

Industrial EtherCAT Junction Slave

IECJ-300/IECJ-400/IECJ-410FT

User's Manual

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1. Package Contents

Thank you for purchasing PLANET Industrial EtherCAT Junction Slave series. The descriptions of these models are as follows:

IECJ-300	Industrial 3-Port EtherCAT Junction Slave
IECJ-400	Industrial 4-Port EtherCAT Junction Slave
IECJ-410FT	Industrial 3-Port RJ45 + 1-Port SFP EtherCAT Junction Slave

“EtherCAT Junction Slave” or “IECJ series” is used as an alternative name in this user’s manual.

Open the box of IECJ series and carefully unpack it. The box should contain the following items:

Item	Model Name	IECJ-300	IECJ-400	IECJ-410FT
The Industrial EtherCAT Junction Slave		■	■	■
QR Code Sheet		■	■	■
Wall-mount Kit		■	■	■
Copper Dust Cap		3	4	3
SFP Dust Caps		-	-	1

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

- Physical port
 - ◆ IECJ-300: 3 x 100BASE-TX RJ45 port; 1 IN and 2 OUT
 - ◆ IECJ-400: 4 x 100BASE-TX RJ45 port, 1 IN and 3 OUT
 - ◆ IECJ-410FT: 3 x 100BASE-TX RJ45 port; 1 IN and 2 OUT
1 x 100BASE-TF SFP slot; it is OUT
- LED indicators for the input status
- 9 ~ 48V DC wide input voltage range
- Supports EtherCAT distributed clock (DC) mode
- EtherCAT conformance test tool verified

3. Product Specifications

Model		IECJ-300	IECJ-400	IECJ-410FT
Communication Interface				
Copper	100BASE-TX RJ45 Port	3 (1 in/2 out)	4 (1 in/3 out)	3 (1 in/2 out)
	Distance between Stations	max. 100 m (100BASE-TX)		
	Data Transfer Medium	Shielded Ethernet/EtherCAT cable (min. cat5)		
Fiber	100BASE-FX SFP slot	-	-	1 (1 out)
	Distance between Stations	-	-	Depending on the ability of SFP module
	Data Transfer Medium	-	-	
EtherCAT				
Protocol		Ether CAT		
Power				
Input Voltage Range		9~48V DC		
Power Consumption		Max. 1.44W	Max. 2.44W	Max. 2.83W
Mechanical				
Dimensions (W x D x H)		33x70x104mm	32x87x135mm	
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)		

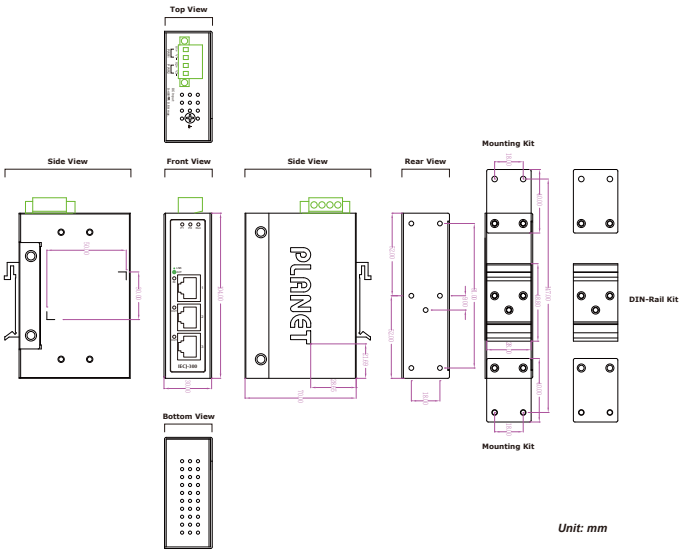
4. Hardware Introduction

This section describes the hardware features and installation of the Industrial EtherCAT Junction Slave series. To easily manage the Industrial EtherCAT Junction Slave, familiarize yourself with its display indicators and ports. Front panel illustrations in this chapter display the LED indicators.

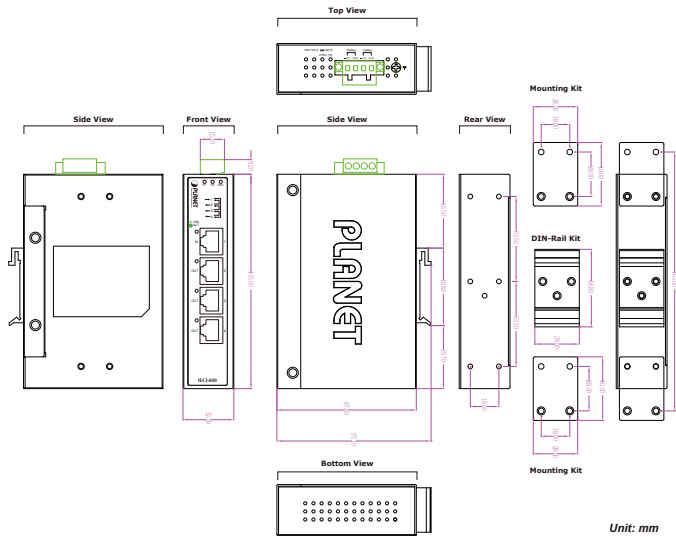
4.1 Three-View Diagram

The three-view diagram of the Industrial EtherCAT Junction Slave series consists of multiple 100BASE-TX **RJ45 copper ports** or one 100BASE-FX **SFP slot** (for IECJ-410FT), and one removable 4-pin power terminal block. The LED indicators are also located on the front panel.

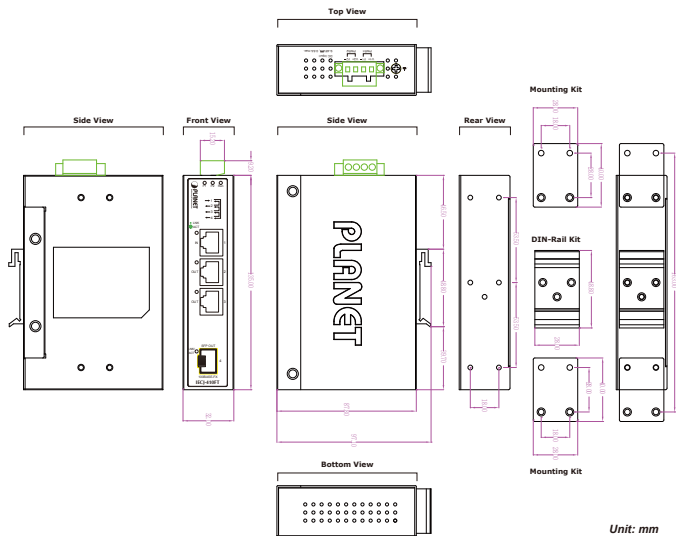
IECJ-300



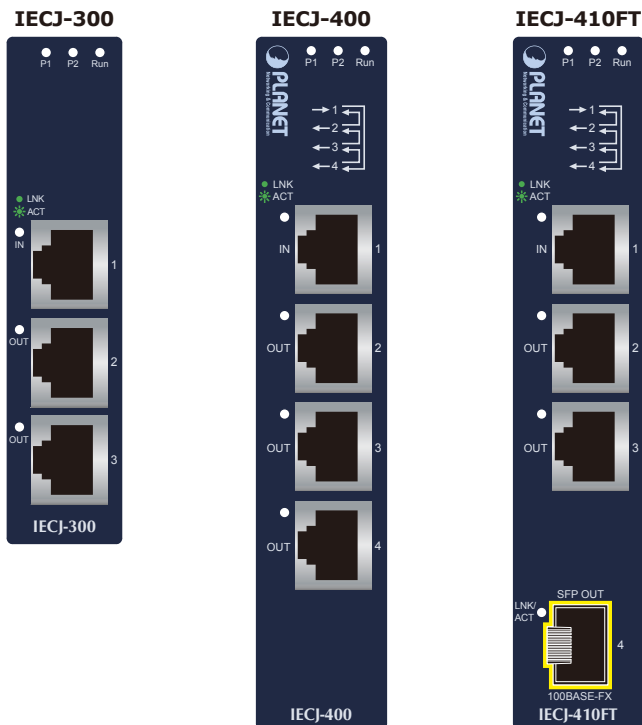
IECJ-400



IECJ-410FT



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.

100BASE-FX SFP Port (Port Output) *IECJ-410FT only

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 slave I/O module is used for one DC power input. Please follow the steps below to insert the power wire.

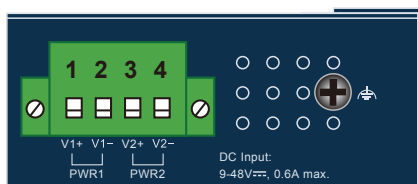


Note

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.

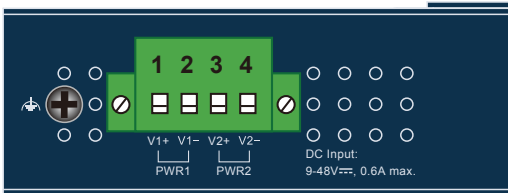
1. Insert positive and negative DC power wires into contacts 1 and 2 for POWER.

IECJ-300

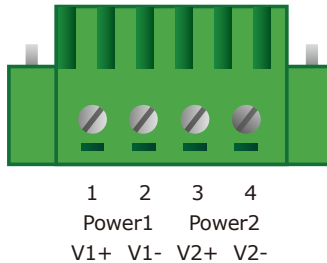


Top View

IECJ-400/IECJ-410FT



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.



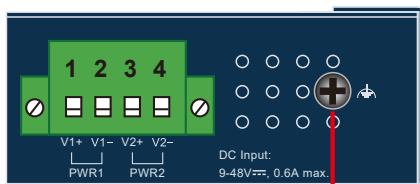
Caution

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

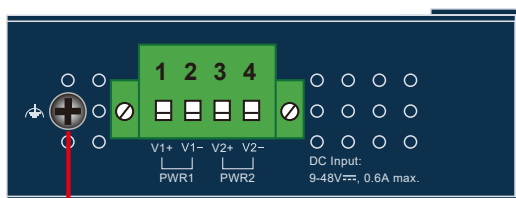
Users **MUST** complete grounding wired with the device; otherwise, a sudden lightning could cause fatal damage to the device.

IECJ-300



⏏ Earth Ground

IECJ-400/IECJ-410FT



⏏ Earth Ground



Note

EMD (Lightning) DAMAGE IS NOT COVERED UNDER WARRANTY.

5. Installation

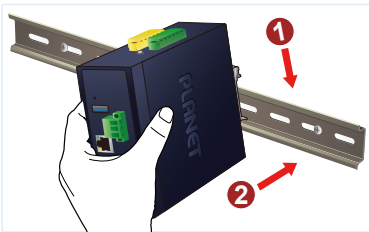
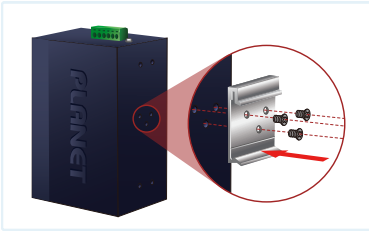
This section describes the functionalities of the Industrial EtherCAT slave I/O module's components and guides you to installing it on the DIN rail and wall. Please read this chapter completely before continuing.



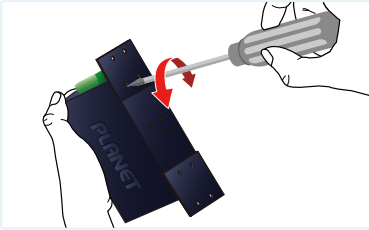
Note

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

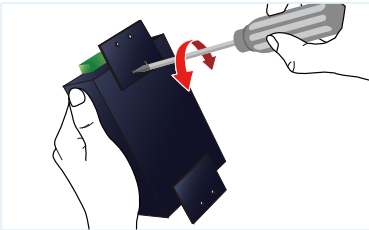
5.1 DIN-rail Mounting Installation



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 series and RJ45 Ethernet port of Host PC.

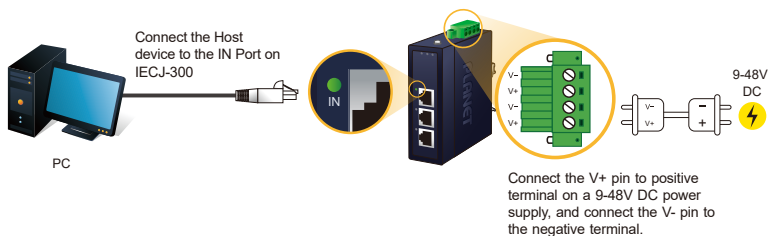
Ensure that the network settings on the Host PC have been correctly configured and are functioning normally. Ensure that the Windows firewall and any anti-virus firewall are properly configured to allow incoming connections; if not, temporarily disable these functions.



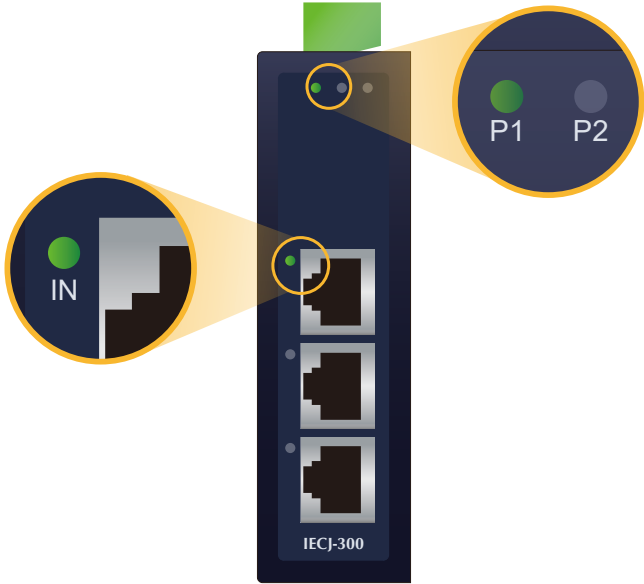
Note

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 series (Take the IECJ-300 for an example)



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

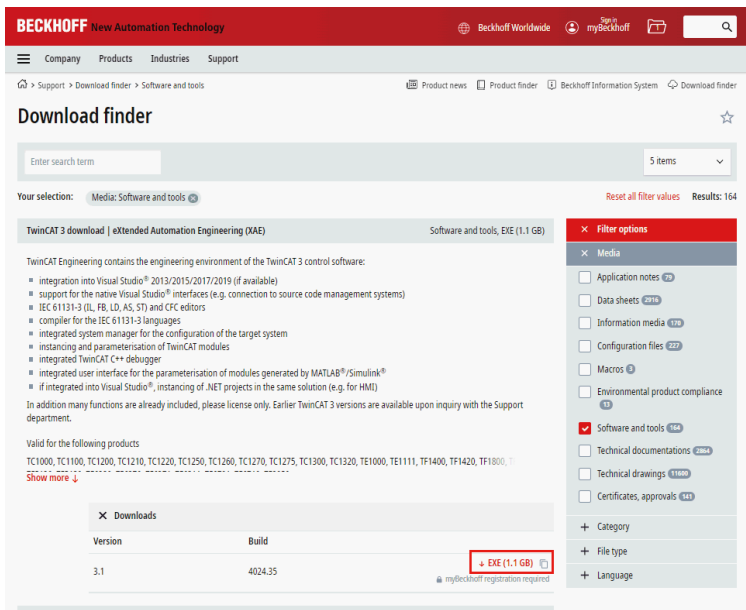


6.2 Configuration and Operation

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

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' interface. The page title is 'TwinCAT 3 download | eXtended Automation Engineering (XAE)'. It lists various features of the software, such as integration with Visual Studio and support for IEC 61131-3 languages. A table of valid products is shown, with the '3.1' version highlighted. A download button for the 'EXE (1.1 GB)' file is visible. The right sidebar shows filter options, with 'Software and tools' selected.

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Enter search term [5 items]

Your selection: Media: Software and tools

TwinCAT 3 download | eXtended Automation Engineering (XAE) Software and tools, EXE (1.1 GB)

TwinCAT Engineering contains the engineering environment of the TwinCAT 3 control software:

- integration into Visual Studio® 2013/2015/2017/2019 (if available)
- support for the native Visual Studio® interfaces (e.g. connection to source code management systems)
- IEC 61131-3 (IL, FB, LD, AS, ST) and CFC editors
- compiler for the IEC 61131-3 languages
- integrated system manager for the configuration of the target system
- instancing and parameterisation of TwinCAT modules
- integrated TwinCAT C++ debugger
- integrated user interface for the parameterisation of modules generated by MATLAB®/Simulink®
- if integrated into Visual Studio®, instancing of .NET projects in the same solution (e.g. for HMI)

In addition many functions are already included, please license only. Earlier TwinCAT 3 versions are available upon inquiry with the Support department.

Valid for the following products
TC1000, TC1100, TC1200, TC1210, TC1220, TC1250, TC1260, TC1270, TC1275, TC1300, TC1320, TE1000, TE1111, TF1400, TF1420, TF1800, ...
[Show more](#)

Version	Build	Download
3.1	4024.35	EXE (1.1 GB)

mybeckhoff registration required

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Inserting into the EtherCAT network



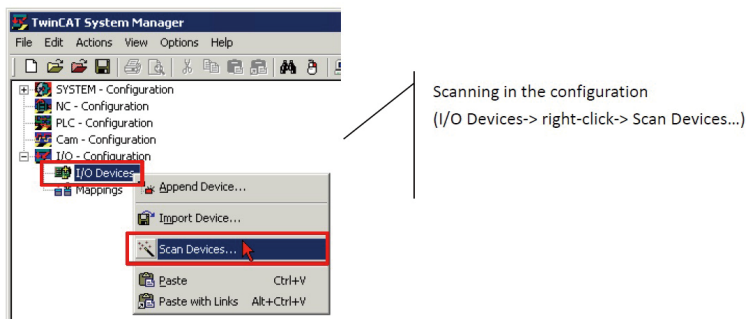
Note

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>) and check the online FAQs for the installation of the XML device.

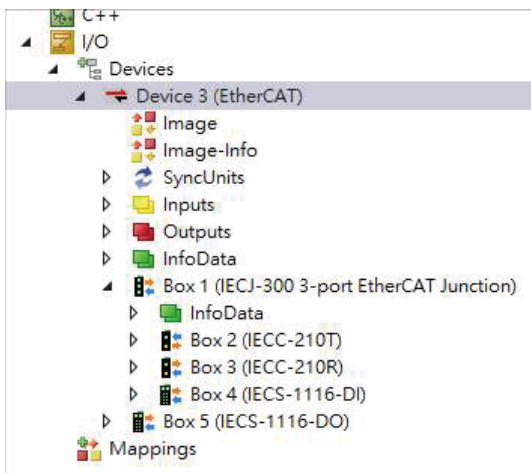
Step 1: Automatic Scanning

- The EtherCAT system must be in the safe, de-energized state before the IECJ series module is connected to EtherCAT network.
- Switch on the operating voltage, open the TwinCAT System Manager (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.



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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