

CS-IO3200 Serial I/O Module Manual



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Notice

- ❖ Please read this manual carefully before use and save it for reference.
- ❖ Please follow to the operating procedures and precautions in this manual.
- ❖ Please open the package carefully and check whether the device and accessories have been damaged due to transportation when you receive the device. Please contact us for return processing once damage occurs.
- ❖ Please do not repair it yourself, and contact our technical support department directly if the device fails.

OneFex Industrial IoT

1 Product Introduction

CS-IO series products are serial I/O module using standard Modbus-RTU protocol, supporting RS485/232. Support wide voltage power supply, multi-channel input and output control, which can be widely used in various application scenarios such as industrial production, agriculture, smart city and office buildings.

1.1 Features

- ◆ DC 12/24V power supply, support anti-reverse connection;
- ◆ 32* DO contact isolation, normally ON and normally OFF, 10A 250VAC / 10A 30VDC;
- ◆ LED indication: 1 for power and working status; 32 for DO status;
- ◆ Supports RS485 + RS232 Communication interface, power isolation plus signal isolation, reliable communication;
- ◆ Communication baud rate: 300bps~38400bps (, It is 9600 by default and can be modified by software);
- ◆ Support standard Modbus RTU protocol, read and write by register address;
- ◆ 0-255; Built-in address DIP switch; Set address codes by software
- ◆ Support input and output linkage, such as local linkage or dual-computer linkage, which is convenient for multi-terminal control;
- ◆ Support flash ON flash OFF;
- ◆ Supporting setting software for setting parameters and IO control;
- ◆ Support software and hardware customization.

1.2 Parameter

Parameter	
Contact capacity	10A/30VDC 10A/250VAC
Durability	100,000 times (Electrical) 10,000,000 times (Mechanical)
Data interface	RS485/RS232
Working voltage	DC 12/24V
Power / work indication	1 LED (power: always on; working: flashing)
Output indication	32 LEDs (relay on and off)
Working temperature	-40°C ~ 85°C, Industrial Grade
Size	300*110*60mm
Weight	500g
Default communication format	9600,n,8,1
Baud rate	300~38400bps
Software support	Setting and control software; Support various configuration software; support Labviewd, etc.

Din Rail Installation	35mm Din Rail Mounting / Screw Holes
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1.3 Item Selection

Item #	DO	DI	Analog	RS485	Address Dial
CS-IO101	1	1	0	RS485 * 1	Address Dial
CS-IO204	2	4	0	RS485 * 1	Address Dial
CS-IO222A	2	2	2(0-20mA)	RS485 * 1	Address Dial
CS-IO404A	4	0	4(0-20mA)	RS485 * 1	Address Dial
CS-IO404	4	4	0	RS485 * 1	Address Dial
CS-IO606	6	6	0	RS485 * 1	Address Dial
CS-IO808	8	8	0	RS485 + RS232	
CS-IO1600DI	0	16	0	RS485 + RS232	Address Dial
CS-IO1600	16	0	0	RS485 + RS232	Address Dial
CS-IO3200	32	0	0	RS485 + RS232	Address Dial

1.4 Dimension

300*110*60mm

2 Wiring Instructions

2.1 Terminal Definition

No.	Pin	Instruction
1	+	Positive Power Supply
2	-/GND	Negative Power Supply /RS232 ground wire
3	Shielded	Shielded wire
4	A+	RS485 communication A+
5	B-	RS485 communication B-
6	Normally ON	The 32 th DO normally ON terminal
7	Public	The 32 th DO public terminal
8	Normally OFF	The 32 th DO normally OFF terminal
9	Normally ON	The 31 th DO normally ON terminal
10	Public	The 31 th DO public terminal
11	Normally OFF	The 31 th DO normally OFF terminal
12	Normally ON	The 30 th DO normally ON terminal
13	Public	The 30 th DO public terminal
14	Normally OFF	The 30 th DO normally OFF terminal
15	Normally ON	The 29 th DO normally ON terminal
16	Public	The 29 th DO public terminal

17	Normally OFF	The 29 th DO normally OFF terminal
18	Normally ON	The 28 th DO normally ON terminal
19	Public	The 28 th DO public terminal
20	Normally OFF	The 28 th DO normally OFF terminal
21	Normally ON	The 27 th DO normally ON terminal
22	Public	The 27 th DO public terminal
23	Normally OFF	The 27 th DO normally OFF terminal
24	Normally ON	The 26 th DO normally ON terminal
25	Public	The 26 th DO public terminal
26	Normally OFF	The 26 th DO normally OFF terminal
27	Normally ON	The 25 th DO normally ON terminal
28	Public	The 25 th DO public terminal
29	Normally OFF	The 25 th DO normally OFF terminal
30	Normally ON	The 24 th DO normally ON terminal
31	Public	The 24 th DO public terminal
32	Normally OFF	The 24 th DO normally OFF terminal
33	Normally ON	The 23 th DO normally ON terminal
34	Public	The 23 th DO public terminal
35	Normally OFF	The 23 th DO normally OFF terminal
36	Normally ON	The 22 th DO normally ON terminal
37	Public	The 22 th DO public terminal
38	Normally OFF	The 22 th DO normally OFF terminal
39	Normally ON	The 21 th DO normally ON terminal
40	Public	The 21 th DO public terminal
41	Normally OFF	The 21 th DO normally OFF terminal
42	Normally ON	The 20 th DO normally ON terminal
43	Public	The 20 th DO public terminal
44	Normally OFF	The 20 th DO normally OFF terminal
45	Normally ON	The 19 th DO normally ON terminal
46	Public	The 19 th DO public terminal
47	Normally OFF	The 19 th DO normally OFF terminal
48	Normally ON	The 18 th DO normally ON terminal
49	Public	The 18 th DO public terminal
50	Normally OFF	The 18 th DO normally OFF terminal
51	Normally ON	The 17 th DO normally ON terminal
52	Public	The 17 th DO public terminal

53	Normally OFF	The 17 th DO normally OFF terminal
54	Normally ON	The 16 th DO normally ON terminal
55	Public	The 16 th DO public terminal
56	Normally OFF	The 16 th DO normally OFF terminal
57	Normally ON	The 15 th DO normally ON terminal
58	Public	The 15 th DO public terminal
59	Normally OFF	The 15 th DO normally OFF terminal
60	Normally ON	The 14 th DO normally ON terminal
61	Public	The 14 th DO public terminal
62	Normally OFF	The 14 th DO normally OFF terminal
63	Normally ON	The 13 th DO normally ON terminal
64	Public	The 13 th DO public terminal
65	Normally OFF	The 13 th DO normally OFF terminal
66	Normally ON	The 12 th DO normally ON terminal
67	Public	The 12 th DO public terminal
68	Normally OFF	The 12 th DO normally OFF terminal
69	Normally ON	The 11 th DO normally ON terminal
70	Public	The 11 th DO public terminal
71	Normally OFF	The 11 th DO normally OFF terminal
72	Normally ON	The 10 th DO normally ON terminal
73	Public	The 10 th DO public terminal
74	Normally OFF	The 10 th DO normally OFF terminal
75	Normally ON	The 9 th DO normally ON terminal
76	Public	The 9 th DO public terminal
77	Normally OFF	The 9 th DO normally ON terminal
78	Normally ON	The 8 th DO normally ON terminal
79	Public	The 8 th DO public terminal
80	Normally OFF	The 8 th DO normally OFF terminal
81	Normally ON	The 7 th DO normally ON terminal
82	Public	The 7 th DO public terminal
83	Normally OFF	The 7 th DO normally OFF terminal
84	Normally ON	The 6 th DO normally ON terminal
85	Public	The 6 th DO public terminal
86	Normally OFF	The 6 th DO normally OFF terminal
87	Normally ON	The 5 th DO normally ON terminal
88	Public	The 5 th DO public terminal

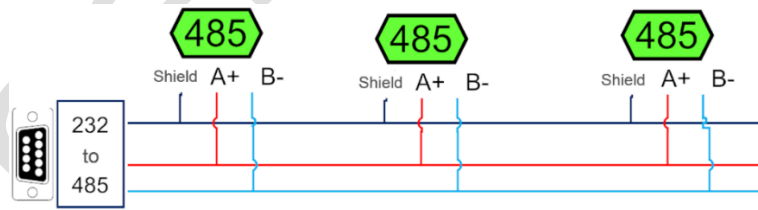
89	Normally OFF	The 5 th DO normally OFF terminal
90	Normally ON	The 4 th DO normally ON terminal
91	Public	The 4 th DO public terminal
92	Normally OFF	The 4 th DO normally OFF terminal
93	Normally ON	The 3 rd DO normally ON terminal
94	Public	The 3 rd DO public terminal
95	Normally OFF	The 3 rd DO normally OFF terminal
96	Normally ON	The 2 nd DO normally ON terminal
97	Public	The 2 nd DO public terminal
98	Normally OFF	The 2 nd DO normally OFF terminal
99	Normally ON	The 1 st DO normally ON terminal
100	Public	The 1 st DO public terminal
101	Normally OFF	The 1 st DO normally OFF terminal

2.2 Communication Wiring

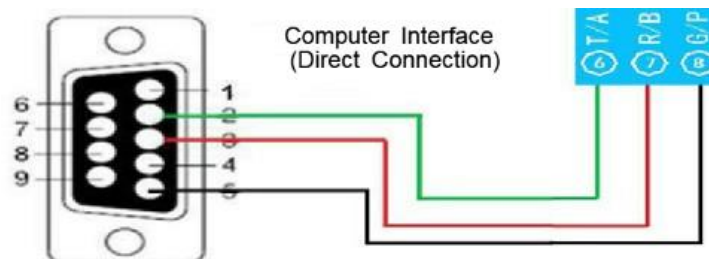
By default, its address is 1, and the DIP switches are in the off state.

The host computer software can use the default address 1 to communicate with the device (or broadcast address 254, which is only applicable when one device is mounted on the network).

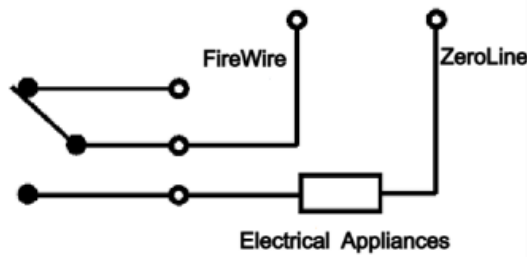
2.2.1 RS485 Wiring



2.2.2 RS232 Wiring

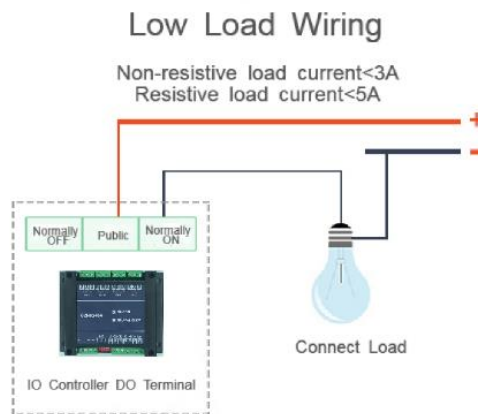


2.3 DO Wiring

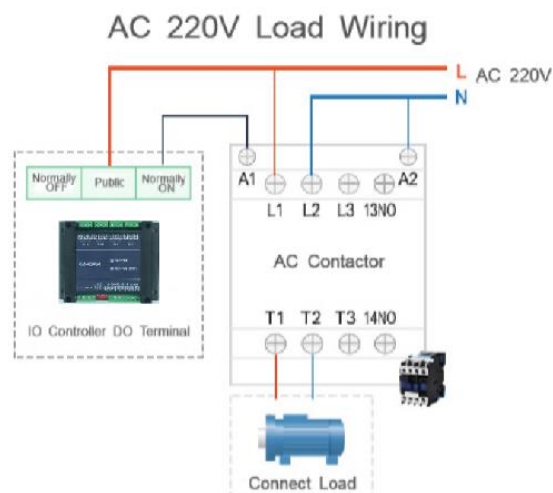


The relay is single-pole, double-throw, and each circuit has three terminals, one group is normally ON and the other is normally OFF (normally ON contacts are generally used), and the terminal identification is subject to the indications on the film.

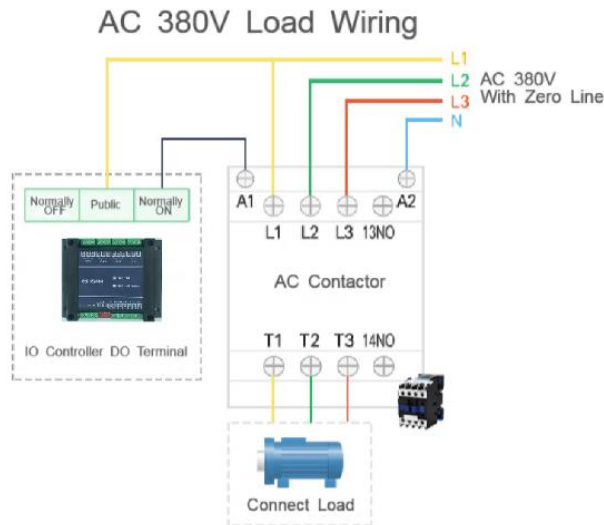
2.3.1 Low Load Wiring



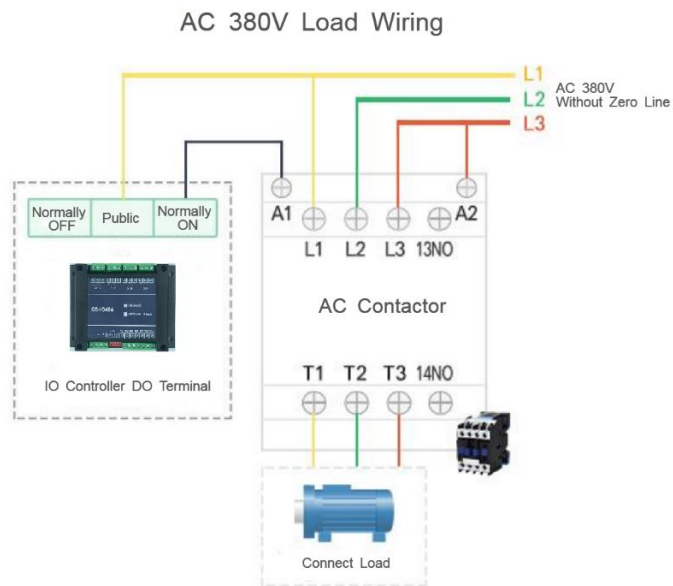
2.3.2 AC 220V Load Device Wiring



2.3.3 AC 380V Load Device Wiring 【With Zero Line】



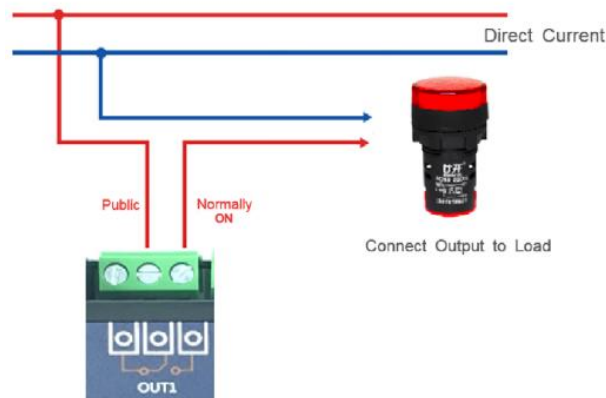
2.3.4 AC 380V Load Device Wiring 【Without Zero Line】



Please add an AC contactor/intermediate relay between this device and the load in the following four cases:

1. Load rated voltage > 30VDC
2. Load rated voltage > 250VAC
3. Non-Resistive Load Current > 3A
4. Resistive load current > 5A

2.3.5 DC Load Device Wiring



3 Parameters and Working Mode Configuration

3.1 Device and PC Connection Settings

The USB end of the USB to RS485/RS232 converter is directly connected to the USB port of computer, and 485/232 end is wired according to the wiring method in "Chapter 2.2 Communication Wiring".

Serial port number query method: Open "My Computer - Device Manager - Port (COM and LPT)" and the COM number that appears after the USB to 485/232 device is inserted is the serial port number.

3.2 Device Address

3.2.1 Introduction

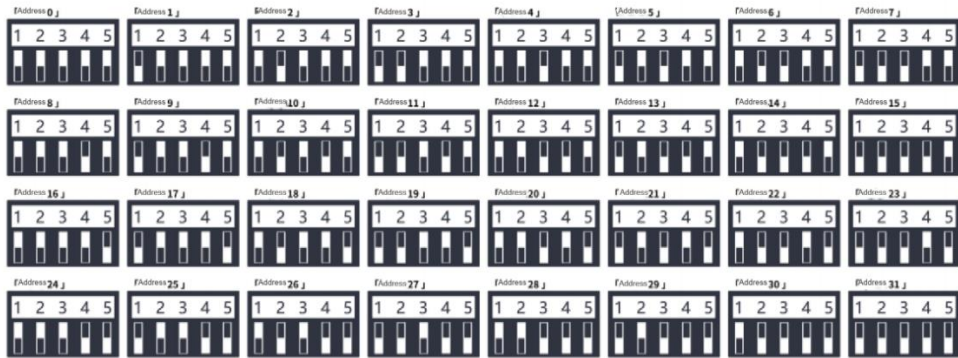
The Offset Address of this device is 1 by default, and the broadcast address is 254 to communicate, but 0 cannot be used.

Communication address = Hardware address (DIP switch address) + Offset address.

The device's Factory default settings of communication address is 1.

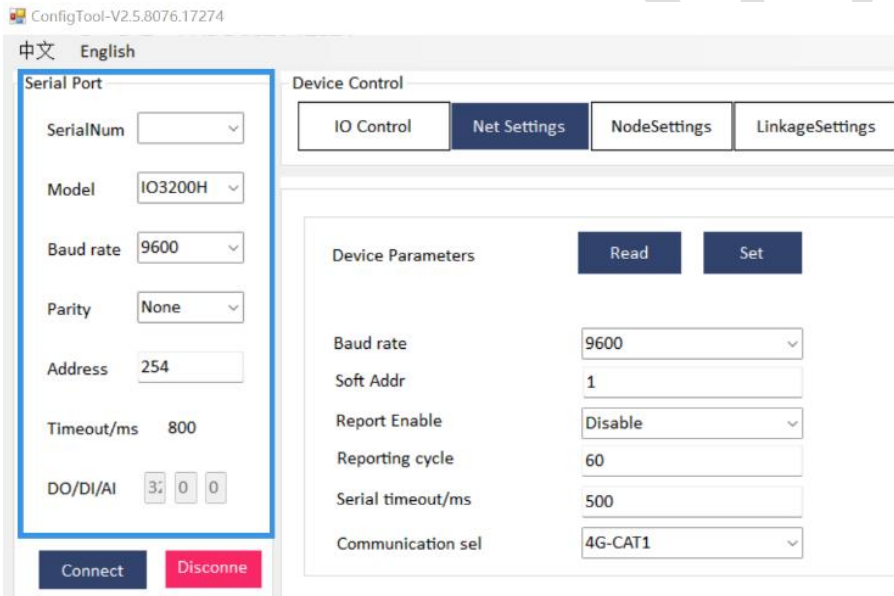
With DIP switch, users can quickly modify the device address.

- (1) The address is "31" when all 5 dial codes are dialed above;
- (2) The address is "0" When all t5 dial codes are dialed below;
- (3) The leftmost 1 is the lowest digit in binary;;
- (4) DIP address table:



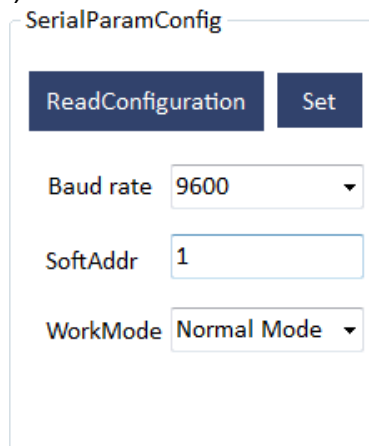
3.2.1 Device Communication Address Reading

After the device is connected normally, click "read address" on the serial relay debugging software to read the current address of the device [only support broadcast read address when there is one device on the bus].



3.2.2 Software Address Setting and Reading

Click "Read" or "Set" to read or set the software address of the device (address parameters stored in the device).



3.2.3 Baud Rate Reading and Setting

Click "Read" and "Set" to read and set the baud rate and address respectively, which will take effect immediately after the operation.

SerialParamConfig

ReadConfiguration
Set

Baud rate

SoftAddr

WorkMode

4 Development Data Instruction

4.1 Communication Protocol Instruction

This product supports standard Modbus commands. For detailed command generation and parsing methods, you can refer to "MODBUS Protocol English Version" based on the register table in this article.

This product supports Modbus RTU format.

4.2 Modbus Register Instruction

This control card supports communication of various function codes, please refer to the below.

Instruction code	Meaning
1	Read coil register [DO]
5	write a single coil
15	write multiple coils

Register address table:

Register name	PLC Register address	Explanation
Coil Control		
Coil Control 1	00001	The 1st DO
Coil Control 2	00002	The 2nd DO
Coil Control 3	00003	The 3rd DO
Coil Control 4	00004	The 4th DO
Coil Control 5	00005	The 5th DO
Coil Control 6	00006	The 6th DO

Coil Control 7		00007	The 7th DO
Coil Control 8		00008	The 8th DO
Coil Control 9		00009	The 9th DO
Coil Control 10		00010	The 10th DO
Coil Control 11		00011	The 11th DO
Coil Control 12		00012	The 12th DO
Coil Control 13		00013	The 13th DO
Coil Control 14		00014	The 14th DO
Coil Control 15		00015	The 15th DO
Coil Control 16		00016	The 16th DO
Coil Control 17		00017	The 17th DO
Coil Control 18	Write coil Command 1	00018	The 18th DO
Coil Control 19		00019	The 19th DO
Coil Control 20		00020	The 20th DO
Coil Control 21		00021	The 21th DO
Coil Control 22		00022	The 22th DO
Coil Control 23		00023	The 23th DO
Coil Control 24		00024	The 24th DO
Coil Control 25		00025	The 25th DO
Coil Control 26		00026	The 26th DO
Coil Control 27		00027	The 27th DO
Coil Control 28		00028	The 28th DO
Coil Control 29		00029	The 29th DO
Coil Control 30		00030	The 30th DO
Coil Control 31		00031	The 31th DO
Coil Control 32		00032	The 32th DO
Parameters Configuration			
Communication baud rate	Read register function code 03 Write register function code 06	03E8H	See the below corresponding table of baud rate values, the default value is 0, and supports 0-5. This register determines the communication baud rate of RS232 and RS485 at the same time.
Spare		03E9H	Spare, user cannot write any value.
Offset address		03EAH	Communication address = software address + DIP switch address
Working Mode		03EBH	Working mode storage
Spare		03ECH	Spare

Parameters Configuration

		Modbus Register address	PLC Register address	Explanation
Communication baud rate	Holding register	03E8H	41001	See the below corresponding table of baud rate values, the default value is 0, and supports 0-5. This register determines the communication baud rate of RS232 and RS485 at the same time.
Spare		03E9H	41002	Spare, user cannot write any value.
Offset Address		03EAH	41003	Device address= Offset Address + DIP switch address
Workng Mode		03EBH	41004	User can use, store user data
Delay		03ECH	41005	User can use, store user data

(1) The Modbus device command supports the following Modbus addresses:
 00001 to 09999 are discrete outputs (coils)
 10001 to 19999 are discrete inputs (contacts)
 30001 to 39999 are input registers (usually analog inputs)
 40001 to 49999 are holding registers (usually store device configuration information)
 In 5-bit code format, the first character determines register type, and the remaining 4 characters represent address.
 Address 1 starts from 0, such as 00001 corresponds to 0000.

(2) Baud rate value corresponding table

Value	Baud rate
1	2400
2	4800
3	9600
4	19200
5	38400

(3) The DO status can be queried through 30002 address or through 00001-00002 address, but the control can only use 00001-00002 address. 30002 address data length is 16bit. Up to 16 relays can be represented.

The responding results as follow:

Bite	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Relay	8	7	6	5	4	3	2	1	16	15	14	13	12	11	10	9

The bit 8 of the data of register 30009 is the same as the data of register 00001.
 The same is true for the optocoupler input. Bit8 and bit9 of register 30003 and registers 10001 and 10002 all correspond to the specified hardware.
 The register address is in accordance with the PLC naming rules, the real address is to remove the highest bit, and then subtract 1

4.3 Command List

Scene	RTU format (send in hexadecimal)
Query 32 DOs 'status	FE 01 00 00 00 20 29 DD
Return query information	FE 01 04 00 00 00 00 F4 DE
Control the 1 st DO on	FE 05 00 00 FF 00 98 35
Return control information	FE 05 00 00 FF 00 98 35
Control the 1 st DO off	FE 05 00 00 00 00 D9 C5
Return control information	FE 05 00 00 00 00 D9 C5
Control the 2 nd DO on	FE 05 00 01 FF 00 C9 F5
Control the 2 nd DO off	FE 05 00 01 00 00 88 05
Control the 3 rd DO on	FE 05 00 02 FF 00 39 F5
Control the 3 rd DO off	FE 05 00 02 00 00 78 05
Control the 4 th DO on	FE 05 00 03 FF 00 68 35
Control the 4 th DO off	FE 05 00 03 00 00 29 C5
Control the 5 th DO on	FE 05 00 04 FF 00 D9 F4
Control the 5 th DO off	FE 05 00 04 00 00 98 04
Control the 6 th DO on	FE 05 00 05 FF 00 88 34
Control the 6 th DO off	FE 05 00 05 00 00 C9 C4
Control the 7 th DO on	FE 05 00 06 FF 00 78 34
Control the 7 th DO off	FE 05 00 06 00 00 39 C4
Control the 8 th DO on	FE 05 00 07 FF 00 29 F4
Control the 8 th DO off	FE 05 00 07 00 00 68 04
Control the 9 th DO on	FE 05 00 08 FF 00 19 F7
Control the 9 th DO off	FE 05 00 08 00 00 58 07
Control the 10 th DO on	FE 05 00 09 FF 00 48 37
Control the 10 th DO off	FE 05 00 09 00 00 09 C7
Control the 11 th DO on	FE 05 00 0A FF 00 B8 37
Control the 11 th DO off	FE 05 00 0A 00 00 F9 C7
Control the 12 th DO on	FE 05 00 0B FF 00 E9 F7

Control the 12 th DO off	FE 05 00 0B 00 00 A8 07
Control the 13 th DO on	FE 05 00 0C FF 00 58 36
Control the 13 th DO off	FE 05 00 0C 00 00 19 C6
Control the 14 th DO on	FE 05 00 0D FF 00 09 F6
Control the 14 th DO off	FE 05 00 0D 00 00 48 06
Control the 15 th DO on	FE 05 00 0E FF 00 F9 F6
Control the 15 th DO off	FE 05 00 0E 00 00 B8 06
Control the 16 th DO on	FE 05 00 0F FF 00 A8 36
Control the 16 th DO off	FE 05 00 0F 00 00 E9 C6
Control the 17 th DO on	FE 05 00 10 FF 00 99 F0
Control the 17 th DO off	FE 05 00 10 00 00 D8 00
Control the 18 th DO on	FE 05 00 11 FF 00 C8 30
Control the 18 th DO off	FE 05 00 11 00 00 89 C0
Control the 19 th DO on	FE 05 00 12 FF 00 38 30
Control the 19 th DO off	FE 05 00 12 00 00 79 C0
Control the 20 th DO on	FE 05 00 13 FF 00 69 F0
Control the 20 th DO off	FE 05 00 13 00 00 28 00
Control the 21 th DO on	FE 05 00 14 FF 00 D8 31
Control the 21 th DO off	FE 05 00 14 00 00 99 C1
Control the 22 th DO on	FE 05 00 15 FF 00 89 F1
Control the 22 th DO off	FE 05 00 15 00 00 C8 01
Control the 23 th DO on	FE 05 00 16 FF 00 79 F1
Control the 23 th DO off	FE 05 00 16 00 00 38 01
Control the 24 th DO on	FE 05 00 17 FF 00 28 31
Control the 24 th DO off	FE 05 00 17 00 00 69 C1
Control the 25 th DO on	FE 05 00 18 FF 00 18 32
Control the 25 th DO off	FE 05 00 18 00 00 59 C2
Control the 26 th DO on	FE 05 00 19 FF 00 49 F2
Control the 26 th DO off	FE 05 00 19 00 00 08 02
Control the 27 th DO on	FE 05 00 1A FF 00 B9 F2

Control the 27 th DO off	FE 05 00 1A 00 00 F8 02
Control the 28 th DO on	FE 05 00 1B FF 00 E8 32
Control the 28 th DO off	FE 05 00 1B 00 00 A9 C2
Control the 29 th DO on	FE 05 00 1C FF 00 59 F3
Control the 29 th DO off	FE 05 00 1C 00 00 18 03
Control the 30 th DO on	FE 05 00 1D FF 00 08 33
Control the 30 th DO off	FE 05 00 1D 00 00 49 C3
Control the 31 th DO on	FE 05 00 1E FF 00 F8 33
Control the 31 th DO off	FE 05 00 1E 00 00 B9 C3
Control the 32 th DO off	FE 05 00 1F FF 00 A9 F3
Control the 32 th DO off	FE 05 00 1F 00 00 E8 03

4.4 Command Details

4.4.1 Control DO

Control 1 DO (take the first DO OFF as an example, other channels refer to this)

Sending code: FE 05 00 00 FF 00 98 35

Field	Meaning	Note
FE	Device address	It is the broadcast address
05	05 command	Single control command
00 00	Address	Register address of the DO to control
FF 00	Command	DO OFF action
98 35	CRC16	CRC16 checksum of the first 6 bytes of data

Relay return information: :

Return code: FE 05 00 00 FF 00 98 35

Field	Meaning	Note
FE	Device address	It is the broadcast address
05	05 command	Single control command
00 00	Address	Register address of the DO to be controlled
FF 00	Command	DO OFF action
98 35	CRC16	CRC16 checksum of the first 6 bytes of data

4.4.2 Query DO Status

Sending Code: FE 01 00 00 00 20 29 DD

Field	Meaning	Note
FE	Device address	It is the broadcast address
01	01 command	Query DO status command
00 00	Starting address	Register address of the first DO to be queried
00 20	Number of queries	The number of DOs to be queried
29 DD	CRC16	CRC16 checksum of the first 6 bytes of data

DO return information:

Return code: FE 01 04 00 00 00 00 F4 DE

Field	Meaning	Note
FE	Device address	
01	01 command	Return command: If the query is wrong, return 0x81
04	Number of bytes	All bytes of return status information. $1+(n-1)/8$
00 00 00 00	Status of the query	Returns the DO status. The return value is hexadecimal, converted to binary data, 0 means off, 1 means on.
F4 DE	CRC16	CRC16 checksum of the first 6 bytes of data

4.4.3 Flash ON Flash OFF Command

Flash OFF sending code: FE 10 00 03 00 02 04 00 04 00 0A 41 6B

Flash ON sending code: FE 10 00 03 00 02 04 00 02 00 0A A1 6A

Field	Meaning	Note
FE	Device address	
10	10 Command	Write multiple register function codes
00 03	Relay address	$3+5(n-1)$, n represents which channel to control, the decimal needs to be converted to hexadecimal system
00 02	Number of control commands	$2+5(n-1)$, n represents the number of controlled channels, only supports controlling the DO action of a channel individually
04	Bytes	$4+10(n-1)$, n represents the number of controlled channels, only supports controlling the DO action of a channel individually
00 04 / 00 02	Command	00 04: flash OFF command 00 02: flash ON command

00 0A	Interval time	00 0A is 10 (hexadecimal converted to decimal) The interval time is (0.1 seconds*10)
41 6B /A1 6A	CRC16	Check method

Return code: FE 10 00 03 00 02 A5 C7

Field	Meaning	Note
FE	Device address	
10	10 command	Return instruction: If the query is wrong, return 0x82
00 03	Device address	Query the address of the device
00 02	Number of commands accepted	The number of commands accepted by the device
A5 C7	CRC16	check digit

Example: 1s flash OFF/flash ON

1st channel flash OFF command: FE 10 00 03 00 02 04 00 04 00 0A 41 6B
 2nd channel flash OFF command: FE 10 00 08 00 02 04 00 04 00 0A 00 D8
 3rd channel flash OFF command: FE 10 00 0D 00 02 04 00 04 00 0A C0 E7
 4th channel flash OFF command: FE 10 00 12 00 02 04 00 04 00 0A 81 AB
 5th channel flash OFF command: FE 10 00 17 00 02 04 00 04 00 0A 41 94
 6th channel flash OFF command: FE 10 00 1C 00 02 04 00 04 00 0A 00 27
 7th channel flash OFF command: FE 10 00 21 00 02 04 00 04 00 0A C2 AA
 8th channel flash OFF command: FE 10 00 26 00 02 04 00 04 00 0A 83 4C
 9th channel flash OFF command: FE 10 00 2B 00 02 04 00 04 00 0A 42 D5
 10th channel flash OFF command: FE 10 00 30 00 02 04 00 04 00 0A 02 6A
 11th channel flash OFF command: FE 10 00 35 00 02 04 00 04 00 0A C2 55
 12th channel flash OFF command: FE 10 00 3A 00 02 04 00 04 00 0A 82 15
 13th channel flash OFF command: FE 10 00 3F 00 02 04 00 04 00 0A 42 2A
 14th channel flash OFF command: FE 10 00 44 00 02 04 00 04 00 0A 04 BD
 15th channel flash OFF command: FE 10 00 49 00 02 04 00 04 00 0A C5 24
 16th channel flash OFF command: FE 10 00 4E 00 02 04 00 04 00 0A 84 C2

1st channel flash ON command: FE 10 00 03 00 02 04 00 02 00 0A A1 6A
 2nd channel flash ON command: FE 10 00 08 00 02 04 00 02 00 0A E0 D9
 3rd channel flash ON command: FE 10 00 0D 00 02 04 00 02 00 0A 20 E6
 4th channel flash ON command: FE 10 00 12 00 02 04 00 02 00 0A 61 AA
 5th channel flash ON command: FE 10 00 17 00 02 04 00 02 00 0A A1 95
 6th channel flash ON command: FE 10 00 1C 00 02 04 00 02 00 0A E0 26
 7th channel flash ON command: FE 10 00 21 00 02 04 00 02 00 0A 22 AB
 8th channel flash ON command: FE 10 00 26 00 02 04 00 02 00 0A 63 4D
 9th channel flash ON command: FE 10 00 2B 00 02 04 00 02 00 0A A2 D4
 10th channel flash ON command: FE 10 00 30 00 02 04 00 02 00 0A E2 6B
 11th channel flash ON command: FE 10 00 35 00 02 04 00 02 00 0A 22 54
 12th channel flash ON command: FE 10 00 3A 00 02 04 00 02 00 0A 62 14
 13th channel flash ON command: FE 10 00 3F 00 02 04 00 02 00 0A A2 2B

14th channel flash ON command: FE 10 00 44 00 02 04 00 02 00 0A E4 BC

15th channel flash ON command: FE 10 00 49 00 02 04 00 02 00 0A 25 25

16th channel flash ON command: FE 10 00 4E 00 02 04 00 02 00 0A 64 C3

4.4.4 All ON and All OFF Command

All ON sending code: FE 0F 00 00 00 20 04 FF FF FF FF F6 0B

All OFF sending code: FE 0F 00 00 00 20 04 00 00 00 00 F7 9F

Field	Meaning	Note
FE	Device address	
0F	0F command	Return command: If the query is wrong, return 0x82
00 00	Starting address	
00 20	Number of Controls	Number of DOs Controlled
04	Bytes	Bytes of Send command
FF FF FF FF	All ON command	FF FF FF FF: All ON command
00 00 00 00	All OFF command	00 00 00 00: All OFF command
F6 0B/ F7 9F	CRC16	Check digit

Return code: FE 0F 00 00 00 20 40 1C

Field	Meaning	Note
FE	Device address	
0F	0F command	Return command: If the query is wrong, return 0x82
00 00	Starting address	
00 20	Quantity	Number of DOs returning information
40 1C	CRC16	Check digit

4.4.5 Active Reporting Protocol

This function is a non-standard Modbus protocol, which can only be used in dual-computer mode, and is suitable for the serial relay to actively report changed switch value

Filed	Meaning	Note
0x40 0x57	Header	
0x01	Device Address	
0x02	IO status lower 8 bits	
0x00	IO status high 8 bits	
0x42+0x01+0x02+0x00	Check Digit	0x42+deviceaddress+IO status low 8 bits + IO status high 8 bits

5 Product Maintenance

5.1 Device Usage Environment

1. The working voltage is DC 12/24V. If the input voltage is too high or too low, the device may not work normally or even be damaged.
2. The DI input terminal adopts optocoupler isolation protection, and its bearing voltage is 5~24V.
3. Do not overload for the DO output terminals. Please connect them correctly within the allowable range (refer to the wiring diagram for details).
4. The allowable air humidity of the device is 5~85%RH, and it does not have waterproof capability. Do not use it in condensation or liquid immersion environments.
5. The relay is a component with a certain service life. When the theoretical service life is reached, please replace it in time to avoid danger.

5.2 FAQ

5.2.1 RS485 /RS232 communication, no response when device control

Confirm whether the communication speed, communication address, and wiring are correct.

You can use the broadcast address 254 to try to communicate with unknown addresses;

Confirm whether the serial port number ONed on the software is correct;

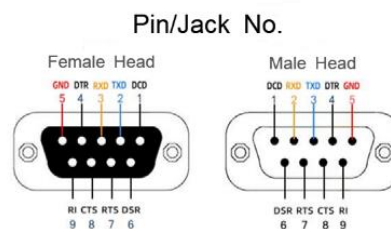
Check whether the power supply and work indicator are normal;

For the RS232 version, please correctly identify the RS232 serial port module used as male or female.

The module TXD is connected to RX pin of the relay

The module RXD is connected to TX pin of the relay

The module GND is connected to GND pin of the relay



5.2.2 The relay can only be turned on but not turned off

Check Whether the read address reads the actual device address;

Check whether there is a return command in the debug information column, and whether the return command is correct.

If reading address fails, there is no return command or abnormal return command, check the communication line and communication converter

When the io module and the controlled equipment share a DC power supply, if the controlled equipment is heavily loaded, it may cause insufficient power supply of the io module and the relay cannot switch normally.

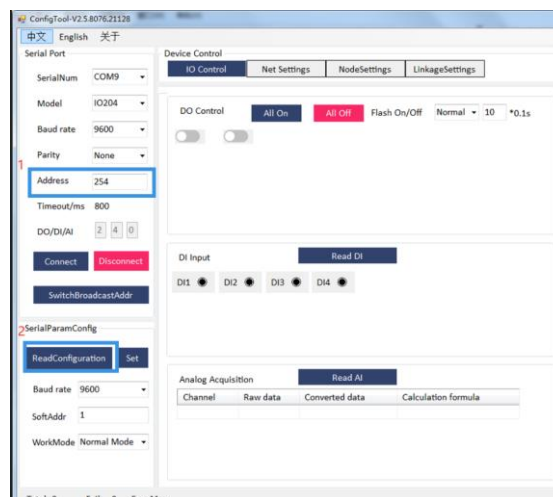
5.2.3 485 interface cannot be used to establish communication and control After the relay powered on.

1. Check whether the 485 line is reversed and whether the voltage is within the specified range;
2. Fill in 254 for the device address on software to test whether it can be can be controlled with different baud rates.

5.2.4 Multiple devices on the 485 bus and close operation failed to send the broadcast address 254.

If there are multiple devices on the 485 bus, the address of each device cannot be the same, and the broadcast address 254 cannot be used for communication.

Use DIP switch/software to distinguish the module' address, otherwise the command cannot be executed correctly. (Please refer to below photo: how to set the address if multiple modules)



The broadcast address 254 can be used when there is only one device on the bus. When there is more than one device.

5.2.5 PLC and the device cannot communicate normally

1. Check whether the PLC communication parameters match the relay;
2. Check whether the PLC communication protocol is standard Modbus RTU;
3. Check whether the definition of Siemens 485 bus AB is opposite to this device.

5.2.6 How to restore the factory settings

You can use the DIP switch to restore the factory settings.

Operation steps:

Power on, dial all the dial codes to ON, and toggle bit5 back and forth 6 times. Dial all the dial codes, then you can use the host computer software (baud rate 9600, address 254) to communicate.

6 After-sale Service

6.1 Commitment

OneFex provides after-sales service of the device within one year from the date of sale. But for damage caused by improper use, you need to send it back and take the freight for repair or adjust. Make sure that the package is in good condition to avoid damage during transportation. Repair the damage of device instrument is free.

6.2 Disclaimer

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7 Update History

Date	Update Content	Version
2019/05/27	Create document	V1.0.1
2020/02/01	Update wiring diagrams, etc.	V1.1.0
2020/07/29	Update description	V1.2.0

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