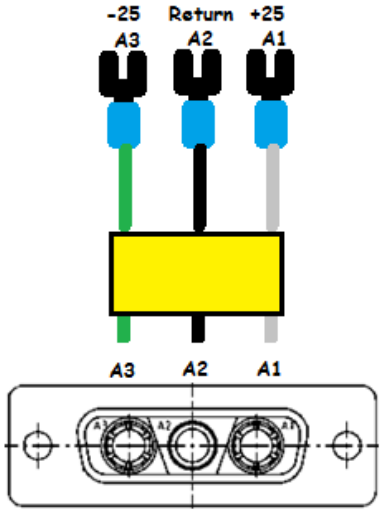
24VDC Adaptor Pigtail

This adaptor pigtail is used to connect +24VDC to IO Extenders. When used in conjunction with the IO Extender On/Off Switch, strain relief is enhanced.



Plug

IO Extender On/Off Switch

Caution: Only the BLACK wire is switched on/off.
Thus, the black wire is located on Pin A1, the positive voltage line, for use as a switch ONLY for IO Extenders. Any other use is completely inappropriate and dangerous, since individual circuits always are continuous on Pin A2 and Pin A3.

Plug

Socket

Off / On

Plug

Socket

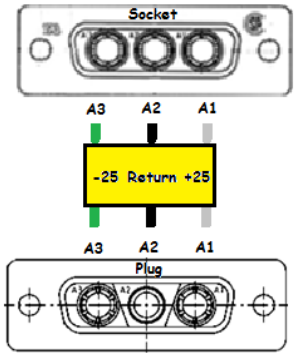
Power First
1TNA8 Power Cord, Feed/Switch, 8Ft, SJT, 10A

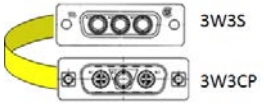
IO Extender DC Power Strain Relief

The IO Extender In-Line ON/OFF Switch and the 24VDC Adaptor Pigtail are designed to work together. The strain relief is provided by a nylon clamp that is screwed to the top right corner of the DC Power Supply of the IO Chassis.

24VDC Adaptor Cable

This adaptor is used to accommodate the 24VDC connector used in certain chassis that has 3 male pins instead of the standard 2 male and 1 female.



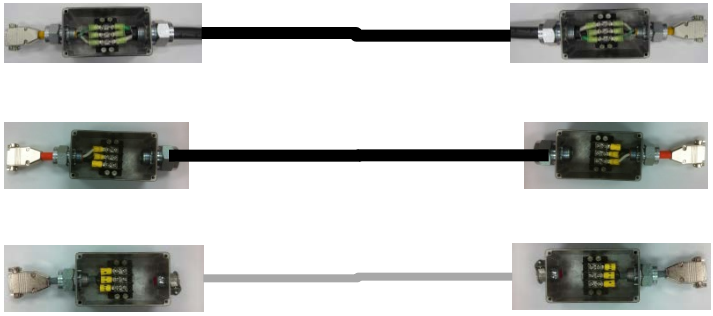


DC Power Transition Boxes

DC Power Transition Boxes are designed for situations where large-gauge wire is required to minimize cable loss due to long cable runs. One additional situation exists. High voltage cable runs from the CER to a rack (or a chamber) are facilitated by using BX cable, therefore there is a set of transition boxes that is designed to accept BX cable and transition it to GREY cable with 3W3 connectors (the DC cabling standard for high voltage runs).

These transition boxes work in pairs – one terminated with a plug and one with a socket. This allows the cable run to be insertable between the load and the source. The socket end is presented to the load, the plug end is presented to the source.

Source-side – Plugs are presented to the source.



Large-gauge wire running long distances

Large-gauge wire running long distances

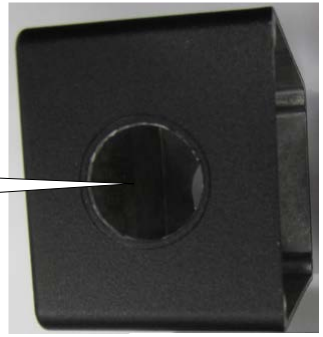
High voltage wire (BX) running in DC cable trays

Load-side – Sockets are presented to the load.

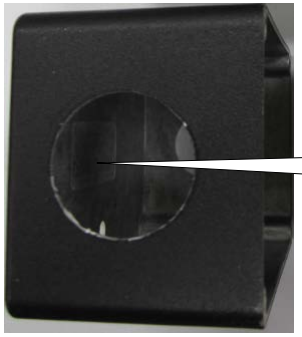
DC Power Transition Box - 1

This transition box is used to transition from 12/3 (and 14/3) AWG to 8/3 AWG wire. All components are rated for 20A usage.

Greenlee hole 1: Use 1/2" cutter:



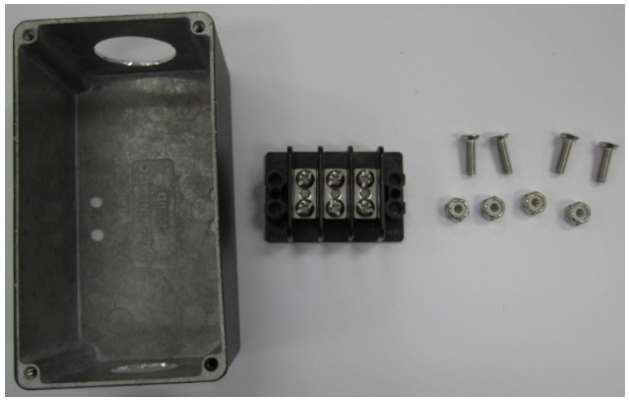
Greenlee hole 2: Use 1/2" cutter.

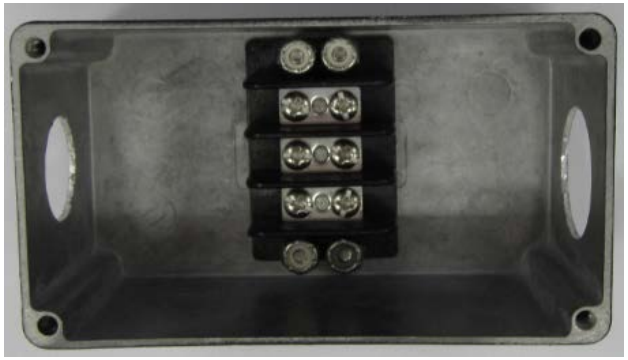


For variants 1 and 3, Greenlee hole 2: Use 3/4" cutter.

Countersink the four holes used to mount the terminal strip.

24VDC Power Transition Box - 2





These components are for a 24VDC transition box. All components are rated for 20A usage.

24VDC Power Transition Box – 3

Note that there are two transition boxes required because the cable that it logically replaces is insertable. There are therefore plug type and socket type transition boxes.

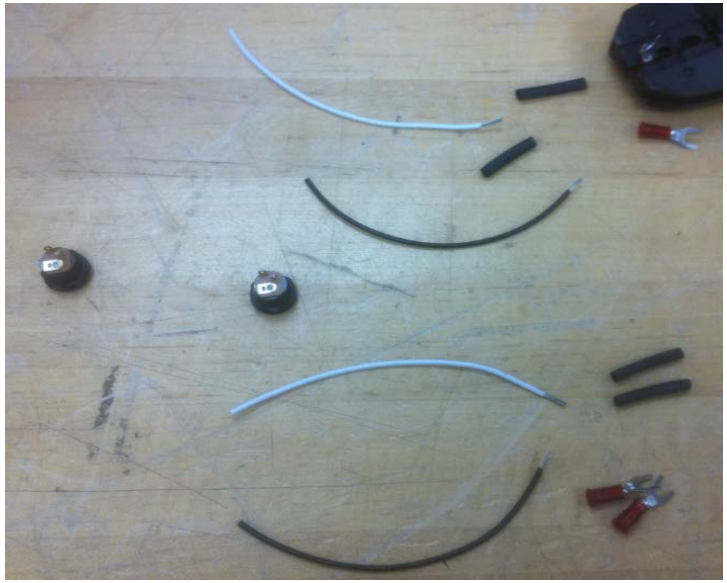
DC Power Transition Box – 4

Note that there are three variant transition boxes deployed: 24VDC, 18VDC, and High Voltage – using BX cable as a shielded transmission path.

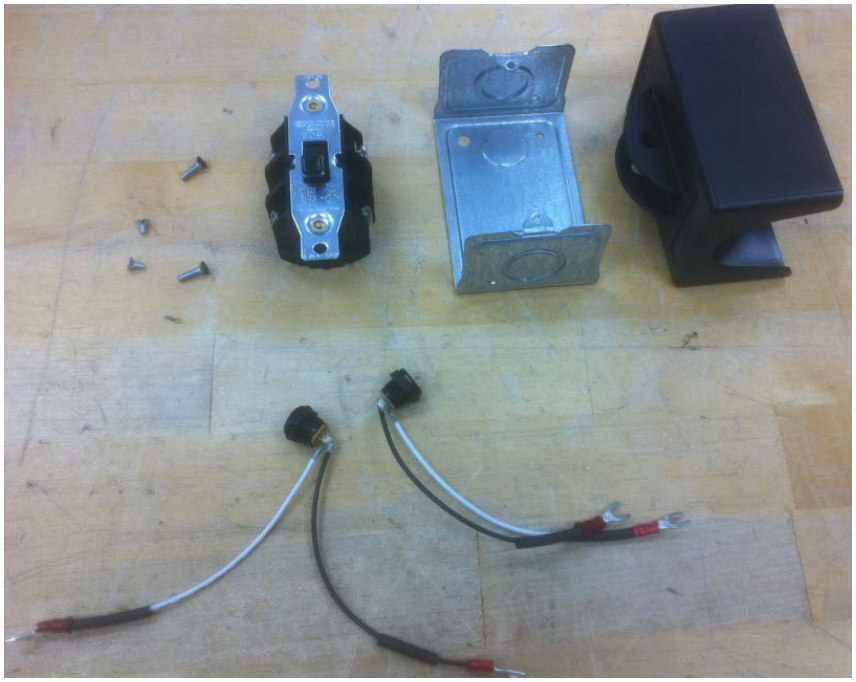
24VDC Power Transition Kit – BOM

	DXXXXXXX Opt 02 (24VDC Power Transition Kit)							
Item	Part Type	Description	Designator	Manufacturer	Supplier	Supplier Part Number	Quantity	Unit
1	Cable	Yellow SJEOOW AWG 12/3 25A Stranded	24V Cable		McMaster-Carr	8046K16	1	ft
2	Box	Enclosures, Boxes, & Cases 4.51 x 2.52 x 2.01 BLACK		Hammond Manufacturing	Mouser Electronics	546-1550DBK	2	@
3	Cord Grip	Standard Straight Cord Grip, Zinc-pltd Stl, 1/2"npt Trade Sz, .38"-.50"cord Dia			McMaster-Carr	7529K24	2	@
4	Conduit Nut	Med(imc) & Thick-wall (rigid) Conduit Fitting, Locknut, Zinc-plated Steel, 1/2" Trade Size			McMaster-Carr	7513K241	2	@
5	Cord Grip	Standard Straight Cord Grip, Zinc-pltd Stl, 3/4"npt Trade Sz, .63"-.75"cord Dia			McMaster-Carr	7529K28	2	@
6	Conduit Nut	Med(imc) & Thick-wall (rigid) Conduit Fitting, Locknut, Zinc-plated Steel, 3/4" Trade Size			McMaster-Carr	7513K242	2	@
7	Terminal Block	600 Vac/vdc Terminal Block, 3 Circuits, .44" Center-to-center, 20 Amps			McMaster-Carr	5566T82	2	@
8	Screws	18-8 Ss Flat Undercut Head Phil Machine Screw, 8-32 Thread, 5/8" Length			McMaster-Carr	91099A266	8	@
9	Nuts	Type 316 Ss Nylon-insert Hex Locknut, 8-32 Thread Size, 11/32" Width, 15/64" Height			McMaster-Carr	90715A009	8	@
10	Spade Terminals	Crimp-on Spade Terminal, Block, Vinyl Insulated, 12-10 Awg, #8 Stud			McMaster-Carr	69145K77	12	@
11	Backshell	Hood, DB15 Metal		L-COM	L-COM	SDC15AG	2	@
12	Connector Shell	3W3 Female Combo Shell - No Power		Conec	Conec	3003W3SXX99A10X	1	@
13	Connector Shell	3W3 Male Combo Shell - No Power		Conec	Conec	3003W3PXX99A10X	1	@
14	Connector Contact	20 AMP Male Power Contact		Conec	Conec	131C11029X	3	@
15	Connector Contact	20 AMP Female Power Contact		Conec	Conec	132C11029X	3	@

Wave Plate Safety Switches - 1



Wave Plate Safety Switches - 2



Wave Plate Safety Switches - 3

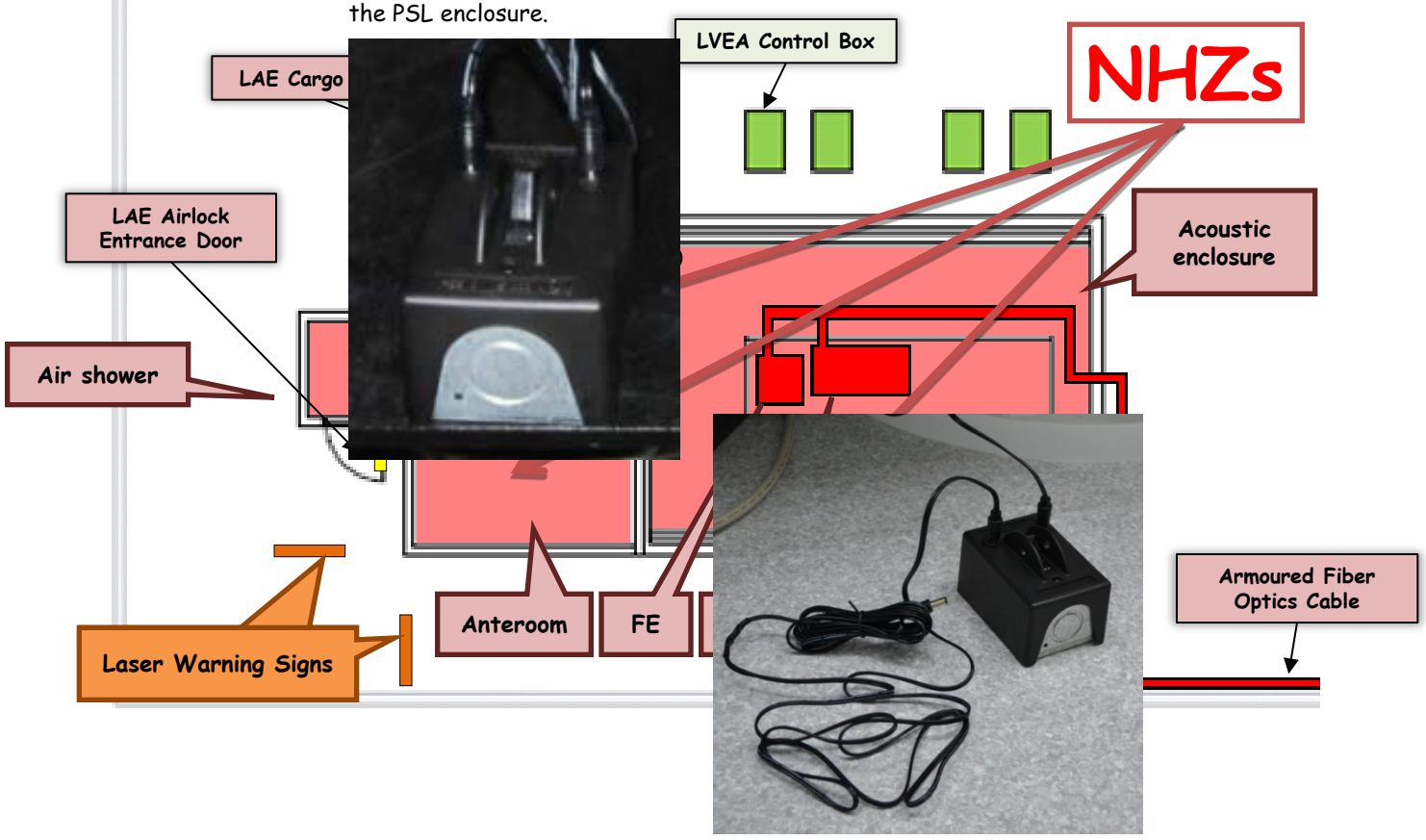
Wave Plate Safety Switches - 4

This internal switch is located inside the PSL enclosure. One cable attaches to the Wave Plate Controller, the other exits the enclosure and attaches to the external switch located in the rack PSL-R2.

This external switch is located in the rack PSL-R2. One cable attaches to the 24VDC Power Distribution Strip, the other enters the enclosure and attaches to the internal switch located inside the PSL enclosure.

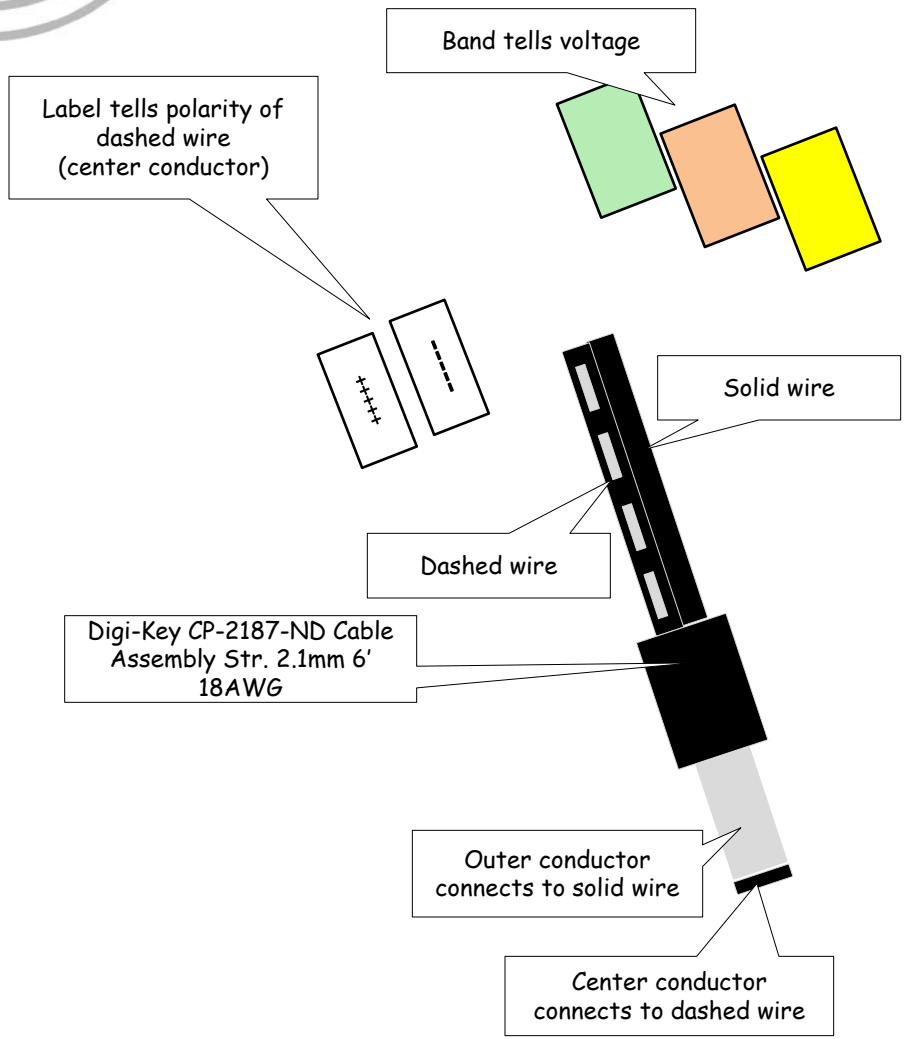
PSL

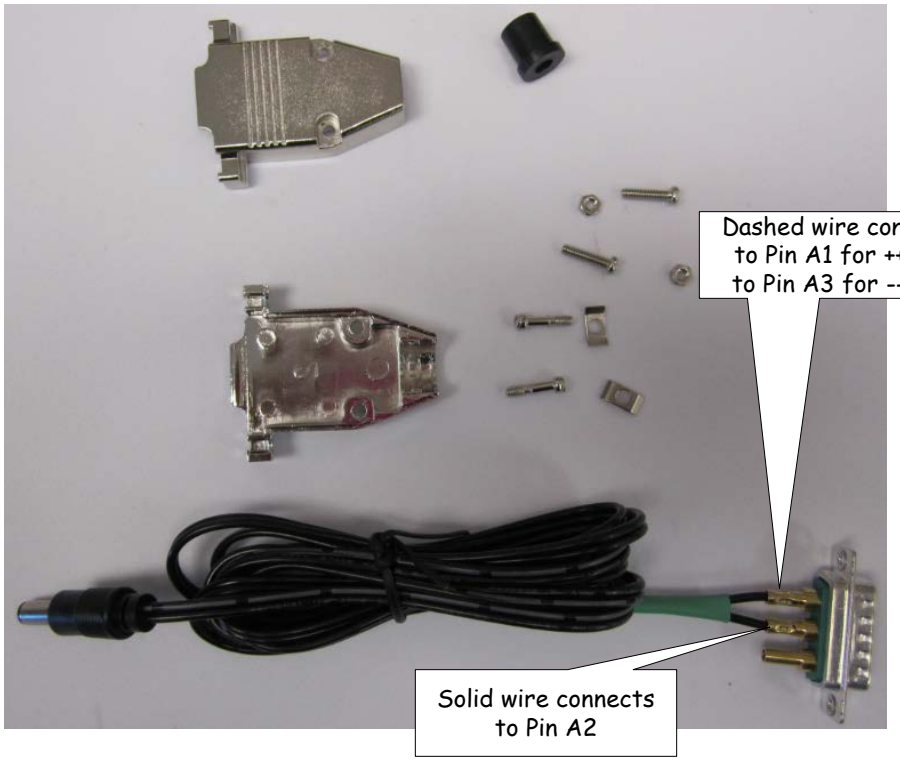
This external switch is located in the rack PSL-R2. One cable attaches to the 24VDC Power Distribution Strip, the other enters the enclosure and attaches to the internal switch located inside the PSL enclosure.



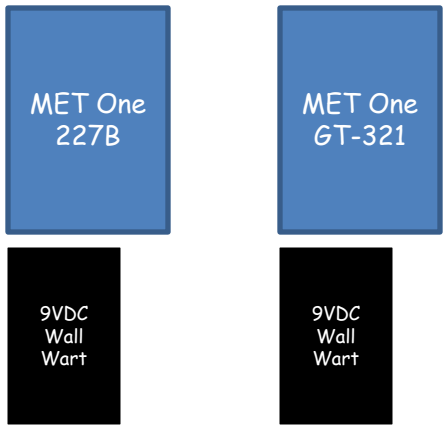
This internal switch is located inside the PSL enclosure. One cable attaches to the Wave Plate Controller, the other exits the enclosure and attaches to the external switch located in the rack PSL-R2.

+12VDC to 2.1mm Plug





Particle Counters (Dust Monitors)

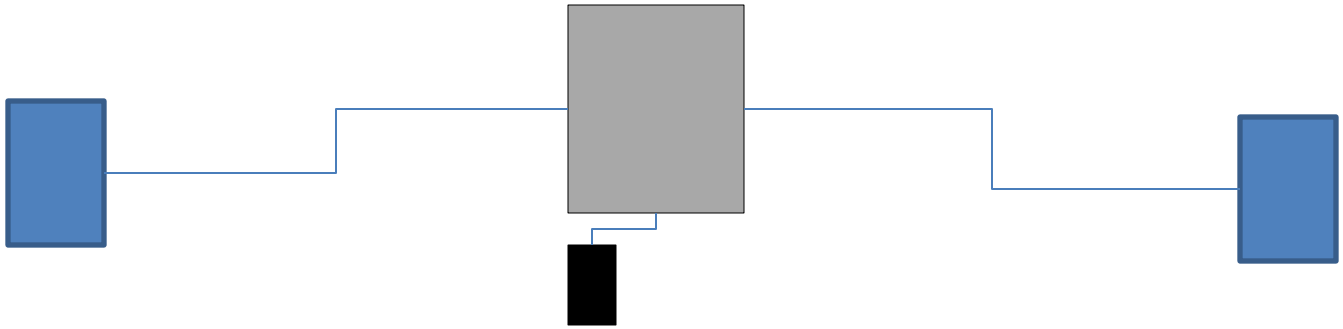


Dust Monitors are not on during Science Mode due to the acoustic noise. This noise is the air pump. It is always on.

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.

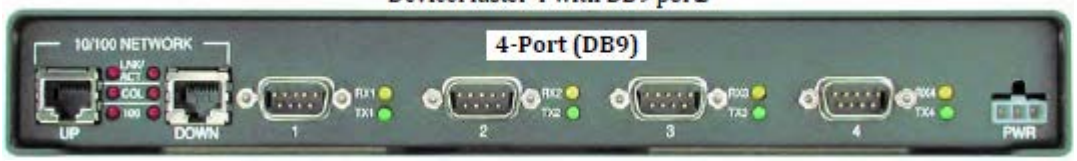
The Junction Box needs documentation.

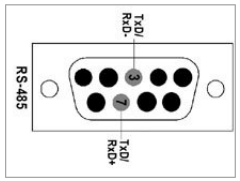


Comtrol DeviceMaster with DB9 Ports

[Comtrol DeviceMaster 4 with DB9 Ports]

DeviceMaster 4 with DB9 ports

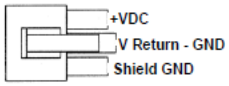




4-Port Power Supply

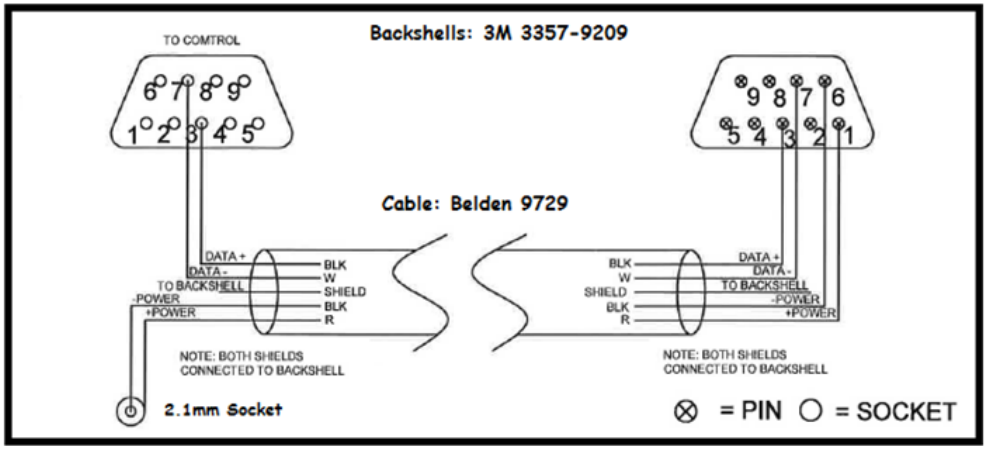
This table provides the specifications for the power supply shipped with the DeviceMaster 4-port.

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



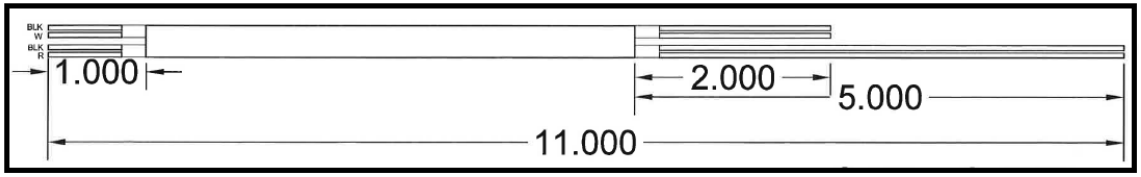
Housing Molex P/N:
39-01-4030
Pins Molex P/N:
44485-1211

3M Shell 3357-9209



3M Shell 3357-9209

2.1mm Socket
(Note polarity)

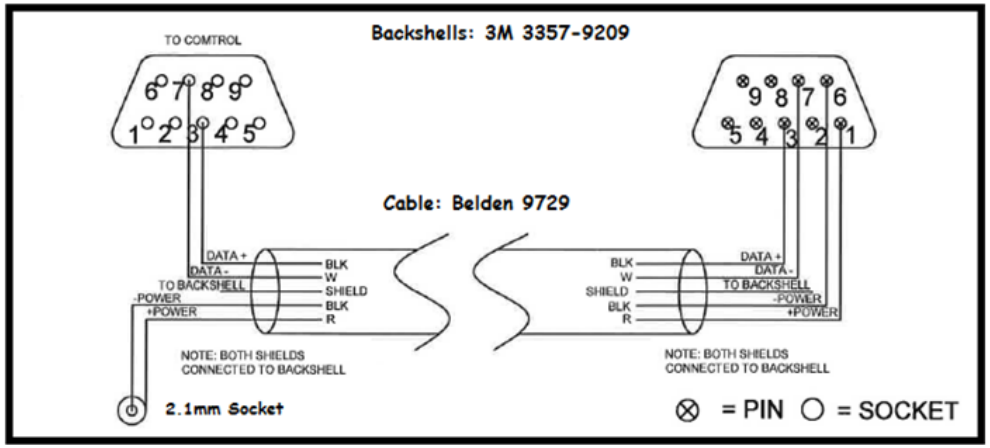


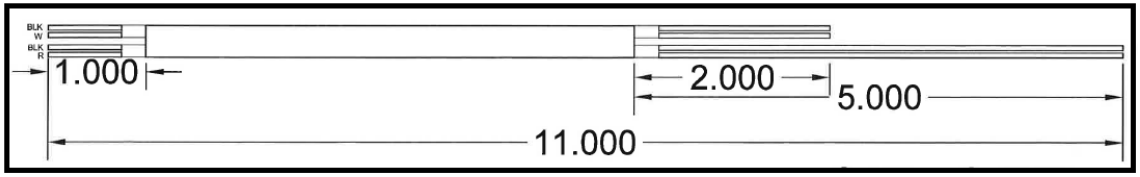
2.1mm Plug
(Note polarity)

Particle Counter Y-Cable – Comtrol End

3M Shell 3357-9209

2.1mm Socket
(Note polarity)



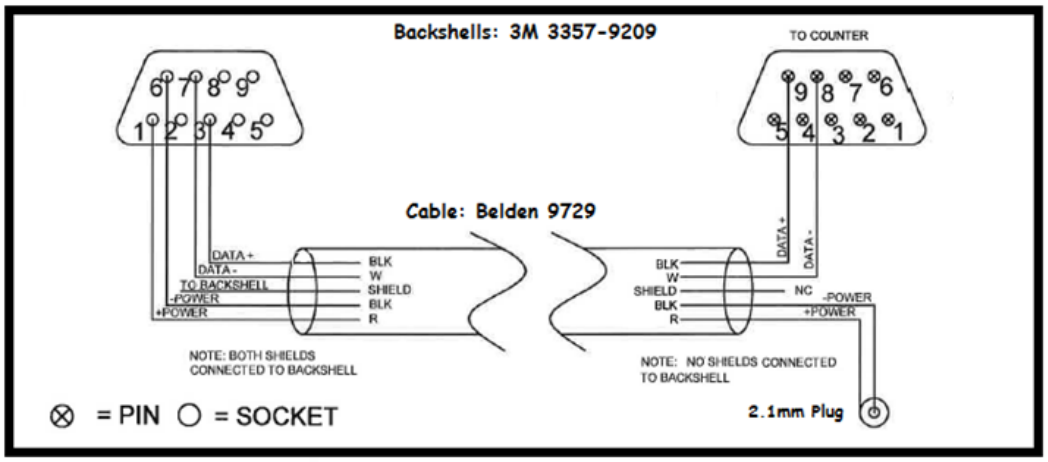


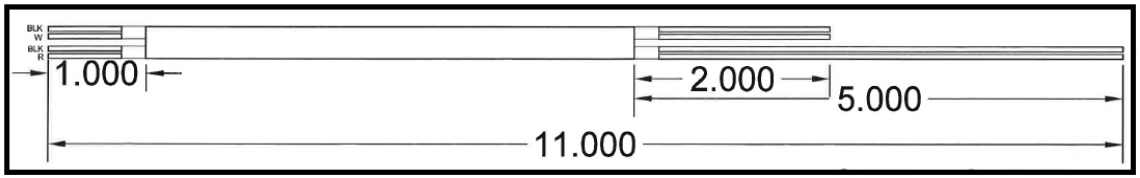
3M Shell 3357-9209

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



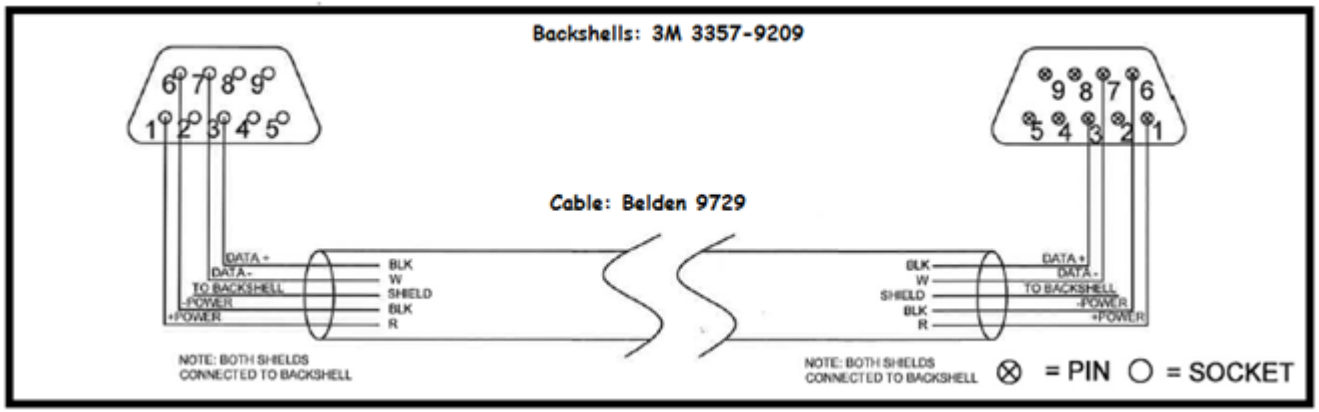


3M Shell 3357-9209

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

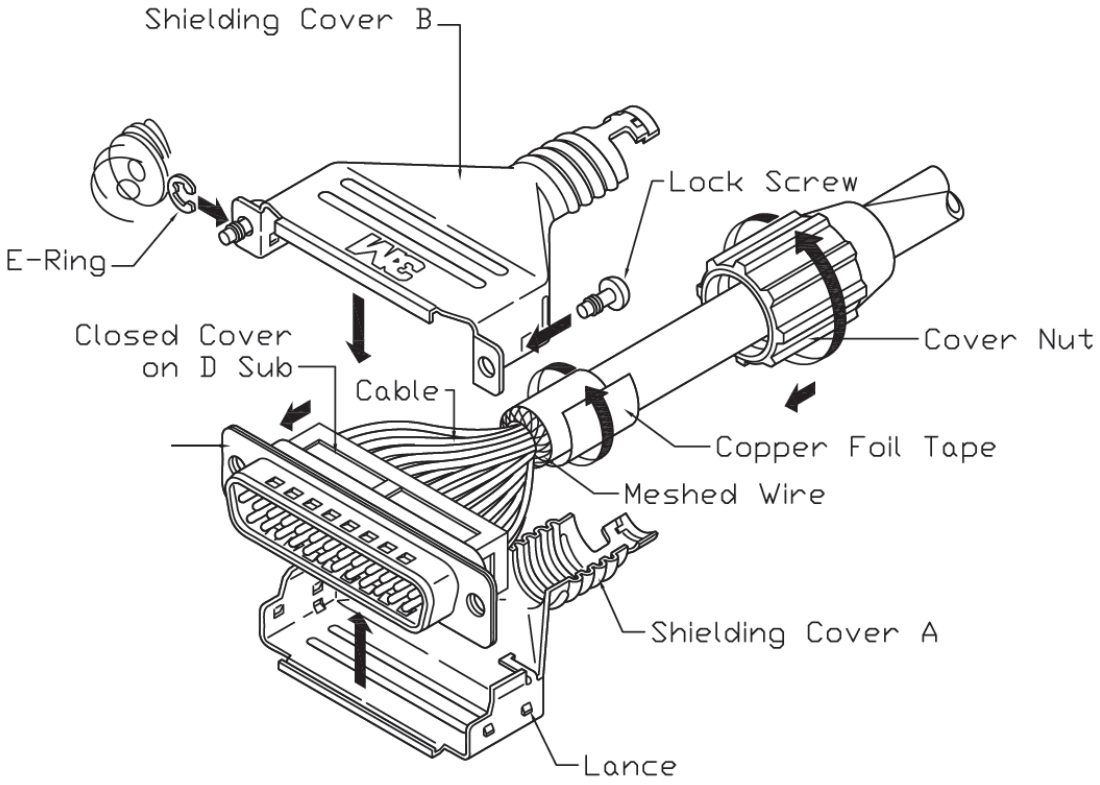


This cable is configured to carry both DC Power and RS485 Signals. Note that both shields are tied together and tied to both backshells.

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.

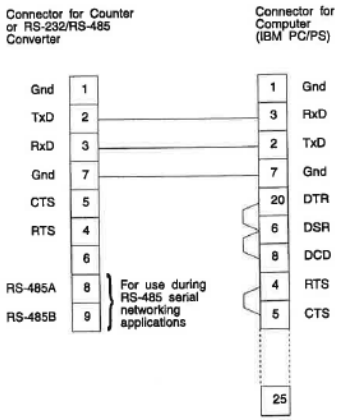
3M Backshell Assembly



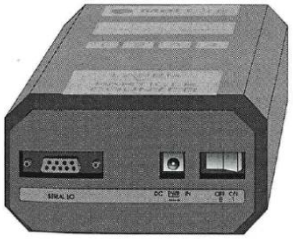
This is a sample drawing of the 3M backshell showing how the E-Ring is attached to the Lock Screw, and showing how the Cover Nut holds the backshell in place.

Particle Counters (Met One 227B)

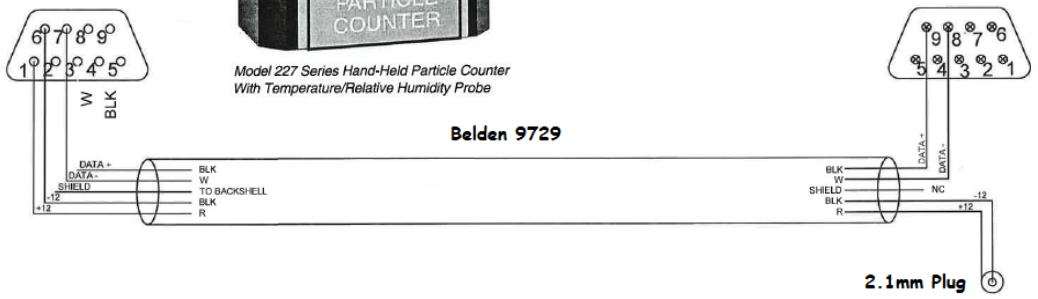
Model 227 Series Hand-Held Particle Counter
With Temperature/Relative Humidity Probe



Serial Cable Schematic Diagram

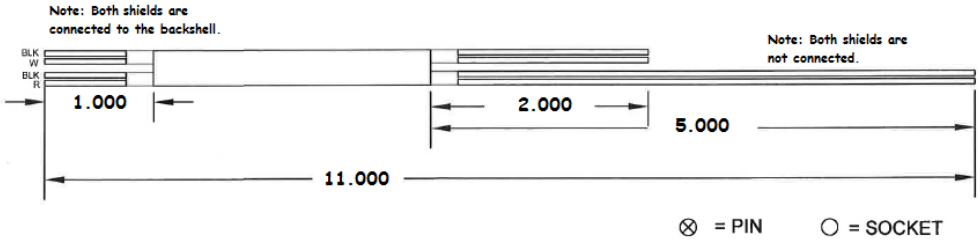


3M Shell 3357-9209

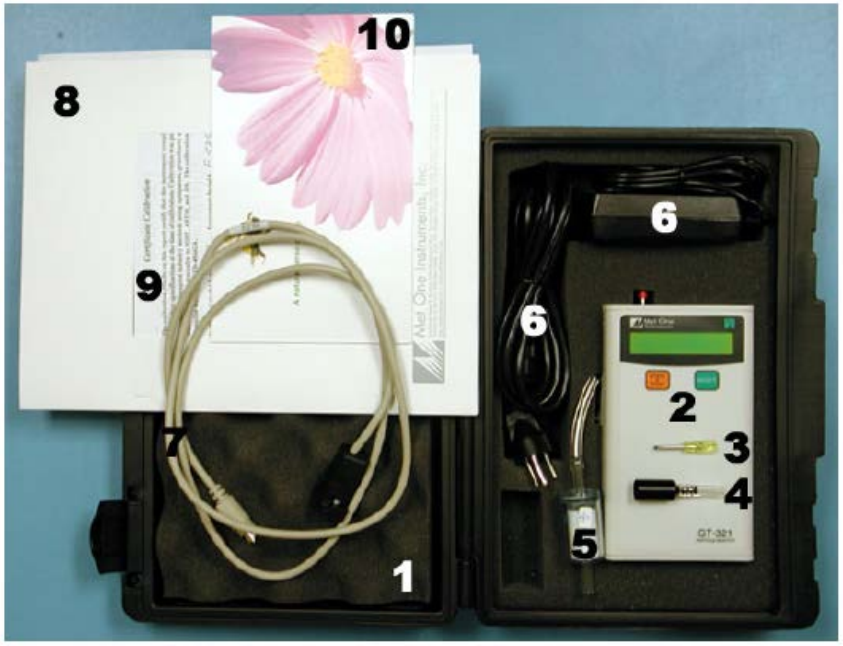


3M Shell 3357-9209

2.1mm Plug
(Note polarity)



Particle Counters (GT-321)

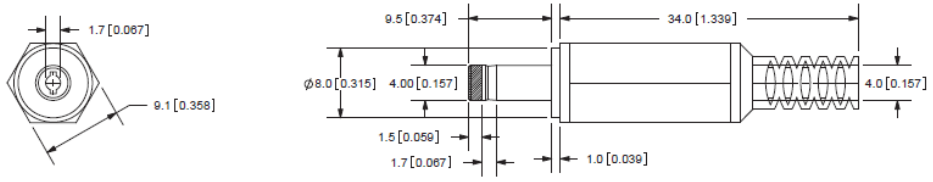


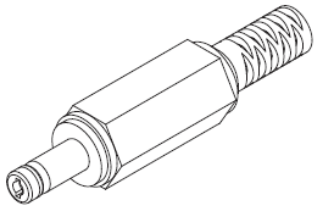
1. Carrying case
2. GT-321 Hand Held Particle Counter
3. Miniature screwdriver
4. Iso-kinetic Sample Probe with a short piece of tubing
5. Zero Particulate Filter (Met One Part Number G3111)
6. Universal AC to DC converter module with IEC AC power cord
7. RS-232 Serial Cable
8. Operation Manual
9. GT-321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

Camera DC Power Cables

Watec WAT-902HS Camera

REV.	DESCRIPTION	DATE
A	NEW DRAWING	5/15/2006





TOLERANCE:
X.X ±0.2mm
X.XX ±0.1mm
X.XXX ±0.05mm

RoHS

CUI INC
20050 SW 112th Ave.
Tualatin, OR 97062
Phone: 503-612-2300
800-275-4899
Fax: 503-612-2383
Website: www.cui.com

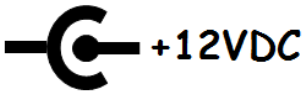
SPECIFICATIONS:
RATING: 24V DC @ 5A
OPERATING TEMP: 0° ~ +40°C

	MATERIAL	PLATING
COVER	PVC	Black Color
BARREL	Brass	Nickel
TERMINALS	Brass	Nickel
TIP INSULATOR	POM	Yellow Color

TITLE: DC POWER PLUG		REV: A
PART NO. PP-013		UNITS: MM [INCHES]
DRAWN BY: ZRJ	APPROVED BY:	SCALE: 2:1

PCTEENAME: PP-013

Digikey CP-013-ND

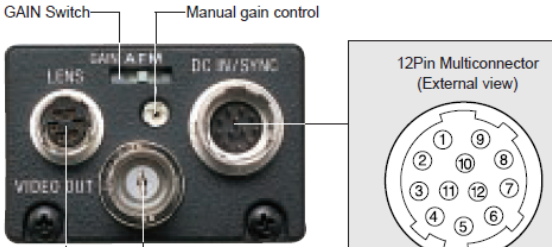


Camera DC Power Cables

Sony XC-75/75CE Camera

Pin 01 Return
Pin 02 +12VDC
Pin 10 Return
Pin 11 +12VDC

Digikey HR1623-ND



6Pin Lens connector(External view)

Pin No.	SIGNAL	SPECIFICATION
1	FLD OUT	FLD OUT
2	TRIGGER	TTL level
3	GND	GND
4	NC	NC
5	VS OUT	VIDEO SIGNAL OUTPUT
6	+12 OUT	DC+12 OUT

12Pin Multiconnector
(External view)

Pin No.	EXTERNAL SYNC MODE			CAMERA SYNCRONOUS OUTPUT
	HD/VD	VS	RESTART RESET	
1	GND	GND	GND	GND
2	DC+12V	DC+12V	DC+12V	DC+12V
3	VIDEO OUTPUT(GND)	VIDEO OUTPUT(GND)	VIDEO OUTPUT(GND)	VIDEO OUTPUT(GND)
4	VIDEO OUTPUT(SIGNAL)	VIDEO OUTPUT(SIGNAL)	VIDEO OUTPUT(SIGNAL)	VIDEO OUTPUT(SIGNAL)
5	HD INPUT(GND)	—	HD INPUT(GND)	HD OUTPUT(GND)
6	HD INPUT(SIGNAL)	—	HD INPUT(SIGNAL)	HD OUTPUT(SIGNAL)
7	VD INPUT(SIGNAL)	VS INPUT(SIGNAL)	RESET PULSE(SIGNAL)	VD OUTPUT(SIGNAL)
8	—	—	—	CLOCK OUTPUT(GND)
9	—	—	—	CLOCK OUTPUT(SIGNAL)
10	GND	GND	GND	GND
11	DC+12V	DC+12V	DC+12V	DC+12V
12	VD INPUT(GND)	VS INPUT(GND)	RESET PULSE(GND)	VD OUTPUT(GND)

* When the pin No.4 of the 12Pin connector is not terminated with 75 Ω impedance, you can only use this connector for video signal output.

Camera DC Power Cables

Digikey A1357-ND
Plug for Male Contacts

Digikey 1-66103-7-ND
Male Contacts – crimp 20-24 AWG

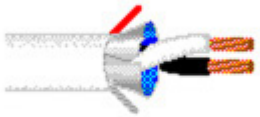
Digikey A1361-ND
Receptacle for Female Contacts

Digikey 66109-1-ND
Female Contacts – crimp 20-24 AWG

Digikey A32515-ND
Cable Clamp

Pin 2 +12VDC
Pin 3 Return

Camera DC Power Cables

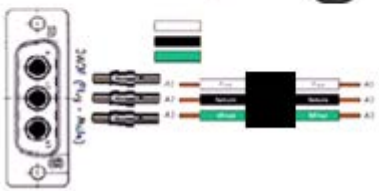


Belden 6500UE

OPLEV DC Power Cords

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

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



Black 12/3 25A Cable
Conec 3003W3SXX99A10X Connector
Conec 131C11029X Male Contacts
L-COM SDC15AG Assembled D-Sub Hood Kit, DB15/HD26 Metal

The wire is soldered to the Amphenol Connector.

CONEC 3W3 Male	Amphenol Connector	Purpose
Pin A1	Pin A	+12VDC
Pin A2	Pin B	Return
Pin A3	Pin C	-12VDC