

RB Series IO Module

User Manual

DECOWELL Industrial Intelligence makes reliable partners



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Preface

■ Profile

Thank you for purchasing DECOWELL RB series card-type I/O modules!

RB series card-type I/O modules are distributed expansion modules developed by DECOWELL. This series of modules consists of adapters, I/O modules, power modules, and terminal modules. The adapter can support a variety of communication buses, such as PROFINET, EtherCAT, Ethernet/IP, etc. I/O modules can be divided into digital input modules, digital output modules, analog input modules, analog output modules, and functional modules. Users can match them according to actual applications.

RB-6301 is RS485 free port communication module, any equipment with RS485 communication interface can use this product to achieve interconnection between field devices and different industrial bus master stations, such as frequency converters, click-start protection devices, intelligent high/low voltage electrical appliances, power measurement devices, transmitters, intelligent field measurement equipment and instruments, etc.

This manual mainly describes the specifications, features and usage of the module. Please read it carefully before use so that you can use this product more clearly and safely.

Due to continuous product and technical updates and improvements, the content in this document may not fully correspond to the actual product. Please understand. In case of any discrepancies, the actual product shall prevail. Content changes resulting from product upgrades are subject to change without prior notice.

CONTENTS

Preface	2
Safety Precautions	5
1.Product Information	8
1.1 Product naming and nameplate	8
1.2 Component Description	9
1.3 Technical specifications	10
1.4 Environmental Specifications	11
2.Mechanical Installation	12
2.1 Installation Dimensions.....	12
2.2 Installation Method	12
2.2.1 Inter-module installation	12
2.2.2 Installation on rails.....	13
3.Electrical Installation	15
3.1 Cable Selection	15
3.2 Terminal wiring.....	16
4.Module Function	17
4.1 Module Function	17
4.2 Parameter Description.....	17
4.2.1 Configuration parameters	17
4.2.2 Process data	18
4.3 Module Operation	22
4.3.1 Receiving by character interval	22
4.3.2 Receiving by character length	22
4.3.3 Receive by ending with special characters	24
4.3.4 Trigger send mode	25
4.3.5 Automatic timed sending mode	25
4.3.6 Modify the end of special characters	26

5.Product Use Cases.....	29
5.1 Usage and configuration of RB-6301 in TwinCAT3.....	29
5.2 Usage and configuration of RB-6301 in TIA Portal	31
5.3 RB-6301 Control timing diagram	35

Safety Precautions

■ Security Statement

1. Before installing, operating, or maintaining the product, please read and comply with these safety precautions.
2. To ensure personal and equipment safety, follow all safety labels on the product and all safety instructions contained in this manual during installation, operation, and maintenance.
3. The “Note”, “Caution”, “Warning”, and “Danger” statements in this manual do not represent all safety precautions that should be observed; they are supplementary to the overall safety requirements.
4. This product must be used under conditions that meet the specified design requirements. Failure to meet these conditions may result in malfunction. Functional abnormalities or component damage caused by non-compliance are not covered by the product warranty.
5. DECOWELL assumes no legal liability for personal injury, property damage, or other losses caused by improper or unauthorized operation of the product.

■ Security level definition



Note

Indicates additional information or explanations that supplement the operating instructions.



Caution

Indicates a hazardous situation that may result in minor to moderate personal injury or equipment damage if not operated as instructed.



Warning

Indicates a hazardous situation that may result in serious personal injury or death if not operated as instructed.

 Warning — During Control System Design

01. When applying this system, please be sure to design a safety circuit to ensure that the control system can still operate safely when the external power supply fails or the expansion module malfunctions.
02. If the output circuit experiences prolonged overcurrent due to exceeding the rated load current or a load short circuit, the module may smoke or catch fire. External safety devices such as fuses or circuit breakers should be installed.

 Caution — During Control System Design

01. It is essential to install an emergency braking circuit, a protection circuit, an interlock circuit for forward and reverse operation, and upper and lower limit interlock switches to prevent machine damage in the external circuit of the expansion module;
02. To ensure the safe operation of the equipment, please design external protection circuits and safety mechanisms for output signals related to major accidents;
03. When the output units of the expansion module, such as relays and transistors, are damaged, their outputs cannot be controlled to be in the ON or OFF state;

 Caution — During Installation

01. During installation, prevent metal shavings and wire ends from falling into the module's ventilation holes, as this may cause fire, malfunction, or misoperation;
02. After installation, ensure that there are no foreign objects on its ventilation surface, otherwise it may cause poor heat dissipation, resulting in fire, malfunction, or misoperation;
03. During installation, ensure that the module is securely connected to its respective connector and that the module connection hooks are firmly locked. Improper module installation may lead to malfunctions, failures, or detachment.

 Warning — During Installation

01. Only professional maintenance personnel who have received relevant electrical equipment training and possess sufficient electrical knowledge can install this product;

02. When installing or removing modules, all external power supplies to the system must be completely disconnected before proceeding. Failure to disconnect the power supply may result in electric shock, module malfunction, or accidental operation.

03. Do not use the module in the following locations: places with dust, fumes, conductive dust, corrosive gases, or flammable gases; places exposed to high temperatures, condensation, or wind and rain; places subject to vibration or impact. Electric shock, fire, or misoperation may also cause product damage and deterioration..

1.Product Information

1.1 Product naming and nameplate

RB-6 3 0 1

① ② ③ ④ ⑤

NO.	Name	Description Definition
①	Product Series Name	RB Series
②	Module Type	6: Functional modules
③	Function Type	3: Communication module
④	Encoder Type	0: RS485 free port communication module 1: RS232 Free port communication module 2: Modbus RTU master module
⑤	Number of channels	1:1 channel

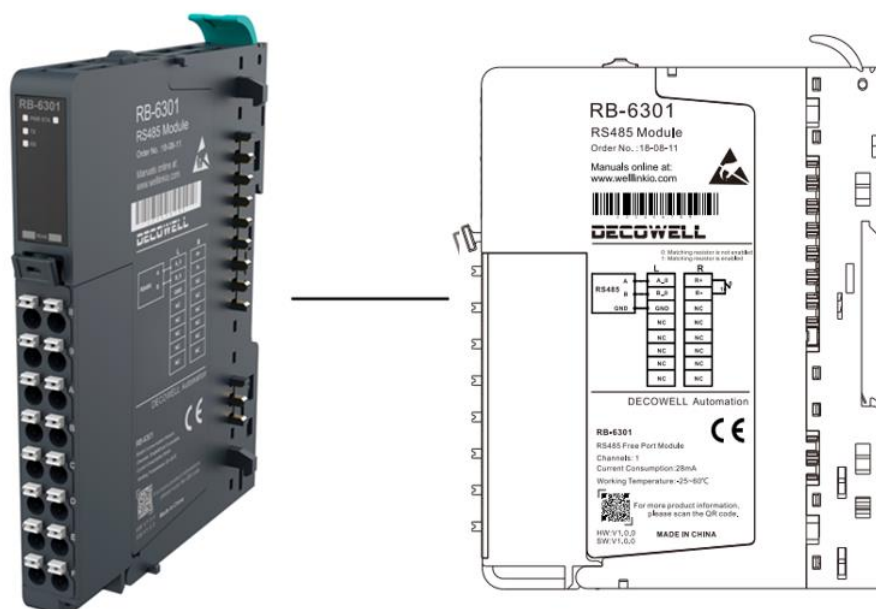


Figure 1-1-1 Product appearance diagram

1.2 Component Description

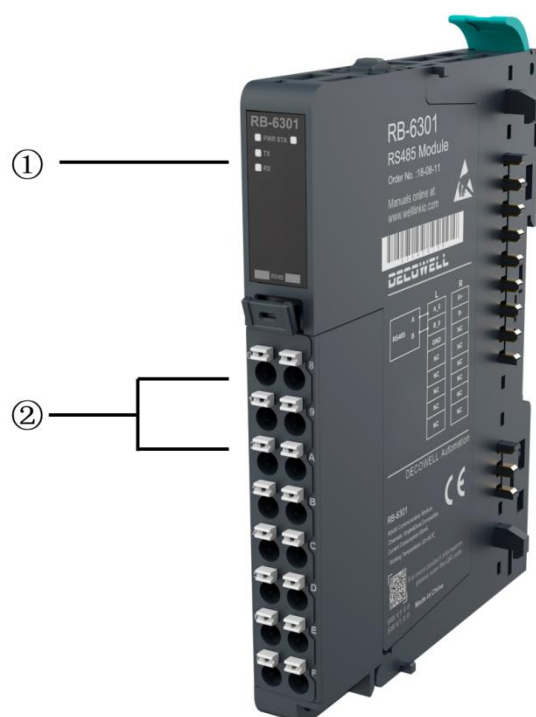


Figure 1-2-1 Component Description Diagram

Parts Description Table

NO.	Name	LED	State
①	PWR	ON(green)	Internal power supply is normal
		OFF	Internal power supply abnormality
	STA	ON (green)	The module is working properly
		ON(red)	The module has not established communication with the adapter, and configuration information loading failed.
		1HZ flashing (red)	Module hardware abnormality
		5HZ flashing (red)	Module self-test abnormality (internal fault)
	TX	Flashing (green)	Data transmission
	RX	Flashing (green)	Data Reception

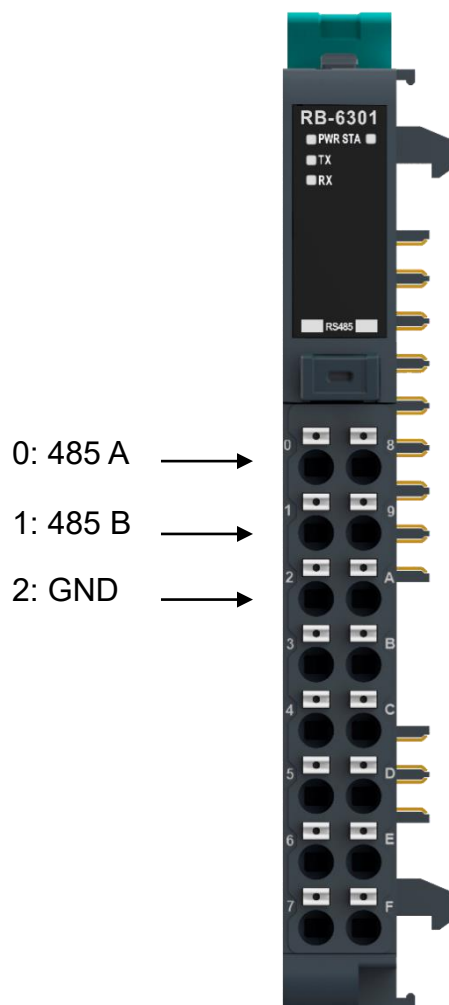


Figure 1-2-2 Terminal Definition

1.3 Technical specifications

Basic parameters	
Dimensions	100mm×77mm×12mm
Protection level	IP20
Wiring specifications	0.2~1.5mm ²
Wiring method	Straight-through spring terminal connection
Technical Parameters	
model	RB-6301
Product Name	RS485 Free port communication module

Current consumption	Max 28mA
Number of channels	Single Channel
Baud rate	Optional:1200, 2400, 4800, 9600 (default), 14400, 19200,38400,57600,115200bps
Data bits	8-bit
Check digit	No parity (default), odd parity, even parity
Stop bits	1 (default), 2 stop bits
Automatic timed sending function	The interval of scheduled sending is: 50ms, 100ms, 200ms, 400ms, 600ms, 800ms, 1s(default), 1.5s,2s,3s,4s,5s,6s,8s,10s
Receiving Mode	Receive by character interval/Receive by length/Receive by the end of special characters

1.4 Environmental Specifications

Environmental parameters	
Operating temperature	-25~60°C
Operating humidity	95% non-condensing
atmosphere	≥795 hPa (altitude ≤ 2000 m) as per IEC 61131-2
Storage temperature	-40~85°C
Overvoltage category	I

2. Mechanical Installation

2.1 Installation Dimensions

The installation dimension information is shown in the figure below, with the unit in (mm).

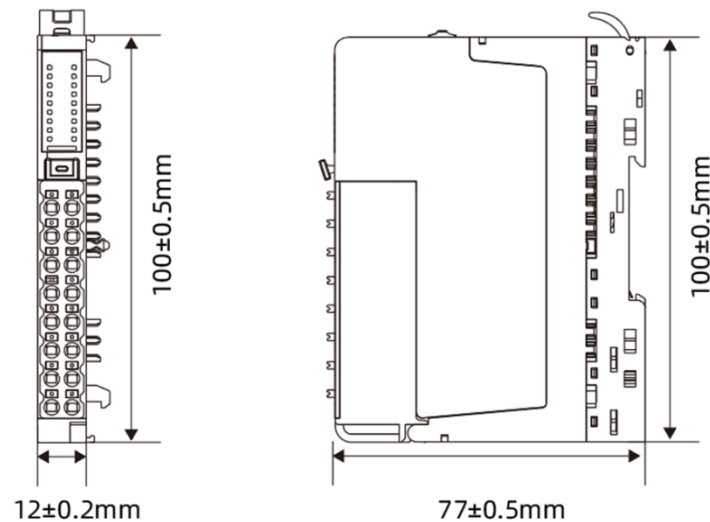


Figure 2-1-1 Module size installation diagram

2.2 Installation Method

2.2.1 Inter-module installation

Before installation, push the lock and release lever on the top of the module backward. After all the module levers are open, insert the modules horizontally. After installation, push the lever back to its original position.

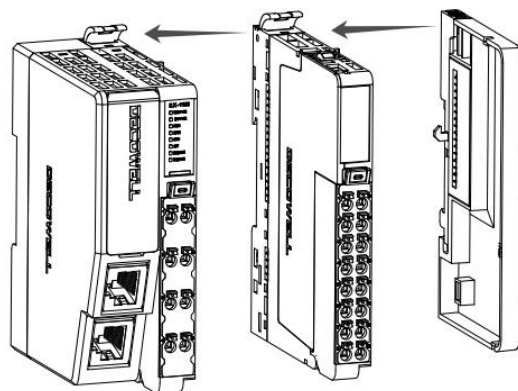


Figure 2-2-1 Schematic diagram of installation between modules

2.2.2 Installation on rails

Install:

Before installation, push all the locking/release levers on the top of the modules backward, align the module with the DIN35 rail and press the module in the direction indicated by the arrow. After fixing to the rail, push all the locking/release levers back. As shown in the figure below.

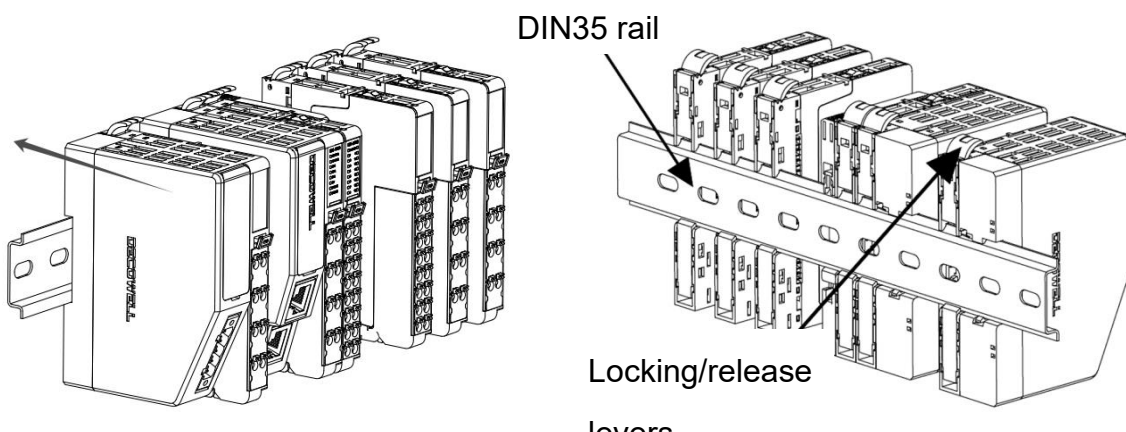


Figure 2-2-2 DIN rail installation diagram

Disassembly:

Use your hand to lift the locking/release lever upward, then pull the module away from the DIN35 rail.

lifting the locking/release lever

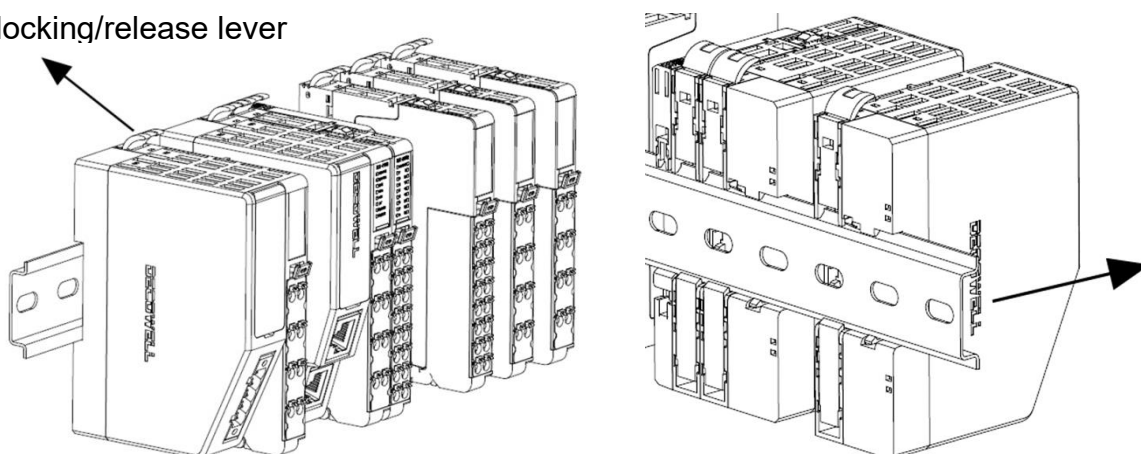


Figure 2-2-3 DIN rail disassembly diagram

The module is installed on a DIN rail. The DIN rail must comply with the IEC 60715 standard (35 mm wide and 1 mm thick). The dimensions are as follows:

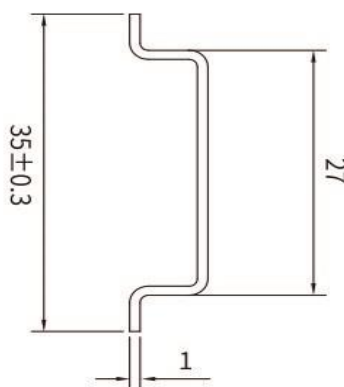


Figure 2-2-4 DIN35 rail dimensions



Notice

- If this product is installed on DIN rails other than those recommended above (especially the thickness of the DIN rail ≤ 1.0 mm), the DIN rail lock may fail, the product cannot be installed in place, and the product cannot work properly.

3. Electrical Installation

3.1 Cable Selection

In the table below, the wire diameter is for reference only. It can be reasonably calculated and adjusted based on actual usage.

Name	Compatible Wire Gauge		KST	
	Standard (mm ²)	AWG	Model	Crimping Tool
Ferrule Type	0.25	24	E0208	KST2000L
	0.5	20	E0510	
	0.75	18	E7510	
	1.0	18	E1010	
	1.5	16	E1510	

Stripping length: 8–10 mm

The shape and size requirements of the riveted terminals are shown in the figure below.

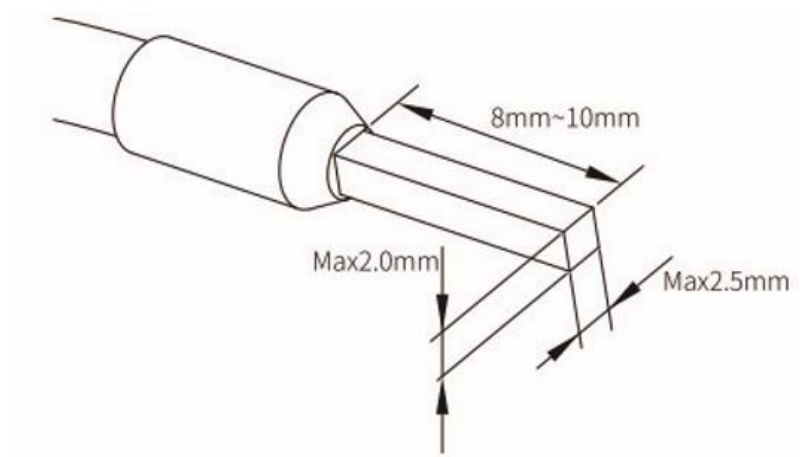


Figure 3-1-1 Terminal size requirements

3.2 Terminal wiring

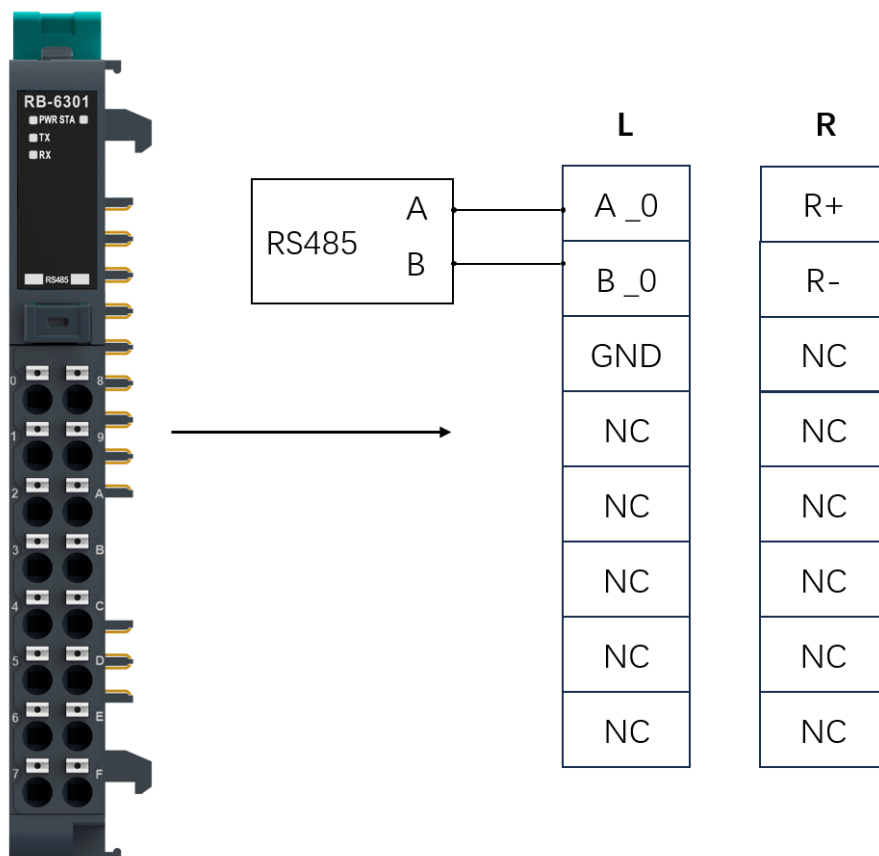


Figure 3-2-1 Module wiring diagram



- When routing extension cables, avoid bundling them together with power lines (high voltage, high current) and other cables that transmit strong interference signals. They should be routed separately and parallel runs should be avoided.
- Use recommended cables and adapter plates for connection. It is recommended to use shielded cables for extension cables to improve anti-interference capabilities.
- Must access GND line, otherwise it may cause communication failure.

4.Module Function

4.1 Module Function

There are three module reception methods in total, as follows:

- ① Receive by character interval (default mode);
- ② Receive by length (receive length user defined);
- ③ Receive special characters at the end (default 0x0d, User configurable);

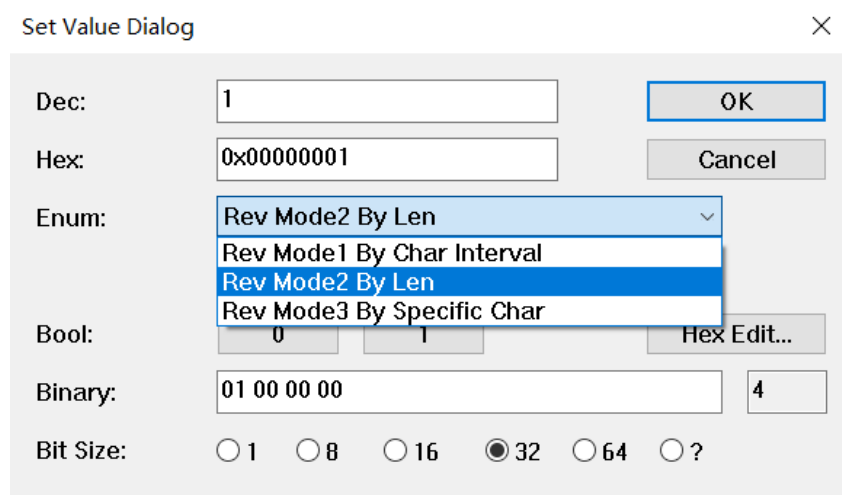


Figure 4-1-1 Module receiving mode selection

4.2 Parameter Description

4.2.1 Configuration parameters

RB-6301 The configurable parameters are shown in the following table.

Serial number	Parameter	Illustrate	Remark
1	Baud Rate	Baud rate	User selectable standard baud rates
2	Data Bits	Data bits	Fixed to 8 bits
3	Parity Bits	Parity	The default is no check, configurable
4	Stop Bits	Stop bits	The default is 1 bit

5	Interval Time	Automatic timed sending function	The interval of scheduled sending is from 50Milliseconds to 10Seconds optional (default 1s)
6	Rev Mode	Receive mode selection	Character spacing (default)/character length/special characters

Note: Parameter settings must be configured before the module runs, if using TwinCAT, configure them in Startup. In the OMEOM software, you need to find the corresponding module and configure it in the **module editing initialization parameter settings**; if no settings are required, use the default values, no action is needed.

4.2.2 Process data

4.2.2.1 Output Data

The output data length is 66 bytes, the first two bytes are output control command selection, and the following 64 bytes are data words.

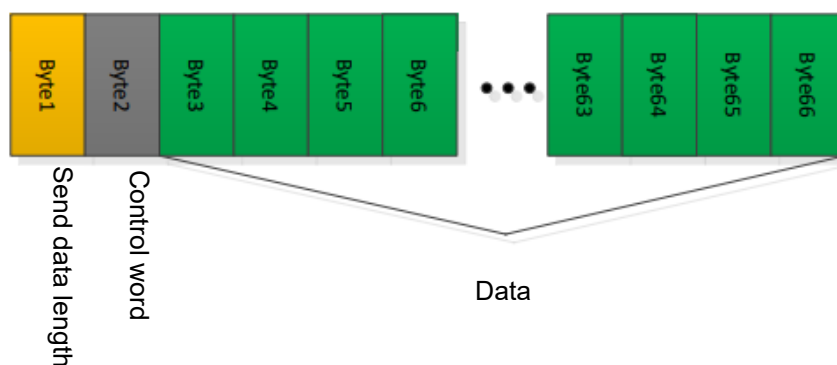


Figure 4-2-1 Output Byte

For example: the length of the sent data is 4 bytes, and the sending mode is triggered to send, then the corresponding output address is forced to be:

04 01 XX XX XX XX (XX Representative data)

Function and description corresponding to the output address

Name	Length	Bit Definition	
Send data	1 byte		Data length N, maximum 64byte
Control Word	1 byte	Bit0	TxE Start Send Tag When TxM=0, it is trigger mode, only when TxE changes from 0 to 1 (rising edge), a transmission is triggered. When TxM=1, it is in automatic sending mode. TxE=1, the module automatically sends continuously according to the "automatic sending interval" selected in the configuration information.
		Bit1	TxE Send Mode TxE=0: Trigger sending mode TxE=1: Automatic timed sending mode
		Bit2	relen=1 Receives by length relen=0 Receive by character intervals: When a character is received and the next character is not received for 3.5 consecutive character times (related to the baud rate, the number of character bits, and whether there is a check bit), the message is considered to be finished.
		Bit3	Channel 0: 0
		Bit4-5	reserve
		Bit6	Set_re forces waiting for reception
		Bit7	Set_re forces receiving completed/sending allowed status

Data bit 0~1 mode definition is shown in the following table:

Bit1:TxM	Bit0:TxE	Sending method	Illustrate
0	0→1	Trigger Mode	Complete a send
0	other	Trigger Mode	Do not send
1	1	Automatic mode	Automatically send continuously according to the "Auto Send Interval"
1	0	Automatic mode	Do not send

Data bits6~7 mode definition is shown in the following table:

Bit7	Bit6	Function
1	0	"Forced reception completed/Send permission status Set_tr": Force reok_tren=1 to make RS232/485 in""Received/allowed to send" status:
0	1	No effect
1	1	No effect
0	0	No effect

4.2.2.2 Input Data

The input data length is 66 bytes, the first 2 bytes are the communication status and message length, and the following 64 bytes are data bits.

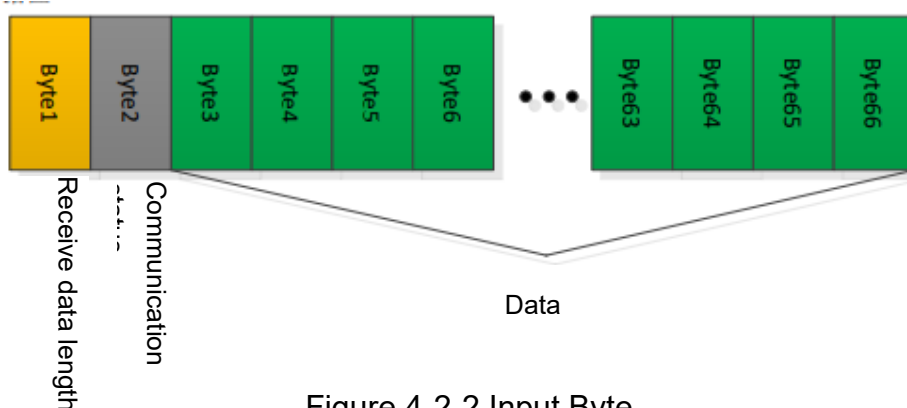


Figure 4-2-2 Input Byte

For example: The received data is: 04 01 xx xx xx xx (xx represents data), which means the total length of the received data is 4 bytes, the communication status is receiving completed/sending allowed, and the received data is "xx xx xx xx".

Functions and descriptions corresponding to the input address

Name	Length	Bit Definition	
Accept data length	1 byte		Data length N, maximum 64byte
Communication status word	1 byte	Bit0	reok_tren received/sent allowed reok_tren=1: RS232/485 interface is in the "receive complete/send allowed" state; reok_tren=0: RS232/485 interface is in "waiting to receive" state;
		Bit1	tr_OK deliver Finish tr_ok=1: RS232/485 interface sends data finish; tr_ok=0: RS232/485 interface sends data not completed;
		Bit2	re_ok Receiving completed re_ok=1: RS232/485 interface take over data finish; re_ok=0: RS232/485 interface take over data not completed;
		Bit3-7	reserve

Data bits6~7 mode definition is shown in the following table:

Bit2\1\0	State
0 0 1	RS232/485 is in the "receive complete/send allowed" state, if "the send flag TxE" changes from 0 to 1, RS232/485 switches to D2 D1 D0 = 010, which means sending is started and the data in the output data area is

0 1 0	RS232/485 complete sends data to RS232/485 device.
0 0 0	RS232/485 is in the "waiting to receive" message state, that is, waiting to receive data sent by the RS232/485 device
1 0 0	RS232/485 finish receive data sent by RS232/485 device.

4.3 Module Operation

4.3.1 Receiving by character interval

(1) Power on the module (configuration information defaults to main mode), Status Byte D2 D1 D0 = 0 0 1, RS232/485 interface is in the "receive complete/send allowed" state;

(2) Control Byte=0x0801, trigger mode, start sending flag, receive at character intervals, channel number 0, TxE starts sending flag from 0 to 1, and sends 8 bytes of data on the rising edge;

(3) Sending completed, Status Byte D2 D1 D0 = 0 1 0, the status word is 2, and the RS232/485 interface is in "Waiting for receiving" state;

(4) The master station waits for D2 D1 D0 of Status Byte to be 0 0 1, and the module is in the "receive completed/send allowed" state before performing the next send operation;

(5) Jump to step 1 and execute.

4.3.2 Receiving by character length

(1) Modify the module's receiving mode to receive by character length;

(2) Send the command of receive character length. The sending format is as follows:

Set the data format of the received length to: 0xXX+0x01+0xYY...0xYY+0xZZ

0xXX: Length of data sent by the module

0x01: Trigger sending command

0xYY: send data

0xZZ: received data length

Example: Send 0x0301 0x1111 0x1105, which means to send 3-bytes of data and receive data with a length of five bytes.

Example: Send 0x0201 0x1111 0x0505, which means send 2-bytes of data and receive data with a length of five bytes.

Control Byte	0x0201	UINT	2.0	41.0	Outp...
Data 1	0x1111	UINT	2.0	43.0	Outp...
Data 2	0x0505	UINT	2.0	45.0	Outp...

Use the serial port tool to send six bytes of data to the module

[14:57:34.092]receive ← ◆ 11 11

[14:58:45.567]send → ◇ 11 22 33 44 55 66 □

The module will only receive the first five bytes of data.

Name	[X]	Online	Type	Size	>Addr...	In/Out	Linked to
Status Byte		0x0507	UINT	2.0	39.0	Input	
Data 1		0x1122	UINT	2.0	41.0	Input	
Data 2		0x3344	UINT	2.0	43.0	Input	
Data 3		0x5500	UINT	2.0	45.0	Input	
Data 4		0x0000	UINT	2.0	47.0	Input	
Data 5		0x0000	UINT	2.0	49.0	Input	
Data 6		0x0000	UINT	2.0	51.0	Input	
Data 7		0x0000	UINT	2.0	53.0	Input	

And when new data needs to be received again, a new receive character length command must be sent first, otherwise new data cannot be received.

[14:58:45.567]send → ◇ 11 22 33 44 55 66 □

[15:04:32.124] receive← ◆ 11 11

[15:05:03.486] send → ◇ 11 33 44 55 66 □

Name	[X]	Online	Type	Size	>Addr...	In/Out	Linked to
Status Byte		0x0507	UINT	2.0	39.0	Input	
Data 1		0x1133	UINT	2.0	41.0	Input	
Data 2		0x4455	UINT	2.0	43.0	Input	
Data 3		0x6600	UINT	2.0	45.0	Input	
Data 4		0x0000	UINT	2.0	47.0	Input	

When the length of the received bytes does not reach the set length, the data will not be displayed (but will be stored), and will only be displayed when the set length is received.

[15:09:32.202] send → ◇ 02 03 □

Status Byte	0x0002	UINT	2.0	41.0	Input
Data 1	0x0000	UINT	2.0	43.0	Input
Data 2	0x0000	UINT	2.0	45.0	Input
Data 3	0x0000	UINT	2.0	47.0	Input

[15:09:32.202] send → ◇ 02 03 □
 [15:10:27.557] receive ← ◆ 11 11
 [15:10:45.595] send → ◇ 11 22 33 44 55 □

Name	[X]	Online	Type	Size	>Addr...	In/Out	Linked to
Status Byte		0x0507	UINT	2.0	39.0	Input	
Data 1		0x0203	UINT	2.0	41.0	Input	
Data 2		0x1122	UINT	2.0	43.0	Input	
Data 3		0x3300	UINT	2.0	45.0	Input	
Data 4		0x0000	UINT	2.0	47.0	Input	

4.3.3 Receive by ending with special characters

(1) Change the receiving mode to the special character ending mode. The default special character is 0x0d.

(2) In the special character ending mode, the data transmission and reception form is one send and one receive (the module must send a group of data before receiving the data);

[15:52:26.946] receive ← ◆ 11 22
 [15:52:45.643] send → ◇ 11 22 33 44 □

Name	[X]	Online	Type	Size	>Addr...	In/Out	Linked to
Status Byte		0x0002	UINT	2.0	39.0	Input	
Data 1		0x0000	UINT	2.0	41.0	Input	
Data 2		0x0000	UINT	2.0	43.0	Input	
Data 3		0x0000	UINT	2.0	45.0	Input	
Data 4		0x0000	UINT	2.0	47.0	Input	

If the received data does not end with 0x0d, it will not be displayed.

[15:52:26.946] receive ← ◆ 11 22
 [15:52:45.643] send → ◇ 11 22 33 44 □
 [15:54:36.408] send → ◇ 11 22 33 44 0D □

Name	[X]	Online	Type	Size	>Addr...	In/Out	Linked to
Status Byte		0x0507	UINT	2.0	39.0	Input	
Data 1		0x1122	UINT	2.0	41.0	Input	
Data 2		0x3344	UINT	2.0	43.0	Input	
Data 3		0x0d00	UINT	2.0	45.0	Input	
Data 4		0x0000	UINT	2.0	47.0	Input	
Data 5		0x0000	UINT	2.0	49.0	Input	

After adding the special character at the end, the module data receiving area will display all the data received before the special character ends.

[15:58:55.509] send → ◇ 11 22 33 44 0D 11 22 33 44 0D □

Name	[X]	Online	Type	Size	>Addr...	In/Out	Linked to
Status Byte		0x0507	UINT	2.0	39.0	Input	
Data 1		0x1122	UINT	2.0	41.0	Input	
Data 2		0x3344	UINT	2.0	43.0	Input	
Data 3		0x0d00	UINT	2.0	45.0	Input	
Data 4		0x0000	UINT	2.0	47.0	Input	

If there are two special characters in a frame of data, the reception will be terminated when the first special character is received by default.

4.3.4 Trigger send mode

Example: Control Byte=0x0201, trigger mode, start sending flag, receive at character intervals, channel number 0, TxE starts sending flag from 0 to 1, and sends 2 bytes of data on the rising edge;

[16:05:26.050] receive ← ◆ 11 22

Name	[X]	Online	Type	Size	>Addr...	In/Out	Linked to
Control Byte		0x0201	UINT	2.0	39.0	Outp...	
Data 1		0x1122	UINT	2.0	41.0	Outp...	

4.3.5 Automatic timed sending mode

Example: Control Byte=0x0203, automatically send mode, start sending flag, receive at character intervals, channel number 0, TxE start sending flag changes from 0 to 1, rising set the sending interval time, continue sending 2 bytes of data;

Name	[X]	Online	Type	Size	>Addr...	In/Out	Linked to
Control Byte		0x0203	UINT	2.0	39.0	Outp...	
Data 1		0x1122	UINT	2.0	41.0	Outp...	
Data 2		0x0000	UINT	2.0	43.0	Outp...	
Data 3		0x0000	UINT	2.0	45.0	Outp...	
Data 4		0x0000	UINT	2.0	47.0	Outp...	
Data 5		0x0000	UINT	2.0	49.0	Outp...	
Data 6		0x0000	UINT	2.0	51.0	Outp...	

[16:05:26.050] receive ← ◆ 11 22

[16:16:45.613] receive ← ◆ 11 22

[16:16:46.614] receive ← ◆ 11 22

[16:16:47.614] receive ← ◆ 11 22

[16:16:48.615] receive ← ◆ 11 22

[16:16:49.615] receive ← ◆ 11 22

[16:16:50.615] receive ← ◆ 11 22

[16:16:51.615] receive ← ◆ 11 22

4.3.6 Modify the end of special characters

When modifying the end of a special character, a group of special characters must be sent.

The character format is as follows:

Send frame:

Send Length(1byte)	Control word (1byte)	Data (N byte)
N bytes	0x21	XX XX

XX XX indicates the specific characters that need to be modified (length-variable, 2-byte char max).

N: represents the length of xx xx data, the maximum length is 2;

Response frame:

Modification successful

Receive message(1byte)	Communication status word (1byte)	Data (N byte)
0x04	0x05	0xYY 0xYY 0x0a 0x0d

Modification failed (response failure when modification is impossible or invalid):

Send Length(1byte)	Control word (1byte)	Data (N byte)
0x04	0x05	0xYY 0xYY 0x15 0x0d

YY YY: indicates the current specific character. If it is a 1-byte specific character, 0xYY 0xYY is the specific character (1 byte) + 0x00. If it is a 2-byte specific character, YYYYY is the specific character (2 bytes).

Note: Invalid modification means that when all special characters are 0, the setting modification fails

① The following is a successful example of modifying special characters into double-byte.

Control Byte	0x0221	UINT	2.0	41.0	Outp...
Data 1	0x1111	UINT	2.0	43.0	Outp...
Data 2	0x0505	UINT	2.0	45.0	Outp...
Data 3	0x0000	UINT	2.0	47.0	Outp...
Status Byte	0x0405	UINT	2.0	41.0	Input
Data 1	0x1111	UINT	2.0	43.0	Input
Data 2	0x0a0d	UINT	2.0	45.0	Input

② The following is a failure example of modifying special characters into double-byte (the reason for the modification failure is that the second digit of the special character is 0x00).

Control Byte	0x0221	UINT	2.0	41.0	Outp...
Data 1	0x1100	UINT	2.0	43.0	Outp...
Data 2	0x0505	UINT	2.0	45.0	Outp...
Status Byte	0x0405	UINT	2.0	41.0	Input
Data 1	0x1111	UINT	2.0	43.0	Input
Data 2	0x150d	UINT	2.0	45.0	Input

③ The following example changes special characters to double bytes, with the first byte being 0x00.

Control Byte	0x0221	UINT	2.0	41.0	Outp...
Data 1	0x0011	UINT	2.0	43.0	Outp...
Data 2	0x0505	UINT	2.0	45.0	Outp...
Status Byte	0x0405	UINT	2.0	41.0	Input
Data 1	0x0011	UINT	2.0	43.0	Input
Data 2	0x0a0d	UINT	2.0	45.0	Input
Data 3	0x0000	UINT	2.0	47.0	Input

④ The following is a successful example of modifying special characters into single bytes.

 Control Byte	0x0121	UINT	2.0	41.0	Outp...
 Data 1	0x1100	UINT	2.0	43.0	Outp...
 Data 2	0x0505	UINT	2.0	45.0	Outp...
 Data 3	0x0000	UINT	2.0	47.0	Outp...
 Data 4	0x0000	UINT	2.0	49.0	Outp...
 Status Byte	0x0405	UINT	2.0	41.0	Input
 Data 1	0x1100	UINT	2.0	43.0	Input
 Data 2	0x0a0d	UINT	2.0	45.0	Input
 Data 3	0x0000	UINT	2.0	47.0	Input

⑤ The following is a failure example of modifying special characters into single bytes (the reason for the modification failure is that the second byte of the special character was not 0x00 when the length of the modification byte was set to 0x01).

 Control Byte	0x0121	UINT	2.0	41.0	Outp...
 Data 1	0x1122	UINT	2.0	43.0	Outp...
 Data 2	0x0505	UINT	2.0	45.0	Outp...
 Data 3	0x0000	UINT	2.0	47.0	Outp...
 Status Byte	0x0405	UINT	2.0	41.0	Input
 Data 1	0x1100	UINT	2.0	43.0	Input
 Data 2	0x150d	UINT	2.0	45.0	Input
 Data 3	0x0000	UINT	2.0	47.0	Input

5.Product Use Cases

5.1 Usage and configuration of RB-6301 in TwinCAT3

Install the XML description file to the path C:\TwinCAT\3.1\Config\Io\EtherCAT.

	DECOWELL_FNS-1005-EC_V1.0.0.xml	修改日期: 2024/1/11 13:51 大小: 4.10 KB
	DECOWELL_LS-EC_V1.0.5.xml	修改日期: 2024/7/4 10:22 大小: 1.30 MB
	DECOWELL_MTC-1100_V1.0.3.xml	修改日期: 2024/7/29 9:25 大小: 590 KB
	DECOWELL_RB-1100_V1.1.1_20240805.xml	修改日期: 2024/8/26 9:31 大小: 1.08 MB
	DECOWELL_RS-EC2_Coupler_V1.0.8.xml	修改日期: 2024/7/17 16:12 大小: 309 KB
	DECOWELL_RX-1100_V1.0.8_20240725.xml	修改日期: 2024/8/19 10:21 大小: 750 KB
	DECOWELL_SDEC-8IOL-M12-00_BITARR_V1.0.7.xml	修改日期: 2023/11/6 16:46 大小: 781 KB

Figure 5-1-1 Install XML file

Open the TwinCAT3 software, select "File" > "New" > "Project" from the menu bar, and select "TwinCAT project" in the new project window.

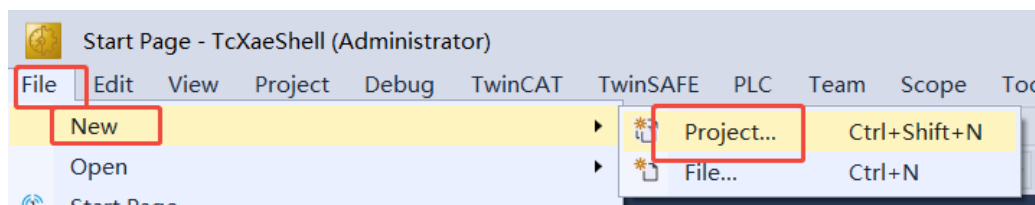


Figure 5-1-2 New Project

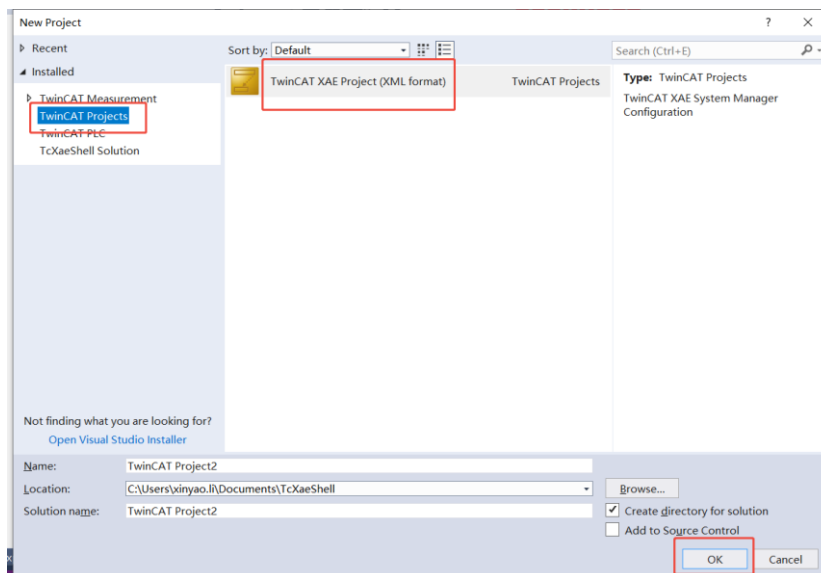


Figure 5-1-3 Create a new TwinCAT project

Scan the IO connected to the programming computer into the project. In the project tree, click "I/O" > "Devices" > "Scan" to scan the hardware configuration.

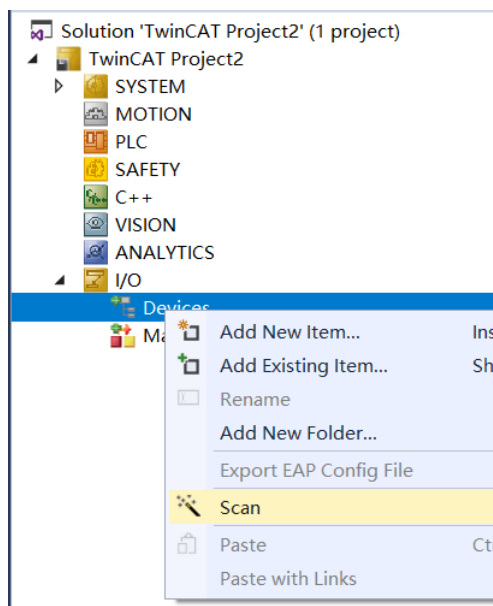


Figure 5-1-4 Add IO module

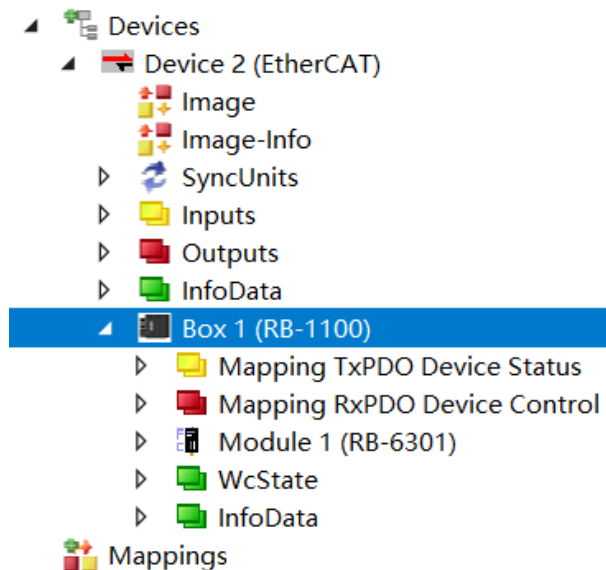


Figure 5-1-5 Hardware Configuration

Click the RB-1100 module to change the RB-6301 configuration parameters in COE Online, as shown in the figure.

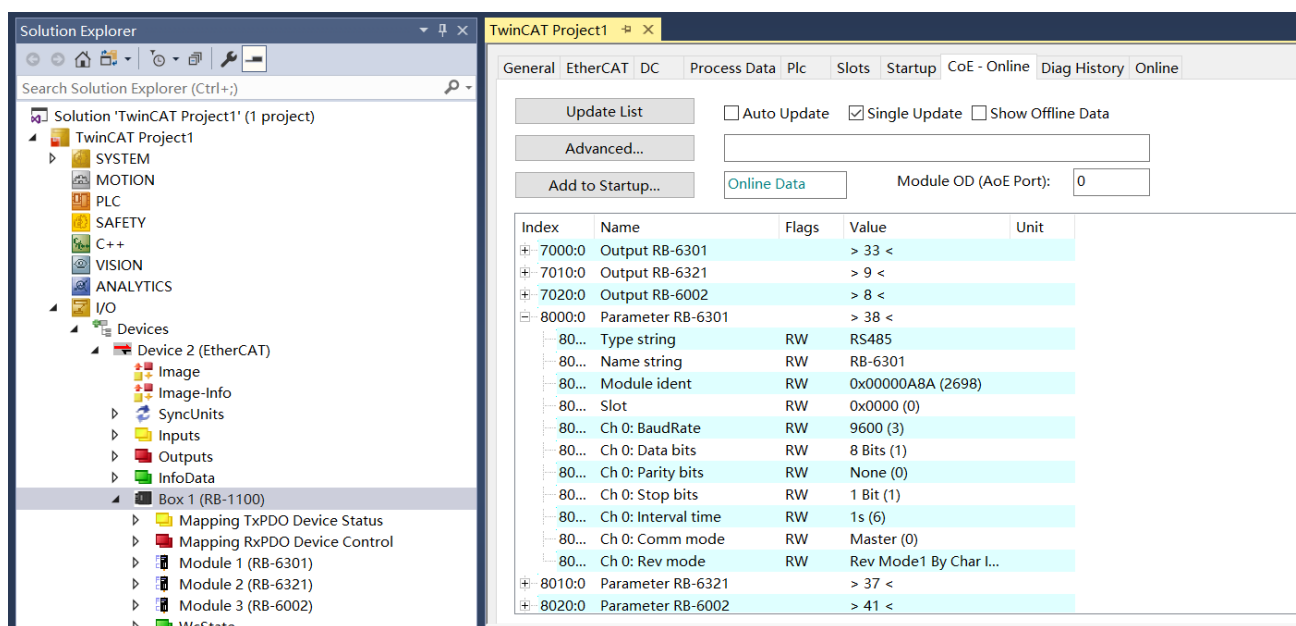


Figure 5-1-6 Paramter settings

5.2 Usage and configuration of RB-6301 in TIA Portal

Start the TIA Portal V17 software and select "Create a new project". Select the name and path of the project to be created and click Create.

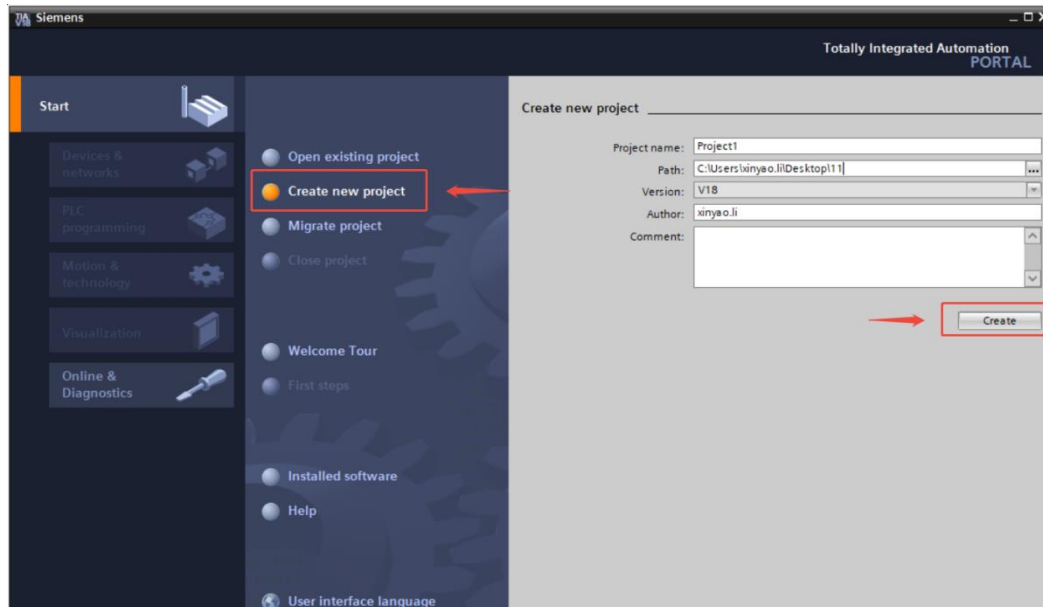


Figure 5-2-1 Create a new project

1. Select Devices and Networks, and click Add Device;
2. Select the PLC model (the PLC model used in the case is S7-1200)
3. Click Add.

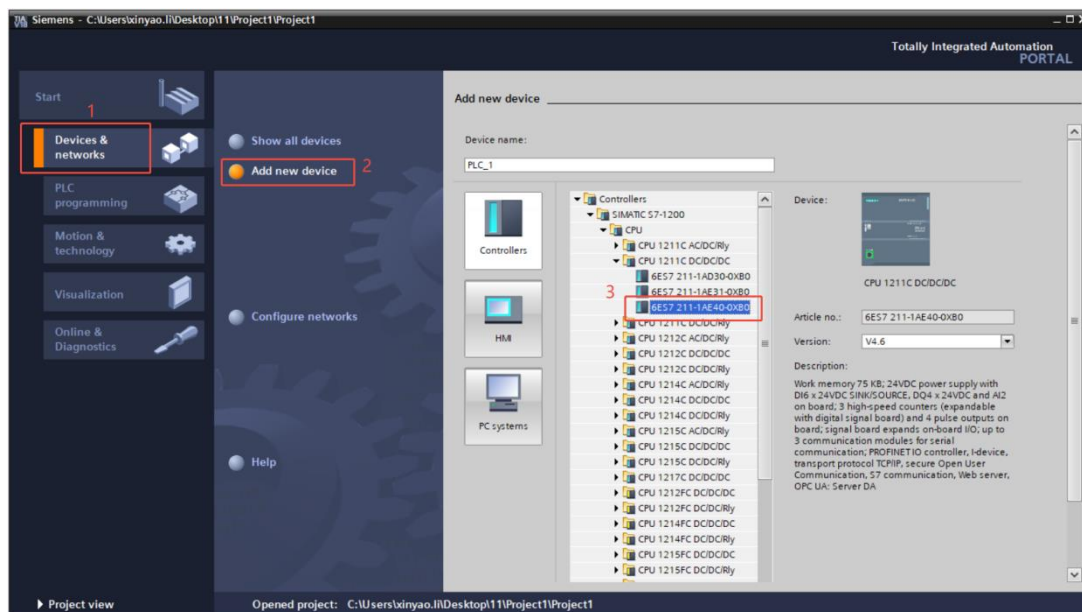


Figure 5-2-2 Add PLC

Add GSD file

1. Select the path where the GSD is stored;
2. Select the corresponding GSD file;
3. Click Install (the configuration example uses the RB -1110)

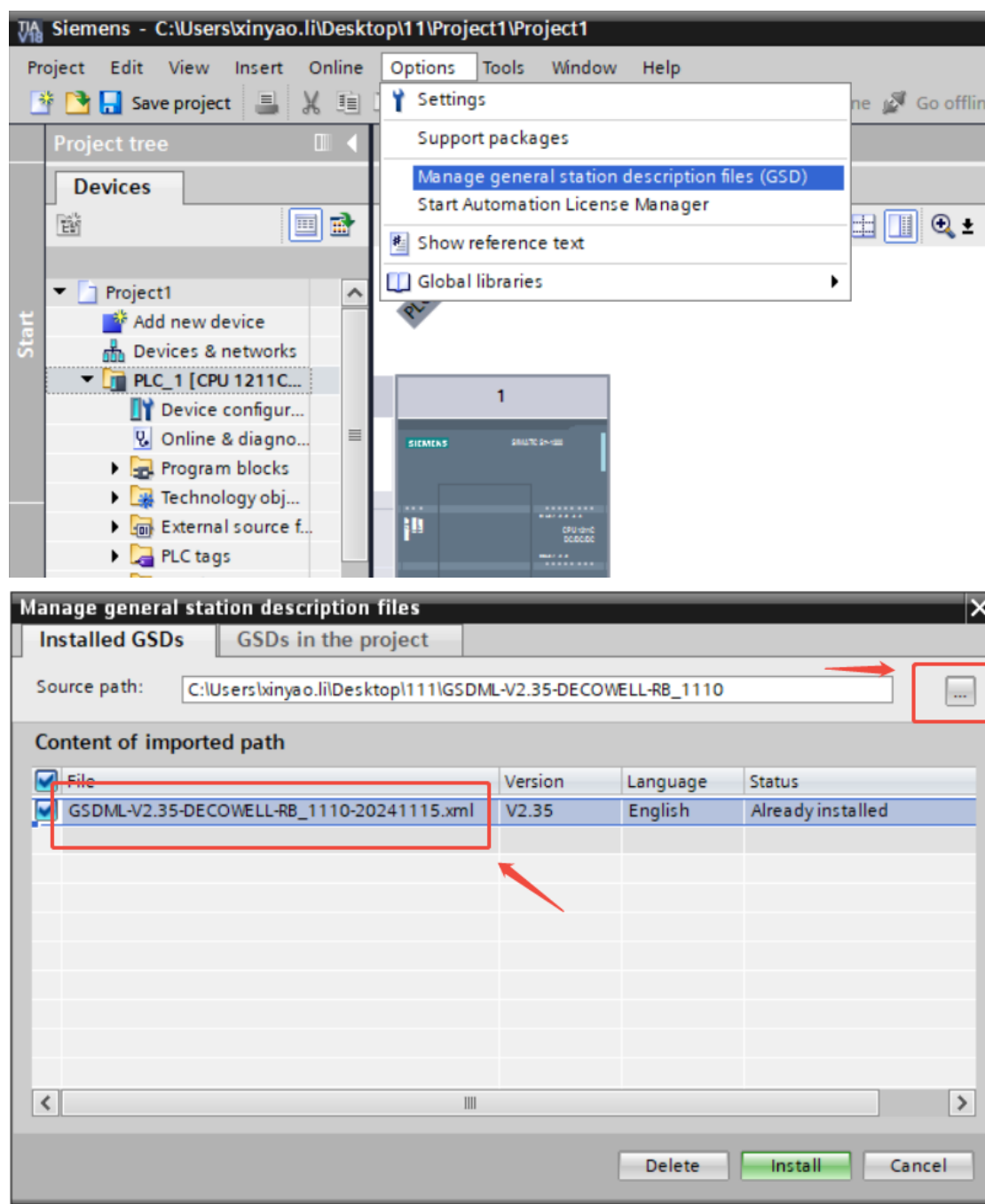


Figure 5-2-3 Add GSD file

Add PROFINET slave device:

1. Click Network View;

2. Click Other Field Devices;
3. Click PROFINET IO;
4. Click DECOWELL and select the RB -1110 module.

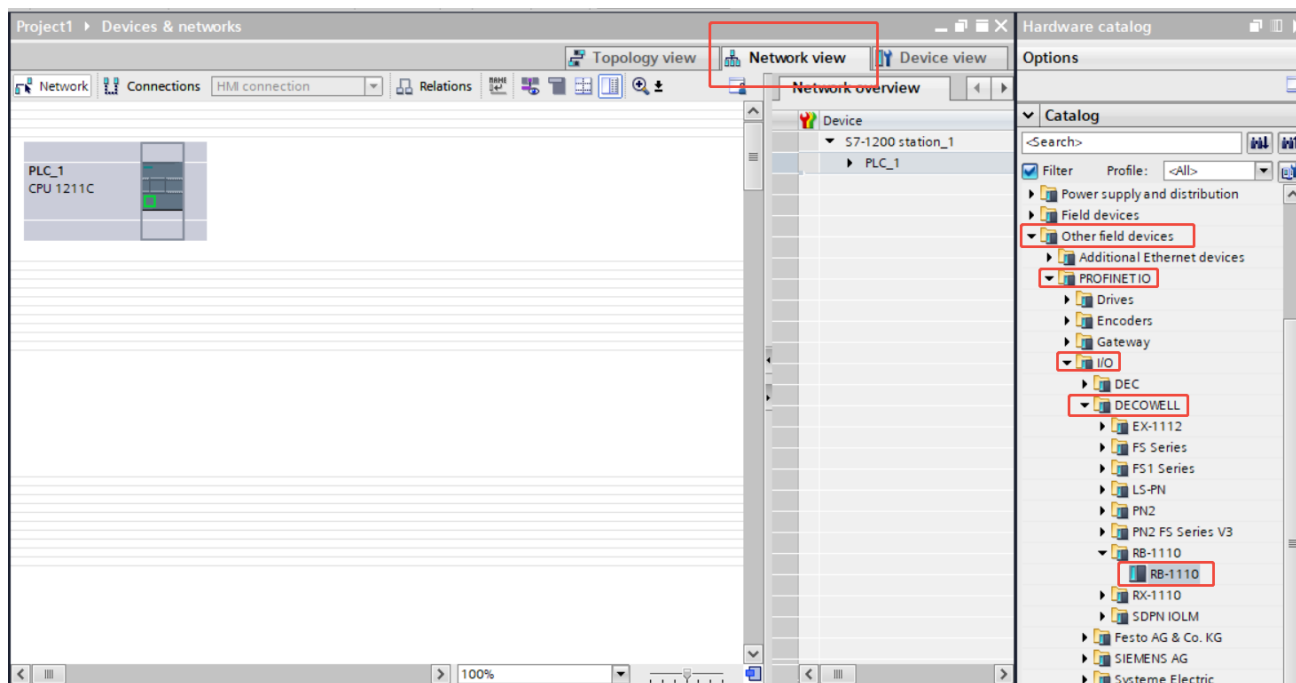


Figure 5-2-4 Manual Configuration

Connect the PLC and PROFINET slave devices. Click the Unassigned of the DEC module and click PLC -1. PROFINET interface.

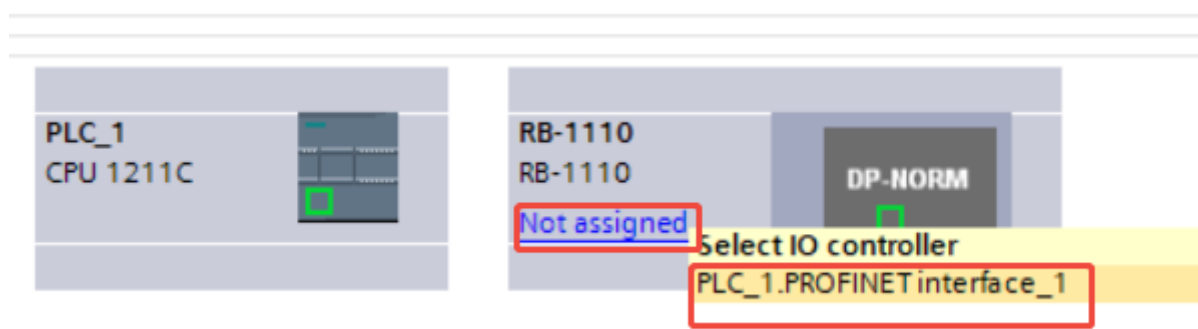


Figure 5-2-5 Network port allocation

Add RS485 free port communication module. Double-click the added RB-1110 module in the network view, select the module FM, double-click to add RB-6301.

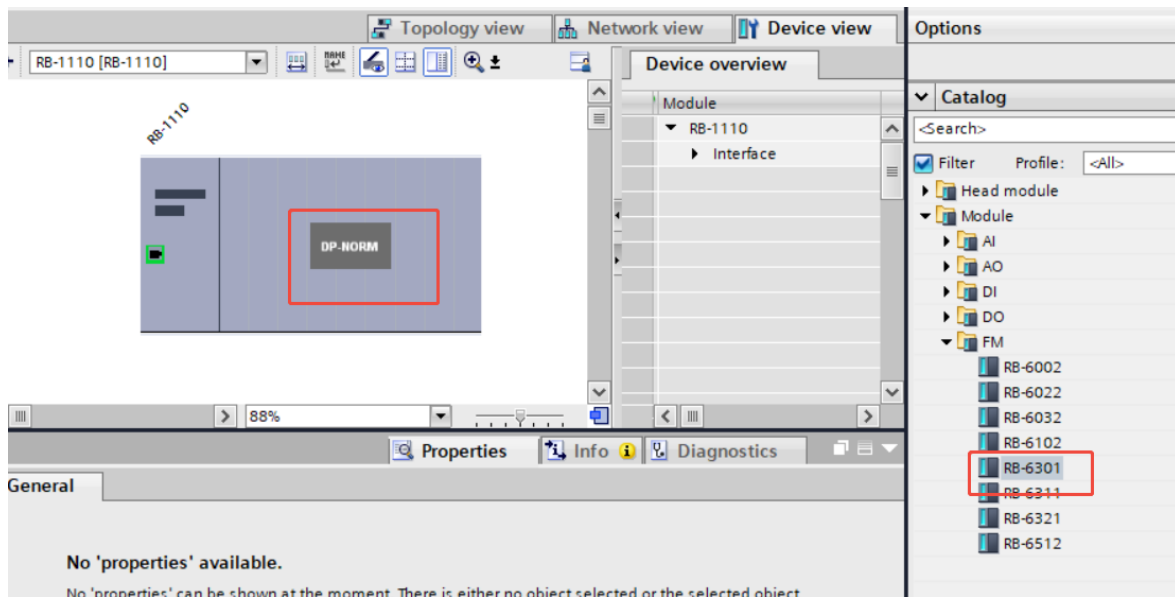


Figure 5-2-6 Manually add RB-6301 module

Configuring RB-6301 communication parameters, click the RB-6301 module, you can set the parameters in the module parameters, as shown in the figure

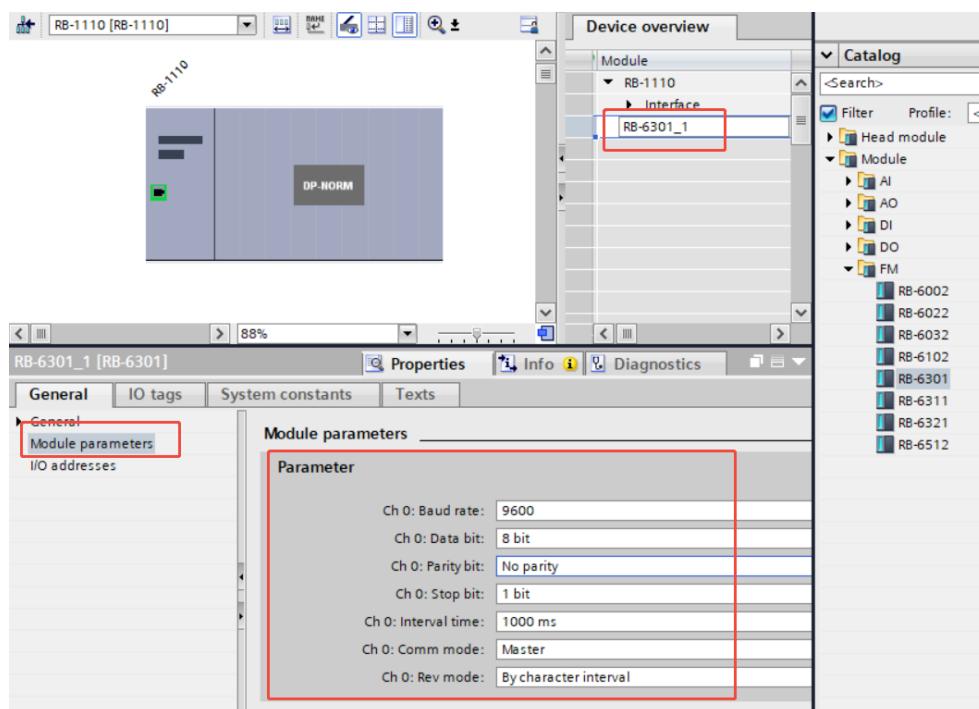
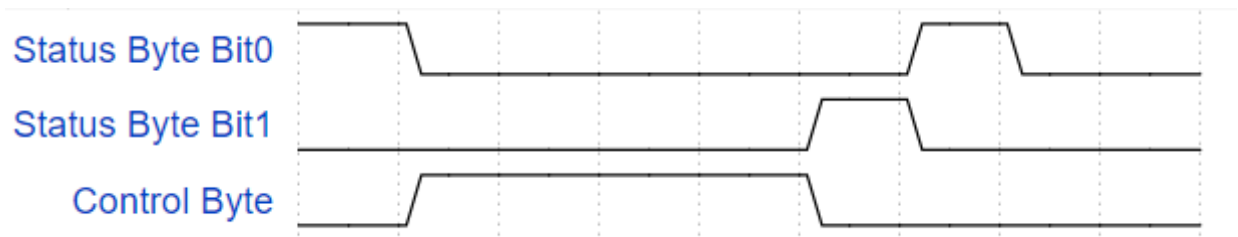


Figure 5-2-7 Parameter configuration

5.3 RB-6301 Control timing diagram





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