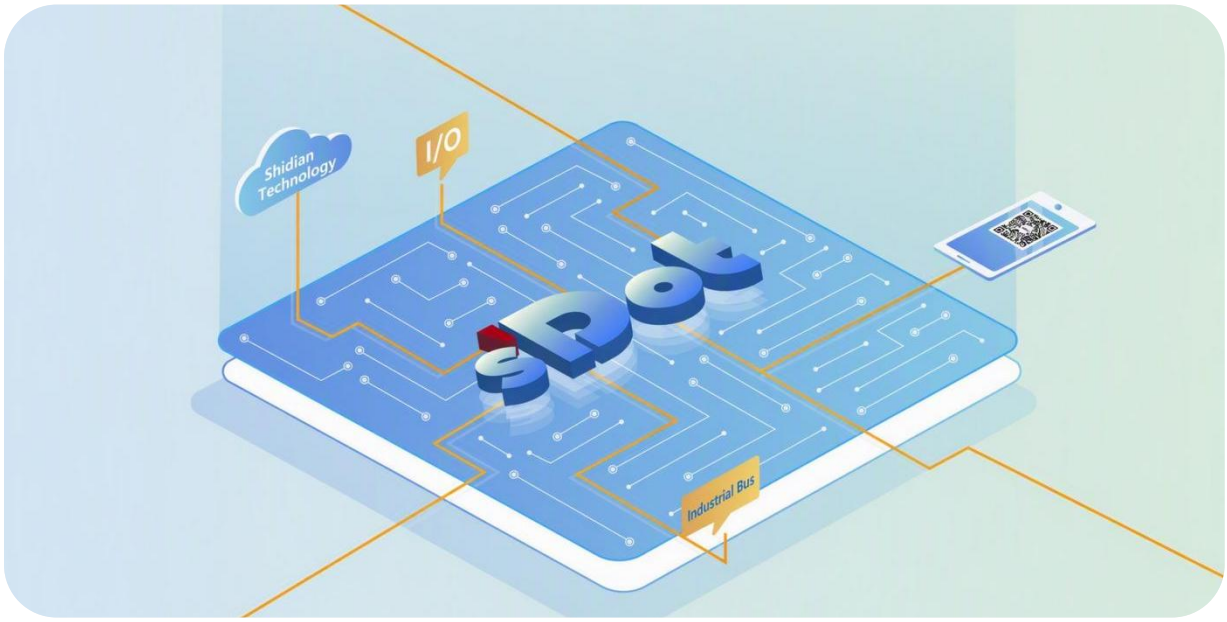



# EtherNet/IP

# EI5R Series integrated I/O

# User manual

Nanjing Solidot Electronic Technology Co., Ltd.

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Nanjing Solidot Electronic Technology Co., Ltd.
Address: Building 40, No. 9-1 Yinlong Road, Jiangning District, Nanjing, Jiangsu Province
Postal code: 211106
Tel: 4007788929
Website:http://www.solidotech.com

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# 1 Product overview

## 1.1 Product Introduction

The EI5R Series integrated I/O module adopts an EtherNet/IP industrial Ethernet bus interface and is an EtherNet/IP slave device with a standard I/O architecture. It is compatible with EtherNet/IP networks from multiple vendors, providing users with a variety of options for high-speed data acquisition, optimized system configuration, simplified field wiring, and improved system reliability.

## 1.2 Product Features

- **Configurable input/output functions**

  The module can be configured for DI/DO via DIP switches, and also supports DI/DO auto-detection mode.

- **Compact size**

  It has a compact structure and occupies little space.

- **High speed**

  100 Mbps industrial Ethernet.

- **Easy diagnostics**

  The innovative channel indicator light design is placed close to the channel, making the channel status clear at a glance and facilitating inspection and maintenance.

- **Easy configuration**

  Simple configuration, supporting all mainstream masters.

- **Easy installation**

  DIN 35 mm standard rail mounting.

  Spring-clamp terminal blocks for fast and convenient wiring.


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# 2 Naming Convention

## 2.1 Naming Convention

**EI 5 R _ - 16 16 A +**
**(1) (2) (3) (4) (5) (6) (7) (8)**

| No. | Meaning | Value description | | |
|---|---|---|---|---|
| **(1)** | Bus protocol | EI: Abbreviation for EtherNet/IP protocol | | |
| **(2)** | Product Series | 5: Horizontal integrated I/O | | |
| **(3)** | Bus interface type | R: RJ45 | M: M8 connector | |
| **(4)** | Terminal type | Default: Spring-Clamp terminal | E: e-CON Pluggable connector | |
| **(5)** | Number of input channels | Digital: 00, 08, 16, 32 | | |
| **(6)** | Number of output channels | Digital: 00, 08, 16, 32 | | |
| **(7)** | Output channel type | A: NPN | B: PNP | Default: No output channels |
| **(8)** | Output channels Configurable | Default: Channels are not configurable | +: Configurable input/output | |


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## 2.2 Model list

| Model | Product description |
|---|---|
| EI5R-3200 | EtherNet/IP integrated I/O, EI5 Series, 32-channel digital NPN&PNP compatible input module, RJ45 communication interface, Spring-Clamp terminal |
| EI5R-1600 | EtherNet/IP integrated I/O, EI5 Series, 16-channel digital NPN&PNP compatible input module, RJ45 communication interface, Spring-Clamp terminal |
| EI5R-1616A | EtherNet/IP integrated I/O, EI5 Series, 16-channel digital NPN&PNP compatible input, 16-channel digital NPN output module, RJ45 communication interface, Spring-Clamp terminal |
| EI5R-1616B | EtherNet/IP integrated I/O, EI5 Series, 16-channel digital NPN&PNP compatible input, 16-channel digital PNP output module, RJ45 communication interface, Spring-Clamp terminal |
| EI5R-1616A+ | EtherNet/IP integrated I/O, EI5 Series, 16-channel digital NPN input, 16-channel digital NPN input & output compatible module, RJ45 communication interface, Spring-Clamp terminal |
| EI5R-1616B+ | EtherNet/IP integrated I/O, EI5 Series, 16-channel digital PNP input, 16-channel digital PNP input & output compatible module, RJ45 communication interface, Spring-Clamp terminal |
| EI5R-0808A | EtherNet/IP integrated I/O, EI5 Series, 8-channel digital NPN&PNP compatible input, 8-channel digital NPN output module, RJ45 communication interface, Spring-Clamp terminal |
| EI5R-0808B | EtherNet/IP integrated I/O, EI5 Series, 8-channel digital NPN&PNP compatible input, 8-channel digital PNP output module, RJ45 communication interface, Spring-Clamp terminal |
| EI5R-0808A+ | EtherNet/IP integrated I/O, EI5 Series, 8-channel digital NPN input, 8-channel digital NPN input & output compatible module, RJ45 communication interface, Spring-Clamp terminal |
| EI5R-0808B+ | EtherNet/IP integrated I/O, EI5 Series, 8-channel digital PNP input, 8-channel digital PNP input & output compatible module, RJ45 communication interface, push-in terminals |
| EI5R-0032A | EtherNet/IP integrated I/O, EI5 Series, 32-channel digital NPN output module, RJ45 communication interface, push-in terminals |
| EI5R-0032B | EtherNet/IP integrated I/O, EI5 Series, 32-channel digital PNP output module, RJ45 communication interface, push-in terminals |
| EI5R-0016A | EtherNet/IP integrated I/O, EI5 Series, 16-channel digital NPN output module, RJ45 communication interface, push-in terminals |
| EI5R-0016B | EtherNet/IP integrated I/O, EI5 Series, 16-channel digital PNP output module, RJ45 communication interface, push-in terminals |


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# 3 Product Specifications

## 3.1 General parameters

| | | |
|---|---|---|
| **Interface parameters** | | |
| Bus protocol | | EtherNet/IP |
| Number of I/O Stations | | Depends on master |
| Data Transmission Medium | | Category 5 or higher UTP/STP (recommended) |
| Transmission rate | | 100 Mbps |
| Minimum cycle time | | 2 ms |
| Transmission distance | | <= 100 m (station-to-station distance) |
| Fieldbus interface | | 2×RJ45 |
| **Technical Specifications** | | |
| Weight | | 32-channel: 210 g |
| | | 16-channel: 150 g |
| Dimensions | | 32-channel: 182 x 57.3 x 34 mm |
| | | 16-channel: 142 x 57.3 x 34 mm |
| Operating Environment | Operating temperature | -20 °C ... +60 °C |
| | Storage temperature | -40 °C ... +80 °C |
| | Relative humidity | 95 %, non-condensing |
| | Altitude | <= 2000 m |
| | Vibration resistance | IEC 60068-2-6 Sinusoidal Vibration<br>5 Hz ... 8.4 Hz, 3.5 mm, 8.4 Hz ... 150 Hz, 1 g<br>X/Y/Z triaxial, 10 cycles/axis (100 min) |
| | Impact resistance | IEC 60068-2-27 Mechanical Shock<br>150 m/s2, 11 ms, ±X/Y/Z six directions<br>3 times/direction, 18 times in total |


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| | | |
|---|---|---|
| | Protection rating | IP20 |
| | Overvoltage category | I |
| | Pollution Degree | Level 2 |
| Disconnection Detection | | Supported |
| Diagnostics | | Supported |
| Alarm | | Supported |
| Firmware Update | | Supported |
| Short-circuit Protection | | Supports (automatic recovery mechanism) |
| Reverse connection protection | | Supports (automatic recovery mechanism) |
| Reverse Polarity Protection | | Supported |
| Surge protection | | Supported |

## 3.2 Digital input module parameters

| **Digital input** | | |
|---|---|---|
| Product model | EI5R-3200 | EI5R-1600 |
| Rated input power voltage | 24 V DC (20.4 V ... 28.8 V) | |
| Rated input power current | <= 35 mA | <= 35 mA |
| Field-side input voltage range | 24 V DC (20.4 V ... 28.8 V) | |
| Maximum field-side current carrying capacity | 8 A/group | |
| Rated input voltage | 24 V DC (20.4 V ... 28.8 V) | |
| Typical input current | 4 mA/ch (24 V DC) | |
| Number of input Points | 32 | 16 |
| Input signal type | NPN/PNP Compatible | |
| Input signal type | Direct voltage input type<br>Sink input: NPN Open Collector input type<br>Source input: PNP Open Collector input type | |
| OFF voltage/OFF current | -3 V ... +5 V/0.9 mA or less | |
| ON voltage/ON current | 15 V ... 30 V/2.1 mA or more | |
| Response time | 150 µs | |


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| | | |
|---|---|---|
| Input Filter | No filter, 0.1 ms, 0.2 ms, 0.5 ms, 1 ms, 2 ms, 3 ms (factory setting), 4 ms ... 18 ms, 19 ms, 20 ms | |
| Maximum input frequency | 150 Hz (filter time: 3 ms) | |
| Input Impedance | 6.6 kΩ ... 7.6 kΩ | |
| Isolation method | Digital signal Isolator | |
| Isolation Withstand voltage | 500 V AC | |
| Rated current Consumption | 35 mA | 35 mA |
| Power Consumption | 0.84 W | 0.84 W |
| Digital input type | Type1 | |
| Channel Indicator | Green LED | |


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## 3.3 Digital input/output module parameters

| Digital input | | |
|---|---|---|
| Product model | EI5R-1616A | EI5R-1616B |
| Input power Rated voltage | 24 V DC (20.4 V ... 28.8 V) | |
| Input power Rated current | <= 10 mA | |
| Field-side input voltage range | 24 V DC (20.4 V ... 28.8 V) | |
| Maximum field-side current | 8 A/group | |
| Rated input voltage | 24 V DC (20.4 V ... 28.8 V) | |
| Typical input current | 4 mA/ch (24 V DC) | |
| Number of input Points | 16 | 16 |
| Input signal type | NPN/PNP Compatible | |
| Input signal type | Direct voltage input type<br>Sink input: NPN Open Collector input type<br>Source input: PNP Open Collector input type | |
| OFF voltage/OFF current | -3 V ... +5 V/0.9 mA or less | |
| ON voltage/ON current | 15 V ... 30 V/2.1 mA or more | |
| Response time | 150 µs | |
| Input Filter | No filter, 0.1 ms, 0.2 ms, 0.5 ms, 1 ms, 2 ms, 3 ms (factory setting), 4 ms ... 18 ms, 19 ms, 20 ms | |
| Maximum input frequency | 150 Hz (Filter time: 3 ms) | |
| Input Impedance | 6.6 kΩ ... 7.6 kΩ | |
| Isolation method | Digital signal Isolator | |
| Isolation Withstand voltage | 500 V AC | |
| Rated current Consumption | 10 mA | |
| Power Consumption | 0.24 W | |
| Digital input type | Type1 | |
| Channel Indicator | Green LED | |
| **Digital output** | | |
| Number of output Points | 16 | 16 |
| Output signal type | NPN | PNP |
| Output voltage Drop | < 1 V | |


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| | | |
|---|---|---|
| Output load type | Resistive load, inductive load, lamp load | |
| Channel output current | Max: 0.5 A/single channel (see Figure 1), 6 A/16 channels | |
| Leakage current | < 10 μA | |
| Response time | < 150 μs | < 250 μs |
| Output channel Protection | Short-circuit Protection (automatic Recovery Mechanism) | |
| Module Protection | Reverse connection protection (automatic recovery mechanism), field-side surge protection | |
| Isolation method | Digital signal Isolator | |
| Isolation Withstand voltage | 500 V AC | |
| Channel Indicator | Green LED | |

| **Digital input** | | |
|---|---|---|
| Product model | EI5R-1616A+ | EI5R-1616B+ |
| Rated input power voltage | 24 V DC (20.4 V ... 28.8 V) | |
| Rated input power current | <= 10 mA | |
| Field-side input voltage range | 24 V DC (20.4 V ... 28.8 V) | |
| Maximum field-side current | 8 A/group | |
| Rated input voltage | 24 V DC (20.4 V ... 28.8 V) | |
| Typical input current | 4 mA/ch (24 V DC) | |
| Number of input Points | 16 | 16 |
| Input signal type | NPN | PNP |
| Input signal type | Direct voltage input type<br>Sink input: NPN Open Collector input type<br>Source input: PNP Open Collector input type | |
| OFF voltage/OFF current | -3 V ... +5 V/0.9 mA or less | |
| ON voltage/ON current | 15 V ... 30 V/2.1 mA or more | |
| Response time | 150 μs | |
| Input Filter | No filter, 0.1 ms, 0.2 ms, 0.5 ms, 1 ms, 2 ms, 3 ms (factory setting), 4 ms ... 18 ms, 19 ms, 20 ms | |
| Maximum input frequency | 150 Hz (filter time: 3 ms) | |
| Input Impedance | 6.6 kΩ ... 7.6 kΩ | |
| Isolation method | Digital signal Isolator | |


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| | | |
|---|---|---|
| Isolation Withstand voltage | 500 V AC | |
| Rated current Consumption | 10 mA | |
| Power Consumption | 0.24 W | |
| Digital input type | Type1 | |
| Channel indicator | Green LED | |
| **Digital input/output compatible** | | |
| Number of output Points | 16 | 16 |
| Output signal type | NPN | PNP |
| Configurable inputs and outputs | Yes | |
| Output voltage drop | < 1 V | |
| Output load type | Resistive load, inductive load, lamp load | |
| Channel output current | Max: 0.5 A per channel (see Figure 1), 6 A/16 channels | |
| Leakage current | < 10 μA | |
| Response time | < 150 μs | < 250 μs |
| Output channel protection | Short-circuit protection (automatic recovery mechanism) | |
| Module protection | Reverse connection protection (automatic recovery mechanism), field-side surge protection | |
| Isolation method | Digital signal isolator | |
| Isolation withstand voltage | 500 V AC | |
| Channel indicator | Green LED | |


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| Digital input | | |
|---|---|---|
| Product model | EI5R-0808A | EI5R-0808B |
| Rated input power voltage | 24 V DC (20.4 V ... 28.8 V) | |
| Rated input power current | <= 10 mA | |
| Field-side input voltage range | 24 V DC (20.4 V ... 28.8 V) | |
| Maximum field-side current | 8 A/group | |
| Rated input voltage | 24 V DC (20.4 V ... 28.8 V) | |
| Typical input current | 4 mA/ch (24 V DC) | |
| Number of input Points | 8 | 8 |
| Input signal type | NPN/PNP compatible | |
| Input signal type | Direct voltage input type<br>Sink input: NPN Open Collector input type<br>Source input: PNP Open Collector input type | |
| OFF voltage/OFF current | -3 V ... +5 V/0.9 mA or less | |
| ON voltage/ON current | 15 V ... 30 V/2.1 mA or more | |
| Response time | 150 μs | |
| Input Filter | No filter, 0.1 ms, 0.2 ms, 0.5 ms, 1 ms, 2 ms, 3 ms (factory setting), 4 ms ... 18 ms, 19 ms, 20 ms | |
| Maximum input frequency | 150 Hz (Filter time: 3 ms) | |
| Input Impedance | 6.6 kΩ ... 7.6 kΩ | |
| Isolation method | Digital signal Isolator | |
| Isolation Withstand voltage | 500 V AC | |
| Rated current Consumption | 10 mA | |
| Power Consumption | 0.24 W | |
| Digital input type | Type1 | |
| Channel Indicator | Green LED | |
| **Digital output** | | |
| Number of output Points | 8 | 8 |
| Output signal type | NPN | PNP |
| Output voltage Drop | < 1 V | |
| Output load type | Resistive load, inductive load, lamp load | |


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| | | |
|---|---|---|
| Channel output current | Max: 0.5 A per channel (see Figure 1), 3 A/8 channels | |
| Leakage current | < 10 μA | |
| Response time | < 150 μs | < 250 μs |
| Output channel Protection | Short-circuit Protection (automatic Recovery Mechanism) | |
| Module Protection | Reverse connection protection (automatic recovery mechanism), field-side surge protection | |
| Isolation method | Digital signal Isolator | |
| Isolation Withstand voltage | 500 V AC | |
| Channel Indicator | Green LED | |


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| Digital input | | |
|---|---|---|
| Product model | EI5R-0808A+ | EI5R-0808B+ |
| Rated input power supply voltage | 24 V DC (20.4 V ... 28.8 V) | |
| Rated input power supply current | <= 10 mA | |
| Field-side input voltage range | 24 V DC (20.4 V ... 28.8 V) | |
| Maximum field-side current Carrying Capacity | 8 A/group | |
| Rated input voltage | 24 V DC (20.4 V ... 28.8 V) | |
| Typical input current | 4 mA/ch (24 V DC) | |
| Number of input Points | 8 | 8 |
| Input signal type | NPN | PNP |
| Input signal type | Direct voltage input type<br>Sink input: NPN Open Collector input type<br>Source input: PNP Open Collector input type | |
| OFF voltage/OFF current | -3 V ... +5 V/0.9 mA max. | |
| ON voltage/ON current | 15 V ... 30 V/2.1 mA min. | |
| Response time | 150 μs | |
| Input Filter | No filter, 0.1 ms, 0.2 ms, 0.5 ms, 1 ms, 2 ms, 3 ms (factory setting), 4 ms ... 18 ms, 19 ms, 20 ms | |
| Maximum input frequency | 150 Hz (filter time: 3 ms) | |
| Input Impedance | 6.6 kΩ ... 7.6 kΩ | |
| Isolation method | Digital signal Isolator | |
| Isolation Withstand voltage | 500 V AC | |
| Rated current Consumption | 10 mA | |
| Power Consumption | 0.24 W | |
| Digital input type | Type1 | |
| Channel Indicator | Green LED | |
| **Digital input/output Compatible** | | |
| Number of output Points | 8 | 8 |
| Output signal type | NPN | PNP |
| Configurable inputs and outputs | Yes | |


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| | | |
|---|---|---|
| Output voltage Drop | < 1 V | |
| Output load type | Resistive load, inductive load, lamp load | |
| Channel output current | Max: 0.5 A per channel (see Figure 1), 3 A per 8 channels | |
| Leakage current | < 10 μA | |
| Response time | < 150 μs | < 250 μs |
| Output channel Protection | Short-circuit Protection (automatic Recovery Mechanism) | |
| Module Protection | Reverse connection protection (automatic recovery mechanism), field-side surge protection | |
| Isolation method | Digital signal Isolator | |
| Isolation Withstand voltage | 500 V AC | |
| Channel Indicator | Green LED | |

## 3.4 Digital output module parameters

| **Digital output** | | |
|---|---|---|
| Product model | EI5R-0032A | EI5R-0032B |
| Rated input power voltage | 24 V DC (20.4 V ... 28.8 V) | |
| Rated input power current | <= 30 mA | <= 30 mA |
| Field-side input voltage range | 24 V DC (20.4 V ... 28.8 V) | |
| Maximum field-side current | 8 A per group | |
| Number of output Points | 32 | 32 |
| Output signal type | NPN | PNP |
| Output voltage Drop | < 1 V | |
| Output load type | Resistive load, inductive load, lamp load | |
| Channel output current | Max: 0.5 A per channel (see Figure 1), 12 A/32 channels | |
| Leakage current | < 10 μA | |
| Response time | < 150 μs | < 250 μs |
| Output channel protection | Short-circuit protection (automatic recovery mechanism) | |
| Module protection | Reverse connection protection (automatic recovery mechanism), field-side surge protection | |
| Isolation method | Digital signal isolator | |


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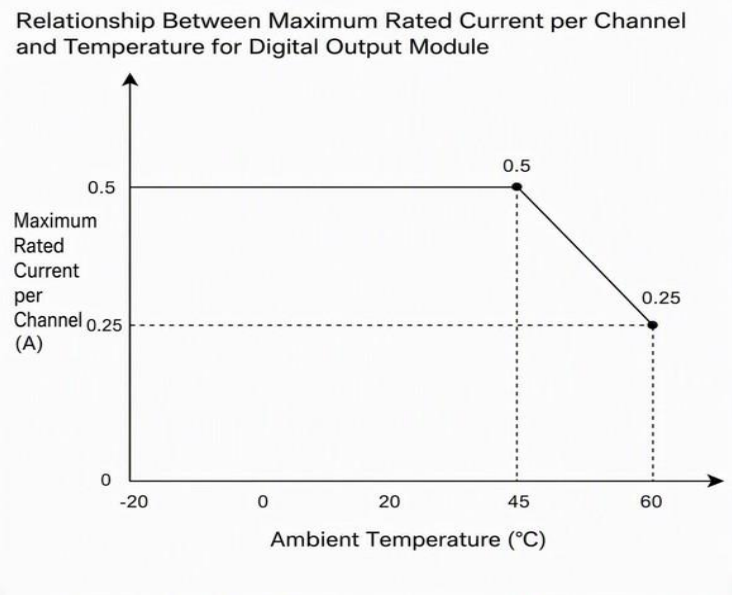
| | | |
|---|---|---|
| Isolation withstand voltage | 500 V AC | |
| Rated current Consumption | 30 mA | 30 mA |
| Power consumption | 0.72 W | 0.72 W |
| Channel indicator | Green LED | |


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| Digital output | | |
|---|---|---|
| Product model | EI5R-0016A | EI5R-0016B |
| Rated input power supply voltage | 24 V DC (20.4 V ... 28.8 V) | |
| Rated input power supply current | <= 30 mA | <= 30 mA |
| Field-side input voltage range | 24 V DC (20.4 V ... 28.8 V) | |
| Maximum field-side current carrying capacity | 8 A/group | |
| Number of output signal points | 16 | 16 |
| Output signal type | NPN | PNP |
| Output voltage drop | < 1 V | |
| Output load type | Resistive load, inductive load, lamp load | |
| Channel output current | Max: 0.5 A per channel (see Figure 1), 6 A/16 channels | |
| Leakage current | < 10 μA | |
| Response time | < 150 μs | < 250 μs |
| Output channel protection | Short-circuit protection (automatic recovery mechanism) | |
| Module protection | Reverse connection protection (automatic recovery mechanism), field-side surge protection | |
| Isolation method | Digital signal Isolator | |
| Isolation Withstand voltage | 500 V AC | |
| Rated current Consumption | 30 mA | 30 mA |
| Power Consumption | 0.72 W | 0.72 W |
| Channel Indicator | Green LED | |

Figure 1:


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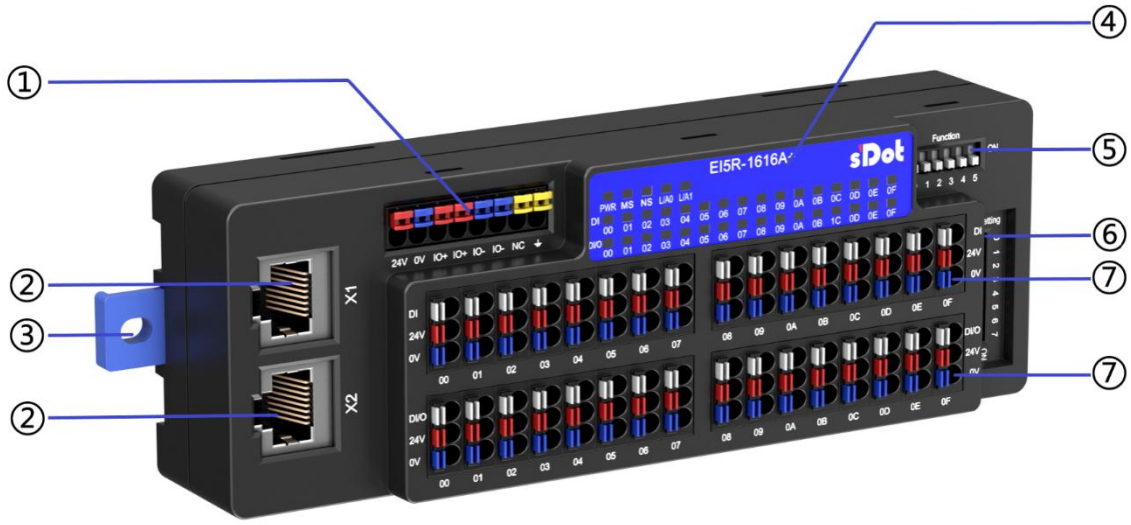




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# 4 Panel

## 4.1 Panel Structure




| No. | Name | Description |
|---|---|---|
| ① | Power terminal | 8P Spring-Clamp terminal |
| ② | Bus interface | 2×RJ45, EtherNet/IP bus interface |
| ③ | Module Wall-Mounting Ear Hole | For module wall mounting |
| ④ | System indicator and channel indicator | Indicate module power status, operating status, and channel status |
| ⑤ | Function DIP Switch | Configure module alarm version and DI/DO |
| ⑥ | IP setting DIP Switch | Configure module IP address and reset settings |
| ⑦ | Input/output channels | Terminal blocks |


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## 4.2 Indicator LED function

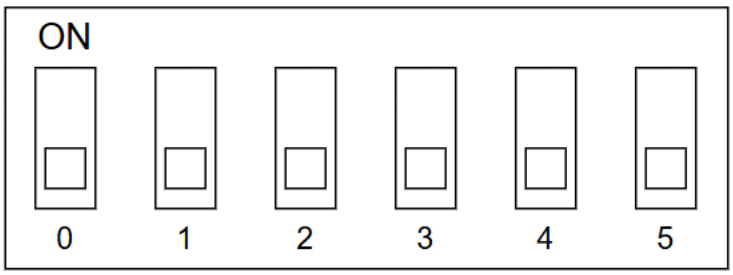
| Digital I/O module indicator light definitions | | | | |
|---|---|---|---|---|
| **Label** | **Name** | **Color** | **Status** | **Status description** |
| PWR | Power indicator | Green | Steady On | Power supply normal |
| | | | Off | Product not powered or power supply abnormal |
| MS | Module status indicator | Green | Steady On | Device operating normally |
| | | | Flashing at 10 Hz | Firmware upgrade in progress |
| | | | Off | No power input to the device |
| NS | Network status indicator | Green | Steady On | At least one CIP connection established (any transport class) |
| | | | Flashing at 1 Hz | An IP address was configured but no CIP connection was established, and the Exclusive Owner connection did not time out. |
| | | | Off | Device not powered, or powered but no IP address configured |
| L/A0 | Ethernet port X1 status LED | Green | Steady On | Establish network connection |
| | | | Flashing | Connection established and data exchanged |
| | | | Off | No network connection established or abnormal |
| L/A1 | Ethernet port X2 status LED | Green | Steady On | Establish network connection |
| | | | Flashing | Connection established and data exchanged |
| | | | Off | No network connection established or abnormal |
| 00 ... 0F/ 10 ... 1F | Input channel indicator | Green | Steady On | Module channels have signal inputs |
| | | | Off | No signal input or abnormal signal input on module channel |
| 00 ... 0F/ 10 ... 1F | Output channel indicator | Green | Steady On | Module channels have signal outputs |
| | | | Off | No signal output or abnormal signal output from module channels |


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# 4.3 DIP switch

## 4.3.1 Function DIP Switch

Function binary DIP switch (taking a 32-channel module as an example; for a 16-channel module, the DIP switch range is 0 to 3), as shown in the figure below:




When binary DIP switch 0 is set to 0, the module is the normal version; when set to 1, the module is the alarm version. For alarm version modules, the alarm code can be viewed in the upstream data.

When binary DIP switch 1 is set to 0, the configurable DI/DO of the channels is determined by the DIP switches (see the table below); when set to 1, the configurable DI/DO of the channels is determined by **module self-adaptation**.

| **Configurable DI/DO DIP Switch setting table (effective when binary DIP switch 1 is set to 0)** | |
|---|---|
| **DIP Switch 2 setting (Binary)** | 0: Channels 00 ... 03 are output DO |
| | 1: Channels 00 ... 03 are input DI |
| **DIP Switch 3 setting (Binary)** | 0: Channels 04 ... 07 are output DO |
| | 1: Channels 04 ... 07 are input DI |
| **DIP Switch 4 setting (Binary)** | 0: Channels 08 ... 0B are output DO |
| | 1: Channels 08 ... 0B are input DI |
| **DIP Switch 5 setting (Binary)** | 0: Channels 0C ... 0F are output DO |
| | 1: Channels 0C ... 0F are input DI |

**Note:**

1、 **If switching between the normal version/alarm version and DI/DO is required during communication, the entire group of modules must be power-cycled after the new settings are completed for them to take effect.**

2、 **For the EI5R-1616A+/EI5R-1616B+ module, binary DIP switches 1 ... 5 are effective; for the EI5R-0808A+/EI5R-0808B+ module, binary DIP switches 1 ... 3 are effective. For other digital modules, binary DIP switches 1 ... 3/5 have no effect.**

**Module Self-Adaptation function**

Configurable input/output channels support DI/DO self-adaptation mode. In this mode, the channel function is determined by how the user uses it:

- When a channel is connected to signal source devices such as sensors, buttons, or dry contacts, the channel can be used in DI mode to acquire on-site switch states and upload them to the controller;


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- When a channel is connected to actuator load devices such as solenoid valves or indicator lights, the channel can be used in DO mode to receive controller commands and drive on-site loads.

The module does not require DIP switch settings to configure channel input/output direction; DI/DO points are flexibly assigned based on usage, reducing module selection redundancy.

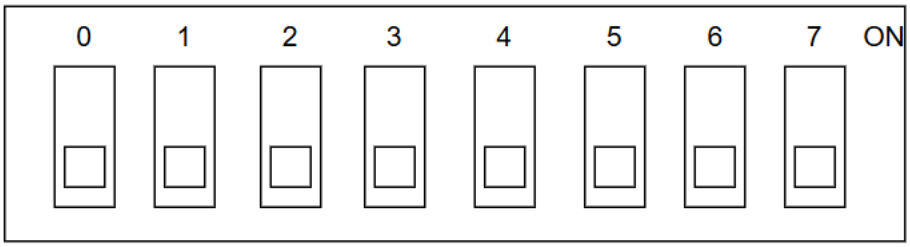
**Note:**

1、 **Adaptive wiring does not mean that the same channel can function as both DI and DO simultaneously. The channel mode depends on the command received first; at any given moment, a channel can only be either DI or DO.**


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### 4.3.2 IP setting DIP Switch

The IP setting DIP switch can be used to specify the method for setting the module IP address.




| Setting value (Binary) | IP address setting method |
|---|---|
| 000 | All 8 bits of the module's factory DIP switch are set to "OFF", and the default IP address is 192.168.0.120. If the IP address has been modified using the host software, the last IP address setting value will be used. |
| 001 ... 254 | Sets the lower 1 byte of the IP address. The value is set within the range of 1 to 254 using the binary DIP switch in order from the most significant bit (switch 7) to the least significant bit (switch 0).<br>• When the IP address is set to a value other than 000 using the binary DIP switch in the factory default state, the upper 3 bytes are 192.168.0.<br>• If the IP address has been modified using the host software, the upper 3 bytes of the IP address will retain the value previously set via the host software. |
| 255 | When the binary DIP switch is set to 255, the module will automatically execute an IP address reset after power-on. The IP address will be restored to the factory default address of 192.168.0.120. |

Note: The IP setting DIP switch must be set with the power disconnected. The IP address set by the binary DIP switch will only take effect after the new IP setting is completed and the power is cycled. If the power is not cycled, the parameter modification will not take effect.


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# 5 Installation and Removal

## 5.1 Installation guide

**Installation/Removal Precautions**

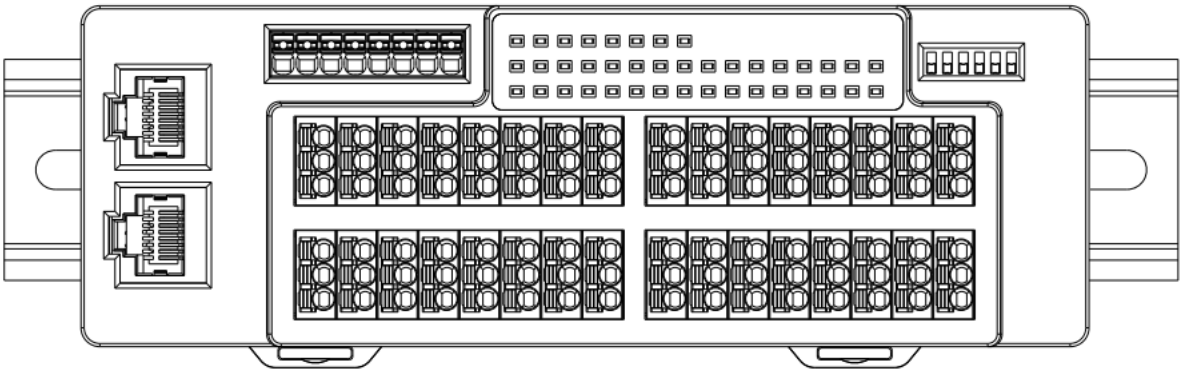
- **The module has an IP20 protection rating and must be installed in a cabinet for indoor use.**
- **Ensure the cabinet has adequate ventilation (e.g., install an exhaust fan in the cabinet).**
- **Do not install this device next to or above equipment that may cause overheating.**
- **The module must be installed vertically on a mounting rail or other fixed position, and surrounding air circulation must be maintained (at least 50 mm of air circulation space above and below the module).**
- **Installation/removal must be performed with the power disconnected.**

⚠ Warning

- If the device is not used in accordance with the product user manual, the protection it provides may be compromised.


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**Ensure the module is installed vertically on a mounting rail or other fixed position.**




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# 5.2 Installation and disassembly steps

## 5.2.1 DIN Rail Snap-on Mounting

| **Module installation and removal** | |
|---|---|
| Module installation steps | 1. Push the latch at the bottom of the module's rear side outward until a "click" sound is heard. |
| | 2. Install the I/O module onto the fixed DIN rail. Align the upper edge of the module's mounting slot with the upper edge of the rail, and place the module onto the rail. |
| | 3. Press the lower edge of the module's mounting slot against the lower edge of the rail and push the latch upward until a click sound is heard, completing the module installation. |
| Module disassembly steps | 1. Insert a slotted screwdriver into the latch and apply force toward the module until a click sound is heard. |
| | 2. Remove the module from the rail. |

## 5.2.2 Wall Mounting

| **Module installation and removal** | |
|---|---|
| Module installation steps | 1. Confirm the installation position. |
| | 2. Push the mounting ear holes on the left and right sides of the module's rear side outward until a "click" sound is heard. |
| | 3. Use the template and a spirit level to determine the hole positions and mark the drilling points. |
| | 4. Align the drilling points with the mounting holes on the back of the module, and secure the module to the wall using screws through the ear holes. Ensure the module is firmly mounted without wobbling. |
| | 5. Connect the power, signal, and communication cables, avoiding pulling or tugging during installation. |
| Module disassembly steps | 1. Use a screwdriver to loosen the screws securing the module. |
| | 2. Gently remove the module. |

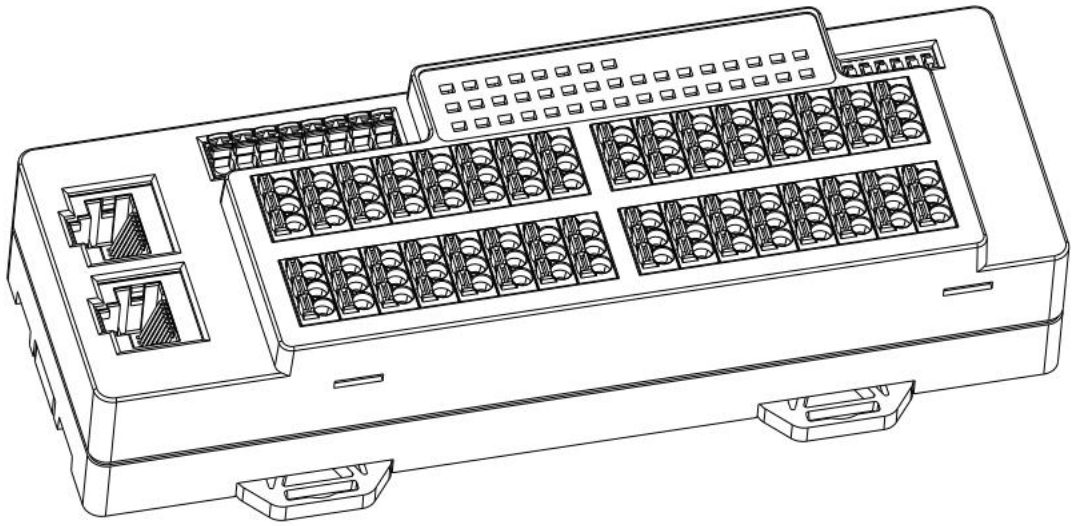

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# 5.3 Installation and disassembly diagram

## 5.3.1 DIN Rail Snap-on Mounting

**I/O module Installation**

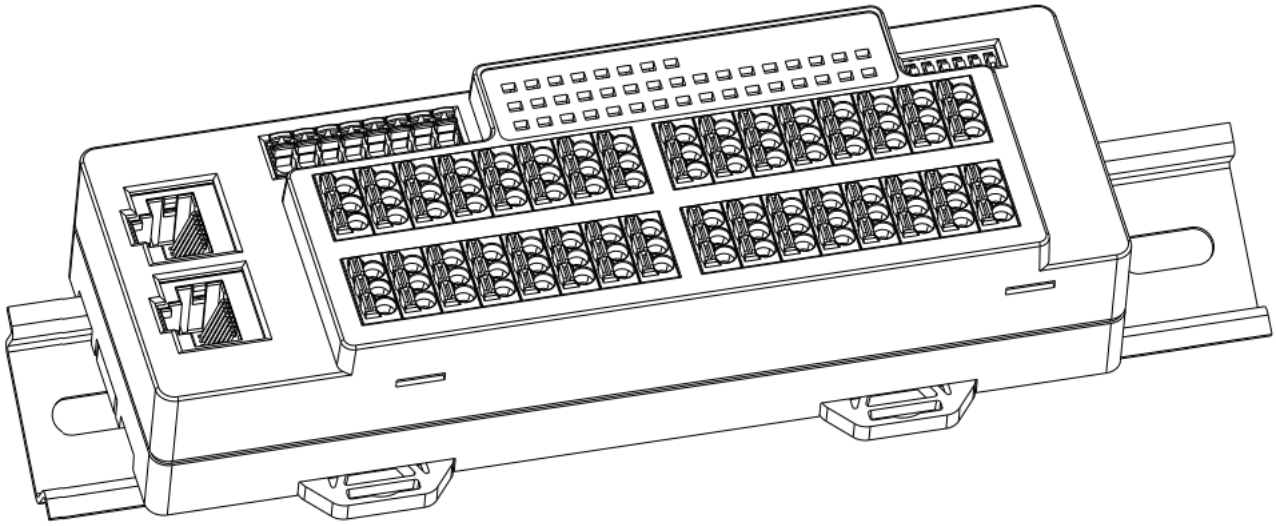
- Push the latch at the bottom of the module's rear side outward until you hear a "click" sound, as shown in ① below.



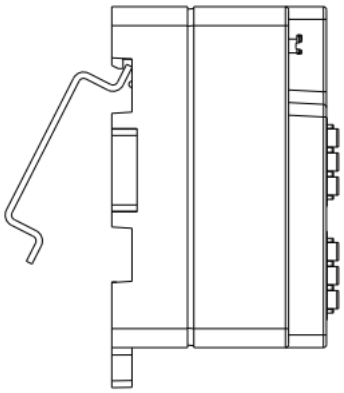
①


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- Install the module onto the secured DIN rail. Align the upper edge of the module's mounting slot with the upper edge of the DIN rail, and place the module onto the rail, as shown in ② and ③ below.



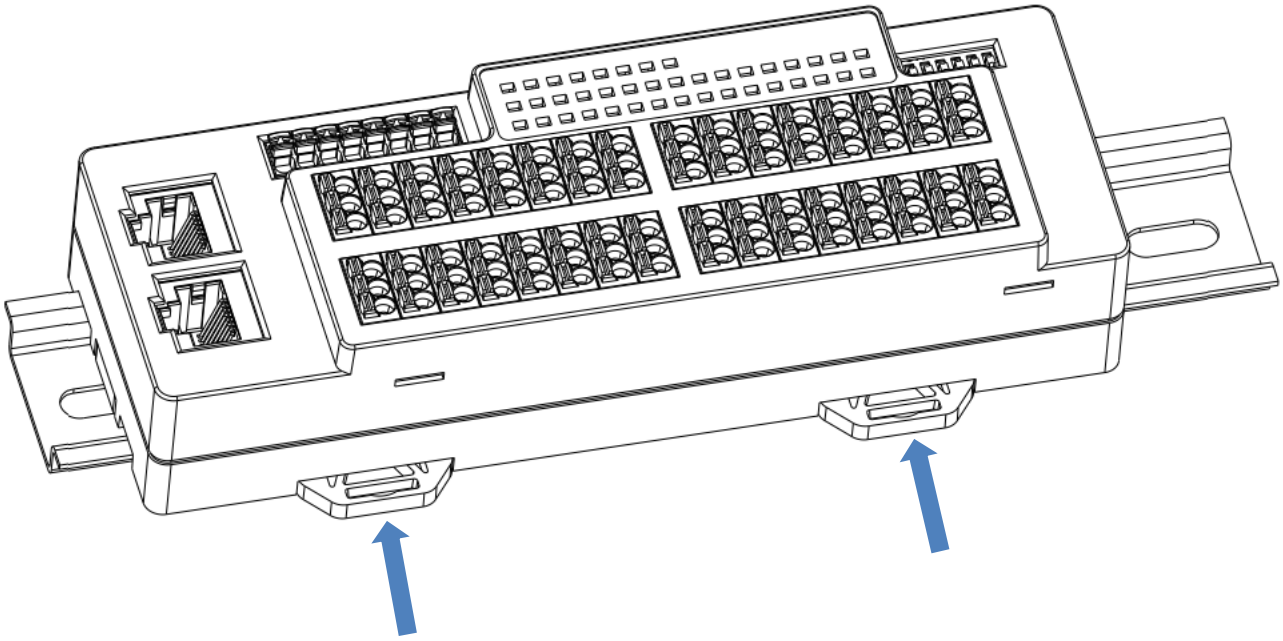
②



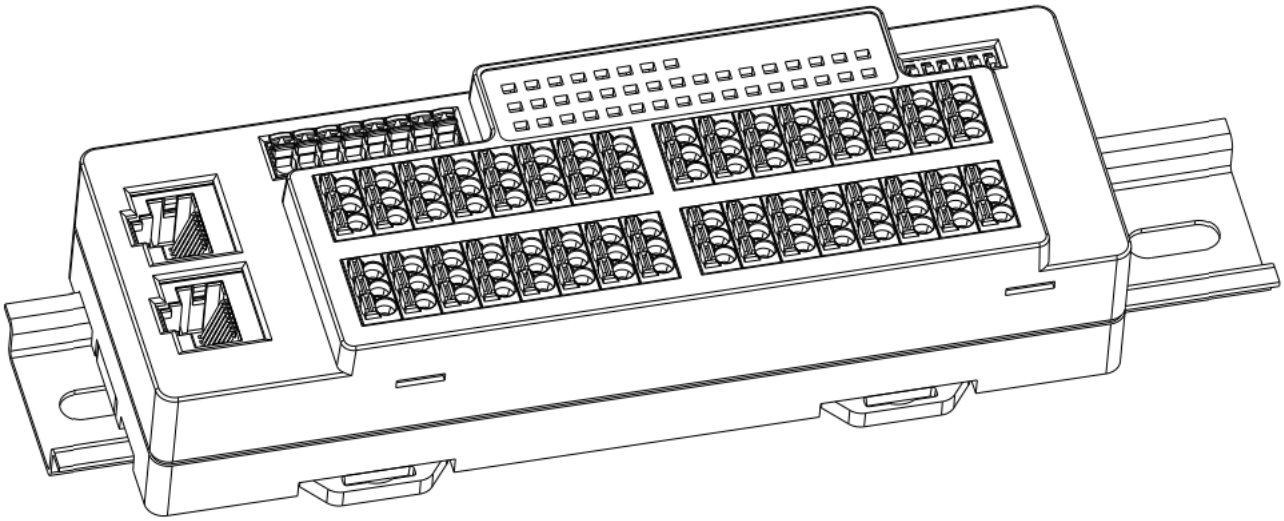
③


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- Press the lower edge of the module's mounting slot against the lower edge of the DIN rail, and push the latch upward until you hear a click sound to complete module installation, as shown in ④ and ⑤ below.



④

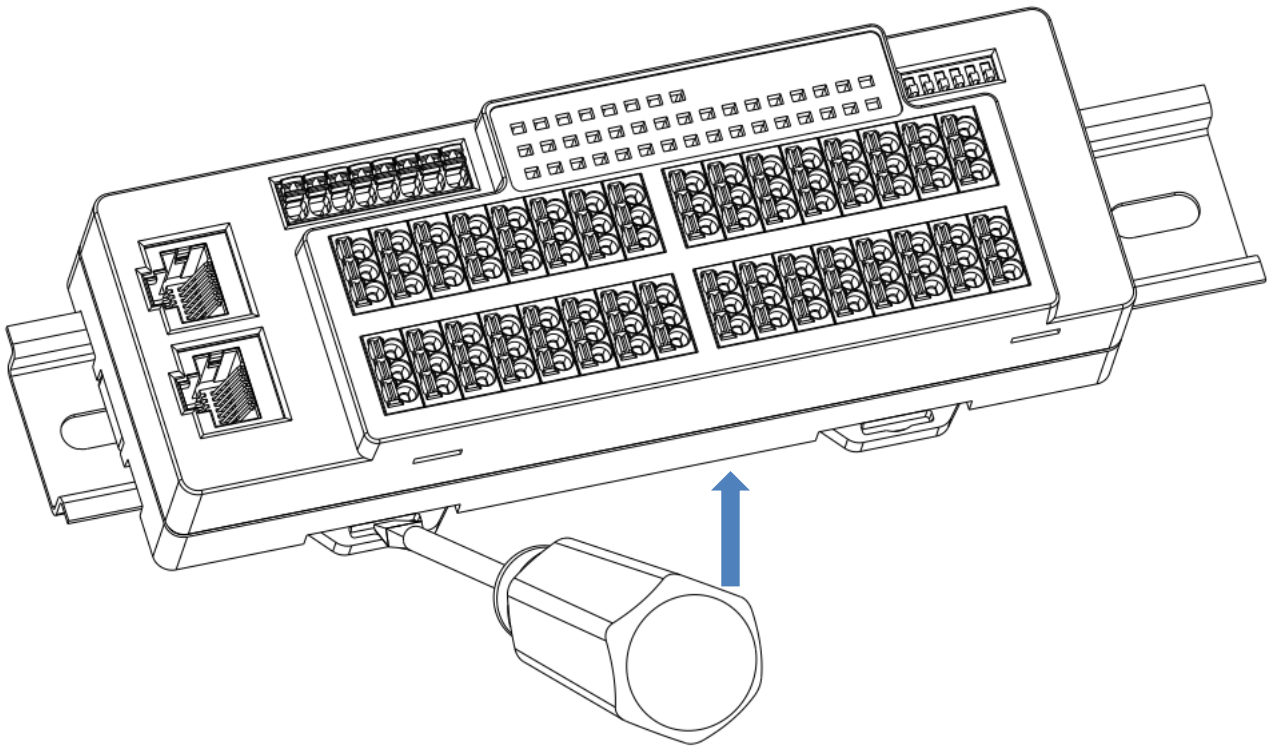


⑤

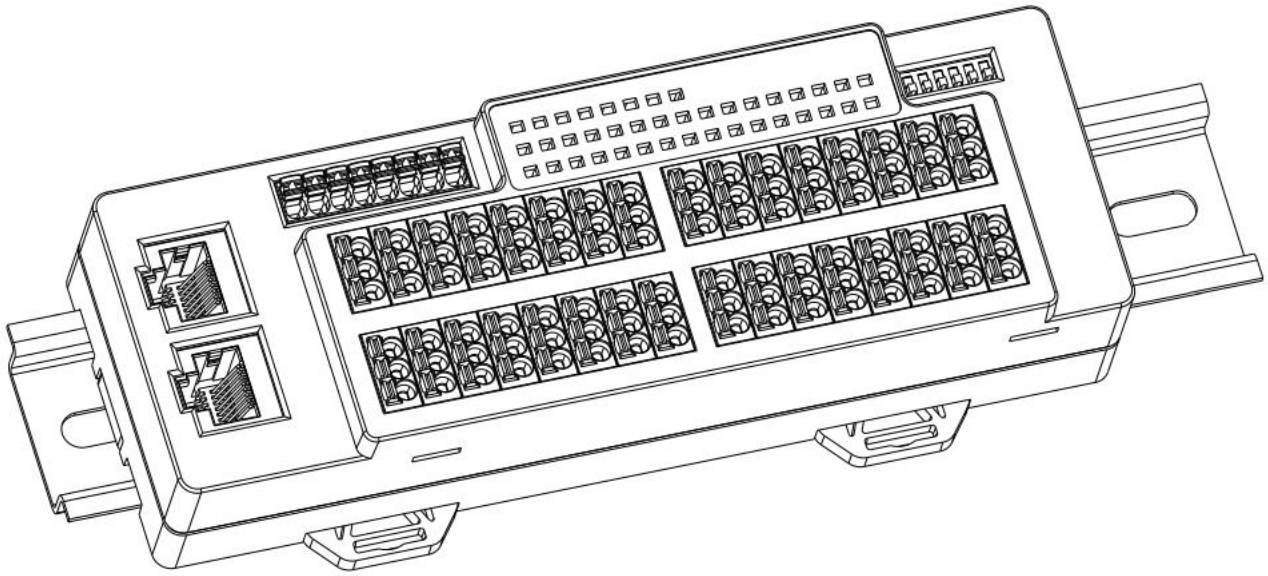

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## I/O module Removal

- Insert a slotted screwdriver into the latch and apply force toward the module until you hear a click sound, as shown in ⑥ and ⑦ below. The module can now be removed from the DIN rail.



⑥

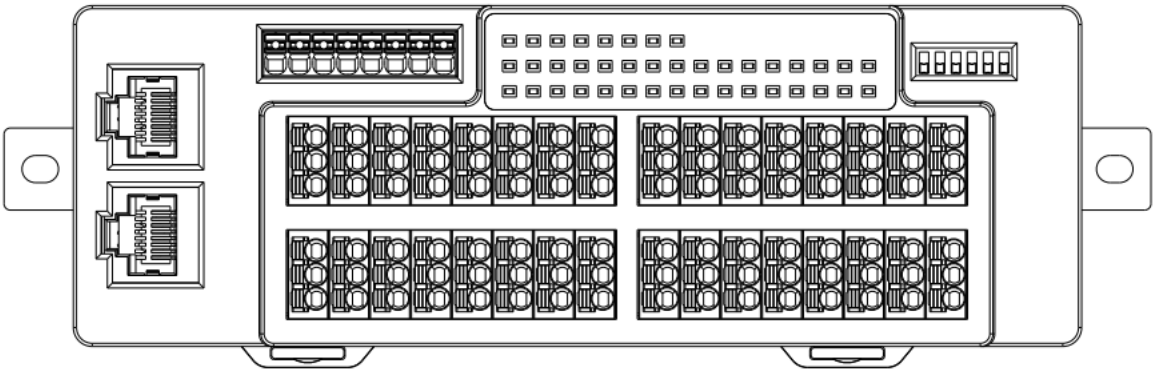


⑦


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### 5.3.2 Wall Mounting

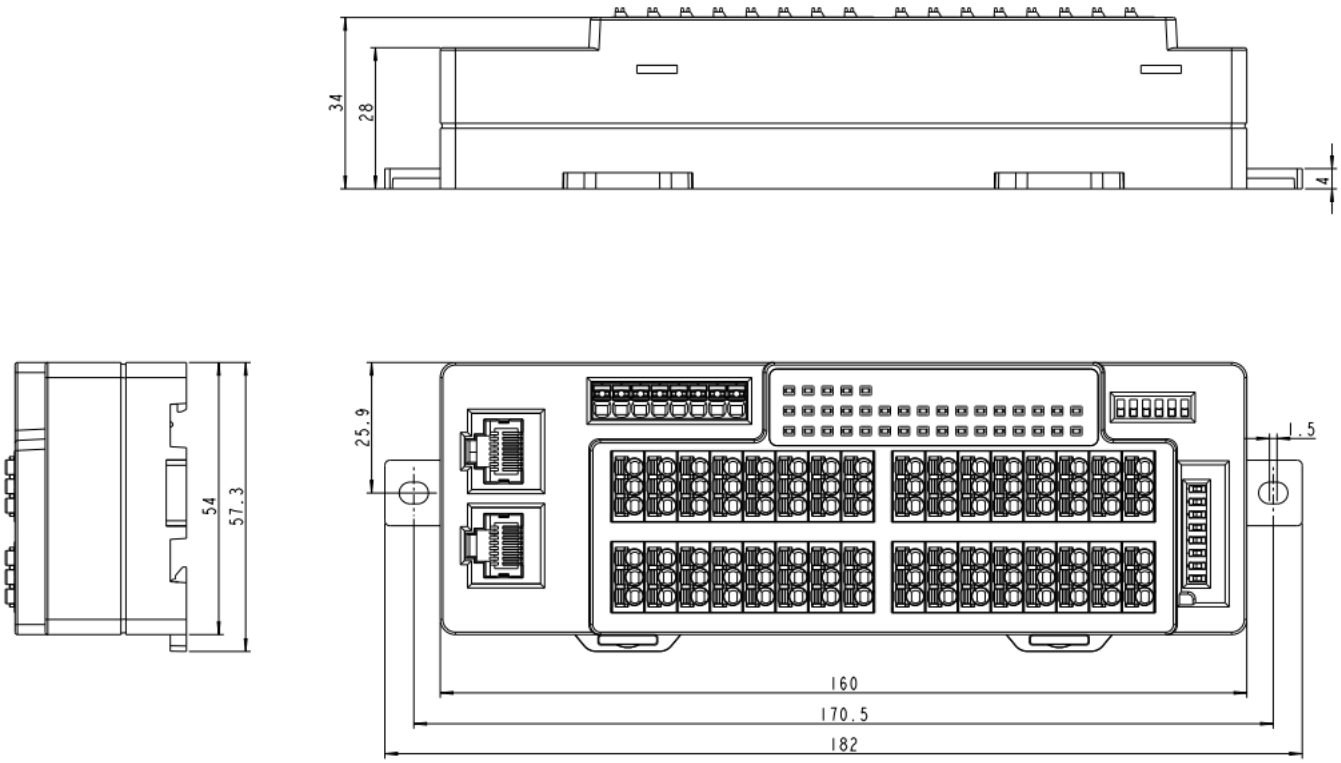
The mounting ear holes on the left and right sides of the module's rear side are shown in the figure below. It is recommended to refer to 5.2.2 Wall Mounting for installation.




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## 5.4 Dimensional Drawing

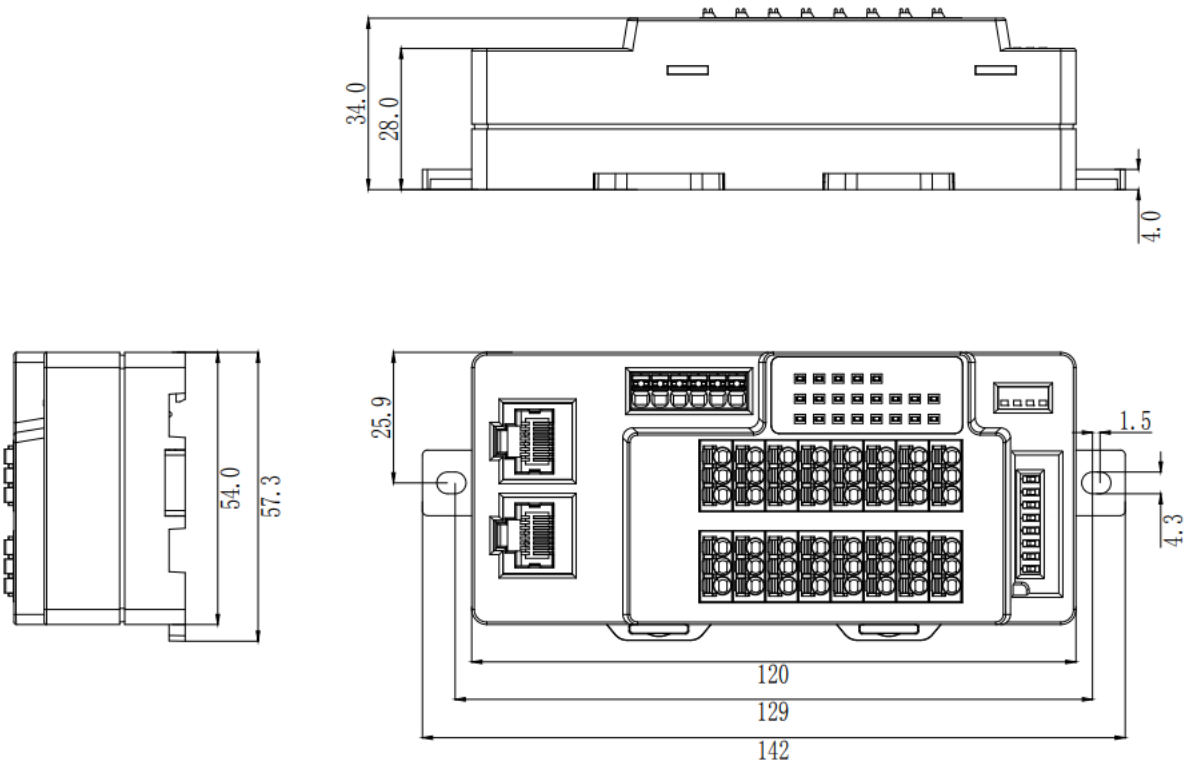
**32-channel I/O module dimensions (unit: mm)**





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## 16-channel I/O module dimensions (unit: mm)





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# 6 Wiring

## 6.1 Terminal blocks

Warning

| Terminal blocks | | |
|---|---|---|
| Power terminal | Rated voltage | 300 V |
| | Rated current | 7 A |
| | Number of poles | 8P/6P |
| | Wire gauge | 28 ... 18 AWG 0.2 ... 0.75 mm² |
| I/O signal terminal (i.e., input/output terminal) | Rated voltage | 300 V |
| | Rated current | 8 A |
| | Number of poles | 32/16 x 3P |
| | Wire gauge | 22 ... 16 AWG 0.3 ... 1.5 mm² |
| Fieldbus interface | 2×RJ45 | Category 5 or above UTP or STP (STP recommended) |


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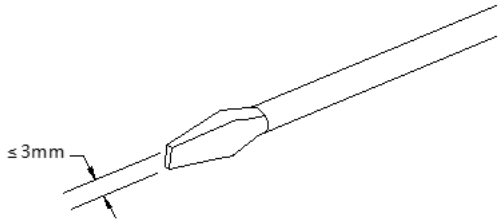
## 6.2 Wiring instructions and requirements

### Power wiring Precautions

- The module's system-side power supply and field-side power supply should be configured and used separately; do not mix them.
- PE must be reliably grounded.

### Wiring Tool Requirements

The power terminal and signal terminal feature a screwless design. Both installation and removal of cables can be performed using a slotted screwdriver (specification: <= 3 mm).




### Wire Stripping length Requirement

Recommended wire stripping length for the power terminal: 8 ... 10 mm.
Recommended wire stripping length for the signal terminal: 9 ... 10 mm.





### Wiring method

For solid wire, after stripping the wire to the appropriate length, press down the button while inserting the solid wire directly into the corresponding terminal opening.



For flexible stranded wire, after stripping the wire to the appropriate length, it can be connected directly or used with a matching

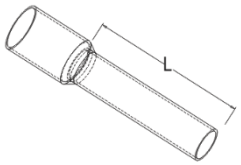



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standard crimp ferrule (insulated ferrule, refer to the specifications in the table below). Press down the button while inserting the insulated ferrule directly into the corresponding terminal opening.


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The specifications for the power terminal and signal terminal are shown in the table below:

| **Insulated Ferrule Specification table** | | |
|---|---|---|
| Specification Requirements | Model | Wire Cross-Sectional Area ($mm^2$) |
|  The length L of the insulated ferrule is 8 ... 10 mm. | E0308 | 0.3 |
| | E0508 | 0.5 |
| | E7508 | 0.75 |
| | E1008 | 1.0 |
| | E1508 | 1.5 |
| | E0310 | 0.3 |
| | E0510 | 0.5 |
| | E7510 | 0.75 |
| | E1010 | 1.0 |
| | E1510 | 1.5 |

**Warning**

- Only copper wires can be used for wiring.

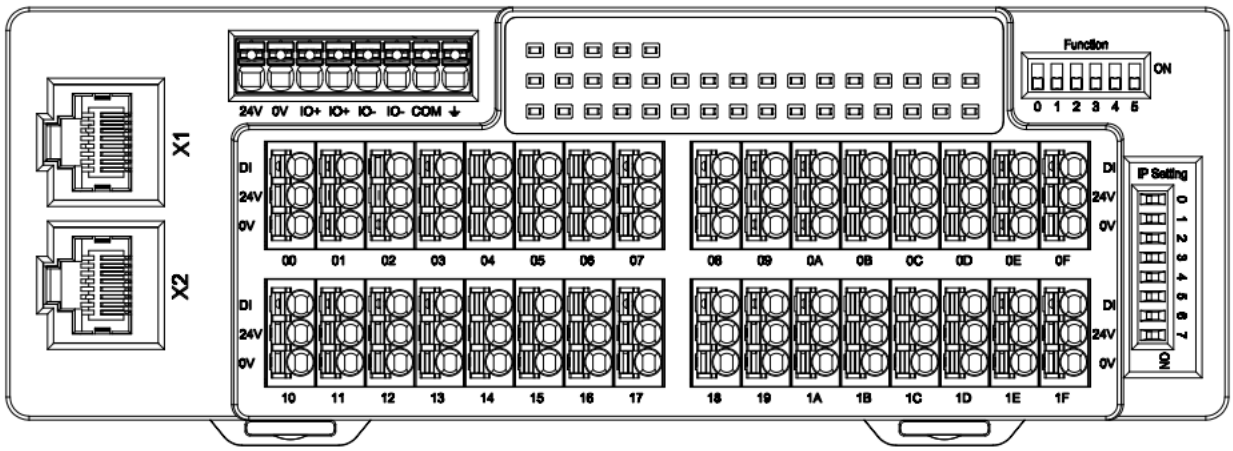
**Warning**

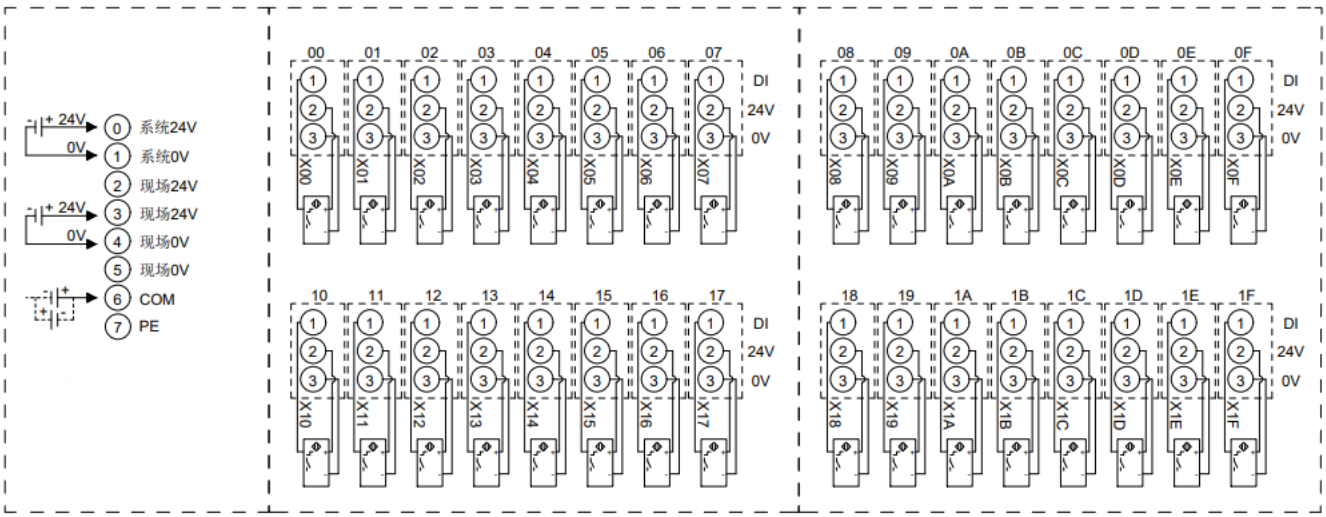
- Cable temperature: 80 °C.


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# 6.3 Wiring diagram

## 6.3.1 EI5R-3200



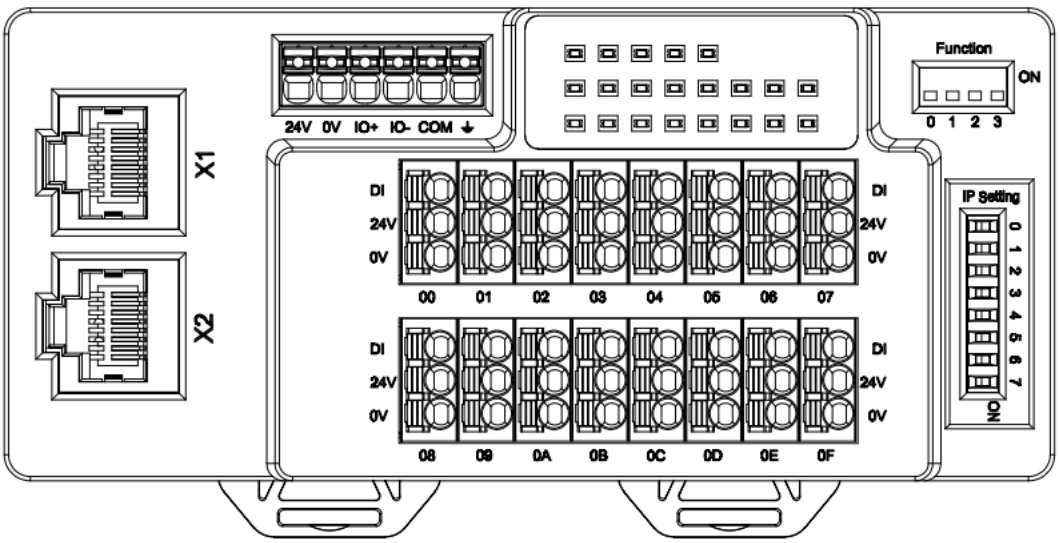



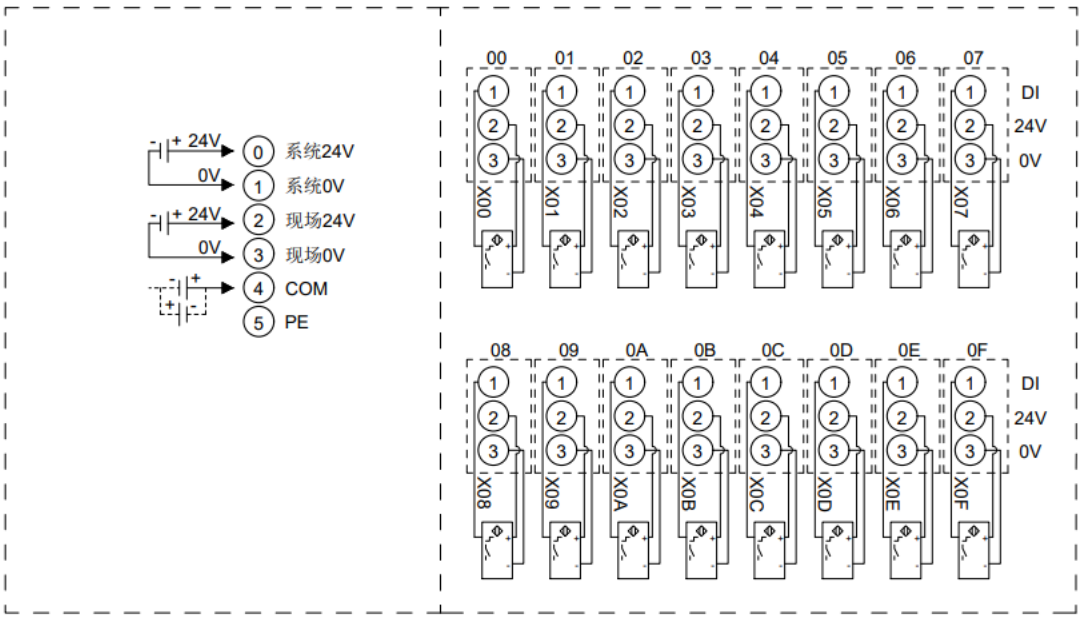

*field 24 V internally connected; field 0 V internally connected

*COM is the DI common terminal, NPN/PNP compatible


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## 6.3.2 EI5R-1600

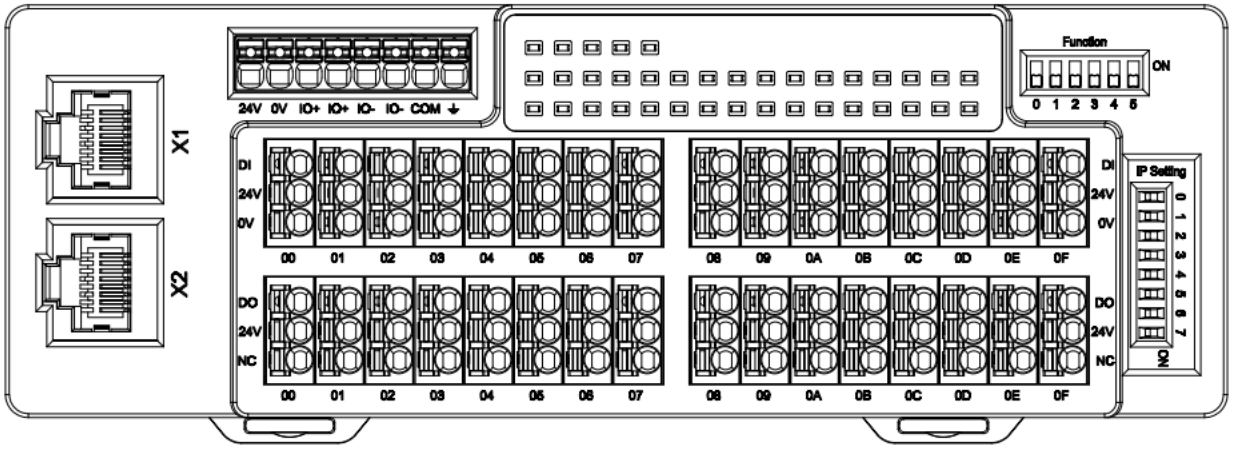


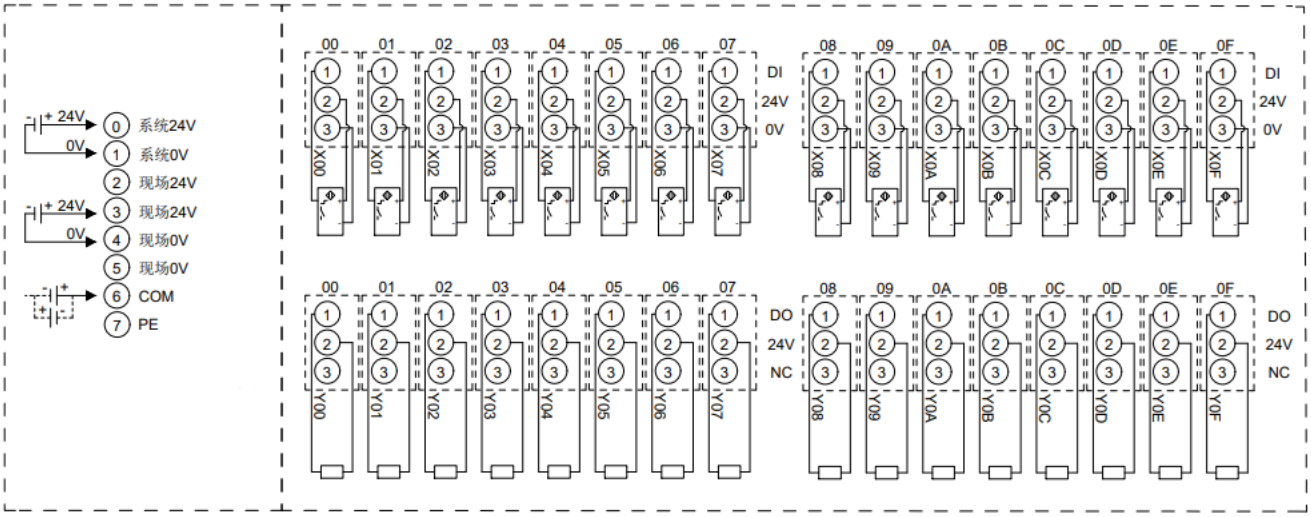




*COM is the DI common terminal, NPN/PNP compatible


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### 6.3.3 EI5R-1616A



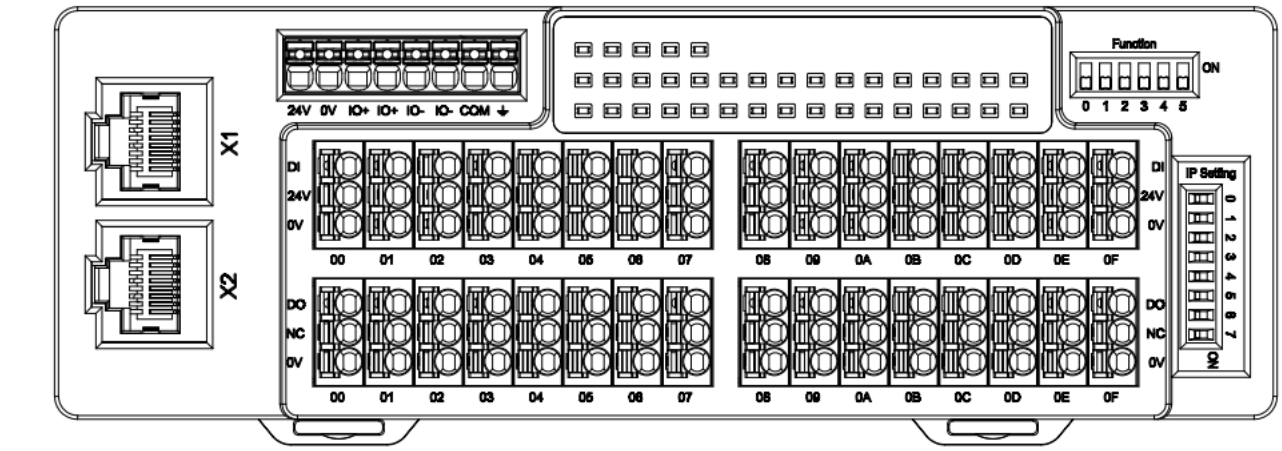

*field 24 V internally connected; field 0 V internally connected

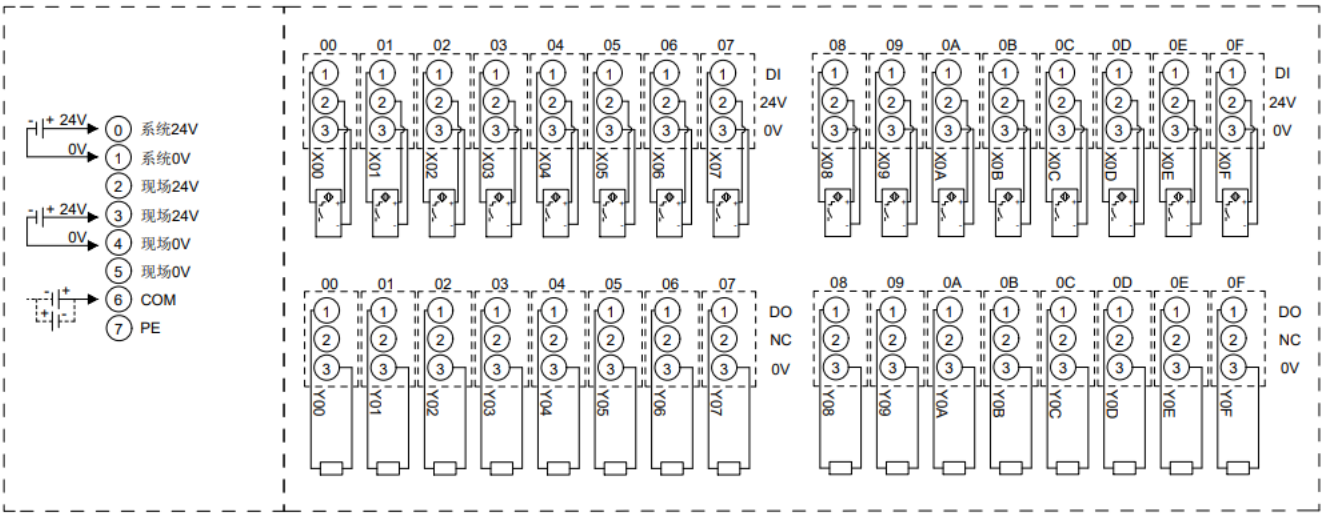
*COM is the DI common terminal, NPN/PNP compatible

*NC internally connected


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## 6.3.4 EI5R-1616B



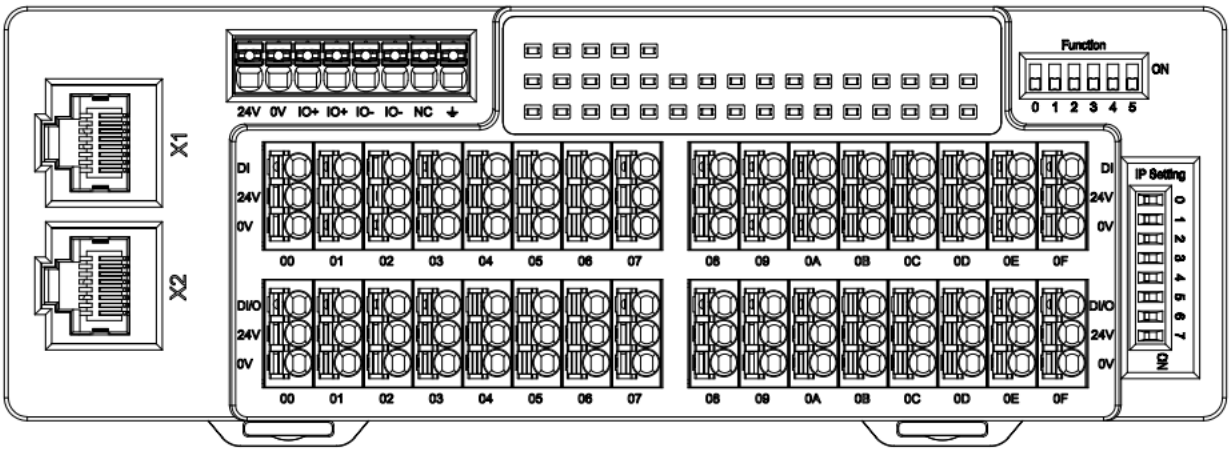

*field 24 V internally connected; field 0 V internally connected

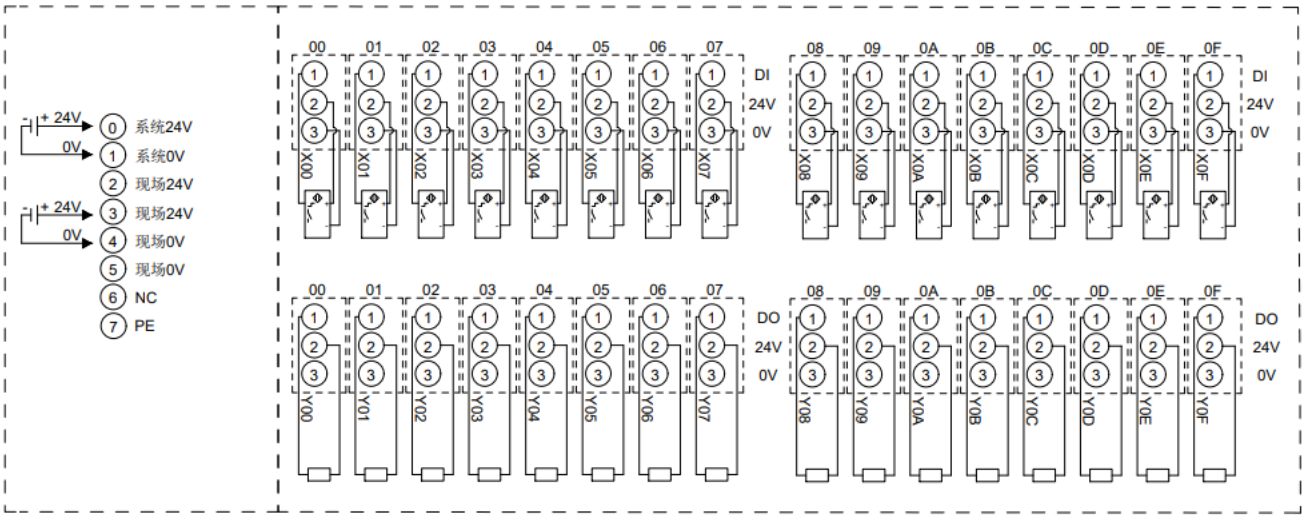
*COM is the DI common terminal, NPN/PNP compatible

*NC internally connected


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## 6.3.5 EI5R-1616A+



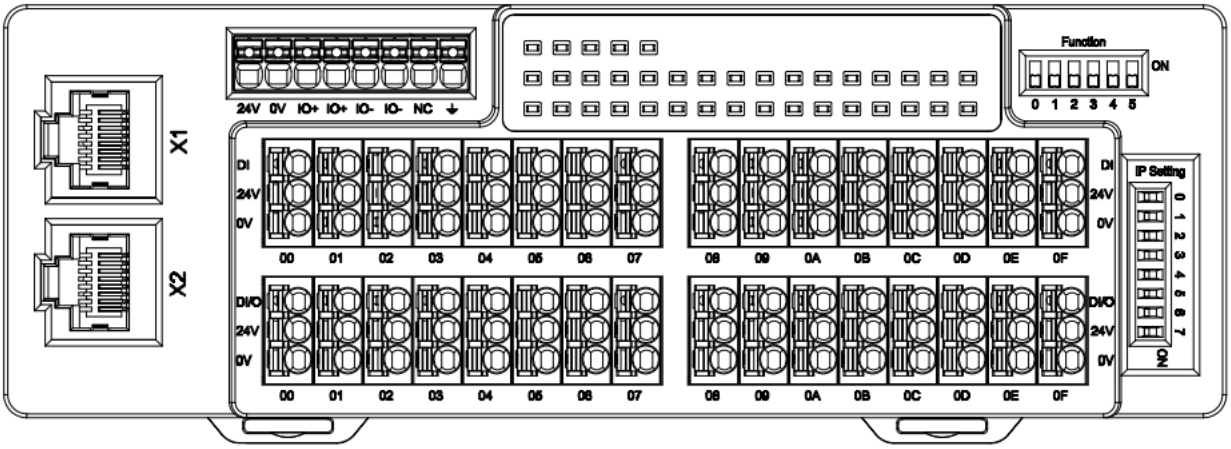



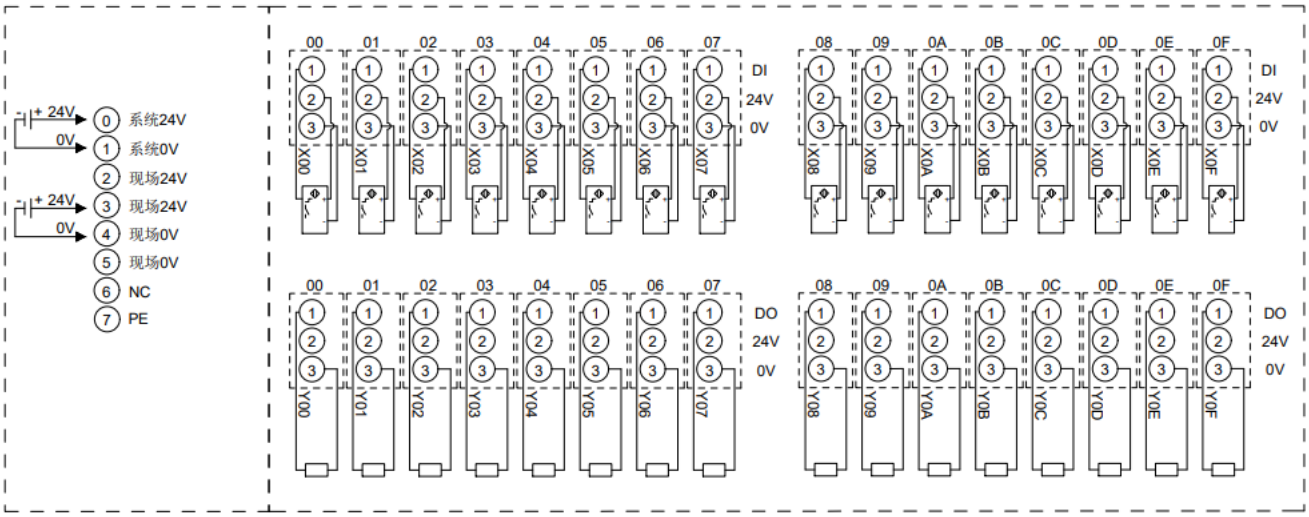

*field 24 V internally connected; field 0 V internally connected

*The DI port supports NPN input only.


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## 6.3.6 EI5R-1616B+



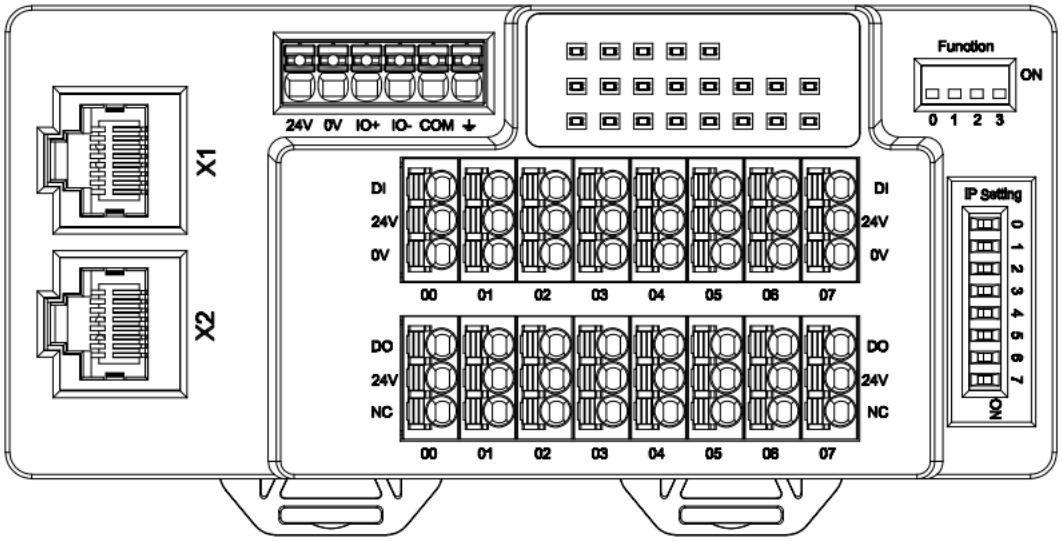



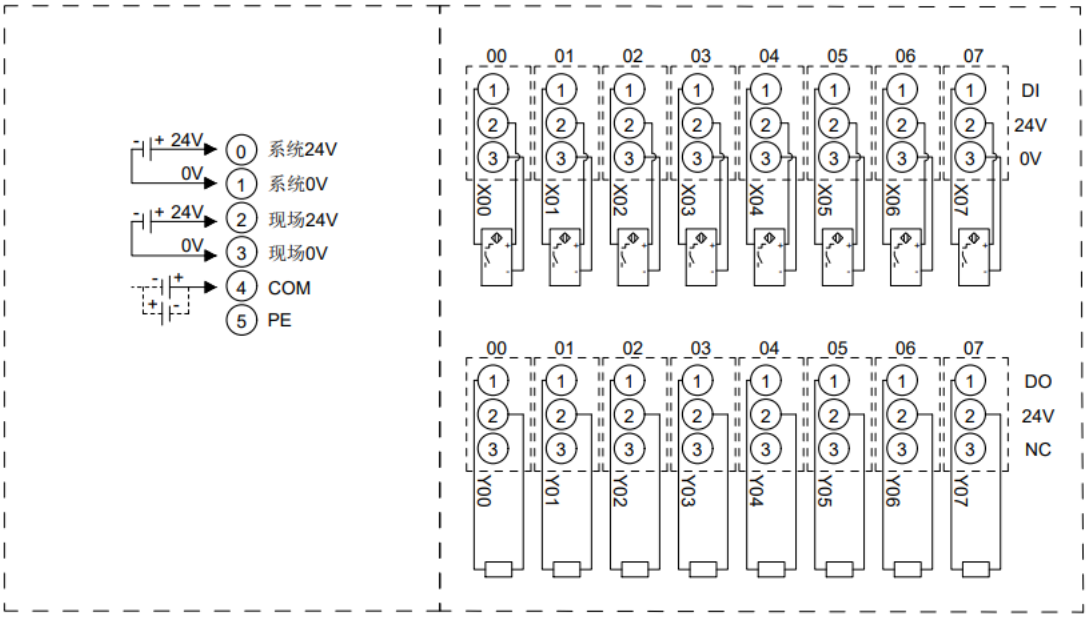

*field 24 V internally connected; field 0 V internally connected

*The DI port supports PNP input only.


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## 6.3.7 EI5R-0808A



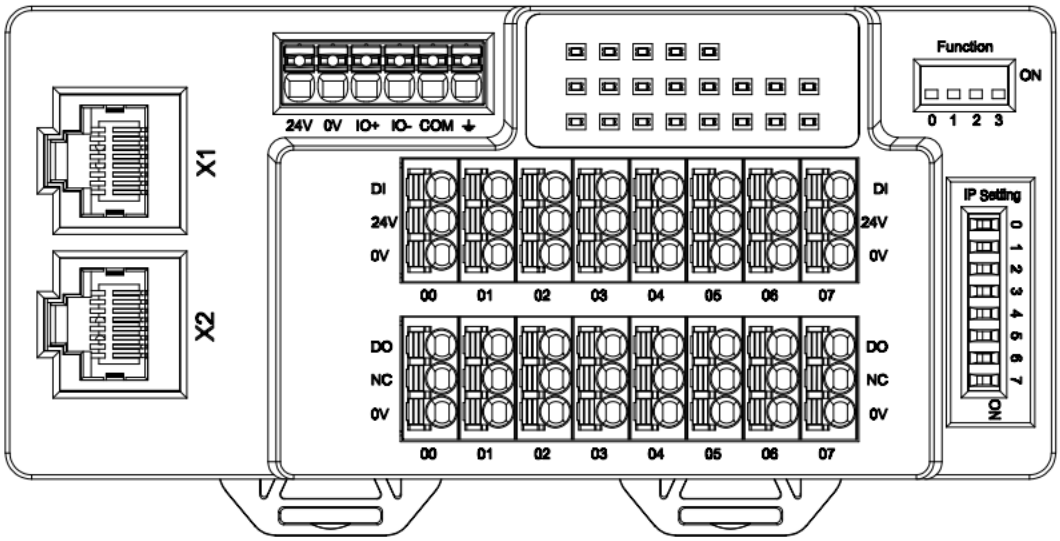



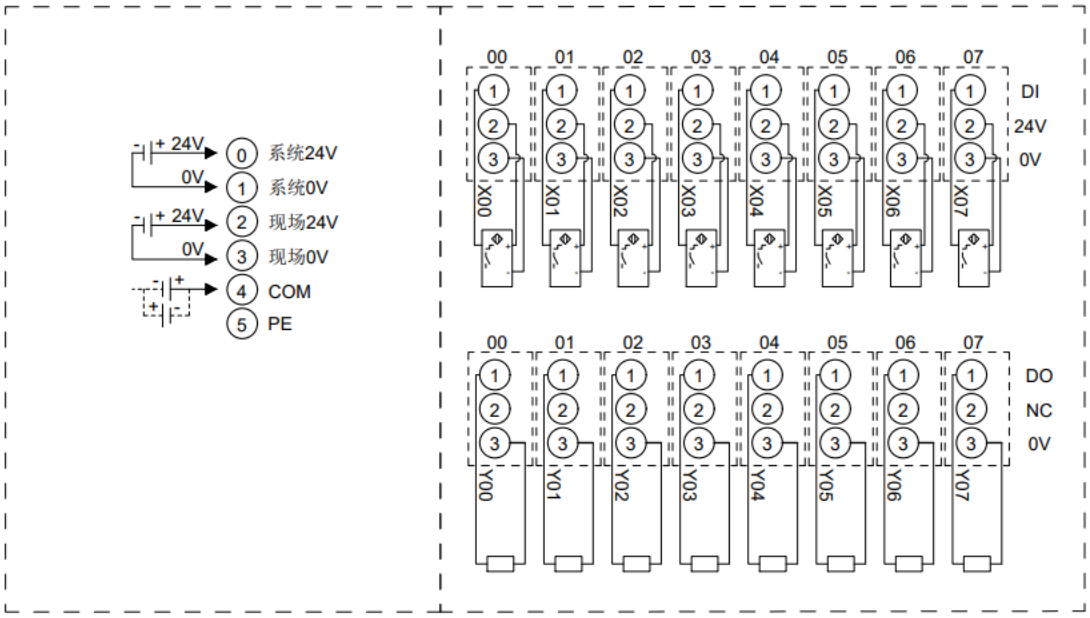

*COM is the DI common terminal; NPN/PNP compatible

*NC internally connected


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## 6.3.8 EI5R-0808B



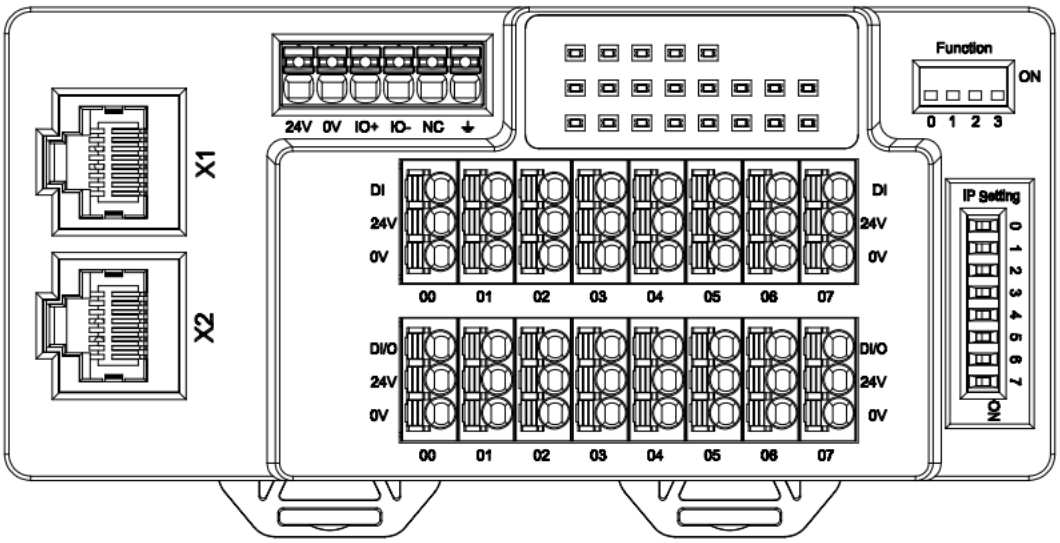



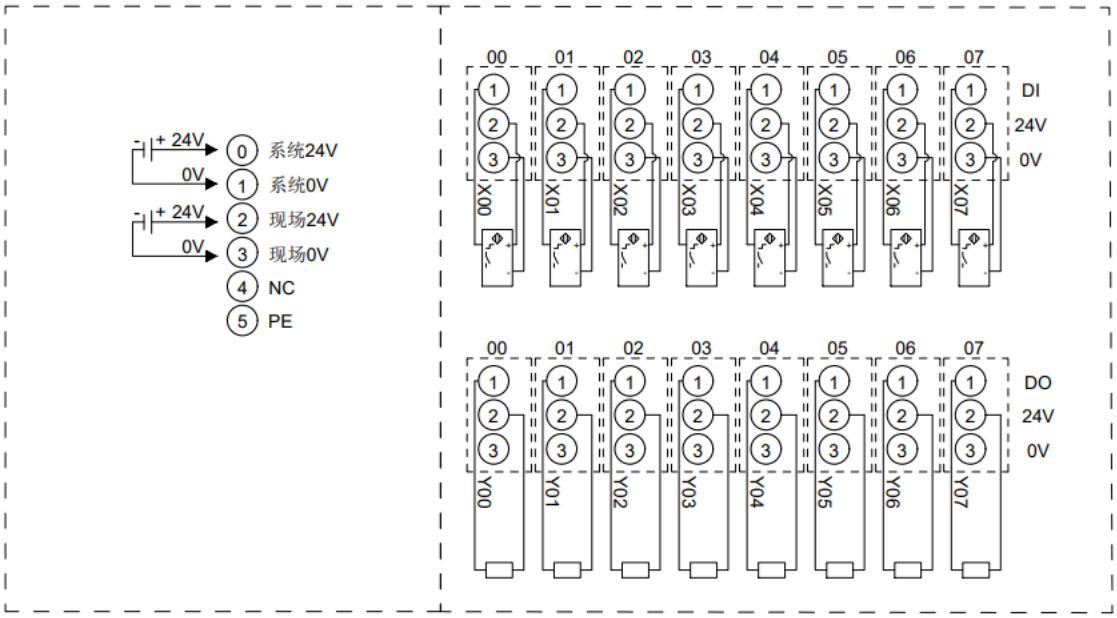

*COM is the DI common terminal; NPN/PNP compatible

*NC internally connected


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### 6.3.9 EI5R-0808A+

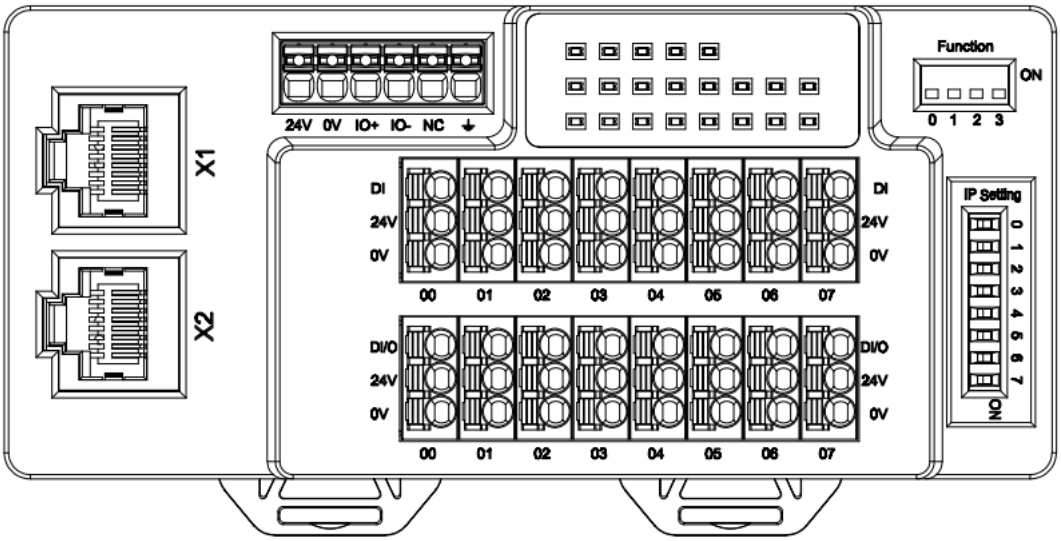


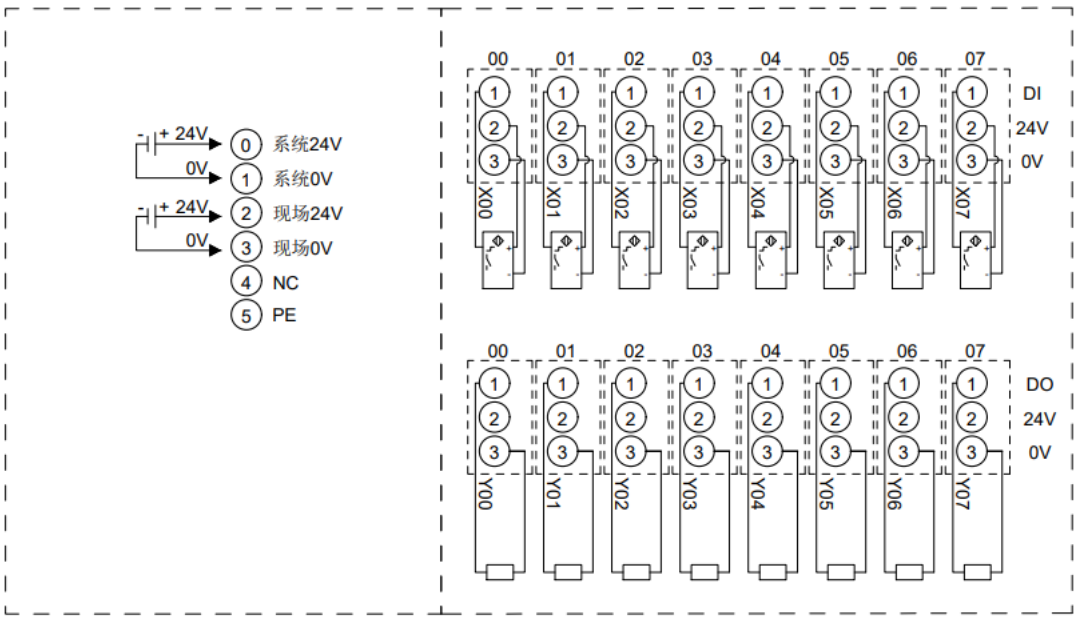




*The DI port supports NPN input only


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### 6.3.10 EI5R-0808B+

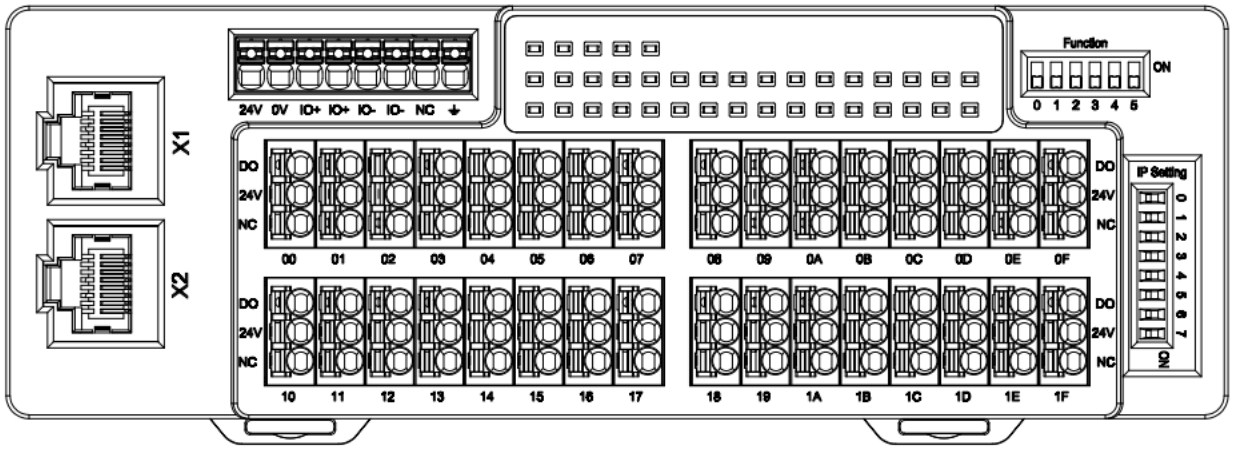


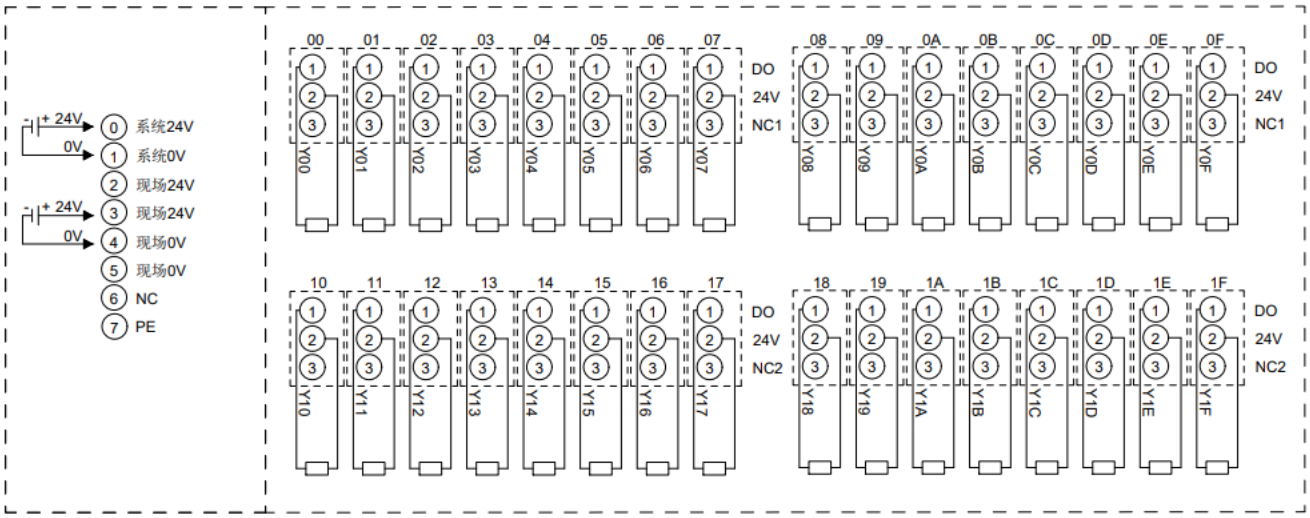




*The DI port supports PNP input only


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## 6.3.11 EI5R-0032A



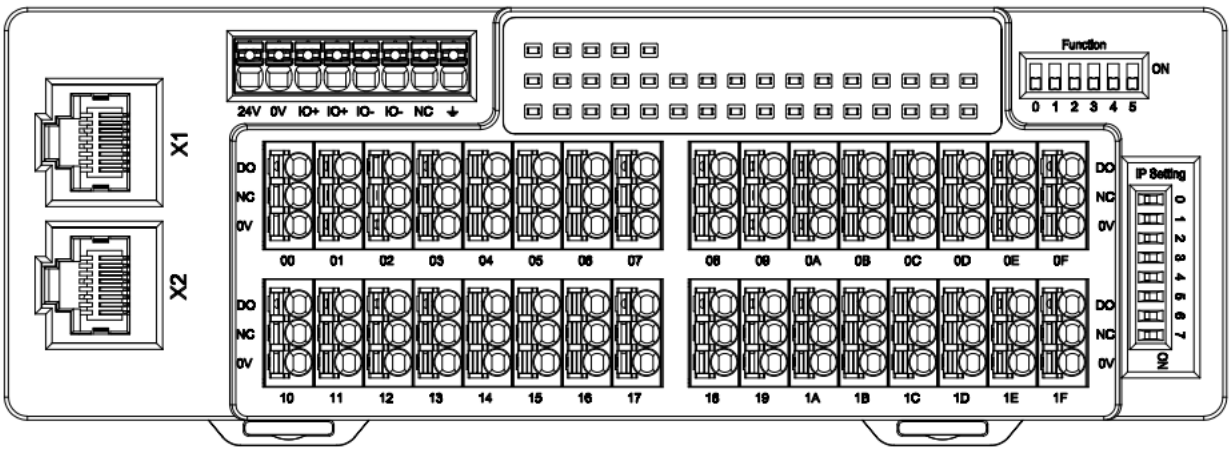



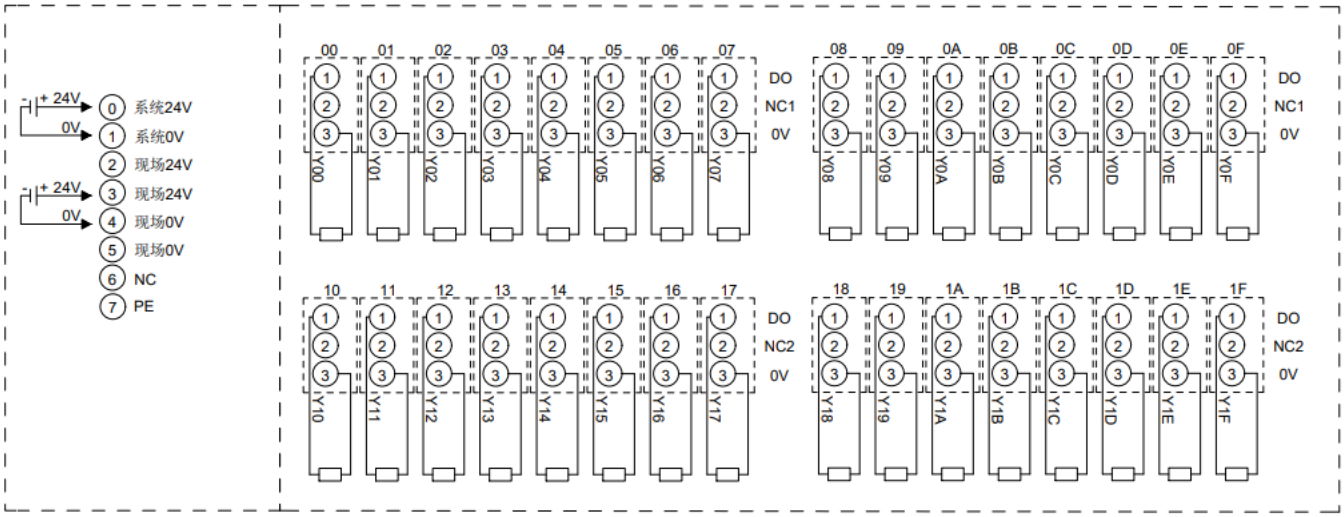

*field 24 V internally connected; field 0 V internally connected

*NC1 internally connected; NC2 internally connected


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## 6.3.12 EI5R-0032B



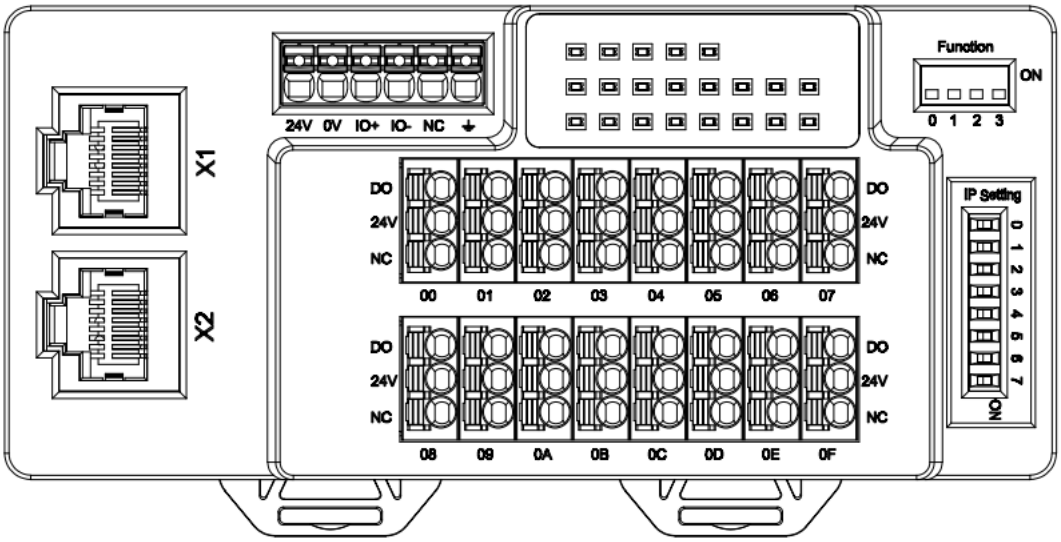



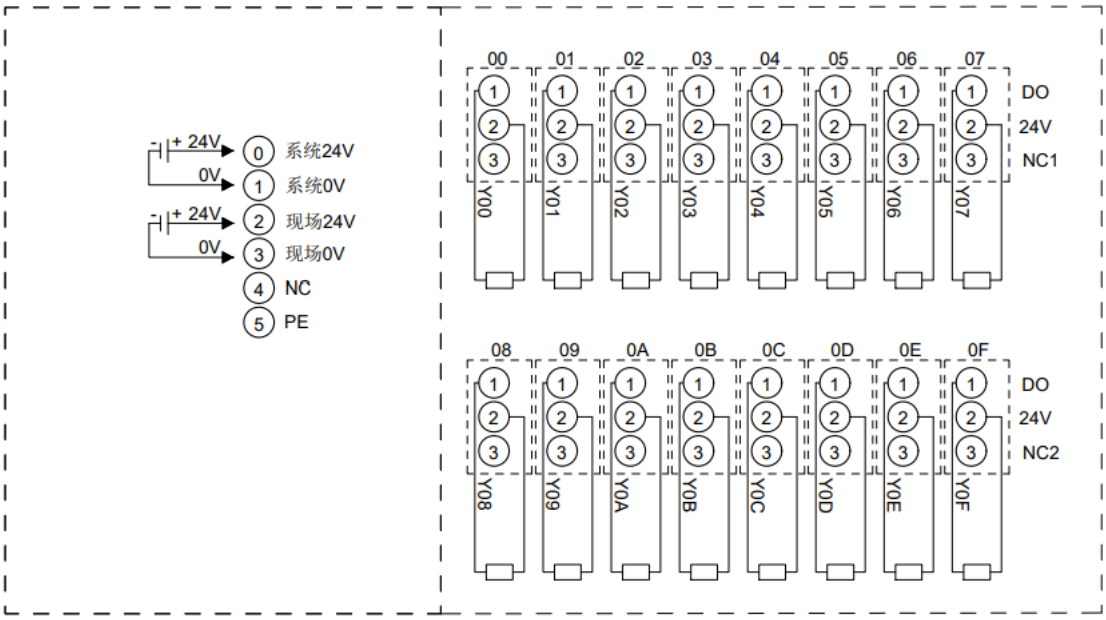

*field 24 V internally connected; field 0 V internally connected

*NC1 internally connected; NC2 internally connected


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### 6.3.13 EI5R-0016A

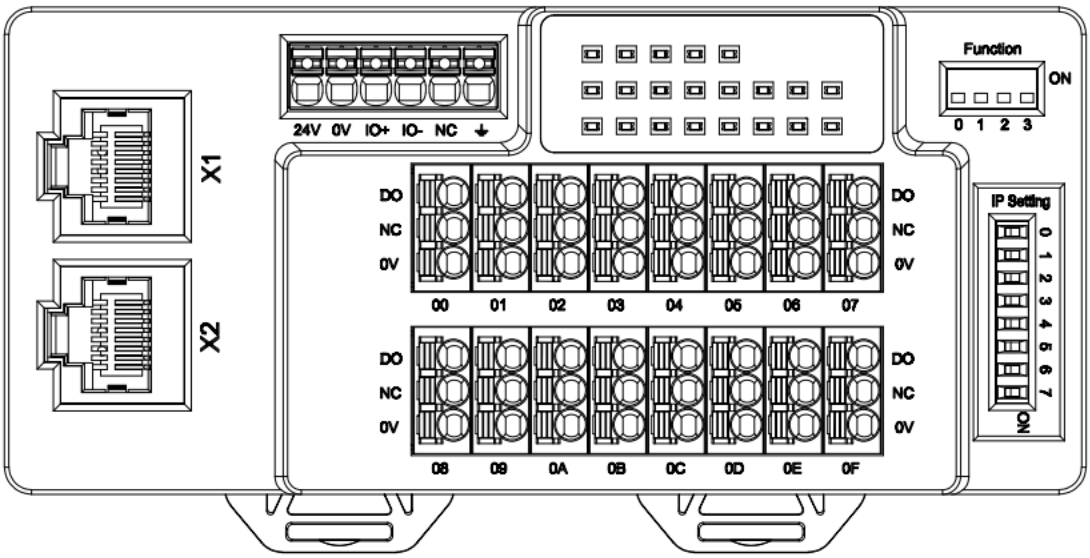


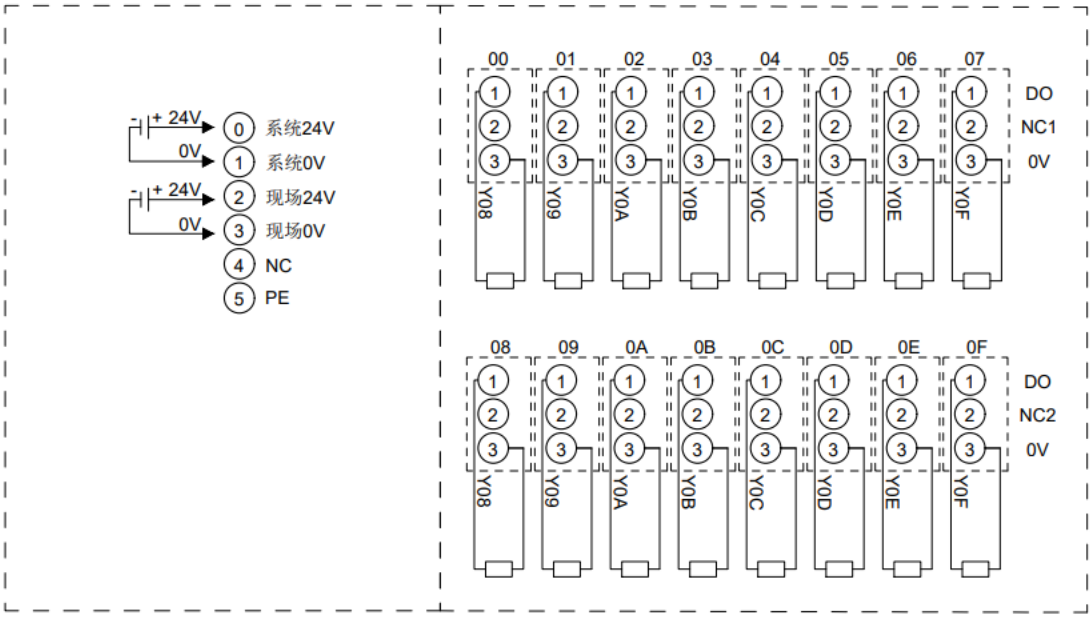




*NC1 internally connected; NC2 internally connected


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### 6.3.14 EI5R-0016B




*NC1 internally connected; NC2 internally connected


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# 7 Usage

## 7.1 IP address setting and Modification

### 7.1.1 Setting the IP address via the IP setting DIP switch

- **In the factory default state, when the IP address is set via the IP setting DIP switch,**
  the IP address is 192.168.0.XXX (XXX is the value set on the IP setting DIP switch, ranging from 1 to 254).
- **When an IP address has already been set via the host software and the IP address is then set via the IP setting DIP switch,**
  the IP address retains the upper 3 bytes of the IP address set via the host software, and the lower 1 byte is the value set on the IP setting DIP switch.
  For example, if the host software sets the IP address to 172.10.0.12 and the IP setting DIP switch setting is then changed, the IP address becomes 172.10.0.XXX (XXX is the value set on the IP setting DIP switch, ranging from 1 to 254).

**Notes**

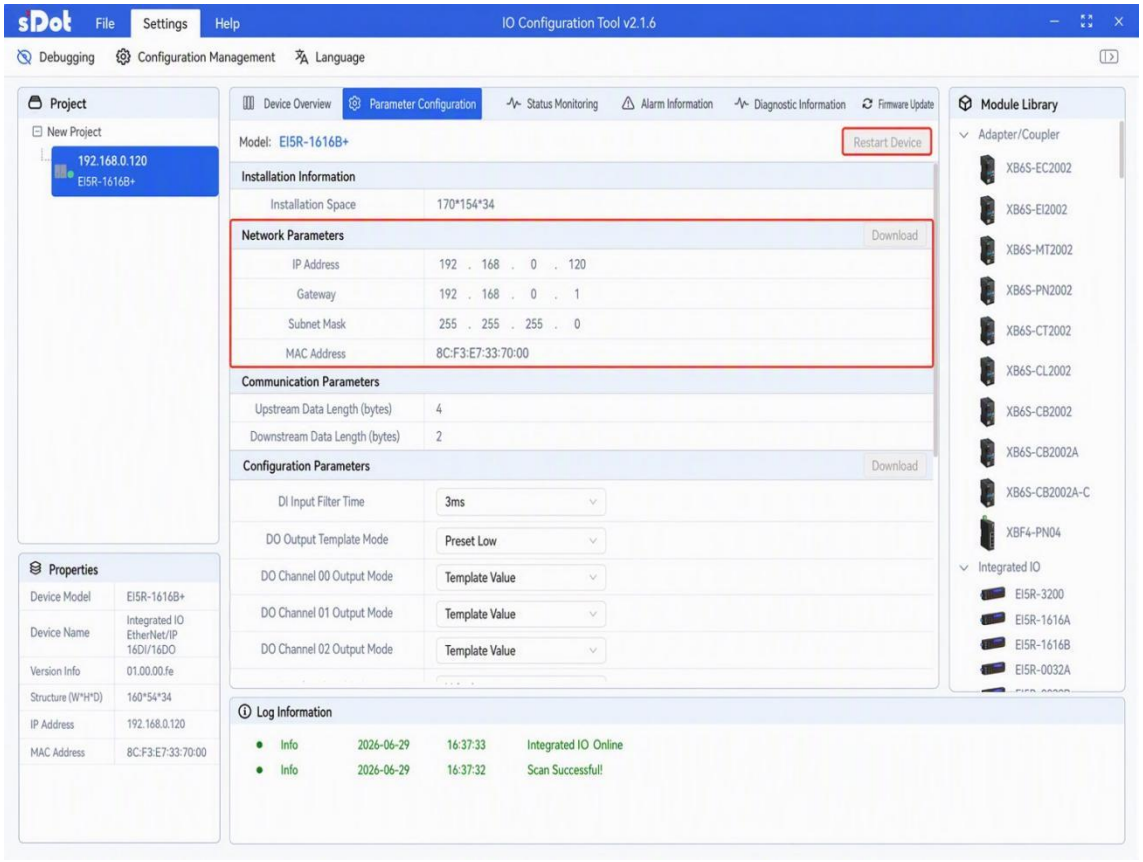
- **For a description of the IP setting DIP switch and how to operate it, see 4.3.2 IP setting DIP Switch.**
- **At the factory, the IP setting DIP switch is set to "000" and no IP address is assigned.**
- **After modification via the host software, the module changes its startup mode to static IP startup and automatically restarts. The module starts with an IP address composed of the IP setting DIP switch value and the assigned subnet.**
- **When the IP setting DIP switch is set to 255, the module automatically performs an IP address reset after power-on.**


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### 7.1.2 Setting the IP address via the host software

- **The following uses the host software IO Config Tool as an example to describe how to modify the IP address.**

a. After scanning devices, go to the parameter configuration page of the EI5R-1616B+ and modify the IP address under network parameters. After modification, click "Download". Then click "Restart Device" and rescan the device, or power-cycle the device and scan it again, as shown in the figure below.





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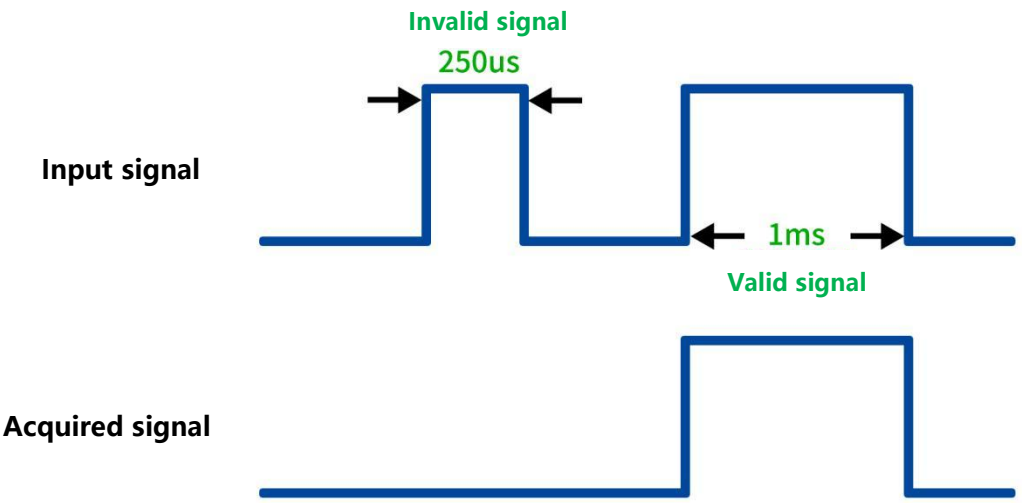
# 7.2 Parameter description

## 7.2.1 Digital input filter

Digital input filter prevents the program from responding to unexpected rapid changes in input signals, which may be caused by switch contact bounce or electrical noise. Digital input filter supports per-module settings; each module can be configured individually, but channels cannot be configured individually.

The digital input filter time (FilterTime) is currently configured to 3 ms by default, with a settable range of no filter, 0.1 ms, 0.2 ms, 0.5 ms, 1 ms, 2 ms, 3 ms (factory setting), 4 ms ... 18 ms, 19 ms, 20 ms. When configured to 3 ms, noise within 3 ms can be filtered out. A 3 ms input filter time means that a single signal must persist for 3 ms when changing from "0" to "1" or from "1" to "0" to be detected, while a single high pulse or low pulse shorter than 3 ms will not be detected.

Functional description: When the input filter is configured to 1 ms, noise within 1 ms can be filtered out. As shown in the figure below, when a 250 μs signal is input, it will be regarded as an invalid signal; a single high pulse or low pulse shorter than 1 ms will not be detected, while signals of 1 ms or longer can be captured.





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### 7.2.2 Clear/Hold digital output signal

The Clear/Hold function applies to modules with output channels. This function allows you to configure the output mode of the output channels when the module is in a non-OP state (stopped or module network cable disconnected). This parameter supports the following output states:

Clear output: When communication is disconnected, the module output channel will automatically clear the output, i.e., output 0.

Output valid value: When communication is disconnected, the module output channel continues to output a valid value, that is, output 1.

Hold Last output value: When communication is interrupted, the module output channels hold the last output value.

The digital Clear/Hold function supports module-wide settings (template mode) and single-channel settings (single-channel mode). Any channel can be configured using single-channel mode or set to template mode; single-channel mode takes priority over template mode. The specific configuration method is shown in the table below. The default is module-wide Clear output.

| **Clear and hold parameters of digital output module** | | | | |
|---|---|---|---|---|
| Parameter name | Parameter description | Parameter value | Parameter value description | Default value |
| TemplateMode | Template mode | 1 | PresetLow — Clear output, i.e., output 0 | 1 |
| | | 2 | PresetHigh — output Valid value, i.e., output 1 | |
| | | 3 | KeepMode retains the previous output value. | |
| Channel x | Single-channel mode settings | 0 | TemplateValue — Template mode value, i.e., single-channel mode is not enabled | 0 |
| | | 1 | PresetLow — Clear output, i.e., output 0 | |
| | | 2 | PresetHigh — output Valid value, i.e., output 1 | |
| | | 3 | KeepMode retains the previous output value. | |


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# 7.3 Alarm code information

## 7.3.1 Process data alarm code

When the digital module is set to the alarm version, the alarm code is reported in the module's upstream data, as detailed in the table below.

| Error code | Description |
|---|---|
| 0 x 0000 | No fault |
| 0 x 0001 | Load-side voltage not connected |
| 0 x 0002 | DO output error |
| 0 x 0004 | Firmware is incompatible with the current module model |
| 0 x 0008 | Firmware Upgrade error |
| 0 x 0010 | Parameter setting error |
| 0 x 0020 | This occurs when the DI channel is adaptively set to 1 and the corresponding DO control address is mistakenly set to 1. |

## 7.3.2 Protocol alarm code

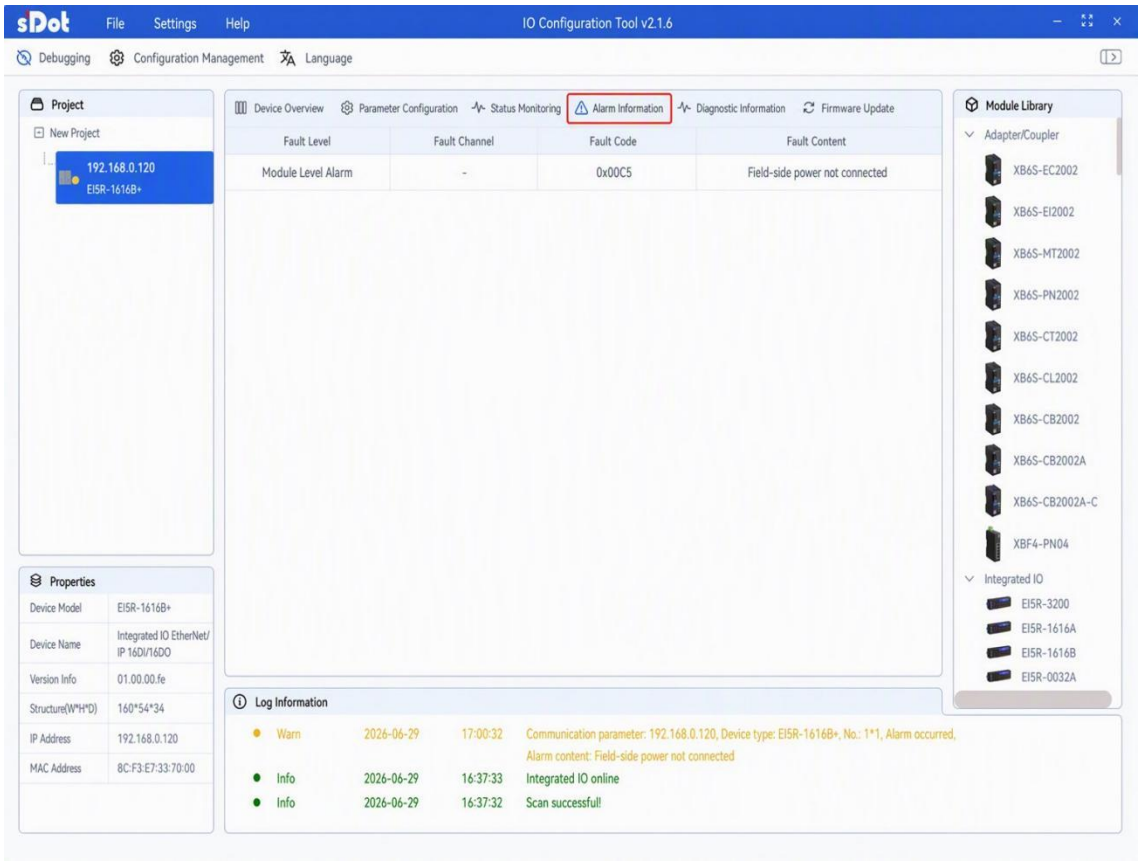
| Type | Alarm code | Alarm content |
|---|---|---|
| Online Upgrade error | 0 x 0081 | Firmware Upgrade error |
| | 0 x 0082 | Firmware is incompatible with the current module model |
| Field voltage alarm | 0 x 00C5 | Load-side voltage not connected |
| Digital output alarm | 0 x 1040 | DO output error |
| | 0 x 1041 | Parameter setting error |
| | 0 x 1042 | This fault occurs when the DO control address for the corresponding channel is erroneously set to 1 while the DI channel auto-adaptation is set to 1 [1] |

Note [1]: In configurable channel auto-adaptation mode, when the DI input signal is 1, DO control can no longer be performed on the corresponding channel; otherwise, an alarm is triggered.


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### 7.3.3 Viewing protocol alarm codes

Using the IO Config Tool software as an example, when the digital module is a standard version, alarm information can be viewed on the alarm information page. Alarm information viewing must be performed in commissioning mode, as shown in the figure below.





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## 7.4 I/O module process data

Digital I/O module:

Each channel of the module occupies 1 bit. The actual data length used varies with the number of module channels. When the digital module is an alarm version, the first 2 bytes of the upstream data are diagnostic bytes, and the DI is offset by 2 bytes thereafter.

Data length allocation is as follows:

| Module model | Upstream process data length (Byte) | | Downstream process data length (Byte) | |
|---|---|---|---|---|
| | Allocated value | Actual value Used | Allocated value | Actual value Used |
| EI5R-3200 | 4 | 4 | - | - |
| EI5R-3200-alarm | 6 | 6 | - | - |
| EI5R-1600 | 2 | 2 | - | - |
| EI5R-1600-alarm | 4 | 4 | - | - |
| EI5R-1616A/B | 2 | 2 | 2 | 2 |
| EI5R-1616A-alarm | 4 | 4 | 2 | 2 |
| EI5R-1616B-alarm | 4 | 4 | 2 | 2 |
| EI5R-1616A+/B+ | 4 | 4 | 2 | 2 |
| EI5R-1616A+-alarm | 6 | 6 | 2 | 2 |
| EI5R-1616B+-alarm | 6 | 6 | 2 | 2 |
| EI5R-0808A/B | 1 | 1 | 1 | 1 |
| EI5R-0808A-alarm | 3 | 3 | 1 | 1 |
| EI5R-0808B-alarm | 3 | 3 | 1 | 1 |
| EI5R-0808A+/B+ | 2 | 2 | 1 | 1 |
| EI5R-0808A+-alarm | 4 | 4 | 1 | 1 |
| EI5R-0808B+-alarm | 4 | 4 | 1 | 1 |
| EI5R-0032A/B | - | - | 4 | 4 |
| EI5R-0032A-alarm | 2 | 2 | 4 | 4 |
| EI5R-0032B-alarm | 2 | 2 | 4 | 4 |
| EI5R-0016A/B | - | - | 2 | 2 |
| EI5R-0016A-alarm | 2 | 2 | 2 | 2 |
| EI5R-0016B-alarm | 2 | 2 | 2 | 2 |


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# 7.5 Module configuration description

## 7.5.1 Application in the IO Config Tool software environment

**1、 Preparation**

- **Hardware Environment**
  - **Module Preparation. This document uses EI5R-1616B+-alarm as an example.**
  - **One computer, pre-installed with IO Config Tool software, is configured to have its IP address and the module on the same network segment.**

    Each module is assigned a default IP address at the factory. The typical default IP address is as follows:

    IP address: 192.168.0.120

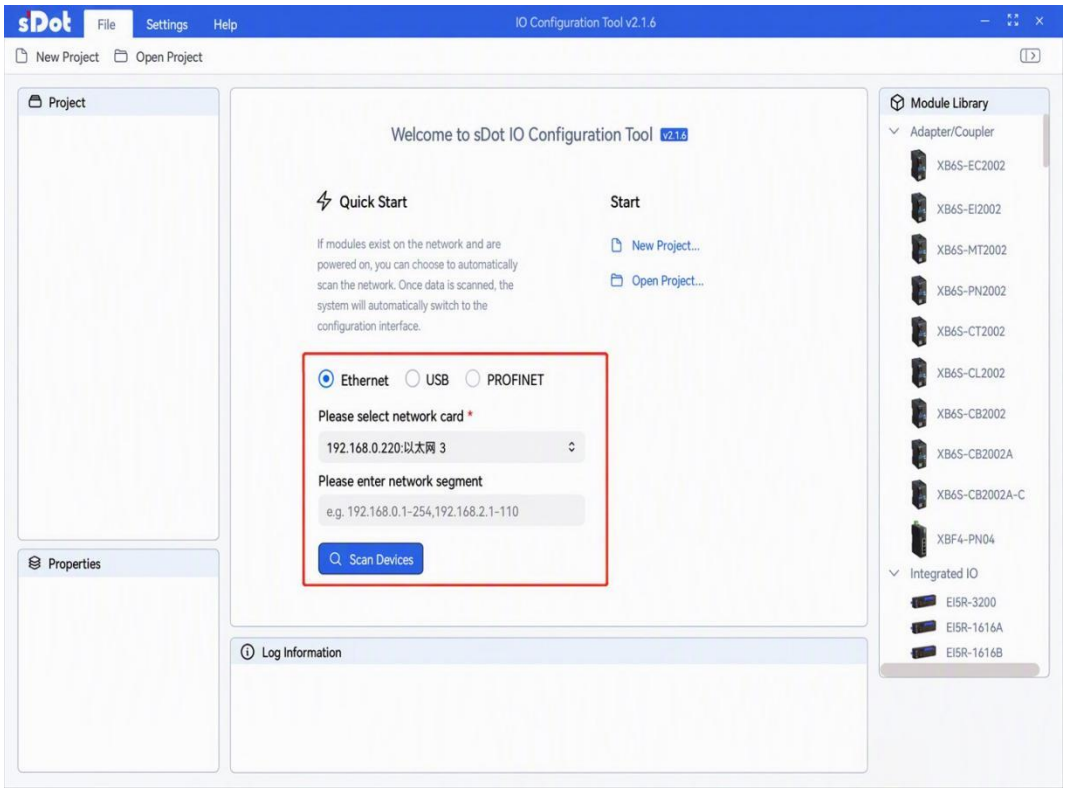
    Gateway: 192.168.0.1

    Subnet Mask: 255.255.255.0
  - **Shielded cables for EtherNet/IP**
  - **One switching power supply**
- **Hardware configuration and wiring**

  Please refer to "5 Installation and Removal" and "6 wiring" requirements.

**2、 Scan devices**

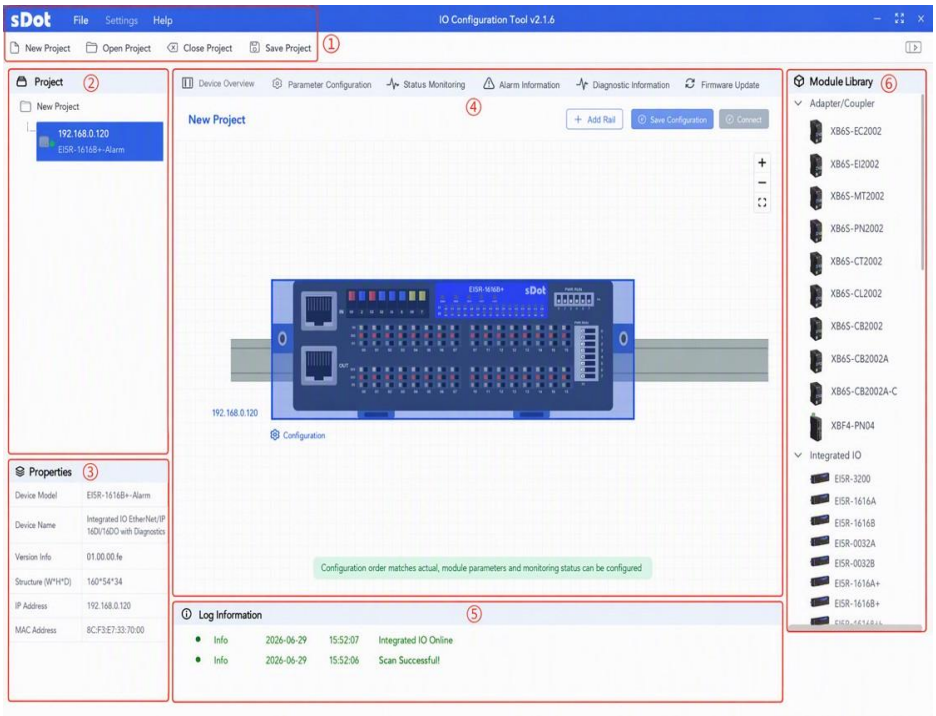
a. Open the IO Config Tool software, select "Ethernet" mode, and in the "Please select network adapter" drop-down list, select an adapter whose address is in the same subnet as the module IP address. Click "Scan Devices" as shown in the figure below.





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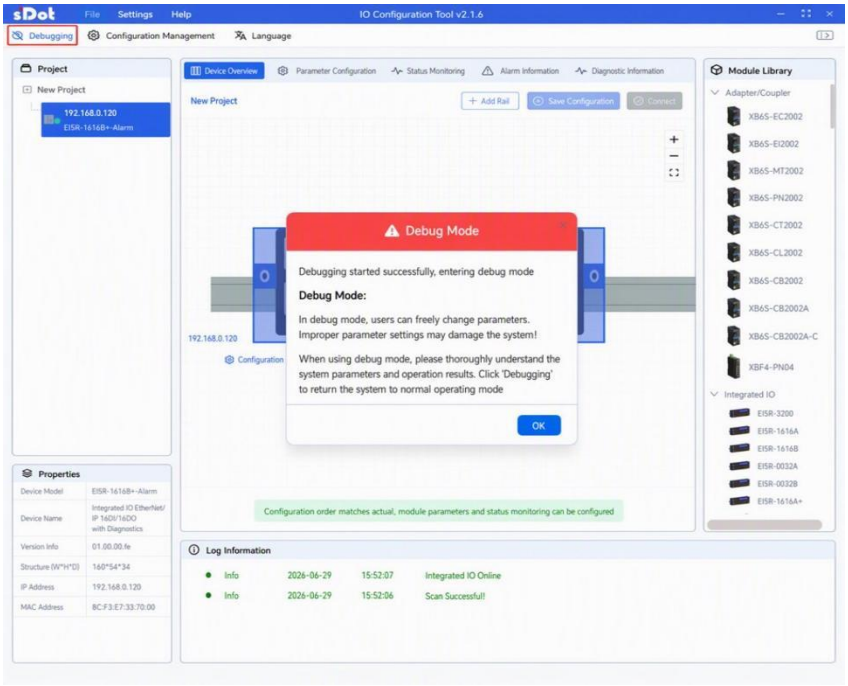
b. After successfully scanning the device, you will enter the device overview page. The page mainly has six functions: ① menu bar, ② engineering bar, ③ module properties, ④ module configuration overview, ⑤ log information, and ⑥ module library, as shown in the figure below.




Note: The module IP address can be viewed in the project pane.

### 3、 Parameter settings

a. Parameter configuration must be performed in Debug mode. Click the "Settings -> Debug" button in the menu bar. Once Debug mode is entered successfully, the button status switches to "Debugging" and a debug start success window pops up. Click "OK" as shown in the figure below.

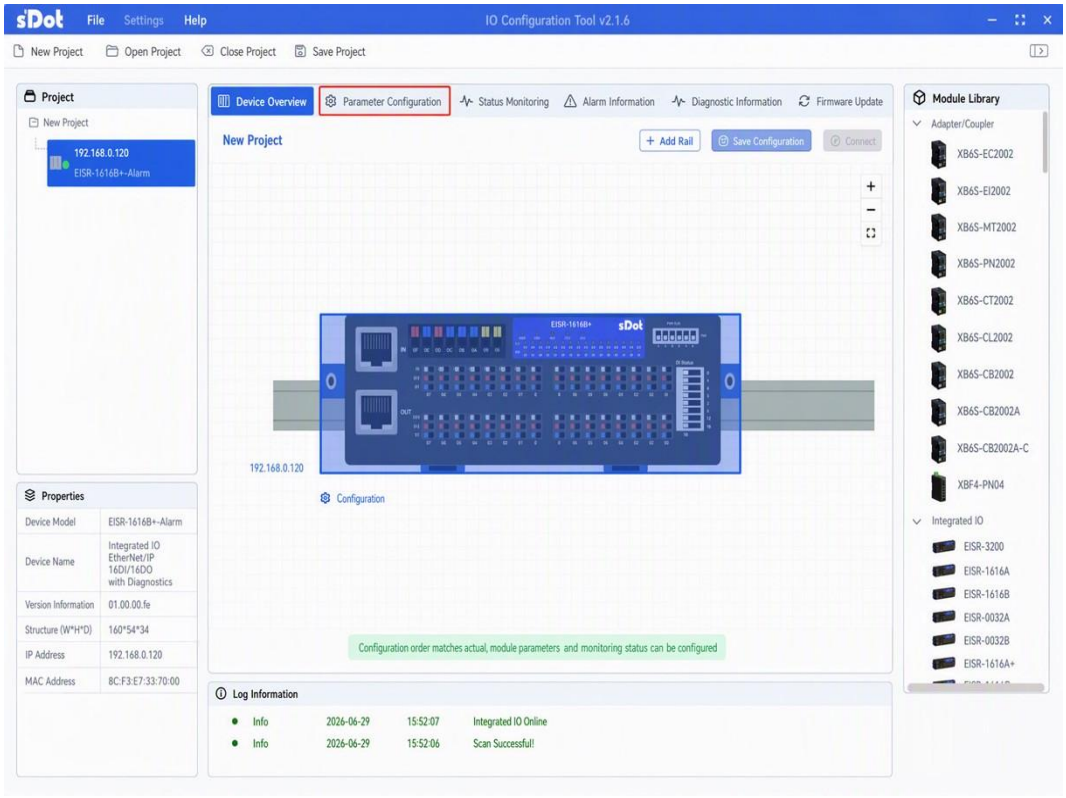




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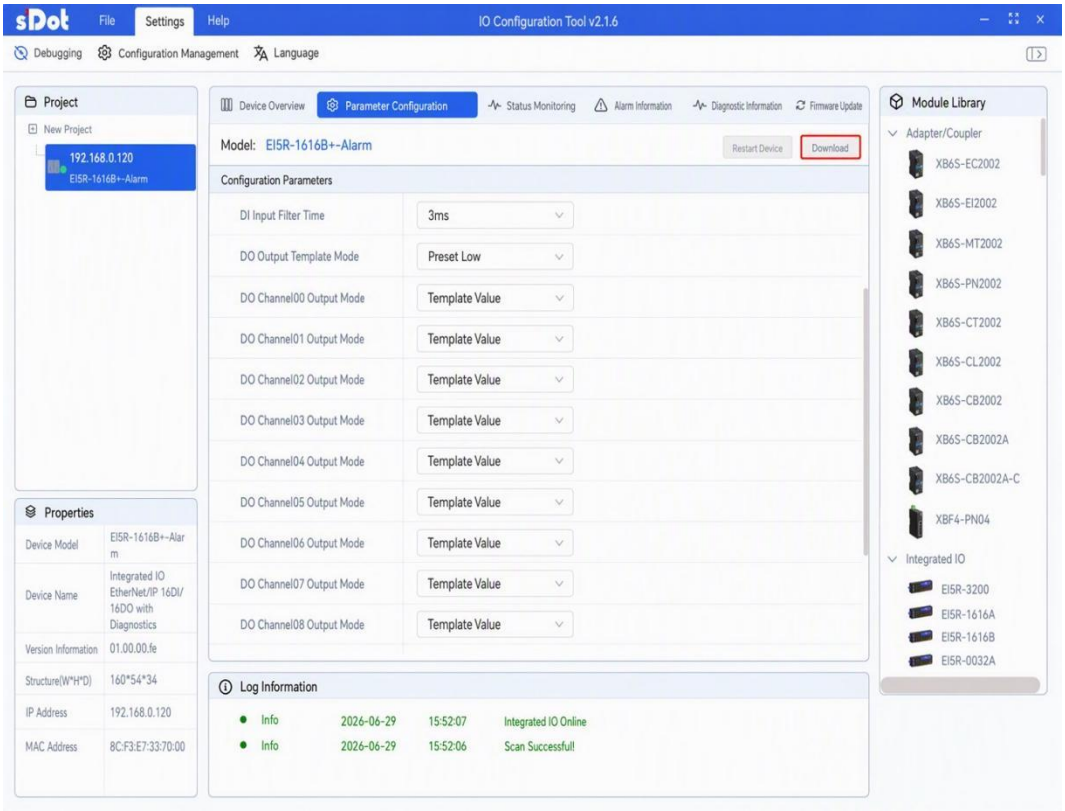
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b. On the device overview page, click the EI5R-1616B+-alarm module, then click "Parameter Settings" as shown in the figure below.



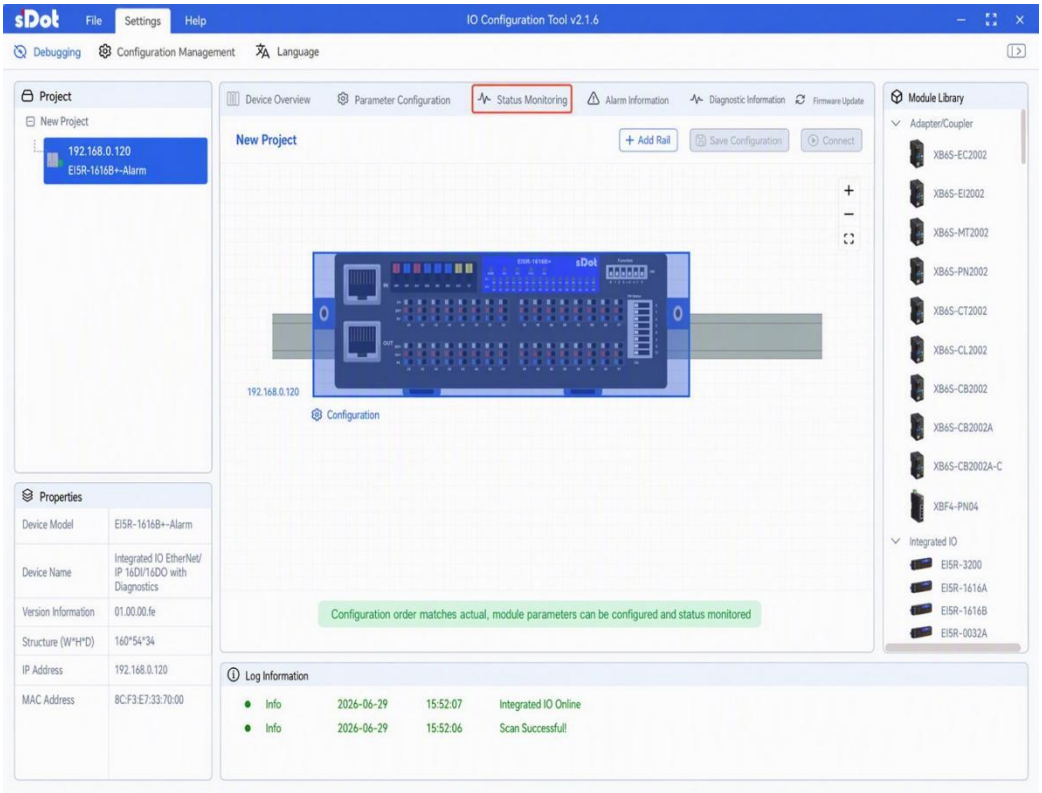

c. On the EI5R-1616B+-alarm parameter settings page, you can configure the digital input filter and the output signal clear/hold function. Parameters can be configured according to actual application requirements. After configuration is complete, click "Download" as shown in the figure below.


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**4、 Basic functions**

a. Module status monitoring must be performed in Debug mode. After entering Debug mode, click the EI5R-1616B+-alarm module on the device overview page, then click "Status Monitoring" to enter the module status monitoring page as shown in the figure below.

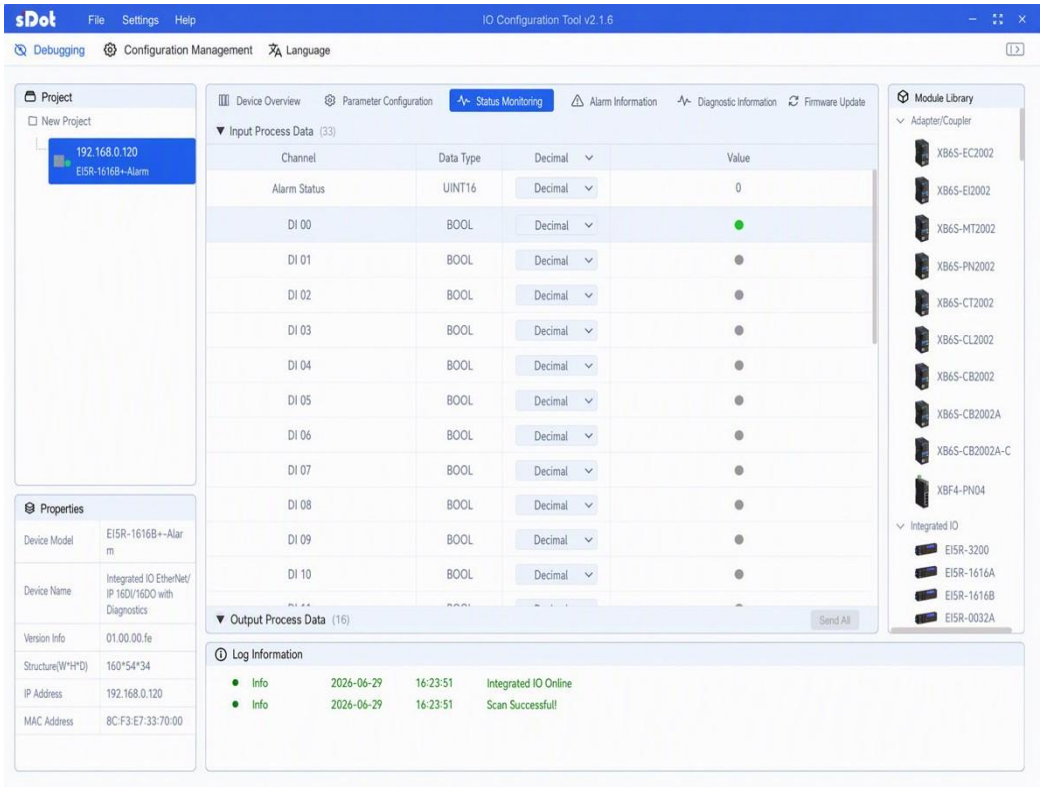




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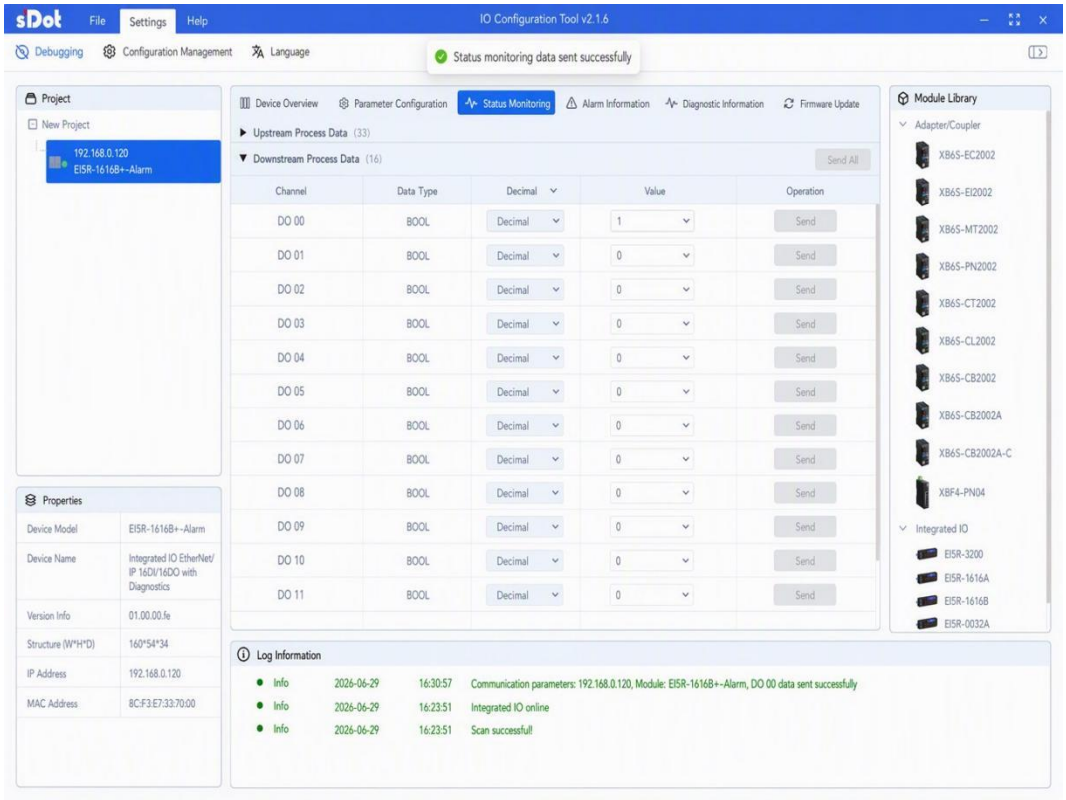
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b. Taking channel 0 of the EI5R-1616B+-alarm module as an example, if there is a valid voltage input to input channel 0 of the module, the input value can be monitored on the status monitoring page as shown in the figure below.

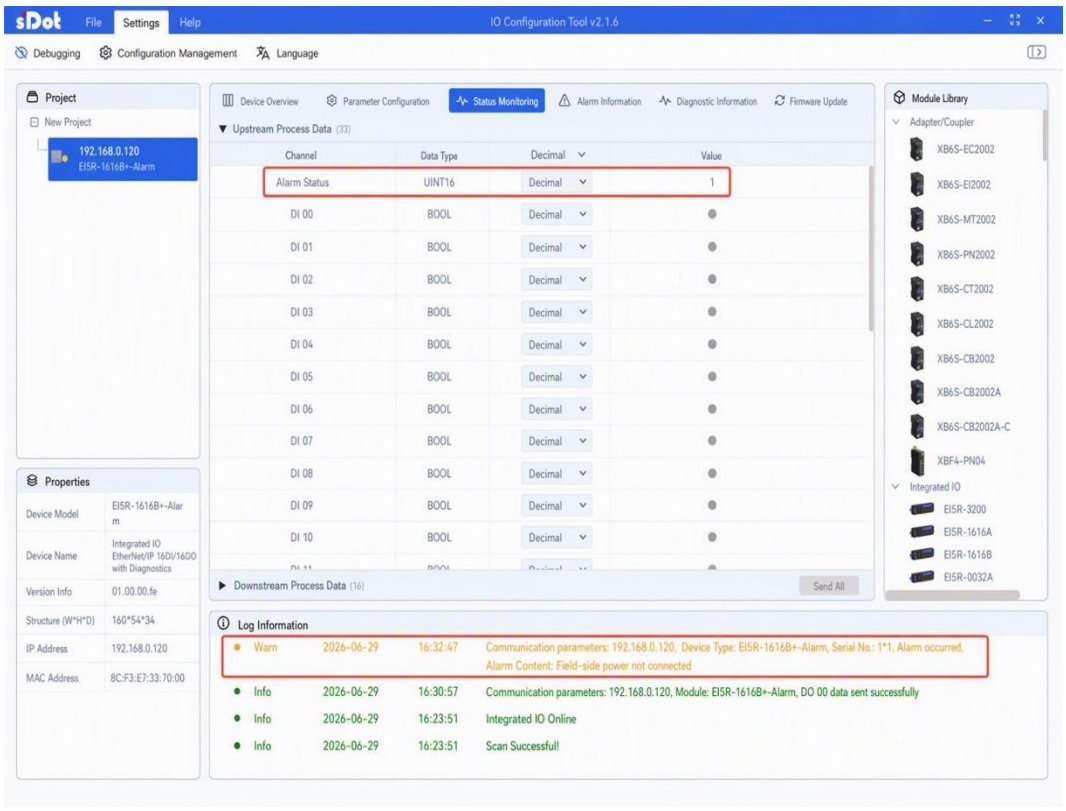



c. Taking output channel 0 of the EI5R-1616B+-alarm module as an example, if you want the module's digital output channel 0 to output, you can modify the channel value and then click the "Download" button for force output control. The corresponding channel LED on the module will light up as shown in the figure below.


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d. If the field-side power supply is not connected, the process data alarm code can be viewed in the alarm status on the status monitoring page as shown in the figure below.





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### 7.5.2 Application in KV STUDIO software environment

#### 1、Preparation

- **Hardware Environment**
  - **Module model EI5R-1616B+-alarm**
  - **A computer with KV STUDIO Ver.10G software pre-installed**
  - **Ethernet Specialized Shielded Cables**
  - **One Keyence PLC; this document uses KV-8000 as an example**
  - **One switching power supply**
  - **Module mounting rail and rail mounting clip**
  - **Device configuration file**

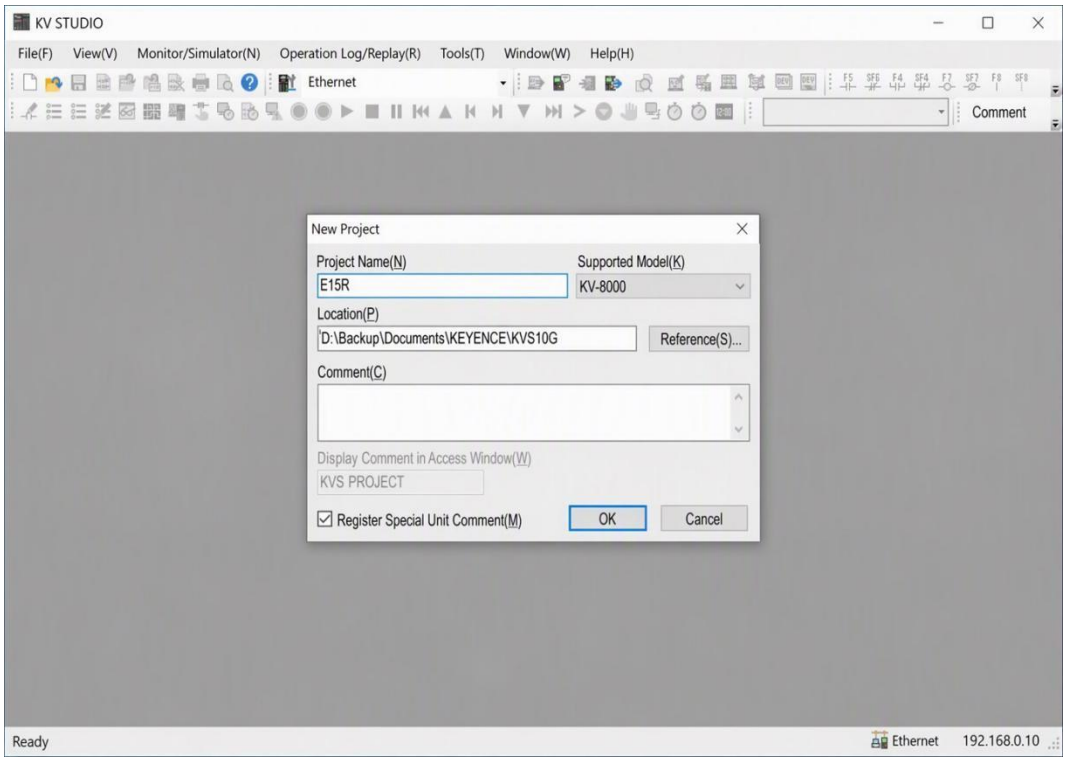
    Configuration file download address:https://www.solidotech.com/cn/resources/configuration-files
- **Hardware configuration and wiring**

  Please operate according to the requirements in "5 Installation and Removal" and "6 wiring".

#### 2、Create Project

a. Open the KV STUDIO software and select "File -> New Project".

b. In the pop-up box, fill in the "Project Name", select "PLC Models", "Position", as shown in the figure below.

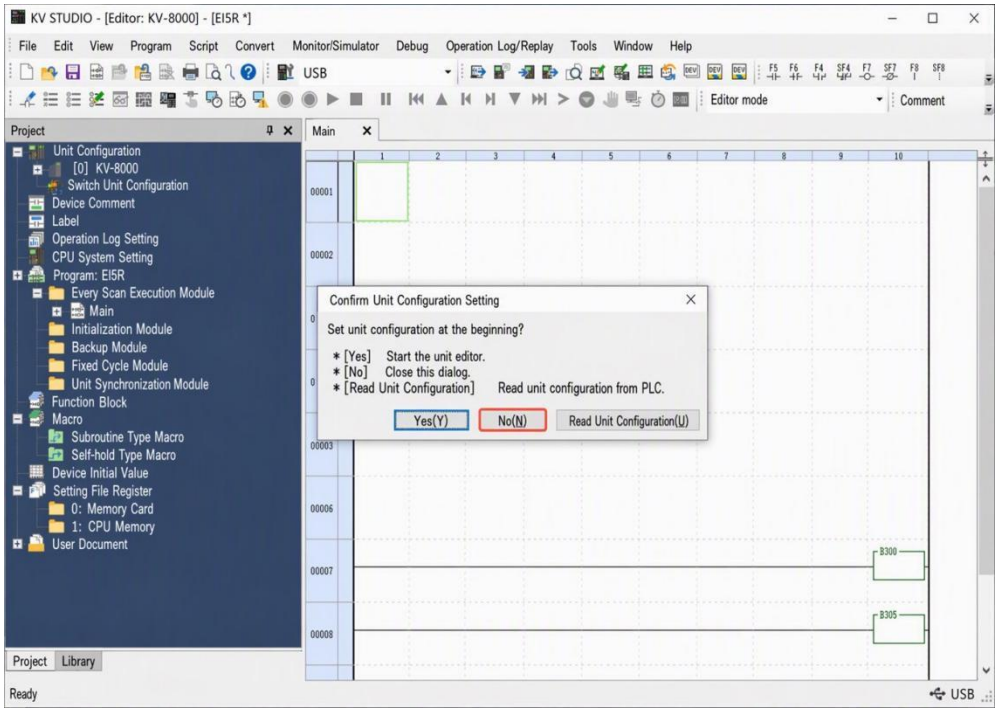



◆ Project name: Customize.

◆ Supported models: View the PLC appearance and select the corresponding model, for example: KV-8000.


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c. The "Confirm Unit Setting Information" window pops up, and you can select to start the unit Editor, close the dialog box, or read the unit configuration from the PLC as necessary. Select "No" to demonstrate the operation, as shown in the figure below.



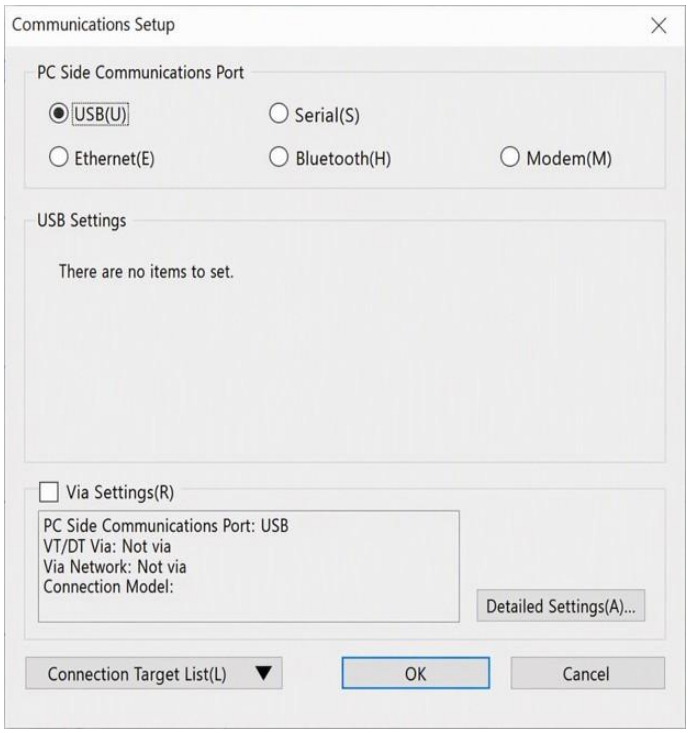

## 3、Communication settings

Select the communication method. If the PLC is connected to the host software via an Ethernet cable, select "Ethernet"; if connected via USB, select "USB".

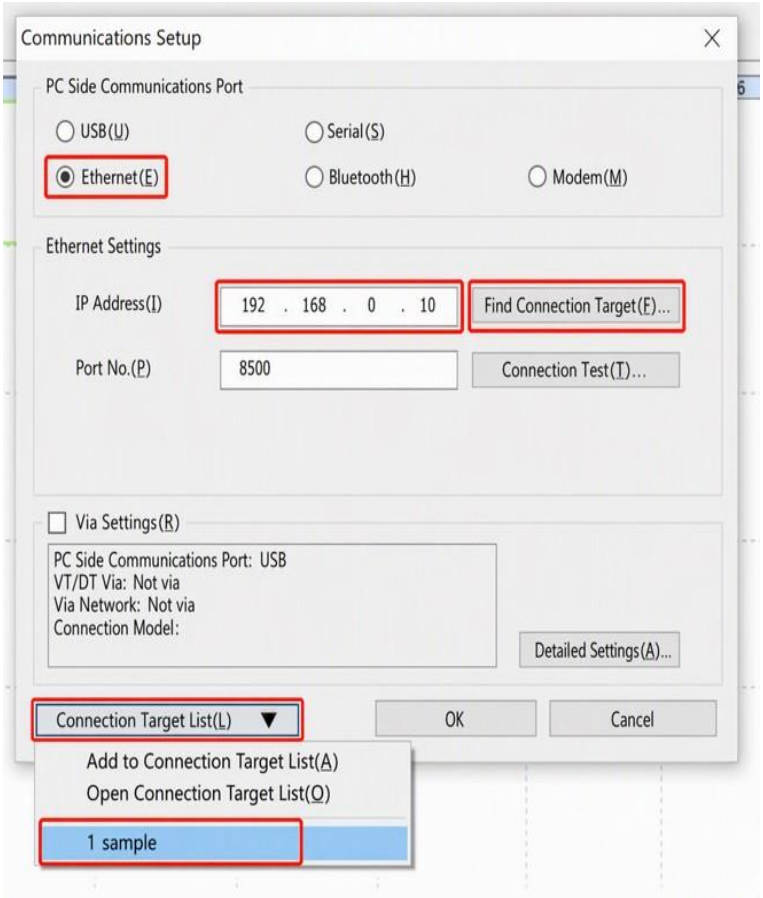
**Procedure for "Ethernet" operation**

a. Click the  button in the menu bar to display the "Communication Settings" window as shown in the figure below.


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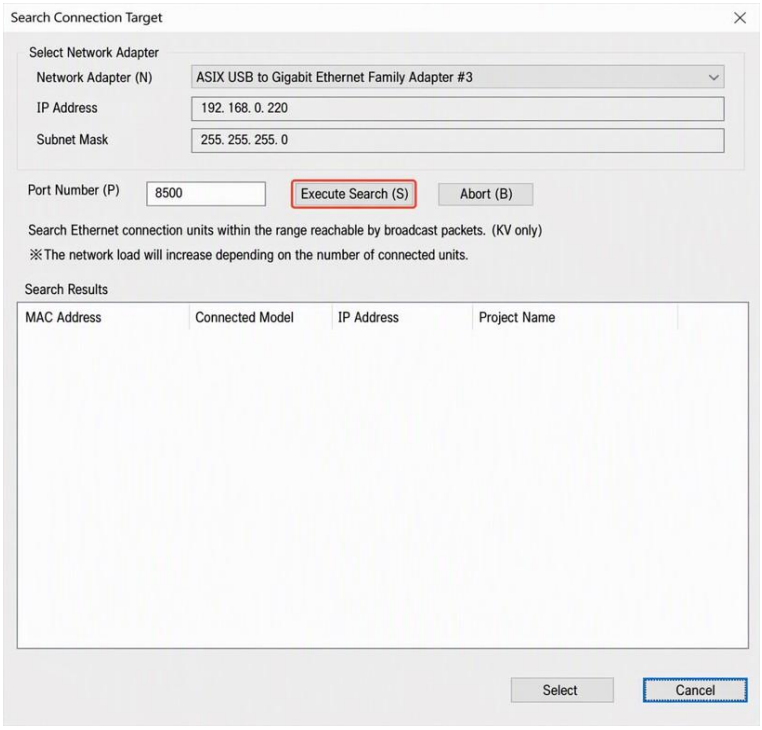

b. Select "Ethernet", click "Connection Target List", select "1 sample", configure the IP address, and click "Find Connection Target", as shown in the figure below. The IP address is configured within the "192.168.0" subnet.



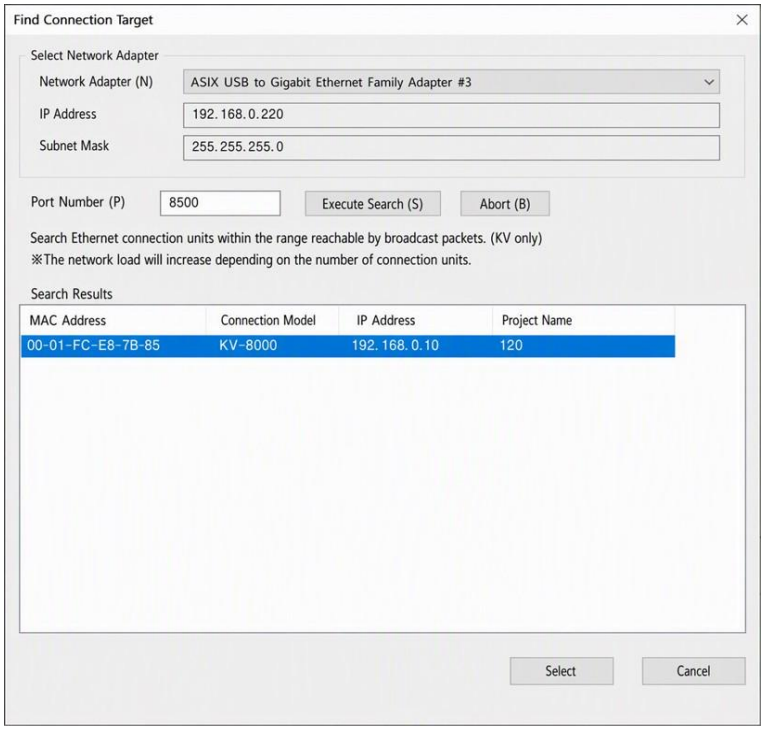


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c. In the search destination pop-up window, select the network card and click "Execute", as shown in the following figure.




d. Select the found PLC and click "Select" as shown in the following figure.




e. Click the "OK" button on the Communication settings window.

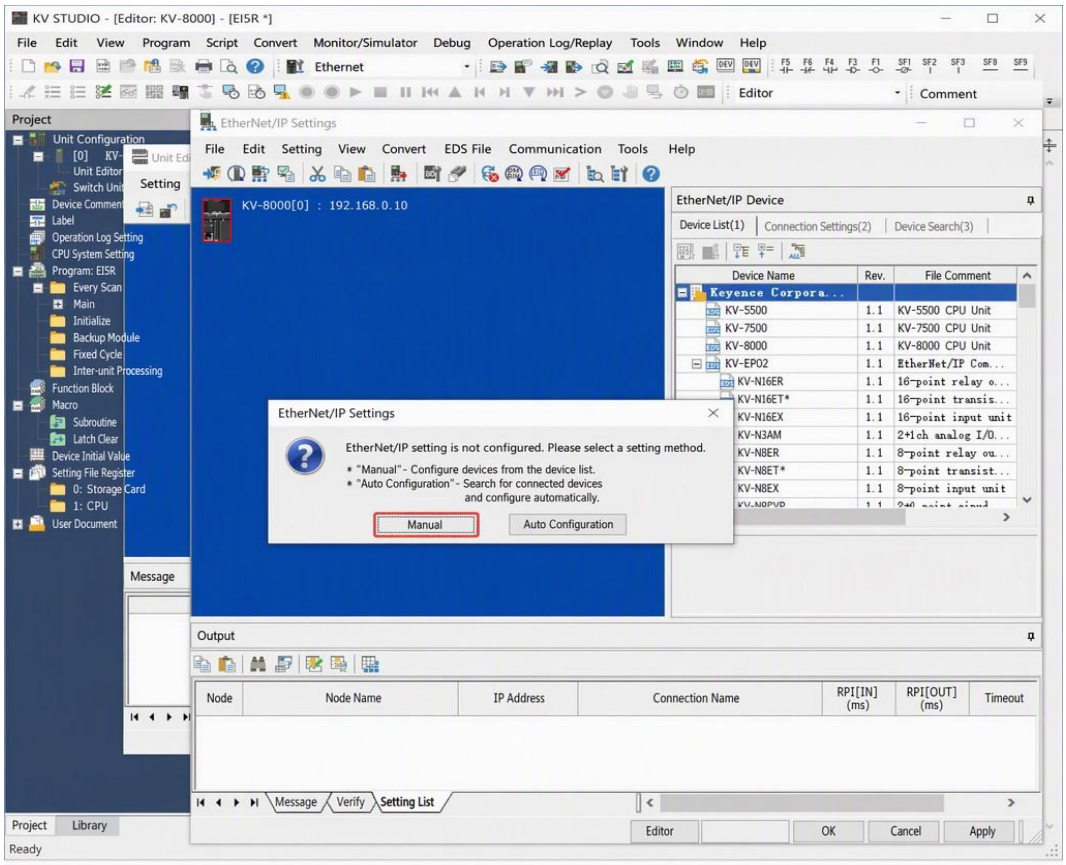
**"USB connection" operation method**

Select USB in the "Communication Settings" interface.


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## 4、EtherNet/IP settings

a. Double click "Unit Configuration -> KV-8000 -> EtherNet/IP R30000 DMI10000" in the left navigation tree to bring up the "EtherNet/IP Settings" window. Select "Manual" or "Auto Configuration" as necessary. Here, select "Manual" to demonstrate the operation as shown in the figure below. When the setting is completed, click "OK" to close the window.

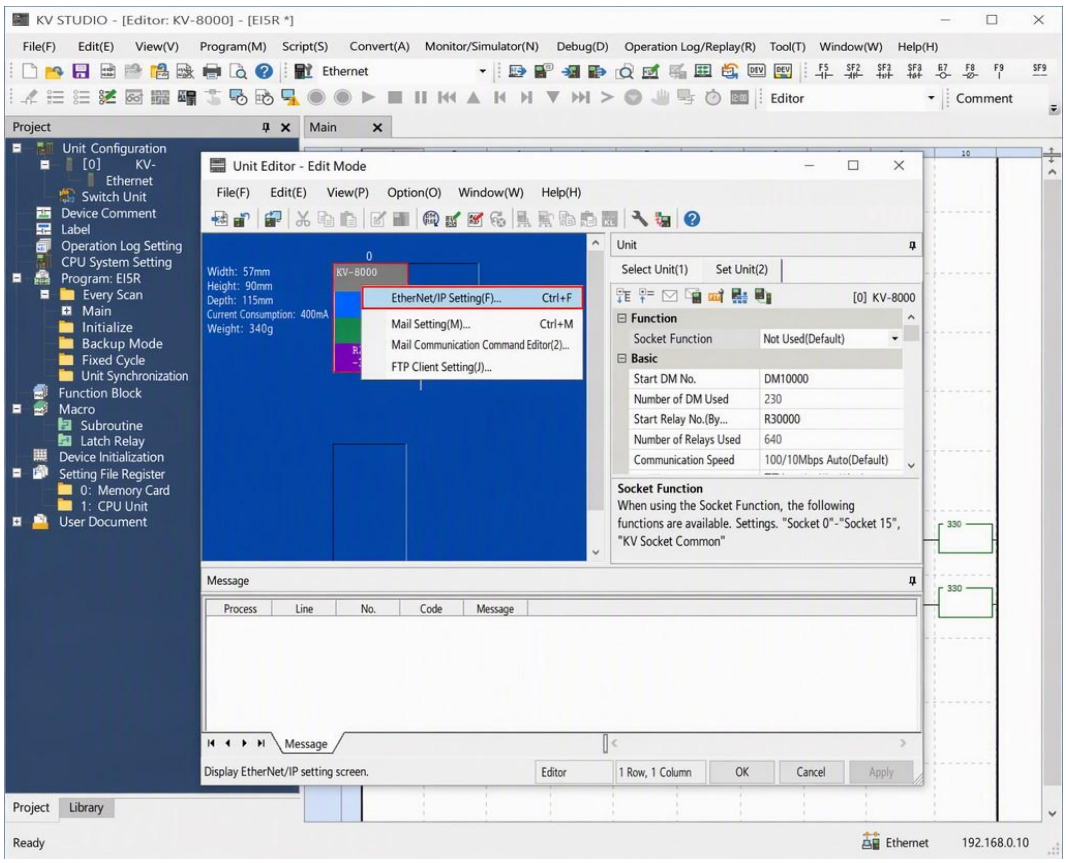




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## 5、Install EDS file

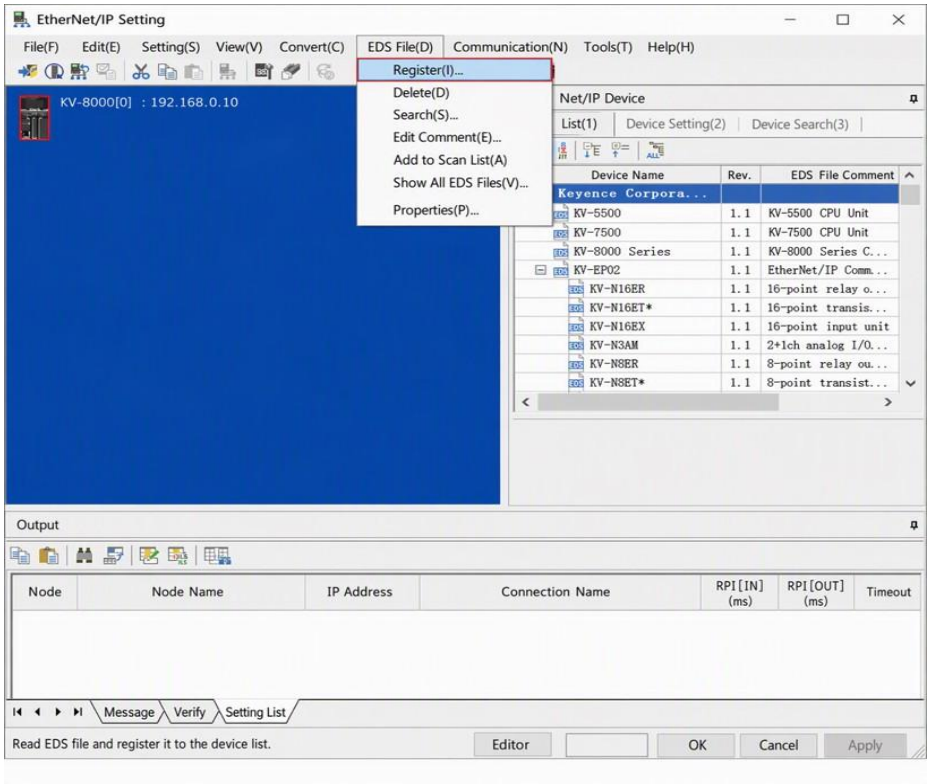
a. Right-click the KV-8000 in the unit Editor window and select "EtherNet/IP Setting" to enter the setting page as shown below.



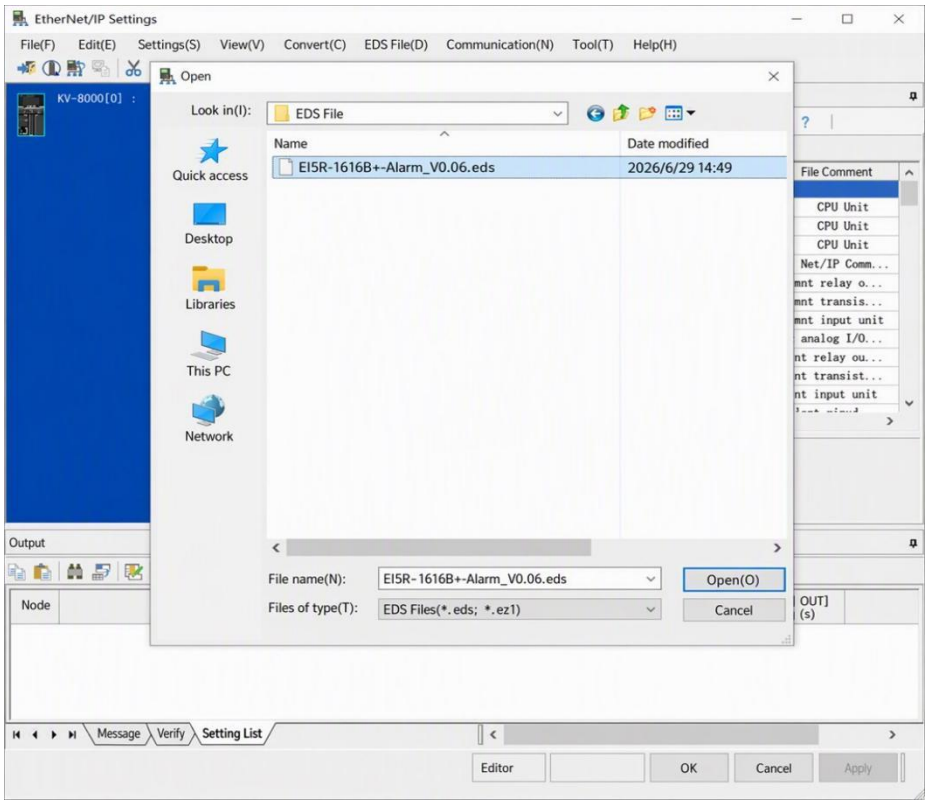


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b. Click "EDS File" in the menu bar of the "EtherNet/IP Settings" screen, and then click "Register" as shown in the following figure.




c. In the folder where the EDS file is placed, select the EDS file of the corresponding model and click "OK", as shown in the following figure.





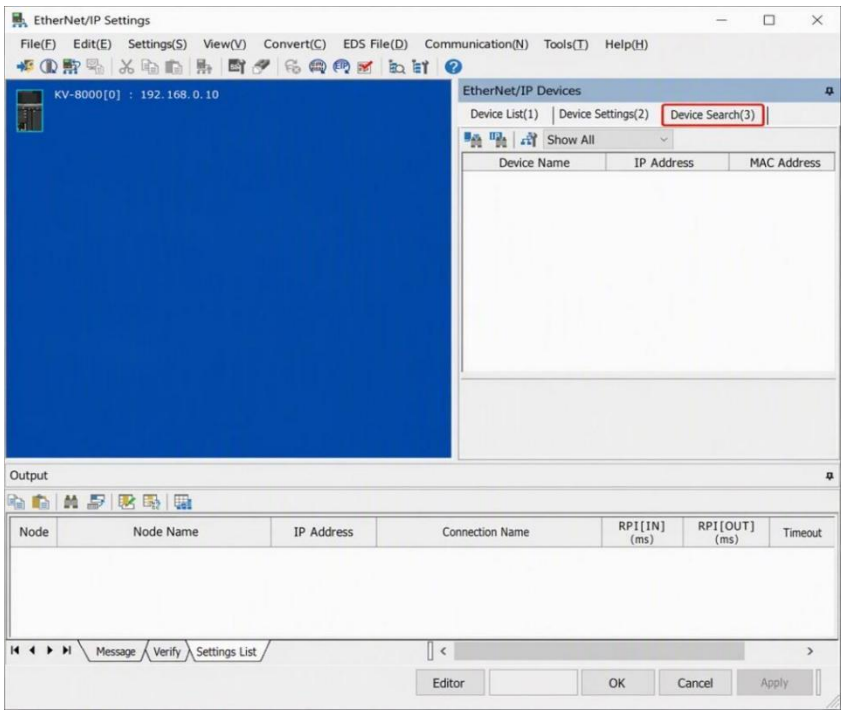
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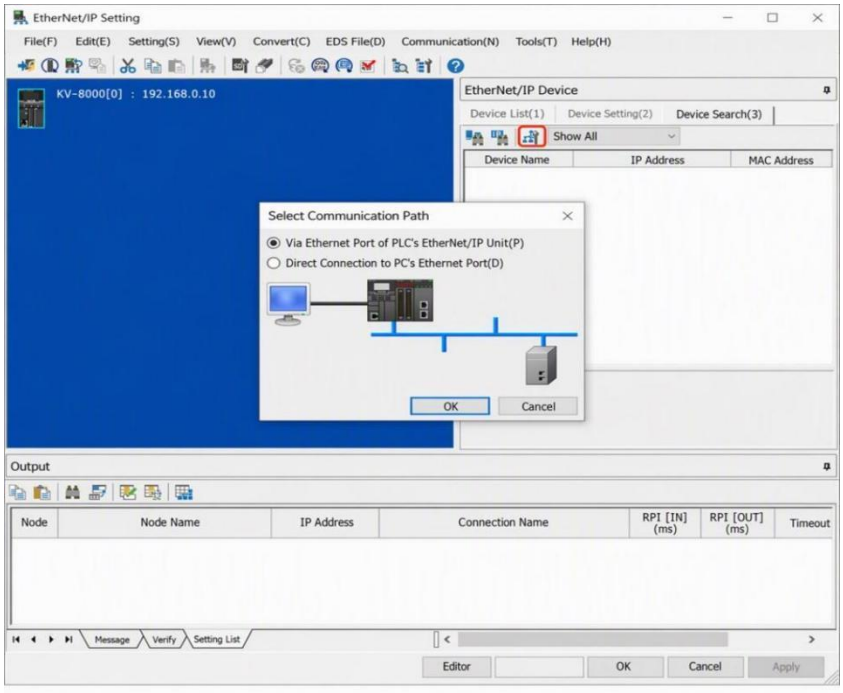
## 6、Topology configuration

Topology configuration can be done in two ways: "manual addition" and "automatic configuration". This configuration uses manual configuration.

a. Enter the "EtherNet/IP Settings" page and switch to the "Search unit" tab, as shown in the following figure.



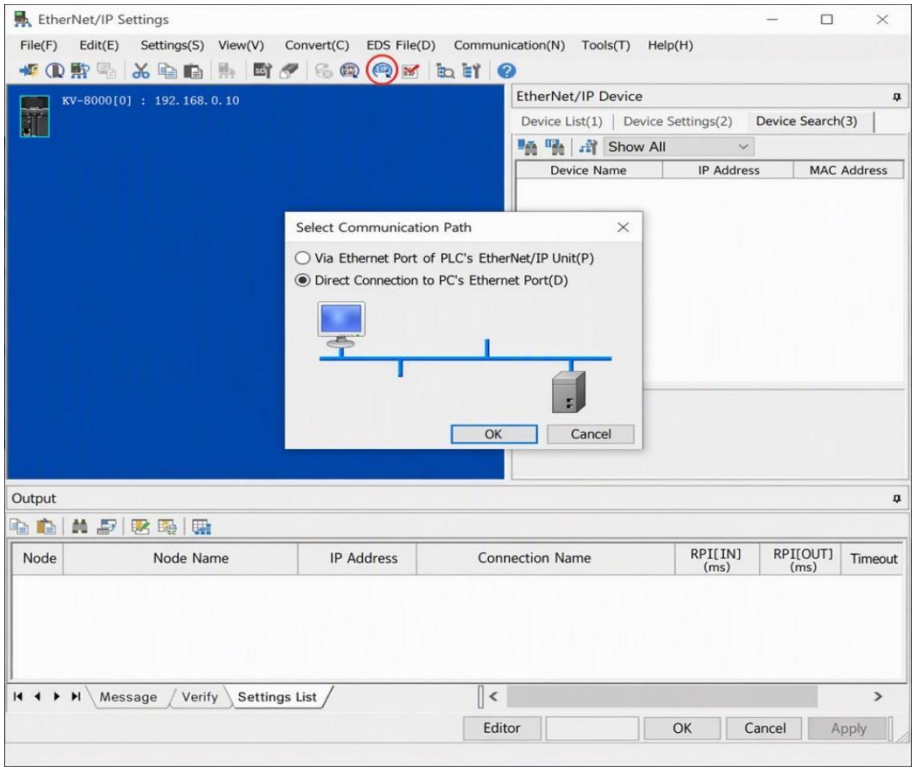

b. Click  to select the communication path. The USB connection method is shown in the figure below.



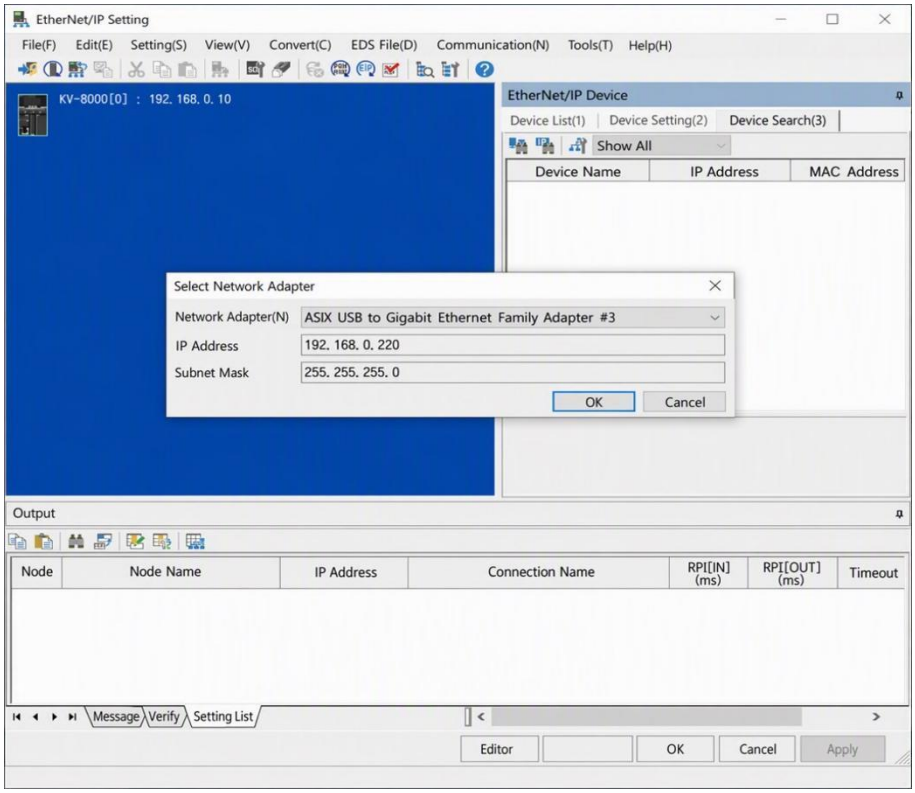


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c. "Direct Connection to PC's Ethernet Port" is the network cable connection method, as shown in the following figure.




d. Select "Direct Connection to PC's Ethernet Port" to bring up the "Select network card" window, and set the local network card and IP address, as shown in the following figure.

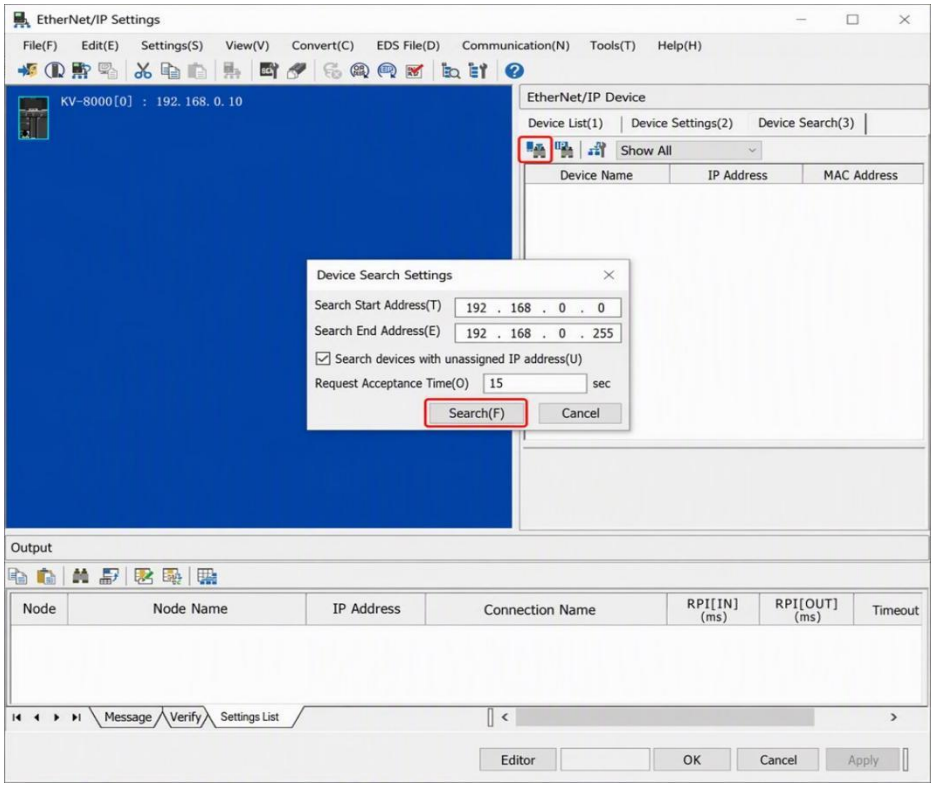




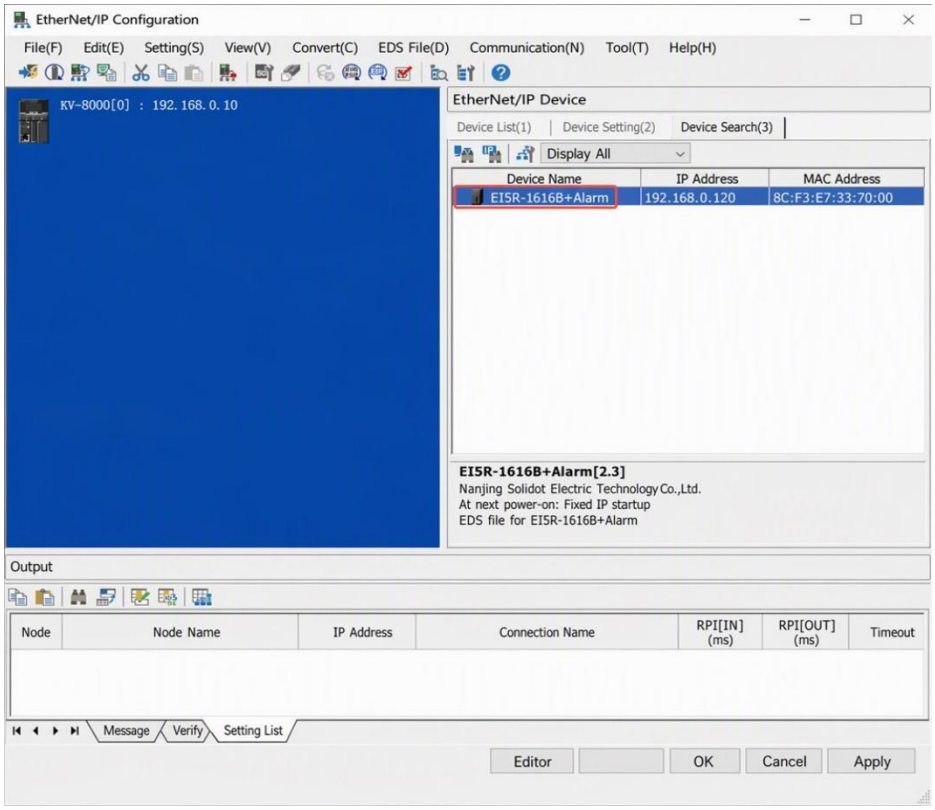
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e. Click  to search for devices connected to the network. Set the IP address subnet to search, and click "Search", as shown in the figure below.




f. When the search is complete, the display is shown below.

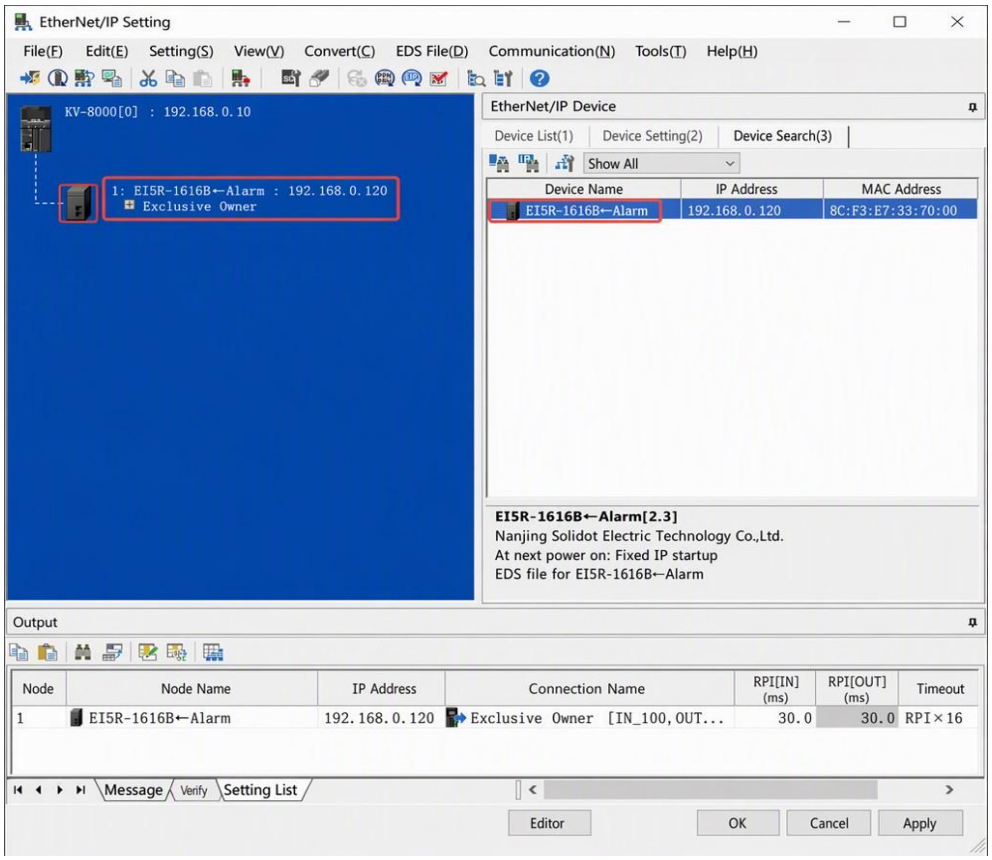




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g. Double-click on the found device to add it to the configuration, as shown below.




## 7、Set IP address

In the interface of the found device, double-click the IP address column and configure the IP address in the pop-up box. The default address network segment is 192.168.0.

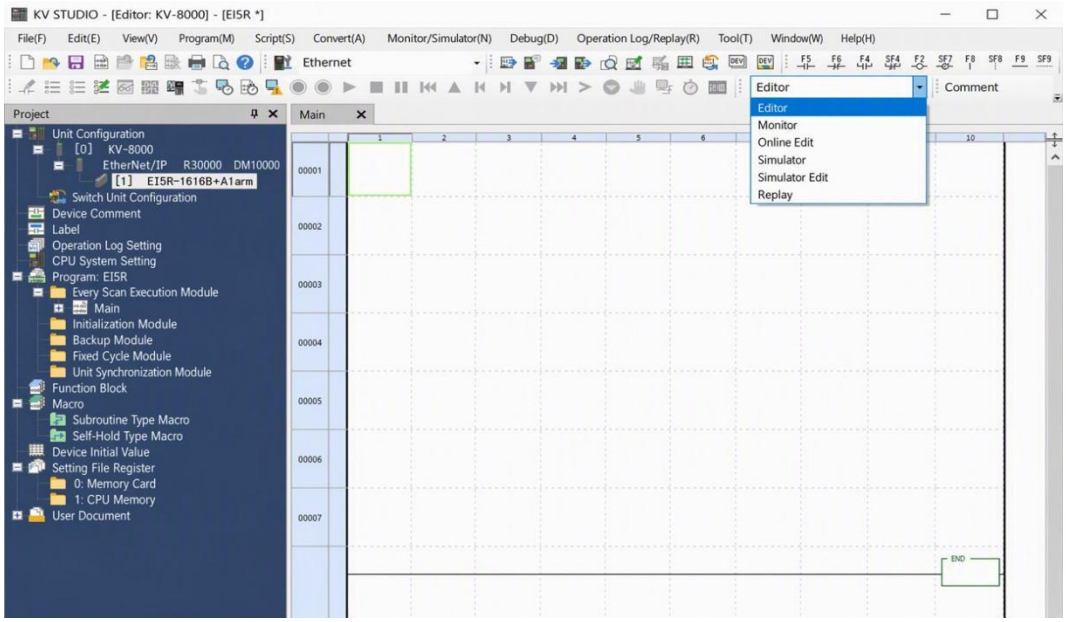
Notes:

- The timeout for setting the IP address must be configured as 60s.
- If the IP address has been configured via the DIP switch, the IP address set by the DIP switch takes precedence.

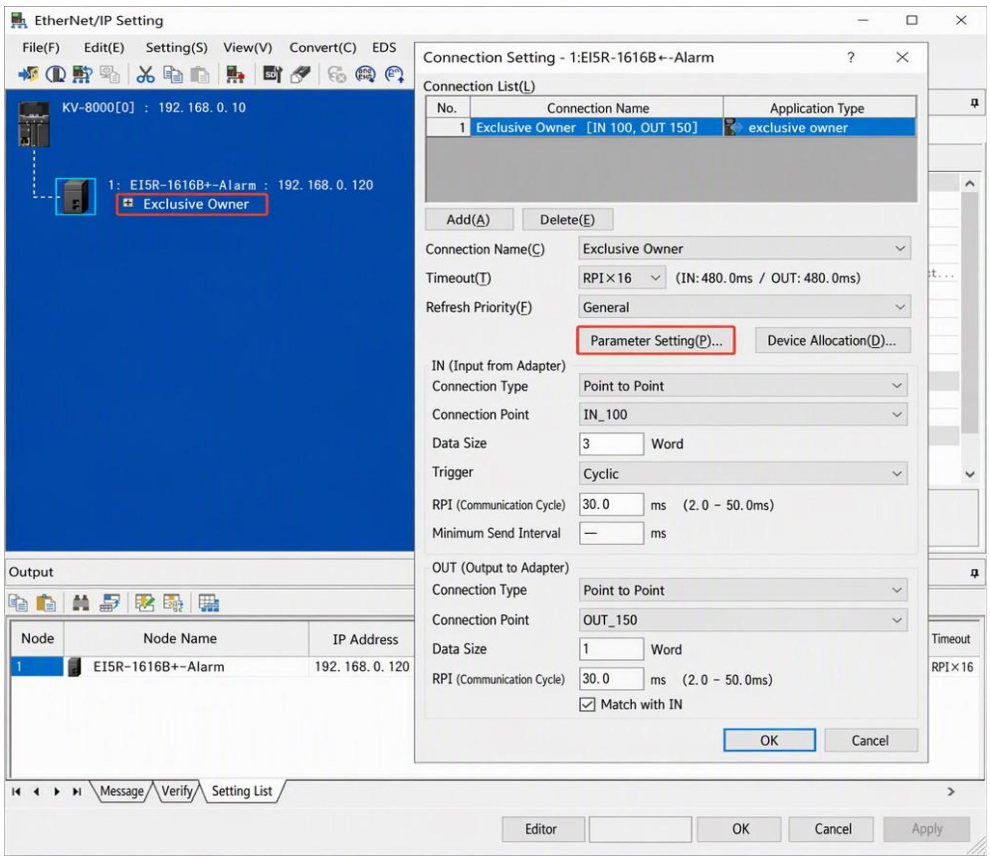

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## 8、Parameter settings

a. Click the Switch mode option in the menu bar to switch to Editor mode, as shown in the following figure.



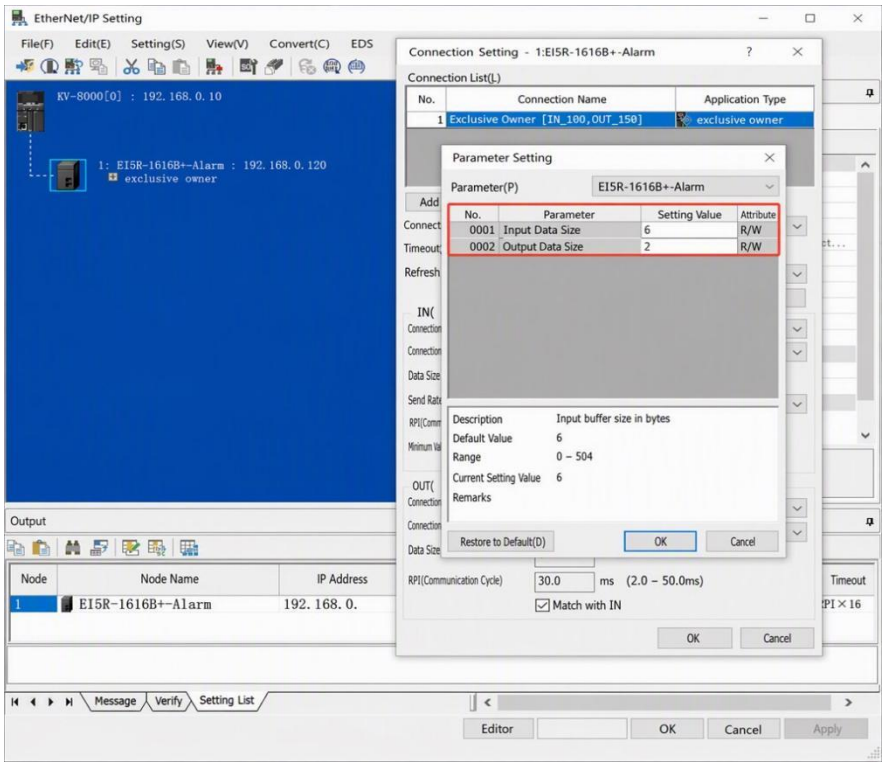

b. Enter the "EtherNet/IP Settings" screen and click "Exclusive Owner" to bring up the "Connection Settings" window. In the "Connection Settings" window, click "Setup Parameter" as shown below.



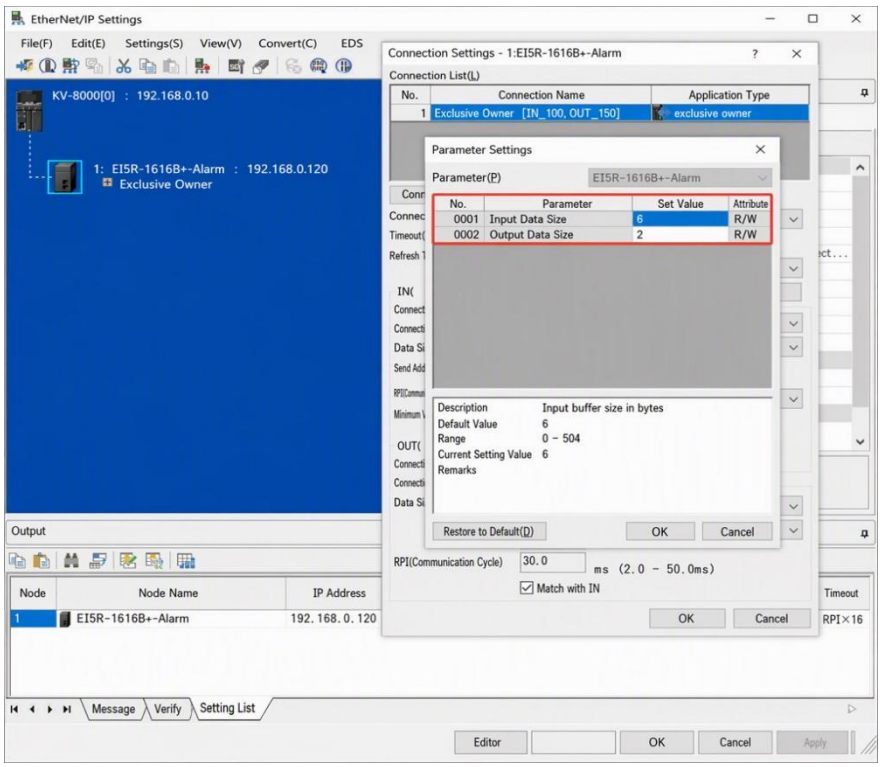


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c. In the "Parameter Settings" window, you can configure the upstream and downstream data of the module, as shown in the figure below.




d. Double-click the setting value after the "Input Data Size" parameter option and enter 6; double-click the setting value after the "Output Data Size" parameter option and enter 2, as shown in the figure below. For the actual values used for the upstream/downstream process data length, refer to 7.4 I/O module process data.





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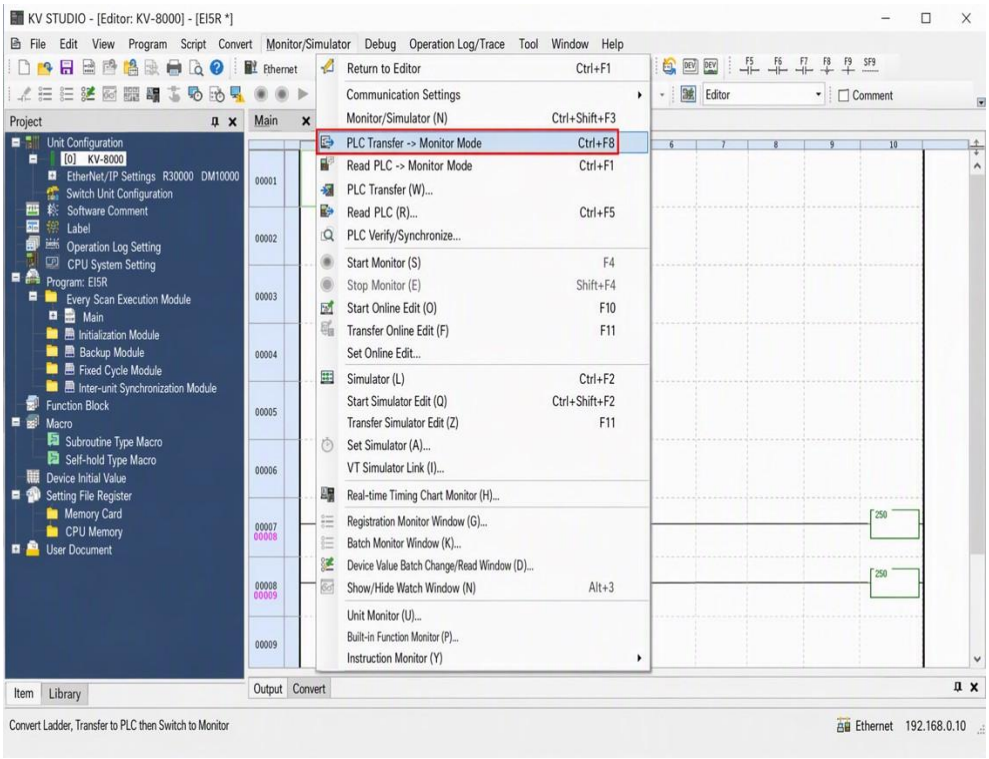
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e. When the configuration is complete, click the "OK" button in the "Setup Parameter" window.
f. In the "Connection Settings" window, click the "OK" button.
g. In the "EtherNet/IP Settings" window, click the "Apply" button and click the "OK" button.
h. In the "Unit Editor" window, click the "Apply" button and click the "OK" button.

## 9、Configuration download

After module configuration and parameter setting are completed, download to PLC operation is performed.

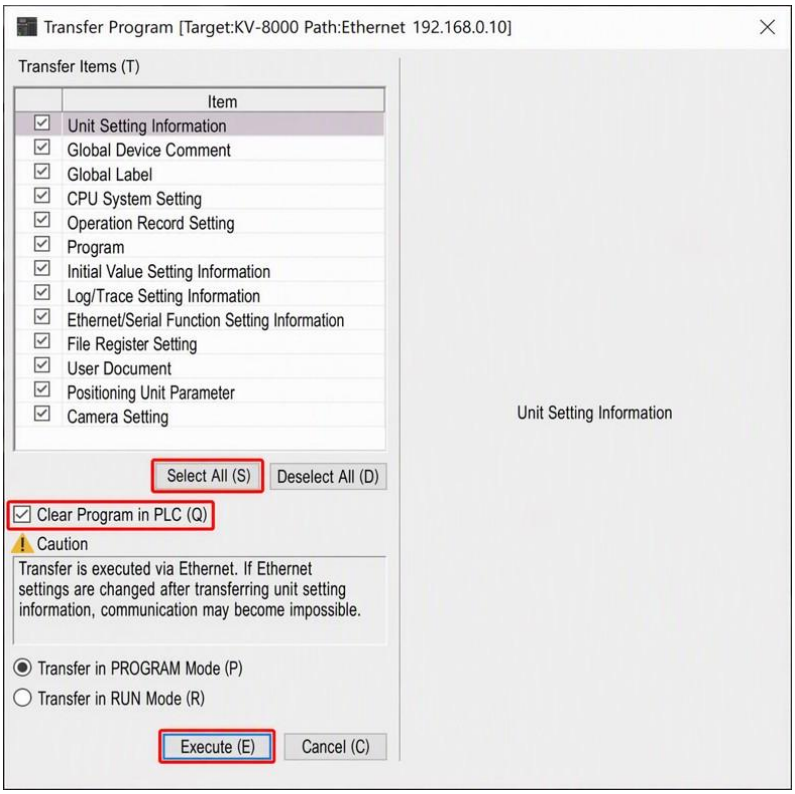
a. Click "Monitor/Simulator (N) -> Transfer to PLC -> Monitor Mode (C)" in the menu bar as shown below.



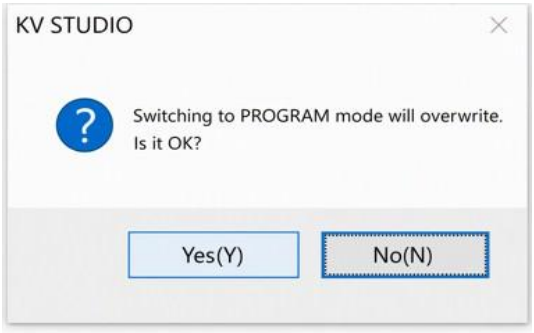


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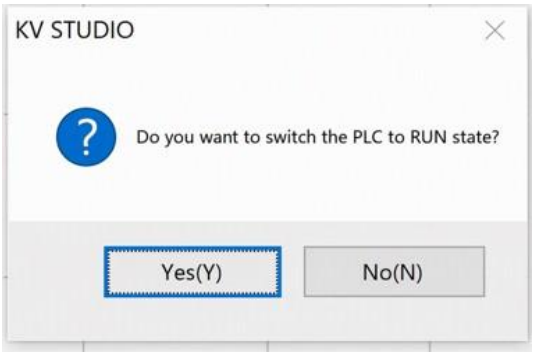
b. The "Transfer Program" window pops up, check "Clear Program in PLC", click "Select All", click "Execute" to download the program to the PLC, as shown in the following figure.




c. A prompt box pops up "Switching to PROGRAM mode will overwrite?", click to select "Yes" as shown below.



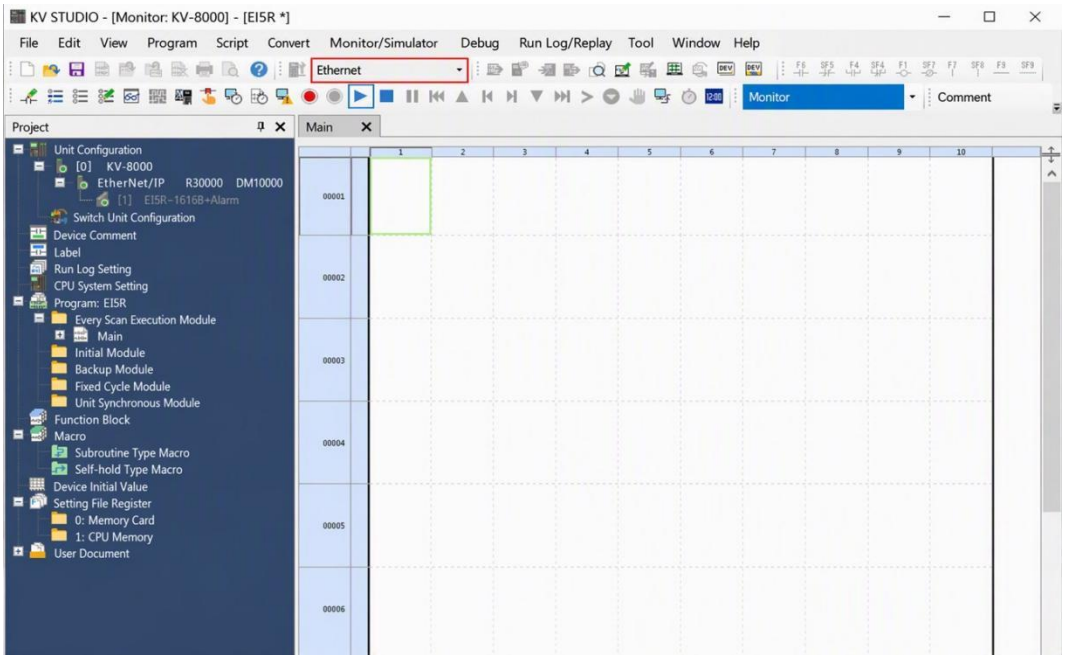

d. After writing to the PLC is complete, a dialog box pops up asking "Do you want to switch the PLC to RUN state?". Click "Yes", as shown in the figure below, to enter monitoring mode.





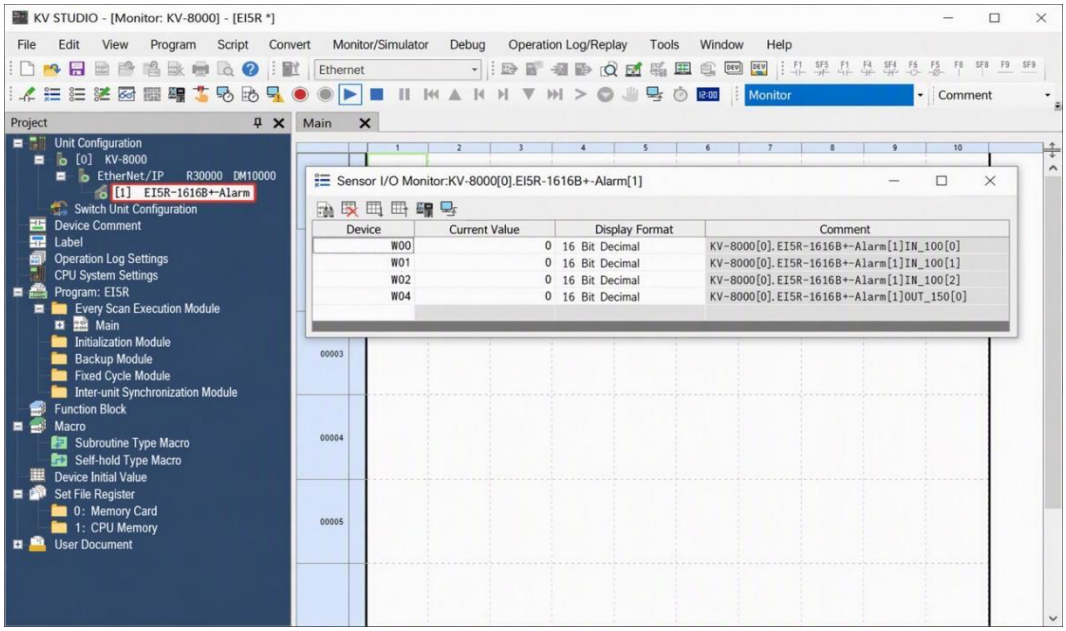
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e. After the configuration download is complete, it is as shown in the figure below.




## 10、 Data monitoring

a. In monitor mode, double-click the "EI5R-1616B+-Alarm" icon to open the watch table, where the module can be monitored, as shown in the figure below.

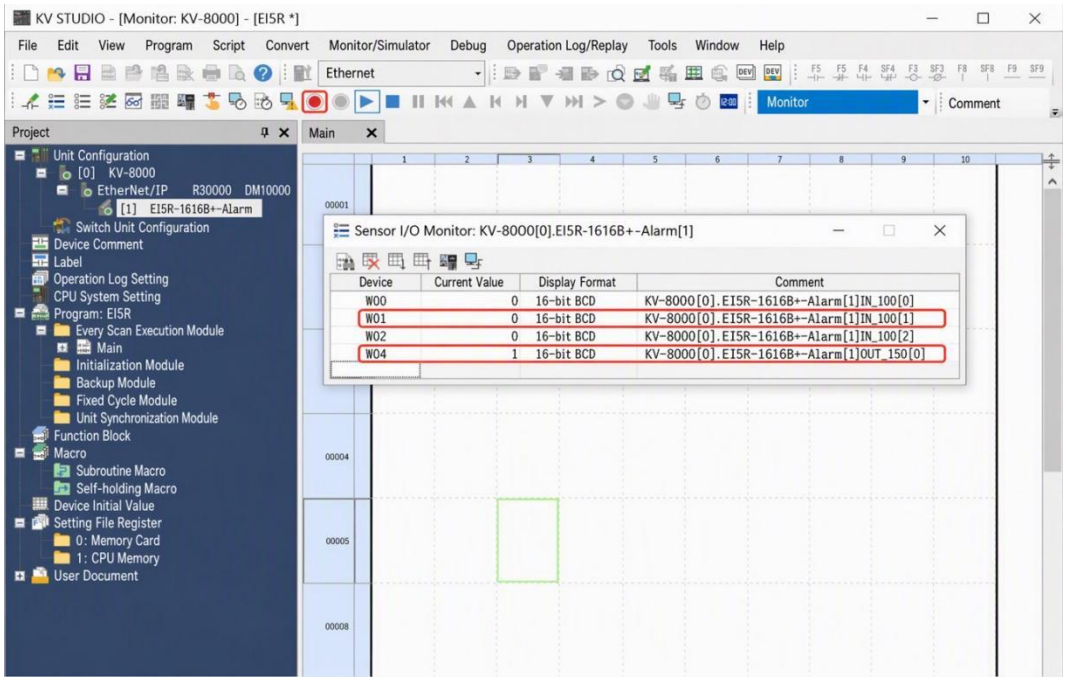




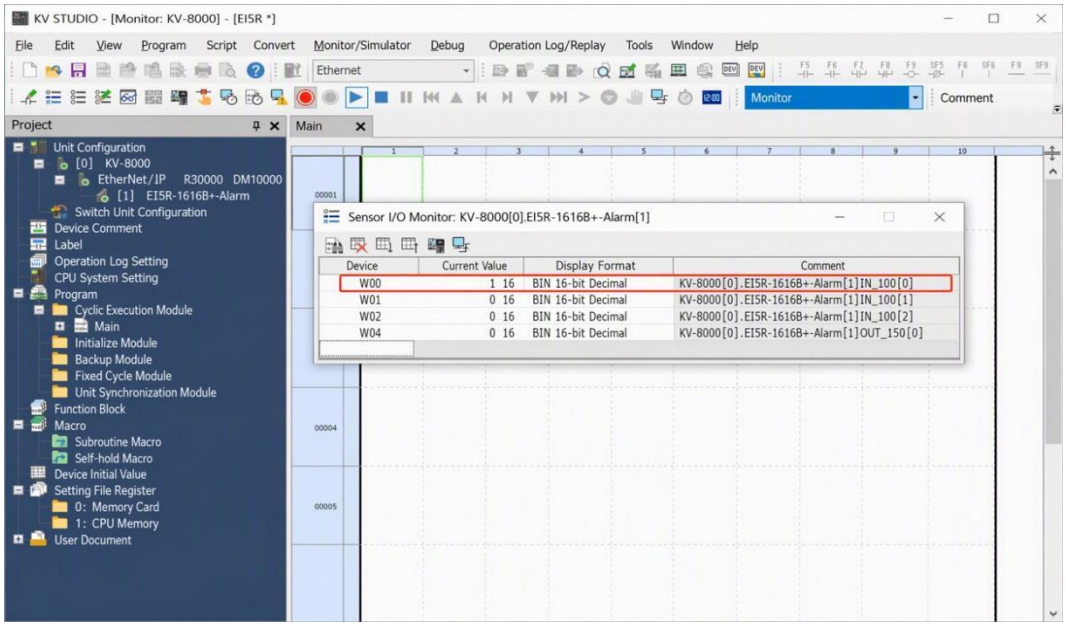
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b. When a valid voltage is present at the input channel of the EI5R-1616B+-alarm module, it can be observed in the current value of W01; for the output channel, you can double-click W04 to modify the current value for force output control, as shown in the figure below.




c. If the field-side power supply is not connected, the process data alarm code can be observed in the current value of W00, as shown in the figure below.





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