

# User Manual for the SRE Series Product

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| Manual version | Description                                                                                                             |
|----------------|-------------------------------------------------------------------------------------------------------------------------|
| V1.0           | Initial version.                                                                                                        |
| V1.1           | Updated products, and added product descriptions for SRE1032, SRE2232, SRE2132, SRE1332, SRE1432, SRE3208, and SRE4208. |
| V1.2           | Added product description for SRE3522.                                                                                  |
| V1.3           | Added product descriptions for SRE3274 and SRE3284.                                                                     |
| V1.4           | Added product descriptions for SRE9001, SRE6002, SRE6004, SRE5012, SRE5034, SRE5202, SRE5204, and SRE9020.              |
| V1.5           | Added product description for SRE5234.                                                                                  |
| V1.6           | Updated PDO parameters for SRE5234 and gated parameters for SRE5012.                                                    |
| V1.7           | Updated parameter configuration for SRE5012.                                                                            |
| V1.8           | Updated parameter configuration descriptions for SRE5012 and SRE5234.                                                   |
| V1.9           | Added product descriptions for SRE5042 and SRE5072.                                                                     |

## **1. Product Model**

The SRE series products are high-performance EtherCAT modules, including couplers, digital I/O terminal, analog I/O terminal, and temperature measurement module, with 24VDC power supply and module diagnostic functions. The product list is shown as follows:

| Model                           | Description                                                                                                                            |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| SRE8200                         | EtherCAT bus, 2 *RJ45 ports, high-performance backplane bus, extendable up to 64 modules.                                              |
| SRE9020                         | ----                                                                                                                                   |
| SRE9001                         | Power relay module                                                                                                                     |
| <b>Digital input</b>            |                                                                                                                                        |
| SRE1016                         | 16-channel digital input, supports PNP/NPN input.                                                                                      |
| SRE1032                         | 32-channel digital input, supports PNP/NPN input.                                                                                      |
| SRE5072                         | 2-channel digital input oversampling module.                                                                                           |
| <b>Digital output</b>           |                                                                                                                                        |
| SRE2116                         | 16-channel digital output, transistor NPN, rated 0VDC ( $\pm 3V$ )/0.5A.                                                               |
| SRE2216                         | 16-channel digital output, transistor PNP, rated 24VDC/0.5A.                                                                           |
| SRE2132                         | 32-channel digital output, transistor NPN, rated 0VDC ( $\pm 3V$ )/0.5A, total not exceeding 10A per module.                           |
| SRE2232                         | 32-channel digital output, transistor PNP, rated 24VDC/0.5A, total not exceeding 10A per module.                                       |
| SRE5202                         | 2-channel digital output oversampling module.                                                                                          |
| SRE5204                         | 4-channel digital output oversampling module.                                                                                          |
| <b>Digital input and output</b> |                                                                                                                                        |
| SRE1332                         | 16-channel NPN input, 16-channel transistor NPN output.                                                                                |
| SRE1432                         | 16-channel PNP input, 16-channel transistor PNP output.                                                                                |
| <b>Analog input</b>             |                                                                                                                                        |
| SRE3522                         | 2-channel analog fast acquisition module                                                                                               |
| SRE3204                         | 4-channel voltage/current input, 16-bit precision.                                                                                     |
| SRE3208                         | 8-channel voltage/current input, 16-bit precision.                                                                                     |
| SRE3284                         | 4-channel thermocouple input terminal.                                                                                                 |
| SRE3274                         | 4-channel resistance thermometer input terminal.                                                                                       |
| <b>Analog output</b>            |                                                                                                                                        |
| SRE4204                         | 4-channel voltage/current output, $\pm 10V$ or 0~20mA, 16-bit precision.                                                               |
| SRE4208                         | 8-channel voltage/current output, $\pm 10V$ or 0~20mA, 16-bit precision.                                                               |
| <b>Serial port module</b>       |                                                                                                                                        |
| SRE6002                         | Serial port module, with 2 RS422/RS232/RS485 interfaces, supports Modbus RTU and free port protocol, with maximum baud rate 115.2Kbps. |

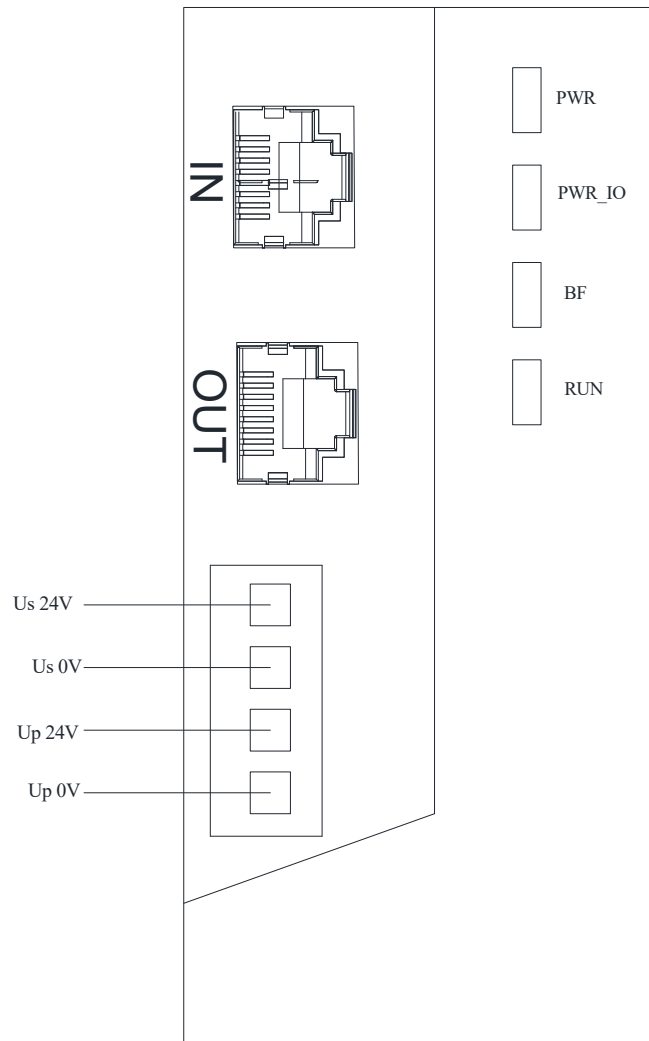
|                        |                                                                                                                                                                                                                               |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SRE6004                | Serial port module, with 4 RS422/RS232/RS485 interfaces, supports Modbus RTU and free port protocol, with maximum baud rate 115.2Kbps.                                                                                        |
| <b>Counting module</b> |                                                                                                                                                                                                                               |
| SRE5012                | 2-channel high-speed counting module, with 2 sets of A, B, and C counting inputs and single-ended (max 200KHZ at rated 24V, supporting PNP/NPN input) or differential (max 4MHZ at 5V), supports standard counting functions. |
| SRE5034                | 4-channel high-speed counting module, with 4 sets of A, B, and C counting inputs and differential (max 4MHz at 5V), supports standard counting functions.                                                                     |
| SRE5042                | SSI decoding module, with 2 sets of synchronous serial (D+, D-, CL+, CL-) inputs, and maximum communication rate 1MHz, supports multi-turn or single-turn SSI encoder input.                                                  |
| SRE5234                | High-speed pulse output terminal, with 4-axis PTO output, NPN single-ended output up to 400KHz (at 5V), and differential output up to 1MHz.                                                                                   |

## 2. SRE8200

### 2.1. Electrical Specifications

|                                    |                                                                                                     |
|------------------------------------|-----------------------------------------------------------------------------------------------------|
| <b>Model</b>                       | <b>SRE8200 module</b>                                                                               |
| Product overview                   | 2 *RJ45 ports, 24V DC power supply with stable performance and strong anti-interference performance |
| <b>Technical specifications</b>    |                                                                                                     |
| Electrical interface               | RJ45                                                                                                |
| Working power supply               | 18V DC~28V DC                                                                                       |
| Bus 5V DC power supply             | 2000mA                                                                                              |
| Bus 5V DC current consumption      | 269mA                                                                                               |
| CPU connection status              | No (standalone as slave)                                                                            |
| Supported protocols                | EtherCAT Slave                                                                                      |
| Number of built-in I/O ports       | None                                                                                                |
| <b>Isolation</b>                   |                                                                                                     |
| Between channels and buses         | Existent                                                                                            |
| Power to bus                       | Existent                                                                                            |
| Display indicator                  | Power +24V green indicator, BF red indicator, RUN indicator                                         |
| System power diagnosis and warning | Supported                                                                                           |
| Environmental conditions           | Operating temperature: -20~60°C; relative humidity: 5%~90% (non-condensing)                         |
| Storage temperature                | -40~60 °C                                                                                           |
| Dimensions (L × W × H)             | 48×100×80 (mm)                                                                                      |

## 2.2. Wiring Diagram



Note: Us is the power supply terminal for the coupler, and Up is the power supply terminals for the extension modules.

### 2.3. Terminal Description

| Wiring Terminal | Description                                             |
|-----------------|---------------------------------------------------------|
| Up_24V          | Positive pole of coupler power supply terminal          |
| Up_0V           | Negative pole of coupler power supply terminal          |
| Us_24V          | Positive pole of extension module power supply terminal |
| Us_0V           | Negative pole of extension module power supply terminal |

### 2.4. Indicator Description

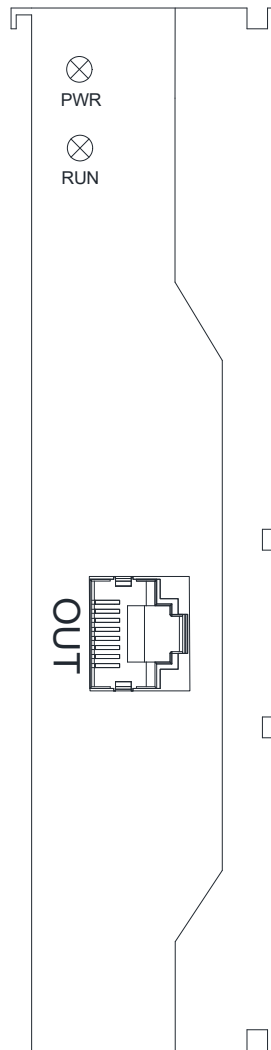
| Indicator      | Description                                                                                                      |
|----------------|------------------------------------------------------------------------------------------------------------------|
| PWR (Green)    | Coupler power indicator:<br>On: Module is powered normally;<br>Off: Module is not powered or powered abnormally. |
| PWR_IO (Green) | IO power indicator:<br>On: IO power supply is normal<br>Off: IO power is not supplied or abnormal                |
| BF (Red)       | Bus fault indicator:<br>Steadily lit: Configuration error<br>Off: Module Normal                                  |
| RUN (Yellow)   | Bus communication indicator:<br>Flashing: Module normal<br>Off: Communication abnormal                           |

### 3. SRE9020

#### 3.1. Electrical Specifications

|                                    |                                                                                |
|------------------------------------|--------------------------------------------------------------------------------|
| Model                              | SRE9020                                                                        |
| Product overview                   | 1 *RJ45 port                                                                   |
| Technical specifications           |                                                                                |
| Electrical interface               | RJ45                                                                           |
| Working power supply               | 18V DC~28V DC                                                                  |
| Bus 5V DC current consumption      | 230mA                                                                          |
| Supported protocols                | EtherCAT Slave                                                                 |
| Number of built-in I/O ports       | None                                                                           |
| Isolation                          |                                                                                |
| Between channels and buses         | Existent                                                                       |
| Power to bus                       | Existent                                                                       |
| Display indicator                  | Power and RUN green indicators                                                 |
| System power diagnosis and warning | Supported                                                                      |
| Environmental conditions           | Operating temperature: -20~60°C; relative humidity: 5%~90%<br>(non-condensing) |
| Storage temperature                | -40~60 °C                                                                      |
| Dimensions (L × W × H)             | 24×100×80 (mm)                                                                 |

### 3.2. Wiring Diagram



### 3.3. Module Description

The network port OUT of the module is used for EtherCAT communication, connected to the IN port of the next-level EtherCAT slave. When using the SRE9020 module, it must be connected as the last device in the segment.



## 4. Digital Input Terminal

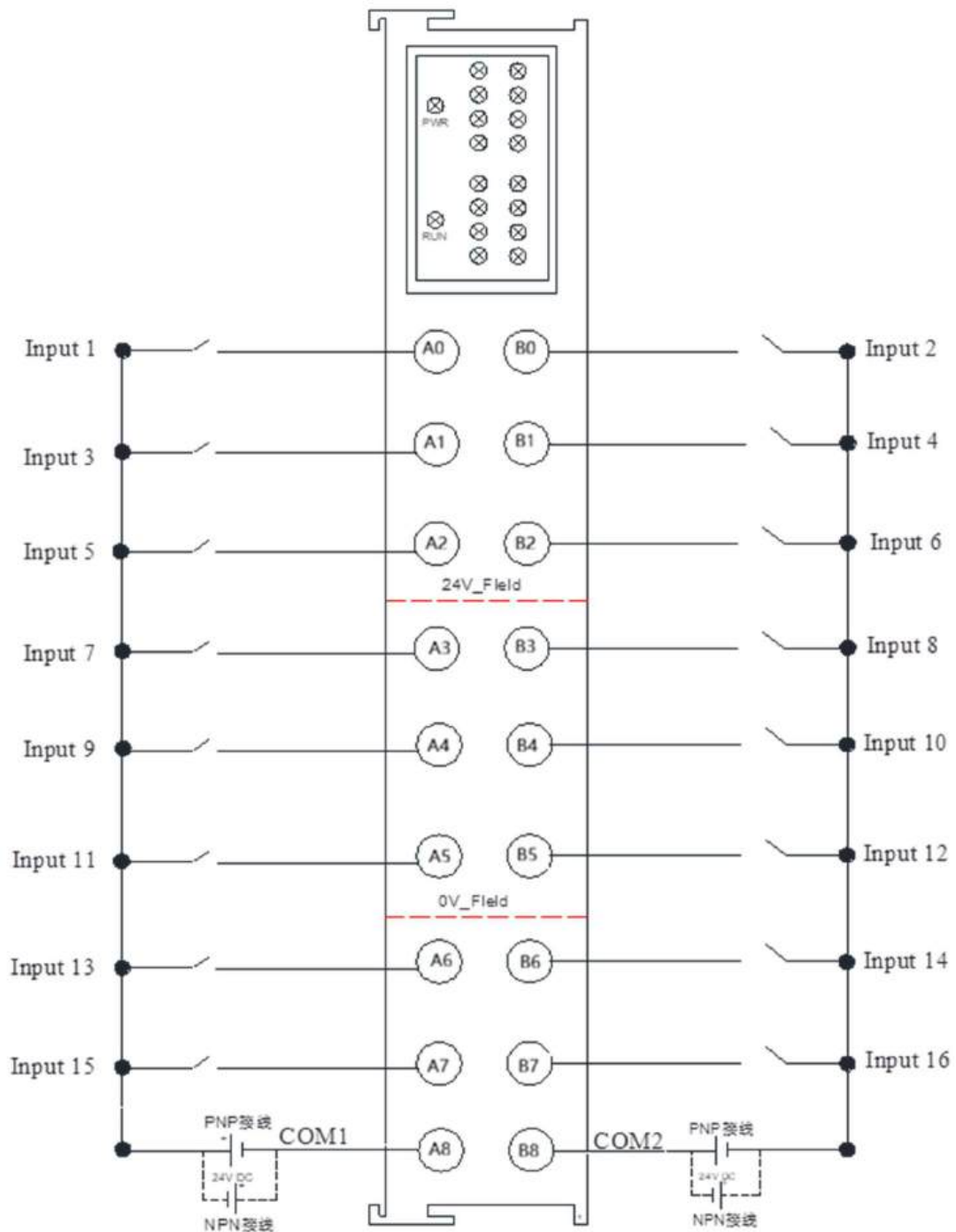
High-performance digital input terminal, available in 16/32-channel digital input. It supports NPN/PNP sensor at 24V DC, and features comprehensive module diagnostics.

### 4.1. Electrical Specifications

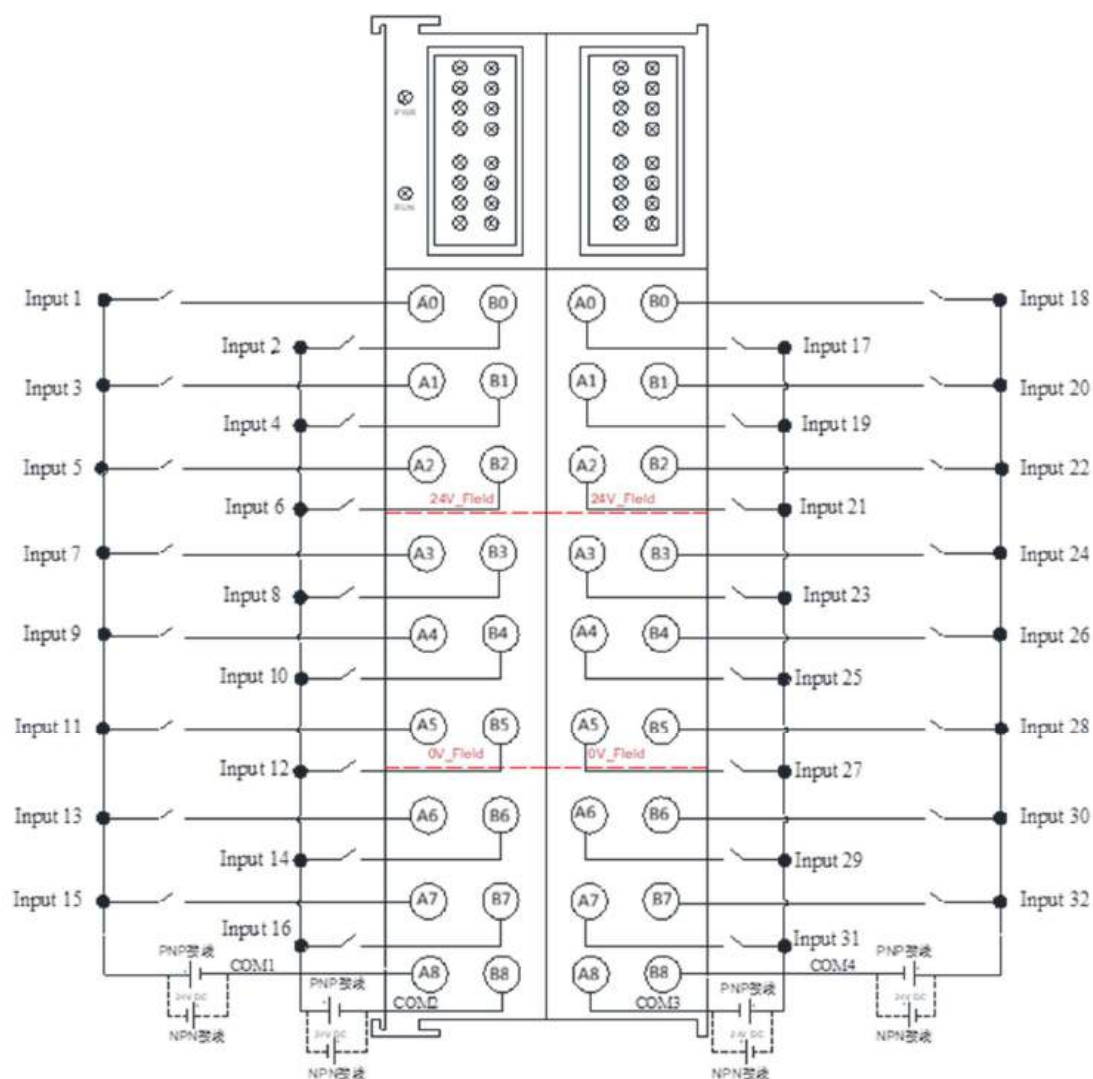
| Model                              | SRE1016                                                                    | SRE1032        |
|------------------------------------|----------------------------------------------------------------------------|----------------|
| Technical specifications           |                                                                            |                |
| Number of input points             | 16                                                                         | 32             |
| Bus 5V DC current consumption      | 183mA                                                                      | 200mA          |
| Cable length (unshielded)          | 100m                                                                       |                |
| Input characteristics              | Source, sink                                                               |                |
| Allow static current               | 1mA                                                                        |                |
| Insulation test voltage            | 500V DC                                                                    |                |
| Isolation                          |                                                                            |                |
| ● Between channels and buses       | Existent                                                                   |                |
| ● Between channels                 | Existent                                                                   |                |
| Display indicator                  | Green LED indicator per channel input                                      |                |
| System power diagnosis and warning | Supported                                                                  |                |
| Environmental conditions           | Operating temperature: -20~60℃, Relative Humidity: 5%~90% (non-condensing) |                |
| Storage temperature                | -40~60 ℃                                                                   |                |
| Dimensions (L × W × H)             | 15×100×80 (mm)                                                             | 30×100×80 (mm) |

## 4.2. Wiring Diagram

### 4.2.1. SRE1016 Wiring Diagram



#### 4.2.2. SRE1032 Wiring Diagram



### 4.3. Interface Description

#### 4.3.1. SRE1016 Wiring Terminal Description

| Terminal       | Description           |
|----------------|-----------------------|
| Input1~Input16 | Module Input Terminal |
| COM1、COM2      | Input Common Terminal |

#### 4.3.2. SRE1032 Wiring Terminal Description

| Terminal       | Description           |
|----------------|-----------------------|
| Input1~Input32 | Module Input Terminal |
| COM1~COM4      | Input Common Terminal |

### 4.4. Indicator Description

#### 4.4.1. SRE1016 Indicator Description

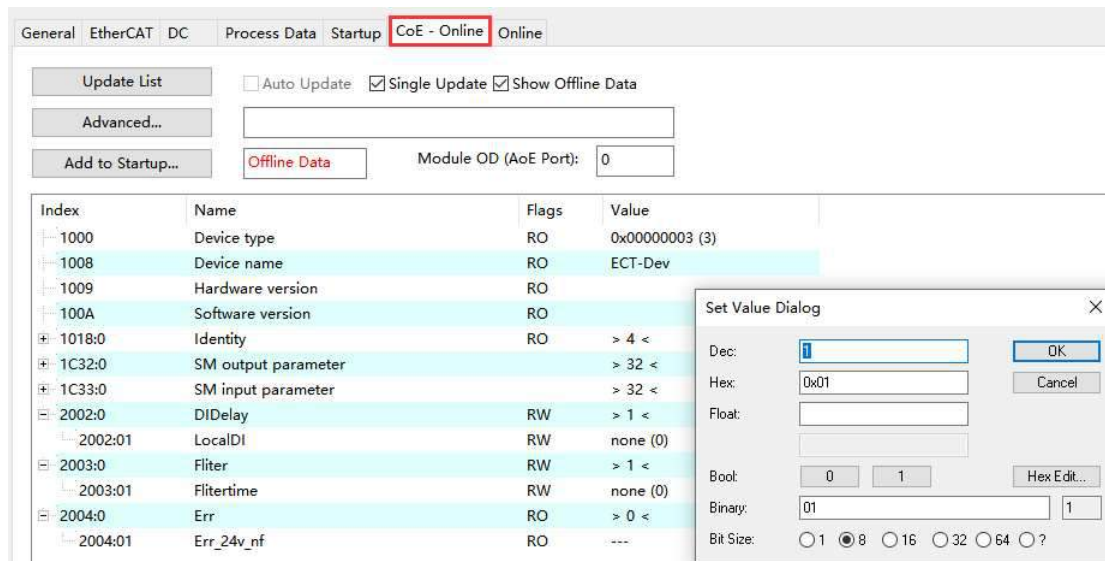
| Indicator      | Description                                                                                                            |
|----------------|------------------------------------------------------------------------------------------------------------------------|
| PWR (Green)    | Module power indicator:<br>On: Module is powered normally<br>Off: Module is not powered or powered abnormally          |
| RUN (Green)    | Communication indicator:<br>On: Normal communication<br>Off: Abnormal communication                                    |
| Q1~Q16 (Green) | The digital input indicator: the corresponding indicator will light up when a signal is detected on the input channel. |

#### 4.4.2. SRE1032 Indicator Description

| Indicator      | Description                                                                                                            |
|----------------|------------------------------------------------------------------------------------------------------------------------|
| PWR (Green)    | Module power indicator:<br>On: Module is powered normally<br>Off: Module is not powered or powered abnormally          |
| RUN (Green)    | Communication indicator:<br>On: Normal communication<br>Off: Abnormal communication                                    |
| Q1~Q32 (Green) | The digital input indicator: the corresponding indicator will light up when a signal is detected on the input channel. |

## 4.5. COE General Parameter Description

Module-related parameters can be viewed or modified in COE parameters. Parameter settings are not saved after power-off.



| Parameters          | Description                                                                                                                                                                                                                |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2002:01 LocalDI     | Parameter for configuring the digital input terminal, DI delay<br>none: no delay<br>1.6ms: DI delay is 1.6ms<br>3.2ms: DI delay is 3.2ms<br>12.8ms: DI delay is 12.8ms<br>20ms: DI delay is 20ms<br>50ms: DI delay is 50ms |
| 2003:01 Fliter time | none: No filtering<br>1 : 1ms<br>2 : 2ms<br>3 : 5ms<br>4 : 10ms<br>5 : 20ms<br>6 : 50ms                                                                                                                                    |
| 2004:01 Err 24v_nf  | Bit0 :<br>1: Channel 24V power supply abnormal<br>0: Normal                                                                                                                                                                |

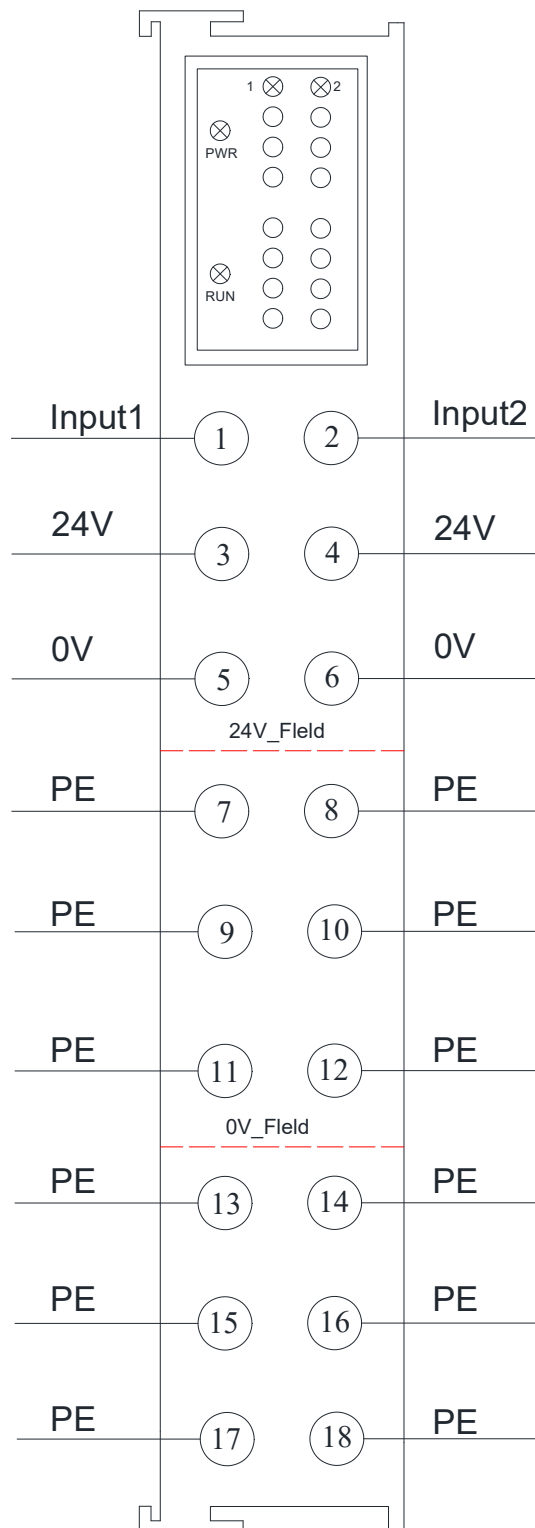
## 5. Digital Fast Input Terminal

SRE5072 Digital Fast Input Terminal has the DC distributed clock and oversampling function, featuring low input delay for ultra-high-speed signal processing. The oversampling function enables multiple sampling of process data, with 2-channel input.

### 5.1. Electrical Specifications

|                                    |                                                                             |
|------------------------------------|-----------------------------------------------------------------------------|
| <b>Model</b>                       | <b>SRE5072</b>                                                              |
| <b>Technical specifications</b>    |                                                                             |
| Rated supply voltage               | 24V DC                                                                      |
| Oversampling factor                | n = integer multiple of cycle time, 1...1000                                |
| Number of input points             | 2                                                                           |
| Input type                         | PNP                                                                         |
| Distributed clock                  | $\ll 1 \mu\text{s}$                                                         |
| Input current                      | 3mA                                                                         |
| Sampling rate                      | Maximum sampling rate 1MS/s                                                 |
| <b>Isolation</b>                   |                                                                             |
| ● Between channels and buses       | Existent                                                                    |
| Display indicator                  | Power supply green LED display                                              |
| System power diagnosis and warning | Supported                                                                   |
| Environmental conditions           | Operating temperature: -20~60°C, Relative Humidity: 5%~90% (non-condensing) |
| Storage temperature                | -40~60 °C                                                                   |
| Dimensions (L × W × H)             | 15×100×80 (mm)                                                              |

## 5.2. Wiring Diagram



### 5.3. Terminal Description

| Wiring Terminal | Description                          |
|-----------------|--------------------------------------|
| Input1          | Digital input channel 1              |
| Input2          | Digital input channel 2              |
| 24V             | Positive pole of sensor power supply |
| 0V              | Negative pole of sensor power supply |
| PE              | Shielded wire                        |

### 5.4. Indicator Description

| Indicator   | Description                                                                            |
|-------------|----------------------------------------------------------------------------------------|
| PWR (Green) | Module power indicator:<br>On: Power supply is normal<br>Off: Power supply is abnormal |
| RUN (Green) | Communication indicator:<br>On: Normal communication<br>Off: Abnormal communication    |
| LED1        | Input1 indicator<br>On: Input1 has input signal<br>Off: Input1 has no input signal     |
| LED2        | Input2 indicator<br>On: Input2 has input signal<br>Off: Input2 has no input signal     |

## 5.5. Parameter Description

### 5.5.1. Codesys/Distributed Clock

地址

自动增量地址

EtherCAT地址

额外

☐ 专家设置

☐ 可选的



分布式时钟

选择DC

☒ 使能

Sync 0

☒ 使能 Sync0

☒ 同步单元周期

☐ 用户自定义

Sync 1

☒ 使能 Sync1

☒ 同步单元周期

☐ 用户自定义

2 Channels - No oversampling

2 Channels - No oversampling

2 Ch. - 2 times oversampling

2 Ch. - 4 times oversampling

2 Ch. - 5 times oversampling

2 Ch. - 8 times oversampling

2 Ch. - 10 times oversampling

2 Ch. - 16 times oversampling

2 Ch. - 20 times oversampling

2 Ch. - 40 times oversampling

2 Ch. - 50 times oversampling

2 Ch. - 100 times oversampling

2 Ch. - 200 times oversampling

2 Ch. - 400 times oversampling

2 Ch. - 1000 times oversampling

2 Channels (Bits)

2 Channels (Bytes)

1 Channel (Bits)

1 Channel (Bytes)

0

偏移时间 (μs)

| Operation Mode               |                                                         | Remarks                                       |
|------------------------------|---------------------------------------------------------|-----------------------------------------------|
| 2 Ch. - X times oversampling | X : 2, 4, 5, 8, 10, 16, 20, 40, 50, 100, 200, 400, 1000 | Sampling data for channels 1 and 2 (bit type) |

## 6. Digital Output Terminal

### 6.1. Electrical Specifications for 16-point Digital Output

SRE2216/SRE2116 digital output terminal features 16-channel digital output, with the module diagnostic function.

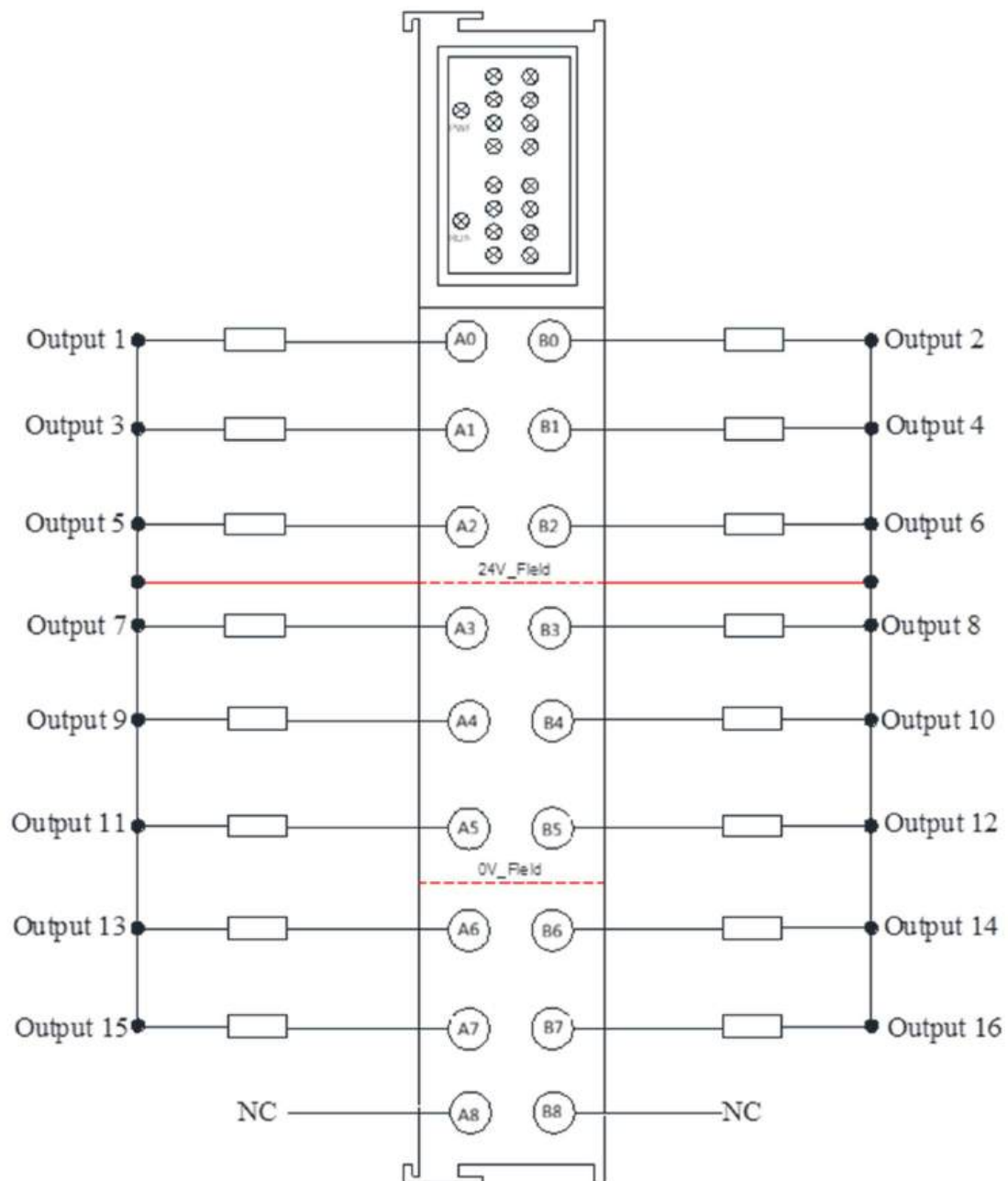
| Model                              | SRE2216                                                                    | SRE2116                |
|------------------------------------|----------------------------------------------------------------------------|------------------------|
| Technical specifications           |                                                                            |                        |
| Output type                        | PNP solid-state MOSFET                                                     | NPN solid-state MOSFET |
| Number of output points            | 16                                                                         |                        |
| Bus 5V DC current consumption      | 190mA                                                                      | 175mA                  |
| Cable length (unshielded)          | 100m                                                                       |                        |
| Output short-circuit protection    | Yes, electronic type                                                       |                        |
| Maximum lamp load                  | 5W                                                                         |                        |
| Output current "I"                 | 0.5A                                                                       |                        |
| Leakage current                    | < 1mA                                                                      |                        |
| Switching frequency                |                                                                            |                        |
| ● Maximum resistive load           | 100HZ                                                                      |                        |
| ● Maximum inductive load           | 0.5HZ                                                                      |                        |
| ● Maximum lamp load                | 10HZ                                                                       |                        |
| ● Maximum Mechanical load          | ---                                                                        |                        |
| Insulation test voltage            | 500V DC                                                                    |                        |
| Isolation                          |                                                                            |                        |
| ● Between channels and buses       | Existent                                                                   |                        |
| ● Between channels                 | Existent                                                                   |                        |
| Display indicator                  | Green LED display per channel output                                       |                        |
| System power diagnosis and warning | Supported                                                                  |                        |
| Environmental conditions           | Operating temperature: -20~60℃, Relative Humidity: 5%~90% (non-condensing) |                        |
| Storage temperature                | -40~60 °C                                                                  |                        |
| Dimensions (L × W × H)             | 15×100×80 (mm)                                                             |                        |

## 6.2. Electrical Specifications for 32-point Digital Output

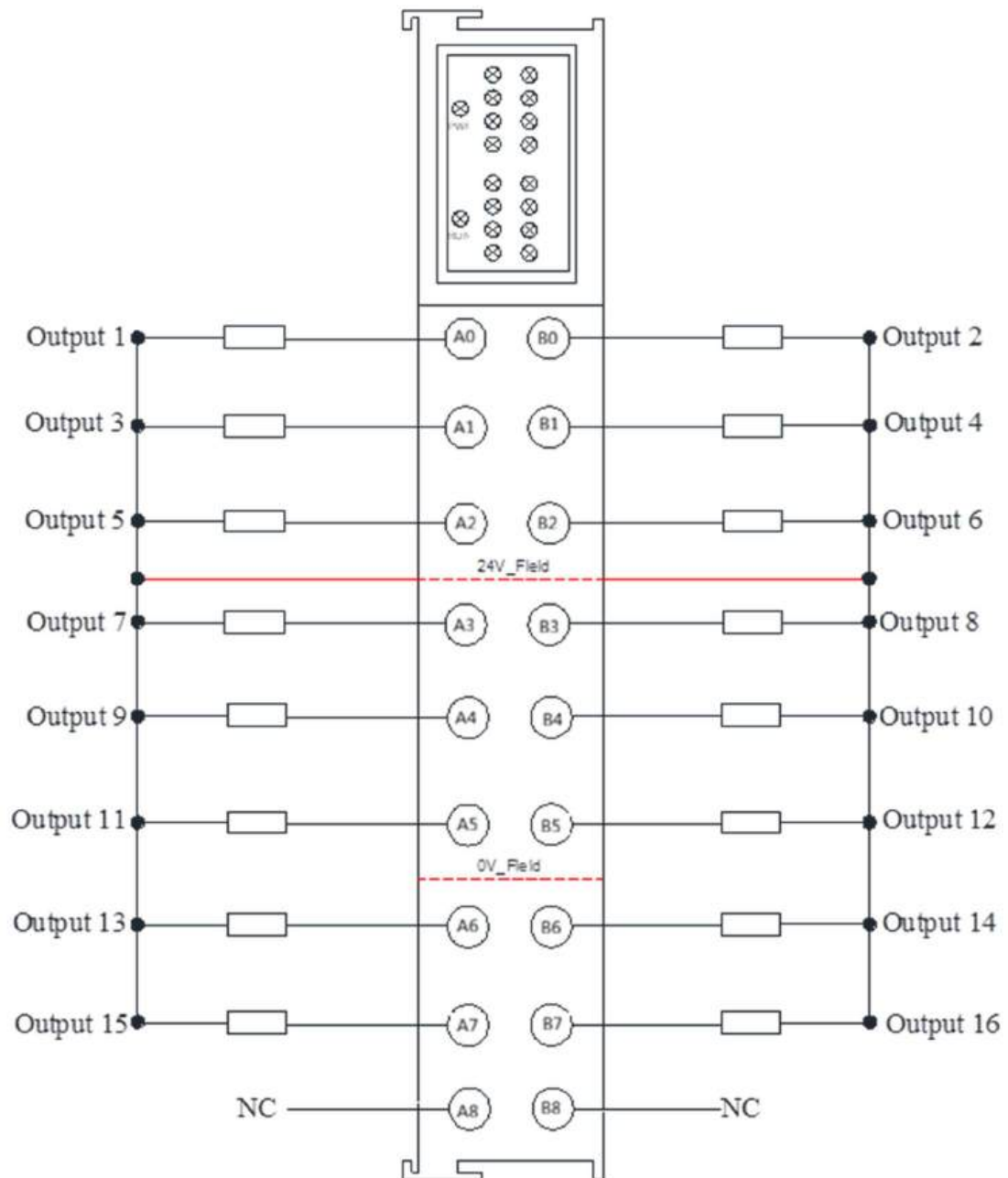
| Model                              | SRE2232                                                                    | SRE2132                |
|------------------------------------|----------------------------------------------------------------------------|------------------------|
| Technical specifications           |                                                                            |                        |
| Output type                        | PNP solid-state MOSFET                                                     | NPN solid-state MOSFET |
| Number of output points            | 32                                                                         |                        |
| Bus 5V DC current consumption      | 181mA                                                                      | 175mA                  |
| Cable length (unshielded)          | 100m                                                                       |                        |
| Output short-circuit protection    | Yes, electronic type                                                       |                        |
| Maximum lamp load                  | 5W                                                                         |                        |
| Output current "I"                 | 0.5A, $\Sigma$ 10 A                                                        |                        |
| Leakage current                    | < 1mA                                                                      |                        |
| Switching frequency                |                                                                            |                        |
| ● Maximum resistive load           | 100HZ                                                                      |                        |
| ● Maximum inductive load           | 0.5HZ                                                                      |                        |
| ● Maximum lamp load                | 10HZ                                                                       |                        |
| ● Maximum Mechanical load          | ---                                                                        |                        |
| Insulation test voltage            | 500V DC                                                                    |                        |
| Isolation                          |                                                                            |                        |
| ● Between channels and buses       | Existent                                                                   |                        |
| ● Between channels                 | Existent                                                                   |                        |
| Display indicator                  | Green LED display per channel output                                       |                        |
| System power diagnosis and warning | Supported                                                                  |                        |
| Environmental conditions           | Operating temperature: -20~60℃, Relative Humidity: 5%~90% (non-condensing) |                        |
| Storage temperature                | -40~60 ℃                                                                   |                        |
| Dimensions (L × W × H)             | 30×80×100 (mm)                                                             |                        |

## 6.3. Wiring Diagram

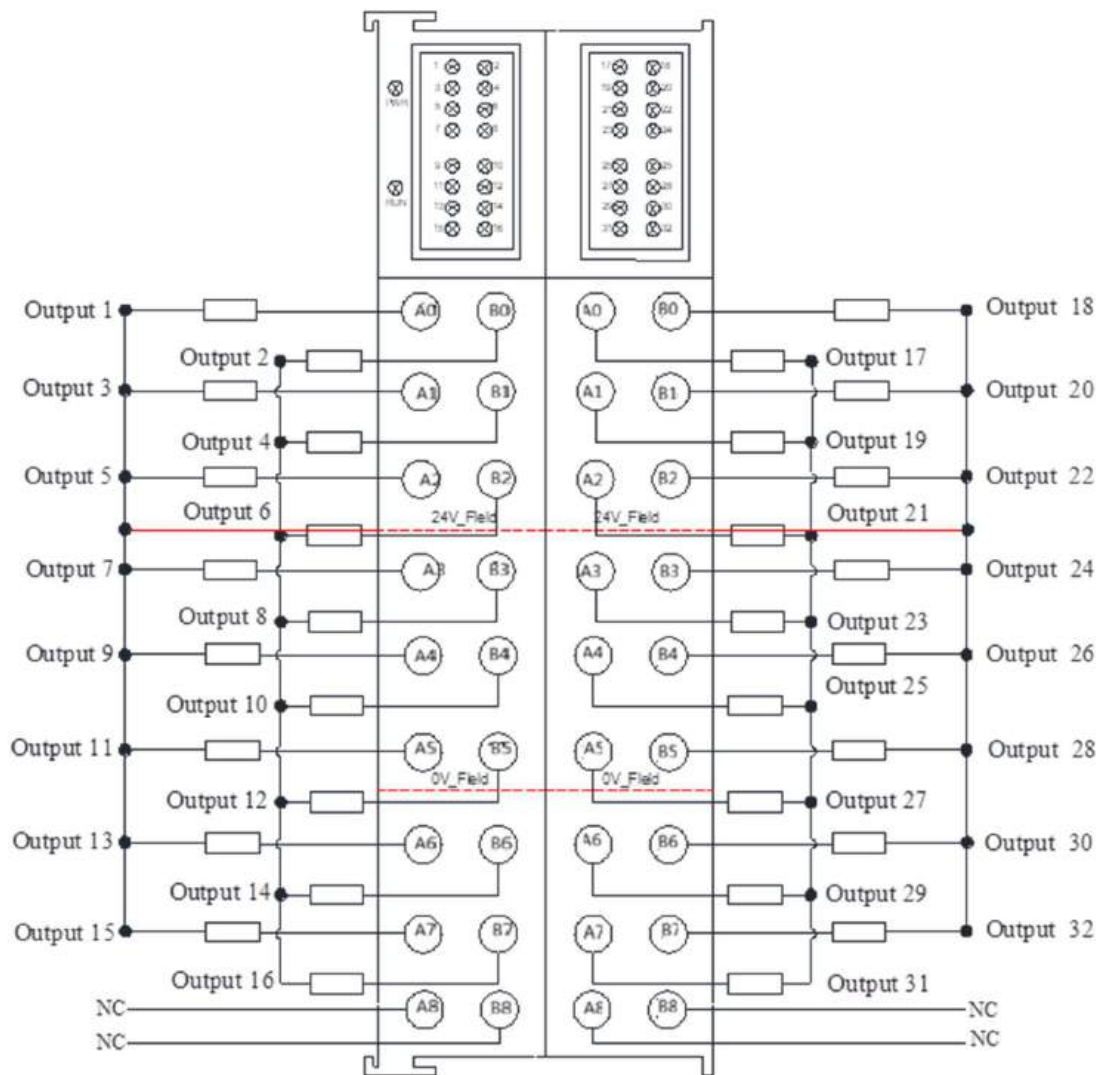
### 6.3.1. SRE2116 Wiring Diagram



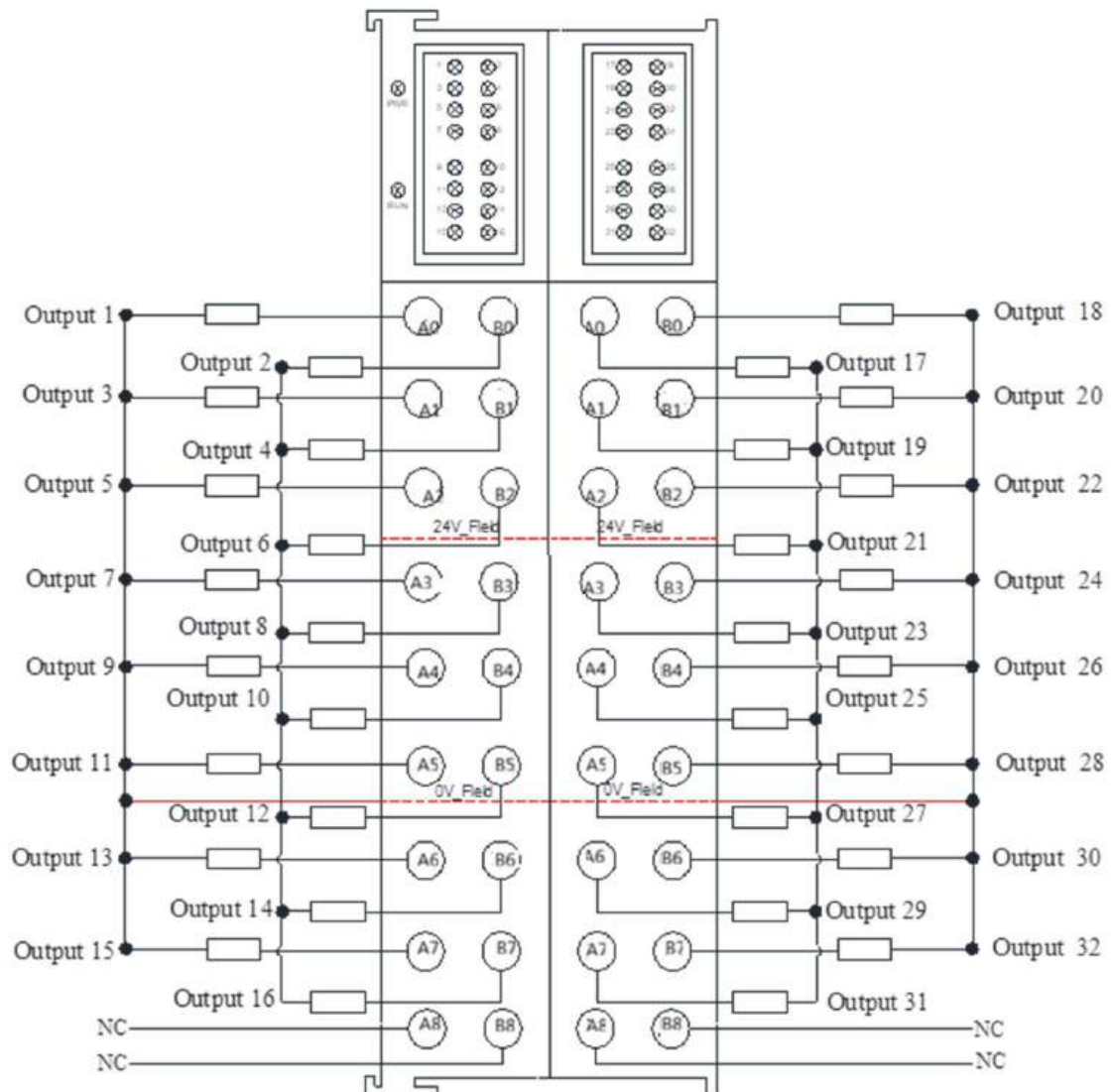
### 6.3.2. SRE2216 Wiring Diagram



### 6.3.3. SRE2132 Wiring Diagram



### 6.3.4. SRE2232 Wiring Diagram



## 6.4. Indicator Description

### 6.4.1. SRE2216/SRE2116 Indicator Description

| Indicator      | Description                                                                                                          |
|----------------|----------------------------------------------------------------------------------------------------------------------|
| PWR (Green)    | Module power supply indicator:<br>On: Module is powered normally<br>Off: Module is not powered or powered abnormally |
| RUN (Green)    | Communication indicator:<br>On: Normal communication<br>Off: Abnormal communication                                  |
| Q1~Q16 (Green) | Digital Output Indicator: the corresponding indicator will light up when a signal is detected.                       |

### 6.4.2. SRE2232/SRE2132 Indicator Description

| Indicator      | Description                                                                                                          |
|----------------|----------------------------------------------------------------------------------------------------------------------|
| PWR (Green)    | Module power supply indicator:<br>On: Module is powered normally<br>Off: Module is not powered or powered abnormally |
| RUN (Green)    | Communication indicator:<br>On: Normal communication<br>Off: Abnormal communication                                  |
| Q1~Q32 (Green) | Digital Output Indicator: the corresponding indicator will light up when a signal is detected.                       |

## 6.5. COE General Parameter Description

| Index   | Name                   | Flags | Value          | Unit |
|---------|------------------------|-------|----------------|------|
| 1000    | Device type            | RO    | 0x00000003 (3) |      |
| 1008    | Device name            | RO    | ECT-Dev        |      |
| 1009    | Hardware version       | RO    |                |      |
| 100A    | Software version       | RO    |                |      |
| 1018:0  | Identity               | RO    | > 4 <          |      |
| 1C32:0  | SM output parameter    |       | > 32 <         |      |
| 1C33:0  | SM input parameter     |       | > 32 <         |      |
| 2001:0  | ErrEN                  | RW    | > 1 <          |      |
| 2001:01 | EtherCATBusErrOutputEN | RW    | 50ms (0)       |      |
| 2004:0  | Err                    | RO    | > 1 <          |      |

| Parameters                     | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2001:01 EtherCATBusErrOutoutEN | <p>This parameter defines the action of the output channels when communication with the module is interrupted. <b>(The setting will not be saved after power-off):</b></p> <p>0: Output holds for 50ms and then clears</p> <p>1: Output holds</p> <p>2: Output holds for 10ms and then clears</p> <p>3: Output holds for 20ms and then clears</p> <p>4: Output holds for 100ms and then clears</p> <p>5: Output holds for 500ms and then clears</p> <p>6: Output clears immediately</p> |
| 2004:01 Err 24v_nf             | <p>Bit0 :</p> <p>1: Channel 24V power supply abnormal</p> <p>0: Normal</p> <p>Bit1: Reserved</p> <p>Bit2 :</p> <p>1: DO short circuit or overcurrent</p> <p>0: Normal</p>                                                                                                                                                                                                                                                                                                               |

## 7. Digital Fast Output Terminal

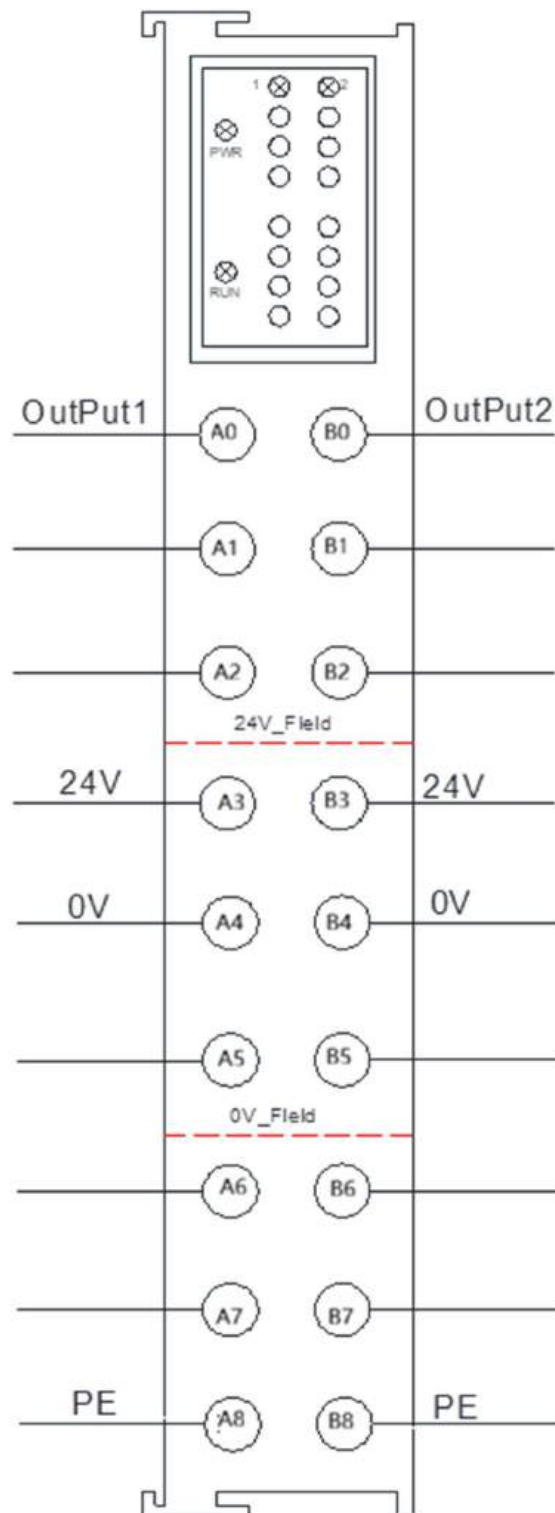
SRE5202/SRE5204 digital fast output terminal, with DC distributed clock and oversampling function, features the maximum output frequency of 1MHz, 2/4 channel output, transistor PNP, rated 24VDC/0.5A, and module diagnostic function.

### 7.1. Electrical Specifications

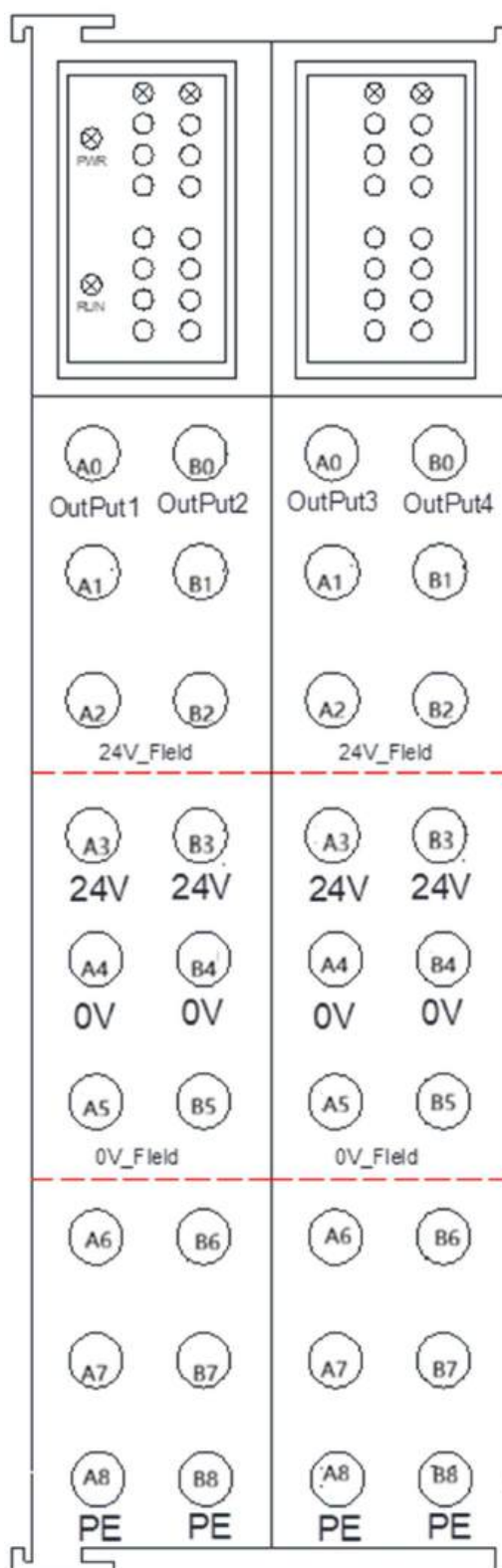
| Model                              | SRE5202                                                                     | SRE5204 |
|------------------------------------|-----------------------------------------------------------------------------|---------|
| Technical specifications           |                                                                             |         |
| Rated supply voltage               | 24V DC                                                                      |         |
| Bus 5V DC current consumption      | 165mA                                                                       | 165mA   |
| Load type                          | Resistive load, inductive load, lamp load                                   |         |
| Oversampling factor                | n = integer multiple of cycle time, 1...1000                                |         |
| Distributed clock                  | << 1 μs                                                                     |         |
| Maximum output current             | 0.5 A per channel (short-circuit protection)                                |         |
| Switching time                     | TON : < 1 μs, TOFF : < 1 μs                                                 |         |
| Maximum frequency                  | 1MHz                                                                        |         |
| 24V current consumption            | /                                                                           |         |
| Digital output characteristics     |                                                                             |         |
| Number of output points            | 2                                                                           | 4       |
| Output type                        | Transistor PNP Output                                                       |         |
| Isolation                          |                                                                             |         |
| ● Between channels and buses       | Existent                                                                    |         |
| Display indicator                  | Power supply green LED display                                              |         |
| System power diagnosis and warning | Supported                                                                   |         |
| Environmental conditions           | Operating temperature: -20~60°C, Relative Humidity: 5%~90% (non-condensing) |         |
| Storage temperature                | -40~60 °C                                                                   |         |
| Dimensions (L × W × H)             | 15×100×80 (mm)                                                              |         |

## 7.2. Wiring Diagram

### 7.2.1. SRE5202 Wiring Diagram



### 7.2.2. SRE5204 Wiring Diagram



## 7.3. Terminal Description

### 7.3.1. SRE5202 Terminal Description

| Wiring Terminal | Description                          |
|-----------------|--------------------------------------|
| Output1         | Digital output channel 1             |
| Output2         | Digital output channel 2             |
| 24V             | Positive pole of sensor power supply |
| 0V              | Negative pole of sensor power supply |
| PE              | Shielded wire                        |

### 7.3.2. SRE5204 Terminal Description

| Wiring Terminal | Description                          |
|-----------------|--------------------------------------|
| Output1         | Digital output channel 1             |
| Output2         | Digital output channel 2             |
| Output3         | Digital output channel 3             |
| Output4         | Digital output channel 4             |
| 24V             | Positive pole of sensor power supply |
| 0V              | Negative pole of sensor power supply |
| PE              | Shielded wire                        |

## 7.4. Indicator Description

### 7.4.1. SRE5202 Indicator Description

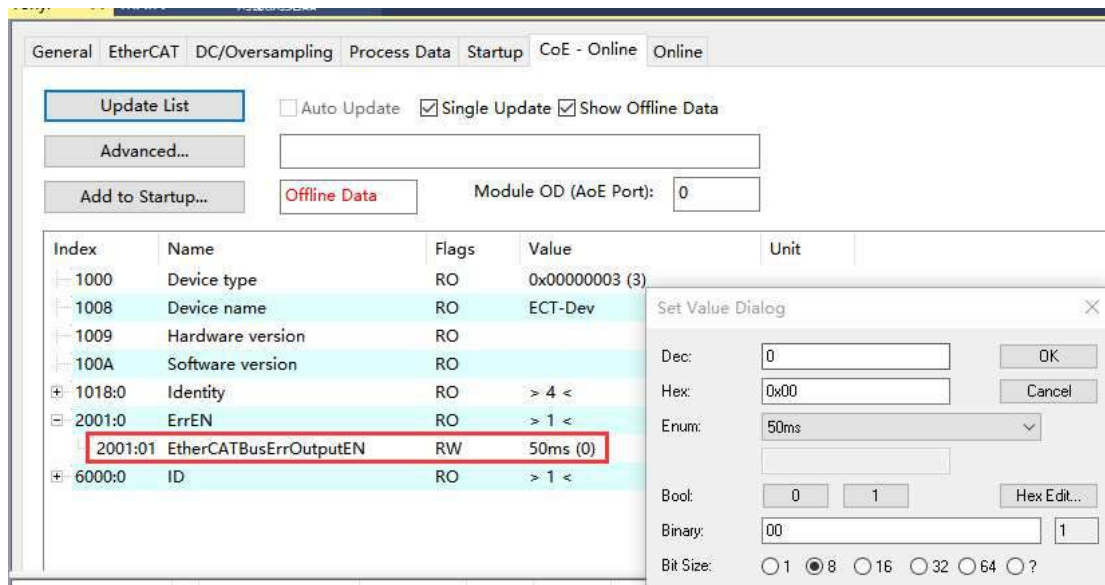
| Indicator   | Description                                                                                     |
|-------------|-------------------------------------------------------------------------------------------------|
| PWR (Green) | Module power indicator:<br>On: Power supply is normal<br>Off: Abnormal power supply or no power |
| RUN (Green) | Communication indicator:<br>On: Normal communication<br>Off: Abnormal communication             |
| LED1        | Output1 indicator<br>On: Output1 is active<br>Off: Output1 is inactive                          |
| LED2        | Output2 indicator<br>On: Output2 is active<br>Off: Output2 is inactive                          |

### 7.4.2. SRE5204 Indicator Description

| Indicator   | Description                                                                                     |
|-------------|-------------------------------------------------------------------------------------------------|
| PWR (Green) | Module power indicator:<br>On: Power supply is normal<br>Off: Abnormal power supply or no power |
| RUN (Green) | Communication indicator:<br>On: Normal communication<br>Off: Abnormal communication             |
| LED1        | Output1 indicator<br>On: Output1 is active<br>Off: Output1 is inactive                          |
| LED2        | Output2 indicator<br>On: Output2 is active<br>Off: Output2 is inactive                          |
| LED3        | Output3 indicator<br>On: Output3 is active<br>Off: Output3 is inactive                          |
| LED4        | Output4 indicator<br>On: Output4 is active<br>Off: Output4 is inactive                          |

## 7.5. Parameter Description

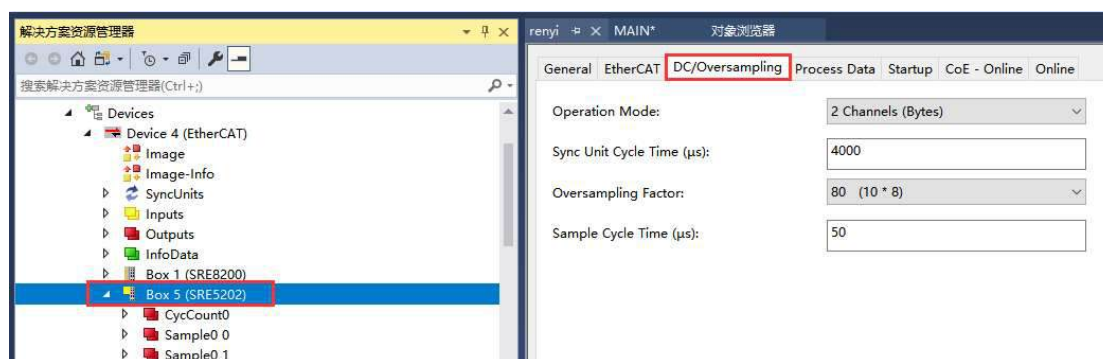
### 7.5.1. COE Parameter Description



| Parameters                     | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2001:01 EtherCATBusErrOutoutEN | <p>This parameter defines the action of the output channels when communication with the module is interrupted. <b>(The setting will not be saved after power-off):</b></p> <p>0: Output holds for 50ms and then clears</p> <p>1: Output holds</p> <p>2: Output holds for 10ms and then clears</p> <p>3: Output holds for 20ms and then clears</p> <p>4: Output holds for 100ms and then clears</p> <p>5: Output holds for 500ms and then clears</p> <p>6: Output clears immediately</p> |

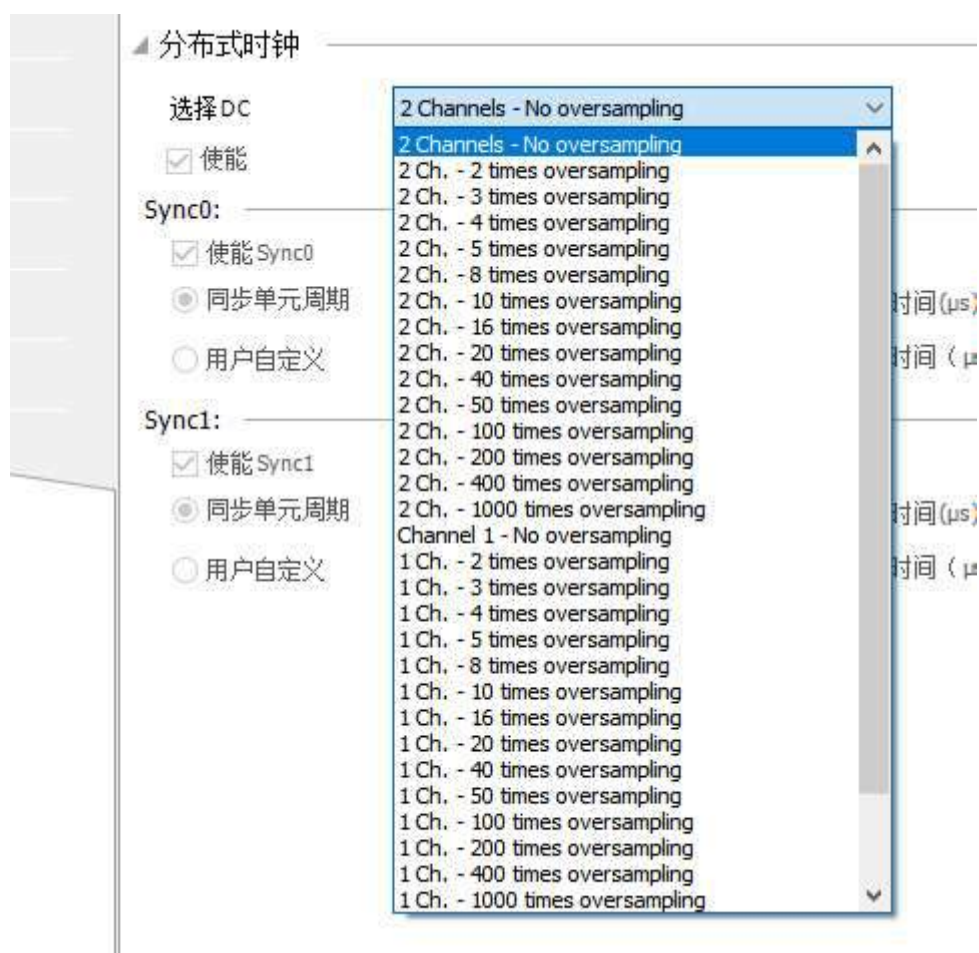
## 7.5.2. DC/Oversampling Parameter Description

Parameters take effect after refresh



| Parameters                  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                      |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Operation Mode :            | <p>Selection of number of channels:</p> <p>2 Channels (Byte): Select to use two channels, Byte type</p> <p>2 Channels (Bit): Select to use two channels, Bit type</p> <p>1 Channel (Byte): Select to use one channel, Byte type (first channel)</p> <p>1 Channel (Bit): Select to use one channel, Bit type (first channel)</p> <p><b>Note:</b> When using the SRE5204 module, select 1 Channel to use the first two channels, and select 2 Channels to use all channels.</p> |                      |
| Sync Unit Cycle Time (us) : | Cycle time, determined by the EtherCAT cycle time setting                                                                                                                                                                                                                                                                                                                                                                                                                     |                      |
| Oversampling Factor :       | 1, 2, 4, 5, 8, 10, 16, 20, 25, 32, 40, 50, 64, 80, 100, 125, 128;                                                                                                                                                                                                                                                                                                                                                                                                             | Sampling data (Bit)  |
|                             | 8(1*8), 16(2*8), 32(4*8), 40(5*8), 64(8*8), 80(10*8), 128(16*8), 160(20*8), 200(25*8)                                                                                                                                                                                                                                                                                                                                                                                         | Sampling data (Byte) |
| Sample Cycle Time (us) :    | Sampling cycle is determined by the relationship between EtherCAT cycle time and the number of samples                                                                                                                                                                                                                                                                                                                                                                        |                      |

### 7.5.3. Codesys/Distributed Clock



(When using SRE5204 module, select 1 Channel to use the first two channels, and select 2 Channels to use all channels)

| Operation Mode               |                                                          | Remarks                                  |
|------------------------------|----------------------------------------------------------|------------------------------------------|
| 1 Ch. - X times oversampling | X:2, 3, 4, 5, 8, 10, 16, 20, 40, 50, 100, 200, 400, 1000 | Sampling data of Channel 1 (Bit)         |
| 2 Ch. - X times oversampling | X:2, 3, 4, 5, 8, 10, 16, 20, 40, 50, 100, 200, 400, 1000 | Sampling data for channels 1 and 2 (Bit) |

## 8. Digital I/O Terminal

### 8.1. Electrical Specifications

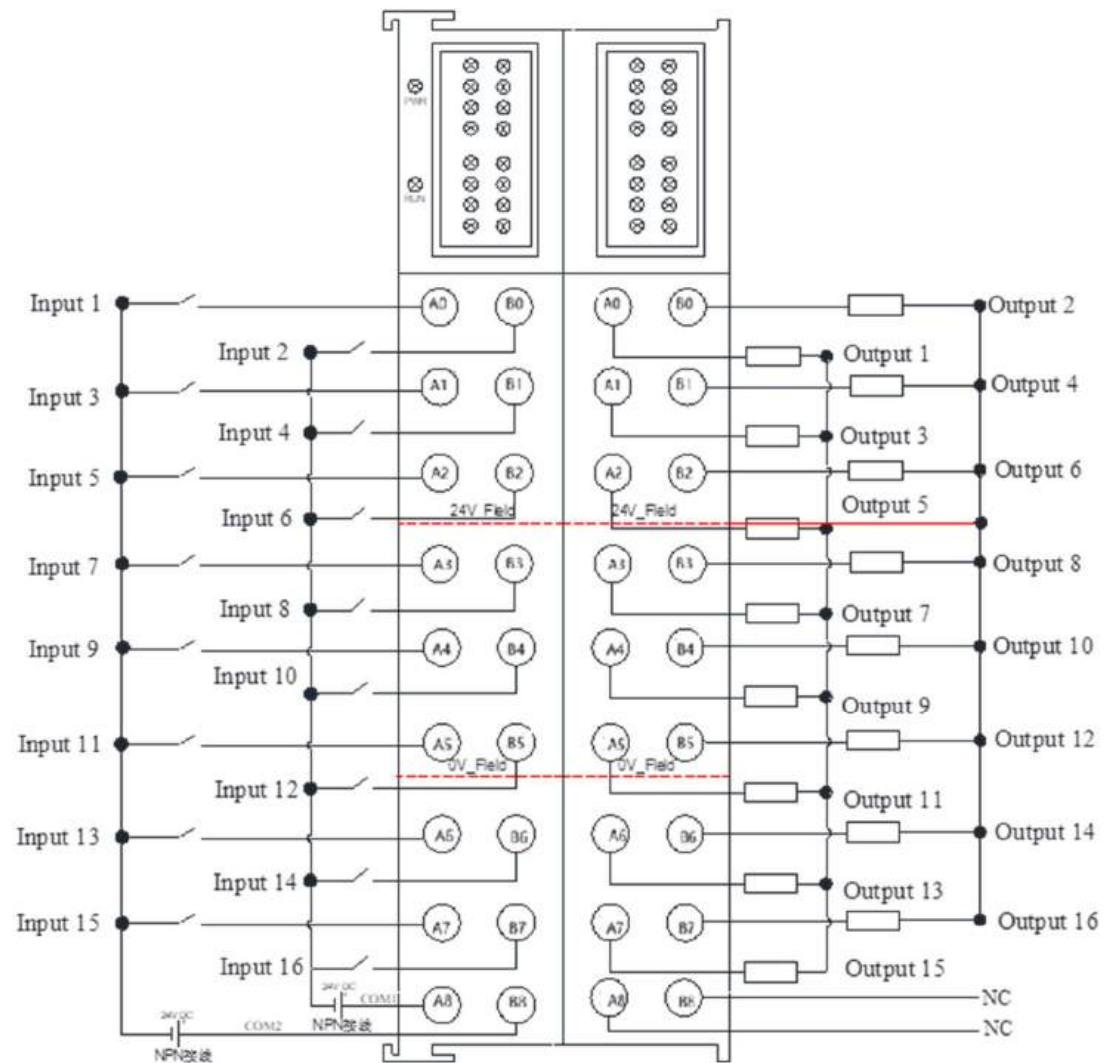
SRE digital I/O terminal features 16-channel digital input, 16-channel digital output, and NPN/PNP, with diagnostic function.

| Model                                    | SRE1332                | SRE1432                |
|------------------------------------------|------------------------|------------------------|
| Technical specifications                 |                        |                        |
| Bus 5V DC current consumption            | 205mA                  | 200mA                  |
| Input characteristics                    |                        |                        |
| Number of input points                   | 16                     |                        |
| ● Rated value                            | 24V DC                 |                        |
| ● "0" signal                             | Maximum 5V DC, 1mA     |                        |
| ● "1" signal                             | Minimum 15V DC, 2.5mA  |                        |
| Input characteristics                    | Sink                   | Source                 |
| Allow static current                     | 1mA                    |                        |
| Insulation test voltage                  | 500V DC                |                        |
| Cable length (unshielded)                | Maximum 300m           |                        |
| Cable length (shielded)                  | Maximum 500m           |                        |
| Output characteristics                   |                        |                        |
| Output type                              | NPN solid-state MOSFET | PNP solid-state MOSFET |
| Number of output points                  | 16                     |                        |
| Cable length (unshielded)                | Maximum 300m           |                        |
| Cable length (shielded)                  | Maximum 500m           |                        |
| Output short-circuit protection          | Yes, electronic type   |                        |
| Maximum lamp load                        | 5W                     |                        |
| Output current "1"                       | 0.5A                   |                        |
| Leakage current                          | < 1mA                  |                        |
| Mechanical life of contacts              | ---                    |                        |
| Electrical life of contacts (rated load) | ---                    |                        |
| Switching frequency                      |                        |                        |
| ● Maximum resistive load                 | 100HZ                  |                        |
| ● Maximum inductive load                 | 0.5HZ                  |                        |
| ● Maximum lamp load                      | 10HZ                   |                        |
| ● Maximum Mechanical load                | ---                    |                        |

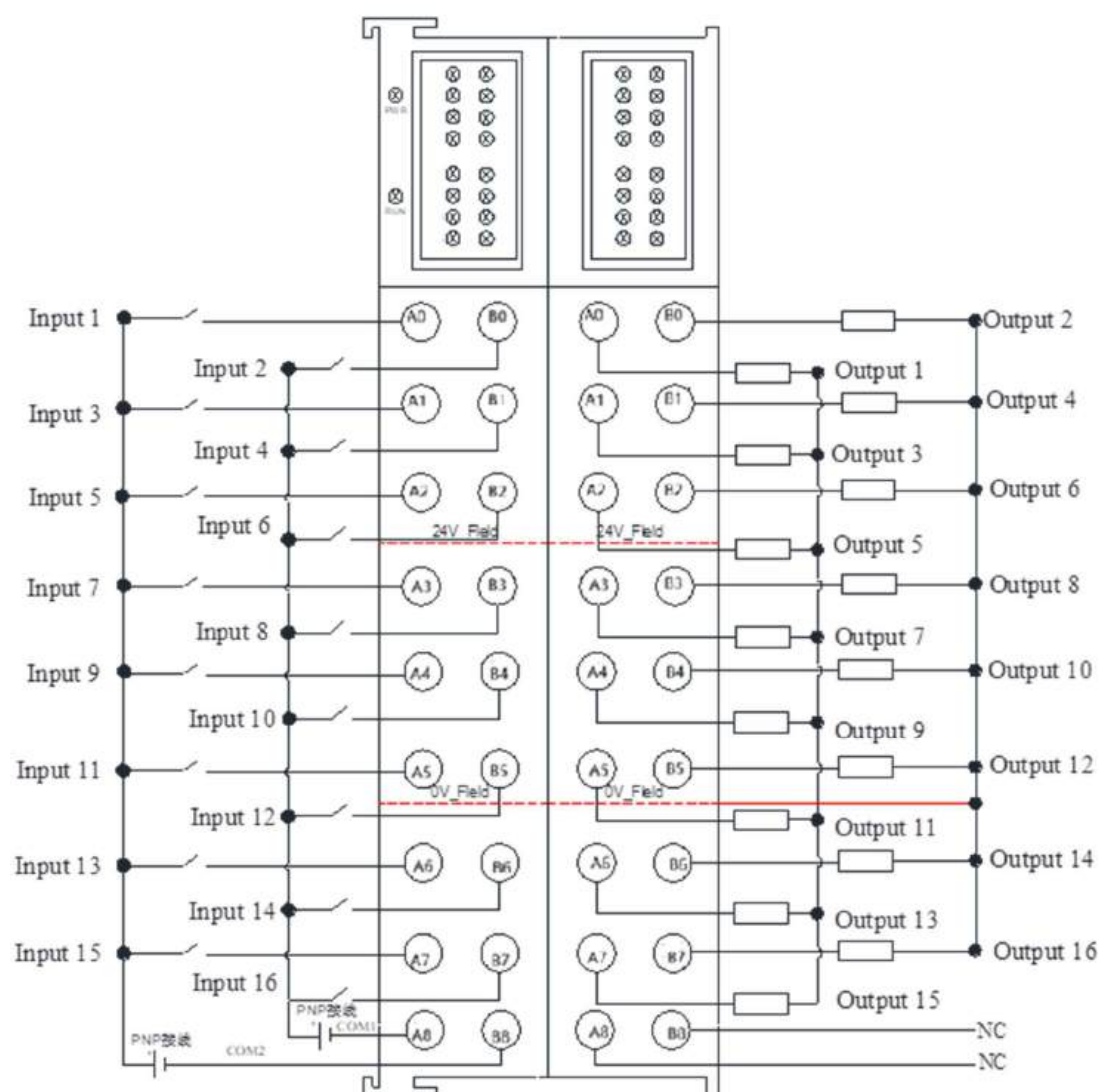
| Model                              | SRE1332                                                                        | SRE1432 |
|------------------------------------|--------------------------------------------------------------------------------|---------|
| Insulation test voltage            | 500V DC                                                                        |         |
| Isolation                          |                                                                                |         |
| ● Between channels and buses       | Existent                                                                       |         |
| ● Between channels                 | Existent                                                                       |         |
| Display indicator                  | Green LED display per channel output                                           |         |
| System power diagnosis and warning | Supported                                                                      |         |
| Environmental conditions           | Operating temperature: -20~60°C, Relative Humidity:<br>5%~90% (non-condensing) |         |
| Storage temperature                | -40~60 °C                                                                      |         |
| Dimensions (L × W × H)             | 30×100×80 (mm)                                                                 |         |

## 8.2. Wiring Diagram

### 8.2.1. SRE1332 Wiring Diagram



### 8.2.2. SRE1432 Wiring Diagram



### 8.3. Indicator Description

| Indicator      | Description                                                                                                     |
|----------------|-----------------------------------------------------------------------------------------------------------------|
| PWR (Green)    | Module power indicator:<br>On: Module is powered normally;<br>Off: Module is powered abnormally or not powered; |
| RUN (Green)    | Communication indicator:<br>On: Normal communication<br>Off: Abnormal communication                             |
| I1~I16 (Green) | Digital input indicator: the corresponding indicator will light up when a signal is detected.                   |
| Q1~Q16 (Green) | Digital Output Indicator: the corresponding indicator will light up when a signal is detected.                  |

### 8.4. COE General Parameter Description

The screenshot shows the 'COE - Online' window with a list of parameters. The 'Set Value Dialog' box is open, showing the 'Dec' field set to 0, 'Hex' field set to 0x00, and 'Enum' set to none. The 'Bit Size' is set to 8.

| Index   | Name                | Flags | Value          |
|---------|---------------------|-------|----------------|
| 1000    | Device type         | RO    | 0x00000003 (3) |
| 1008    | Device name         | RO    | ECT-Dev        |
| 1009    | Hardware version    | RO    |                |
| 100A    | Software version    | RO    |                |
| 1018:0  | Identity            | RO    | > 4 <          |
| 1C32:0  | SM output parameter |       | > 32 <         |
| 1C33:0  | SM input parameter  |       | > 32 <         |
| 2001:0  | ErrEN               | RW    | > 1 <          |
| 2002:0  | DI Delay            | RW    | > 1 <          |
| 2002:01 | LocalDI             | RW    | none (0)       |
| 2003:0  | Filter              | RW    | > 1 <          |
| 2003:01 | Flitertime          | RW    | none (0)       |
| 2004:0  | Err                 | RO    | > 0 <          |
| 2004:01 | Err_24v_nf          | RO    | ---            |

| Parameters                     | Description                                                                                                                                                                                                                                                                                                                                |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2001:01 EtherCATBusErrOutoutEN | <p>This parameter defines the action of the output channels when communication with the module is interrupted:</p> <p>0: Output holds for 50ms and then clears</p> <p>1: Output holds</p> <p>2: Output holds for 10ms and then clears</p> <p>3: Output holds for 20ms and then clears</p> <p>4: Output holds for 100ms and then clears</p> |

| Parameters          | Description                                                                                                                                                                                                                   |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     | 5: Output holds for 500ms and then clears<br>6: Output clears immediately                                                                                                                                                     |
| 2002:01 LocalDI     | Parameter for configuring the digital input terminal,<br>DI delay<br>none: no delay<br>1.6ms: DI delay is 1.6ms<br>3.2ms: DI delay is 3.2ms<br>12.8ms: DI delay is 12.8ms<br>20ms: DI delay is 20ms<br>50ms: DI delay is 50ms |
| 2003:01 Fliter time | none: No filtering<br>1 : 1ms<br>2 : 2ms<br>3 : 5ms<br>4 : 10ms<br>5 : 20ms<br>6 : 50ms                                                                                                                                       |
| 2004:01 Err 24v_nf  | Bit0 :<br>1: Channel 24V power supply abnormal<br>0: Normal<br>Bit1: Reserved<br>Bit2 :<br>1: DO short circuit or overcurrent<br>0: Normal                                                                                    |

## 9. Analog Input Terminal

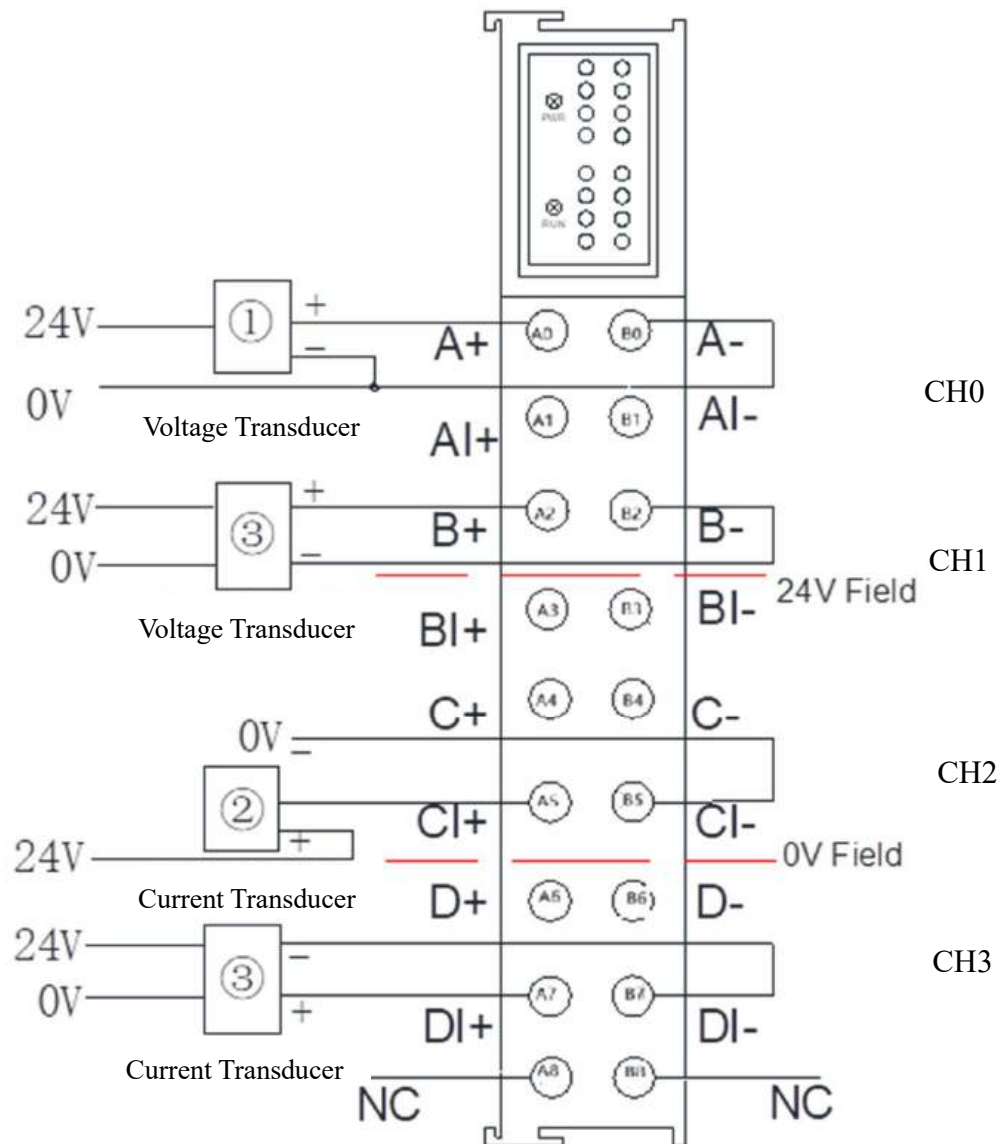
### 9.1. Electrical Specifications

High-performance analog input terminal features 16-bit precision and 4/8-channel voltage/current input, with the module diagnostic function.

| Model                              | SRE3204                                                                       | SRE3208        |
|------------------------------------|-------------------------------------------------------------------------------|----------------|
| Technical specifications           |                                                                               |                |
| Power supply voltage               | 18V DC~28V DC                                                                 |                |
| Bus 5V DC current consumption      | 160mA                                                                         | 165mA          |
| Number of input channels           | 4                                                                             | 8              |
| Input type                         | Voltage/Current                                                               |                |
| Measuring range                    |                                                                               |                |
| Voltage (Unipolar)                 | 0-10V                                                                         |                |
| Voltage (Bipolar)                  | -10V-10V                                                                      |                |
| Current                            | 0~20mA                                                                        |                |
| Data word                          |                                                                               |                |
| Unipolar                           | 0~32000                                                                       |                |
| Bipolar                            | -32000~32000                                                                  |                |
| Isolation                          |                                                                               |                |
| ● Between channels and buses       | Existent                                                                      |                |
| Display indicator                  | Power supply green LED display                                                |                |
| System power diagnosis and warning | Supported                                                                     |                |
| Environmental conditions           | Operating temperature: -20~60℃, Relative Humidity: 5%~90%<br>(non-condensing) |                |
| Storage temperature                | -40~60 °C                                                                     |                |
| Dimensions (L × W × H)             | 15×100×80 (mm)                                                                | 30×100×80 (mm) |

## 9.2. Module Wiring Diagram

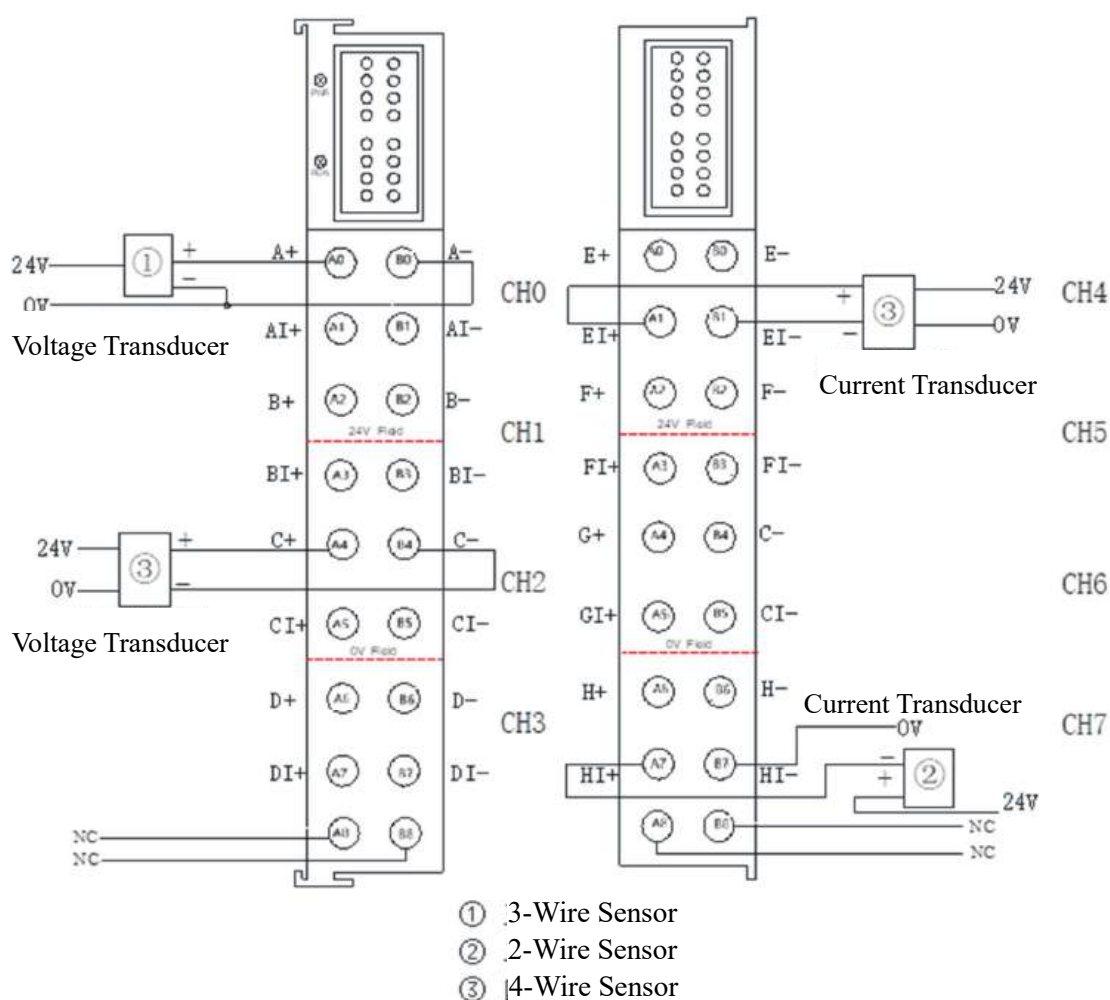
### 9.2.1. SRE3204 Wiring Diagram



Note: A+ and A- are voltage signal input channels, and AI+ and AI- are current signal input channels. If CH0 needs to be connected to a voltage signal, it can be connected to A+ and A- terminals; if CH0 needs to be connected to a current signal, it can be connected to AI+ and AI- terminals; both channels are CH0 and occupy the same data address, so only one can be selected for use and both cannot be connected simultaneously. The same rule applies to other input channels. The wiring in the

diagram is only an example, and specific connections can be made as needed.

## 9.2.2. SRE3208 Wiring Diagram



\* For single-ended connections, signal negative (-) and power supply negative (-) are shorted together

Note: A+ and A- are voltage signal input channels, and AI+ and AI- are current signal input channels. If CH0 needs to be connected to a voltage signal, it can be connected to A+ and A- terminals; if CH0 needs to be connected to a current signal, it can be connected to AI+ and AI- terminals; both channels are CH0 and occupy the same data address, so only one can be selected for use and both cannot be connected simultaneously. The same rule applies to other input channels. The wiring in the diagram is only an example, and specific connections can be made as needed.

## 9.3. Terminal Description

### 9.3.1. SRE3204 Terminal Description

| Terminal | Description                |
|----------|----------------------------|
| A+,A-    | CH0 voltage input terminal |
| AI+,AI-  | CH0 current input terminal |
| B+,B-    | CH1 voltage input terminal |
| BI+,BI-  | CH1 current input terminal |
| C+,C-    | CH2 voltage input terminal |
| CI+,CI-  | CH2 current input terminal |
| D+,D-    | CH3 voltage input terminal |
| DI+,DI-  | CH3 current input terminal |

### 9.3.2. SRE3208 Terminal Description

| Terminal | Description                |
|----------|----------------------------|
| A+,A-    | CH0 voltage input terminal |
| AI+,AI-  | CH0 current input terminal |
| B+,B-    | CH1 voltage input terminal |
| BI+,BI-  | CH1 current input terminal |
| C+,C-    | CH2 voltage input terminal |
| CI+,CI-  | CH2 current input terminal |
| .....    | .....                      |
| .....    | .....                      |
| H+,H-    | CH7 voltage input terminal |
| HI+,HI-  | CH7 current input terminal |

## 9.4. Indicator Description

| Indicator   | Description                                                                                                   |
|-------------|---------------------------------------------------------------------------------------------------------------|
| PWR (Green) | Module power indicator:<br>On: Module is powered normally<br>Off: Module is powered abnormally or not powered |
| RUN (Green) | Communication indicator:<br>On: Normal communication<br>Off: Abnormal communication                           |

## 9.5. COE General Parameter Description

Configuration parameters will not be synchronized to Startup, and will not be saved after power-off or hot-plugging.

The screenshot shows the 'CoE - Online' configuration window. It has tabs for General, EtherCAT, DC, Process Data, Startup, CoE - Online (selected), and Online. Below the tabs are buttons for 'Update List', 'Advanced...', and 'Add to Startup...'. There are also checkboxes for 'Auto Update', 'Single Update', and 'Show Offline Data'. A text field for 'Module OD (AoE Port)' is set to 0. A table lists parameters with columns for Index, Name, Flags, and Value.

| Index   | Name                | Flags | Value          |
|---------|---------------------|-------|----------------|
| 1000    | Device type         | RO    | 0x00000003 (3) |
| 1008    | Device name         | RO    | ECT-Dev        |
| 1009    | Hardware version    | RO    |                |
| 100A    | Software version    | RO    |                |
| 1018:0  | Identity            | RO    | > 4 <          |
| 1C32:0  | SM output parameter |       | > 32 <         |
| 1C33:0  | SM input parameter  |       | > 32 <         |
| 2004:0  | Err                 | RO    | > 1 <          |
| 2004:01 | Err_24v_nf          | RO    | 0x00 (0)       |
| 2005:0  | CH_Settings         | RW    | > 3 <          |
| 2005:01 | Chanel_Num          | RW    | 4 (0)          |
| 2005:02 | Chanel_Time         | RW    | 400us (0)      |
| 2005:03 | Chanel_Type         | RW    | 0x00 (0)       |

| Parameters | Data type    | Description                                                                                                                                                                    |
|------------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2004:01    | Err 24v_nf   | Bit0 :<br>1: Channel 24V power supply abnormal<br>0: Normal                                                                                                                    |
| 2005:01    | Channel Num  | 0: Enable 4 channels<br>1: Enable the first channel<br>2: Enable the first 2 channels                                                                                          |
| 2005:02    | Channel Time | Channel update time:<br>0 : 400us<br>1 : 1ms<br>2 : 2ms<br>3 : 5ms<br>4 : 10ms<br>5 : 20ms                                                                                     |
| 2005:03    | Channel Type | Each Bit corresponds to one channel: e.g.<br>Bit0: Corresponds to CH0<br>Bit1: Corresponds to CH1<br>.....<br>Set a detection value:<br>0: Voltage ±10V      1: Current 0-20mA |

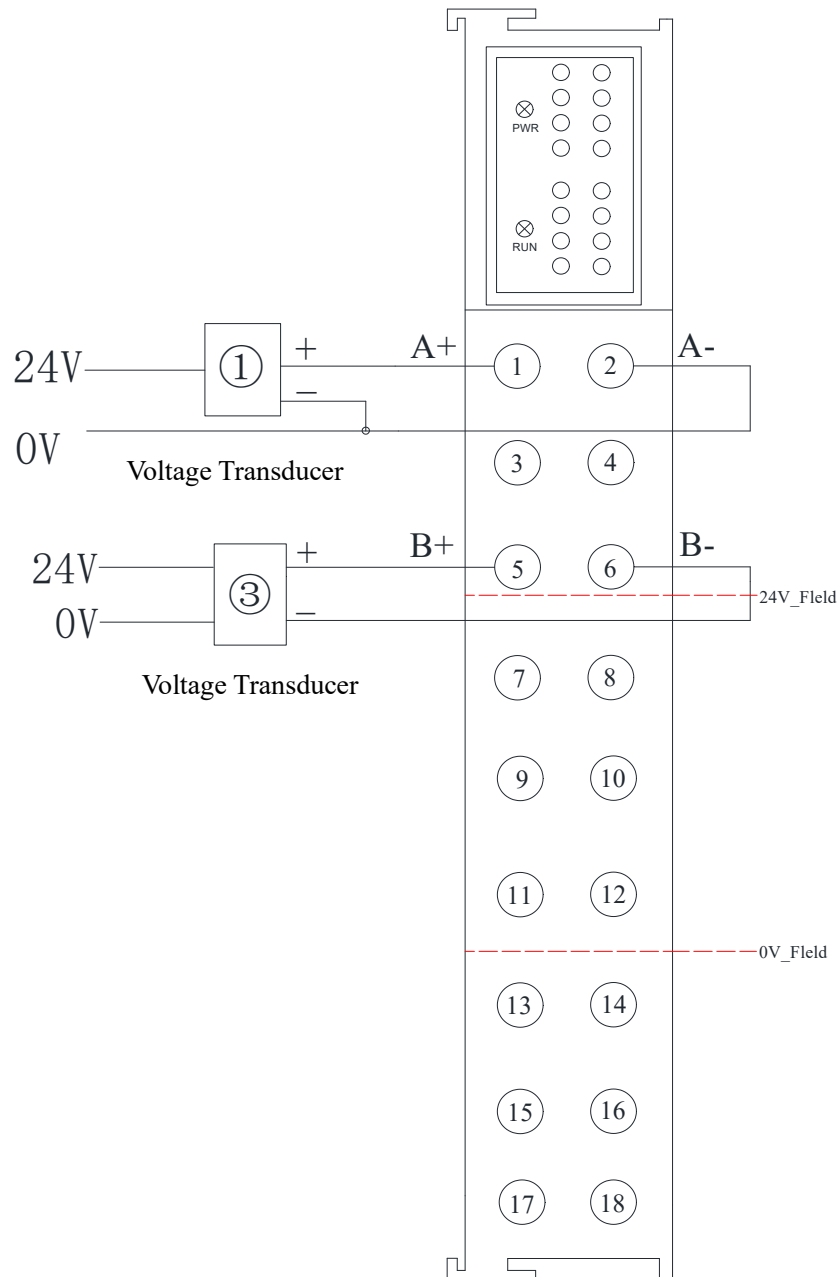
## 10. Analog Fast Acquisition Input Terminal

The SRE3522 dual-channel analog fast acquisition module **does not support the Omron platform.**

### 10.1. Electrical Specifications

|                                    |                                                                                |
|------------------------------------|--------------------------------------------------------------------------------|
| <b>Model</b>                       | <b>SRE3522</b>                                                                 |
| <b>Technical specifications</b>    |                                                                                |
| Power supply voltage               | 18V DC~28V DC                                                                  |
| Bus 5VDC current consumption       | 187mA                                                                          |
| Number of input channels           | 2                                                                              |
| Acquisition type                   | Voltage                                                                        |
| <b>Measuring range</b>             |                                                                                |
| Voltage                            | -10V-10V                                                                       |
| <b>Data word</b>                   |                                                                                |
| Bipolar                            | -32000~32000                                                                   |
| Resolution                         | 16-bit                                                                         |
| Input type                         | Differential input                                                             |
| Sampling type                      | Simultaneous                                                                   |
| Oversampling factor                | n = 1...100 optional (Max 100 ksamples/s)                                      |
| Maximum sampling rate              | Max 10 $\mu$ s/100 ksps (per channel, synchronous)                             |
| <b>Isolation</b>                   |                                                                                |
| ● Between channels and buses       | Existent                                                                       |
| Display indicator                  | Power supply green LED display                                                 |
| Distributed clock                  | Supported                                                                      |
| System power diagnosis and warning | Supported                                                                      |
| <b>Environmental conditions</b>    |                                                                                |
| Environmental conditions           | Operating temperature: -20~60°C, Relative Humidity: 5%~90%<br>(non-condensing) |
| Storage temperature                | -40~60 °C                                                                      |
| Vibration/shock resistance         | Compliant with EN 60068-2-6/EN 60068-2-27 Standards                            |
| EMI/EMR resistance                 | Compliant with EN 61000-6-2/EN 61000-6-4 Standards                             |
| Dimensions (L × W × H)             | 15×100×80 (mm)                                                                 |

## 10.2. SRE3522 Module Wiring Diagram



① 3-Wire Sensor

③ 4-Wire Sensor

\* For single-ended connections, signal negative (-) and power supply negative (-) are shorted together

### 10.3. Indicator Description

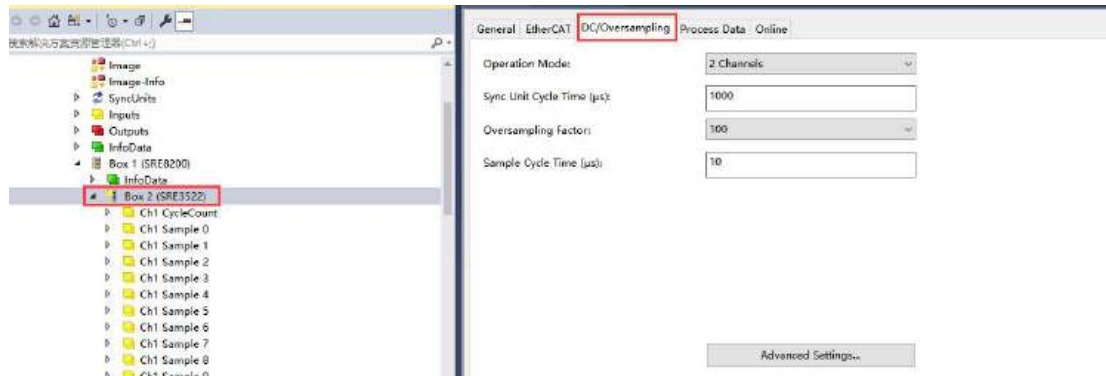
| Indicator   | Description                                                                                               |
|-------------|-----------------------------------------------------------------------------------------------------------|
| PWR (Green) | Module power indicator:<br>On: Power supply is normal<br>Off: Module is powered abnormally or not powered |
| RUN (Green) | Communication indicator:<br>On: Normal communication<br>Off: Abnormal communication                       |

### 10.4. Terminal Description

| Terminal | Description                            |
|----------|----------------------------------------|
| A+,A-    | CH0 acquisition voltage input terminal |
| B+,B-    | CH1 acquisition voltage input terminal |

## 10.5. Parameter Description

The signal oversampling cycle is:  $\text{Sample Cycle Time} = \text{Sync Unit Cycle Time} / \text{Oversampling Factor}$ , with a minimum sampling cycle of 10us for sampling. Example: If the bus cycle time is 1000us and the sampling count is 100 times, then the sampling cycle is 10us. A value is sampled every 10us, requiring 100 executions. These data are accumulated and transmitted in the next bus cycle.



| Parameters                  | Description                                                                                                                                                                                                             |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operation Mode :            | Selection of number of channels:<br>2 Channels: Select to use two channels<br>1 Channel: Select to use one channel (the first channel)                                                                                  |
| Sync Unit Cycle Time (us) : | Cycle time, determined by the EtherCAT cycle time setting                                                                                                                                                               |
| Oversampling Factor :       | Oversampling parameter: sampling count per cycle, <b>maximum 100 times.</b><br>1 : 1<br>2 : 2<br>3 : 4<br>4 : 5<br>5 : 8<br>6 : 10<br>7 : 16<br>8 : 20<br>9 : 25<br>10 : 32<br>11 : 40<br>12 : 50<br>13 : 64<br>14 : 80 |

|                          |                                                                                                        |
|--------------------------|--------------------------------------------------------------------------------------------------------|
|                          | 15 : 100                                                                                               |
| Sample Cycle Time (us) : | Sampling cycle is determined by the relationship between EtherCAT cycle time and the number of samples |

## 11. Analog Output Terminal

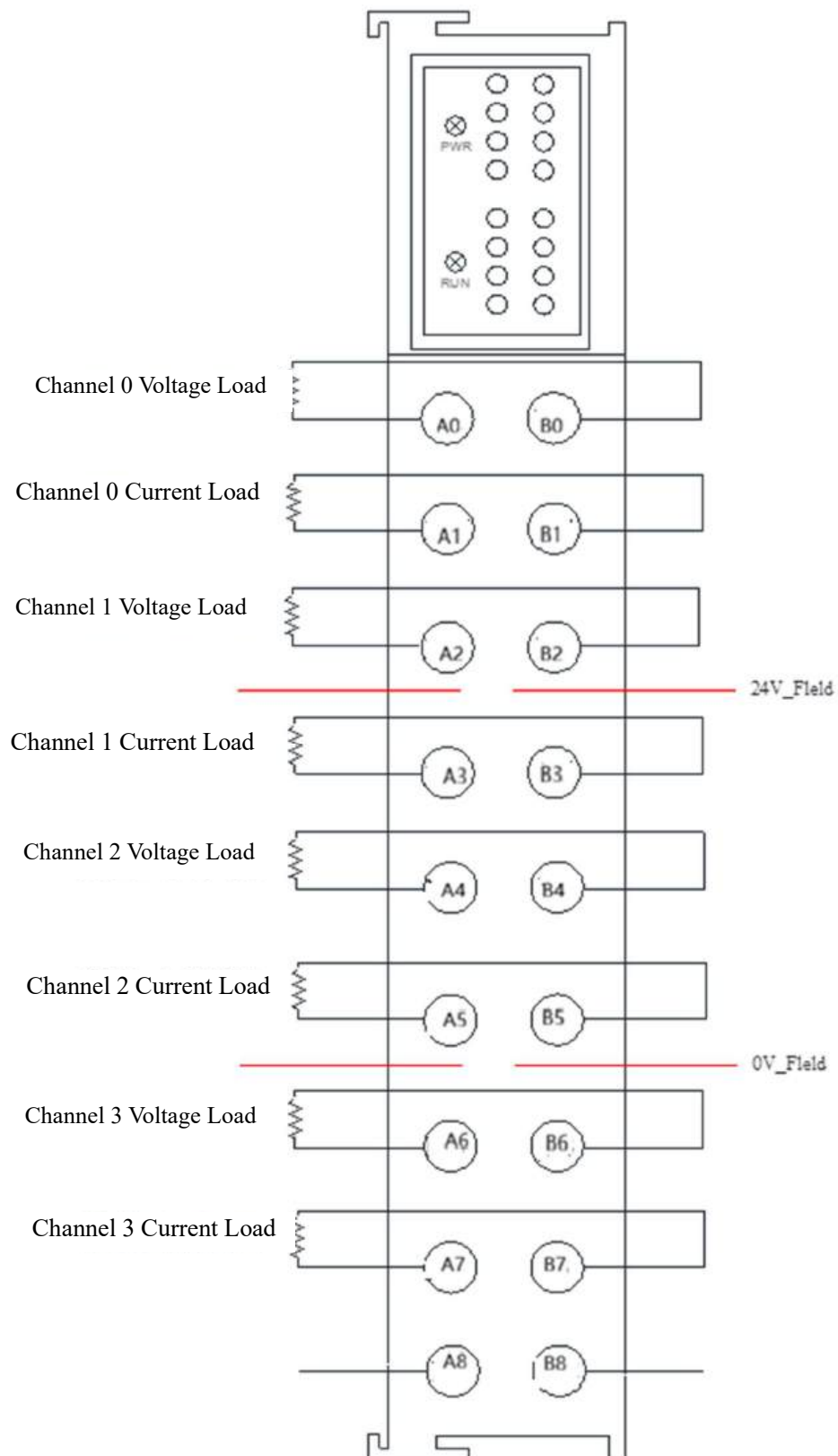
### 11.1. Electrical Specifications

SRE4204 analog output terminal, 4 channels, configurable for voltage ( $\pm 10V$ ) or current (0-20mA) output, features module diagnostic function, 16-bit precision, 35mm DIN rail mounting.

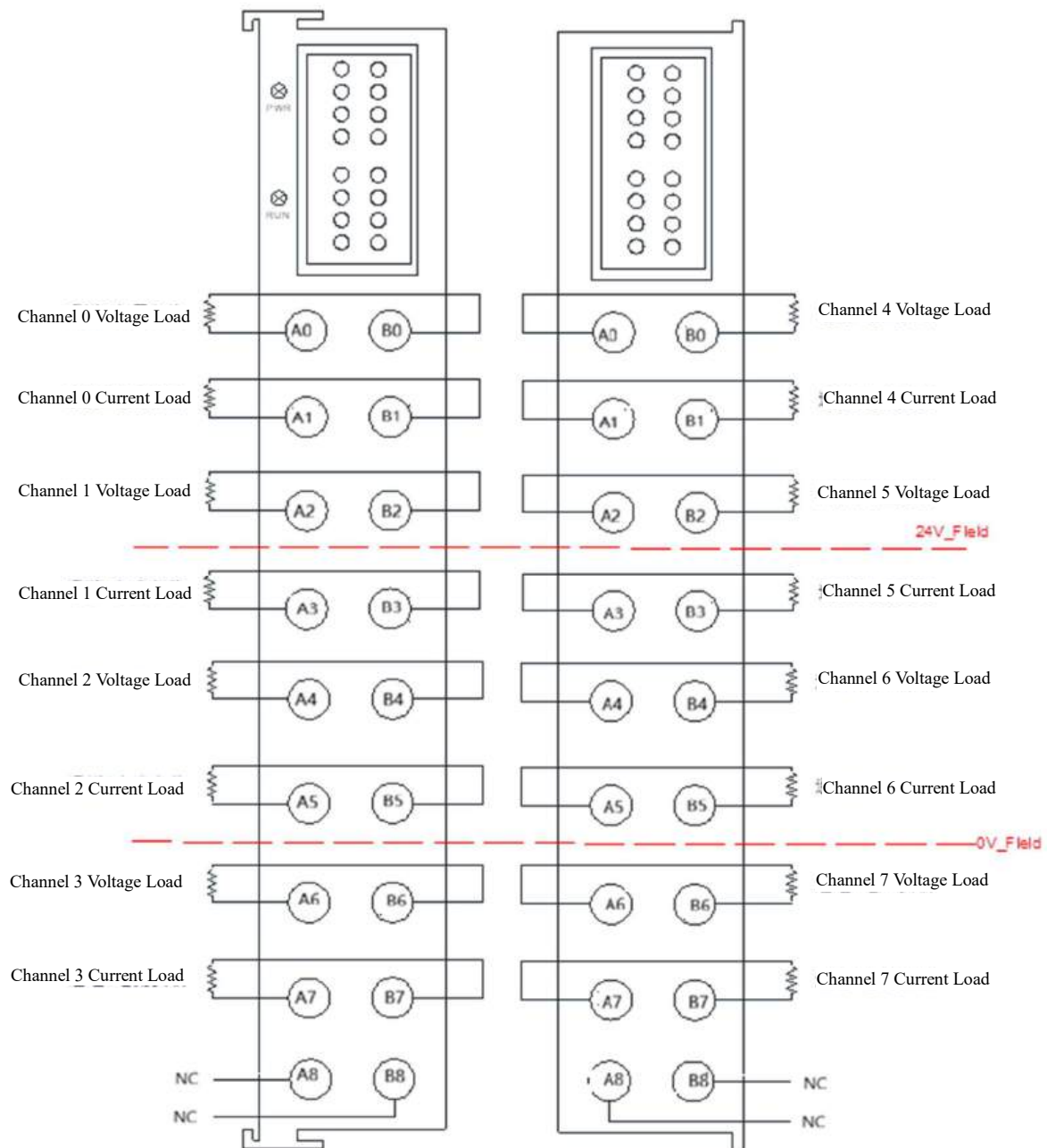
| Model                              | SRE4204                                                                     | SRE4208        |
|------------------------------------|-----------------------------------------------------------------------------|----------------|
| Power supply voltage               | 18V DC~28V DC                                                               |                |
| Bus 5VDC current consumption       | 170mA                                                                       | 170mA          |
| Number of output channels          | 4                                                                           | 8              |
| <b>Measuring range</b>             |                                                                             |                |
| Voltage (Unipolar)                 | 0~10V                                                                       |                |
| Voltage (Bipolar)                  | -10~10V                                                                     |                |
| Current                            | 0~20mA                                                                      |                |
| <b>Data word</b>                   |                                                                             |                |
| Voltage                            | -32000~32000, full scale                                                    |                |
| Current                            | 0~32000, full scale                                                         |                |
| <b>Isolation</b>                   |                                                                             |                |
| ● Between channels and buses       | Existent                                                                    |                |
| Display indicator                  | Power supply green LED display                                              |                |
| System power diagnosis and warning | Supported                                                                   |                |
| Environmental conditions           | Operating temperature: -20~60°C, Relative Humidity: 5%~90% (non-condensing) |                |
| Storage temperature                | -40~60 °C                                                                   |                |
| Dimensions (L × W × H)             | 15×100×80 (mm)                                                              | 30×100×80 (mm) |

## 11.2. Module Wiring Diagram

### 11.2.1. SRE4204 Wiring Diagram



### 11.2.2. SRE4208 Wiring Diagram



### 11.3. Indicator Description

| Indicator   | Description                                                                                                   |
|-------------|---------------------------------------------------------------------------------------------------------------|
| PWR (Green) | Module power indicator:<br>On: Module is powered normally<br>Off: Module is powered abnormally or not powered |
| RUN (Green) | Communication indicator:<br>On: Normal communication<br>Off: Abnormal communication                           |

### 11.4. Terminal Description

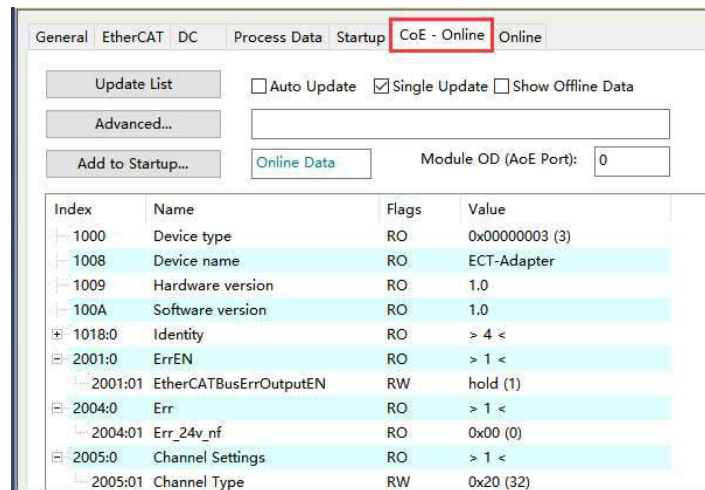
#### 11.4.1. SRE4204 Terminal Description

| Terminal | Description                 |
|----------|-----------------------------|
| V0, M0   | CH0 voltage output terminal |
| I0, M0   | CH0 current output terminal |
| V1, M1   | CH1 voltage output terminal |
| I1, M1   | CH1 current output terminal |
| V2, M2   | CH2 voltage output terminal |
| I2, M2   | CH2 current output terminal |
| V3, M3   | CH3 voltage output terminal |
| I3, M3   | CH3 current output terminal |

#### 11.4.2. SRE4208 Terminal Description

| Terminal | Description                 |
|----------|-----------------------------|
| V0, M0   | CH0 voltage output terminal |
| I0, M0   | CH0 current output terminal |
| V1, M1   | CH1 voltage output terminal |
| I1, M1   | CH1 current output terminal |
| V2, M2   | CH2 voltage output terminal |
| I2, M2   | CH2 current output terminal |
| V3, M3   | CH3 voltage output terminal |
| I3, M3   | CH3 current output terminal |
| V4, M4   | CH4 voltage output terminal |
| I4, M4   | CH4 current output terminal |
| V5, M5   | CH5 voltage output terminal |
| I5, M5   | CH5 current output terminal |
| V6, M6   | CH6 voltage output terminal |
| I6, M6   | CH6 current output terminal |
| V7, M7   | CH7 voltage output terminal |
| I7, M7   | CH7 current output terminal |

## 11.5. COE General Parameter Description



| Parameters | Data type              | Description                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2001:01    | EtherCATBusErrOutputEN | <p>This parameter defines the action of the output channels when communication with the module is interrupted:</p> <p>0: Output holds for 50ms and then clears</p> <p>1: Output holds</p> <p>2: Output holds for 10ms and then clears</p> <p>3: Output holds for 20ms and then clears</p> <p>4: Output holds for 100ms and then clears</p> <p>5: Output holds for 500ms and then clears</p> <p>6: Output clears immediately</p> |
| 2004:01    | Err 24v_nf             | <p>Bit0 :</p> <p>1: Channel 24V power supply abnormal</p> <p>0: Normal</p>                                                                                                                                                                                                                                                                                                                                                      |
| 2005:01    | Channel Type           | <p>Each Bit corresponds to one channel: e.g.</p> <p>Bit0: Corresponds to CH0</p> <p>Bit1: Corresponds to CH1</p> <p>.....</p> <p>Configure channel range settings:</p> <p>0 : <math>\pm 10V</math></p> <p>1 : 0-20mA/0-10V</p>                                                                                                                                                                                                  |

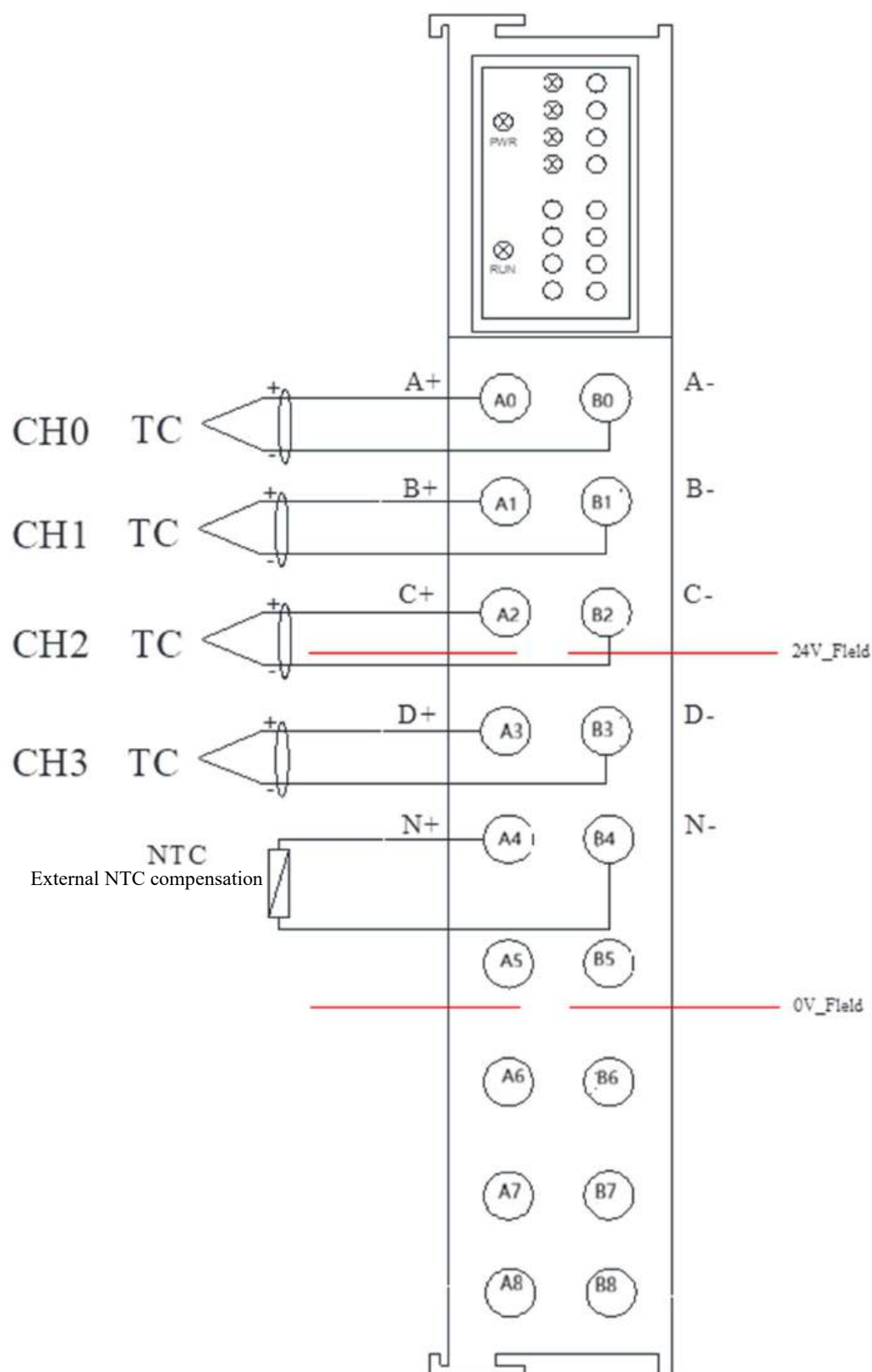
## 12. Temperature Measurement Module

### 12.1. SRE3284 Thermocouple Measurement Module

#### 12.1.1. Electrical Specifications

|                                    |                                                                                                          |
|------------------------------------|----------------------------------------------------------------------------------------------------------|
| Model                              | SRE3284                                                                                                  |
| Technical specifications           |                                                                                                          |
| Number of input points             | 4                                                                                                        |
| Input type                         | Thermocouple                                                                                             |
| Power supply polarity protection   | Supported                                                                                                |
| Operating voltage                  | 24V DC (allowable voltage range 18VDC~28VDC)                                                             |
| Bus 5V DC current consumption      | 165mA                                                                                                    |
| Input range                        | Thermocouple type (select one): S/T/R/E/N/K/J;<br>Voltage range: $\pm 80\text{mV}$                       |
| Measurement principle              | Sigma -Delta                                                                                             |
| Resolution                         |                                                                                                          |
| Temperature                        | $0.1^{\circ}\text{C}/0.1^{\circ}\text{F}$                                                                |
| Voltage                            | 15-bit + sign bit                                                                                        |
| Common-mode rejection              | 85dB, DC-50HZ/60HZ/400HZ                                                                                 |
| Conductor length                   | Maximum compensating conductor length 30m                                                                |
| Conductor loop resistance          | Maximum $20\Omega$                                                                                       |
| Input impedance                    | $\geq 10\text{M}\Omega$                                                                                  |
| Basic error                        | $\leq 0.1\%\text{FS}$                                                                                    |
| Consistency                        | $0.05\%\text{FS}$                                                                                        |
| Cold junction error                | $\pm 1.5^{\circ}\text{C}$                                                                                |
| Isolation                          |                                                                                                          |
| ● Between channels and buses       | Existent                                                                                                 |
| ● Between power supply and bus     | Existent                                                                                                 |
| ● Between channel and power supply | Existent                                                                                                 |
| Display indicator                  | Power and RUN green indicators                                                                           |
| Environmental conditions           |                                                                                                          |
| Environmental conditions           | Operating temperature: $-20\sim 60^{\circ}\text{C}$ , Relative Humidity: $5\%\sim 90\%$ (non-condensing) |
| Storage temperature                | $-40\sim 60^{\circ}\text{C}$                                                                             |
| Dimensions (L × W × H)             | 15×100×80 (mm)                                                                                           |

### 12.1.2. Module Wiring Diagram



### 12.1.3. Terminal Description

| Terminal  | Description                     |
|-----------|---------------------------------|
| A+ A-     | CH0 thermocouple input terminal |
| B+ B-     | CH1 thermocouple input terminal |
| C+ C-     | CH2 thermocouple input terminal |
| D+ D-     | CH3 thermocouple input terminal |
| NTC+ NTC- | External NTC compensation       |

### 12.1.4. Indicator Description

| Indicator   | Description                                                                                                                                                                 |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PWR (Green) | Module power indicator:<br>On: Power supply is normal<br>Off: Module is powered abnormally or not powered                                                                   |
| RUN (Green) | Communication indicator:<br>On: Normal communication<br>Off: Abnormal communication                                                                                         |
| S1 (Red)    | Channel disconnection detection indicator<br>Flashing: CH0 sampling value is over range or in the disconnection state<br>Off: CH0 sampling value is within the normal range |
| .....       | .....                                                                                                                                                                       |
| S4 (red)    | Channel disconnection detection indicator<br>Flashing: CH3 sampling value is over range or in the disconnection state<br>Off: CH3 sampling value is within the normal range |

### 12.1.5. COE Parameter Description

General EtherCAT DC Process Data Startup **CoE - Online** Online

Update List ☐ Auto Update ☒ Single Update ☒ Show Offline Data

Advanced...

Add to Startup... **Offline Data** Module OD (AoE Port): 0

| Index   | Name                | Flags | Value          | Unit |
|---------|---------------------|-------|----------------|------|
| 1000    | Device type         | RO    | 0x00000003 (3) |      |
| 1008    | Device name         | RO    | ECT-Dev        |      |
| 1009    | Hardware version    | RO    |                |      |
| 100A    | Software version    | RO    |                |      |
| 1018:0  | Identity            | RO    | > 4 <          |      |
| 1C32:0  | SM output parameter |       | > 32 <         |      |
| 1C33:0  | SM input parameter  |       | > 32 <         |      |
| 2004:0  | Err                 | RO    | > 1 <          |      |
| 2004:01 | Err_24v_nf          | RO    | 0x00 (0)       |      |
| 2005:0  | CH_Settings         | RW    | > 4 <          |      |
| 2005:01 | Chanel_Type         | RW    | J (0)          |      |
| 2005:02 | cali_depth          | RW    | Hight (0)      |      |
| 2005:03 | TC_no_compensate    | RW    | 0 (0)          |      |
| 2005:04 | Meth_compensate     | RW    | none (0)       |      |

| Parameters | Data type        | Description                                                                                                                            |
|------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| 2004:01    | Err 24v_nf       | Bit0 :<br>1: Channel 24V power supply abnormal<br>0: Normal                                                                            |
| 2005:01    | Channel_Type     | Configure channel thermocouple types, including 8 types:<br>0 : J<br>1 : K<br>2 : T<br>3 : E<br>4 : R<br>5 : S<br>6 : N<br>7 : +/-80MV |
| 2005:02    | cali_depth       | Filter level:<br>0: High: Strong filtering<br>1: Normal: Standard filtering<br>2: None: No filtering                                   |
| 2005:03    | TC_no_compensate | Whether to perform cold junction compensation:<br>0: Yes<br>1: No                                                                      |
| 2005:04    | Meth_compensate  | Temperature compensation method:<br>0: None: Internal compensation<br>1: Outside as NTC: External NTC compensation                     |

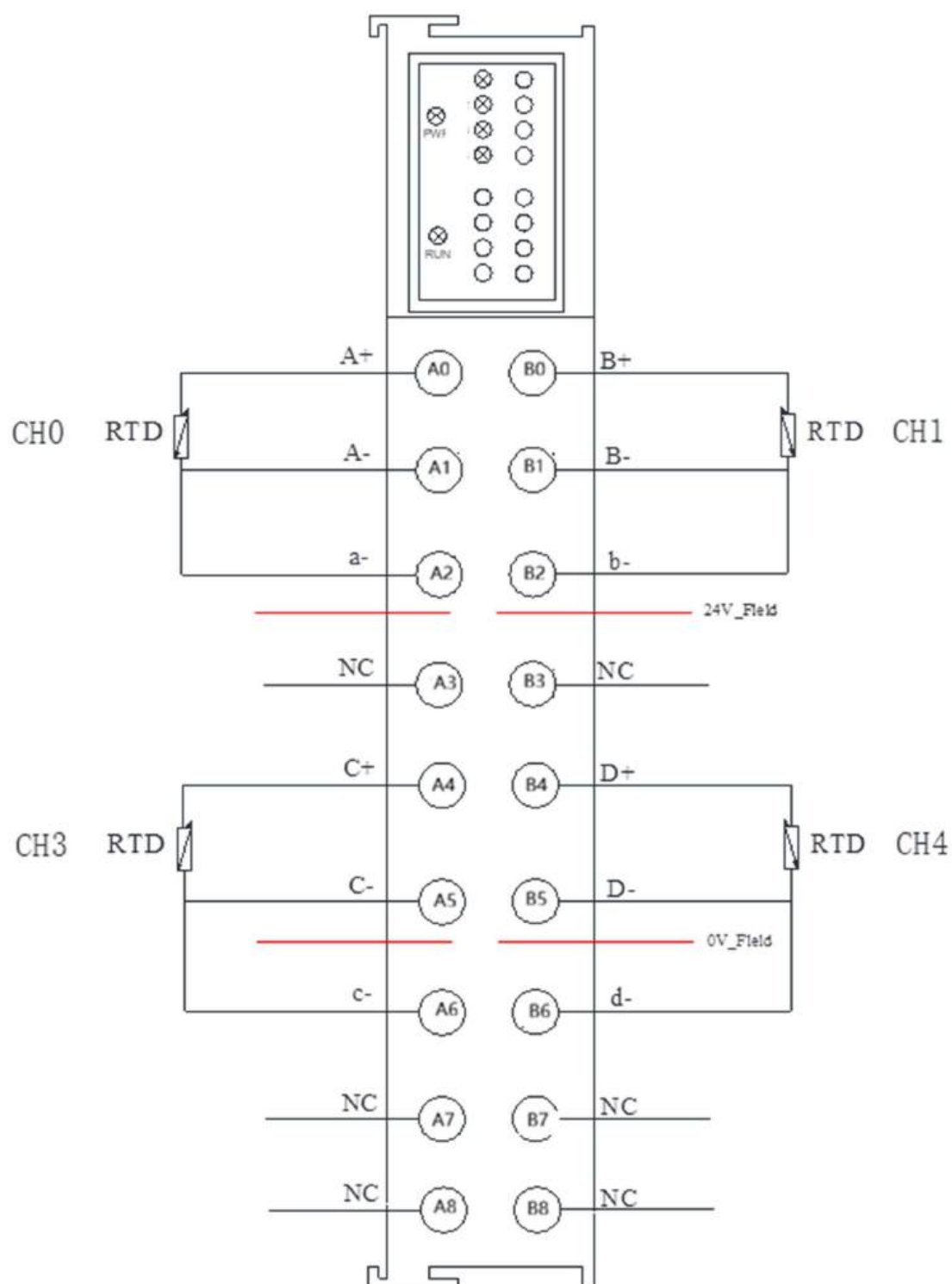
## 12.2. SRE3274 Resistance Thermometer Measurement Module

### 12.2.1. Electrical Specifications

|                                       |                                                                                                                                                                                                                     |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Model</b>                          | <b>SRE3274</b>                                                                                                                                                                                                      |
| <b>Technical specifications</b>       |                                                                                                                                                                                                                     |
| Number of input points                | 4                                                                                                                                                                                                                   |
| Input type                            | Resistance thermometer                                                                                                                                                                                              |
| Power supply polarity protection      | Supported                                                                                                                                                                                                           |
| Maximum sustainable voltage           | 30V DC                                                                                                                                                                                                              |
| Bus 5VDC current consumption          | 165mA                                                                                                                                                                                                               |
| Input range                           | Resistance thermometer type (select one):<br>Pt-100Ω,1000Ω( $\alpha=3850\text{PPM},3920\text{PPM},3850.55\text{PPM},3916\text{PPM},3902\text{PPM}$ ) ;<br>Ni-100Ω,1000Ω( $\alpha=6720\text{PPM},6178\text{PPM}$ ) ; |
| Measurement principle                 | Sigma -Delta                                                                                                                                                                                                        |
| Data word                             | -32768~+32767                                                                                                                                                                                                       |
| <b>Resolution</b>                     |                                                                                                                                                                                                                     |
| Temperature                           | 0.1°C/0.1°F                                                                                                                                                                                                         |
| Voltage                               | ---                                                                                                                                                                                                                 |
| Resistance                            | 15-bit + sign bit                                                                                                                                                                                                   |
| Measurement conversion time           | Less than 400ms                                                                                                                                                                                                     |
| Common-mode rejection                 | More than 125dB, AC120V                                                                                                                                                                                             |
| Cable length (compensating conductor) | Maximum 30m                                                                                                                                                                                                         |
| Conductor loop resistance             | Maximum 100Ω                                                                                                                                                                                                        |
| Input impedance                       | $\geq 1\text{M}\Omega$                                                                                                                                                                                              |
| Basic error                           | $\leq 0.1\%\text{FS}$                                                                                                                                                                                               |
| Consistency                           | 0.05%FS                                                                                                                                                                                                             |
| Cold junction error                   | ---                                                                                                                                                                                                                 |
| <b>Isolation</b>                      |                                                                                                                                                                                                                     |
| ● Between channels and buses          | Existent                                                                                                                                                                                                            |
| ● Between power supply and bus        | Existent                                                                                                                                                                                                            |
| ● Between channel and power supply    | Existent                                                                                                                                                                                                            |
| Display indicator                     | Power supply green LED display                                                                                                                                                                                      |
| System power diagnosis and warning    | Supported                                                                                                                                                                                                           |

|                          |                                                                                |
|--------------------------|--------------------------------------------------------------------------------|
| <b>Model</b>             | <b>SRE3274</b>                                                                 |
| Environmental conditions | Operating temperature: -20~60°C, Relative Humidity:<br>5%~90% (non-condensing) |
| Storage temperature      | -40~60 °C                                                                      |
| Dimensions (L × W × H)   | 15×100×80 (mm)                                                                 |

### 12.2.2. Module Wiring Diagram



### 12.2.3. Terminal Description

| Terminal | Description                               |
|----------|-------------------------------------------|
| A+,A-,a- | CH0 resistance thermometer input terminal |
| B+,B-,b- | CH1 resistance thermometer input terminal |
| C+,C-,c- | CH2 resistance thermometer input terminal |
| D+,D-,d- | CH3 resistance thermometer input terminal |

### 12.2.4. Indicator Description

| Indicator   | Description                                                                                                                                                                 |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PWR (Green) | Module power indicator:<br>On: Power supply is normal<br>Off: Module is powered abnormally or not powered                                                                   |
| RUN (Green) | Communication indicator:<br>On: Normal communication<br>Off: Abnormal communication                                                                                         |
| S1 (Red)    | Channel disconnection detection indicator<br>Flashing: CH0 sampling value is over range or in the disconnection state<br>Off: CH0 sampling value is within the normal range |
| .....       | .....                                                                                                                                                                       |
| S4 (red)    | Channel disconnection detection indicator<br>Flashing: CH3 sampling value is over range or in the disconnection state<br>Off: CH3 sampling value is within the normal range |

## 12.2.5. COE Parameter Description

General EtherCAT DC Process Data Startup **CoE - Online** Online

Update List ☐ Auto Update ☒ Single Update ☒ Show Offline Data

Advanced...

Add to Startup... Offline Data Module OD (AoE Port): 0

| Index   | Name                | Flags | Value          |
|---------|---------------------|-------|----------------|
| 1000    | Device type         | RO    | 0x00000003 (3) |
| 1008    | Device name         | RO    | ECT-Dev        |
| 1009    | Hardware version    | RO    |                |
| 100A    | Software version    | RO    |                |
| 1018:0  | Identity            | RO    | > 4 <          |
| 1C32:0  | SM output parameter |       | > 32 <         |
| 1C33:0  | SM input parameter  |       | > 32 <         |
| 2004:0  | Err                 | RO    | > 1 <          |
| 2004:01 | Err_24v_nf          | RO    | 0x00 (0)       |
| 2005:0  | Channel Settings    | RW    | > 2 <          |
| 2005:01 | RTD_type            | RW    | 0x00 (0)       |
| 2005:02 | Red_led_en          | RW    | 0x00 (0)       |

| Parameters | Data type  | Description                                                                                                                                                                                                                                                                                                                                                                                          |
|------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2004:01    | Err 24v_nf | Bit0 :<br>1: Channel 24V power supply abnormal;<br>0: Normal.                                                                                                                                                                                                                                                                                                                                        |
| 2005:01    | RTD_Ttype  | Resistance thermometer type:<br>0 : 100Ω Pt 0.003850(Default)<br>1 : 1000Ω Pt 0.003850<br>2 : 100Ω Pt 0.003920<br>3 : 1000Ω Pt 0.003920<br>4 : 100Ω Pt 0.00385055<br>5 : 1000Ω Pt 0.00385055<br>6 : 100Ω Pt 0.003916<br>7 : 1000Ω Pt 0.003916<br>8 : 100Ω Pt 0.003902<br>9 : 1000Ω Pt 0.003902<br>11 : 100Ω Ni 0.006720<br>12 : 1000Ω Ni 0.006720<br>13 : 100Ω Ni 0.006178<br>14 : 1000Ω Ni 0.006178 |
| 2005:01    | Red_led_en | Disconnection detection alarm:<br>Bit0 : LED indicate Ch1<br>Bit1 : LED indicate Ch2<br>Bit2 : LED indicate Ch3<br>Bit3 : LED indicate Ch4<br>Definition:<br>0: Enable the disconnection detection alarm<br>1: Disable the disconnection detection alarm                                                                                                                                             |



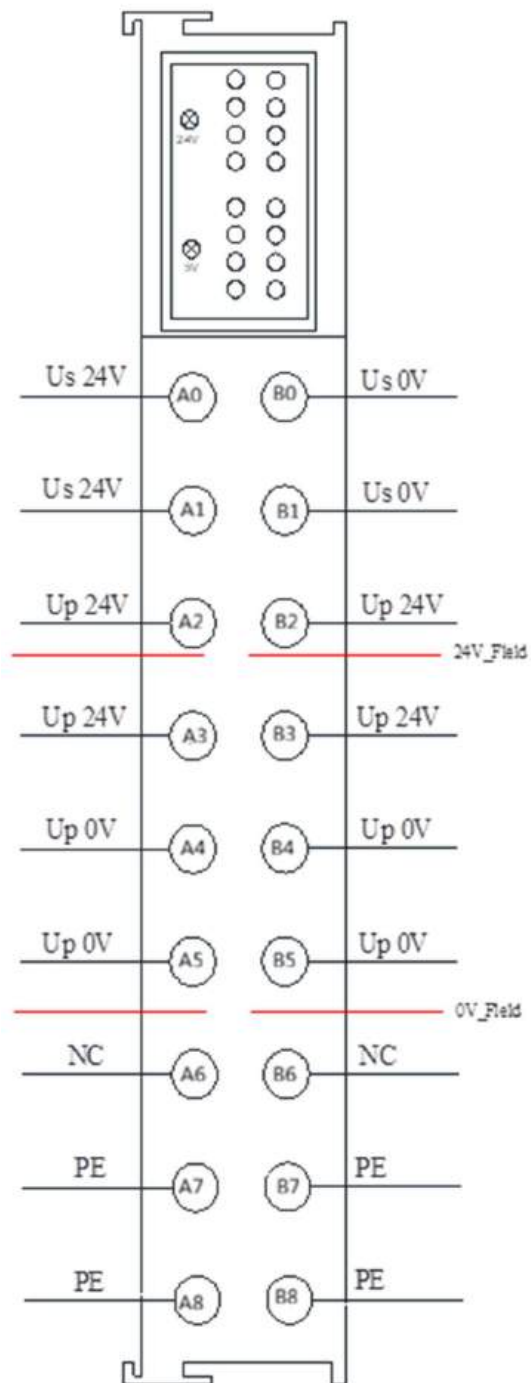
## 13. SRE9001 Power Relay Module

SRE power relay module relays both the 24V DC field power and the isolated 5V DC bus power. It features no system diagnostics or alarm capabilities and does not require a slot assignment.

### 13.1. Electrical Specifications

|                                    |                                                                                |
|------------------------------------|--------------------------------------------------------------------------------|
| <b>Model</b>                       | <b>SRE9001</b>                                                                 |
| <b>Power supply specifications</b> |                                                                                |
| Input power supply voltage         | 24VDC(±20%)                                                                    |
| Output system voltage              | 5VDC±3%<br>(Power supply for the extension module)                             |
| Output system current              | 10A                                                                            |
| Bus 5V DC power supply             | 2000mA                                                                         |
| Certification                      | CE                                                                             |
| <b>Physical characteristics</b>    |                                                                                |
| Environmental conditions           | Operating temperature: -20~60°C, Relative Humidity:<br>5%~90% (non-condensing) |
| Storage temperature                | -25~+85°C                                                                      |
| Relative humidity                  | 95%, non-condensation                                                          |
| Protection rating                  | IP20                                                                           |
| Occupying slot                     | Not occupy                                                                     |
| System diagnostics and alarms      | Not support                                                                    |
| Dimensions (L × W × H)             | 15×100×80 (mm)                                                                 |

## 13.2. Module Wiring Diagram



### 13.3. Indicator Description

| Indicator   | Description                                                                                     |
|-------------|-------------------------------------------------------------------------------------------------|
| 24V (Green) | Module power indicator:<br>On: Power supply is normal<br>Off: Abnormal power supply or no power |
| 5V (Green)  | Bus source indicator:<br>On: Power supply is normal<br>Off: Abnormal power supply or no power   |

### 13.4. Terminal Description

| Terminal | Description                           |
|----------|---------------------------------------|
| Us 24V   | Positive pole of the system power     |
| Us 0V    | Negative pole of the system power     |
| Up 24V   | Positive pole of the IO channel power |
| Up 0V    | Negative pole of the IO channel power |
| PE       | Grounding                             |

## 14. Serial port module

SRE6002/SRE6004 serial port communication module supports high-speed backplane bus, with built-in 2/4 serial ports. Each serial port supports full-duplex (RS422/RS232) and half-duplex (RS485) modes. Each serial port independently supports Modbus-RTU master/slave and free port protocol.

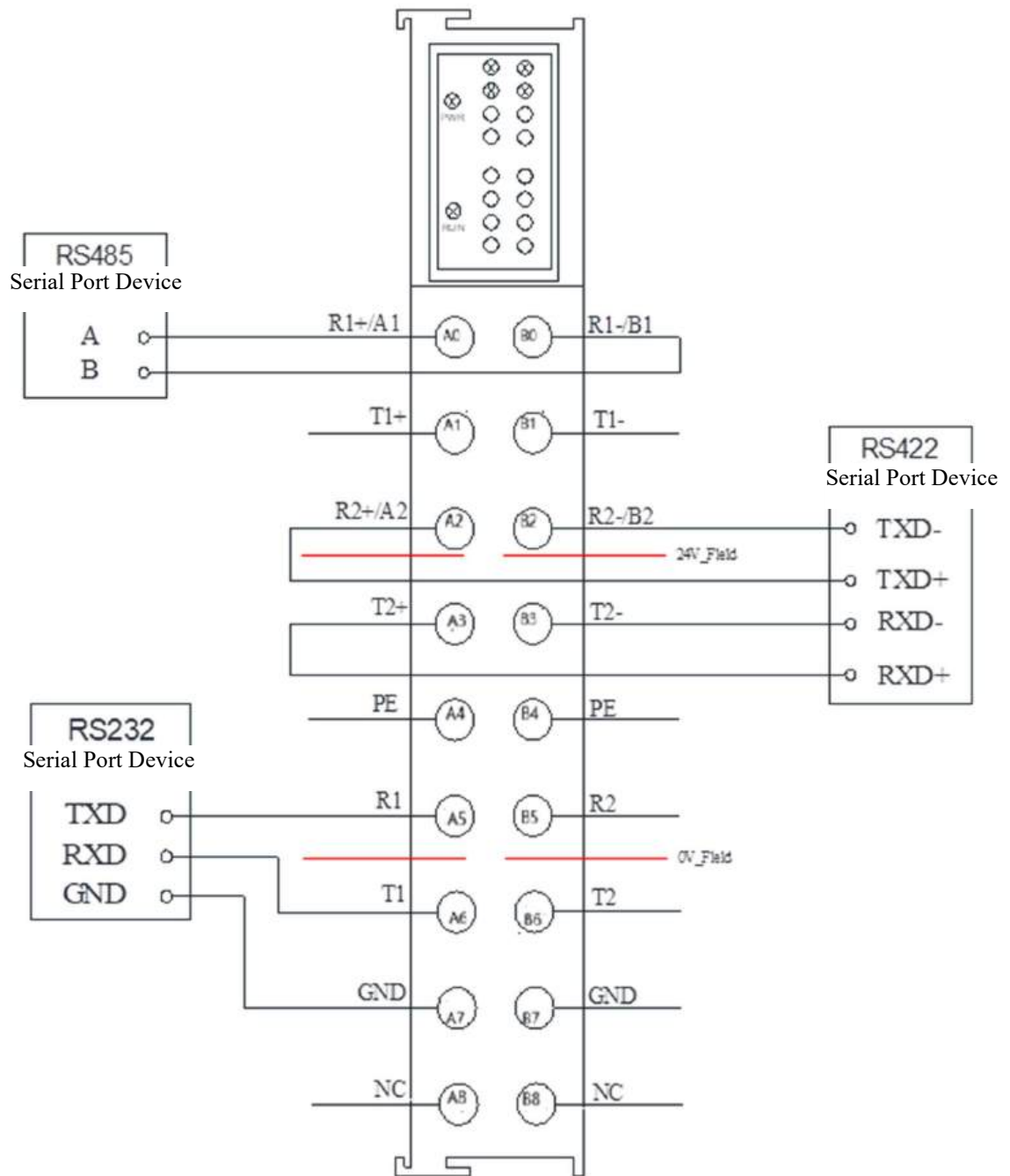
### 14.1. Electrical Specifications

| Model                           | SRE6002                                                              | SRE6004                        |
|---------------------------------|----------------------------------------------------------------------|--------------------------------|
| Technical specifications        |                                                                      |                                |
| Bus 5V DC current consumption   | 170mA                                                                | 170mA                          |
| Interface                       | 2 RS422/RS232/RS485 interfaces                                       | 4 RS422/RS232/RS485 interfaces |
| Serial port supported protocols | Modbus-RTU master/ slave and free port protocol                      |                                |
| Data transmission rate          | 1200bps、2400bps、4800bps、9.6Kbps、19.2Kbps、38.4Kbps、57.6Kbps、115.2Kbps |                                |
| Parity bit                      | No parity, odd parity, and even parity                               |                                |
| Stop bit                        | 1、 2                                                                 |                                |
| Data bit                        | 7、 8                                                                 |                                |
| Bus 5V DC current consumption   | <70mA                                                                |                                |
| Distributed clock               | Not support                                                          |                                |
| Isolation                       |                                                                      |                                |
| Between channels and buses      | Existent                                                             |                                |
| Display indicator               | Power supply green LED display                                       |                                |

|                           |                                                                             |                |
|---------------------------|-----------------------------------------------------------------------------|----------------|
| Environmental conditions  | Operating temperature: -20~55°C, relative humidity: 5%~90% (non-condensing) |                |
| Storage temperature       | -40~60 °C                                                                   |                |
| Dimensions<br>(L × W × H) | 15×100×80 (mm)                                                              | 30×100×80 (mm) |

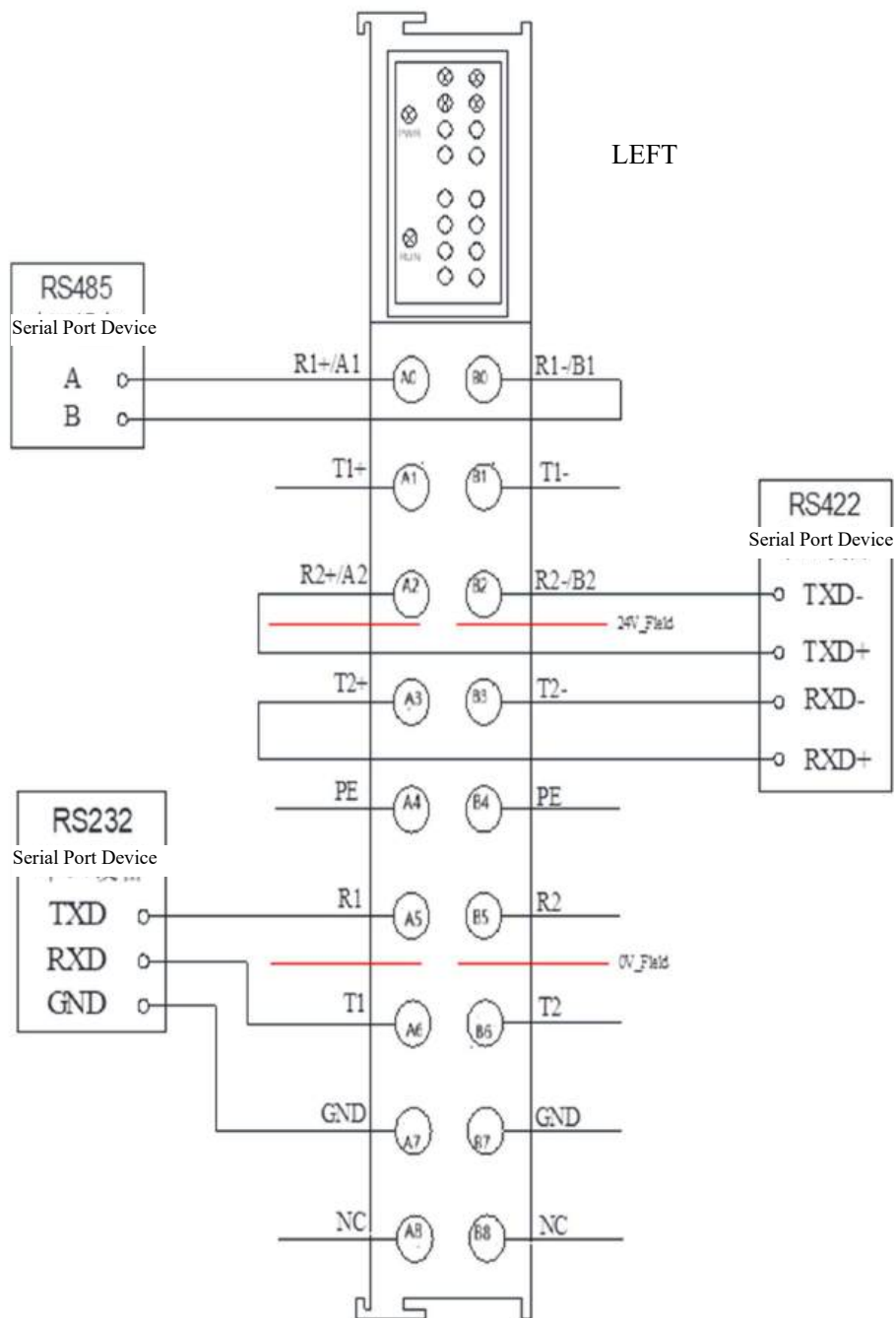
## 14.2. Module Wiring Diagram

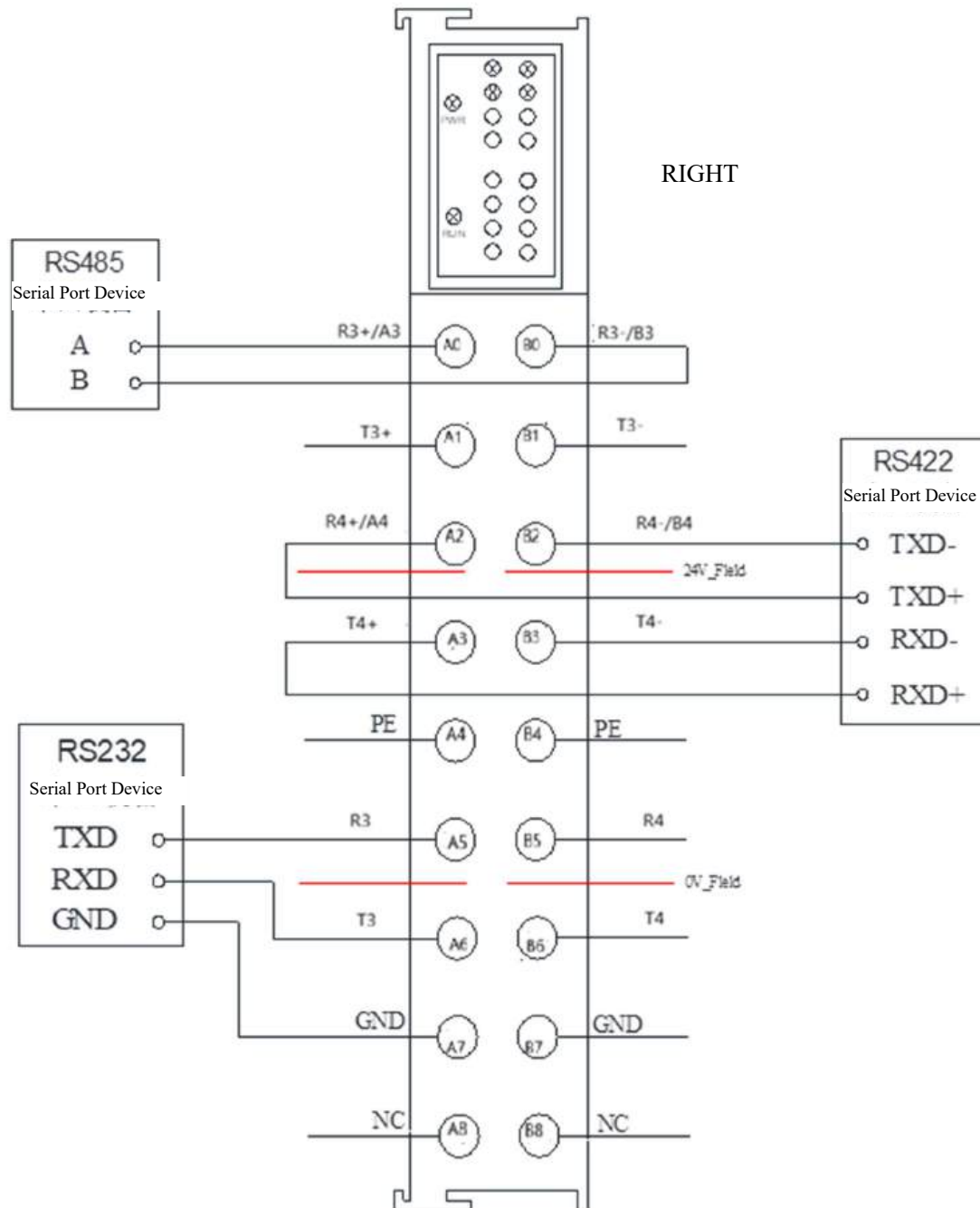
### 14.2.1. SRE6002 Wiring Diagram



Note: Only one serial port type can be connected to a single channel at the same time. The wiring shown in the diagram is for illustration purposes only, and specific connections should be made according to practical usage.

### 14.2.2. SRE6004 Wiring Diagram





Note: Only one serial port type can be connected to a single channel at the same time. The wiring shown in the diagram is for illustration purposes only, and specific connections should be made according to practical usage.

## 14.3. Indicator Description

### 14.3.1. SRE6002 Indicator Description

| Indicator   | Meaning                                                                                                       |
|-------------|---------------------------------------------------------------------------------------------------------------|
| PWR (Green) | Module power indicator:<br>On: Module is powered normally<br>Off: Module is not powered or powered abnormally |
| RUN (Green) | Communication indicator:<br>On: Normal communication<br>Off: Abnormal communication                           |
| RX1/TX1     | COM1 serial port transmit/receive indicator: the indicator flashes when data is transmitted/received          |
| RX2/TX2     | COM2 serial port transmit/receive indicator: the indicator flashes when data is transmitted/received          |

### 14.3.2. SRE6004 Indicator Description

| Indicator   | Meaning                                                                                                       |
|-------------|---------------------------------------------------------------------------------------------------------------|
| PWR (Green) | Module power indicator:<br>On: Module is powered normally<br>Off: Module is not powered or powered abnormally |
| RUN (Green) | Communication indicator:<br>On: Normal communication<br>Off: Abnormal communication                           |
| RX1/TX1     | COM1 serial port transmit/receive indicator: the indicator flashes when data is transmitted/received          |
| RX2/TX2     | COM2 serial port transmit/receive indicator: the indicator flashes when data is transmitted/received          |
| RX3/TX3     | COM3 serial port transmit/receive indicator: the indicator flashes when data is transmitted/received          |
| RX4/TX4     | COM4 serial port transmit/receive indicator: the indicator flashes when data is transmitted/received          |

## 14.4. Module Terminal Description

### 14.4.1. SRE6002 Terminal Description

| Terminal | Terminal Description                        |                                             |
|----------|---------------------------------------------|---------------------------------------------|
| R1+/A1   | COM1 serial port RS422 signal receive<br>+  | COM1 serial port RS485 signal<br>receive A+ |
| T1+      | COM1 serial port RS422 signal transmit<br>+ |                                             |
| R1-/B1   | COM1 serial port RS422 signal receive<br>-  | COM1 serial port RS485 signal<br>receive B- |
| T1-      | COM1 serial port RS422 signal transmit<br>- |                                             |
| R1       | COM1 serial port RS232 signal receive       |                                             |
| T1       | COM1 serial port RS232 signal transmit      |                                             |
| GND      | COM1 serial port RS232 signal GND           |                                             |
| PE       | Ground                                      |                                             |
| R2+/A2   | COM2 serial port RS422 signal receive<br>+  | COM2 serial port RS485 signal<br>receive A+ |
| T1+      | COM2 serial port RS422 signal transmit<br>+ |                                             |
| R2-/B2   | COM2 serial port RS422 signal receive<br>-  | COM2 serial port RS485 signal<br>receive B- |
| T2-      | COM2 serial port RS422 signal transmit<br>- |                                             |
| R2       | COM2 serial port RS232 signal receive       |                                             |
| T2       | COM2 serial port RS232 signal transmit      |                                             |
| GND      | COM2 serial port RS232 signal GND           |                                             |
| PE       | Ground                                      |                                             |

### 14.4.2. SRE6004 Terminal Description

| Terminal | Terminal Description                     |                                          |
|----------|------------------------------------------|------------------------------------------|
| R1+/A1   | COM1 serial port RS422 signal receive +  | COM1 serial port RS485 signal receive A+ |
| T1+      | COM1 serial port RS422 signal transmit + |                                          |
| R1-/B1   | COM1 serial port RS422 signal receive -  | COM1 serial port RS485 signal receive B- |
| T1-      | COM1 serial port RS422 signal transmit - |                                          |
| R1       | COM1 serial port RS232 signal receive    |                                          |
| T1       | COM1 serial port RS232 signal transmit   |                                          |
| GND      | COM1 serial port RS232 signal GND        |                                          |
| PE       | Ground                                   |                                          |
| R2+/A2   | COM2 serial port RS422 signal receive +  | COM2 serial port RS485 signal receive A+ |
| T1+      | COM2 serial port RS422 signal transmit + |                                          |
| R2-/B2   | COM2 serial port RS422 signal receive -  | COM2 serial port RS485 signal receive B- |
| T2-      | COM2 serial port RS422 signal transmit - |                                          |
| R2       | COM2 serial port RS232 signal receive    |                                          |
| T2       | COM2 serial port RS232 signal transmit   |                                          |
| GND      | COM2 serial port RS232 signal GND        |                                          |
| PE       | Ground                                   |                                          |
| R3+/A3   | COM3 serial port RS422 signal receive +  | COM3 serial port RS485 signal receive A+ |
| T3+      | COM3 serial port RS422 signal transmit + |                                          |
| R3-/B3   | COM3 serial port RS422 signal receive -  | COM3 serial port RS485 signal receive B- |
| T3-      | COM3 serial port RS422 signal transmit - |                                          |
| R3       | COM3 serial port RS232 signal receive    |                                          |
| T3       | COM3 serial port RS232 signal transmit   |                                          |
| GND      | COM3 serial port RS232 signal GND        |                                          |
| PE       | Ground                                   |                                          |
| R4+/A4   | COM4 serial port RS422 signal receive +  | COM4 serial port RS485 signal receive A+ |
| T4+      | COM4 serial port RS422 signal transmit + |                                          |
| R4-/B4   | COM4 serial port RS422 signal receive -  | COM4 serial port RS485 signal receive B- |
| T4-      | COM4 serial port RS422 signal transmit - |                                          |
| R4       | COM4 serial port RS232 signal receive    |                                          |
| T4       | COM4 serial port RS232 signal transmit   |                                          |
| GND      | COM4 serial port RS232 signal GND        |                                          |
| PE       | Ground                                   |                                          |

## 14.5. Parameter Description

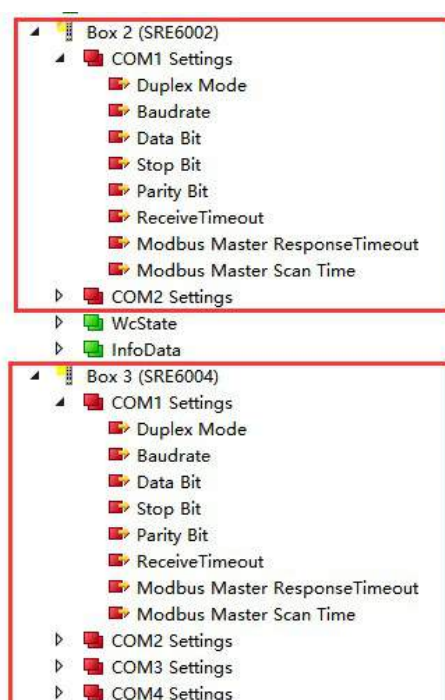
### 14.5.1. COE General Parameter Description

| Index   | Name                | Flags | Value            | Unit |
|---------|---------------------|-------|------------------|------|
| 1000    | Device type         | RO    | 0x00000064 (100) |      |
| 1008    | Device name         | RO    | ECT-COM          |      |
| 1009    | Hardware version    | RO    |                  |      |
| 100A    | Software version    | RO    |                  |      |
| 1018:0  | Identity            | RO    | > 4 <            |      |
| 1C32:0  | SM output parameter |       | > 32 <           |      |
| 1C33:0  | SM input parameter  |       | > 32 <           |      |
| 2001:0  | ErrEN               | RO    | > 1 <            |      |
| 2001:01 | EtherCATBusErrCOMEN | RW    | 0x00 (0)         |      |

| Parameters                  | Description                                                                                                                                                                                                                                                                                 |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2001:01 EtherCATBusErrCOMEN | <p>The parameter is used to set whether the COM can transmit/receive data normally after the module communication is disconnected:</p> <p>0: COM cannot transmit/receive data normally after ECT disconnection</p> <p>1: COM can transmit/receive data normally after ECT disconnection</p> |

### 14.5.2. Parameter Description

SRE6002 and SRE6004 are modules with 2 and 4 serial ports respectively, and their parameter descriptions are the same. The following description takes SRE6004 as an example. The configuration of the SRE6002 can be performed accordingly. **All parameter changes take effect immediately, without requiring power outage or restart,** as shown below:



| Parameters  | Description                                                                                                            |
|-------------|------------------------------------------------------------------------------------------------------------------------|
| Duplex Mode | 0: Full duplex (RS232/RS422)<br>1: Half duplex (RS485)                                                                 |
| Baudrate    | <b>Baud rate:</b><br>0 : 1200<br>1 : 2400<br>2 : 4800<br>3 : 9600<br>4 : 19200<br>5 : 38400<br>6 : 57600<br>7 : 115200 |
| Data Bit    | <b>Data bit:</b><br>0: 8-bit<br>1: 7-bit                                                                               |

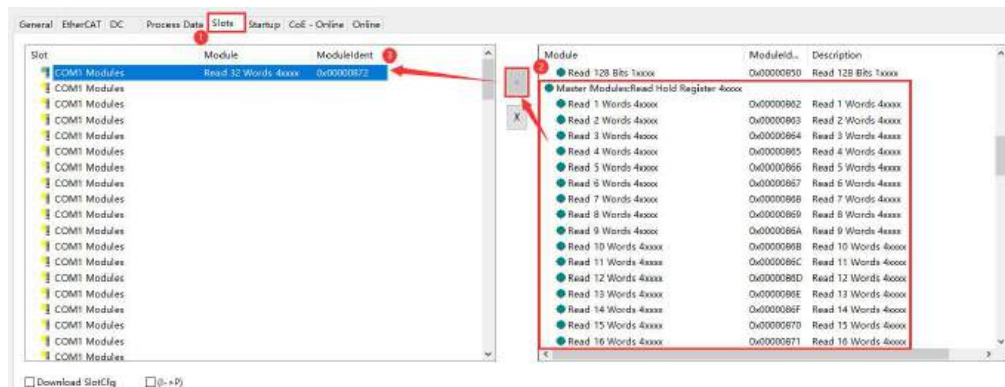
|                               |                                                                                                                                                                                                                                                                                                             |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Stop Bit                      | <b>Stop bit:</b><br>0: 1-bit<br>1: 2-bit                                                                                                                                                                                                                                                                    |
| Parity Bit                    | <b>Parity bit:</b><br>0: No parity<br>1: Odd parity<br>2: Even parity                                                                                                                                                                                                                                       |
| ReceiveTimeout                | <b>Serial port receive timeout:</b> 5-200 (unit: ms)<br>If the value is out of range, it shall be calculated as the maximum value, e.g., a value exceeding 200 is calculated as 200.                                                                                                                        |
| Modbus Master ResponseTimeout | <b>Modbus RTU master mode response timeout</b><br>If the slave station fails to respond within the set time, it is judged as a communication timeout<br>5-5000 (unit: ms)<br>If the value is out of range, it shall be calculated as the maximum value, e.g., a value exceeding 5000 is calculated as 5000. |
| Modbus Master Scan Time       | <b>Modbus RTU master mode polling time</b><br>The interval between the completion of one command and the next in MBS master mode Unit: ms                                                                                                                                                                   |

## 14.6. Configuration Module Description

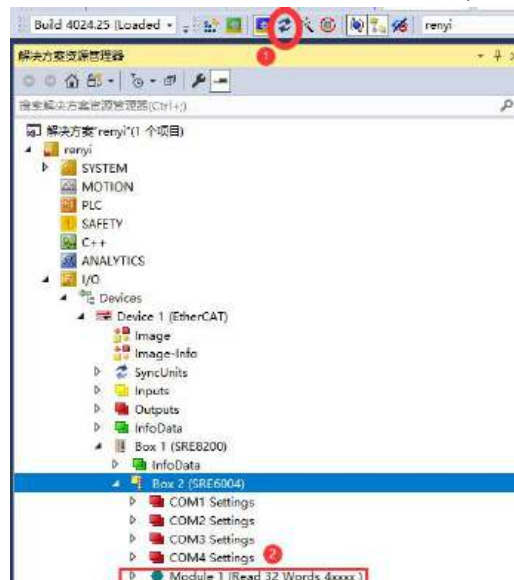
Each serial port can be independently configured as Modbus master, Modbus slave, or free port; the Modbus master can be configured with a maximum of 32 modules, the Modbus slave can be configured with a maximum of 1 module, and the free port can be configured with a maximum of 1 module.

### 14.6.1. Modbus Master Configuration

In the Slot, select the module corresponding to the serial port, and add the module to be configured. For example, add "Read 32 Words 4xxxx" to Serial Port 1. Each serial port can be configured with a maximum of 32 modules under reasonable allocation, as shown below:



After configuration, add and refresh the IO to enable OP, as shown below:



- Module 1 (Write 16 Words 4xxxx )
  - Input Datas
    - State
  - Output Datas
    - Slave ID
    - Addr
    - Output Datas 1
    - Output Datas 2
    - Output Datas 3
    - Output Datas 4
    - Output Datas 5
    - Output Datas 6
    - Output Datas 7
    - Output Datas 8
    - Output Datas 9
    - Output Datas 10
    - Output Datas 11
    - Output Datas 12
    - Output Datas 13
    - Output Datas 14
    - Output Datas 15
    - Output Datas 16

| Parameters  | Description                                                                                                                |
|-------------|----------------------------------------------------------------------------------------------------------------------------|
| State       | Module status:<br>1: Communication Normal<br>2: Communication Timeout<br>3: CRC Error<br>4: Function Code or Address Error |
| Output Data | Output Address: Output Data 1~Output Data x                                                                                |
| Slave ID    | ID of the slave to be accessed                                                                                             |
| Addr        | Address of the Modbus to be accessed                                                                                       |

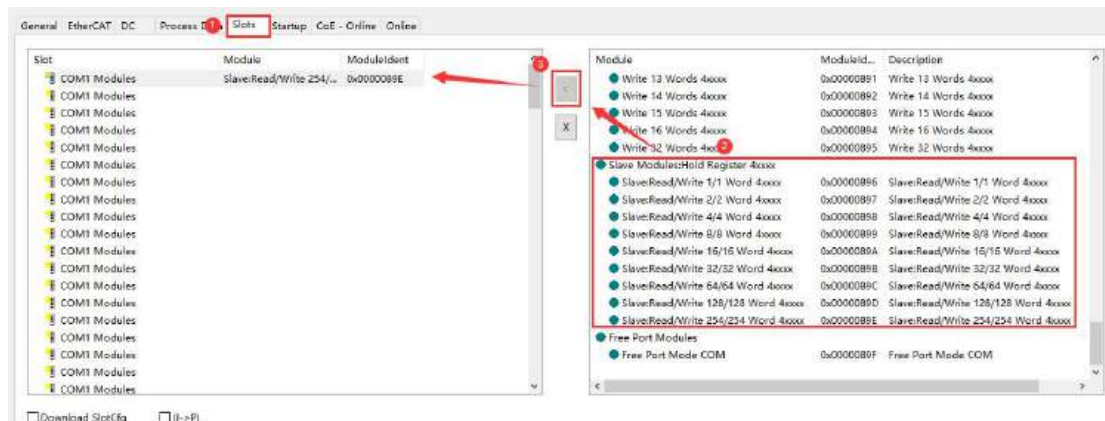
- Module 2 (Read 16 Words 4xxxx )
  - Input Datas
    - Input Data 1
    - Input Data 2
    - Input Data 3
    - Input Data 4
    - Input Data 5
    - Input Data 6
    - Input Data 7
    - Input Data 8
    - Input Data 9
    - Input Data 10
    - Input Data 11
    - Input Data 12
    - Input Data 13
    - Input Data 14
    - Input Data 15
    - Input Data 16
  - State
  - Output Datas
    - Slave ID
    - Addr

| Parameters | Description                                                                                                                |
|------------|----------------------------------------------------------------------------------------------------------------------------|
| Input Data | Input address: Input Data 1~Input Data x                                                                                   |
| State      | Module status:<br>1: Communication Normal<br>2: Communication Timeout<br>3: CRC Error<br>4: Function Code or Address Error |

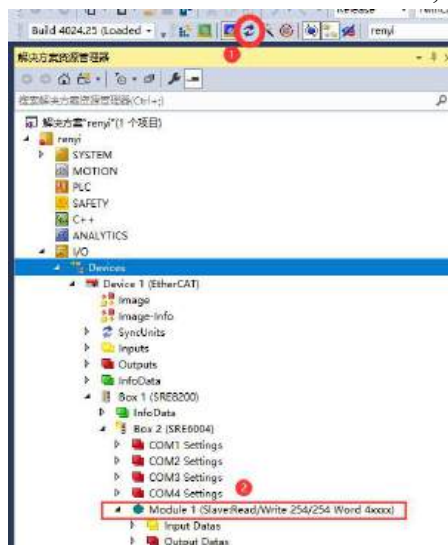
|          |                                      |
|----------|--------------------------------------|
| Slave ID | ID of the slave to be accessed       |
| Addr     | Address of the Modbus to be accessed |

### 14.6.2. Modbus Slave Configuration

In the Slot, select the module corresponding to the serial port, and add the slave module to be configured. Each serial port can be configured with a maximum of 1 module. If more than 1 module is configured, OP will fail, as shown below:



After configuration, add and refresh the IO to enable OP, as shown below:

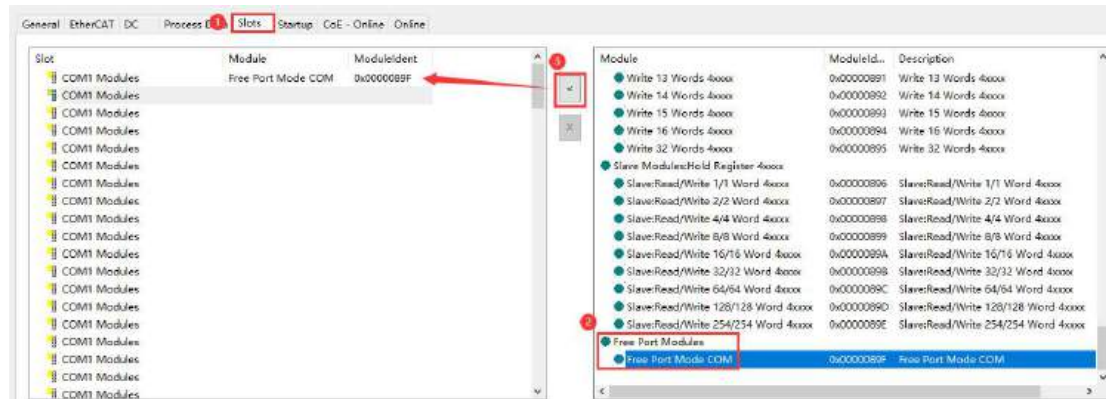


| Parameters     | Description                                                                                                                |
|----------------|----------------------------------------------------------------------------------------------------------------------------|
| Input Datas :  | Input Data 1~Input Data x<br>The starting address of the data area that allows writing by the Modbus RTU master is 40256   |
| Output Datas : | Output Data 1~Output Data x<br>The starting address of the data area that allows reading by the Modbus RTU master is 40001 |
| Slave ID :     | ID of Local slave                                                                                                          |

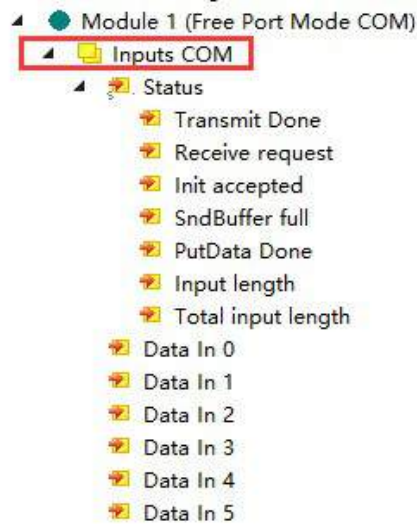


### 14.6.3. Free Port Configuration

In the Slot, select the module corresponding to the serial port and add it. Each serial port can be configured with a maximum of 1 module. If more than 1 is configured, OP will fail, as shown below:

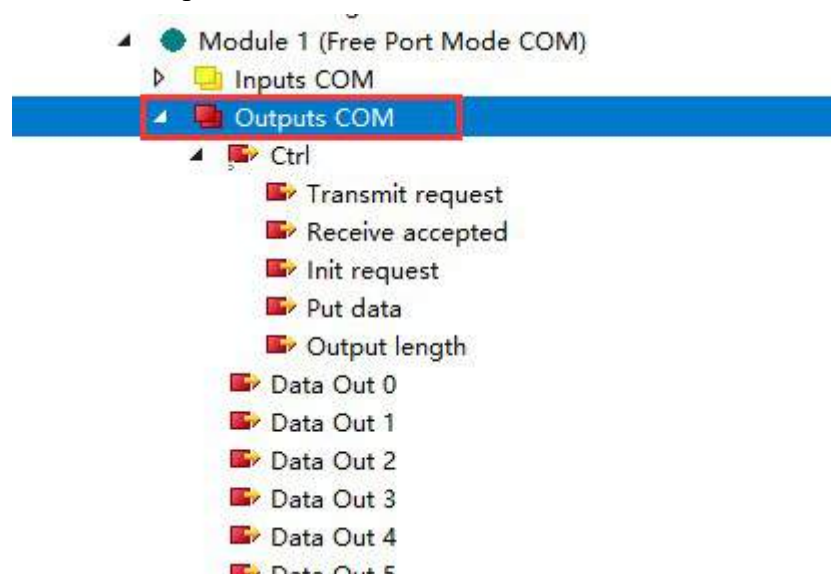


Input parameter description:



| Parameters           | Description                                                                         |
|----------------------|-------------------------------------------------------------------------------------|
| Status word meanings | Transmit Done: Current frame data transmission has been completed                   |
|                      | Receive request: New data is to be received                                         |
|                      | Init accepted: Serial port reinitialization has been completed                      |
|                      | SndBuffer full: The sent frame length exceeds 1024                                  |
|                      | PutData Done: Writing the sent data into the transmission buffer has been completed |
|                      | Input length: Current data reception length                                         |
|                      | Total input length: Total length of data frame                                      |
| Data In 0~Data In 31 | Receive data buffer                                                                 |

Output parameter description:



| Parameters             | Description                                               |
|------------------------|-----------------------------------------------------------|
| Ctrl word meaning      | Transmit request: a transmit request                      |
|                        | Receive accepted: Data has been received                  |
|                        | Init request: Reinitialize the serial port                |
|                        | Put data: Write the sending data into the transmit buffer |
|                        | Output length: Total length of the transmitted data frame |
| Data Out 0~Data Out 31 | Data transmission buffer                                  |

When performing the free port communication, it is recommended to initialize the serial port before receiving or transmitting data. After successful initialization, the initialization control word “Init request” shall be set to 0; otherwise, the serial port cannot transmit or receive data normally.

#### Transmit data:

(1) Initialize the serial port. When the control word “Init request” of COM1 is set to 1 and the status word “Init accepted” of COM1 displays 1, the initialization has been completed.

(2) Set the transmitted data length by writing 40 into the control word “Output length” of COM1.

(3) Write the data to be sent, from 1 to 32, into Output1~Output32 in sequence. (A maximum of 32 bytes of data can be written into the transmission buffer at a time. If the length of the data to be sent is greater than 32 bytes, the data needs to be written into the transmission buffer in batches and then sent out all at a time. For example, to transmit 40 bytes of data, write the data into the transmission buffer in two batches and then transmit all 40 bytes at a time.)

(4) Set the control word “Transmit request” of COM1 to 1, and simultaneously set the control word “Put data” to 1.

(5) Read the status word “PutData Done” of COM1. When PutData Done is 1, it indicates that 32 bytes have been successfully written into the transmission buffer. Then set the control word “Put data” to 0.

(6) Write data 33~40 into Output1~Output8, and then set the control word “Put data” to 1.

(7) When the status word “Transmit Done” of COM1 is 1, it indicates that the current data frame has been successfully sent. Then set the control words “Transmit request” and “Put data” to 0; the current frame transmission is completed.

#### **Receive data:**

(1) When the module is receiving data, the "Receive request" status word of COM2 is 1; Input length is 32, indicating that the currently receivable data is 32; Total input length displays a total length of 40;

(2) Reading Input1~Input32 allows access to the first 32 bytes. Set the control word “Receive accepted” of COM2 to 1. When the status word “Receive request” of COM2 is read as 0 at this time, set the control word “Receive accepted” of COM2 to 0. After setting it to 0, the status word “Receive request” of COM2 displays 1, and “Input length” shows 8, indicating there are 8 bytes of data to be received.

(3) At the moment, reading Input1~Input8 is to read the next 8 bytes. After reading, set the control word “Receive accepted” of COM2 to 1 and then to 0. After setting it to 0, the status word “Receive request” of COM1 displays 1. The current data frame reception is complete.

## 15. High-speed Counting Module

SRE5012/SRE5034 high-performance high-speed counting module features 2/4 channel counting inputs, and supports 4-channel latching function and standard counting function.

### 15.1. Electrical Specifications of Pulse Input Terminal

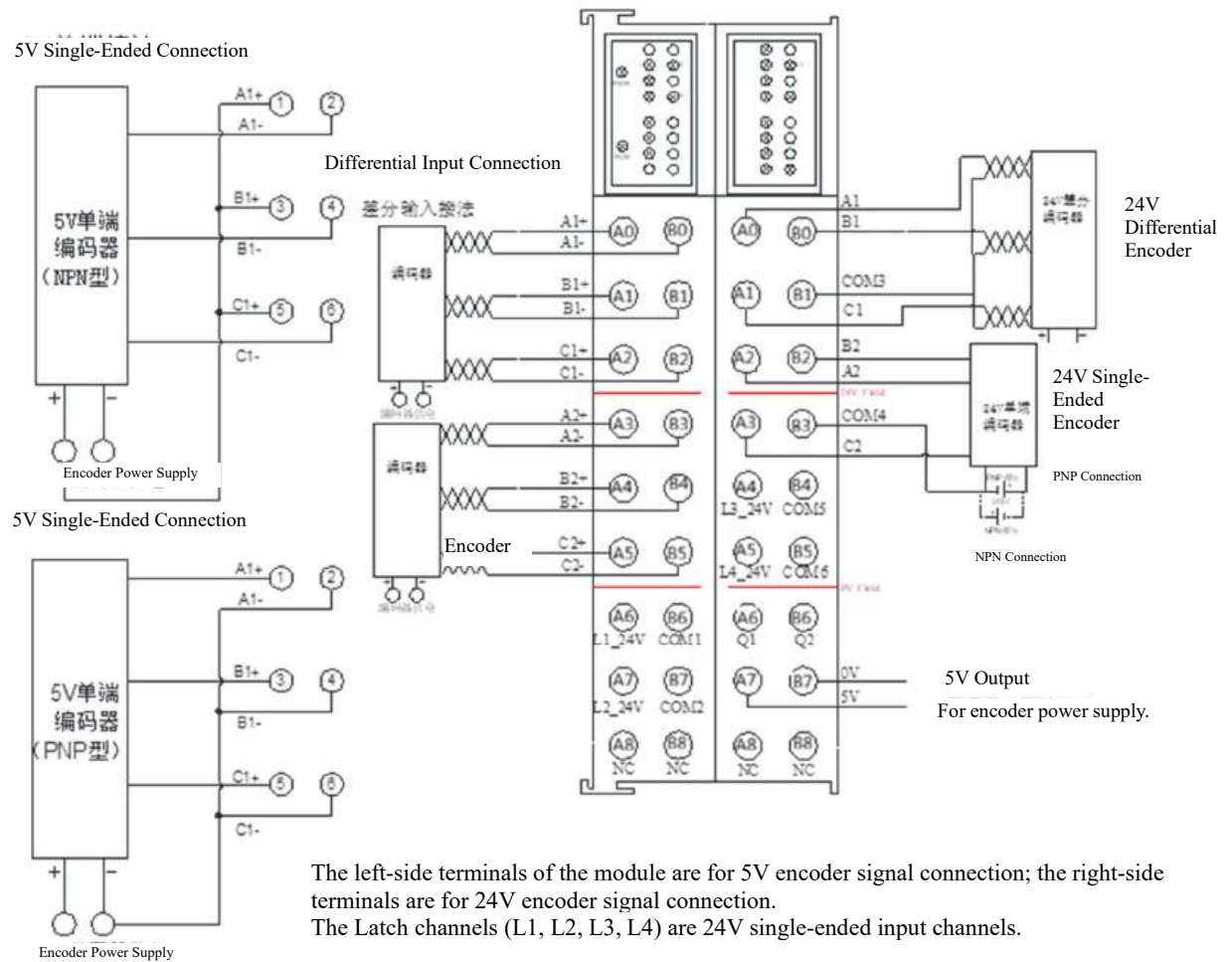
| Model                                    | SRE5012                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | SRE5034                                                            |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| Technical specifications                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                    |
| High-speed counting channel              | 2-channel (A, B, C) single-ended input maximum 200KHZ (supports rated voltage 5VDC and 24VDC); Differential maximum 4MHZ, rated voltage 5VDC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 4-channel (A, B, C), differential maximum 4MHZ, rated voltage 5VDC |
| Bus 5VDC current consumption             | 200mA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 200mA                                                              |
| High-speed counter input characteristics | Single-ended (rated 24V, maximum 200kHz), differential (5V, maximum 4MHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Differential (5V, maximum 4MHz)                                    |
| Latch input characteristics              | Single-ended input, 24V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                    |
| Gated signal output                      | 2DO, NPN type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 4DO, NPN type                                                      |
| Distributed clock                        | Supported                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                    |
| High-speed counting mode                 | 1. Single-ended count: The Phase A input is used for counting pulses, while the Phase B input defines the counting direction: count up when B is high level, count down when B is low level.<br>2. Differential count: Phase A and B pulses are orthogonal. Counts up when Phase A leads Phase B by 90 degrees, and counts down when Phase B leads Phase A.<br>3. Master enables the current count value setting function. When the counter is set as TRUE, the current count value will be set as the preset value.<br>4. Master enables the latching function, which can be set on the rising edge of Phase C, the rising edge or the falling edge of the LATCH input to latch the current count value. |                                                                    |
| Isolation                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                    |
| Between channels and buses               | Existent                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                    |
| Display indicator                        | Power supply green LED display                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                    |
| System power diagnosis and warning       | Supported                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                    |
| Environmental conditions                 | Operating temperature: -20~60℃; relative humidity: 5%~90% (non-condensing)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                    |
| Storage temperature                      | -40~60 ℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                    |
| Dimensions (L × W × H)                   | 30×80×100 (mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 30×80×100 (mm)                                                     |

## 15.2. Electrical Specifications for SSI Module

|                                    |                                                                                                                 |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Product Model                      | SRE5042                                                                                                         |
| Technical specifications           |                                                                                                                 |
| High-speed counting channel        | 2-channel synchronous serial input (D+, D-, Cl+, Cl-)<br>Maximum SSI clock frequency 1MHz<br>Rated voltage 5VDC |
| Bus 5VDC consumption current       | 200mA                                                                                                           |
| 5V channel output current          | Maximum 200mA                                                                                                   |
| Signal input (data)                | RS422 differential input                                                                                        |
| Other input characteristics        | Serial input data length 32-bit, configurable for single-turn, multi-turn and status data length                |
| Data transmission speed            | Maximum 1MHz                                                                                                    |
| Distributed clock                  | Supported                                                                                                       |
| Encoding method                    | No conversion, binary code or Gray code                                                                         |
| Encoder input rated voltage        | 5V                                                                                                              |
| Isolation                          |                                                                                                                 |
| Between channels and buses         | Existent                                                                                                        |
| Display indicator                  | Power supply green LED display                                                                                  |
| System power diagnosis and warning | Supported                                                                                                       |
| Environmental conditions           | Operating temperature: -20~60°C; relative humidity: 5%~90%<br>(non-condensing)                                  |
| Storage temperature                | -40~60 °C                                                                                                       |
| Dimensions (L × W × H)             | 15×100×80 (mm)                                                                                                  |

## 15.3. Wiring Diagram

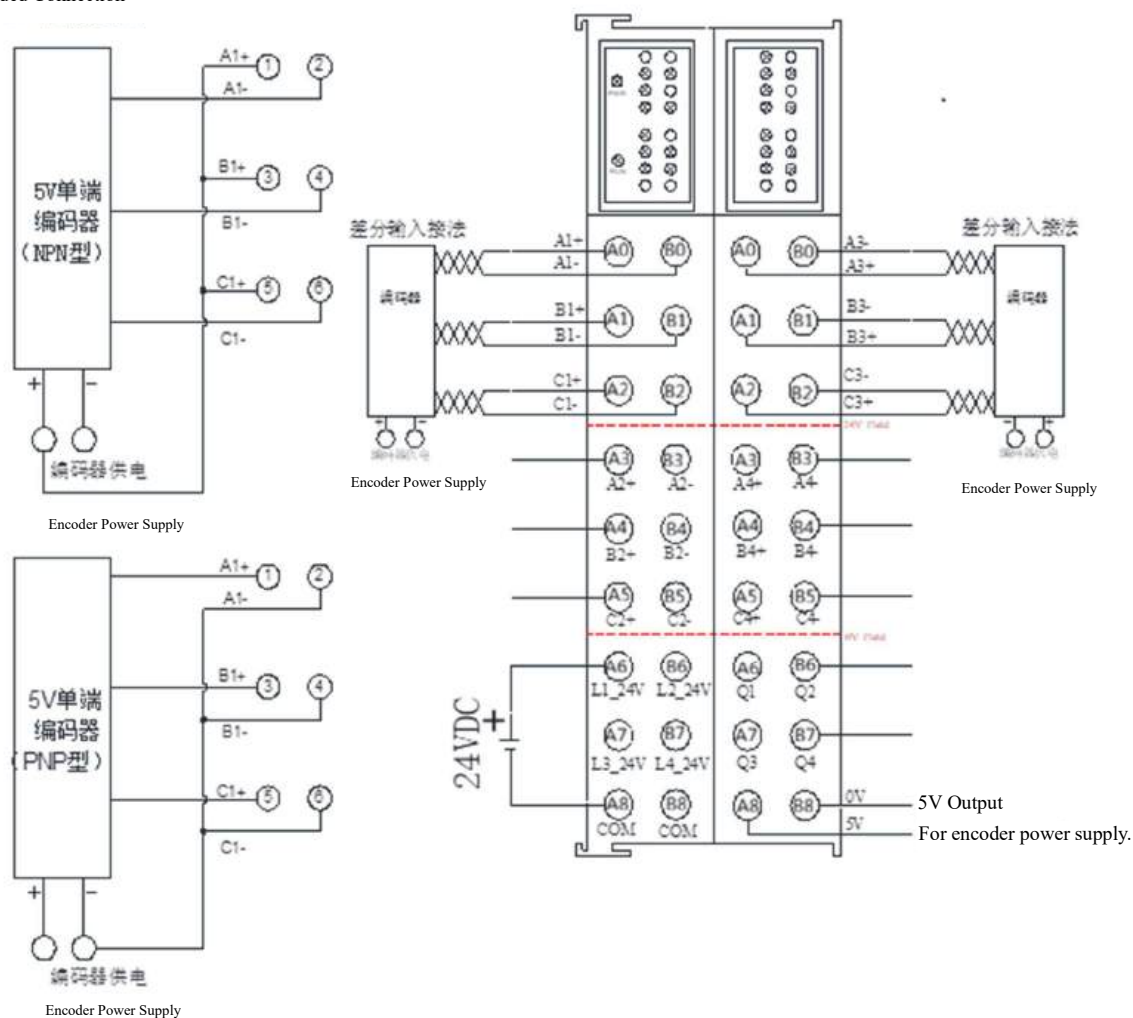
### 15.3.1. SRE5012 Wiring Diagram



Note: Q1~Q2 are NPN output channels. The wiring examples in the diagram only represent differential and single-ended connections, but do not imply that each channel is limited to the connections as shown in the diagram.

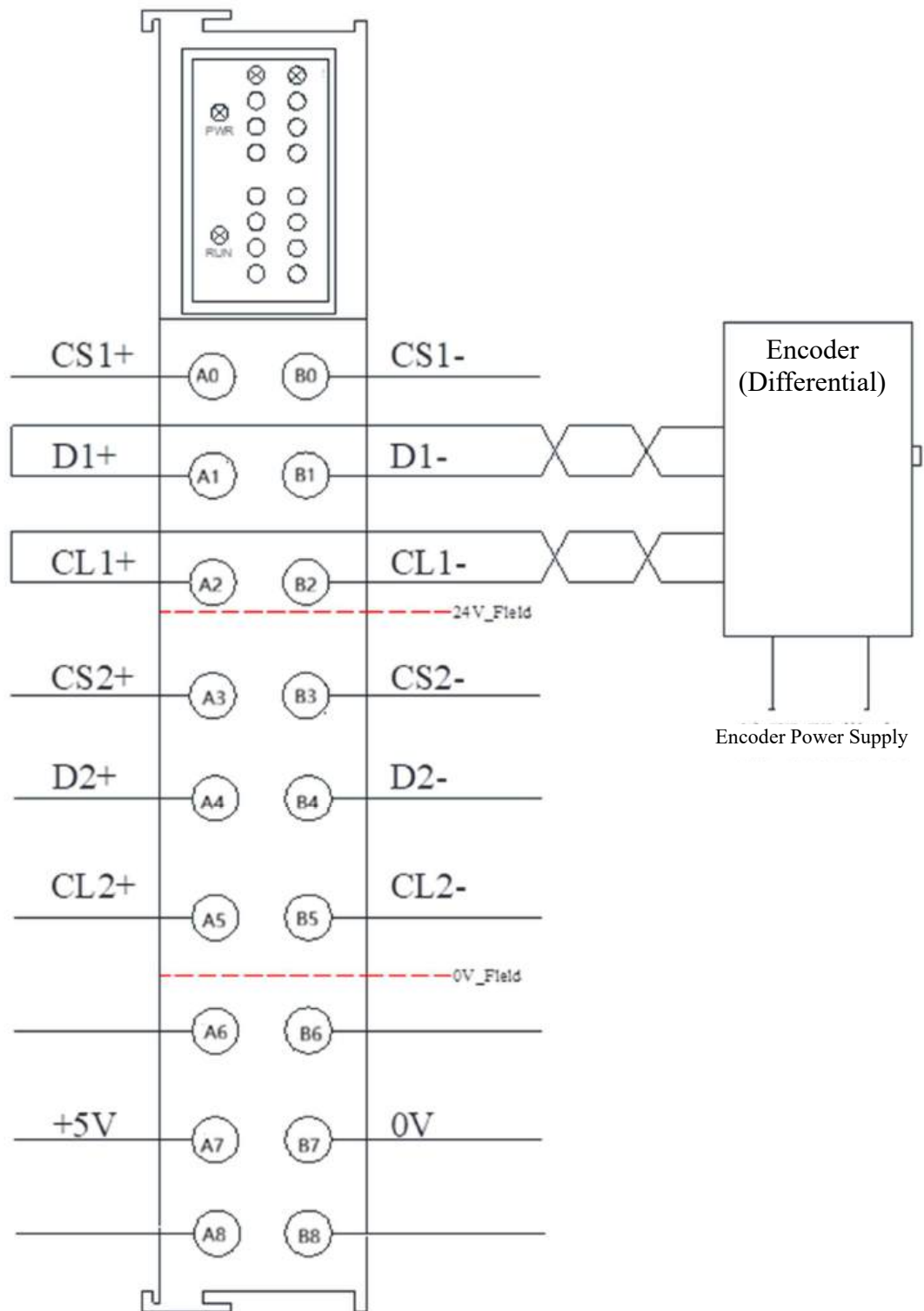
### 15.3.2. SRE5034 Wiring Diagram

5V Single-Ended Connection



Note: L1, L2, L3, and L4 are 24V single-ended input channels, and Q1~Q4 are NPN output channels. The wiring examples in the diagram only represent differential and single-ended connections, but do not imply that each channel is limited to the connections as shown in the diagram.

### 15.3.3. SRE5042 Wiring Diagram



## 15.4. Indicator Description

### 15.4.1. SRE5012 Indicator Description

| Indicator   | Description                                                                                                   |
|-------------|---------------------------------------------------------------------------------------------------------------|
| PWR (Green) | Module power indicator:<br>On: Module is powered normally<br>Off: Module is not powered or powered abnormally |
| RUN (Green) | Communication indicator:<br>On: Normal communication<br>Off: Abnormal communication                           |
| 5V (Green)  | 5V power output indicator:<br>On: Power output is normal<br>Off: Power output is abnormal                     |
| Q1 (green)  | On: Channel 1 gated output<br>Off: No Channel 1 gated output                                                  |
| Q2 (green)  | On: Channel 2 gated output<br>Off: No Channel 2 gated output                                                  |
| A1          | Channel 1, Phase A input indicator                                                                            |
| B1          | Channel 1, Phase B input indicator                                                                            |
| C1          | Channel 1, Phase C input indicator                                                                            |
| A2          | Channel 2, Phase A Input Indicator                                                                            |
| B2          | Channel 2, Phase B Input Indicator                                                                            |
| C2          | Channel 2, Phase C Input Indicator                                                                            |
| L1          | L1 input indicator                                                                                            |
| L2          | L2 input indicator                                                                                            |
| L3          | L3 input indicator                                                                                            |
| L4          | L4 input indicator                                                                                            |

### 15.4.2. SRE5034 Indicator Description

| Indicator   | Description                                                                                                    |
|-------------|----------------------------------------------------------------------------------------------------------------|
| PWR (Green) | Module power indicator:<br>On: Module is powered normally;<br>Off: Module is not powered or powered abnormally |
| RUN (Green) | Communication indicator:<br>On: Normal communication<br>Off: Abnormal communication                            |
| 5V (Green)  | 5V power output indicator:<br>On: Power output is normal<br>Off: Power output is abnormal                      |
| Q1 (green)  | On: Output from Channel 1 gate<br>Off: No Channel 1 gated output                                               |
| Q2 (green)  | On: No output from Channel 2 gate<br>Off: No Channel 2 gated output                                            |
| Q3 (green)  | On: Output from Channel 3 gate<br>Off: No output from Channel 3 gate                                           |
| Q4 (green)  | On: Output from Channel 4 gate<br>Off: No output from Channel 4 gate                                           |
| A1          | Channel 1, Phase A input indicator                                                                             |
| B1          | Channel 1, Phase B input indicator                                                                             |
| C1          | Channel 1, Phase C input indicator                                                                             |
| A2          | Channel 2, Phase A Input Indicator                                                                             |
| B2          | Channel 2, Phase B Input Indicator                                                                             |
| C2          | Channel 2, Phase C Input Indicator                                                                             |
| A3          | Channel 3, Phase A input indicator                                                                             |
| B3          | Channel 3, Phase B input indicator                                                                             |
| C3          | Channel 3, Phase C input indicator                                                                             |
| A4          | Channel 4, Phase A input indicator                                                                             |
| B4          | Channel 4, Phase B input indicator                                                                             |
| C4          | Channel 4, Phase C input indicator                                                                             |
| L1          | L1 input indicator                                                                                             |
| L2          | L2 input indicator                                                                                             |
| L3          | L3 input indicator                                                                                             |

|    |                    |
|----|--------------------|
| L4 | L4 input indicator |
|----|--------------------|

### 15.4.3. SRE5042 Indicator Description

| Indicator   | Description                                                                                                   |
|-------------|---------------------------------------------------------------------------------------------------------------|
| PWR (Green) | Module power indicator:<br>On: Module is powered normally<br>Off: Module is not powered or powered abnormally |
| RUN (Green) | Communication indicator:<br>On: Normal communication<br>Off: Abnormal communication                           |
| D1          | Axis 1: the indicator will light up when there is a signal at D1+/D1-, otherwise it is off                    |
| D2          | Axis 2: the indicator will light up when there is a signal at D2+/D2-, otherwise it is off                    |

## 15.5. Module Terminal Description

### 15.5.1. SRE5012 Terminal Description

| Terminal    | Meaning                                |
|-------------|----------------------------------------|
| A1+/A1-     | Channel 1, Phase A input terminal      |
| B1+/B1-     | Channel 1, Phase B input terminal      |
| C1+/C1-     | Channel 1, Phase C input terminal      |
| L1_24V/COM1 | LATCH1 input terminal                  |
| A2+/A2-     | Channel 2, Phase A input terminal      |
| B2+/B2-     | Channel 2, Phase B input terminal      |
| C2+/C2-     | Channel 2, Phase C input terminal      |
| L2_24V/COM2 | LATCH2 input terminal                  |
| A1          | Channel 1, Phase A input terminal      |
| B1          | Channel 1, Phase B input terminal      |
| C1          | Channel 1, Phase C input terminal      |
| COM3        | Channel 1 Phases A, B, and C input COM |
| A2          | Channel 2, Phase A input terminal      |
| B2          | Channel 2, Phase B input terminal      |
| C2          | Channel 2, Phase C input terminal      |
| COM4        | Channel 2 Phases A, B, and C input COM |
| L_24V/COM5  | LATCH3 input terminal                  |
| L_24V/COM6  | LATCH4 input terminal                  |
| Q1          | Channel 1 gated output, NPN            |
| Q2          | Channel 2 gated output, NPN            |
| 5V/0V       | 5V DC power output terminal            |

### 15.5.2. SRE5034 Terminal Description

| Terminal | Meaning                                        |
|----------|------------------------------------------------|
| A1+/A1-  | Channel 1, Phase A differential input terminal |
| B1+/B1-  | Channel 1, Phase B differential input terminal |
| C1+/C1-  | Channel 1, Phase C differential input terminal |
| A2+/A2-  | Channel 2, Phase A differential input terminal |
| B2+/B2-  | Channel 2, Phase B differential input terminal |
| C2+/C2-  | Channel 2, Phase C differential input terminal |
| A3+/A3-  | Channel 3, Phase A differential input terminal |
| B3+/B3-  | Channel 3, Phase B differential input terminal |
| C3+/C3-  | Channel 3, Phase C differential input terminal |
| A4+/A4-  | Channel 4, Phase A differential input terminal |
| B4+/B4-  | Channel 4, Phase B differential input terminal |
| C4+/C4-  | Channel 4, Phase C differential input terminal |
| L1_24V   | LATCH1 input terminal                          |
| L2_24V   | LATCH2 input terminal                          |
| L3_24V   | LATCH3 input terminal                          |
| L4_24V   | LATCH4 input terminal                          |
| COM      | LATCH input COM                                |
| 5V/0V    | 5V DC power output terminal.                   |
| Q1       | Channel 1 gated output, NPN                    |
| Q2       | Channel 2 gated output, NPN                    |
| Q3       | Channel 3 gated output, NPN                    |
| Q4       | Channel 4 gated output, NPN                    |

### 15.5.3. SRE5042 Terminal Description

| Terminal  | Meaning                                                                      |
|-----------|------------------------------------------------------------------------------|
| CS1+/CS1- | Axis 1 SSI encoder interface, differential signal transmission method: RS422 |
| D1+/D1-   |                                                                              |
| CL1+/CL1- |                                                                              |
| CS2+/CS2- | Axis 2 SSI encoder interface, differential signal transmission method: RS422 |
| D2+/D2-   |                                                                              |
| CL2+/CL2- |                                                                              |
| +5V/0V    | 5V DC power output terminal                                                  |

## 15.6. RXPDO Parameter Description

### 15.6.1. SRE5012 RXPDO Parameter Description

| Input parameters   | Data type | Meaning                                                                                                                                      |
|--------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CHx</b>         |           |                                                                                                                                              |
| Frequency          | UDINT     | Current input frequency, unit: Hz. It is only accurate to a single digit, e.g., for a 10KHz measurement signal, the value displays as 10000. |
| Counter value      | UDINT     | Current count value, with the highest bit as the sign bit (actually signed data).                                                            |
| C Latch value      | UDINT     | Current count value latched in Phase C according to the configuration.                                                                       |
| <b>CHx Status</b>  |           |                                                                                                                                              |
| Input A            | BOOL      | Phase A input                                                                                                                                |
| Input B            | BOOL      | Phase B input                                                                                                                                |
| Input C            | BOOL      | Phase C input                                                                                                                                |
| Counter overflow   | BOOL      | 1: Current count value overflow<br>0: After count value overflow, continue counting upward exceeding 5000.                                   |
| Counter underflow  | BOOL      | 1: Current count value underflow<br>0: After count value underflow, continue counting downward exceeding 5000                                |
| Set counter done   | BOOL      | 1: Effectively set the current count value of the counter<br>0: Set counter as 0                                                             |
| Latch C valid      | BOOL      | 1: Flag bit for Phase C input latched<br>0: No latching performed;                                                                           |
| Gate Output Status | BOOL      | 1: Gated output valid<br>0: Gated output invalid                                                                                             |
| <b>Others</b>      |           |                                                                                                                                              |
| Latch1             | BOOL      | 1: Signal input detected on Latch1 channel<br>0: No signal input on Latch1 channel                                                           |
| Latch1 valid       | BOOL      | 1: Flag bit for Latch1 signal successfully latched<br>0: No latching performed                                                               |
| Latch1 value       | UDINT     | Current count value latched by Latch1 signal according to the configuration                                                                  |
| Latch2             | BOOL      | 1: Signal input detected on Latch2 channel<br>0: No signal input on Latch2 channel                                                           |
| Latch2 valid       | BOOL      | 1: Flag bit for Latch2 signal successfully latched<br>0: No latching performed                                                               |
| Latch2 value       | UDINT     | Current count value latched by Latch2 signal according to the configuration                                                                  |
| Latch3             | BOOL      | 1: Signal input detected on Latch3 channel<br>0: No signal input on Latch3 channel                                                           |
| Latch3 valid       | BOOL      | 1: Flag bit for Latch3 signal successfully latched<br>0: No latching performed                                                               |
| Latch3 value       | UDINT     | Current count value latched by Latch3 signal according to the configuration                                                                  |
| Latch4             | BOOL      | 1: Signal input detected on Latch4 channel<br>0: No signal input on Latch4 channel                                                           |
| Latch4 valid       | BOOL      | 1: Flag bit for Latch4 signal successfully latched                                                                                           |

| Input parameters | Data type | Meaning                                                                     |
|------------------|-----------|-----------------------------------------------------------------------------|
|                  |           | 0: No latching performed                                                    |
| Latch4 value     | UDINT     | Current count value latched by Latch4 signal according to the configuration |

### 15.6.2. SRE5034 RXPDO Parameter Description

| Input parameters  | Data type | Meaning                                                                                                        |
|-------------------|-----------|----------------------------------------------------------------------------------------------------------------|
| <b>CHx</b>        |           |                                                                                                                |
| Counter value     | UDINT     | Current count value, with the highest bit as the sign bit (actually signed data)                               |
| C Latch value     | UDINT     | Current count value latched on Phase C according to the configuration                                          |
| <b>CHx Status</b> |           |                                                                                                                |
| input A           | BOOL      | Phase A input                                                                                                  |
| input B           | BOOL      | Phase B input                                                                                                  |
| input C           | BOOL      | Phase C input                                                                                                  |
| Counter overflow  | BOOL      | 1: Current count value overflow<br>0: After count value overflow, continue counting upward exceeding 5000.     |
| Counter underflow | BOOL      | 1: Current count value underflow<br>0: After count value underflow, continue counting downward exceeding 5000. |
| Set counter done  | BOOL      | 1: Effectively set the current count value of the counter<br>0: Set counter as 0                               |
| Latch C valid     | BOOL      | 1: Flag bit for Phase C input latched<br>0: No latching performed                                              |
| <b>Others</b>     |           |                                                                                                                |
| Latch1            | BOOL      | 1: Signal input detected on Latch1 channel<br>0: No signal input on Latch1 channel                             |
| Latch1 valid      | BOOL      | 1: Flag bit for Latch1 signal successfully latched<br>0: No latching performed                                 |
| Latch1 value      | UDINT     | Current count value latched by Latch1 signal according to the configuration                                    |
| Latch2            | BOOL      | 1: Signal input detected on Latch2 channel<br>0: No signal input on Latch2 channel                             |
| Latch2 valid      | BOOL      | 1: Flag bit for Latch2 signal successfully latched<br>0: No latching performed                                 |
| Latch2 value      | UDINT     | Current count value latched by Latch2 signal according to the configuration                                    |
| Latch3            | BOOL      | 1: Signal input detected on Latch3 channel<br>0: No signal input on Latch3 channel                             |
| Latch3 valid      | BOOL      | 1: Flag bit for Latch3 signal successfully latched<br>0: No latching performed                                 |
| Latch3 value      | UDINT     | Current count value latched by Latch3 signal according to the configuration                                    |
| Latch4            | BOOL      | 1: Signal input detected on Latch4 channel<br>0: No signal input on Latch4 channel                             |
| Latch4 valid      | BOOL      | 1: Flag bit for Latch4 signal successfully latched<br>0: No latching performed;                                |
| Latch4 value      | UDINT     | Current count value latched by Latch4 signal according to the configuration                                    |

### 15.6.3. SRE5042 PXPDO Parameter Description

| Parameters        | Data type | Meaning                         |
|-------------------|-----------|---------------------------------|
| Counter value CH1 | DINT      | Axis 1 current angular position |
| Counter value CH2 | DINT      | Axis 2 current angular position |
| Round CH1         | DINT      | Axis 1 current turns            |
| Round CH2         | DINT      | Axis 2 current turns            |

## 15.7. TXPDO Parameter Description

### 15.7.1. SRE5012 TXPDO Parameter Description

| Parameters                           | Data type | Meaning                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CHx</b>                           |           |                                                                                                                                                                                                                                                                                                                                                         |
| Set counter value                    | UDINT     | Current counter value setting                                                                                                                                                                                                                                                                                                                           |
| Freq Update Time                     | UDINT     | Frequency update time; range: 0~2.5s. The recommended set value should be at least 4~5 times larger than the input signal frequency period, unit: ms.                                                                                                                                                                                                   |
| Config Data                          | Byte      | Bit0~Bit7 configuration for module operation mode;<br>When Bit8 is 0, the gate selects count channel 1 for comparison output; when it is 1, the gate selects count channel 2 for comparison output.<br>When Bit9 is 1, it enables count clear on the rising edge of Phase C.<br>When Bit10 is 1, it enables count clear on the falling edge of Phase C. |
| Set counter                          | Bit       | On the rising edge, set the “Set counter value” to the current “Counter value”                                                                                                                                                                                                                                                                          |
| Enable latch C                       | Bit       | 1: Latch the “Counter value” to “Latch value” on the rising edge of Phase C input<br><b>Latch only once. To restart latching, set this parameter to 0 and then back to 1 (to avoid invalid abnormal latching caused by interference).</b>                                                                                                               |
| Clear cnt val                        | Bit       | <b>Clear channel count value</b>                                                                                                                                                                                                                                                                                                                        |
| Clear flow flag                      | Bit       | <b>Clear channel overflow and underflow flags</b>                                                                                                                                                                                                                                                                                                       |
| Gate threshold0                      | UDINT     | <b>Gated comparison value 0</b>                                                                                                                                                                                                                                                                                                                         |
| Gate threshold1                      | UDINT     | <b>Gated comparison value 1</b>                                                                                                                                                                                                                                                                                                                         |
| <b>Latchx Ctrl</b>                   |           |                                                                                                                                                                                                                                                                                                                                                         |
| ConfigData                           | Byte      | <b>Latch mode configuration</b>                                                                                                                                                                                                                                                                                                                         |
| Enable latch extern on positive edge | Bit       | 1: Latch the “Counter value” to “Latch value” on the rising edge of Latch<br><b>Note: The trigger mode is set by Bit1 of ConfigData.</b>                                                                                                                                                                                                                |
| Enable latch extern on negative edge | Bit       | 1: Latch the “Counter value” to “Latch value” on the falling edge of Latch<br><b>Note: The trigger mode is set by Bit2 of ConfigData.</b>                                                                                                                                                                                                               |

### 15.7.2. SRE5034 TXPDO Parameter Description

| Parameters                           | Data type | Meaning                                                                                                                                                                                                                                   |
|--------------------------------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CHx</b>                           |           |                                                                                                                                                                                                                                           |
| Set counter value                    | UDINT     | Current counter value setting                                                                                                                                                                                                             |
| ConfigData                           | Byte      | Bit0~Bit7 configuration for module operation mode                                                                                                                                                                                         |
| Set counter                          | Bit       | On the rising edge, set the “Set counter value” to the current “Counter value”                                                                                                                                                            |
| Enable latch C                       | Bit       | 1: Latch the “Counter value” to “Latch value” on the rising edge of Phase C input<br><b>Latch only once. To restart latching, set this parameter to 0 and then back to 1 (to avoid invalid abnormal latching caused by interference).</b> |
| Clear cnt val                        | Bit       | <b>Clear channel count value</b>                                                                                                                                                                                                          |
| Clear flow flag                      | Bit       | <b>Clear channel overflow and underflow flags</b>                                                                                                                                                                                         |
| Gate threshold0                      | UDINT     | <b>Gated comparison value 0</b>                                                                                                                                                                                                           |
| Gate threshold1                      | UDINT     | <b>Gated comparison value 1</b>                                                                                                                                                                                                           |
| <b>Latchx Ctrl</b>                   |           |                                                                                                                                                                                                                                           |
| ConfigData                           | Byte      | <b>Latch mode configuration</b>                                                                                                                                                                                                           |
| Enable latch extern on positive edge | Bit       | 1: Latch the “Counter value” to “Latch value” on the rising edge of Latch<br><b>Latch only once. To restart latching, set this parameter to 0 and then back to 1 (to avoid invalid abnormal latching caused by interference).</b>         |
| Enable latch extern on negative edge | Bit       | 1: Latch the “Counter value” to “Latch value” on the falling edge of Latch<br><b>Latch only once. To restart latching, set this parameter to 0 and then back to 1 (to avoid invalid abnormal latching caused by interference).</b>        |

### 15.7.3. SRE5042 TXPDO Parameter Description

| Parameters                 | Data type | Meaning                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ConfigData                 | UINT      | <p>Bit0</p> <p>0: Axis 1 Dual code</p> <p>1: Axis 1 Gray code</p> <p>Bit2~Bit1, Axis 1 SSI baud rate setting</p> <p>00 : 125K Baud</p> <p>01 : 250K Baud</p> <p>10 : 500K Baud</p> <p>11 : 1MHz Baud</p> <p>Bit3: Reserved</p> <p>Bit4</p> <p>0: Axis 2 Dual code</p> <p>1: Axis 2 Gray code</p> <p>Bit6~Bit5, Axis 2 SSI baud rate setting</p> <p>00 : 125K Baud</p> <p>01 : 250K Baud</p> <p>10 : 500K Baud</p> <p>11 : 1MHz Baud</p> <p>Bit7~Bit15 Reserved</p> |
| Coder Resolution CH1       | USINT     | Single-turn resolution of Axis 1, e.g., 10-bit, 12-bit...                                                                                                                                                                                                                                                                                                                                                                                                          |
| Coder continuous round CH1 | USINT     | Number of bits occupied by continuous turns of Axis 1, e.g., 10-bit (1024 turns), 12-bit (4096 turns)...                                                                                                                                                                                                                                                                                                                                                           |
| Coder Resolution CH2       | USINT     | Single-turn resolution of Axis 2, e.g., 10-bit, 12-bit...                                                                                                                                                                                                                                                                                                                                                                                                          |
| Coder continuous round CH2 | USINT     | Number of bits occupied by continuous turns of Axis 2, e.g., 10-bit (1024 turns), 12-bit (4096 turns)...                                                                                                                                                                                                                                                                                                                                                           |

## 15.8. Parameter Configuration Description (Channel)

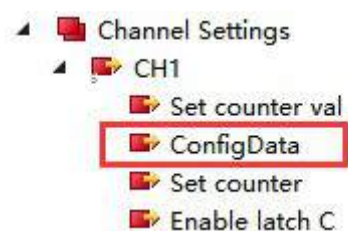
### 15.8.1. SRE5012



| Operating mode                                                                                                                      |      |      |      |
|-------------------------------------------------------------------------------------------------------------------------------------|------|------|------|
| Bit                                                                                                                                 | Bit1 | Bit0 |      |
| Operating mode                                                                                                                      |      |      |      |
| AB-phase quadrature 4x frequency counting                                                                                           | 0    | 0    |      |
| AB-phase quadrature single frequency counting                                                                                       | 0    | 1    |      |
| Pulse + direction counting<br>(A: Pulse B: Direction; Counts down when B is at high level,<br>and counts up when B is at low level) | 1    | 0    |      |
| Working signal                                                                                                                      |      |      |      |
| Bit                                                                                                                                 | Bit3 | Bit2 |      |
| Working signal                                                                                                                      |      |      |      |
| 5V                                                                                                                                  | 0    | 0    |      |
| 24V                                                                                                                                 | 0    | 1    |      |
| Gated output configuration                                                                                                          |      |      |      |
| Bit                                                                                                                                 | Bit6 | Bit5 | Bit4 |
| Gated mode                                                                                                                          |      |      |      |
| Gated Output Mode 1                                                                                                                 | 0    | 0    | 1    |
| Gated Output Mode 2                                                                                                                 | 0    | 1    | 1    |
| Gated Output Mode 3                                                                                                                 | 1    | 0    | 1    |
| Gated Output Mode 4                                                                                                                 | 1    | 1    | 1    |
| Filtering configuration                                                                                                             |      |      |      |
| Bit                                                                                                                                 | Bit7 |      |      |
| Filtering configuration                                                                                                             |      |      |      |
| Disable filtering                                                                                                                   | 0    |      |      |
| Enable filtering                                                                                                                    | 1    |      |      |
| Selection of gated output comparison channels                                                                                       |      |      |      |
| Bit                                                                                                                                 | Bit8 |      |      |

|                                               |       |      |
|-----------------------------------------------|-------|------|
| Selection of gated output comparison channels |       |      |
| Gated output selects channel 1                | 0     |      |
| Gated output selects channel 2                | 1     |      |
| Phase C clear configuration                   |       |      |
| Bit                                           | Bit10 | Bit9 |
| Phase C clear configuration                   |       |      |
| Close Phase C clear enable                    | 0     | 0    |
| Phase C rising edge clear enable              | 0     | 1    |
| Phase C falling edge clear enable             | 1     | 0    |

## 15.8.2. SRE5034



| Operating mode                                                                                                                   |      |      |      |      |
|----------------------------------------------------------------------------------------------------------------------------------|------|------|------|------|
| <div>Bi</div> <div>t</div> <div>Operating mode</div>                                                                             | Bit3 | Bit2 | Bit1 | Bit0 |
| AB-phase quadrature 4x frequency counting                                                                                        | ---  | ---  | 0    | 0    |
| AB-phase quadrature single frequency counting                                                                                    | ---  | ---  | 0    | 1    |
| Pulse + direction counting<br>(A: Pulse B: Direction; Counts down when B is at high level, and counts up when B is at low level) | ---  | ---  | 1    | 0    |
| Gated output configuration                                                                                                       |      |      |      |      |
| <div>Bi</div> <div>t</div> <div>Gated mode</div>                                                                                 | Bit6 | Bit5 | Bit4 |      |
| Gated Output Mode 1                                                                                                              | 0    | 0    | 1    |      |
| Gated Output Mode 2                                                                                                              | 0    | 1    | 1    |      |
| Gated Output Mode 3                                                                                                              | 1    | 0    | 1    |      |
| Gated Output Mode 4                                                                                                              | 1    | 1    | 1    |      |
| Filtering configuration                                                                                                          |      |      |      |      |
| <div>Bit</div> <div>Filtering configuration</div>                                                                                | Bit7 |      |      |      |
| Disable filtering                                                                                                                | 0    |      |      |      |
| Enable filtering                                                                                                                 | 1    |      |      |      |

## 15.9. Parameter Configuration Description (Latch)

-  ConfigData
-  Enable latch extern on positive edge
-  Enable latch extern on negative edge

### 15.9.1. SRE5012

| Latch mode configuration                     |      |
|----------------------------------------------|------|
| Value \ Bit                                  | Bit0 |
| The Latch channel latches counting channel 1 | 0    |
| The Latch channel latches counting channel 2 | 1    |
| Rising edge latch trigger mode               |      |
| Value \ Bit                                  | Bit1 |
| Latch only once after enabling               | 0    |
| Continuously latch many times after enabling | 1    |
| Falling edge latch trigger mode              |      |
| Value \ Bit                                  | Bit2 |
| Latch only once after enabling               | 0    |
| Continuously latch many times after enabling | 1    |

| Parameters                           | Data type | Meaning                                                                                                                                   |
|--------------------------------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Latchx Ctrl</b>                   |           |                                                                                                                                           |
| ConfigData                           | Byte      | <b>Latch mode configuration</b>                                                                                                           |
| Enable latch extern on positive edge | Bit       | 1: Latch the “Counter value” to “Latch value” on the rising edge of Latch<br><b>Note: The trigger mode is set by Bit1 of ConfigData.</b>  |
| Enable latch extern on negative edge | Bit       | 1: Latch the “Counter value” to “Latch value” on the falling edge of Latch<br><b>Note: The trigger mode is set by Bit2 of ConfigData.</b> |

### 15.9.2. SRE5034

| Latch mode configuration                     |      |      |      |      |
|----------------------------------------------|------|------|------|------|
| Value \ Bit                                  | Bit3 | Bit2 | Bit1 | Bit0 |
| The Latch channel latches counting channel 1 | ---  | ---  | ---  | 0    |
| The Latch channel latches counting channel 2 | ---  | ---  | ---  | 1    |
| Latch channel latches counting channel 3     | ---  | ---  | 1    | 0    |
| Latch channel latches counting channel 4     | ---  | ---  | 1    | 1    |

| Parameters                           | Data type | Meaning                                                                                                                                                                                                                                |
|--------------------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Latchx Ctrl</b>                   |           |                                                                                                                                                                                                                                        |
| ConfigData                           | BYTE      | <b>Latch mode configuration</b>                                                                                                                                                                                                        |
| Enable latch extern on positive edge | BIT       | 1: Latch the “Counter value” to “Latch value” on the rising edge of Latch<br><br><b>Latch only once. To restart latching, set this parameter to 0 and then back to 1 (to avoid invalid abnormal latching caused by interference).</b>  |
| Enable latch extern on negative edge | BIT       | 1: Latch the “Counter value” to “Latch value” on the falling edge of Latch<br><br><b>Latch only once. To restart latching, set this parameter to 0 and then back to 1 (to avoid invalid abnormal latching caused by interference).</b> |

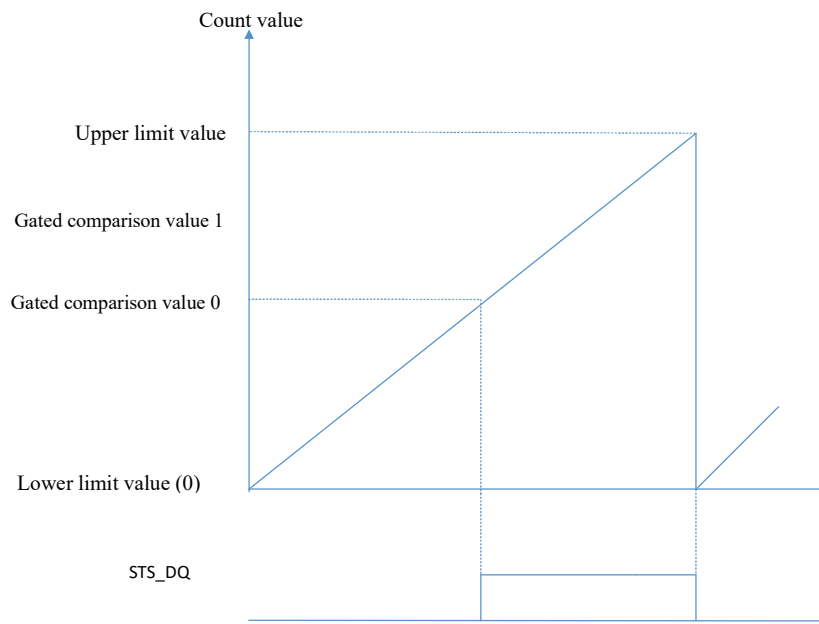
## 15.10. Gated Output Mode Description

### 15.10.1. Gated Output Mode 1

Compare between the comparison value and the counter upper limit:

Gated comparison value  $0 < \text{counter value} < \text{counter upper limit}$  (i.e.,  $2^{32} - 1$ ):  
output on the gate (i.e., Q channel).

Counter lower limit (i.e., 0)  $< \text{counter value} < \text{gated comparison value 0}$ : no  
output on the gate (i.e., Q channel).



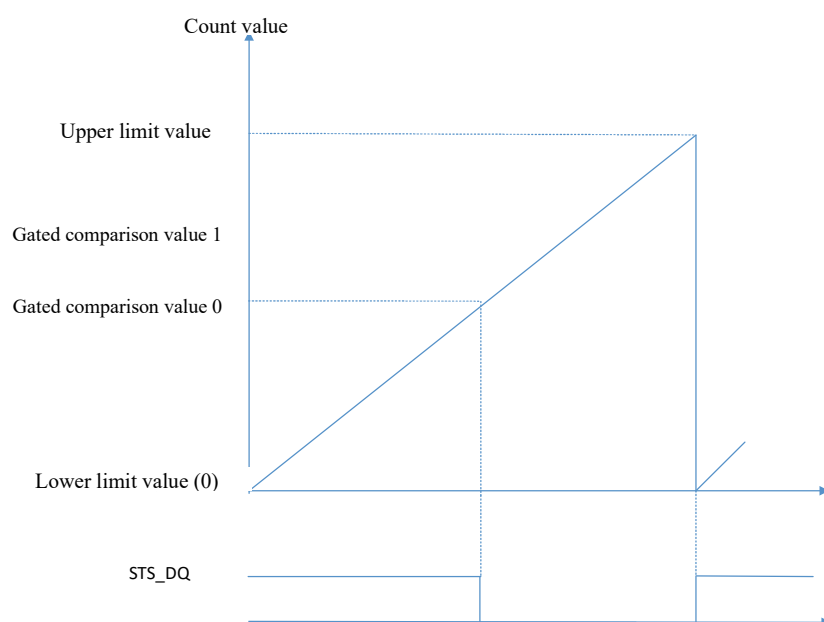
**Note:** The value for the gated comparison value 1 must be set greater than that for the gated comparison value 0; otherwise, the output will be abnormal.

### 15.10.2. Gated Output Mode 2

Compare between the comparison value and the counter upper limit:

Gated comparison value  $0 < \text{counter value} < \text{counter upper limit}$  (i.e.,  $2^{32} - 1$ ): no output on the gate (i.e., Q channel).

Counter lower limit (i.e., 0)  $< \text{counter value} < \text{gated comparison value 0}$ : output on the gate (i.e., Q channel).



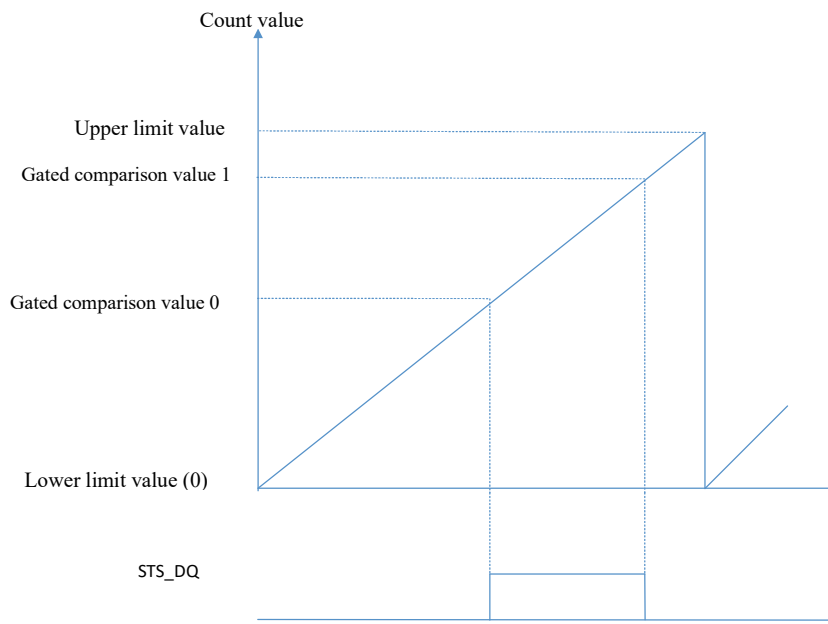
**Note:** The value for the gated comparison value 1 must be set greater than that for the gated comparison value 0; otherwise, the output will be abnormal.

### 15.10.3. Gated Output Mode 3

Compare between the comparison value 0 and comparison value 1:

Gated comparison value 0 < counter value < gated comparison value 1: output on the gate (i.e., Q channel).

Counter lower limit (i.e., 0) < counter value < gated comparison value 0, or gated comparison value 1 < counter value < upper limit value (i.e.,  $2^{32}-1$ ): no output on the gate (i.e., the Q channel).



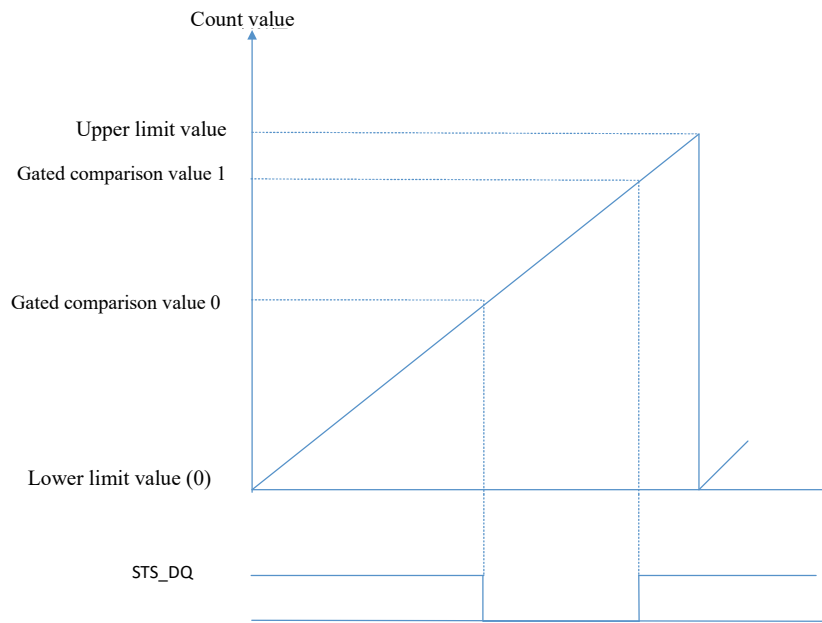
**Note:** The value for the gated comparison value 1 must be set greater than that for the gated comparison value 0; otherwise, the output will be abnormal.

#### 15.10.4. Gated Output Mode 4

Compare between the comparison value 0 and comparison value 1:

Gated comparison value 0 < counter value < gated comparison value 1: no output on the gate (i.e., Q channel).

Counter lower limit (i.e., 0) < counter value < gated comparison value 0, or gated comparison value 1 < counter value < upper limit value (i.e.,  $2^{32}-1$ ): output from the gate (i.e., Q channel).



**Note:** The value for the gated comparison value 1 must be set greater than that for the gated comparison value 0; otherwise, the output will be abnormal.

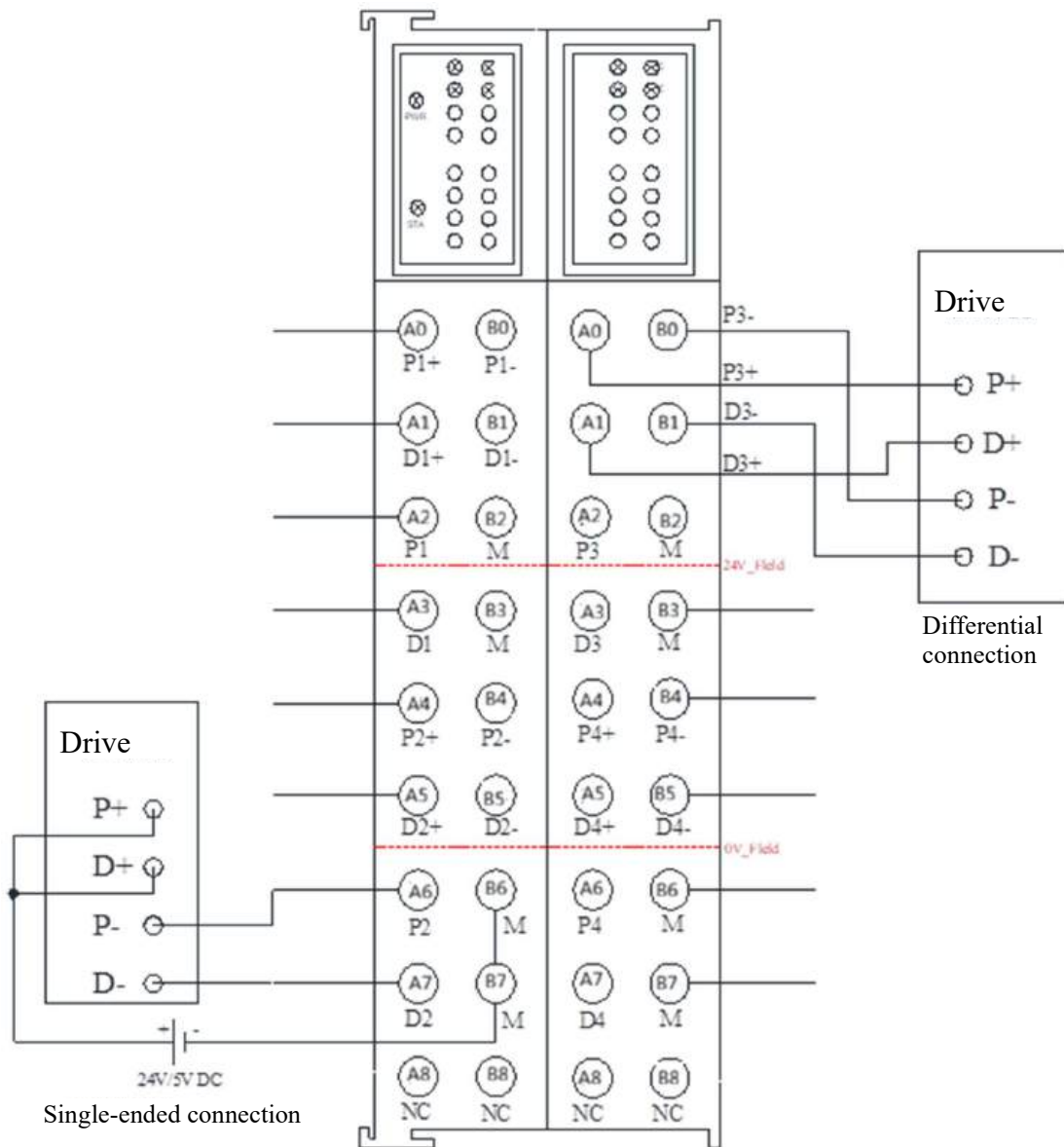
## 16. SRE5234 High-speed Pulse Output Terminal

The module features 4-axis PTO output, NPN output, single-ended maximum 400KHZ, and differential output maximum 1MHZ. The relevant parameters can be configured via XML file.

### 16.1. Electrical Specifications

|                                    |                                                                             |
|------------------------------------|-----------------------------------------------------------------------------|
| Model                              | SRE5234                                                                     |
| Technical specifications           |                                                                             |
| High-speed pulse output channel    | 4 channels                                                                  |
| Bus 5VDC consumption current       | 218.9mA                                                                     |
| Signal output                      | NPN output                                                                  |
|                                    | Differential 5V, maximum 1MHz                                               |
|                                    | Single-ended, 24V maximum 200KHz or 5V maximum 400KHz                       |
| Signal type                        | Pulse + direction                                                           |
| Isolation                          |                                                                             |
| Between channels and buses         | Existent                                                                    |
| Display indicator                  | Power supply green LED display                                              |
| System power diagnosis and warning | Supported                                                                   |
| Environmental conditions           | Operating temperature: -20~60°C; relative humidity: 5%~90% (non-condensing) |
| Storage temperature                | -40~60 °C                                                                   |
| Dimensions (L × W × H)             | 30×80×100 (mm)                                                              |

## 16.2. Electrical Wiring Diagram



- ① Differential output only supports 5VDC
- ② Single-ended (output/input) supports 24VDC and 5VDC

### 16.3. Wiring Terminal Description

| Terminal | Meaning                                               |
|----------|-------------------------------------------------------|
| P1+      | Axis 1 differential output, positive pulse signal     |
| P1-      | Axis 1 differential output, negative pulse signal     |
| D1+      | Axis 1 differential output, positive direction signal |
| D1-      | Axis 1 differential output, negative direction signal |
| P2+      | Axis 2 differential output, positive pulse signal     |
| P2-      | Axis 2 differential output, negative pulse signal     |
| D2+      | Axis 2 differential output, positive direction signal |
| D2-      | Axis 2 differential output, negative direction signal |
| P3+      | Axis 3 differential output, positive pulse signal     |
| P3-      | Axis 3 differential output, negative pulse signal     |
| D3+      | Axis 3 differential output, positive direction signal |
| D3-      | Axis 3 differential output, negative direction signal |
| P4+      | Axis 4 differential output, positive pulse signal     |
| P4-      | Axis 4 differential output, negative pulse signal     |
| D4+      | Axis 4 differential output, positive direction signal |
| D4-      | Axis 4 differential output, negative direction signal |
| P1       | Axis 1 single-ended output, pulse signal              |
| D1       | Axis 1 single-ended output, direction signal          |
| P2       | Axis 2 single-ended output, pulse signal              |
| D2       | Axis 2 single-ended output, direction signal          |
| P3       | Axis 3 single-ended output, pulse signal              |
| D3       | Axis 3 single-ended output, direction signal          |
| P4       | Axis 4 single-ended output, pulse signal              |
| D4       | Axis 4 single-ended output, direction signal          |
| M        | Common terminal for single-ended output               |

## 16.4. Indicator Description

| Indicator   | Meaning                                                                                                      |
|-------------|--------------------------------------------------------------------------------------------------------------|
| PWR (Green) | Module power indicator<br>On: Module is powered normally<br>Off: Module is not powered or powered abnormally |
| RUN (Green) | Communication indicator:<br>On: Normal communication<br>Off: Abnormal communication                          |
| P1          | Axis 1 pulse output. The indicator will light up when there is a signal; otherwise it will turn off.         |
| P2          | Axis 2 pulse output. The indicator will light up when there is a signal; otherwise it will turn off.         |
| P3          | Axis 3 pulse output. The indicator will light up when there is a signal; otherwise it will turn off.         |
| P4          | Axis 4 pulse output. The indicator will light up when there is a signal; otherwise it will turn off.         |
| D1          | Axis 1 direction output. The indicator will light up when there is a signal; otherwise it will turn off.     |
| D2          | Axis 2 direction output. The indicator will light up when there is a signal; otherwise it will turn off.     |
| D3          | Axis 3 direction output. The indicator will light up when there is a signal; otherwise it will turn off.     |
| D4          | Axis 4 direction output. The indicator will light up when there is a signal; otherwise it will turn off.     |

## 16.5. COE Parameter Description

| Index  | Name                | Flags | Value          |
|--------|---------------------|-------|----------------|
| 1000   | Device type         | RO    | 0x00000002 (2) |
| 1008   | Device name         | RO    | ECT-DEV        |
| 1009   | Hardware version    | RO    | 1.1            |
| 100A   | Software version    | RO    | 1.0            |
| 1018.0 | Identity            | RO    | > 4 <          |
| 1C32.0 | SM output parameter |       | > 32 <         |
| 1C33.0 | SM input parameter  |       | > 32 <         |
| 2004.0 | Err                 | RO    | > 1 <          |

| Name           | Online | Type | Size | >Add... | In/Out | User... | Linked to |
|----------------|--------|------|------|---------|--------|---------|-----------|
| ID             | 0      | UINT | 2.0  | 39.0    | Input  | 0       |           |
| M_Status       | 0x80   | BYTE | 1.0  | 41.0    | Input  | 0       |           |
| M_Pos_Relative | 0      | DINT | 4.0  | 42.0    | Input  | 0       |           |

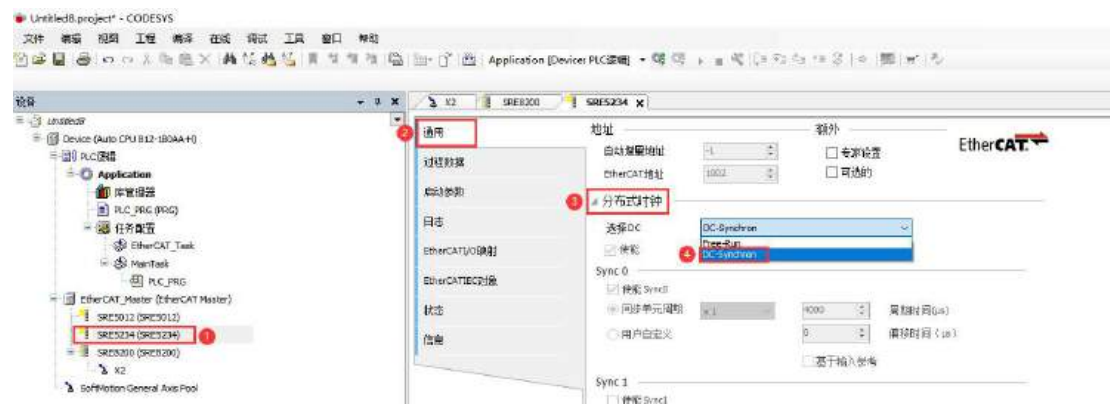
| Parameters | Data type  | Description                                                 |
|------------|------------|-------------------------------------------------------------|
| 2004:01    | Err 24v_nf | Bit0 :<br>1: Channel 24V power supply abnormal<br>0: Normal |

## 16.6. PDO Parameter Description

| Item                 | Subitem        | Data type | Meaning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------|----------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Axis (1-4)<br>Input  | M_Status       | Byte      | <p>Module status.</p> <p>M_Status[6:0] :</p> <p>000_0000: Module in idle state</p> <p>000_0010: Module in operation state</p> <p>000_0110: Module in software emergency stop state</p> <p>000_1000: Module pulse transmission completed state</p> <p>1xx_xxxx: Startup operation flag</p> <p>M_Status[6]: Module operation flag bit. When M_ctrl changes from 0 to 1, the flag signal is set as 1. Only writing 1 into bit6 of the controller Mctrl can clear the flag signal.</p> <p>M_Status[7] :</p> <p>0: Invalid</p> <p>1: After Mctrl RUN command reset, when this flag is detected as 1, the Mctrl RUN command can be set to initiate module pulse output</p> <p><b>In the cyclic synchronous position mode, it remains in operation state by default.</b></p>                                                                                                                                      |
|                      | M_Pos_Relative | DINT      | Relative operation position.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                      | M_Spd          | UDINT     | Current module speed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                      | M_ERROR        | Byte      | <p>0: Normal</p> <p>Bit0: The starting speed is greater than the operation speed.</p> <p>Bit2: Mode error</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Axis (1-4)<br>Output | M_Ctrl         | Byte      | <p>BIT0: RUN, command operation enable, starting on the rising edge, and stopping on the falling edge.</p> <p>BIT1: UPDATE, set as 1 to update operational parameters during motor operation (AccTime, DecTime, Spdss, Spdset, and Posset parameters)</p> <p>BIT2: ESTOP, emergency stop command. Upon receiving this command, the module immediately stops pulse output without any acceleration or deceleration. Default is 0. When emergency stop is required, set this bit as 1. This bit must be reset as 0 before the next operation.</p> <p><b>BIT3: Clear the M_Pos_Relative position value on the rising edge, which is effective in all modes.</b></p> <p>BIT4: Alarm clear.</p> <p>BIT5: Direction bit in the speed mode. In the speed mode, control forward or reverse direction.</p> <p>BIT6: The operation flag is cleared and the module completes startup. M_Status[6] will be set. If</p> |

| Item | Subitem   | Data type | Meaning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------|-----------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      |           |           | <p>the PLC detects this flag signal as 1 (closed-loop detection), it indicates that the module has successfully transmitted pulses. When the next pulse needs to be transmitted, this clear command should be used to reset the operation flag before initiating the next operation detection.</p> <p><b>BIT7: When set as 1 in the speed mode, the M_Pos_Relative position value will not be cleared at startup.</b></p> <p><b>Note: In the cyclic synchronous position mode, only BIT3 is valid, and the remaining BITS are reserved.</b></p> |
|      | Work_Mode | Byte      | <p><b>Bit0~3: Motion mode setting</b><br/> 0: Relative position output mode<br/> 1: Speed mode<br/> 3: Cyclic synchronous position mode (The module needs to be configured to DC synchronous mode)<br/> Others: Reserved</p> <p><b>Bit4~5: Pulse output mode setting</b><br/> 0: Pulse + direction<br/> 1 : CW/CCW<br/> Others: Reserved</p> <p><b>Bit6~7: Reserved</b></p> <p>Note: When changing the WorkMode, M_Ctrl must be set as 0.</p>                                                                                                   |
|      | AccTime   | UINT      | <p>Acceleration time (ms). It is used to set the acceleration<br/> Invalid in the cyclic synchronous position mode.</p>                                                                                                                                                                                                                                                                                                                                                                                                                         |
|      | DecTime   | UINT      | <p>Deceleration time (ms). It is used to set the deceleration<br/> Invalid in the cyclic synchronous position mode.</p>                                                                                                                                                                                                                                                                                                                                                                                                                         |
|      | SpdSs     | UDINT     | <p>User-defined starting or stopping speed (Hz), data range 0~4000000<br/> Invalid in the cyclic synchronous position mode.</p>                                                                                                                                                                                                                                                                                                                                                                                                                 |
|      | SpdSet    | UDINT     | <p>User-defined operating speed (Hz), data range 0~4000000<br/> Invalid in the cyclic synchronous position mode.</p>                                                                                                                                                                                                                                                                                                                                                                                                                            |
|      | PosSet    | DINT      | <p>User-defined position, unit: pulse count<br/> In the cyclic synchronous position mode, it represents the number of pulses to be sent within one EtherCAT bus cycle</p>                                                                                                                                                                                                                                                                                                                                                                       |

**Configure the module DC synchronous mode:**



## 17. Usage example

### 17.1. Instructions for SRE8200 Coupler Communication with Beckhoff Master

#### 17.1.1. Communication Connection

The communication connection diagram is as shown below:



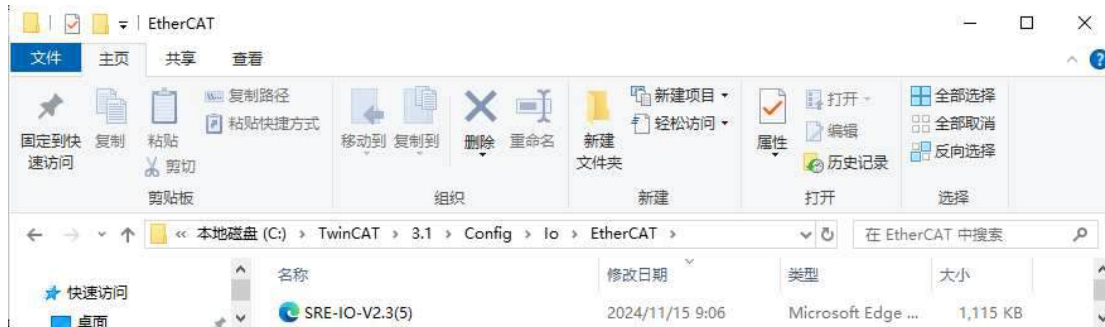
#### 17.1.2. Hardware Configuration

The hardware configuration is shown in the following table:

| Hardware                   | Quantity | Remarks                        |
|----------------------------|----------|--------------------------------|
| Programming computer       | One      | Install TwinCAT3 software      |
| SRE8200                    | One      | EtherCAT communication coupler |
| SRE1116                    | One      | Digital Input Terminal         |
| SRE2116                    | One      | Digital Output Terminal        |
| SRE3204                    | One      | Analog Input Terminal          |
| SRE4204                    | One      | Analog Output Terminal         |
| Ethernet cable             | Several  |                                |
| 24V switching power supply | One      |                                |

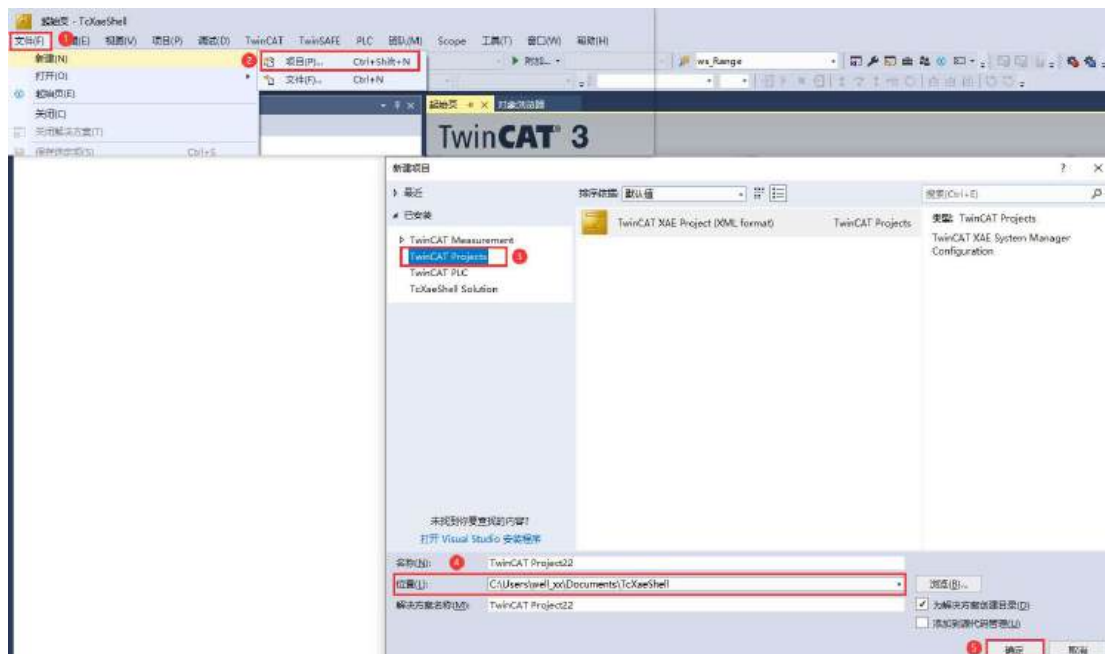
### 17.1.3. Install XML File

Install the XML file into TwinCAT3. The default folder in the example is "C:\TwinCAT\3.1\Config\Io\EtherCAT", as shown in the following figure:

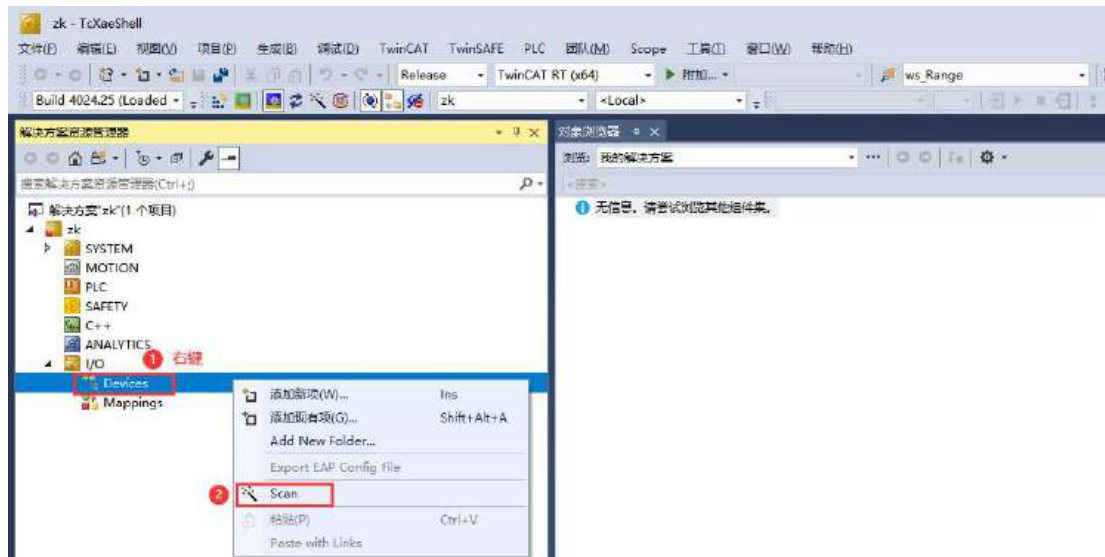


### 17.1.4. New Project and Configuration

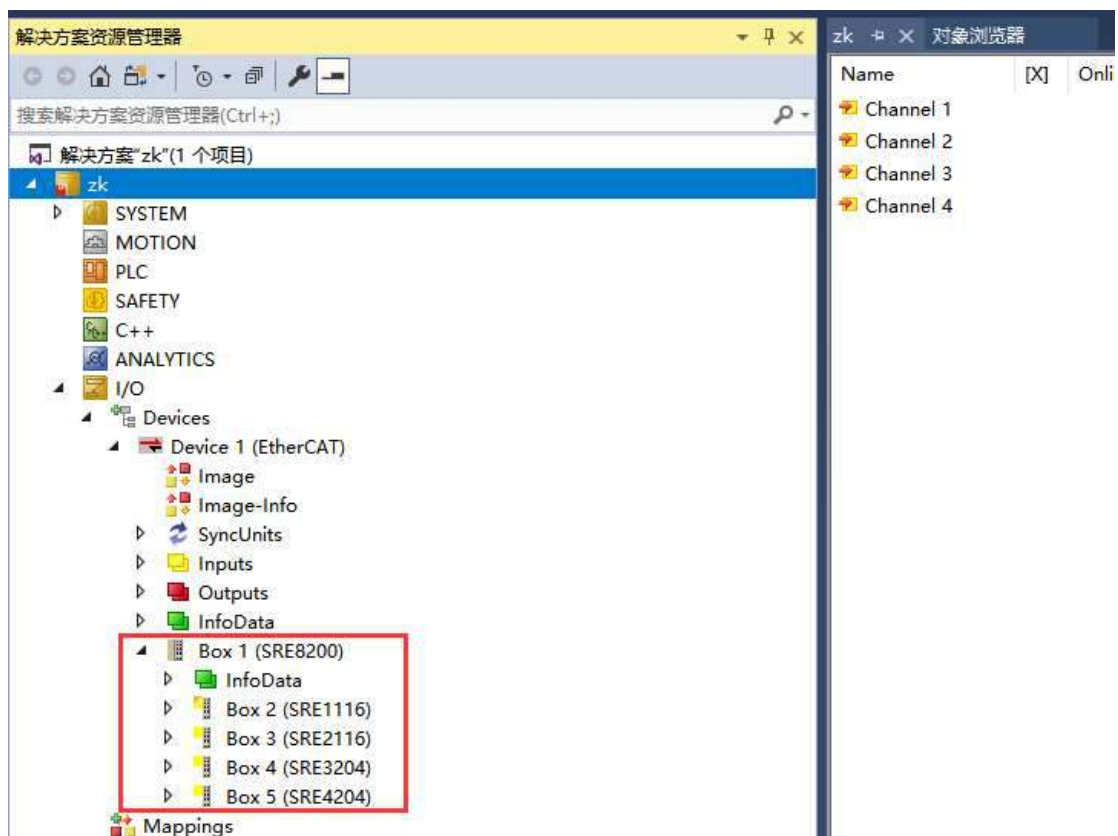
Open TwinCAT3 software and create a new project as shown below:



Scan the SRE8200 connected to the computer and its expansion IO terminals into the project. Click I/O > Devices > Scan as shown below:



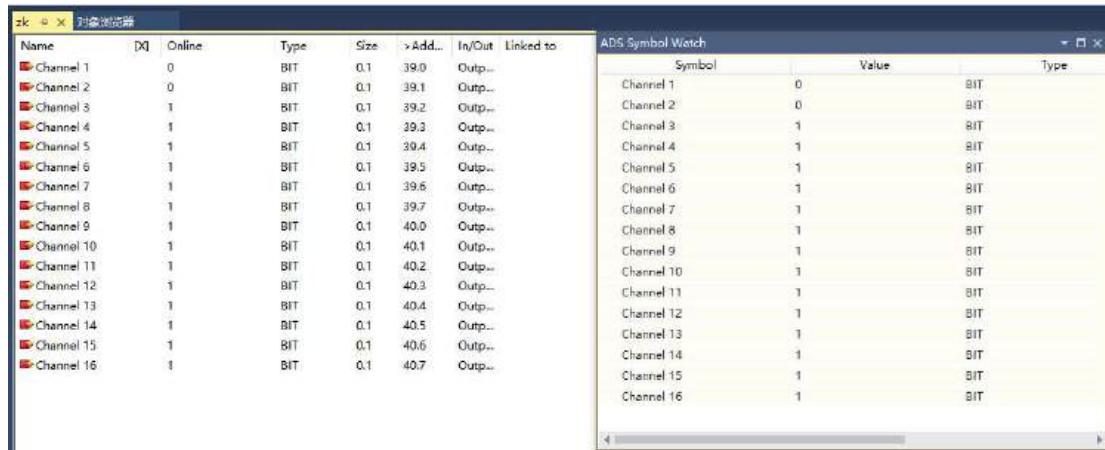
Successfully scanned modules are displayed as shown below:



### 17.1.5. Data Monitoring

Select the IO terminal to be monitored in TwinCAT3 and choose the data to be monitored for monitoring:

Digital input/output:



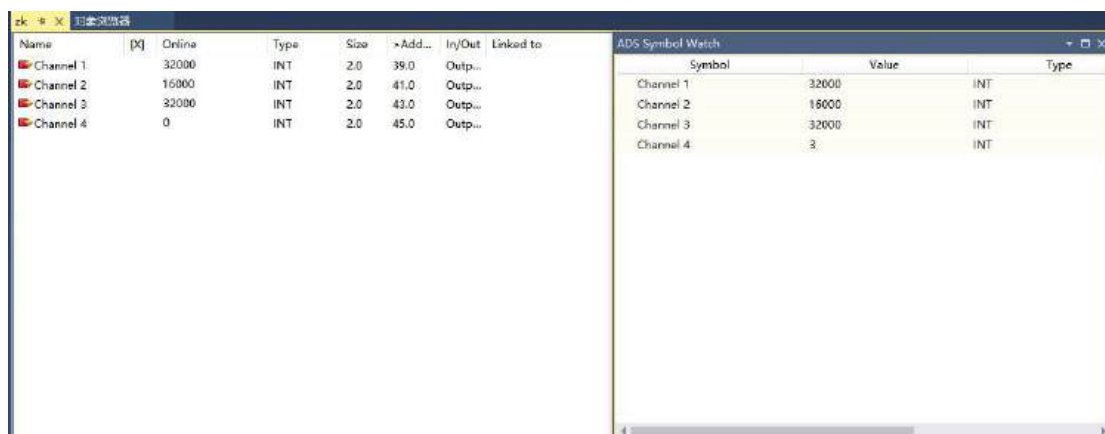
The screenshot displays the TwinCAT3 configuration interface for digital I/O monitoring. On the left, a table lists 16 channels, each with a name, online status, type (BIT), size (0.1), address, and I/O direction (Output). On the right, the 'ADS Symbol Watch' window shows the same 16 channels with their current values (0 or 1) and types (BIT).

| Name       | [X] | Online | Type | Size | > Add... | In/Out  | Linked to |
|------------|-----|--------|------|------|----------|---------|-----------|
| Channel 1  |     | 0      | BIT  | 0.1  | 39.0     | Outp... |           |
| Channel 2  |     | 0      | BIT  | 0.1  | 39.1     | Outp... |           |
| Channel 3  |     | 1      | BIT  | 0.1  | 39.2     | Outp... |           |
| Channel 4  |     | 1      | BIT  | 0.1  | 39.3     | Outp... |           |
| Channel 5  |     | 1      | BIT  | 0.1  | 39.4     | Outp... |           |
| Channel 6  |     | 1      | BIT  | 0.1  | 39.5     | Outp... |           |
| Channel 7  |     | 1      | BIT  | 0.1  | 39.6     | Outp... |           |
| Channel 8  |     | 1      | BIT  | 0.1  | 39.7     | Outp... |           |
| Channel 9  |     | 1      | BIT  | 0.1  | 40.0     | Outp... |           |
| Channel 10 |     | 1      | BIT  | 0.1  | 40.1     | Outp... |           |
| Channel 11 |     | 1      | BIT  | 0.1  | 40.2     | Outp... |           |
| Channel 12 |     | 1      | BIT  | 0.1  | 40.3     | Outp... |           |
| Channel 13 |     | 1      | BIT  | 0.1  | 40.4     | Outp... |           |
| Channel 14 |     | 1      | BIT  | 0.1  | 40.5     | Outp... |           |
| Channel 15 |     | 1      | BIT  | 0.1  | 40.6     | Outp... |           |
| Channel 16 |     | 1      | BIT  | 0.1  | 40.7     | Outp... |           |

| Symbol     | Value | Type |
|------------|-------|------|
| Channel 1  | 0     | BIT  |
| Channel 2  | 0     | BIT  |
| Channel 3  | 1     | BIT  |
| Channel 4  | 1     | BIT  |
| Channel 5  | 1     | BIT  |
| Channel 6  | 1     | BIT  |
| Channel 7  | 1     | BIT  |
| Channel 8  | 1     | BIT  |
| Channel 9  | 1     | BIT  |
| Channel 10 | 1     | BIT  |
| Channel 11 | 1     | BIT  |
| Channel 12 | 1     | BIT  |
| Channel 13 | 1     | BIT  |
| Channel 14 | 1     | BIT  |
| Channel 15 | 1     | BIT  |
| Channel 16 | 1     | BIT  |

Analog input/output:



The screenshot displays the TwinCAT3 configuration interface for analog I/O monitoring. On the left, a table lists 4 channels with names, online status, type (INT), size (2.0), address, and I/O direction (Output). On the right, the 'ADS Symbol Watch' window shows the same 4 channels with their current values (32000, 16000, 32000, 3) and types (INT).

| Name      | [X] | Online | Type | Size | > Add... | In/Out  | Linked to |
|-----------|-----|--------|------|------|----------|---------|-----------|
| Channel 1 |     | 32000  | INT  | 2.0  | 39.0     | Outp... |           |
| Channel 2 |     | 16000  | INT  | 2.0  | 41.0     | Outp... |           |
| Channel 3 |     | 32000  | INT  | 2.0  | 43.0     | Outp... |           |
| Channel 4 |     | 0      | INT  | 2.0  | 45.0     | Outp... |           |

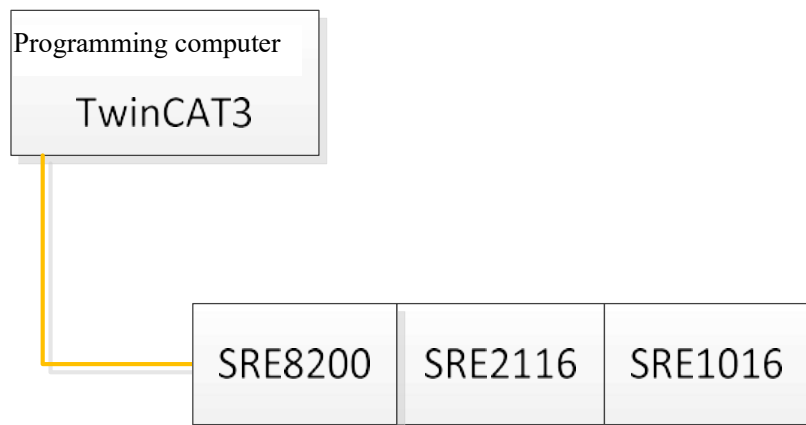
| Symbol    | Value | Type |
|-----------|-------|------|
| Channel 1 | 32000 | INT  |
| Channel 2 | 16000 | INT  |
| Channel 3 | 32000 | INT  |
| Channel 4 | 3     | INT  |

## 17.2. Example of SRE2116 Communication with TwinCAT3

This example briefly introduces how the SRE8200 coupler is connected with SRE2116 and SRE1016 for data monitoring through Beckhoff. Digital input and output can be connected and used with reference to this example.

### 17.2.1. Communication Connection

The communication connection diagram is as shown below:



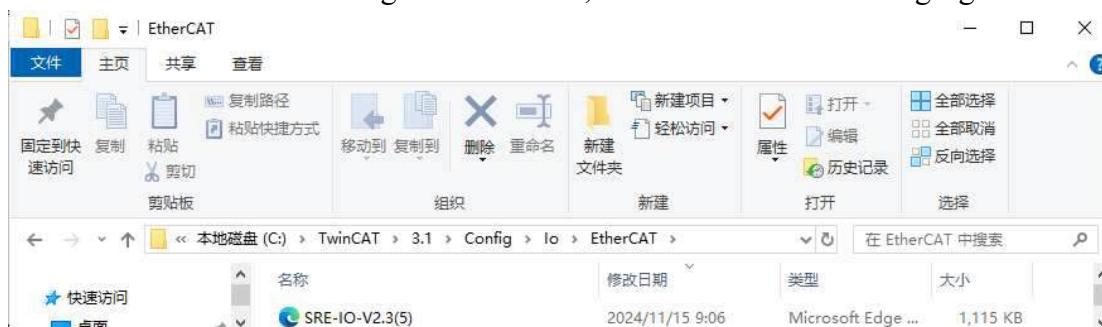
### 17.2.2. Hardware Configuration

The hardware configuration is shown in the following table:

| Hardware                   | Quantity | Remarks                                |
|----------------------------|----------|----------------------------------------|
| Programming computer       | One      | Install TwinCAT3 software              |
| SRE8200                    | One      | EtherCAT communication coupler         |
| SRE2116                    | One      | High-performance digital output module |
| SRE1016                    | One      | High-performance digital input module  |
| Ethernet cable             | 1 piece  |                                        |
| 24V switching power supply | One      |                                        |

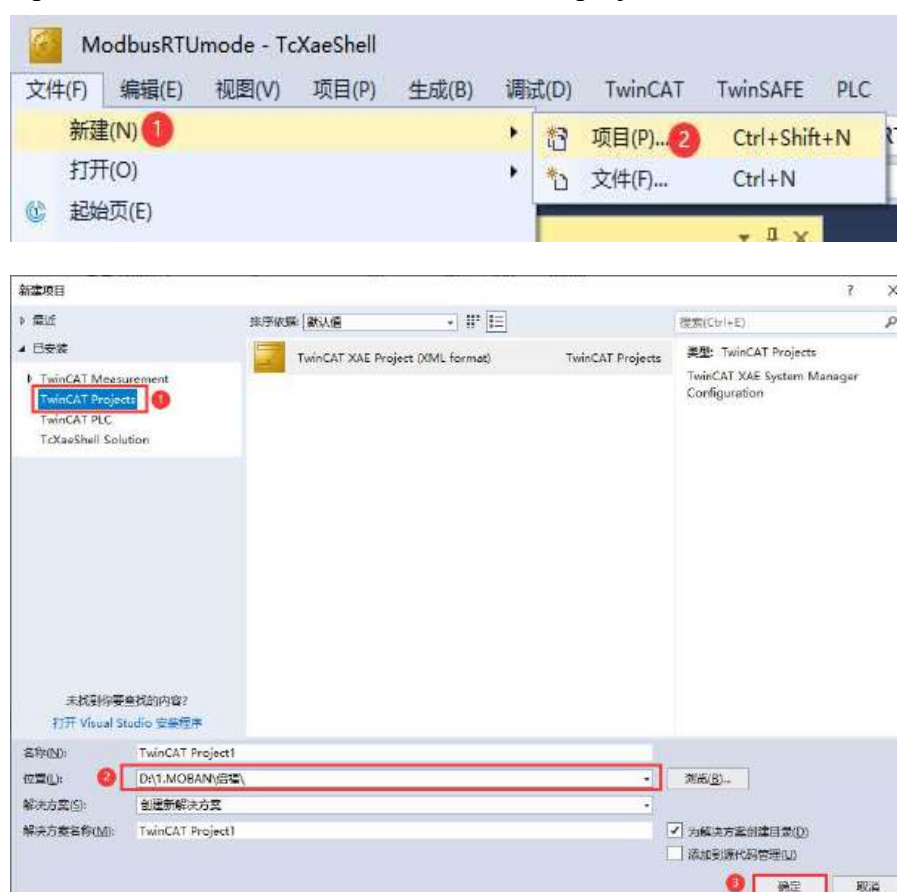
### 17.2.3. Install XML File

Install the XML file into TwinCAT3. The default folder in the example is "C:\TwinCAT\3.1\Config\Io\EtherCAT", as shown in the following figure:

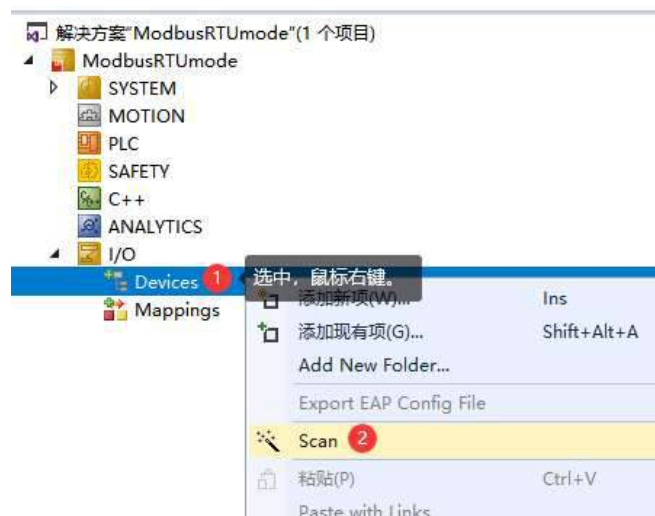


### 17.2.4. New Project and Configuration

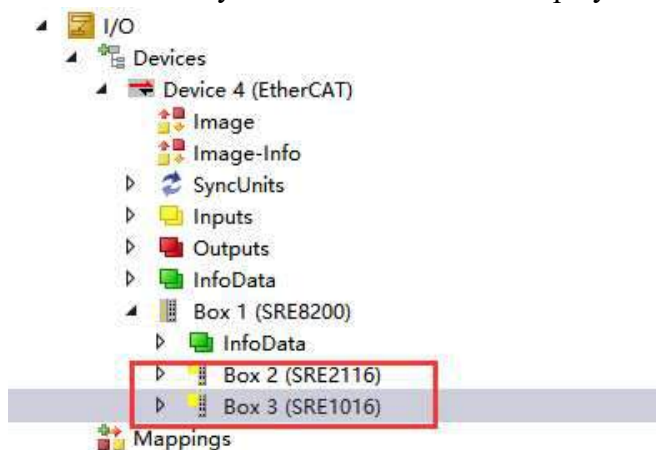
Open TwinCAT3 software and create a new project as shown below:



Scan the ECT coupler SRE8200 connected to the computer and its expansion IO into the project, click I/O>Devices>Scan as shown below:

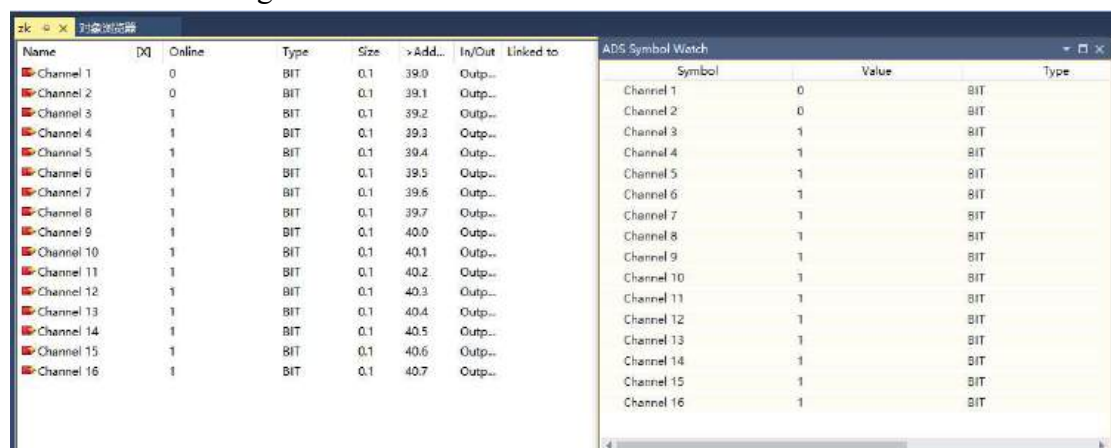


Successfully scanned modules are displayed as shown below:



### 17.2.5. Data Monitoring

Select the IO terminal to be monitored in TwinCAT3 and choose the data to be monitored for monitoring:



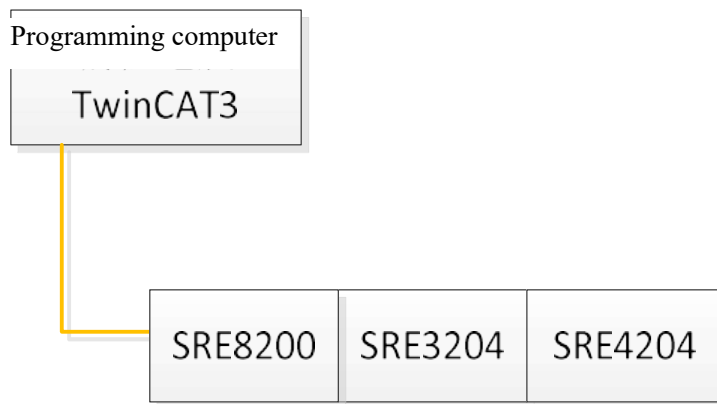
## 17.3. Example of SRE3204 Communication

### 17.3.1. Example of Communication with TwinCAT3

This example briefly introduces how the SRE8200 coupler is connected with SRE3204 and SRE4204 for data monitoring through Beckhoff. Analog input and output can be connected and used with reference to this example.

#### 17.3.1.1. Communication Connection

The communication connection diagram is as shown below:



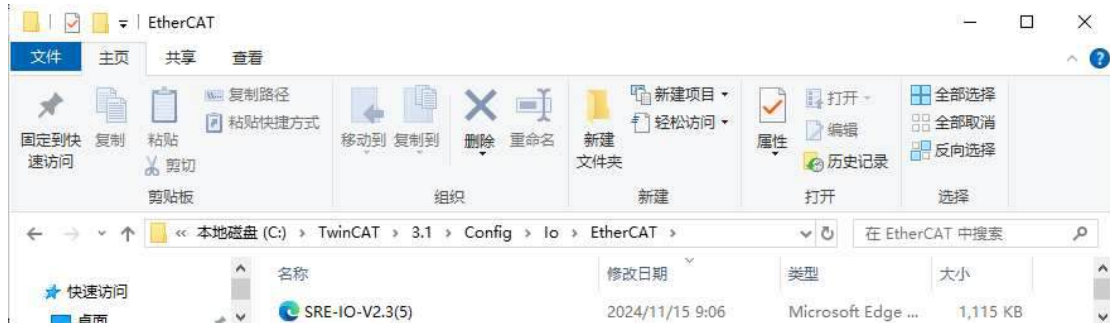
#### 17.3.1.2. Hardware Configuration

The hardware configuration is shown in the following table:

| Hardware                   | Quantity | Remarks                               |
|----------------------------|----------|---------------------------------------|
| Programming computer       | One      | Install TwinCAT3 software             |
| SRE8200                    | One      | EtherCAT communication coupler        |
| SRE3204                    | One      | High-performance analog input module  |
| SRE4204                    | One      | High-performance analog output module |
| Ethernet cable             | 1 piece  |                                       |
| 24V switching power supply | One      |                                       |

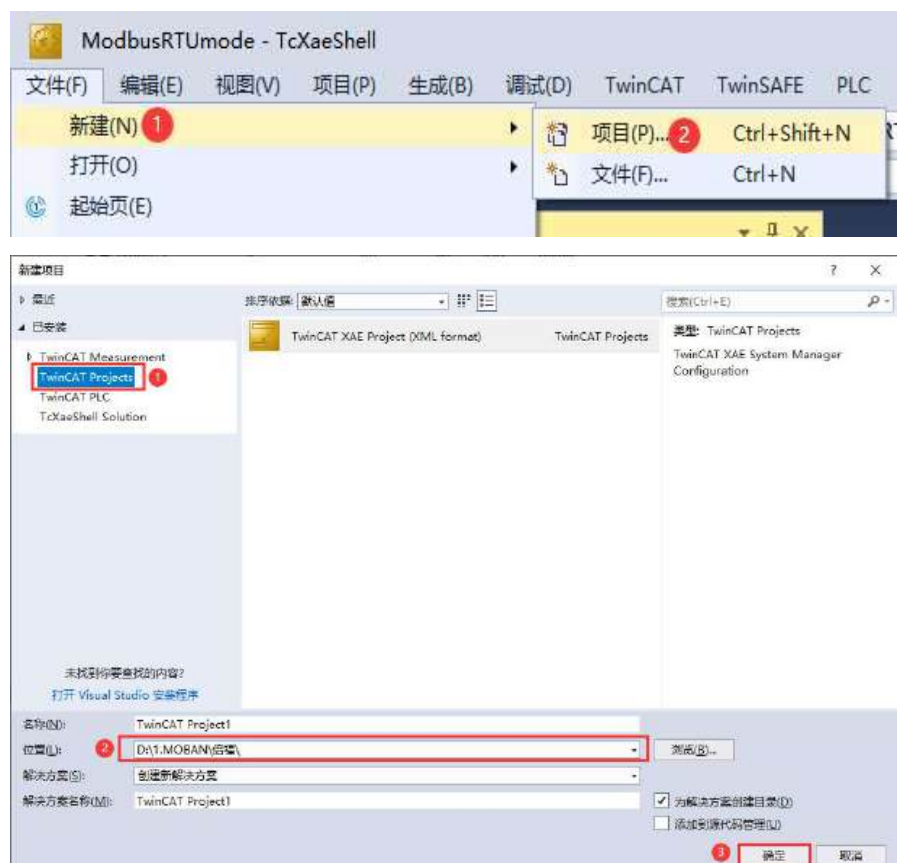
### 17.3.1.3. Install XML File

Install the XML file into TwinCAT3. The default folder in the example is "C:\TwinCAT\3.1\Config\Io\EtherCAT", as shown in the following figure:

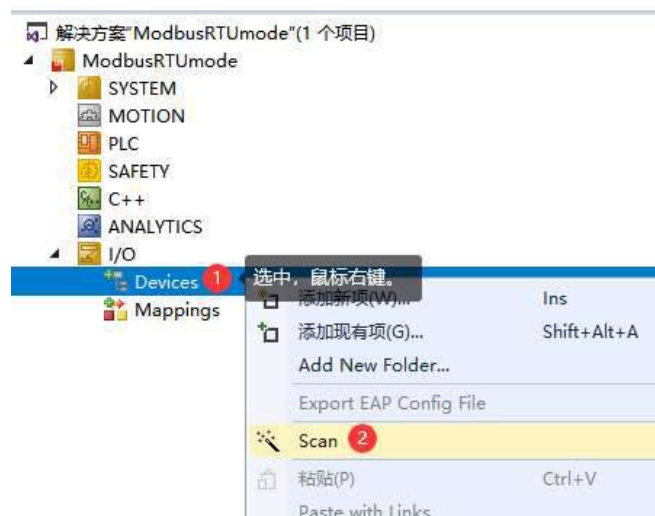


### 17.3.1.4. New Project and Configuration

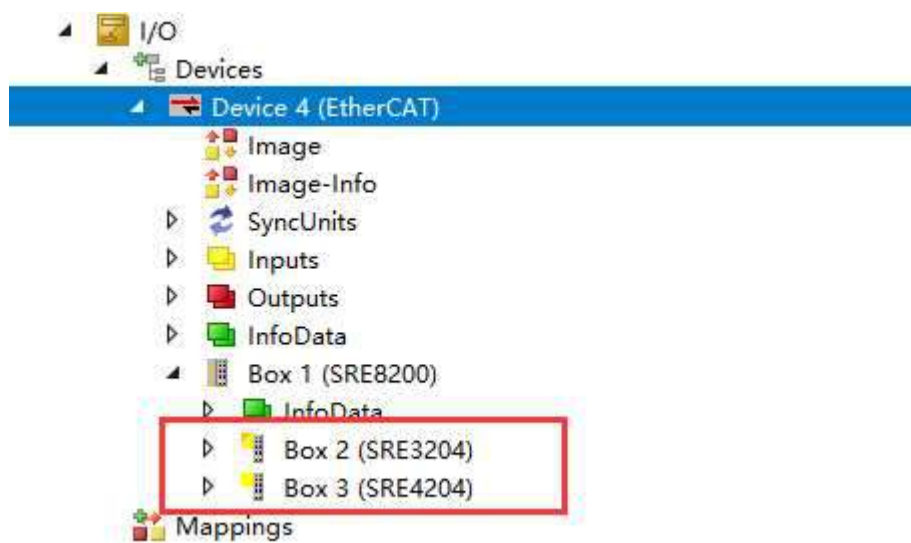
Open TwinCAT3 software and create a new project as shown below:



Scan the SRE8200 connected to the computer and its expansion IO terminals into the project. Click I/O>Devices>Scan as shown below:

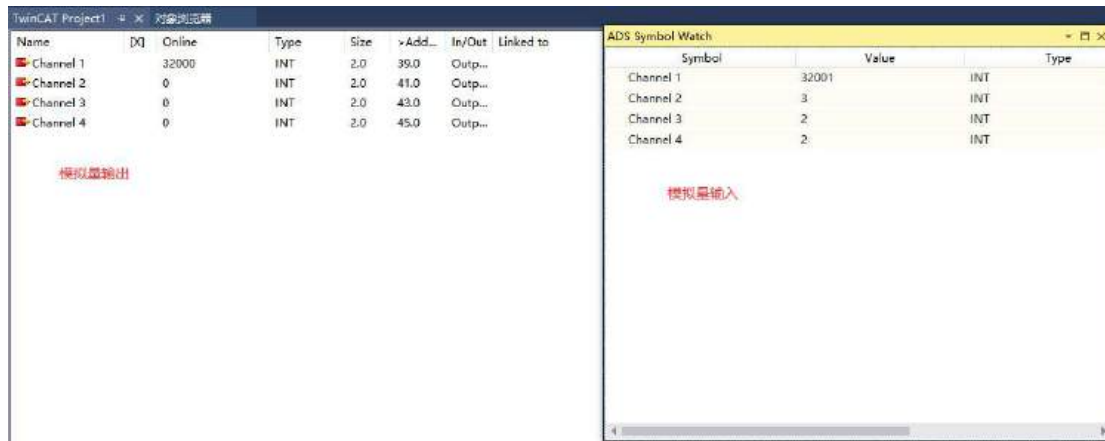


Successfully scanned modules are displayed as shown below:



### 17.3.1.5. Data Monitoring

Select the IO terminal to be monitored in TwinCAT3 and choose the data to be monitored for monitoring:

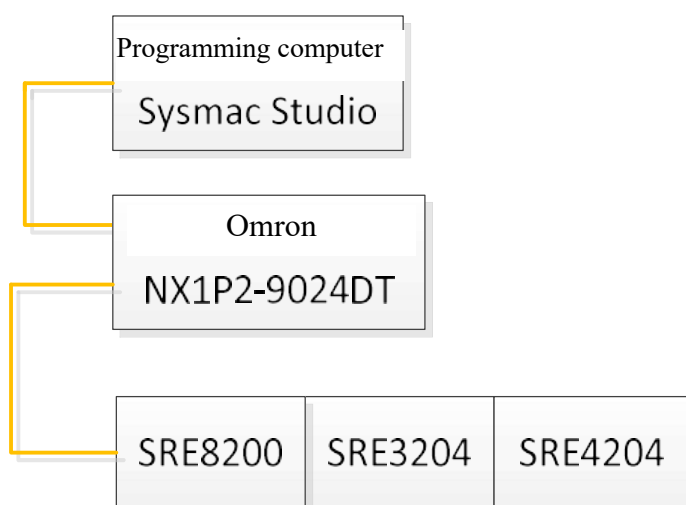


### 17.3.2. Example of Communication with Omron

This example briefly introduces how the SRE8200 coupler is connected with SRE3204 and SRE4204 for data monitoring through Omron. Analog input and output modules can be connected and used with reference to this example.

#### 17.3.2.1. Communication Connection

The communication connection diagram is as shown below:



#### 17.3.2.2. Hardware Configuration

The hardware configuration is shown in the following table:

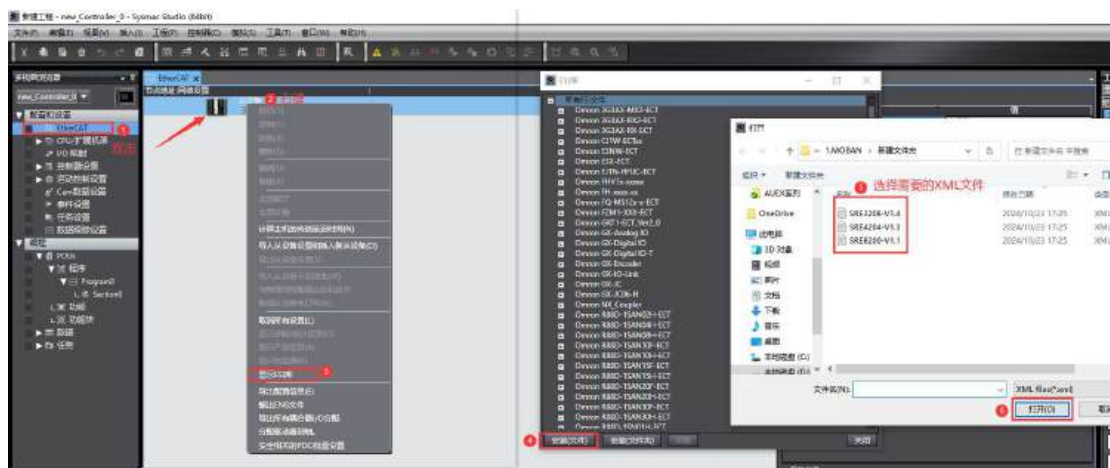
| Hardware                   | Quantity | Remarks                               |
|----------------------------|----------|---------------------------------------|
| Programming computer       | One      | Install the Sysmac Studio software.   |
| SRE8200                    | One      | EtherCAT communication coupler        |
| SRE3204                    | One      | High-performance analog input module  |
| SRE4204                    | One      | High-performance analog output module |
| Ethernet cable             | 1 piece  |                                       |
| 24V switching power supply | One      |                                       |

### 17.3.2.3. Create a new project to install the XML file.

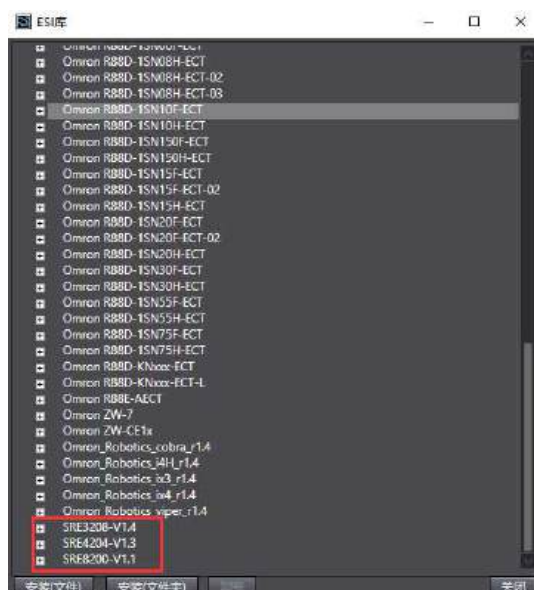
- (1) Create a new project, and select the CPU model to be used. In this example, NX1P2-9024DT is used.



- (2) After creating a blank project, install the XML file.

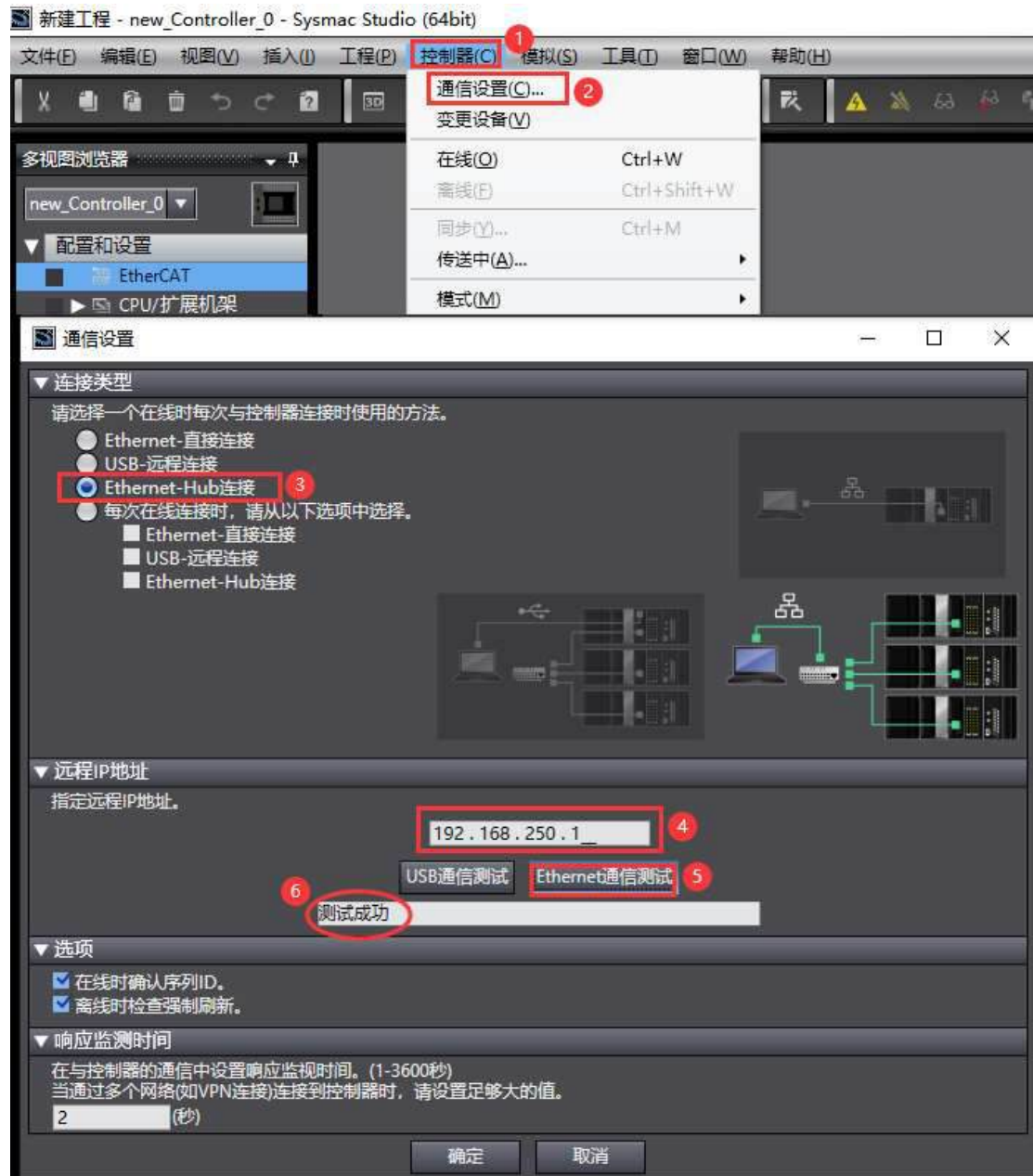


- (3) After installation, pull down to view the installed XML file

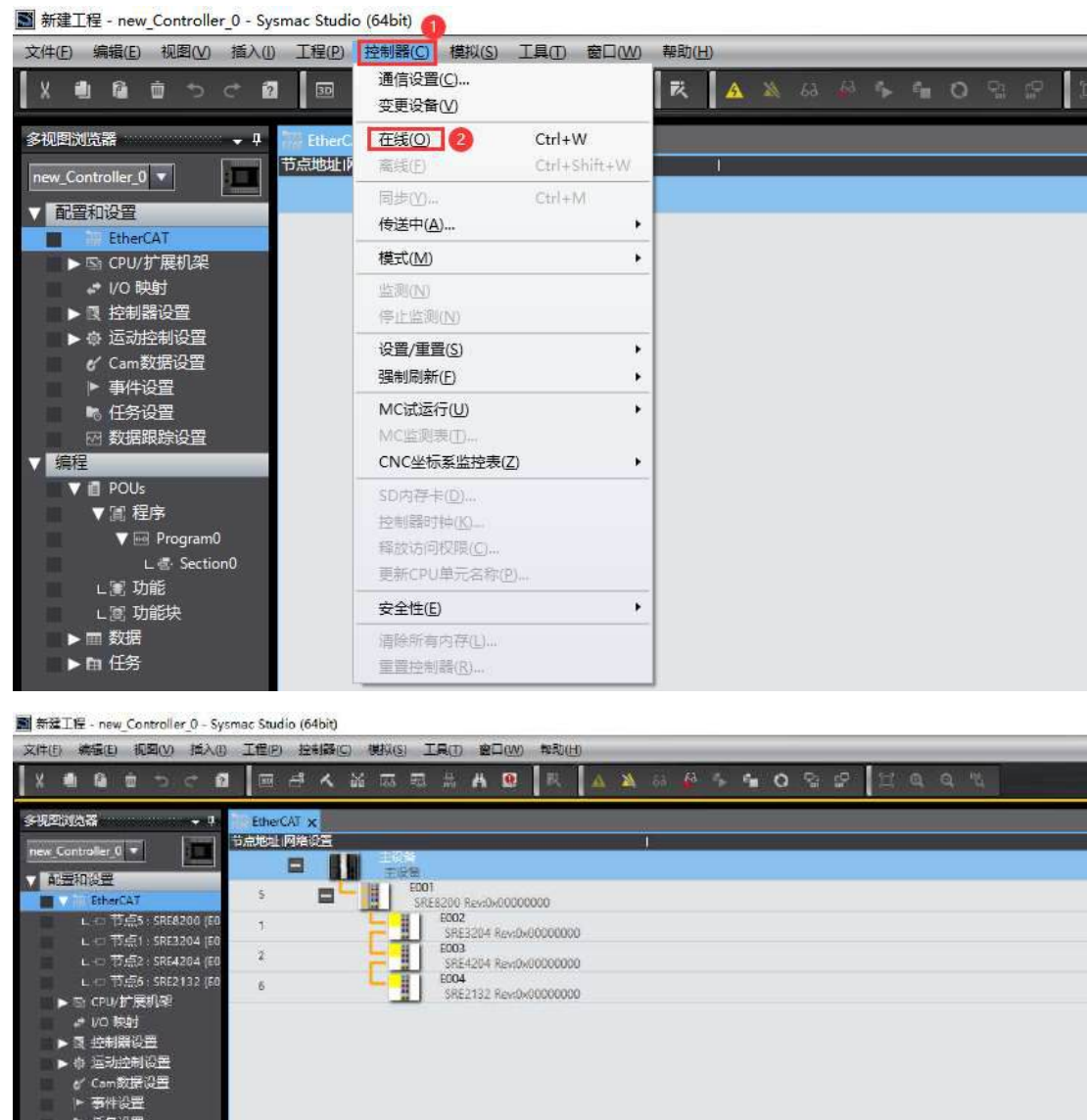


#### 17.3.2.4. Configuration project

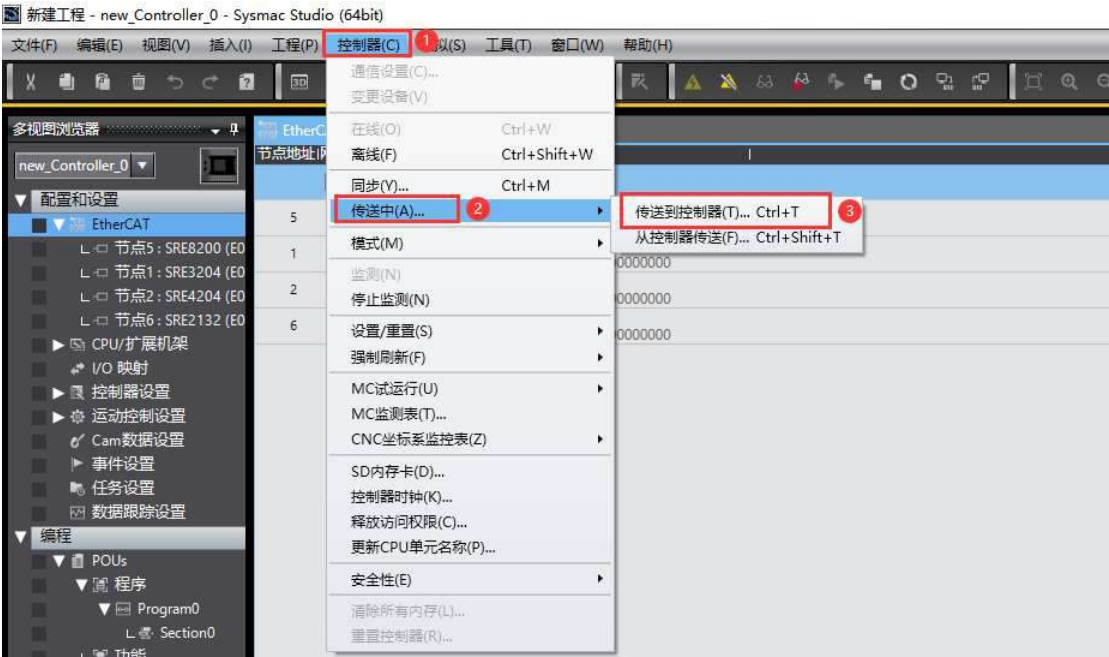
- (4) Establish a connection between the programming computer and the Omron controller. In this example, the IP address of the Omron controller is 192.168.250.1, and the IP address of the programming computer is 192.168.250.111. Test whether the communication between the programming computer and the Omron controller is normal, as shown in the following figure:



- (5) After confirming normal communication between the programming computer and the controller, set the controller as the online status and scan the coupler along with connected expansion modules into Sysmac Studio.

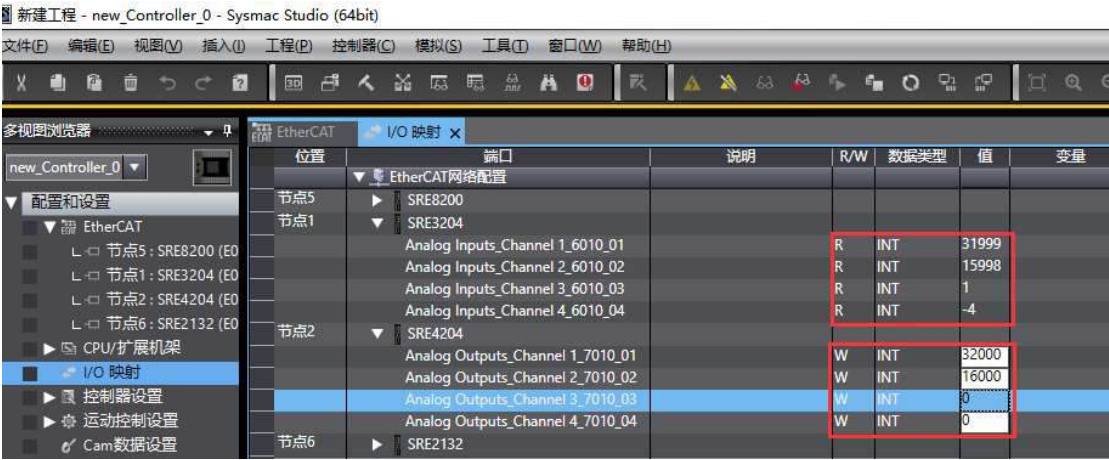


(6) Transmit to CPU after successful scanning



17.3.2.5. Data Monitoring

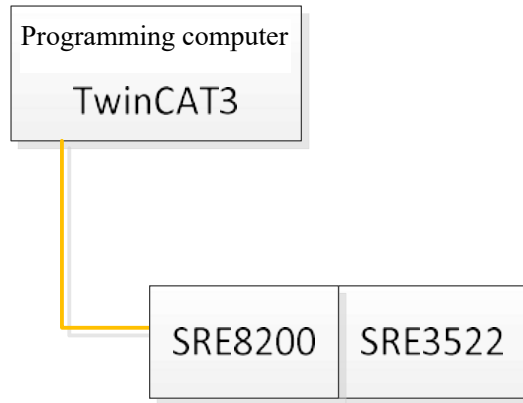
(7) Click I/O mapping to monitor data of the connected modules



## 17.4. Example of SRE3522 Communication with TwinCAT3

### 17.4.1. Communication Connection

The communication connection diagram is as shown below:



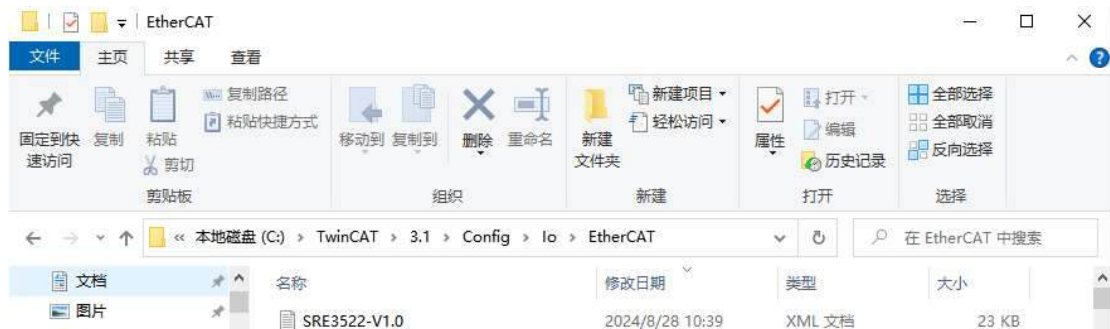
### 17.4.2. Hardware Configuration

The hardware configuration is shown in the following table:

| Hardware                   | Quantity | Remarks                        |
|----------------------------|----------|--------------------------------|
| Programming computer       | One      | Install TwinCAT3 software      |
| SRE8200                    | One      | EtherCAT communication coupler |
| SRE3522                    | One      | Analog fast acquisition module |
| Signal Generator           | One      |                                |
| Ethernet cable             | 1 piece  |                                |
| 24V switching power supply | One      |                                |

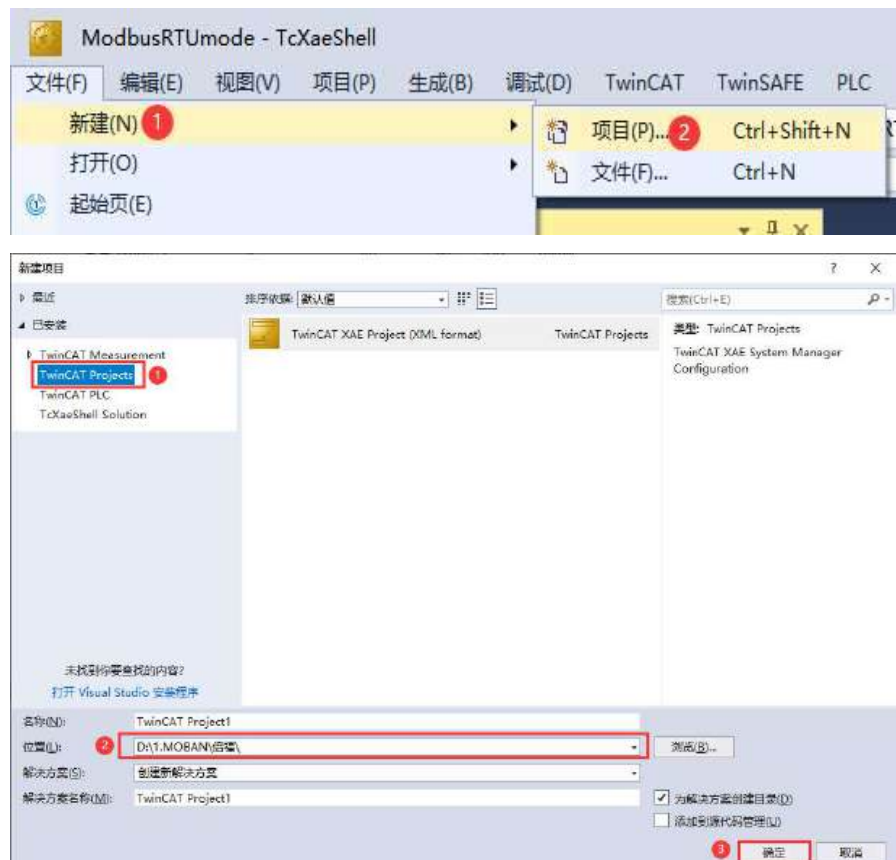
### 17.4.3. Install XML File

Install the XML file into TwinCAT3. The default folder in the example is "C:\TwinCAT\3.1\Config\Io\EtherCAT", as shown in the following figure:

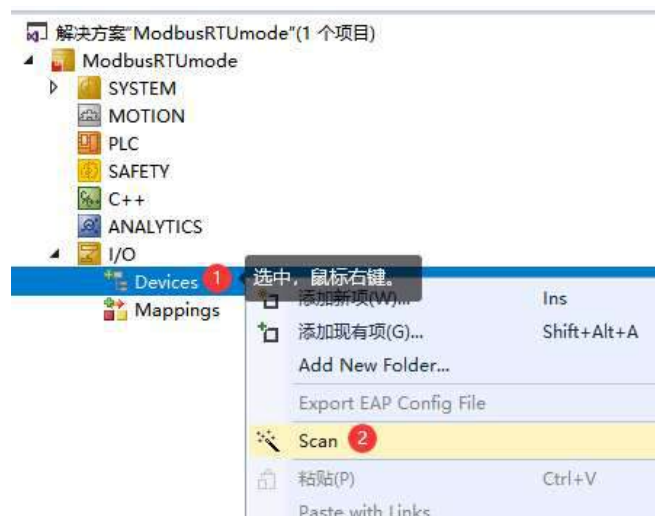


### 17.4.4. New Project and Configuration

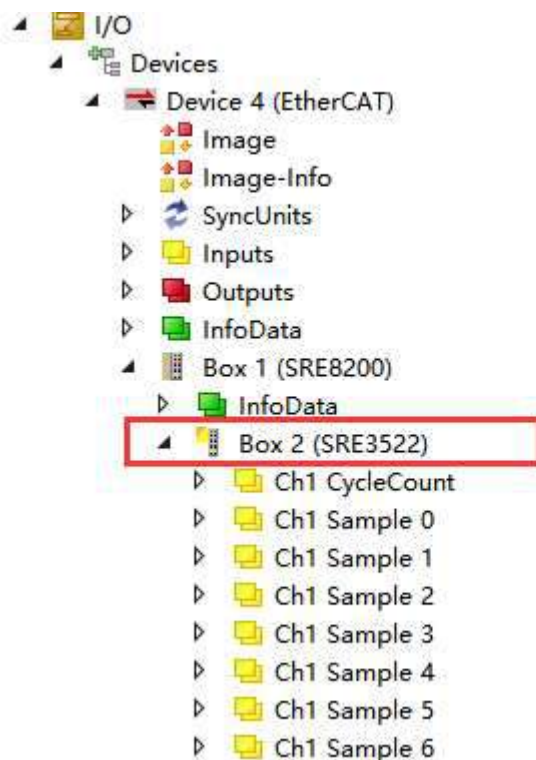
Open TwinCAT3 software and create a new project as shown below:



Scan the SRE8200 connected to the computer and its expansion IO terminals into the project. Click I/O>Devices>Scan as shown below:



Successfully scanned modules are displayed as shown below:



## 17.4.5. Data Monitoring

Select the desired channel on TwinCAT3 for data monitoring:

The screenshot shows the TwinCAT3 configuration interface for data monitoring. The left pane displays the project tree, and the right pane shows the configuration settings for the selected channel.

**Configuration Settings:**

- Operation Mode: 2 Channels
- Sync Unit Cycle Time (µs): 1000
- Oversampling Factor: 100
- Sample Cycle Time (µs): 10

**Monitored Channels Table:**

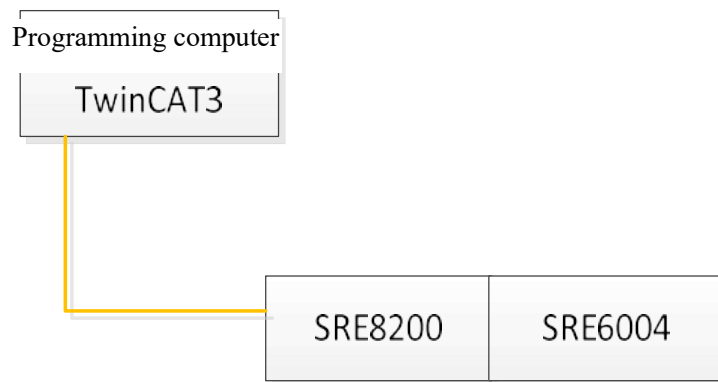
| Name           | Online | Type | Size | >Add... | In/Out | User... | Linked to   |
|----------------|--------|------|------|---------|--------|---------|-------------|
| Ch1 CycleCount | 100    | UINT | 2.0  | 58.0    | Input  | 0       | 通过1实际采样次数   |
| Ch1 Value      | 31997  | INT  | 2.0  | 60.0    | Input  | 0       |             |
| Ch1 Value      | 31996  | INT  | 2.0  | 62.0    | Input  | 0       |             |
| Ch1 Value      | 31994  | INT  | 2.0  | 64.0    | Input  | 0       |             |
| Ch1 Value      | 31994  | INT  | 2.0  | 66.0    | Input  | 0       |             |
| Ch1 Value      | 31996  | INT  | 2.0  | 68.0    | Input  | 0       |             |
| Ch1 Value      | 31994  | INT  | 2.0  | 70.0    | Input  | 0       |             |
| Ch1 Value      | 32001  | INT  | 2.0  | 72.0    | Input  | 0       |             |
| Ch1 Value      | 32007  | INT  | 2.0  | 74.0    | Input  | 0       |             |
| Ch1 Value      | 32003  | INT  | 2.0  | 76.0    | Input  | 0       |             |
| Ch1 Value      | 32008  | INT  | 2.0  | 78.0    | Input  | 0       |             |
| Ch1 Value      | 32001  | INT  | 2.0  | 80.0    | Input  | 0       | 通过1每通道采样的数据 |
| Ch1 Value      | 32001  | INT  | 2.0  | 82.0    | Input  | 0       |             |
| Ch1 Value      | 32001  | INT  | 2.0  | 84.0    | Input  | 0       |             |
| Ch1 Value      | 31996  | INT  | 2.0  | 86.0    | Input  | 0       |             |
| Ch1 Value      | 32001  | INT  | 2.0  | 88.0    | Input  | 0       |             |
| Ch1 Value      | 32001  | INT  | 2.0  | 90.0    | Input  | 0       |             |
| Ch1 Value      | 32000  | INT  | 2.0  | 92.0    | Input  | 0       |             |
| Ch1 Value      | 32006  | INT  | 2.0  | 94.0    | Input  | 0       |             |
| Ch1 Value      | 32000  | INT  | 2.0  | 96.0    | Input  | 0       |             |
| Ch1 Value      | 32004  | INT  | 2.0  | 98.0    | Input  | 0       |             |
| Ch1 Value      | 32000  | INT  | 2.0  | 100.0   | Input  | 0       |             |
| Ch1 Value      | 32001  | INT  | 2.0  | 102.0   | Input  | 0       |             |
| Ch1 Value      | 32006  | INT  | 2.0  | 104.0   | Input  | 0       |             |
| Ch1 Value      | 32002  | INT  | 2.0  | 106.0   | Input  | 0       |             |
| Ch1 Value      | 32003  | INT  | 2.0  | 108.0   | Input  | 0       |             |

## 17.5. Example of SRE6004 Communication with TwinCAT3

This example introduces the basic usage of SRE8200 coupler connected with SRE6004 serial port module. Through Beckhoff, data monitoring is performed on SRE6004 serial port module, enabling data exchange in SRE6004 master/slave and free port modes. SRE6002 can be connected with reference to this example.

### 17.5.1. Communication Connection

The communication connection diagram is as shown below:



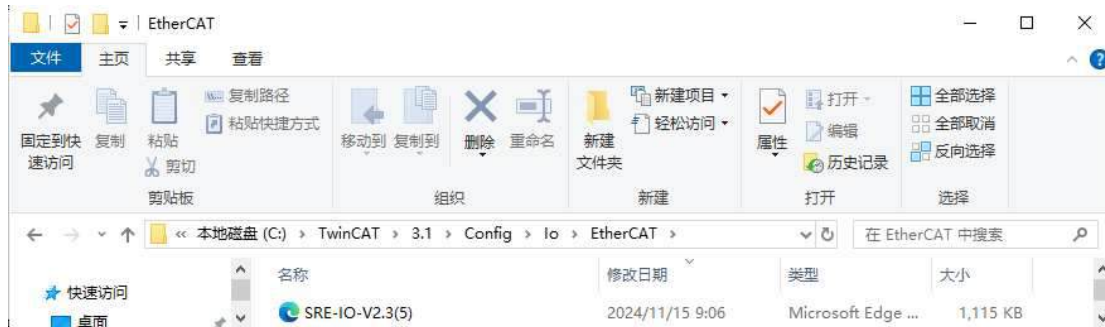
### 17.5.2. Hardware Configuration

The hardware configuration is shown in the following table:

| Hardware                   | Quantity | Remarks                             |
|----------------------------|----------|-------------------------------------|
| Programming computer       | One      | Install TwinCAT3 software           |
| SRE8200                    | One      | EtherCAT communication coupler      |
| SRE6004                    | One      | High-performance serial port module |
| Ethernet cable             | 1 piece  |                                     |
| 24V switching power supply | One      |                                     |

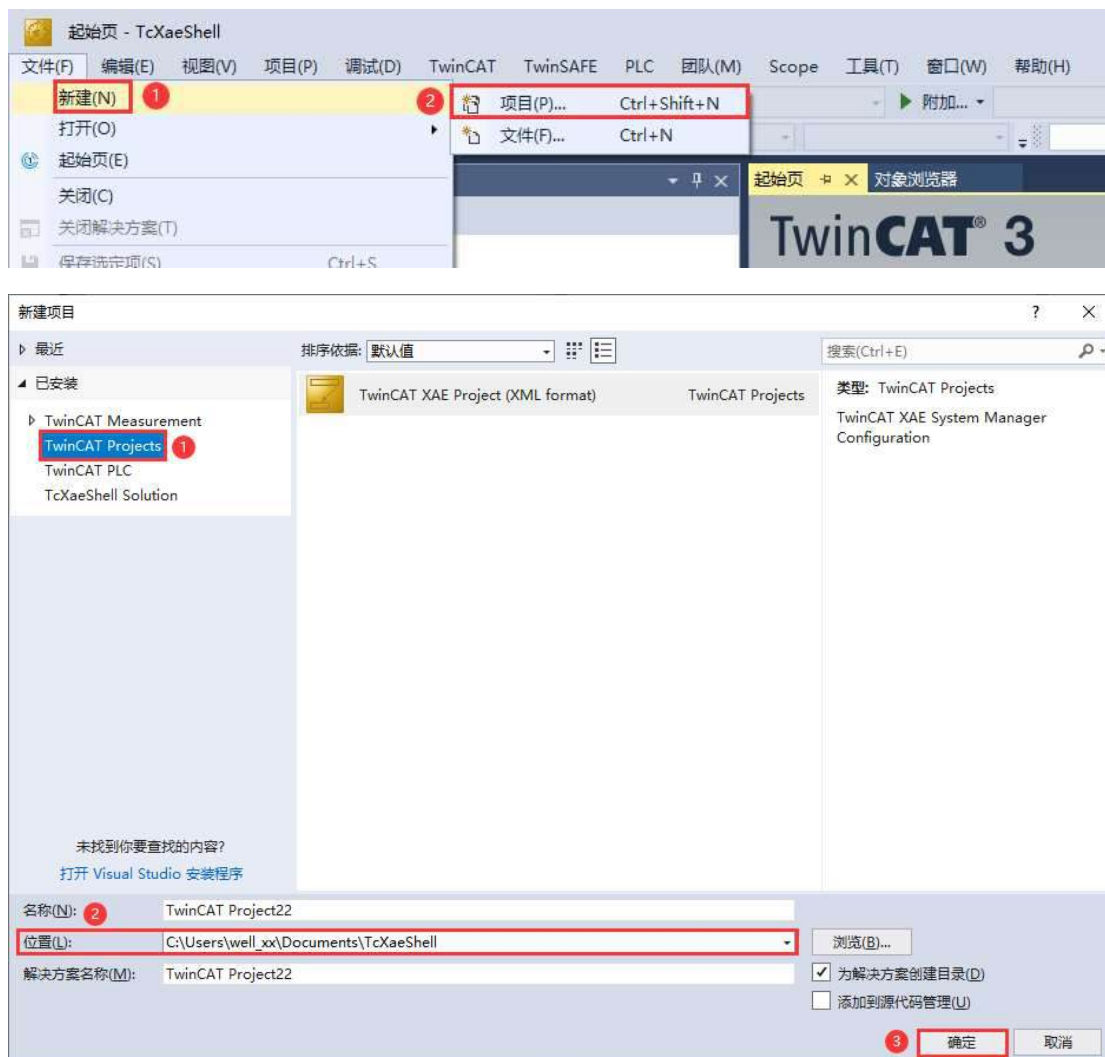
### 17.5.3. Install XML File

Install the XML file into TwinCAT3. The default folder in the example is "C:\TwinCAT\3.1\Config\Io\EtherCAT", as shown in the following figure:

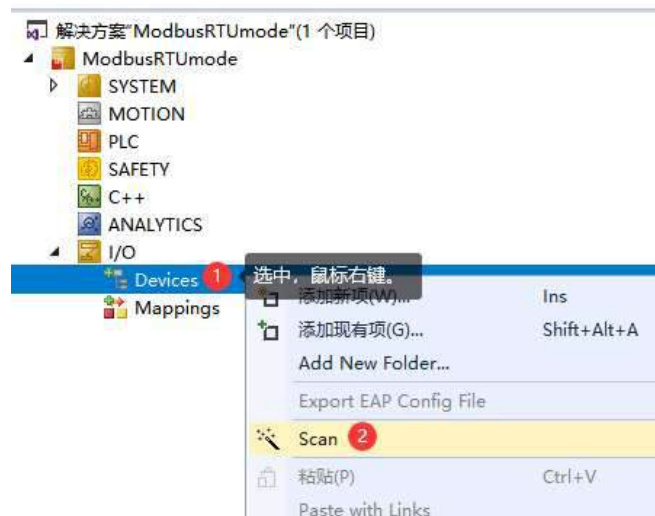


### 17.5.4. New Project and Configuration

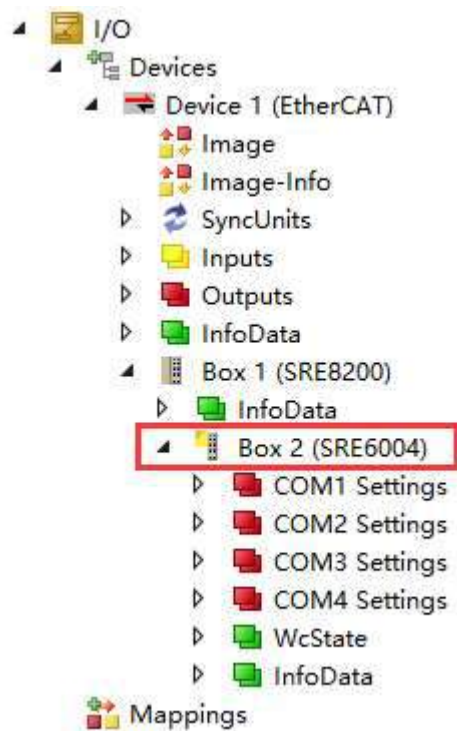
Open TwinCAT3 software and create a new project as shown below:



Scan the SRE8200 connected to the computer and the connected SRE6004 serial port module into the project. Click I/O > Devices > Scan as shown in the following figure:



Successfully scanned modules are displayed as shown below:

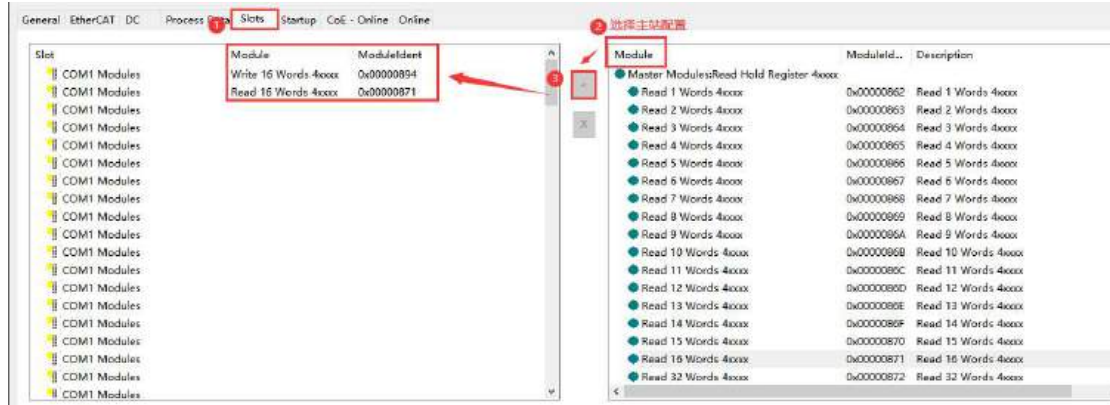


### 17.5.5. SRE6004 performs Modbus RTU communication

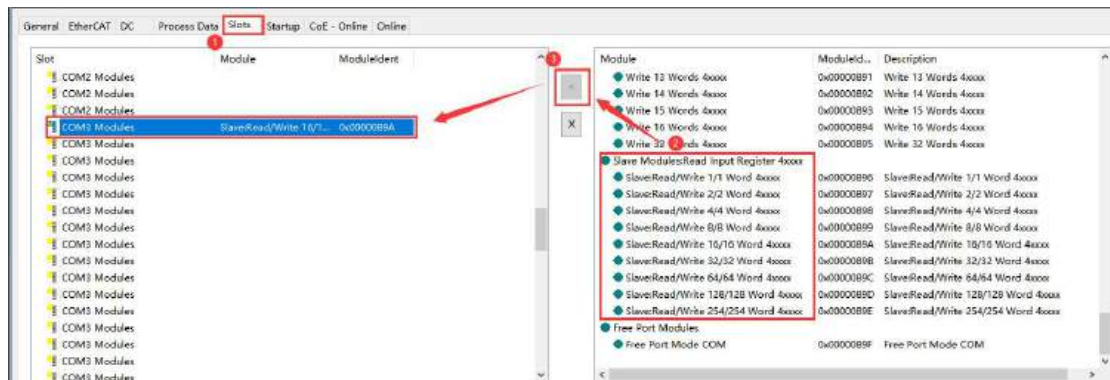
This example demonstrates Modbus RTU communication between COM1 and COM3 on SRE6004 using RS232 connection. COM1 is set as the Modbus RTU master, while COM3 serves as the slave. The data interaction is as follows:

(1) Add the relevant configurations for COM1 master and COM3 slave

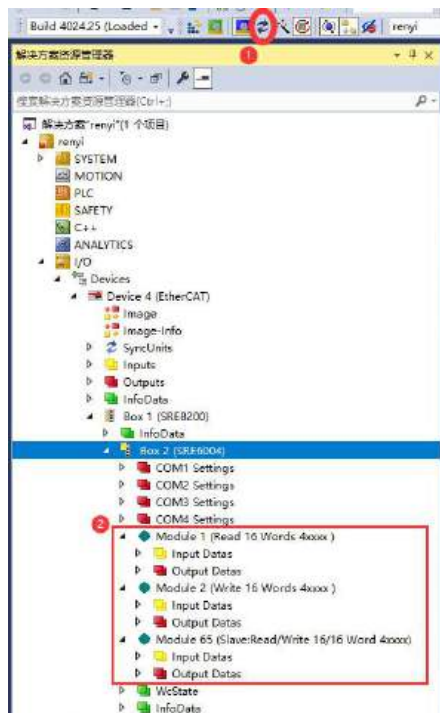
1. Configure COM1 as Modbus RTU master. Add the master parameter configuration, as shown in the following figure:



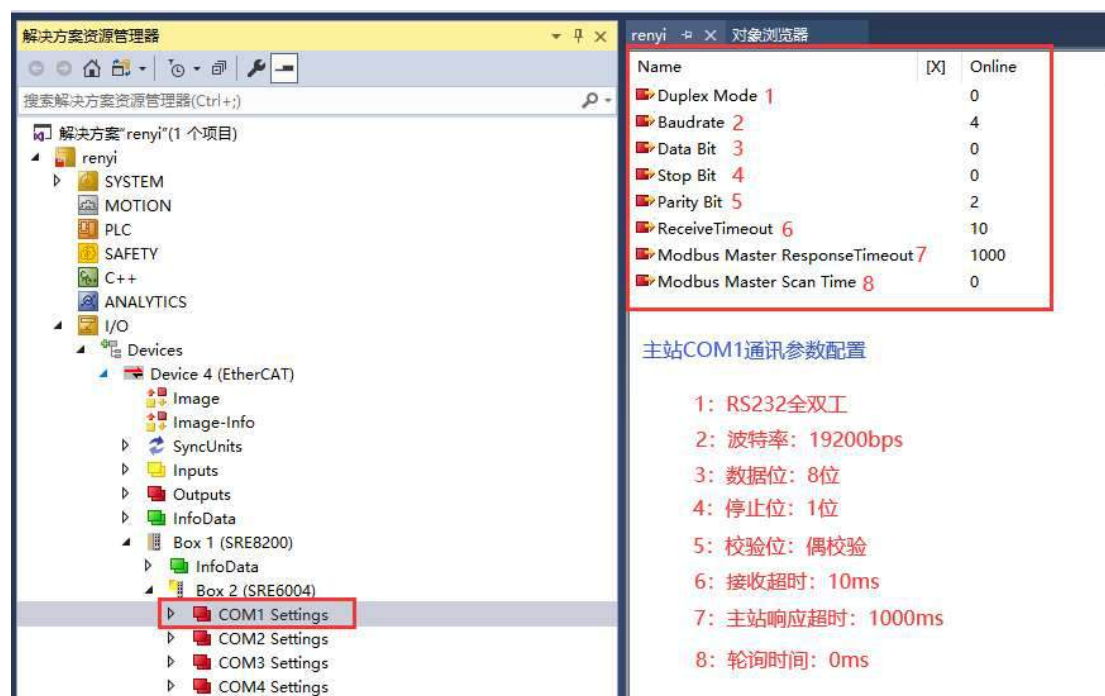
2. Configure COM3 as Modbus RTU slave. Determine the slave read/write address based on the added read/write byte count. The data area allowing read operations for the master is 40001~40017. The data area allowing write operations for the master is 40257~40273. The parameter configuration is as shown below:

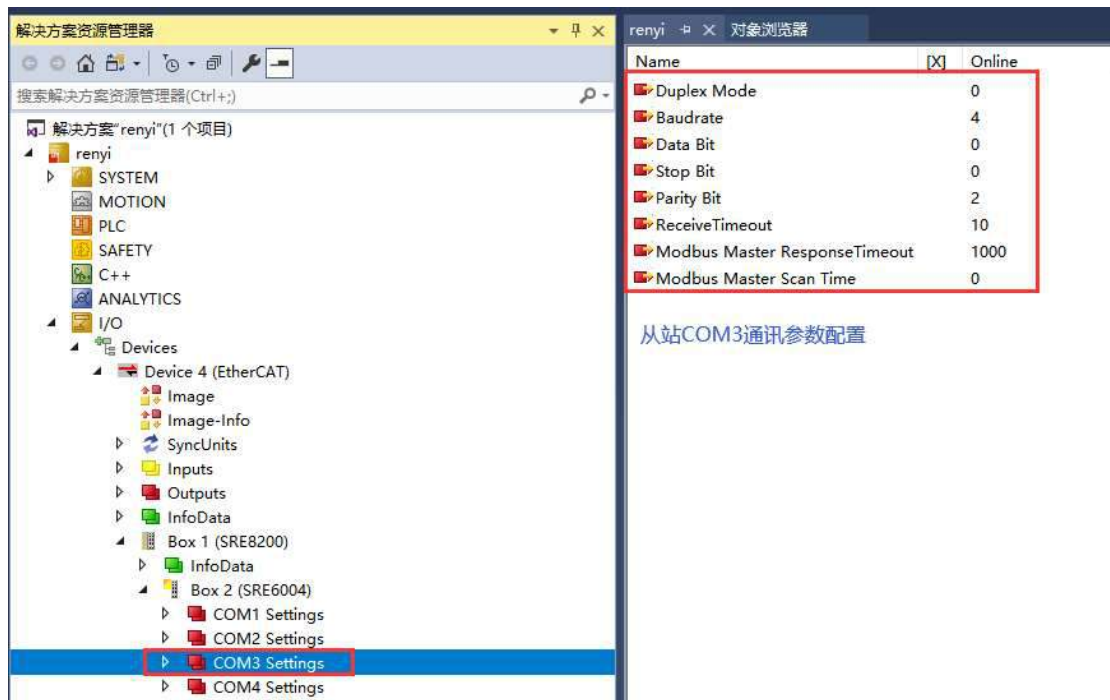


- (2) After configuration, click “Refresh IO” and check whether the module status is “OP”. If it shows “OP”, the configuration is correct; otherwise, it is incorrect.

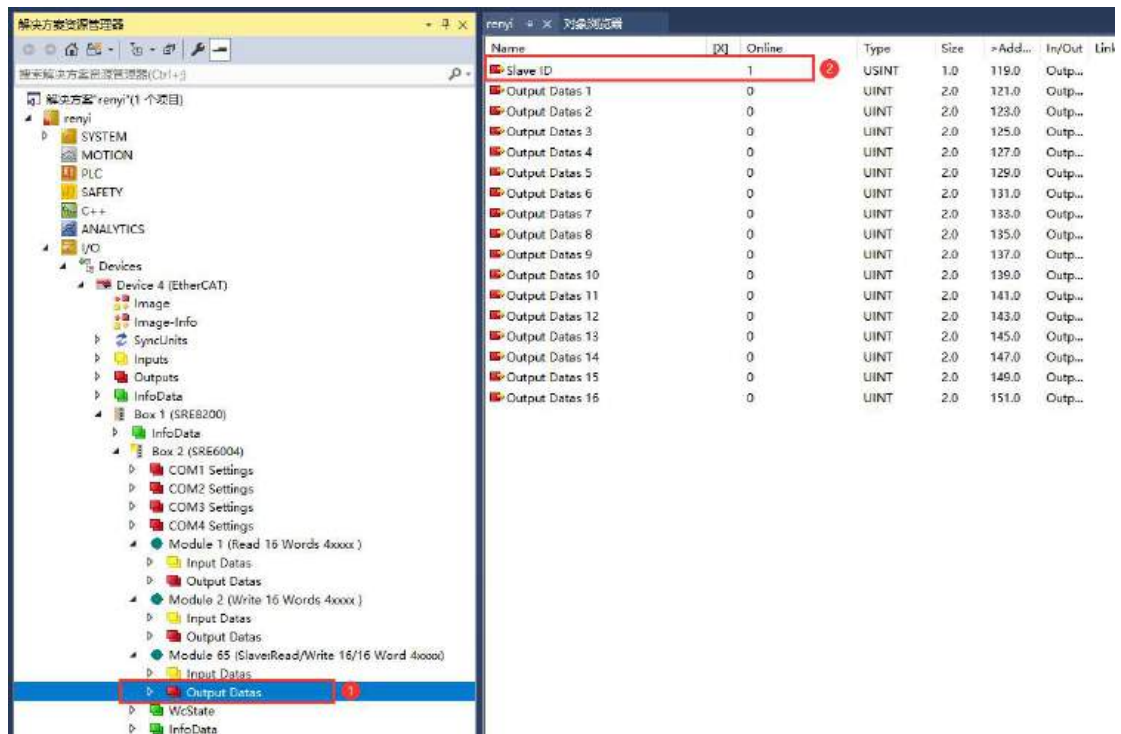


- (3) Configure the communication parameters for COM1 and COM3. The parameters configuration must be identical. Otherwise, the communication will be abnormal, as shown below:





(4) Configure the station address for COM3 slave

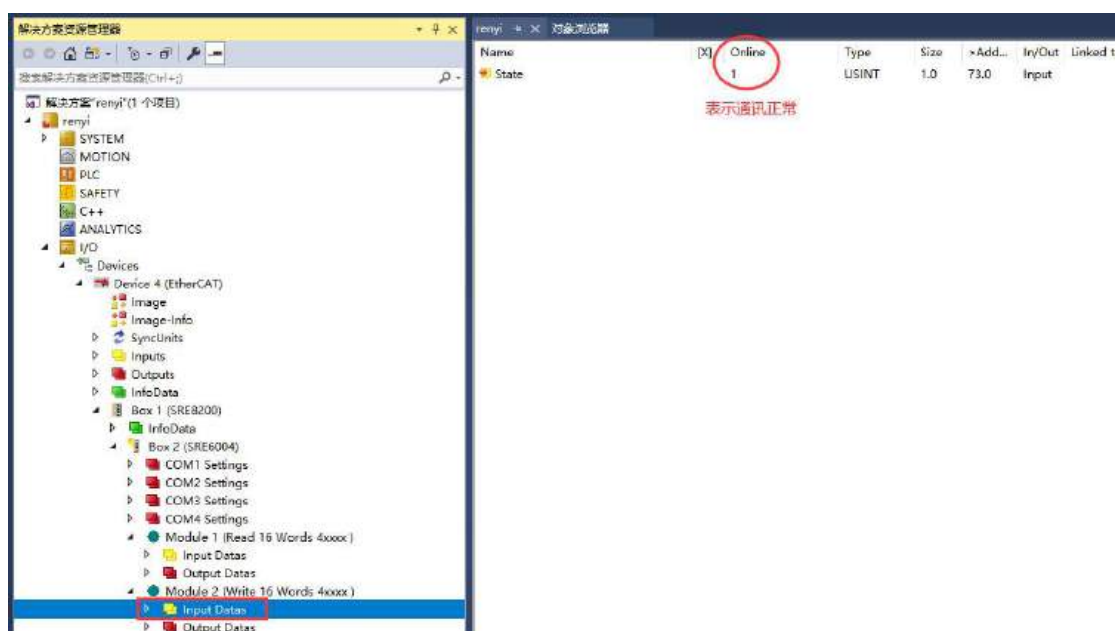


(5) Set COM1 master to access the data from COM3 slave

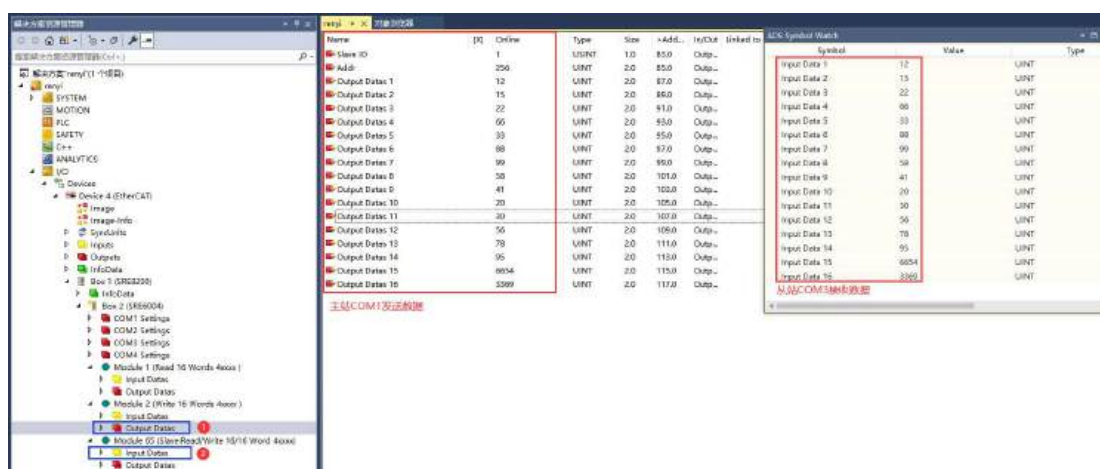
| Name            | [X] | Online | Type  | S |
|-----------------|-----|--------|-------|---|
| Slave ID        |     | 1      | USINT | 1 |
| Addr            |     | 256    | UINT  | 2 |
| Output Datas 1  |     | 0      | UINT  | 2 |
| Output Datas 2  |     | 0      | UINT  | 2 |
| Output Datas 3  |     | 0      | UINT  | 2 |
| Output Datas 4  |     | 0      | UINT  | 2 |
| Output Datas 5  |     | 0      | UINT  | 2 |
| Output Datas 6  |     | 0      | UINT  | 2 |
| Output Datas 7  |     | 0      | UINT  | 2 |
| Output Datas 8  |     | 0      | UINT  | 2 |
| Output Datas 9  |     | 0      | UINT  | 2 |
| Output Datas 10 |     | 0      | UINT  | 2 |
| Output Datas 11 |     | 0      | UINT  | 2 |
| Output Datas 12 |     | 0      | UINT  | 2 |
| Output Datas 13 |     | 0      | UINT  | 2 |
| Output Datas 14 |     | 0      | UINT  | 2 |
| Output Datas 15 |     | 0      | UINT  | 2 |
| Output Datas 16 |     | 0      | UINT  | 2 |

| Name     | [X] | Online | Type  |
|----------|-----|--------|-------|
| Slave ID |     | 1      | USINT |
| Addr     |     | 0      | UINT  |

- (6) After configuring the communication parameters for COM1, check the module status. If the status displays as 1, it indicates that the communication is normal and the data can be transmitted successfully:



- (7) After completing the above configuration, data transmission and reception can be performed:



**Hardware Configuration Table:**

| Module                     | Type                       | Size   | Order No.           | Part No.            | Link |
|----------------------------|----------------------------|--------|---------------------|---------------------|------|
| Power Supply               | PS 307 5A                  | 1 Slot | 6ES7 307-1EA00-0AA0 | 6ES7 307-1EA00-0AA0 |      |
| CPU                        | CPU 314C-2 DP              | 1 Slot | 6ES7 314-6CG03-0AB0 | 6ES7 314-6CG03-0AB0 |      |
| DI16xDC24V/DO16xDC24V/0.5A | DI16xDC24V/DO16xDC24V/0.5A | 1 Slot | 6ES7 312-1CG02-0AB0 | 6ES7 312-1CG02-0AB0 |      |
| AI5/AO2                    | AI5/AO2                    | 1 Slot | 6ES7 331-7KF02-0AB0 | 6ES7 331-7KF02-0AB0 |      |
| 计数输入                       | 计数输入                       | 1 Slot | 6ES7 332-5HD01-0AB0 | 6ES7 332-5HD01-0AB0 |      |
| 位置输入                       | 位置输入                       | 1 Slot | 6ES7 332-5HD01-0AB0 | 6ES7 332-5HD01-0AB0 |      |
| 计数输出                       | 计数输出                       | 1 Slot | 6ES7 332-5HD01-0AB0 | 6ES7 332-5HD01-0AB0 |      |
| 位置输出                       | 位置输出                       | 1 Slot | 6ES7 332-5HD01-0AB0 | 6ES7 332-5HD01-0AB0 |      |
| 计数输入                       | 计数输入                       | 1 Slot | 6ES7 332-5HD01-0AB0 | 6ES7 332-5HD01-0AB0 |      |
| 位置输入                       | 位置输入                       | 1 Slot | 6ES7 332-5HD01-0AB0 | 6ES7 332-5HD01-0AB0 |      |
| 计数输出                       | 计数输出                       | 1 Slot | 6ES7 332-5HD01-0AB0 | 6ES7 332-5HD01-0AB0 |      |
| 位置输出                       | 位置输出                       | 1 Slot | 6ES7 332-5HD01-0AB0 | 6ES7 332-5HD01-0AB0 |      |

**I/O Address Table:**

| Module                     | Start Address | End Address | Bit Range     |
|----------------------------|---------------|-------------|---------------|
| DI16xDC24V/DO16xDC24V/0.5A | 0             | 167         | 0.0-0.167     |
| AI5/AO2                    | 168           | 255         | 0.168-0.255   |
| 计数输入                       | 256           | 383         | 0.256-0.383   |
| 位置输入                       | 384           | 511         | 0.384-0.511   |
| 计数输出                       | 512           | 639         | 0.512-0.639   |
| 位置输出                       | 640           | 767         | 0.640-0.767   |
| 计数输入                       | 768           | 895         | 0.768-0.895   |
| 位置输入                       | 896           | 1023        | 0.896-1.023   |
| 计数输出                       | 1024          | 1151        | 0.1024-0.1151 |
| 位置输出                       | 1152          | 1279        | 0.1152-0.1279 |

**I/O Symbolic Search Table:**

| Symbolic Name | Value | Type |
|---------------|-------|------|
| Input Data 1  | 3685  | UINT |
| Input Data 2  | 0     | UINT |
| Input Data 3  | 0     | UINT |
| Input Data 4  | 3158  | UINT |
| Input Data 5  | 1     | UINT |
| Input Data 6  | 25    | UINT |
| Input Data 7  | 30    | UINT |
| Input Data 8  | 0     | UINT |
| Input Data 9  | 0     | UINT |
| Input Data 10 | 555   | UINT |
| Input Data 11 | 66    | UINT |
| Input Data 12 | 0     | UINT |
| Input Data 13 | 58    | UINT |
| Input Data 14 | 0     | UINT |
| Input Data 15 | 874   | UINT |
| Input Data 16 | 230   | UINT |
| State         | 1     | UINT |

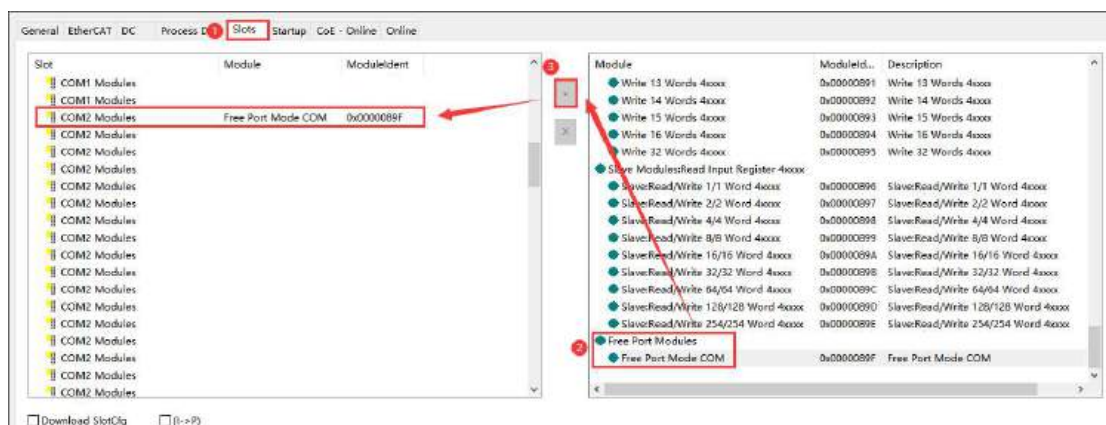
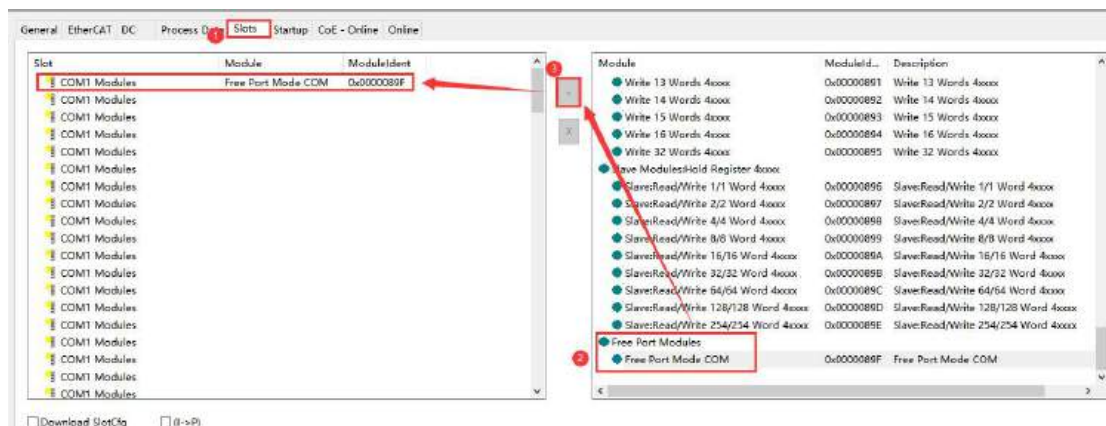
从站COM1地址表

COM1主站接收数据

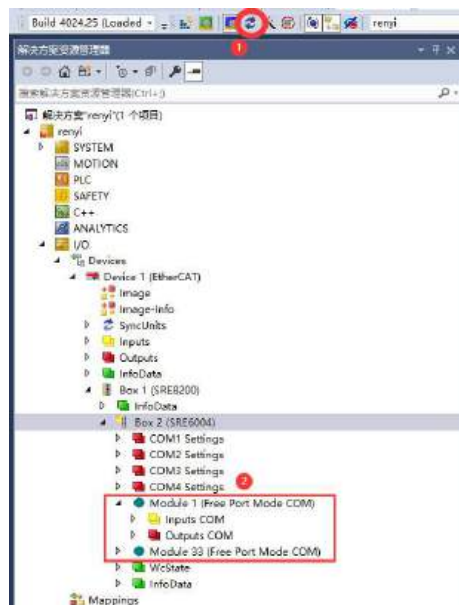
### 17.5.6. SRE6004 for Free Port Communication

This example demonstrates the free port communication between COM1 and COM2 on SRE6004 using RS232 connection. COM1 transmits data while COM2 receives it. The interaction data is as follows:

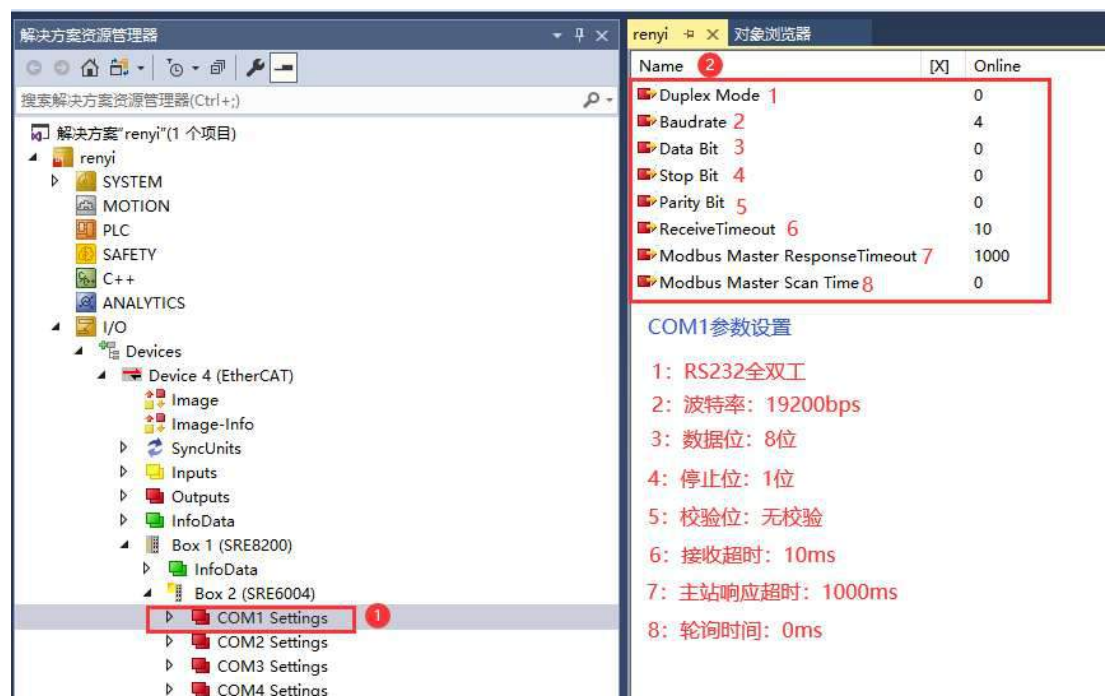
- (1) Configure COM1 and COM2 in the free port mode. The parameter configurations are shown in the following figure:

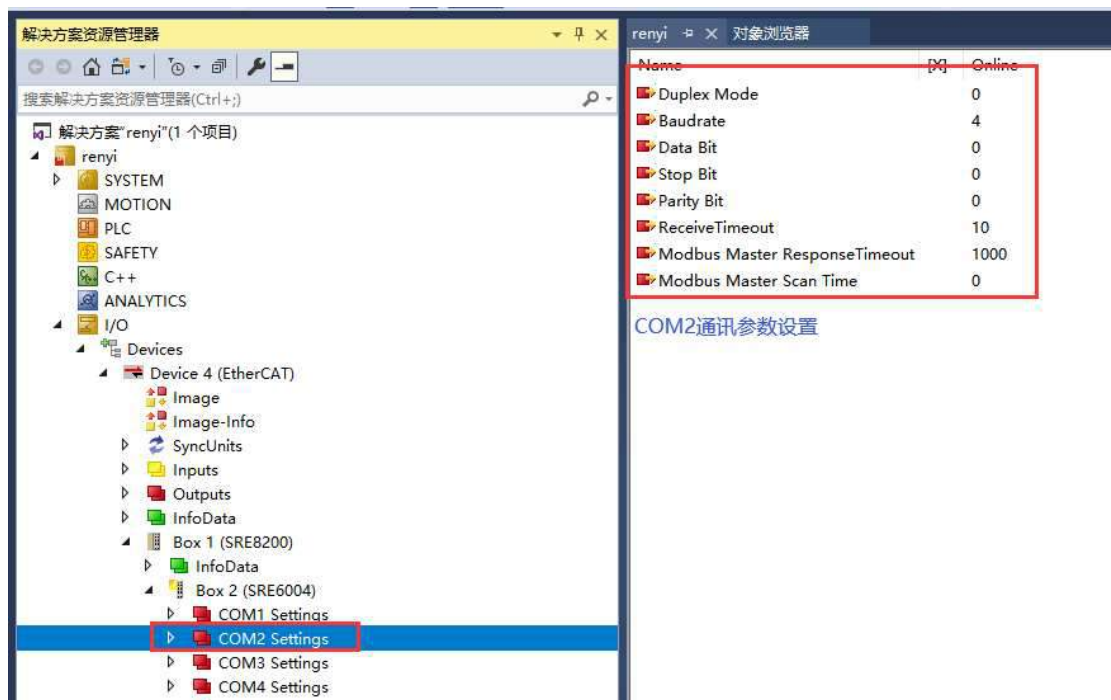


After configuration, click “Refresh IO” and check whether the module status is “OP”. If it shows “OP”, the configuration is correct; otherwise, it is incorrect.



(2) Configure the communication parameters for COM1 and COM2. When using the COM1 and COM2 for free port communication, the baud rate, parity, and stop bits of the communication parameters must be set consistently; otherwise, normal communication cannot be achieved, as shown in the figure below:





### (3) Data Monitoring

| Name             | Online              | Type         | Size | Address | Linked to |
|------------------|---------------------|--------------|------|---------|-----------|
| Ctrl             | 0x00280001 (262...) | Ctrl_F31A... | 4.0  | 79.0    |           |
| Transmit request | 1                   | BIT          | 0.1  | 79.0    |           |
| Receive accepted | 0                   | BIT          | 0.1  | 79.1    |           |
| Init request     | 0                   | BIT          | 0.1  | 79.2    |           |
| Put data         | 0                   | BIT          | 0.1  | 79.4    |           |
| Output length    | 40                  | UINT         | 2.0  | 81.0    |           |
| Data Out 0       | 11                  | USINT        | 1.0  | 83.0    |           |
| Data Out 1       | 22                  | USINT        | 1.0  | 84.0    |           |
| Data Out 2       | 33                  | USINT        | 1.0  | 85.0    |           |
| Data Out 3       | 88                  | USINT        | 1.0  | 86.0    |           |
| Data Out 4       | 190                 | USINT        | 1.0  | 87.0    |           |
| Data Out 5       | 223                 | USINT        | 1.0  | 88.0    |           |
| Data Out 6       | 164                 | USINT        | 1.0  | 89.0    |           |
| Data Out 7       | 66                  | USINT        | 1.0  | 90.0    |           |
| Data Out 8       | 33                  | USINT        | 1.0  | 91.0    |           |
| Data Out 9       | 46                  | USINT        | 1.0  | 92.0    |           |
| Data Out 10      | 43                  | USINT        | 1.0  | 93.0    |           |
| Data Out 11      | 3                   | USINT        | 1.0  | 94.0    |           |
| Data Out 12      | 3                   | USINT        | 1.0  | 95.0    |           |
| Data Out 13      | 0                   | USINT        | 1.0  | 96.0    |           |
| Data Out 14      | 32                  | USINT        | 1.0  | 97.0    |           |
| Data Out 15      | 4                   | USINT        | 1.0  | 98.0    |           |
| Data Out 16      | 228                 | USINT        | 1.0  | 99.0    |           |
| Data Out 17      | 44                  | USINT        | 1.0  | 100.0   |           |
| Data Out 18      | 67                  | USINT        | 1.0  | 101.0   |           |
| Data Out 19      | 0                   | USINT        | 1.0  | 102.0   |           |
| Data Out 20      | 0                   | USINT        | 1.0  | 103.0   |           |
| Data Out 21      | 0                   | USINT        | 1.0  | 104.0   |           |
| Data Out 22      | 0                   | USINT        | 1.0  | 105.0   |           |
| Data Out 23      | 0                   | USINT        | 1.0  | 106.0   |           |
| Data Out 24      | 0                   | USINT        | 1.0  | 107.0   |           |
| Data Out 25      | 0                   | USINT        | 1.0  | 108.0   |           |
| Data Out 26      | 0                   | USINT        | 1.0  | 109.0   |           |
| Data Out 27      | 6                   | USINT        | 1.0  | 110.0   |           |
| Data Out 28      | 35                  | USINT        | 1.0  | 111.0   |           |
| Data Out 29      | 3                   | USINT        | 1.0  | 112.0   |           |
| Data Out 30      | 3                   | USINT        | 1.0  | 113.0   |           |
| Data Out 31      | 2                   | USINT        | 1.0  | 114.0   |           |

| Symbol                    | Value | Type            |
|---------------------------|-------|-----------------|
| Status                    | ...   | Status_65P96CD0 |
| Status.Transmit Done      | 0     | BIT             |
| Status.Receive request    | 1     | BIT             |
| Status.Init accepted      | 0     | BIT             |
| Status.SendBuffer full    | 0     | BIT             |
| Status.PutData Done       | 0     | BIT             |
| Status.Input length       | 82    | USINT           |
| Status.Total input length | 40    | UINT            |
| Data In 0                 | 11    | USINT           |
| Data In 1                 | 22    | USINT           |
| Data In 2                 | 33    | USINT           |
| Data In 3                 | 88    | USINT           |
| Data In 4                 | 190   | USINT           |
| Data In 5                 | 223   | USINT           |
| Data In 6                 | 164   | USINT           |
| Data In 7                 | 66    | USINT           |
| Data In 8                 | 33    | USINT           |
| Data In 9                 | 46    | USINT           |
| Data In 10                | 43    | USINT           |
| Data In 11                | 3     | USINT           |
| Data In 12                | 3     | USINT           |
| Data In 13                | 0     | USINT           |
| Data In 14                | 32    | USINT           |
| Data In 15                | 4     | USINT           |
| Data In 16                | 228   | USINT           |
| Data In 17                | 44    | USINT           |
| Data In 18                | 67    | USINT           |
| Data In 19                | 0     | USINT           |
| Data In 20                | 0     | USINT           |
| Data In 21                | 0     | USINT           |
| Data In 22                | 0     | USINT           |
| Data In 23                | 0     | USINT           |
| Data In 24                | 0     | USINT           |
| Data In 25                | 0     | USINT           |
| Data In 26                | 0     | USINT           |
| Data In 27                | 6     | USINT           |
| Data In 28                | 35    | USINT           |
| Data In 29                | 3     | USINT           |
| Data In 30                | 3     | USINT           |
| Data In 31                | 2     | USINT           |

Note: When performing free port communication, it is recommended to initialize the serial port before receiving or transmitting data. After successful initialization, the initialization control word "Init request" must be set as 0; otherwise, the serial port cannot transmit or receive data normally.

#### Transmit data:

(1) Initialize the serial port. When the control word "Init request" of COM1 is set

to 1 and the status word “Init accepted” of COM1 displays 1, the initialization has been completed.

(2) Set the transmitted data length by writing 40 into the control word “Output length” of COM1.

(3) Write the data to be sent, from 1 to 32, into Data Out 0 to Data Out 31 in sequence. (A maximum of 32 bytes of data can be written into the transmission buffer at a time. If the length of the data to be sent is greater than 32 bytes, the data needs to be written into the transmission buffer in batches and then sent out all at a time. For example, to transmit 40 bytes of data, write the data into the transmission buffer in two batches and then transmit all 40 bytes at a time.)

(4) Set the control word “Transmit request” of COM1 to 1, and simultaneously set the control word “Put data” to 1.

(5) Read the status word “PutData Done” of COM1. When PutData Done is 1, it indicates that 32 bytes have been successfully written into the transmission buffer. Then set the control word “Put data” to 0.

(6) Write values 33~40 into Data Out 0-Data Out 7 sequentially, and then set the control word “Put data” as 1.

(7) When the status word “Transmit Done” of COM1 is 1, it indicates that the current data frame has been successfully sent. Then set the control words “Transmit request” and “Put data” to 0; the current frame transmission is completed.

#### **Receive data:**

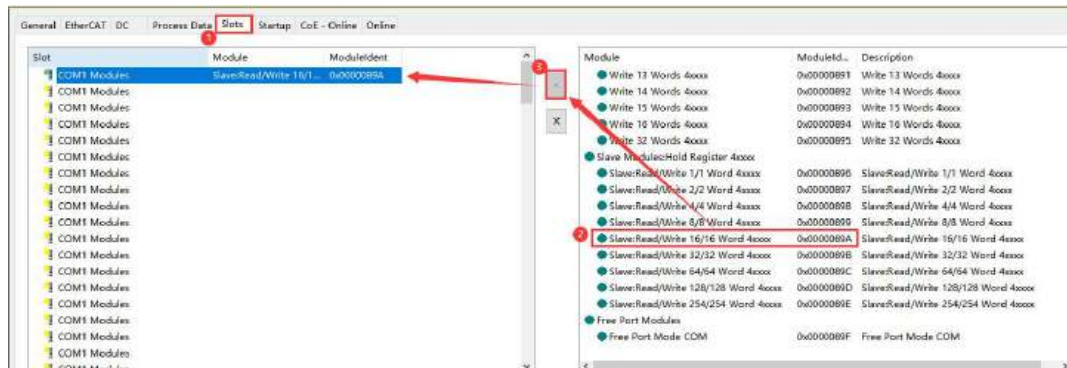
(1) When the module is receiving data, the "Receive request" status word of COM2 is 1; Input length is 32, indicating that the currently receivable data is 32; Total input length displays a total length of 40;

(2) Reading Data In 0-Data In 31 allows access to the first 32 bytes. Set the COM2 control word “Receive accepted” to 1. At the moment, when the status word “Receive request” of COM2 is read as 0, set the control word “Receive accepted” of COM1 to 0. After setting it to 0, the status word “Receive request” of COM1 displays 1, and “Input length” shows 8, indicating there are 8 bytes of data to be received.

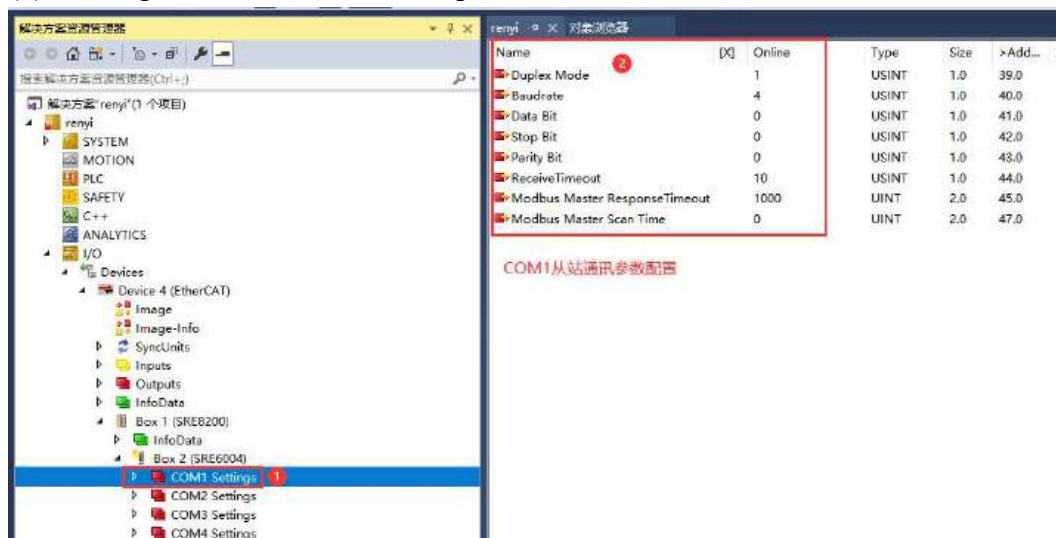
(3) At the moment, reading Data In 0-Data In 7 allows access to the next 8 bytes. After reading, set the control word “Receive accepted” of COM1 to 1. At the moment, when the status word “Receive request” of COM1 is read as 0, set the control word “Receive accepted” of COM2 to 0. After setting it to 0, the status word “Receive request” of COM1 displays 0. The current data frame reception is complete.

### 17.5.7. SRE6004 as Modbus Slave

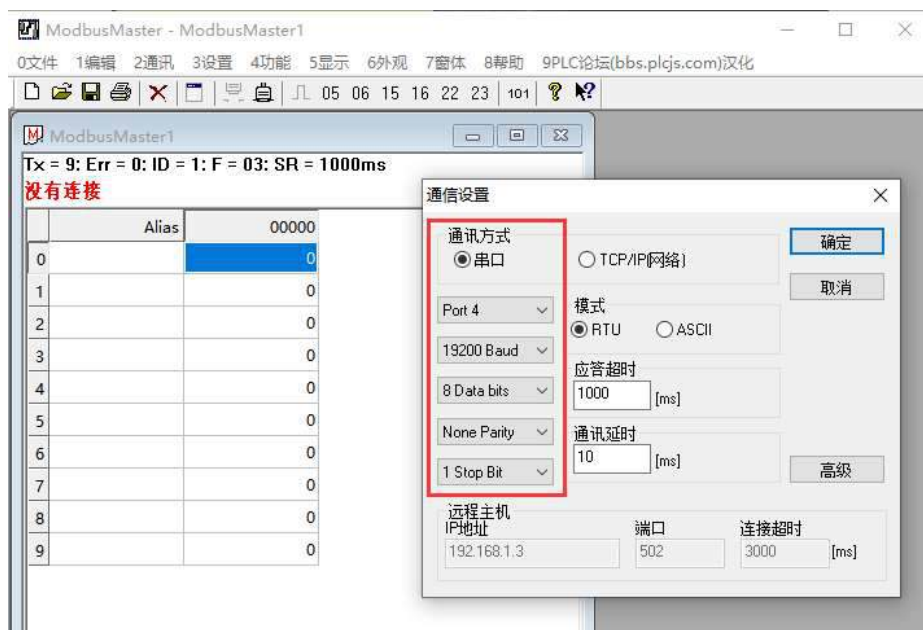
(1) Set COM1 as slave



(2) Configure the communication parameters for the COM1 slave



(3) Configure the communication parameters for the Modbus Master, which must be the same as that of the COM1 slave; otherwise, the communication will fail



#### (4) Set the ID of Slave

The screenshot shows the 'Object Properties' window for a device. The 'Name' field is set to 'Slave ID'. The 'Online' checkbox is checked. The 'Type' is 'USINT' and the 'Size' is '1.0'. The 'Add...' button is highlighted with a red circle. The 'Linked to' field is empty.

#### (5) Data interaction: As shown in the diagram, the master reads the data from addresses 40001~40017 of SRE6004

The master writes data into addresses 40257~40273 of SRE6004

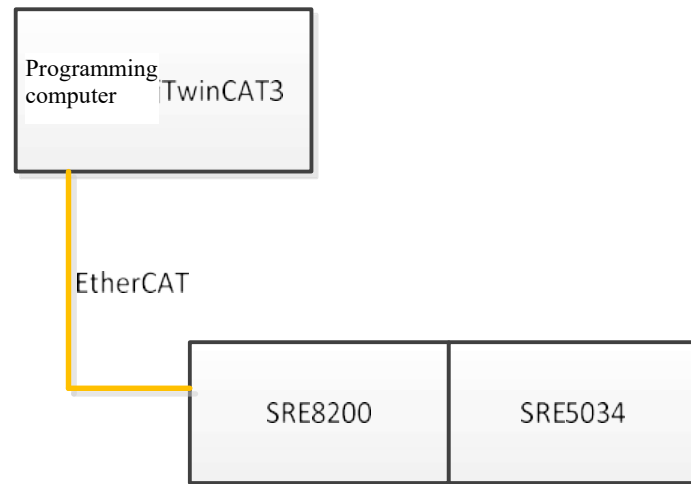
The screenshot shows the 'Object Properties' window for a device. The 'Name' field is set to 'Slave ID'. The 'Online' checkbox is checked. The 'Type' is 'USINT' and the 'Size' is '1.0'. The 'Add...' button is highlighted with a red circle. The 'Linked to' field is empty.

## 17.6. Example of SRE5034 Communication with TwinCAT3

This example briefly introduces the usage of SRE5034 module behind SRE8200 coupler. SRE5012 can be connected with reference to this example. The operation process is as follows:

### 17.6.1. Communication Connection

The communication connection diagram is as shown below:



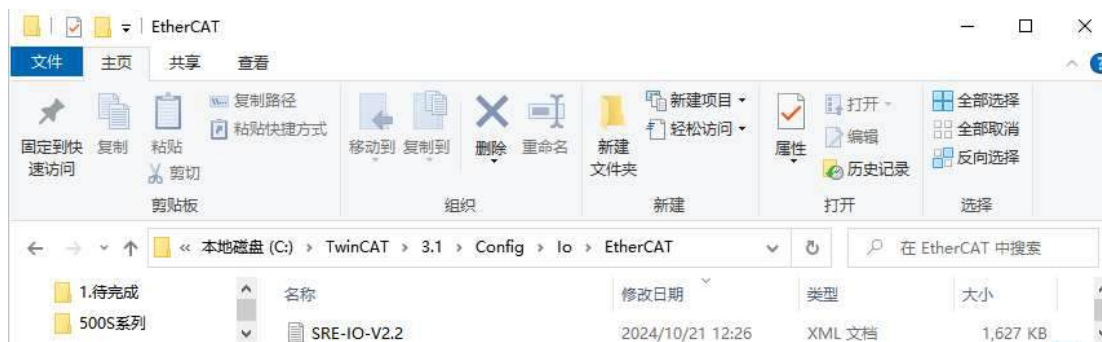
### 17.6.2. Hardware Configuration

The hardware configuration is shown in the following table:

| Hardware             | Quantity | Remarks                        |
|----------------------|----------|--------------------------------|
| Programming computer | One      | Install TwinCAT3 software      |
| SRE8200              | One      | EtherCAT communication coupler |
| SRE5034              | One      | Counting module                |
| Ethernet cable       | Several  |                                |

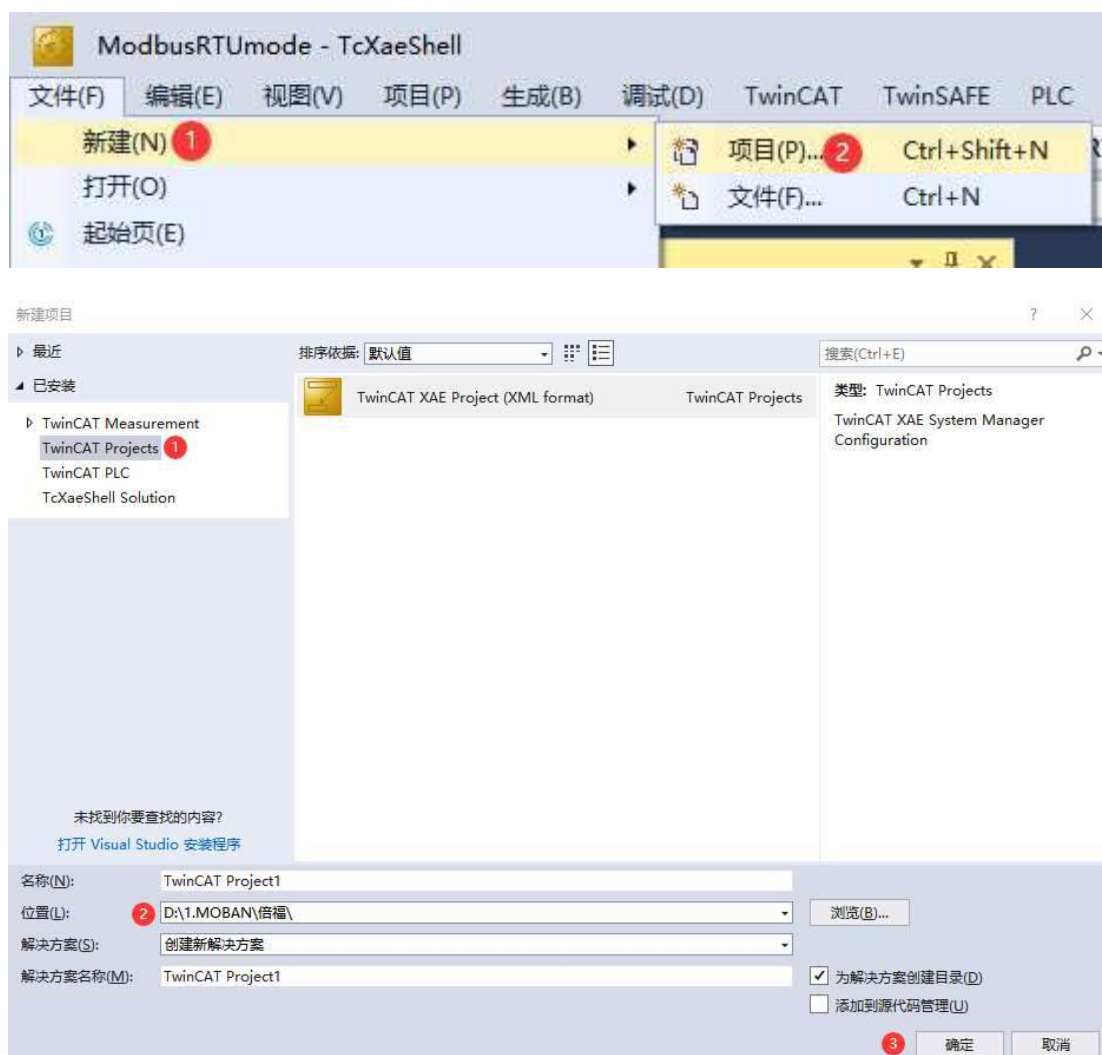
### 17.6.3. Install XML File

Install the XML file into TwinCAT3. The default folder in the example is "C:\TwinCAT\3.1\Config\Io\EtherCAT", as shown in the following figure:

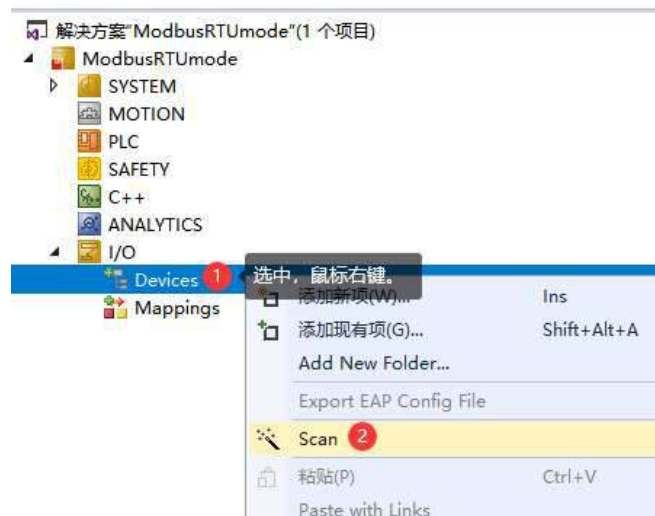


### 17.6.4. New Project and Configuration

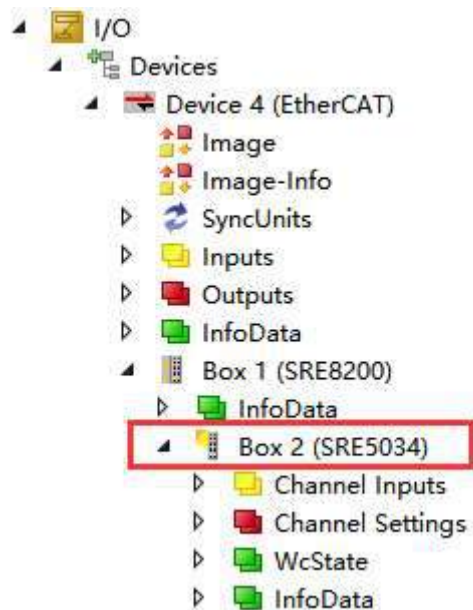
Open TwinCAT3 software and create a new project as shown below:



Scan the SRE8200 connected to the computer and its high-speed count module SRE5034 into the project, and then click I/O > Devices > Scan, as shown in the following figure:

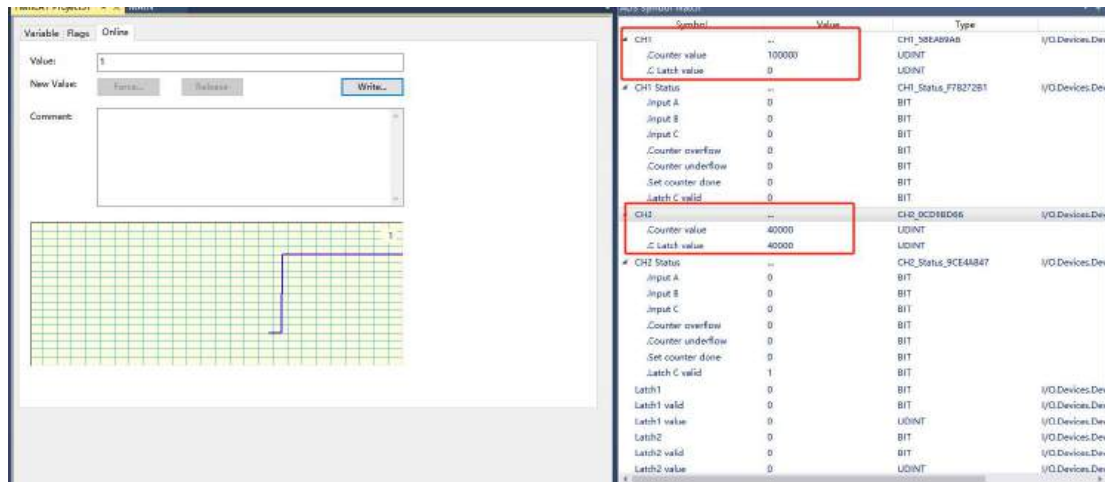


Successfully scanned modules are displayed as shown below:



### 17.6.5. Data Monitoring

Select the IO terminal to be monitored on TwinCAT3, and choose the channel to be monitored, as shown in the following figure:

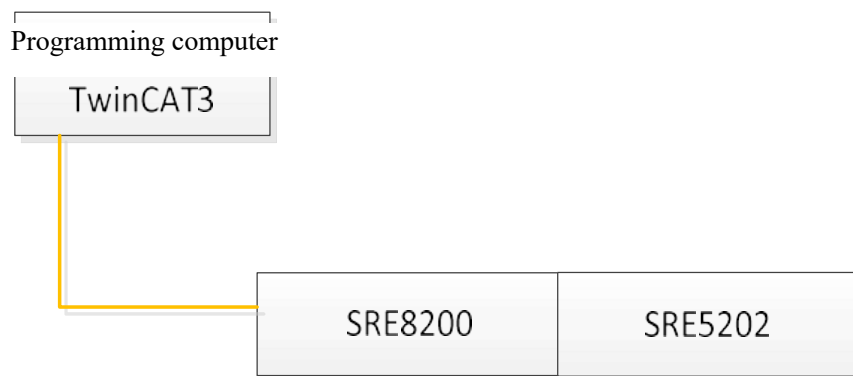


## 17.7. Example of SRE5202 Communication with TwinCAT3

This example demonstrates the communication connection using SRE8200 extended with SRE5202, monitoring SRE5202 module data through Beckhoff. SRE5204 can be connected and used with reference to this example.

### 17.7.1. Communication Connection

The communication connection diagram is as shown below:



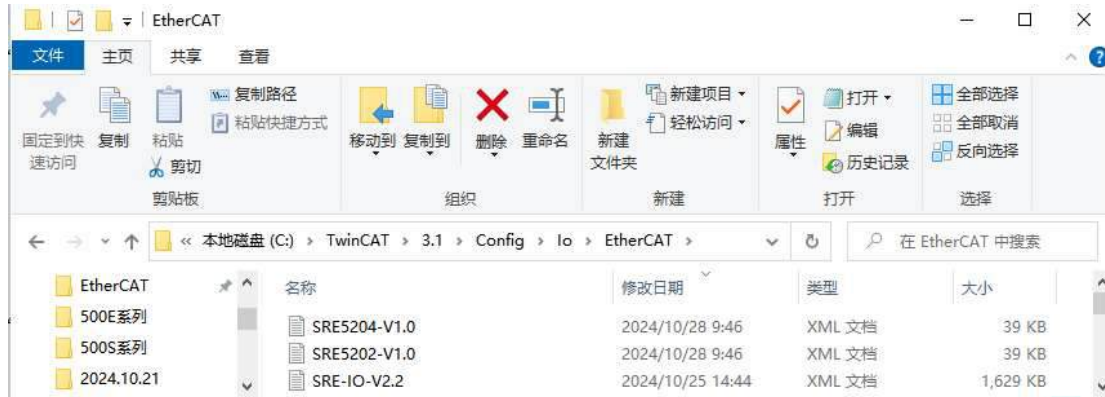
### 17.7.2. Hardware Configuration

The hardware configuration is shown in the following table:

| Hardware                   | Quantity | Remarks                        |
|----------------------------|----------|--------------------------------|
| Programming computer       | One      | Install TwinCAT3 software      |
| SRE8200                    | One      | EtherCAT communication coupler |
| SRE5202                    | One      |                                |
| Ethernet cable             | 1 piece  |                                |
| 24V switching power supply | One      |                                |

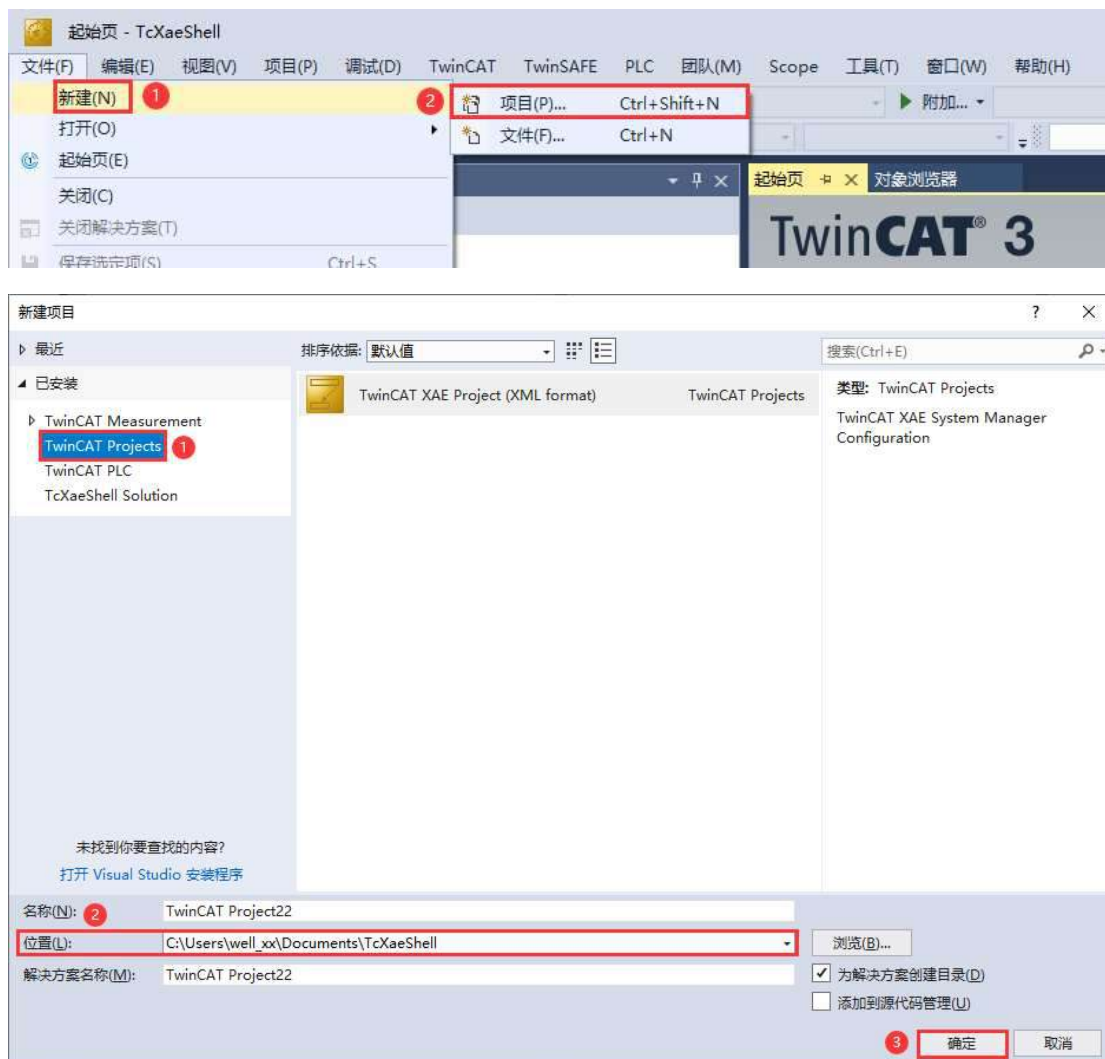
### 17.7.3. Install XML File

Install the XML file into TwinCAT3. The default folder in the example is "C:\TwinCAT\3.1\Config\Io\EtherCAT", as shown in the following figure:

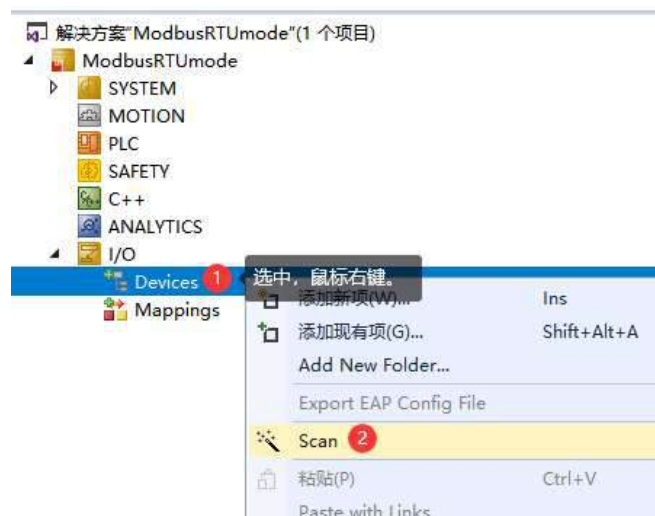


### 17.7.4. New Project and Configuration

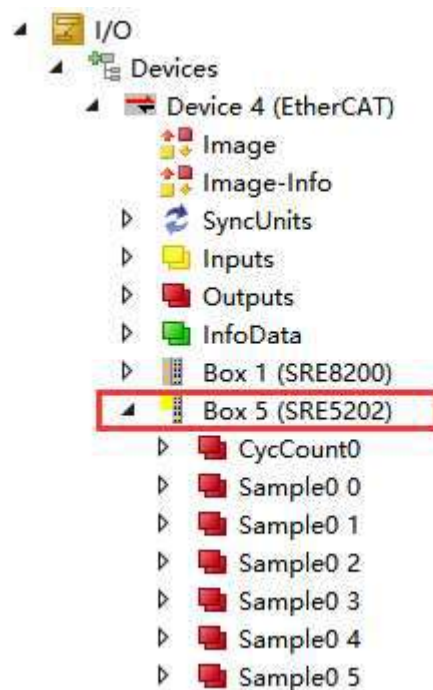
Open TwinCAT3 software and create a new project as shown below:



Connect the SRE8200 coupler to the computer, scan the extended SRE5202 module into the project, and then click I/O > Devices > Scan, as shown in the following figure:



Successfully scanned modules are displayed as shown below:

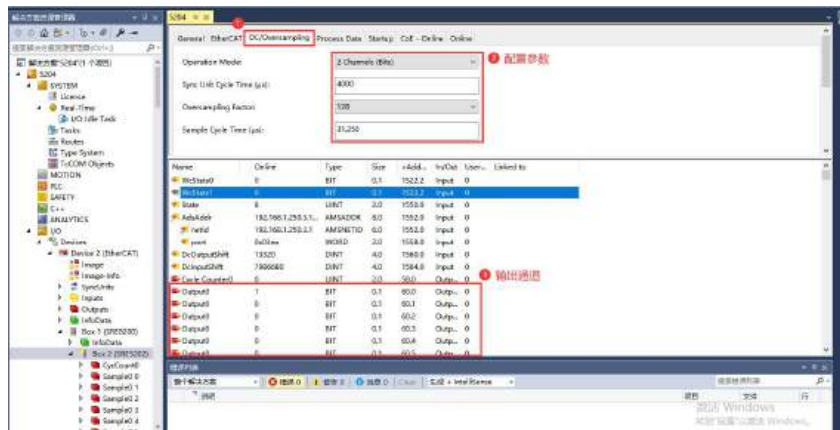


### 17.7.5. Data Monitoring

According to the actual usage requirements, the parameters of the SRE5202 can be configured through the DC/Oversampling parameter setting panel.

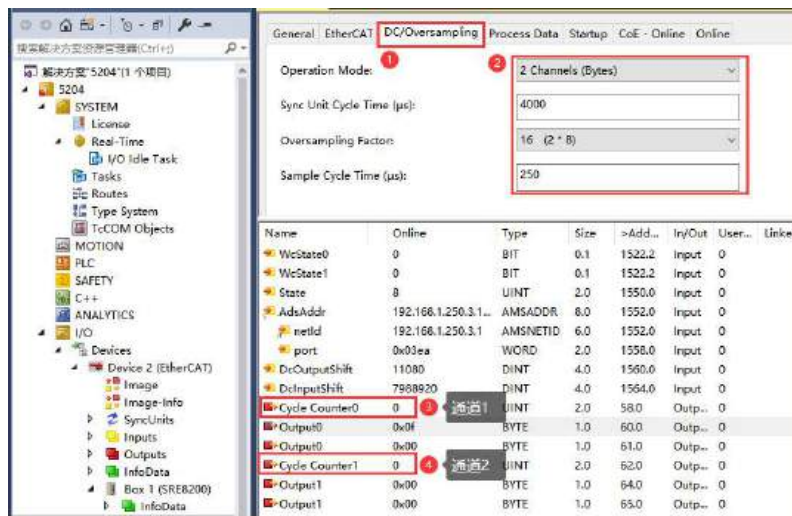
#### (1) Sampling data via Bit type:

For example: Select 2 Channels (Bits), 128Bit, meaning that the oversampling factor for SRE5202 Channel 1 and Channel 2 processes is 128Bit. This means selecting two channels with a total cycle time of 4000us. Set channel output. Based on the total cycle time and oversampling factor, the sampling cycle time is 31.250us. Setting the channel as 1 will make it continuously output according to the sampling cycle time.

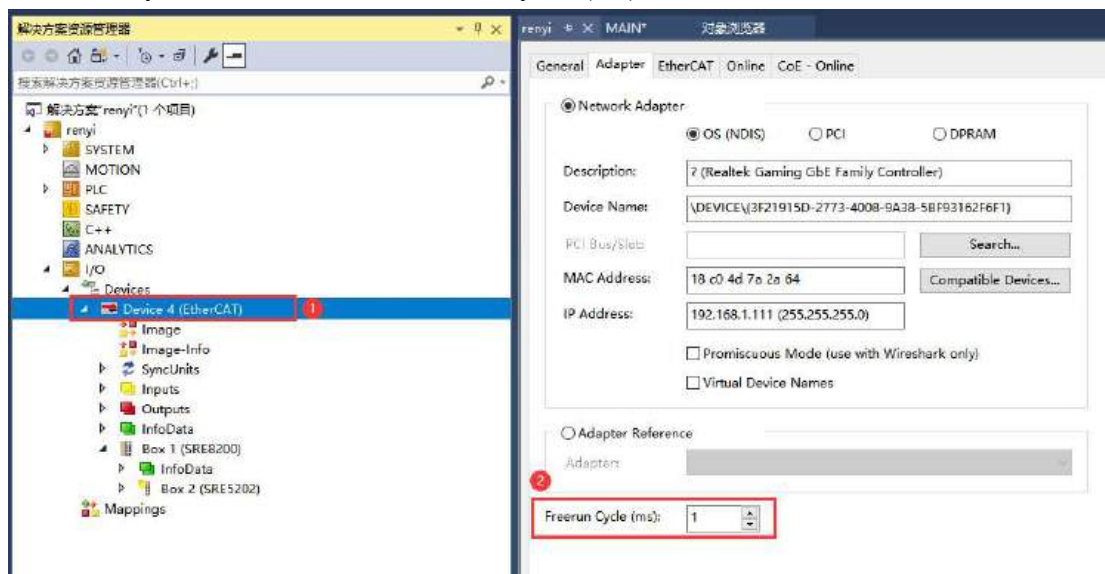


#### (2) Sampling data via Byte type:

For example: Select 2 Channels (Bytes), 16 (2\*8), meaning that the oversampling factor for SRE5202 Channel 1 and Channel 2 is 2 Bytes (16 Bit). This means selecting two channels. Based on the total cycle time and oversampling factor, the sampling cycle time is 250us. As shown below, setting the first 8 bits of Channel 1 as 1 will make it continuously output according to the sampling cycle time.



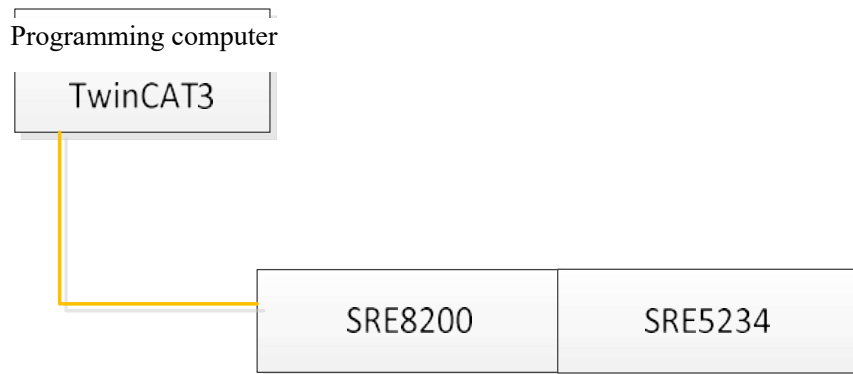
The total cycle time is set via Freerun Cycle (ms).



## 17.8. Example of SRE5234 Communication with TwinCAT3

### 17.8.1. Communication Connection

The communication connection diagram is as shown below:



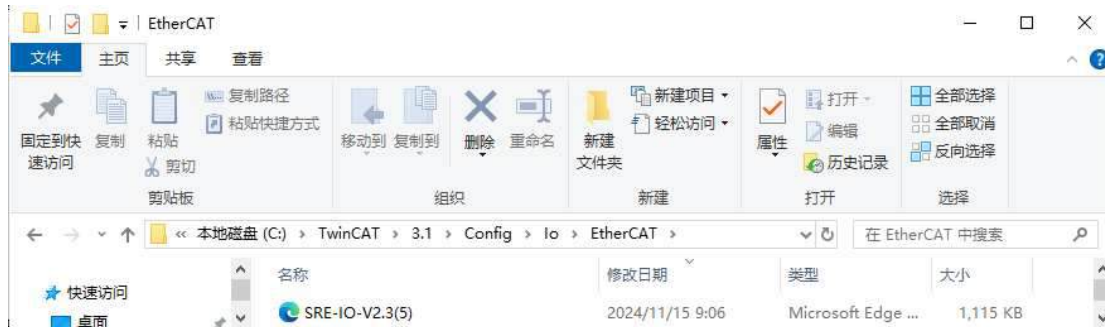
### 17.8.2. Hardware Configuration

The hardware configuration is shown in the following table:

| Hardware                   | Quantity | Remarks                        |
|----------------------------|----------|--------------------------------|
| Programming computer       | One      | Install TwinCAT3 software      |
| SRE8200                    | One      | EtherCAT communication coupler |
| SRE5234                    | One      |                                |
| Ethernet cable             | 1 piece  |                                |
| 24V switching power supply | One      |                                |

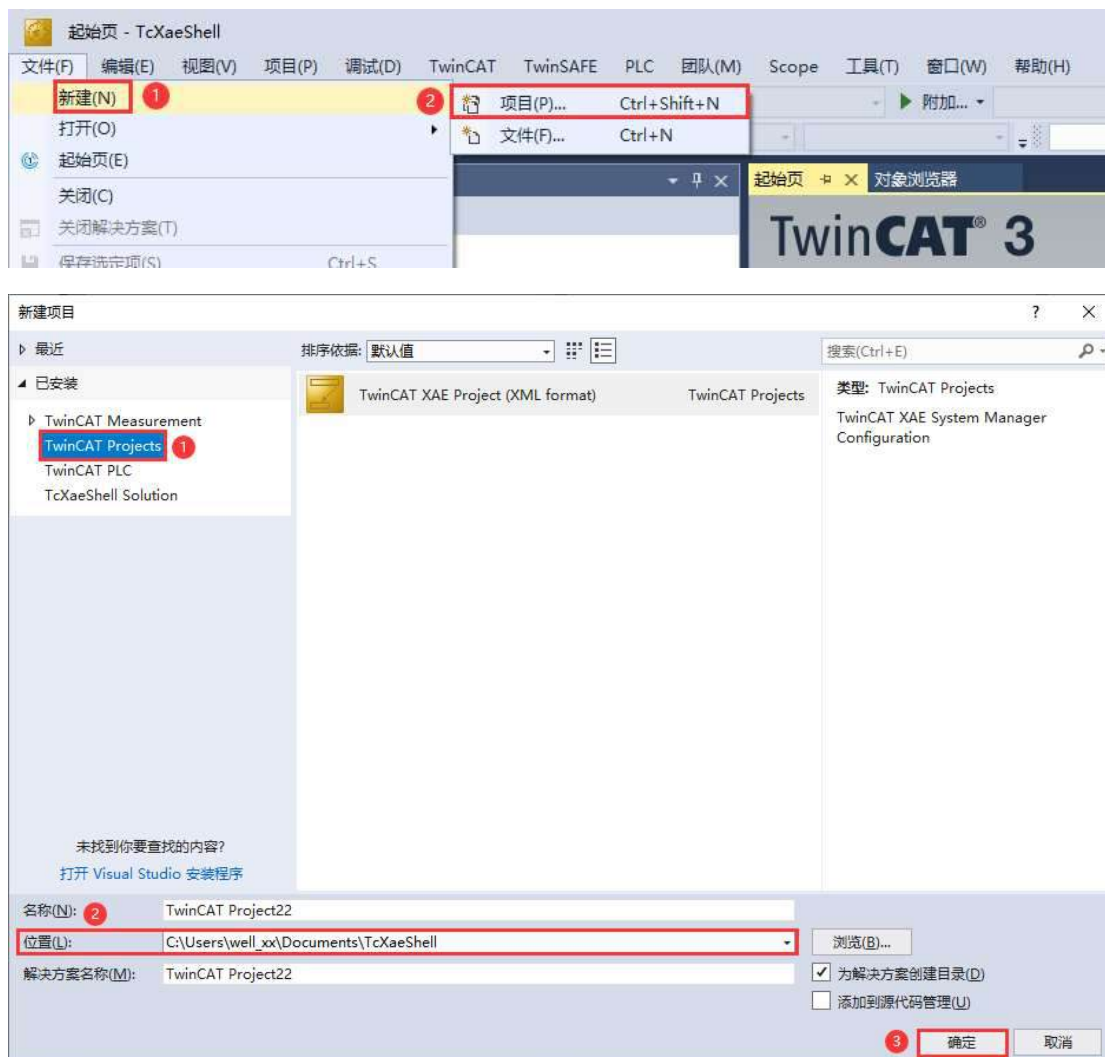
### 17.8.3. Install XML File

Install the XML file into TwinCAT3. The default folder in the example is "C:\TwinCAT\3.1\Config\Io\EtherCAT", as shown in the following figure:



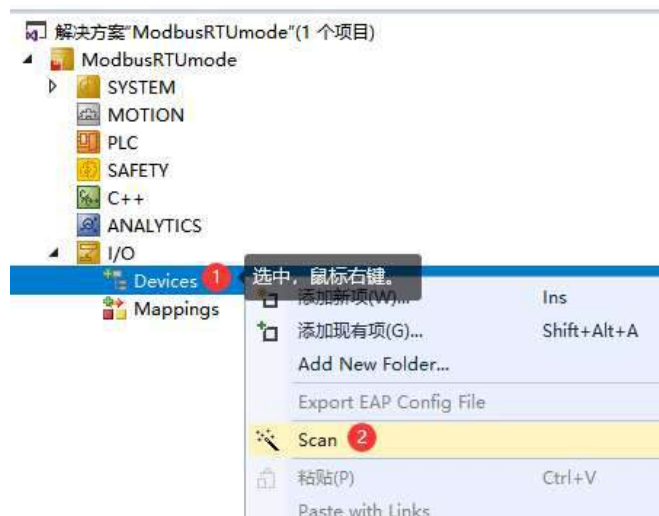
### 17.8.4. New Project and Configuration

Open TwinCAT3 software and create a new project as shown below:

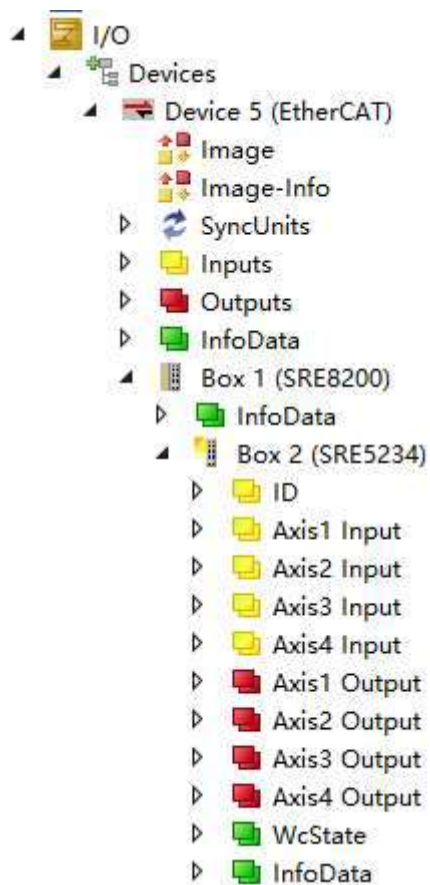


Connect the SRE8200 coupler to the computer, scan the extended SRE5202

module into the project, and then click I/O > Devices > Scan, as shown in the following figure:

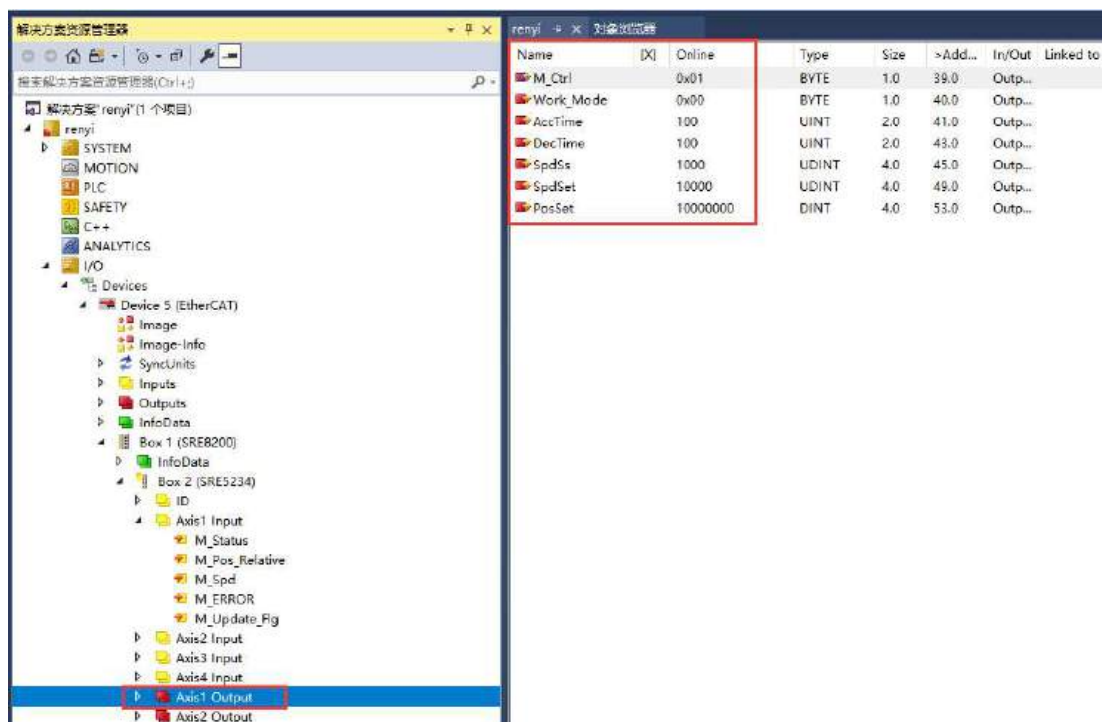


Successfully scanned modules are displayed as shown below:



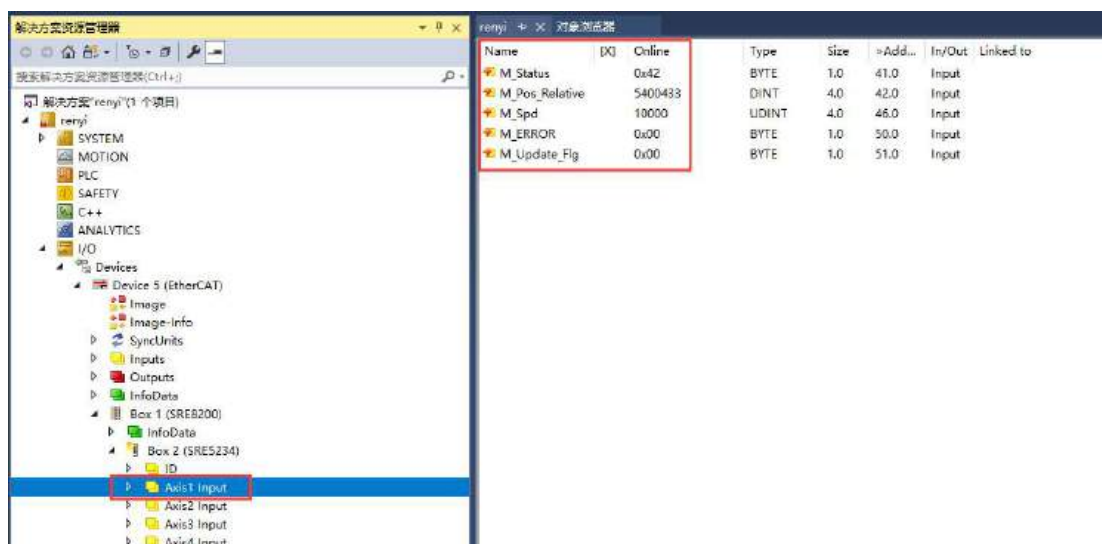
## 17.8.5. Data Monitoring

On TwinCAT3, select the IO terminal to be monitored, choose Axis 1 for monitoring, and configure the parameters. After parameter configuration, set the control word as 1, indicating the start of output, as shown in the example below:



| Name      | [X] | Online   | Type  | Size | >Add... | In/Out  | Linked to |
|-----------|-----|----------|-------|------|---------|---------|-----------|
| M_Ctrl    |     | 0x01     | BYTE  | 1.0  | 39.0    | Outp... |           |
| Work_Mode |     | 0x00     | BYTE  | 1.0  | 40.0    | Outp... |           |
| AccTime   |     | 100      | UINT  | 2.0  | 41.0    | Outp... |           |
| DecTime   |     | 100      | UINT  | 2.0  | 43.0    | Outp... |           |
| SpdSs     |     | 1000     | UDINT | 4.0  | 45.0    | Outp... |           |
| SpdSet    |     | 10000    | UDINT | 4.0  | 49.0    | Outp... |           |
| PosSet    |     | 10000000 | DINT  | 4.0  | 53.0    | Outp... |           |

You can view parameters and monitor axis operation status through the corresponding axis in Axis Inputs, as shown in the figure below:

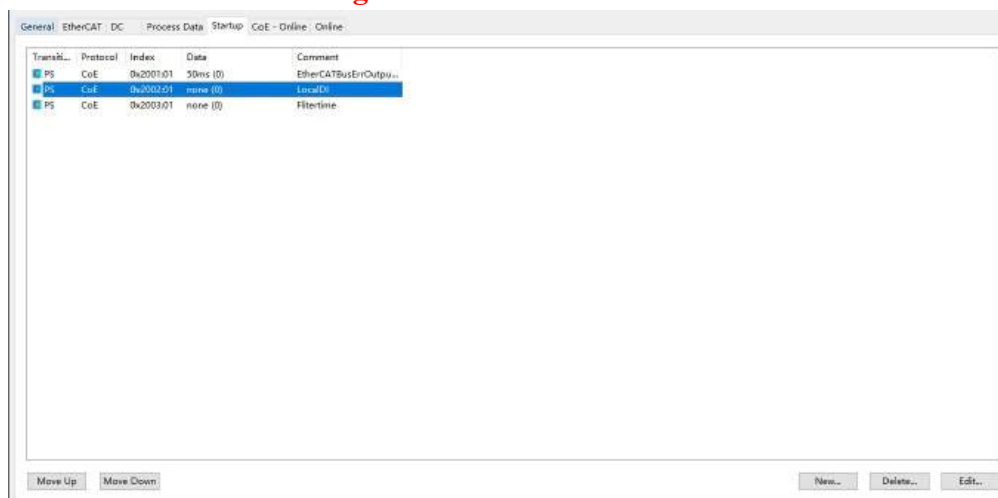


| Name           | [X] | Online  | Type  | Size | >Add... | In/Out | Linked to |
|----------------|-----|---------|-------|------|---------|--------|-----------|
| M_Status       |     | 0x42    | BYTE  | 1.0  | 41.0    | Input  |           |
| M_Pos_Relative |     | 5400433 | DINT  | 4.0  | 42.0    | Input  |           |
| M_Spd          |     | 10000   | UDINT | 4.0  | 46.0    | Input  |           |
| M_ERROR        |     | 0x00    | BYTE  | 1.0  | 50.0    | Input  |           |
| M_Update_Flg   |     | 0x00    | BYTE  | 1.0  | 51.0    | Input  |           |

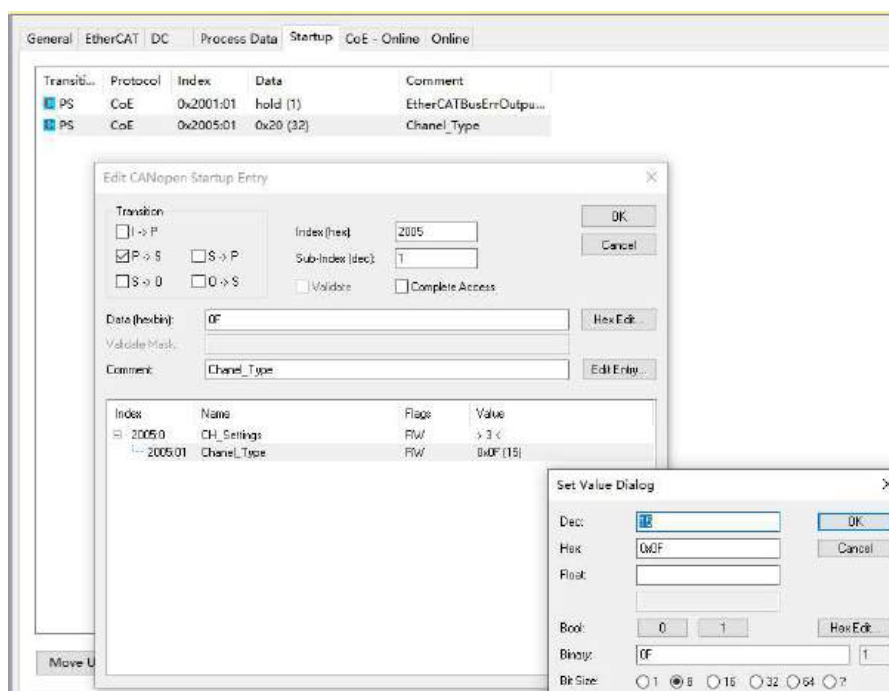
## Appendix Configuration Parameter Description

### TwinCAT3 Startup Function Description

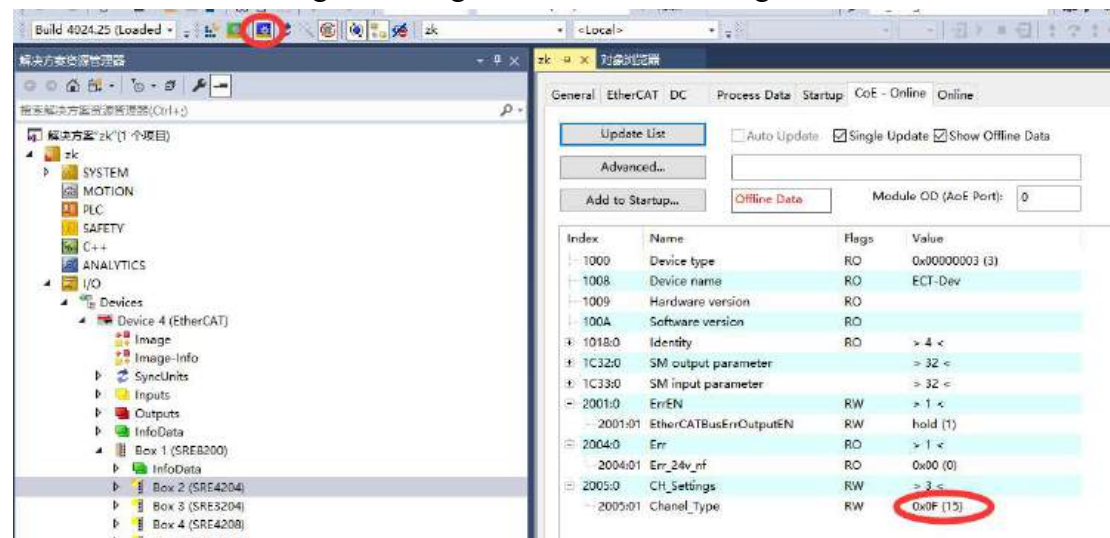
The parameters of the expansion module are not able to be saved in COE. The configuration of the expansion IO terminal will be reset to the factory default settings every time the expansion IO terminal is rescanned or powered on again. Set the parameters of the expansion IO terminal in the startup item. Each time communication occurs, parameters will be written into the coupler. In the same project, after repeated power-on, the parameter configuration of the expansion terminal remains unchanged.



For example, configure the CH1-CH4 channel range of SRE4204 as 0-20mA/0-10V



After completing parameter configuration, refresh to update data to COE parameters. The parameters will take effect at this point and remain active after power-off, but revert to the original configuration after rescanning the device.

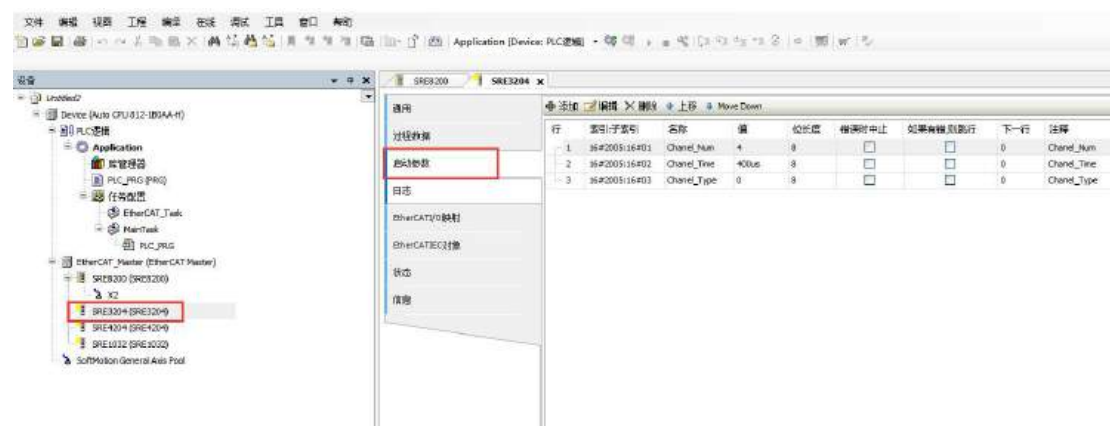


Note: When configuring parameters for SRE3204/SRE3208, different parameters must be set under different parameter directories. For example: clicking the first parameter directory to set the first parameter in the directory, while clicking the second parameter directory to set the second parameter. If the same parameter is configured under three different directories, it will be overwritten by the last parameter, and only the final configured parameter will take effect.

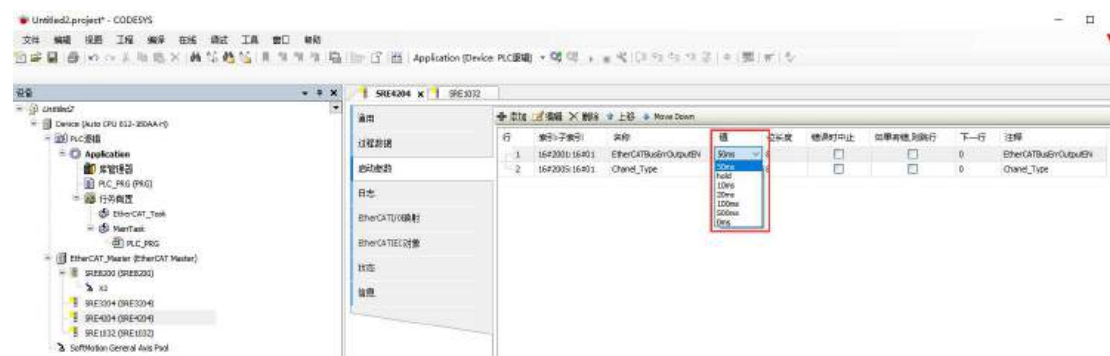
## Settings of Extended Module Parameters in Codesys Startup Parameters

The parameters of the expansion module are not able to be saved. The configuration of the expansion IO terminal will be reset to the factory default settings every time the expansion IO terminal is rescanned or powered on again. Set the parameters for the expansion IO terminal in the startup parameters. Each time communication occurs, parameters will be written into the coupler. Within the same project, even after repeated power-on, the parameter configurations of the expansion terminal remain unchanged.

Scan the device, click on the module requiring parameter modification, and select “Startup parameters” to view the adjustable parameter content.



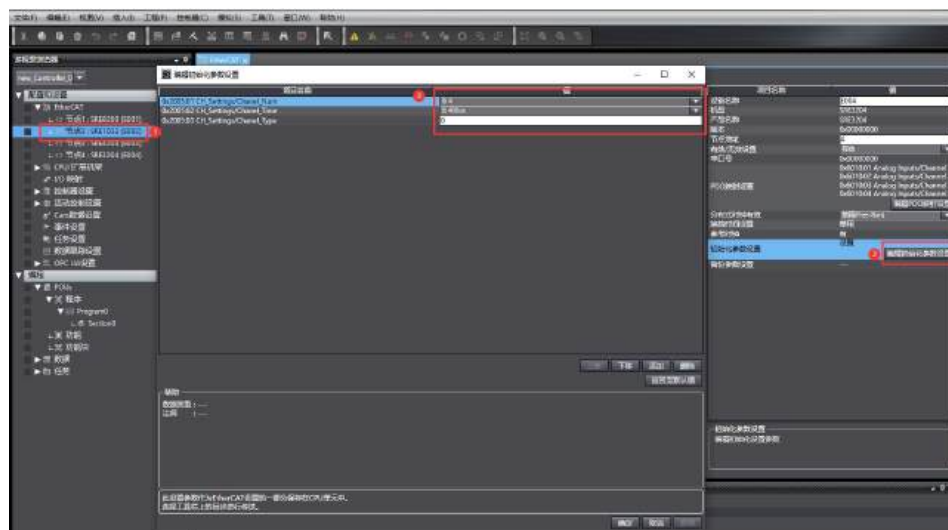
Modify the parameters via the dropdown menu. After modification, download the parameters to apply the changes.



## Settings of sysmac Studio Initialization Parameters

The parameters of the expansion module are not able to be saved. The configuration of the expansion IO terminal will be reset to the factory default settings every time the expansion IO terminal is rescanned or powered on again. **Set the parameters for the expansion IO terminal in the startup parameters. Each time communication occurs, parameters will be written into the coupler. Within the same project, even after repeated power-on, the parameter configurations of the expansion terminal remain unchanged.**

After scanning the device, click on the module requiring parameter modification, and select “Edit initialization parameter settings”.



Select the parameters via the dropdown box

