



INJ-C201G-at-24 Series

Industrial Gigabit PoE+ Injector Injector –
1*10/100/1000BASE-T with PoE-PSE (30W/Port) +
1*10/100/1000BASE-T, Booster Version



Version 1.0

User Manual



www.antaira.com

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FCC Notice

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.

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.

Industrial Gigabit PoE+ Injector

Industrial Grade Gigabit PoE+ Injector

User Manual

Version 1.0 (September 2023)

This manual supports the following models:

- INJ-C201G-at-24
- INJ-C201G-at-24-T

This document is the current official release 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

PoE and Non-PoE are both highly utilized in the industrial networking applications nowadays; however, it sometimes goes to an awkward situation that end-device, e.g. remote camera, supports PoE function but the Ethernet switch does not. Is there any other solution but replacing the switch with a PoE one?

INJ-C201G-at-24 Series solve the problem simply by deploying data and power from non-PoE switch and power input to the PD device. PoE injector is a brilliant low-cost solution for the case that only one side of devices is supporting PoE function. Therefore, INJ-C201G-at-24 Series will be your best choice to deal with the lack of PoE function cases.

INJ-C201G-at-24 Series supports low voltage 24VDC model with power booster technology, ensuring full 30W PoE output, for better usage in the automation industry. INJ-C201G-at-24 Series with fan less design, besides extending surely apply to various industrial application, INJ-C201G-at-24-T Series works perfectly in polarized temperature from -40~75°C, and undoubtedly becomes your best option in the industrial market.

1.1 Key Features

- System Interface/Performance
 - Embedded 1*10/100/1000T(PSE 30W) and 1*10/100/1000T copper port
 - Compliant IEEE802.3af/at PoE technologies
 - Support auto detection and classification for PoE application
 - Support short-circuit and current-overloading protection for PoE application
 - The total length from the device A through the Injector to the device B must not exceed 100 meters
- Power Input
 - Dual 12-55VDC redundant power inputs
 - 1*4-pin removal terminal block
 - Max. current 2.7A (Included PoE power budget)
 - Max. PoE output: 30W
- Operating Temperature
 - Standard operating temperature model: -10°C ~ 65°C
 - Extended operating temperature model (-T): -40°C ~ 75°C
- Case/Installation
 - IP30 protection
 - DIN-Rail and wall mount design

1.2 Package Contents

- 1 x Quick Installation Guide
- 1 x INJ-C201G-at-24(-T)
- 1 x Wall mounting brackets and screws
- 1 x DC cable - 18 AWG & DC jack 5.5x2.1mm

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 user manual.

Warning Labels

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



Figure 1.1 - Caution Label

This warning label is on the device, and means that the surface of the device is hot. (Shown in Figure 1.2)



Figure 1.2 - Hot Surface Warning Label

2. Hardware Description

2.1 Physical Dimensions

Figure 2.1, below, shows the physical dimensions of Antaira Technologies' INJ-C201G-at-24 series: Industrial Gigabit PoE+ Injector

(W x D x H) is 26mm x 95mm x 75mm

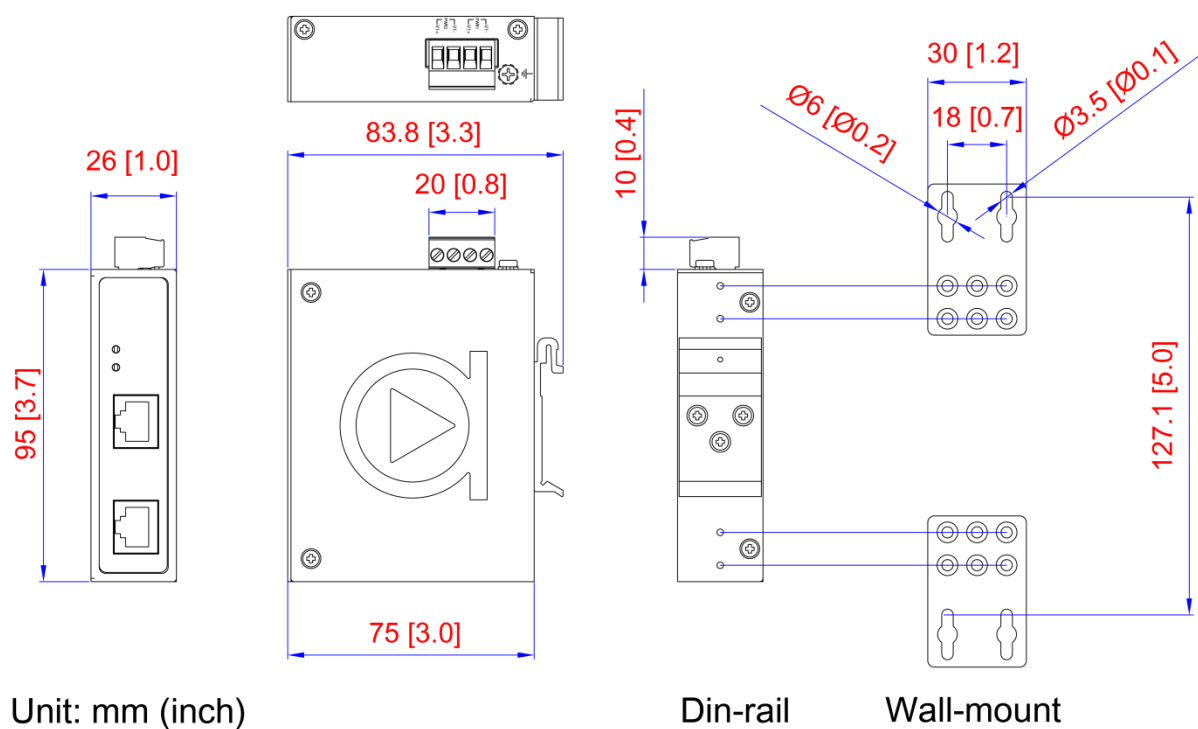


Figure 2.1

INJ-C201G-at-24 Series Physical Dimensions

2.2 Front Panel

On the front panel of the Power over Ethernet Injector is equipped with two RJ-45 ports and three LED indicators. See *Figure 2.2*.

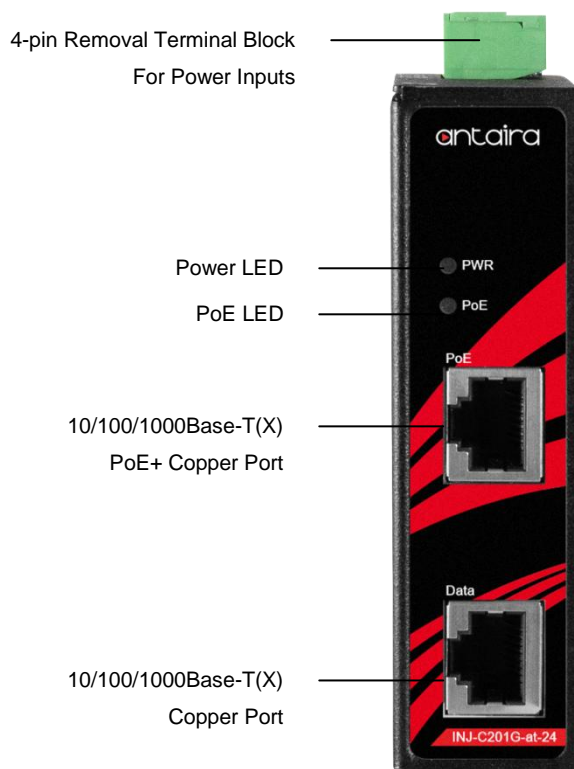


Figure 2.2

Front Panel of the INJ-C201G-at-24 Series

2.3 Top View

Figure 2.3, below, shows the top panel of the INJ-C201G-at-24 series injector that is equipped with one 4-pin removal terminal block connector for dual 12-55VDC power inputs.

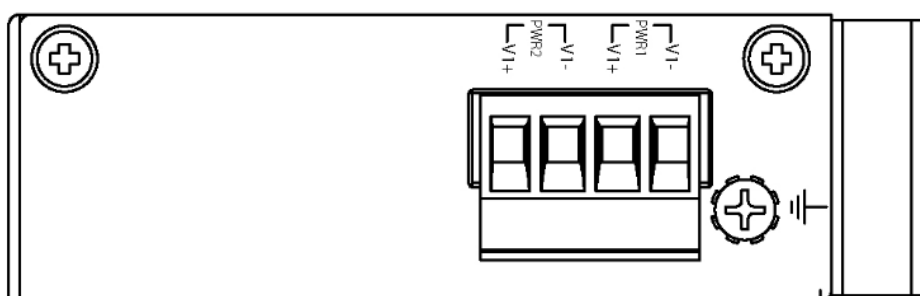


Figure 2.3

Top Panel View of INJ-C201G-at-24 Series

2.4 LED Indicators

There are LED light indicators located on the front panel of the industrial PoE Injector that display the power status and PoE status. Each LED indicator has a different color and has its own specific meaning, see below in *Table 2.4*.

LED	Color	Description	
PWR	Green	On	Power input 1 or 2 is active
		Off	Power input 1 and 2 is inactive
PoE	Green	On	The port is supplying power to the powered-device
		Off	No powered-device attached or power supplying fails

2.5 Ethernet Ports

■ RJ-45 Ports

RJ-45 Ports (Auto MDI/MDIX): The RJ-45 ports are auto-sensing for 10/100/1000Base-T, or 1000Base-Tx devices connections. Auto MDI/MDIX means that the port can connect to another injector or workstation without changing the straight-through or crossover cabling. See the figures shown below for straight-through and crossover cabling schematics.

■ RJ-45 Pin Assignments (Table 2.5)

Pin Number	Assignment
1	Rx+
2	Rx-
3	Tx+
6	Tx-

Table 2.5
RJ45 Pin Assignments

Note: The “+” and “-” signs represent the polarity of the wires that make up each wire pair.

The table below shows the 10BASE-T/100BASE-TX MDI port pin outs.

Pin MDI-X	Signal Name	MDI Signal Name
1	Receive Data plus (RD+)	Transmit Data plus (TD+)
2	Receive Data minus (RD-)	Transmit Data minus (TD-)
3	Transmit Data plus (TD+)	Receive Data plus (RD+)
6	Transmit Data minus (TD-)	Receive Data minus (RD-)

The following figures show the cabling schematics for straight-through and crossover cables.

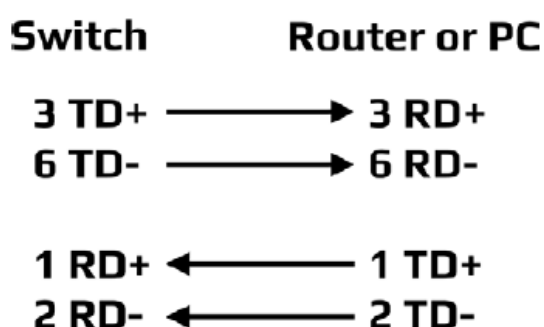


Figure 2.4
Straight-Through Cables Schematic

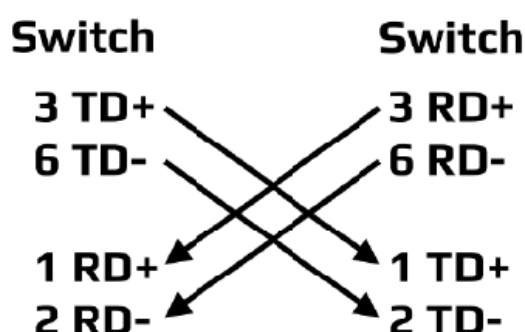


Figure 2.5
Crossover Cables Schematic

2.6 Cabling

- Twisted-pair segments can be connected with an unshielded twisted pair (UTP) or shielded twisted pair (STP) cable. The cable must comply with the IEEE 802.3u 1000Base TX standard (e.g. Category 5, 5e, 6, or 6a). The cable between the equipment and the link partner (switch, hub, workstation, etc.) must be less than 100 meters (328 ft.) long.

Note: Cable size should be between 18–20 AWG and the torque should be tightened to 5lbs.

2.7 Wiring the Power Inputs

Please follow the below steps to insert the power wire.

- 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 2.7.1*

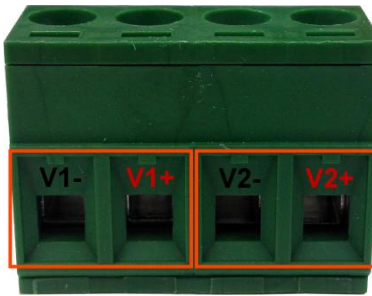


Figure 2.7.1
Power Terminal Block

2. Tighten the wire-clamp screws to prevent the wires from loosening, as shown below in Figure 2.7.2



Figure 2.7.2
Power Terminal Block

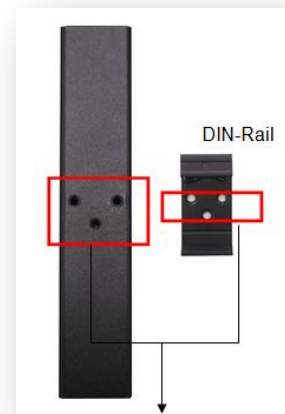
3. Mounting Installation

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 refer to *Figure 3.1* to learn how to install the DIN-Rail on the injector.

Figure 3.1.1

The Rear Side of the Injector and DIN-Rail Bracket



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 injector.
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 on to the track as shown below in *Figure 3.1.2*
4. Lightly pull down the bracket on to the rail as shown below in *Figure 3.1.3*
5. Check if the bracket is mounted tightly on the rail.
6. To remove the device from the rail, do the opposite from the above steps.



Figure 3.1.2

Insert the Device on the DIN-Rail

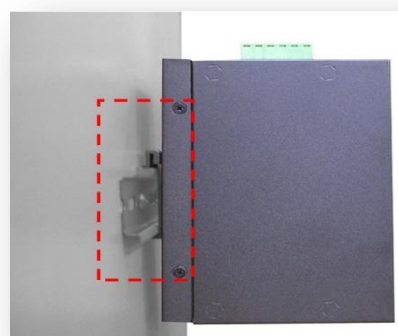


Figure 3.1.3

Stable the Device on DIN-Rail

3.2 Wall Mounting

Follow the steps below to mount the device using the wall mounting bracket as shown below in *Figure 3.2*.

1. Remove the DIN-Rail bracket from the device by loosening the screws.
2. Place the wall mounting brackets on the top and bottom of the device.
3. Use the screws to screw the wall mounting bracket on the device.
4. Use the hook holes at the corners of the wall mounting bracket to hang the device on the wall.
5. To remove the wall mount bracket, do the opposite from the steps above.

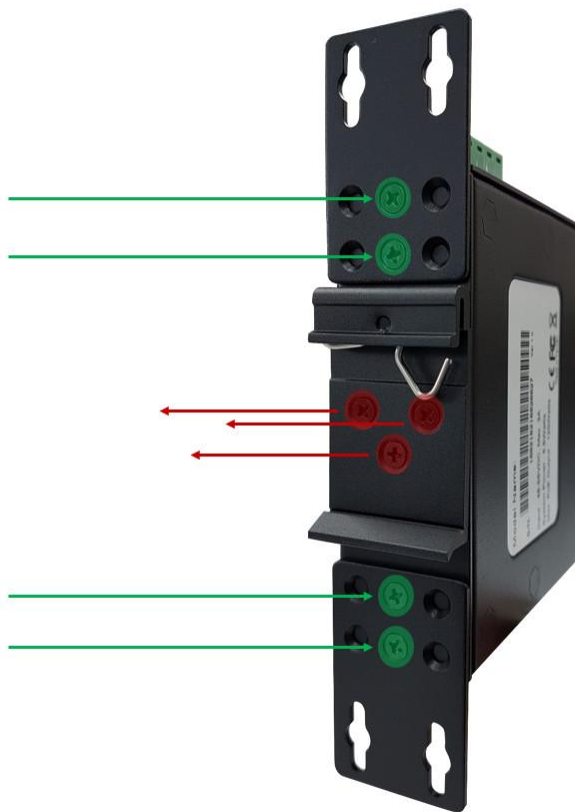


Figure 3.2

Remove DIN-Rail Bracket from the injector

4. Hardware Installation

4.1 Installation Steps

This section will explain how to install Antaira's INJ-C201G-at-24 series:



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



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

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 you want 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.
 - If you need 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 RJ-45 cable into injector's Ethernet port and on the other side into the networking device's Ethernet port, e.g. switch PC or server. The Ethernet port's (RJ-45) LED on the industrial PoE injector will turn on when the cable is connected to the networking device.
 - Please refer to the **LED Indicators** section for LED light indication.
7. When all connections are set and the LED lights all show normal, 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 user 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.

5. Trouble Shooting

- 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 RJ-45 connections: 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 device 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 PoE 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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