EC4-EP21 series Quick Start

v1.0, Nov. 2024

Packing List

In addition to this guide, the package includes the following items:



EC4-EP21

Technical Support

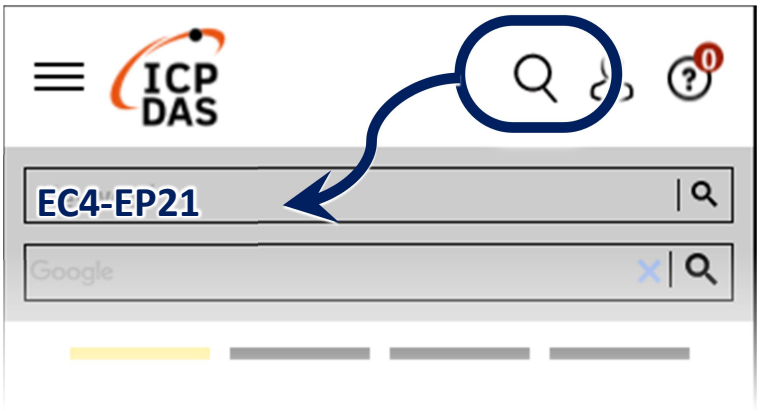
service@icpdas.com

www.icpdas.com

Resources

How to search for ESI, manuals and spec information on ICP DAS website.

- For Mobile Web



- For Desktop Web



Related Information

For more detailed information related to the manual, hardware manual:

http://www.icpdas.com/en/download/index.php?model=EC4-EP21

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1 Connecting the Power and Host

※Switch on module and connect it to an EtherCAT network

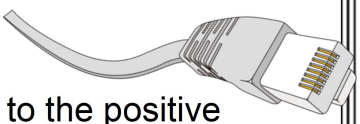
NOTE:

It is recommended to use a dedicated network card and avoid connecting to network to prevent network storms(broadcast storm).

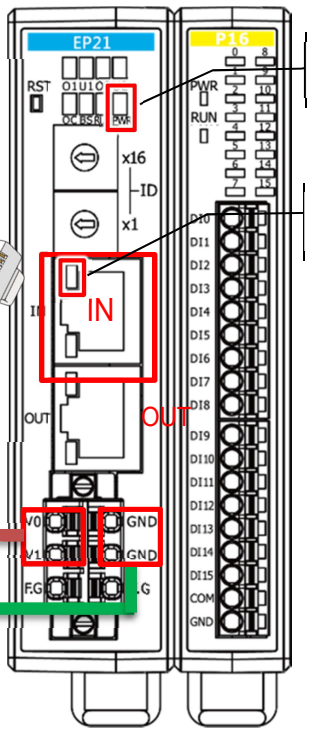
1) Connect the Host device to the **IN** port on module.



Ethernet Cable



2) V0 or V1 is connected to the positive terminal of the +24 VDC power supply, and GND is connected to the negative terminal of the power supply.

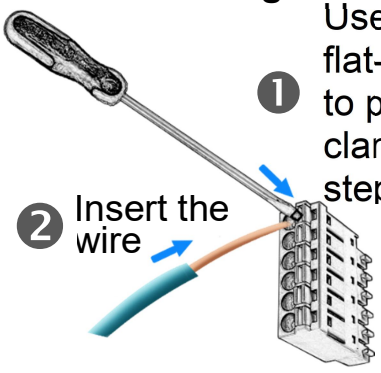


Green light remains on, normal.

Green light is flashing, normal.

➢ Wiring Tip

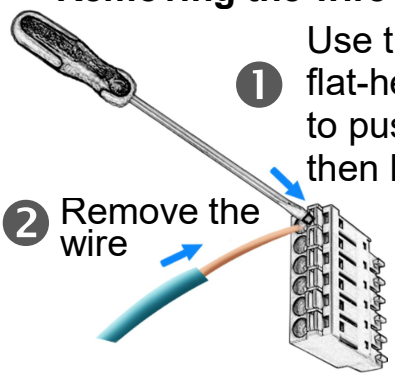
Connecting the wire



❶ Use the blade of a flat-head screwdriver to push the wire clamp, then hold until step 2 complete.

❷ Insert the wire

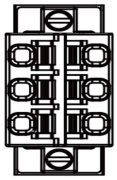
Removing the wire



❶ Use the blade of a flat-head screwdriver to push the wire clamp, then hold until step 2

❷ Remove the wire

➢ Pin Assignments

Function	Pin	Terminal No.	Pin	Function
V0 Power supply: +24 VDC	V0		GND	Power supply: Ground 0V
V1 Power supply: +24 VDC	V1		GND	Power supply: Ground 0V
Frame ground	F.G.		F.G	Frame ground

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2 Search Modules

Download and Unzip file to get ESI file

The latest ESI file (**ECx-DIO….xml**) can be downloaded from website at

EC4-IO_ESI_XML.zip

Unzip the **"ECx-IO….zip"** to get the **"EC4-IO….xml"** ESI file(XML format)

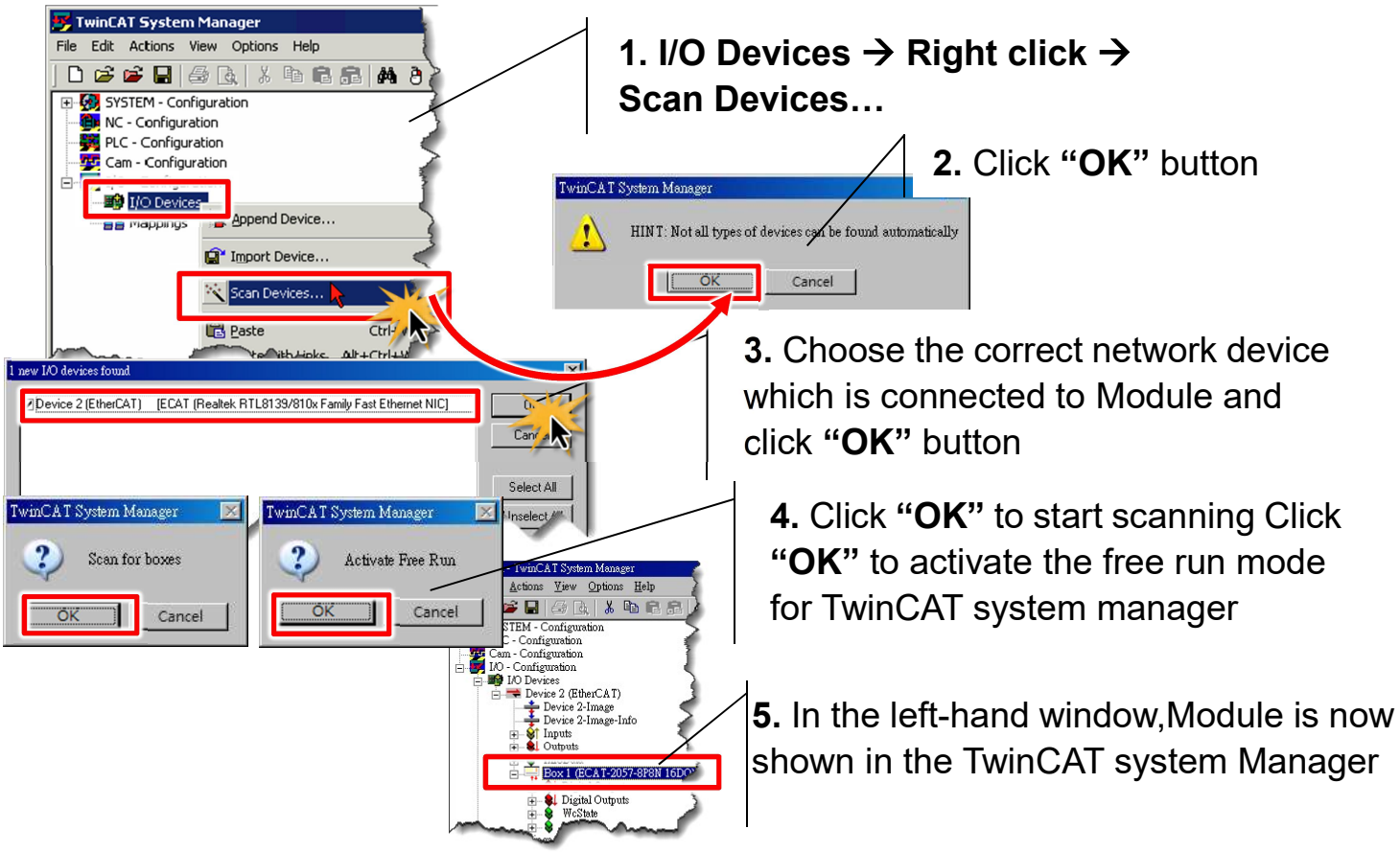
Install the ESI file

Copy the **"EC4-IO….xml"** file to the Master Tools installation folder, as indicated in the table below.

Software	Default Path
Beckhoff EtherCAT Configuration	C:\EtherCAT Configurator\EtherCAT
Beckhoff TwinCAT 3.X	C:\TwinCAT\3.x\Config\Io\EtherCAT
Beckhoff TwinCAT 2.X	C:\TwinCAT\Io\EtherCAT

Run the EtherCAT Main software (Beckhoff TwinCAT 2.X)

Switch on power and execute the TwinCAT System Manager (Config mode)



6. When TwinCAT detects the EC4-EP21 module, it means the communication is normal.

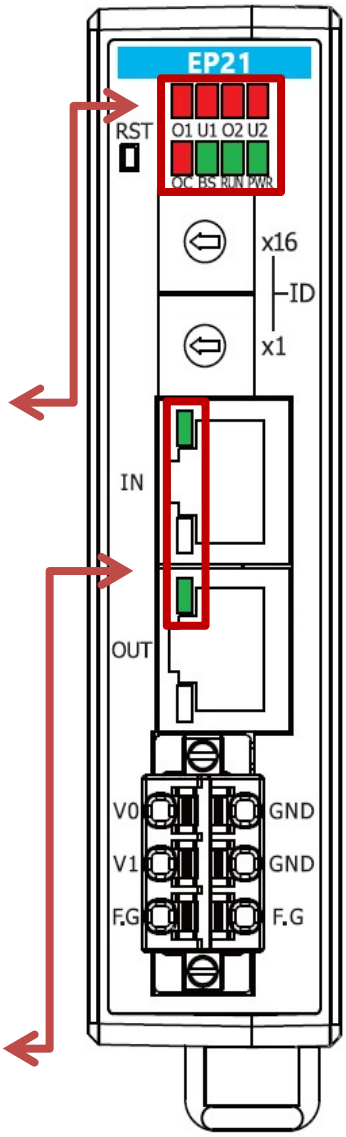
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3 Power supply self-test

➢ LED indication

LED	Color	Description	State
O1	Red	ON	V0 Over-Voltage Warning Light. When the voltage exceeds about +30 VDC, the O1 Red light turns on.
O2	Red	ON	V1 Over-Voltage Warning Light. When the voltage exceeds about +30 VDC, the O1 Red light turns on.
U1	Red	ON	V0 Under-Voltage Warning Light. When the voltage drops below approximately +20 VDC, the U1 Red light turns on.
U2	Red	ON	V1 Under-Voltage Warning Light. When the voltage drops below approximately +20 VDC, the U2 Red light turns on.
OC	Red	ON	BUS Current limit warning light. When the BUS current exceeds 2A, the Red light will turn on.
PWR	Green	ON	PWR Green light is on, power supply is normal.
RUN	Green	Flashing	RUN Green light flashes, BUS communication is normal.
BS	Green	ON	BS Green light is on, BUS power supply is normal.

LED	Color	Description	State
IN	Green	Flashing	IN Green lights flash, normal communication.
OUT	Green	Flashing	OUT Green lights flash, normal communication.



PS：When the operating voltage or the total BUS limit current reaches any of the following three conditions

1) When the operating voltage is higher than approximately +36 VDC.
2) When the operating voltage is below approximately +10 VDC.
3) When the total BUS limit current exceeds approximately 2.2 A.

The BUS power supply will automatically turn off and will not provide power to the back-end expansion card. After the operating voltage is stable or the BUS current is lower than the total limit current, press the RST button again, and the BUS power supply will resume normal power supply.

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