EC2-P16C16 series Quick Start

v1.0, Mar. 2023

Packing List

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

EC2-P16C16
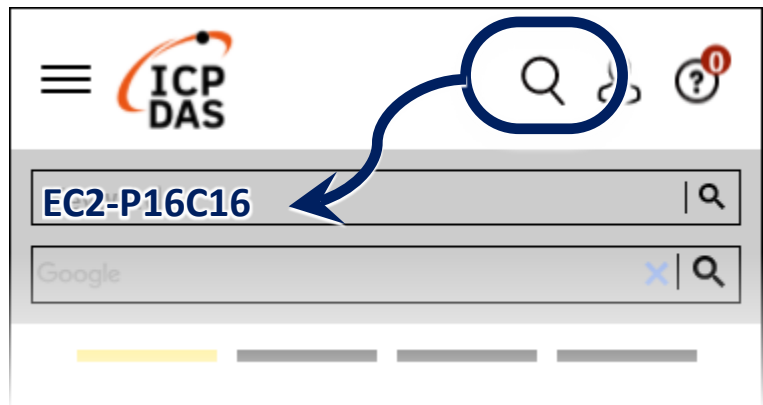
Technical Support

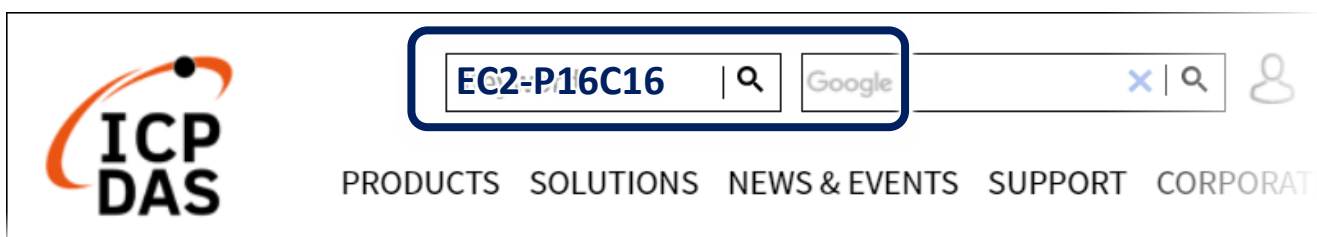service@icpdas.com

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

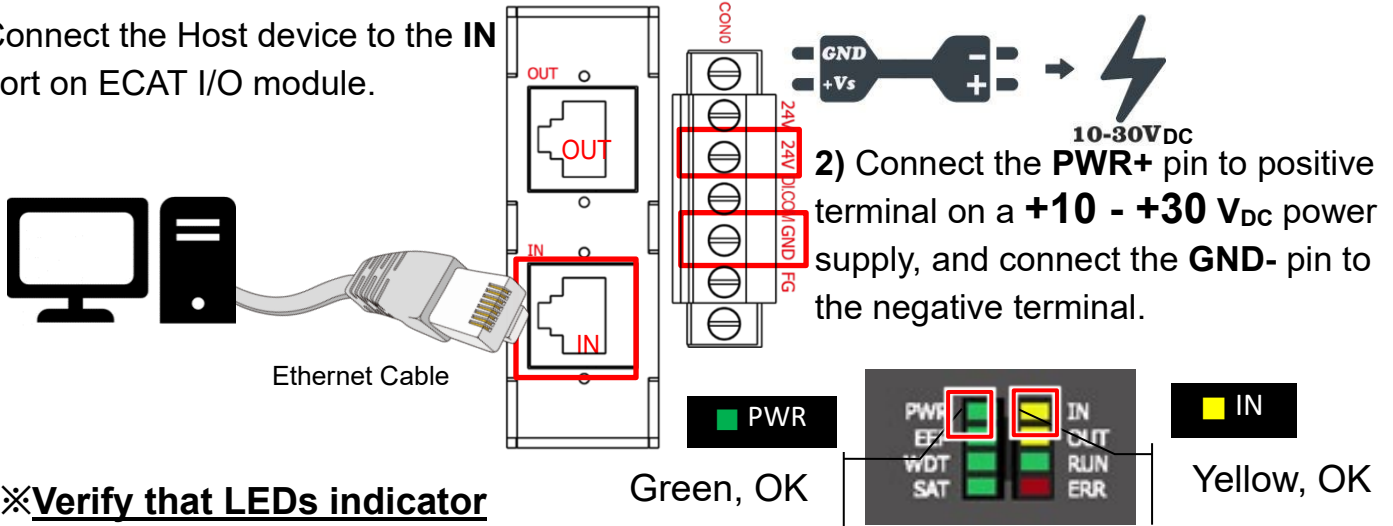For more detailed information related to the manual, hardware manual:

http://www.icpdas.com/en/download/index.php?model=EC2-P16C16

1   Connecting the Power and Host

※**Switch on module and connect it to an EtherCAT network**

⚠ **NOTE:**

Attaching an ESC 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).

1) Connect the Host device to the **IN** port on ECAT I/O module.

Ethernet Cable

2) Connect the **PWR+** pin to positive terminal on a **+10 - +30 V$_{DC}$** power supply, and connect the **GND-** pin to the negative terminal.

※**Verify that LEDs indicator**

■ PWR   Green, OK

Yellow, OK   ■ IN

2   Search Modules

Download and Unzip file to get ESI file

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

☁ ECx-DIO_ESI_XML.zip

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

Install the ESI file

Copy the **"ECx-DIO….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

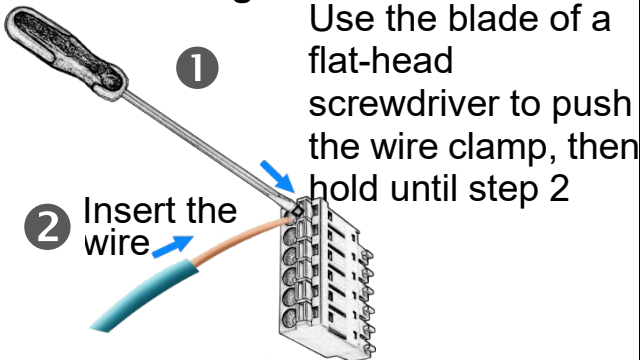## Run the EtherCAT Master software (Beckhoff TwinCAT 2.X)

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

TwinCAT System Manager
File Edit Actions View Options Help

- SYSTEM - Configuration
- NC - Configuration
- PLC - Configuration
- Cam - Configuration
- I/O Devices
  - Mappings
    - Append Device…
    - Import Device…
    - Scan Devices…
    - Paste   Ctrl+V

1. I/O Devices → Right click → Scan Devices…

2. Click "OK" button

TwinCAT System Manager

HINT: Not all types of devices can be found automatically

OK   Cancel

1 new I/O devices found

Device 2 (EtherCAT)   [ECAT (Realtek RTL8139/810x Family Fast Ethernet NIC)]

Select All

Unselect All

3. Choose the correct network device which is connected to Module and click **"OK"** button

TwinCAT System Manager
Scan for boxes
OK   Cancel

TwinCAT System Manager
Activate Free Run
OK   Cancel

4. Click **"OK"** to start scanning Click **"OK"** to activate the free run mode for TwinCAT system manager

- TwinCAT System Manager
Actions View Options Help
- STEM - Configuration
- C - Configuration
- Cam - Configuration
- I/O - Configuration
  - I/O Devices
    - Device 2 (EtherCAT)
      - Device 2-Image
      - Device 2-Image-Info
      - Inputs
      - Outputs
      - Box 1 (ECAT-2057-8P8N 16DO)
        - Digital Outputs
        - WcState

5. In the left-hand window,Module is now shown in the TwinCAT system Manager

3 Wiring to the Connector

➢ **Wiring Tip**

Connecting the wire

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

❷ Insert the wire

Removing the wire

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

❶

❷ Remove the wire
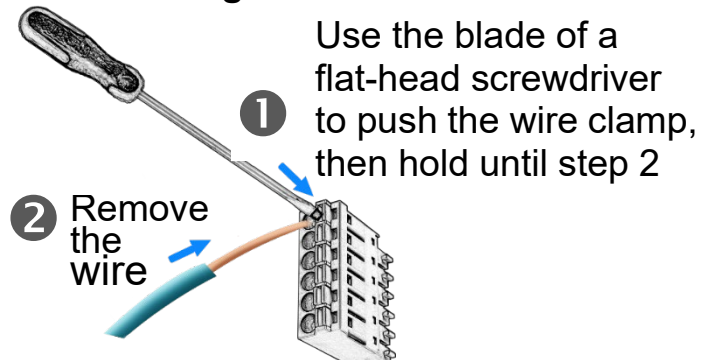
➢ **Wire Diagrams**

DI	Readback as 1 (+10 ~ +40 VDC)	Readback as 0 (Open or < 4VDC)
Sink	DIx 10K + - DI.COM To other channels	DIx 10K + - DI.COM To other channels

Source		
DI	Readback as 1 (Close to GND)	Readback as 0 (Open)
Dry		
DO	Readback as 1 (ON State)	Readback as 0 (OFF State)
Driver Relay		
Resistance Load		

➢ **Wiring the DO0 to DI0**
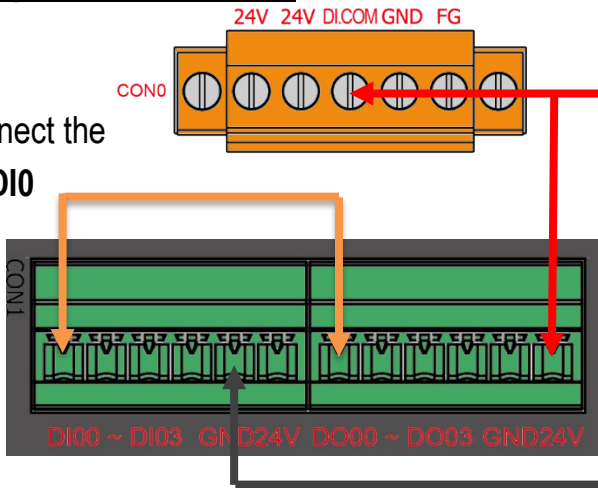
❷ Connect **+24V external power supply** to the **24V and DI.COM**

❶ Connect the **DO0** to **DI0**

❸ Connect the **GND** on external power supply

➢ **Verifying the DO and DI functionality**
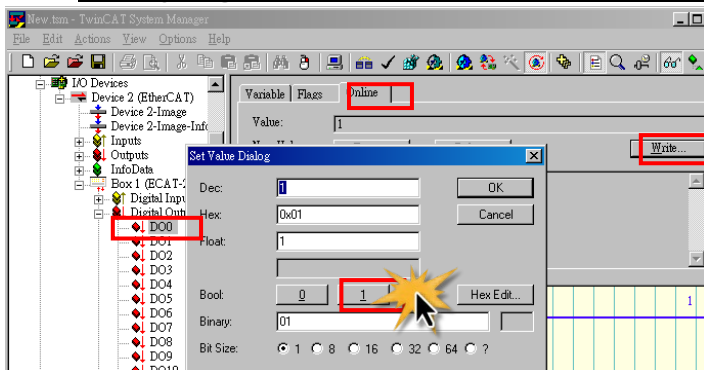
In the left-hand of the window, click on the DO0. In the right-hand of the windows, click the online.
Click Write. Click 1 (Configure DO0).
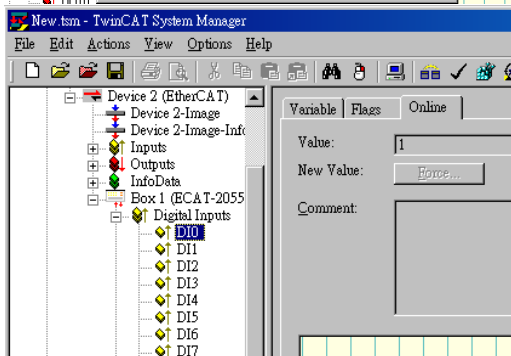
In the left-hand of the window, click DI0.
In the right-hand of the windows, click the online.
Check Value is 1.