Modbus TCP

RC Series Slice I/O

User Manual

Table of contents

1	Produ	Product Overview		
	1.1	Product Introduction	1	
	1.2	Product Features	1	
	1.3	Application Configuration	2	
2	Mode	List	3	
	2.1	List of commonly used modules	3	
3	Produ	ct Parameters	4	
	3.1	General parameters	4	
	3.2	Power parameters	4	
	3.3	Interface parameters	5	
	3.4	Digital parameters	5	
	3.5	Analog parameters	6	
	3.5.1	Technical Parameters	6	
	3.5.2	Voltage input/output range selection and code value table	7	
	3.5.3	Current input/output range selection and code value table	9	
4	panel.		11	
	4.1	Coupler Panel	11	
	4.1.1	Coupler structure	11	
	4.1.2	Rotary Switch	12	
	4.1.3	Indicator light function	13	
	4.2	I/O Module Panel	15	
5	Installa	ation and removal	.16	
	5.1	Installation Guide	16	
	5.2	Installation and removal steps	17	
	5.3	Installation Diagram	18	
	5.4	Dimensions	22	
6	wiring		.25	
	6.1	Terminal Blocks	25	
	6.2	Wiring Instructions and Requirements	25	

7

6.3	I/O module wiring diagram	29
6.3.1	RIO3200P	29
6.3.2	RIO1616P	
6.3.3	RIO1600P	
6.3.4	RIO0800P	
6.3.5	RIO0032P	
6.3.6	RIO0016P	
6.3.7	RIO0008P	
6.3.8	RIO0012J	
6.3.9	RIO80AV	37
6.3.10	RIO40AV	38
6.3.11	RIO40AI	
6.3.12	RIO08AI	40
6.3.13	RIO04AV	41
6.3.14	RIO04AI	42
6.3.15	RIO80TM	43
6.3.16	RIO40TM	44
6.3.17	RIOP20A	45
use		46
7.1	Module Application	46
7.2	IP settings and modifications	47
7.2.1	Setting the IP address via the rotary switches	47
7.2.2	Setting IP address via the Web	48
7.3	Restore factory settings	48
7.4	Module parameter setting function	49
7.4.1	Digital output clear/hold function	49
7.4.2	Digital input filter time	49
7.4.3	Analog filter setting function	49
7.4.4	Analog range configuration function	50
7.5	Module function code corresponding table	50
7.6	Bus module configuration instructions	52
7.6.1	Application on the Web	52

7.6.2	Application in CODESYS V3.5 software environment	61
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1 Product Overview

1.1 Product Introduction

RC series plug-in I/O modules adopt a structure that combines a coupler and an I/O module. RC-MT2200 is a module kit of RC series plug-in power modules and Modbus TCP couplers. The coupler connects the expandable I/O modules to the fieldbus control system. The I/O module communication backplane uses the X-bus bus, which has high real-time performance and a rich variety of modules. The Modbus TCP coupler supports configuring module parameters on the Web page and dynamically displays the status of the I/O module, providing users with high-speed data acquisition, optimized system configuration, simplified field wiring, and improved system reliability.

1.2 Product Features

- Occupies fewer nodes
 A node consists of a bus coupler, 1 to 32 X-bus series I/O modules and an end cover.
- Rich functional expansion

It supports flexible expansion and has a full range of I/O types; it can integrate digital, analog, temperature, pulse and other modules to meet the needs of different application scenarios.

• Flexible configuration

Various types of plug-in I/O modules can be combined arbitrarily.

• Strong compatibility

The coupler communication interface complies with communication standards and supports mainstream Modbus TCP master stations.

Support abnormal alarm of slave station access
 It has the function of abnormal access alarm for slave module. When abnormal access occurs,

the output is maintained and the input can be configured to be cleared or maintained.

Small size

Compact structure and small space occupation.

Easy diagnosis

The innovative channel indicator light design is close to the channel, so the channel status is clear at a glance and detection and maintenance are convenient.

 Fast speed The backplane uses X-bus: the maximum scanning cycle is 1 ms.

• Easy to install

DIN 35 mm standard rail installation.

It adopts spring-type terminal blocks, making wiring convenient and quick.

1.3 Application Configuration



Application configuration:

According to the requirements of master station access capability, number of sites, I/O points, function type, etc., it can adapt to different types of I/O module combination configurations. **Configuration rules:**

The modules from left to right are power module, coupler module, I/O module, end cover (mandatory), etc.

2 Model List

2.1 List of commonly used modules

model	Product Description		
RC-MT2200	Modbus TCPCoupler kit (power supply RC-PWR2H, coupler RC-MT200)		
RIOPWR2	Extension power module		
RIO3200P	32-channel digital input module, PNP type		
RIO0032P	32-channel digital output module, PNP type		
RIO1600P	16-channel digital input module, PNP type		
RIO0016P	16-channel digital output module, PNP type		
RIO0800P	8-channel digital input module, PNP type		
RIO0008P	8-channel digital output module, PNP type		
RIO1616P	16-channel digital input and output module, P	NP type	
RIO80AV	8-channel analog voltage input module		
RIO40AV	4-channel analog voltage input module		
RIO04AV	4-channel analog voltage output module	-10~+10 v	
RIO40AI	4-channel analog current input module	Optional range:0~20mA,	
RIO08AI	8-channel analog current output module	4~2	
RIO04AI	4-channel analog current output module	0m	
		A	
RIO0012J	12-channel relay output module		
RIO40TM	4-channel thermal resistor and thermocouple t	emperature acquisition	
	module		
RIO80TM	8-channel thermal resistor and thermocouple t	emperature acquisition	
	module		
RIOP20A	Pulse counting module		

3 Product Parameters

3.1 General parameters

General technical parameters			
Specifications and	Power Module	106 × 61 × 22.5 mm	
dimensions	Coupler modules	106 × 61 × 22.5 mm	
	I/O Modules	106 × 73 × 25.7 mm	
weight	Power Module	110 g	
	Coupler modules	80 g	
	I/O Modules	90 g	
Operating	-10°C~+60°C		
temperature			
Storage temperature -20°C~+75°C			
Relative humidity	lity 95%, non-condensing		
Protection level	ction level IP20		

3.2 Power parameters

Power parameters		
Power Module	Working power	24 VDC (18V~30V)
	supply	
	Output voltage	5 VDC
	Output Current	2 A
Coupler modules	Working power	5 VDC
	supply	
	Working current	400 mA
I/O Modules	Working power	5 VDC
	supply	

3.3 Interface parameters

Modbus TCP Interface Parameters		
Bus protocol	Modbus TCP	
Data transmission medium	Ethernet CAT5 Cable	
Transfer rate	100 Mbps	
Transmission distance	≤100 m (station to station distance)	
Bus interface	2 × RJ45	
Number of client connections	8	

3.4 Digital parameters

Digital input			
Rated voltage	24 VDC (18V~30V)		
Signal Points	8, 16, 32		
Signal Type	PNP		
"0" signal voltage (PNP)	-3~+3 V		
"1" signal voltage (PNP)	15~30 V		
Input filtering	3 ms		
Input Current	4 mA		
Isolation method	Optocoupler Isolation		
Isolation withstand voltage	500 VAC		
Channel indicator light	Green LED light		
Digital output			
Rated voltage	24 VDC (18V~30V)		
Signal Points	8, 16, 32		
Signal Type	PNP		
Load Type	Resistive load, inductive load		
Single channel rated current	PNP type Max: 500 mA		
Port protection	Overvoltage and overcurrent protection		
Isolation method	Optocoupler Isolation		
Isolation withstand voltage	500 VAC		
Channel indicator light	Green LED light		

Relay output	
Rated voltage	24 VDC (18V~30V)
Signal Points	12
Isolation method	Optocoupler, relay
Rated load	2 A
Channel indicator light	Green LED light

3.5 Analog parameters

3.5.1 Technical Parameters

Analog input				
Enter points	4, 8			
Input signal (voltage	0~+10 V, -10 V~+10 V (ra	nge adjusta	ible)	
type)				
Input signal (current	0~20 mA, 4~20 mA (adjus	table range)	
type)				
Resolution	16 bit		I	
Sampling rate	RIO40AV, RIO80AV, RIO40)AI	≤1 ksps	
Accuracy	RIO40AV, RIO80AV, RIO40)AI	±0.1%	
Input impedance	≥2 kΩ			
(voltage type)				
Input impedance (current	100 Ω			
type)				
Isolation withstand	500 VAC			
voltage				
Channel indicator light	Green LED light			
Temperature input				
Number of channels	4, 8			1
Sensor Type	Thermocouple	Thermal r	esistor	resistance
Connection	2-wire	2-wire, 3-	wire	2-wire
	K: -200~1370°C	Pt100: -2	00~850°C	15Ω~3kΩ
	J: -200~1200℃	Pt200: -2	00~600°C	
	E: -200~1000°C	Pt500: -2	00~600°C	
	S: -50~1690℃	Pt1000: -	200~600°C	
	B: 50~1800℃			
Accuracy	±0.3%	±1℃		±0.1%
Sensitivity	0.1°C ±0.1Ω			
Resolution	16 bits (int type)			
Channel indicator light	Green LED light			

Analog output			
Output points	4, 8		
Output signal (voltage	e 0~+10 V, -10 V~+10 V (range adjustable)		
type)			
Output signal (current	0~20 mA, 4~20 mA (adjustable range)		
type)			
Resolution	16 bit		
Accuracy	RIO04AV, RIO04AI, RIO08AI	±0.1%	
Load impedance (voltage $\geq 2 \text{ k}\Omega$			

type)	
Load impedance (current	<500 Ω
type)	
Isolation withstand	500 VAC
voltage	
Channel indicator light	Green LED light

Note: The analog voltage module does not support underflow, underflow and overshoot, while the analog current module supports underflow, underflow and overshoot.

3.5.2 Voltage input/output range selection and code value table

Voltage input/output range selection and code value range						
Range selection	0	1	2	3		
Range	-10V~+10V	0~+10 V	-10V~+10V	0~+10 V		
Code value	-32768~32767	0~32767	-27648~27648	0~27648		
range						
Voltage input						
Calculation	D=(65535/20)*U	D=(32767/10)*U	D=(55296/20)*U	D=(27648/10)*U		
formula						
Voltage output						
Calculation	U=(D*20)/65535	U=(D*10)/32767	U=(D*20)/55296	U=(D*10)/27648		
formula						
Code value						
Correspondence	See alsoTable 3- 1 Voltage code value table.					
table						

Note: D represents the code value, and U represents the voltage.

	0 (default)	1	2	3	
Range	-10V~+10V	0~+10 V	-10V~+10V	0~+10 V	
Voltage	Code value	Code value	Code value	Code value	
-10	-32768	-	-27648	-	
-9	-29491	-	-24883	-	
-8	-26214	-	-22118	-	
-7	-22937	-	-19354	-	
-6	-19661	-	-16589	-	
-5	-16384	-	-13824	-	
-4	-13107	-	-11059	-	
-3	-9830	-	-8294	-	
-2	-6554	-	-5530	-	
-1	-3277	-	-2765	-	
0	0	0	0	0	
1	3277	3277	2765	2765	
2	6554	6553	5530	5530	
3	9830	9830	8294	8294	
4	13107	13107	11059	11059	
5	16384	16384	13824	13824	
6	19661	19660	16589	16589	
7	22937	22937	19354	19354	
8	26214	26214	22118	22118	
9	29491	29490	24883	24883	
10	32767	32767	27648	27648	
	Code value =	Code value =	Code value =	Code value =	
	(65535/20) *	(32767/10) *	(55296/20) *	(27648/10) *	
	voltage	voltage	voltage	voltage	
	Voltage = (code	Voltage = (code	Voltage = (code	Voltage = (code	
	value * 20) / 65535	value * 10) / 32767	value * 20) / 55296	value * 10) / 27648	

sheet3-1Voltage code value table

Note: For analog voltage input modules, when the channel input voltage exceeds 10V, the maximum code value is displayed. For analog voltage output modules, when the code value setting exceeds the maximum code value corresponding to the range in the table, the channel outputs 10V voltage.

3.5.3 Current input/output range selection and code value table

Analog current input and output range selection and code value range							
Range selection	0	1	2	3			
Range	4~20 mA	0~20 mA	4~20 mA	0~20 mA			
Code value range	0~65535		0~27648	•			
Current input	D=(65535/16)*I		D=(27648/16)*I-69	D (27C40(20)*L			
calculation formula	-16384	D=(65535/20)"I	12	D=(27648/20)*1			
Current output	I=(D+16384)*1		I=((D+6912)*16)/2	L (D+20) (27C40			
calculation formula	6/65535	I=(D^20)/65535	7648	I=(D^20)/27648			
Code value				•			
Correspondence	See alsoTable 3- 2 Current code value table.						
table							
Noto: D roprocopts th	Note: D represents the enderroluse and I represents the surrout						

Note: D represents the code value, and I represents the current.

sheet3-2Current code value table

Range	0 (default)	1	2	3
selection	4~20mA	0~20mA	4~20mA	0~20mA
Range				
	Code value	Code value	Code value	Code value
Current				
0	-	0	-	0
1	-	3277	-	1382
2	-	6554	-	2765
3	-	9830	-	4147
4	0	13107	0	5530
5	4096	16384	1728	6912
6	8192	19661	3456	8294
7	12288	22937	5184	9677
8	16384	26214	6912	11059
9	20479	29491	8640	12442
10	24575	32768	10368	13824
11	28671	36044	12096	15206
12	32767	39321	13824	16589
13	36863	42598	15552	17971
14	40959	45875	17280	19354
15	45055	49151	19008	20736
16	49151	52428	20736	22118
17	53247	55705	22464	23501
18	57343	58982	24192	24883
19	61439	62258	25920	26266
20	65535	65535	27648	27648
twenty one	CEE2E	6EE2E	29376	29030
twenty two	66550	65550	31104	30413

22.81							32511			31538		
22.96										31743		
twenty three										31795		
23.52							32767			32511		
23.70												
twenty four										32767		
25												
	Code	value	=	Code	value	=	Code	value	=	Code	value	=
	(65535/16) *		(65535/20) *		(27648	/16)	*	(27648,	/20)	*		
	current - 16384		current		current	- 6912		current				

Note: When the input current of range 2 is greater than 22.81 mA, the code value is displayed as 32767; when the specified code value is greater than 32511, the output current is 22.81 mA.

When the input current of range 3 is greater than 23.52 mA, the code value displayed is 32767; when the specified code value is greater than 32511, the output current is 23.52 mA.

4 panel

4.1 Coupler Panel

4.1.1 Coupler structure

number		
1	Power Terminal Blocks	Spring-loaded terminal blocks
2	Guide rail slot	Suitable for DIN 35 mm rail fixing
3	Power label, indicator	Indicates power status

	light			
4	Rotary switches and	Set IP address, reset settings		
	markings	Set IP address, reset settings		
5	System identification and	ndicates newer supply and module operation status		
	indicator lights	indicates power supply and module operation status		
6	Bus interface	2 × RJ45		

4.1.2 Rotary Switch

IP address setting

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



Setting value	IP address setting method
(decimal)	
000	The rotary switch is set to "000" at the factory, and the default IP address is
	192.168.1.120. If it has been modified using the Web, the last setting value will be
	used when starting.
001~254	set upThe lower 1 byte of the IP address. Use "×100" for the hundreds digit, "×10"
	for the tens digit, and "×1" for theFor the individual digits,Set it within the range of
	1 to 254.
	The high 3 bytes of the IP address continue from the previousWebSet value.
	workfactoryFactory statusDownBy rotatingTurn the switchWhen the IP address is
	set to a value other than 000, the upper 3 bytes are 192.168.1.
255~	When the rotary switch is set to 255 or above, After the module is powered on, it
	takes the default value or the last stored value.

Precautions

1. Tool selection

Screwdriver specifications: 3 mm opening.

2. The rotary switch IP must be set when the power is off.

3. If you need toTo modify the IPAfter the new address is set, it will take effect only after the power is turned on again.

Reset function

- 1. Turn the rotary switch to 999 and power on the module.
- 2. After the module is powered on, turn the rotary switch back to 000 without cutting off the power.
- 3. After the rotary switch is turned back to 000, the module automatically restores the factory settings and the network parameters return to the default values.

4.1.3 Indicator light function

Power module identification and indicator light description						
Logo	color	state	Status description			
Р	green	Always on	Working power is normal			
		Flash	Overload 80%, cut off the power supply to the			
			subsequent load			
		Off	The product is not powered or the power supply is			
			abnormal			
0	red	Off	Not overloaded			
		Always on	Load reaches 90%			
		Flash	Overload 80%, cut off the power supply to the			
			subsequent load			

Network port status indicator						
Logo	color	state	Status description			
IN	green	Always on	Establishing a network connection			
orange color		Off	No network connection established or abnormal			
		Flash	The connection is established and data is exchanged			
		Off	No data interaction or exception			
OUT	green	Always on	Establishing a network connection			
		Off	No network connection established or abnormal			
	orange color	Flash	The connection is established and data is exchanged			
		Off	No data interaction or exception			

Coupler module identification and indicator lights						
name	Logo	color	state	Status description		
Power	P (PWR)	green	Always on	Power supply is normal		
indicator			Off	The product is not powered on or the power		
				supply is abnormal		
System	L (LINK)	green	Always on	I/O modules are connected and X-bus system is		

indicator				interacting normally
			Flashing	I/O modules are connected and the X-bus system
			1Hz	is ready to interact
			Flashing	I/O module is not connected, X-bus system
			5Hz	configuration is abnormal
			Off	I/O module is not connected or abnormal
Warning	E (ERR)	red	Flashing	Modbus TCP communication connection not
indicator			1Hz	established
			Off	The equipment is operating normally
Network status	N (NS)	green	Always on	The device has established a Modbus TCP
indicator				connection and is exchanging data.
			Off	Disconnection or power failure

4.2 I/O Module Panel

Module parts name and function

description



I/O module indicator light description				
Logo	color	state	Status description	
P green		Always on	Power supply is normal	
		Off	The product is not powered on or the power supply is	
			abnormal	
R	green	en Always on The system is running normally		
		Flashing 1	I/O modules are connected and the X-bus system is	
		Hz	ready to interact	
		Off	The device is not powered on, the X-bus does not	
			exchange data, or an exception occurs.	
Input channel	green	Always on	s on The module detection channel has signal input	
indication		Off	The module channel has no signal input or the signal	
			input is abnormal	
Output	green	Always on	The module channel has signal output	
channel		Off	The module channel has no signal output or the signal	
indication			output is abnormal	

5 Installation and removal

5.1 Installation Guide

Installation\removal precautions

- Ensure that the cabinet has good ventilation measures (such as installing an exhaust fan in the cabinet).
- Do not install this device near or over any equipment that may cause overheating.
- Be sure to install the module vertically and maintain air circulation around it (there should be at least 50 mm of air circulation space above and below the module).
- After the module is installed, be sure to install the guide rail fixings at both ends to secure the module.
- Installation and removal must be performed with the power turned off.

Minimum gap for module installation (≥50mm)



Ensure the module is installed vertically



Be sure to install the rail fixings



5.2 Installation and removal steps

Module installation and removal				
Module installation	1. Install the power module on the fixed rail first.			
steps	2. Install the coupler and required I/O modules in sequence on the right side of			
	the power module.			
	3. After installing all required I/O modules, install the end covers to complete the			
	module assembly.			
	4. Install the guide rail fixings at both ends of the power module and end cover			
	to fix the module.			
Module disassembly	1. Loosen the guide rail fixings at both ends of the module.			
steps	2. Use a flat-blade screwdriver to pry open the module buckle.			
	3. Pull out the disassembled module.			

5.3 Installation Diagram

Power module installation



I/O Module Installation

step



Follow the steps for installing the coupler module in the previous step and install the required I/O modules one by one, as shown in Figure ④ and Figure ⑤ on the left.

End cap installation



step

Install the end cover on the right side of the last module, as shown in the left figure (6). For installation methods, please refer to the installation method of the coupler module.

6

5 Installation and removal

Rail fixing installation



step

Install and lock the guide rail fixings close to the left side of the coupler, as shown in Figure⑦ on the left.



Install the guide rail fixture on the right side of the end cover. First push the guide rail fixture toward the coupler to ensure that the module is installed firmly, and then use a screwdriver to tighten the guide rail fixture, as shown in the left figure (8).

8

Disassembly



step

Use a screwdriver to loosen the guide rail fixing at one end of the module and move it to one side to ensure that there is a gap between the module and the guide rail fixing, as shown in Figure (9) on the left.

Insert a flat-head screwdriver into the buckle of the module to be removed, and apply force sideways in the direction of the module (you will hear a sound), as shown in the left figure (10). **Note: Each module has a buckle on the top and bottom, and all modules are operated in the same way.**



Follow the opposite operation of installing the module to remove the module, as shown in the left figure (1) Shown.

5.4 Dimensions





Coupler dimensions (mm)



Extended power supply dimensions (in mm)



I/O module dimensions (in mm)



End cover dimensions (unit: mm)



Note: All are installed using DIN 35 mm standard rails, with DIN rail specifications of 35*7.5*1.0 and 35*15*1.0 (unit: mm).

6 wiring

6.1 Terminal Blocks

Terminal Blocks					
	Number of poles	16 P			
Signal line terminal	Number of poles	20 P			
	Wire diameter	twenty two~17 AWG 0.3~1.0 mm ²			
Dower Terminals	Number of poles	3P			
Power rerminals	Wire diameter	twenty two~16 AWG 0.3~1.5 mm ²			
Bus interface 2*RJ45 Categor		Category 5 or higher UTP or STP (STP is recommended)			

6.2 Wiring Instructions and Requirements

Power Wiring Precautions

- The module system side power supply and field side power supply are configured and used separately. Do not mix them.
- PE must be grounded reliably.

Wiring tool requirements

The power terminals and signal line terminals adopt a screw-free design, and the cables can be installed and removed using a flat-blade screwdriver (specification: \leq 3mm).

Stripping length requirements

The recommended cable stripping length is 10 mm.

Wiring method

For single-strand rigid wire, after stripping the wire to the corresponding length, press the button and insert the single-strand wire at the same time.

For multi-strand flexible wires, after stripping the wires to the corresponding length, you can directly connect them or use the

corresponding standard specifications of cold-pressed terminals (tubular insulated terminals, reference specifications are shown in the following table) to insert the wires while pressing the button.

Specifications of tubular insulation terminals				
Specifications	model	Conductor		
		cross-sectional area mm		
		2		
	E0310	0.3		
	E0510	0.5		
	E7510	0.75		
	E1010	1.0		
Tube type insulated terminalLThe length is10mm	E1510	1.5		









Power connection: Power module 3P terminal

Use a DC24V power module and refer to the wiring method. Connect the power supply according to the circuit shown in the figure below, and ground PE reliably (twisted pair cables are recommended for power cables).

• picture6- 1Coupler, I/O module, power supply wiring diagram



• picture6- 2Coupler, I/O module, power module, I/O module, power supply wiring diagram



Load power supply wiring: Field side 20P terminal

Press the signal cables into the terminal blocks according to the corresponding I/O module wiring diagram and wiring method.

The load power supply uses a 24 VDC power supply. Refer to the wiring method and connect the power supply according to the circuit shown in the figure below (for details, refer to <u>6.3 I/O module wiring</u> <u>diagram</u>).



Signal terminal wiring: 16P\20P terminal

Press the signal cables into the terminal blocks according to the corresponding I/O module wiring diagram and wiring method.

Bus wiring: Industrial Ethernet bus communication interface



Pin	Signal	
Number		
1	TD+	
2	TD-	
3	RD+	
4	one	
5	one	
6	RD-	
7	one	
8	one	

- It is recommended to use double-shielded (braided mesh + aluminum foil) STP cable of category 5 or higher as communication cable.
- Please strictly follow the signal direction of IN and OUT network ports when connecting network topology.

6.3 I/O module wiring diagram

6.3.1 RIO3200P





6.3.2 RIO1616P



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6.3.3 RIO1600P



6.3.4 RIO0800P


6.3.5 RIO0032P



*24V内部导通;0V内部导通 *负载公共端电源需与模块使用同一个电源

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6.3.6 RIO0016P



*24V内部导通;0V内部导通 *负载公共端电源需与模块使用同一个电源

6.3.7 RIO0008P





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*24V内部导通;0V内部导通 *负载公共端电源需与模块使用同一个电源

6.3.8 RIO0012J



*24V内部导通;0V内部导通 *负载公共端电源需与模块使用同一个电源 *COM可接正极或负极,内部不互通,支持DCO-48V

6.3.9 RIO80AV



6.3.10 RIO40AV



6.3.11 RIO40AI



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6.3.12 RIO08AI



*COM内部导通 *24V内部导通; 0V内部导通

6.3.13 RIO04AV





6.3.14 RIO04AI



*COM内部导通 *24V内部导通: 0V内部导通

6.3.15 RIO80TM



*PE内部导通 *2线制热电阻需外部将"-"与"C"短接 *4线制传感器需改成2线或3线接入

6.3.16 RIO40TM



*PE内部导通 *2线制热电阻需外部将"-"与"C"短接 *4线制传感器需改成2线或3线接入

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6.3.17 RIOP20A



*编码器CH0与CH1的ABZ相NPN/PNP兼容,可在软件组态中配置。 *CH0输入NPN/PNP兼容,公共端为COM0。CH1输入NPN/PNP兼容,公共端为COM1。 *24V内部导通,0V内部导通。

7 use

7.1 Module Application

The product adopts the application mode of the combination of coupler, I/O module and end cover, and there are two combinations as follows.



Product combination 2 (coupler, I/O module, power module, I/O module, end cover)

Coupler I/O module Power supply module I/O module end cover



Module configuration quantity limit:

- 1. The number of I/O modules that can be configured with the coupler is \leq 32.
- 2. The number of analog modules cannot exceed 12, and the number of 8-channel analog inputs is not allowed to exceed 8.

The number of power supply and extended power supply modules that can be configured is limited to:

1. If the number of I/O modules configured in the system exceeds 10, an expansion power module must be added. The number of I/O modules configured after the expansion power module is added is \leq 12.

7.2 IP settings and modifications

7.2.1 Setting the IP address via the rotary switches

For a description and operation of the rotary switch, see "<u>4.1.2 Rotary switch</u>" .

- When the IP address is set by the rotary switch from the factory default The IP address is 192.168.1.XXX (XXX is the setting value of the rotary switch, ranging from 1 to 254).
- When setting the IP address using the rotary switch after the IP address has already been set on the Web

The IP address is the high 3 bytes of the IP address set via the Web, and the low 1 byte is the setting value of the rotary switch.

For example, if you change the rotary switch settings after setting it to 172.10.0.12 via the Web, The IP address is 172.10.0.XXX (XXX is the setting value of the rotary switch (1 to 254)).

• IP address settings via rotary switch take precedence over web settings

1. When the rotary switch is set to 000, the IP value set on the Web will prevail.

2. When the rotary switch is set to 001-254, the IP address set by the rotary switch shall prevail; At this time, the IP address set through the Web will be stored, and the IP address will still be based on the IP address set by the rotary switch;

When the rotary switch is set to 000 or 255~ again, the module will use the stored value of the IP address as the module IP address after it is powered on again. If there is no stored value, the default value will be used as the module IP address.

7.2.2 Setting IP address via the Web

After the coupler module is configured and connected to the system, enter the coupler's IP address in the browser to access the Web page. In the network parameter configuration function area, modify the IP address and click "Save and Restart". The coupler will automatically restart to take effect.



Configuring Network Parameters

MAC address: 8C:F3:E7:10:1F:D4							
IP address:	192		168].	1		120
Subnet Mask:	255].	255].	255		0
Default Gateway:	192].	<mark>16</mark> 8].	1].	1
Output Clear / Hold	d: OCle	ear	• Ho	bld			

7.3 Restore factory settings

If the IP address is forgotten, lost or other abnormal situations occur during use, the module can be reset through the IP address reset function.

Restore the factory settings by rotating the switch. The specific operations are as follows:

1. Turn the rotary switch to 999 and power on the module.

- 2. After the module is powered on, turn the rotary switch back to 000 without cutting off the power.
- 3. After the rotary switch is turned back to 000, the module automatically restores the factory settings.
- 4. After the module is restored to factory settings, the IP address is restored to the factory settings.

7.4 Module parameter setting function

7.4.1 Digital inputoutClear/hold function

The clear/hold function is for modules with outputs. This function can configure the output action of the module when the communication is disconnected.

Clear output: When the communication is disconnected, the module output channel automatically clears the output.

Keep output: When the communication is disconnected, the module output channel keeps outputting. **Configuration Method**

See "7.6.1 Application on the Web" .

*After the modification is completed, it is recommended to power on again.

7.4.2 Digital input filter time

Digital input filtering prevents the program from responding to unexpected rapid changes in input signals, which may be caused by switch contact jumping or electrical noise. The digital input filter is currently configured to 3ms by default, and the supported setting range is 0~20ms. When configured to 3ms, it can filter out clutter within 3ms, and channels cannot be configured individually.

An input filter time of 3 ms means that a single signal changing from "0" to "1", or from "1" to "0" lasting 3 ms can be detected, while a single high pulse or low pulse shorter than 3 ms will not be detected.

Configuration Method

See "7.6.1 Application on the Web" .

*After the modification is completed, it is recommended to power on again.

7.4.3 Analog filter setting function

Analog input filter function

The analog input filtering function can average the data after A/D conversion internally to reduce the impact of fluctuations caused by noise on the input signal.

The analog input is processed by moving average with the specified number of A/D conversions.

Filter function configuration

Each channel can be configured individually, the configuration range is: 1~200 times, the default is 10 times;

The sampling rate of the 8-channel module is: 1.25kHz/8 channels (800us/8 channels);

The sampling rate of the 4-channel module is: 2.5kHz/4 channels (400us/4 channels).

Configuration Method

See "7.6.1 Application on the Web" .

*After the modification is completed, it is recommended to power on again.

7.4.4 Analog range configuration function

The analog range setting function is used to set the analog range (for details, see "<u>3.5 Analog</u> parameters").

Configuration Method

See "7.6.1 Application on the Web" .

*After the modification is completed, it is recommended to power on again.

7.5 Module function code corresponding table

The MT coupler module supports a total of 9 function codes, the functions and meanings are shown in the following table:

Function	English meaning	Chinese meaning	Operation Type
code			
01	Read Coils	Read coil status	Bit Operations
02	Read Discrete Inputs	Read discrete input status	Bit Operations
03	Read Holding Registers	Read Holding Registers	Word Operation
04	Read Input Registers	Read Input Register	Word Operation
05	Write Single Coil	Writing a single coil	Bit Operations
06	Write Single Persister	Writing a Single Holding	Word Operation
		Register	
15	Write Multiple Coils	Writing multiple coils	Bit Operations
16	Write Multiple Degisters	Writing multiple holding	Word Operation
		registers	
twenty	Read Write Multiple Registers	Read/write multiple holding	Word Operation
three		registers	

The function codes, offset start addresses, address ranges and other information corresponding to different I/O modules are shown in the following table:

I/O module address mapping table										
DI(Input Bit)	DO(Output bit)	AI(Input Word)	AO(Output Word)	DI(Input Word)	DO(Output Word)					
Function:	Function:	Function:	Function:	Function:	Function:					
0x02	0x05	0x03	0x06	0x03	0x16					
	0x15	0x04	0x16		0x03(R)					
	0x01(R)		0x03(R)							
Offset start	Offset start	Offset start	Offset start address:	Offset start	Offset start address:					
address:	address:	address:	hexadecimal:0x00(address:	hexadecimal:0x3000(W					
0x00	0x00(R/W)	0x00	W)	hexadecimal:0x50)					
			Decimal:0(W)	00	Decimal:12288(W)					

			hexadecimal:0x2000	Decimal:20480	hexadecimal:0x4000(R)
			(R)		Decimal:16384(R)
			Decimal:8192(R)		
Bit address	Bit address	Register	Register address	Register address	Register address range:
range:	range:	address	range:	range:	0x3000~0x307F(W)
0~1023	0~1023	range:0~511	0x00~0x1FF(W)	0x5000~0x507F	12288~12415(W)
			0~511(W)	20480~20607	0x4000~0x407F(R)
			0x2000~0x21FF(R)		16384~16511(R)
			8192~8703(R)		
Data length	Data length	Data length	Data length range:	Data length	Data length range:
range:1~102	range:	range:1~512	1~512	range:	1~128
4	1~1024			1~128	
Offset address	Offset address +	Offset address	Offset address +	Offset address +	Offset address + length
+ length <=	length <= 1024	+ length <= 512	length <= 512 (W),	length <= 20608	<= 12416 (W), 16512
1024 (R)	(R/W)	(R)	8704 (R)	(R)	(R)

Note: The digital input DI/analog input AI module supports the read function, and the digital output DO/analog output AO supports the write and read back functions.

7.6 Bus module configuration instructions

7.6.1 Application on the Web

1. Preparation

- Hardware Environment
 - > Module Preparation

This description takes the RC-MT2200 module kit (power supply RC-PWR2H, coupler RC-MT200), RIO3200P, RIO0032P, RIO1616P, RIO80TM, RIO40AI, and RIO08AI as examples.

A computer, set the IP address of the computer and the module to the same network segment.

Each coupler module is set with a default IP address when it leaves the factory. Usually the default IP address is as follows:

IP address: 192.168.1.120

Subnet Mask: 255.255.255.0

Gateway: 192.168.1.1

- > Standard network cable
- > Module mounting rails and rail fixings
- > Switching power supply
- Hardware configuration and wiring

Please refer to "<u>5 Installation and removal</u>""<u>6 Wiring</u>"Instructions to correctly connect the module to the system.

• Module power on

After checking that the wiring is correct, power on the RC-MT2200+I/O module device combination.

2. Browser access to the Web

a. Open the browser and enter the IP address of the coupler to access the website, as shown in the figure below. The web homepage mainly has three functions: ① menu bar, ② module configuration overview, and ③ network parameter configuration.



b. The menu bar has configuration overview, configuration information viewing, coupler software and hardware version viewing, and Web page language switching functions. As shown in the figure below, the coupler software version SV1 information and hardware version HV information are displayed; the Web page supports four languages: Chinese, English, Russian, and German.



function

- a. You can see the network parameter configuration function at the bottom of the web homepage, as shown in the figure below.
 - MAC address in network parameters and RC-MT200 coupler panel screen printingMACThe address is the same,MACThe address cannot be changed.
 - After changing the five parameters, such as IP address, subnet mask, default gateway, digital output clear/hold function, and input clear/hold function, you need to click "Save and Restart" and the coupler will automatically restart to take effect. The input clear/hold function means that the input data can be configured to be cleared or held under abnormal circumstances.



Configuring Network Parameters

MAC address:	8C:F	3:E	7:10:1	F:D	4		
IP address:	192].	<mark>16</mark> 8].	1].	120
Subnet Mask:	255].	255].	255].	0
Default Gateway:	192		<mark>168</mark>].	1].	1
Output Clear / Hold	: OCle	ear	• Ho	d			
Input Clear / Hold:	© Cl∉	ear	O Ho	ld			
Save and Restart							

4. Module Configuration Overview

a. On the Web homepage, you can see the module configuration diagram, as shown in the figure below. The channel indicators of the I/O modules and functional modules display the effective I/O input and output data in real time. When the system topology changes, such as adding or removing modules or changing the module topology sequence, the Web will automatically update the configuration overview after powering on and connecting successfully. After the update is complete, the upper left corner will prompt "Module (topology) has been updated!".

Qysche	Overview	Configuration Info	SV1:1.0.0.ff-119/SV2:1.0.0.ff-121 HV:B5052:4.0/V1.0
The modules	(topology) ha	ave been updated !	
		0 0 0 0 0	(+Zoom in -Zoom Out)
QV QV PE		Dia Dia Dia Ai Ai 01 03 04 0	
P O RC-PWR2H	PLEN RC-MT200 Modbus TCP	Pe R Pe Pe R Pe Pe R Pe Pe R Pe Pe </td <td></td>	
	MAC: BCF3E7:10:1F:D4		

b. On the module configuration overview page, you can click on an I/O module to enter the configuration and monitoring page of the module. For example, to configure RIO1616P, click on the module to enter the configuration and monitoring page, as shown in the figure below. On the digital module configuration and monitoring page, you can configure the digital input filter parameters. After the input filter parameters are configured through the drop-down menu, you need to click "Update" to complete the configuration; at the same time, you can monitor the input and output of the module in real time through the input and output channel values and the on and off of the indicator lights. Note: When the coupler and the master station (PLC) establish a connection and interact with process data, the module parameters cannot be configured, and forced configuration will return Error.

e O	verview Configuration Info		SV1:1.0.0.ff-119/SV2:1.0.0.ff-121 HV:B5052.4.0/V1.0	English 🗸
20 F	Module3: RI	O1616P 💿		
	General Informa	tion:		
	• Module Identifier: :	0x0621		
00	• Type: 16DI、16DO PN	p		
IO1616P	Hardware version nu Software version pur	mber: V6.4.43.51		
o no no no		iber. vi7.1.0.2		
	Parameter Settin	ig:		
**	s c Input Filter ^{3ms}	✓ Update		
	E F DI			
	+ Channel0	0		
	Channel1	0		
	Channel2	0		
	Channel3	0		
	Channel4	0		
	Channel5	0		
	Channel6	0		
	Channel7	0		

c. On the module configuration overview page, click "RIO80TM" to enter the temperature acquisition module configuration monitoring page, as shown below. On the temperature acquisition module configuration monitoring page, you can configure the sensor type, single channel filter time, and channel enable. After completing the configuration through the drop-down menu, click "Update" to complete the configuration. The module channel status can be monitored in real time through the module indicator status.



d. On the module configuration overview page, click "RIO40AI" to enter the analog module configuration monitoring page, as shown below. On the analog module configuration monitoring page, you can configure the single channel filter time and single channel range. After completing the configuration through the drop-down menu, click "Update" to complete the configuration. The module channel status can be monitored in real time through the module indicator status.

()ysche	Overview	Configuration Info	SV1:1.0.0.ff-119/SV2:1.0.0.ff-121 HV:B5052.4.0/V1.0	English 🗸
Al P RIO40AI	Overview	Configuration Info Wodule5: RIO40AI General Information: Module Identifier: : 0x0647 Type: 40AI, 0~20mA / 4~20mA Hardware version number: V0.0.0.1 Software version number: Vfd.1.0.1 Channel0 O Range Selection 4mA~20mA 0~65535 Update Filter Time 10 ms (Range: 1-200ms) Update	SV1:1.0.0.ff-119/SV2:1.0.0.ff-121 HV:B5052:4.0/V1.0	English V
		Range Selection 4mA~20mA 0~65535 Update Filter Time 10 ms (Range: 1-200ms) Update		
		Channel2 0		
		Channel3 0		

5. Configuration information and I/O address mapping table

a. Click "Configuration Information" in the Web menu bar to switch to the configuration information page, as shown below. On the configuration information page, you can view the access information and I/O address mapping table of the current module. According to the I/O address mapping table, users can operate the module clearly and quickly through the host computer or PLC.

lynche	Overview	Configuration	Into				HV:85052.4.	0/V1.0
The modu	ules (topology) h	nave been update	ed !					
								+Zoom In -Zoom (
		0	0 0	0	0 0			
		Dia	Dûa Di	AJ	AO			
		×100						
	ov See				╏╴┨╢╏╴┨			
• •		x10 5 66						
	681.00				88 H H 88 H			
		P0 0	R PO OR PO	er pe er pe	er pe er			
P O RC-PWR2	2H RC-MT20	N RIO3200P	RIO0032P RIO16	16P RIOBOTM RIO	040AI RIODBAI			
	Modbus T	СР DIB	роь ро					
	110	21 00						
	110		Reliant Contractory Contractory	In set I lead I I				
	out		B 31 0 B 31 0 IC 41 0 IC 41 0 ID 51 0 ID 51 0 IE 61 0 IE 61 0					
	out	31 00 41 00 51 00 61 00 71 00						
	OUT MAC: BCF3:E/:10:1F	3 4 4 5 1 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	10 31 0 18 31 10 51 0 10 51 0 10 51 0 10 51 0 11 51 0 10 51 0 11 51 0 10 10 51 11 11 0 10 10 10					
	OUT MAC: BCF3:E7:10:1F	3 4 5 6 7 7 7 1						
	OUT MAC: 8CF357:10:18	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0						
∢	OUT MAC: BC53:E7:10:1F	21 41 61 61 71 000 11 000 11 000						
4	MAC: BC#387-1017	a1 00 000000000000000000000000000000000	Total number of	nstalled modules: 6	Europian Code: 01	02 03 04 05 06 1	5 16 28	
4 equence	MAC: BC#31:71017	ion Info Model	Total number of i	nstalled modules: 6	Function Code: 01,	. 02. 03. 04. 05. 06. 11	5, 16, 23	
<	MAC: BC=F31,F10119 Configurat	ion Info Model	Total number of	nstalled modules: 6	Function Code: 01 IO module ac A((nput Word)	02, 03, 04, 05, 06, 11 Idress mapping table	5, 16, 28	○○ (Output Word)
< equence	Configurat	ion Info Model	Total number of D(Input Bit)	nstalled modules: 6	Function Code: 01 IO module at Al (Input Word) Function:	02, 03, 04, 05, 06, 1 Idress mapping table AC(Output Word) Function:	5, 16, 23	CC (Output Word) Function:
equence	MAC: BC=34E74E19 Configurat	ion Info Model	Total number of 1	Installed modules: 6	Function Code: 01, 10 module at Al(Input Word) Function: 0x03	02, 03, 04, 05, 06, 1 idress mapping table AC(Output Word) Function: 0x06	5, 16, 23 DI(Input Word) Function: 0x03	DO (Output Word) Function: 0x16
equence	MAC: BC-9387/1011	ion Info Model	Total number of i	nstalled modules: 6	Function Code: 01, IO module ac Ar(Input Word) Function: 0x03 0x04 Addr:0x00 (R)	02, 03, 04, 05, 06, 1 Idress mapping table AC(Output Word) Function: 0x06 0x16 0x03 (R)	5, 16, 23 Di((nput Word) Function: 0x03 Addr:0x5000 (R)	C: (Output Word) Function: 0x16 0x33 (R) Addr0x8000 (W)
equence	MAC: 0C=33571011	ion Info Model	Total number of Di(input Bit) Di(input Bit) Function: Ox02 Addr:0x00 (R)	nstalled modules: 6	Function Code: 01 IO module ac A((nput Word) Function: 0x03 0x04 Addr:0x00 (R)	02, 03, 04, 05, 06, 11 Idress mapping table AC(Output Word) Function: 0x06 0x16 0x03 (R) Addr:0x00 (W) Addr:0x00 (W)	5, 16, 23 Di((nput Word) Function: 0x50 Addr:0x5000 (R)	C: (Output Word) Function: 0x16 0x03 (R) Addr:0x2000 (W) Addr:0x4000 (R)
equence	Configurat	don Info Model	Total number of Di(input Bit) Di(input Bit) Function: CoxO2 Addr:0x00 (R)	nstalled modules: 6	Function Code: 01 IO module ac Ar(Input Word) Function: 0x03 0x04 Addr:0x00 (R)	02, 03, 04, 05, 06, 11 Idress mapping table AC(Output Word) Function: 0x06 0x16 0x03 (R) Addr:0x00 (W) Addr:0x2000 (R)	5, 16, 23 Di((nput Word) Function: 0x03 Addr:0x5000 (R)	OC (Output Word) Function: 0x16 0x03 (R) Addr:0x8000 (W) Addr:0x4000 (R)
equence	Configurat c RC-MT24 RI03200	ion Info Model	Total number of i	nstalled modules: 6	Function Code: 01, IO module ac A((nput Word) Function: 0x04 Addr:0x00 (R)	02, 03, 04, 05, 06, 11 Idress mapping table Function: 0x16 0x16 0x13 (R) Addr:0x2000 (R)	5, 16, 23 Di(Input Word) Function: 0x03 Addr:0x5000 (R) 0-1	DC (Output Word) Function: 0x03 (R) Addr:0x3000 (W) Addr:0x4000 (R)
4 equence	Configurat RC-MT21 RC-MT21 RIO3200 RIO0092	ion Info Model	Total number of i	nstalled modules: 6	Function Code: 01. IO module ad Al (Input Word) Function: 0x04 Addr:0x00 (R)	02, 03, 04, 05, 06, 11 Idress mapping table AC(Output Word) Function: 0x16 0x16 0x16 0x03 (R) Addr:0x00 (W) Addr:0x000 (R)	5, 16, 23 D((nput Word) Function: 0x03 Addr:0x5000 (R) 0-1	OC (Output Word) Function: 0x03 (R) Addr:0x3000 (W) Addr:0x4000 (R)
< equence	Configurat	ion Info Model	Total number of i	nstalled modules: 6	Function Code: 01. IO module at Al(Input Word) Function: 0x03 0x04 Addr:0x00 (R)	02.03.04.05.06.1 Idress mapping table AC(Output Word) Function: 0x06 0x16 0x03 (R) Addr:0x00 (W) Addr:0x00 (R)	5, 16, 23 DI(Input Word) Function: 0x03 Addr:0x5000 (R) 0-1 2	DO (Output Word) Function: 0x16 0x03 (R) Addr:0x3000 (W) Addr:0x4000 (R) 0-1 2
< equence	Configurat Configurat RC-MT24 RI03200 RI00032 RI00615 RI080TM	ion Info Model	Total number of i	nstalled modules: 6	Function Code: 01. IO module at Al(Input Word) Function Ox03 Ox04 Addr:0x00 (R)	02, 03, 04, 05, 06, 1 Idress mapping table AC(Output Word) Function: 0x06 0x16 0x03 (R) Addr:0x000 (R) Addr:0x2000 (R) 	5, 16, 23 DI(Input Word) Function: 0x03 Addr:0x5000 (R) 0.1 2	OC(Output Word) Function: 0x15 0x03 (R) Addr:0x3000 (W) Addr:0x4000 (R) 0-1 2
equence	Configurat Configurat RC-MT2/ RIO3200 RIO0322 RIO1616 RIO40AI	ion Info Model	Total number of i D) (input Bit) Function: 0.00 (R) 0-31 32-47	nstalled modules: 6	Function Code: 01, IO module at Al(nput Word) Function: 0x03 0x04 Addr:0x00 (R)	02, 03, 04, 05, 06, 1: idress mapping table AO(Output Word) Function: 0x06 0x16 0x03 (R) Addr:0x2000 (R) Addr:0x2000 (R) 	5, 16, 23 Di(Input Word) Function: 0x03 Addr:0x5000 (R) 0-1 2	DO (Output Word) Function: 0x16 0x03 (R) Addr:0x4000 (R)

6. Abnormal alarm for slave module access

a. The web page adds an alarm function, the prerequisite is that the coupler and the host computer software are in a connected communication state. When the module connected to the coupler is abnormal, the page prompts "slave module abnormality", as shown in the figure below. When the slave module is abnormal, the output channel maintains the original output state, and the input channel can be configured to clear or maintain the state.



b. The host computer also supports the abnormal alarm function of slave module access. The host computer uses 0x03 function code, offset start address 0x6000, length 1, and can read whether the connected module is abnormal. 1 represents normal and 0 represents abnormal. For the host computer configuration method, see<u>7.6.2 Application in CODESYS V3.5 software environment</u>.

7.6.2 Application in CODESYS V3.5 software environment

1. Preparation

- Hardware Environment
 - > Module Preparation

This description takes the RC-MT2200 module kit (power supply RC-PWR2H, coupler RC-MT200), RIO3200P, RIO0032P, RIO1616P, RIO80TM, RIO40AI, and RIO08AI as examples.

A computer with CODESYS V3.5 and CODESYS Control Win V3 - x64 SysTray software pre-installed

Set the computer's IP address and the module's IP address to the same network segment.

Each coupler module is set with a default IP address when it leaves the factory. Usually the default IP address is as follows:

IP address: 192.168.1.120

Subnet Mask: 255.255.255.0

Gateway: 192.168.1.1

- > Standard network cable
- > Module mounting rails and rail fixings
- > Switching power supply

• Hardware configuration and wiring

Please refer to "<u>5 Installation and removal</u>""<u>6 Wiring</u>"Instructions to correctly connect the module to the system.

Module power on

After checking that the wiring is correct, power on the RC-MT2200+I/O module device combination.

2、 New Construction

a. Log in to CODESYS, click "File -> New Project", enter a name, and click "OK", as shown in the figure below.

Categories		Templates
Lit	raries ojects	Empty project HMI project Standard project w
A project c	ontaining one device, on	e application, and an empty implementation for PLC_PRG
	Untitled 1	
<u>N</u> ame	C:\Users\29719\Docur	nents v
<u>N</u> ame Location	C. (03C/3/23713/00Cdi	

3、 Scan the network

- a. Use "CODESYS Control Win V3 x64 SysTray" to start the PLC. Find "CODESYS Control Win V3 x64 SysTray" in the lower right corner of the computer and right-click and select "Start PLC".
- b. Double-click Device (CODESYS Control Win V3 X64) in the navigation tree on the left of CODESYS and click Scan Network.
- c. Select Device and choose the correct controller network path as shown in the figure below.



4、 Add Ethernet

a. Right-click "Device (CODESYS Control Win V3 X64)" in the navigation tree on the left of CODESYS, click "Add Device", select "Ethernet Adapters -> Ethernet" and add it as shown in the picture below.



5. Configuring Ethernet network parameters

a. Double-click "Ethernet (Ethernet)" in the left navigation tree to open the main menu on the right. Click"..." Open the network adapter window and select Ethernet. The master station IP and the coupler IP must be in the same network segment, as shown in the figure below.



Messages - Total 0 error(s), 0 warning(s), 0 message(s)

6、Add Modbus TCP Master and Modbus TCP Slave

a. Right-click "Ethernet (Ethernet)" in the left navigation tree, click "Add Device", select Modbus TCP Master" and add it as shown in the figure below.



b. Right-click "Modbus TCP Master" in the left navigation tree, click "Add Device", select "Modbus TCP Slave" and add it as shown in the figure below.

es		vame √ ↓ × √ Action	Modbus_TCP_Slave					
J Untitled 1		▼ ● Ap	pend device 🔘 Insert device	O Plug o	device OU	Jpdate device		
Device (CODESYS C	ontrol V	Vin V3 x64)	for a fulltext search		Vendor	<all wandors=""></all>		
PLC Logic			Tor a funce bear of			All Vehicors>		
Application	n	Nam	al	Ven	dor		Version	Description
Library	Manage	er	Fieldbuses					
PLC_PF	G (PRG)	Modbus TCP Slave					
		Cut	Modbus TCP Slave	35 - 5	Smart Softwa	are Solutions GmbH	3.5.15.0	A generic Modbus d
- an	F Bbs	Conv						-
Ethernet (Ether	ne ma	Paste						
Modbus_TO	PX	Delete				_		>
		Refactoring	tegory 🗌 Display al	versions (for experts o	only) 🗌 Display ou	itdated versio	ns
	æ	Properties	Modbus TCP Slave				^	
	1000	Add Object	r: 3S - Smart Software	Solutions Gr	mbH			
	0	Add Folder	ories: Modbus TCP Slav or: 3.5.15.0	e				S
		Add Device	Number: -					~
		Insert Device	iption: A generic Modbu	s device th	at is configur	ed as Slave for a		
		Disable Device	s TCP Master.				~	
		Update Device	ted device as last ch	ild of				
	Dĩ	Edit Object	_Master					
		Edit Object with	select another target i	ode in the	navigator w	while this window is a	open.)	
		Edit IO mapping						
							Add Device	Close

c. Double-click in the left navigation tree"Modbus TCP Slave" Open the main menu on the right, click
 "General" to configure Modbus TCP Slave, the slave IP address is the IP address of the coupler, the response time is "1000", and the port number is "502", as shown in the figure below.

Devices 🗸 🕂 🗙	Device 🔐 Ethernet	Modbus_TCP_Slave X		
Control University Control Win V3 x64) Device (COCESYS Control Win V3 x64)	General Modbus Slave Channel Modbus Slave Init ModbusTCPSlave Parameters ModbusTCPSlave IEC Objects Status Information	Modbus-TCP Slave IP address Response timeout (ms) Port	192 . 168 . 0 . 1 1000 502	MODBUS
< ۲				

7. Configure the IO channels of the slave

a. Through the Web tool, you can view the IO module address mapping table of the topology structure, and see the function code of each module, the offset starting address and the monitoring address range corresponding to the module, as shown in the figure below.

	Configuration Info	Total number of installed	modules: 6	Function Code: 01, 02,	03, 04, 05, 06, 15, 16,	23	
Sequence	Model			IO module addr	ess mapping table		
		DI (Input Bit)	DO(Output Bit)	Al (Input Word)	AO(Output Word)	DI(Input Word)	DO (Output Word)
		Function: 0x02 Addr:0x00 (R)	Function: 0x05 0x15 0x01 (R) Addr:0x00 (R/W)	Function: 0x03 0x04 Addr:0x00 (R)	Function: 0x06 0x16 0x03 (R) Addr:0x00 (W) Addr:0x2000 (R)	Function: 0x03 Addr:0x5000 (R)	Function: 0x16 0x03 (R) Addr:0x3000 (W) Addr:0x4000 (R)
0	RC-MT200						
1	RIO3200P	0-31				0-1	
2	RI00032P		0-31				0-1
3	RIO1616P	32-47	32-47			2	2
4	RIO80TM			0-7	0-7		
5	RIO40AI			8-11			
6	RIOOBAI				8-15		

b. On the main page on the right side of Modbus TCP Slave, click "Modbus Slave Channel", and then click "Add Channel" to pop up the Channel 0 configuration window, as shown in the figure below.

vices 👻 🕈 🗙	Device 🔐 Ethernet	Modbus_TCP_Slave X
 Unabled I Device (CODESYS Control Win V3 x64) P.C. Logic Application Dr.C. PRG (PRG) MainTask (IEC-Tasks) P.C. PRG Modus_TCP_Master (Modus TCP Master) Modus_TCP_Slave (Modus TCP Slave) 	General Modbus Slave Channel Modbus Slave Init Modbus CPSlave Parameters Modbus TCPSlave IEC Objects Status Information	Name Access Type Trigger READ Offset Length Error Handling WRITE Offset Length Comment Name Second Image: Second
Devices POLIs	٢	<u>QK</u> <u>Qancel</u> Move Up Move Down Add Channel Delete Edit

c. Digital input modules RIO3200P and RIO1616P,**DI** (Input Bit)The corresponding function code is 02, the offset address is 0x00, and the address range is 0~31 and 32~47, that is, 48 bits. In the Channel 0 configuration window, the access type, that is, the function code, is 02 Read Discrete Inputs, the read register offset is 0, and the length is 48. After the settings are completed, click "OK", as shown in the figure below. (You can also customize the offset address and length according to actual needs by referring to the IO module address mapping table)

a di ili c	Channel 0
Access type	Read Discrete Inputs (Function Code 2) V
frigger	Cyclic ~ Cycle time (ms) 100
Comment	
EAD Register	
)ffset	ol
enoth	48
engen	
Fror handling	Keep last Value V
VRITE Register	
Offset	×

d. For digital output modules RIO0032P and RIO1616P, the write function code corresponding to DO (Output Word) is 16, the offset address is 0x3000 (decimal: 12288), and the address range is 0~1 and 2, that is, 3Word. On the main page on the right side of Modbus TCP Slave, click "Add Channel" to pop up the Channel 1 configuration window.

In the Channel 1 configuration window, the access type isThe function code is 16 Write Multiple Registers, the write register offset is 12288, and the length is 3. After the settings are completed, click "OK", as shown in the figure below.

Name	Channel 1			
Access type	Write Multiple Registe	ers (Func	tion Code 16)	~
Trigger	Cydic	~	Cycle time (ms)	100
Comment				
READ Register				
Offset				~
Length	1			
Error <mark>handling</mark>	Keep last Value			
WRITE Register				
Offset	12288			~
Length	3			

e. The function codes corresponding to AI (Input Word) of RIO80TM and RIO40AI modules are 03 and 04, the offset address is 0x00, and the address range is 0~7 and 8~11, that is, 12 Word. On the main page on the right side of Modbus TCP Slave, click "Add Channel" to pop up the Channel 2 configuration window.

In the Channel 2 configuration window, the access type isThe function codes are 03 Read Holding Registers and 04 Read Input Registers (choose one), the read register offset is 0, and the length is 12. After the settings are completed, click "OK", as shown in the figure below.

Name	Channel 2	
Access type	Read Holding Registers (Function Code 3)	~
Trigger	Cyclic	100
Comment		
READ Register		
Offset	0x0000	~
Length	12	
Error handling	Keep last Value 🗸 🗸	
WRITE Register		
WRITE Register Offset	0x0000	~

f. Digital output modules RIO0032P and RIO1616P,DO (Output Word)The function code corresponding to the readback function is 03, the offset address is 0x4000 (decimal: 16384), and the address range is 0~1 and 2, that is, 3Word. On the main page on the right side of Modbus TCP Slave, click "Add Channel" to pop up the Channel 3 configuration window. In the Channel 3 configuration window, set the access type (function code) to 03 Read Holding Registers, the write register offset to 16384, and the length to 3. After completing the settings, click OK, as shown in the following figure.

Lhannel		
Name	Channel 3	
Access type	Read Holding Registers (Function Cod	le 3) 🛛 🗸
Trigger	Cyclic ~ Cycle	time (ms) 100
Comment		
READ Register		
Offset	16384	~
ength	3	
Error handling	Keep last Value \sim	
WRITE Register		
	0x0000	~
offset		

g. The monitoring functions of other modules are similar. After the configuration is completed, you can view the configuration information on the Modbus slave channel main page, and you can also add, delete and edit, as shown in the figure below.

rices 🗸 🕈 🗸	Modbus_TCP_Slave X	Ethernet							
Untitled 1 CODESYS Control Win V3 x64)	General	Name	Access Type	Trigger	READ Offset	Length	Error Handling	WRITE Offset	Leng
PLC Logic Application	Modbus Slave Channel	0 Channel 0 1 Channel 1	Read Discrete Inputs (Function Code 02) Write Multiple Registers (Function Code 16)	Cyclic, t#100ms Cyclic, t#100ms	16#0000	48	Keep last Value	16#3000	3
Library Manager	Modbus Slave Init	2 Channel	Read Holding Registers (Function Code 03)	Cyclic, t#100ms	16#0000	12	Keep last Value		
ELC_PRG (PRG)	ModbusTCPSlave Parameters	3 Channel .	Read Holding Registers (Function Code U3)	Cyclic, t#100ms	16#4000	3	Keep last value		
 MainTask (IEC-Tasks) 	ModbusTCPSlave I/O Mapping								
Ethernet (Ethernet)	ModbusTCPSlave IEC Objects								
- dB PLC_PRG - dB PLC_PRG - dB PLC_PR	ModbusTCPSlave IEC Objects								
- HEI PLC_PRG 금 I Ethernet (Ethernet) 금 I Modbus_TCP_Master (Modbus TCP Master) 대 Modbus_TCP_Slave (Modbus TCP Slave)	ModbusTCPSlave IEC Objects Status Information								
는 엔 PLC PRG 플 한타ment (Ethernet) = 앱 Moduus_TCP Master (Moduus TCP Master) 년 앱 Moduus_TCP_Slave (Moduus TCP Slave)	ModbusTCPSlave IEC Objects Status Information								
i Brenz (Brenz) i Efferent (Brenz) i Modus (TCP_Master (Modus TCP Master) i Modus (TCP_Save (Modus TCP Save)	ModbusTCPSlave IEC Objects Status Information								
· 변화 RC,PRG 를 Ethernet (Bernet) 등 및 Modus_TCP_Master (Modus TCP Master) - 에 Modus_TCP_Save (Modus TCP Save)	ModbusTCPSlave IEC Objects Status Information								
i til RC,RG i Effernet (Brennet) i i førenet (Brennet) i i i Modus, TCP_Master (Modus TCP Master) i i i Modus, TCP_Sinve (Modus TCP Sinve)	ModbusTCPSlave IEC Objects Status Information								
는 웹 PAC_PRG 플 Ethernet (Ethernet) = 앱 Hondbus TCP_Master (Modbus TCP Master) - 앱 Modbus TCP_Slave (Modbus TCP Slave)	ModbusTCPSlave IEC Objects Status Information								
- ∰ R-C_PKG ∰ Ethernet (Ethernet) ⊕ ∰ Modbus_TCP_Master (Modbus TCP Master) - ∰ Modbus_TCP_Slave (Modbus TCP Slave)	ModbusTCPSlave IEC Objects Status Information								

8. Abnormal alarm function for slave module access
a. The host computer synchronously supports the abnormal alarm function of slave module access. The host computer uses 0x03 function code, offset start address 0x6000, length 1, and can read whether the connected module is abnormal. 1 represents normal and 0 represents abnormal. On the main page on the right side of Modbus TCP Slave, click "Add Channel" to pop up the Channel 4 configuration window. In the Channel 4 configuration window, the access type, that is, the function code, is 03 Read Holding Registers, the write register offset is 0x6000, and the length is 1. After the settings are completed, click "OK", as shown in the figure below.

Name	Channel 4					
Access type	Read Holding Registers (Fi	unction Code 3)	ion Code 3) \sim			
Trigger	Cyclic	✓ Cycle time (ms)	100			
Comment						
READ Register Offset	0x6000		~			
READ Register Offset Length	0x6000		~			
READ Register Offset .ength Error handling	0x6000 1 Keep last Value	~	~			
READ Register Offset Length Error handling WRITE Register	0x6000 1 Keep last Value	~	~			
READ Register Offset Length Error handling WRITE Register Offset	0x6000 1 Keep last Value	*	~			

b. After the configuration is completed, you can view the configuration information on the Modbus slave channel main page, as shown in the figure below.

	Modbus_TCP_Slave X	Ethernet								
Untitled1 Device (CODESYS Control Win V3 x64)	General		Name	Access Type	Trigger	READ Offset	Length	Error Handling	WRITE Offset	Ler
PLC Logic Application	Modbus Slave Channel	1 0	Channel 0 Channel 1	Read Discrete Inputs (Function Code 02) Write Multiple Registers (Function Code 16)	Cyclic, t#100ms Cyclic, t#100ms	16#0000	48	Keep last Value	16#3000	3
Library Manager	Modbus Slave Init	2 (Channel 2	Read Holding Registers (Function Code 03)	Cyclic, t#100ms	16#0000	12	Keep last Value		
PLC_PRG (PRG) Task Configuration	ModbusTCPSlave Parameters	4 (Channel 3 Channel 4	Read Holding Registers (Function Code 03) Read Holding Registers (Function Code 03)	Cyclic, t#100ms Cyclic, t#100ms	16#4000	3	Keep last Value Keep last Value		
🖻 😻 MainTask (IEC-Tasks)	ModbusTCPSlave I/O Mapping									
	ModbusTCPSlave IEC Objects									
Modbus_TCP_Master (Modbus TCP Master)	Status									
Modbus_TCP_Slave (Modbus TCP Slave)	Tafa makan									
	information									

9、 IO Verification

 a. On the main page on the right side of Modbus TCP Slave, click "ModbusTCPSlavel/O Mapping" to monitor the IO module. The variable options are updated in the lower right corner. Select "Enable 1", as shown in the following figure.

eneral	Find		Filter Show	all		• + Ac	dd FB for IO Channel
odbus Slave Channel	Variable	Mapping	Channel Channel 0	Address %IB0	Type ARRAY [05] OF BYTE	Unit	Description Read Discrete Inputs
odbus Slave Init	⊞ * ∳		Channel 1	%QW0	ARRAY [02] OF WORD		Write Multiple Registers
	😟 - 🏘		Channel 2	%IW3	ARRAY [011] OF WORD		Read Holding Registers
odbusTCPSlave Parameters	B 🍫		Channel 3	%IW15	ARRAY [02] OF WORD		Read Holding Registers
odbusTCPSlave I/O Mapping	±-¥≱		Channel 4	%IW18	ARRAY [00] OF WORD		Read Holding Registers
formation							
atus							

- b. Click "Compile -> Compile" in the menu bar to compile.
- c. Click "Online -> Login" on the menu bar or click the login icon to log in.
- d. Click "Online -> Multiple Downloads" on the menu bar, select "Always perform full download" in the Multiple Downloads window, and click "OK", as shown in the figure below.

autipie Download	×
Please <u>s</u> elect the items to be downloaded	
Move Up ♣ Move Down	
Device: Application	
Online change options If the application in the project differs from the application already present or PLC, then behave as follows:	nthe
\bigcirc Iry to perform an online change. If this is not possible, perform a full down	load.
\bigcirc Eorce an online change. If this is not possible, cancel the operation	
Always perform a full download	
If an application is not yet present on the PLC, a full download is always perfo	ormed.
If an application is not yet present on the PLC, a full download is always performed additional operations	ormed.
If an application is not yet present on the PLC, a full download is always performed Additional operations <u>Delete all applications on the PLC which are not part of the project.</u>	ormed.
If an application is not yet present on the PLC, a full download is always performed additional operations Additional operations Delete all applications on the PLC which are not part of the project. Start all applications after download or online change.	ormed.

e. After logging in and downloading, you can monitor the channel values of the IO module in real time on the "ModbusTCPSlavel/O Mapping" page, as shown in the figure below. Channel 0 is the channel monitoring page for the digital input module. Channel 0[0]~[3] corresponds to each DI channel of RIO3200P, and Channel 0[4]~[5] corresponds to each DI channel of RIO1616P.

the second se	m riodbus_ICP_slave X	Ethernet Device						
Untitled1	General	Find		Filter Show a	I	. • 1	Add FB for IO C	hannel
Bence [contected] (cobcs/s control with vs xor)	Modbus Slave Channel	Variable	Mapping	Channel Channel 0	Address %IB0	Type ARRAY [05] OF BYTE	Current Value	Prepared Valu
Library Manager	Modbus Slave Init	· *>		Channel 0[0]	%IB0	BYTE	0	
PLC_PRG (PRG)		· · · · · · · · · · · · · · · · · · ·		Channel 0[1]	%IB1	BYTE	0	
😑 🎇 Task Configuration	ModbusTCPSlave Parameters	18- 1 9		Channel 0[2]	%IB2	BYTE	0	
😑 😏 🍪 MainTask (IEC-Tasks)	ModbusTCPSlave I/O Mapping	· · · · · · · · · · · · · · · · · · ·		Channel 0[3]	%IB3	BYTE	0	
DIC_PRG	House and the state of Hupping	B-*9		Channel 0[4]	%IB4	BYTE	2	
= 😏 🗊 Ethernet (Ethernet)	ModbusTCPSlave IEC Objects	- **		Bit0	%IX4.0	BOOL	FALSE	
😑 😳 📆 Modbus_TCP_Master (Modbus TCP Master)				Bit1	%IX4.1	BOOL	TRUE	
G 🗊 Modbus_TCP_Slave (Modbus TCP Slave	Status	-*>		Bit2	%IX4.2	BOOL	FALSE	
	Information			Bit3	%IX4.3	BOOL	FALSE	
	2110111021011	🍫		Bit4	%IX4.4	BOOL	FALSE	
				Bit5	%IX4.5	BOOL	FALSE	
		- **		Bit6	%IX4.6	BOOL	FALSE	
		- Ng.		Bit7	%IX4.7	BOOL	FALSE	
		😟 - 🍫		Channel 0[5]	%IB5	BYTE	0	
		⊞- * ∳		Channel 1	%QW0	ARRAY [02] OF WORD		
		18- *		Channel 2	%IW3	ARRAY [011] OF WORD		
		18- * •		Channel 3	%IW15	ARRAY [02] OF WORD		
		😟 - 🍫		Channel 4	%IW18	ARRAY [00] OF WORD		

f. Channel 1 is the channel monitoring page of the digital output module. Channel 1[0]~[1] corresponds to each DO channel of RIO0032P, and Channel 1[2] corresponds to each DO channel of RIO1616P. You can write a value to each channel for forced output, as shown in the following figure.

eneral	Find		Filter Show a	I	-	Add FB for IO C	hannel
odbus Slave Channel	Variable	Mapping	Channel Channel 0	Address %IB0	Type ARRAY [05] OF BYTE	Current Value	Prepared Value
odbus Slave Init	B- * \$		Channel 1	%QW0	ARRAY [02] OF WORD		
	8-50		Channel 1[0]	%QW0	WORD	3	
odbusTCPSlave Parameters	***		Bit0	%QX0.0	BOOL	TRUE	
odbusTCPSlave I/O Mapping	***		Bit1	%QX0.1	BOOL	TRUE	
sabas ter slave go mapping	**		Bit2	%QX0.2	BOOL	FALSE	
odbusTCPSlave IEC Objects	- **		Bit3	%QX0.3	BOOL	FALSE	
	***		Bit4	%QX0.4	BOOL	FALSE	
atus	**		Bit5	%QX0.5	BOOL	FALSE	
formation	**		Bit6	%QX0.6	BOOL	FALSE	
onnation	-**		Bit7	%QX0.7	BOOL	FALSE	
	* @		Bit8	%QX1.0	BOOL	FALSE	
	- **		Bit9	%QX1.1	BOOL	FALSE	
	***		Bit10	%QX1.2	BOOL	FALSE	
	**		Bit11	%QX1.3	BOOL	FALSE	
	* *		Bit12	%QX1.4	BOOL	FALSE	
	- **		Bit13	%QX1.5	BOOL	FALSE	
	-**		Bit14	%QX1.6	BOOL	FALSE	
	* ø		Bit15	%QX1.7	BOOL	FALSE	
	⊞ * ≱		Channel 1[1]	%QW1	WORD	0	
	😟 - 🍫		Channel 1[2]	%QW2	WORD	0	
	· *		Channel 2	%IW3	ARRAY [011] OF WORD		
	😟 - 🍫		Channel 3	%IW15	ARRAY [02] OF WORD		
	۰. ۲		Channel 4	%IW18	ARRAY [00] OF WORD		

g. Channel 2 is the channel monitoring page for the analog input module. Channel 2[0]~[7] corresponds to RIO80TM, and Channel 0[8]~[11] corresponds to RIO40AI, as shown in the figure below.

le М Чр Чр Чр Чр	Appping Channel Channel 0 Channel 1 Channel 2 Channel 2[0] Channel 2[1] Channel 2[2]	Address %IB0 %QW0 %IW3 %IW3 %IW4	Type ARRAY [05] OF BYTE ARRAY [02] OF WORD ARRAY [011] OF WORD WORD WORD	Current Value	Prepared Valu
16 16 16 16	Channel 1 Channel 2 Channel 2[0] Channel 2[1] Channel 2[2]	%QW0 %IW3 %IW3 %IW4	ARRAY [02] OF WORD ARRAY [01] OF WORD WORD WORD	55537	
19 19 19 19	Channel 2 Channel 2[0] Channel 2[1] Channel 2[2]	%IW3 %IW3 %IW4	ARRAY [011] OF WORD WORD WORD	55537	
*ง *ง *ง *ง	Channel 2[0] Channel 2[1] Channel 2[2]	%IW3 %IW4	WORD WORD	55537	
*) *) *)	Channel 2[1] Channel 2[2]	%IW4	WORD		
*ø *ø	Channel 2[2]			55537	
*		%IW5	WORD	55537	
	Channel 2[3]	%IW6	WORD	55537	
*	Channel 2[4]	%IW7	WORD	55537	
*	Channel 2[5]	%IW8	WORD	55537	
*	Channel 2[6]	%IW9	WORD	55537	
¥9	Channel 2[7]	%IW10	WORD	55537	
*	Channel 2[8]	%IW11	WORD	0	
*	Channel 2[9]	%IW12	WORD	0	
*	Channel 2[10]	%IW13	WORD	0	
*	Channel 2[11]	%IW14	WORD	0	
	Channel 3	%IW15	ARRAY [02] OF WORD		
	Channel 4	%IW18	ARRAY [00] OF WORD		
	9 19 19 19 19 19 19	Image: Second	Image: Channel 2[5] %LW8 Channel 2[6] %LW9 Image: Channel 2[6] %LW10 Image: Channel 2[7] %LW10 Image: Channel 2[8] %LW11 Image: Channel 2[9] %LW12 Image: Channel 2[10] %LW13 Image: Channel 2[11] %LW14 Channel 3 %LW15 Channel 4 %LW18	Image: Channel 2[5] %UW8 WORD Image: Channel 2[6] %UW9 WORD Image: Channel 2[7] %UW10 WORD Image: Channel 2[8] %UW11 WORD Image: Channel 2[9] %UW12 WORD Image: Channel 2[10] %UW13 WORD Image: Channel 2[11] %UW14 WORD Image: Channel 2[11] %UW15 ARRAY [02] OF WORD Image: Channel 4 %UW18 ARRAY [00] OF WORD	Image: Channel 2[5] %4/W8 WORD 55537 Image: Channel 2[6] %4/W9 WORD 55537 Image: Channel 2[7] %4/W10 WORD 55537 Image: Channel 2[8] %4/W11 WORD 55537 Image: Channel 2[8] %4/W11 WORD 0 Image: Channel 2[9] %4/W12 WORD 0 Image: Channel 2[10] %4/W13 WORD 0 Image: Channel 2[10] %4/W14 WORD 0 Image: Channel 2[11] %4/W14 WORD 0 Image: Channel 2[12] %4/W14 WORD 0 Image: Channel 2[13] %4/W14 WORD 0 Image: Channel 3 %1/W15 ARRAY [02] OF WORD 1 Image: Channel 4 %1/W18 ARRAY [00] OF WORD 1

h. Channel 3 is the channel readback function monitoring page of the digital output module. Channel 3[0]~[1] corresponds to each DO channel of RIO0032P, and Channel 3[2] corresponds to each DO channel of RIO1616P. The value written to each channel can be read, as shown in the following figure.

eneral	Find		Filter SI	how all		• 🗣 Add FB for	IO Channel →	Go to	Instance
odbus Slave Channel	Variable	Mapping	Channel Channel 0	Address %IB0	Type ARRAY [05] OF BYTE	Current Value	Prepared Value	Unit	Description Read Discrete Inputs
odbus Slave Init	B- * ø		Channel 1	%QW0	ARRAY [02] OF WORD				Write Multiple Register
	· · · · · · · · · · · · · · · · · · ·		Channel 2	%IW3	ARRAY [011] OF WORD				Read Holding Register
odbusTCPSlave Parameters	B- 🍫		Channel 3	%IW15	ARRAY [02] OF WORD				Read Holding Register
odbusTCPSlave I/O Mapping	😟 - 🍫		Channel 3[0]	%IW15	WORD	0			0x4000
abaster blate yo happing	⊛-*≱		Channel 3[1]	%IW16	WORD	0			0x4001
dbusTCPSlave IEC Objects	😟 - 🦄		Channel 3[2]	%IW17	WORD	0			0x4002
	B- 🍫		Channel 4	%IW18	ARRAY [00] OF WORD				Read Holding Register
formation									
formation									

i. Channel 4 is the abnormal alarm function for slave module access. When the slave module is normal, the value is 1, as shown in the figure below.

General	Find		Filter	Show all			IO Channel *	Go to I	nstance
Madhur Slave Channel	Variable	Mapping	Channel	Address	Туре	Current Value	Prepared Value	Unit	Description
Toubus blave channel	⊞- * ≱		Channel 0	%IB0	ARRAY [05] OF BYTE				Read Discrete Inputs
lodbus Slave Init	B **		Channel 1	%QW0	ARRAY [02] OF WORD				Write Multiple Registe
	B- 🍫		Channel 2	%IW3	ARRAY [011] OF WORD				Read Holding Register
odbusTCPSlave Parameters	B 🍫		Channel 3	%IW15	ARRAY [02] OF WORD				Read Holding Register
odbusTCPSlave I/O Mapping	🖻 - 🍫		Channel 4	%IW18	ARRAY [00] OF WORD				Read Holding Register
	😟 – 🦘		Channel 4[0]	%IW18	WORD	1			0x6000
formation									
formation									

j. When the slave module is accessed abnormally, the value is 0, as shown in the figure below.

囲 用	查找		过滤 显示所	府有		- ♣ 给10通道	添加FB	
Modbus从站通道	变量	映射	通道 Channel 0	地址 %IB0	类型 ARRAY [05] OF BYTE	当前值	预备值	单元
Modbus从站初始化			Channel 1	%QW0	ARRAY [02] OF WORD			
-	· · · · · · · · · · · · · · · · · · ·		Channel 2	%IW3	ARRAY [015] OF WORD			
ModbusTCPSlave参数	😑 🍫		Channel 3	%IW19	ARRAY [02] OF WORD			
ModbusTCPSlaveI/OB中射	😟 - 🍫		Channel 3[0]	%IW19	WORD	0		
	🛨 ≯		Channel 3[1]	%IW20	WORD	0		
ModbusTCPSlaveEC对象	😟 - ≯		Channel 3[2]	%IW21	WORD	0		
10+	🖹 🍫		Channel 4	%IW22	ARRAY [00] OF WORD			
仄 念	😟 - 🍫		Channel 4[0]	%IW22	WORD	0		
	¢							
	٢		夏位映射	一直更新变重	t: 使能1(如果未在	任何任务中使用	则使用总约	能循环

k. When the slave module is connected abnormally, the output channel maintains the original output state, and the input channel is cleared or maintains the input state, as shown in the figure below.

General	Find	Filter Show a			 Add FB for I 	O Channel + G	o to Instance		
Modbus Slave Channel	Variable	Mapping	Channel	Address	Туре	Current Value	Prepared Value	Unit	
Houbus Slave Channel	🖶 - 🔧		Channel 0	%IB0	ARRAY [05] OF BYTE				
Modbus Slave Init	B- 🍫		Channel 0[0]	%IB0	BYTE	0			
	· · · · · · · · · · · · · · · · · · ·		Channel 0[1]	%IB1	BYTE	0			
ModbusTCPSlave Parameters	B- 🏘		Channel 0[2]	%IB2	BYTE	0			
ModbusTCPSlave I/O Manning	😟 - 🍫		Channel 0[3]	%IB3	BYTE	0			
riodbaster blate yothapping	X		Channel 0[4]	%IB4	BYTE	0			
ModbusTCPSlave IEC Objects	🖻 - 🍫		Channel 0[5]	%IB5	BYTE	0			
	B- *		Channel 1	%QW0	ARRAY [02] OF WORD				
Status	ė- %		Channel 1[0]	%QW0	WORD	3			
Information			Bit0	%QX0.0	BOOL	TRUE			
	- *		Bit1	%QX0.1	BOOL	TRUE			
	- *		Bit2	%QX0.2	BOOL	FALSE			
			Bit3	%QX0.3	BOOL	FALSE			
			Bit4	%QX0.4	BOOL	FALSE			
	**		Bit5	%QX0.5	BOOL	FALSE			
			Bit6	%QX0.6	BOOL	FALSE			
	- **		Bit7	%QX0.7	BOOL	FALSE			
	- **		Bit8	%QX1.0	BOOL	FALSE			
	**		Bit9	%QX1.1	BOOL	FALSE			
	*		Bit10	%QX1.2	BOOL	FALSE			
	aa 🍫		Bit11	%QX1.3	BOOL	FALSE			
	**		Bit12	%QX1.4	BOOL	FALSE			
	<								>
	Read Discrete Inputs		Res	set Mapping	Always update variables	Enabled 1 (use bus cy	de task if not used in	any tas	į