

INSTALLATION MANUAL



> PWR-480B



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PWR-480B Installation Manual

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SAFETY REGULATIONS

ELECTRICAL SAFETY

This product conforms to the applicable requirements contained in the European Standard for electrical safety EN 60950-1 at the date of manufacture.



WARNINGS or CAUTIONS: This symbol identifies a hazard or procedure that, if incorrectly performed, could cause personal injury or result in equipment damage. It is also used to bring the user's attention to details that are considered IMPORTANT. **Operations having this symbol must be performed by qualified personnel only.**



HIGH VOLTAGE CAUTION: This symbol alerts the user they are about to perform an action involving, either a dangerous level of voltage, or to warn against an action that could result in damage to devices or electrical shock.

The AC Socket Label appears as follows:

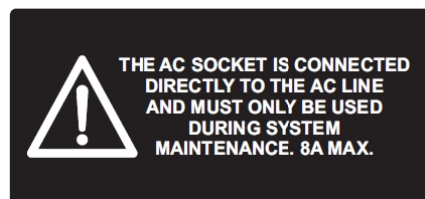


Figure 1 – AC Socket Label

PRODUCT DATA LABEL

The Product data label is located on the inside door panel.



CE COMPLIANCE

CE marking states the compliance of the product with essential requirements listed in the applicable European directive. Since the directives and applicable standards are subject to continuous updates, and since Datalogic promptly adopts these updates, therefore the EU declaration of conformity is a living document. The EU declaration of conformity is available for competent authorities and customers through Datalogic commercial reference contacts. Since April 20th, 2016 the main European directives applicable to Datalogic products require inclusion of an adequate analysis and assessment of the risk(s). This evaluation was carried out in relation to the applicable points of the standards listed in the Declaration of Conformity. Datalogic products are mainly designed for integration purposes into more complex systems. For this reason it is under the responsibility of the system integrator to do a new risk assessment regarding the final installation.

Warning

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

SUPPORT THROUGH THE WEBSITE

Datalogic provides several services as well as technical support through its website. Log on to **www.datalogic.com** and click on the **SUPPORT** > **Unattended Scanning Systems** category link. From this page you can select your product model from the dropdown list which gives you access to:

- [Downloads](#) including Data Sheets, Manuals, Software & Utilities, and Drawings;
- [Repair Program](#) for On-Line Return Material Authorizations (RMAs) plus Repair Center contact information;
- [Service Program](#) containing details about Maintenance Agreements;
- [Technical Support](#) through email or phone.

GENERAL VIEW



- | | |
|-------------------------------------|---|
| ① Key Lock | ⑥ AC Socket (for use only during maintenance) |
| ② AS-I Cable Compression Connectors | ⑦ AC Line Input Terminal Block |
| ③ Cable Entry Plate | ⑧ "DC OK" Terminal Block |
| ④ Monophasic Switching Power Supply | ⑨ 24 Vdc Terminal Block |
| ⑤ Thermal-magnetic circuit breaker | ⑩ Cooling Fan |
| | ⑪ Product Data Label |

Figure 2 – PWR-480B General View

1 GUIDE TO INSTALLATION

The following can be used as a checklist to verify all the steps necessary to complete installation of the PWR power supply.



CAUTION: Before opening the device, or performing any installation or maintenance procedures, make sure the external AC disconnecting device is switched OFF.

SYSTEM WIRING: AC INPUT

- 1) Read all information in this manual before installation, paying particular attention to all Caution and Warning notes.
- 2) Mount the PWR to the Station frame using the brackets and bolts provided in the package. See par. 2.1.
- 3) To comply with EN 60950-1:2007 par.1.7.2.2, par. 2.7.1, par 2.7.4, par. 3.4.6, and to protect the AC input connection to the device; a disconnecting device with built in overcurrent and earth protection shall be installed external to the equipment according to local regulations.
- 4) Plan the AC Line cable entry point to avoid unnecessary holes and pass the cable through the Cable Entry Plate as described in par. 2.3.

According to EN 60950-1:2007 par. 3.2.3; the AC input cable must have a maximum diameter of 14mm and the conduit a max diameter of 16mm.

- 5) With AC line voltage OFF, wire the AC Line input to the PWR AC Terminal Block see par. 3.1.1.

SYSTEM WIRING: DC OUTPUT

- 6) Connect your devices to the PWR according to your application.

To Barcode Scanners

Correctly connect the AS-I cabling to the PWR using the AS-I cable wiring instructions for backbone and branch wiring. See par. 3.2.1 and your scanner manual for details.

All cables must pass through the cable entry plate and the AS-I cable compression connectors as described in par. 2.3.

To Image Based ID Readers

Connect your specific product as described in the sub-paragraph under 3.3 and the reader manual. All cables must pass through the cable entry plate as described in par. 2.3.

SYSTEM WIRING: TEST

- 7) Close and lock the PWR enclosure.
- 8) Apply the AC line voltage from the building installation and check that the PWR powers up correctly.

The installation is now complete.

2 INSTALLATION

The PWR-480B is an industrial cabinet housing a 24 Vdc power supply which is used to power up a varying number of reading devices (depending on the product), along with their relative accessory devices. See chapter 3 for details.

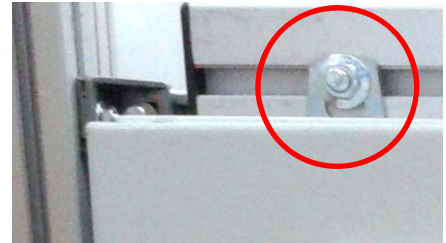


CAUTION: Before opening the device, or performing any installation or maintenance procedures, make sure the external AC disconnecting device is switched OFF.

2.1 CABINET MOUNTING

The cabinet must be mounted to the reading station frame using the brackets and bolts provided in the package.

1. Mount the bracket to the cabinet.
2. Mount the cabinet to the frame.



2.2 PWR-480B ELECTRICAL DIAGRAM

The PWR-480B components are electrically connected as displayed in the following diagram:

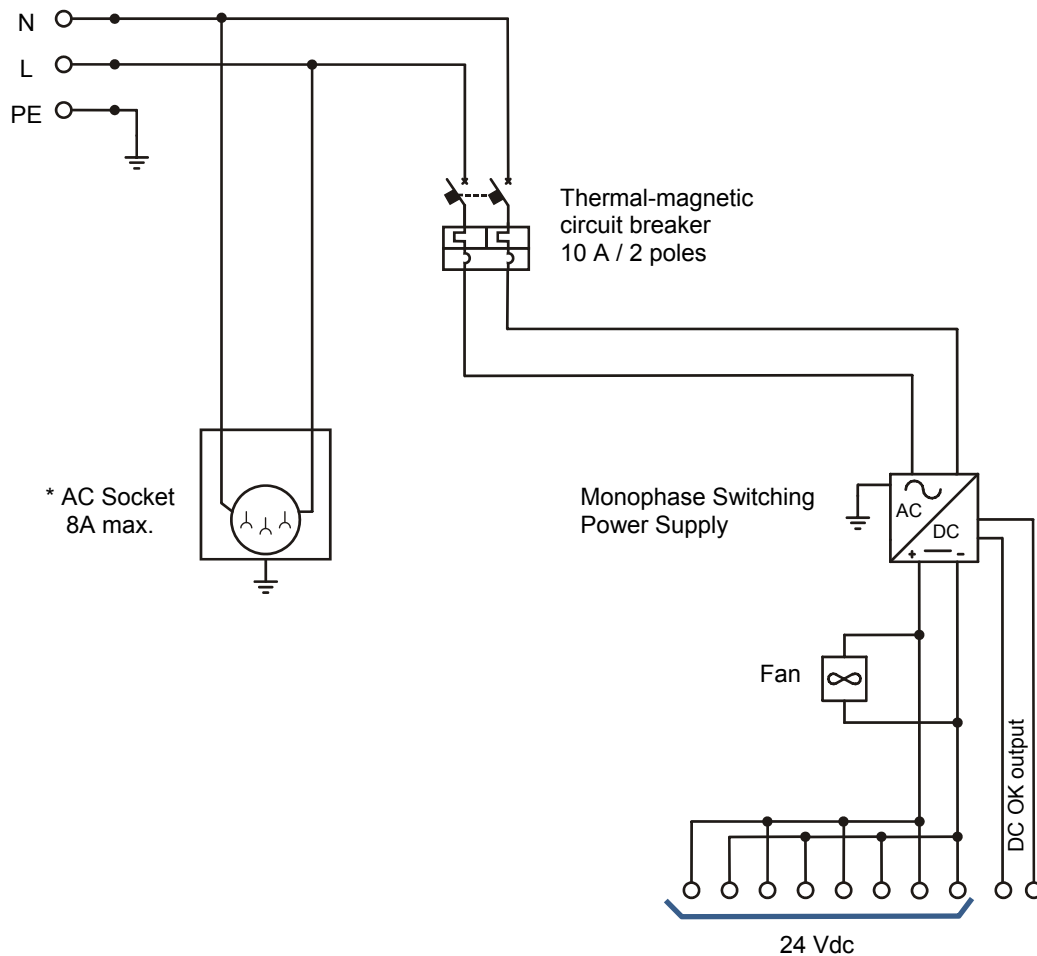


Figure 3 - PWR-480B Electrical Diagram



CAUTION: * The AC socket is connected directly to the AC line and must only be used during system maintenance. 8A max.

2.3 CABLE INSERTION

The Cable Entry Plate and the AS-I Cable Compression Connectors have protection capability of IP65.

2.3.1 Cable Entry Plate

Follow these instructions to correctly insert the cables:

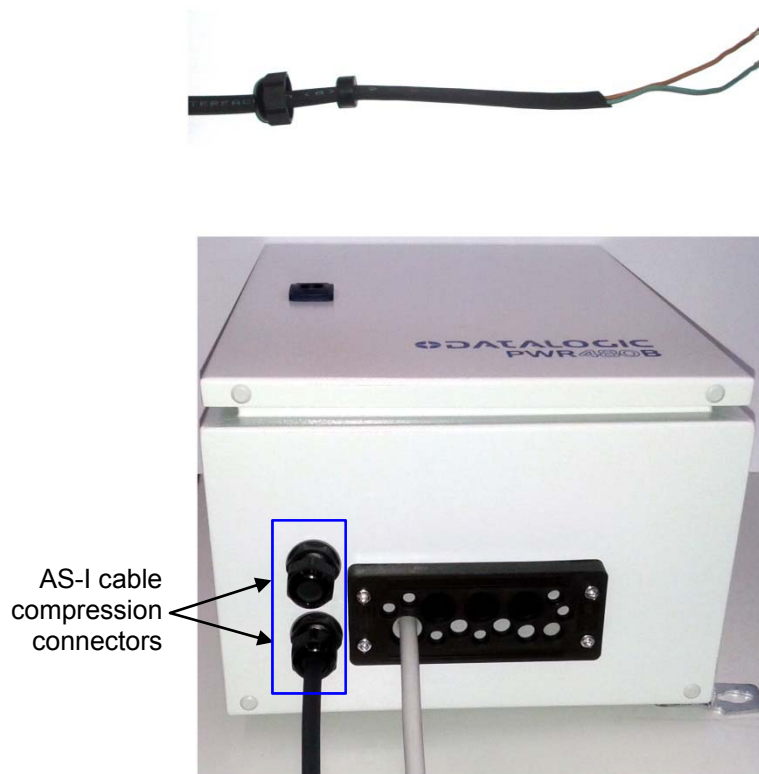
- 1) Determine the number and size of the cables coming into and leaving the PWR-480B.
- 2) Locate the correct entry hole sizes and positions relative to these cables.
- 3) Press the cable end through the proper hole so that the gland material seals around it.

The Cable Entry Plate has 14 cable entry points with the following specifications:

Number of Entry Points	Cable Diameter	
	Millimeters	Inches
6	3.0 – 6.5	0.118 – 0.256
4	5.0 – 9.2	0.197 – 0.362
4	9.6 – 15.9	0.378 – 0.626

2.3.2 AS-I Cable Compression Connectors

Prepare the AS-I cable by stripping the wires and inserting first the compression connector nut, then the AS-I cable sealing grommet.



3 ELECTRICAL CONNECTIONS

The PWR-480B power unit provides a terminal block through which AC Line voltage enters and 24 Vdc Low Voltage output is provided.

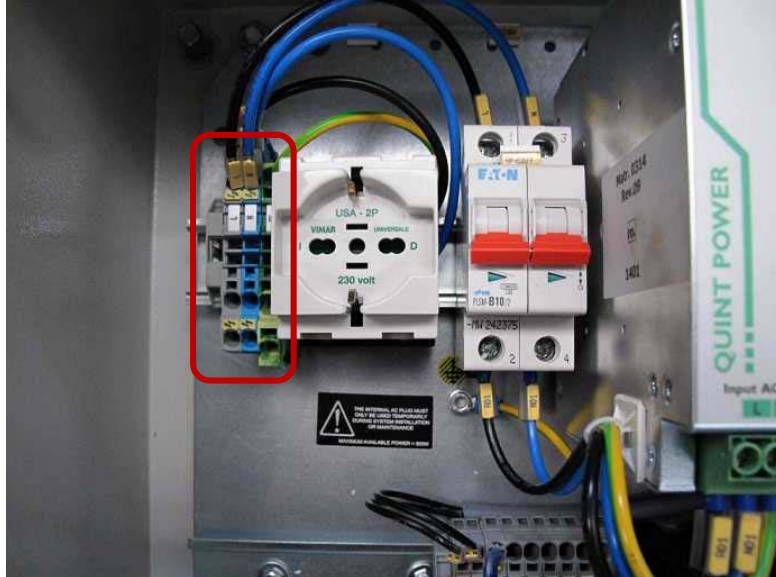


Figure 4 – PWR-480B AC Input Power Connections

The terminal block also provides two wiring terminals (13-14), which monitor the status of the switching power supply (DC OK feature). When the power supply module runs correctly, lines 13 and 14 form a normally closed contact. If the power module experiences problems (i.e. output overload causing output voltage to be reduced by less than 90% of nominal) these lines open. Lines 13 and 14 are decoupled from the power output lines and can be connected to a free digital input to signal this alarm condition.

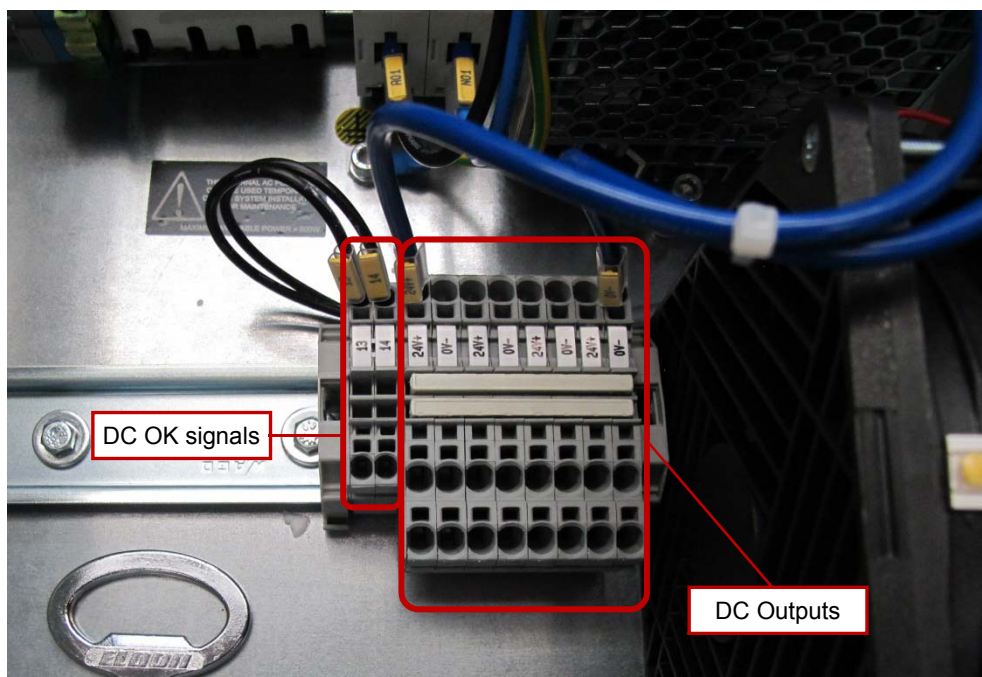


Figure 5 – PWR-480B DC Output Power Connections

3.1.1 Input AC Line Voltage

Wire according to the following points:

Primary wiring: Overcurrent protection should be provided by a 16 A building installation circuit breaker. Wiring methods from the branch circuit breaker to the PWR-480B power supply shall comply with the National Electric Code ANSI\NFPA.

For primary wiring use a 3-conductor cable with minimum size 2.5 mm² (13 AWG), for every conductor. Choose the overall cable diameter and UL Listed conduits accordingly. These conductors have to be inserted into the dedicated terminal blocks on the DIN rail (see diagram) which are marked Line (L) neutral (N) and Protection Earth (PE).

The terminal block marked with the ground symbol is a special block which allows direct connection of the Protection Earth with the enclosure of the PWR-480B.

The AC input cable must be inserted through one of the holes in the cable entry plate and the individual wires installed into the AC terminal block.

Replace the protection cover over the spring clamp connector after correctly installing the wires.

The AC socket can only be used during maintenance procedures.



Figure 6 – PWR-480B AC Line Terminal Block with Protection Covers



CAUTION: The Station Frame to which PWR-480B is mounted must also be connected to the plant ground (Protection Earth).

3.2 LASER BARCODE SCANNERS

3.2.1 Supply Capacity When Wiring Directly to AS-I Compatible Scanners

For direct wiring, power distribution is performed simultaneously for all the scanners. However all the scanner motors start up slowly so that there is no significant peak current draw. See the specific scanner manual for consumption data.

The maximum number of scanners to be supplied for direct wiring by a single PWR-480B is shown in the table below and also depends on the wiring topology:

PWR-480B Power Supply	Maximum Number of Scanners by Topology		
	Triple Branch	Ring	Single Branch
DS8110	24	19	9
DX8210	24	19	9

The power supply unit is connected directly to the scanners via AS-I cabling.

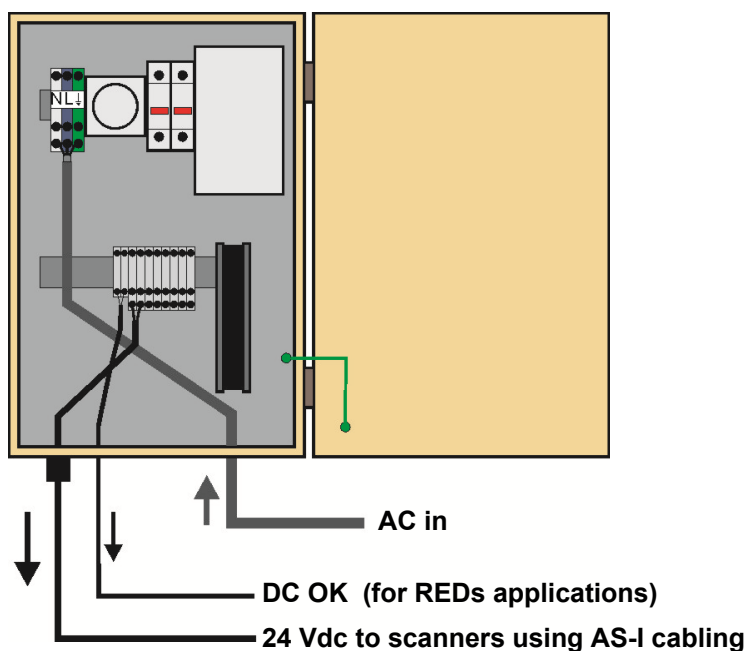


Figure 7 - Connecting PWR-480B Directly to Scanners

Refer to the specific scanner manual for I/O interface wiring connections.

AS-I Wiring Topologies

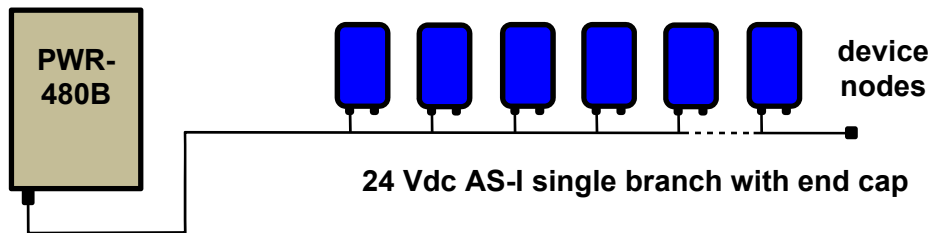


Figure 8 – Single Branch Topology

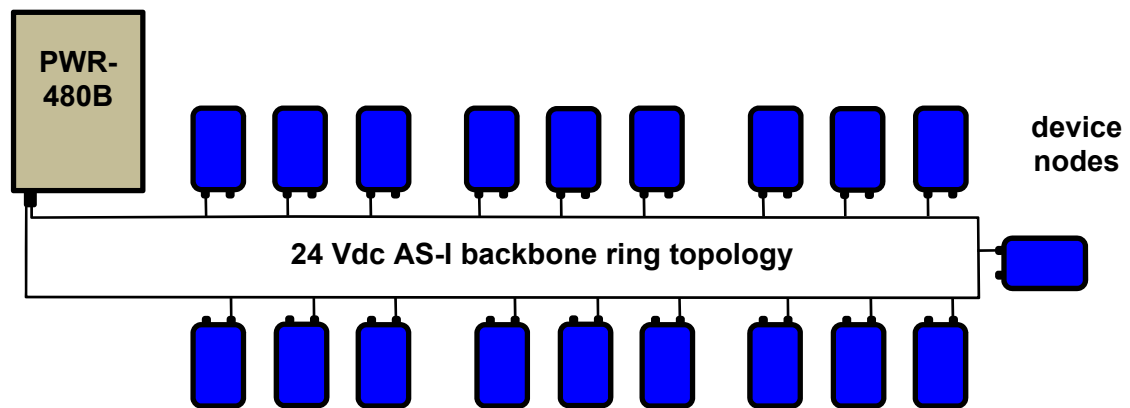


Figure 9 - Ring Topology

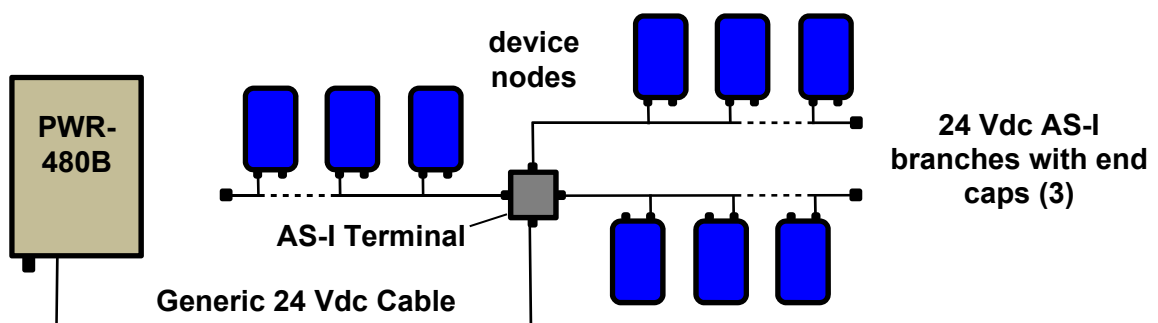


Figure 10 – Triple Branch Topology

3.2.2 Supply Capacity When Wiring Directly to Lonworks Scanners

For direct wiring, power distribution is performed simultaneously for all the scanners. However all the scanner motors start up slowly so that there is no significant peak current draw. See the specific scanner manual for consumption data.

The maximum number of scanners to be supplied for direct wiring by a single PWR-480B is shown in the table below:

PWR-480B Power Supply	Maximum Number of Scanners	Cables
DX8200A	12	CAB-8305 and CAB-8605
DS8100A	16	CAB-8305 and CAB-8605
DX6400	20*	CAB-63xx
DS6400 / DS6300	24*	CAB-63xx



NOTE: * The maximum current to be propagated through 6000 series scanners is 2A, therefore a CAB-63xx power drop cable is required for every **three** readers.

The power supply unit is connected directly to the scanners through Lonworks cables.

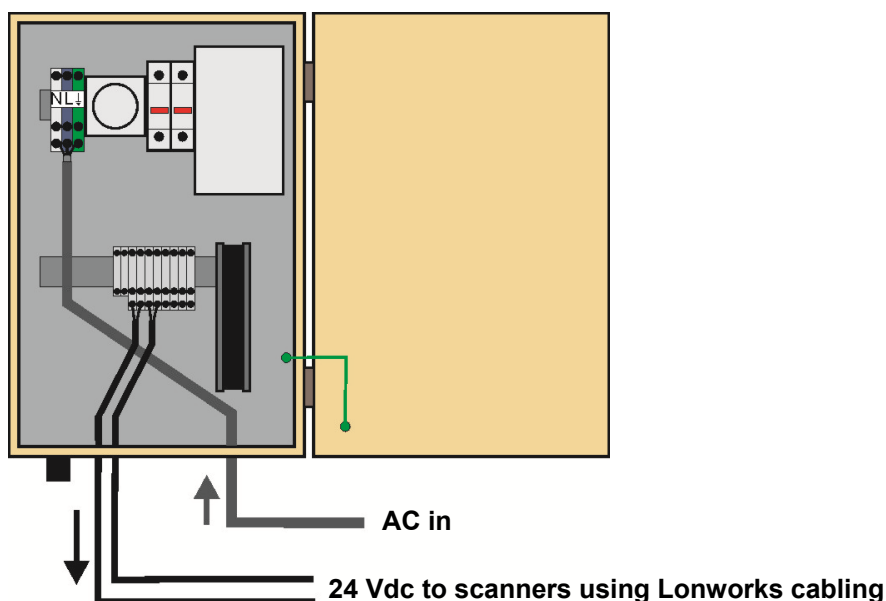


Figure 11 - Connecting PWR-480B Directly to Lonworks Scanners

Lonworks Cables	
Wire Color	Meaning
Red	+ 24 Vdc
Black	GND

Refer to the specific scanner manual for I/O interface wiring connections.

3.3.1 Supply Capacity When Wiring to XRF410N Readers

The power supply unit is connected to the XRF410N Base module through the CBX500 ATS-001 according to the following example diagram:

XRF410N Model	Maximum Number of Modules
Base (Bxx)	8
Hi Perf (Hxx)	4

The power supply unit is connected to the XRF410N Base module through the CBX500 ATS-001 according to the following example diagram:

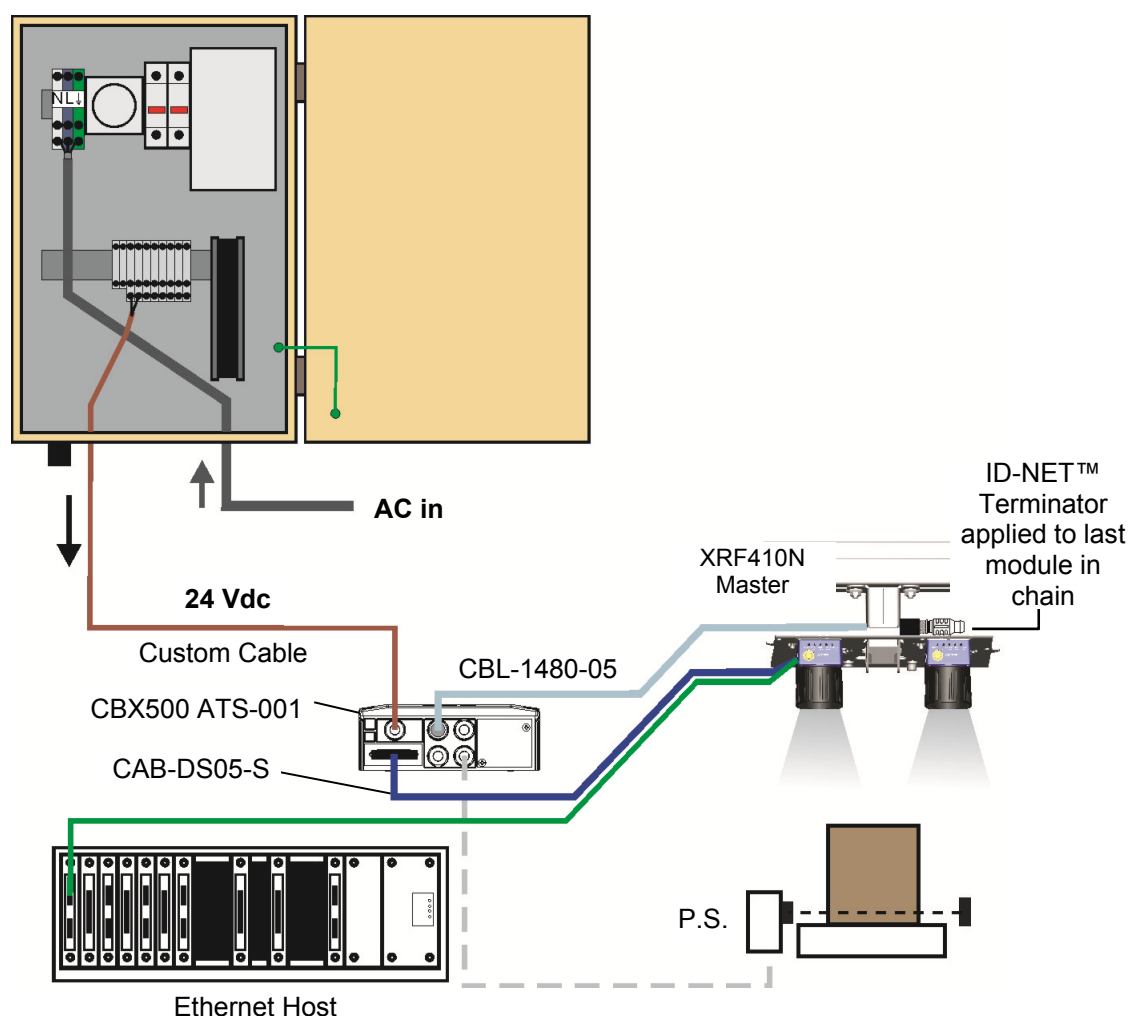


Figure 12 - Connecting PWR-480B to XRF410N Base Modules

Custom Power Cable to CBX	
PWR-480B	CBX
+ 24 Vdc	Vdc
GND	GND

The power supply unit is connected to the XRF410N Hi Perf module through the CBX500 ATS-001 according to the following example diagram. In this case separate power connection is also supplied to the QL connector for Illuminator power.

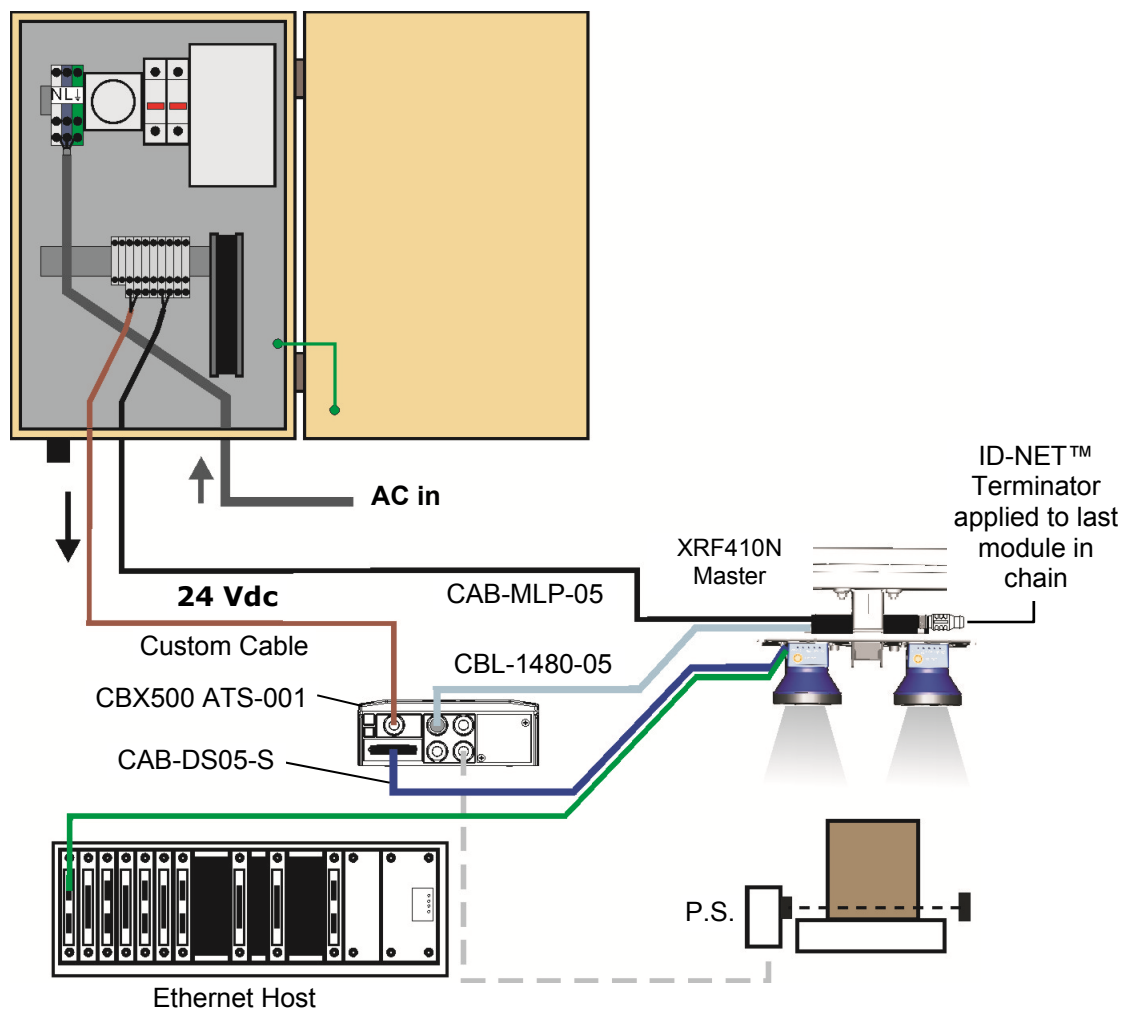


Figure 13 - Connecting PWR-480B to XRF410N Hi Perf Modules

Custom Power Cable to CBX		CAB-MLP-0x Cable	
PWR-480B	CBX	Wire Color	Meaning
+ 24 Vdc	Vdc	White	+ 24 Vdc
GND	GND	Blue	GND

3.3.2 Supply Capacity When Wiring to Matrix 450N Readers

The maximum number of Matrix 450Ns to be supplied by a single PWR-480B is shown in the following table.

	Maximum Number Readers
Matrix 450N	4

The power supply unit can be connected to the Matrix 450N readers according to the following example diagram:

ID-NET Synchronized Network

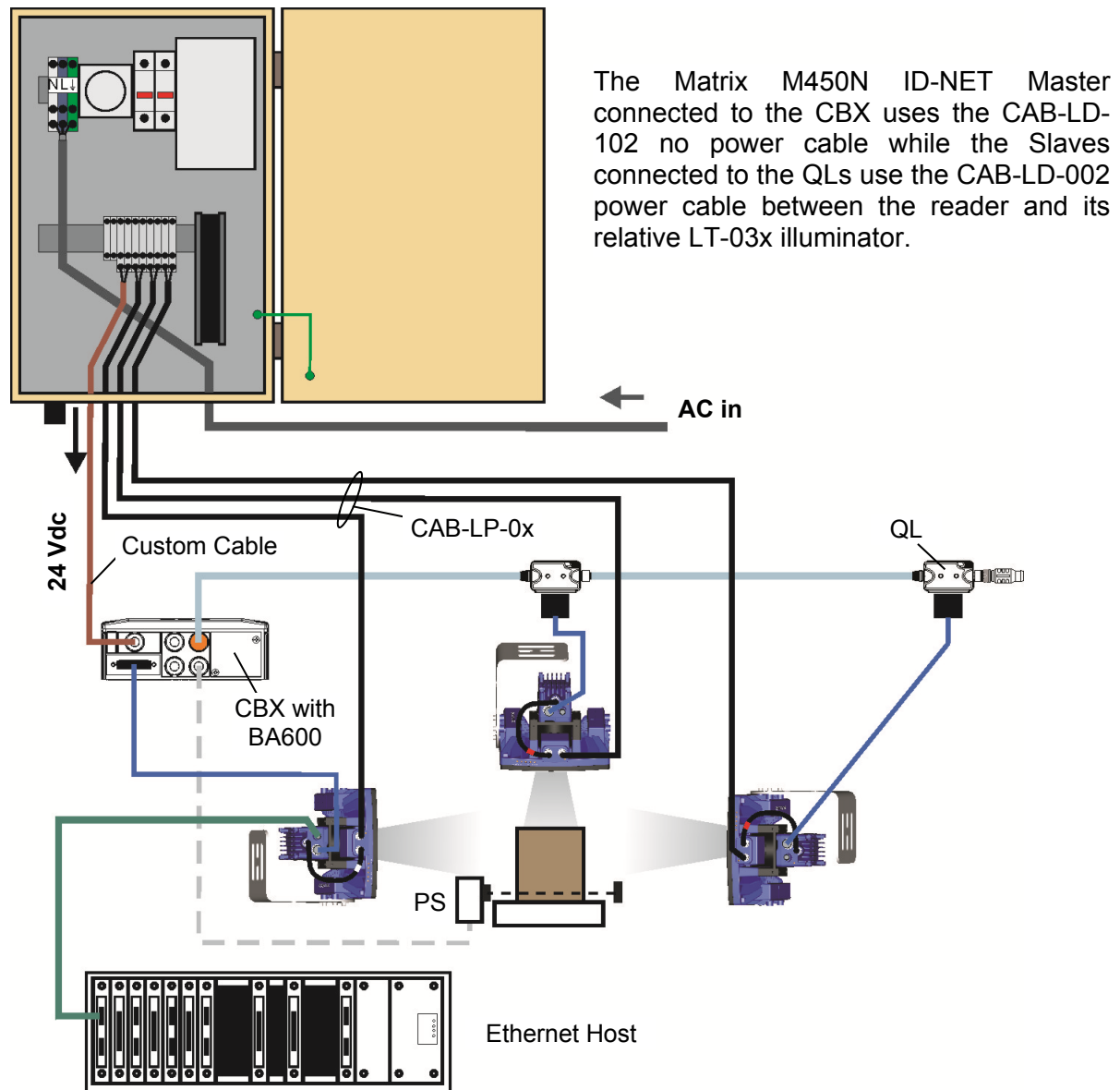


Figure 14 - Connecting PWR-480B to a Matrix 450N ID-NET Synchronized Network

Custom Power Cable to CBX		CAB-LP-0x Cable to LT-03x	
PWR-480B	CBX	Wire Color	Meaning
+ 24 Vdc	Vdc	Brown/White	+ 24 Vdc
GND	GND	Black/Blue	GND

The power supply unit can be connected to the Matrix 450N readers according to the following example diagram:

ID-NET Multidata Network

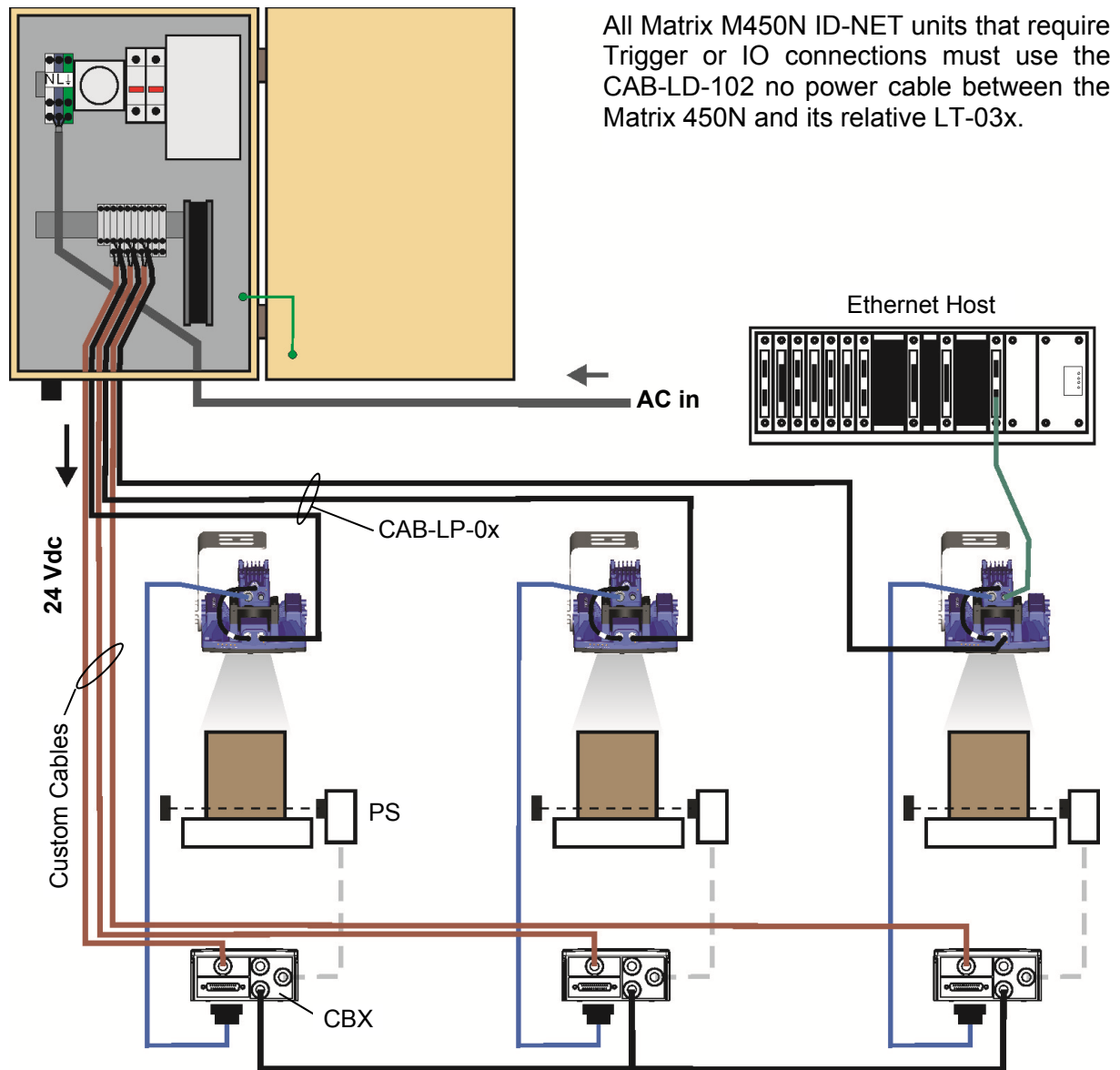


Figure 15 - Connecting PWR-480B to a Matrix 450N ID-NET Multidata Network

Custom Power Cable to CBX		CAB-LP-0x Cable to LT-03x	
PWR-480B	CBX	Wire Color	Meaning
+ 24 Vdc	Vdc	Brown/White	+ 24 Vdc
GND	GND	Black/Blue	GND

3.3.3 Supply Capacity When Wiring to AI7000s

One PWR-480B is able to power:

- one AI7000 illuminator (including the AV7000 camera which is powered via this unit and one CBX510 with all the standard sensors)

The power supply unit is connected to the camera illuminator according to the following diagram (power supply side):

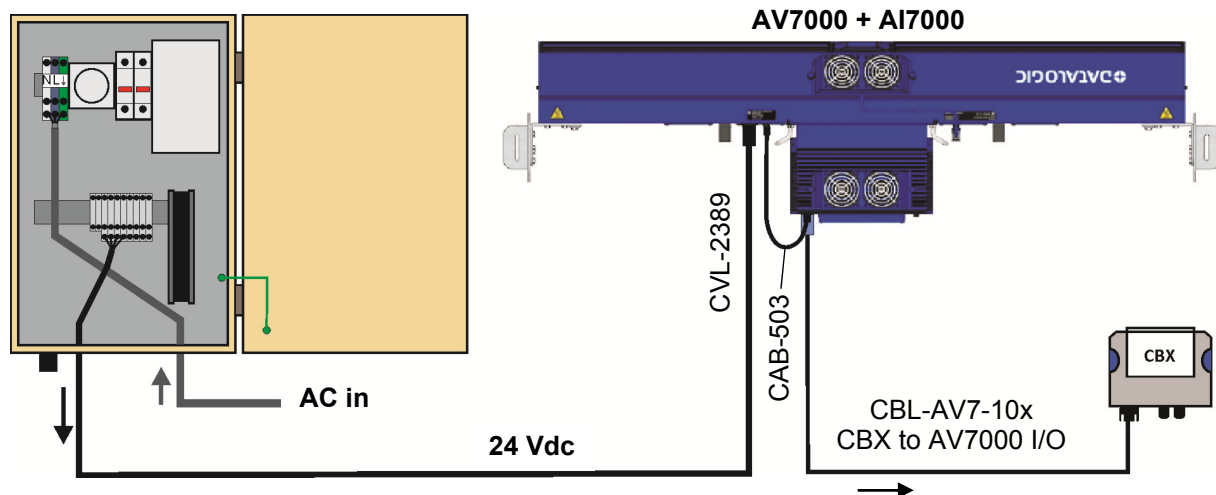


Figure 16 - Connecting PWR-480B to AI7000 Illuminator and CBX



NOTE: The AI7000 series illuminators are supplied with a CVL-2389 extension power cable. Use this cable to connect the PWR-480B power supply by cutting off the cable's male Amphenol connector and connecting the wires to the PWR-480B according to the table below:

CVL-2389 Cable to AI7000	
Wire Color	Meaning
White	GND
Green	+ 24 Vdc
Red	+ 24 Vdc
Black	GND

The CBX510 connection box receives power through the CBL-AV7-10x from the AV7000 IO connector. For further details see the AV7000 Installation Manual.

3.3.4 Supply Capacity When Wiring to NLS9000s

One PWR-480B is able to power in parallel:

- one NLS9000 illuminator (including the NVS9000 camera which is powered via this unit)
- one CBX500-NVS or CBX9000 with all the standard sensors

The power supply unit is connected to the camera illuminator according to the following diagram (power supply side):

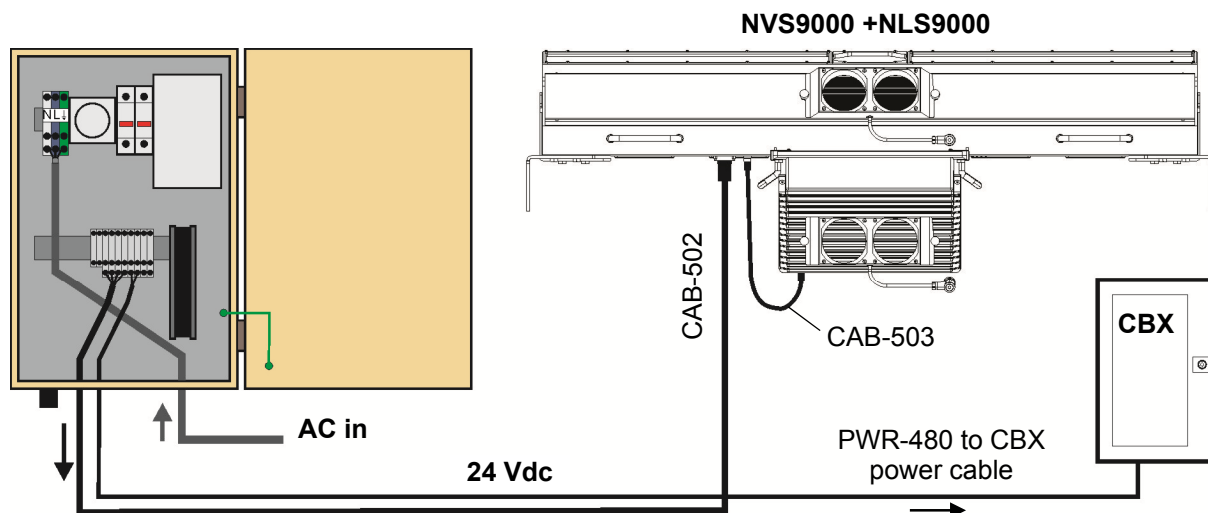


Figure 17 - Connecting PWR-480B to NLS9000 Illuminator and CBX

The NLS9000 series illuminators and CBX9000 connection boxes are supplied with a proper power cord:

PWR-480 to CBX Power Cable to CBX9000 or CBX500-NVS		CAB-502 Cable to NLS9000	
PWR-480B	CBX	Pin	Meaning
+ 24 Vdc	Vdc	1	GND
GND	GND	2	+ 24 Vdc
		3	+ 24 Vdc
		4	GND

For further details see the NVS9000 Installation Manual.

4 TECHNICAL FEATURES

ELECTRICAL FEATURES	PWR-480B
Input Voltage	AC from 100 to 240 V from 50 to 60 Hz
Input Current Consumption	Max 14 A (Max 6 A for power supply - output at full load) (Max 8 A for internal AC socket)
Output Voltage	24 Vdc (adjustable 18-29.5 Vdc)
Nominal Output Current	20 A (full load)
ENVIRONMENTAL FEATURES	
Operating Temperature	0° to +50 °C (32° to +122°F)
Storage Temperature	-20° to +70 °C (-4° to 158 °F)
Humidity	5-95% non condensing
Protection Class EN 60529	IP65*
PHYSICAL FEATURES	
Mechanical Dimensions HxLxD	400 x 300 x 210 mm (15.8 x 11.8 x 8.3 in)
Weight	about 12 kg (26.5 lbs)

* when cables are inserted into the proper holes of the cable entry plate and all unused holes and compression connectors are sealed.



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