IMP-C100-XX Series

10/100TX to 100FX Industrial Media Converter with SC/ST Connector and PoE Injector



Hardware Manual

Version 1.1
(June 2025)

antaira®
www.antaira.com

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FCC Warning

This equipment has been tested and found to comply with the limits for a Class-A digital device, according to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. It may cause harmful interference to radio communications if the equipment is not installed and used following the instructions. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

Avertissement FCC

Cet équipement a été testé et déclaré conforme aux limites d'un appareil numérique de classe A, conformément à la partie 15 des règles de la FCC. Ces limites sont conçues pour fournir une protection raisonnable contre les interférences nuisibles dans une installation résidentielle. Cet équipement génère, utilise et peut émettre de l'énergie radiofréquence. Cela peut provoquer des interférences nuisibles aux communications radio si l'équipement n'est pas installé et utilisé conformément aux instructions. Cependant, il n'y a aucune garantie qu'aucune interférence ne se produira dans une installation particulière. Si cet équipement provoque des interférences nuisibles à la réception radio ou télévision, ce qui peut être déterminé en éteignant puis en rallumant l'équipement, l'utilisateur est encouragé à essayer de corriger les interférences par une ou plusieurs des mesures suivantes:

- Réorientez ou déplacez l'antenne de réception.
- Augmentez la distance entre l'équipement et le récepteur.
- Connectez l'équipement à une prise sur un circuit différent de celui auquel le récepteur est connecté.
- Consultez le revendeur ou un technicien radio / TV expérimenté pour obtenir de l'aide.

CE Mark 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.

Avertissement de marque CE

Ceci est un produit de classe A. Dans un environnement domestique, ce produit peut provoquer des interférences radio, auquel cas l'utilisateur peut être amené à prendre des mesures adéquates.

Industrial Media Converter

Industrial Grade Media Converter

Hardware Manual

Version 1.1 (June 2025)

The manual supports the following models:

- IMP-C100-M
- IMP-C100-M-T
- IMP-C100-S3
- IMP-C100-S3-T
- IMP-C100-ST-M
- IMP-C100-ST-M-T
- IMP-C100-ST-S3
- IMP-C100-ST-S3-T
- IMP-C100-WA-S2
- IMP-C100-WA-S2-T
- IMP-C100-WB-S2
- IMP-C100-WB-S2-T

This document is the current official release hardware manual. Please check our website (www.antaira.com) for any updated manual or contact us by e-mail (support@antaira.com).

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1 Overview

Antaira Technologies' **IMP-C100-XX series** is a compact IP30 rated Ethernet-to-fiber media converter featuring a 10/100TX Ethernet port that support IEEE 802.3at high power PoE that can supply up to 30 watts, and a fixed fiber interface supporting ST and SC connectors depending on the model. There are Multi-mode and Single-mode models to support applications with a variety of fiber distances and types. It is designed to fulfill industrial applications that require fiber optic distance extension while using minimal space.

The IMP-C100-XX series has a built-in "Link Fault Pass Through" (LFP) and "Far End Fault" (FEF) function with 48~55VDC redundant power inputs with reverse polarity and overload current protection. This product series supports DIN-rail as well as wall mountable orientations and provides two operating temperature range models in STD: -10°C to 70°C and EOT: -40°C to 80°C.

1.1 Product Hardware Features

System Interface and Performance

- RJ-45 ports support the auto MDI function
- Embedded 1*10/100TX (PSE 30W/port) and 1*100FX SC/ST fixed fiber port with multi/single mode
- Store-and-forward switching architecture
- 128kbits memory buffer

Power Input

- DC 48~55V redundant power with a 6-pin removal terminal block
- Max. current 0.68A
- Max. PoE output: 30Watts
- The power input specification is compliant with the requirements of SELV (Safety Extra Low Voltage), and the power supply should be compliant with UL 61010-1 & UL 61010-2-201.

Operating Temperature

- Standard operating temperature model: -10°C ~ 70°C
- Extended operating temperature model (–T): -40°C ~ 80°C

Case / Installation

- IP-30 protection
- Installation in a Pollution Degree 2 industrial environment
- DIN-Rail and wall mount design

1.2 Package Contents

- IMP-C100-XX(-T)
- Quick Installation Guide
- Wall mounting bracket set with screws
- DC cable - 18AWG & DC jack 5.5 x 2.1mm **Wire: White (+) / Black (-)
- Dust cover set

1.3 Safety Precaution

Attention: If the DC voltage is supplied by an external circuit, please use a protection device on the power supply input. The industrial PoE injector's hardware specs, ports, cabling information, and wiring installation will be described within this hardware manual.

Attention: Si la tension CC est fournie par un circuit externe, veuillez utiliser un dispositif de protection sur l'entrée d'alimentation. Les spécifications matérielles, les ports, les informations de câblage et l'installation du câblage de l'injecteur PoE industriel seront décrits dans ce manuel du matériel.

Warning Labels

The caution label means that you should check certain information on the user manual when working with the device. (Shown in *Figure 1.1*)

Étiquettes d'avertissement

L'étiquette d'avertissement signifie que vous devez vérifier certaines informations du manuel d'utilisation lorsque vous travaillez avec l'appareil. (Illustré à la *figure 1.1*)



Figure 1.1 - Caution Label
Figure 1.1 - Étiquette de mise en garde



Figure 1.2 - Hot Surface Warning Label
Figure 1.2 - Étiquette d'avertissement de surface chaude

2 Hardware Description

2.1 Physical Dimensions

Figure 2.1, below, shows the physical dimensions of this product series:

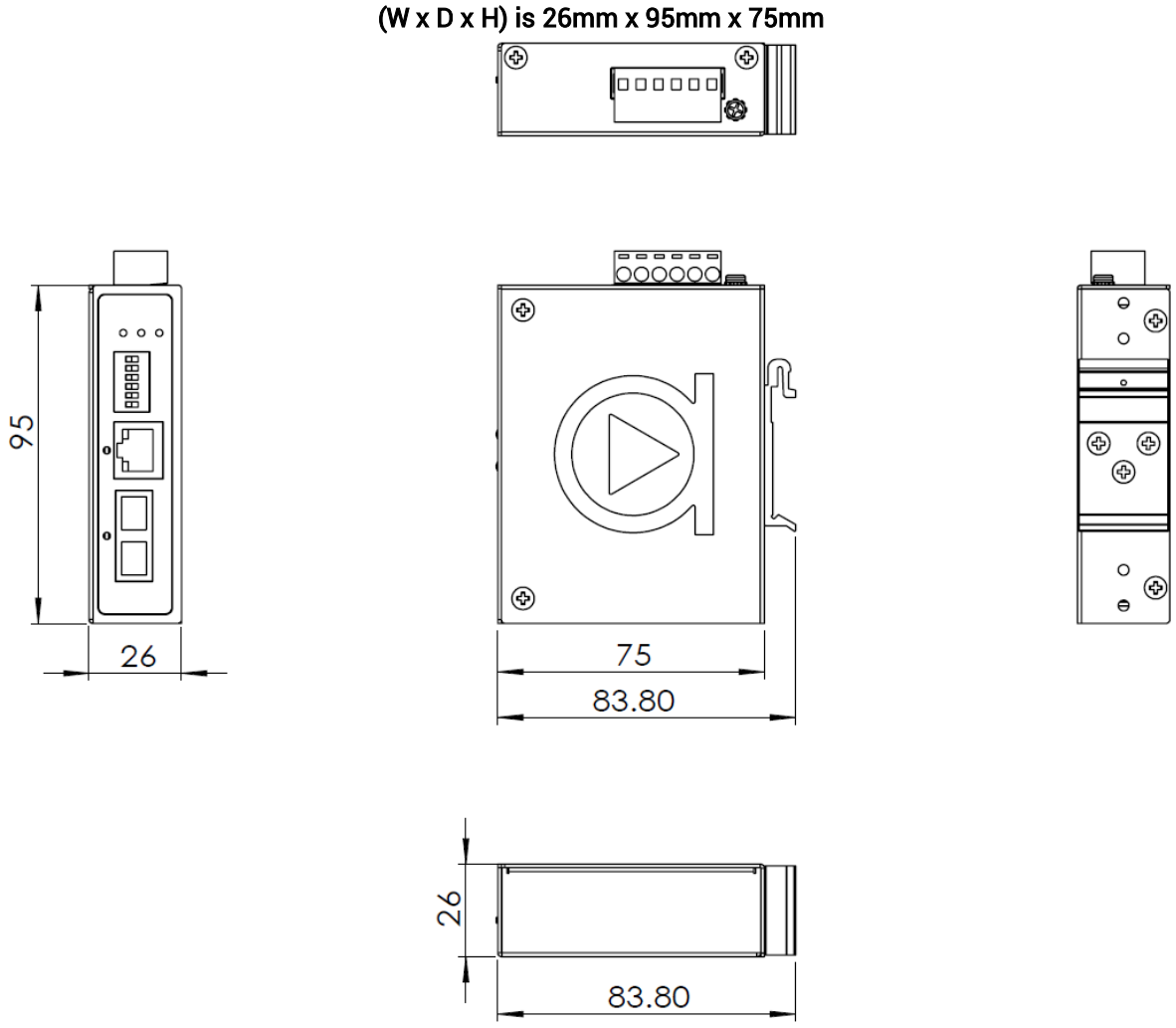


Figure 2.1 - Physical Dimensions

2.2 Front View Panel

Figure 2.2, below, shows the front panel of the product series:

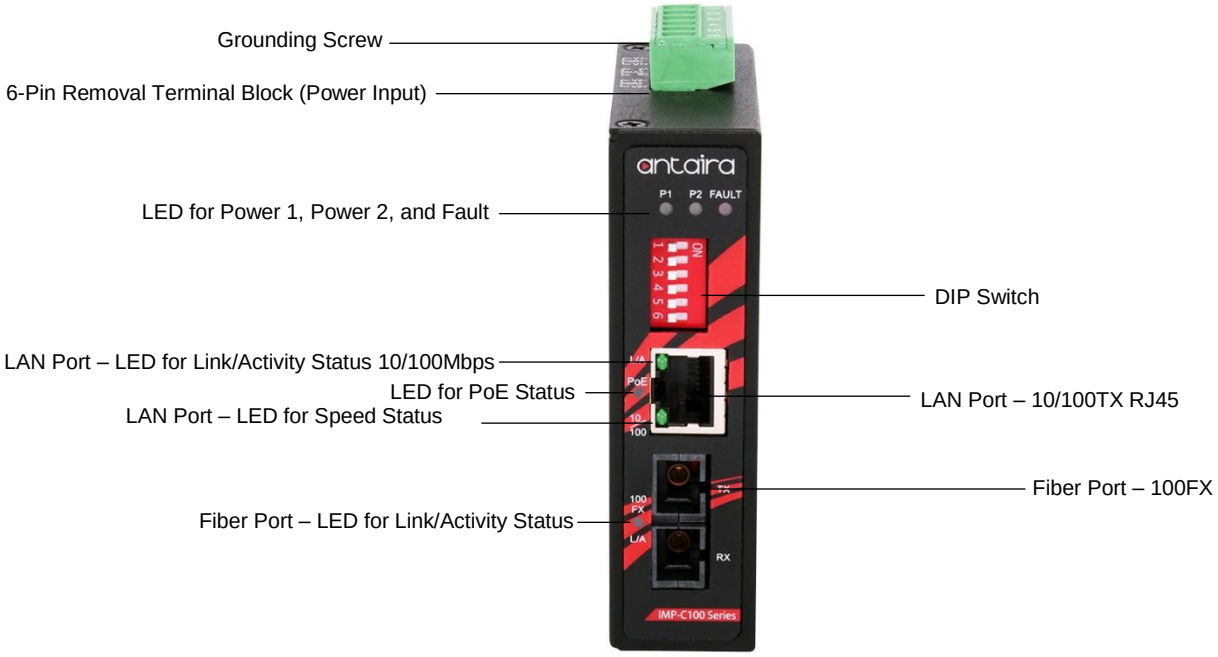


Figure 2.2 - Front View Panel

2.3 Top View Panel

Figure 2.3, below, shows the top panel of the product series:

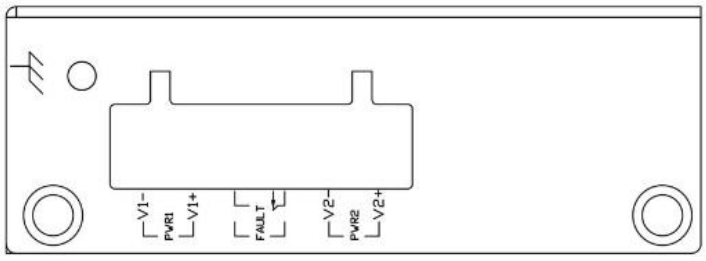


Figure 2.3 - Top View Panel

2.4 LED Indicators

There are LED light indicators located on the front panel of the industrial media converter that display the power status and network status. Each LED indicator has a different color and has its specific meaning, see below in *Table 2.1*.

LED	Color	Description	
P1	Green	On	Power input 1 is active
		Off	Power input 1 is inactive
P2	Green	On	Power input 2 is active
		Off	Power input 2 is inactive
Fault	Red	On	Power input 1 or 2 is inactive or port link failed
		Off	Power input 1 and 2 are functional and port link is correct
RJ45 Port (Upper LED)	 Green	On	Linked to network at 10/100Mbps
		Flashing	Networking is active
		Off	Not connected to network
RJ45 Port (Lower LED)	 Green	On	Linked to network at 100Mbps
		Off	Linked to network at 10Mbps
100FX Fiber Port (L/A)	Green	On	Connected to network at 100Mbps
		Flashing	Networking is active
		Off	Not connected to network
PoE	Green	On	The port is supplying power to the powered-device
		Off	No powered-device attached or power supplying fails

Table 2.1 - LED Indicators

NOTE: "P1/P2" is the abbreviation for "Power 1/Power 2", and "L/A" is for "Link/Activity".

2.5 DIP Switch



There are 6 pins on DIP-switch on the front panel for setting LFP (Link Fault Pass) and transmission control setup. The default setting for all DIP switches is "OFF". See *Table 2.2* below for more details.

DIP-Switch	1	2	Fiber Port Setting	Copper Port Settings		
			3	4	5	6
ON	LFP Enable	Converter Mode	Half-Duplex Mode	Auto-negotiation Disable	10Mbps	Half-Duplex Mode
OFF	LFP Disable	Switch Mode	Full-Duplex Mode	Auto-negotiation Enable	100Mbps	Full-Duplex Mode

Table 2.2 - DIP Switch Setting for IMP-C100-XX Series

DIP Switch 1

ON: Enable Link Fault Pass Through
OFF: Disable Link Fault Pass Through (default)

DIP Switch 2

ON: Enable "converter mode" to forward a frame immediately without storing in memory. When enabling this mode, please make sure both the Ethernet copper port and the optic fiber port work at 100Mbps and Full-Duplex
OFF: Enable "Store-and-Forward switch mode" (default)

DIP Switch 3

ON: Set fiber port at Half-Duplex
OFF: Set fiber port at Full-Duplex (default)

DIP Switch 4

ON: Disable Auto-negotiation on copper port
OFF: Enable Auto-negotiation on copper port (default)

DIP Switch 5

ON: Set copper port transmission speed at 10Mbps
OFF: Set copper port transmission speed at 100Mbps (default)

DIP Switch 6

ON: Set copper port transmission speed at Half-Duplex

OFF: Set copper port transmission speed at Full-Duplex (default)



Caution: If changing the current DIP-switch setting, the device should be powered off and then powered on again to make the setting effective.

2.6 Ethernet Ports

- **RJ45 Ports**

RJ45 Ports (Auto MDI/MDI-X): The RJ45 ports are auto-sensing for 10BASE-T, 100BASE-TX, or 1000BASE-T connections. Auto MDI means that the switch can connect to another switch or workstation without changing the straight-through or crossover cabling. See the figures below for straight-through and crossover cabling schematics.

- **RJ45 Pin Assignments**

Crossover Cable		Straight Through Cable	
Pin Number / Signal	**Pin Number / Signal**	**Pin Number / Signal**	**Pin Number / Signal**
1 / RX+	3 / TX+	1 / RX+	1 / TX+
2 / RX-	6 / TX-	2 / RX-	2 / TX-
3 / TX+	1 / RX+	3 / TX+	3 / RX+
6 / TX-	2 / RX-	6 / TX-	6 / RX-

Table 2.3 - 10/100BASE-TX RJ45 Pin Assignments

Crossover Cable		Straight Through Cable	
Pin Number / Signal	**Pin Number / Signal**	**Pin Number / Signal**	**Pin Number / Signal**
1 / TP0+	3 / TP1+	1 / TP0+	1 / TP1+
2 / TP0-	6 / TP1-	2 / TP0-	2 / TP1-
3 / TP1+	1 / TP0+	3 / TP1+	3 / TP0+
4 / TP2+	7 / TP3+	4 / TP2+	4 / TP3+
5 / TP2-	8 / TP3-	5 / TP2-	5 / TP3-
6 / TP1-	2 / TP0-	6 / TP1-	6 / TP0-
7 / TP3+	4 / TP2+	7 / TP3+	7 / TP2+

8 / TP3-	5 / TP2-	8 / TP3-	8 / TP2-

Table 2.4 - 1000BASE-T RJ45 Pin Assignments

Note: *"+" and "-" signs represent the polarity of the wires that make up each wire pair.*

2.7 Cabling

Twisted-pair segments can be connected with an Unshielded Twisted Pair (UTP) or Shielded Twisted Pair (STP) cable. The cable between the equipment and the link partner (media converter, switch, hub, workstation, etc.) must be less than 100 meters (328 ft.) long.

Single-mode connector types have to use 9/125μm single-mode fiber cable, while multi-mode connector types have to use 62.5/125μm multi-mode fiber cable.

The fiber port of SC type connector can work in multi-mode or single-mode. When connecting the fiber port to another one, please follow the figure below to connect accordingly. A wrong connection will cause the port to work abnormally.

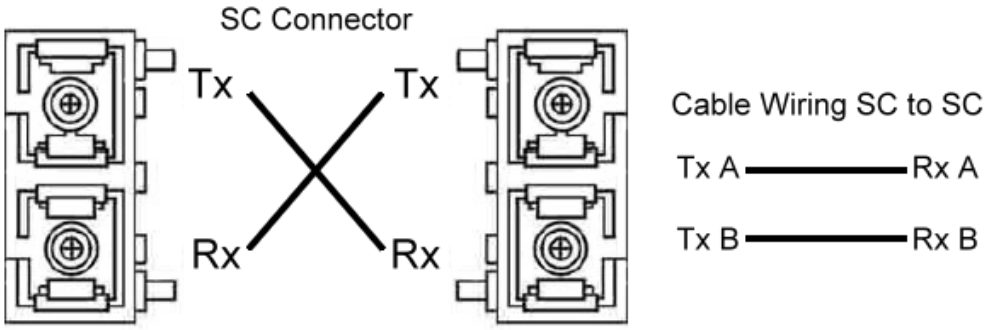


Figure 2.4
SC Connector

Caution: This is a Class 1 Laser/LED product that complies with IEC 60825-1. Don't stare into the Laser/LED Beam.

2.8 Wiring the Power Inputs

Please follow the steps below to insert the power wire.

1. Insert the positive and negative wires into the PWR1 (V1+, V1-) and PWR2 (V2+, V2-) contacts on the terminal block connector as shown below in *Figure 2.5*.

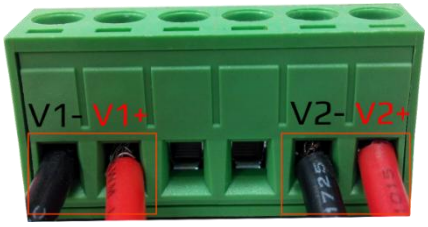


Figure 2.5
Power Terminal Block

2. Tighten the wire-clamp screws to prevent the wires from loosening, as shown below in *Figure 2.6*.



Figure 2.6
Power Terminal Block

Caution: Please follow the steps below when inserting the power wire.

Attention: Veuillez suivre les étapes ci-dessous lors de l'insertion du câble d'alimentation.

Caution:

*Only use copper conductors, **125°C**, tighten to **5 lbs.***

*The wire gauge for the terminal block should range between **18~20 AWG**.*

Attention:

*Utilisez uniquement des conducteurs en cuivre, **125°C**, serrez à **5 lb.***

*Le calibre des fils du bornier doit être compris entre **18** et **20 AWG.***

2.9 Wiring the Fault Alarm Contact

The fault alarm contact is in the middle of the terminal block connector as the picture shows below in *Figure 2.7.* By inserting the wires, it will detect the fault status including power failure or port link failure (managed industrial switch only) and form a normal open circuit.

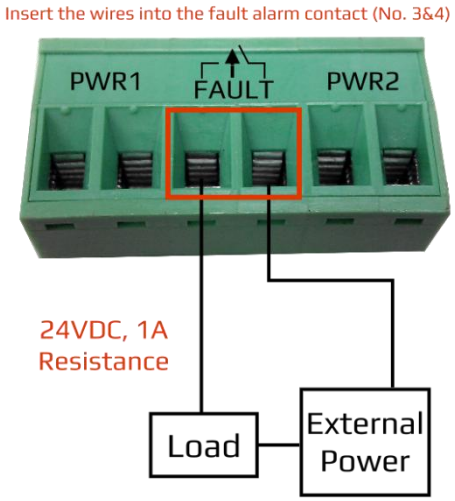


Figure 2.7: Wiring the Fault Alarm Contact

Caution: The wire gauge for the terminal block should range between 12 ~ 24 AWG. If only using one power source, jumper Pin 1 to Pin 5 and Pin 2 to Pin 6 to eliminate power fault alarm.

2.10 Grounding Note

Grounding and wire routing help limit the effects of noise due to Electromagnetic Interference (EMI). Run the ground connection from the ground screw to the grounding surface before connecting devices. The



grounding screw symbol is shown below in *Figure 2.8*.

Figure 2.8 - Grounding Screw Symbol

Caution: Using a shielded cable achieves better electromagnetic compatibility.

Attention: L'utilisation d'un câble blindé permet une meilleure compatibilité électromagnétique

3 Mounting Installation

3.1 DIN-Rail Mounting

The DIN-Rail is pre-installed on the industrial PoE injector from the factory. If the DIN-Rail is not on the industrial PoE injector, please see *Figure 3.1* to learn how to install the DIN-Rail on the injector.

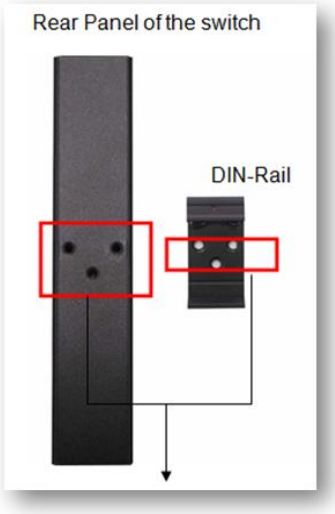
Follow the steps below to learn how to hang the industrial PoE injector:

1. Use the screws to install the DIN-Rail bracket on the rear side of the industrial PoE injector.

   Caution: The torque for tightening the screws on the device is 3.5 in-lbs.

   Attention: Le couple de serrage des vis sur l'appareil est de 3.5 pouces-livres.

2. To remove the DIN-Rail bracket, do the opposite from step 1.
3. After the DIN-Rail bracket is installed on the rear side of the injector, insert the top of the DIN- Rail onto the track as shown below in *Figure 3.2*.
4. Lightly pull down the bracket onto the rail as shown below in *Figure 3.3*.
5. Check if the bracket is mounted tightly on the rail.



6. To remove the industrial PoE injector from the rail, do the opposite from the above steps.

Figure 3.1 - Rear View of the Injector and DIN-Rail



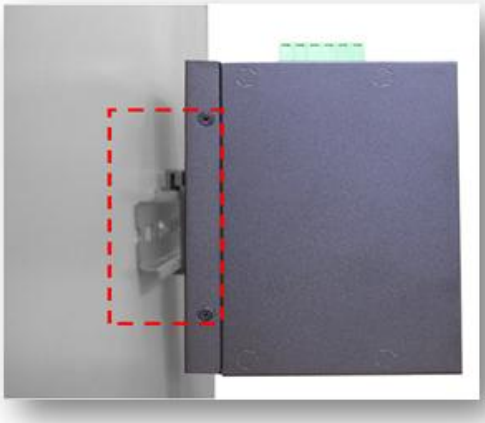


Figure 3.2 - Insert the Injector on the DIN-Rail *Figure 3.3 - Stable the Injector on the DIN-Rail*

3.2 Wall Mounting

Follow the steps below to mount the industrial PoE injector using the wall mounting bracket as shown below in *Figure 3.4*.

Caution: "Wall" means industrial control panel wall

Attention: "Wall" signifie mur de panneau de commande industriel

1. Remove the DIN-Rail bracket from the industrial PoE injector by loosening the screws.
2. Place the wall mounting brackets on the top and bottom of the industrial PoE injector.
3. Use the screws to screw the wall mounting bracket on the industrial PoE injector.

   Caution: The torque for tightening the screws on the device is 3.5 in-lbs.

   Attention: Le couple de serrage des vis sur l'appareil est de 3.5 pouces-livres.
4. Use the hook holes at the corners of the wall mounting bracket to hang the industrial PoE injector on the wall.
5. To remove the wall mount bracket, do the opposite from the steps above.

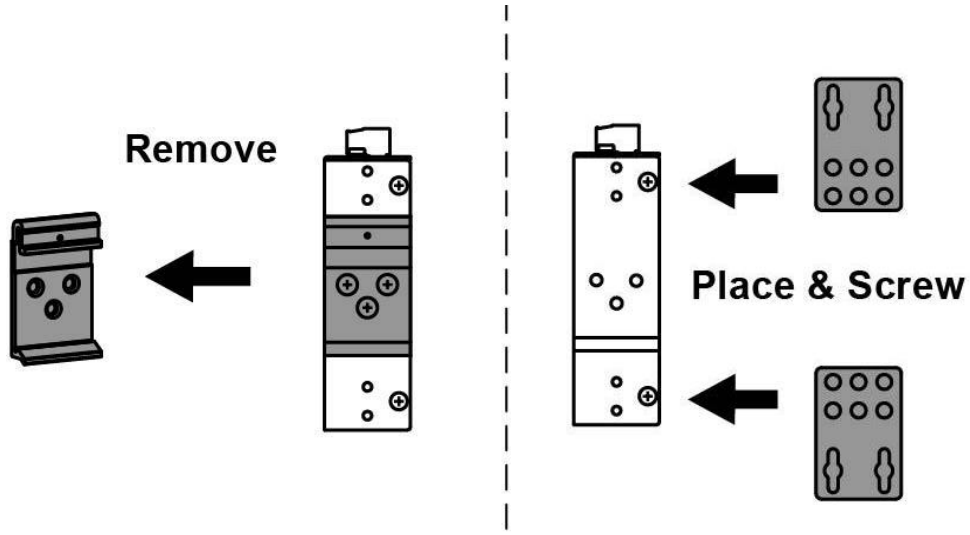


Figure 3.4 - Remove DIN-Rail bracket from the Injector

Below, in *Figure 3.5* are the dimensions of the wall mounting bracket.

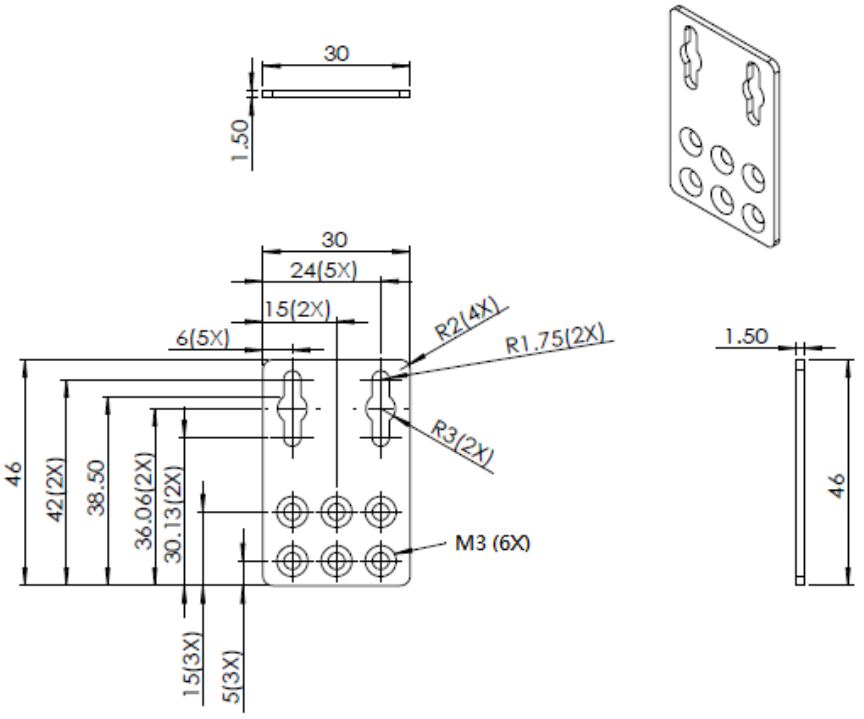


Figure 3.5 - Wall Mounting Bracket Dimensions

4 Hardware Installation

4.1 Installation Steps

This section will explain how to install the industrial PoE injector:

**Caution:** This device is intended for indoor use.

**Attention:** Cet appareil est destiné à une utilisation en intérieur.

**Caution:** The device is intended to be installed in an industrial control enclosure and panel.

**Attention:** L'appareil est destiné à être installé dans une armoire de commande et un panneau industriels.

Installation Steps

1. Unpack the industrial PoE injector from the original packing box.
2. Check if the DIN-Rail bracket is screwed on the industrial PoE injector.
   - If the DIN-Rail is not screwed on the industrial PoE injector, please refer to the **DIN-Rail Mounting** section for DIN-Rail installation.
   - If it is required to wall mount the industrial PoE injector, please refer to the **Wall Mounting** section for wall mounting installation.
3. To hang the industrial PoE injector on a DIN-Rail or wall, please refer to the **Mounting Installation** section.
4. Power on the industrial PoE injector and then the power LED light will turn on.
   - For the help on how to wire power, please refer to the **Wiring the Power Inputs** section.
   - Please refer to the **LED Indicators** section for LED light indication.
5. Prepare the twisted-pair, straight-through category 5 cable for Ethernet connection.
6. Insert one side of the RJ45 cable into the injector's Ethernet port and on the other side into the networking device's Ethernet port, e.g. switch PC or server.
7. When all connections are set, the installation is complete.

4.2 Maintenance and Service

- If the device requires servicing of any kind, the user is required to disconnect and remove it from its mounting. The initial installation should be done in a way that makes this as convenient as possible.
- Voltage / Power lines should be properly insulated as well as other cables. Be careful when handling them so as to not trip over.
- Do not under any circumstance insert foreign objects of any kind into the heat dissipation holes located in the different faces of the device. This may not only harm the internal layout but might cause harm to users as well.
- Do not under any circumstance open the device for any reason. Please contact your dealer for any repair needed or follow the instructions within the manual.
- Clean the device with a dry soft cloth.

4.3 Troubleshooting

- Always verify the right power cord or adapter is being used. Never use a power supply or adapter with a non-compliant DC output voltage or it will burn the equipment.
- Select the proper UTP or STP cable in order to construct the network. Use an unshielded twisted-pair (UTP) or shield twisted-pair (STP) cable for RJ45 connections: 100Ω Category 5e for 10/100Mbps. Also, be sure that the total length of twisted-pair connections does not exceed 100 meters (328 feet).
- Diagnosing LED Indicators: To assist in identifying problems, the injector can be easily monitored with the LED indicators which help to identify if any problems exist.
    - Please refer to the LED Indicators section for LED light indication.
- If the power indicator LED does not turn on when the power cord is plugged in, the user may have a problem with the power cord. Check for loose power connections, power losses, or surges at the power outlet.
    - Please contact Antaira for technical support service if the problem still cannot be resolved.

- If the industrial injector LED indicators are normal and the connected cables are correct but the packets still cannot transmit, please check the system's Ethernet devices' configuration or status.

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