



PD-9501-10GCO/AC

PD-9501-10GCO/AC PoE User Installation Guide

Introduction

Microchip's family of Power over Ethernet (PoE) Midspans PD-9501-10GCO/AC is a single-port high-power PoE outdoor solution that offers a cost-effective IEEE® 802.3bt compliant solution and pre-BT support for IEEE 802.3af/at standard guaranteeing 60 W of power and ensures safe and reliable operation in outdoor environments for standard PoE data terminal. The PD-9501-10GCO/AC supports emerging wireless 10 Gbps devices, such as wireless IEEE 802.11ac access points.

PoE Midspan powers devices that are PoE enabled or equipped to receive PoE. These devices are called PDs.

PoE Midspans offer the following key features:

- Outdoor rated: IP66 and IP67
- Extended temperature range –40 °C to 65 °C
- Supports 10/100/1000 Mbps and 2.5/5/10 Gbps data rates
- Standards compliant: IEEE 802.3bt and IEEE 802.3af/at
- Plug and Play installation (installer does not have to open unit)
- Includes integrated surge protection

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1. Standards and Safety Guidelines

The following sections describes the standard and safety guidelines for the product.

1.1 Part Number Definition

PD-9501-10GCO/AC: 4-pairs AC input family.

Table 1-1. Part Number Definition

Symbol	Description
AC	Midspan has AC input.

1.2 Electrical Compatibility Approvals

Microchip's PD-9501-10GCO/AC series complies with the following standards:

- EN55035
- EN55032: Class B
- FCC Part 15: Class B
- VCCI

1.3 Safety Standard Approvals

Microchip meets the following safety standards. Consult Microchip for a complete list of safety certifications.

- UL/IEC/EN62368-1
- UL/IEC/EN60950-22
- GS Compliance

1.4 CE Marking

CE marking on this product indicates that this product complies with the Electromagnetic Compatibility (EMC) Directive.

1.5 GS Compliance

GS marking on this product indicates that the product complies with the German Product Safety Act.

1.6 Surge/Lightening Protection

Microchip's PD9501-10GCO/AC is designed according to the following requirements.

- ITU-T K.21 (6 kV enhanced surge) - Port and AC Main
- EN61000-4-5 (6 kV) - Port and AC Main
- GR-1089-CORE Issue 6 - Port Only

1.7 Safety Information

Read the safety information before using the PoE Midspan unit.

1.7.1 General Guidelines

Read the following safety information before carrying out any installation, removal, or maintenance procedure on the PoE Midspan. Warnings contain directions to be followed for the safety of personal and product.

1.7.2 Warnings

- Read installation instructions in [3. PoE Midspan Installation \(Outdoor Model\)](#) before connecting Midspan to its power source.
- Follow basic electricity safety measures when connecting the PoE Midspan to its power source.
- Only trained and qualified personnel must be allowed to install, replace, and service this equipment.
- A voltage mismatch can damage the equipment and can pose a fire hazard. If voltage indicated on the label is different from the power outlet voltage, do not connect Midspan to this outlet.
- All wiring and connections must conform to NFPA 70 (NEC).
- Power supply cord must not be attached to the building surface or run through walls, ceilings, floors, and similar openings in the building structure.
- Measures must be taken to prevent physical damage to the power supply cord, including proper routing.
- Data and Data and Power ports of the Midspan are shielded RJ45 data sockets. They cannot be used as Plain Old Telephone Service (POTS) sockets. Only connect RJ45 data connectors to these sockets.
- When disposing this product, follow all local laws and regulations.

2. Information en Matière de Sécurité

Lire les informations suivantes en matière de sécurité avant d'utiliser d'activer l'alimentation sur votre appareil Ethernet Midspan.

2.1 Directives Générales

Lire les informations suivantes en matière de sécurité avant d'installer ou enlever quoi que ce soit, ou procéder à l'entretien de l'alimentation de votre appareil Ethernet Midspan. Les mises en garde contiennent des instructions qui doivent être suivies pour la sécurité des personnes et du produit. Suivre les instructions soigneusement.

2.2 Mises en Garde

- Lire les instructions d'installation dans [3. PoE Midspan Installation \(Outdoor Model\)](#) avant de connecter le Midspan à une source d'alimentation.
- Suivre les mesures de sécurité électrique de base lors de la connexion de l'injecteur PoE à sa source d'alimentation.
- Seul du personnel formé et qualifié doit être autorisé à installer, remplacer et entretenir cet équipement.
- Une disparité de voltage peut endommager l'équipement et constituer un risque d'incendie. Si le voltage indiqué sur l'étiquette est différent du voltage de la source d'alimentation, ne pas connecter le Midspan à cette prise.
- Tout le câblage et les connexions doivent être conformes à la norme NFPA 70 (NEC).
- Le cordon d'alimentation ne doit pas être fixé à la surface du bâtiment ni passer à travers les murs, les plafonds, les planchers et les ouvertures similaires de la structure du bâtiment.
- Des mesures doivent être prises pour éviter tout dommage physique au cordon d'alimentation, y compris son acheminement correct.
- Les ports **Data** et **Data et Power** du PoE Midspan sont des prises de données blindées RJ45. Elles ne peuvent pas être utilisées comme prises de service téléphonique traditionnel. Connecter seulement des connecteurs de données RJ45 à ces prises. Le câblage Ethernet connexe doit être limité à l'intérieur de l'immeuble.
- Pour disposer/jeter ce produit, suivre les lois et règlements locaux.

3. PoE Midspan Installation (Outdoor Model)

The following sections describe the procedures for the installation of the Midspans unit.

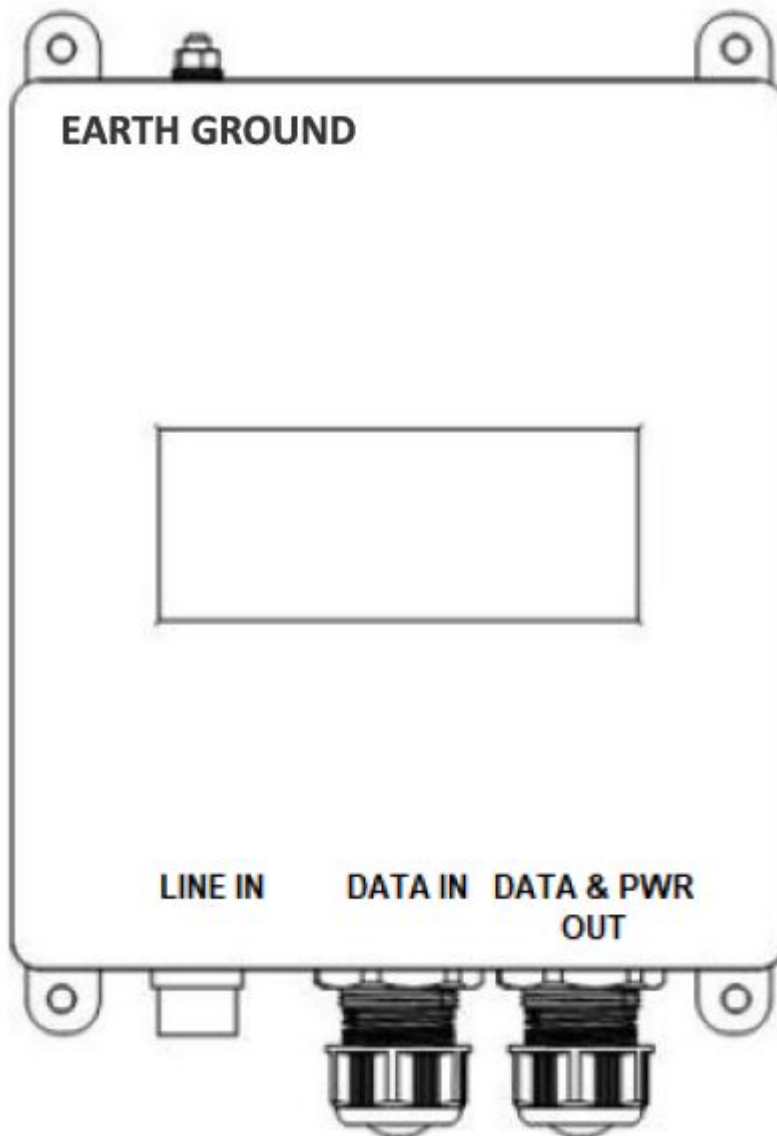
Note: Do not use cross-over cable between the PoE Midspan output port and load device.

Warnings:

1. Take extra care when connecting the AC power inlet terminals, so that **N**, **L**, and **Ground** are connected to the proper polarity.
2. Ensure the AC power is within the allowed range.
3. Earth ground screw must be connected to earth ground in all types of installations.

3.1 Installation Overview

Figure 3-1. Product Overview



PD-9501-10GCO/AC

PoE Midspan Installation (Outdoor Model)

Before mounting the midspan to a fixed location, note the following:

- To insure weather-proof connection in order to meet IEC60529 level IP67. PoE Midspan AC power plug needs to be connected to a weather-proof AC power source box.
- Do not cover the midspan or block the airflow to the PoE with any foreign objects.
- Keep the midspan away from excessive heat and free from vibration.
- Ensure that the cable length from the Ethernet network source to the terminal does not exceed 100 meters (333 feet). The midspan is not a repeater and does not amplify the Ethernet data signal.
- The midspan has no ON-OFF switch, simply plug the midspan into an AC power source.
- PoE Midspan AC power lines should be connected to the socket-outlet that shall be installed near the equipment and be easily accessible.

Installation Options

There are two options available for the installation of PD9501-10GCO/AC:

1. **Wall installation** – PoE Midspan unit can be mounted on a wall/bench (all kind of flat surfaces such as wood, brick, concrete etc.) using the mounting holes.
Note: Use only on solid walls to install the midspan, do not install on drywall or plasterboard walls.
2. **Pole installation** – Using optional mount kit.
Note: The mounting kit is not provided with the kit.

3.1.1 Parts List

The following table lists the parts included in the kit:

Quantity	Component
1	60 W midspan, outdoor model
1	AC female connector
1	Quick installation guide

3.1.2 Additional Parts

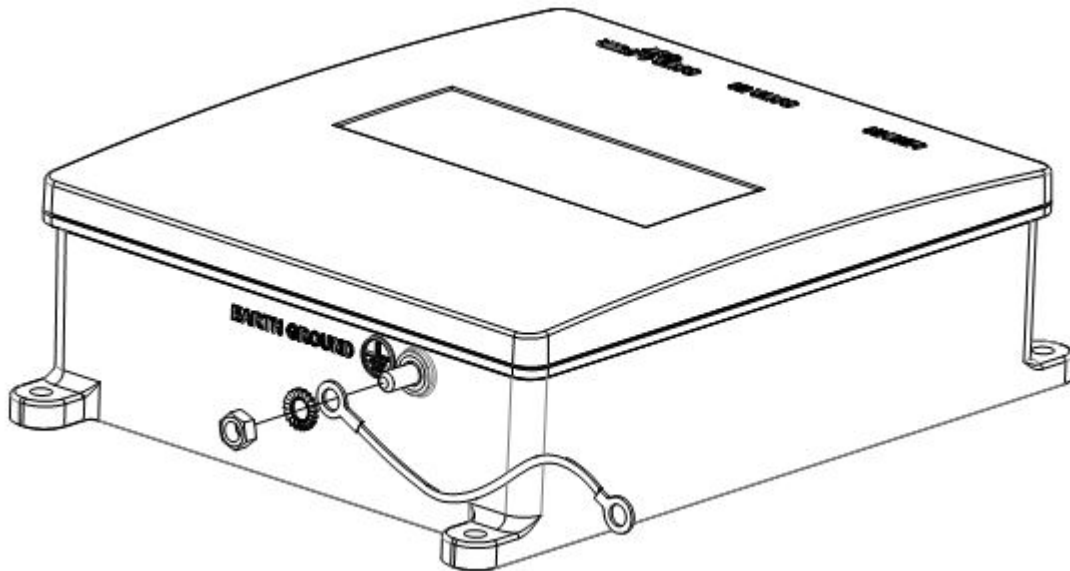
The following table lists additional parts recommended to install the midspan:

Quantity	Part
1	Screwdriver
1	Splitter
1	Universal Power Supply (UPS)
1	Wire stripper
1	Solid Wrench No. 30 or Adjustable Wrench

3.1.3 Connect the Midspan to Ground

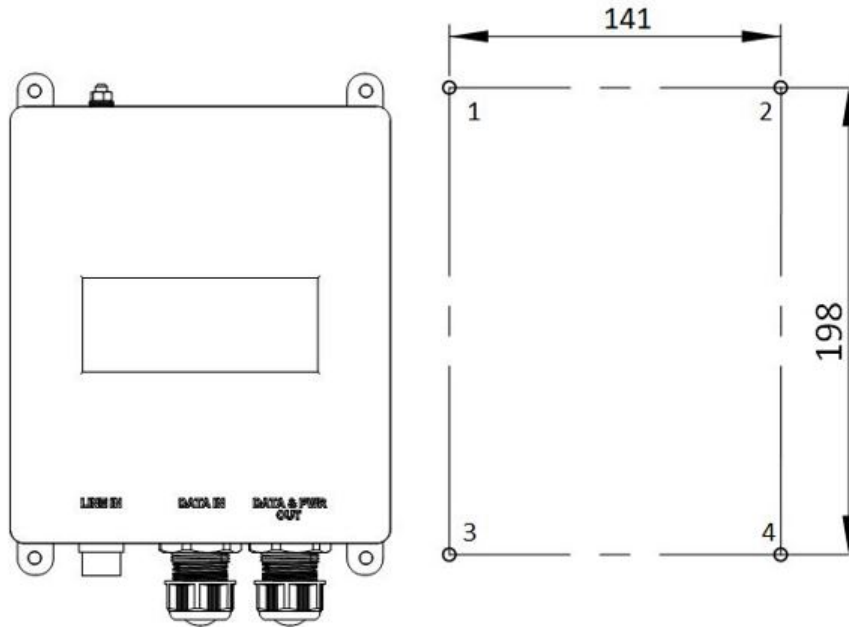
Note: Connect the midspan to ground only if replacing pre-assembled ground cable.

1. Connect the chassis bolt to the earth ground point on the rear of the midspan.
2. Connect the other end of the ground wire to earth ground at your installation point.
3. Tighten the screw to 1.7 Nm.



3.1.4 Install the Midspan Directly to a Wall

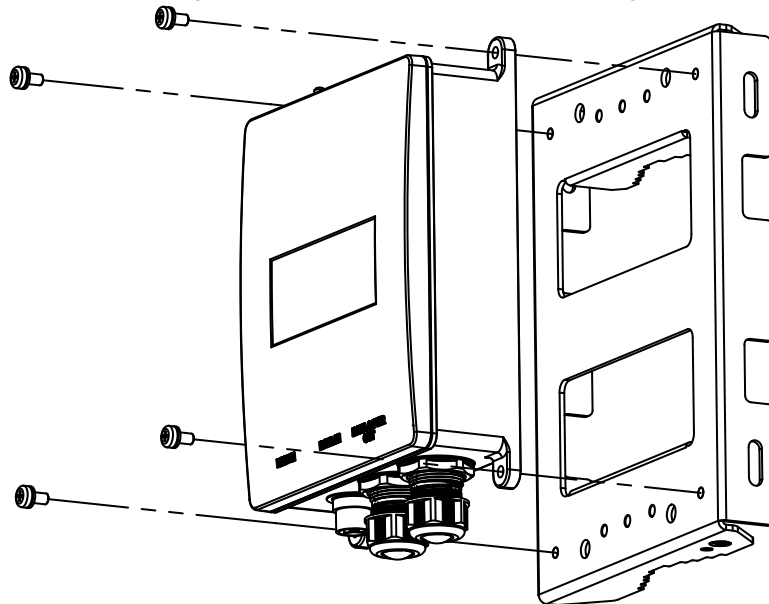
1. Using the screw holes of the midspan as a template, put marks on the mounting surface (a wall of wood, brick or concrete) to mark drill points and drill four holes.
2. Insert four mounting screws into the screw holes. For bricks or concrete wall use anchor with screw (5 mm x 40 mm. minimum) and for wooden wall use screws for wood 5 mm x 40 mm.
Note: The screws are not provided with the kit.
3. Tighten each screw until the midspan is attached safely to the mounting surface.



3.1.5 Install the Midspan to a Pole Mount Adapter

Before installing the midspan, ensure that all the following parts listed in the parts list are included. If any items are missing, notify your Sales or Customer Service Representative from Microchip.

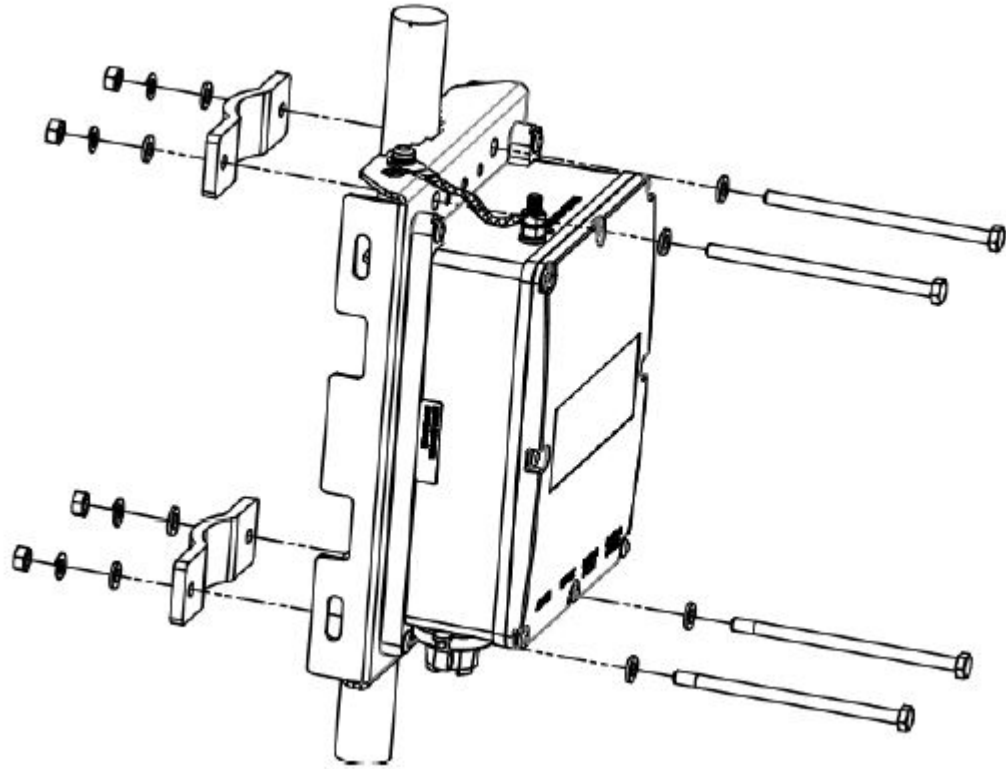
1. Install the midspan onto the mounting bracket of the pole mount adapter, using four pan head screws.



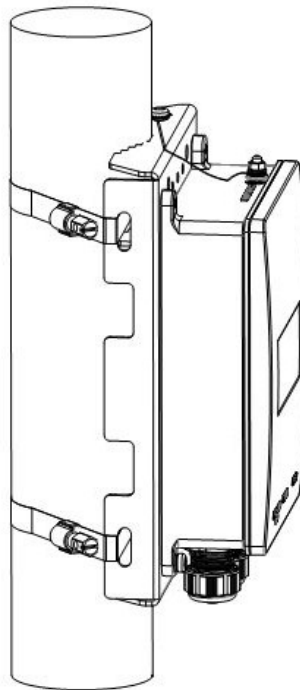
PD-9501-10GCO/AC

PoE Midspan Installation (Outdoor Model)

2. Install the mounting bracket onto the pole. Use the appropriate components depending on the diameter of the pole.
 - a. **Pole of small diameter:** The following parts list identifies the components required to install the metal bracket on a pole with a diameter of 25 mm to 76 mm (1 in. to 3 in.).



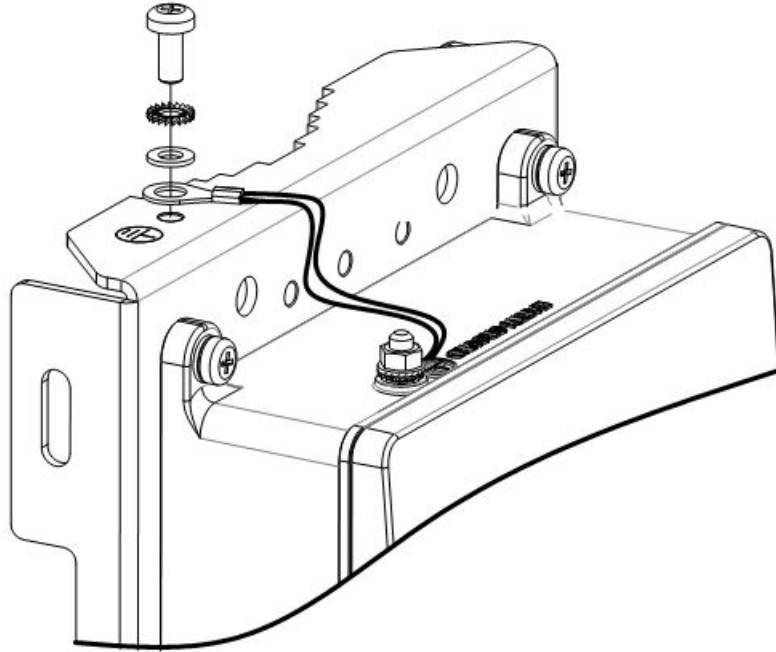
- b. **Pole of large diameter:** The following parts list identifies the components required to install the metal bracket on a pole with a diameter of 76 mm to 203 mm (3 in. to 8 in.).



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PoE Midspan Installation (Outdoor Model)

3. For poles of both small and large diameter, connect the chassis bolt to the earth ground point on the mount kit.



Warning: Mounting bracket must be connected to earth ground.

3.1.6 Connecting the AC Cable

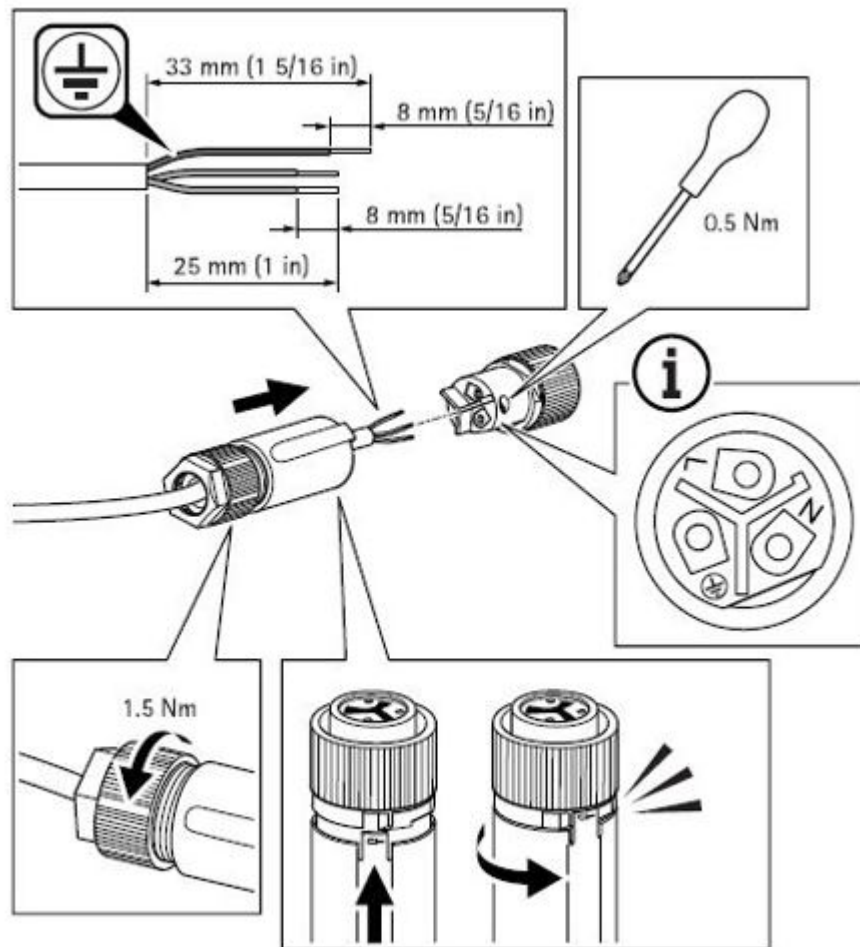
The following table lists the AC cable specifications.

Table 3-1. AC Cable Specifications

Parameter	Value
Recommended cable type	North America—SJOW or SOOW Worldwide—H05RN-F or H07RN-F
Voltage rating	300 V (or better recommended)
Temperature range	-40 °C to 65 °C (or better recommended)
Cable size	16 AWG–18 AWG 3C 1.0 mm ² – 1.5 mm ² 3C
Cable outer dimension	Dia. 3/16 in.–3/8 in. Dia. 5.0 mm–9.5 mm
Approved for indoor and outdoor applications.	

The following figure shows how to connect the AC cable to the midspan unit:

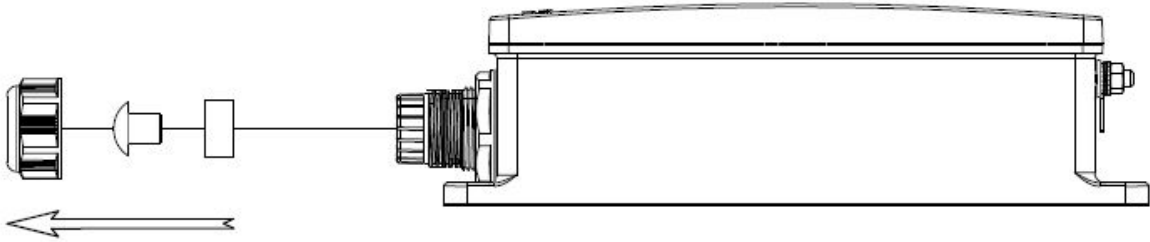
Figure 3-2. Connecting the AC Cable to the Unit



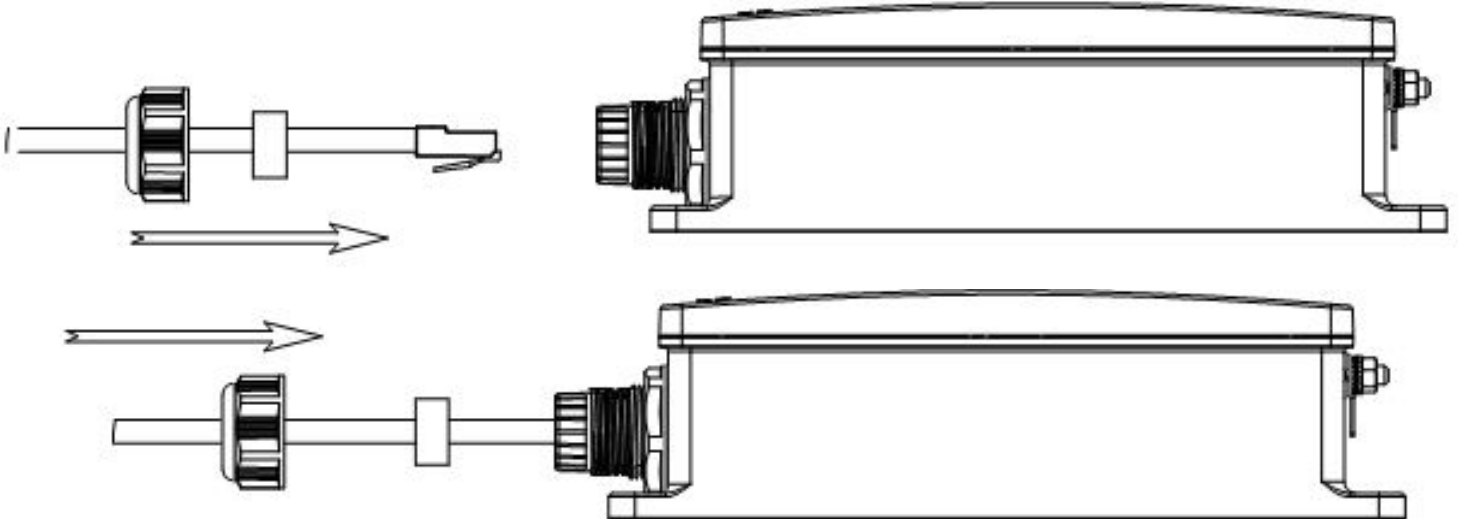
3.1.7 Connecting the RJ45 Cable

The following steps describe the installation of RJ45 cable to the midspan.

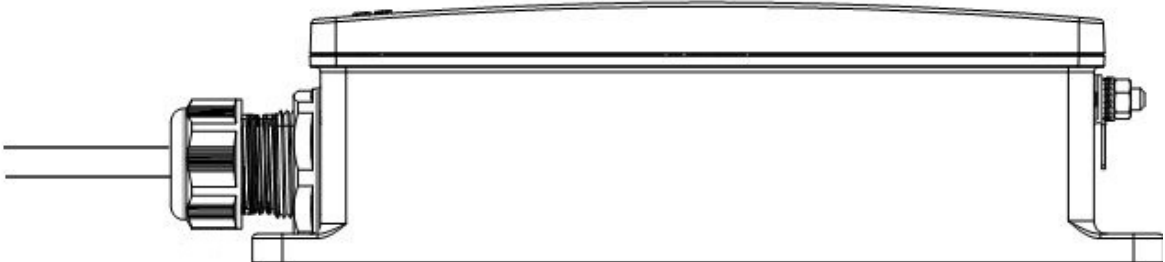
1. Remove the upper cap, blank plug, and washer from the **Data In** port.



2. Insert the cable through the upper cap and the washer and plug into the **Data In** port.



3. Slide the washer and the upper cap towards the midspan and hand-tighten the upper cap onto the **Data In** port.



4. Repeat step 1 to step 3 to connect the RJ45 cable to the **Data and PWR Out** port.

Notes:

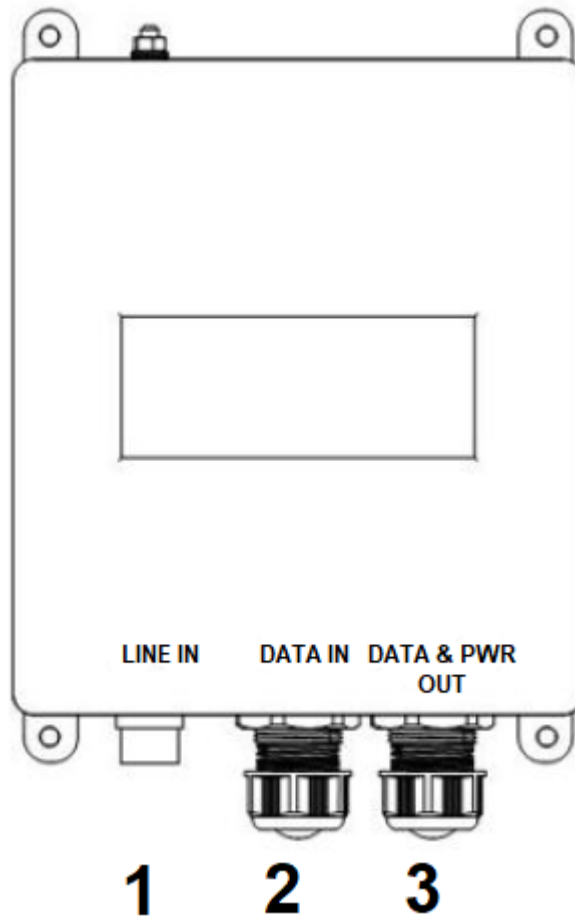
1. Use cable up to 5 Gig Cat 5e and above outdoor grade.
2. Use cable up to 10 Gig Cat 6 and above outdoor grade.

3.1.8 Connection

Note: The midspan has no ON-OFF switch, simply plug the midspan into an AC power source.
Follow the steps below to connect the midspan to the data and power source.

1. Connect the **Data In** (input) jack from the midspan to remote Ethernet network (item 2 in the following figure).
2. Connect the **Data and PWR Out** (output) jack from the midspan to the terminal (item 3 in the following figure).
3. Connect AC power lines from the **Line In** terminal (item 1 in the following figure) to main AC power. Ensure that the power outlet is nearby and easily accessible.

Note: Connect the midspan to a weather-proof AC power source box that meets ratings IP66 and IP67.



	Label	Description
1	LINE IN	Power input, 100 V _{AC} -240 V _{AC}
2	DATA IN	Data in to the Ethernet (network) switch
3	DATA & PWR OUT	Data and power out to the Ethernet terminal

4. Troubleshooting

The following sections describe the troubleshooting procedures to address any problems encountered with the unit.

4.1 Preliminary Steps

If there is any problem, verify the following steps:

- Power is applied to Midspan.
- A crossover-type Ethernet cable has not been used.
- Ethernet cable from network is connected to **Data In** port.
- Ethernet cable to PD is connected to **Data and Power Out** port.
- Cable pairs are attached to their corresponding ports.

4.2 Troubleshooting Steps

The following table provides a problem and resolution sequence to assist in troubleshooting of minor operating problems. If the following steps do not solve your problem, contact your local dealer for further assistance.

Table 4-1. Troubleshooting Steps

Problem	Corrective Steps
Midspan does not power-up	<ol style="list-style-type: none"> 1. Make sure that the power cord is properly connected. 2. Verify that the voltage at power inlet is between 100 V_{AC} – 240 V_{AC}. 3. Remove and reapply power to the device during power-up sequence.
PD does not operate	<ol style="list-style-type: none"> 1. Verify that the port is enabled (Midspan did not detect a PD). 2. Verify that the PD is designed for PoE operation. 3. Verify that you are using a standard Category 5/5e/6, straight-wired cable, with four pairs according to data rate. 4. If an external power splitter is in use, replace it with a viable splitter. 5. Verify that the Data source is connected to the Data In port. 6. Verify that the PD is connected to the Data and Power Output port. 7. Verify that there is no short over any of the twisted-pair cables or over the RJ45 connectors.
End device operates, but there is no data link.	<ol style="list-style-type: none"> 1. If an external power splitter is in use, replace it with a viable splitter. 2. Verify that for this link you are using a standard UTP/FTP Category 5/5e/6 straight (non-crossover) cabling, with all four pairs. 3. Verify that the Ethernet cable length is less than 100 meters from Ethernet source to the remote terminal.

5. Specifications

The following sections describe unit specifications.

5.1 Environmental Specifications

Table 5-1. Environmental Specifications

Mode	Temperature	Humidity
Operating	-40 °C to 65 °C -40 °F to 149 °F	10% to 90% (non-condensing)
Storage	-40 °C to 85 °C -40 °F to 185 °F	

5.2 Electrical Specifications

Table 5-2. Electrical Specifications

Parameter	Value
Input voltage	100 V _{AC} – 240 V _{AC} (50 Hz/60 Hz)
Input current	0.8 A (maximum)
Available output power (maximum)	60 W
Nominal output voltage	54 V _{DC}

5.3 Interface

Table 5-3. Interface

Parameter	Type
Input (Data In): Ethernet 10/100/1000Base-T	RJ45 female socket
Output (DATA PWR OUT): Ethernet 10/100/1000 and 5Gig/10Gig Base-T, plus 54 V _{DC}	RJ45 female socket, with DC voltage on wire pairs: 7-8, 4-5 and 1-2, 3-6
AC Power IN	3 Pins AC power in – Line, Neutral and Earth Ground

6. Contacting Technical Support

If you encounter any problems while installing or using this product, consult the Microchip technical support team through the website or contact on the following number:

USA/Canada

Telephone: +1 877 480 2323

Internet: www.microchip.com/support

7. Revision History

Revision	Date	Description
A	08/2021	Initial Revision

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