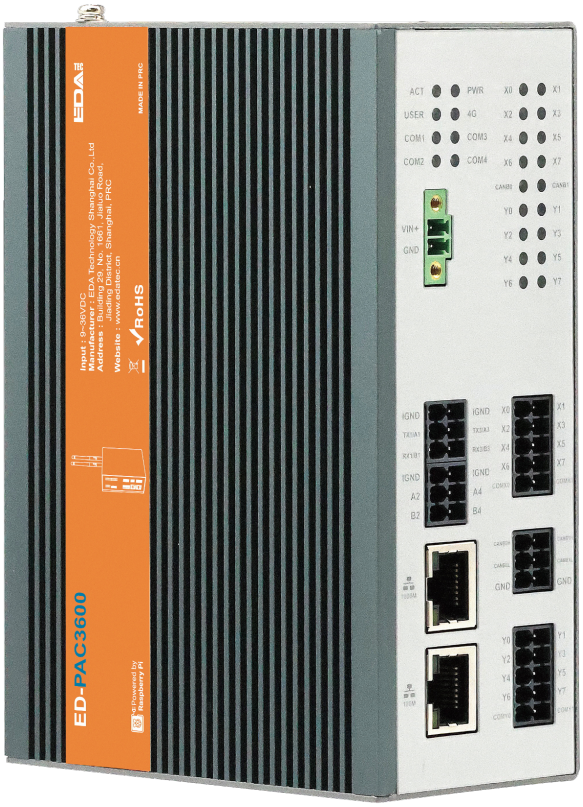


ED-PAC3630

User Manual

by EDA Technology Co., Ltd

built: 2025-11-26

1 Hardware Manual

This chapter introduces the product overview, CODESYS software, networking application, packaging list, appearance, buttons, indicators, interfaces and Supercapacitor.

1.1 Overview

The ED-PAC3630 is a real-time CODESYS programmable automation controller, pre-installed by default with a multi-core CODESYS runtime. Depending on the application scenario and user requirements, it offers programmable logic system configurations with either `2GB DDR + 16GB eMMC` or `8GB DDR + 32GB eMMC`.

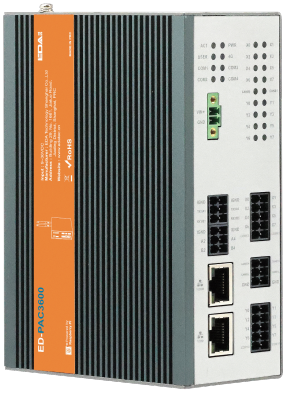
> WARNING
>
> The ED-PAC3630 device comes pre-installed with a valid CODESYS license by default. Reinstalling the operating system will invalidate the CODESYS license. Do not attempt to install the OS on your own.

The ED-PAC3630 provides common interfaces such as HDMI, USB, Ethernet, RS232, RS485, DI, DO, and CAN. It integrates advanced features including a supercapacitor backup power supply, RTC (Real-Time Clock), Watch Dog, EEPROM, and an encryption chip, significantly enhancing the product's usability and reliability. It is primarily designed for industrial control applications.

The ED-PAC3630 supports connection to remote EtherCAT-based I/O modules (e.g., couplers, DI, DO, AI, AO) via an EtherCAT network. The device integrates the CODESYS Control Runtime System, supporting IEC 61131-3 programming standards and industrial communication protocols like EtherCAT and Modbus TCP. Users can optionally enable additional functionalities by licensing features such as:

- TargetVisu
- WebVisu
- Softmotion
- CNC + Robotics
- EtherCAT Master
- Modbus TCP Master
- OPC UA Server

Custom configurations are available to meet specific application requirements.



1.2 Introduction to CODESYS Software

CODESYS (Controller Development System) is an open industrial automation software development platform that provides a full-stack solution for programming, debugging, and maintaining programmable logic controllers (PLCs), industrial PCs (IPCs), and embedded control systems. Compliant with the IEC 61131-3 international standard, it supports complex logic control, multi-axis motion control, industrial communication protocol integration, and real-time data processing. It is widely used in smart manufacturing, energy management, logistics automation, and other industrial fields.

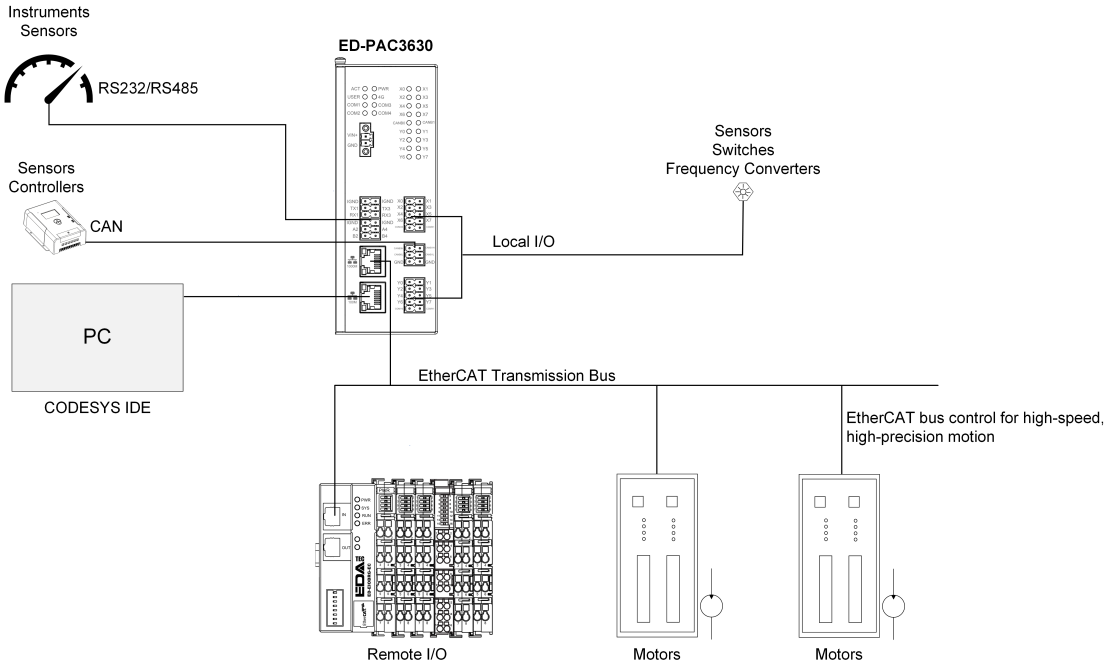
Key Features of CODESYS:

- Standardized Programming Language Support
  - Full compatibility with the IEC 61131-3 programming languages:
    - Ladder Diagram (LD)
    - Function Block Diagram (FBD)
    - Structured Text (ST)
    - Instruction List (IL)
    - Sequential Function Chart (SFC)
  - Supports Object-Oriented Programming (OOP) extensions for large-scale complex projects.
- Cross-Platform Development & Deployment
  - Development Environment: Compatible with Windows and Linux operating systems, offering a unified engineering interface.
  - Target Systems: Deployable on 2,000+ industrial controller hardware platforms, including ARM/X86 architectures.
- Modular Engineering Libraries
  - Prebuilt Libraries: Include industrial protocol stacks (Modbus/TCP, OPC UA, EtherCAT) and advanced control modules (PID control, CNC interpolation algorithms).
  - Custom Libraries: Support encapsulation and reuse of Function Blocks and POUs (Program Organization Units).
- Visual Debugging & Diagnostic Tools
  - Real-time monitoring of variables, I/O mapping, and task execution status with waveform analysis.
  - Advanced debugging tools: breakpoints, step-by-step execution, and cross-referencing for rapid fault diagnosis.
  - Integrated HMI development tools for seamless SCADA system integration.

The ED-PAC3630 supports CODESYS V3.5 SP19 and later versions.

1.3 Networking Application

The ED-PAC3630 features EtherCAT, Ethernet, RS485, RS232, DI, DO, and CAN interfaces, enabling multi-layer network communication to meet diverse application requirements across various scenarios. A typical application topology is illustrated in the figure below:



1.4 Packing List

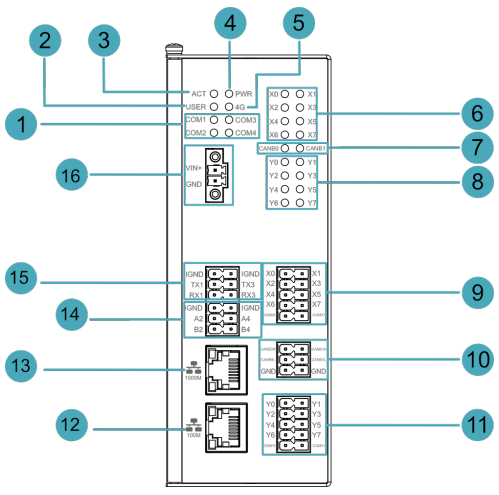
- 1 x ED-PAC3630 Unit

1.5 Appearance

Introducing the functions and definitions of the interfaces on each panel.

1.5.1 Front Panel

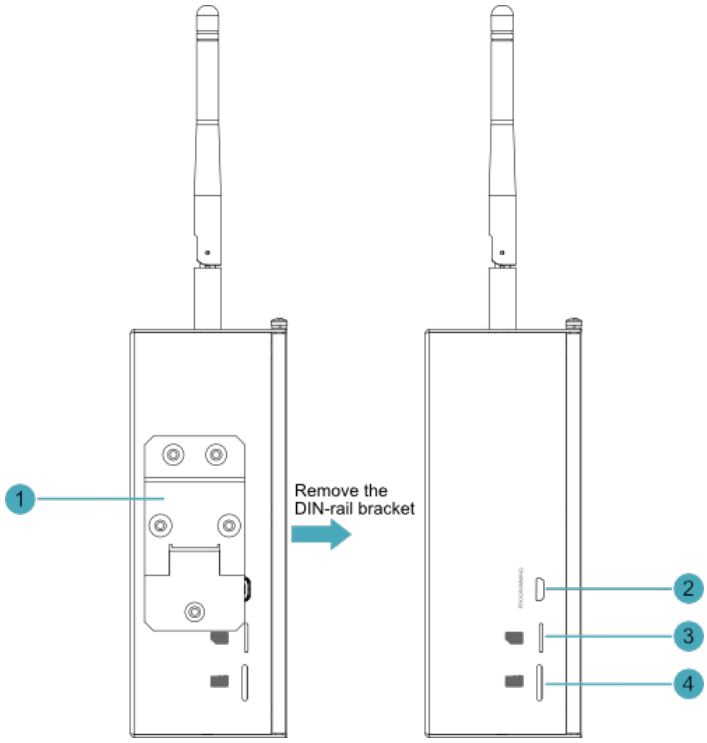
Introducing front panel interface types and definitions.



NO.	Function Definition
1	4 x green UART indicators, which is used to check the communication status of UART port.
2	1 x green user indicator, user can customize a status according to actual application.
3	1 x green system status indicator, which is used to view the status of system read/write operations.
4	1 x red power indicator, which is used to check the status of device power-on and power-off.
5	1 x green 4G indicator, reserving location (currently unused).
6	8 x green DI indicators, which is used to check the communication status of DI signal.
7	2 x green CAN indicators, which is used to check the communication status of CAN signal.
8	8 x green DO indicators, which is used to check the communication status of DO signal.
9	8 x DI ports, 10-Pin 3.5mm pitch phoenix terminals, which is used to connect third-party sensors.
10	2 x CAN ports, 6-Pin 3.5mm pitch phoenix terminals, which is used to connect third-party control equipment.
11	8 x DO ports, 10-Pin 3.5mm pitch phoenix terminals, which is used to connect third-party load.
12	1 x 10/100M adaptive ethernet port, RJ45 connector, with led indicator. It can be used to access the network.
13	1 x 1000M Ethernet port (RJ45), EtherCAT communication interface for connecting to EtherCAT networks.
14	2 x RS485 ports, 6-Pin 3.5mm pitch phoenix terminal, which is used to connect the third-party control equipment.
15	2 x RS2325 ports, 6-Pin 3.5mm pitch phoenix terminal, which is used to connect the third-party control equipment.
16	1 x DC input, 2-Pin 3.5mm pitch phoenix terminals with screw holes. It supports 9V~36V input, the signal is defined as VIN+/GND.

1.5.2 Rear Panel

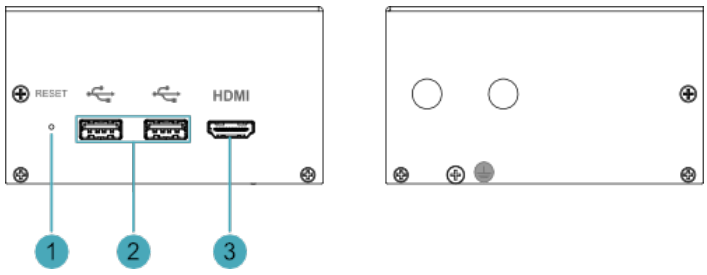
Introducing rear panel interface types and definitions.



NO.	Function Definition
1	1 x DIN rail mounting bracket, using to mount the ED-PAC3630 unit onto a DIN rail.
2	1 x Micro USB port, it supports to flash to eMMC for the system. Note: The ED-PAC3630 device comes pre-installed with a valid CODESYS license by default. Reinstalling the operating system will invalidate the CODESYS license. Do not attempt to install the OS on your own.
3	1 x Nano SIM card slot, reserving for 4G expansion functionality (currently unused).
4	1 x Micro SD card slot, it supports the installation of Micro SD card for storing user data.

1.5.3 Side Panel

Introducing side panel interface types and definitions.



NO.	Function Definition
1	1 x Reset button, hidden button, press the button to restart the device.
2	2 x USB 2.0 ports, type A connector, each channel supports up to 480Mbps transmission rate.
3	1 x HDMI port, type A connector, which is compatibles with HDMI 2.0 standard and supports 4K 60Hz. It supports to connect a displayer.

1.6 Button

ED-PAC3630 device includes a RESET button, which is a hidden button, and the silkscreen on the case is "RESET". Pressing the RESET button will reset the device.

1.7 Indicator

This section explains the status and meanings of the indicators integrated into the ED-PAC3630 device.

Indicator	Status	Description
PWR	On	The device has been powered on.
	Blink	Power supply of the device is abnormal, please stop the power supply immediately.
	Off	The device is not powered on.
ACT	Blink	The system started successfully and is reading and writing data.
	Off	The device is not powered on or does not read and write data.
USER	On	User can customize a status according to actual application.
	Off	The device is not powered on or not defined by the user, and the default status is off.
Yellow indicator of Ethernet port	On	The data transmission is abnormal.
	Blink	Data is being transmitted over the Ethernet port.
	Off	The Ethernet connection is not set up.
Green indicator of Ethernet port	On	The Ethernet connection is in the normal state.
	Blink	The Ethernet connection is abnormal.
	Off	The Ethernet connection is not set up.
COM1~COM4	On/Blink	Data is being transmitted.
	Off	The device is not powered on or there is no data transmission.
X0 ~ X7	On/Blink	The input signal has been detected.
	Off	The device is not powered on or there is no data transmission.
CANB0 ~ CANB1	On/Blink	Data is being transmitted.

Indicator	Status	Description
	Off	The device is not powered on or there is no data transmission.
Y0 ~ Y7	On/Blink	The output signal has been detected.
	Off	The device is not powered on or there is no data transmission.

1.8 Interface

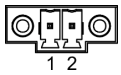
Introducing the definitions and functions of each interface in the ED-PAC3630.

1.8.1 SD Card Slot

The ED-PAC3630 device includes one Micro SD card slot, labeled as "  ", supporting installing a Micro SD card for user data storage.

1.8.2 Power Interface

ED-PAC3630 device includes one power input, 2-Pin 3.5mm pitch phoenix terminals with screw holes. The silkscreen of port is "VIN+/GND", and the pins are defined as follows.



Pin ID	Pin Name
1	GND
2	9V~36V

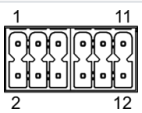
1.8.3 RS485/RS232 Interface

The ED-PAC3630 device includes 2 x RS485 interfaces and 2 x RS232 interfaces.

- Each RS485 interface is labeled "IGND/A/B".
- Each RS232 interface is labeled "IGND/TX/RX".
- Terminal pitch: 3.5mm.

Pin Definition

Terminal pins are defined as follows:



Pin ID	Pin Name
1	RS485-2_B
2	RS485-4_B
3	RS485-2_A

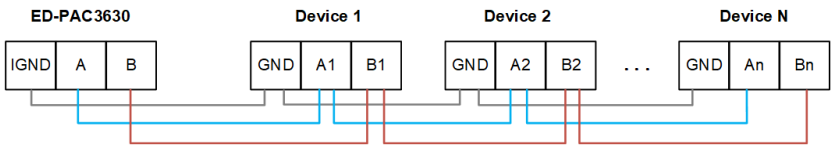
4	RS485-4_A
5	GND
6	GND
7	RS232-1_RX
8	RS232-3_RX
9	RS232-1_TX
10	RS232-3_TX
11	GND
12	GND

The pin names of the RS485 and RS232 ports corresponding to CM5 are as follows:

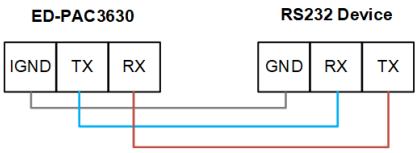
Signal	CM5 GPIO Name	CM5 Pin Out
RS485-2_B	GPIO13	UART5_RXD
RS485-4_B	GPIO9	UART4_RXD
RS485-2_A	GPIO12	UART5_TXD
RS485-4_A	GPIO8	UART4_TXD
RS232-1_RX	GPIO5	UART4_RXD
RS232-3_RX	GPIO1	UART2_RXD
RS232-1_TX	GPIO4	UART3_TXD
RS232-3_TX	GPIO0	UART2_TXD

Connecting Cables

The RS485 wiring schematic is as follows:



The RS232 wiring schematic is as follows:



RS485 Terminating Resistor Configuration

The ED-PAC3630 includes 2 RS485 channels. A 120Ω terminating resistor is pre-installed between the A and B lines of each RS485 channel. Inserting a jumper cap enables this terminating resistor. By default, the jumper cap is not inserted, rendering the 120Ω terminating resistor function disabled.

The locations of the 120Ω terminating resistors on the PCBA (Printed Circuit Board Assembly) and their corresponding COM ports are detailed in the table below.

Location on PCBA	Corresponding COM Port	Physical Position of COM Port
J24	COM4	
J22	COM2	

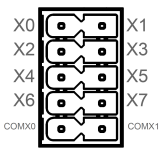
> TIP
>
> The device housing needs to be opened to locate the position of the 120Ω terminating resistor.

1.8.4 DI Interface

The ED-PAC3630 device includes 8 digital input (DI) channels.

- Every 4 DI channels share 1 common terminal (COM):
  - X0, X2, X4, X6 → Share COMX0
  - X1, X3, X5, X7 → Share COMX1

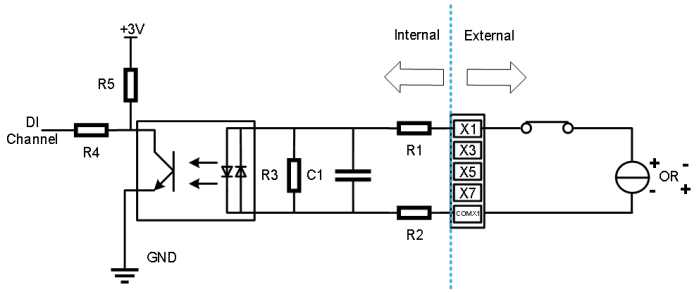
Terminal pin definitions are as follows:



Pin ID	Pin Name
1	X0
2	X1
3	X2
4	X3
5	X4
6	X5
7	X6
8	X7
9	COMX0
10	COMX1

Connecting Cables

Schematic diagram of a single DI wire is as follows:



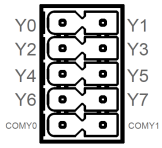
Parameter	Description
Input Type	NPN, PNP
Isolation Protection	5kV
COM	Every 4 DI share one common pin (called COM): • X0, X2, X4 and X6 share COMX0 • X1, X3, X5 and X7 share COMX1
DI to COM	• ON state: 5~30 VDC • OFF state: 0~2 VDC

1.8.5 DO Interface

The ED-PAC3630 device includes 8 digital output (DO) channels.

- Every 4 DO channels share 1 common terminal (COM):
  - Y0, Y2, Y4, Y6 → Share COMY0
  - Y1, Y3, Y5, Y7 → Share COMY1

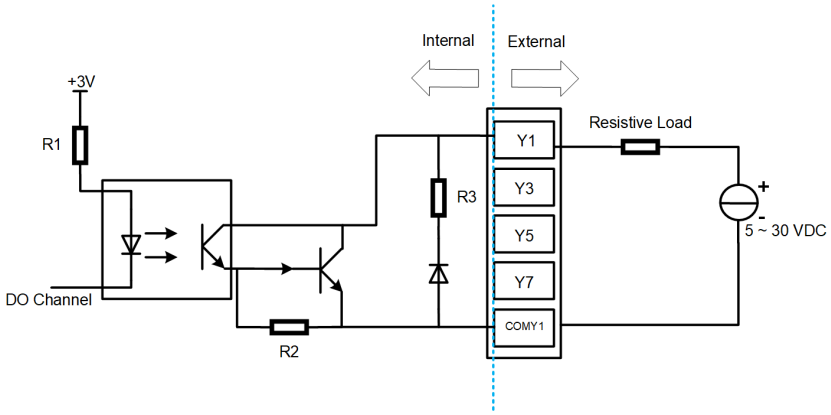
Terminal pin definitions are as follows:



Pin ID	Pin Name
1	Y0
2	Y1
3	Y2
4	Y3
5	Y4
6	Y5
7	Y6
8	Y7
9	COMY0
10	COMY1

Connecting Cables

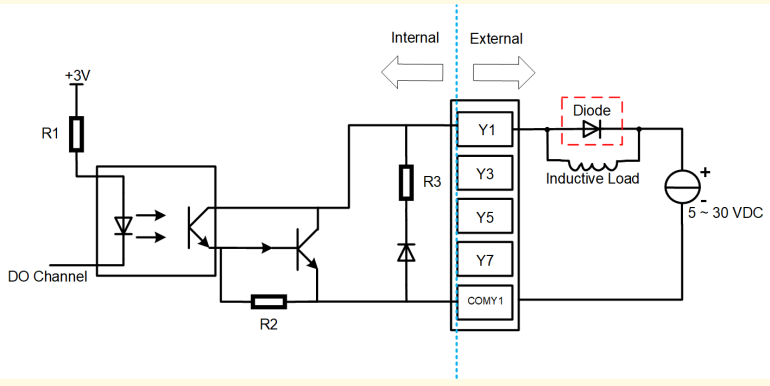
Schematic diagram of a single DO wire is as follows:



Parameter	Description
Output Type	Transistor
Isolation Protection	5kV
COM	Every 4 DI share one common pin (called COM): • Y0, Y2, Y4 and Y6 share COMY0 • Y1, Y3, Y5 and Y7 share COMY1
Output	5~30 VDC (24 VDC is recommended), maximum current is 1.5A (per channel)

WARNING

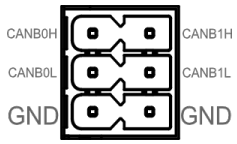
If an inductive load is connected to the DO channel, it is recommended to add a Diode in the circuit (as shown in the figure below) for protection. Select an appropriate Diode based on the specifications of the inductive load.



1.8.6 CAN Interface

The ED-PAC3630 device includes 2 channels of CAN interfaces. The terminal pin definitions are as follows:

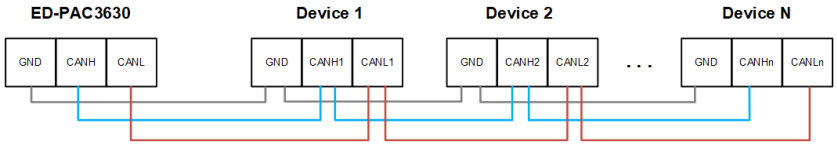
	Pin ID	Pin Name



1	CANB0H
2	CANB1H
3	CANB0L
4	CANB1L
5	GND
6	GND

Connecting Cables

Schematic diagram of CAN wires is as follows:



1.8.7 1000M Ethernet Interface (EtherCAT)

The ED-PAC3630 device includes 1 auto-sensing 10/100/1000M Ethernet port, labeled as "1000M".

- Connector type: RJ45.
- Default configuration: EtherCAT communication interface, supporting connection to EtherCAT networks.
- Recommended cable: Category 6 (Cat6) or higher Ethernet cables for optimal performance.

1.8.8 100M Ethernet Interface

The ED-PAC3630 device includes 1 auto-sensing 10/100M Ethernet port, labeled as "100M".

- Connector type: RJ45.
- Recommended cable: Category 6 (Cat6) or higher Ethernet cables for optimal performance.

1.8.9 HDMI Interface

The ED-PAC3630 device includes 1 HDMI port, labeled as "HDMI", which is a standard Type-A connector. It supports connecting to HDMI displays and delivers video output up to 4K resolution at 60Hz (4K@60Hz).

1.8.10 USB 2.0 Interface

The ED-PAC3630 device includes 2 x USB 2.0 ports, labeled as "", which are standard Type-A connectors. They support to connect USB 2.0 peripherals, the maximum transfer rate is 480Mbps.

1.8.10 Micro USB Interface

The ED-PAC3630 devices include one Micro USB port, labeled as "PROGRAMMING". It is used to connect to a PC for programming the device's eMMC storage.

> WARNING
>
> The ED-PAC3630 device comes pre-installed with a valid CODESYS license by default. Reinstalling the operating system will invalidate the CODESYS license. Do not attempt to install the OS on your own.

1.9 Introduction to Supercapacitor

The ED-PAC3630 integrates a supercapacitor backup power supply with the following functionalities:

- Power-Loss Data Retention:
  - When the device loses power unexpectedly, the supercapacitor provides temporary power to critical circuits.
  - Duration:
    - Up to ~1 minute under light loads.
    - ~30 seconds under heavy loads.
  - Ensures critical data (e.g., program states, counter/timer values) is preserved during sudden outages.
  - Vital for industrial applications requiring rapid recovery and zero data loss after power restoration.
- Real-Time Clock (RTC) Maintenance:
  - Powers the RTC circuit during main power failures to maintain accurate timekeeping.
  - Essential for timestamping events and maintaining operational logs.
- Orderly Shutdown Support:
  - Enables controlled shutdown procedures during power loss.
  - Provides energy to safely:
    - Halt active processes (e.g., complex computations).
    - Close communication ports.
    - Deactivate functional modules per predefined protocols.

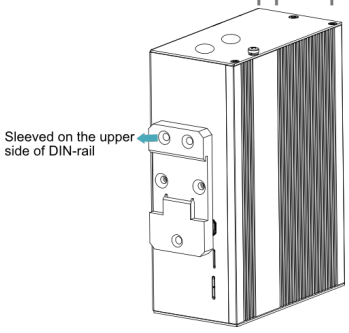
> TIP
>
> The supercapacitor requires at least 5 minutes of charging after the device is powered on to ensure full functionality.

2 Installing The Device

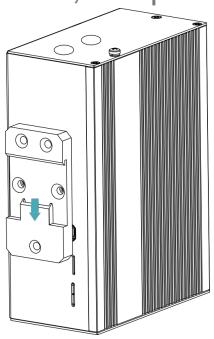
The ED-PAC3630 supports DIN rail installation. A DIN rail mounting bracket is pre-installed as standard.

Steps:

1. Position the device with the side containing the mounting bracket facing the DIN rail to be installed. Hook the upper part of the bracket onto the top edge of the DIN rail.



2. Press down on the locking tab at the lower part of the bracket until it snaps into place on the DIN rail, completing the installation.



3 Booting The Device

This chapter details the specific procedures for connecting cables and powering on the device.

3.1 Connecting Cables

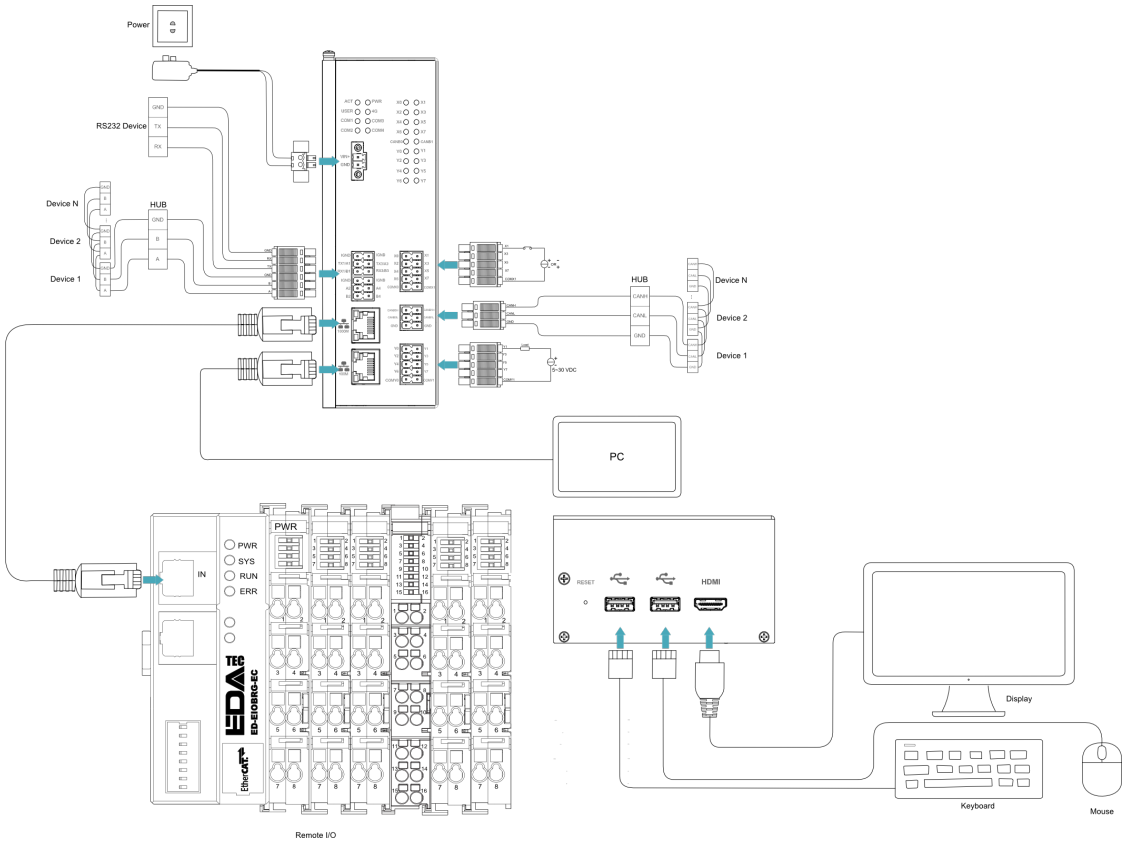
This section describes the procedures for connecting cables to the device.

Preparation:

- Available functional accessories: Monitor, mouse, keyboard, I/O expansion module, and power adapter.
- Available functional network connection.
- Available functional cables: HDMI cable and Ethernet cable.

Schematic diagram of connecting cables:

Please refer to 1.8 Interface for the pin definition of each interface and the specific method of wiring.



3.2 Booting The System For The First Time

The ED-PAC3630 has no power switch. When connected to power, the system will begin booting.

- Red PWR indicator: Lights up to indicate the device is receiving power.

- Green ACT indicator: Blinks to signal normal system startup. The Raspberry Pi logo will then appear in the upper-left corner of the screen.

> TIP
>
> Default username is `pi`, default password is `raspberry`.

3.2.1 Raspberry Pi OS (Desktop)

If the device is factory-installed with the Desktop OS, it will boot directly into the desktop interface upon startup, as shown in the figure below.

3.2.2 Raspberry Pi OS (Lite)

If the device is factory-installed with the Lite OS, it will automatically log in using the default credentials after startup. The figure below indicates that the system has booted successfully.

4 CODESYS Programming

This chapter details the specific operations involved in using CODESYS.

> WARNING
>
> The ED-PAC3630 device comes pre-installed with a valid CODESYS license by default. Reinstalling the operating system will invalidate the CODESYS license. Do not attempt to install the OS on your own.

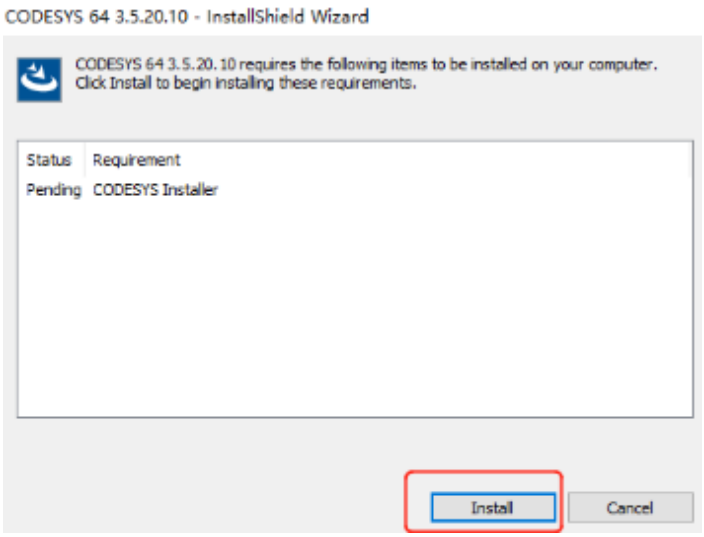
4.1 CODESYS Software Download and Installation

> TIP
>
> The installed CODESYS IDE version must be 3.5.19 or higher, and the PC operating system must be Windows 10 or Windows 11 (64-bit recommended).

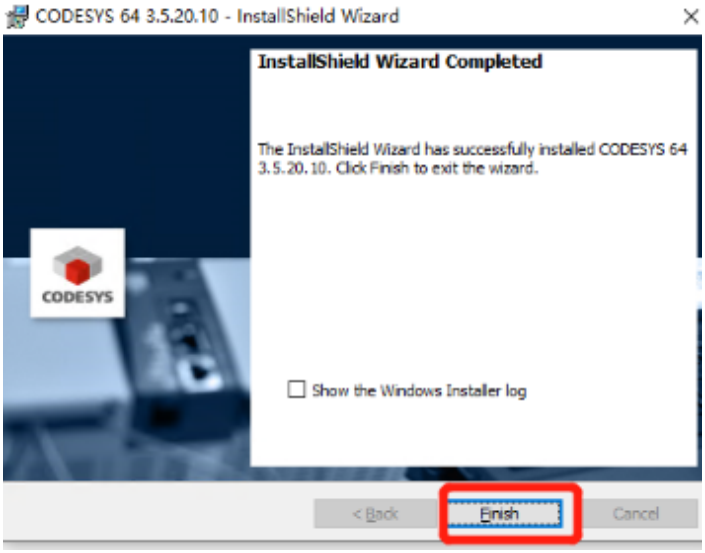
1. Download the installation package from the official CODESYS website. The download URL is https://store.codesys.com/de/ (https://store.codesys.com/de/) .

> TIP
>
> When downloading from the CODESYS official website for the first time, you must first register and log in to your account.

2. Right-click the downloaded installer and select "Run as administrator" from the context menu.
3. Click "Install" in the opened installation interface, and keep the default configuration during the installation process.



4. After the installation is complete, click "Finish" to close the installation interface.



4.2 Obtaining and Installing Device Description File

Before connecting to the device via CODESYS, you need to download and install the device description file first.

4.2.1 Obtaining Device Description File

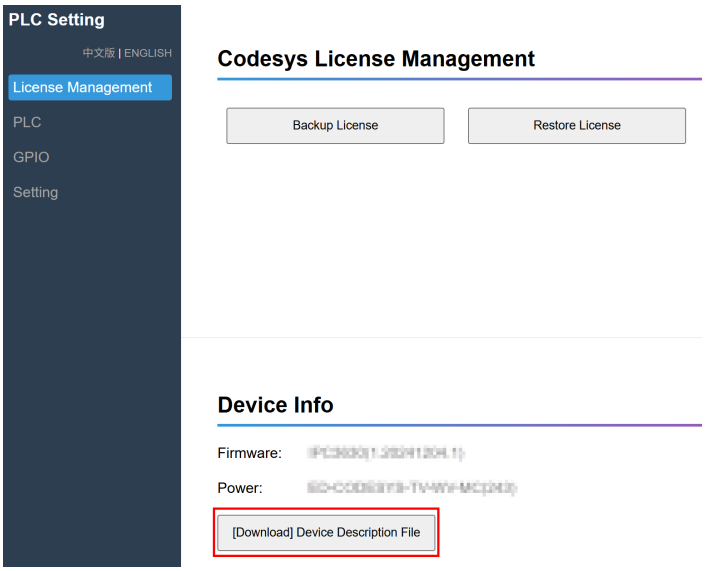
> TIP
>
> The default IP addresses for the device are:
>
> - 100M Ethernet port: 192.168.1.100
> - 1000M Ethernet port (EtherCAT port): 192.168.0.100 If you need to modify these settings, refer to Configuring Ethernet IP.

Preparation:

- A CODESYS-authorized ED-PAC3630 is available.
- A functional Ethernet cable is available.
- A Windows PC is prepared, with its IP address configured to the same subnet as the device. For example, if the device's IP (1000M Ethernet port) is `192.168.0.100`, set the PC's IP to `192.168.0.99`.

Steps:

1. Connect the device's 1000M Ethernet port to the PC via an Ethernet cable, then power on the device.
2. Enter `http://192.168.0.100:8100` in the PC's web browser to access the "PLC Setting" interface.
3. In the "Device Info" section, click the "[Download] Device Description File" button to download the corresponding ".xml" format device description file.



> TIP
>
> The device files are available for download within the documentation. Different CODESYS licenses correspond to different device files. For specific descriptions and download paths, please refer to Device File and Function Correspondence Table.

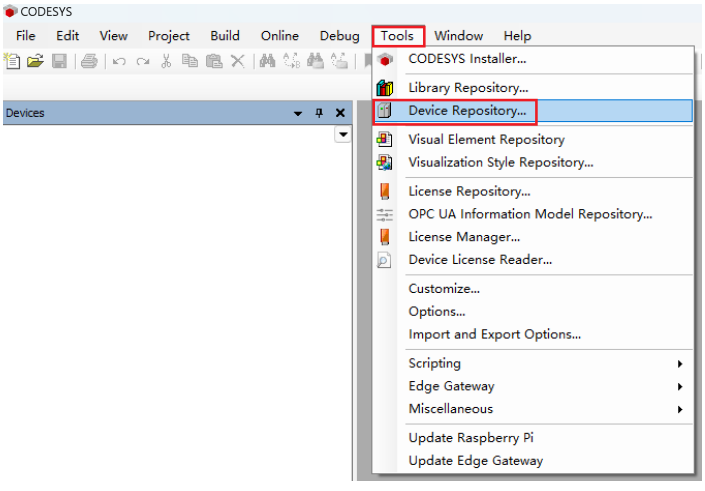
4.2.2 Installing Device Description File

Preparation:

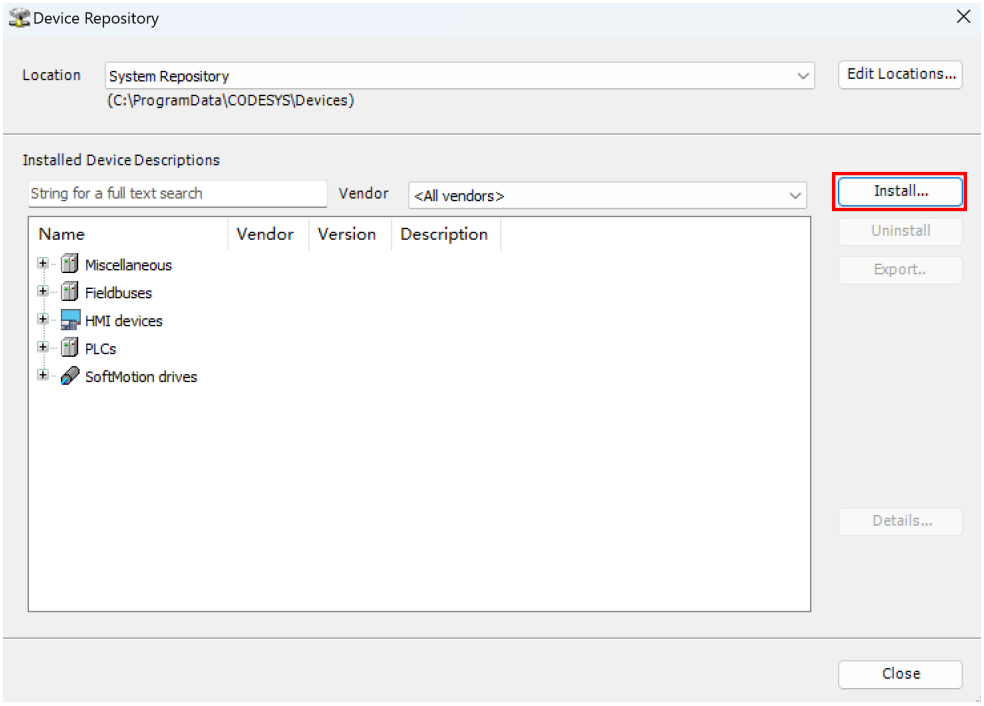
- A PC installed with CODESYS software version V3.5 SP19 (64-bit).
- An ED-PAC3630 device with a valid CODESYS license and its corresponding device description file.
- Connect both the PC and ED-PAC3630 to the network, ensuring their IP addresses are within the same subnet.

Steps:

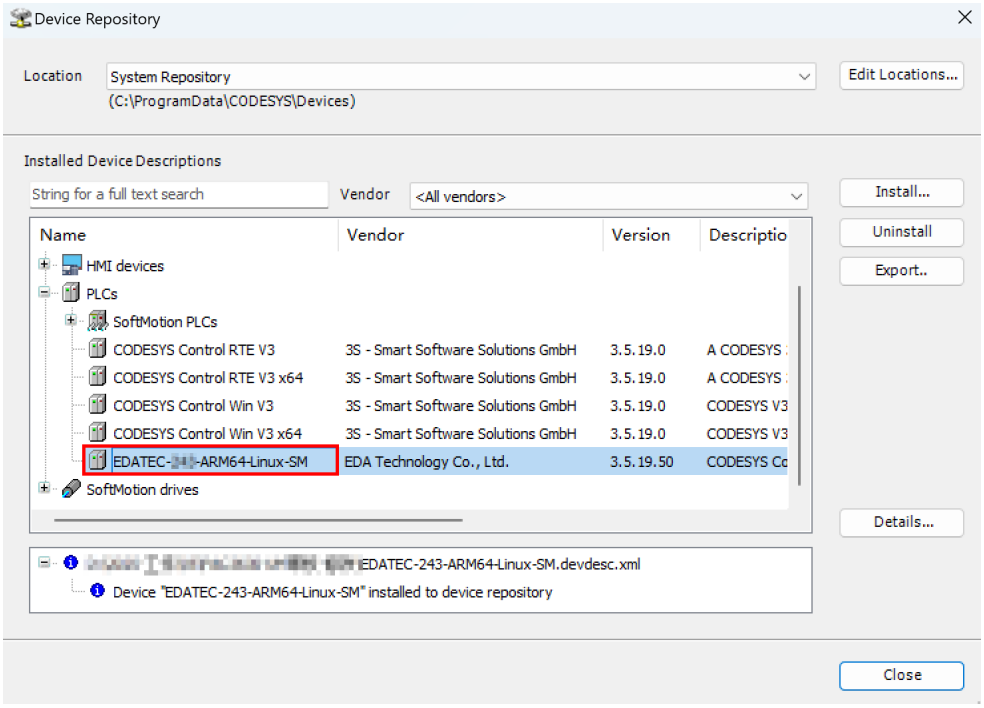
1. Double-click the CODESYS icon on the PC desktop to open the CODESYS software. From the menu bar, select “Tools” → “Device Repository”.



2. In the opened "Device Repository" pane, click "Install".



3. In the pop-up "Install Device Description" pane, select the device description file to be installed and click "Open" to proceed with the installation.
4. After successful installation, you can verify in the "Device Repository" that the device description file have been added successfully.



4.2.3 Installing GPIO Description File

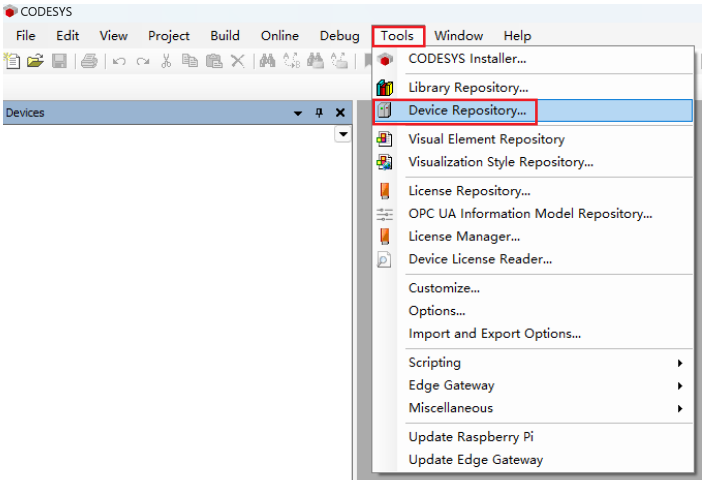
> TIP
>
> If the you need to control DI, DO, or other GPIOs on the device via CODESYS, it is recommended to install the GPIO description file.

Preparation:

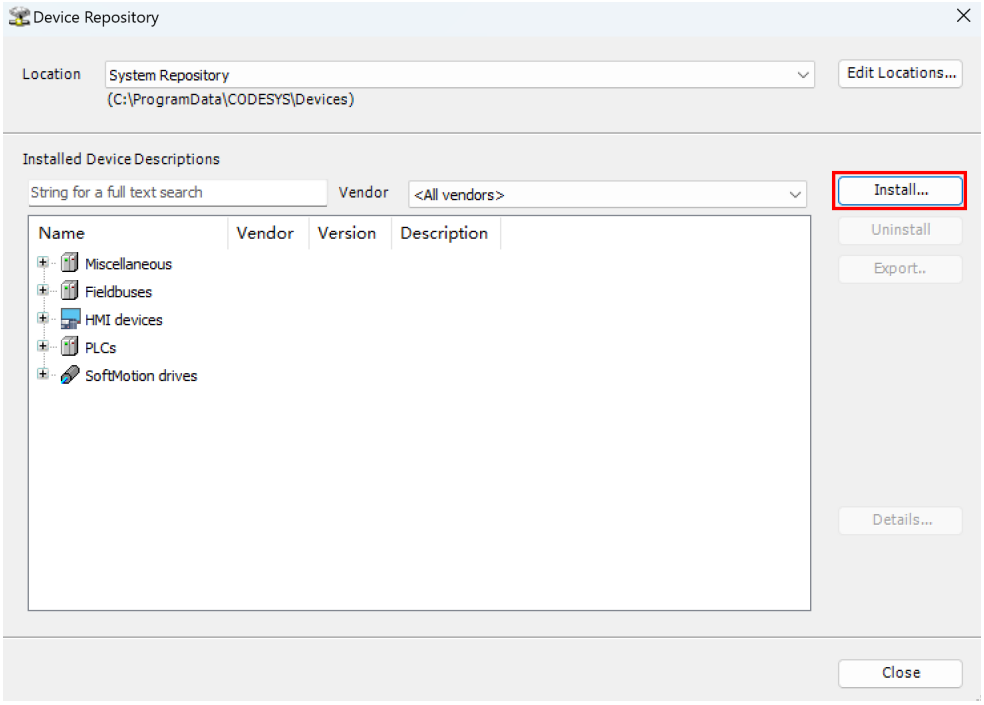
- A PC installed with CODESYS software version V3.5 SP19 (64-bit).
- A CODESYS-authorized ED-PAC3630 device available.
- GPIO description file obtained, with the download link: GPIO Description File (https://vip.123pan.cn/1826505135/17966990) .
- Connect both the PC and ED-PAC3630 to the network, ensuring their IP addresses are within the same subnet.

Steps:

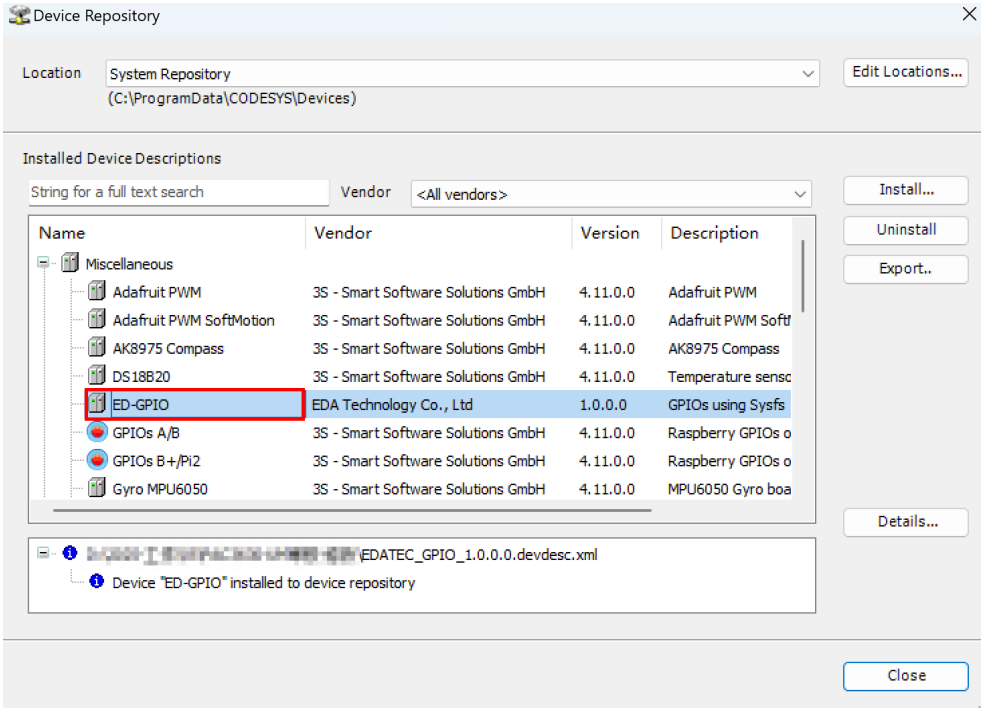
1. Double-click the CODESYS icon on the PC desktop to open the CODESYS software. From the menu bar, select “Tools” → “Device Repository”.



2. In the opened "Device Repository" pane, click "Install".



3. In the pop-up "Install Device Description" pane, select the GPIO description file to be installed and click "Open" to proceed with the installation.
4. After successful installation, you can verify in the "Device Repository" that the GPIO description file have been added successfully.



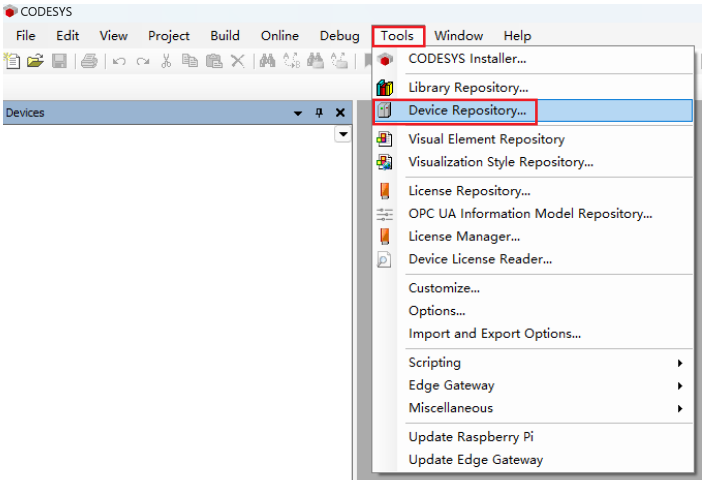
4.2.4 Installing Remote I/O Device Description File

Preparation:

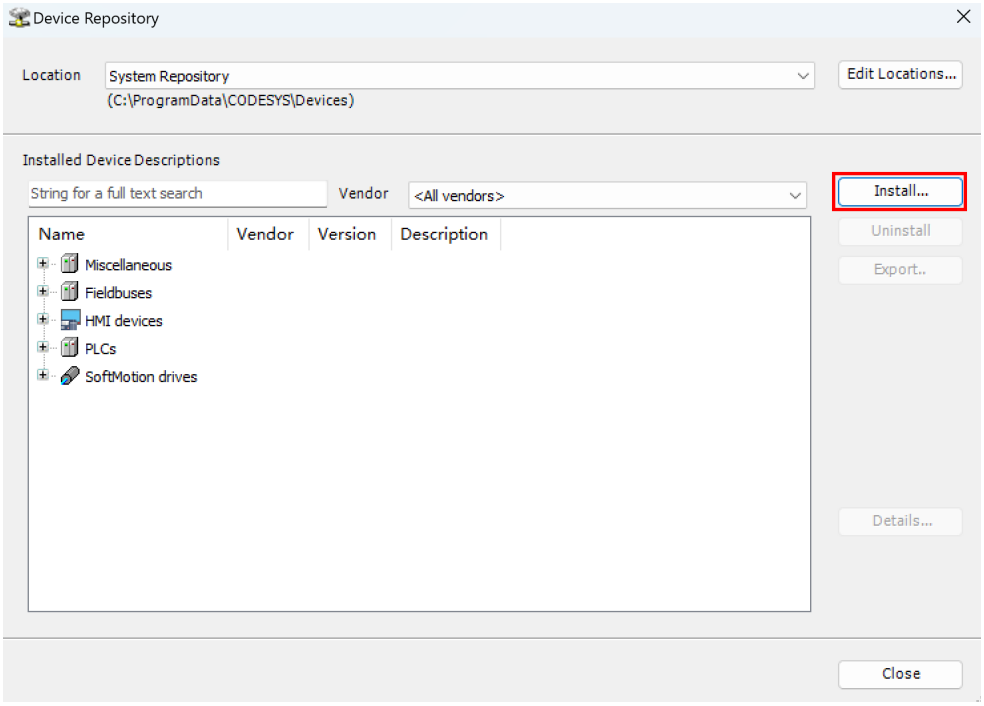
- A PC installed with CODESYS software version V3.5 SP19 (64-bit).
- A CODESYS-authorized ED-PAC3630 device available.
- Remote I/O device description file obtained, with the download link: Remote I/O Description File (https://vip.123pan.cn/1826505135/16632390) .
- Connect both the PC and ED-PAC3630 to the network, ensuring their IP addresses are within the same subnet.

Steps:

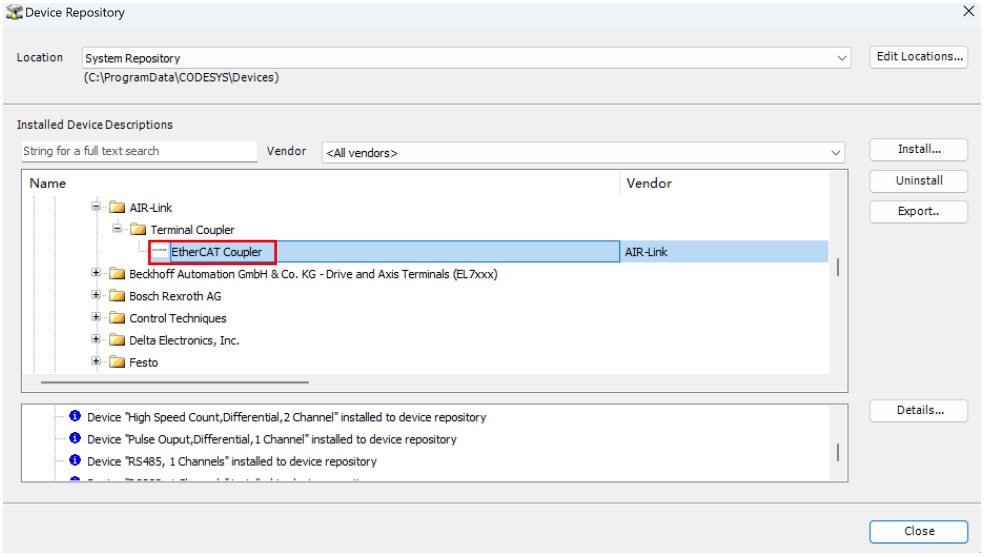
1. Double-click the CODESYS icon on the PC desktop to open the CODESYS software. From the menu bar, select “Tools” → “Device Repository”.



2. In the opened "Device Repository" pane, click "Install".



3. In the pop-up "Install Device Description" pane, select the I/O device decirption file to be installed and click "Open" to proceed with the installation.
4. After successful installation, you can verify in the "Device Repository" that the I/O device description file have been added successfully.



4.3 Hardware Configuration

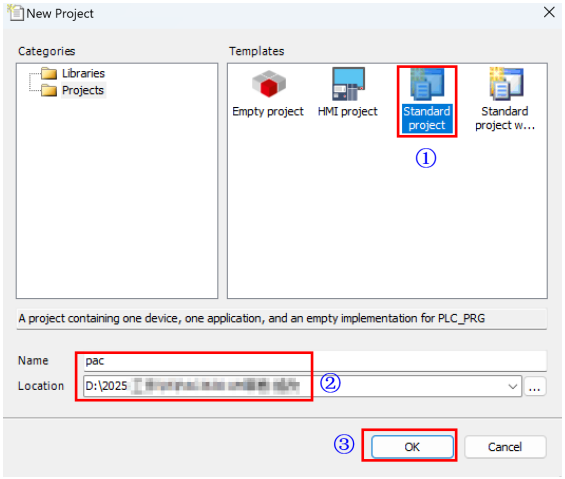
Preparation:

- A PC with CODESYS software version V3.5 SP19 (64-bit) installed, configured to operate on the same subnet as the device.
- Device description file, remote I/O device description file, and GPIO description file have been installed.
- The remote I/O modules have been connected to the ED-PAC3630's EtherCAT port (Gigabit Ethernet port) via network cable. Configure the IP addresses of the PC, ED-PAC3630, and remote I/O within the same subnet.

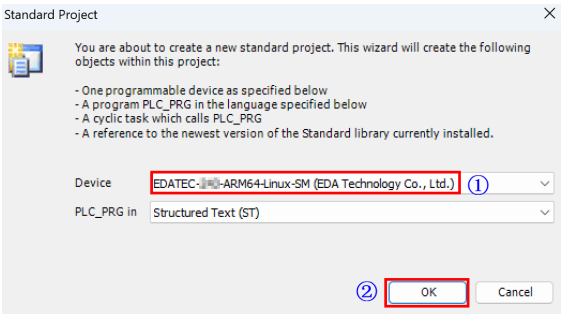
4.3.1 Create a New Project and Connect to the Device

Steps:

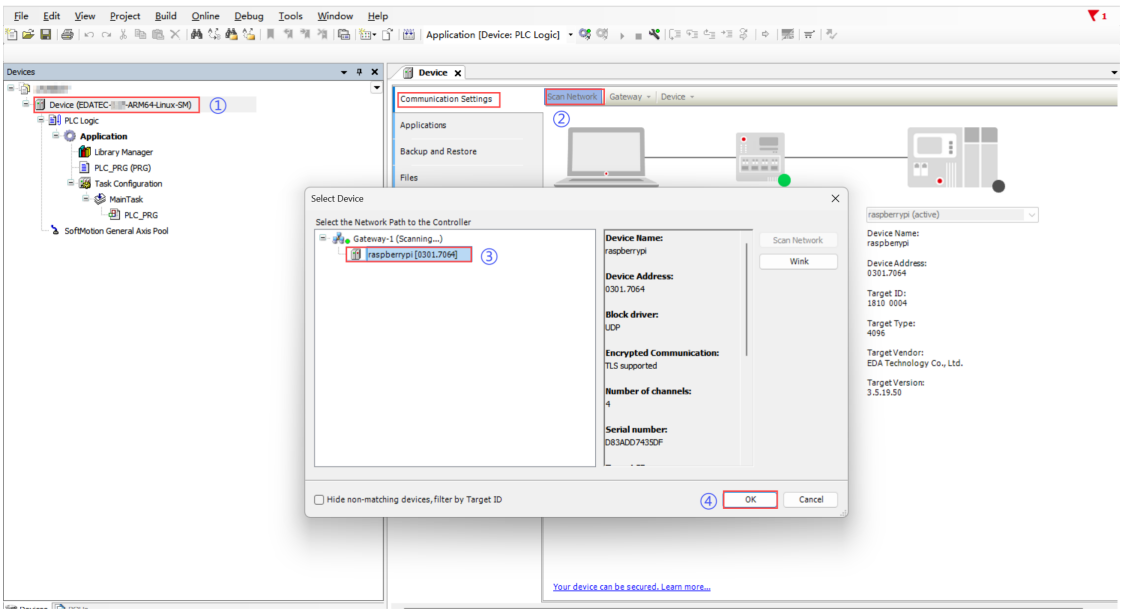
1. Power on the ED-PAC3630 and the remote I/O modules. Open the CODESYS software on the PC, select "File" → "New Project" in the menu bar to open the "New Project" pane, and create a standard project.



2. Select the installed device description file and click "OK".



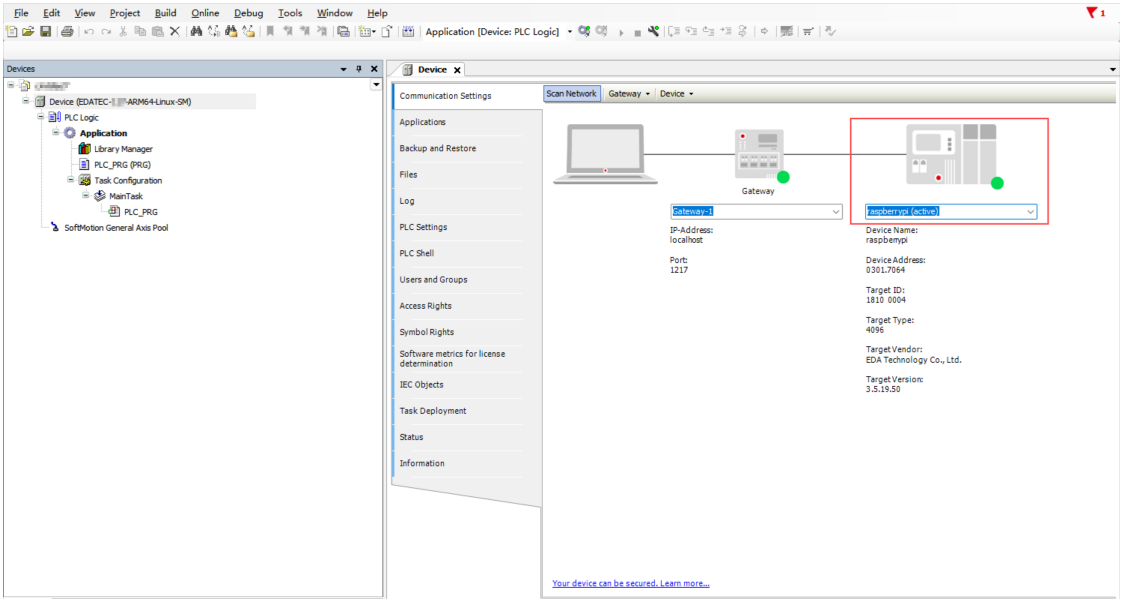
3. Double-click the device, select "Scan Network" on the right, then choose the detected device from the scan results, and click "OK" to confirm.



TIP

- If the device cannot be detected during scanning, manually enter the IP address in the target device settings to connect.
- If a device login prompt appears, log in with your credentials (username and password) or follow the instructions to register a new account.

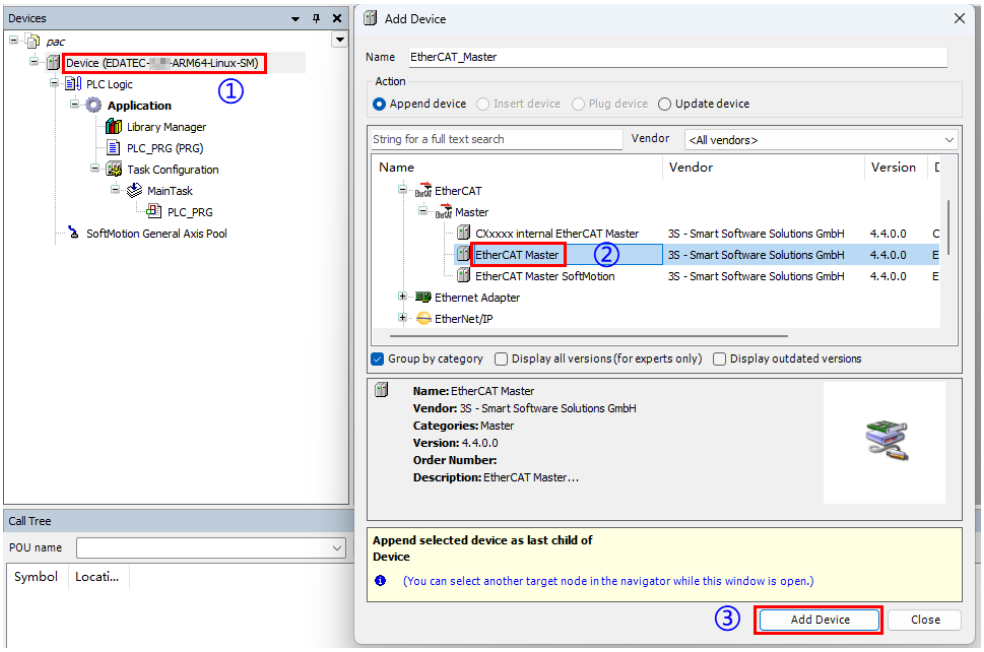
4. As shown in the figure below, this indicates the device is successfully connected.



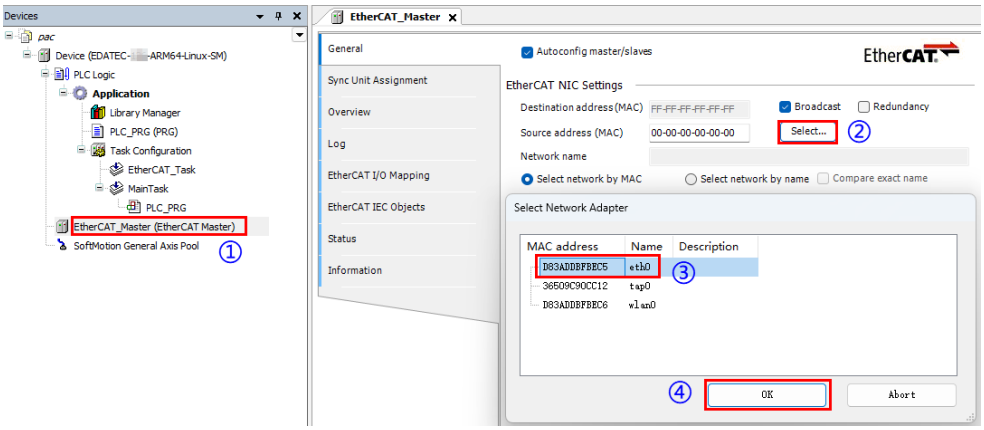
4.3.2 Adding Remote I/O Modules

Steps:

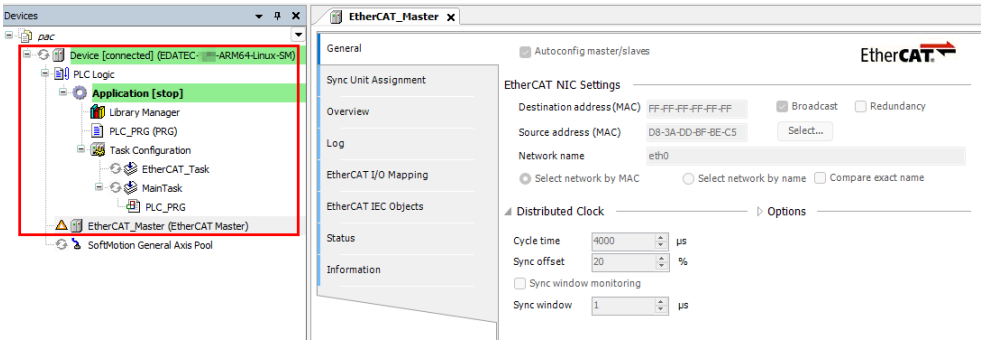
1. Right-click “Device” and select “Add Device” in the menu to add the EtherCAT Master.



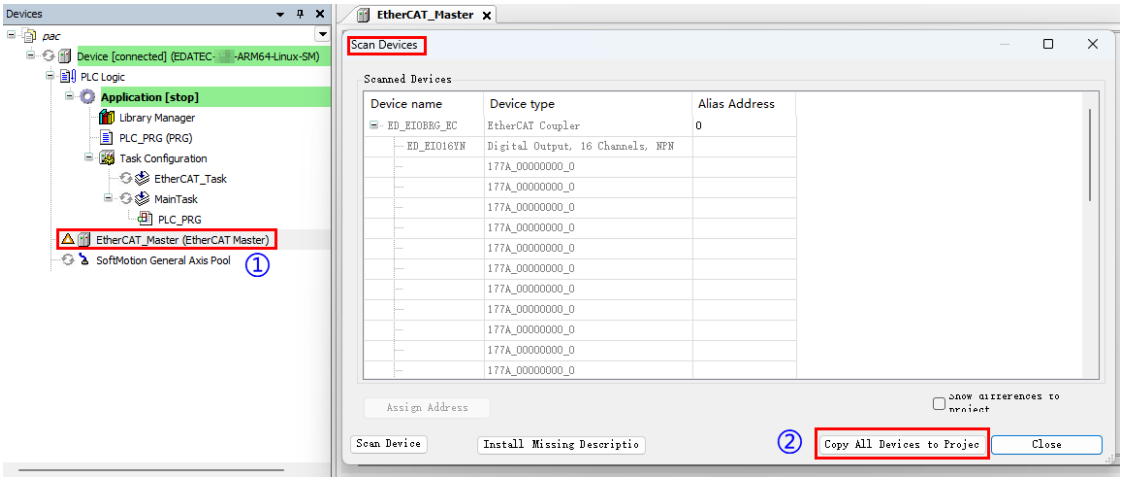
2. Double-click on the EtherCAT Master device to set the source address (Select the EtherCAT port, which corresponds to the device's eth0 port).



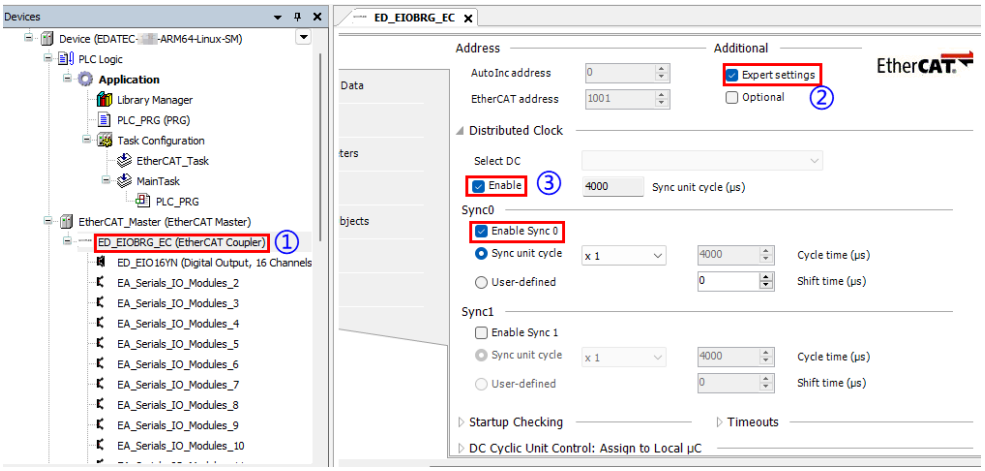
3. Click the button to log in to the device. A successful login is shown in the figure below.



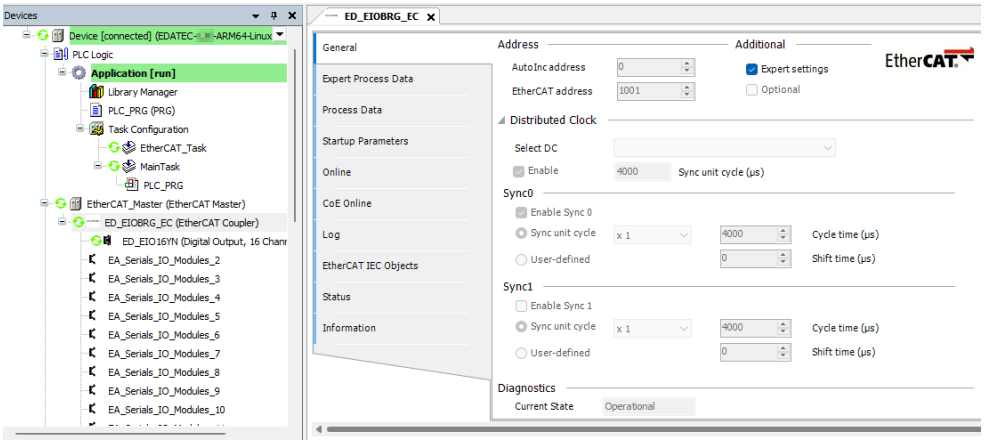
4. Click on the EtherCAT Master device, select “Scan for Devices” in the right-click menu, and copy all devices to the project after scanning is completed.



5. Click the button to log out of the device.
6. Double-click the slave device, configure the relevant parameters in the right-hand interface, enable "Expert settings", select "Enable" under Select DC section, and select "Enable Sync0".

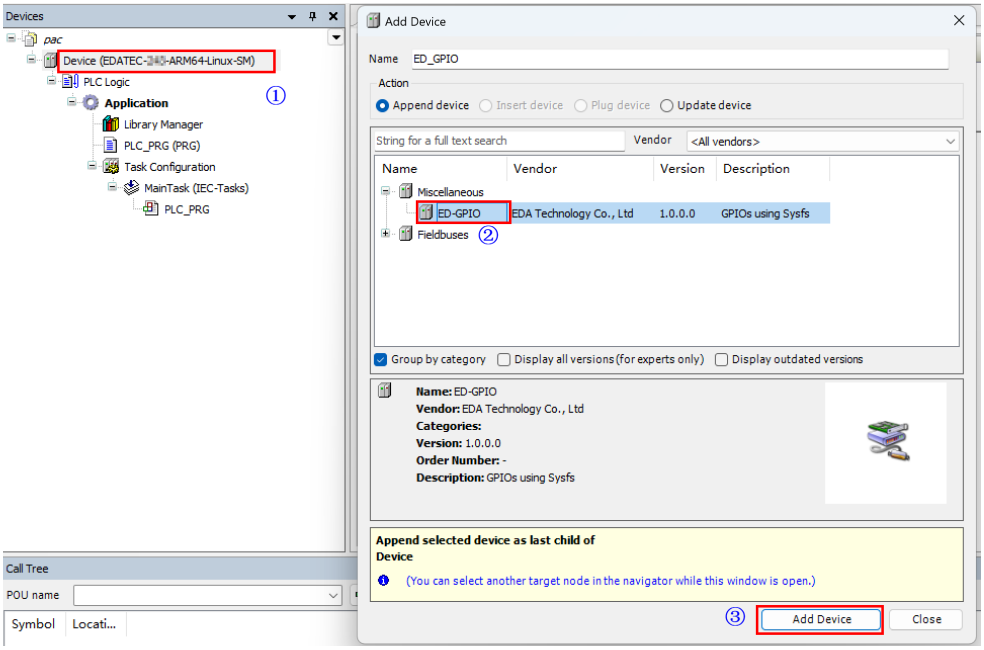


7. Click the button to download the program to the device, then click the button to run it. As shown in the figure below, this indicates a successful operation.

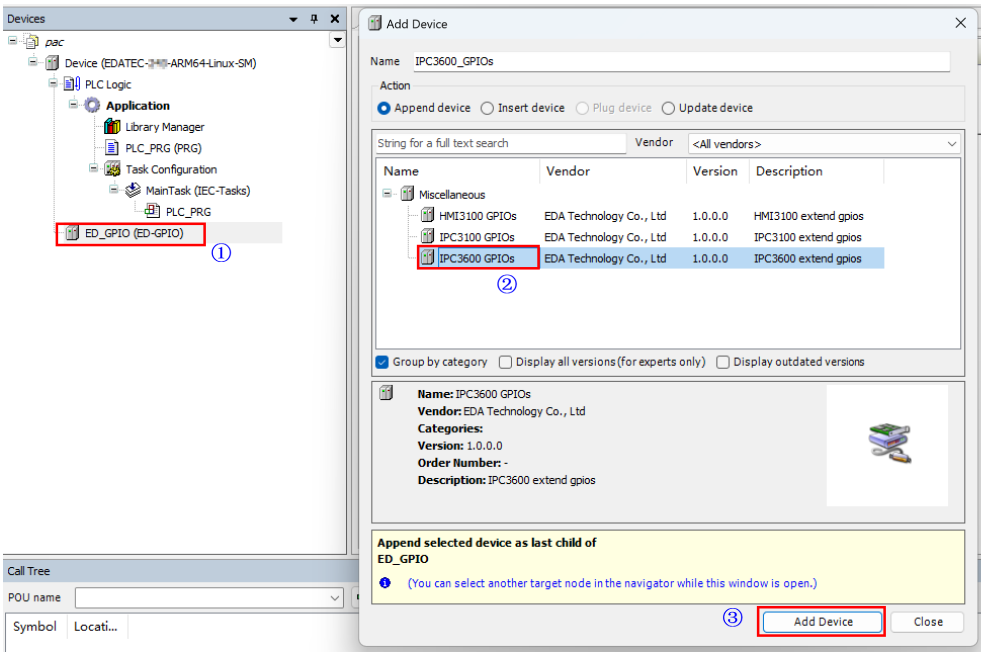


4.3.3 Adding GPIO Module

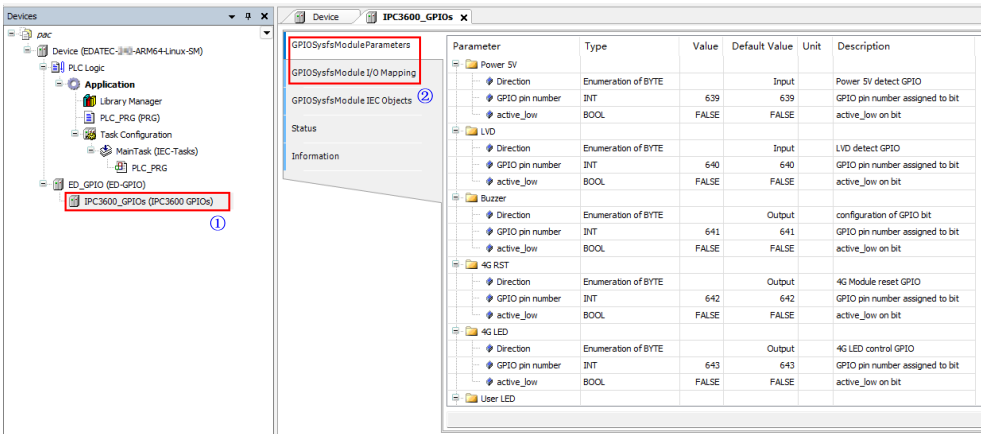
1. Right-click “Device” and select “Add Device” in the menu to add ED-GPIO.



2. Right-click "ED_GPIO", select "Add Device" from the menu, and choose the device to be added.

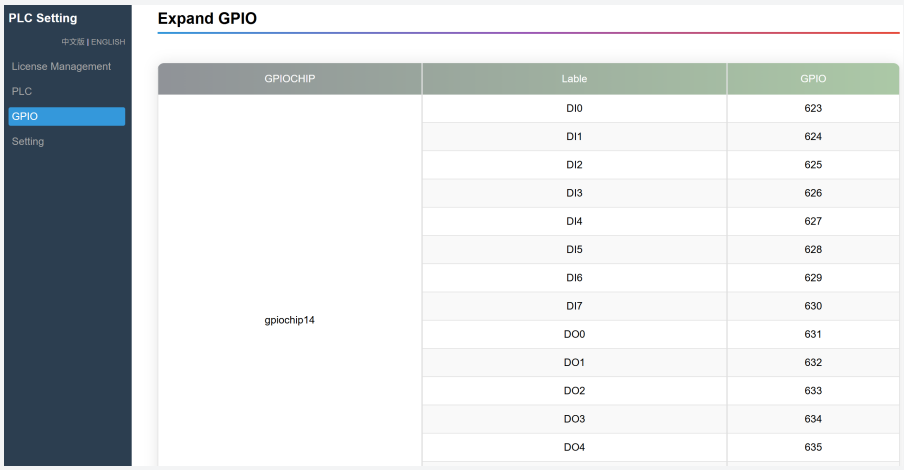


3. The appearance of the corresponding device under the ED_GPIO device directory indicates a successful addition.
4. Double-click the GPIO device to view and control the GPIO in the right-hand interface.



TIP

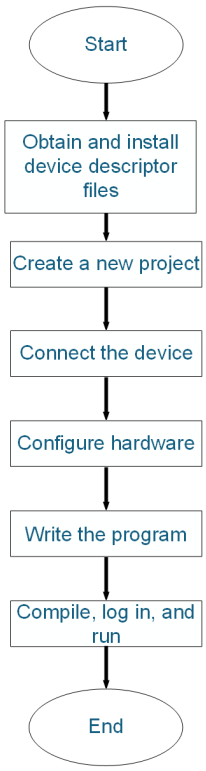
The GPIO numbering may vary between devices. It is recommended to access the "PLC Setting" interface (http://192.168.0.100:8100) to view the device-specific GPIO numbering.



4.4 Programming

The following example demonstrates practical programming using a specific coding scenario.

4.4.1 Programming Process



4.4.2 Programming Example

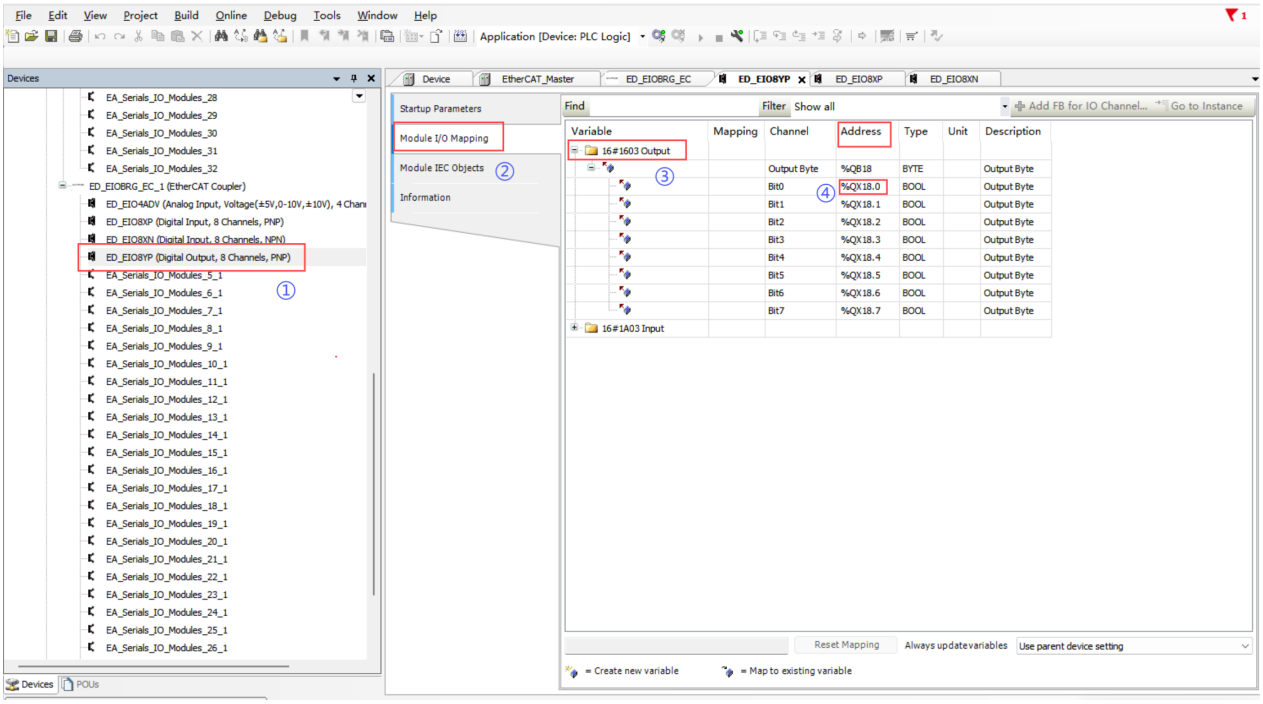
Complete the development and debugging of a program for a timed blinking LED using a PNP-type 8-channel digital output (DO) module.

Preparation:

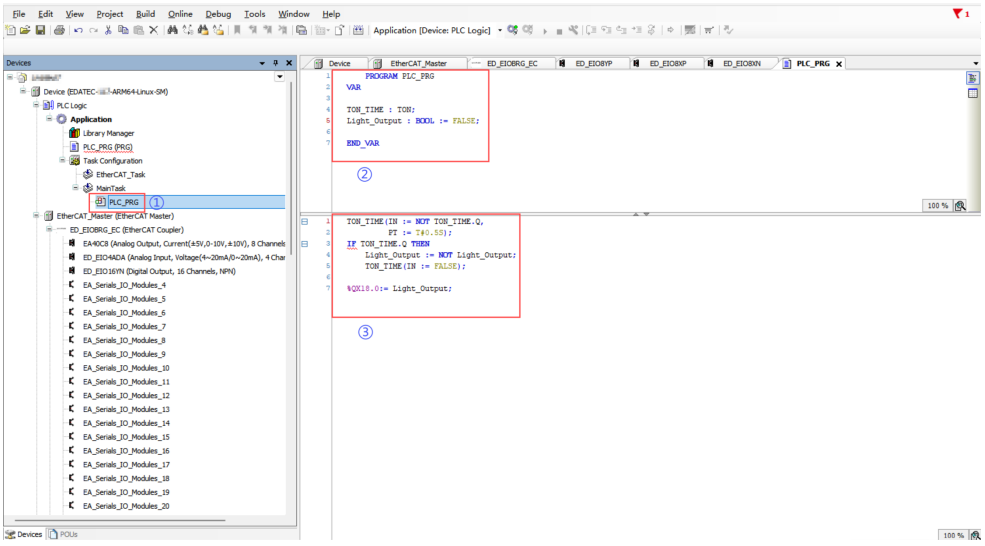
- A standard project has been created.
- Hardware configuration has been completed.
- A 24V compact LED lamp has been connected to the first output port of the remote DO (Digital Output) module.

Steps:

1. Double-click the DO module, select "Module I/O Mapping" → "Output" in the right-hand interface, and view the addresses of all output ports. As illustrated below, the first output port's address is `%QX18.0`.



2. Click "PLC_PLG" to open the programming interface, where the upper section is the variable declaration area and the lower section is the main program editing area.



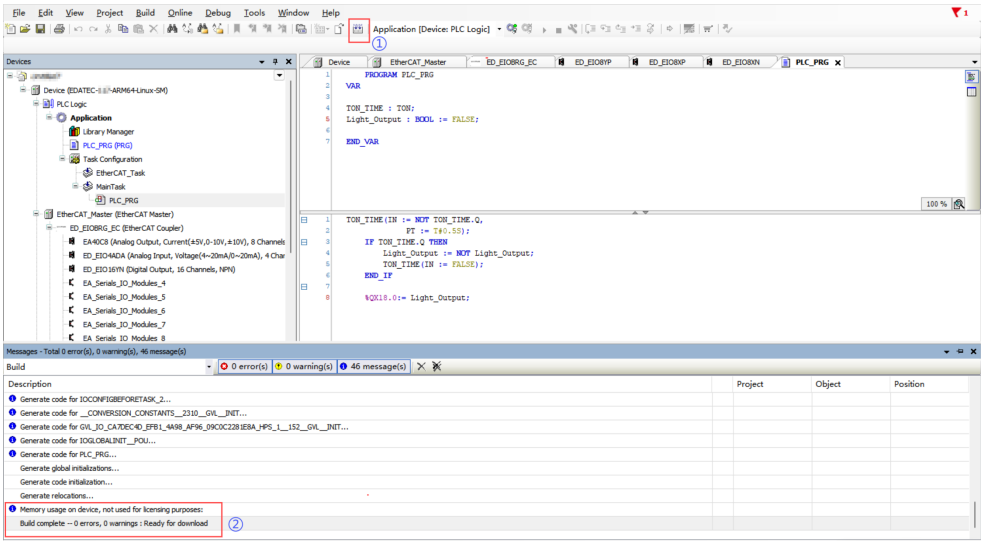
3. Write the program code as follows:

```sh
    PROGRAM PLC_PRG
VAR

TON_TIME : TON;
Light_Output : BOOL := FALSE;

END_VAR
```

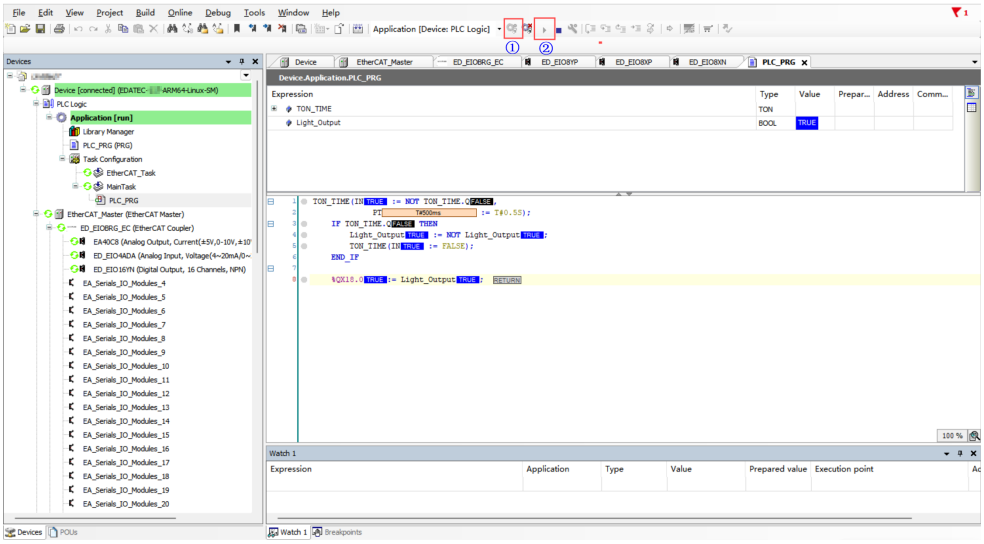
```sh
TON_TIME(IN := NOT TON_TIME.Q,
         PT := T#0.5S);
```

```
IF TON_TIME.Q THEN
    Light_Output := NOT Light_Output;
    TON_TIME(IN := FALSE);
END_IF

%QX18.0:= Light_Output;
```

4. After completing the program, click "" to compile it and ensure there are no errors.



5. Click Login to download the program to the device, then click Run to observe the LED blinking every 0.5 seconds.



4.5 Operation and Maintenance

After downloading the program to the device, you can perform the Run and Stop operations.

Status	Operations
Run Program	In the main menu of the software interface, click the Login button

Status	Operations
Stop Program	In the main menu of the software interface, click the stop  button.

5 Configuring System

This chapter introduces how to configure system.

> WARNING
>
> The ED-PAC3630 device comes pre-installed with a valid CODESYS license by default. Reinstalling the operating system will invalidate the CODESYS license. Do not attempt to install the OS on your own.

5.1 Finding Device IP

Finding Device IP

5.2 Remote Login

Remote Login

5.3 Configuring Storage Devices

Configuring Storage Devices

5.4 Configuring Ethernet IP

Configuring Ethernet IP

5.5 Configuring Buzzer

Configuring Buzzer

5.6 Configuring RTC

Configuring RTC

5.7 Configuring USER Indicator

Configuring USER Indicator

5.8 Configuring Serial Port

This chapter introduces the configuration method of RS232 and RS485.

5.8.1 Installing Picocom Tool

In the Linux environment, you can use the picocom tool to debug the serial ports RS232 and RS485.

Execute the following command to install the picocom tool.

```sh
sudo apt-get install picocom
```

5.8.2 Configuring RS232

ED-PAC3630 includes 2 RS232 ports with corresponding COM ports and device files, as shown in the table below:

Number of RS232 Ports	Corresponding COM Port	Corresponding Device File
2	COM1, COM3	/dev/com1, /dev/com3

Preparation:

The RS232 ports of ED-PAC3630 has been connected with external device.

Steps:

1. Execute the following command to open the serial port com1, and configure the serial port baud rate to 115200.

```sh
picocom -b 115200 /dev/com1
```

2. Input commands as needed to control external device.

5.8.3 Configuring RS485

ED-PAC3630 includes 2 RS485 ports with their corresponding COM ports and device files, as shown in the table below:

Number of RS485 Ports	Corresponding COM Port	Corresponding Device File
2	COM2, COM4	/dev/com2, /dev/com4

Preparation:

The RS485 ports of ED-PAC3630 has been connected with external device.

Steps:

1. Execute the following command to open the serial port com4, and configure the serial port baud rate to 115200.

```sh
picocom -b 115200 /dev/com4
```

2. Input commands as needed to control external device.

5.9 Configuring DI

ED-PAC3630 includes 8 DI ports, which can be configured according to the actual requirement.

Preparation:

The connection of the DI port of the ED-PAC3630 to the external sensor has been completed.

Steps:

1. Execute the following commands in sequence to detect and install the gpiod tool.

```sh
sudo apt update
sudo apt install gpiod
```

2. Execute the following command to read the data from the corresponding DI port.

```sh
gpiofind DI0 | awk '{print substr($0,9)}' | xargs -i bash -c "gpioget {}"
```

- `DI0` indicates the corresponding port number.

5.10 Configuring DO

ED-PAC3630 includes 8 DO ports, which can be configured according to the actual requirement.

Preparation:

The connection of the DO port of the ED-PAC3630 to the external load has been completed.

Steps:

1. Execute the following commands in sequence to detect and install the gpiod tool.

```sh
sudo apt update
sudo apt install gpiod
```

2. Execute the following commands to set the output to high or low.

- Setting the output to a high level.

```sh
gpiofind DO0 | awk '{print substr($0,9)}' | xargs -i bash -c "gpioset {}=1"
```

`DO0` indicates the corresponding port number, `1` indicates that the pin is high level.

- Setting the output to a low level.

```sh
gpiofind DO0 | awk '{print substr($0,9)}' | xargs -i bash -c "gpioset {}=0"
```

`DO0` indicates the corresponding port number, `0` indicates that the pin is low level.

5.11 Configuring CAN

5.11.1 Installing can-utils Tool

Execute the following commands in sequence to detect and install the can-utils tool.

```sh
sudo apt update
sudo apt install can-utils
```

5.11.2 Setting CAN State

Preparation:

The connection of the CAN port of the ED-PAC3630 to external devices has been completed.

Steps:

1. Execute the following command to set the baud rate of the CAN port to 1000000.

```sh
sudo ip link set canb0 type can bitrate 1000000
```

`canb0` is the port number and the values include `canb0` and `canb1`.

2. Execute the following command to open the CAN port.

```sh
sudo ip link set canb0 up
```

`canb0` is the port number and the values include `canb0` and `canb1`.

3. Execute the following command to set up the CAN port for communication.

- Receive data:

```sh
candump canb0
```

- Send data:

```sh
cansend canb0 123#1122334455667788
```

`canb0` is the port number and the values include `canb0` and `canb1`.

`123#1122334455667788` is the message to be sent, which can be customised by the user according to the format.

5.12 CODESYS License Management

The ED-PAC3630 device comes pre-installed with a CODESYS license by default. You can back up and restore the license by accessing the "PLC Setting" interface.

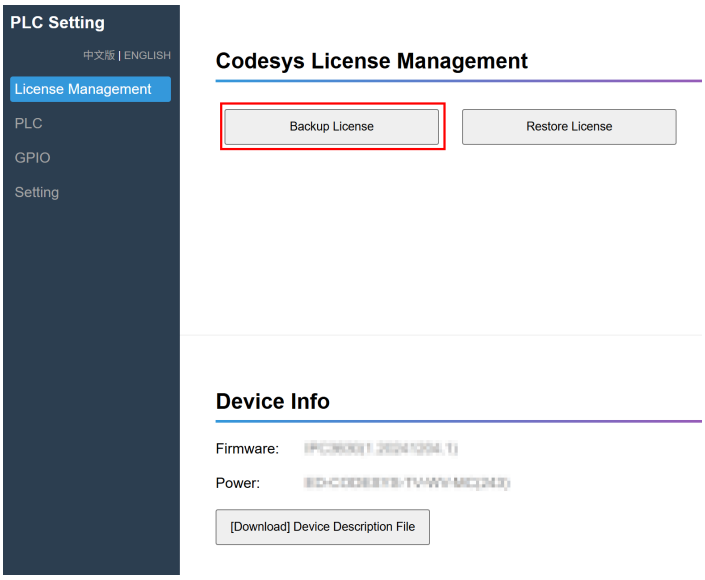
5.12.1 License Backup

Preparation:

- A Windows PC has been set up with an IP address in the same subnet as the device. For example, if the device's IP (1000M Ethernet port) is `192.168.0.100`, set the PC's IP to `192.168.0.99`.
- A functioning Ethernet cable has been prepared.

Steps:

1. Connect the device's 1000M Ethernet port to the PC via an Ethernet cable, then power on the device.
2. Enter `http://192.168.0.100:8100` in the PC's web browser to access the "PLC Setting" interface.
3. In the "Codesys License Management" interface, click "Backup License" to download the license file and save it locally.



> TIP
>
> The backed-up license file can only be restored on the same device.

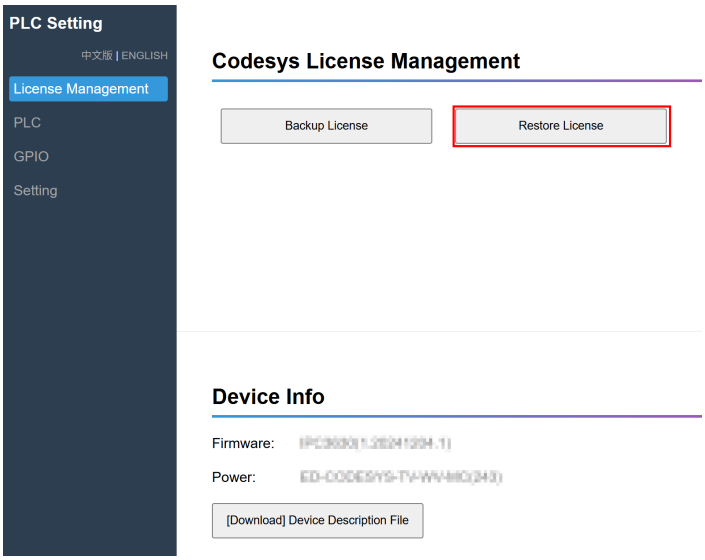
5.12.2 License Restore

Preparation:

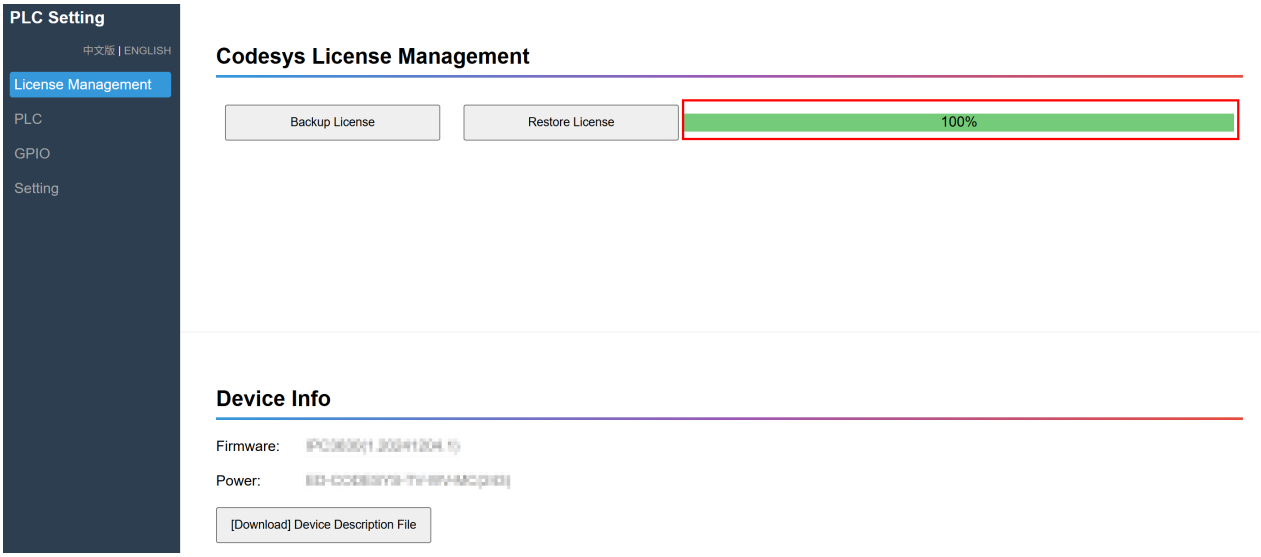
- A Windows PC has been set up with an IP address in the same subnet as the device. For example, if the device's IP (1000M Ethernet port) is `192.168.0.100`, set the PC's IP to `192.168.0.99`.
- A functioning Ethernet cable has been prepared.
- The backed-up license file has been obtained.

Steps:

1. Connect the device's 1000M Ethernet port to the PC via an Ethernet cable, then power on the device.
2. Enter `http://192.168.0.100:8100` in the PC's web browser to access the "PLC Setting" interface.
3. In the "Codesys License Management" interface, click "Restore License".



4. As prompted, select the obtained license file under a custom path.
5. After a successful License Restore, a 100% progress bar will be displayed in the right-hand panel.



6. Open the device's terminal command pane, execute the following command, and restart the device.

```sh
sudo reboot
```