PD-9601GCS/AC

PoE Media Converter User Installation Guide

Introduction

Microchip's family of PD-9601GCS/AC is a Power over Ethernet (PoE) Media converter that injects power over data-carrying Ethernet cabling.

PD-9601GCS/AC complies with IEEE® 802.3bt, IEEE® 802.3at and IEEE® 802.3af standards, with guaranteed output power of 90W. These power levels allow usage by a new range of Ethernet-based applications such as PTZ IP cameras, Wi-Fi 802.3ac Access Points, Point-to-Point wireless radios, and more. The PD-9601GCS/AC Data and Power Output port is designed to carry gigabit Ethernet data and power over a standard CAT5e cable, delivered through 4-pair wires (Alt A: 3,6 (+) and 1,2 (-) ; Alt B: 4,5 (+) and 7,8 (-)).

CAUTION: The PD-9601GCS/AC is designed for indoor applications only.

Features

PD-9601GCS/AC PoE Media converter offers the following important features:

- 1-port PoE output
- Guaranteed power of 90W
- Compact product size
- Universal AC input: 100 V_{AC} to 240 V_{AC}
- Standard compliance: IEEE 802.3 af/at/bt

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# 1.	Standards and Safety Guidelines

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

## 1.1	Part Number Definition

PD-9601GCS/AC: 4-pairs AC input family.

Table 1-1. Part Number Definition

Symbol	Description
GCS	Represents the bandwidth (10/100/1000 Mbps).
AC	Media converter has AC input.

## 1.2	Electromagnetic Compatibility Approvals

Microchip's PD-9601GCS/AC Media converter complies with the following standards:

- FCC Part 15: Class B
- EN55032: Class B
- Canadian ICES-003
- EN55024
- VCCI

## 1.3	Safety Standard Approvals

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

- UL/cUL per UL62368-1
- GS Compliance per EN62368-1

## 1.4	GS Marking

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

1.5   Safety Information

Read the safety information before using the PoE Media converter unit.

1.5.1   General Guidelines

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

1.5.2   Important Safety Information

Read the following important safety information before using the unit.

Setting up the AC power cord:

- The power cord must have regulatory agency approval for the specific country in which it is used (i.e., UL, CSA, VDE, and so on).
- The power cord must be a three-conductor type (two current carrying conductors; one ground conductor) terminated on one end by an IEC 60320 appliance coupler (for connection to the PoE Media converter), and on the other end by a plug containing a ground (earth) contact.
- The power cord must be rated for a minimum of $250V_{ac}$ RMS operation, with a minimum rated current capacity of 5 amps (or a minimum wire gauge of 18 AWG ($0.75mm^2$)).
  Note: The **Data-In** PoE injector and **PoE** ports are shielded RJ45 data sockets. They cannot be used as Plain Old Telephone Service (POTS) telephone sockets. Only RJ45 data connectors may be connected to these sockets.
- The AC wall socket-outlet must be near the PoE Media converter and easily accessible. You can remove AC power from the PoE Media converter by disconnecting the AC power cord from either the wall socket-outlet or the PoE media converter appliance coupler.
- The PoE Media converter Data-In and Data and Power Out interfaces are qualified as SELV (Safety Extra-Low Voltage) circuits according to IEC 60950-1. These interfaces can only be connected to SELV interfaces on other equipment.

1.5.3   Warnings

- Read the installation instructions before connecting the PoE Media converter to its power source.
- Follow basic electricity safety measures whenever connecting the PoE Media converter to its power source.
- A voltage mismatch can cause equipment damage and may pose a fire hazard. If the voltage indicated on the label is different from the power outlet voltage, do not connect the PoE Media converter to this power outlet.

2. PoE Media Converter Hardware Installation

The following sections describe the procedure to install the PD-9601GCS/AC PoE Media converter unit.

Figure 2-1. Installing the PD-9601GCS/AC
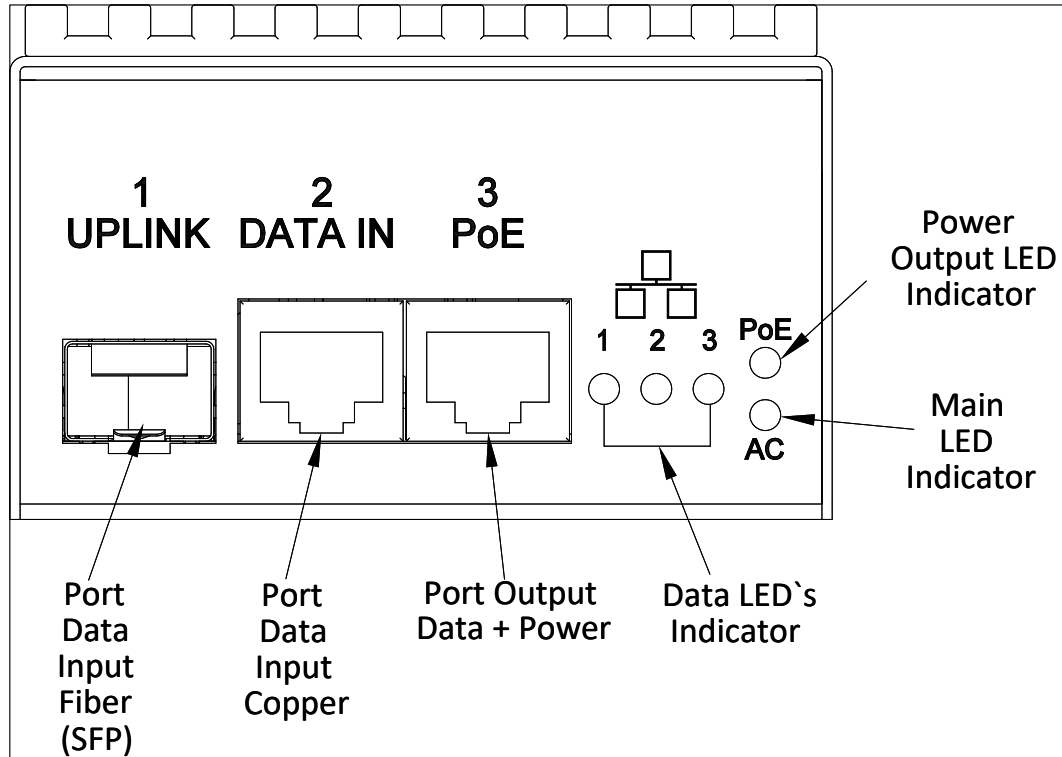
2.1 Media Converter Installation

Install the media converter according to following procedures.

1. Ensure that AC power is applied to the PoE Media Convertor, using an AC cable with an appropriate ground connection.
2. Connect the PoE Media Convertor to an AC outlet ($100V_{AC}$–$240V_{AC}$), using a standard power cord.

2.2 Installation of Optical to PoE Application

Install the optical fiber cable to the PoE Media converter according to following procedures.

1. Insert the SFP transceiver into the SFP cage (uplink port). The PD-9601GCS/AC supports multi and single mode transceiver.
2. Connect the optical fiber cable to the transceiver.
3. Connect the other end of the cable to the network transceiver.
4. Connect the PoE port to the Powered Device (PD) using a Cat5e (or higher) cable.

2.3 Installation of Copper to PoE Application

1. Connect the DATA IN port to the network using a Cat5e (or higher) cable.
2. Connect the PoE port to the PD using a Cat5e (or higher) cable.

2.4   Three Ports Converter Installation

Note: Read installation instructions before installing the PD-9601GCS/AC PoE Media converter.

The product supports simulated use of all 3 ports such as two data inputs and one PoE output which acts as a switch.

1. Insert the SFP transceiver into the SFP cage (uplink port). The PD-9601GCS/AC support both multi and single mode transceiver.
2. Connect the optical fiber cable to the transceiver.
3. Connect the other end of the cable to the network transceiver.
4. Connect the Copper DATA IN port to a non-PoE end-device using a Cat5e (or higher) cable.
5. Connect the PoE port to the PD using a Cat5e (or higher) cable.

2.5   Indicators

The following table lists the set of indicators displaying the status of the PoE Media converter and its ports.

Table 2-1. Port Indicator LED

Port Indicator LEDs	Indication
Main LED	
OFF	Power OFF Indication
Green ON	Power ON Indication
Data LEDs	
OFF	No Link
Green ON	Link
Green Blink	Data Transfer
PoE LED	
OFF	No Output Power
Yellow ON	Power Over 2-pairs (3, 6 and 1, 2)
Green ON	Power Over all 4-pairs

3. Troubleshooting

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

3.1 Preliminary Steps

Before mounting the PD-9601GCS/AC PoE Media converter to a fixed location:

- Read installation instructions before connecting the PD-9601GCS/AC to its power source.
- There is no ON/OFF switch on the Media converter, simply plug the PD-9601GCS/AC into an AC power source.
- Verify that a PoE Ready Ethernet-compatible device is connected.
- Do not cover PD-9601GCS/AC or block airflow to the unit with any foreign objects. Keep PD-9601GCS/AC away from excessive heat and humidity, and free from vibration and dust.
- Ensure that cable length from Ethernet network source to the terminal does not exceed 100 meters (330 feet). This Media converter is not a repeater and does not amplify Ethernet data signal.
- Use a splitter, if necessary, and ensure that the splitter is connected near the terminal and not on the PD-9601GCS/AC.

3.2 Troubleshooting Steps

The following table lists problem and resolution sequences to assist in troubleshooting minor operating problems. If the following steps do not solve your problem, contact the dealer for further assistance.

Table 3-1. Troubleshooting Steps

Problem	Corrective Steps
Media converter does not power-up.	1. Verify that an approved power cord is used. 2. Ensure that the power cord is properly connected. 3. Verify that the voltage at the power inlet is between 100 V_{AC} to 240 V_{AC}. 4. Remove and re-apply power to the device and check indicators during power-up sequence.
A port indicator is not lit and corresponding PD does not operate.	1. The media converter did not detect a PD and therefore the port is not enabled. 2. Verify that the PD is designed for PoE operation according to IEEE 802.3 af/at/bt standard. 3. Verify that you are using a standard straight-wired four-pair cable (Category 5e). 4. Ensure that the input Ethernet cable is connected to the DATA IN port. 5. Verify that the PD is connected to the Data and Power port (PoE). 6. Try reconnecting the same PD again with another media converter. If it works, there is likely a bad port or RJ45 connection. 7. Verify that there is no short over any of the twisted pair cables or over the RJ45 connectors. 8. If an external power splitter is in use, replace it with a viable splitter.

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Problem	**Corrective Steps**
End device operates but there is no data link.	1. Verify that the port indicator on the front panel is continuously lit. 2. Verify that for this link you are using a standard UTP/FTP Category 5e straight (non-crossover) cabling, with all four pairs, and that the link is 100 meters long. 3. Verify that the Ethernet cable length is less than 100 meters PoE Media converter to the load/remote terminal. 4. Try reconnecting the same PD into a different media converter. If it works, there is probably a faulty port or RJ45 connection. 5. If an external power splitter is in use, replace it with a viable splitter.
SFP transceiver no data connection.	1. Verify that the transceivers are inserted in the transceivers cage. 2. Verify that the similar type of transceivers are applied on both fiber optic cable ends (Multi or Single mode). 3. Verify that the fiber optic cable is compatible with the transceivers type. 4. Verify that the fiber optic cable doesn't exceed the transceivers type maximum length. 5. Try reconnecting the fiber optic cable to the transceivers.

4. Specifications

The following sections provide detailed unit specifications of PD-9601GCS/AC.

4.1 Physical Specifications

Table 4-1. Dimensions

Parameter	Dimensions	
	In mm	In inch
Height	50	3.15
Width	80	1.97
Length	160	6.29

Table 4-2. Physical Specifications

Part Number	Weight
PD-9601GCS/AC	950 g (2.1 lb)

4.2 Environmental Specifications

Table 4-3. Environmental Specifications

Mode	Temperature		Humidity
	Output Power at 90W	Output Power at 60W	
Operating	-10 °C to 45 °C 14 °F to 113 °F	-10 °C to 55 °C 14 °F to 131 °F	90% (non-condensing allowed)
Storage	–20 °C to 70 °C –4 °F to 158 °F		95% (non-condensing allowed)

4.3 Electrical Specifications

Table 4-4. Electrical Specifications

Parameter	Value
AC Input Voltage	100 V_{AC} to 240 V_{AC} at 50Hz/60 Hz
Maximal Input Current	1.6A Maximum
Available Output Power	90W
Nominal Output Voltage	54V_{DC}

4.4   Ethernet Interface

Table 4-5. Ethernet Interface

Input (**Data In**): Ethernet 10/100/1000Base-T	RJ45 female socket.
Input (**Data In**): Ethernet 1000BASE-X Fiber	SFP Cage Supports Single-Mode and Multi-Mode transceivers.
Output (**Data and Power Out**): Ethernet 10/100/1000Base-T + 54V_{DC}	RJ45 female socket, with DC voltage on wire 4-pairs: 1-2 and 3-6; 4-5 and 7-8.

5. Contacting Technical Support

If you encounter any problems while installing or using this product, consult 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

6. Revision History

Revision	Date	Description
A	03/2022	Initial Revision.

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