INJ-0201G-bt-AC-100 Series

Industrial Gigabit PoE++ Injector - 1*10/100/1000M BASE-T (100W/Port) and 1*10/100/1000M BASE-T

Hardware Manual

Version 1.0
(March 2026)

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, pursuant 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 in accordance with 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.

Hardware Manual

Version 1.0 (March 2026)

The manual supports the following models:

- INJ-0201G-bt-AC-100
- INJ-0201G-bt-AC-100-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

The Antaira INJ-0201G-bt-AC-100 Series is a high-performance, cost-effective solution that enables the deployment of Power over Ethernet (PoE) in non-PoE environments. This PoE++ injector seamlessly combines data and power from a non-PoE switch and power input, delivering it over a single Ethernet cable to a Powered Device (PD). Additionally, the INJ-0201G-bt-AC-100 Series features an integrated 100-240VAC power input, ensuring a full 100W PoE output in compliance with the IEEE 802.3bt standard. For applications requiring maximum power, this model also supports an Enhanced PoE mode to reliably offer up to 100W to the powered device, making it ideal for high-power automation applications. Designed for demanding industrial environments, the fan-less INJ-0201G-bt-AC-100 Series provides IP30 protection and supports an extended operating temperature range of -40°C to 75°C (-T model), establishing it as a rugged and reliable choice for the industrial market.

1.1 Product Hardware Features

System Interface and Performance

- Embedded 1*10/100/1000T for LAN In and 1*10/100/1000T for bt PoE PSE Out
- Compliant with IEEE 802.3af/at/bt PoE technologies
- Support auto detection and classification for PoE application
- Support short-circuit and current-overloading protection for PoE application
- Provide power booster technologies for low voltage power inputs

Power Input

- 100~240VAC power inputs
- AC Power Input Design
- Max current: 1.1A (Include PoE power budget)
- Enhanced PoE Mode: 100W @ 100~240VAC

Certification

- FCC, CE

Operating Temperature

- Standard operating temperature model: -10°C to 65°C
- Extended operating temperature model (-T): -40°C to 75°C

Case / Installation

- IP30 protection (not certified by UL)
- DIN-Rail and wall mount design
- Installation in a pollution degree 2 industrial environment
- Installation in the environment with adequate airflow
- Standalone installation

1.2 Package Contents

- INJ-0201G-bt-AC-100(-T)
- Quick Installation Guide
- Wall mounting bracket set with screws
- AC power cord

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 Ethernet injector's hardware specs, ports, cabling information, and wiring installation will be described within this hardware manual.

Attention: Si la tension continue 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 de l'injecteur Ethernet industriel sont décrits dans ce manuel.

C1D2 Installation and Operating Instructions
These devices are open-type devices that are to be installed in an enclosure only accessible with the use of a tool, suitable for the environment.
"This equipment is suitable for use in Class I, Division 2, Groups A, B, C, and D or non-hazardous locations only."
WARNING: EXPLOSION HAZARD - Do not disconnect equipment unless power has been removed or the area is known to be non-hazardous."
WARNING: EXPLOSION HAZARD - Substitution of any components may impair suitability for Class I, Division 2."

Instructions d'installation et d'utilisation du C1D2
Ces appareils sont des appareils de type ouvert qui doivent être installés dans un boîtier accessible uniquement à l'aide d'un outil adapté à l'environnement.
«Cet équipement est conçu pour être utilisé uniquement dans les zones de classe I, division 2, groupes A, B, C et D ou non dangereuses.»
ATTENTION: RISQUE D'EXPLOSION - Ne débranchez pas l'équipement à moins que l'alimentation ait été coupée ou que la zone ne soit pas dangereuse. »
ATTENTION: RISQUE D'EXPLOSION - La substitution de tout composant peut nuire à la compatibilité avec la classe I, division 2.

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:

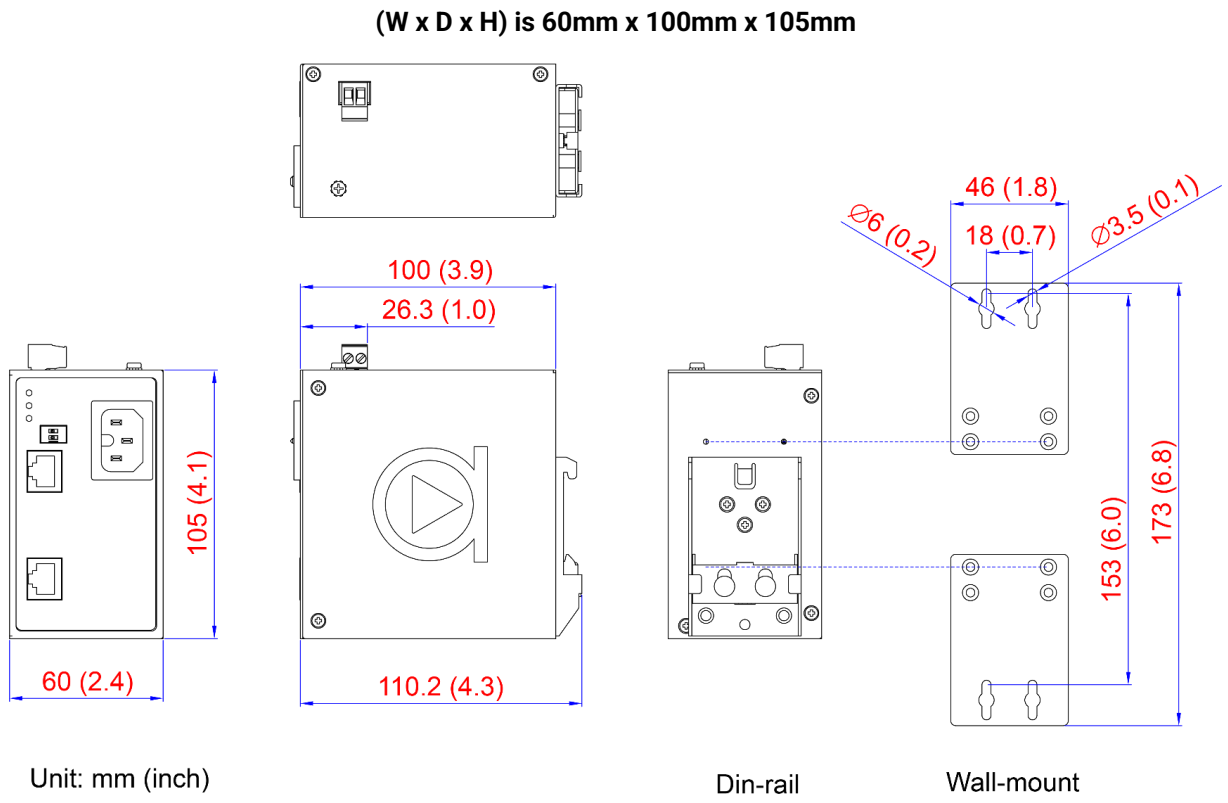


Figure 2.1 - Physical Dimensions

2.2 Front View Panel

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

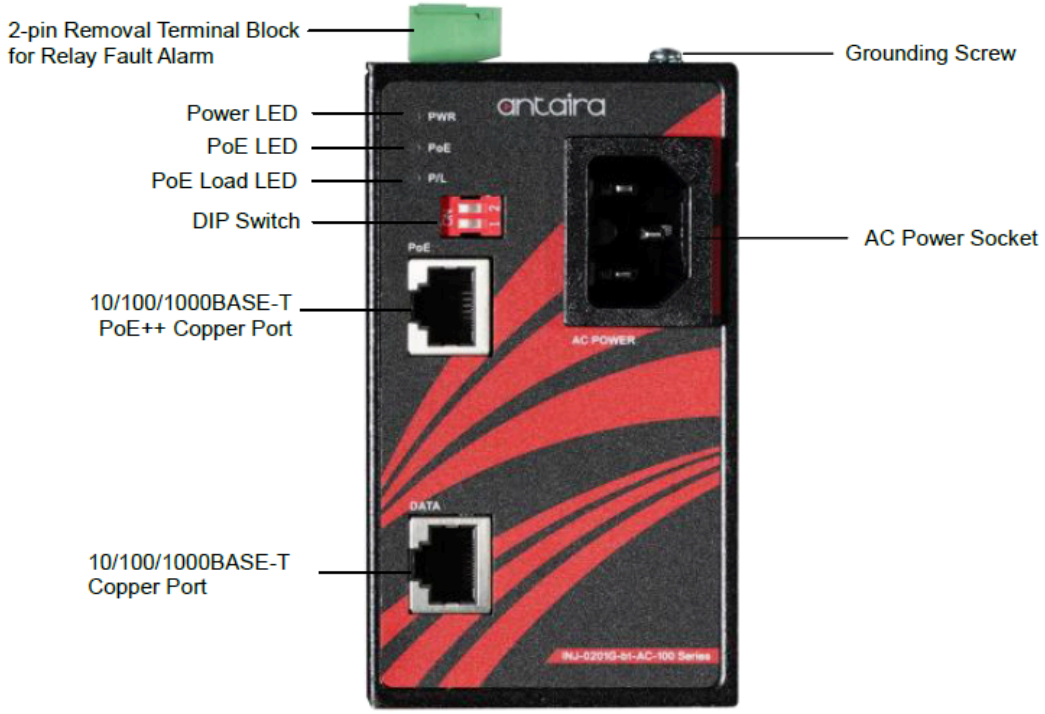


Figure 2.2 - Front View Panel

2.3 Top View Panel

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

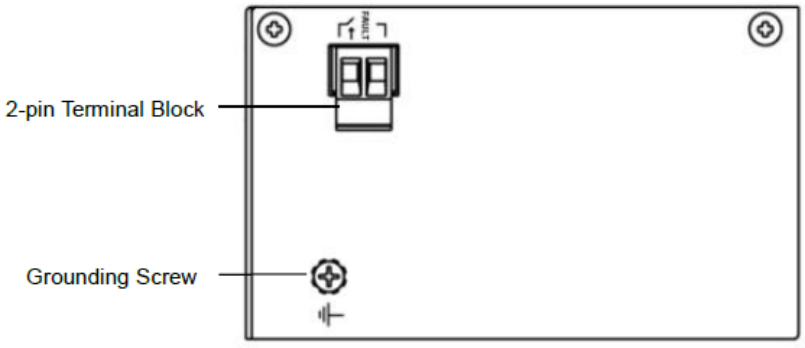


Figure 2.3 - Top View Panel

2.4 LED Indicators

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

LED	Color	Description	
Power	Green	On	Power input is active
	Red	On	Power input is inactive, trigger relay
	-	Off	Power input is inactive
PoE	Amber	On	The PoE output port is supplying power to the powered-device over **2 pairs**
	Green	On	The PoE output port is supplying power to the powered-device over **4 pairs**
	Amber	Flashing	The PoE output port is supplying power to the powered-device over 2 pairs after the Dual PD Check event happens. (Only occurs when Dual PD Check function is disabled)
	Green	Flashing	The PoE output port once supplied power to the powered-device over 2 pairs and now recovers to supply power over 4 pairs.
	-	Off	No powered-device attached or power supplying fails
P/L	-	Off	Actual Consumption ≦ 30W
	Blue	On	31W ≦ Actual Consumption ≦ 60W
	Red	On	61W ≦ Actual Consumption ≦ 90W
	Red	Flashing	91W ≦ Actual Consumption ≦ 100W (Only occurs when PoE enhanced mode is enabled)

Table 2.1 - LED Indicators

2.5 DIP Switch Setting

There is a 2-set DIP switch in the front panel that can be used for setting the PoE Mode and Dual PD Check functions. The default DIP switch settings are as follows: DIP Switch 1 is set to “ON”, and DIP Switch 2 remains “OFF”. See *Table 2.2* and description below for more details.

DIP Switch Number	ON	OFF
1	Enhanced PoE Mode	Standard PoE Mode
2	Dual PD Check Enabled	Dual PD Check Disabled

Table 2.2 - DIP Switch Functions

DIP Switch 1

OFF: Enable "Standard PoE Mode" function.
The PoE output will be activated following IEEE 802.3af/at/bt PoE standard

ON: Enable "Enhanced PoE Mode"
The PoE output will be activated based on the used pairs. If the PSE output is over 2 pairs, the maximum PoE budget is 50W; If the PSE output is over 4 pairs, the maximum PoE budget is 100W.

DIP Switch 2

OFF: Disabled "Dual PD Check" function
When Dual PD Check is disabled, the port will detect, classify and service power on request for either channel regardless of the detection result on the other channel.

ON: Enabled "Dual PD Check" function
When Dual PD check is set, if an invalid detection signature is discovered on either channel, the port will not perform classification or grant power on requests.

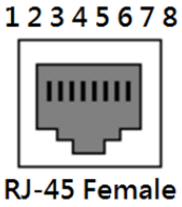
[Notes]

1. When Dual PD Check is disabled in **Standard PoE Mode** and one of the channels fails, the PoE budget will be based on the classification of the valid channel.
2. When Dual PD Check is disabled in **Enhanced PoE Mode** and one of the channels fails, the PoE budget will become max. 50W over 2 pairs.

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/MDI-X means that the injector can connect to another one or workstation without changing the straight-through or crossover cabling. See the figures below for straight-through and crossover cabling schematics.



RJ-45 Female

- **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 2.2 - 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 2.3 - 1000BASE-T RJ45 Pin Assignments

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

2.7 Cabling

Use the four twisted-pair, category 5e, or the above cabling for the RJ45 port connections. The cable between the unit and the link partner (switch, hub, workstation, etc.) must be less than 100 meters (328 ft.) in length.

2.8 Wiring the Power Inputs

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.

Step 1 - Simply connect the power cable to the AC power inlet as shown below in *Figure 2.12*.

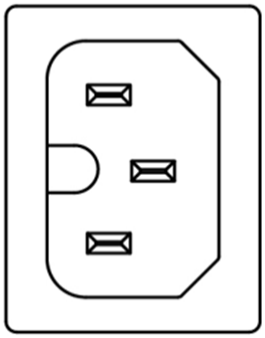


Figure 2.12 - AC Power Inlet

2.9 Wiring the Fault Alarm Contact

The fault alarm contact is on the 2-pin terminal block connector as the picture shown below. By inserting the wires, it will detect the fault status including power failure or port link failure (managed industrial switch only) and form a normally open circuit. An application example for the fault alarm contact is shown below in *Figure 2.13*.

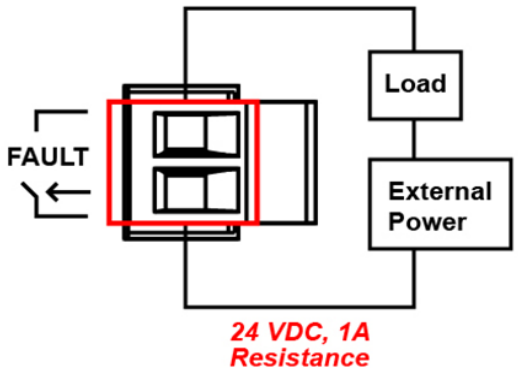


Figure 2.13 - Fault Alarm Contact

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 prior to connecting devices. The grounding screw symbol is shown below in *Figure 2.14*.

Figure 2.14 - 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 Ethernet injector from the factory. If the DIN-Rail is not on the unit, 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 Ethernet injector:

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

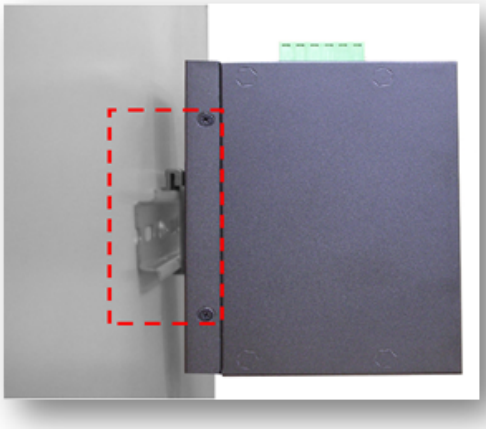


Figure 3.3 - Stable the Injector on the DIN-Rail

3.2 Wall Mounting

Follow the steps below to mount the industrial Ethernet 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 Ethernet injector by loosening the screws.
2. Place the wall mounting brackets on the top and bottom of the industrial Ethernet injector.
3. Use the screws to screw the wall mounting bracket on the industrial Ethernet 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 Ethernet injector on the wall.
5. To remove the wall mount bracket, do the opposite from the steps above.

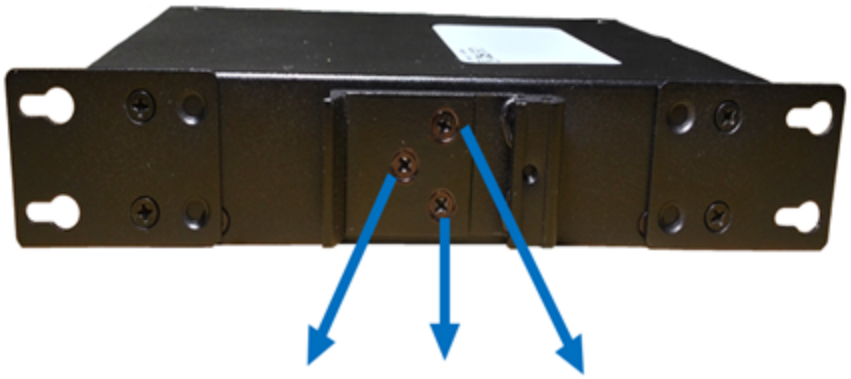


Figure 3.4 - Remove DIN-Rail bracket from the Injector

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

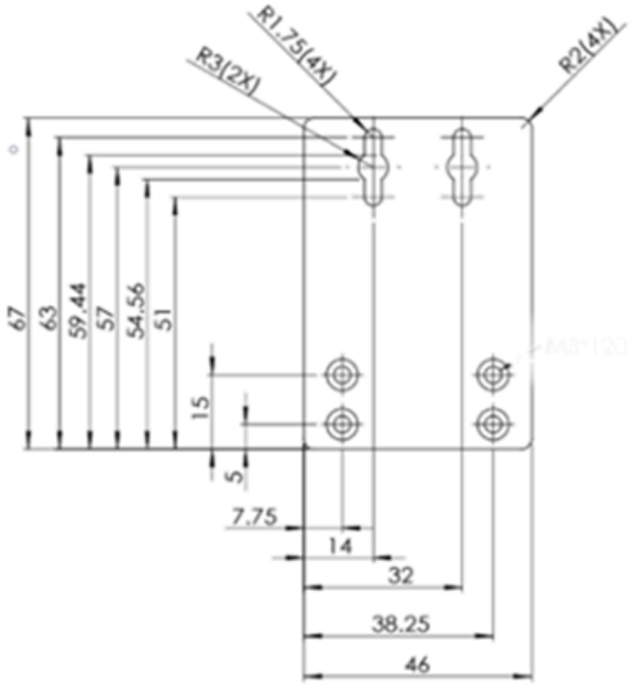


Figure 3.5 - Wall Mounting Bracket Dimensions

4 Hardware Installation

4.1 Installation Steps

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

Installation Steps

1. Unpack the industrial Ethernet injector from the original packing box.
2. Check if the DIN-Rail bracket is screwed on the industrial Ethernet injector.
   - If the DIN-Rail is not screwed on the industrial Ethernet injector, please refer to the **DIN-Rail Mounting** section for DIN-Rail installation.
   - If it is required to wall mount the industrial Ethernet injector, please refer to the **Wall Mounting** section for wall mounting installation.
3. To hang the industrial Ethernet injector on a DIN-Rail or wall, please refer to the **Mounting Installation** section.
4. Power on the industrial Ethernet 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.
   - 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.
   - Please refer to the **LED Indicators** section for LED light indication. (PoE)
6. When all connections are set and the LED lights all show normal, the installation is complete.

Caution: If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Attention: Si l'équipement est utilisé d'une manière non spécifiée par le fabricant, la protection fournie par l'équipement peut être altérée.

Caution: The installation of safety to any system incorporating the equipment is the responsibility of the assembler of the system.

Attention: L'installation que la sécurité de tout système intégrant l'équipement est de la responsabilité de l'assembleur du système.

Caution: This is an OPEN TYPE module and should be installed in a final safety enclosure characteristic.

Attention: Il s'agit d'un module de TYPE OUVERT et doit être installé dans une caractéristique finale d'enceinte de sécurité.

Caution: This device is intended for use indoor and at altitudes up to 2000 meters.

Attention: Cet appareil est destiné à être utilisé en intérieur et à des altitudes allant jusqu'à 2000 mètres.

Caution: Ambient Relative Humidity should be within the range of 5 and 95% (non-condensing).

Attention: L'humidité relative ambiante doit être comprise entre 5 et 95% (sans condensation).

Note: Clean the device with soft cloth with dry or water.

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 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 AC 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 length of any twisted-pair connection 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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