168.253.30 GC 2402 Port 26F
B07	Orange	E-Brown	Empty		Empty	Bad Fiber
B08	Orange	D-Brown	Y-Fiber-22	LC	l1ecaty SM1	L1-DAQ-YC1 D1100619 VERTEX Port
B09	Orange	E-Grey	Y-Fiber-31	FC	ALS Light	ALS:FDC-YEND (To ISCBT5R)
B10	Orange	D-Grey	Y-Fiber-13	LC	D070011 INPUT Port	L1-TCS-YC1 D070011 INPUT Port
B11	Orange	E-White		FC	Reserved for ALS Light	Reserved for ALS Light
B12	Orange	D-White	Y-Fiber-14	LC	D070011 INPUT Port	L1-TCS-YC1 D070011 INPUT Port

A - FC Connectors
B - FC Connectors
C - NO Connectors
D - ST Connectors
E - NO Connectors
F - LC Connectors



WCH-06P (up to 72 fibers) | Drawing CPC-220/5/33

[Y-2-E (TriNet)](#)

D

4/11/2013		ENDY Fiber Patch			To Y-2-E (TriNet)
Port	Type	Fiber	Type	Designation	Description
D1	ST	Y-Fiber-27	ST	Trinet Converter	GC 2402 P9
D2	ST	Y-Fiber-28	ST	Trinet Converter	GC 2402 P9
D3	ST	Empty			
D4	ST	Y-Fiber-23	ST	Fibox	FIBOX
D5	ST	Empty			
D6	ST	Empty			
D7	ST	Y-Fiber-25	ST	Trinet Converter	GC 2402 P11
D8	ST	Y-Fiber-26	ST	Trinet Converter	GC 2402 P11
D9	ST	Empty			
D10	ST	Empty			
D11	ST	Empty			
D12	ST	Empty			

[See LIGO-E1500002](#)

F

4/11/2013		ENDY Fiber (SM) Patch			To S.R. House
Port	Type	Fiber	Type	Designation	Description
F1	LC	Y-Fiber-19, 20	LC	Off-site Internet	GC 2402 Port 25F
F2	LC	Empty			
F3	LC	Empty			
F4	None	Empty			
F5	None	Empty			
F6	None	Empty			

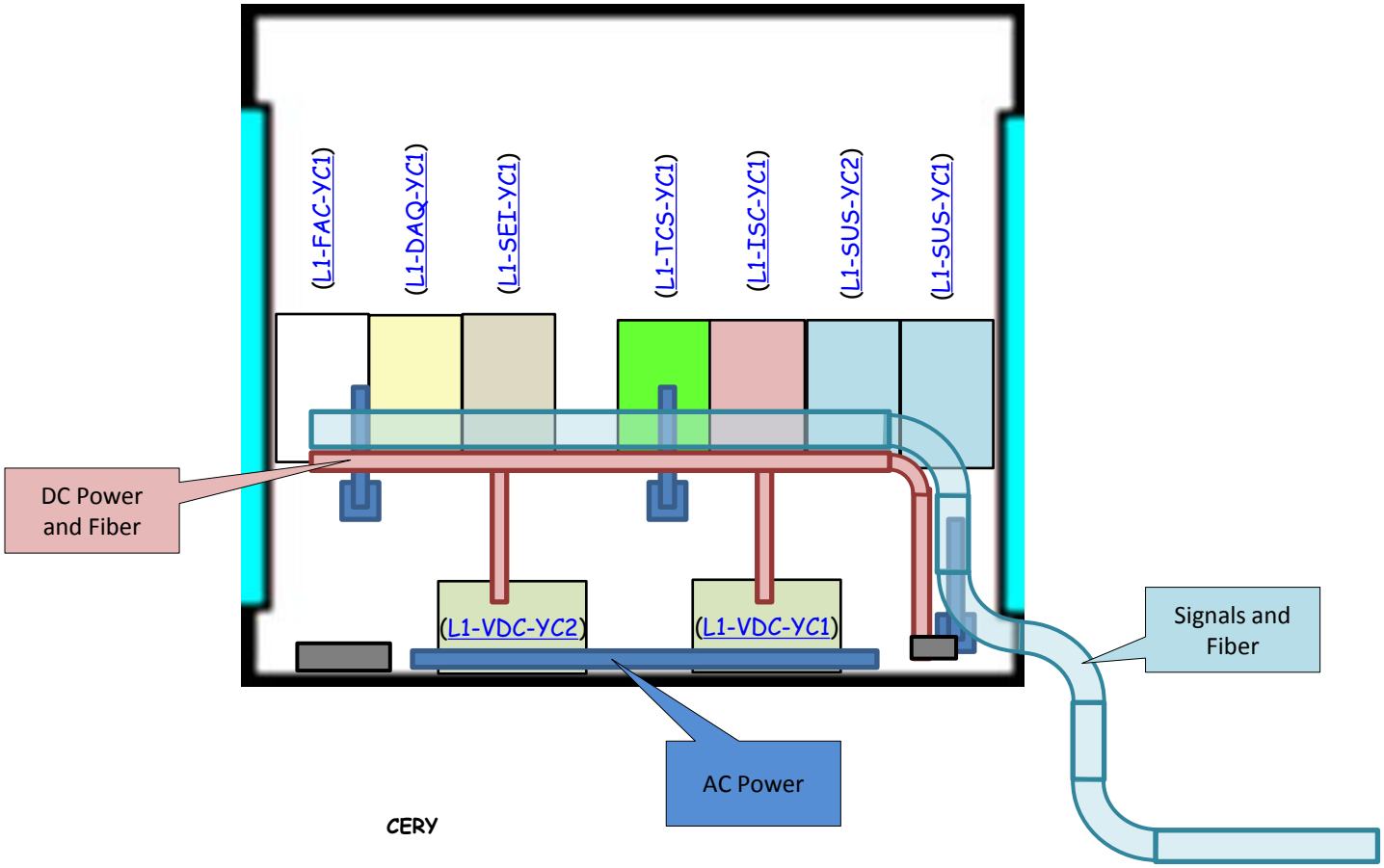
[X END Fiber Patch Panel >>](#)

CERY Rack Layout

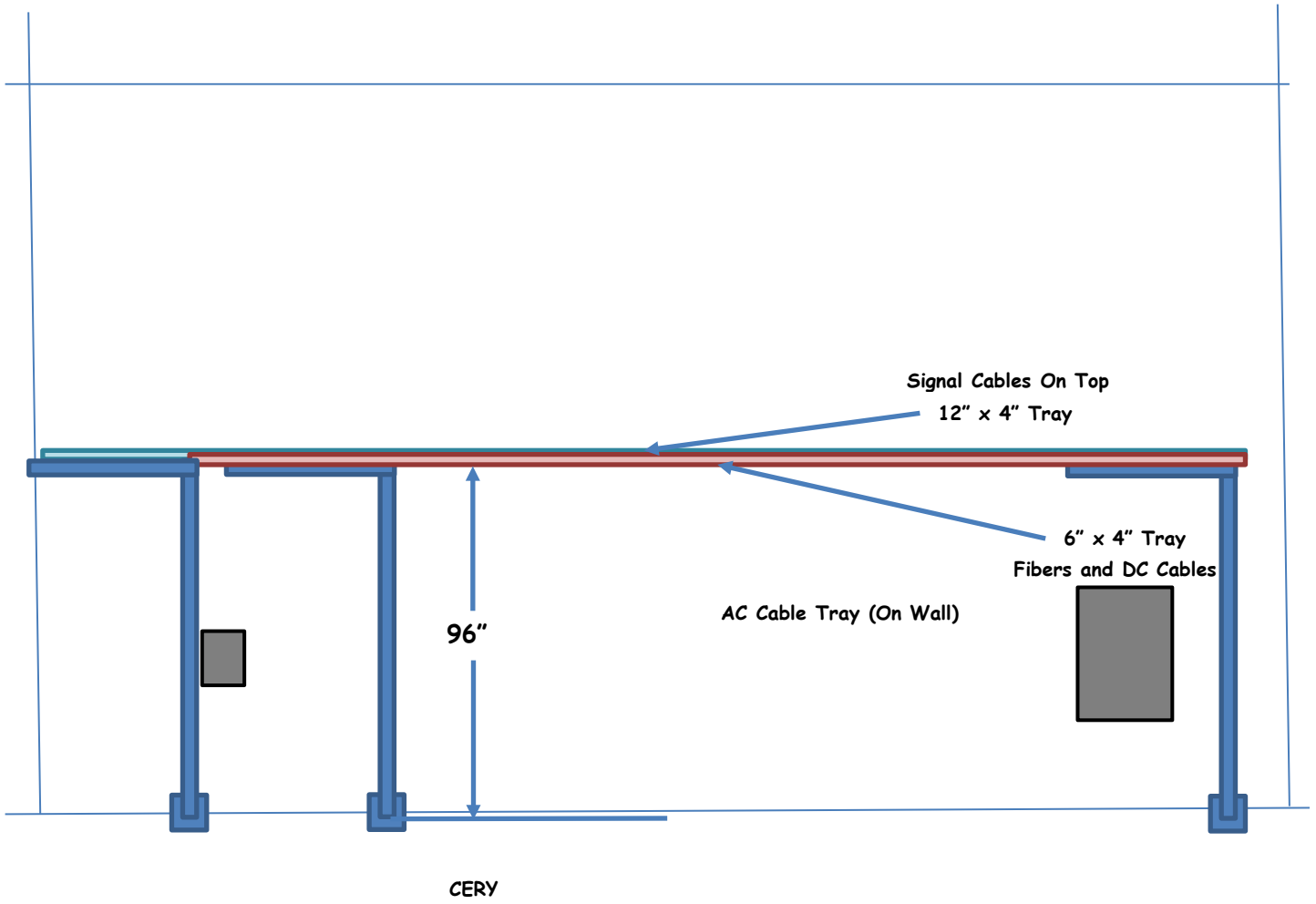
« YEND Racks

It is 65' from the L1-FAC-YC1 Rack to the knee of the waterfall in the VEAY.

(D1201231 (YEND Cable Tray))



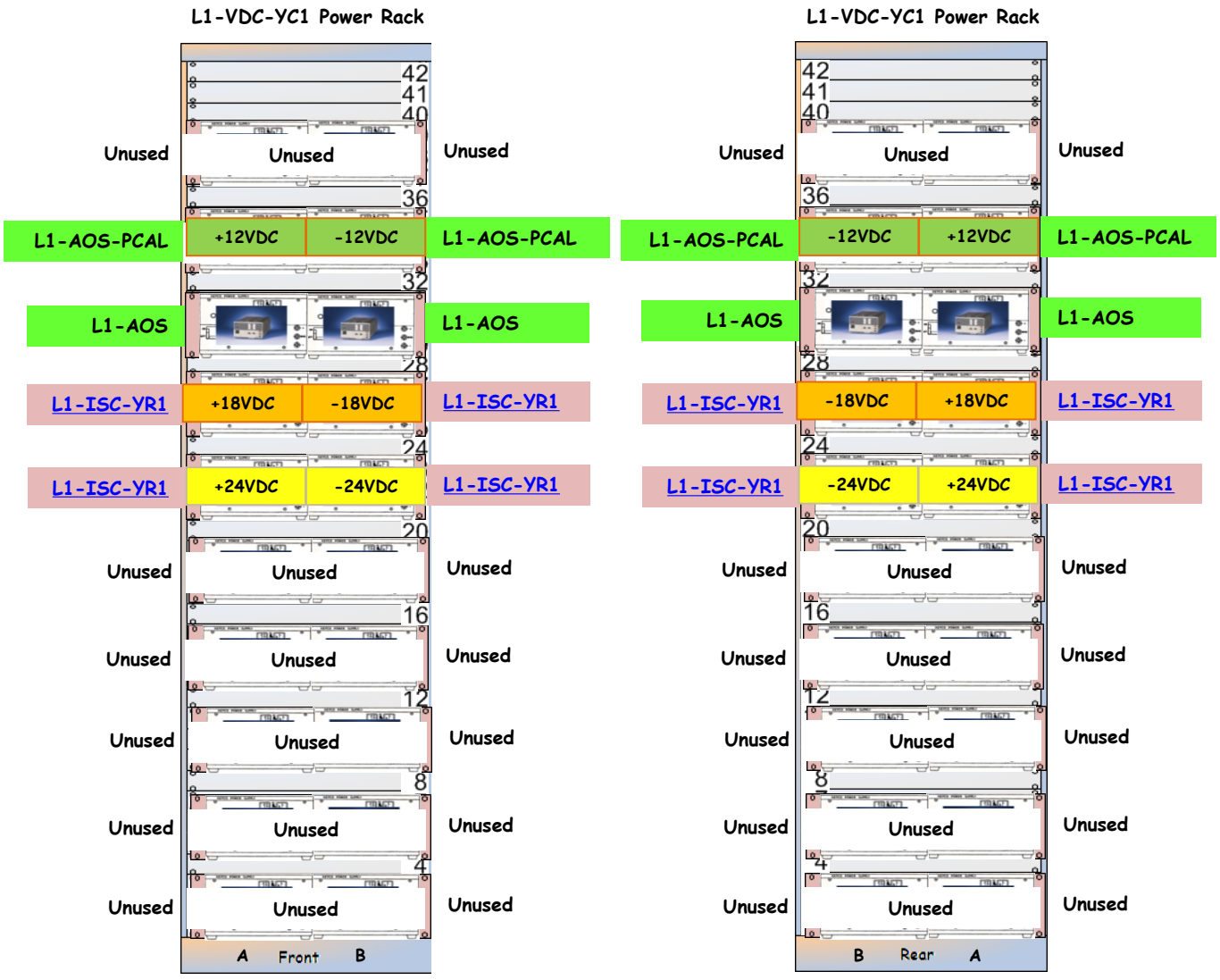
LLO YEND Cable Tray Layout



L1-VDC-YC1 Power Racks – VEAY Field Supplies

<< CERY Racks
<< YEND Racks and Tables

L1-VDC-YC1 YEND Station DC Power Rack Layout (D1200899) (S1202313)



Cable Runs >>

L1-VDC-YC1 Cable Runs

[<< L1-VDC-YC1]

L1-VDC-YC1 YEND Station DC Cable Runs (D1200899) (S1202313)

L1-VDC-YC1 S1202313	Power Panel	Circuit	DC Power Rack	Outlet	Plug Position	Rack U	Power Supply Model	Power Supply Serial	Polarity	DC Extension Cable	Electronics Rack	Cable Length	DC Power Strip
1	CDS-Y		L1-VDC-YC1	8	Top	U37-A (Left)							
2	CDS-Y		L1-VDC-YC1	8	Bottom	U37-B (Right)							
3	CDS-Y		L1-VDC-YC1	2	Top	U33-A (Left)	JQE 15V 12A	H114646	Plus	PTG	L1-AOS-PCAL		None
4	CDS-Y		L1-VDC-YC1	2	Bottom	U33-B (Right)	JQE 15V 12A	H114641	Minus	PTG	L1-AOS-PCAL		None
5	CDS-Y		L1-VDC-YC1	9	Top	U29-A (Left)	BHK 500V 80mA	A107268	Plus	PBX-004	L1-AOS		
6	CDS-Y		L1-VDC-YC1	9	Bottom	U29-B (Right)	BHK 500V 80mA	A107263	Minus	PBX-004	L1-AOS		
7	CDS-Y		L1-VDC-YC1	3	Top	U25-A (Left)	JQE 25V 20A	H236441	Plus	PTO-063	L1-ISC-YR1	50	PSO-xxx
8	CDS-Y		L1-VDC-YC1	3	Bottom	U25-B (Right)	JQE 25V 20A	H236428	Minus	PTO-063	L1-ISC-YR1	50	PSO-xxx
9	CDS-Y		L1-VDC-YC1	10	Top	U21-A (Left)	JQE 25V 10A	H207939	Plus	PTY-056	L1-ISC-YR1	50	PSY-xxx
10	CDS-Y		L1-VDC-YC1	10	Bottom	U21-B (Right)	JQE 25V 10A	H207941	Minus	PTY-056	L1-ISC-YR1	50	PSY-xxx
11	CDS-Y		L1-VDC-YC1	4	Top	U17-A (Left)							
12	CDS-Y		L1-VDC-YC1	4	Bottom	U17-B (Right)							
13	CDS-Y		L1-VDC-YC1	11	Top	U13-A (Left)							
14	CDS-Y		L1-VDC-YC1	11	Bottom	U13-B (Right)							
15	CDS-Y		L1-VDC-YC1	5	Top	U09-A (Left)							
16	CDS-Y		L1-VDC-YC1	5	Bottom	U09-B (Right)							
17	CDS-Y		L1-VDC-YC1	12	Top	U05-A (Left)							
18	CDS-Y		L1-VDC-YC1	12	Bottom	U05-B (Right)							
19	CDS-Y		L1-VDC-YC1	6	Top	U01-A (Left)							
20	CDS-Y		L1-VDC-YC1	6	Bottom	U01-B (Right)							
D1200899													

L1-VDC-YC2 Power Racks – VEAY Supplies

<< CERY Racks
<< YEND Racks and Tables

L1-VDC-YC2 YEND Station DC Power Rack Layout (D1200900) (S1202314)

Cable Runs >>

L1-VDC-YC2 Cable Runs

[<< L1-VDC-YC2]

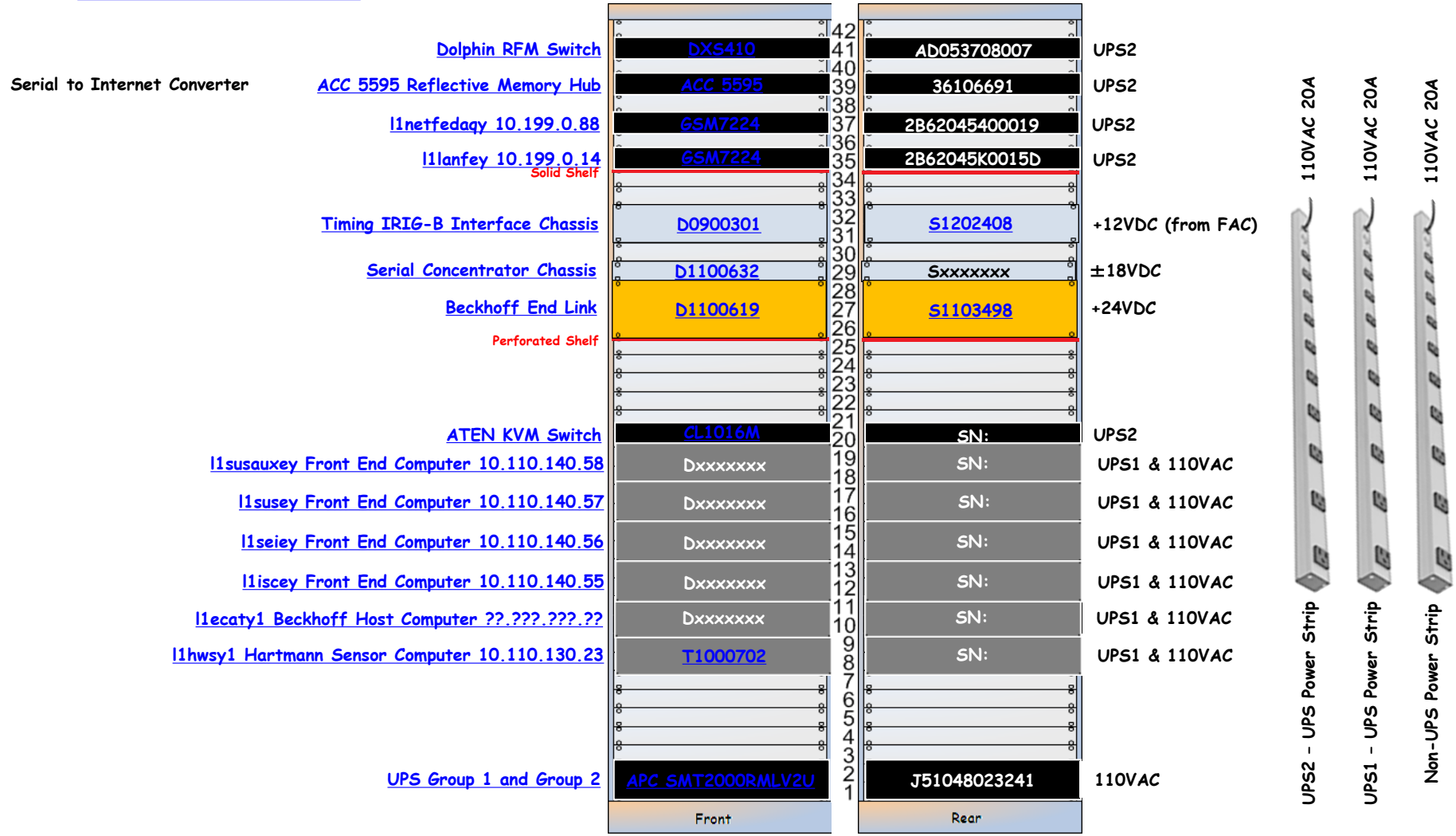
L1-VDC-YC2 YEND Station DC Cable Runs (D1200900) (S1202314)

L1-VDC-YC2 S1202314	Power Panel	Circuit	DC Power Rack	Outlet	Plug Position	Rack U	Power Supply Model	Power Supply Serial	Polarity	DC Extension Cable	Electronics Rack	Cable Length	DC Power Strip
1	CDS-Y		L1-VDC-YC2	8	Top	U37-A (Left)							
2	CDS-Y		L1-VDC-YC2	8	Bottom	U37-B (Right)							
3	CDS-Y		L1-VDC-YC2	2	Top	U33-A (Left)	JQE 25V 10A	H222056	Minus	PTY-052	L1-ISC-YC1	30	PSY-xxx
4	CDS-Y		L1-VDC-YC2	2	Bottom	U33-B (Right)	JQE 15V 6A JQE 15V 6A	H214466 H214326	Plus Minus	PTG-004	L1-ISC-YC1	30	PSG-005
5	CDS-Y		L1-VDC-YC2	9	Top	U29-A (Left)	JQE 25V 20A	H236414	Plus	PTO-050	L1-SUS-YC2	30	PSO-050
6	CDS-Y		L1-VDC-YC2	9	Bottom	U29-B (Right)	JQE 25V 20A	H236422	Minus	PTO-050	L1-SUS-YC2	30	PSO-050
7	CDS-Y		L1-VDC-YC2	3	Top	U25-A (Left)	JQE 25V 20A	H236504	Plus	PTO-051	L1-SUS-YC1	32	PSO-051
8	CDS-Y		L1-VDC-YC2	3	Bottom	U25-B (Right)	JQE 25V 20A	H236513	Minus	PTO-051	L1-SUS-YC1	32	PSO-051
9	CDS-Y		L1-VDC-YC2	10	Top	U21-A (Left)	JQE 25V 20A	H236508	Plus	PTO-052	L1-ISC-YC1 L1-TCS-YC1	28	PSO-052
10	CDS-Y		L1-VDC-YC2	10	Bottom	U21-B (Right)	JQE 25V 20A	H236516	Minus	PTO-052	L1-ISC-YC1 L1-TCS-YC1	28	PSO-052
11	CDS-Y		L1-VDC-YC2	4	Top	U17-A (Left)	JQE 25V 20A	H236503	Plus	PTY-040	L1-ISC-YC1 L1-TCS-YC1	28	PSY-040
12	CDS-Y		L1-VDC-YC2	4	Bottom	U17-B (Right)	JQE 25V 20A	H236488	Minus	PTY-040	L1-ISC-YC1 L1-TCS-YC1	28	PSY-040
13	CDS-Y		L1-VDC-YC2	11	Top	U13-A (Left)	JQE 25V 20A	H236500	Plus	PTO-053	L1-SEI-YC1	22	PSO-053
14	CDS-Y		L1-VDC-YC2	11	Bottom	U13-B (Right)	JQE 25V 20A	H236520	Minus	PTO-053	L1-SEI-YC1	22	PSO-053
15	CDS-Y		L1-VDC-YC2	5	Top	U09-A (Left)	JQE 25V 20A	H236519	Plus	PTY-041	L1-SEI-YC1	22	PSY-041
16	CDS-Y		L1-VDC-YC2	5	Bottom	U09-B (Right)	JQE 25V 20A	H236487	Minus	PTY-041	L1-SEI-YC1	22	PSY-041
17	CDS-Y		L1-VDC-YC2	12	Top	U05-A (Left)	JQE 25V 20A	H236502	Plus	PTY-042	L1-ISC-YC1	30	PSY-042
18	CDS-Y		L1-VDC-YC2	12	Bottom	U05-B (Right)	JQE 25V 20A	H236518	Plus	PTY-043	L1-SEI-YC1	22	PSY-043
19	CDS-Y		L1-VDC-YC2	6	Top	U01-A (Left)	JQE 25V 20A	H236521	Plus	PTY-044	L1-SUS-YC2	32	PSY-044
20	CDS-Y		L1-VDC-YC2	6	Bottom	U01-B (Right)	JQE 25V 20A	H236507	Plus	PTY-045	L1-SUS-YC1	32	PSY-045
D1200900													

L1-DAQ-YC1

<< CERY Racks
<< YEND Racks and Tables

L1-DAQ-YC1 YEND Station Remote Rack Layout (D1201092) (S1202956)



L1-DAQ-YC1 Details

L1-DAQ-YC1 Details

Dolphin RFM Switch DS5410 – AD053708007

LIGO
<< L1-DAQ-YC1

Dolphin RFM Switch | DXS410 | AD053708007 | UPS2

ACC 5595

Front

To l1lanfey port 5

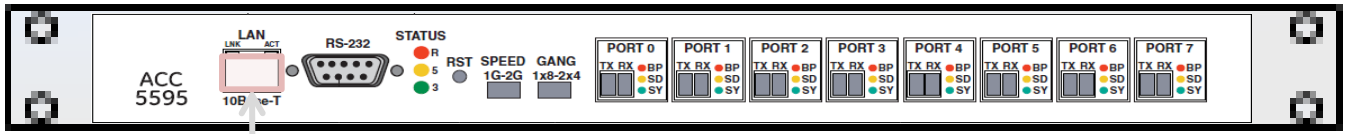
AD053708007

Rear

VMIACC-5595-224 - 36106691

« L1-DAQ-YC1

ACC 5595 Reflective Memory Hub | ACC 5595 | 36106691 | 110VAC



ACC 5595

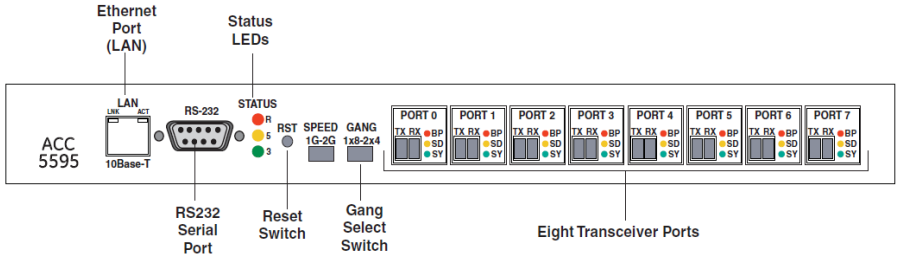
Front

To l1lanfey port 5

36106691

Rear

To UPS Power Strip



l1netfedaqy - GSM7224

LIGO
<< L1-DAQ-YC1

l1netfedaqy 10.199.0.88 | GSM7224 | 2B62045400019 | 110VAC

GSM7224

Front

C0:3F:0E:86:84:04

2 - To FE NET Port

21F - To 1Y23 PP E1, E2

2B62045400019

Rear

To UPS Power Strip

l1lanfey – GSM7224

LIGO
<< L1-DAQ-YC1

l1lanfey 10.199.0.14 | GSM7224 | 2B62045K0015D | 110VAC

GSM7224

Front

C0:3F:0E:86:89:14

2 – To FE LAN Port

5 – To 5595 LAN 10BaseT

21F – To 1Y23 PP A1, A2

2B62045K0015D

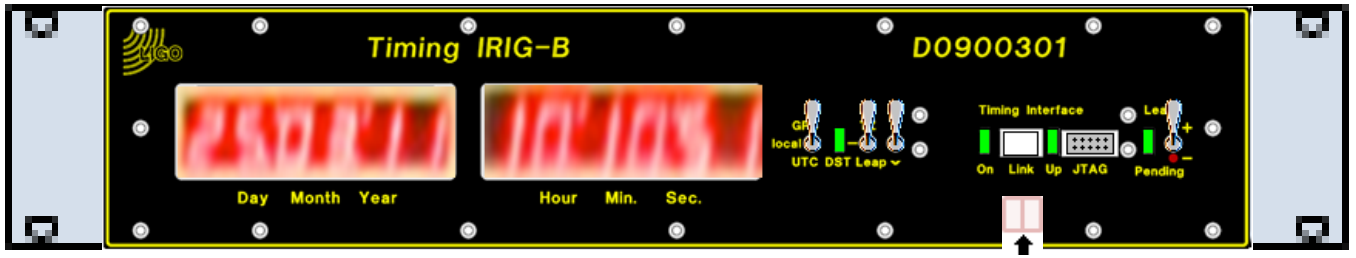
Rear

To UPS Power Strip

D0900301 - S1202408

« L1-DAQ-YC1

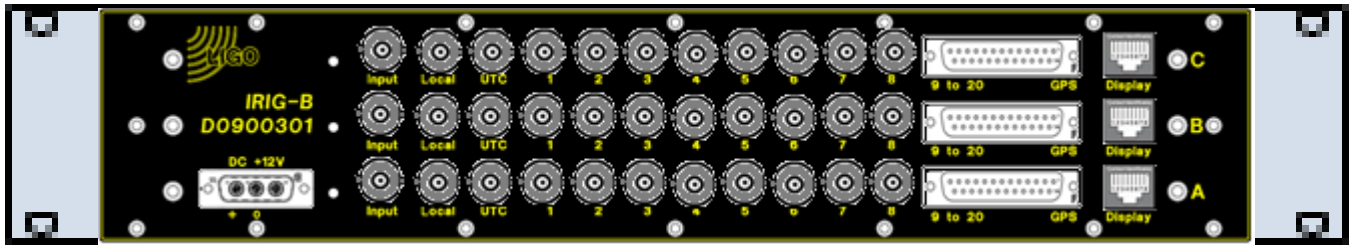
Timing IRIG-B Interface Chassis | D0900301 | S1202408 | Power



D0900301

Front

Timing Fanout (No Label)



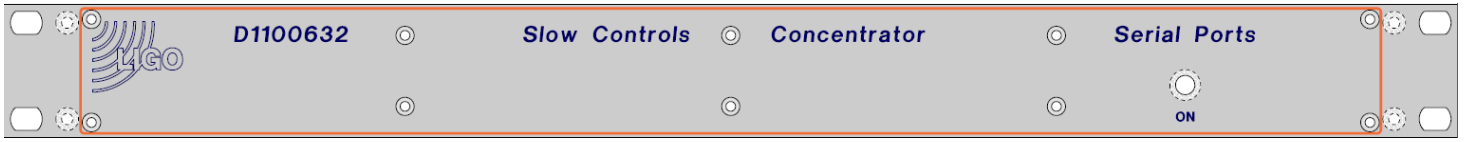
S1202408

Rear

D1100632 - Sxxxxxxx

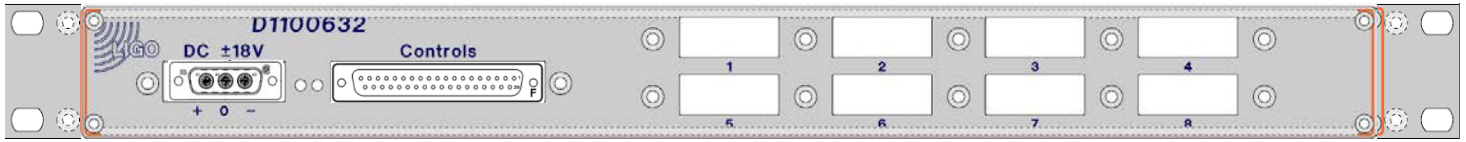
« L1-DAQ-YC1

Serial Port Concentrator for Timing | D1100632 | Sxxxxxxx | ±18VDC



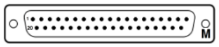
D1100632

Front



Sxxxxxxx

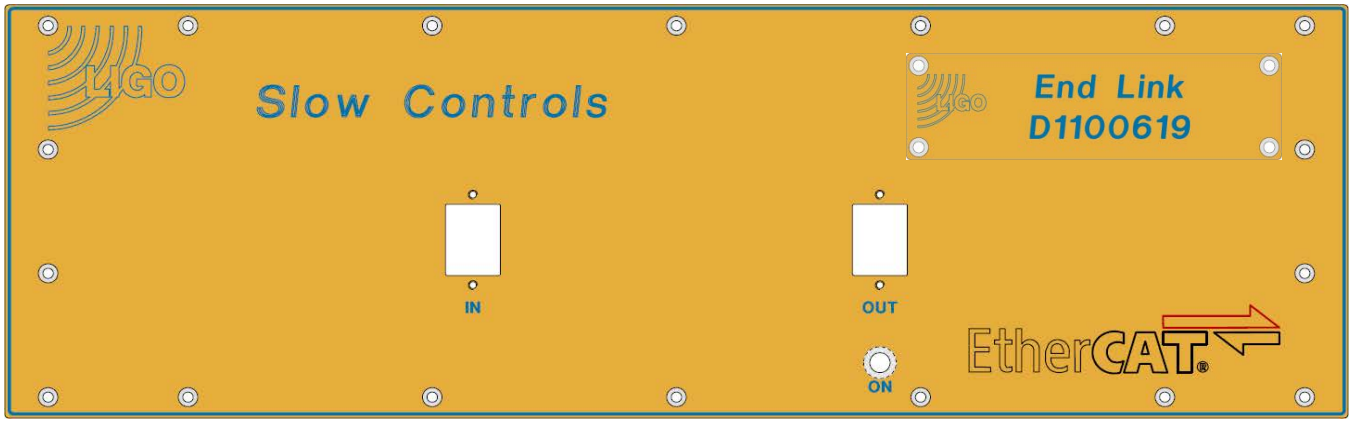
Rear



D1100619 - S1103498

<< L1-DAQ-YC1

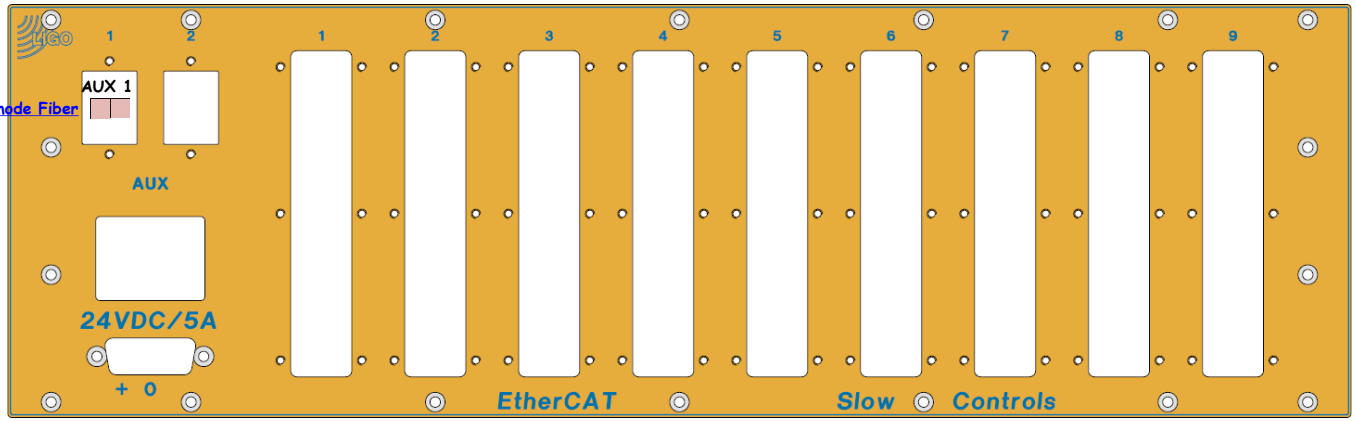
Beckhoff End Link | D1100619 | S1103498 | +24VDC



D1002961

Front: D0902553
Name: D1100667

End Link Multimode Fiber



S1103498

Rear: D0902554

VERTEX

End Link Single Mode Fiber

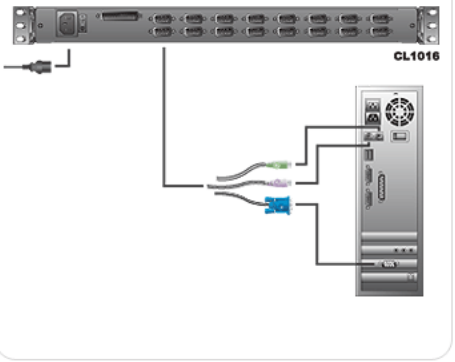
ATEN KVM Switch CL1016M

« L1-DAQ-YC1

ATEN KVM Switch | CL1016M | SN: | 110VAC

CL1016M

Front



SN:

Rear

To UPS Power Strip

To 11pemey Front End

l1susauxey Front End

LIGO
<< L1-DAQ-YC1

l1susauxey Front End Computer 10.110.140.58 | Dxxxxxxx | SN: | UPS1 & 110VAC

l1susey Front End

LIGO
<< L1-DAQ-YC1

l1susey Front End Computer 10.110.140.57 | Dxxxxxxx | SN: | UPS1 & 110VAC

l1seiey Front End

LIGO
<< L1-DAQ-YC1

l1seiey Front End Computer 10.110.140.56 | Dxxxxxxx | SN: | UPS1 & 110VAC

l1iscey Front End

LIGO

<< L1-DAQ-YC1

l1iscey Front End Computer 10.110.140.55 | Dxxxxxxx | SN: | UPS1 & 110VAC

l1ecaty1 Beckhoff Host

LIGO

<< L1-DAQ-YC1

l1ecaty1 Beckhoff Host Computer ??.???.???.??

Dxxxxxxx

SN:

UPS1 & 110VAC

l1hwsy1 Hartmann Sensor

LIGO

<< L1-DAQ-YC1

l1hwsy1 Hartmann Sensor Computer 10.110.130.23 | T1000702 | SN: | UPS1 & 110VAC

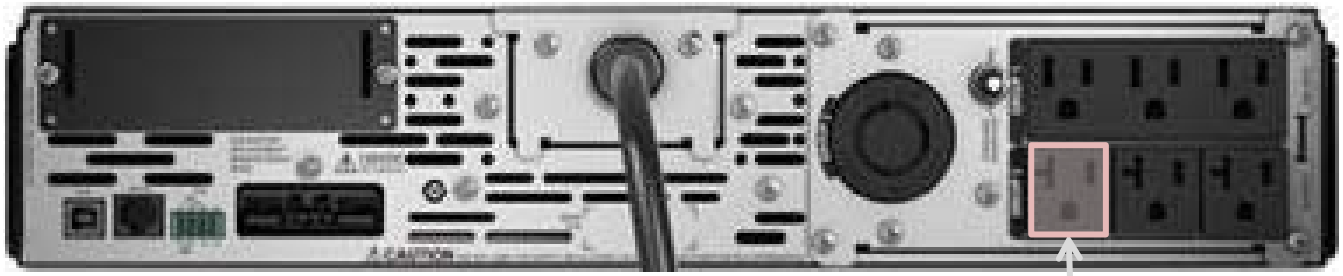
APC SMX2000RMLV2U

LIGO
<< L1-DAQ-YC1

UPS | APC SMX2000RMLV2U | J51048023241 | 110VAC

APC SMX2000RMLV2U

Front



J51048023241

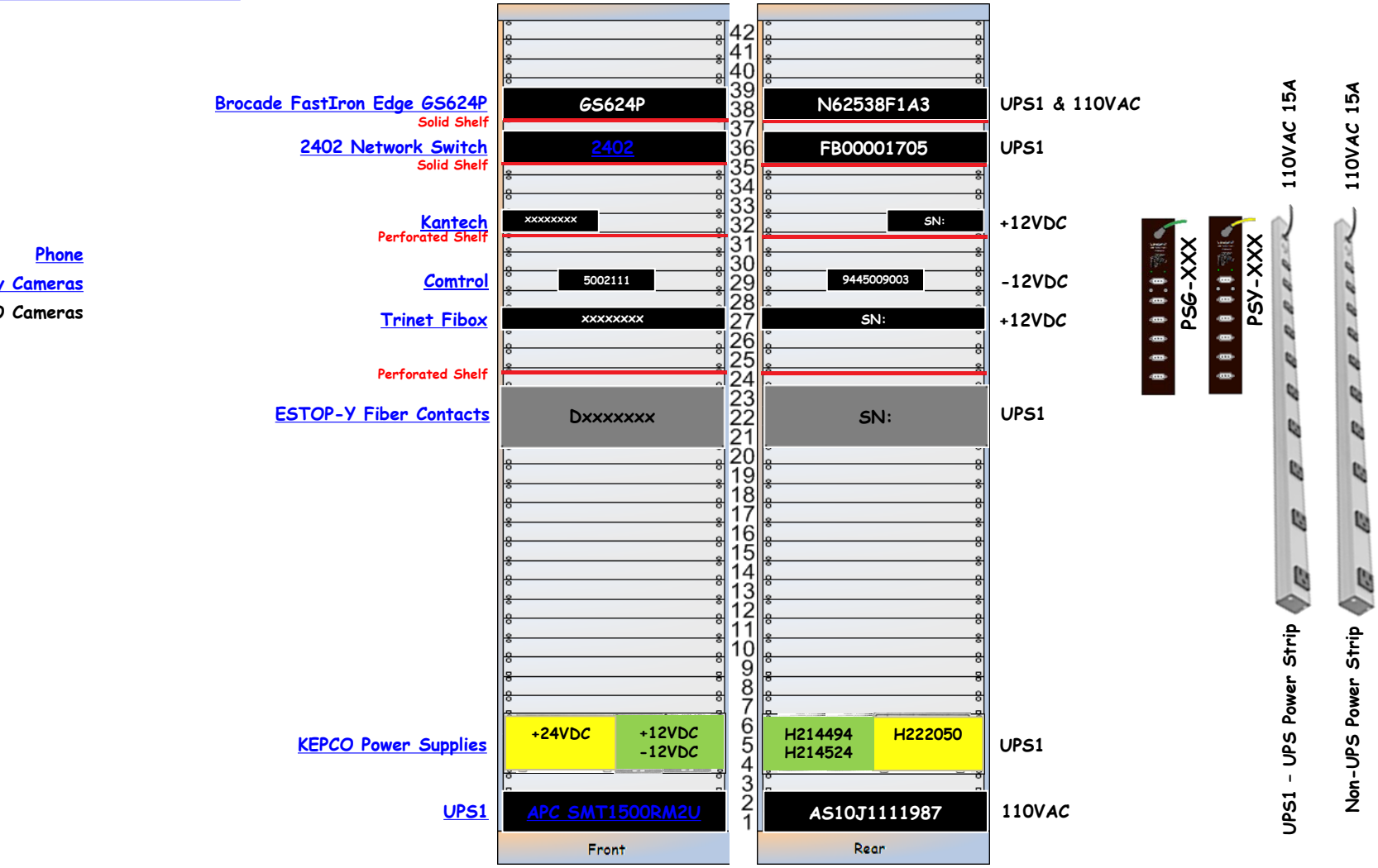
Rear

To UPS Power Strip

L1-FAC-YC1

<< CERY Racks
<< YEND Racks and Tables

L1-FAC-YC1 Facilities YEND Station Remote Rack Layout (D1201093) (S1202957)

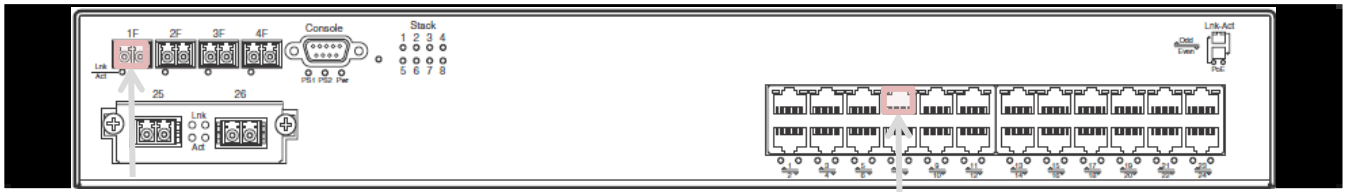


L1-FAC-YC1 Details

Brocade FastIron Edge GS624P

[<< L1-FAC-YC1]

Brocade FastIron Edge GS624P | GS624P | N62538F1A3 | UPS & 110VAC



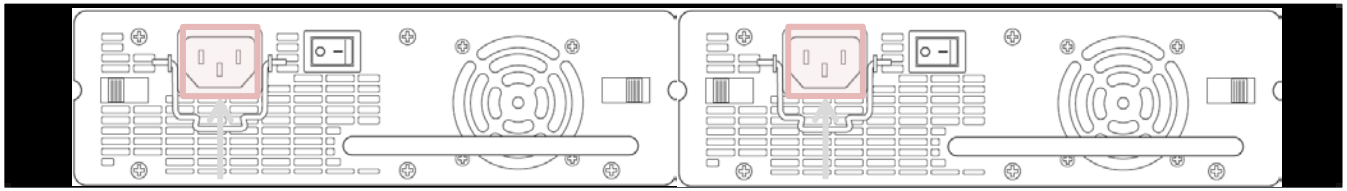
GSM7224

Front

C0:3F:0E:86:88:E0

21F – To 1Y23 PP B1,B2

3 – To FE NET Port



N62538F1A3

Rear

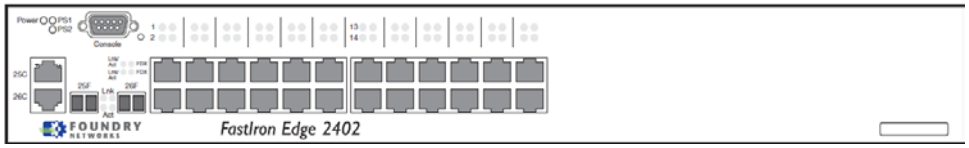
To 110 Power Strip

To UPS Power Strip

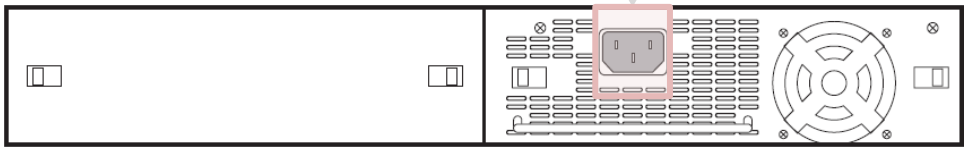
2402 – Network Switch

[<< L1-FAC-YC1]

2402 Network Switch | 2402 | FB00001705 | 110VAC



Empty	⟷	01
Empty	⟷	02
Empty	⟷	03
Empty	⟷	04
Empty	⟷	05
Empty	⟷	06
To Camera on Reel	⟷	07
Empty	⟷	08
To Trinet/Trinet	⟷	09
Empty	⟷	10
To Trinet/Trinet	⟷	11
Empty	⟷	12
Empty	⟷	13
To Seimens	⟷	14
Empty	⟷	15
Empty	⟷	16
Empty	⟷	17
Empty	⟷	18
Empty	⟷	19
Empty	⟷	20
To Weather Station ???	⟷	21
Empty	⟷	22
Empty	⟷	23
Empty	⟷	24



Empty	⟷	25C
Empty	⟷	26C
To Special Cable CSR1	⟷	25F
[To 1Y23 PP D3, E3]	⟷	26F

Government Property Tag: G12039
192.168.253.30

YEND – Kantech Interface

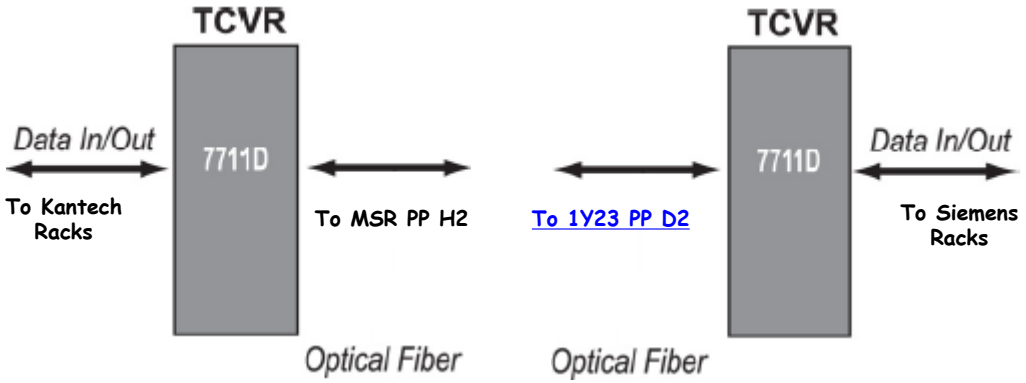
« L1-FAC-YC1

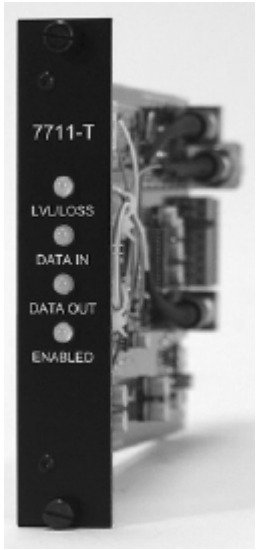
Kantech

Fiber Options
7711-R (501R)
Optical In/Out:
To 1Y23 PP D2
Power: 13.5VDC
from Wall Wart

Blue CAT5:
1=O/W and
B/W, 4=O, 7=B

Powered from
Wall Wart from
Isolated Power





YEND – Comtrol Inteface

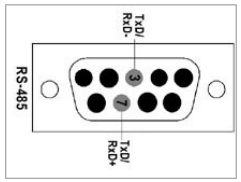
LIGO
<< L1-FAC-YC1

Comtrol 5002111 9445009003 -12VDC

Comtrol DeviceMaster 4 with DB9 Ports

MAC Address:
00-C0-4E-07-6E-3A

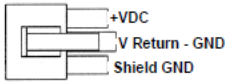
IP Address:
10.110.60.54



4-Port Power Supply

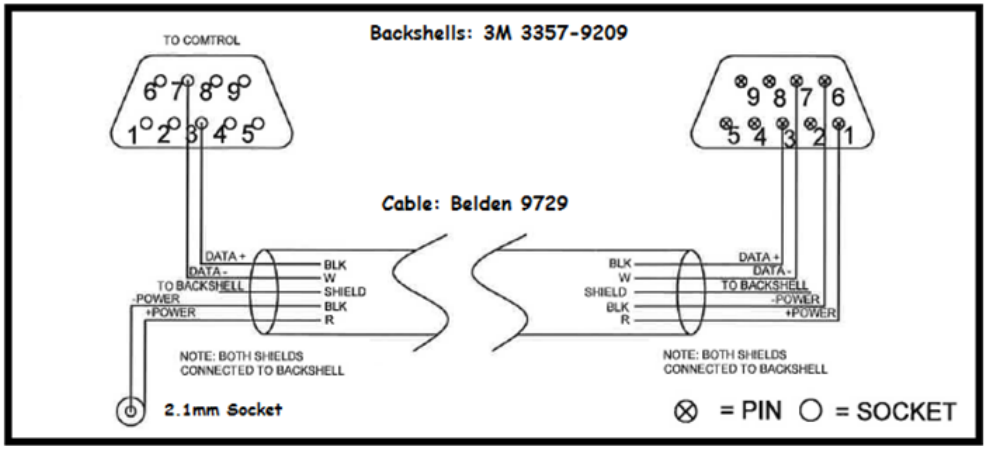
This table provides the specifications for the power supply shipped with the DeviceMaster 4-port.

Comtrol Power Supply: 4-Port	
Input line frequency	47 - 63 Hz
Input line voltage	90 - 260 VAC
Output voltage	24VDC
Output current	500 mA @ 24VDC



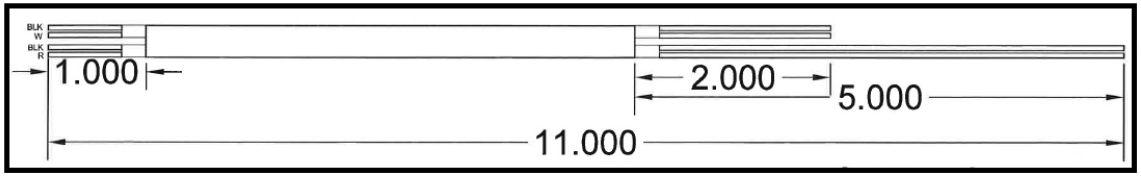
Housing Molex P/N:
39-01-4030
Pins Molex P/N:
44485-1211

3M Shell 3357-9209



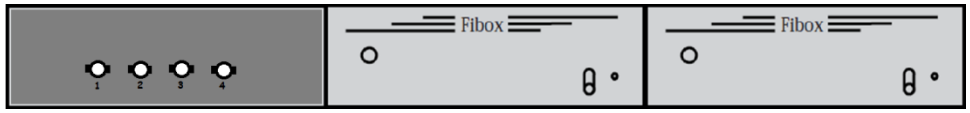
3M Shell 3357-9209

2.1mm Socket
(Note polarity)

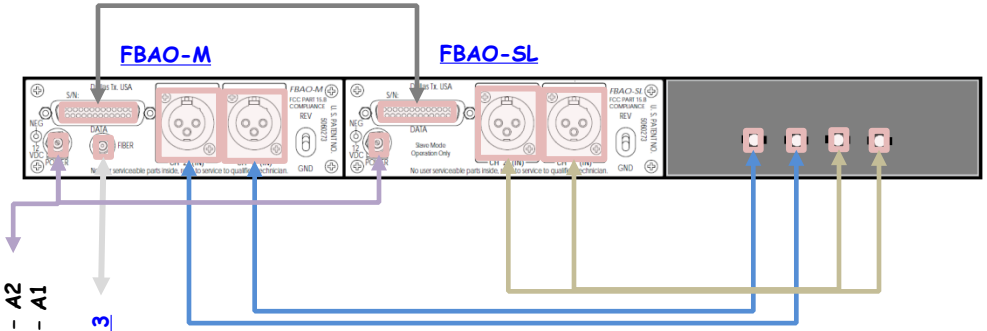


2.1mm Plug
(Note polarity)

Trinet FIBOX Panel



Empty	1
Trinet Z	2
Trinet Y	3
Trinet X	4



12VDC IN
G/W – Center – COM – A2
Y/W – Shield – +12V – A1

To OX5768289O001 Port 3

ESTOP-Y Fiber Contacts

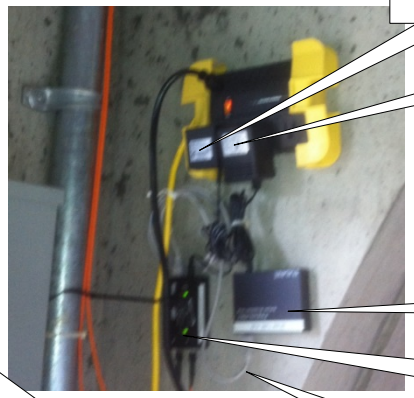
LIGO
<< L1-FAC-YC1

ESTOP-Y Fiber Contacts | Dxxxxxxx | SN: | UPS1

Trinet Equipment at Y-2-E

[<< Locations]

Y-2-E Door



12VDC

5VDC

FIRE NDLYNET 5-Port Ethernet Hub labeled "Beam Tube Hub"

TRANSITION "Just Convert It" JE-CF-01 labeled "Beam Tube Converter"

MM ST Fibers go over tube

CAT Connection

2-Fiber Orange Cable comes from Conduit, goes over tube

Orange Cable goes into Conduit

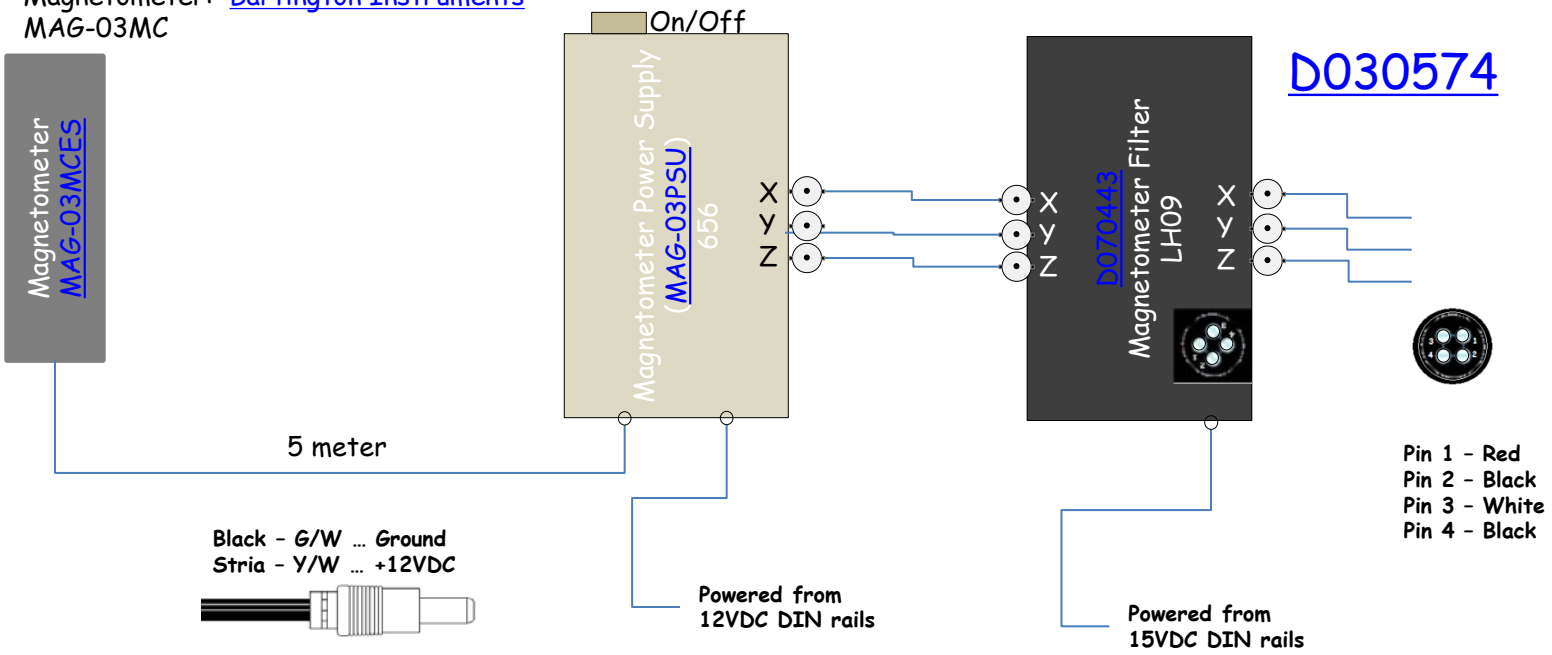
AC Circuit – one plug to power strip, one plug goes over tube

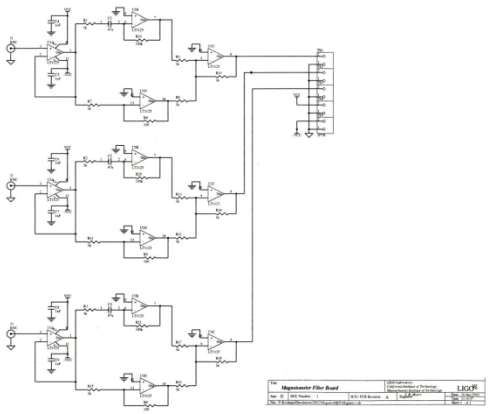
Not Connected

Feeding something …

1Y23 – D070443 – LH09

Magnetometer: Bartington Instruments
MAG-03MC





1Y23 – Stuff

LIGO
<< L1-FAC-YC1

IFO Cameras

VT5030 IFS
International Fiber Systems, Inc.
IFS.com
Optical Out:
To 1Y23 PP B6
Power: 12VDC
Video Input:
Camera 1
Camera 2

Powered from DIN rails

Security Cameras

VT7430-2DRDT
Optical In/Out:
To 1Y23 PP D1
Power: 12VDC
Output: Ch1, Ch2, Ch3 BNCs to Cameras

Powered from Wall Wart from Isolated Power

Revere Video Master Power Supply Model RT24/16500
Outputs to Cameras 1,2,3

*LEDs on with bad fuse
Note: 8 LEDs are on.

AC Powered from Isolated Power

Kantech

Fiber Options 7711-R (501R)
Optical In/Out:
To 1Y23 PP D2
Power: 13.5VDC from Wall Wart

Blue CAT5:
1=O/W and B/W, 4=O, 7=B

Powered from Wall Wart from Isolated Power

Seismic Vault

J/E-CF-01
TriNet Converter
CAT5:
To 2402 P9
TX:
To 0X57… P1
RX:
To 0X57… P2
Power: 12VDC

Powered from DIN rails

J/E-CF-01
TriNet Converter
CAT5:
To 2402 P11
TX:
To 0X57… P8
RX:
To 0X57… P7
Power: 12VDC

Powered from DIN rails

Phone

TR3030WDM
GE Security
Optical In/Out:
To 1Y23 PP B2
Phone: Copper to VEA
Power: 12VDC

Powered from Wall Wart from Tripp-Lite UPS
Model BC320
9834DY0BC614000661 To 6-Outlet Power Strip in Non-isolated wall socket

YEND – Security Cameras

LIGO
<< L1-FAC-YC1

Security Cameras

Revere Video Master Power Supply Model RT24/16500
Outputs to Cameras 1,2,3

*LEDs on with bad fuse
Note: 8 LEDs are on.

AC Powered from Isolated Power

RT24/16500

AC Power	120 VAC LED supervised Non-grounded power cord furnished
Output	24 VAC, 8 amps total
Outputs	16 @ 500mA individually fused at 1/2 amp and individually supervised
Dimensions	7.5" W x 8.25" H x 3.5" D
Cabinet	Heavy gauge steel

VAC

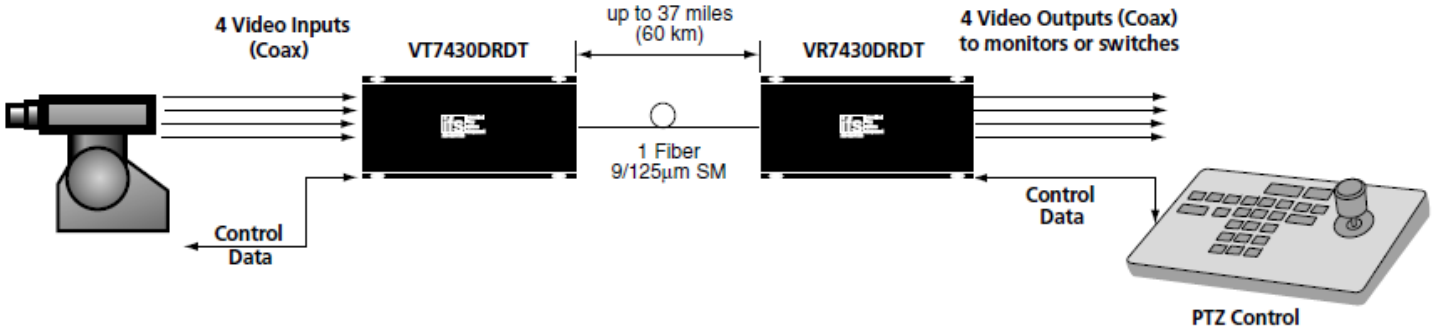
YEND – Security Cameras

Security Cameras

VT7430-2DRDT
Optical In/Out:
To 1Y23 PP D1
Power: 12VDC
Output: Ch1, Ch2, Ch3 BNCs to Cameras

Powered from Wall Wart from Isolated Power

cameras
75-ohm coaxial cables



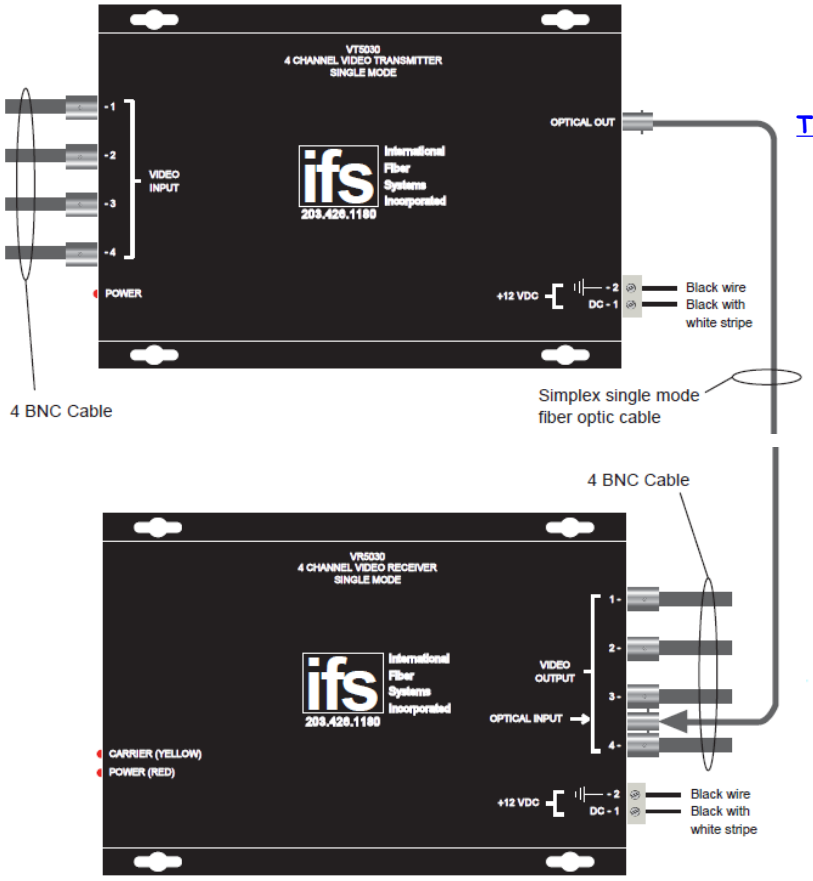
1Y23 – Stuff

Cameras

VT5030 IFS International Fiber Systems, Inc.
IFS.com
Optical Out: To 1Y23 PP B6
Power: 12VDC
Video Input:
Camera 1
Camera 2

Powered from DIN rails

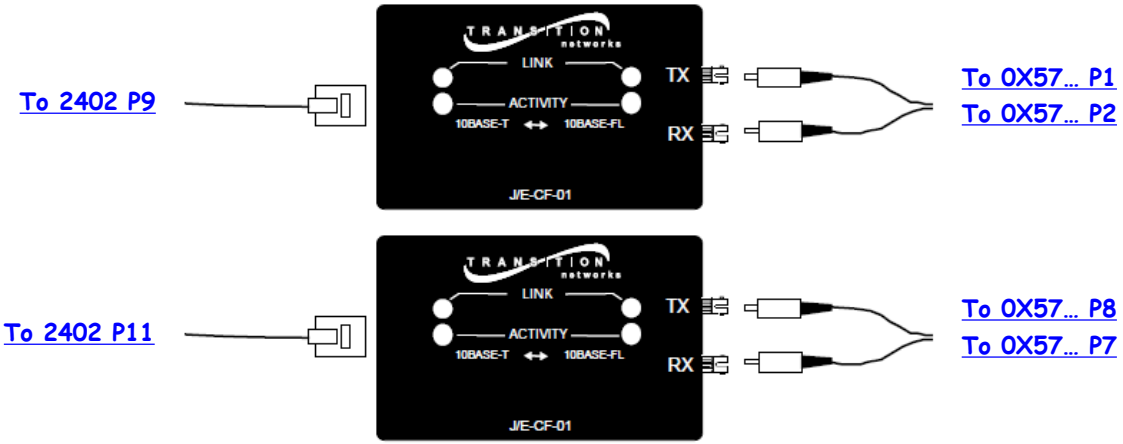
cameras
75-ohm coaxial cables



YEND - Trinet

Seismic Vault

J/E-CF-01 TriNet Converter CAT5: To 2402 P9 TX: To 0X57… P1 RX: To 0X57… P2 Power: 12VDC	J/E-CF-01 TriNet Converter CAT5: To 2402 P11 TX: To 0X57… P8 RX: To 0X57… P7 Power: 12VDC
Powered from DIN rails	Powered from DIN rails



For network installation, the J/E-CF-01 media converter provides an RJ-45 twisted pair connector and a set of RX (receive) and TX (transmit) ST connectors to 850 nm multimode fiber-optic cable.

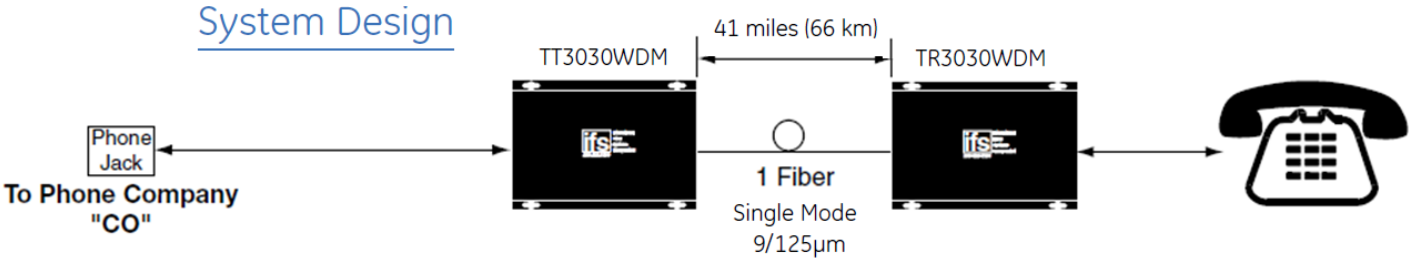
YEND – Phone

« L1-FAC-YC1

Phone

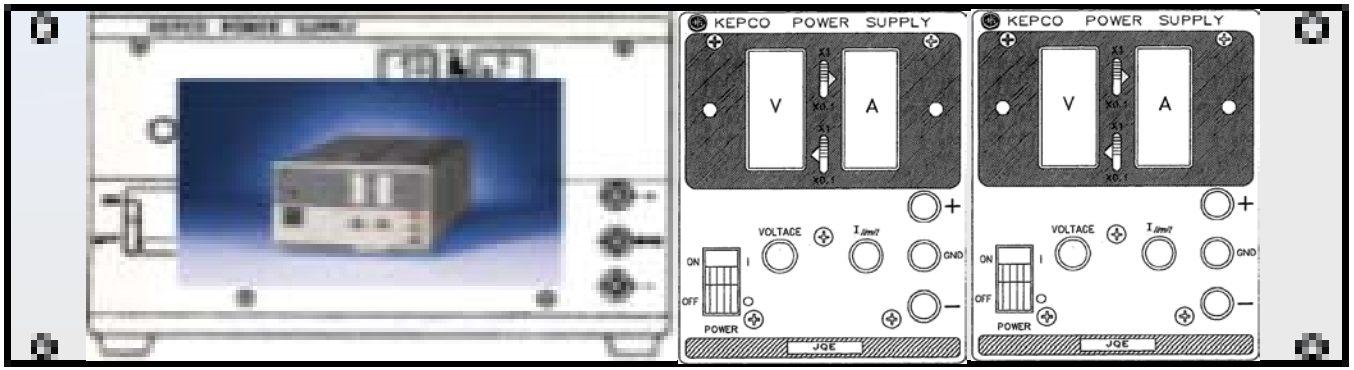
TR3030WDM
GE Security
Optical In/Out:
To 1Y23 PP B2
Phone: Copper to VEA
Power: 12VDC

Powered from Wall Wart from Tripp-Lite UPS
Model BC320
9834DY0BC614000661 To 6-Outlet Power Strip in Non-isolated wall socket



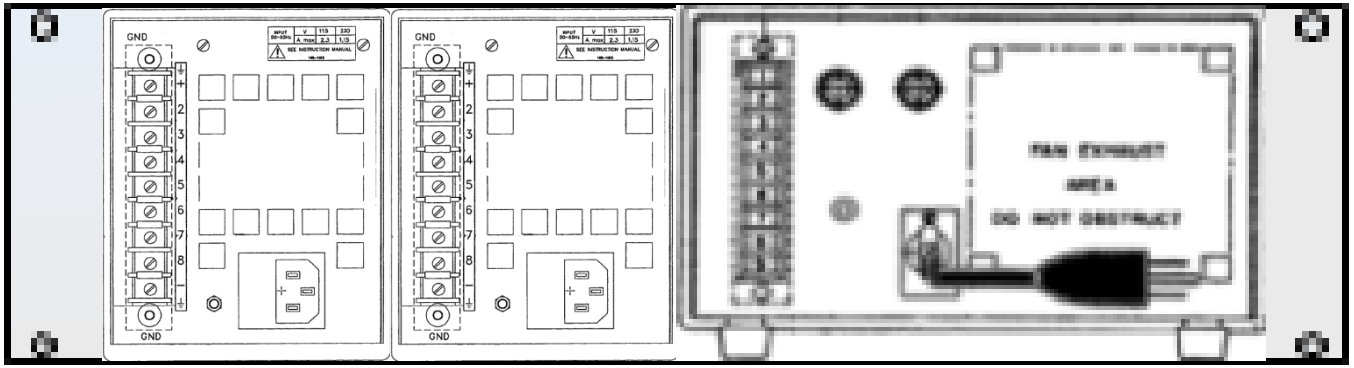
KEPCO Power Supplies

KEPCO Power Supplies | +24VDC | +12VDC -12VDC | H214494 H214524 | H222050 | UPS1



Front

KEPCO JQE 25-10 +24VDC | KEPCO JQE 15-6 +12VDC | KEPCO JQE 15-6 -12VDC



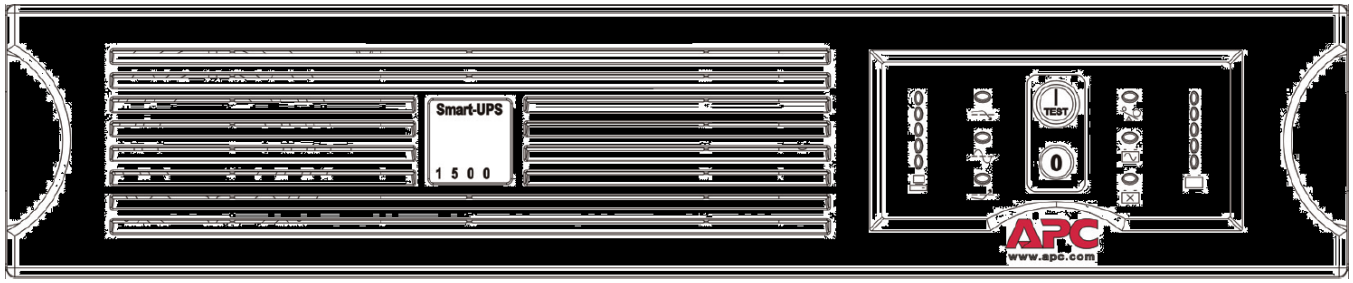
Rear

KEPCO JQE 15-6 H214524 | KEPCO JQE 15-6 H214494 | KEPCO JQE 25-10 H222050

APC SMT1500RM2U

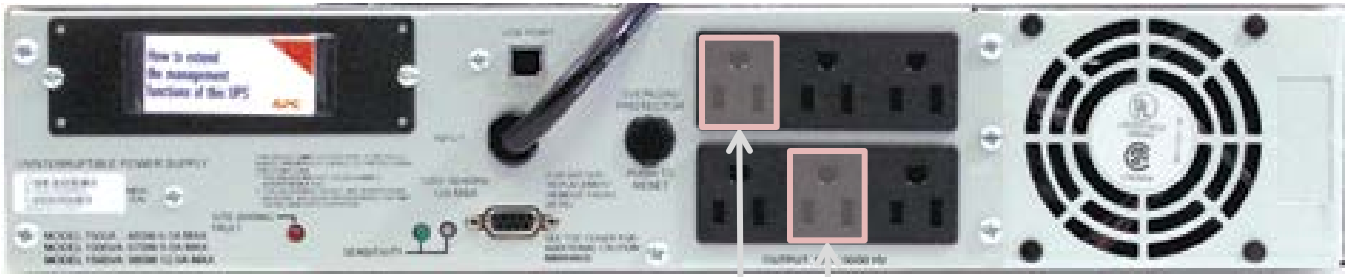
LIGO
<< L1-FAC-YC1

UPS | APC SMT1500RM2U | A51051111987 | 110VAC



APC SMT1500RM2U

Front



A51051111987

Rear

To 2402 PS1

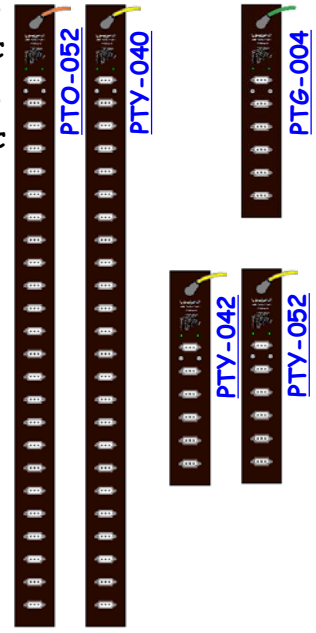
To X448 PS1

L1-ISC-YC1

<< CERY Racks
<< YEND Racks and Tables

ISC-YC1 YEND Station Remote Rack Layout (D1201091) (S1202955)

D1200757 Sequencer S1202547



	Front		Rear	
RF Distribution Panel 26	Dxxxxxxx	42	Sxxxxxxx	No Power
RF Distribution Panel 27	Dxxxxxxx	41 40 39	Sxxxxxxx	No Power
71 MHz Oscillator	D080702	38	S1000562	+12VDC, ±24VDC
71 MHz Distribution Amplifier	D1000124	37 36	S1000670	±17VDC, ±24VDC
24.4 MHz Oscillator	D080702	35 34	S1000583	+12VDC, ±24VDC
24.4 MHz Distribution Amplifier	D1000124	33 32	S1000649	±17VDC, ±24VDC
		31 30 29		
RF Amplifier Concentrator 3	D1100262	28 27	S1103463	±18VDC
		26 25 24 23		
384 Channel Binary Output	D1100251	22 21 20	S1203282	+24VDC
Beckhoff Slow Controls ISC Common	D1002961	19 18 17	S1102619	+24VDC
Perforated Shelf		16		
Beckhoff Slow Controls End Station 2	D1100682	15 14 13	S1107442	+24VDC
Perforated Shelf		12		
Anti-Alias Chassis (8*DB9)	D0902783	11	S1102774	±18VDC
Anti-Alias Chassis (8*DB9)	D0902783	10	S1102792	±18VDC
Anti-Image Chassis	D070081	9	S1203575	±18VDC
		8 7 6 5		
l1iscey I/O Extension Chassis	D1001715	4 3 2 1	S1001145	+24V@5A

ISC-YC1 is part of D1001459

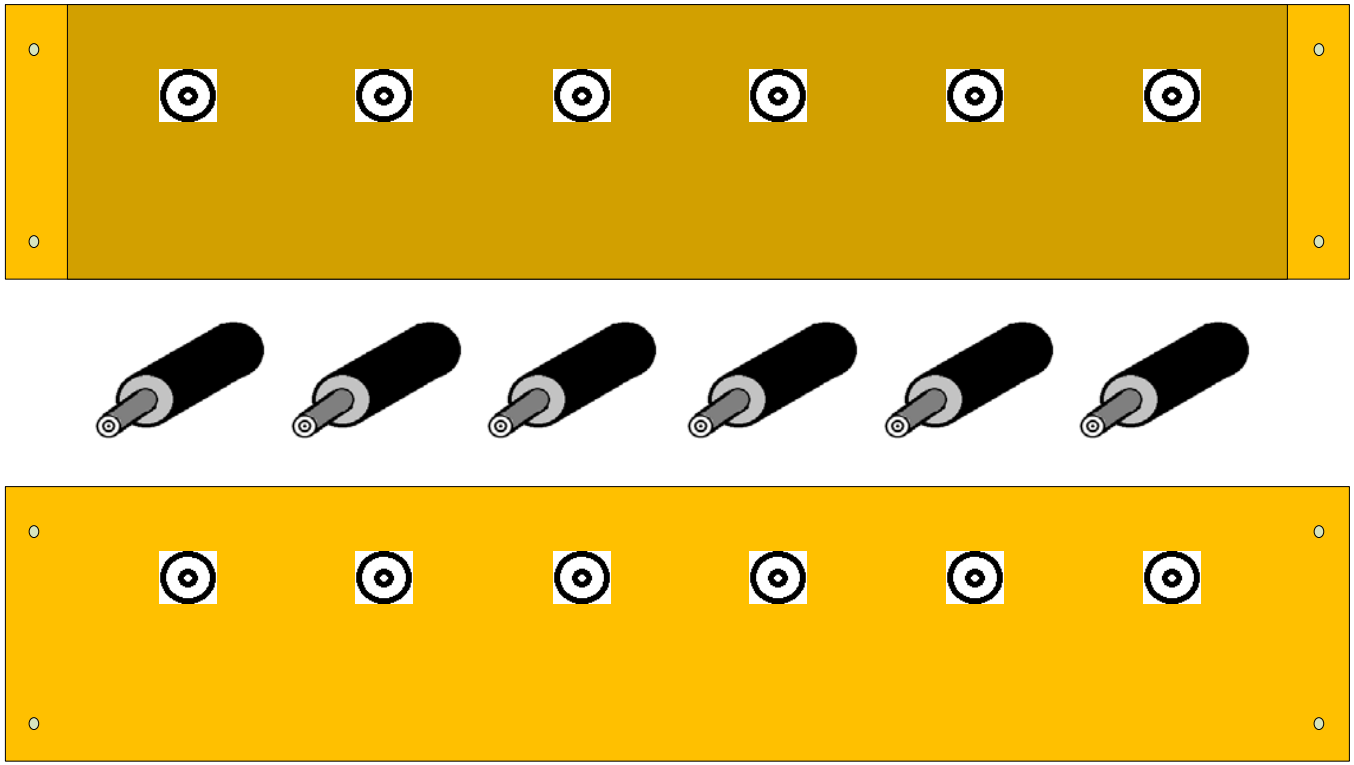
L1-ISC-YC1 Details

ISC-YC1 is part of D1001459

RF Distribution Panel 26

[<< L1-ISC-YC1]

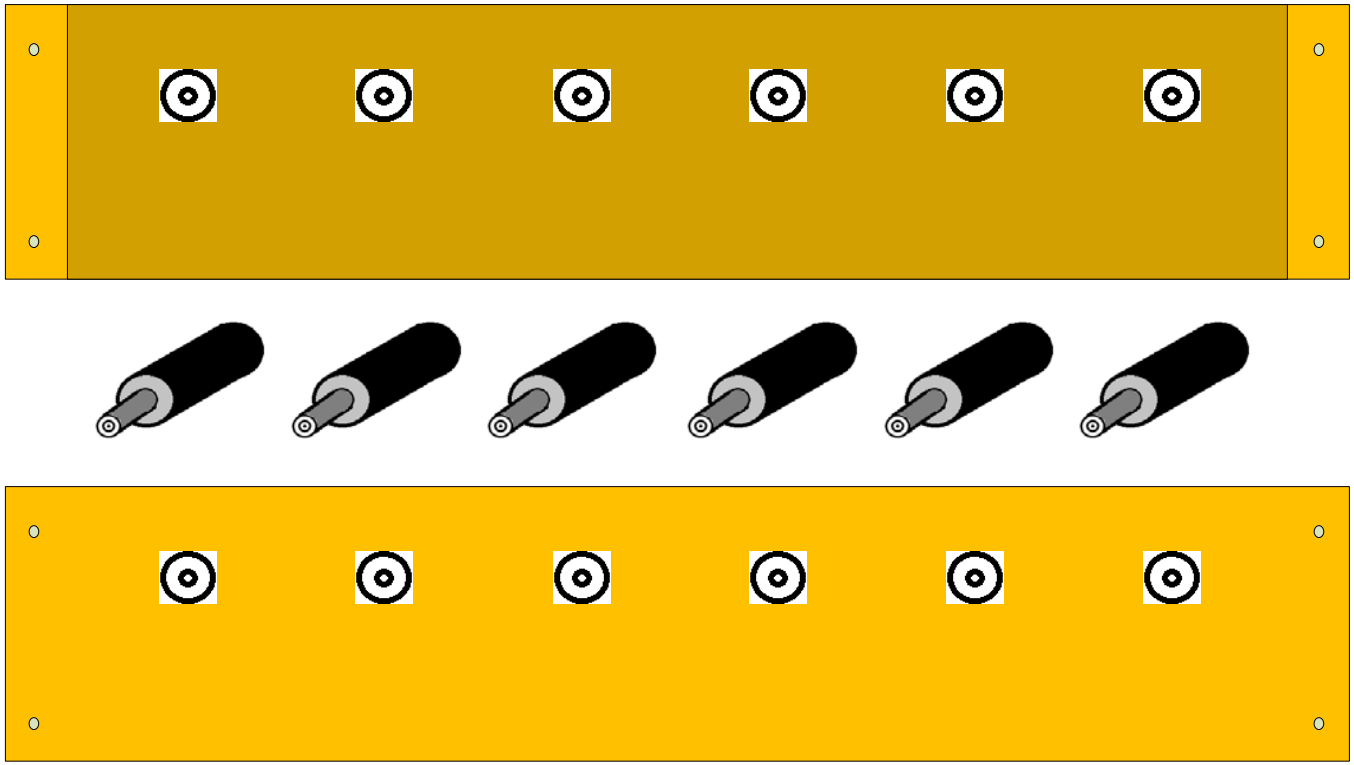
RF Distribution Panel 26 | Dxxxxxxx | Sxxxxxxx | No Power



RF Distribution Panel 27

[<< L1-ISC-YC1]

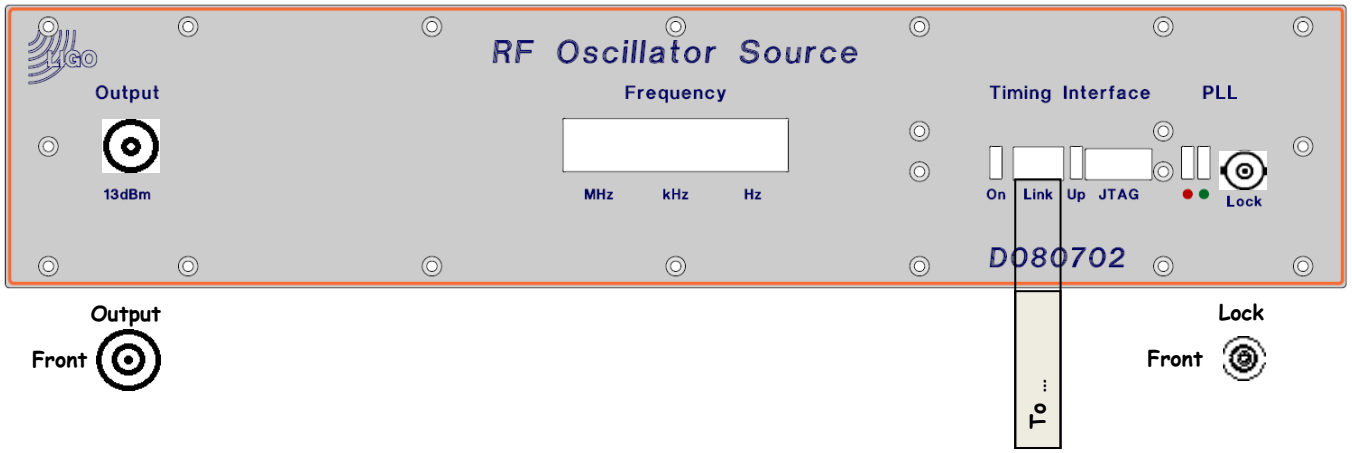
RF Distribution Panel 27 | Dxxxxxxx | Sxxxxxxx | No Power



D080702 - S1000562

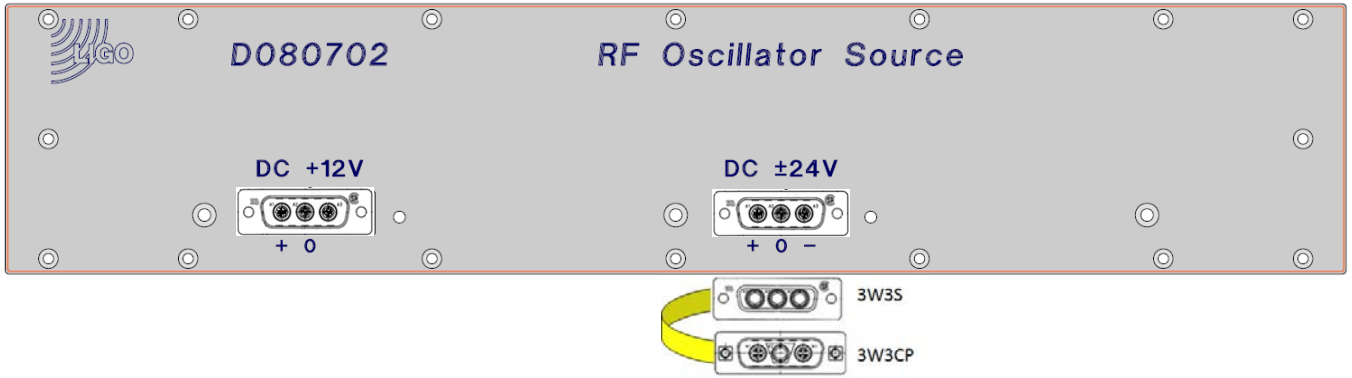
[<< L1-ISC-YC1]

71 MHz Oscillator | D080702 | S1000562 | +12VDC, ±24VDC



D080702

Front



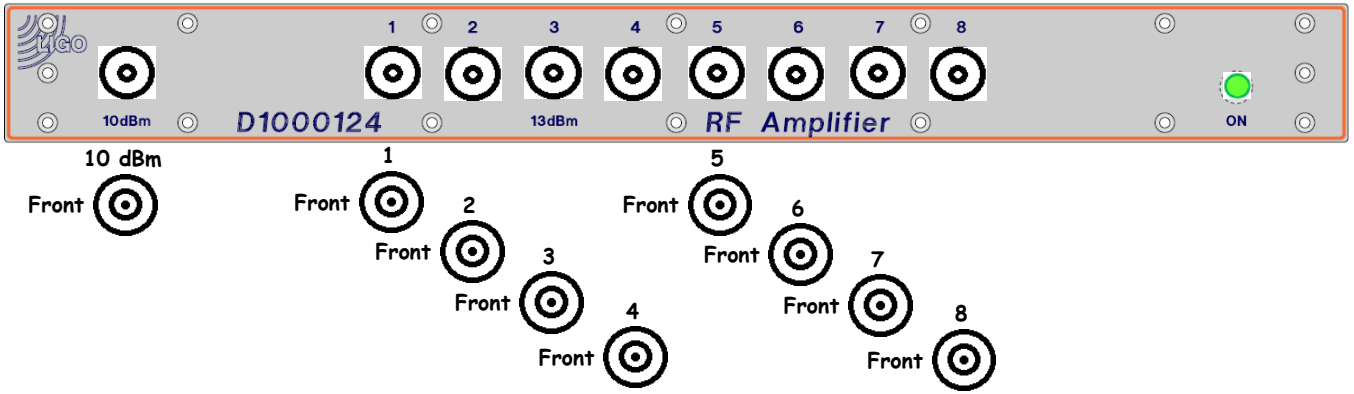
S1000562

Rear

D1000124 - S1000670

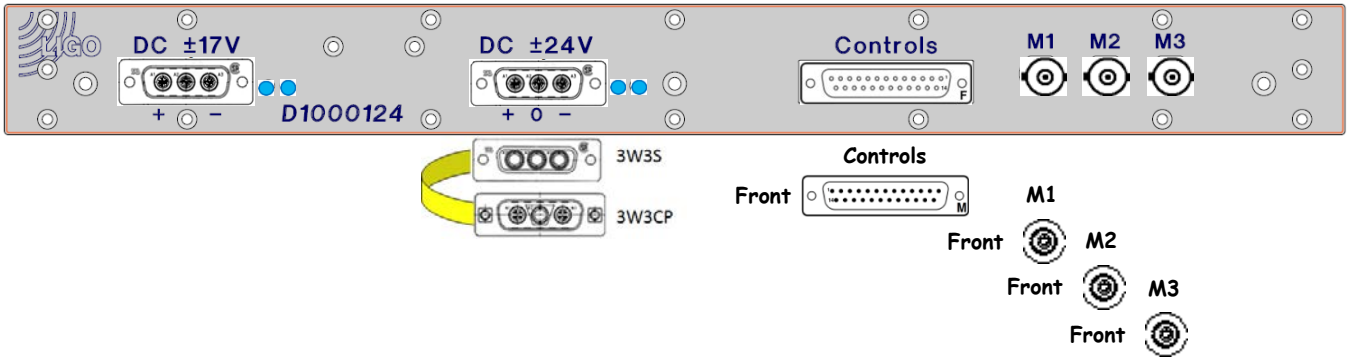
LIGO
<< L1-ISC-YC1

71 MHz Distribution Amplifier | D1000124 | S1000670 | ±17VDC, ±24VDC



D1000124

Front



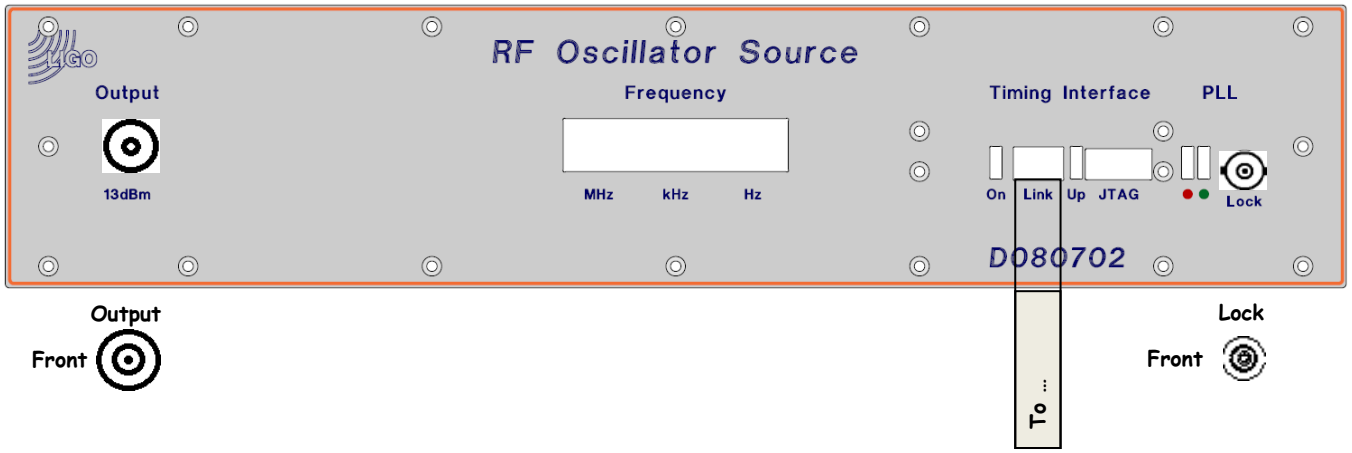
S1000670

Rear

D080702 - S1000583

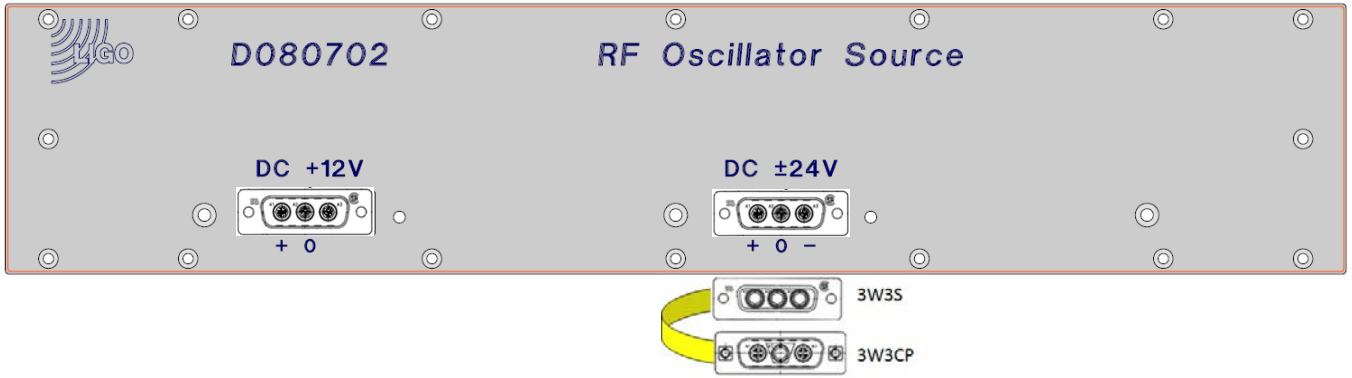
[<< L1-ISC-YC1]

24.4 MHz Oscillator | D080702 | S1000583 | +12VDC, ±24VDC



D080702

Front



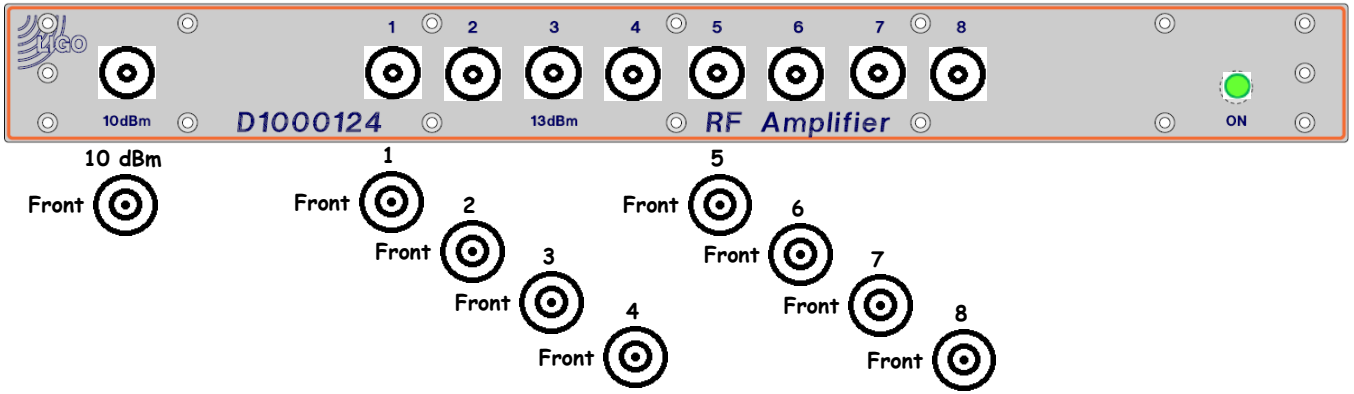
S1000583

Rear

D1000124 - S1000649

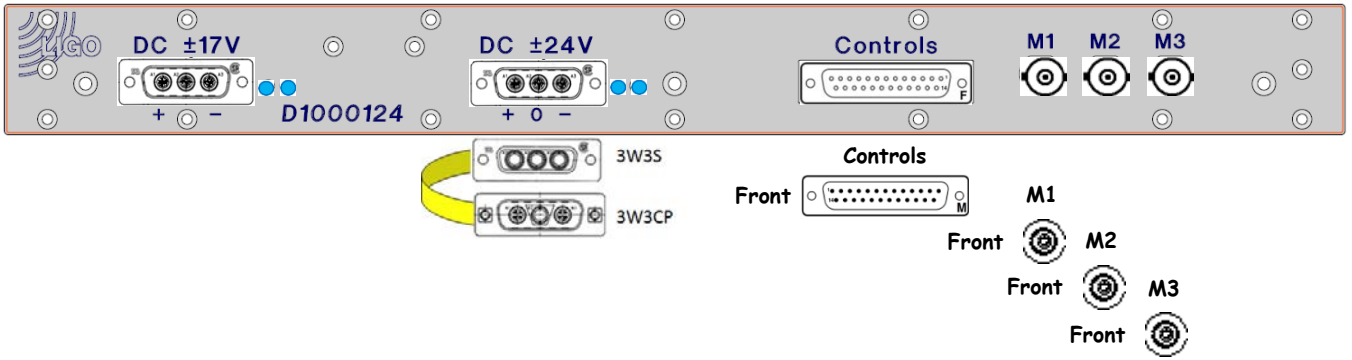
[<< L1-ISC-YC1]

24.4 MHz Distribution Amplifier | D1000124 | S1000649 | ±17VDC, ±24VDC



D1000124

Front



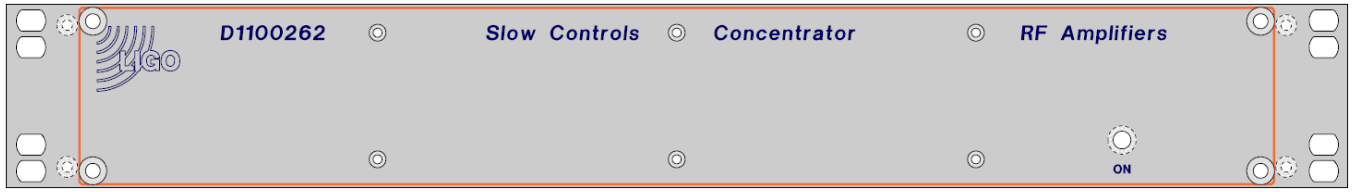
S1000649

Rear

D1100262 - S1103463

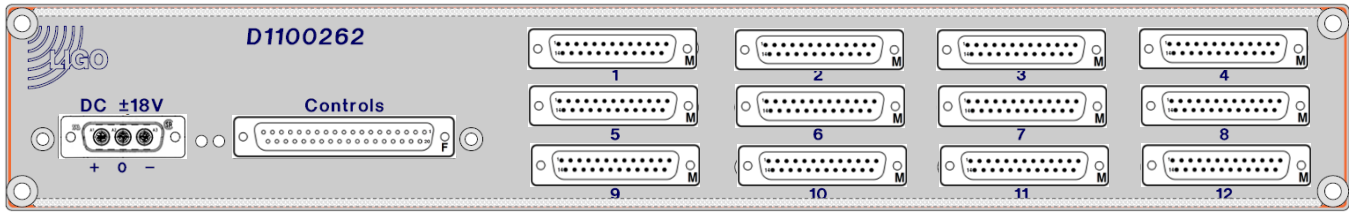
[<< L1-ISC-YC1]

RF Amplifier Concentrator 1 | D1100262 | S1103463 | ±18VDC



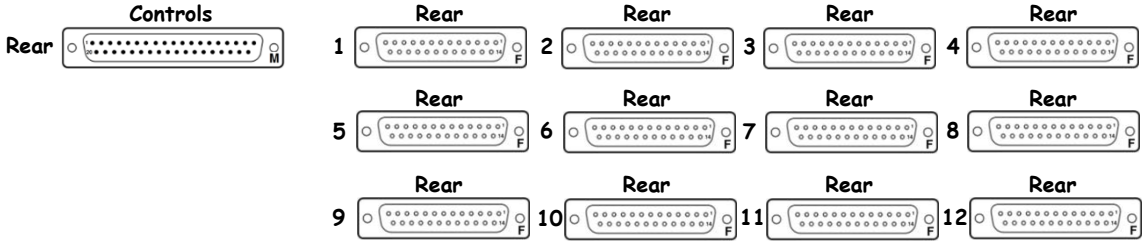
D1100262

Front



S1103463

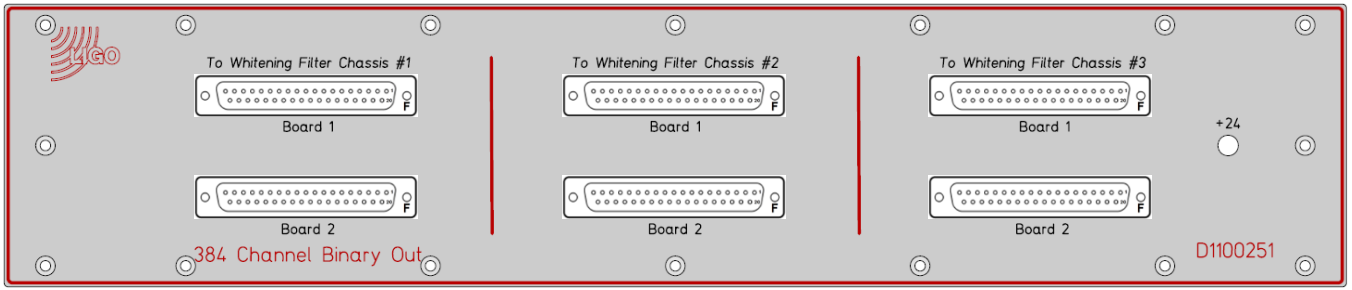
Rear



D1100251 - S1203282

[<< L1-ISC-YC1]

384 Channel Binary Output | D1100251 | S1203282 | +24VDC



D1100251

Front

Chassis 1 – Board 1 — Front

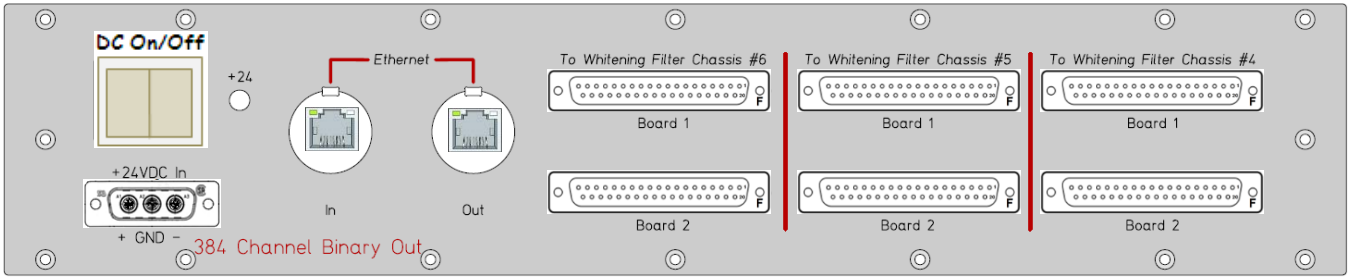
Chassis 2 – Board 1 — Front

Chassis 3 – Board 1 — Front

Chassis 1 – Board 2 — Front

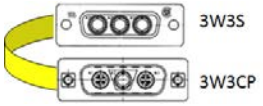
Chassis 2 – Board 2 — Front

Chassis 3 – Board 2 — Front



S1203282

Rear



Chassis 6 – Board 1 — Rear

Chassis 5 – Board 1 — Rear

Chassis 4 – Board 1 — Rear

Chassis 6 – Board 2 — Rear

Chassis 5 – Board 2 — Rear

Chassis 4 – Board 2 — Rear

In — Rear

Out — Rear

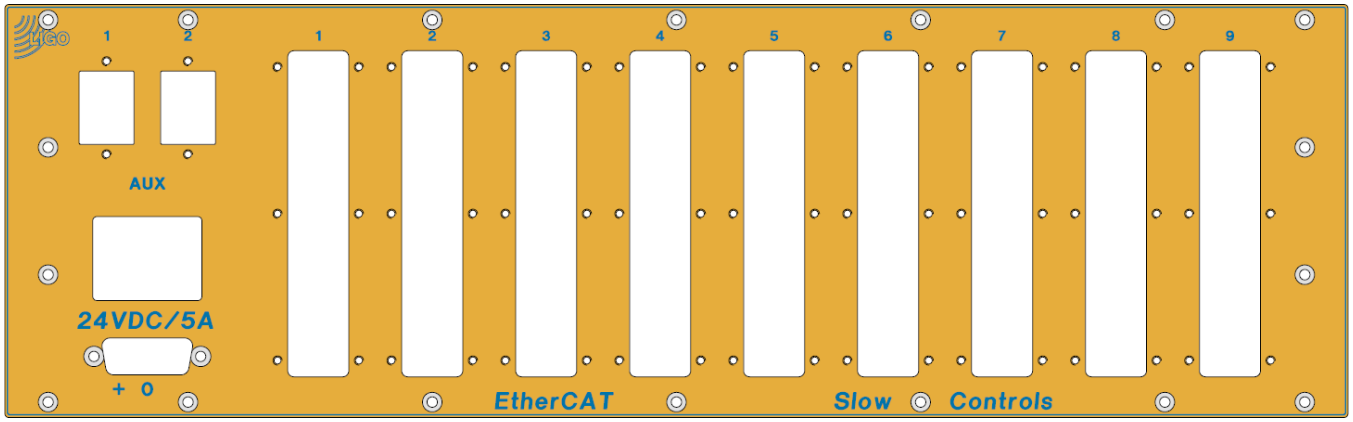
D1002961 - S1102619

[<< L1-ISC-YC1]

Beckhoff Slow Controls ISC Common | D1002961 | S1102619 | +24VDC

D1002961

Front: D0902553
Name: D1002962



S1102619

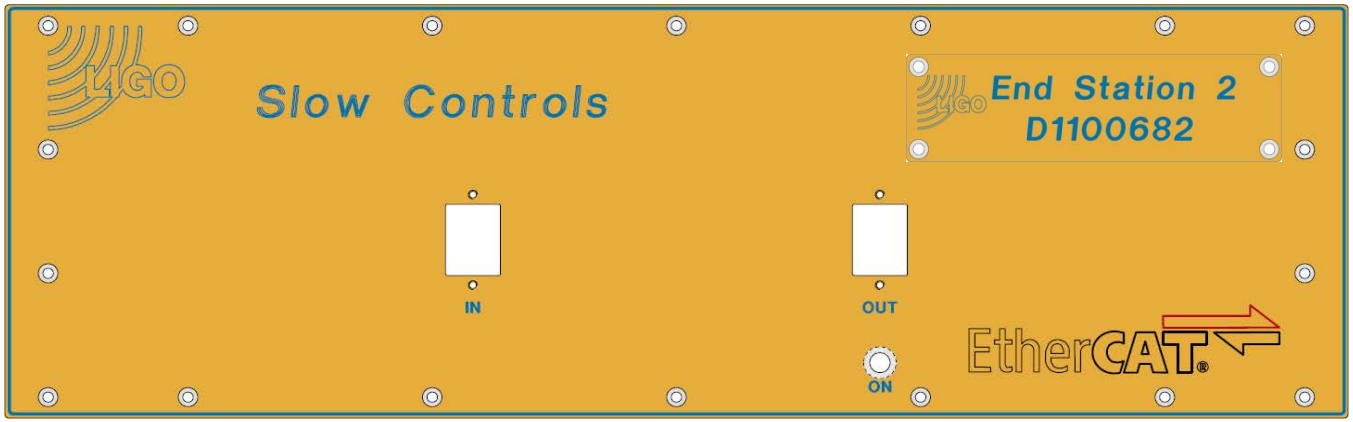
Rear: D0902554

D1100682 - S1107442

[<< L1-ISC-YC1]

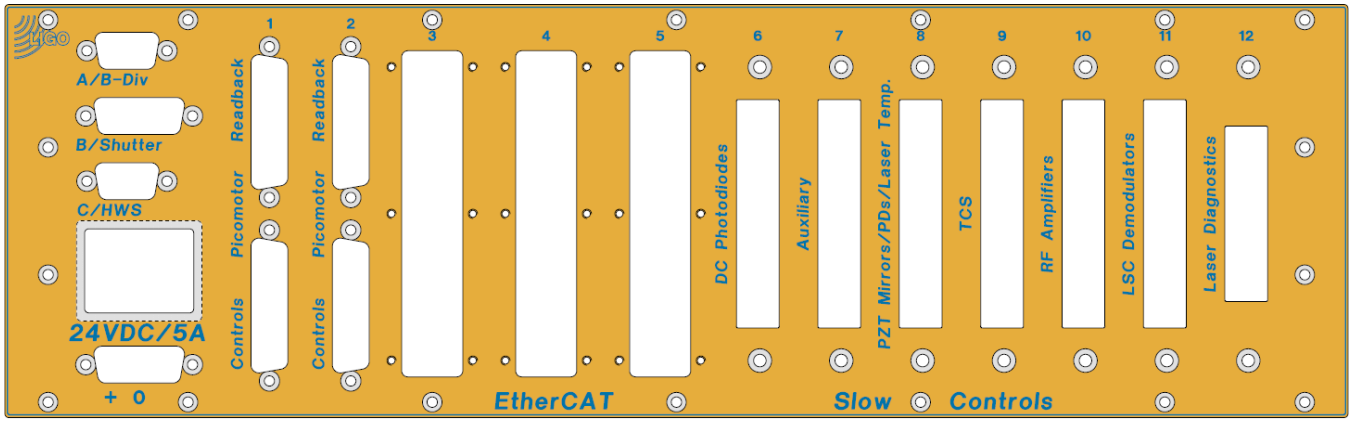
Beckhoff Slow Controls
End Station 2

D1100682 | S1107442 | +24VDC



D1100682

Front: D0902553
Name: D1101978



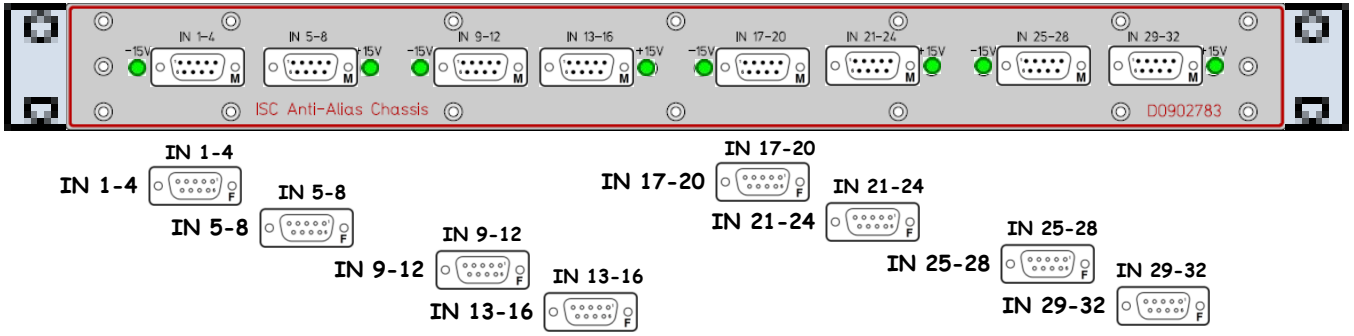
S1107442

Rear: D1101977

D0902783 - S1102774

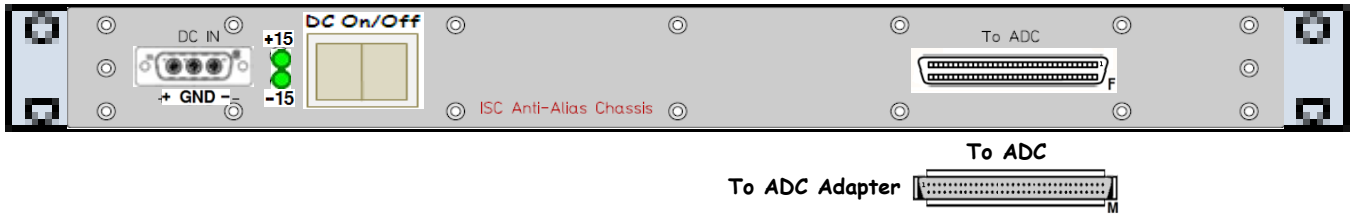
[<< L1-ISC-YC1]

Anti-Alias Chassis (8*DB9) | D0902783 | S1102774 | ±18VDC



D0902783

Front



S1102774

Rear

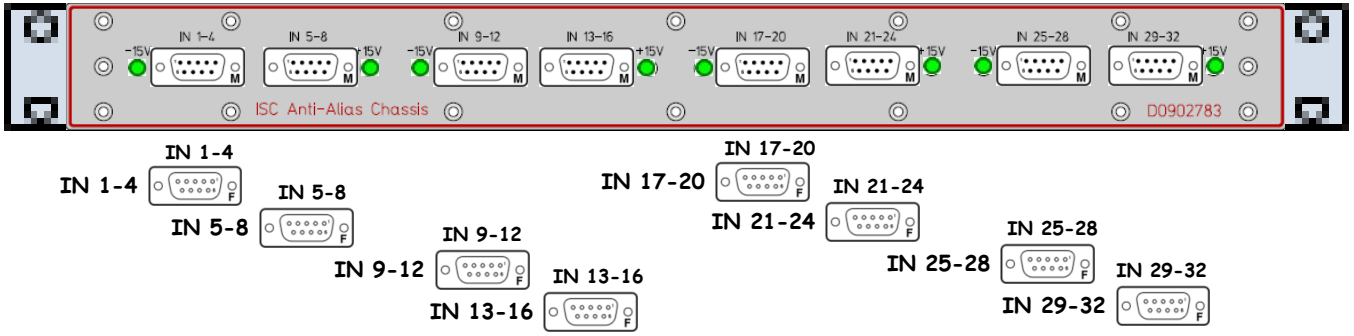
To ADC

To ADC Adapter

D0902783 - S1102792

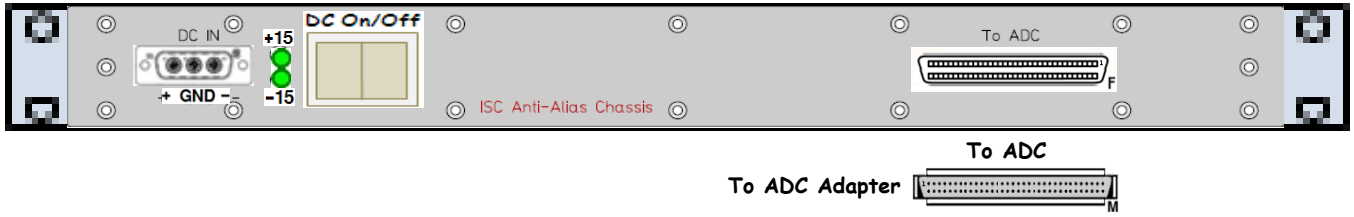
[<< L1-ISC-YC1]

Anti-Alias Chassis (8*DB9) | D0902783 | S1102792 | ±18VDC



D0902783

Front



S1102792

Rear

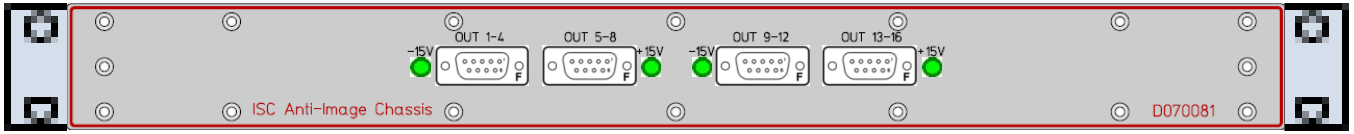
To ADC

To ADC Adapter

D070081 - S1103575

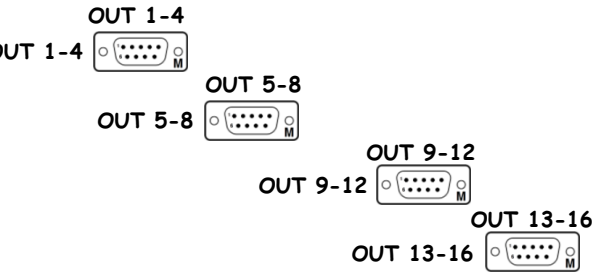
[<< L1-ISC-YC1]

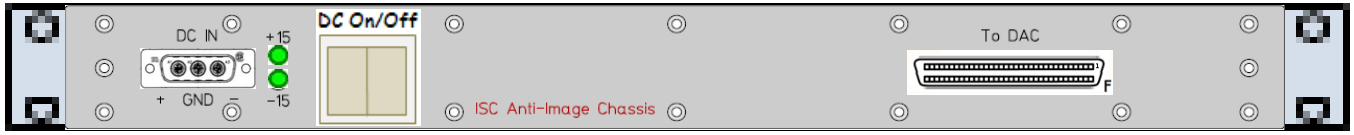
Anti-Image Chassis | D070081 | S1203575 | ±18VDC



D070081

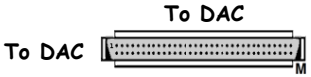
Front





S1203575

Rear

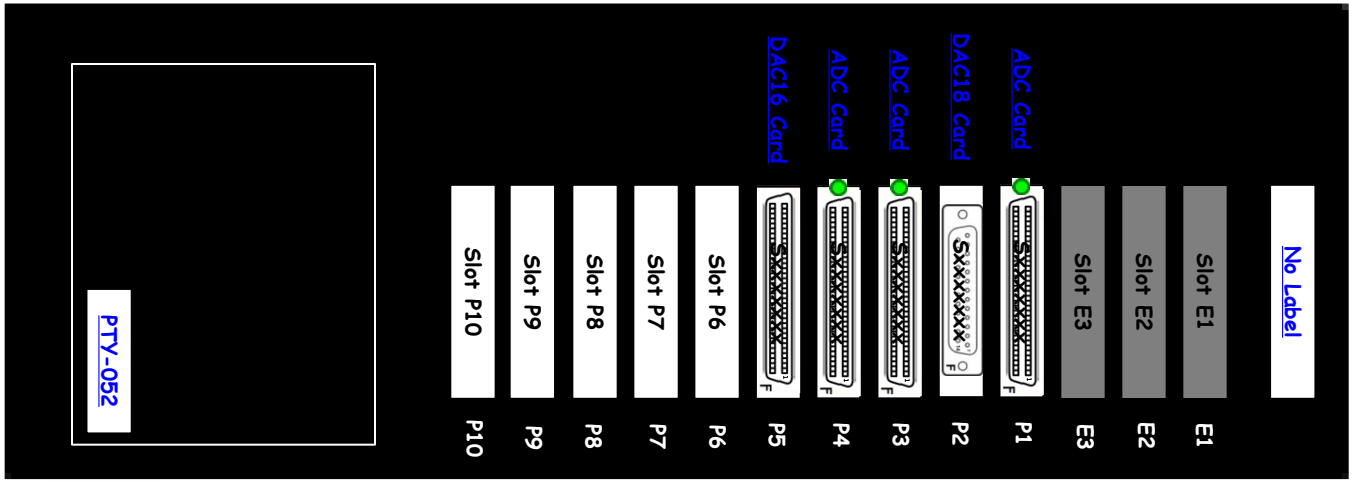


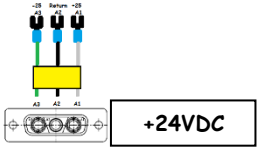
l1iscey - D1001715 - S1001145

[<< L1-ISC-YC1]

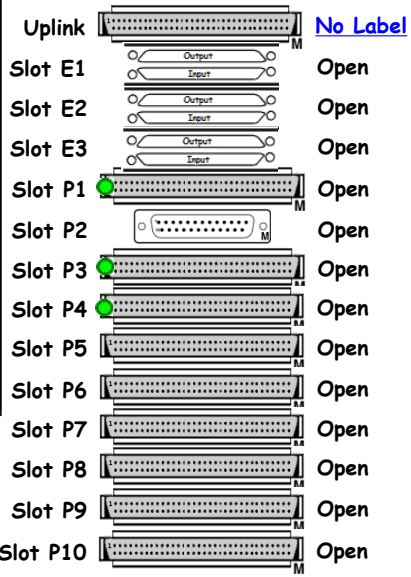
l1iscex I/O Extension Chassis | D1001715 | S1001145 | 110VAC

D1001715
Front





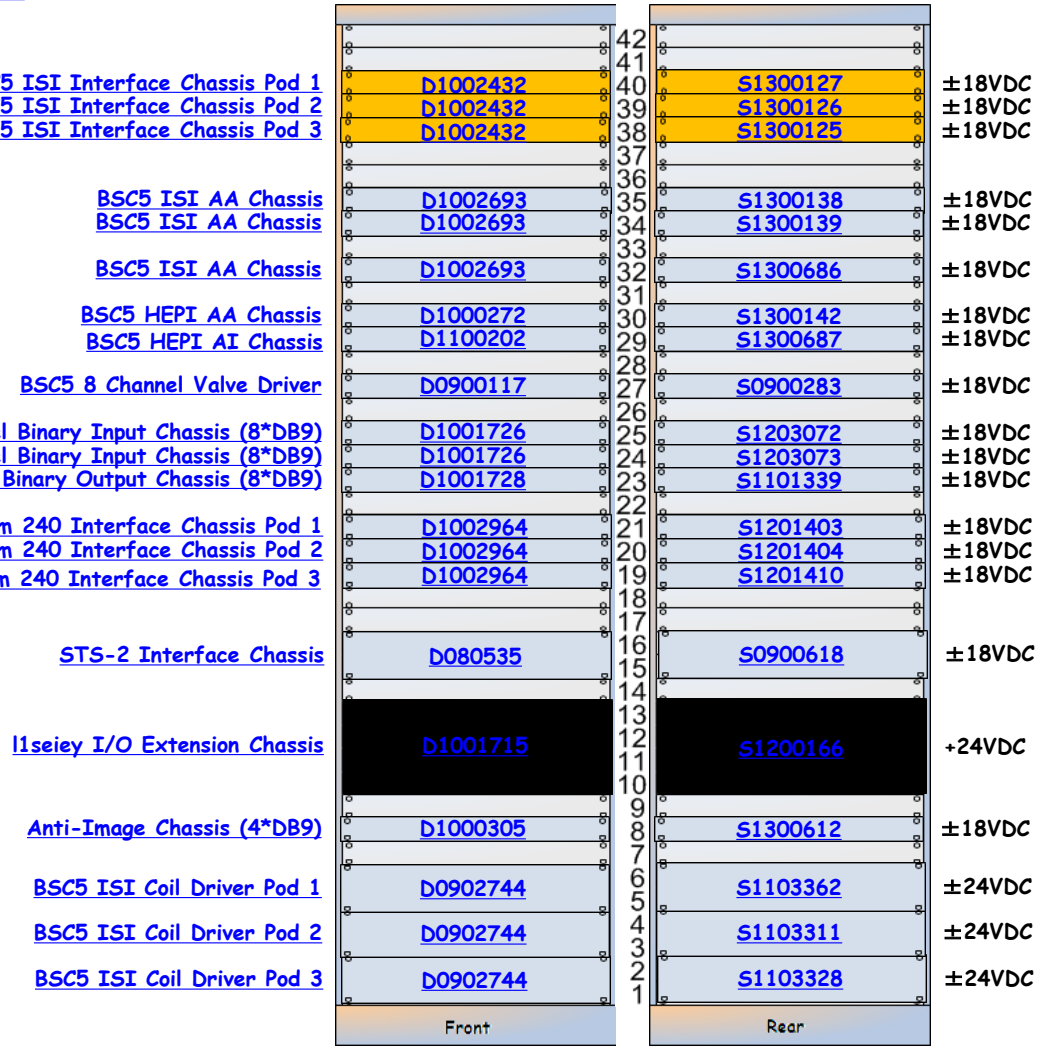
S1001145
Rear

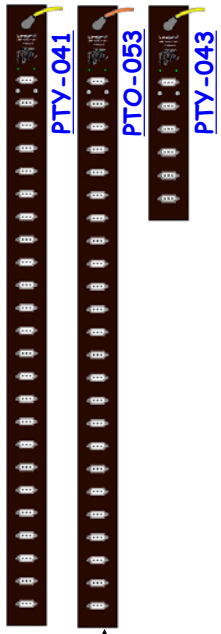


L1-SEI-YC1

<< CERY Racks
<< YEND Racks and Tables

L1-SEI-YC1 (BSC5) YEND Remote Rack 1 Layout (D1201088) (S1202952)





NOTE: One ±18VDC connector powers 4 HEPI Pods.

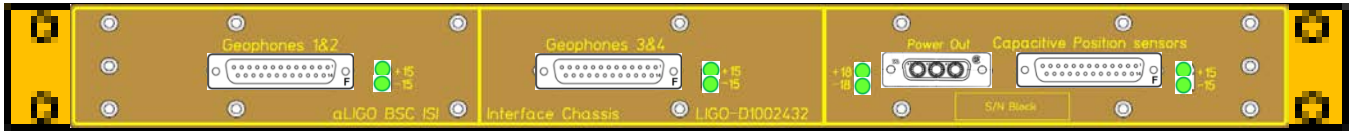
SEI-YC1 is part of D0901301

L1-SEI-YC1 Details

D1002432 - S1300125

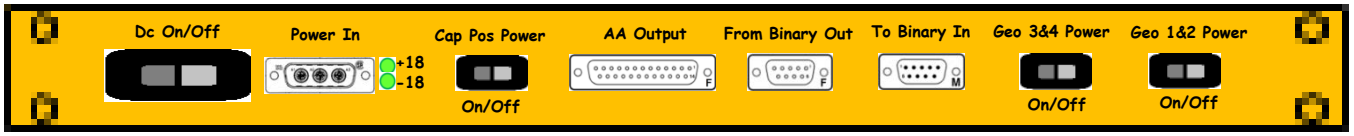
« L1-SEI-YC1

BSC5 ISI Interface Chassis Pod 1 | D1002432 | S1300125 | ±18VDC



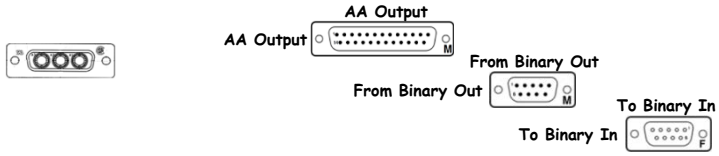
D1002432

Front



S1300125

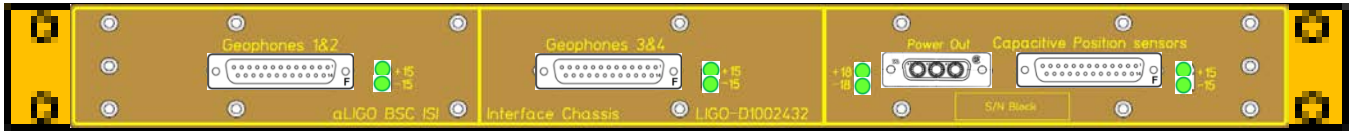
Rear



D1002432 - S1300126

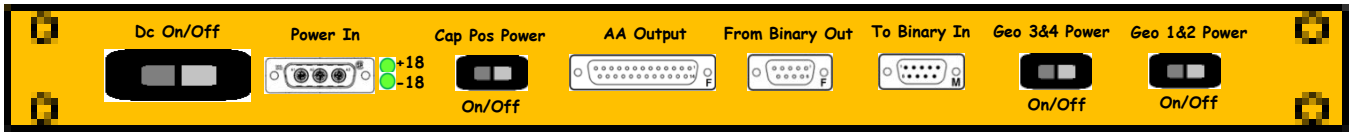
[<< L1-SEI-YC1]

BSC5 ISI Interface Chassis Pod 2 | D1002432 | S1300126 | ±18VDC



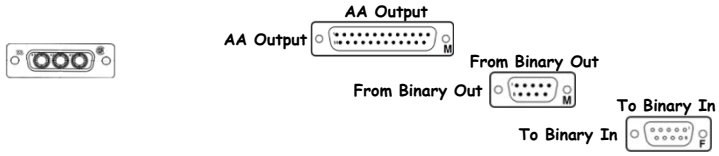
D1002432

Front



S1300126

Rear

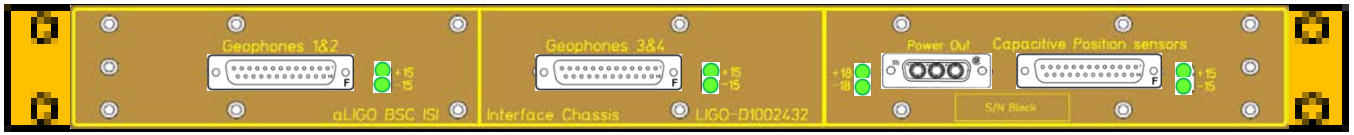


D1002432 - S1300127

LIGO

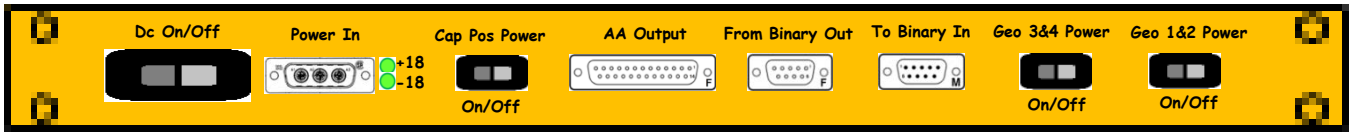
<< L1-SEI-YC1

BSC5 ISI Interface Chassis Pod 3 D1002432 S1300127 ±18VDC



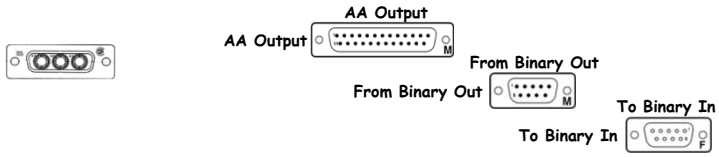
D1002432

Front



S1300127

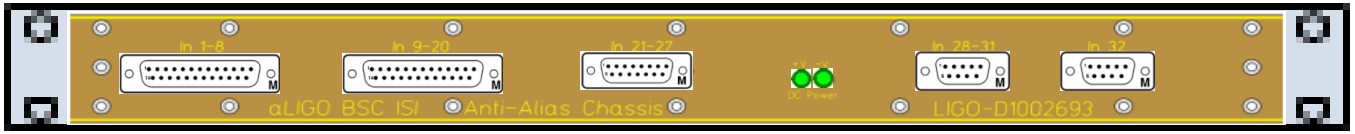
Rear

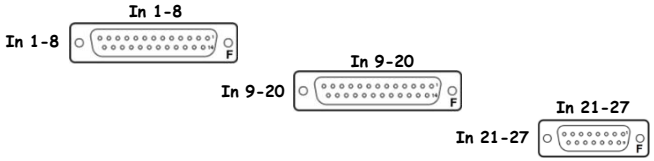


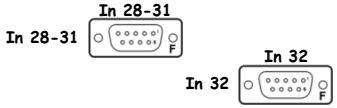
D1002693 - S1300138

[<< L1-SEI-YC1]

BSC5 ISI AA Chassis Pod 3 | D1002693 | S1300138 | Power

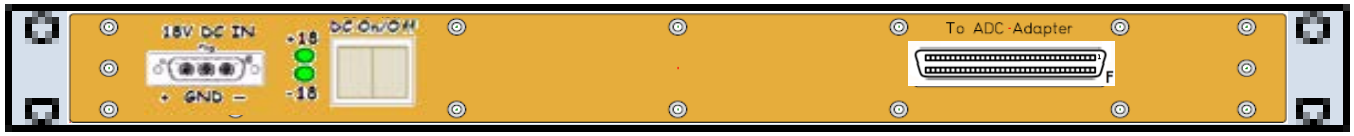






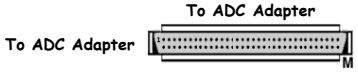
D1002693

Front



S1300138

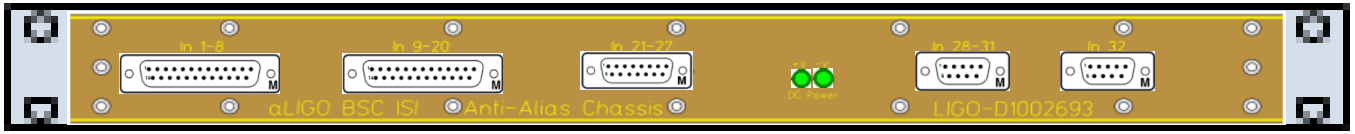
Rear



D1002693 - S1300139

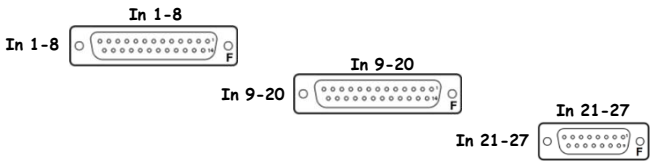
[<< L1-SEI-YC1]

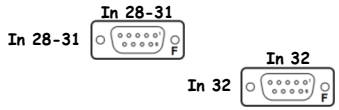
BSC5 ISI AA Chassis Pod 3 | D1002693 | S1300139 | Power

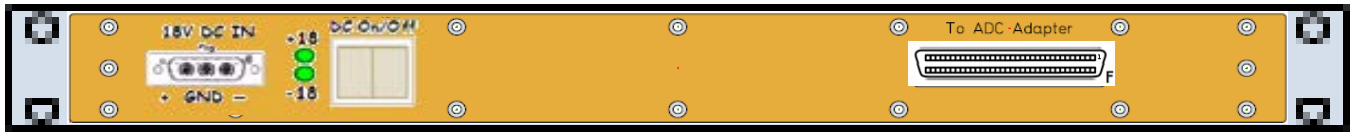


D1002693

Front

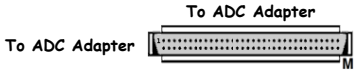






S1300139

Rear

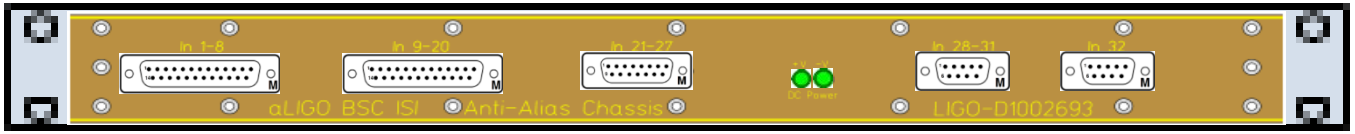


D1002693 - S1300686

LIGO

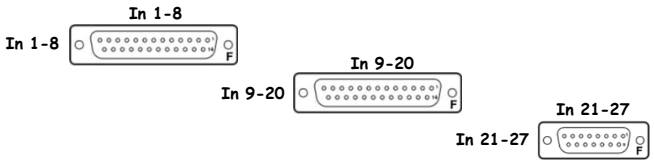
<< L1-SEI-YC1

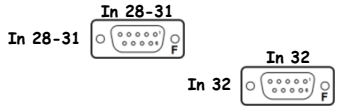
BSC5 ISI AA Chassis Pod 3 | D1002693 | S1300686 | Power

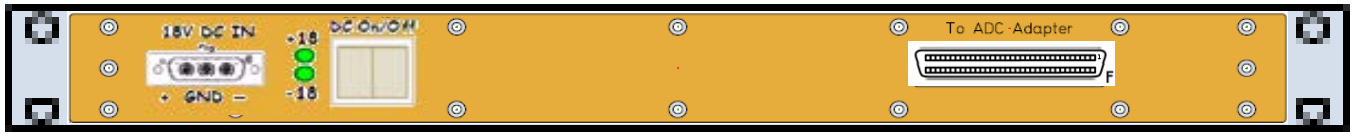


D1002693

Front

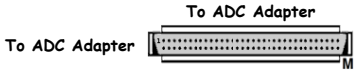






S1300686

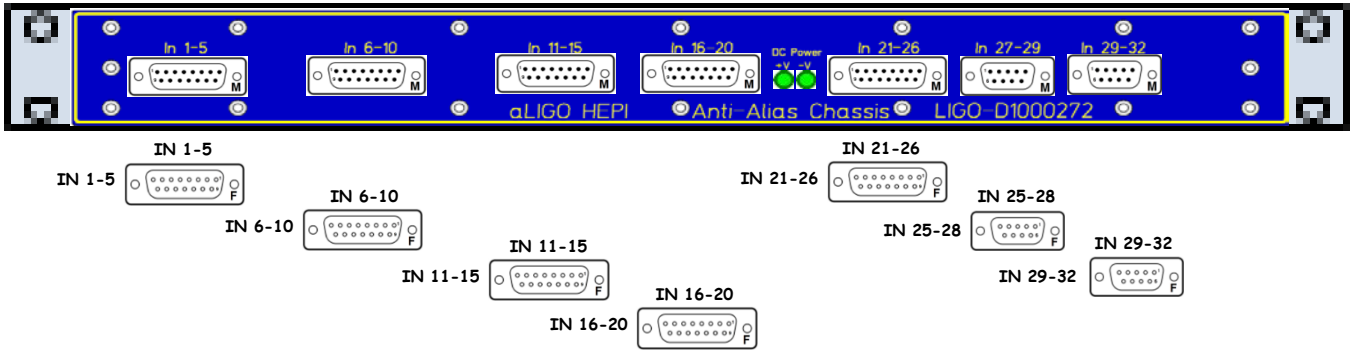
Rear



D1000272 - S1300142

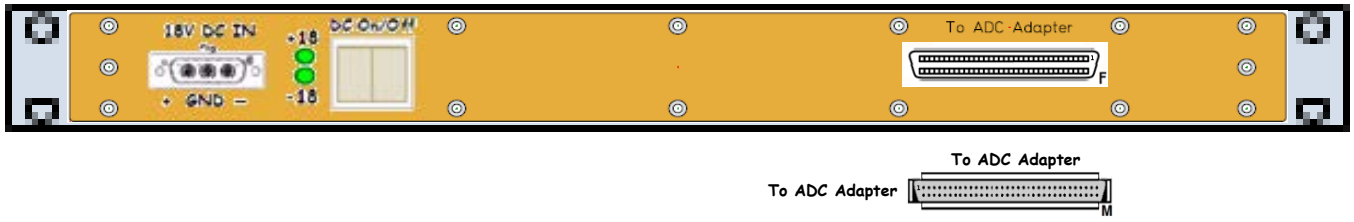
[<< L1-SEI-YC1]

BSC5 HEPI AA Chassis Pod 3 | D1000272 | S1300142 | Power



D1000272

Front

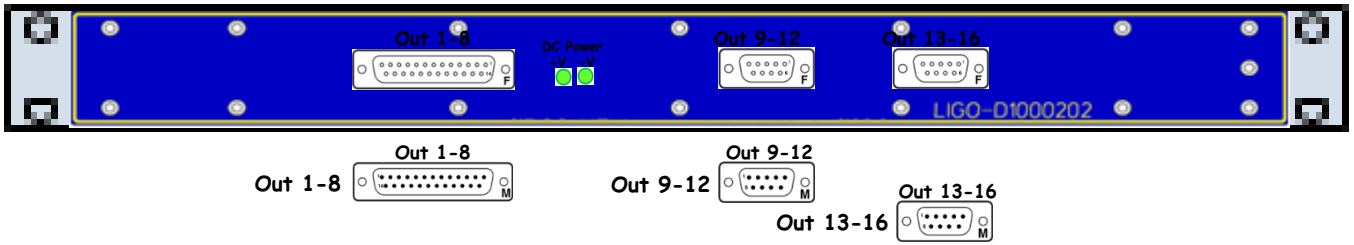


S1300142

Rear

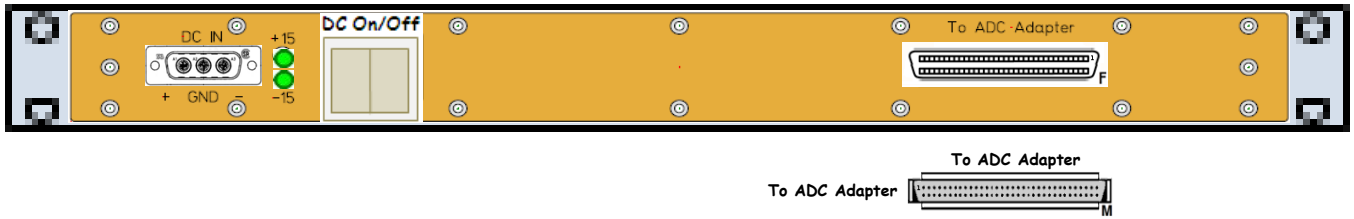
D1100202 - S1300687

BSC5 HEPI AI Chassis D1100202 S1300687 Power



D1100202

Front



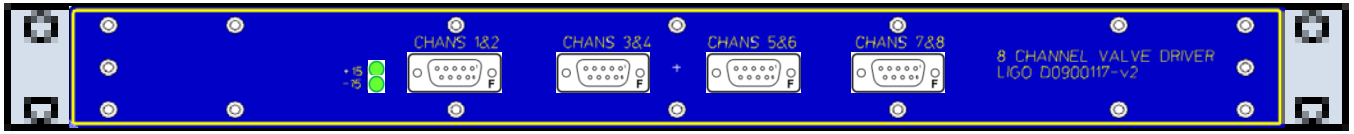
S1300687

Rear

D0900117 - S0900283

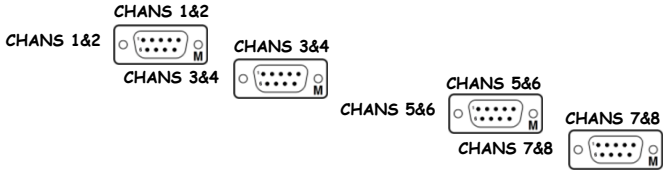
BSC5 8 Channel Valve Driver | D0900117 | S0900283 | Power

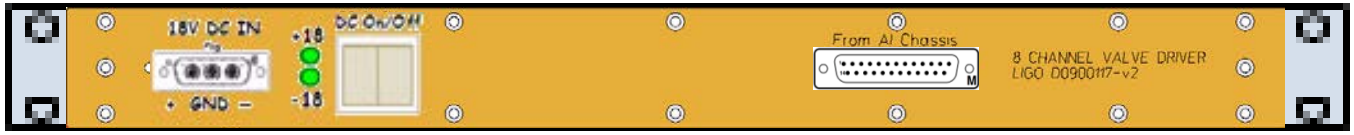
BSC5



D0900117

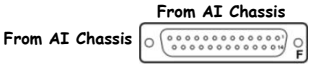
Front





S0900283

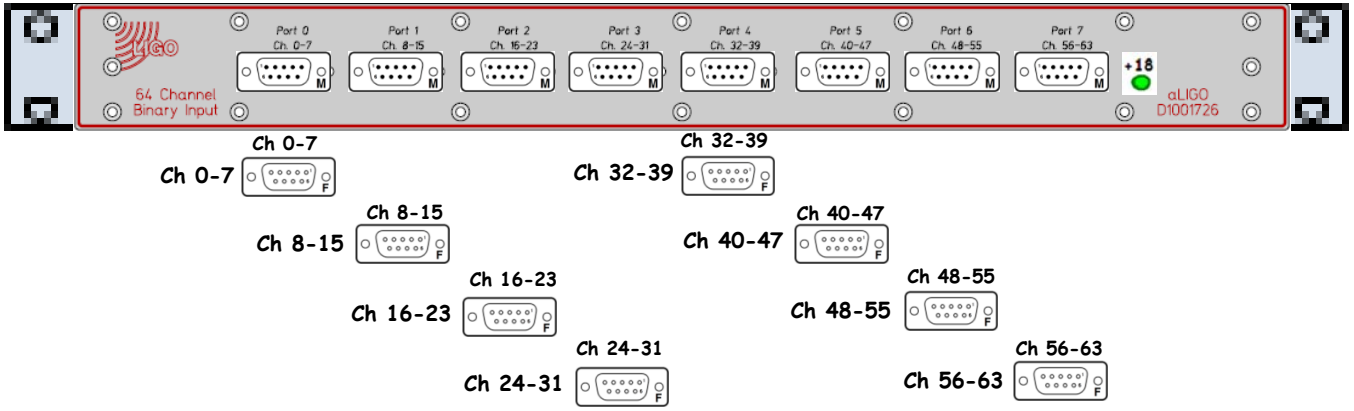
Rear



D1001726 - S1203072

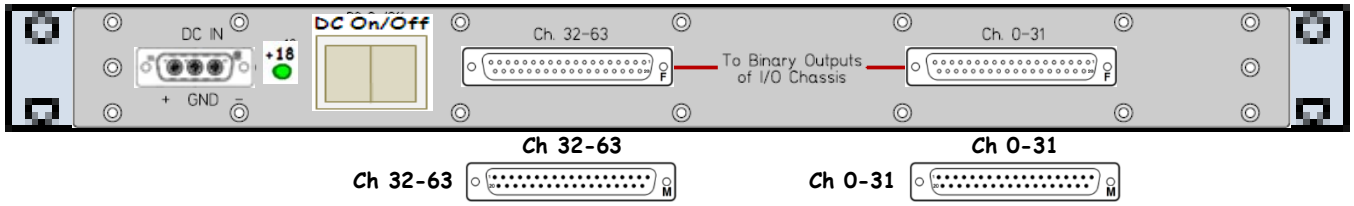
[<< L1-SEI-YC1]

64 Channel Binary Input Chassis (8*DB9) | D1001726 | S1203072 | ±18VDC



D1001726

Front



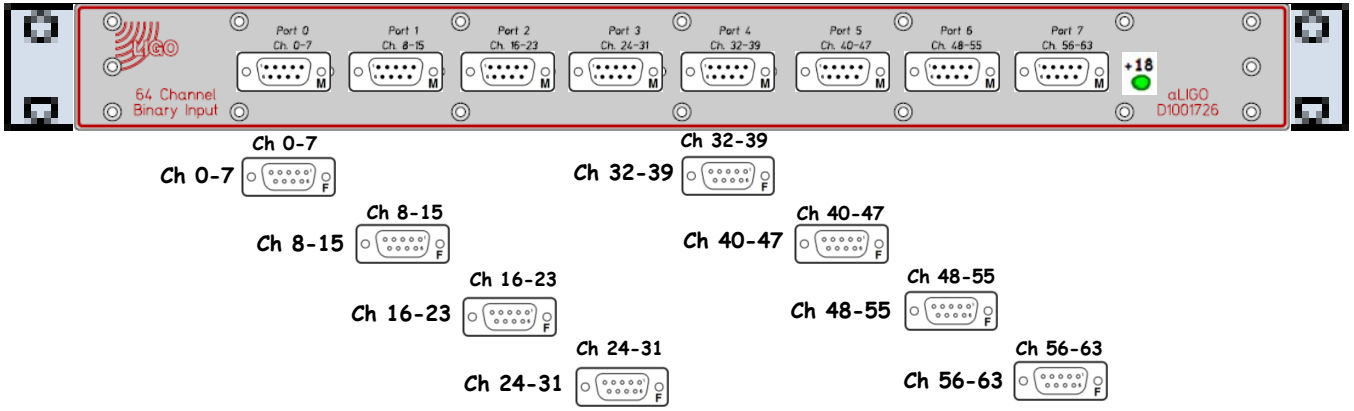
S1203072

Rear

D1001726 - S1203073

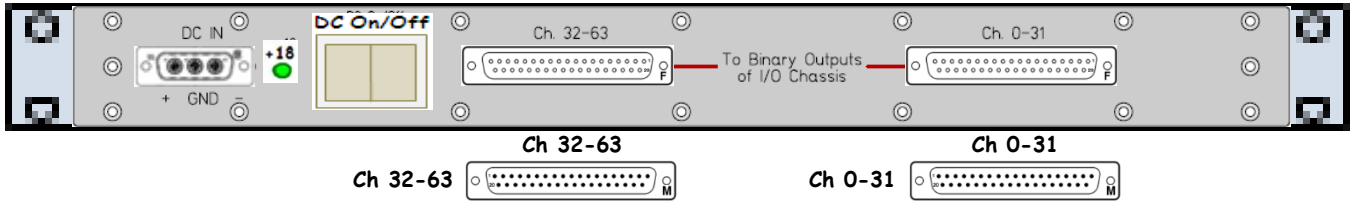
[<< L1-SEI-YC1]

64 Channel Binary Input Chassis (8*DB9) | D1001726 | S1203073 | ±18VDC



D1001726

Front



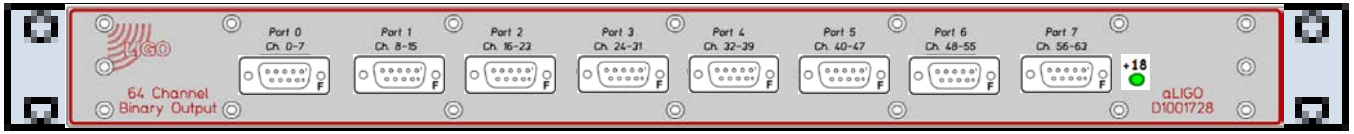
S1203073

Rear

D1001728 - S1101339

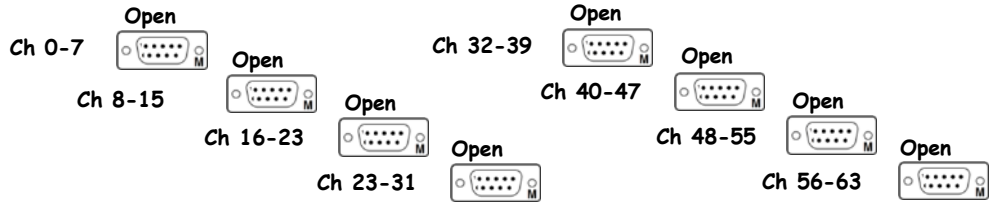
[<< L1-SEI-YC1]

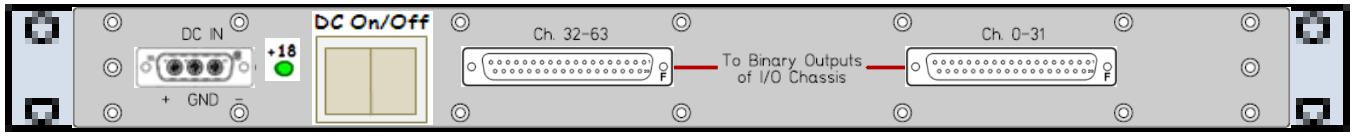
64 Channel Binary Output Chassis (8*DB9) | D1001728 | S1101339 | ±18VDC



D1001728

Front





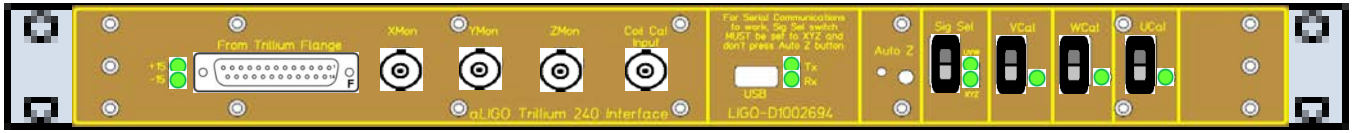
S1101339

Rear

D1002964 - S1201405

[<< L1-SEI-YC1]

Trillium 240 Interface Chassis Pod 1 | D1002964 | S1201405 | ±18VDC

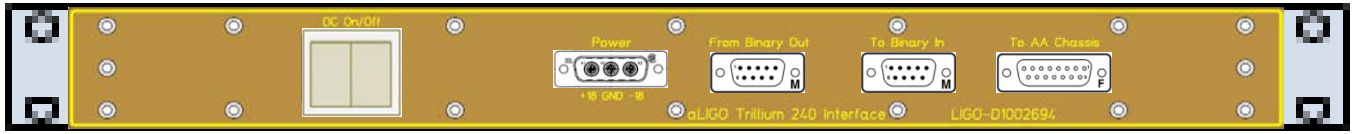


D1002694

Front

From Trillium Flange

From Trillium Flange



S1201405

Rear

From Binary Out

From Binary Out

To Binary In

To Binary In

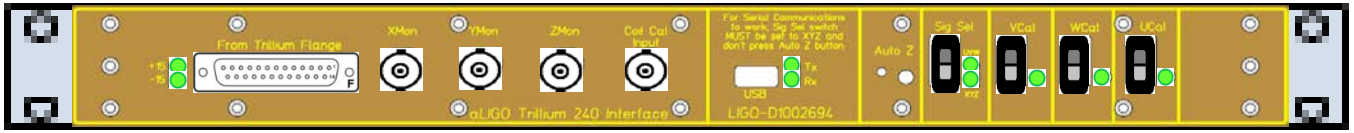
To AA Chassis

To AA Chassis

D1002964 - S1201406

[<< L1-SEI-YC1]

Trillium 240 Interface Chassis Pod 2 | D1002964 | S1201406 | ±18VDC

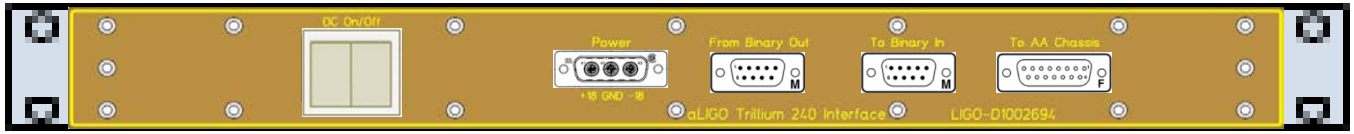


D1002694

Front

From Trillium Flange

From Trillium Flange



S1201406

Rear

From Binary Out

From Binary Out

To Binary In

To Binary In

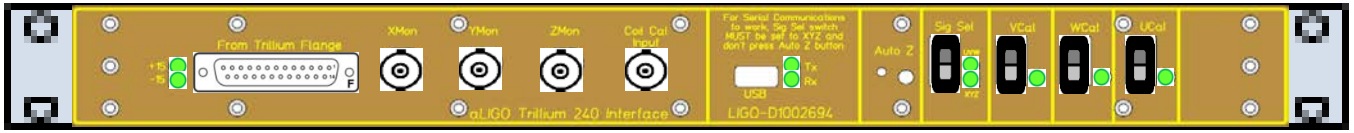
To AA Chassis

To AA Chassis

D1002964 - S1201407

« L1-SEI-YC1

Trillium 240 Interface Chassis Pod 3 | D1002964 | S1201407 | ±18VDC

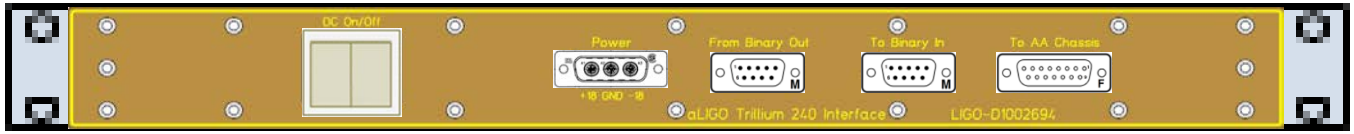


D1002694

Front

From Trillium Flange

From Trillium Flange



S1201407

Rear

From Binary Out

From Binary Out

To Binary In

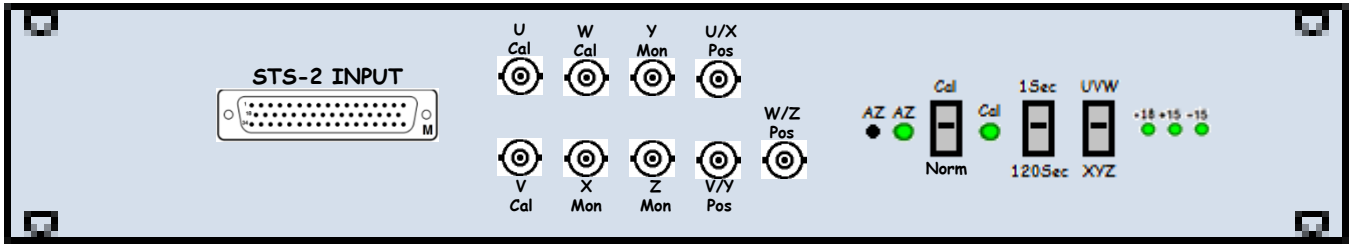
To Binary In

To AA Chassis

To AA Chassis

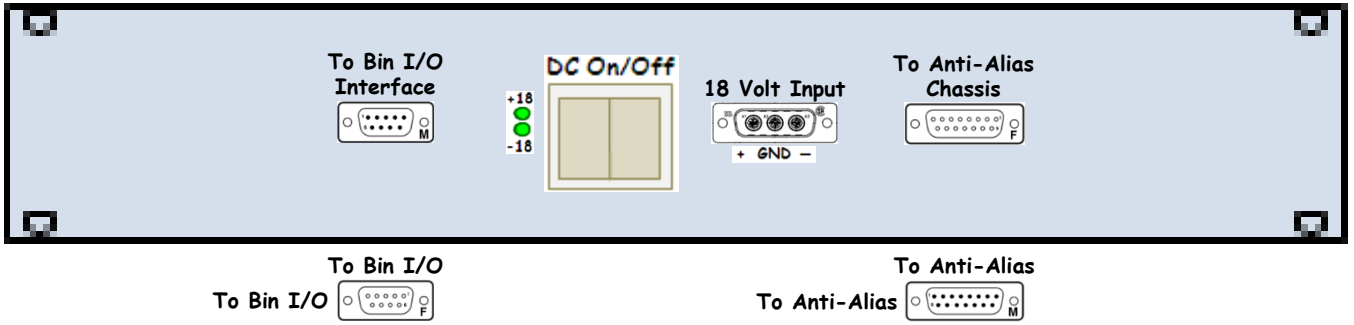
D080535 - S0900105

STS-2 Interface Chassis | D080535 | S0900105 | ±18VDC



D080535

Front



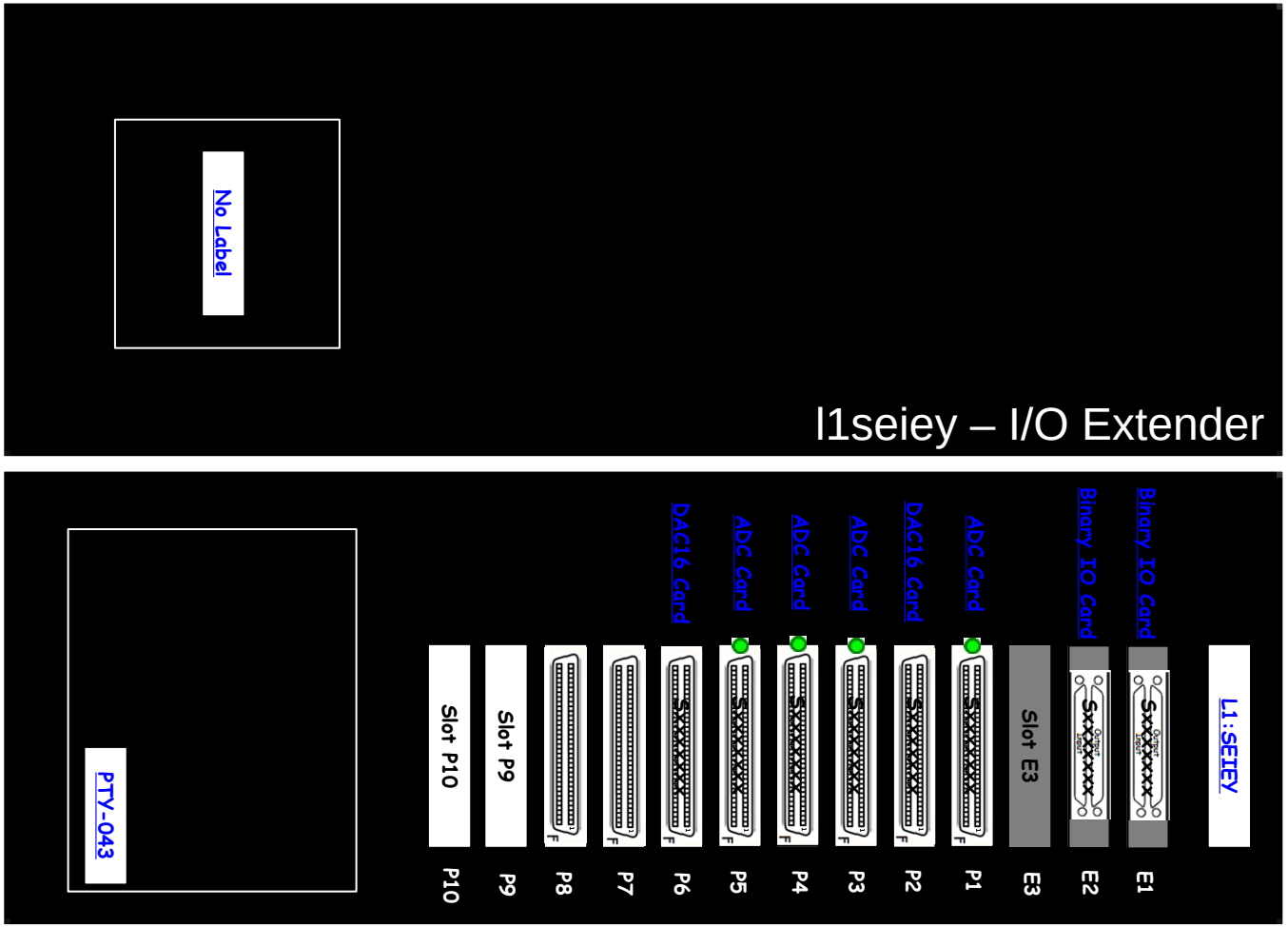
S0900105

Rear

l1seiey D1001715 - S1200166

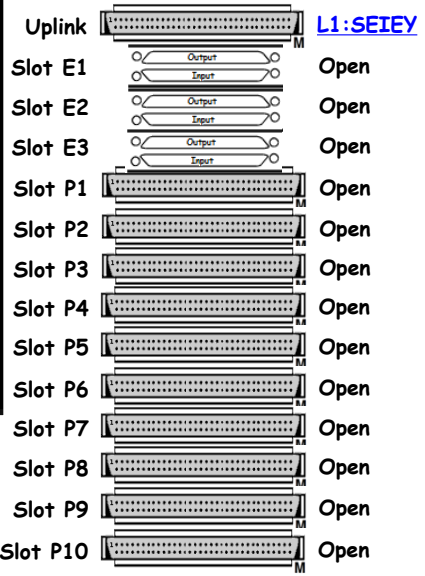
[<< L1-SEI-YC1]

l1seiey I/O Extension Chassis | D1001715 | S1200166 | +24VDC



D1001715
Front

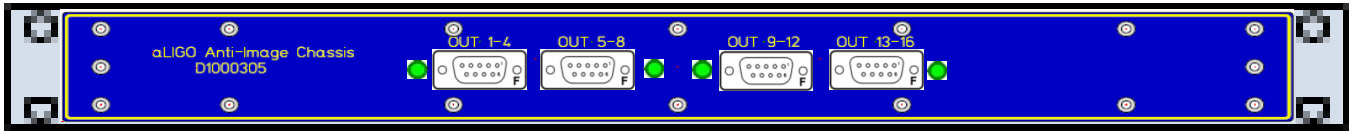
S1200166
Rear



D1000305 - S1300612

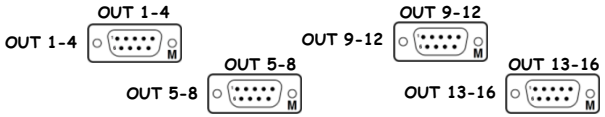
[<< L1-SEI-YC1]

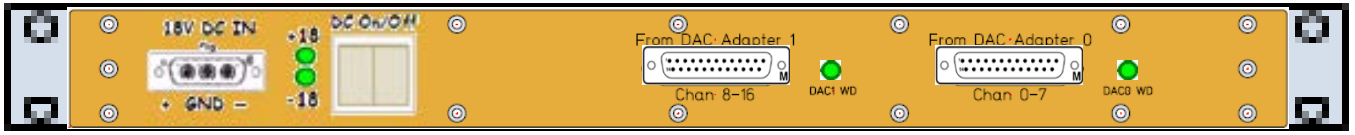
Anti-Image Chassis (4*DB9) | D1000305 | S1300612 | ±18VDC



D1000305

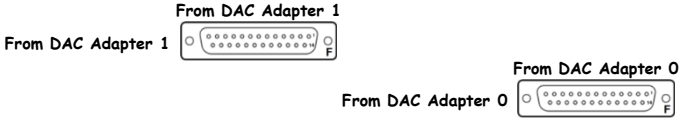
Front





S1300612

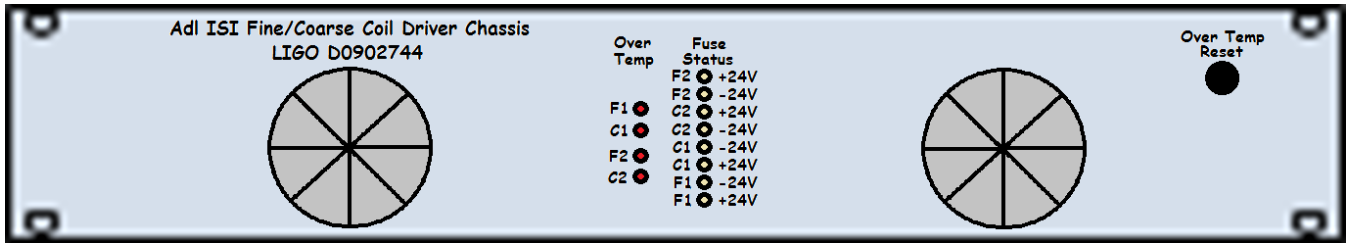
Rear



D0902744 - S1103362

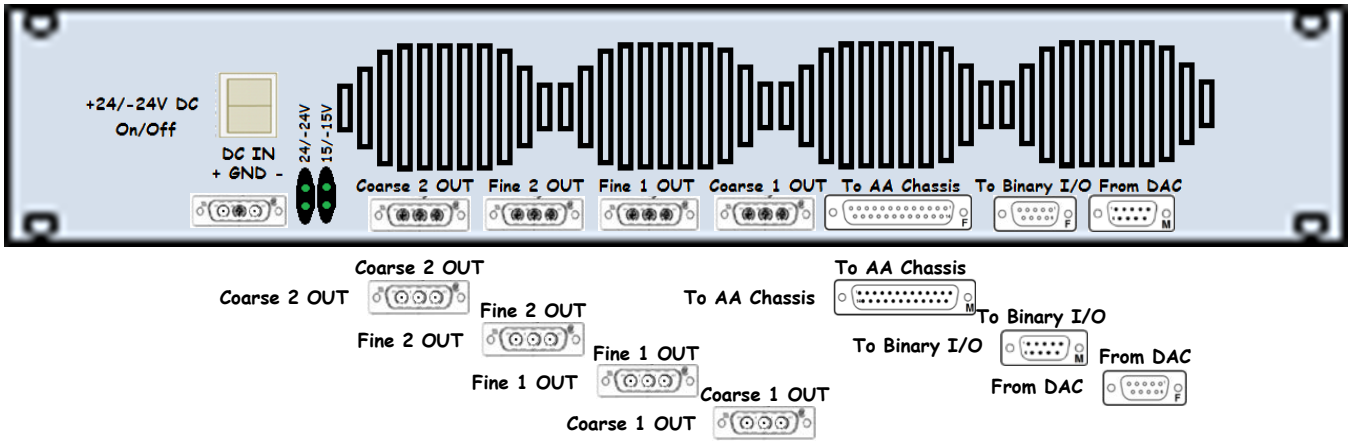
[<< L1-SEI-YC1]

BSC5 ISI Coil Driver Pod 1 | D0902744 | S1103362 | +24V@1.2A, -24V@0.8A



[D0902744]

Front



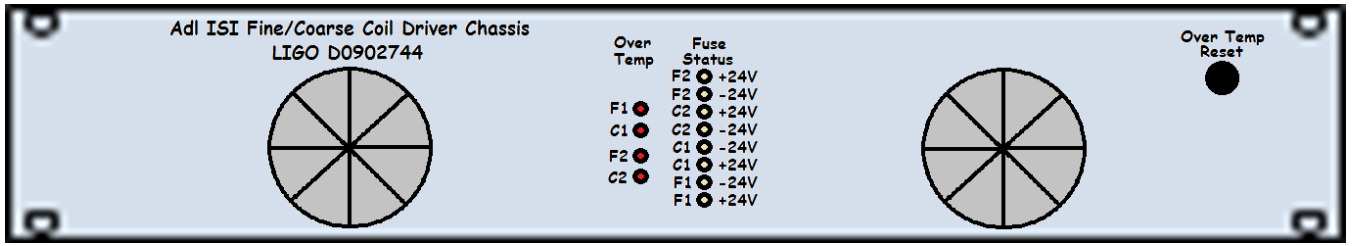
[S1103362]

Rear

D0902744 - S1103311

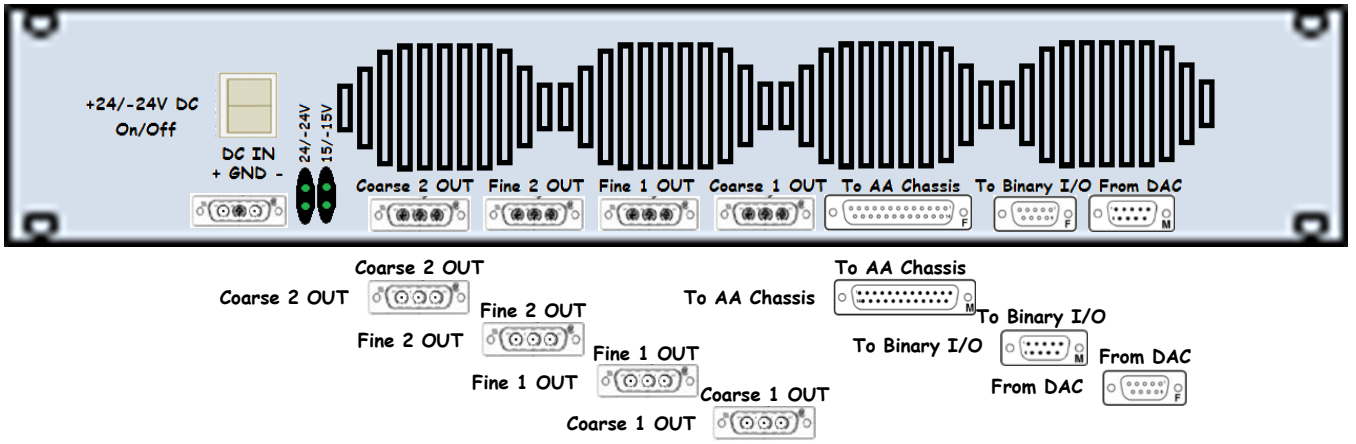
[<< L1-SEI-YC1]

BSC5 ISI Coil Driver Pod 2 | D0902744 | S1103311 | +24V@1.2A, -24V@0.8A



D0902744

Front



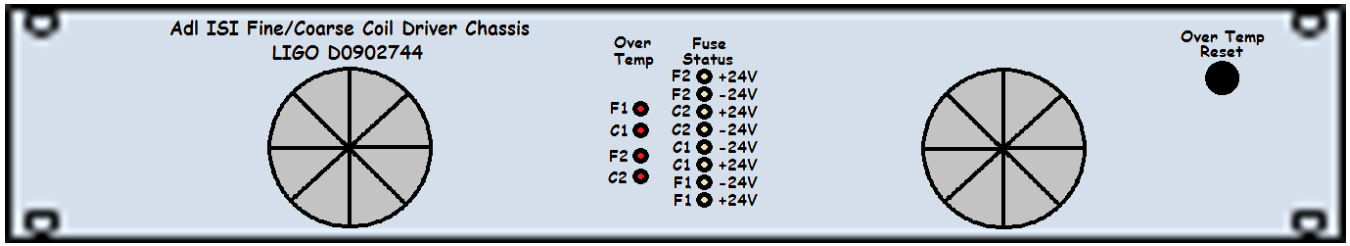
S1103311

Rear

D0902744 - S1103328

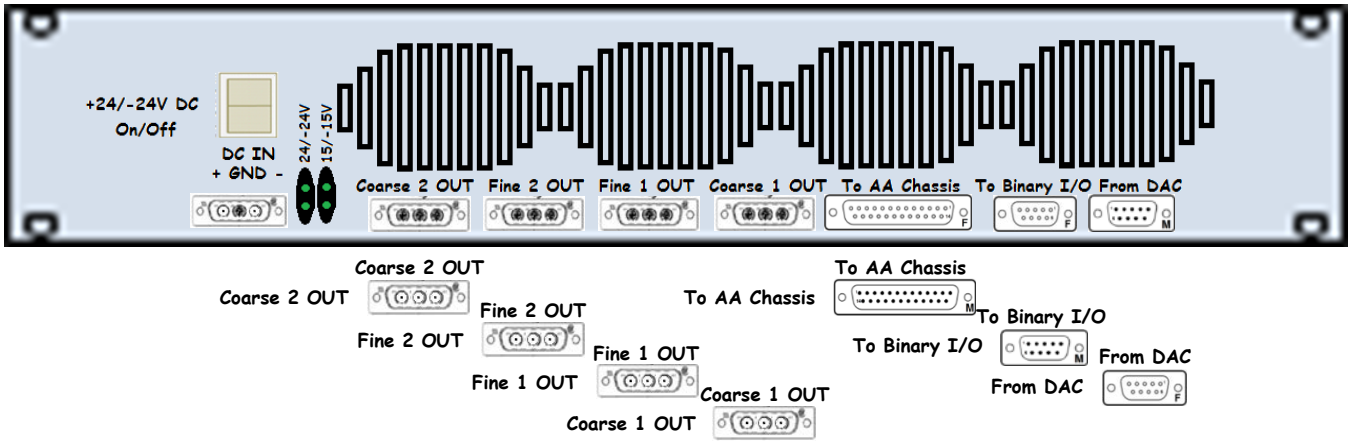
[<< L1-SEI-YC1]

BSC5 ISI Coil Driver Pod 3 | D0902744 | S1103328 | +24V@1.2A, -24V@0.8A



D0902744

Front



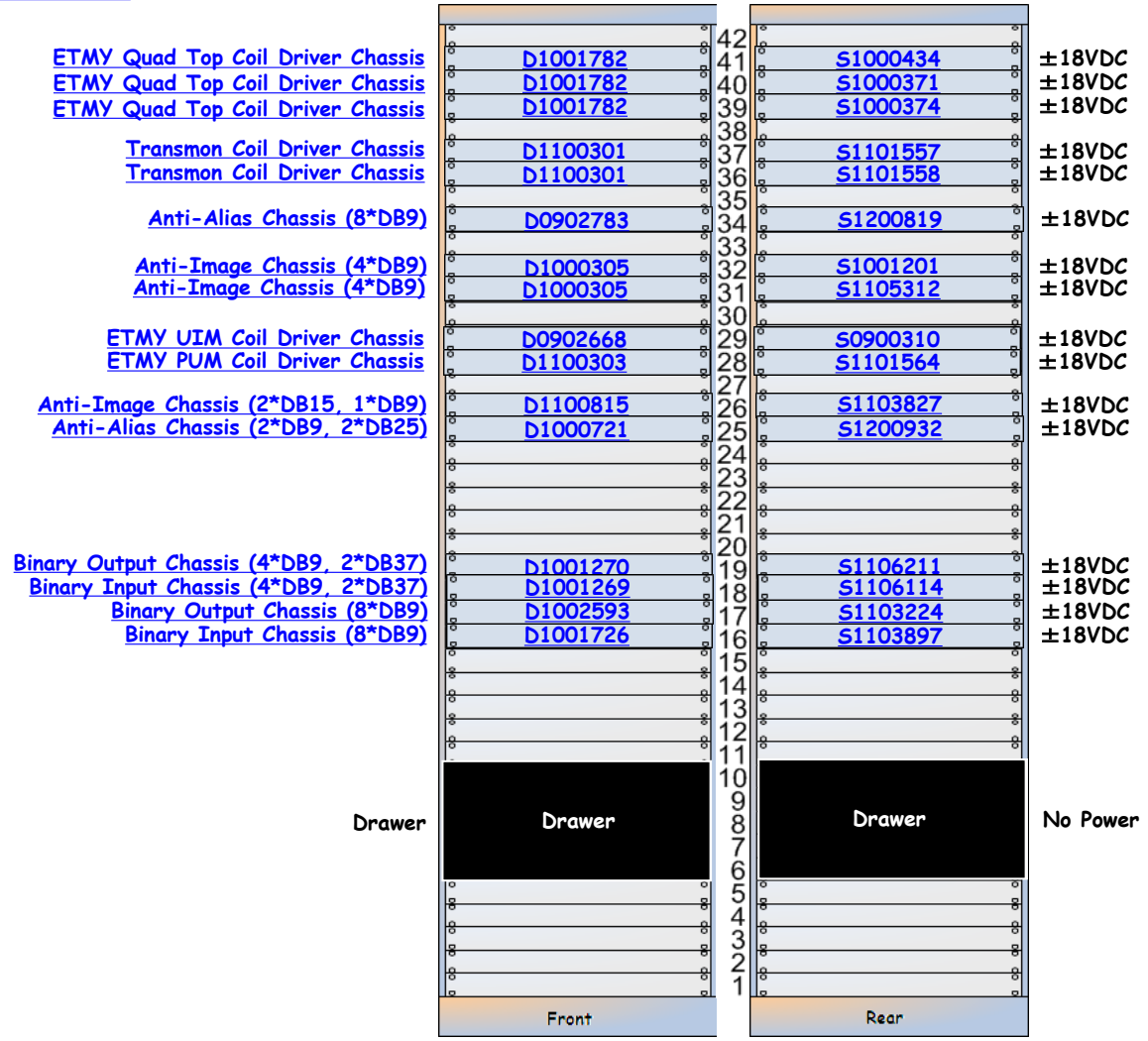
S1103328

Rear

L1-SUS-YC1

<< CERY Racks
<< YEND Racks and Tables

L1-SUS-YC1 (ETM) YEND Remote Rack 1 (of 2) Layout (D1201089) (S1202953)



SUS-YC1 is part of D1002741.

SUS Anti-Alias Chassis D1000721 S1201127 ±18VDC

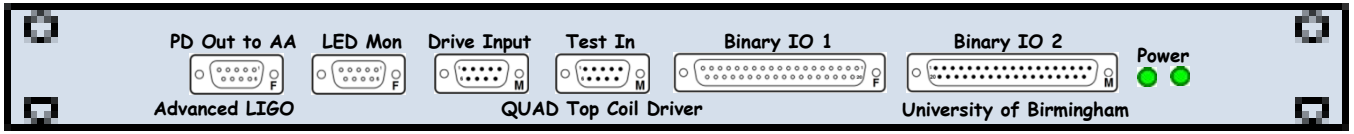
L1-SUS-YC1 Details

SUS-YC1 is part of D1002741.

D1001782 - S1000434

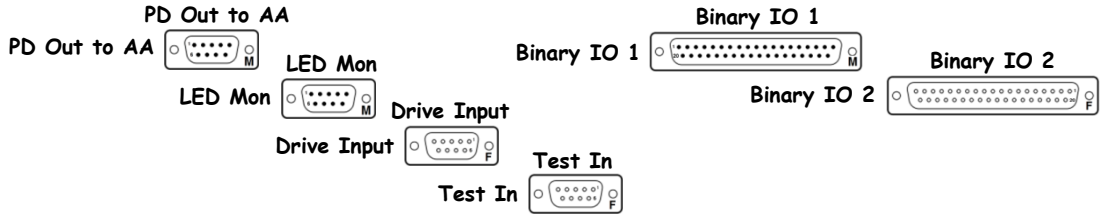
LIGO
<< L1-SUS-YC1

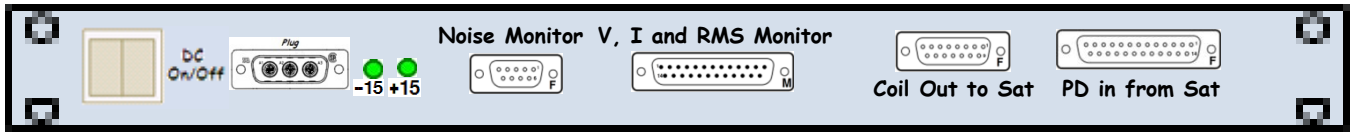
ETMX Quad Top Coil Driver Chassis | D1001782 | S1000434 | ±18VDC



D1001782

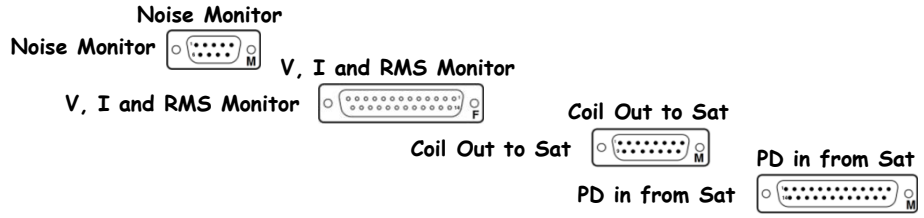
Front





S1000434

Rear

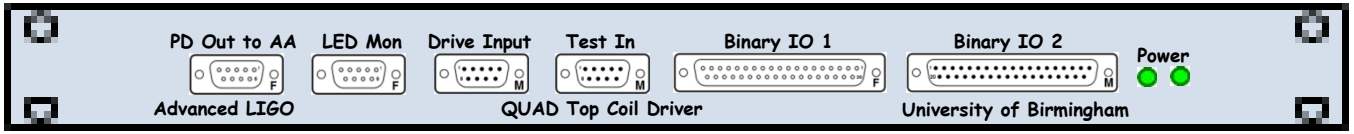


Driver Board: D0902747
Monitor Board: D070480

D1001782 - S1000371

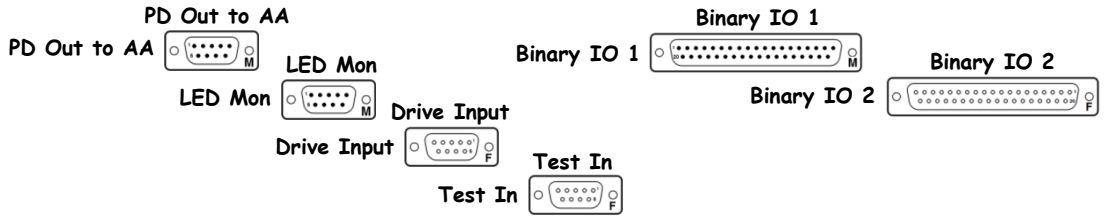
[<< L1-SUS-YC1]

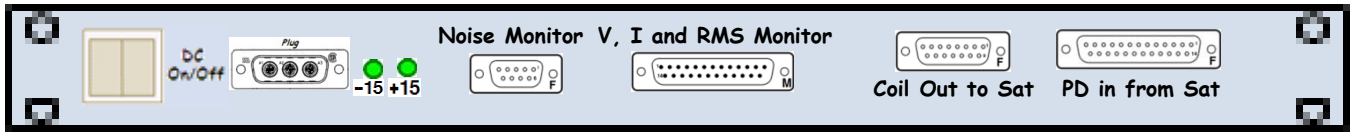
ETMX Quad Top Coil Driver Chassis [D1001782] [S1000371] ±18VDC



[D1001782]

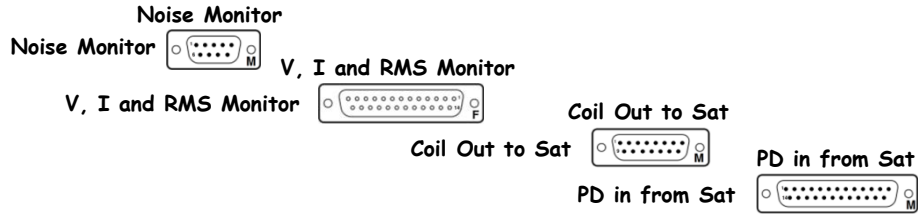
Front





[S1000371]

Rear

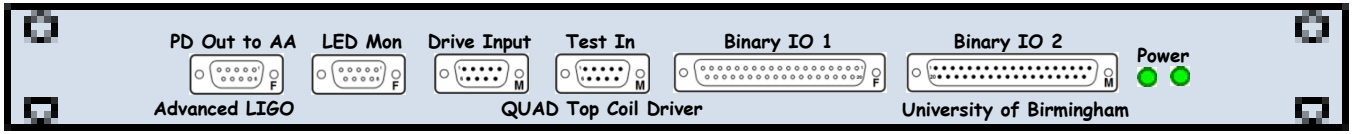


[Driver Board: D0902747]
[Monitor Board: D070480]

D1001782 - S1000374

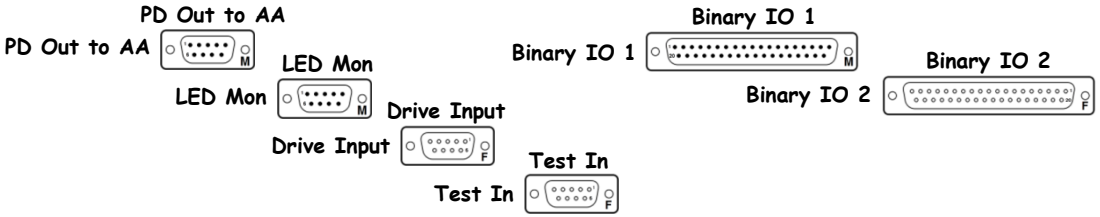
[<< L1-SUS-YC1]

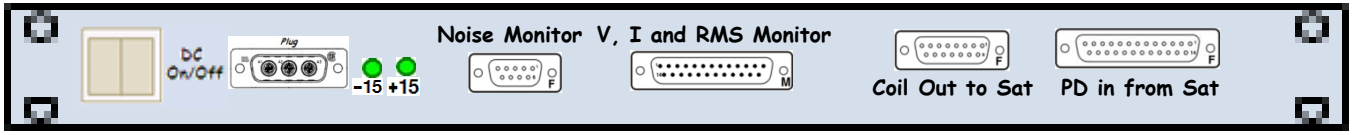
ETMX Quad Top Coil Driver Chassis [D1001782] [S1000374] ±18VDC



[D1001782]

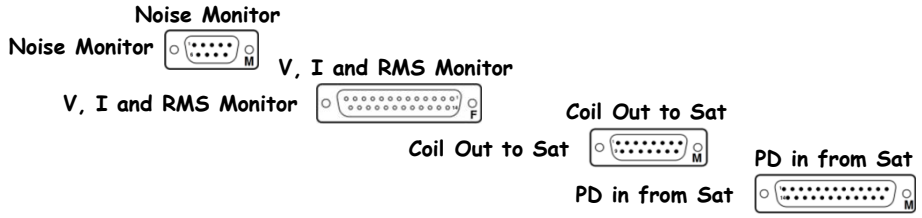
Front





[S1000374]

Rear



[Driver Board: D0902747]
[Monitor Board: D070480]

D1100301 - S1101557

LIGO
<< L1-SUS-YC1

Transmon Coil Driver Chassis | D1100301 | S1101557 | ±18VDC

D1100301

Front

S1101557

Rear

D1100301 - S1101558

LIGO
<< L1-SUS-YC1

Transmon Coil Driver Chassis | D1100301 | S1101558 | ±18VDC

D1100301

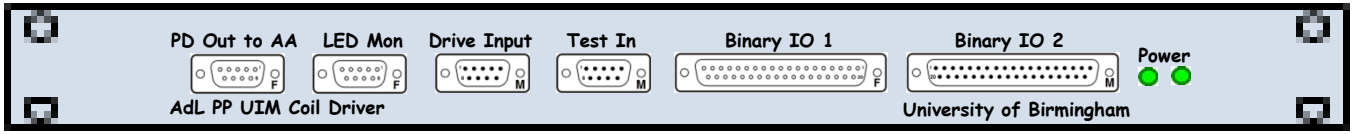
Front

S1101558

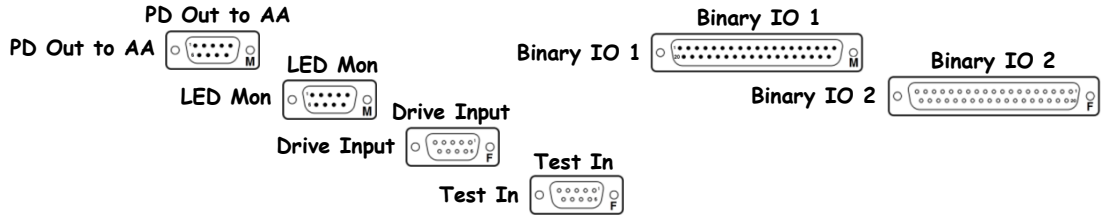
Rear

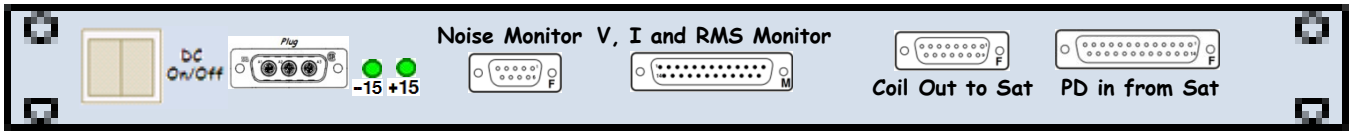
D0902668 - S0900310

ETMX UIM Coil Driver Chassis | D0902668 | S0900310 | ±18VDC



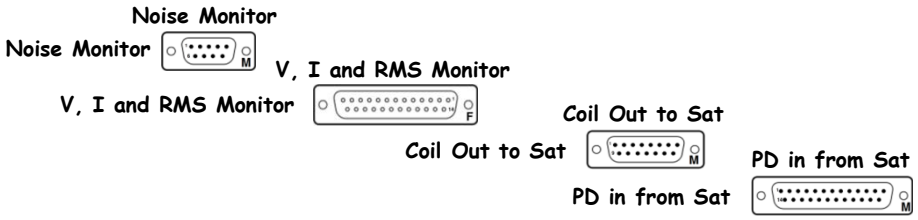
D070481
D070480
Front





S0900310

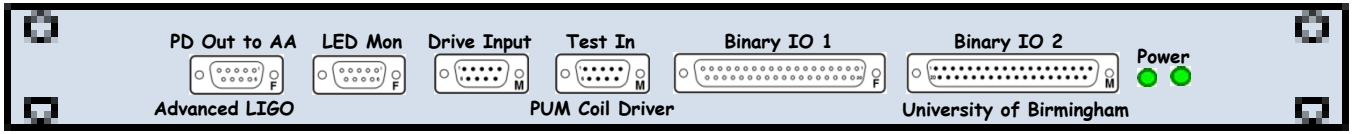
Rear



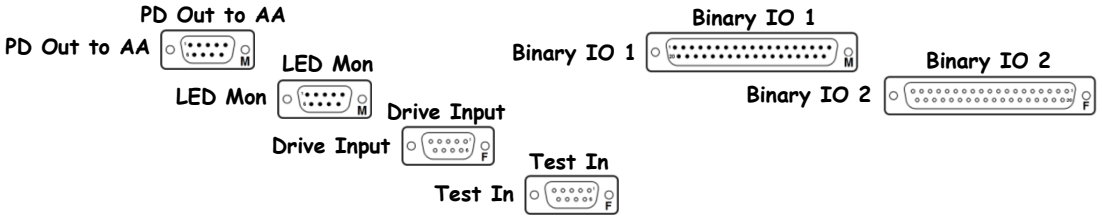
D1100303 - S1101563

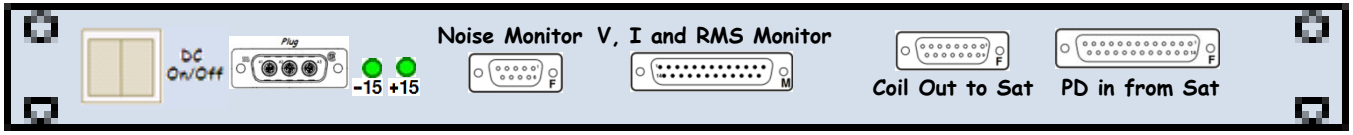
« L1-SUS-YC1

ETMX PUM Coil Driver Chassis D1100303 S1101564 ±18VDC



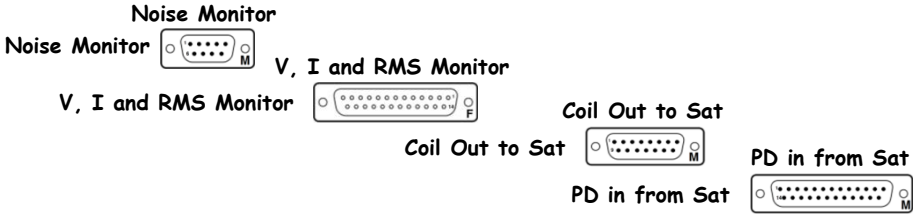
D070483
D070480
Front





S1101564

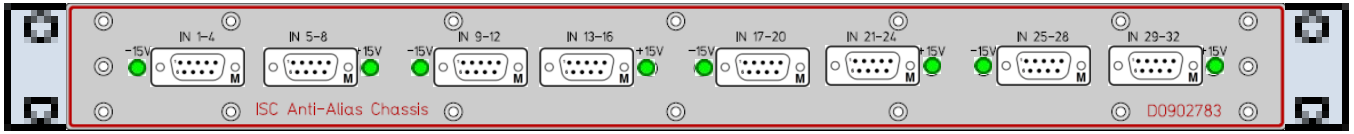
Rear



D0902783 - S1200819

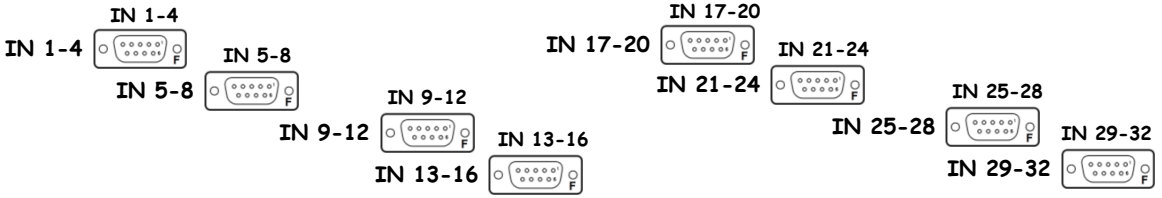
« L1-SUS-YC1

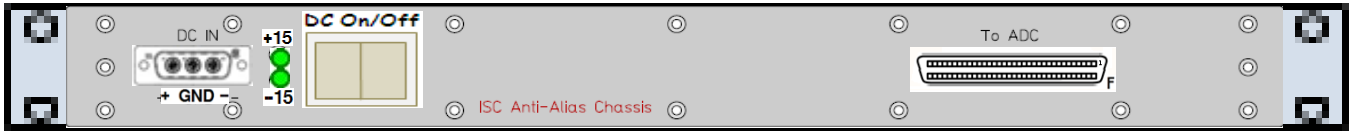
Anti-Alias Chassis (8*DB9) | D0902783 | S1200819 | ±18VDC



D0902783

Front





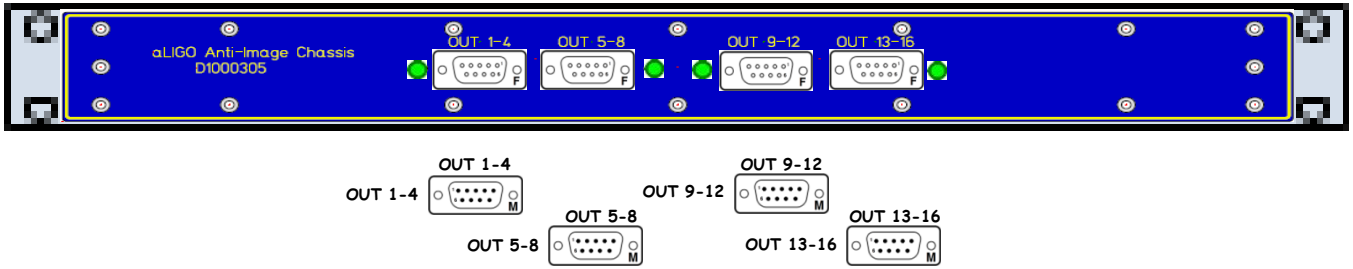
S1200819

Rear

D1000305 - S1001201

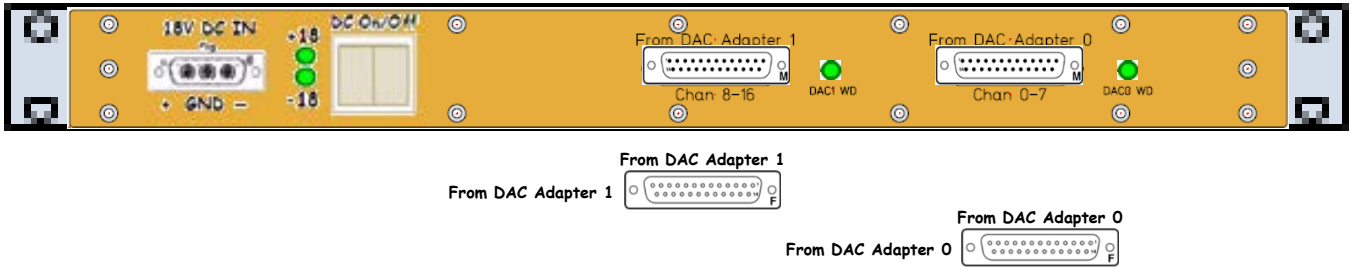
« L1-SUS-YC1

Anti-Image Chassis (4*DB9) | D1000305 | S1001201 | ±18VDC



D1000305

Front



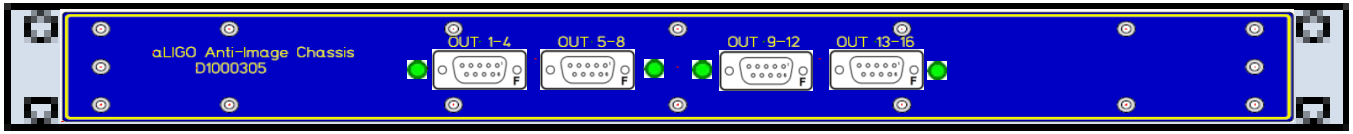
S1001201

Rear

D1000305 - S1105312

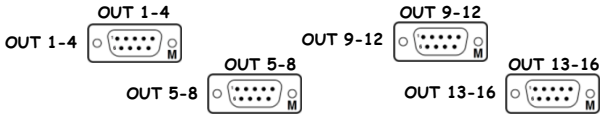
[<< L1-SUS-YC1]

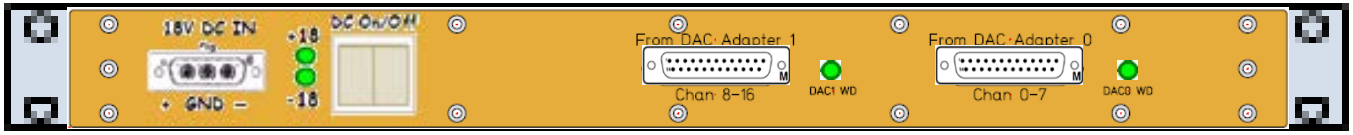
Anti-Image Chassis (4*DB9) | D1000305 | S1105312 | ±18VDC



D1000305

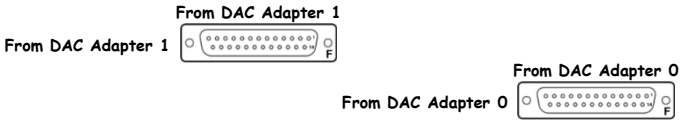
Front





S1105312

Rear

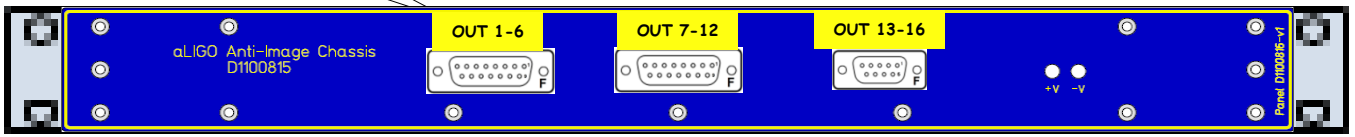


D1100815 – S1103827

« L1-SUS-YC1

Anti-Image Chassis (2*DB15, 1*DB9) | D1100815 | S1103827 | ±18VDC

D1100815 is an AI, which means it has OUTPUTS, not INPUTS. The labels are incorrect.



D1100815

Front

OUT 1-6

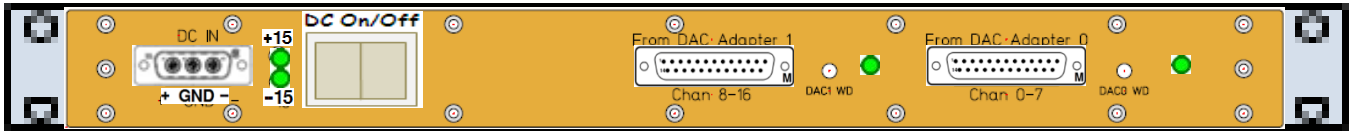
OUT 1-6

OUT 7-12

OUT 7-12

OUT 13-16

OUT 13-16



S1103827

Rear

From DAC Adapter 1

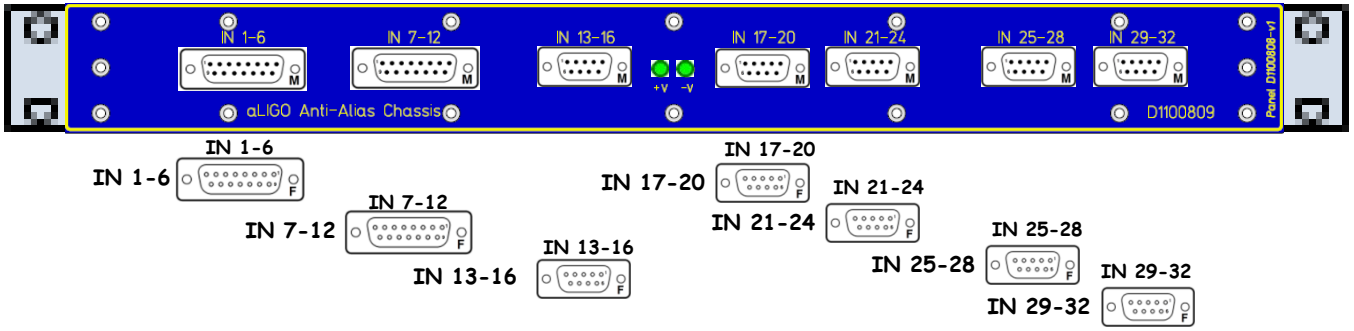
From DAC Adapter 1

From DAC Adapter 0

From DAC Adapter 0

D1100809 - S1104075

Anti-Alias Chassis (2*DB15, 5*DB9) D1100809 S1104075 ±18VDC



D1100809

Front

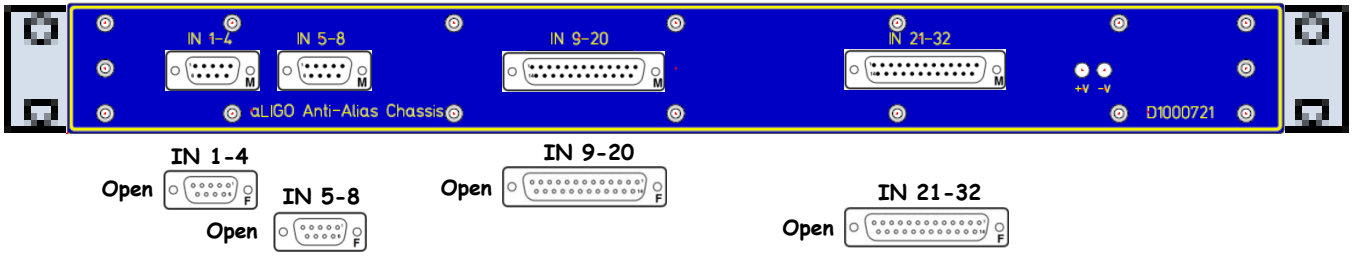
S1104075

Rear

D1000721 - S1200932

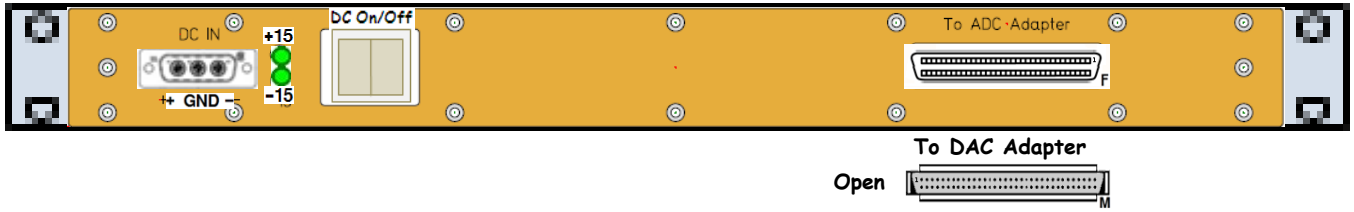
[<< L1-SUS-YC1]

Anti-Alias Chassis (2*DB9, 2*DB25) | D1000721 | S1200932 | ±18VDC



D1000721

Front



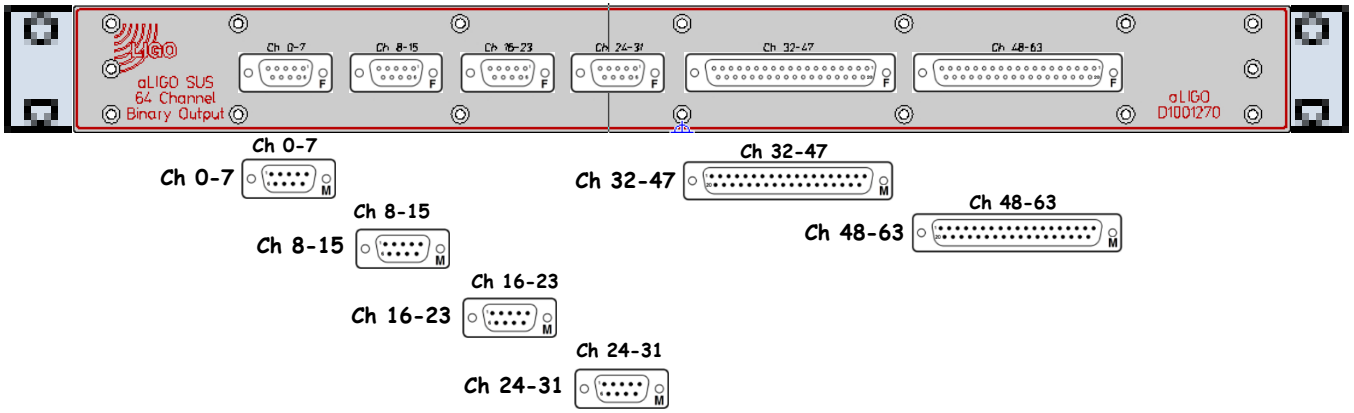
S1200932

Rear

D1001270 – S1106211

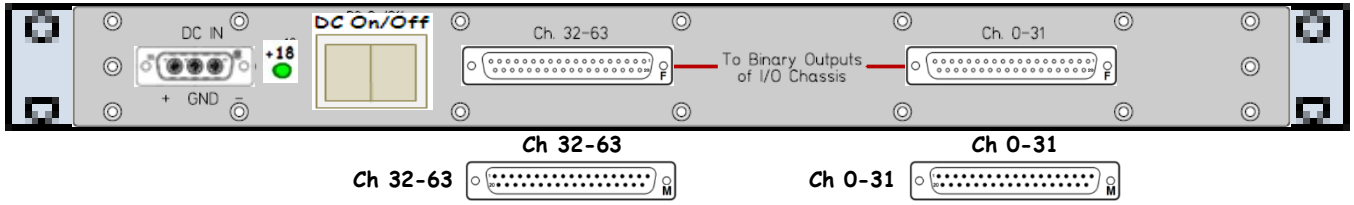
« L1-SUS-YC1

Binary Output Chassis (4*DB9, 2*DB37) | D1001270 | S1106211 | ±18VDC



D1001270

Front



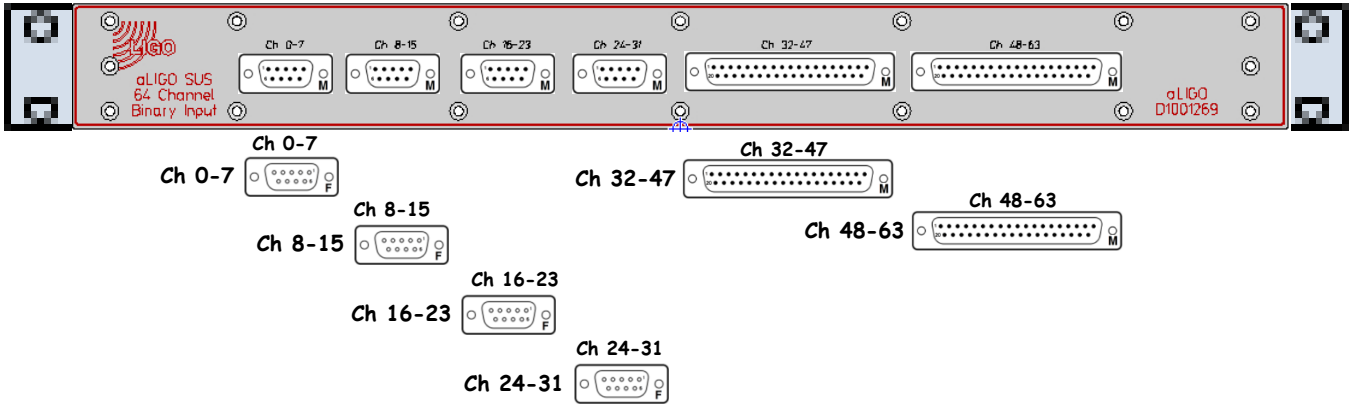
S1106211

Rear

D1001269 – S1106114

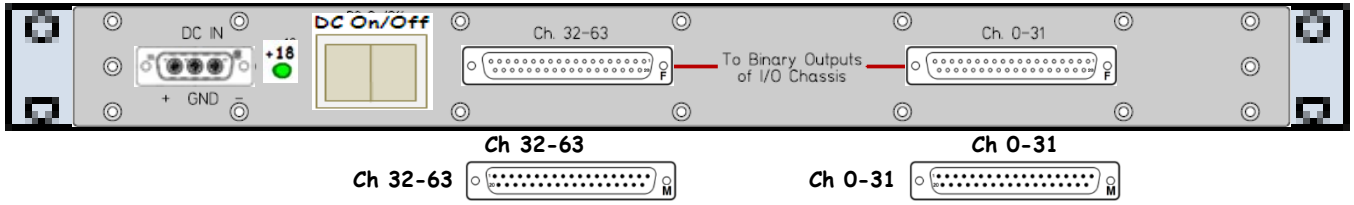
« L1-SUS-YC1

Binary Input Chassis (4*DB9, 2*DB37) | D1001270 | S1106114 | ±18VDC



D1001270

Front



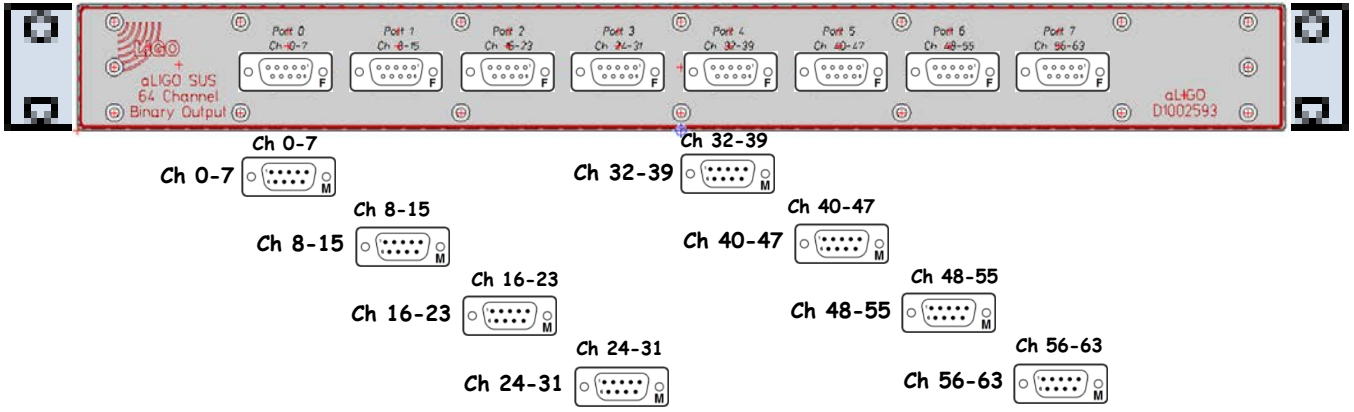
S1106114

Rear

D1002593 - S1103224

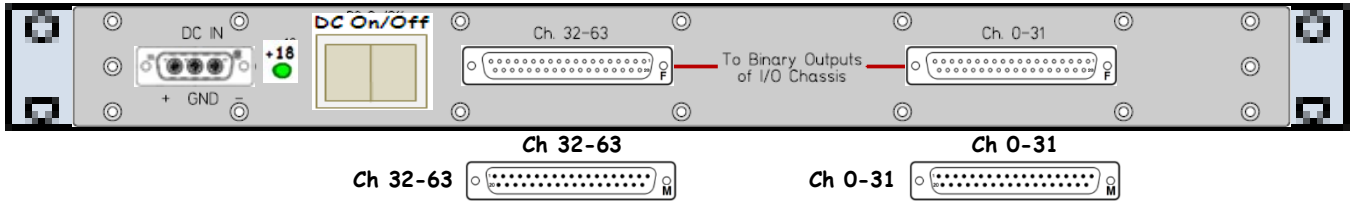
[<< L1-SUS-YC1]

Binary Output Chassis (8*DB9) | D1002593 | S1103224 | ±18VDC



D1002593

Front



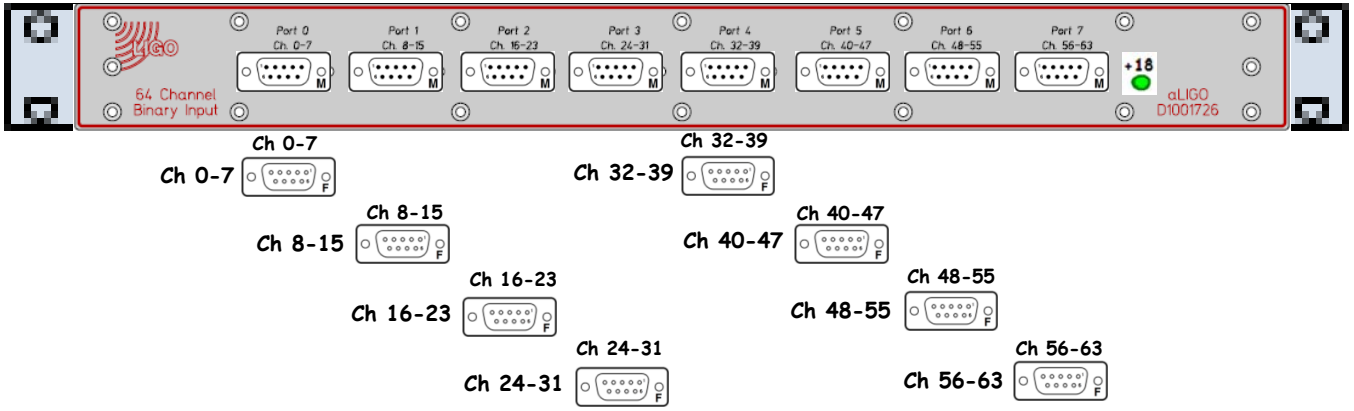
S1103224

Rear

D1001726 - S1103897

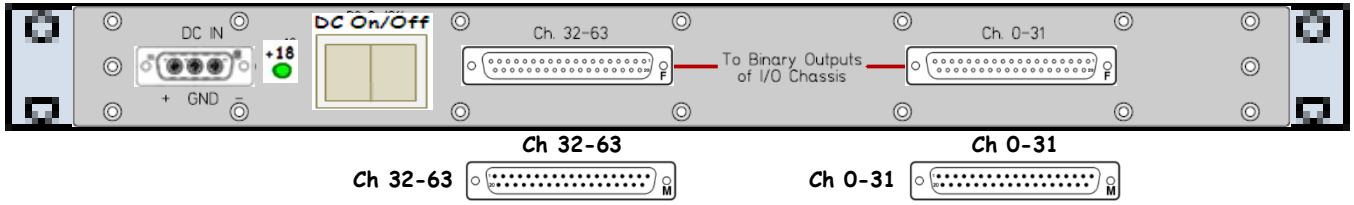
[<< L1-SUS-YC1]

Binary Input Chassis (8*DB9) | D1001726 | S1103897 | ±18VDC



D1001726

Front



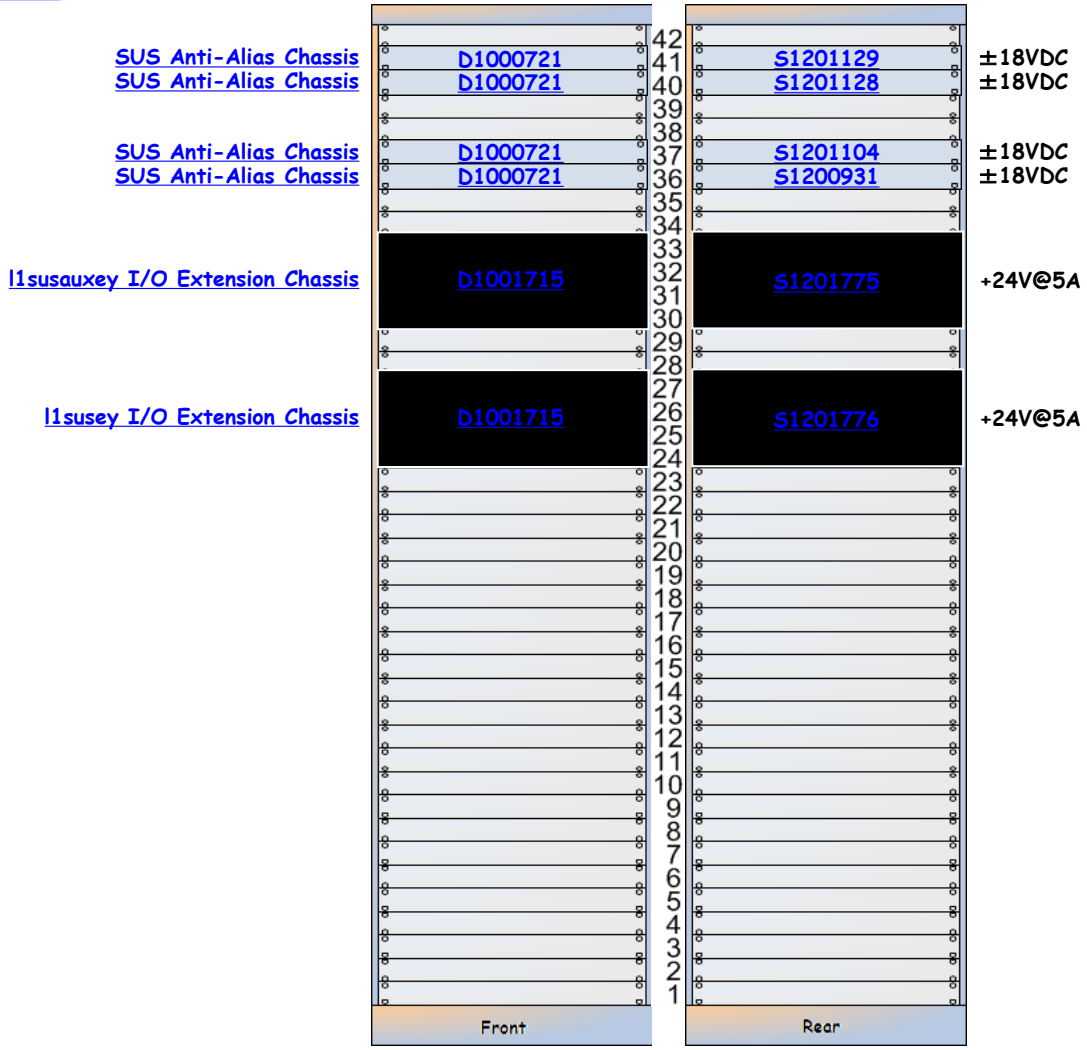
S1103897

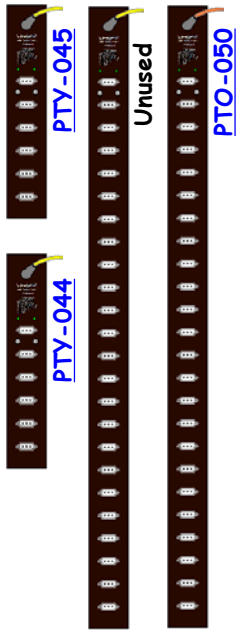
Rear

L1-SUS-YC2

<< CERY Racks
<< YEND Racks and Tables

L1-SUS-YC1 (ETM) YEND Remote Rack 1 (of 2) Layout (D1201090) (S1202954)





SUS-YC2 is part of D1002741.

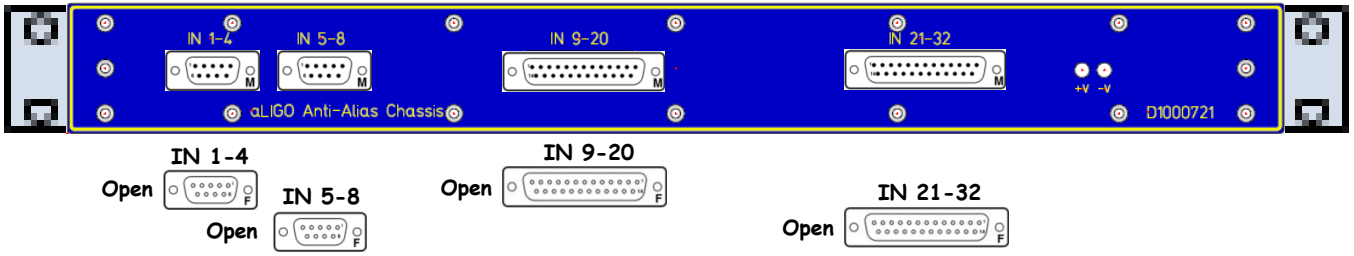
L1-SUS-YC2 Details

SUS-YC2 is part of D1002241.

D1000721 - S1201129

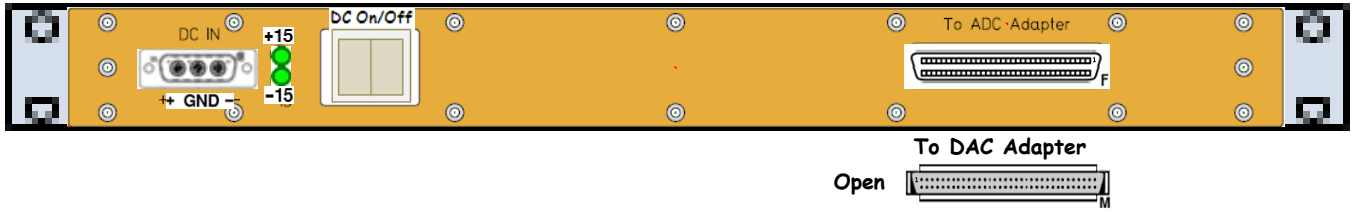
LIGO
<< L1-SUS-YC2

SUS Anti-Alias Chassis | D1000721 | S1201129 | ±18VDC



D1000721

Front



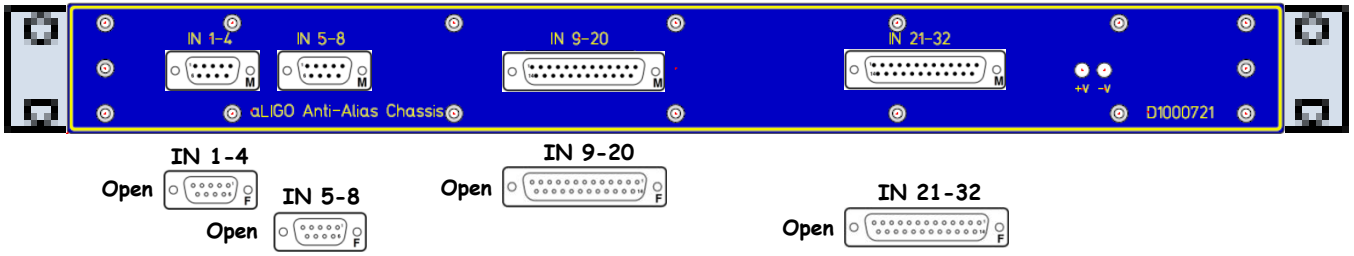
S1201129

Rear

D1000721 - S1201128

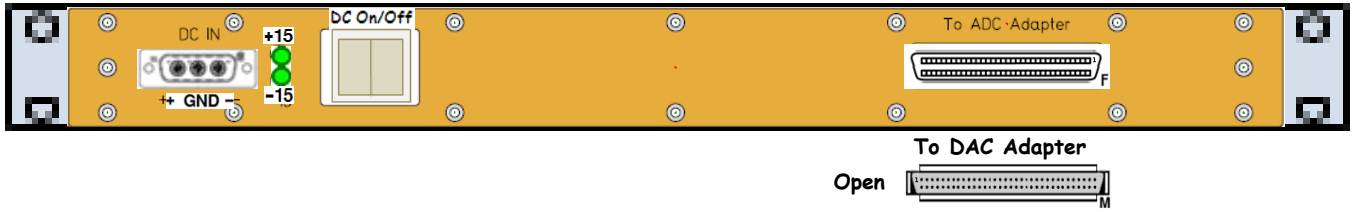
LIGO
<< L1-SUS-YC2

SUS Anti-Alias Chassis | D1000721 | S1201128 | ±18VDC



D1000721

Front



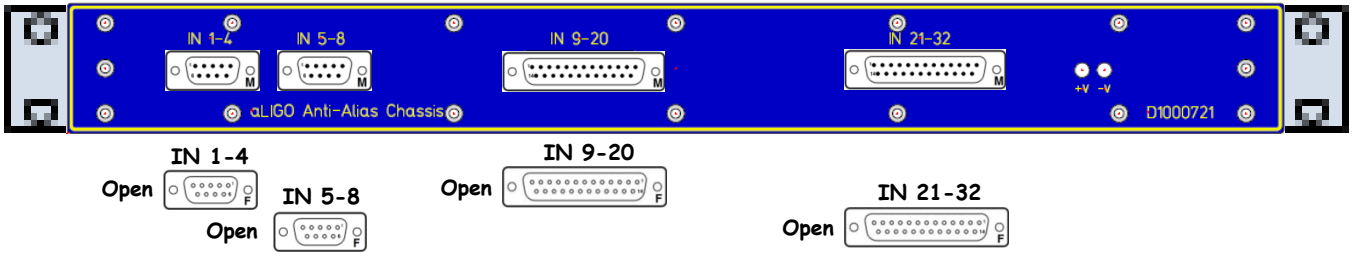
S1201128

Rear

D1000721 - S1201104

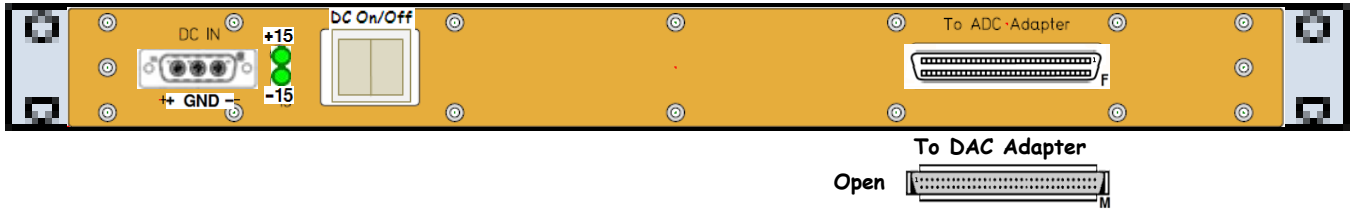
LIGO
<< L1-SUS-YC2

SUS Anti-Alias Chassis | D1000721 | S1201104 | ±18VDC



D1000721

Front



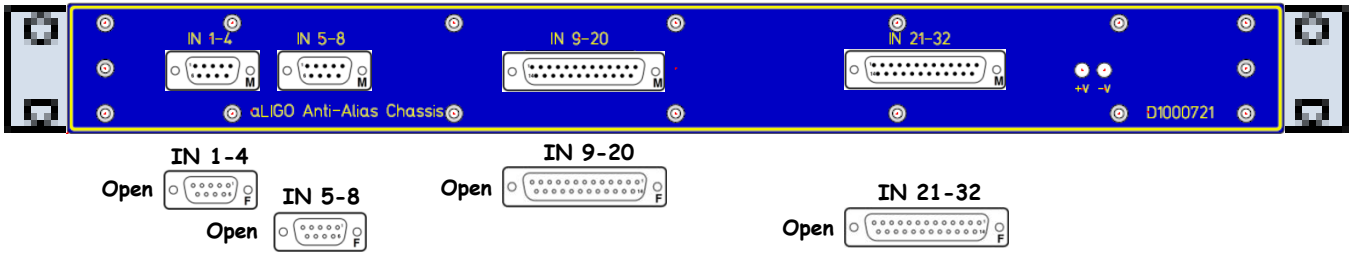
S1201104

Rear

D1000721 - S1200931

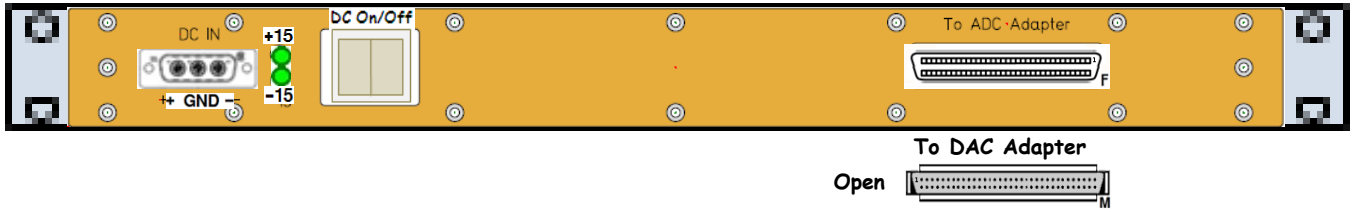
LIGO
<< L1-SUS-YC2

SUS Anti-Alias Chassis | D1000721 | S1200931 | ±18VDC



D1000721

Front



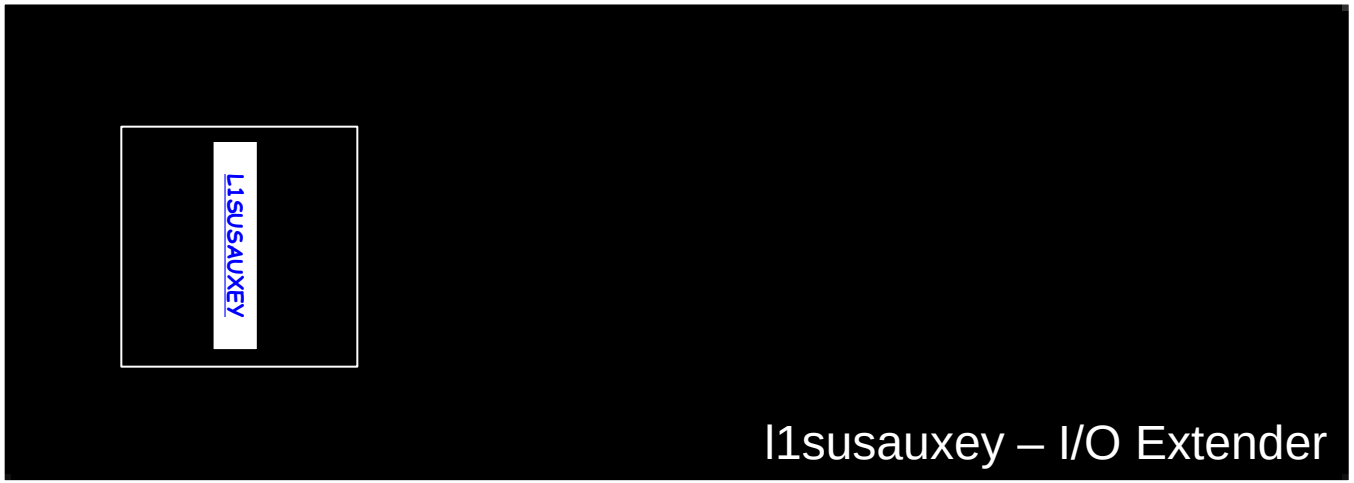
S1200931

Rear

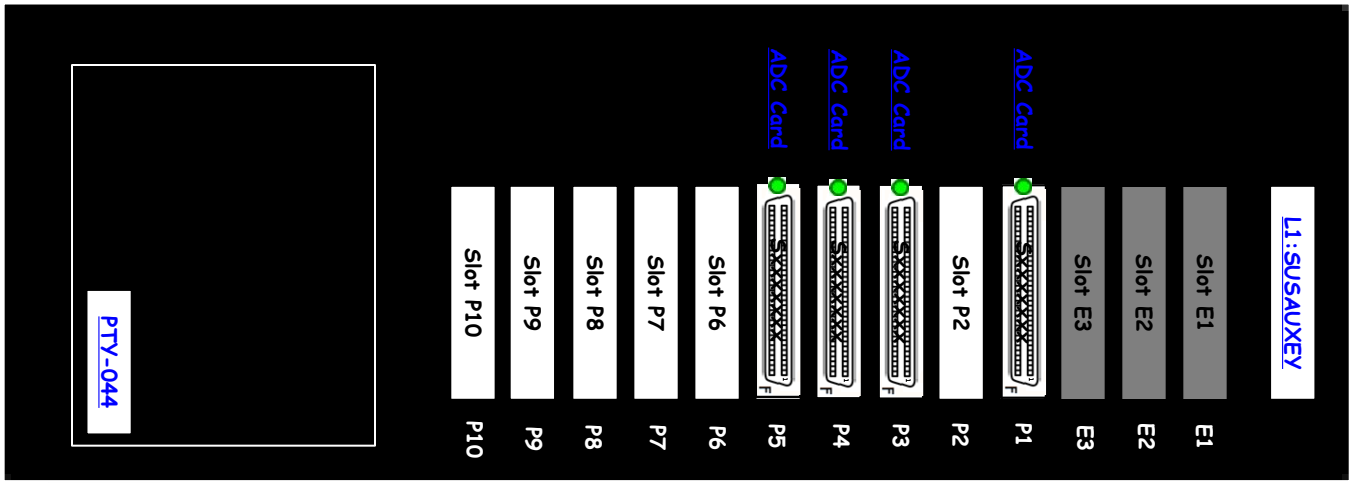
l1susauxey - D1001715 - S1201775

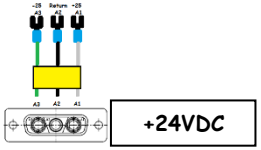
[<< L1-SUS-YC2]

l1susauxey I/O Extension Chassis | D1001715 | S1201775 | 110VAC

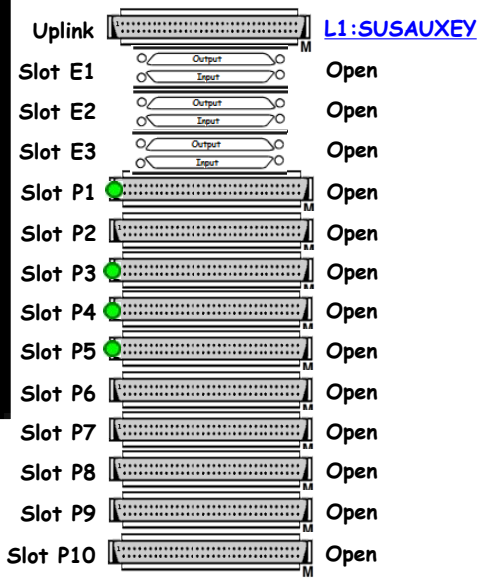


D1001715
Front





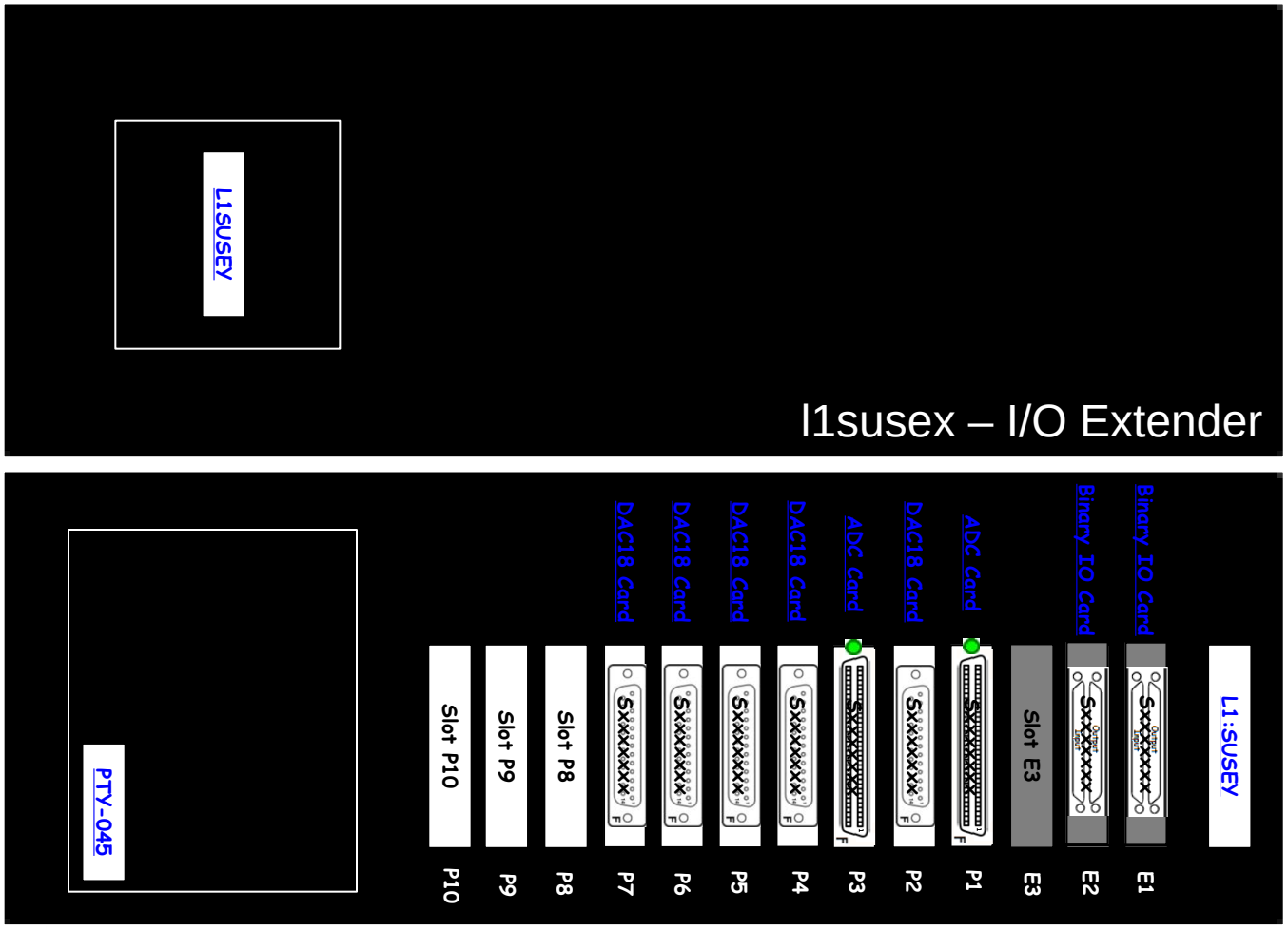
S1201775
Rear



l1susey – D1001715 – S1201776

[<< L1-SUS-YC2]

l1susey I/O Extension Chassis | D1001715 | S1201776 | 110VAC



D1001715
Front

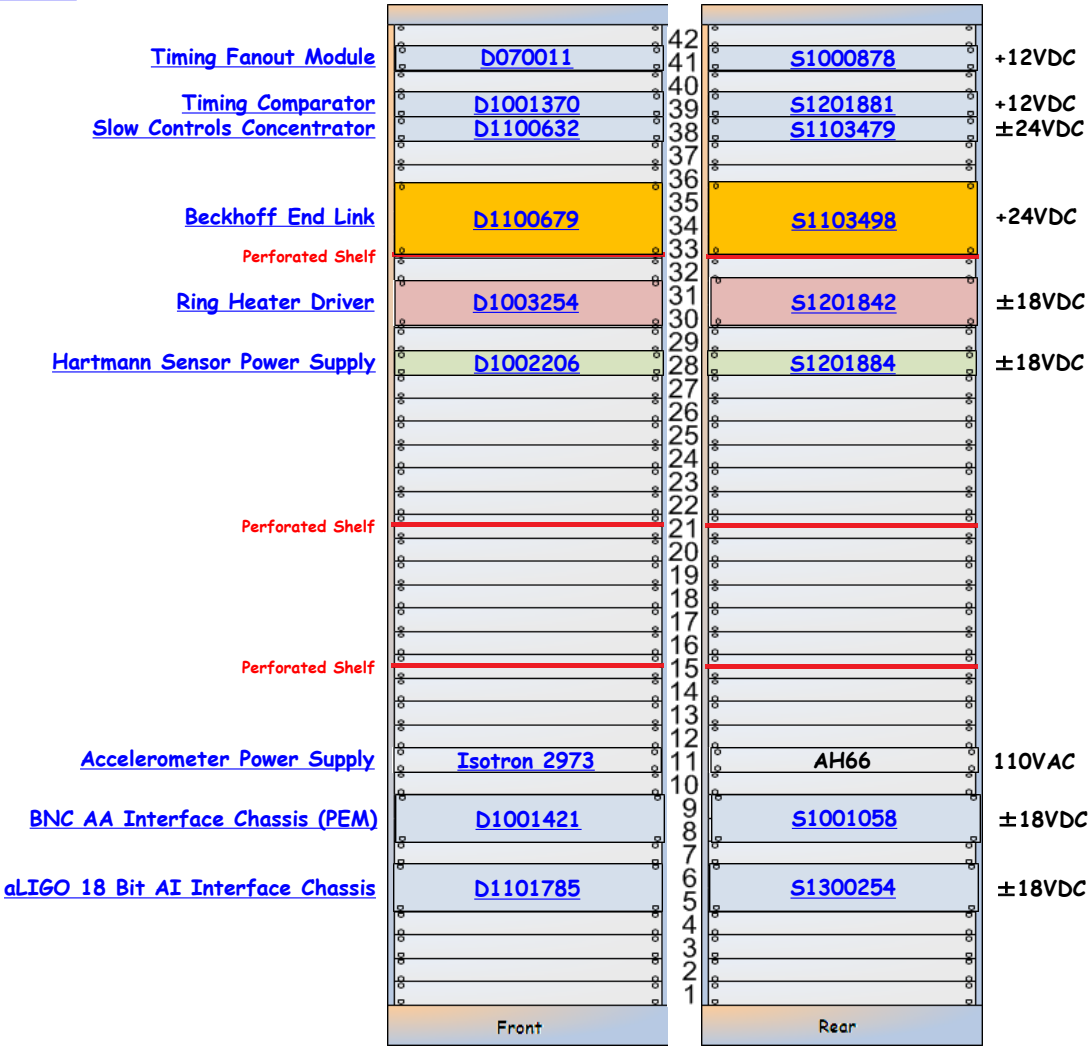
S1201776
Rear

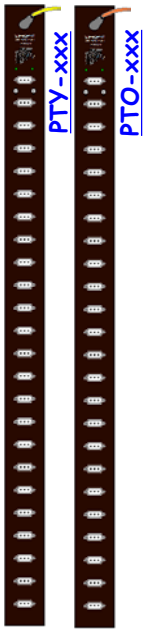
Uplink		L1:SUSEY
Slot E1		Open
Slot E2		Open
Slot E3		Open
Slot P1		Open
Slot P2		Open
Slot P3		Open
Slot P4		Open
Slot P5		Open
Slot P6		Open
Slot P7		Open
Slot P8		Open
Slot P9		Open
Slot P10		Open

L1-TCS-YC1

<< CERY Racks
<< YEND Racks and Tables

L1-TCS-YC1 YEND Remote Rack Layout (D1201130) (S1202981)





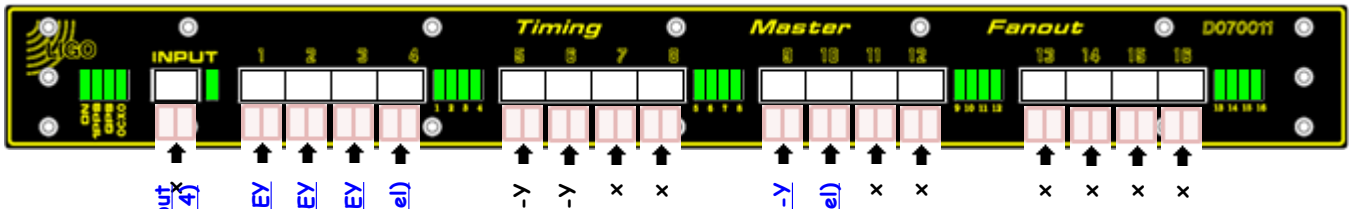
TCS-YC1 is part of D1200258
TCS-YC1 is part of E1100894

L1-TCS-YC1 Details

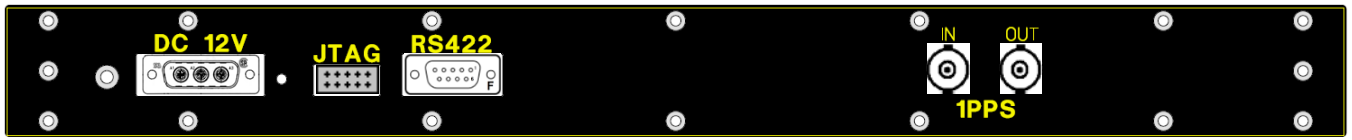
D070011 - S1000878

LIGO
<< L1-TCS-YC1

Timing Fanout Module | D070011 | S1000878 | +12VDC



D070011
Front



S1000878
Rear
Fanout

D1001370 - S1201881

LIGO
<< L1-TCS-YC1

Timing Comparator | D1001370 | S1201881 | +12VDC

D1001370

Front

Comparator Link (No Label)

S1201881

Rear

D1100632 - S1103479

LIGO
<< L1-TCS-YC1

Slow Controls Concentrator | D1100632 | S1103479 | ±18VDC

D1100632

Front

S1103479

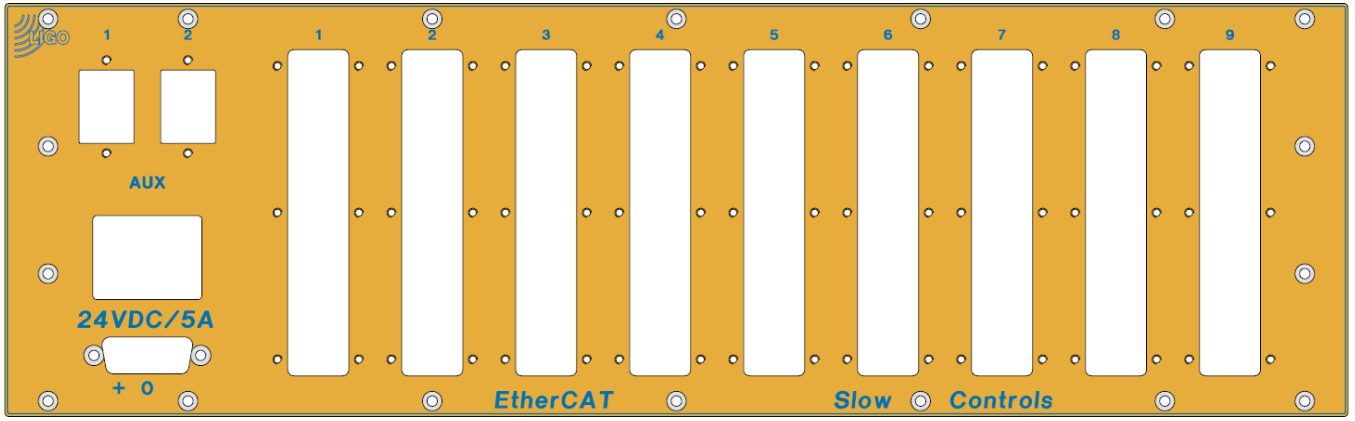
Rear

D1100679 - S1103498

LIGO
<< L1-TCS-YC1

Beckhoff End Link | D1100679 | S1103498 | +24VDC

D1100679

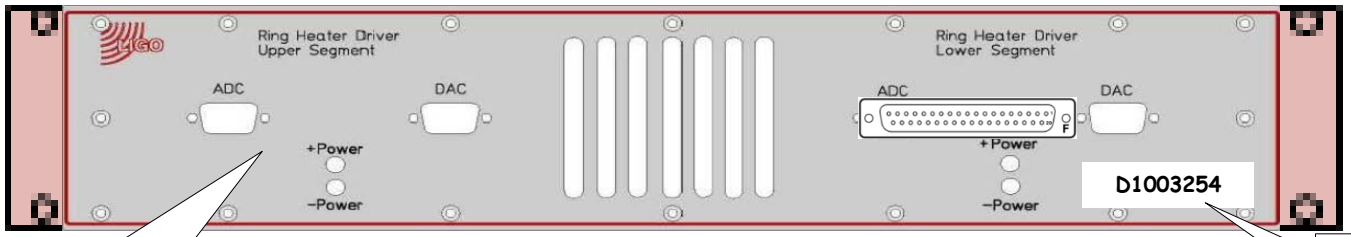


S1103498

D1003254 - S1201842

[<< L1-TCS-YC1]

Ring Heater Driver | D1003254 | S1201842 | ±18VDC



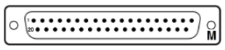
[D1003254]

Front

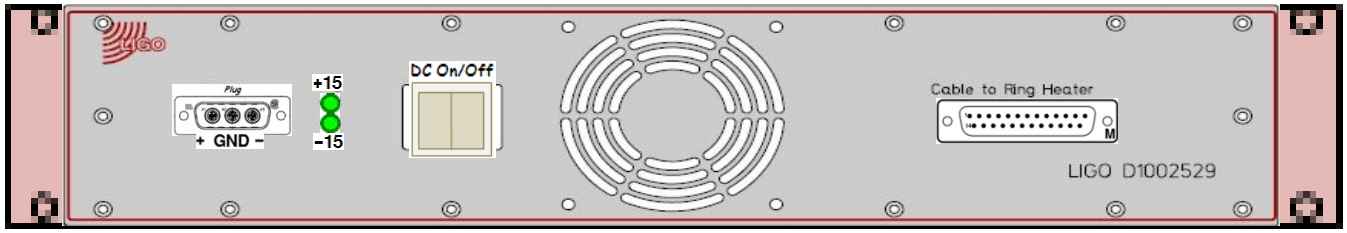
This is an early revision of the front panel. It now has one DB37M connector. 20121205 dlk

Description

Label



White label 20121205 dlk

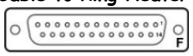


[S1201842]

Rear

Cable to Ring Heater

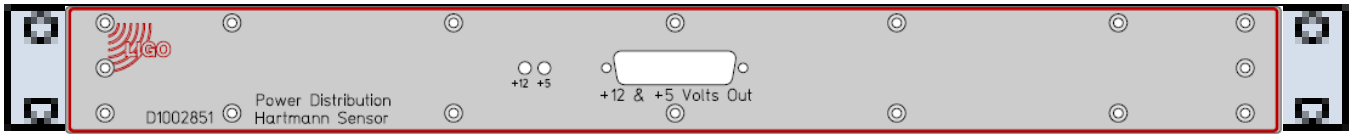
Label



D1102206 - S1201884

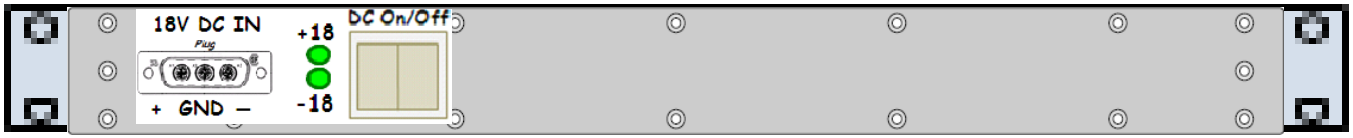
« L1-TCS-YC1

Hartmann Sensor Power Supply | D1102206 | S1201884 | +12VDC



D1102206

Front



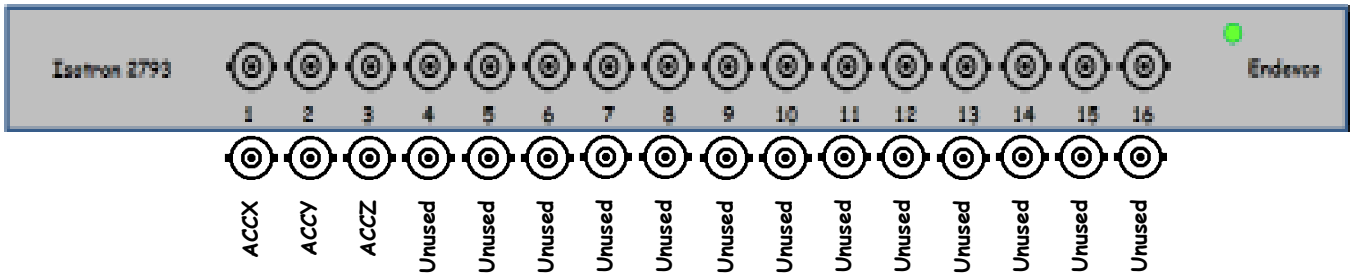
S1201884

Rear

Isotron 2793 - AH66

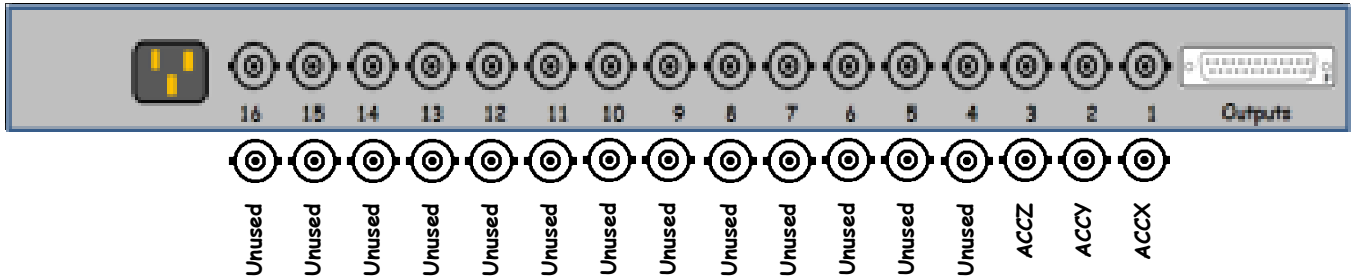
LIGO
<< L1-TCS-YC1

Accelerometer Power Supply | Isotron 2973 | AH66 | 110VAC



Isotron 2973

Front



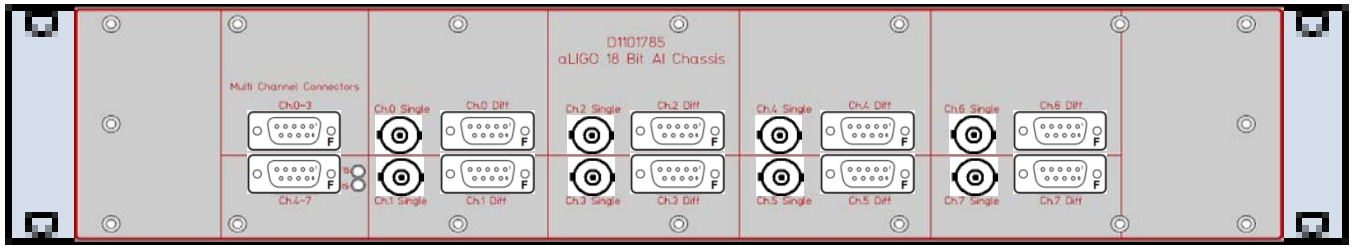
AH66

Rear

D1101785 - S1300254

[<< L1-TCS-YC1]

aLIGO 18 Bit AI Interface Chassis | D1101785 | S1300254 | ±18VDC



D1101785

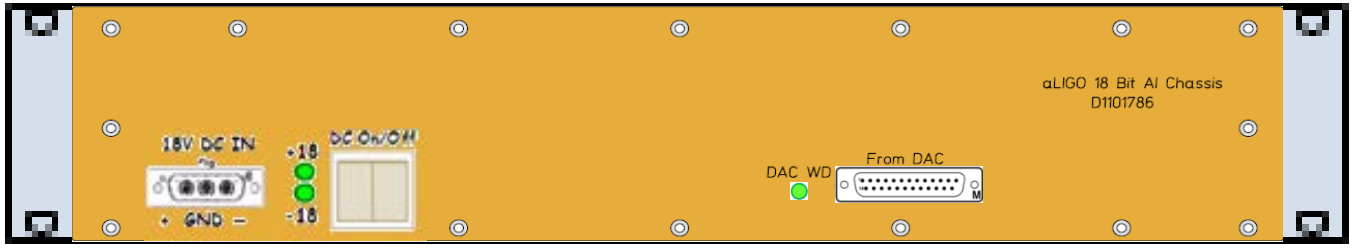
Front

Ch 0-3

Ch 0-3

Ch 4-7

Ch 4-7



S1300254

Rear

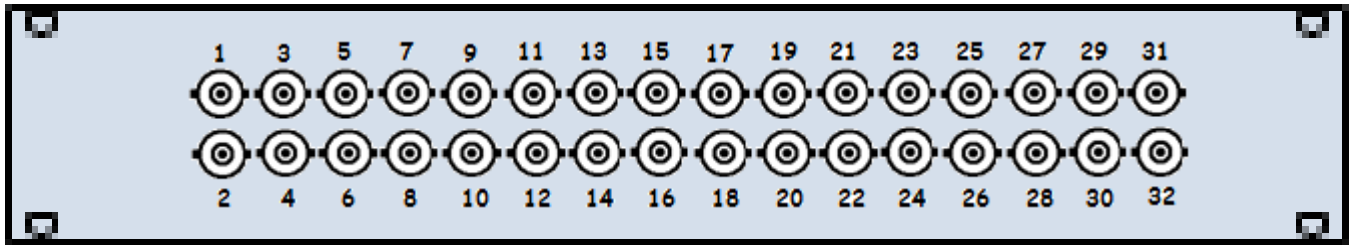
From DAC

From DAC

D1001421 - S1001058

LIGO
<< L1-TCS-YC1

BNC AA Interface Chassis (PEM) | D1001421 | S1001058 | ±18VDC



D1001421
Front

1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31
MAG X	MAG Z	2	Isotron 1	Isotron 3	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused

2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32
MAG Y	1	3	Isotron 2	BSC5 MIC	BSC5 TEMP	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused

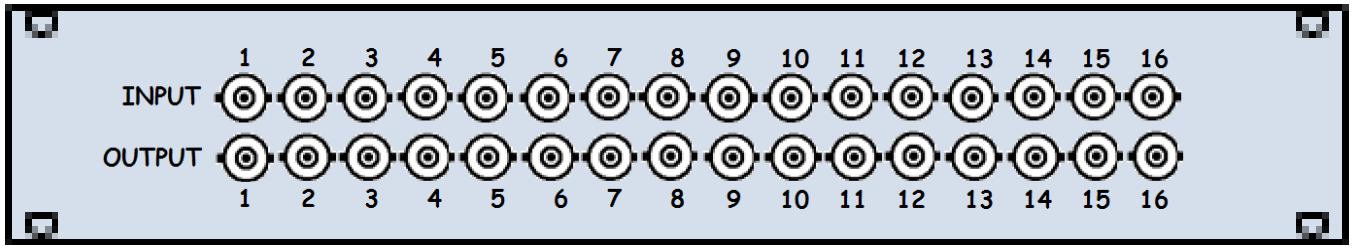
S1001058
Rear

To ADC Adapter
To l1pemey Slot P1

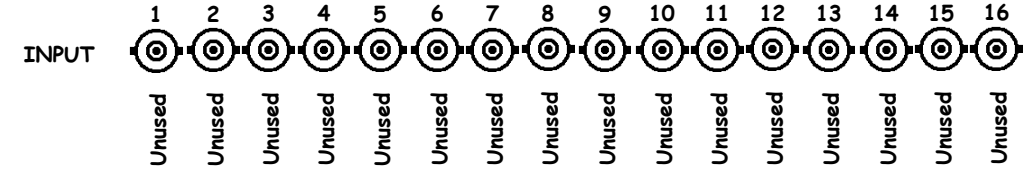
D1101363 – Sxxxxxxx

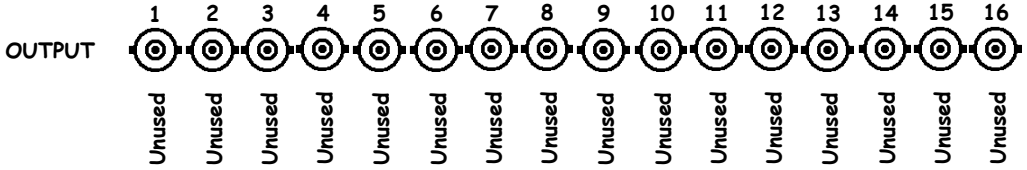
LIGO
<< L1-TCS-YC1

aLIGO Accelerometer Interface Chassis | D1101363 | SN: | Power



D1101363
Front





SN:
Rear

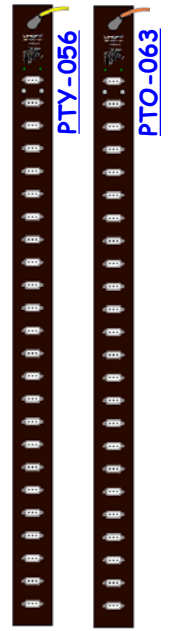
L1-ISC-YR1

[<< YEND Racks and Tables]

L1-ISC-YR1 YEND Station Field Rack Layout (D1201094) (S1202958)

D1200757 Sequencer S1202552

	Front		Rear	
42	Dxxxxxxx		Sxxxxxxx	No Power
41				
40	Dxxxxxxx		Sxxxxxxx	No Power
39				
38	D0900128	24.5 MHz Delay Line Phase Shifter	S1103430	±15VDC
37				
36	D1000181	2 Channel RFPD I/Q Demod (RC & ALS)	S1000786	±17VDC, ±24VDC
35	D1201470	WFS Demodulator Patch Panel	Sxxxxxxx	No Power
34	D0900605	79.4 MHz VCO (ALS)	S1200581	±17VDC, ±24VDC
33				
32	D1002182	39.7 MHz Frequency Divider	S1000753	±17VDC, ±24VDC
31	D1201294	RF Preamplifier	S1203938	??
30	D1002476	39.7 MHz 2 Channel Phase/Freq Discriminator	S1000768	±17VDC, ±24VDC
29				
28	D0901781	Common Mode Servo (ALS Laser Locking)	S1102647	±17VDC, ±24VDC
27				
26	D0901781	Common Mode Servo (ALS Cavity Locking)	S1102646	±17VDC, ±24VDC
25	D1100013	Oplev 8 Channel Whitening Filter Chassis	S1101543	±18VDC
24	D1100691	LSC Demod Concentrator 5	S1104010	±18VDC
23	D1100696	ASC Demod Concentrator 6	S1103988	No Power
22	D1102045	Auxiliary Signals Concentrator 2	S1200535	±17VDC
21	D1102065	Auxiliary Signals Concentrator 1	S1200552	±17VDC
20	D1201352	Auxiliary Signals Concentrator 5	S1300251	±17VDC
19	D1201450	Dual DSUB Breakout Panel	Sxxxxxxx	±17VDC, ±24VDC
18	D1100323	Picomotor Driver and Photodiode Amplifier	S1400007	±24VDC, ±24VDC
17	D1301017		S1107548	
16	D1002559	ISC Whitening Chassis	S1101581	±15VDC
15				
14	D0902796	QUAD I&Q Demodulator Module	S1001020	±15VDC
13	D1100956	LSC RFPD Demodulator Patch Panel	Sxxxxxxx	No Power
12	D0902796	QUAD I&Q Demodulator Module	S1001016	±15VDC
11				
10	D1002559	ISC Whitening Chassis	S1101573	±15VDC
9				
8	D1100749	Legacy WFS Interface Module	S1400282	±15VDC
7	D1100482	Differential to Single-Ended Converter	S1203308	±15VDC
6				
5	D1002559	ISC Whitening Chassis	S1101629	±15VDC
4	D1002481	Dual QPD Transimpedance Amplifier	S1301504	±15VDC
3	D1002481	Dual QPD Transimpedance Amplifier	S1102816	±15VDC
2	D1002559	ISC Whitening Chassis	S1101169	±15VDC
1				



ISC-YR1 is part of D1001423

L1-ISC-YR1

42
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4
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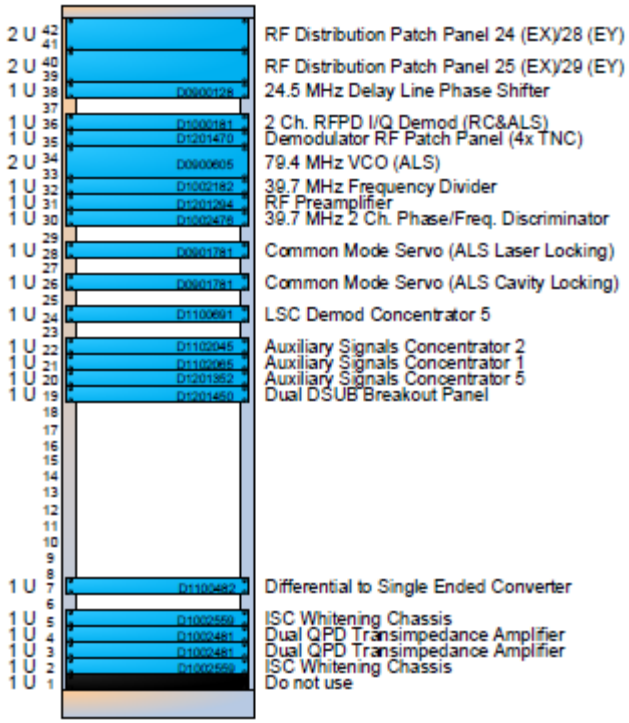
2
1

L1-ISC-XR1 Details

[<< VEAX Racks]

End Station ISC Field Rack Layout

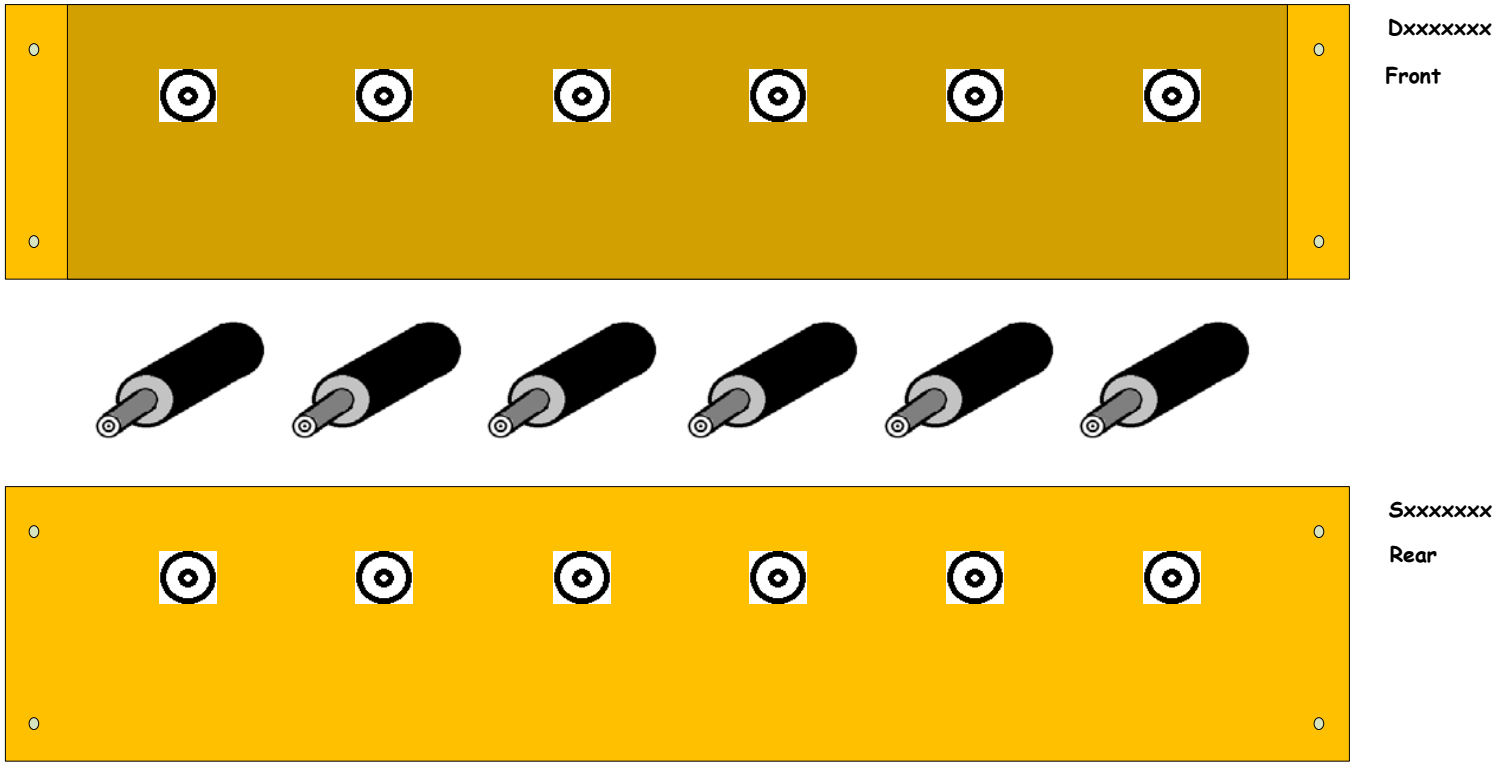
LIGO D1001423-v17



L1-ISC-YR1 Details

RF Distribution Panel 28

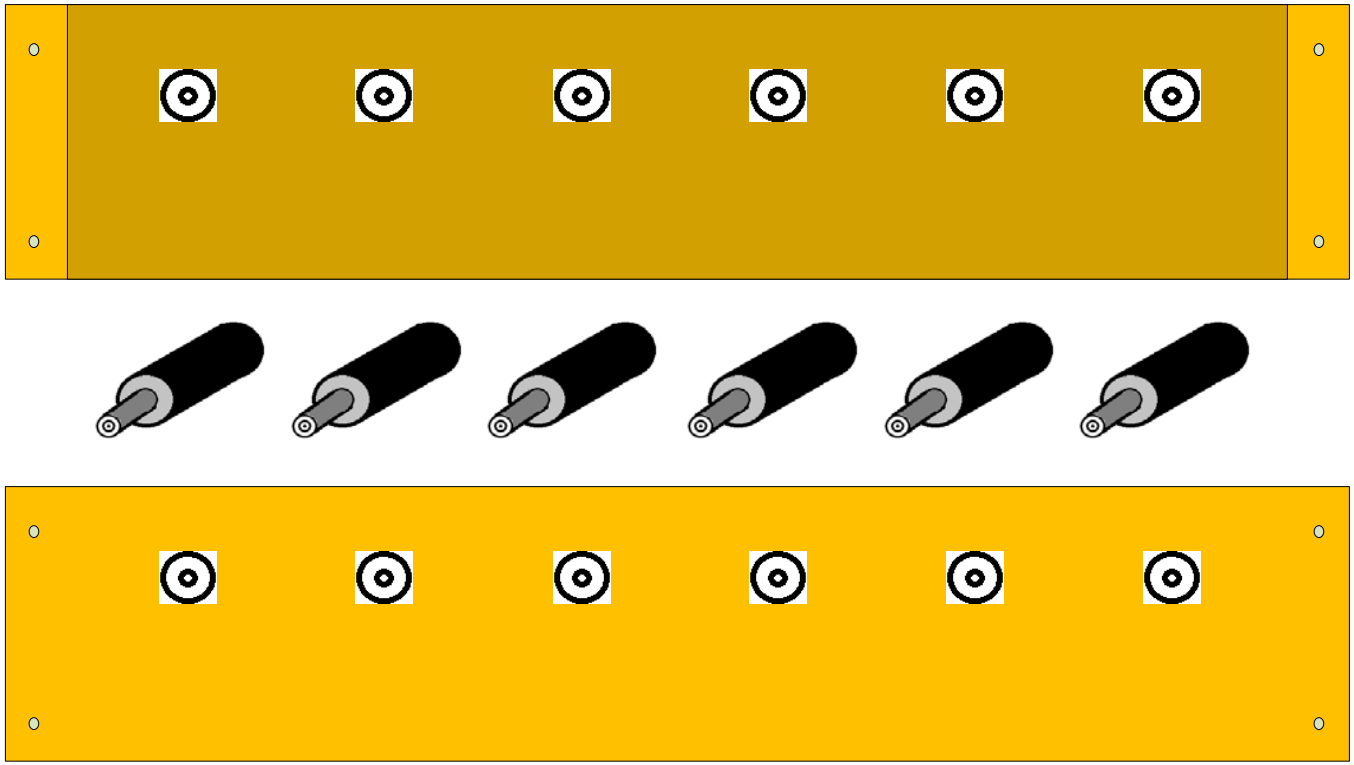
RF Distribution Panel 28 | Dxxxxxxx | Sxxxxxxx | No Power



RF Distribution Panel 29

[<< L1-ISC-YR1]

RF Distribution Panel 29 | Dxxxxxxx | Sxxxxxxx | No Power



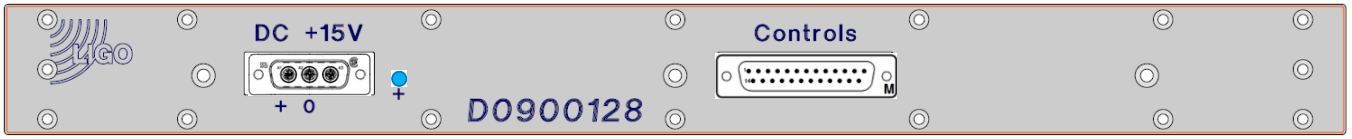
D0900128 - S1103430

[<< L1-ISC-YR1]

Delay Line Phase Shifter | D0900128 | S1103430 | +15VDC

D0900128

Front



S1103430

Rear

Controls

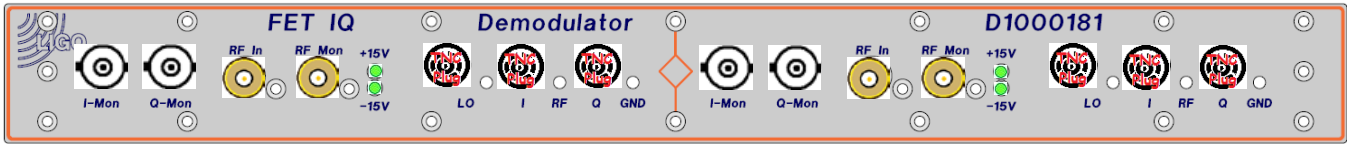
Controls

F

D1000181 - S1000786

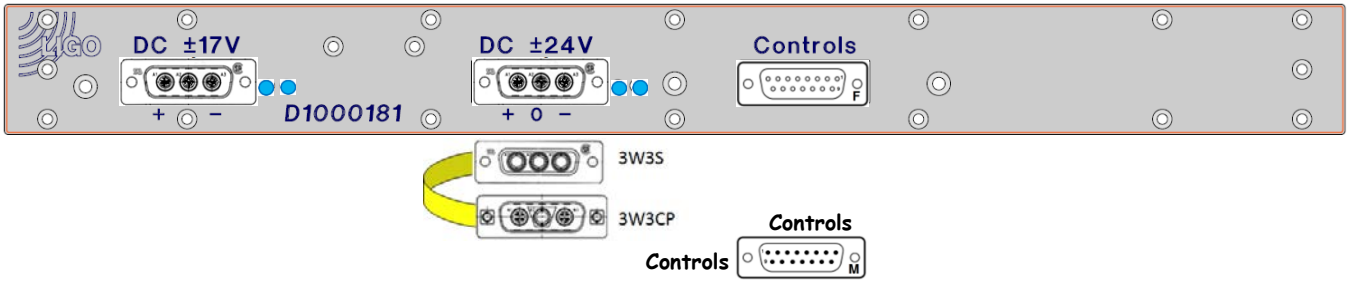
[<< L1-ISC-YR1]

2 Channel RFPD I/Q Demod (RC & ALS) | D1000181 | S1000786 | ±17VDC, ±24VDC



D1000181

Front



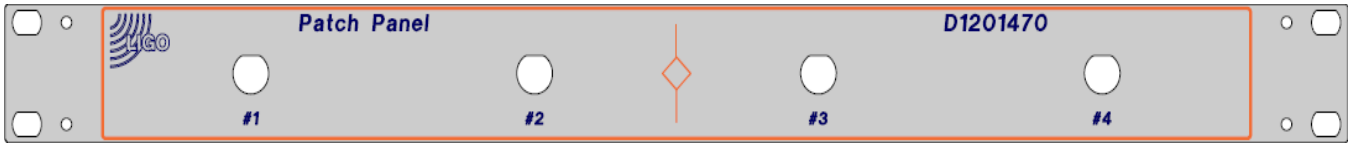
S1000786

Rear

D1201470 - Sxxxxxxx

[<< L1-ISC-YR1]

WFS Demodulator Patch Panel | D1201470 | Sxxxxxxx | No Power



D1201470

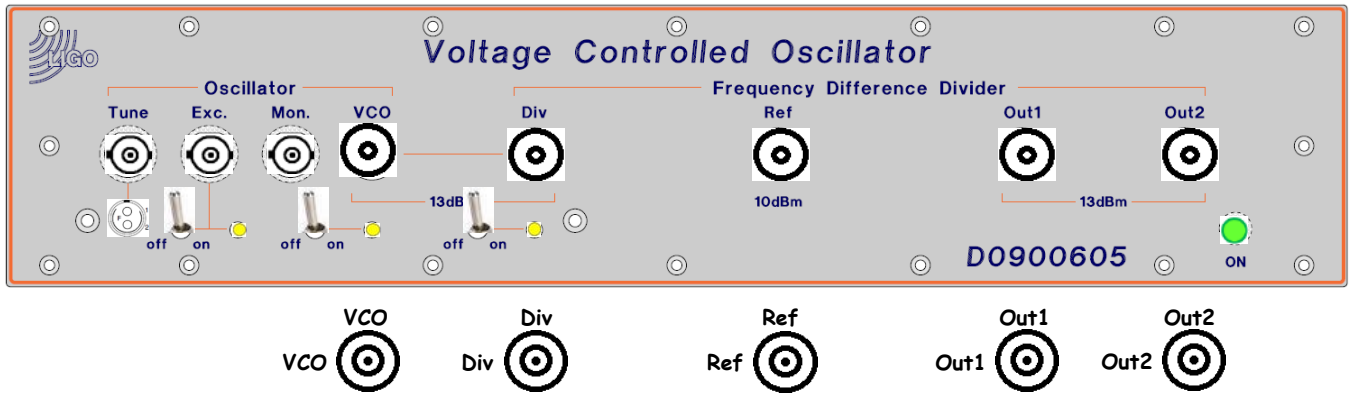
Front

Sxxxxxxx

Rear

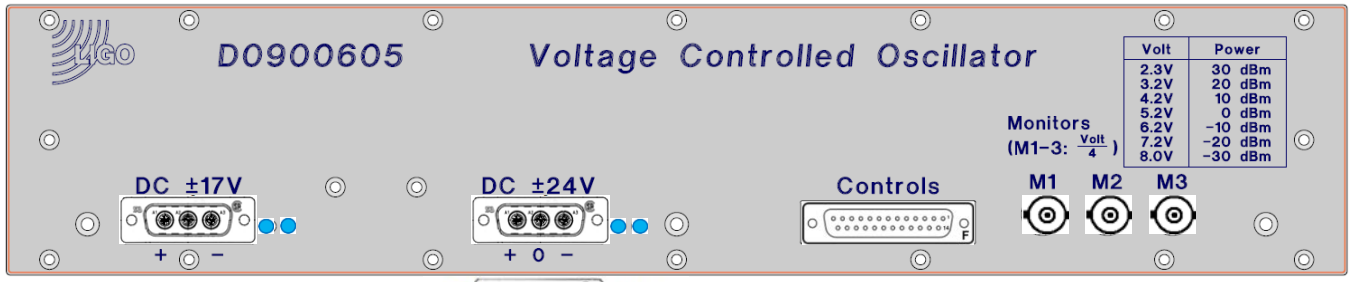
D0900605 - S1200581

79.4 MHz VCO (ALS) | D0900605 | S1200581 | ±17VDC, ±24VDC



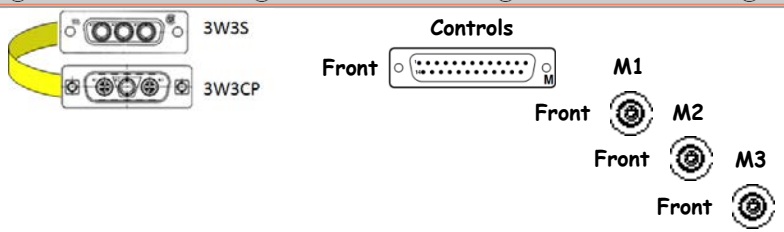
D0900605

Front



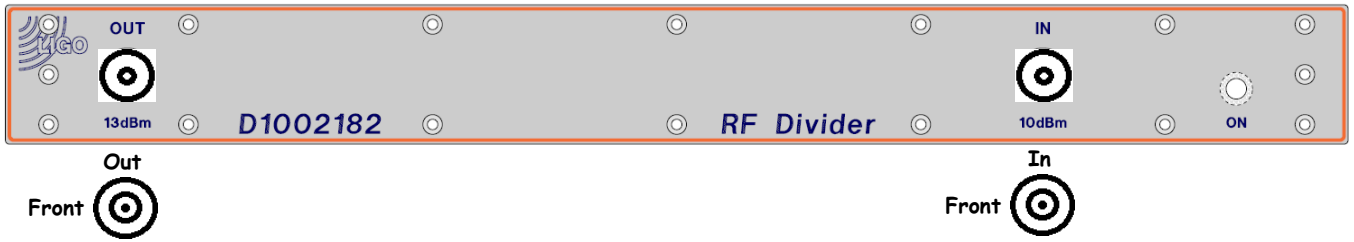
S1200581

Rear



D1002182 - S1000753

39.7 MHz Frequency Divider | D1002182 | S1000753 | ±17VDC, ±24VDC



D1002182

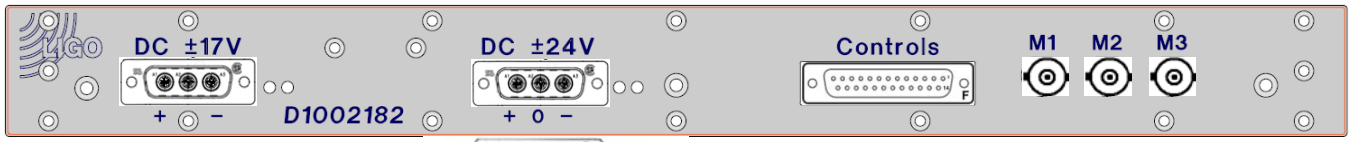
Front

Out

Front

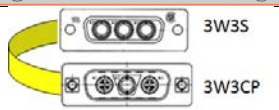
In

Front



S1000753

Rear



Controls

Front

M1

Front

M2

Front

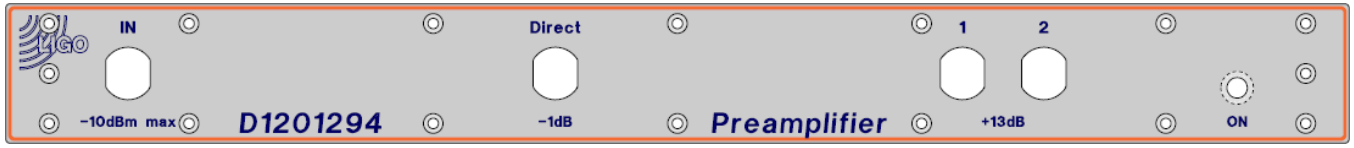
M3

Front

D1201294 - S1203938

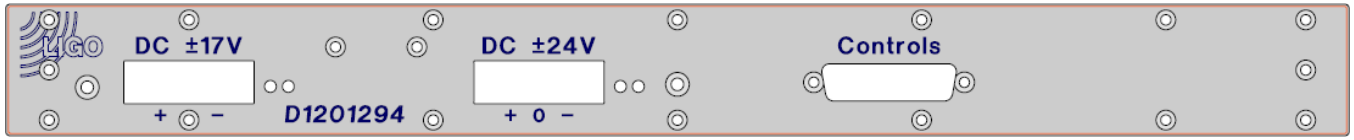
[<< L1-ISC-YR1]

RF Preamplifier | D1201294 | S1203938 | ±18V



D1201294

Front



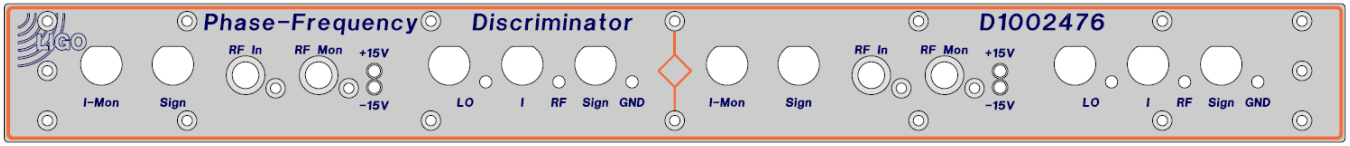
S1203938

Rear

D1002476 - S1000768

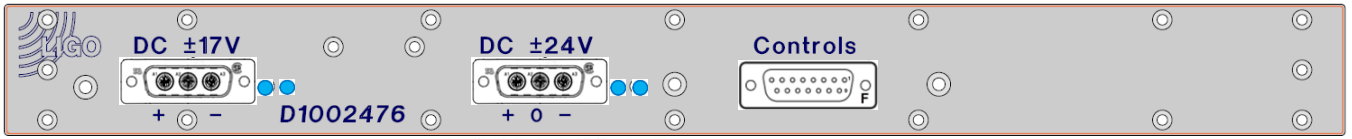
[<< L1-ISC-YR1]

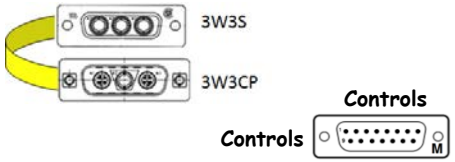
39.7 MHz 2 Channel Phase/Freq Discriminator | D1002476 | S1000768 | ±17VDC, ±24VDC



D1002476

Front





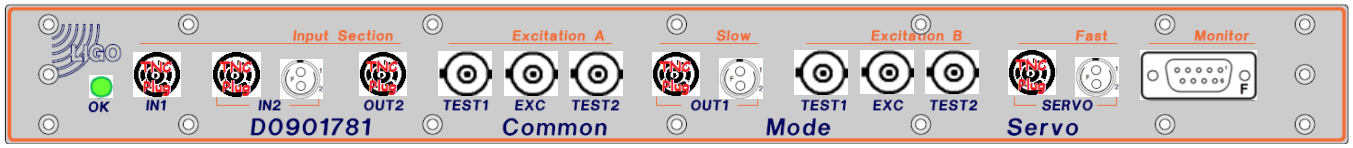
S1000768

Rear

D0901781 - S1102647

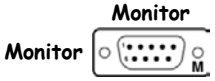
[<< L1-ISC-YR1]

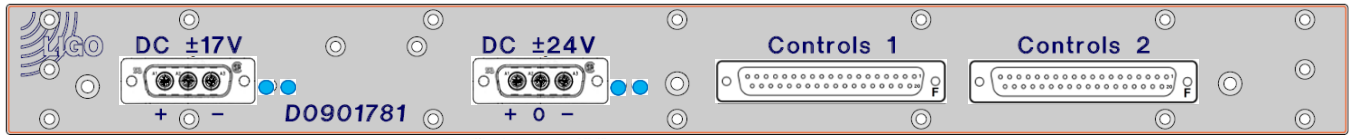
Common Mode Servo (ALS Laser Locking) | D0901781 | S1102647 | ±17VDC, ±24VDC



D0901781

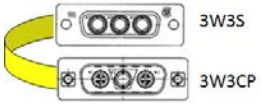
Front

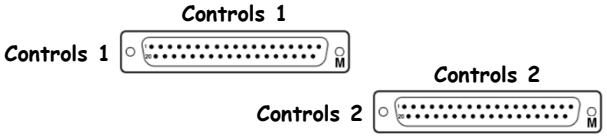




S1102647

Rear

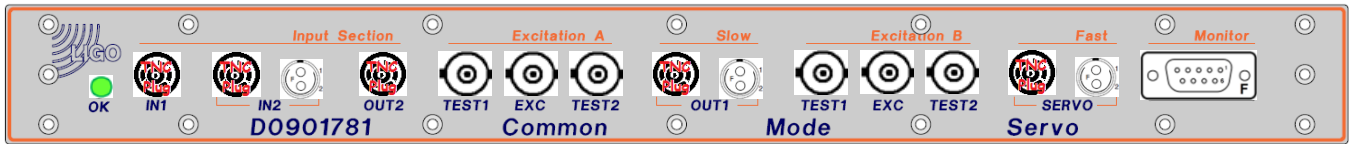




D0901781 - S1102646

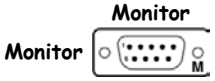
[<< L1-ISC-YR1]

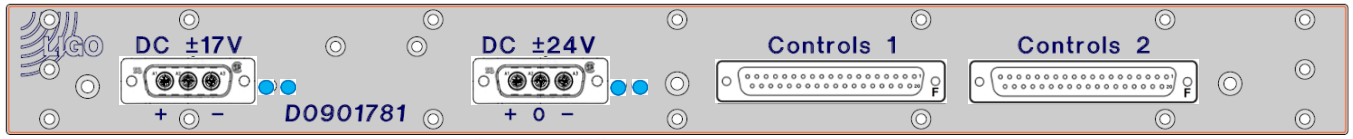
Common Mode Servo (ALS Cavity Locking) | D0901781 | S1102646 | ±17VDC, ±24VDC



[D0901781]

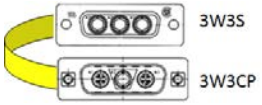
Front

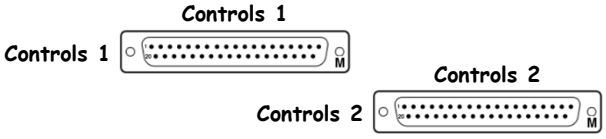




[S1102646]

Rear

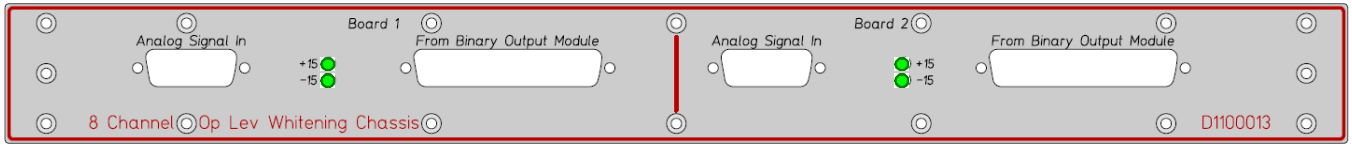




D1100013 - S1101543

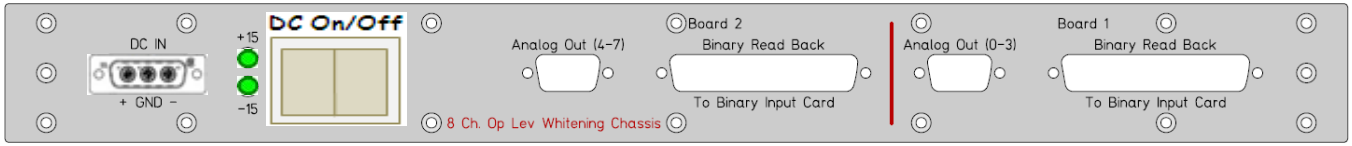
[<< L1-ISC-YR1]

Oplev 8 Channel Whitening Filter Chassis D1100013 S1101543 **±18VDC**



D1100013

Front



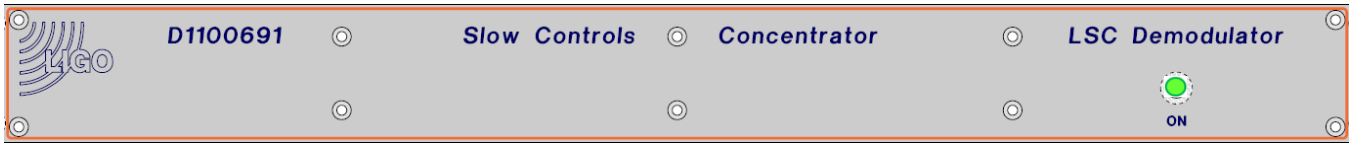
S1101543

Rear

D1100691 – S1104010

[<< L1-ISC-YR1]

LSC Demod Concentrator 5 | D1100691 | S1104010 | ±18VDC

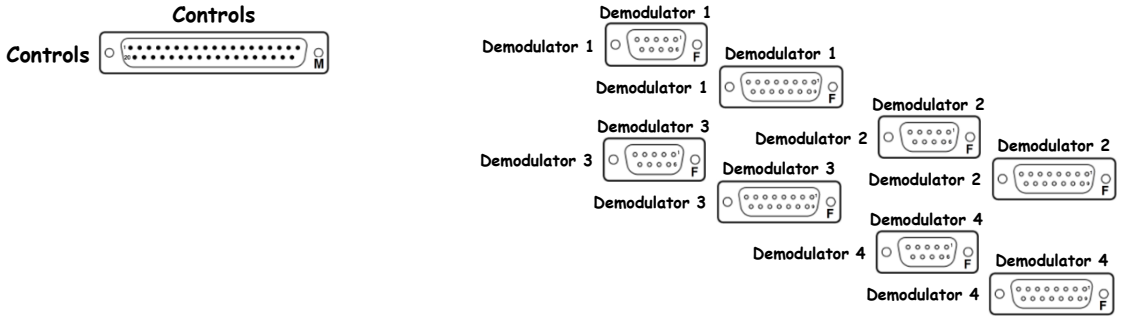


D1100691

Front

S1104010

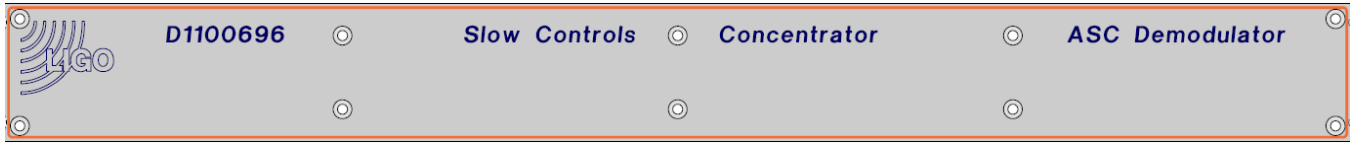
Rear



D1100696 - S1103988

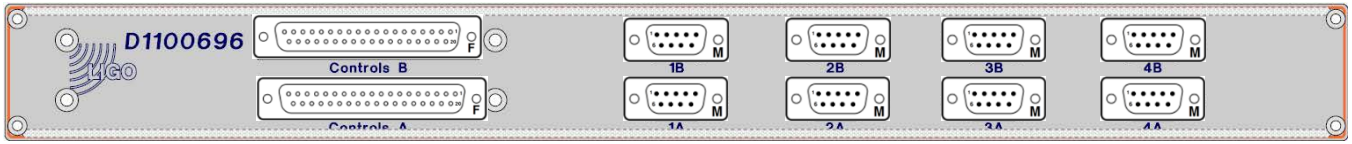
[<< L1-ISC-YR1]

ASC Demod Concentrator 6 | D1100696 | S1103988 | No Power



D1100696

Front



S1103988

Rear

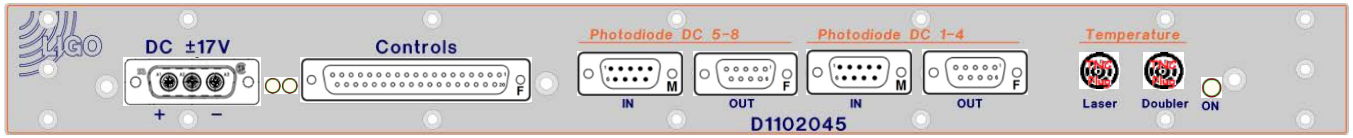
D1102045 - S1200535

[<< L1-ISC-YR1]

Auxiliary Signals Concentrator 2 | D1102045 | S1200535 | ±18V

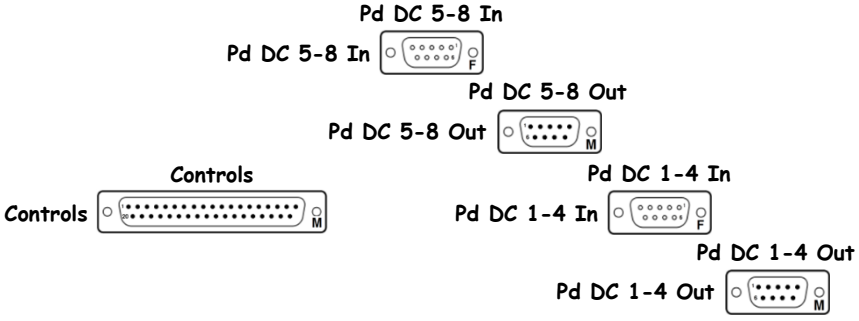
[D1102045]

Front



[S1200535]

Rear



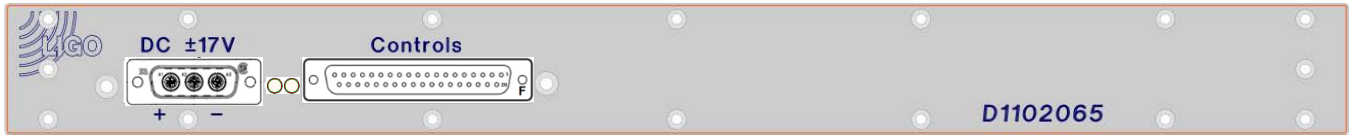
D1102065 - S1200552

[<< L1-ISC-YR1]

Auxiliary Signals Concentrator 1 | D1102065 | S1200552 | ±18V

[D1102045]

Front



[S1200552]

Rear

Controls

Controls

M

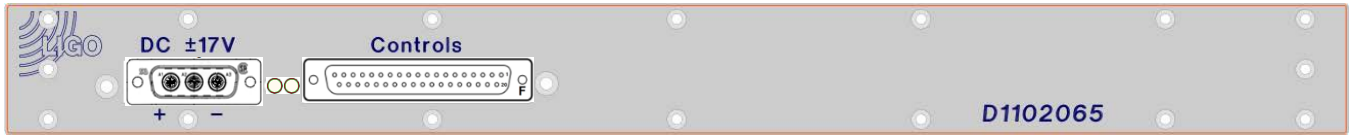
D1201352 - S1300251

[<< L1-ISC-YR1]

Auxiliary Signals Concentrator 5 | D1201352 | S1300251 | ±18V

D1201352

Front



S1300251

Rear

Controls

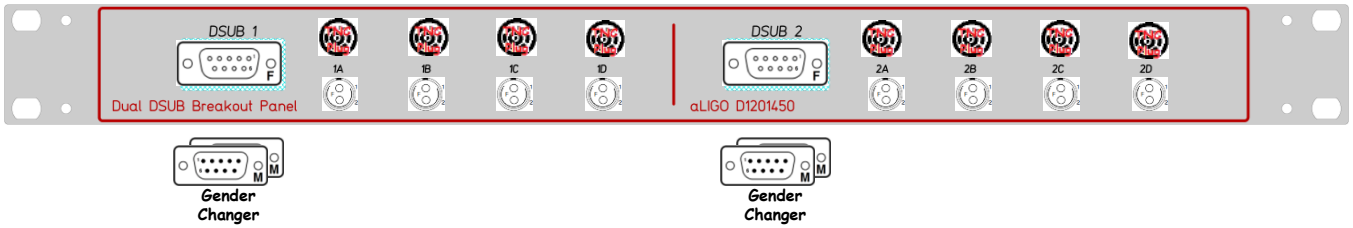
Controls

M

D1201450 - Sxxxxxxx

[<< L1-ISC-YR1]

Dual DSUB Breakout Panel | D1201450 | Sxxxxxxx | No Power



D1201450

Front

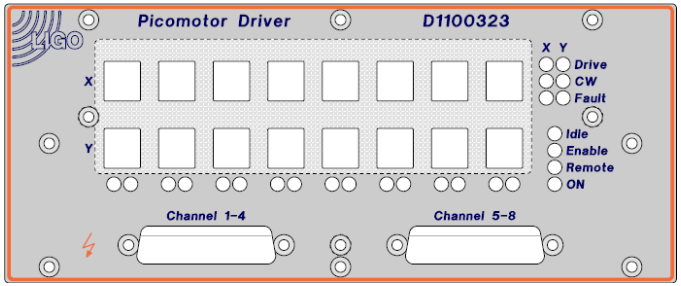
Sxxxxxxx

Rear

D1100323 - S1107548

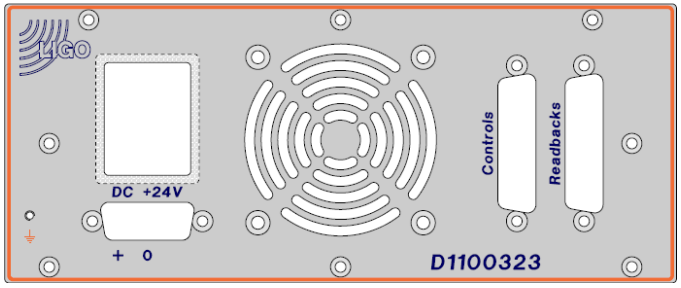
« L1-ISC-YR1

Picomotor Driver and Photodiode Amplifier | D1100323 | D1301017 | S1400007 | S1107548 | ±24VDC, ±24VDC



D1100323

Front



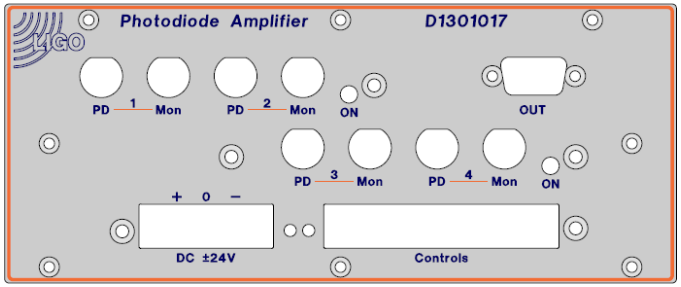
S1107548

Rear

D1301017 - S1400007

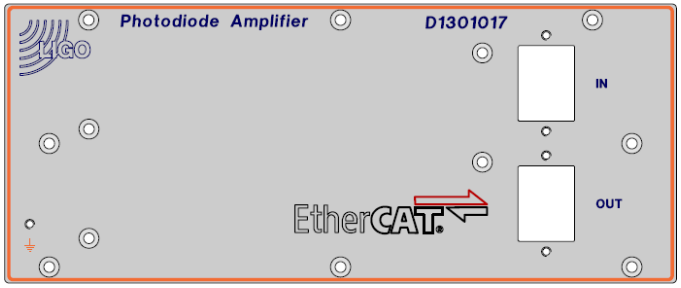
[<< L1-ISC-YR1]

Picomotor Driver and Photodiode Amplifier | D1100323 | D1301017 | S1400007 | S1107548 | ±24VDC, ±24VDC



D1301017

Front



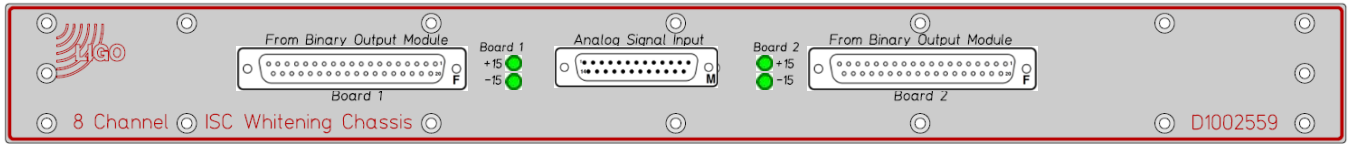
S1400007

Rear

D1002559 - S1101581

[<< L1-ISC-YR1]

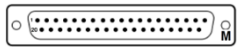
ISC Whitening Chassis | D1002559 | S1101581 | ±15VDC



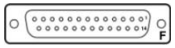
D1002559

Front

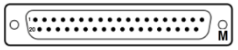
From Binary Output Module 1

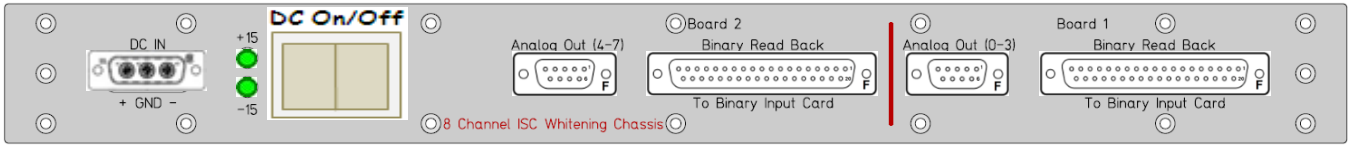


Analog Signal Input



From Binary Output Module 2

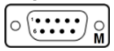




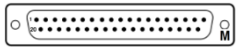
S1101581

Rear

Analog Out (4-7)

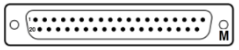


Binary Read Back 2



Analog Out (0-3)

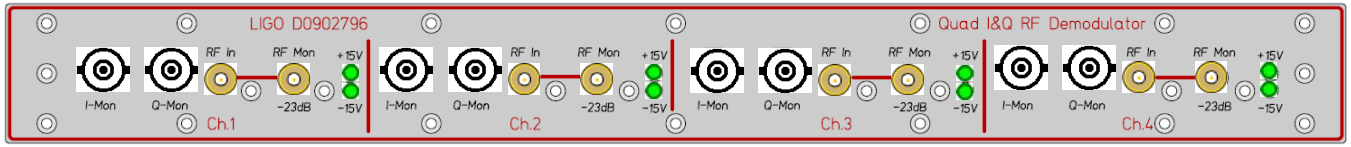
Binary Read Back 1



D0902796 - S1001020

[<< L1-ISC-YR1]

QUAD I&Q Demodulator Module | D0902796 | S1001020 | ±15VDC

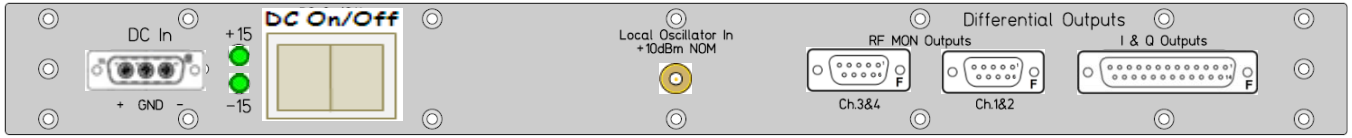


D0902796

Front

D1002032

LSC



S1001020

Rear

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

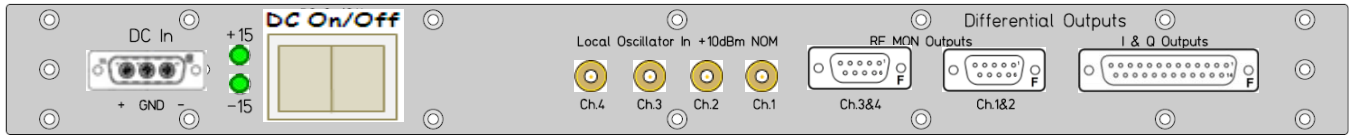
RF Mon Out Ch 3&4

I & Q Outputs

I & Q Outputs

D1002031

WFS



S1001020

Rear

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

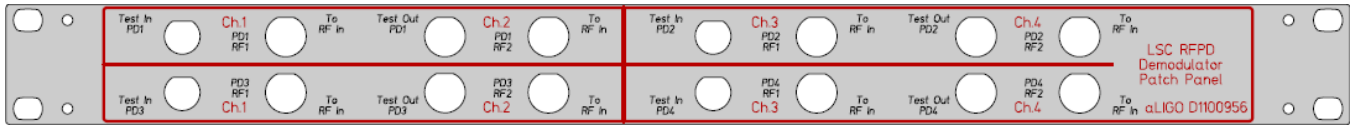
I & Q Outputs

I & Q Outputs

D1100956 - Sxxxxxxx

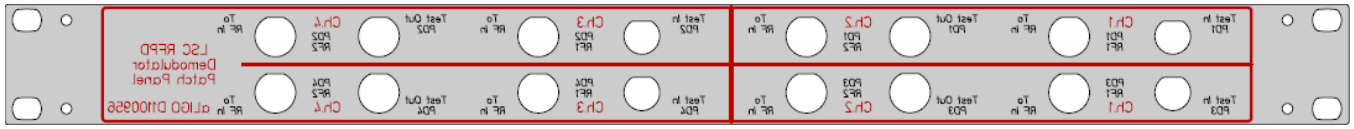
[<< L1-ISC-YR1]

LSC RFPD Demodulator Patch Panel | D1100956 | Sxxxxxxx | No Power



D1100956

Front



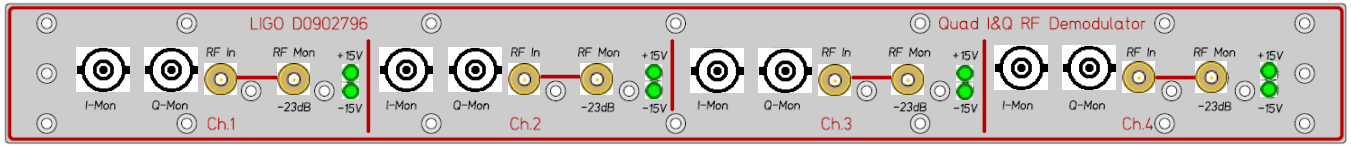
Sxxxxxxx

Rear

D0902796 - S1001016

[<< L1-ISC-YR1]

QUAD I&Q Demodulator Module | D0902796 | S1001016 | ±15VDC

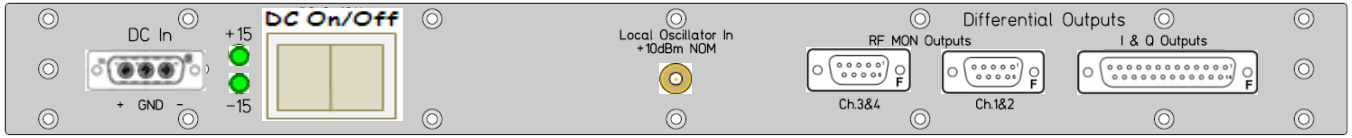


D0902796

Front

D1002032

LSC



S1001016

Rear

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

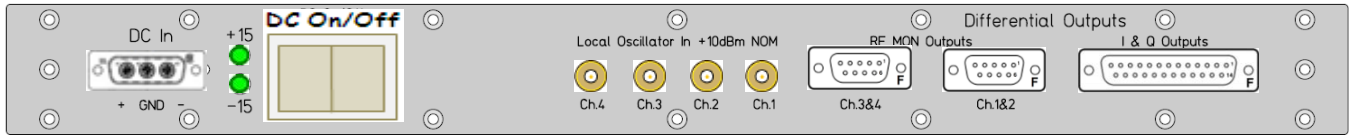
RF Mon Out Ch 3&4

I & Q Outputs

I & Q Outputs

D1002031

WFS



S1001016

Rear

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

RF Mon Out Ch 3&4

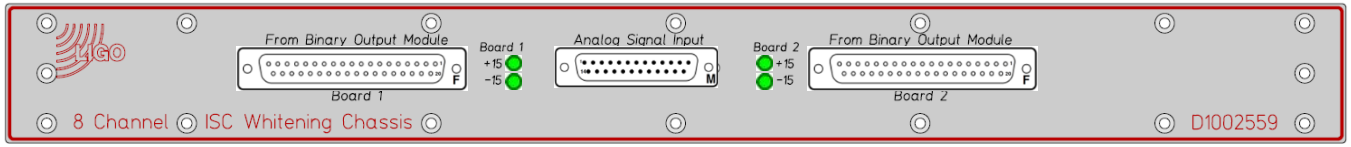
I & Q Outputs

I & Q Outputs

D1002559 - S1101573

[<< L1-ISC-YR1]

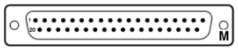
ISC Whitening Chassis [D1002559] [S1101573] ±15VDC



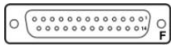
[D1002559]

Front

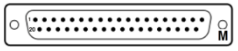
From Binary Output Module 1

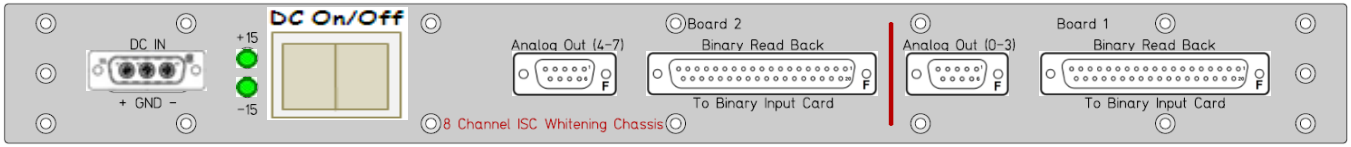


Analog Signal Input



From Binary Output Module 2

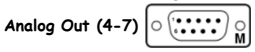




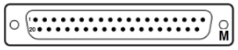
[S1101573]

Rear

Analog Out (4-7)

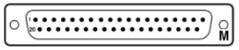


Binary Read Back 2



Analog Out (0-3)

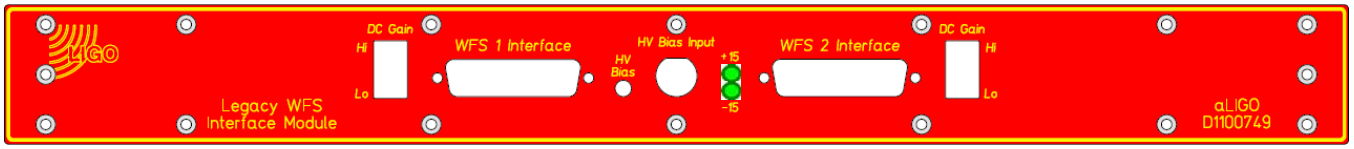
Binary Read Back 1



D1100749 - S1400282

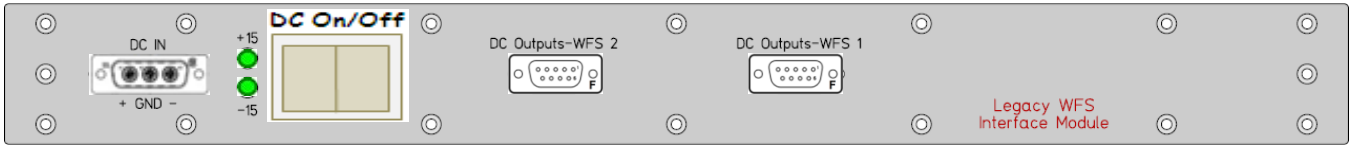
[<< L1-ISC-YR1]

Legacy WFS Interface Module | D1100749 | S1400282 | ±15VDC



[D1100749]

Front



[S1400282]

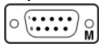
Rear

DC Outputs-WFS 2

WFS 2

DC Outputs-WFS 1

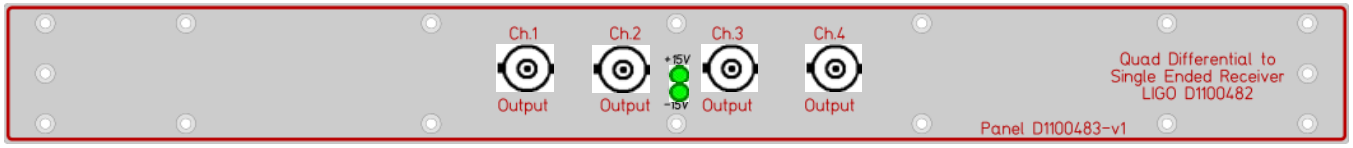
WFS 1



D1100482 - S1203308

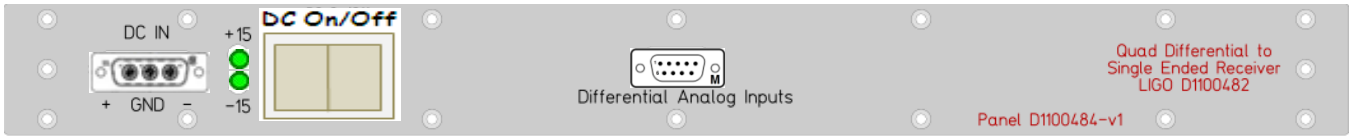
[<< L1-ISC-YR1]

Differential to Single-Ended Receiver | D1100482 | S1203308 | ±15VDC



D1100482

Front



S1203308

Rear

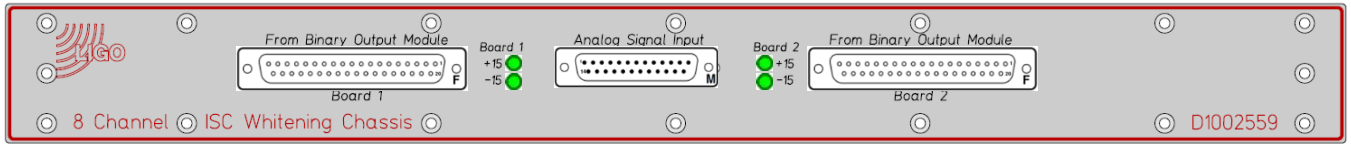
Diff Inputs

Diff Inputs

D1002559 - S1101629

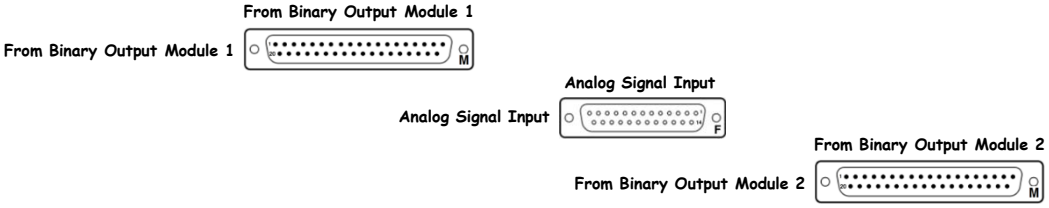
[<< L1-ISC-YR1]

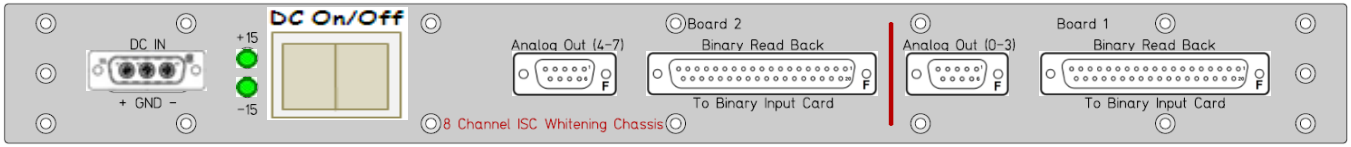
ISC Whitening Chassis | D1002559 | S1101629 | ±15VDC



D1002559

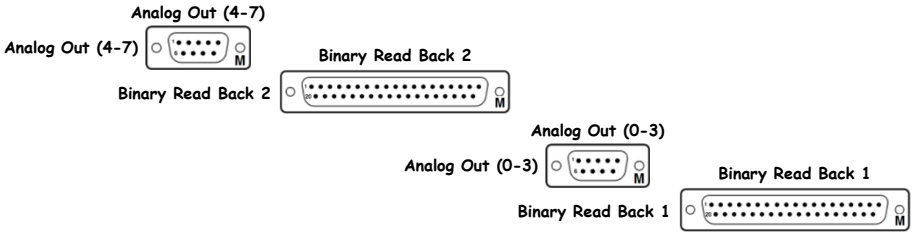
Front





S1101629

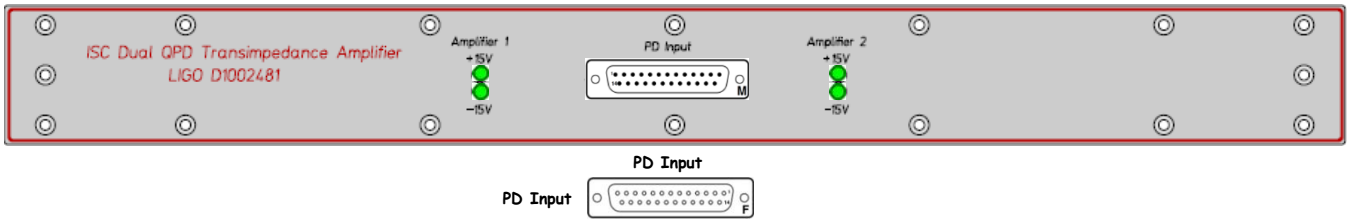
Rear



D1002481 - S1301504

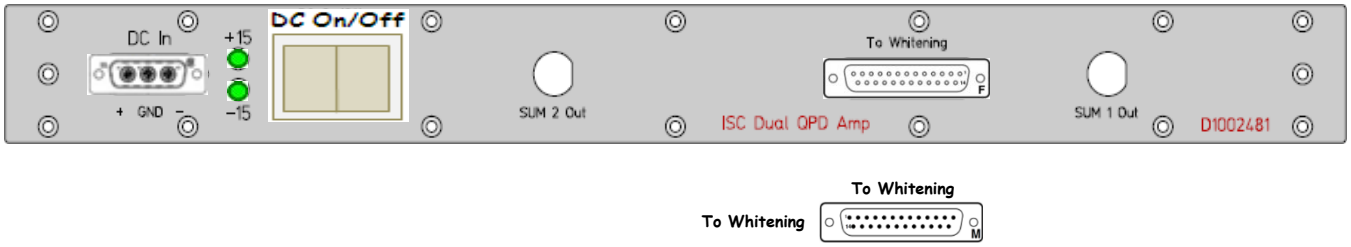
[<< L1-ISC-YR1]

Dual QPD Transimpedance Amp (ASC OMCR A&B) | D1002481 | S1301504 | ±15VDC



D1002481

Front



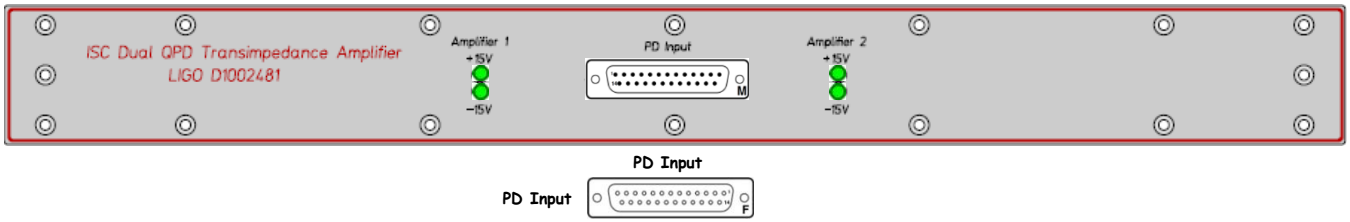
S1301504

Rear

D1002481 - S1102816

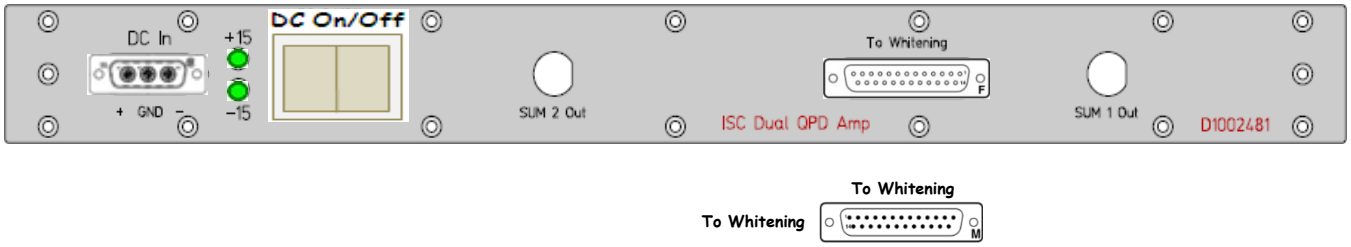
[<< L1-ISC-YR1]

Dual QPD Transimpedance Amp (ASC OMCR A&B) | D1002481 | S1102816 | ±15VDC



D1002481

Front



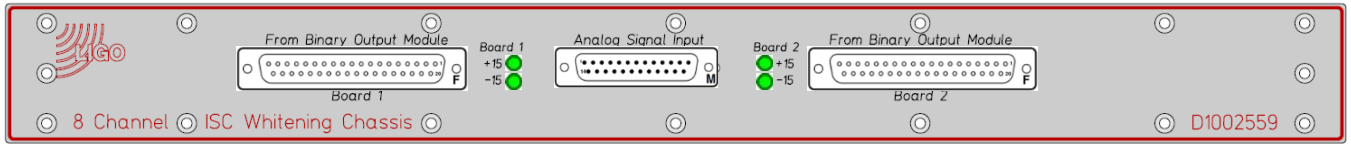
S1102816

Rear

D1002559 - S1101169

[<< L1-ISC-YR1]

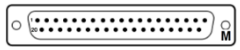
ISC Whitening Chassis | D1002559 | S1101169 | ±15VDC



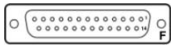
D1002559

Front

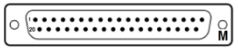
From Binary Output Module 1

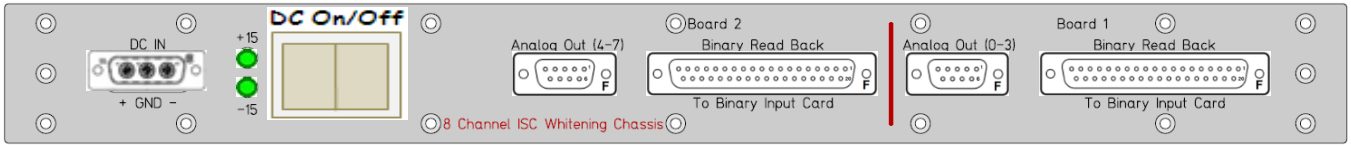


Analog Signal Input



From Binary Output Module 2

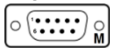




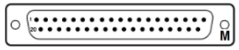
S1101169

Rear

Analog Out (4-7)

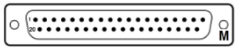


Binary Read Back 2



Analog Out (0-3)

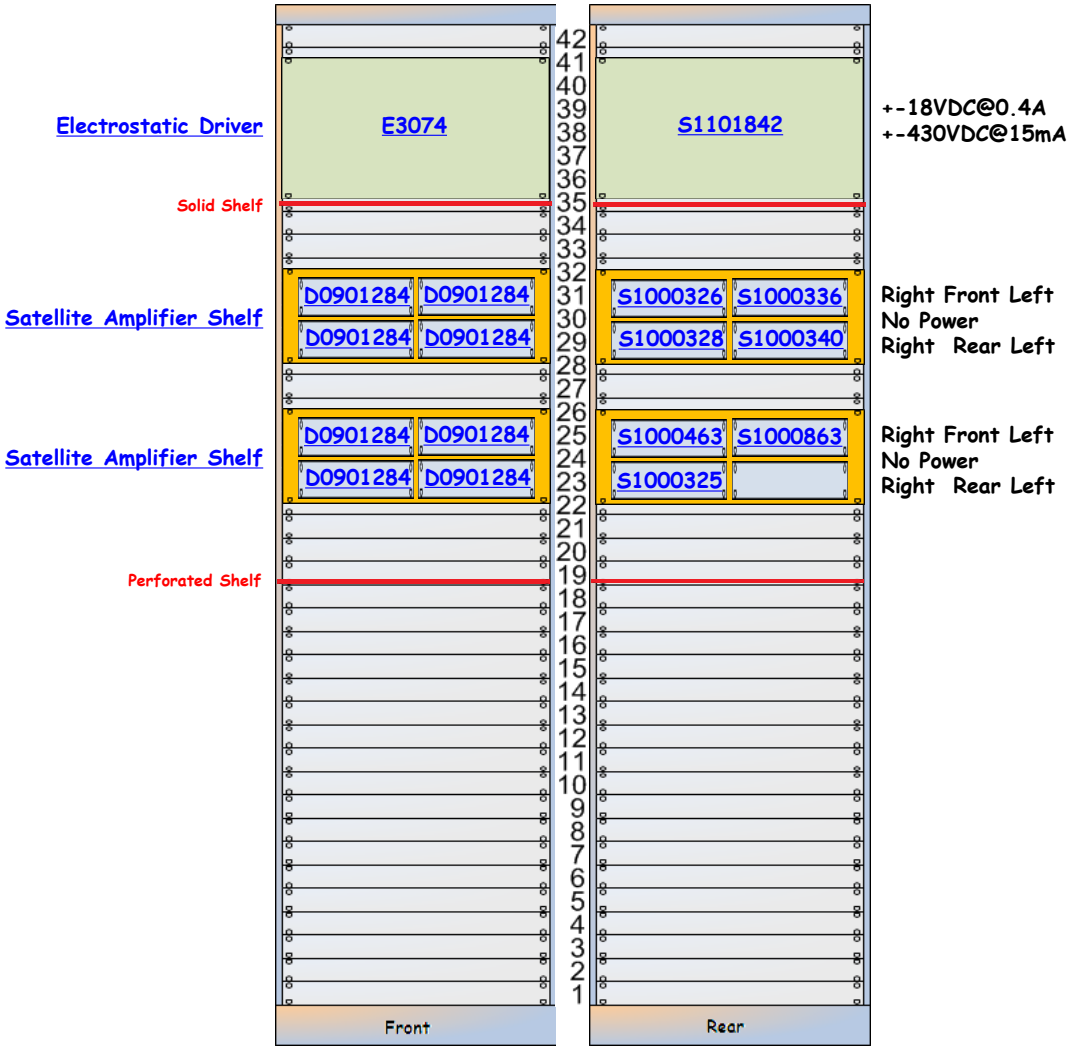
Binary Read Back 1



L1-SUS-YR1

[<< YEND Racks and Tables]

L1-SUS-YR1 YEND Station Field Rack Layout (D1201132) (S1202994)



SUS-YR1 is part of D1002741.

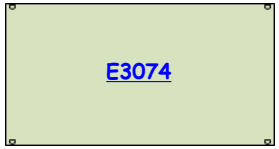
L1-SUS-YR1 Details

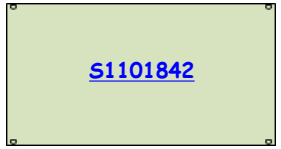
SUS-YR1 is part of D1002741.

E3074 - S1101842

[<< L1-SUS-YR1]

Electrostatic Driver





+-18VDC@0.4A
+-430VDC@15mA

[E3074]

Front

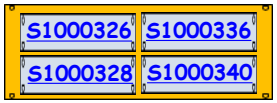
[S1101842]

Rear

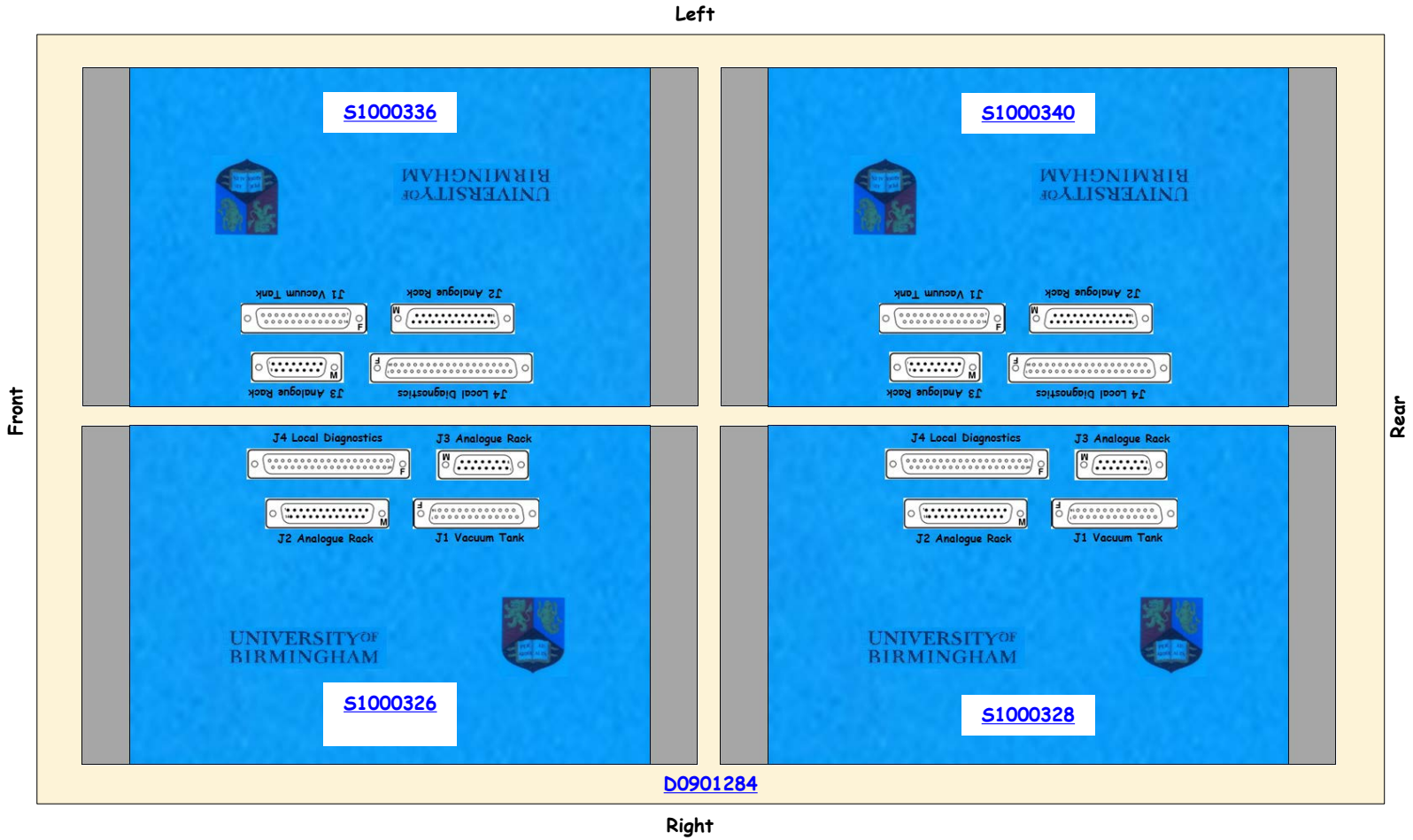
D0901284 Shelf

[<< L1-SUS-YR1]

Satellite Amplifier Shelf



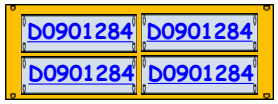
Right Front Left
No Power
Right Rear Left



D0901284 Shelf

[<< L1-SUS-YR1]

Satellite Amplifier Shelf

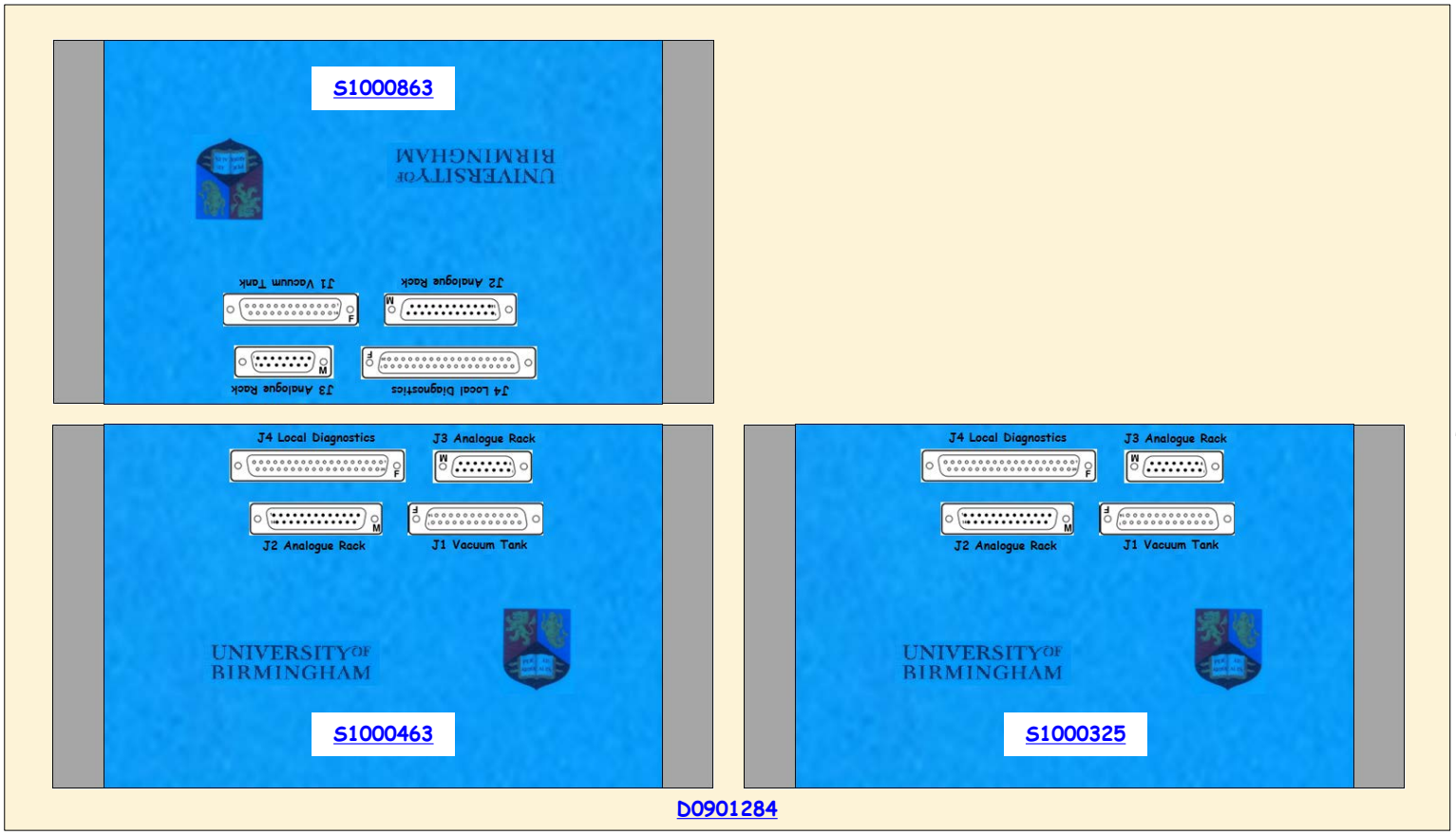


Right Front Left
No Power
Right Rear Left

Left

Front

Rear

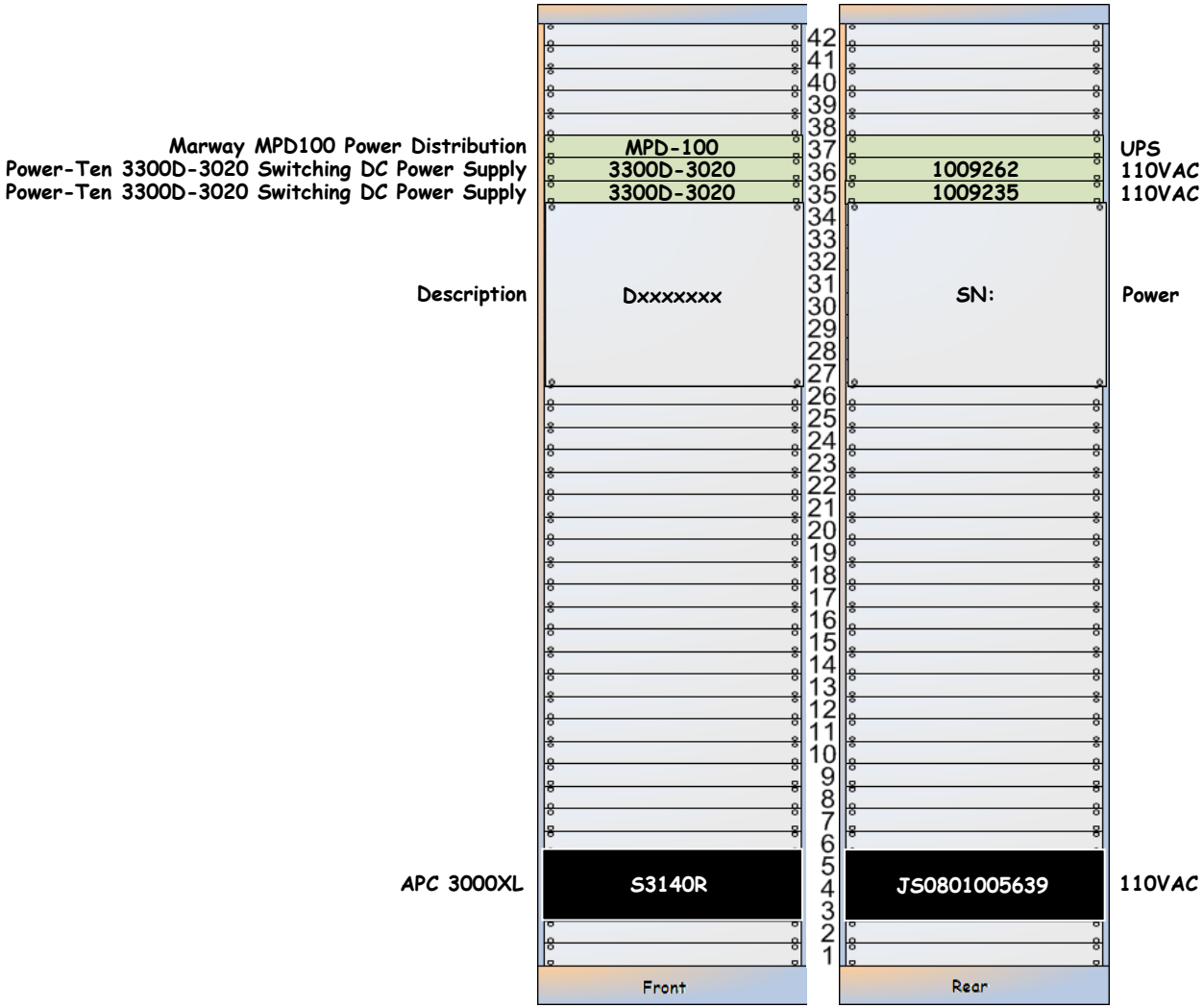


Right

L1-VAC-YR1

[<< YEND Racks and Tables]

L1-VAC-YR1 YEND Vacuum Rack Layout (Dxxxxxxx)



L1-VAC-YR1 Details

L1-VAC-YR1

Marway MPD100 Power Distribution | MPD-100 | | UPS

Power-Ten 3300D-3020 Switching DC Power Supply	3300D-3020	1009262	110VAC

Power-Ten 3300D-3020 Switching DC Power Supply	3300D-3020	1009235	110VAC

L1-VAC-YR1

[<< L1-VAC-YR1]

Description | Dxxxxxxx | SN: | Power

CentreCom 210TS

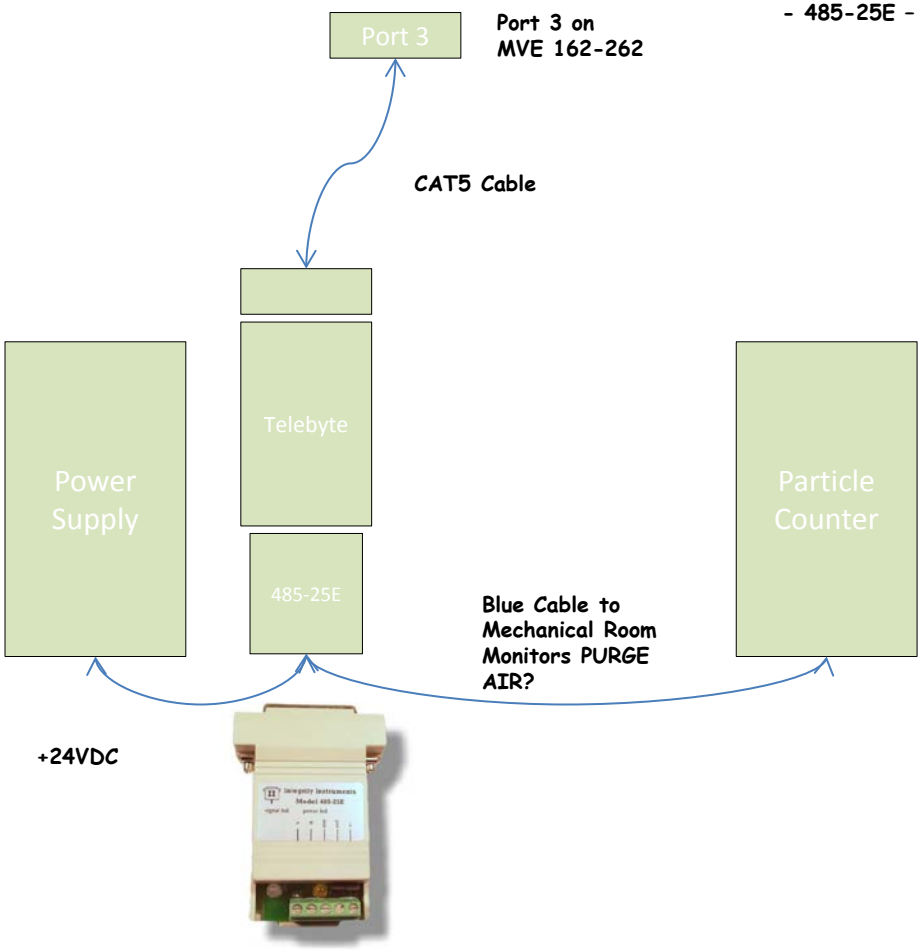
Grey CAT5 Cable
to CDS Network
Switch Port 17

L1-VAC-YR1

APC 3000XL | S3140R | JS0801005639 | 110VAC

L1-VAC-YR1

Particle Counter
- Located in Mechanical Room
- +24VDC comes from Power-Ten 1009235
- 485-25E – Telebyte – Cat5 – 162-262 Port 3



L1-ISCBT5L Table Layout

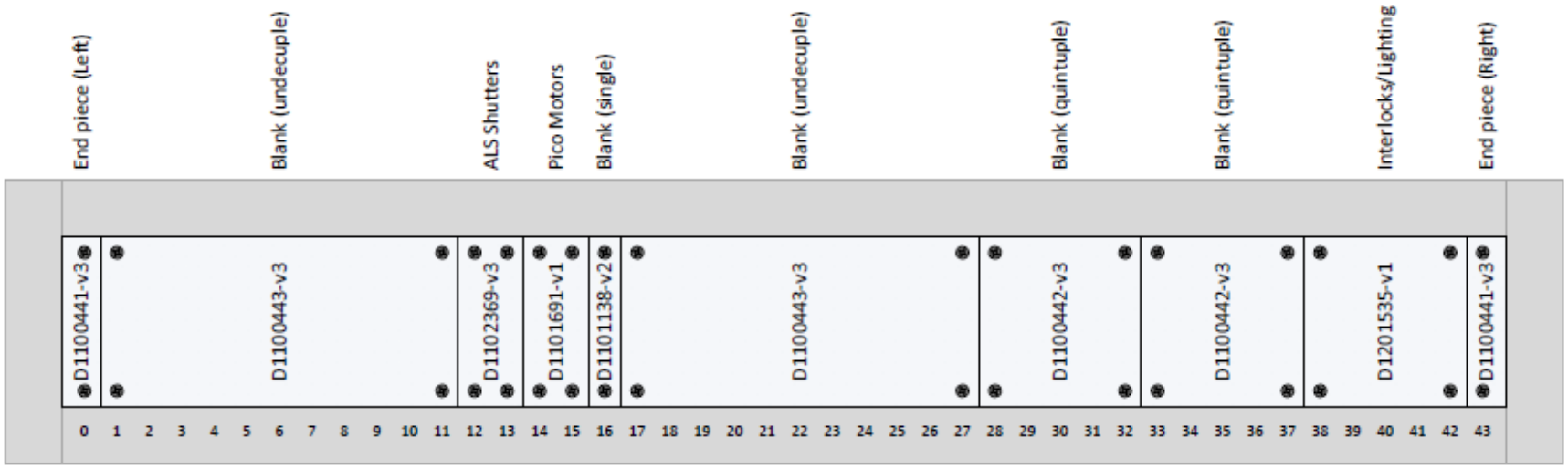
ISCBT5L Table Layout (Dxxxxxxx) **(Sxxxxxxx)**

ISCBT5L is part of Exxxxxxx.

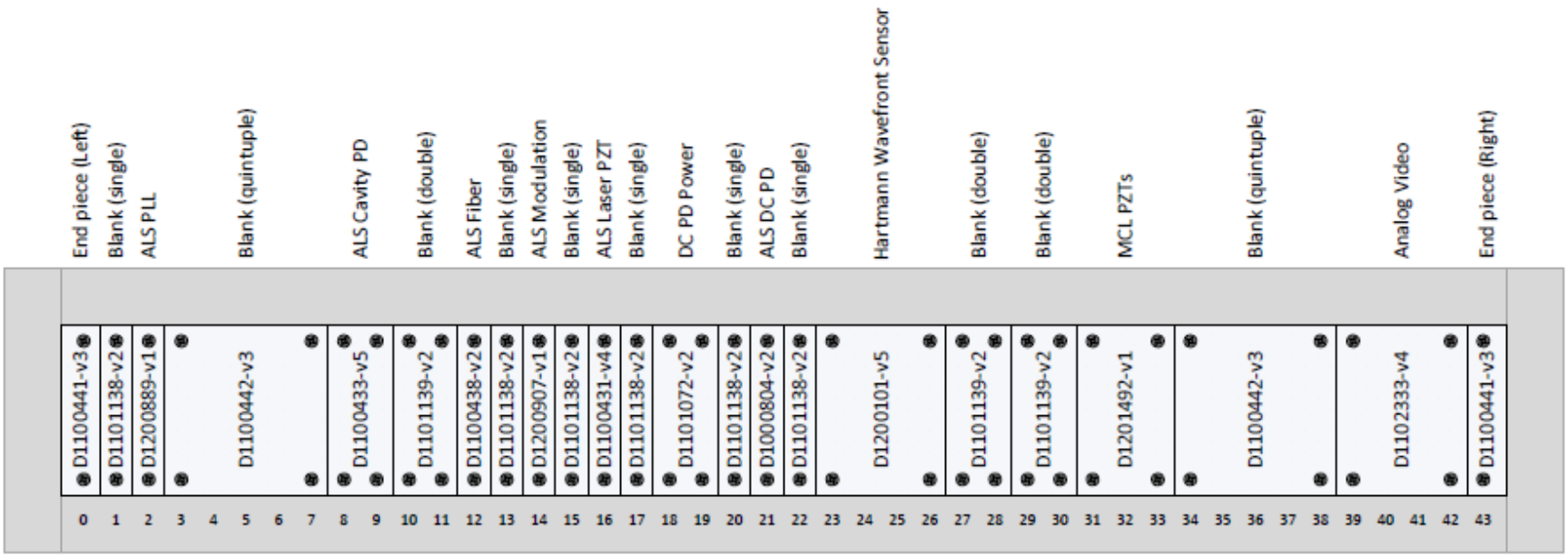
L1-ISCBT5L Panel Layout

[<< YEND Tables]

ISCBT5L Panel Layout (D1101126)



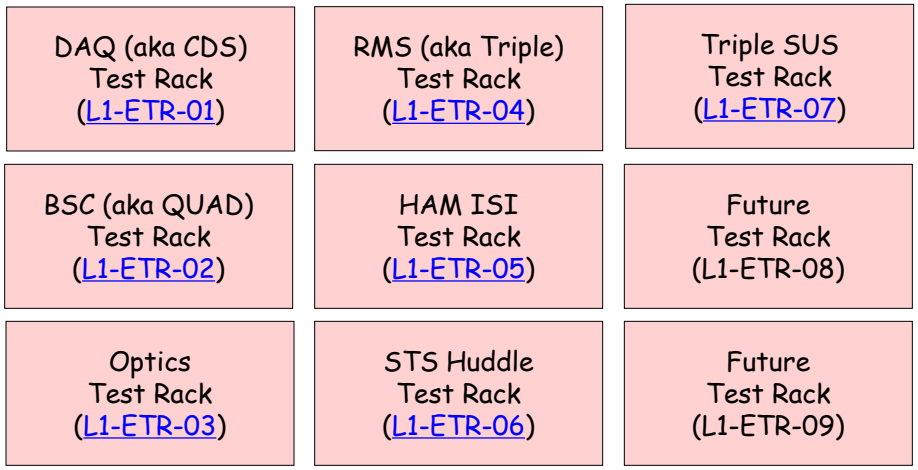
Left Side



Right Side

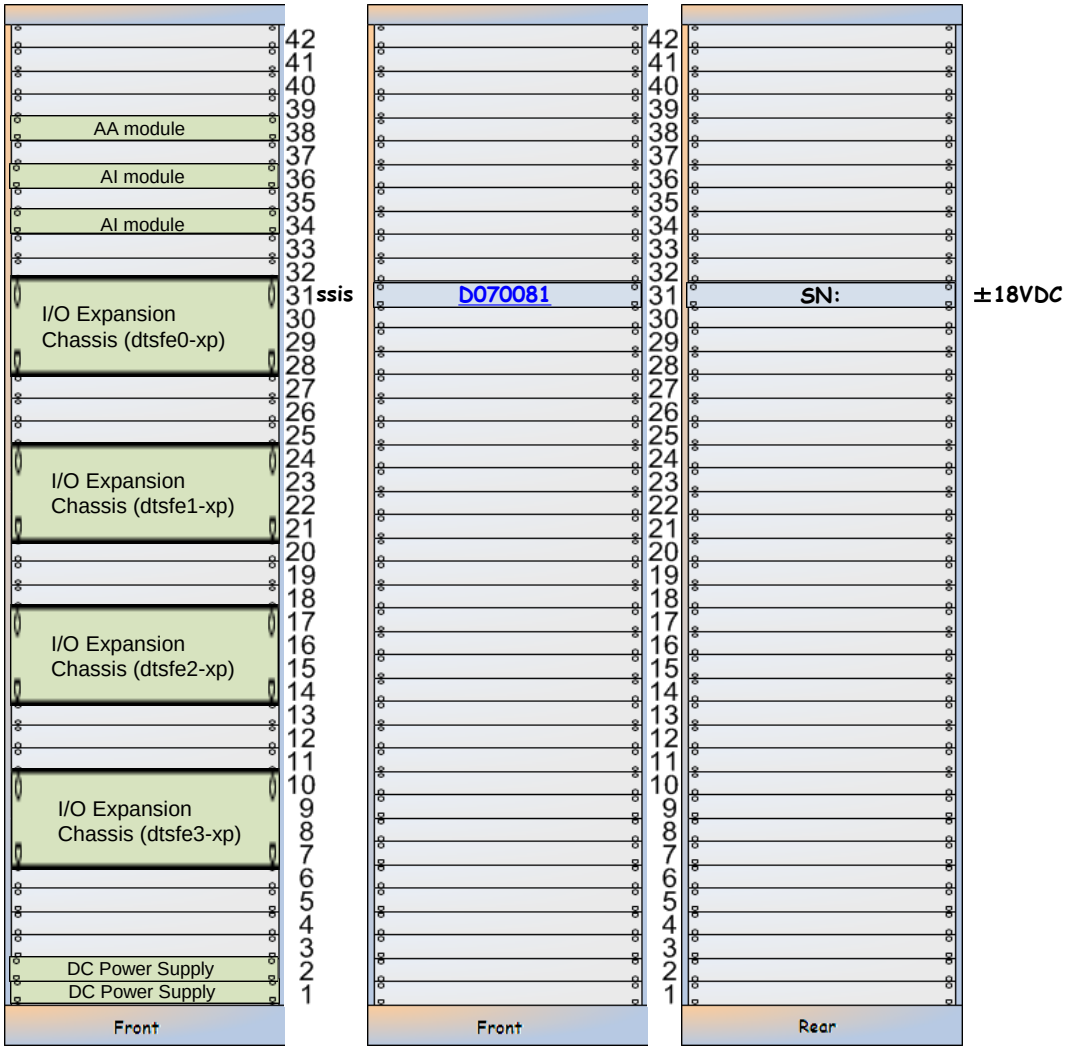
LLO ETR – Electronics Test Rack Layout

<< LLO Corner Station
<< LLO Racks by AREA
<< LLO CDS Components



DAQ (aka CDS) Test Rack Layout (D1002448)

L1 DTS – IO



D070124 Rack Input Power Box (RU 34-36)

+18VDC	?A
-18VDC	?A
+24VDC	?A
-24VDC	?A

Dxxxxxx-V1

LIGO

L1-ETR01 DAQ (aka CDS)

L1-ETR01 Front

Linksys BEFSX41 Firewall Router

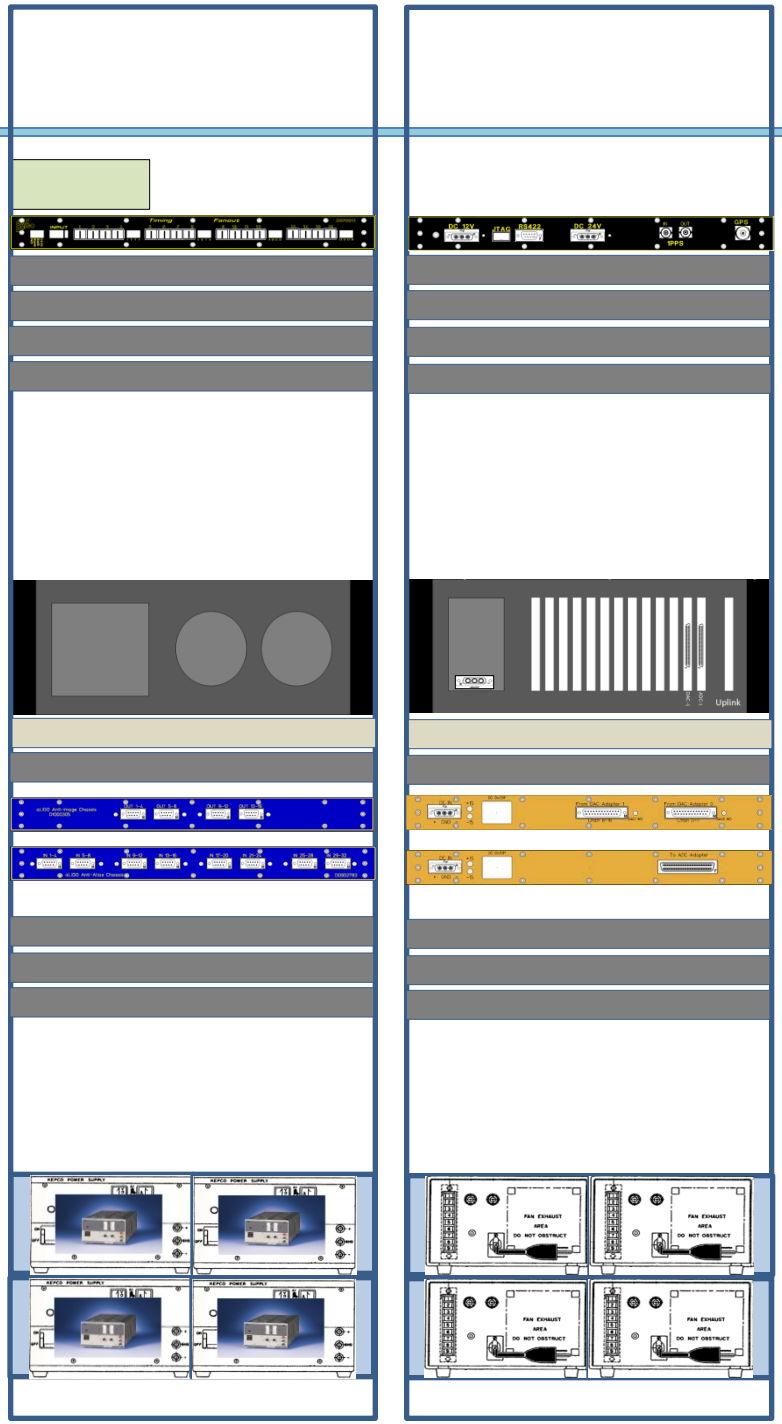
D070011 Fanout Timing

Netgear GS724T Switch

Netgear GSM7352S Switch

SUN Microsystems X2200

SuperMicro



L1-ETR01 Rear

D070011 Fanout Timing

SN:

SN:

0923QAT00D dtsserver 192.168.100.10

… dtsfe1 192.168.100.15

DC Bus Distribution Box

I/O Extension
2 ADC
1 DAC
1 Timing Slave

Shelf

KVM

D070081 AI Chassis

D070081 AA Chassis

SuperMicro

SuperMicro

SuperMicro

Shelf

SN:

D070081 SYYYYYYYY

D070081 SYYYYYYYY

… dtsdco 192.168.100.30

… dtsfwo 192.168.100.31

… dtsndso 192.168.100.32

JQE25-10M +15V

JQE25-10M -15V

JQE25-10M +24V

JQE25-10M -24V

SN:

SN:

SN:

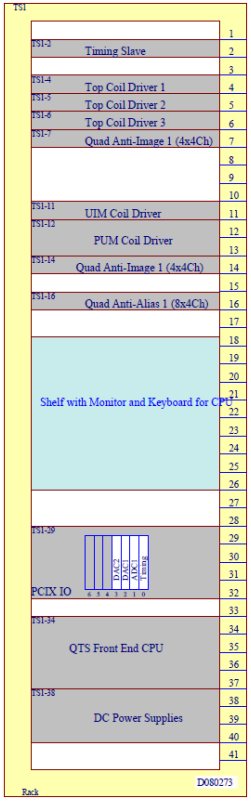
SN:

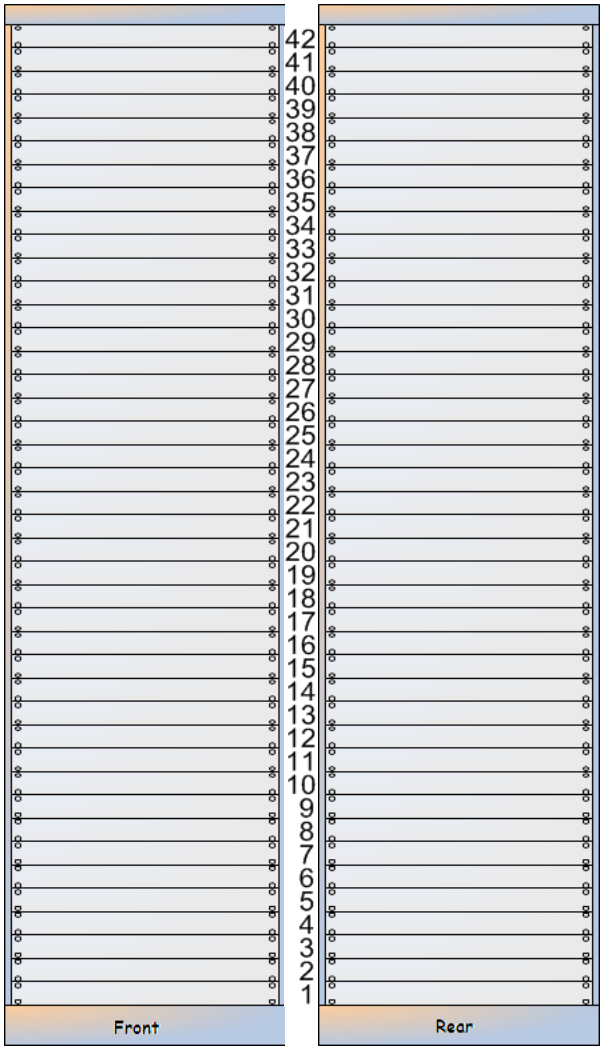
Linier Rack – has front and rear doors and wheels.

L1-ETR-02

[<< Electronics Test Racks]

BSC (aka QUAD) Test Rack Layout (D080273)





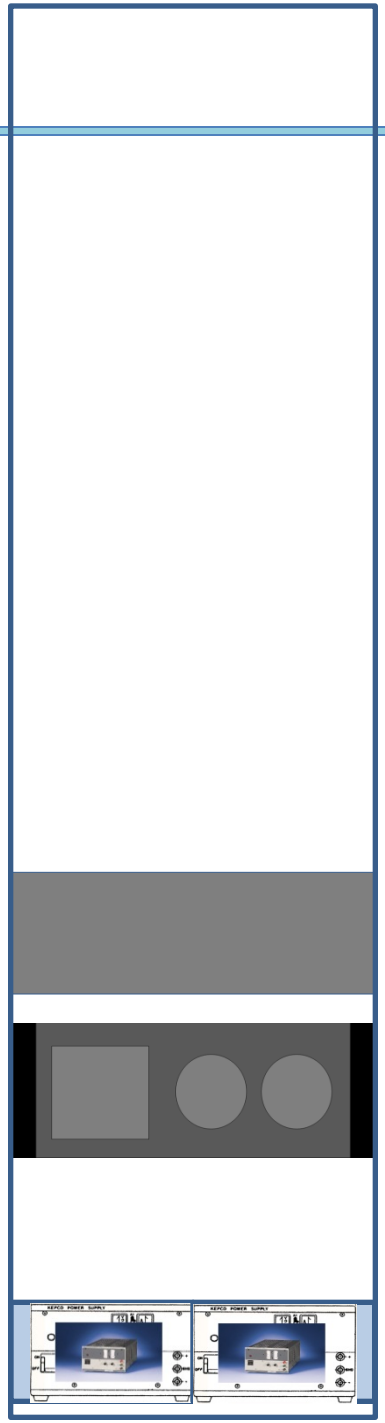
D070124 Rack Input Power Box (RU 34-36)

+18VDC	?A
-18VDC	?A
+24VDC	?A
-24VDC	?A

LIGO

L1-ETR02
BSC (aka Quad)

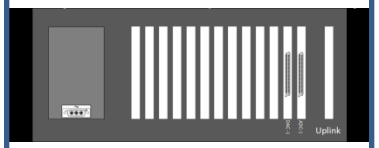
L1-ETR02
Front



Computer

SN:

I/O Extension
2 ADC
1 DAC
1 Timing Slave

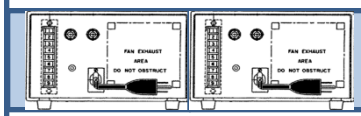


JQE25-10M +15V

SN:

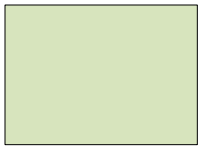
JQE25-10M -15V

SN:



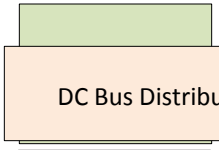
L1-ETR02
Rear

Satellite Amplifier



Satellite Amplifier

DC Bus Distribution Box



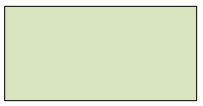
Satellite Amplifier

Satellite Amplifier

Satellite Amplifier

Linksys BEFSX41
Firewall Router

Netgear GS108
Gigabit Switch

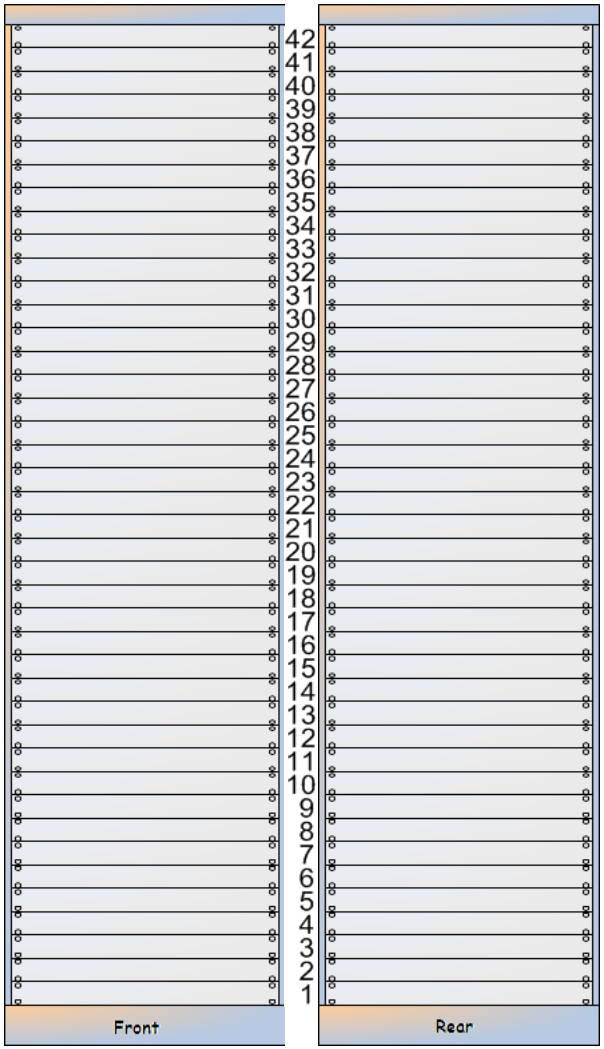


iMAC Computer

L1-ETR-03

« Electronics Test Racks

Optics Test Rack Layout (Dxxxxxxx)



D070124 Rack Input Power Box (RU 34-36)

+18VDC	?A
-18VDC	?A
+24VDC	?A
-24VDC	?A

LIGO

L1-ETR03 OPTICS

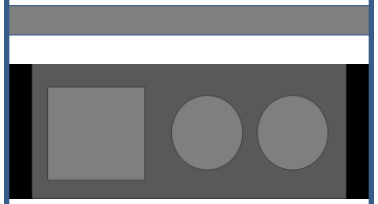
L1-ETR03
Front

L1-ETR03
Rear

Computer

SN:

I/O Extension
2 ADC
1 DAC
1 Timing Slave



Linksys BEFSX41
Firewall Router

Netgear GS108
Gigabit Switch

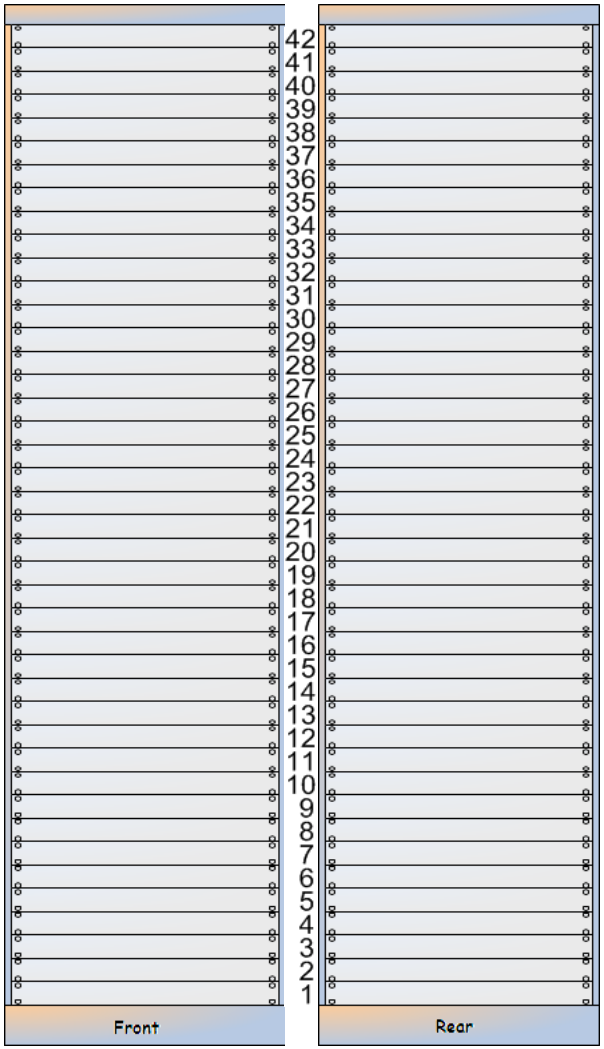
iMAC Computer

L1-ETR-04

LIGO

<< Electronics Test Racks

RMS (aka Triple) Test Rack Layout (Dxxxxxxx)



D070124 Rack Input Power Box (RU 34-36)

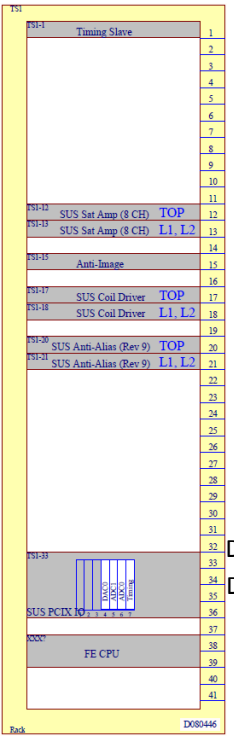
+18VDC	?A
-18VDC	?A
+24VDC	?A
-24VDC	?A

LIGO

L1-ETR04
RMT (aka Triple)

L1-ETR04
Front

L1-ETR04
Rear



D1000305 AI Chassis

D0902783 AA Chassis

D0902783 AA Chassis

Computer

I/O Extension
2 ADC
1 DAC
1 Timing Slave

D1000305 SYYYYYYYY

D0902783 SYYYYYYYY

D0902783 SYYYYYYYY

SN:

DC Bus Distribution Box

Linksys BEFSX41
Firewall Router

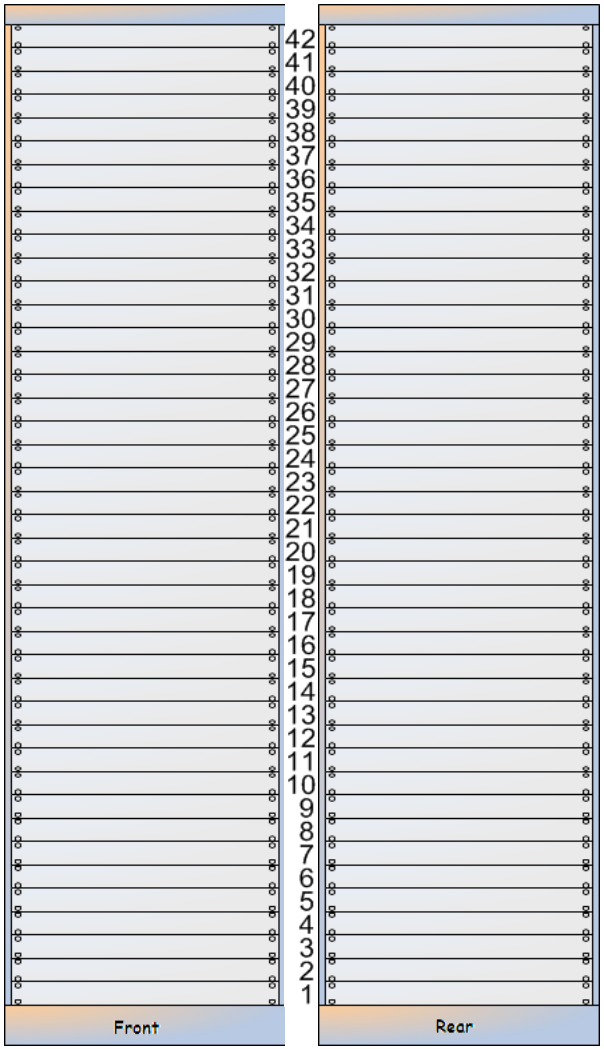
Netgear GS108
Gigabit Switch

iMAC Computer

L1-ETR-05

[<< Electronics Test Racks]

HAM ISI Test Rack Layout (D1001412)



D070124 Rack Input Power Box (RU 34-36)

+18VDC	?A
-18VDC	?A
+24VDC	?A
-24VDC	?A

D1001412-V1

L1-ETR05 HAM ISI

LIGO

Linksys BEFSX41
Firewall Router

Netgear GS108
Gigabit Switch

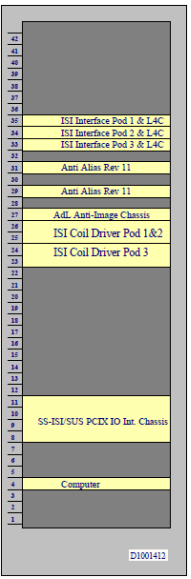
L1-ETR05
Front

L1-ETR05
Rear

ISI Interface Pod 1 & L4C		D1000067 S1000311
ISI Interface Pod 2 & L4C		D1000067 S1000312
ISI Interface Pod 3 & L4C		D1000067 S1000314
Anti-Alias (AA) Chassis		D1000269 S1000244
Anti-Alias (AA) Chassis		D1000269 S1000298
Anti-Image (AI) Chassis		D070081 SS1000251
ISI Coil Driver (Pod 1 and 2)		D0902744 S1000317
ISI Coil Driver (Pod 3)		D0902744 S1000316
I/O Extension 2 ADC 1 DAC 1 Timing Slave		SN:
Computer		SN:
JQE25-10M +24V		SN:
JQE25-10M -24V		SN:
JQE25-10M +15V		SN:
JQE25-10M -15V		SN:

DC Bus Distribution Box

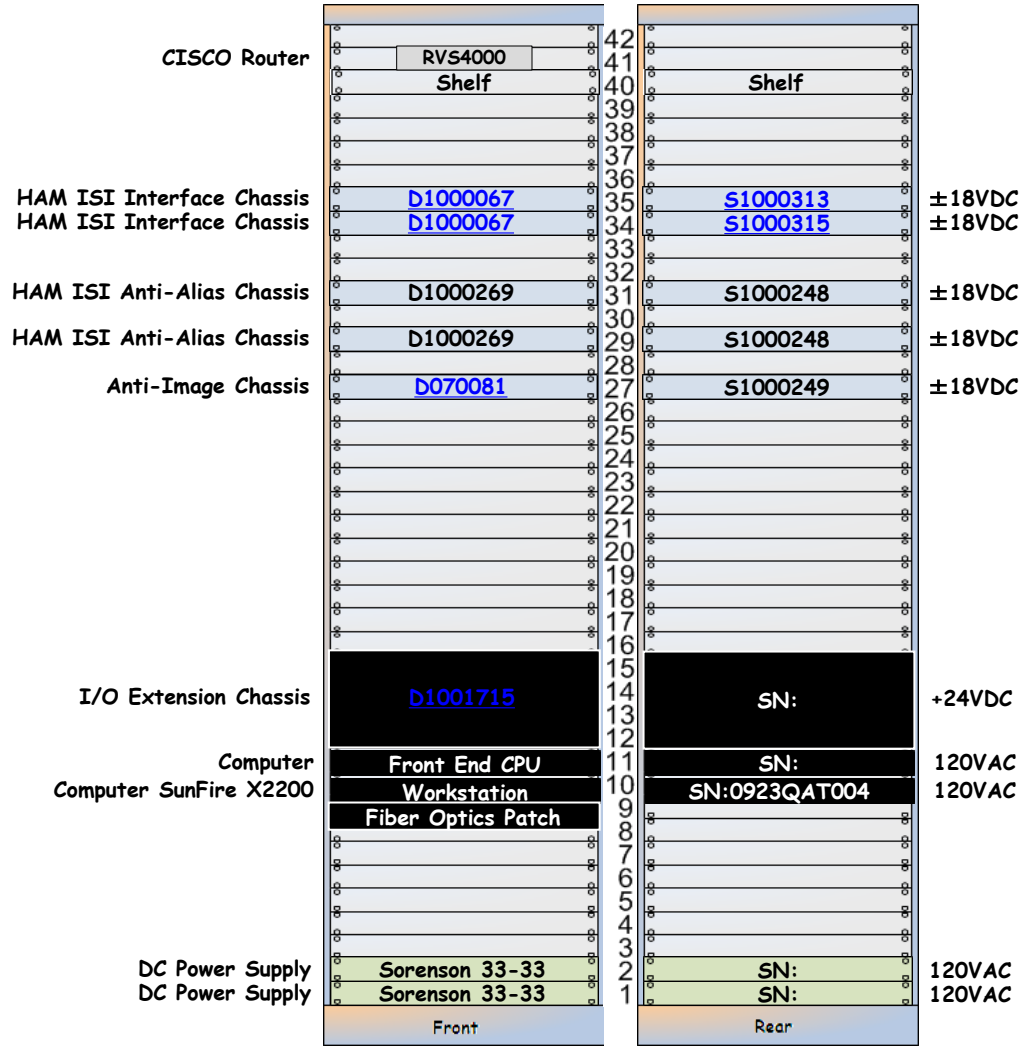
iMAC Computer



L1-ETR-06

[<< Electronics Test Racks]

STS Huddle Test Rack Layout (D1001412)



D070124 Rack Input Power Box (RU 34-36)

0 - ADC0
1 - DAC0
2 - ADC1

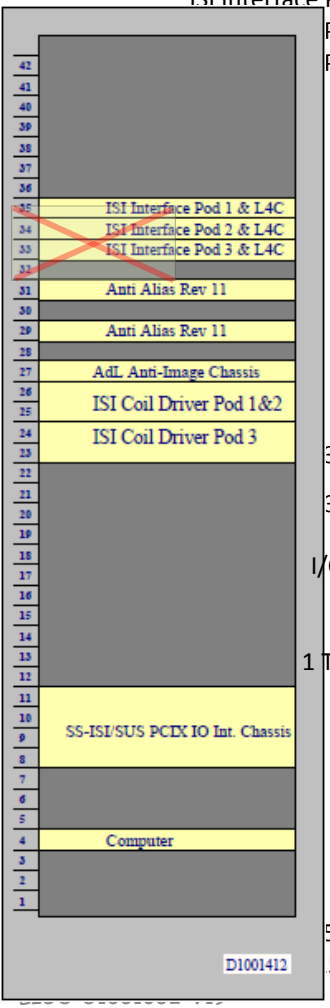
+18VDC	?A
-18VDC	?A
+24VDC	?A
-24VDC	?A

LIGO

L1:ETR06 STS Huddle

L1-ETR06
Front

L1-ETR06
Rear



ISI Interface Pod 1 & L4C DXXXXXXXX SYYYYYYYY
Pod 2 & L4C DXXXXXXXX SYYYYYYYY
Pod 3 & L4C DXXXXXXXX SYYYYYYYY

DC Bus Distribution Box

3 AA Chassis D0902783 SYYYYYYYY

3 AA Chassis D0902783 SYYYYYYYY

I/O Extension
2 ADC
1 DAC
1 Timing Slave

Computer SN:

Linksys BEFSX41
Firewall Router

Netgear GS108
Gigabit Switch

iMAC Computer

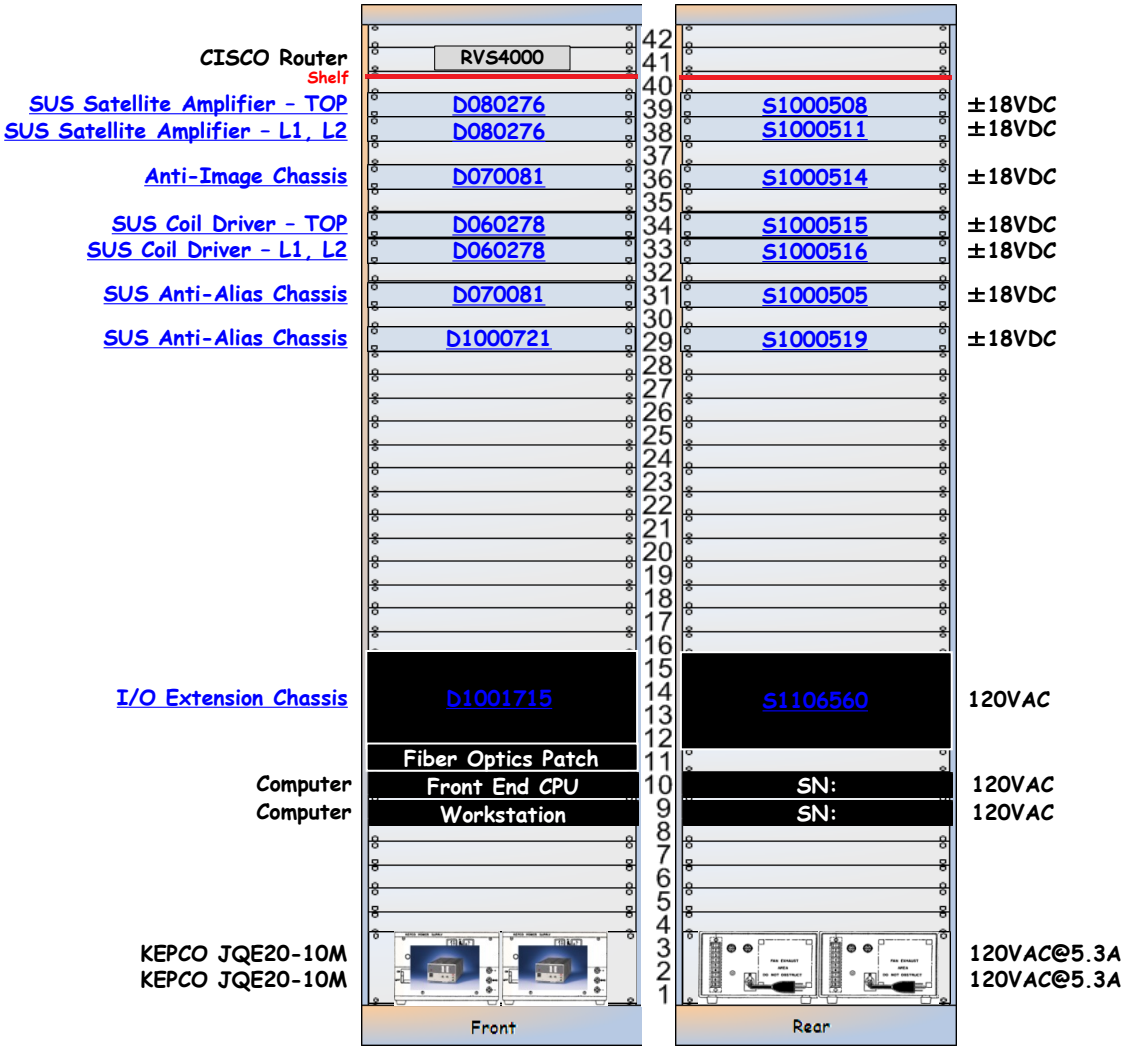
5-10M +15V SN:

5-10M -15V SN:

L1-ETR-07

[<< Electronics Test Racks]

Triple SUS Test Rack Layout (D1001624 S1106460)



D070124 Rack Input Power Box (RU 34-36)

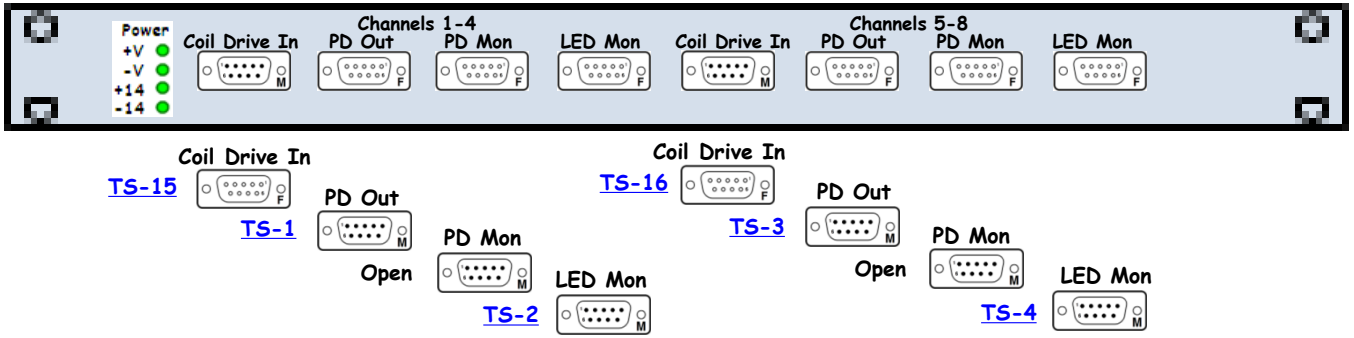
0 – ADC0
1 – DAC0
2 – ADC1

D080276 - S1000508

LIGO
<< L1-ETR-07

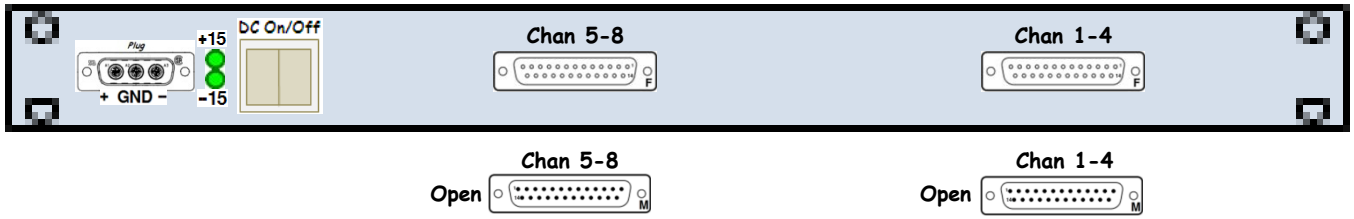
SUS Satellite Amplifier - TOP | D080276 | S1000508 | ±18VDC

UM (Top)



D080276

Front



S1000508

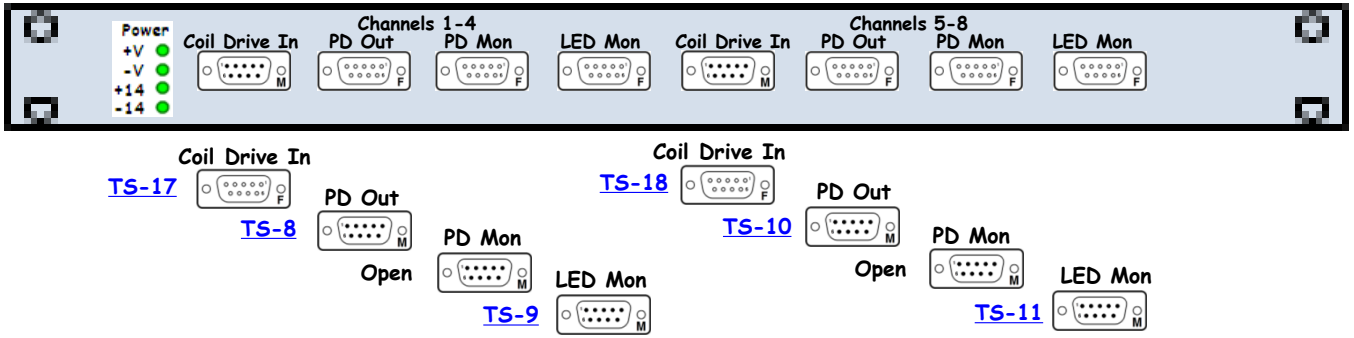
Rear

D080276 - S1000511

LIGO
<< L1-ETR-07

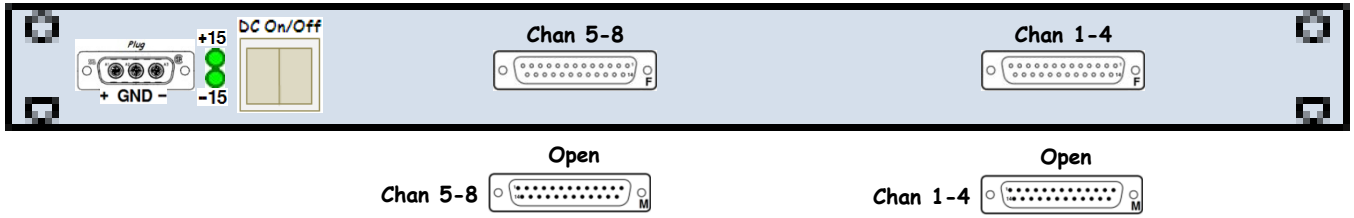
SUS Satellite Amplifier - L1, L2 | D080276 | S1000511 | ±18VDC

IM (L1), BM (L2)



D080276

Front



S1000511

Rear

D070081 - S1000514

<< L1-ETR-07

Anti-Image Chassis | D070081 | S1000514 | ±18VDC

UNBUFFERED

D070081

Front

OUT 1-4
TS-6
OUT 5-8
TS-7
OUT 9-12
TS-13
OUT 13-16
TS-14

S1000514

Rear

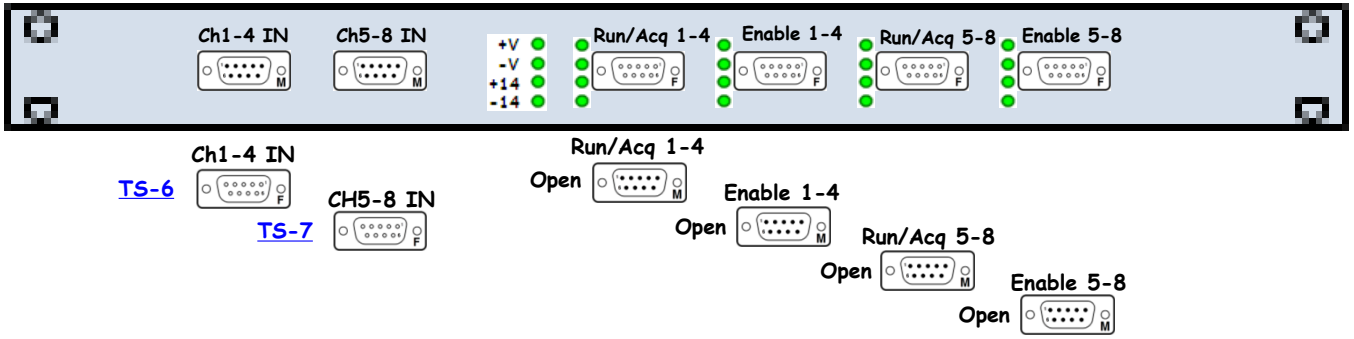
From DAC Adapter
TS-24
M

D060278 - S1000515

« L1-ETR-07

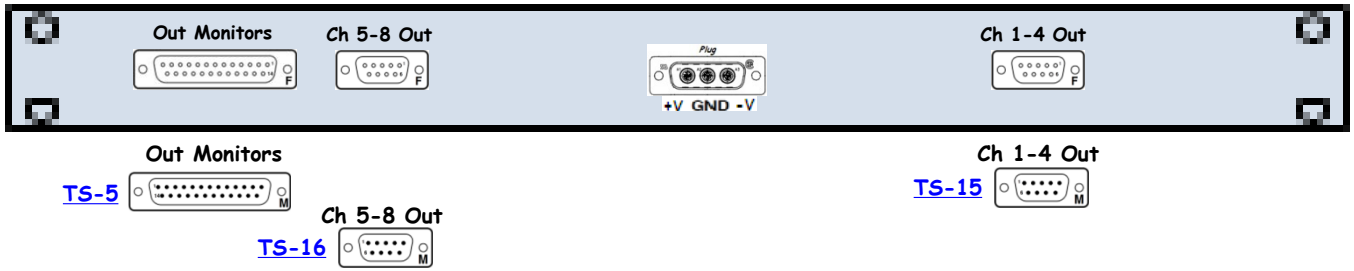
SUS Coil Driver - TOP | D060278 | S1000515 | ±18VDC

UM (Top)



D060278

Front



S1000515

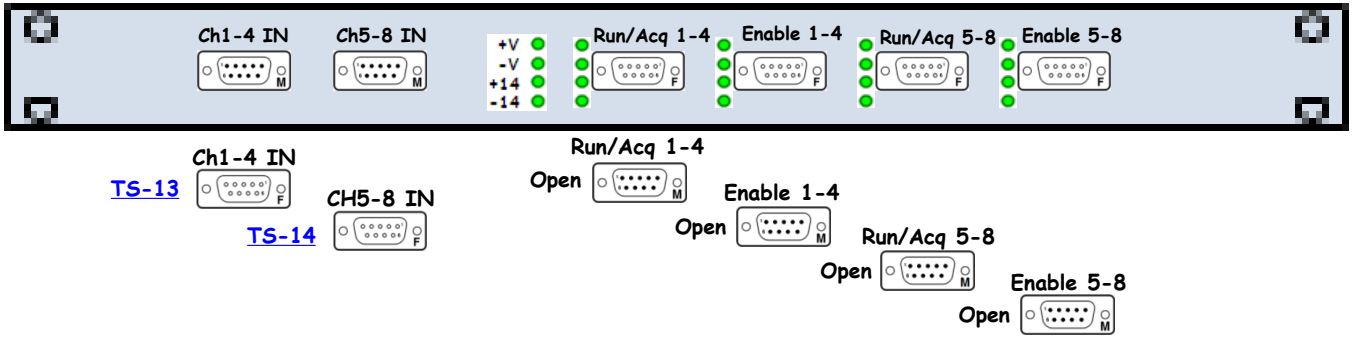
Rear

D060278 - S1000516

« L1-ETR-07

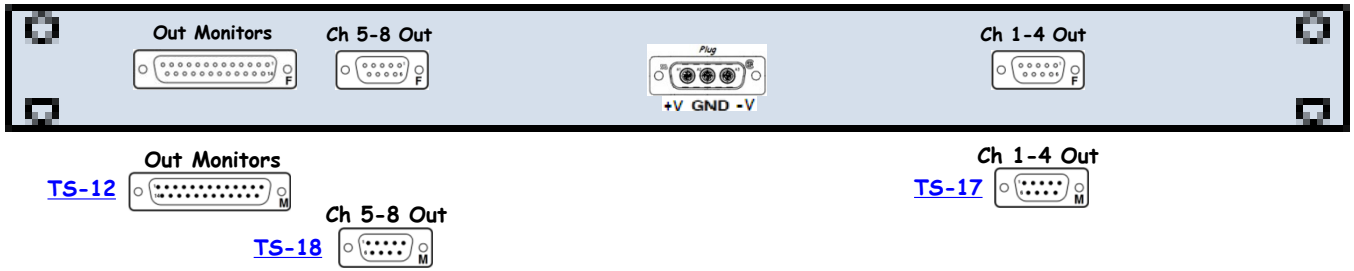
SUS Coil Driver - L1, L2 | D060278 | S1000516 | ±18VDC

IM (L1), BM (L2)



D060278

Front



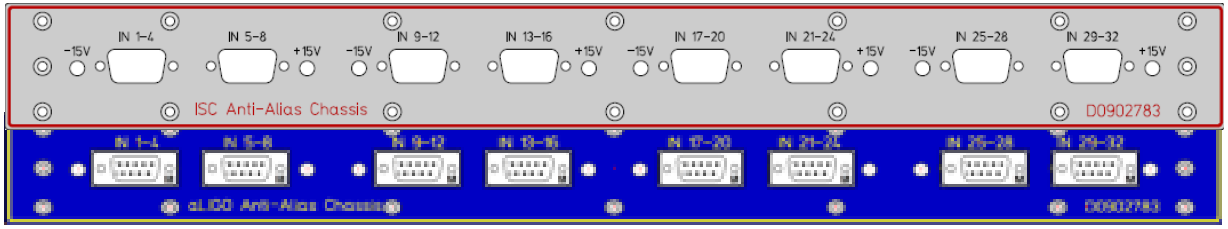
S1000516

Rear

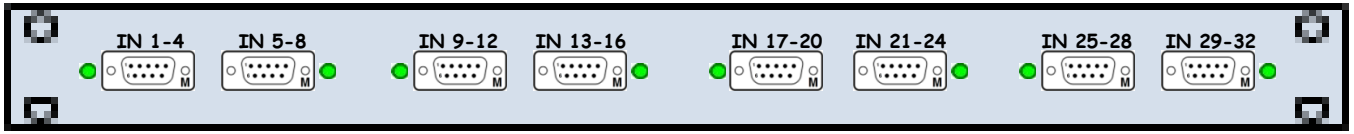
D070081 - S1000505

[<< L1-ETR-07]

SUS Anti-Alias Chassis [D070081] [S1000505] ±18VDC

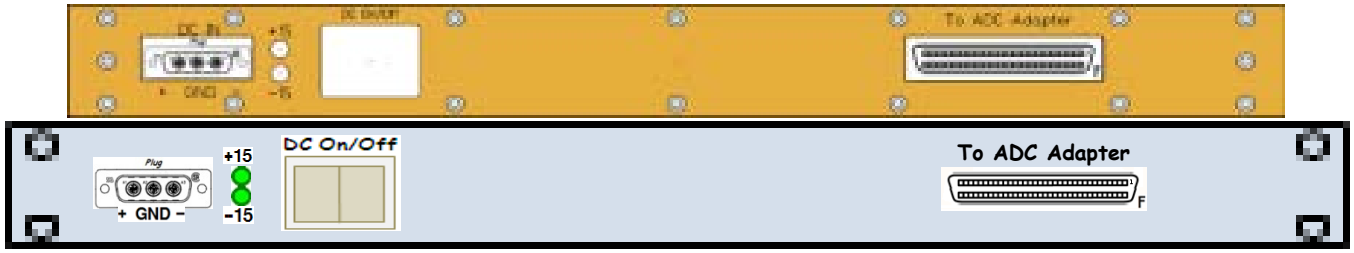


[D0902783]
Front



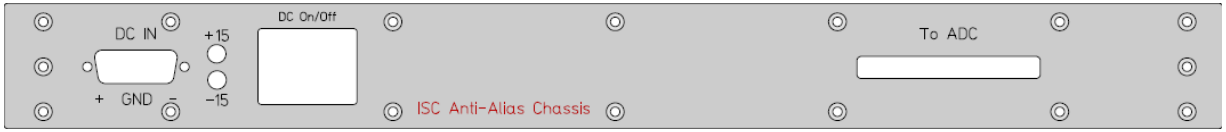
[D070081]
Front

[TS-1] IN 1-4
[TS-3] IN 5-8
[TS-2] IN 9-12
[TS-4] IN 13-16
[TS-8] IN 17-20
[TS-10] IN 21-24
[TS-9] IN 25-28
[TS-11] IN 29-32



[S1000505]
Rear

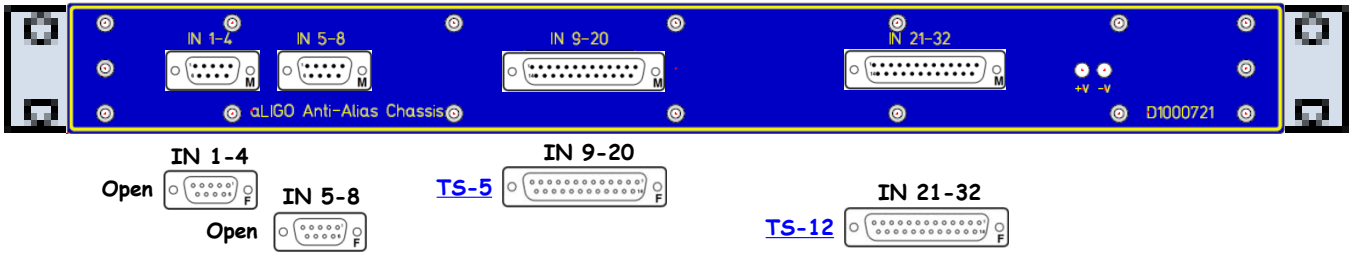
To ADC Adapter
[TS-23]



D1000721 - S1000519

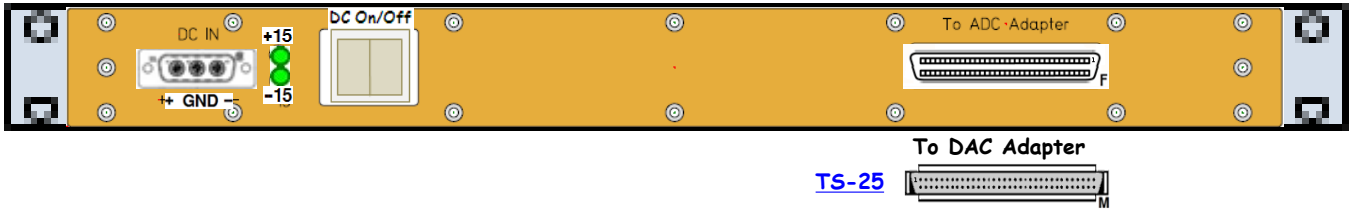
« L1-ETR-07

SUS Anti-Alias Chassis | D1000721 | S1000519 | ±18VDC



D1000721

Front



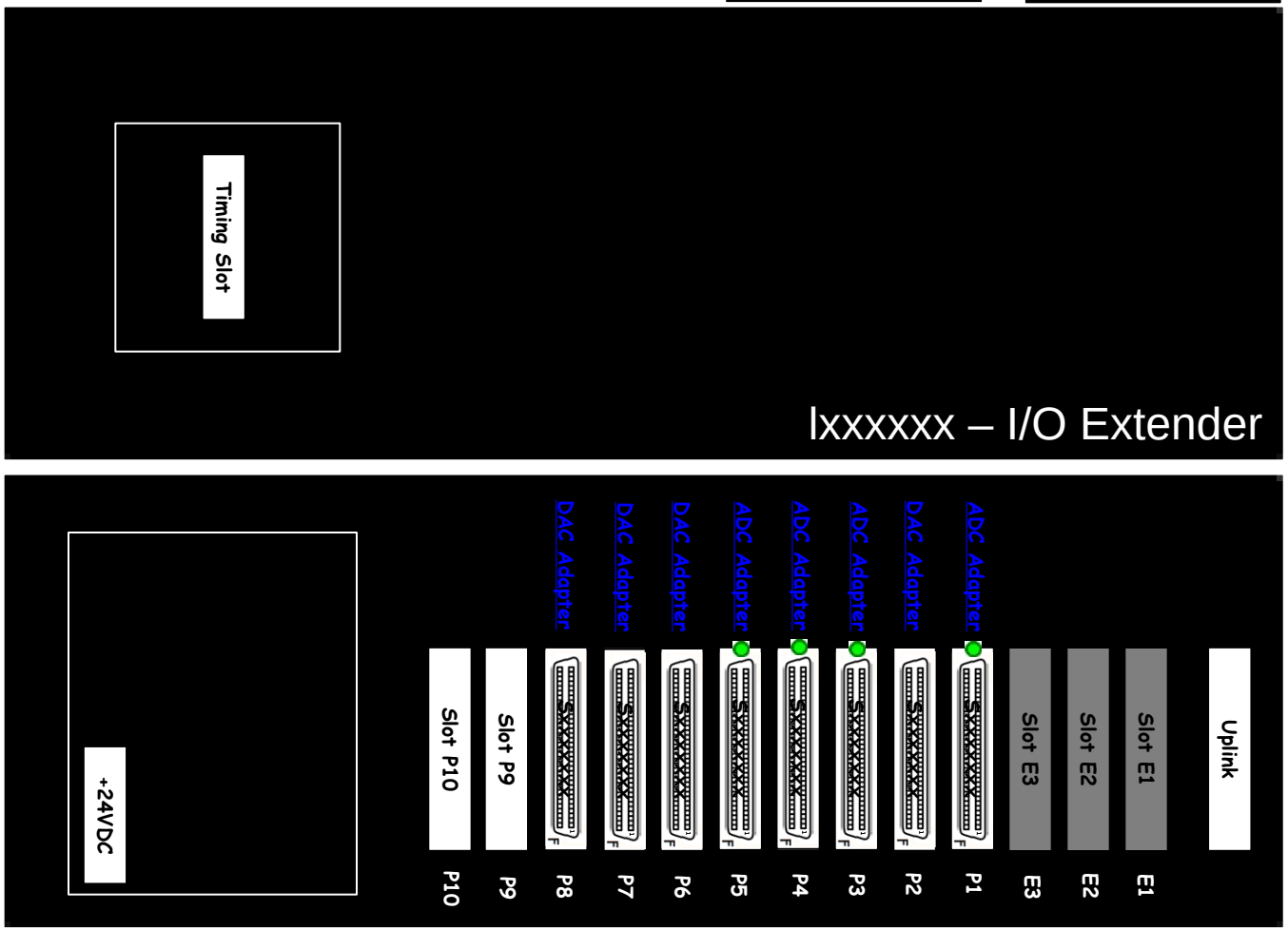
S1000519

Rear

lxxxxxx – D1001715 – S1106560

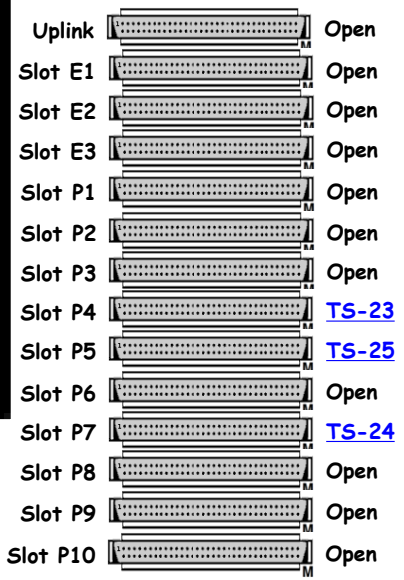
« L1-ETR-07

lxxxxxx I/O Extension Chassis | D1001715 | S1106560 | +24VDC



D1001715
Front

S1106560
Rear

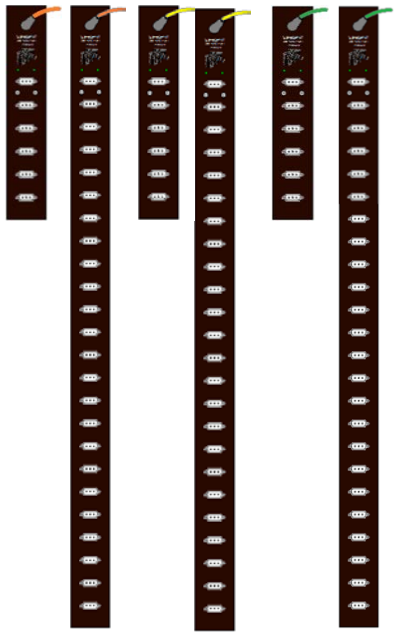


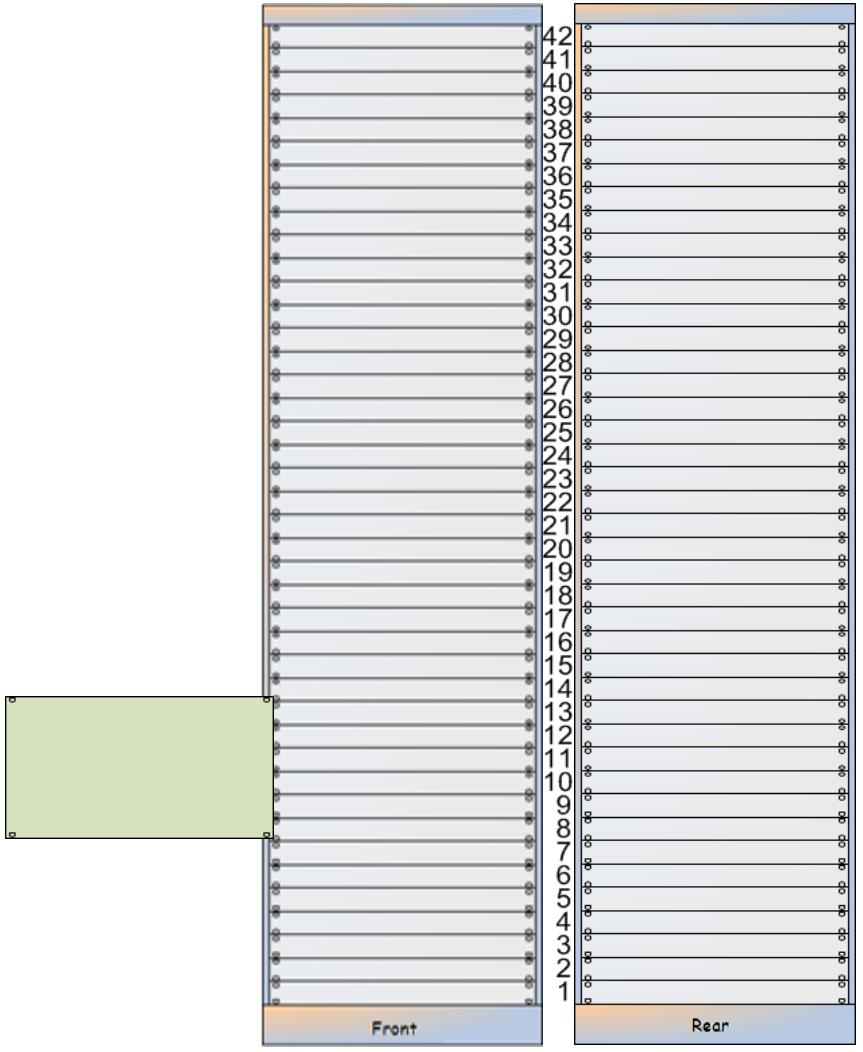
Templates

Description
Dxxxxxxx
Dxxxxxxx
Dxxxxxxx
Dxxxxxxx
Description

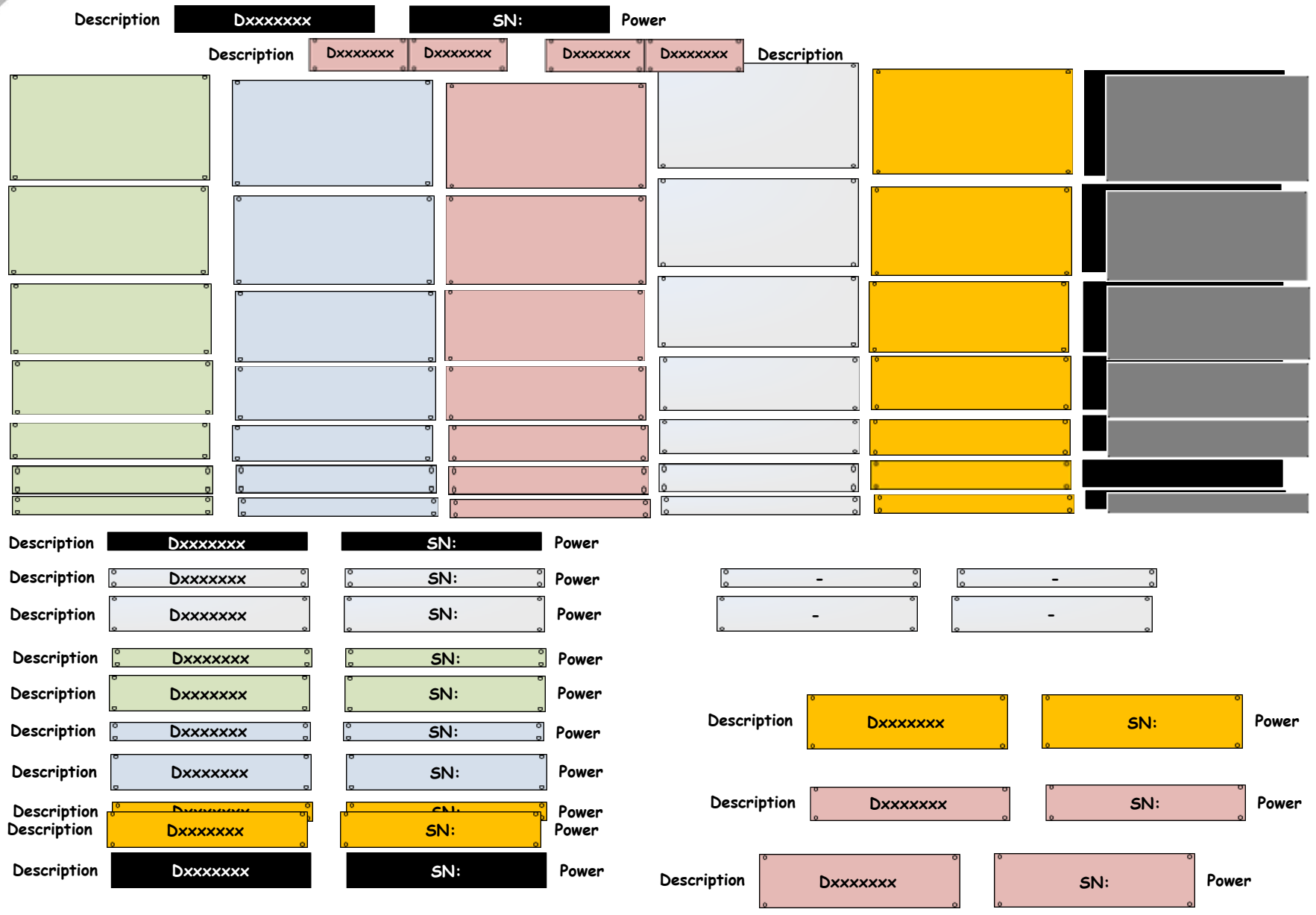
Rack Template

D070124 Rack Input Power Box (RU 34-36)



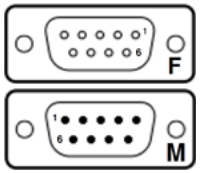


Rack Template

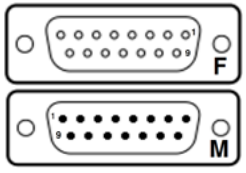


Connectors – bmp

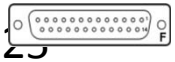
DE-9

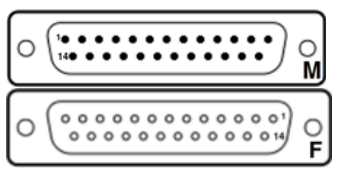


DA-15

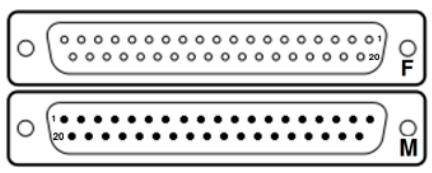


DB-25

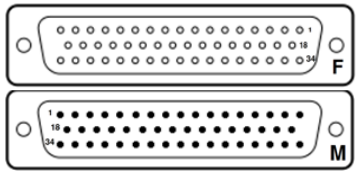




DC-37



DD-50



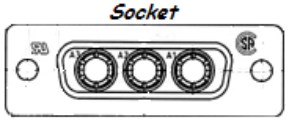
JTAG

CP-4

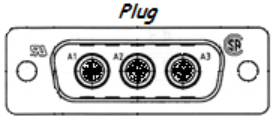
LEMO 2-Pin

LEMO 4-Pin

Conec

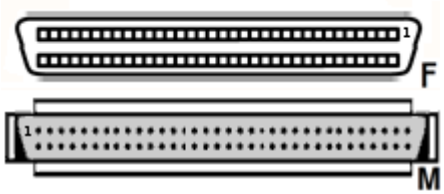


3W3S

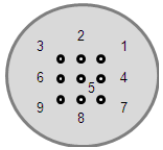


3W3P

SCSI-68

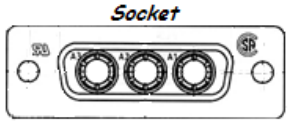


BNC



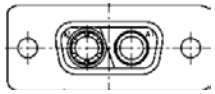
Connectors – bmp

Conec

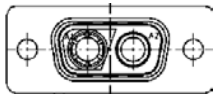


3W3S

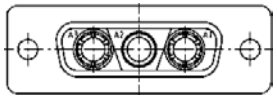
3W3P



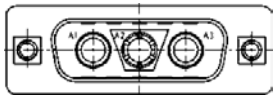
2W2CS



2W2CP

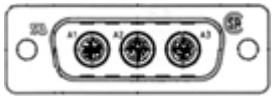


3W3CS



3W3CP

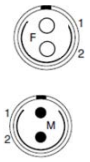
3W3S



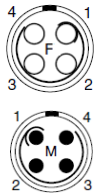
3W3P

CP-4

LEMO 2-Pin

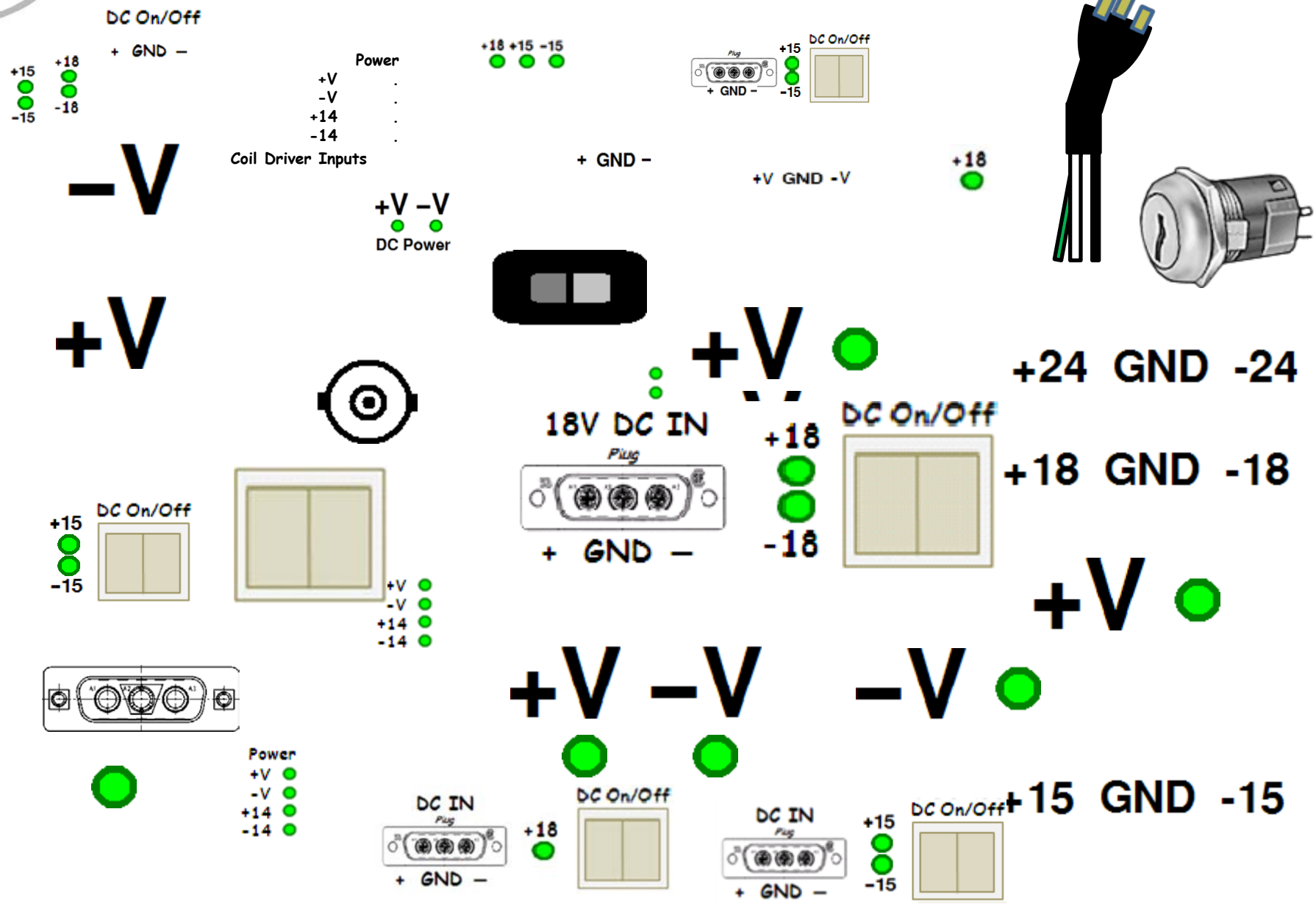


LEMO 4-Pin

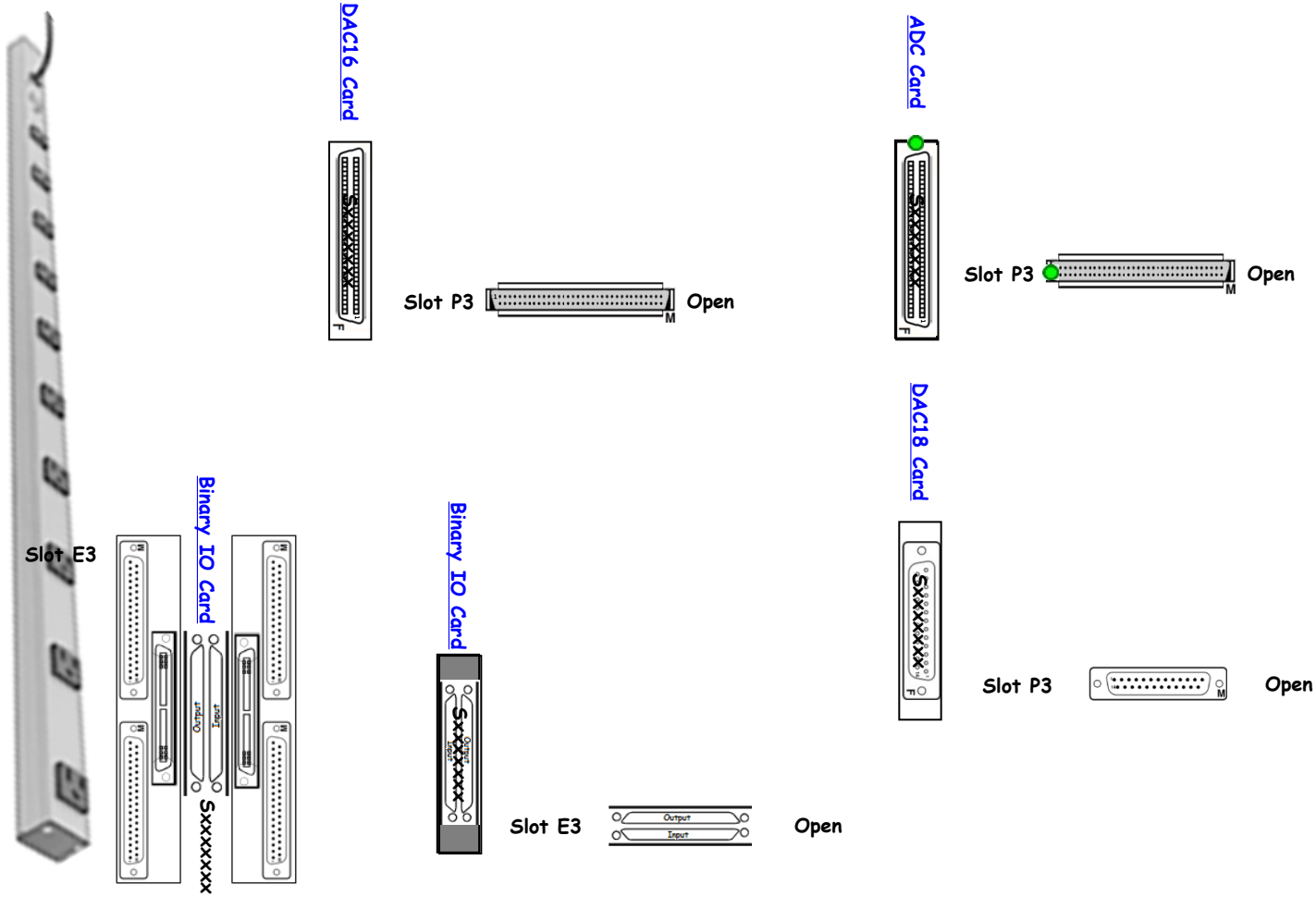


LEMO 1-Pin

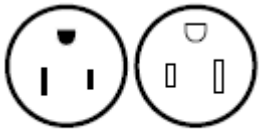
+V –V Layouts


DC On/Off
+ GND –
+15
+18
-15
-18
Power
+V
-V
+14
-14
Coil Driver Inputs
+18 +15 -15
+ GND –
+15
DC On/Off
-15
+V GND -V
+18
–V
+V –V
DC Power
+V
+V
+24 GND -24
18V DC IN
Plug
+ GND –
+18
DC On/Off
+18 GND -18
-18
+15
DC On/Off
-15
+V
-V
+14
-14
+V
+V –V –V
Power
+V
-V
+14
-14
DC IN
Plug
+ GND –
+18
DC On/Off
+15 GND -15
DC IN
Plug
+ GND –
+15
-15
DC On/Off

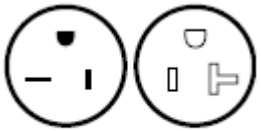
+V -V Layouts


DAC18 Card
Binary IO Card
ADC Card
DAC16 Card
Slot P3
Open
Slot P3
Open
DAC18 Card
ADC Card
Slot E3
Open
Binary IO Card
DAC16 Card
Slot P3
Open
Slot E3
Binary IO Card

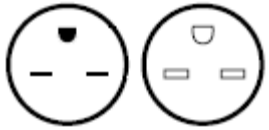
+V –V Layouts



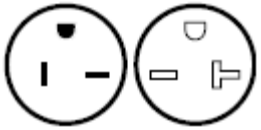
125 VAC, 15 Amps



125 VAC, 20 Amps



250 VAC, 15 Amps



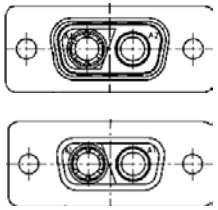
250 VAC, 20 Amps

L6-30R L6-30P

VOLTAGE	NEMA	15 AMPERE Receptacle	15 AMPERE Plug	20 AMPERE Receptacle	20 AMPERE Plug	30 AMPERE Receptacle	30 AMPERE Plug	50 AMPERE Receptacle	50 AMPERE Plug	60 AMPERE Receptacle	60 AMPERE Plug
125 V	1	1-15R	1-15P								
250V	2		2-15P	2-20R	2-20P	2-30R	2-30P				
125V	5	5-15R	5-15P	5-20R	5-20P	5-30R	5-30P	5-50R	5-50P		
250V	6	6-15R	6-15P	6-20R	6-20P	6-30R	6-30P	6-50R	6-50P		
277V, A.C.	7	7-15R	7-15P	7-20R	7-20P	7-30R	7-30P	7-50R	7-50P		
125/ 250V	10			10-20R	10-20P	10-30R	10-30P	10-50R	10-50P		
3Ø 250V	11	11-15R	11-15P	11-20R	11-20P	11-30R	11-30P	11-50R	11-50P		
125/ 250V	14	14-15R	14-15P	14-20R	14-20P	14-30R	14-30P	14-50R	14-50P	14-60R	14-60P
3Ø 250V	15	15-15R	15-15P	15-20R	15-20P	15-30R	15-30P	15-50R	15-50P	15-60R	15-60P
3Ø Y 120/208V	18	18-15R	18-15P	18-20R	18-20P	18-30R	18-30P	18-50R	18-50P	18-60R	18-60P

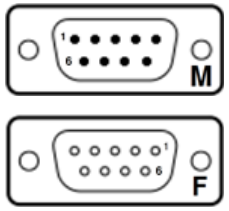
Security Cameras Layout

24VAC Power To Camera



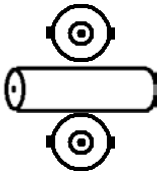
A1 = Black
A2 = White(Y) Red(X)

Signals To Camera



1 =
2 =
3 =
4 =
5 =
6 =
7 =
8 =
9 =

75 Ohm Signal from Camera



50 Ohm Bullet?

Type N

BNC

TNC

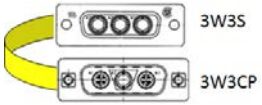
24VAC

Transformer

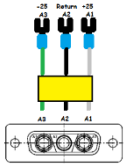
110VAC

Interface

12VDC



SMA

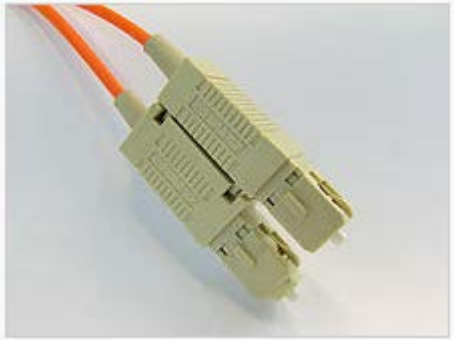


Fiber Optics Connector Types

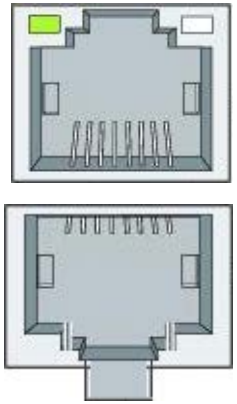
FC — Ferrule Connector *or* Fiber Channel

ST / BFOC — Straight Tip / Bayonet Fiber Optic Connector

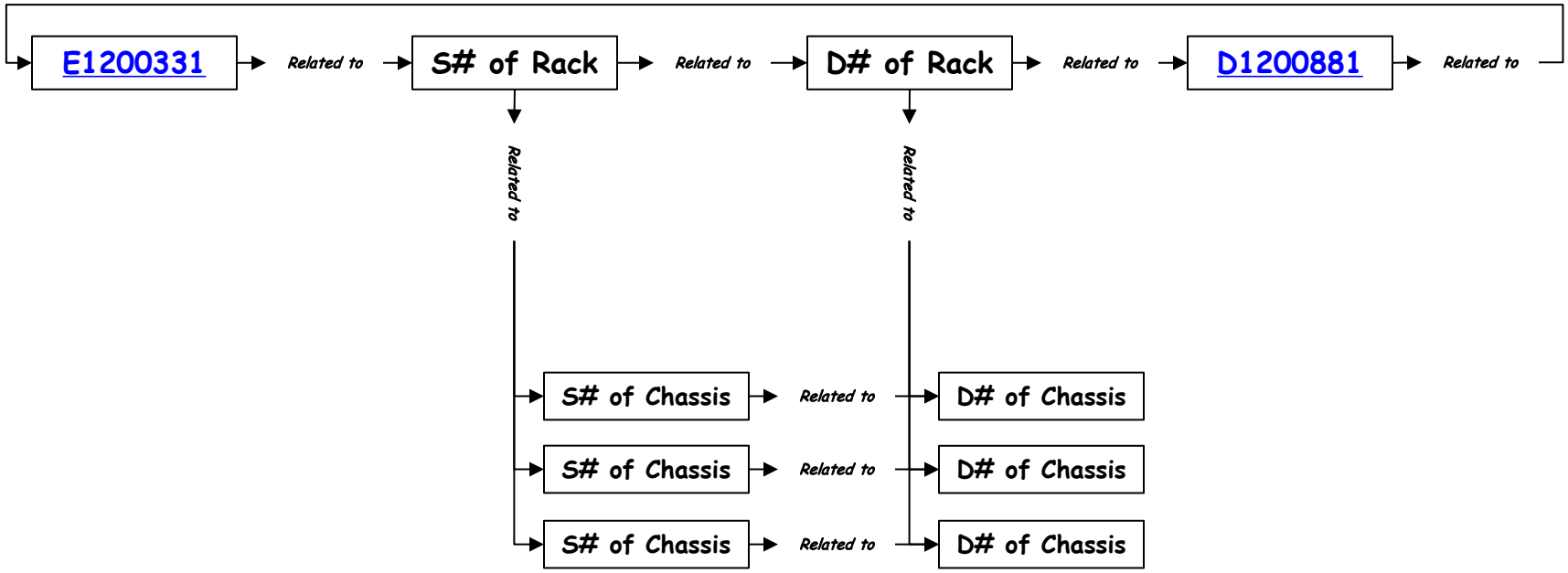
LC — Lucent Connector, *or* Little Connector, *or* Local Connector

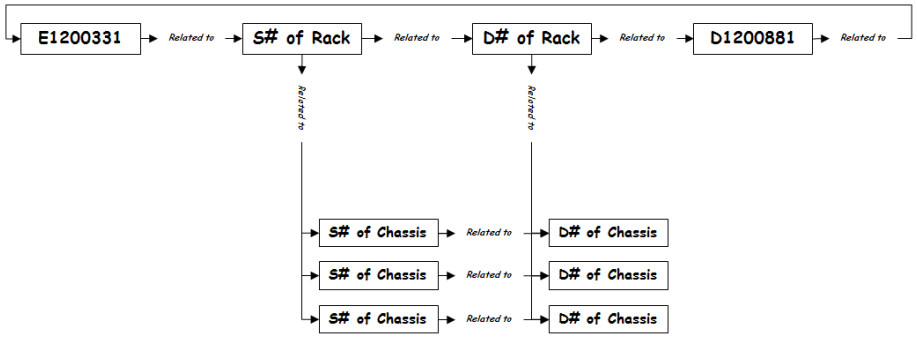


SC — Subscriber Connector *or* square connector *or* Standard Connector



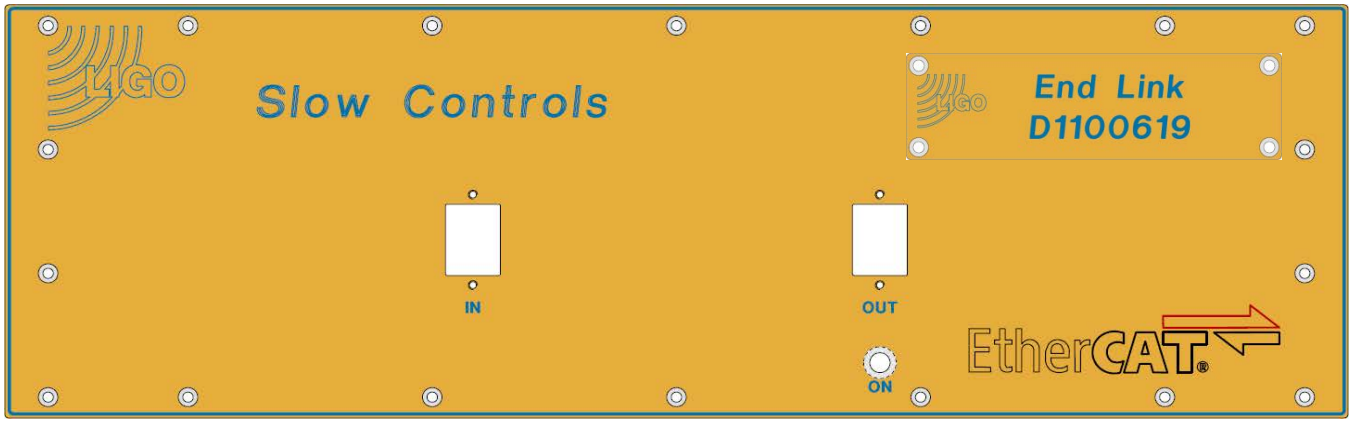
How Rack Documents Relate





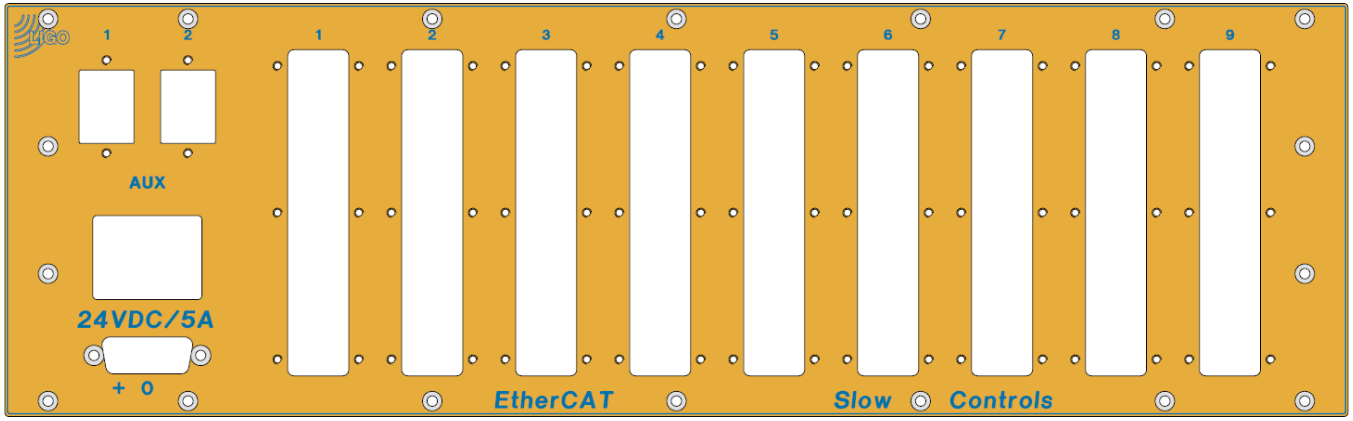
D1100619 – End Link

Beckhoff Slow Controls End Link | D1100619 | SN: | +24VDC



D1100619

Front: D0902553
Name: D1100667



S1000519

Rear: D0902554

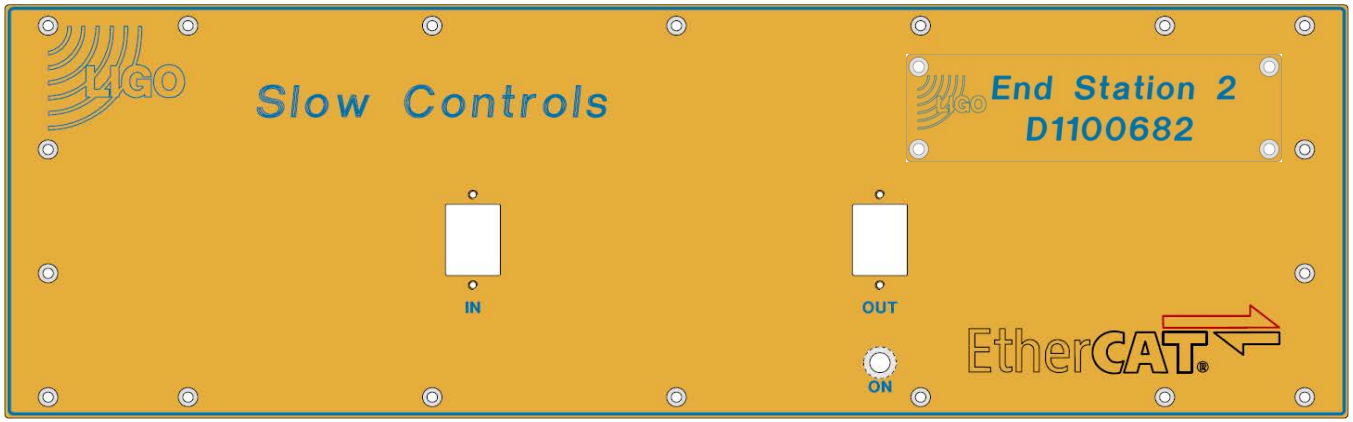
D1100682 – End Station 2

Beckhoff Slow Controls
End Station 2

D1100682

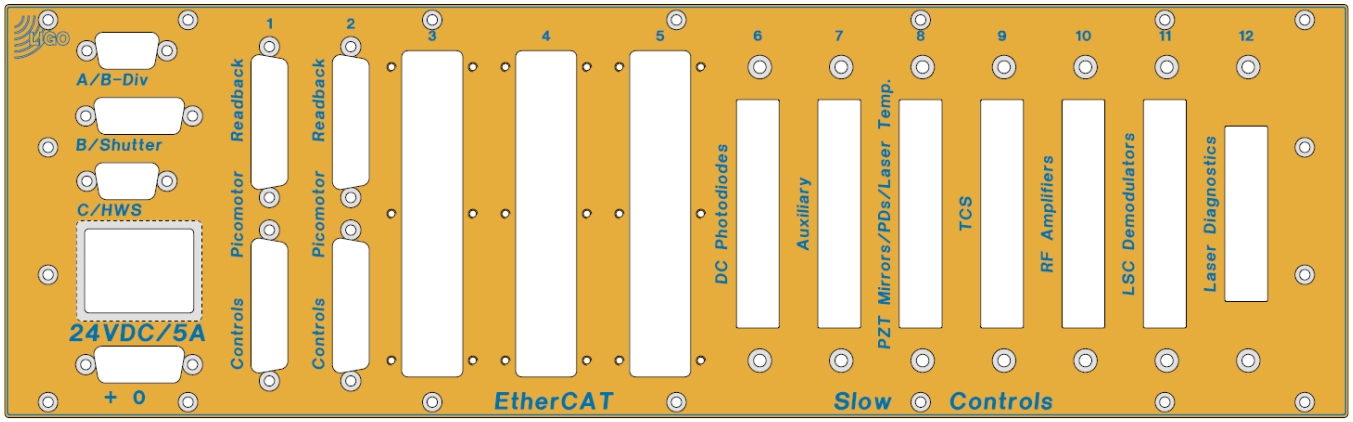
SN:

+24VDC



D1100682

Front: D0902553
Name: D1101978



S1000519

Rear: D1101977

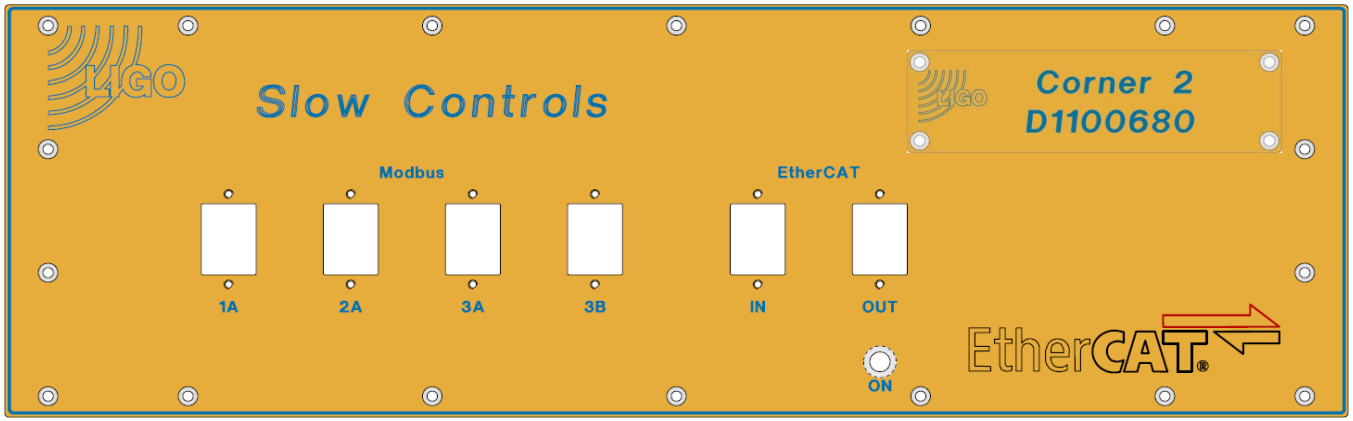
D1100680 – Corner 2

Beckhoff Slow Controls
Corner 2

D1100680

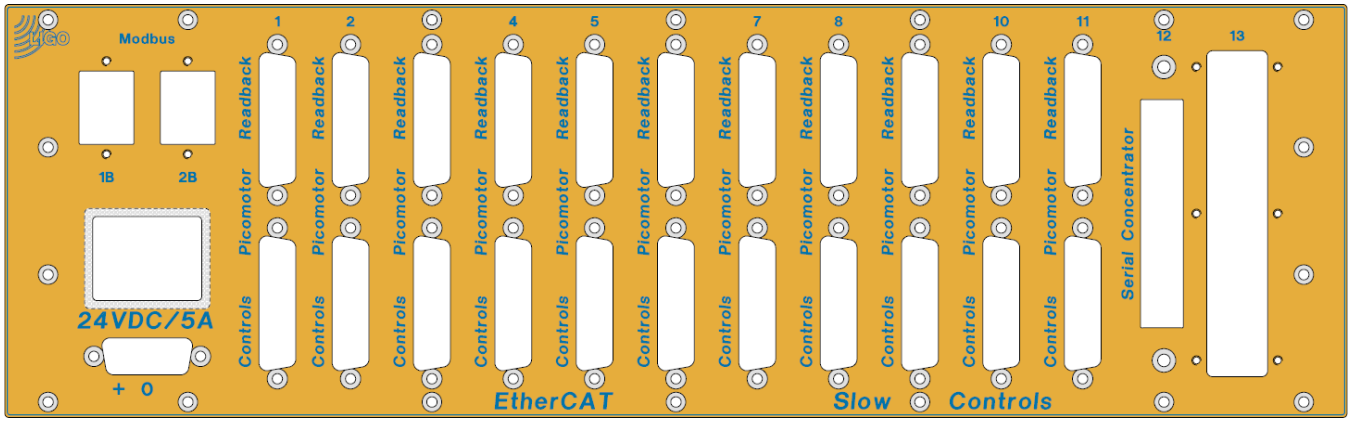
SN:

+24VDC



D1100680

Front: D1102322
Name: D1102269



S1000519

Rear: D1102268

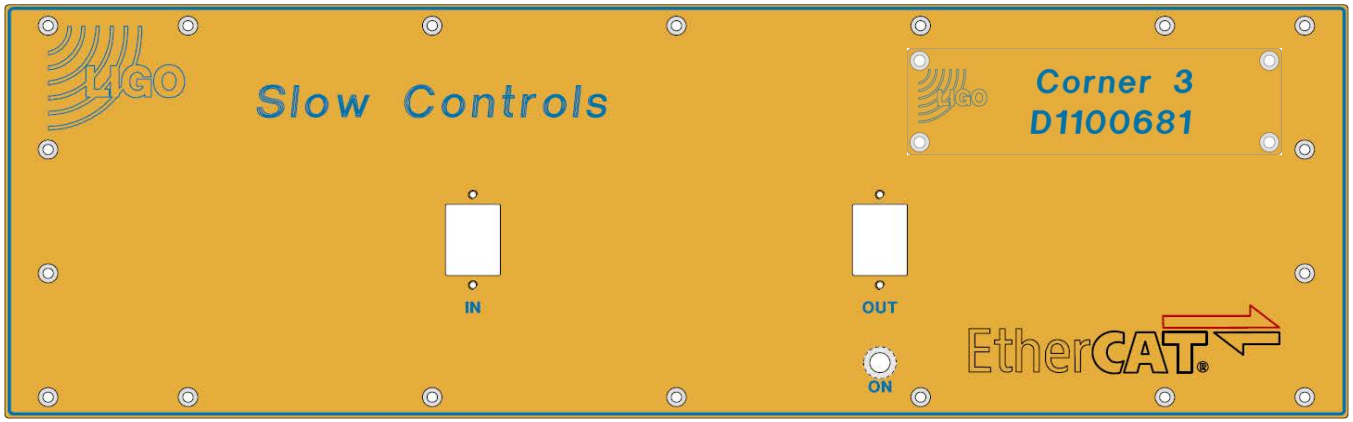
D1100681 – Corner 3

Beckhoff Slow Controls
Corner 3

D1100681

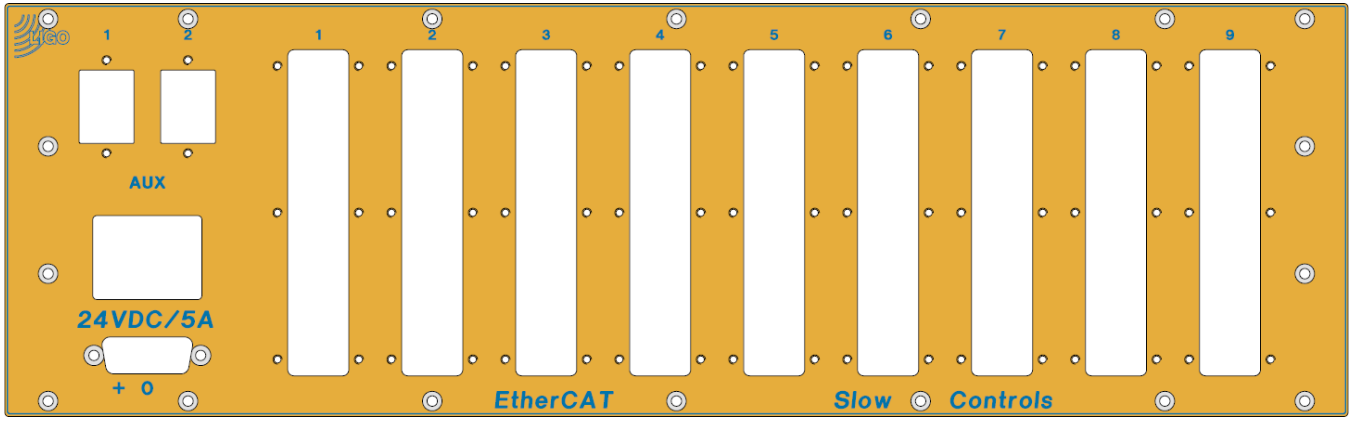
SN:

+24VDC



D1100681

Front: D0902553
Name: D1102434



SN:

Rear: D0902554

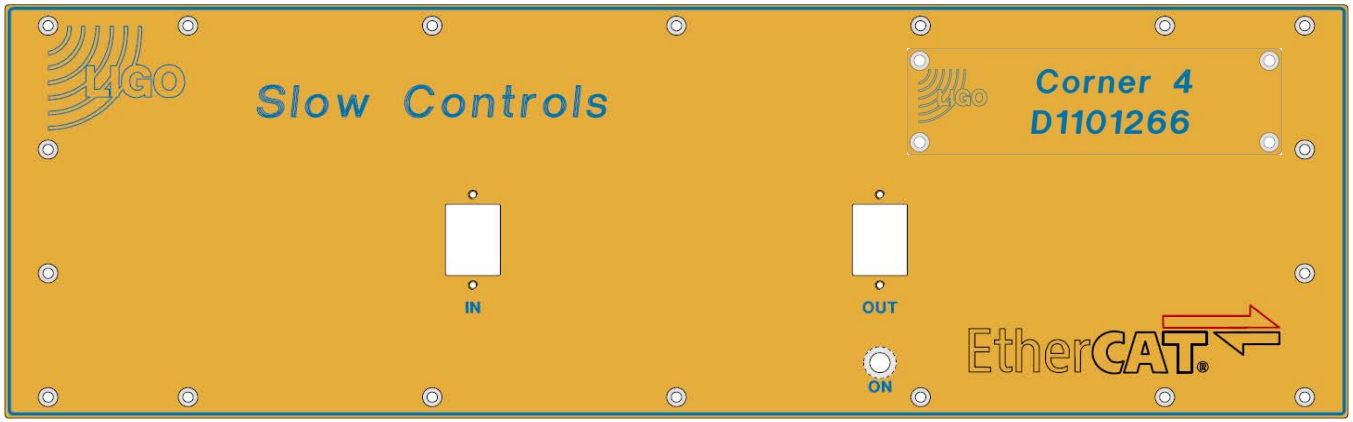
D1101266 – Corner 4

Beckhoff Slow Controls
Corner 4

D1101266

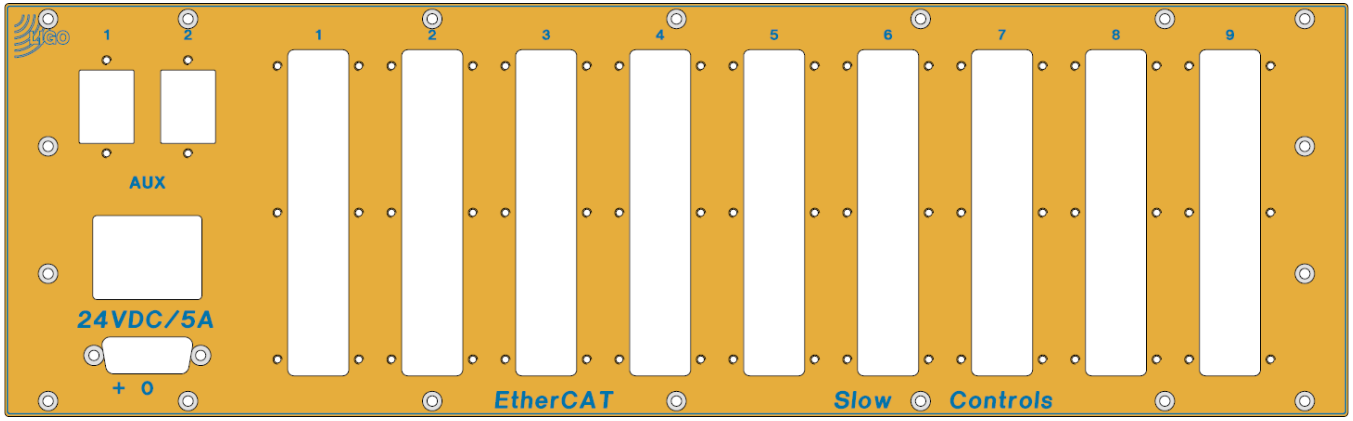
SN:

+24VDC



D1101266

Front: D0902553
Name: D1102435



SN:

Rear: D0902554

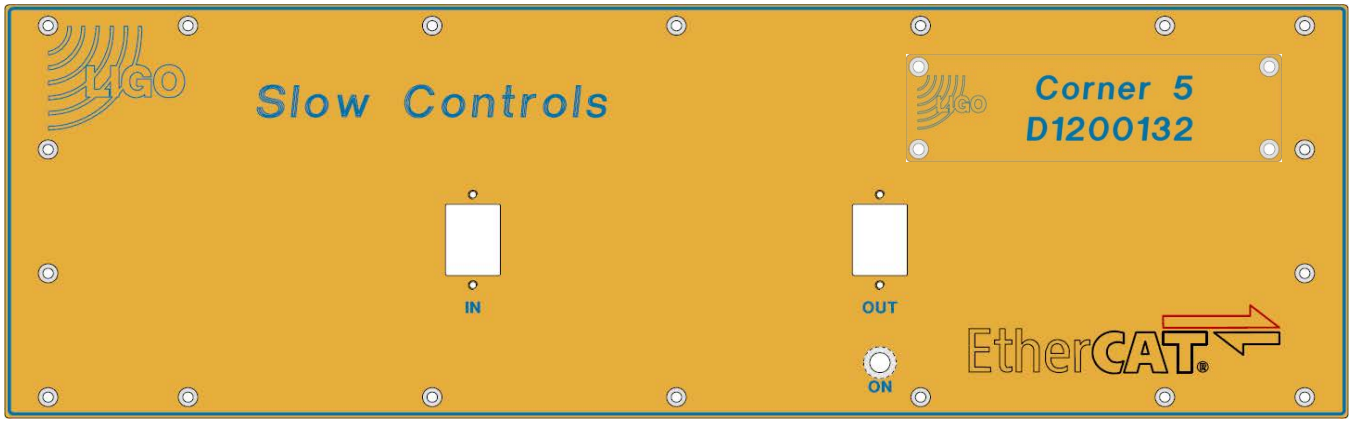
D1200132 – Corner 5

Beckhoff Slow Controls
Corner 5

D1200132

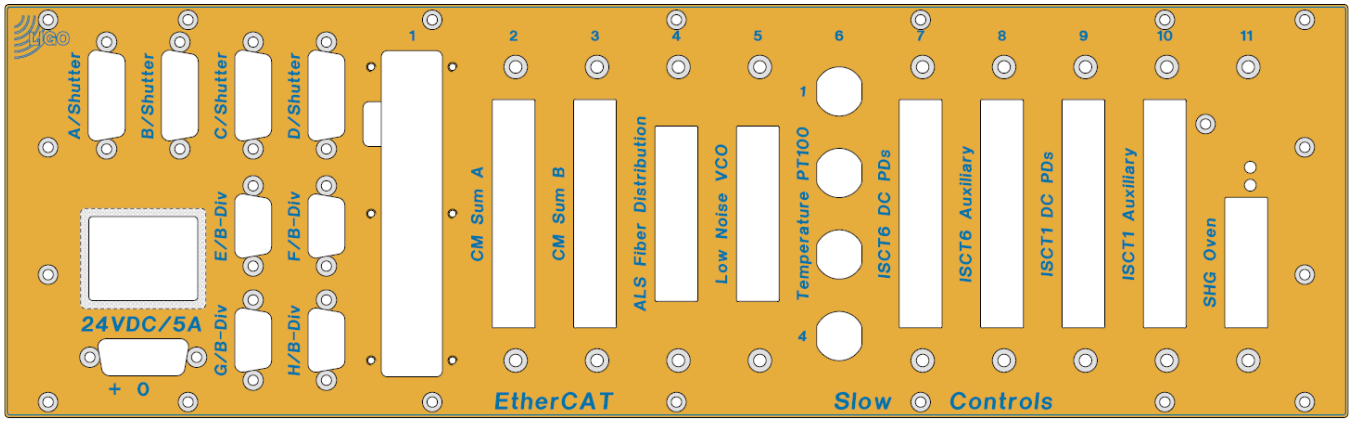
SN:

+24VDC



D1200132

Front: D0902553
Name: D1200133



S1000519

Rear: D1201340

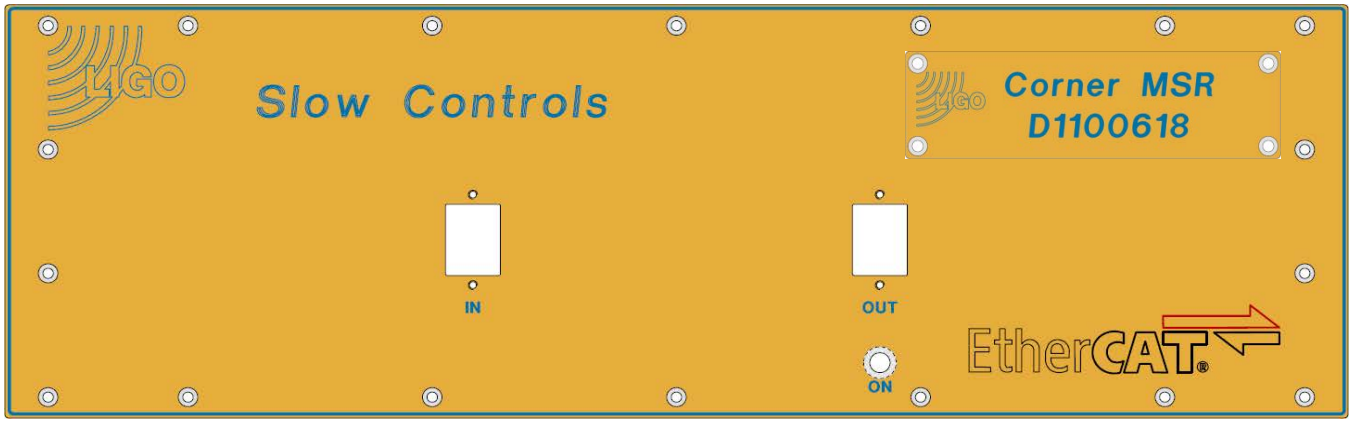
D1100618 – Corner MSR

Beckhoff Slow Controls
Corner MSR

D1100618

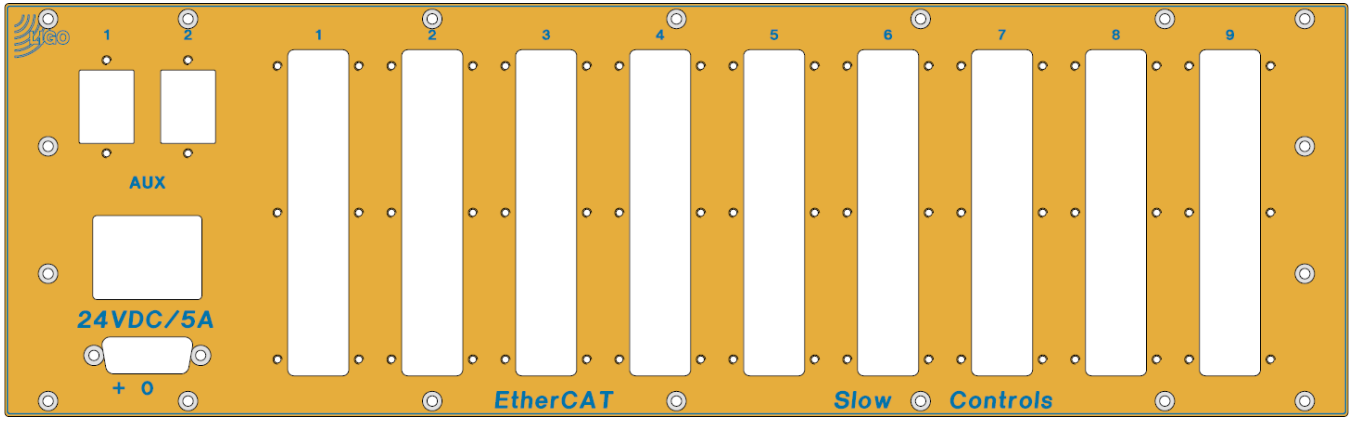
SN:

+24VDC



D1100618

Front: D0902553
Name: D1100666



SN:

Rear: D0902554

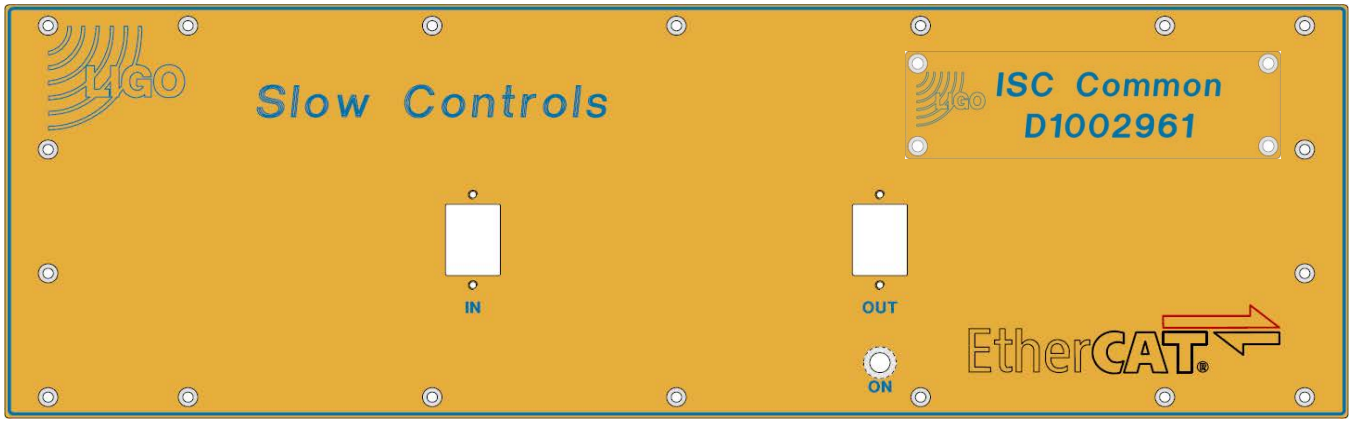
D1002961 – ISC Common

Beckhoff Slow Controls
ISC Common

D1002961

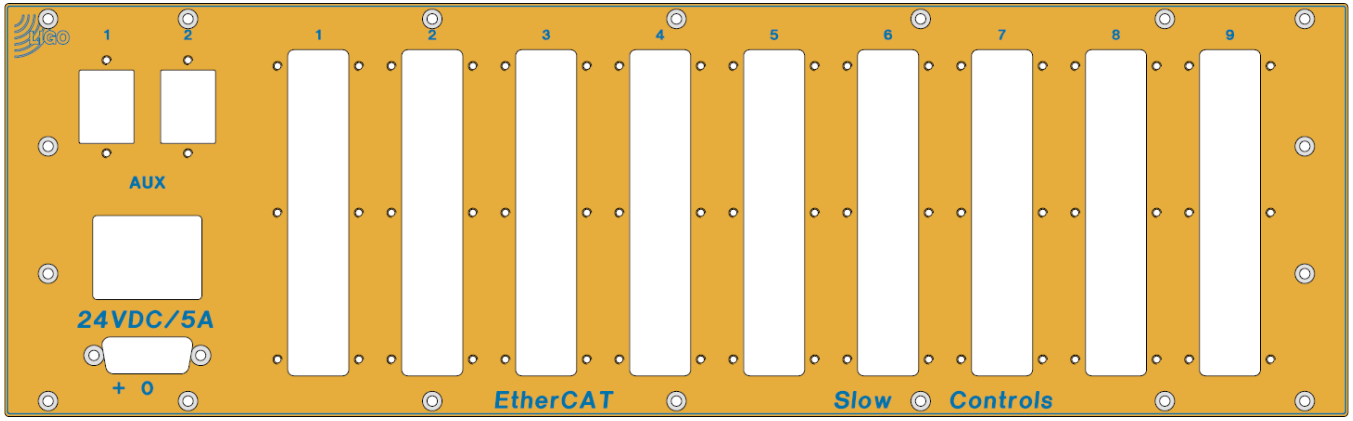
SN:

+24VDC



D1002961

Front: D0902553
Name: D1002962



SN:

Rear: D0902554

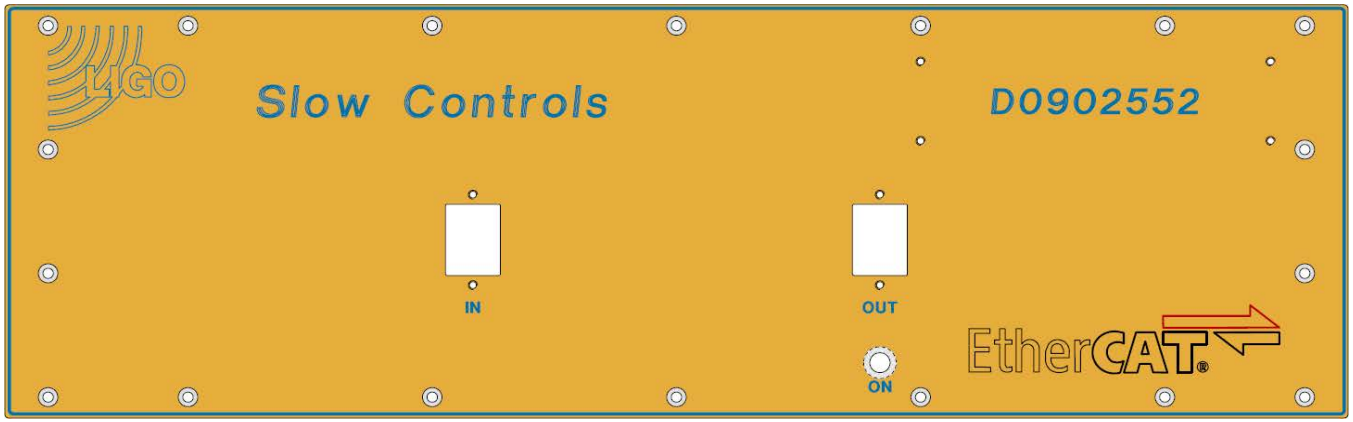
D0902552 - Empty

Beckhoff Slow Controls
Empty

D0902552

SN:

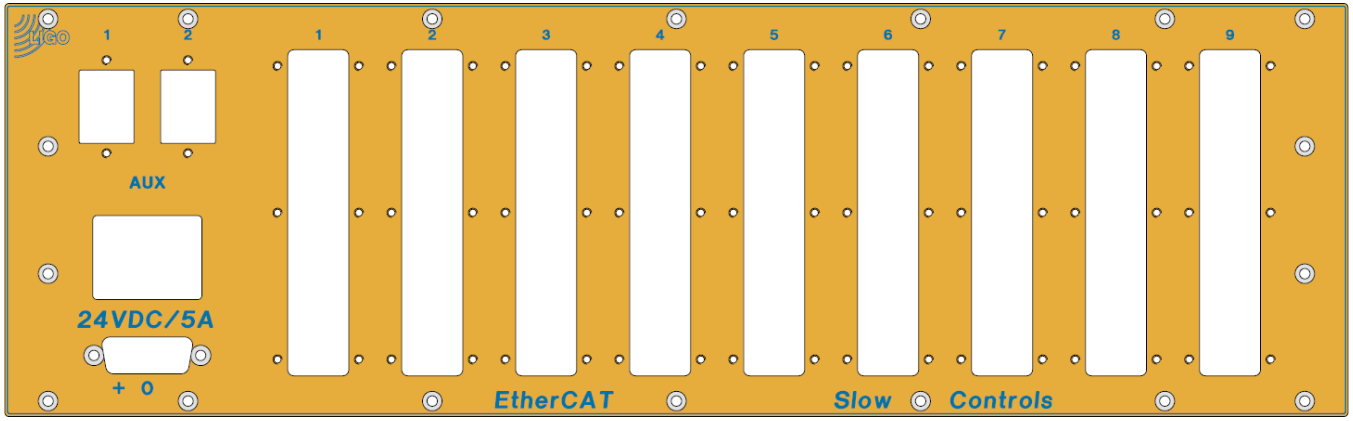
+24VDC



D0902552

Front: D0902553

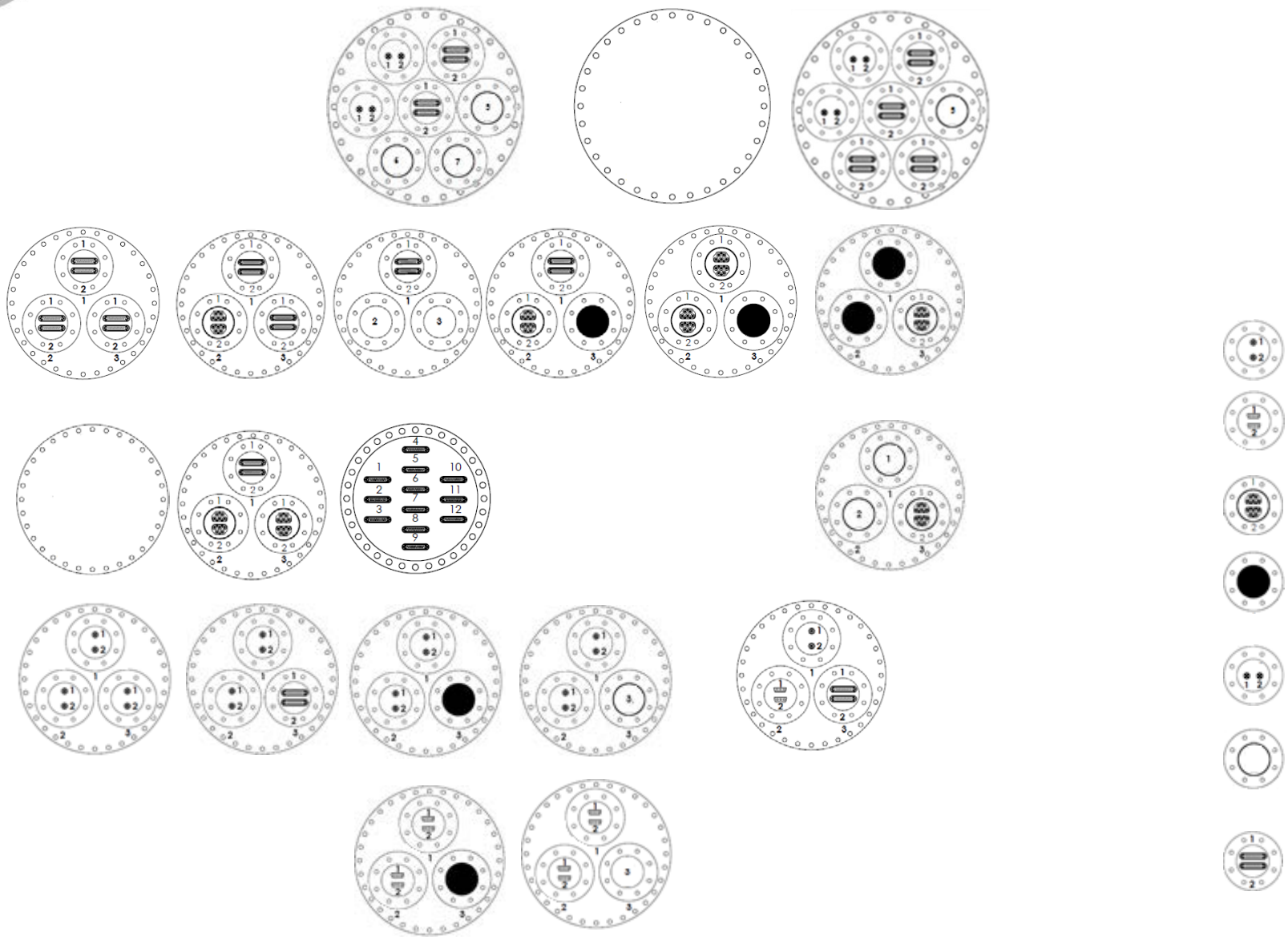
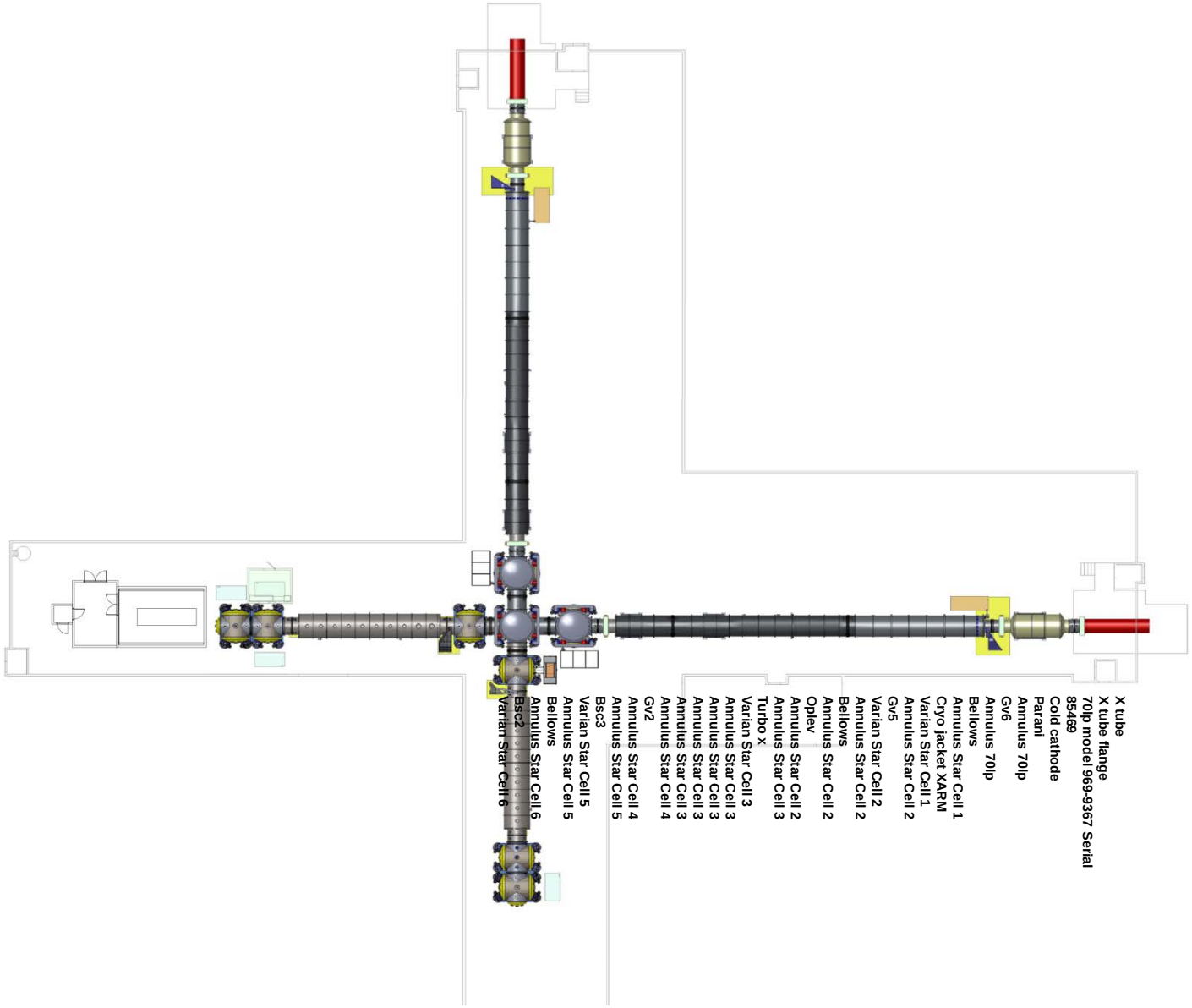
Name: None



SN:

Rear: D0902554

Flanges



LVEA Vacuum Equipment and Chambers