



Mount the terminal block on spare DIN rail space.
Use the terminal block to distribute the 24V supply.

This EtherCAT chassis uses copper only.
Mount the modular adapters to the front panel.
Using CAT5 patch cables:

- Connect the front panel input to the input of the first coupler (left rail).
- Connect the front panel output to the output of the last coupler (right rail).
- Connect the output of the first coupler to the input of the second one.
- Connect the output of the second coupler to the input of the third one.

Ports

IN

OUT

A

B

C

PN1
EtherCAT chassis
LIGO
D0902552-v3

PN5
Ethernet patch cable, 1'

PN8
Ethernet patch cable, 1'

PN11
DB9/female
Digi-Key
A32510-ND

PN13
DB15/male
Digi-Key
A32503-ND

PN15
DB9/female
Digi-Key
A32510-ND

PN2
Name Plate
LIGO
D1101978-v1

PN6
Ethernet patch cable, 1'

PN9
Ethernet patch cable, 1'
Newark
21M5658

E9 Jack screw
E10 Jack screw

E11 Jack screw
E12 Jack screw

E13 Jack screw
E14 Jack screw

L-Com
SDG450XS

PN3
Rear Panel (alt)
LIGO
D1101977-v2

**CAT5
End**

**CAT5
End**

**Beam
Diverter**

**Shutter
Logic**

**Hartmann
Sensor**

TBLOCK

PN19 Terminal Block

PN26 Terminal Block

PN34 Terminal Block

PN40 Terminal Block

PN20 Terminal Block

PN27 Terminal Block

PN35 Terminal Block

PN41 Terminal Block

PN21 Terminal Block

PN28 Terminal Block

PN36 Terminal Block

PN42 Terminal Block

PN22 Terminal Block

PN29 Terminal Block

PN37 Terminal Block

PN43 Terminal Block

PN23 Terminal Block

PN30 Terminal Block

PN38 Terminal Block

PN44 Terminal Block

Digi-Key
277-1483-ND

Digi-Key
277-1483-ND

PN24 End Plate

PN31 Jumper, 10pos

PN39 End Plate

PN45 Jumper, 10pos

Digi-Key
277-1495-ND

PN32 Jumper, 10pos
Digi-Key
277-1494-ND

Digi-Key
277-1495-ND

PN46 Jumper, 10pos
Digi-Key
277-1494-ND

Slots

1

2

3

4

5

6

7

8

9

10

11

12

PN4
Picomotor adapter
LIGO
D1100419-v3

PN7
Picomotor adapter
LIGO
D1100419-v3

PN10
Adapter panel
LIGO
D0902557-v1

PN12
Adapter panel
LIGO
D0902557-v1

PN14
Adapter panel
LIGO
D0902557-v1

PN16
DB37M adapter
LIGO
D0902569-v1

PN17
DB37M adapter
LIGO
D0902569-v1

PN18
DB37M adapter
LIGO
D0902569-v1

PN25
DB37M adapter
LIGO
D0902569-v1

PN33
DB37M adapter
LIGO
D0902569-v1

PN47
DB37M adapter
LIGO
D0902569-v1

PN48
Prometheus Interface
LIGO
D1102087-v1

E1 Jack screw

E5 Jack screw

E2 Jack screw

E6 Jack screw

E3 Jack screw

E7 Jack screw

E4 Jack screw

E8 Jack screw

L-Com
SDG450XS

E15 #6-32 1/4" flat

E16 #6-32 1/4" flat

McMaster-Carr
91099A205

E17 #6-32 1/4" flat

E18 #6-32 1/4" flat

McMaster-Carr
91099A205

E19 #6-32 1/4" flat

E20 #6-32 1/4" flat

McMaster-Carr
91099A205

E21 #6-32 1/4" flat

E22 #6-32 1/4" flat

McMaster-Carr
91099A205

E23 #6-32 1/4" flat

E24 #6-32 1/4" flat

McMaster-Carr
91099A205

E25 #6-32 1/4" flat

E26 #6-32 1/4" flat

McMaster-Carr
91099A205

E27 #6-32 1/4" flat

E28 #6-32 1/4" flat

McMaster-Carr
91099A205

Picomotor

Picomotor

Blank

Blank

Blank

Auxiliary

**PZT Mirrors
Laser Temp.
PD Mon.**

TCS

RF Amp

**DC
Photodiodes**

**LSC
Demod**

**Laser
Diagnostics**

Title EtherCAT End 2		
Size B	Number D1100682	Revision 3
Date:	12/18/2012	Sheet 1 of 4
File:	C:\Users\...\EtherCATEndB1.SchDoc	Drawn By: Daniel Sigg

B1 5V/0.6A isolated DC-DC converter, Omron S82S-7305

B2 EK1101 EtherCAT coupler w/ ID switch

B3 EL3104 4-channel analog input terminals, differential, 16 bits

B4 EL3104 4-channel analog input terminals, differential, 16 bits

B5 EL1124 4-channel digital input terminals, 5V

B6 EL9190 Feed terminal, arbitrary voltage

B7 EL3104 4-channel analog input terminals, differential, 16 bits

B8 EL3104 4-channel analog input terminals, differential, 16 bits

B9 EL1124 4-channel digital input terminals, 5V

B10 EL9190 Feed terminal, arbitrary voltage

B11 EL3104 4-channel analog input terminals, differential, 16 bits

B12 EL1124 4-channel digital input terminals, 5V

B13 EL9190 Feed terminal, arbitrary voltage

B14 EL3104 4-channel analog input terminals, differential, 16 bits

B15 EL3104 4-channel analog input terminals, differential, 16 bits

B16 EL4134 4-channel analog output terminals, differential, 16 bits

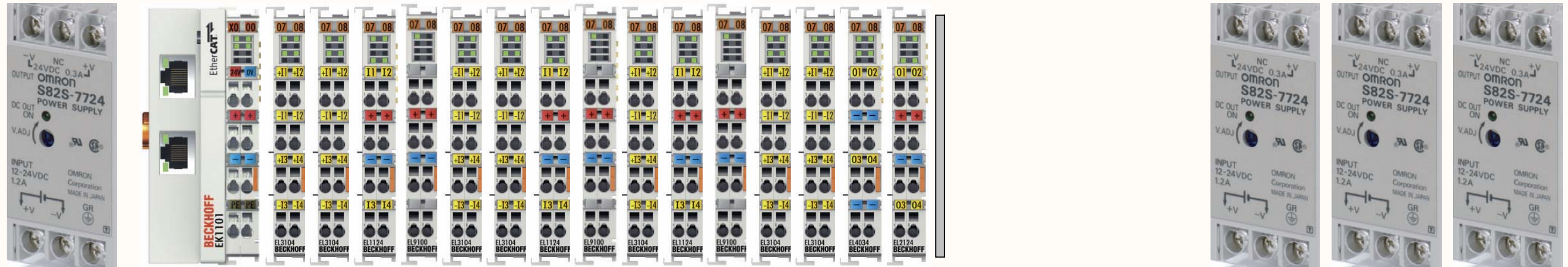
B17 EL2124 4-channel digital output terminals, 5V

B18 EL9011 End cap

B19 5V/0.6A isolated DC-DC converter, Omron S82S-7305

B20 5V/0.6A isolated DC-DC converter, Omron S82S-7305

B21 5V/0.6A isolated DC-DC converter, Omron S82S-7305



Ebus	24V	—	—	—
Power contacts	5V	5V	5V	5V

DC_1	Laser	Demod	RF Amp	TCS/HWS	DC_2	DC_3	DC_4
------	-------	-------	--------	---------	------	------	------

Power budget:
 EL3104: 0.180 A (7x)
 EL4134: 0.265 A (1x)
 EL1124: 0.090 A (3X)
 EL2124: 0.130 A (1x)

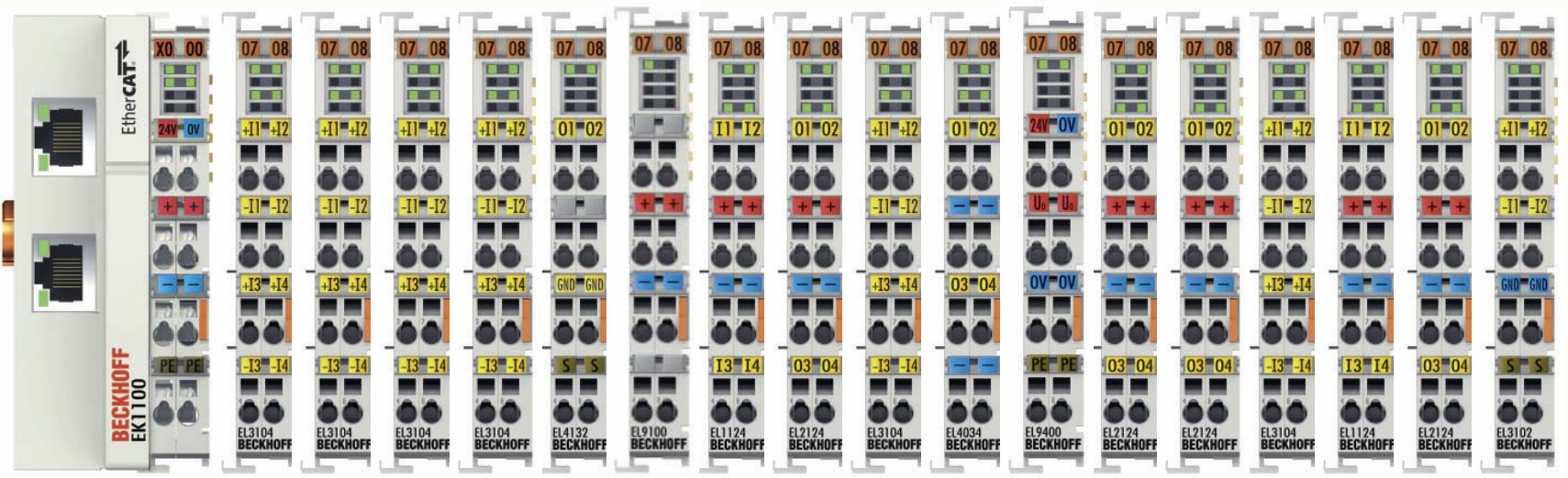
 1.925 A

Title		EtherCAT End 2: Left Rail	
Size	Number	Revision	
B	D1100682	3	
Date:	12/18/2012	Sheet 2 of 4	
File:	C:\Users\...\EtherCATEndB2.SchDoc	Drawn By: Daniel Sigg	

B22
5V/0.6A isolated DC-DC converter, Omron S82S-7305

B23
EK1100
Beckhoff EtherCAT coupler

B42
5V/0.6A isolated DC-DC converter, Omron S82S-7305



0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

Ebus

24V

—

24V

Power contacts

—

5V

5V

PZT Mirrors

Laser Temp

DC Photodiodes

DC_5

Monitor PDs

Auxiliary

DC_6

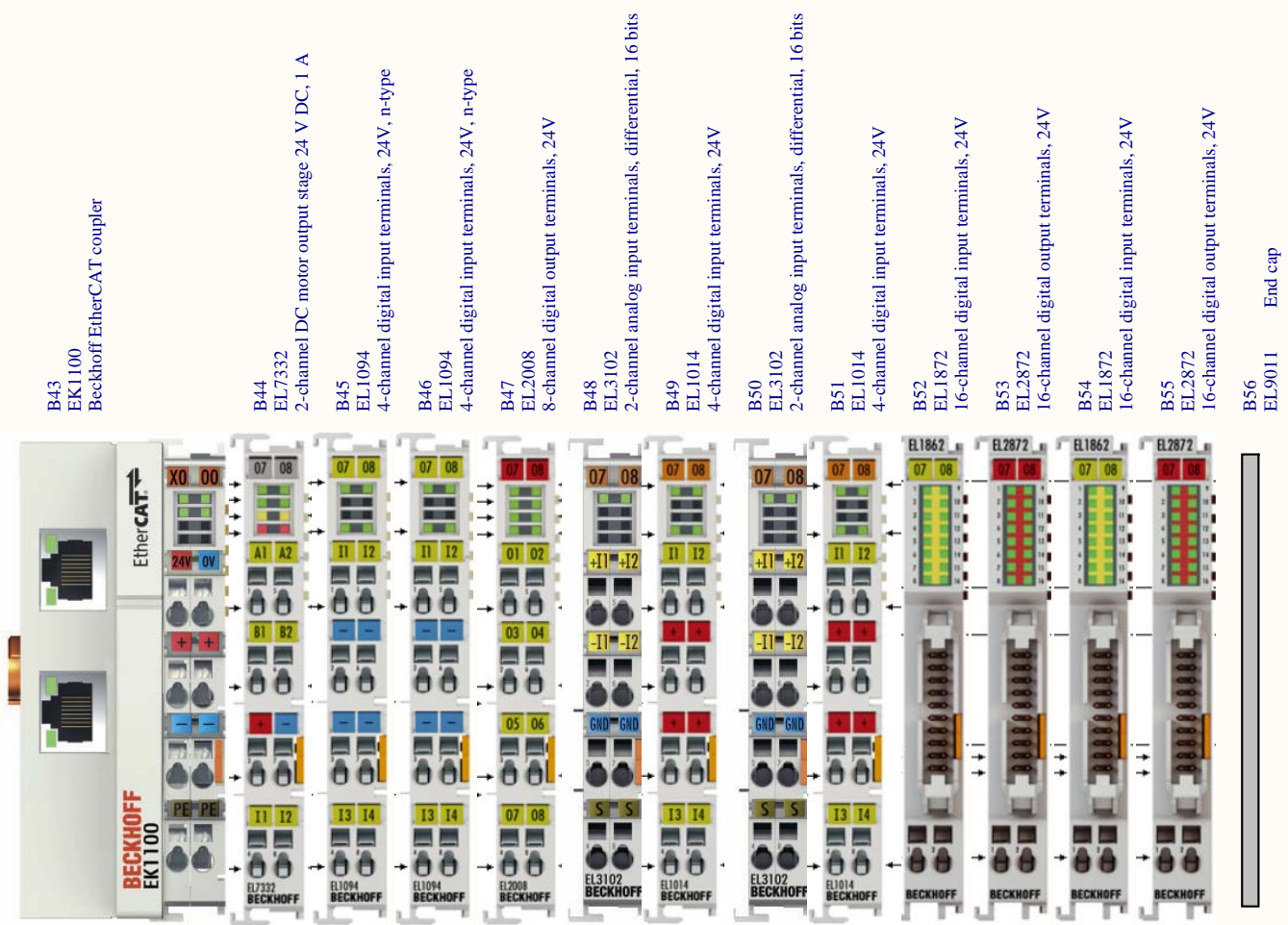
Power budget:
 EL1124: 0.090 A
 EL2124: 0.130 A
 EL3104: 0.180 A (5x)
 EL4132: 0.210 A
 EL4134: 0.265 A

 1.595 A

Power budget:
 EL1124: 0.090 A (1x)
 EL2124: 0.130 A (3x)
 EL3102: 0.170 A (1x)
 EL3104: 0.180 A (1x)

 0.830 A

Title			EtherCAT End 2: Middle Rail		
Size	Number			Revision	
B	D1100682			3	
Date:	12/18/2012	Sheet 3 of 4			
File:	C:\Users\...\EtherCATEndB3.SchDoc	Drawn By: Daniel Sigg			



B43 EK1100 Beckhoff EtherCAT coupler
 B44 EL7332 2-channel DC motor output stage 24V DC, 1 A
 B45 EL1094 4-channel digital input terminals, 24V, n-type
 B46 EL1094 4-channel digital input terminals, 24V, n-type
 B47 EL2008 8-channel digital output terminals, 24V
 B48 EL3102 2-channel analog input terminals, differential, 16 bits
 B49 EL1014 4-channel digital input terminals, 24V
 B50 EL3102 2-channel analog input terminals, differential, 16 bits
 B51 EL1014 4-channel digital input terminals, 24V
 B52 EL1872 16-channel digital input terminals, 24V
 B53 EL2872 16-channel digital output terminals, 24V
 B54 EL1872 16-channel digital input terminals, 24V
 B55 EL2872 16-channel digital output terminals, 24V
 B56 EL9011 End cap

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

Ebus 24V
 Power contacts 24V

Beam Diverter
 Picomotor
 Shutter

Power budget:
 EL7332: 0.140 A
 EL1094: 0.090 A (2x)
 EL2008: 0.110 A (1x)
 EL3102: 0.180 A (2x)
 EL1014: 0.090 A (2x)
 EL1872: 0.130 A (2x)
 EL2872: 0.130 A (2x)
 EL1124: 0.090 A (1x)
 EL2124: 0.130 A (1x)

 1.710 A

- PN49 IDC Cable, 20-pin Digi-Key H3CCH-2036G-ND
- PN51 IDC socket, 20pin Digi-Key MKC20A-ND
- PN50 IDC Cable, 20-pin
- PN52 IDC socket, 20pin
- PN53 IDC socket, 20pin
- PN54 IDC socket, 20pin

Title EtherCAT End 2: Right Rail		
Size B	Number D1100682	Revision 3
Date:	12/18/2012	Sheet 4 of 4
File:	C:\Users\...\EtherCATEndB4.SchDoc	Drawn By: Daniel Sigg