

Industrial 3-Port EtherCAT Junction Slave

IECJ-300

User's Manual

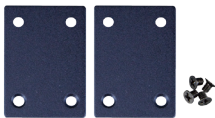
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1. Package Contents

Thank you for purchasing PLANET Industrial EtherCAT Junction Slave. In the following sections, the term **"Industrial EtherCAT Junction Slave"** means the IECJ-300.

Open the box of Industrial EtherCAT Junction Slave and carefully unpack it. The box should contain the following items:

IECJ-300 x 1	QR Code Sheet x 1
	
Wall-mount Kit x 1	Copper Dust Cap x 3
	

If any of these are missing or damaged, please contact your dealer immediately; if possible, retain the carton including the original packing material, and use them again to repack the product in case there is a need to return it to us for repair.



2. Product Features

- Three 100BASE-TX RJ45 bus interfaces
- LED indicators for the input status
- Dual 9 ~ 48V DC wide input voltage range
- Supports EtherCAT distributed clock (DC) mode
- EtherCAT conformance test tool verified

3. Product Specifications

Model		IECJ-300
Communication Interface		
Copper	Port	3 x 100BASE-TX RJ45
	Distance between Stations	max. 100 m (100BASE-TX)
	Data Transfer Medium	Shielded Ethernet/EtherCAT cable (min. cat5)
EtherCAT		
Protocol		EtherCAT
Power		
Input Voltage Range		Dual 9~48V DC
Power Consumption		Maximum 1.44W
Mechanical		
Dimensions (W x D x H)		33 x 70 x 104mm
Installation		DIN-rail mounting and wall mounting
Case Material		IP30 metal
Environment		
Operating Temperature		-40~75°C
Storage Temperature		-40~85°C
Relative Humidity		5~95% (non-condensing)

4. Hardware Introduction

4.1 Three-View Diagram

The three-view diagram of the **Industrial EtherCAT Junction Slave** consists of three 100BASE-TX **RJ45 copper ports** and one **removable 4-pin power terminal block**. The LED indicators are also located on the front panel.

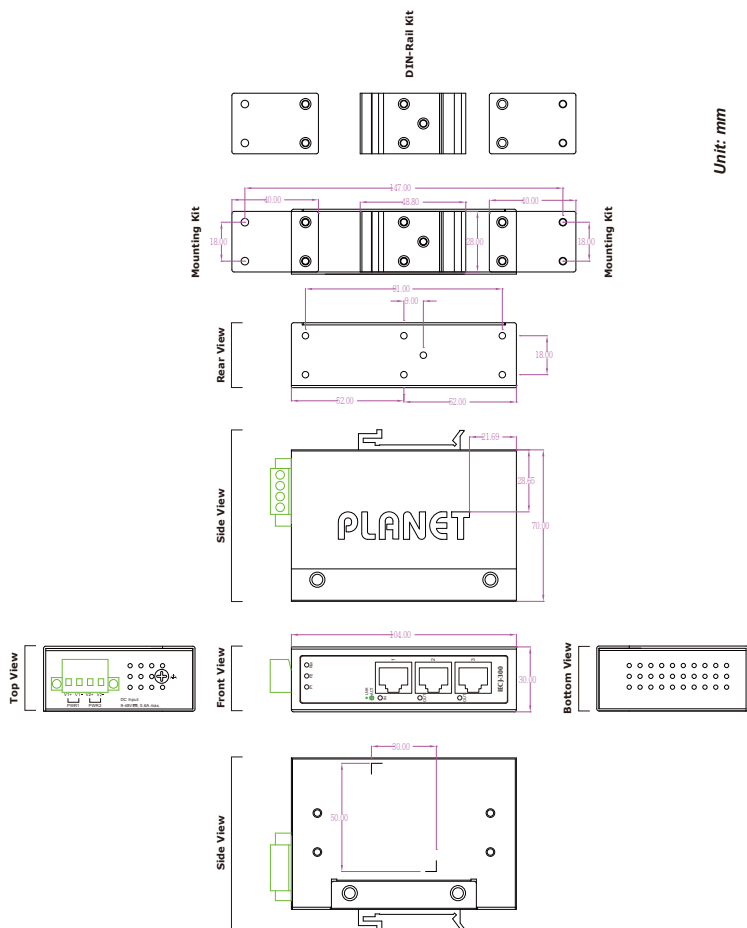


Figure 1: IECJ-300 Three-View Diagram

Front View

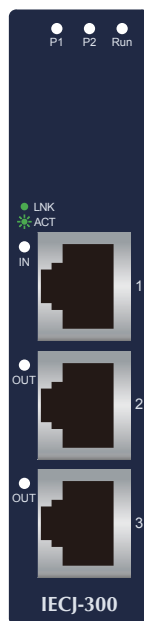


Figure 2: IECJ-300 Front View

LED Definition:

System

LED	Color	Function	
P1	Green	Lights to indicate power 1 has power.	
P2	Green	Lights to indicate power 2 has power.	
Run	Green	Light	The device is in the state of operation.
		Single Flash	The device is in the state of operation without risk.
		Blinking	The device is ready to be operated.
		Off	The device is in the initialization mode.

100BASE-TX RJ45 Port (Port Input/Port Output)

LED	Color	Function	
LNK/ACT	Green	Light	Indicating that the port is linked up.
		Blinking	Indicating that the module is actively sending or receiving data over that port.
		Off	Indicating that the port is linked down.

4.2 Wiring the Power Inputs

The 4-contact terminal block connector on the top panel of Industrial EtherCAT Junction Slave is used for two DC power input. Please follow the steps below to insert the power wire.



Note

When performing any of the procedures like inserting the wires or tightening the wire-clamp screws, make sure the power is OFF to prevent from getting an electric shock.

1. Insert positive and negative DC power wires into contacts 1 and 2 or contacts 3 and 4 for POWER.

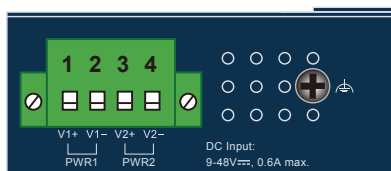
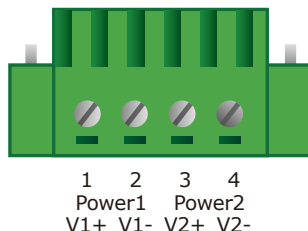


Figure 3: IECJ-300 Top View

2. Tighten the wire-clamp screws for preventing the wires from loosening.





Note

1. The DC power input range is 9-48V DC.
2. The device provides input voltage polarity protection.

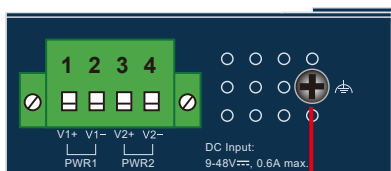


Caution

PWR1 and PWR2 must provide exactly the **same DV voltage** for power load balance while operating with dual power input.

4.3 Grounding the Device

Users **MUST** complete grounding wired with the device; otherwise, a sudden lightning could cause fatal damage to the device.



 **Earth Ground**



Note

EMD (Lightning) DAMAGE IS NOT COVERED UNDER WARRANTY.

5. Installation

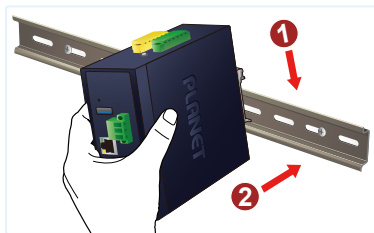
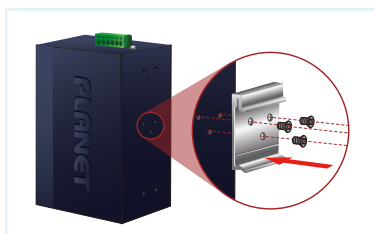
This section guides you to installing the Industrial EtherCAT Junction Slave on the DIN rail and wall. Please read this chapter completely before continuing.



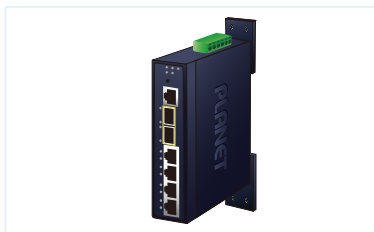
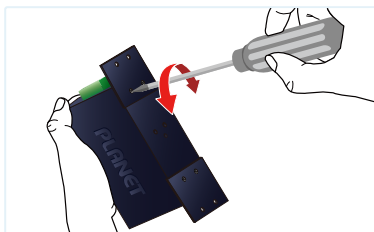
Note

This following pictures show the user how to install the device, and the device is not IECJ-300.

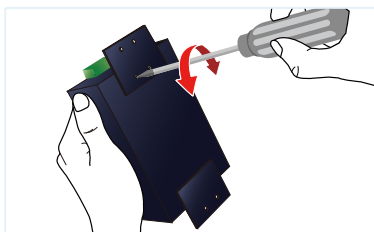
5.1 DIN-rail Mounting Installation



5.2 Wall-mount Plate Mounting



5.3 Side Wall-mount Plate Mounting



Caution

You must use the screws supplied with the wall-mounting brackets. Damage caused to the parts by using incorrect screws would invalidate your warranty.

6. Getting Started

This chapter provides a basic overview of how to configure and operate your IECJ series.

6.1 Connecting the Power and the Host PC

Step 1: Connect both the **Port 1** of the **IECJ-300** and RJ45 Ethernet port of Host PC.

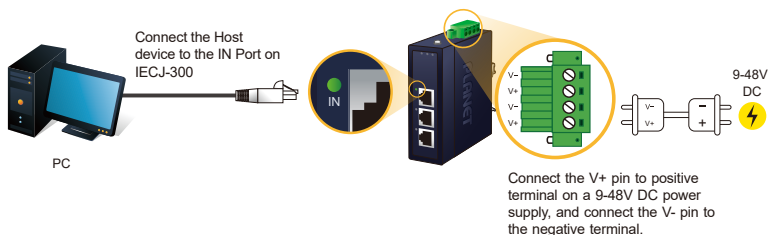
Ensure that the network settings on the Host PC have been correctly configured and are functioning normally. Ensure that the Windows firewall and any anti-virus firewall is properly configured to allow incoming connections; if not, temporarily disable these functions.



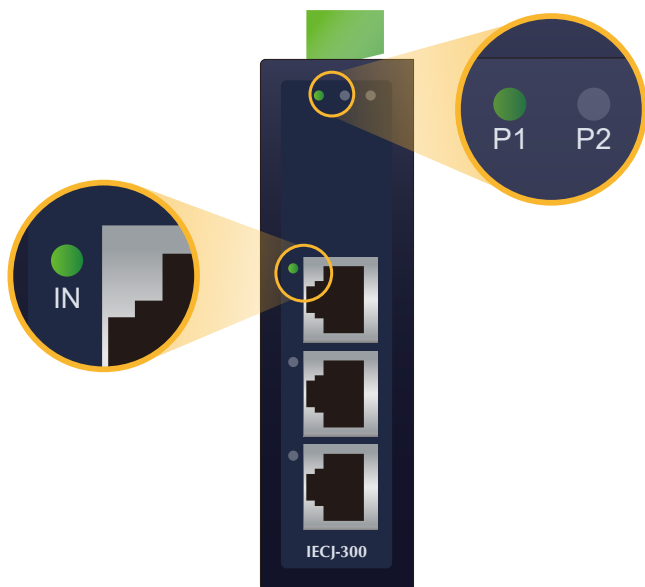
Note

Attaching an ESC (EtherCAT Slave Controller) directly to an office network will result in network flooding, since the ESC will reflect any frame – especially broadcast frames – back into the network (broadcast storm).

Step 2: Apply power to the IECJ-300



Step 3: Verify the "P1" LED indicator on the IECJ-300 module is Green;
"Port 1" LED indicator is Green.

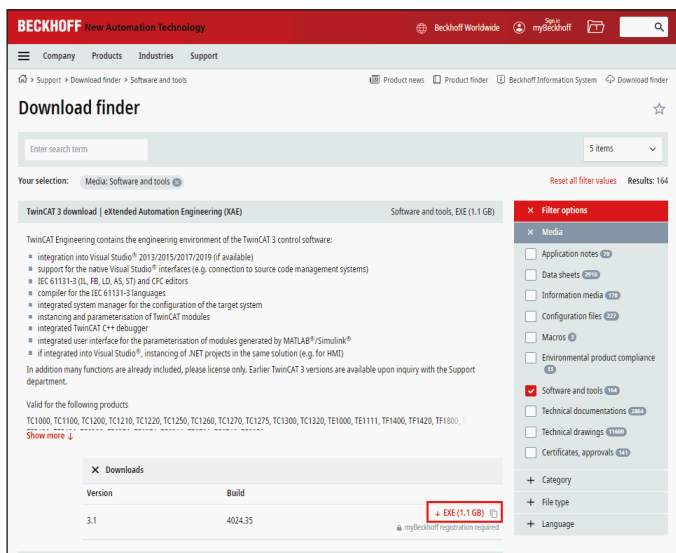


6.2 Configuration and Operation

Beckhoff TwinCAT 3.x is the most commonly used EtherCAT Master software to operate the IECJ-300.

Click on the link below to download Beckhoff TwinCAT 3.x:

<https://www.beckhoff.com/en-en/support/download-finder/software-and-tools/>



The screenshot shows the Beckhoff website's 'Download finder' section. The search results are filtered for 'Media: Software and tools'. The results show 'TwinCAT 3 download | Extended Automation Engineering (XAE)' with a size of 'Software and tools, EXE (1.1 GB)'. A list of features is provided, including integration into Visual Studio, support for native Visual Studio interfaces, IEC 61131-3 languages, integrated system manager, and TwinCAT C++ debugger. A table of supported hardware is also shown. The 'Downloads' section lists the version '3.1' and build '4024.35'. A red box highlights the 'EXE (1.1 GB)' download link.

Inserting into the EtherCAT network

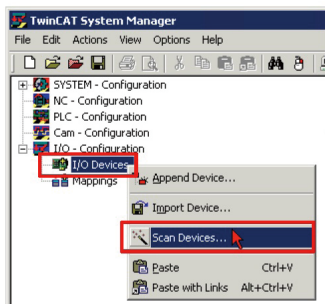


Note

Installation of the latest XML device description (ESI).
Make sure to use the latest installation description to install the latest XML device. This can be downloaded from PLANET website (<https://www.planet.com.tw/en/support/downloads?&method=keyword&keyword=IECJ-300>) and check the online FAQs for the installation of the XML device.

Step 1: Automatic Scanning

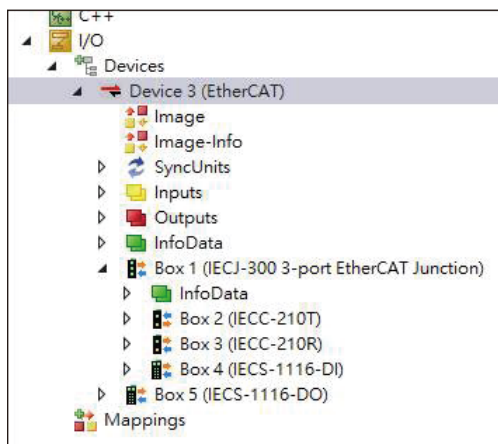
- The EtherCAT system must be in the safe, de-energized state before the IECJ-300 module is connected to EtherCAT network.
- Switch on the operating voltage, open the TwinCAT System Managed (Config mode), and scan the devices as shown in the print screen instructions below. Acknowledge all dialogs with "OK", so that the configuration is in the "FreeRun" mode.



Scanning in the configuration
(I/O Devices-> right-click-> Scan Devices...)

Step 2: Configuration via TwinCAT

In the left-hand window of the TwinCAT System Manager, click on the brand of the EtherCAT Box you wish to configure (Take the IECJ-300 for an example). Click Box 1 to get and configure state.



Customer Support

Thank you for purchasing PLANET products. You can browse our online FAQ resource on PLANET web site first to check if it could solve your issue. If you need more support information, please contact PLANET switch support team.

PLANET online FAQs:

<http://www.planet.com.tw/en/support/faq.php>

Support team mail address:

support@planet.com.tw

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FCC Warning

This device 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 when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the Instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CE Mark Warning

This device is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.

WEEE Warning



To avoid the potential effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment, end users of electrical and electronic equipment should understand the meaning of the crossed-out wheeled bin symbol. Do not dispose of WEEE as unsorted municipal waste and have to collect such WEEE separately.