



1, Modbus RTU Detailed instructions

1. Turn on relay 1 (manual mode)

send: FF 05 00 00 FF 00 99 E4

Field	Meaning	Comment
FF	Device address	Range 1-255, default 255
05	function code	Write a single coil
00 00	Relay address	0x0000--0x0007 respectively represent #1 relay--#8 relay
FF 00	On/off command	0x0000 is off, 0xFF00 is on
99 E4	CRC16	CRC-16/MODBUS check code

Return as is: FF 05 00 00 FF 00 99 E4

Field	Meaning	Comment
FF	Device address	Range 1-255, default 255
05	Function code	Write a single coil
00 00	Relay address	0x0000--0x0007 respectively represent #1 relay--#8 relay
FF 00	On/off command	0x0000 is off, 0xFF00 is on
99 E4	CRC16	CRC-16/MODBUS check code

2. Turn off the No. 1 relay (manual mode)

Send: FF 05 00 00 00 00 D8 14

Field	Meaning	Comment
FF	Device address	Range 1-255, default 255
05	Function code	Write a single coil
00 00	Relay address	0x0000--0x0007 respectively represent #1 relay--#8 relay
00 00	On/off command	0x0000 is off, 0xFF00 is on
D8 14	CRC16	CRC-16/MODBUS check code

Return as is: FF 05 00 00 00 00 D8 14

Field	Meaning	Comment
FF	Device address	Range 1-255, default 255
05	Function code	Write a single coil
00 00	Relay address	0x0000--0x0007 respectively represent #1 relay--#8 relay



00 00	On/off command	0x0000 is off, 0xFF00 is on
D8 14	CRC16	CRC-16/MODBUS check code

3, Turn on all relays

Send: FF 0F 00 00 00 08 01 FF 30 1D

Field	Meaning	Comment
FF	Device address	Range 1-255, default 255
0F	Function code	Write multiple coils
00 00	Initial address	#1 Relay address
00 08	Number of relays	Total number of relays to be controlled
01	Command bytes	Control command word length
FF	Control commands	0x00 is fully closed, 0xFF is fully open
30 1D	CRC16	CRC-16/MODBUS check code

Return: FF 0F 00 00 00 08 41 D3

Field	Meaning	Comment
FF	Device address	Range 1-255, default 255
0F	Function code	Write multiple coils
00 00	Initial address	#1 Relay address
00 08	Number of relays	Total number of relays to be controlled
41 D3	CRC16	CRC-16/MODBUS check code

4, Close all relays

Send: FF 0F 00 00 00 08 01 00 70 5D

Field	Meaning	Comment
FF	Device address	Range 1-255, default 255
0F	Function code	Write multiple coils
00 00	Initial address	#1 Relay address
00 08	Number of relays	Total number of relays to be controlled
01	Command	Control command word length



	bytes	
00	control commands	0x00 is fully closed, 0xFF is fully open
70 5D	CRC16	CRC-16/MODBUS check code

Return: FF 0F 00 00 00 08 41 D3

Field	Meaning	Comment
FF	Device address	Range 1-255, default 255
0F	Function code	Write multiple coils
00 00	Initial address	#1 Relay address
00 08	Number of relays	Total number of relays to be controlled
41 D3	CRC16	CRC-16/MODBUS check code

5, Set the device address to 255

Send: 00 10 00 00 00 01 02 00 FF EB 80

Field	Meaning	Comment
00	Fixed value	
10	function code	Write multiple registers
00 00	initial address	
00 01	Number of write registers	
02	Write register bytes	Write register data length
00 FF	Register data	Write device address 0x00FF, range: 0x0001-0x00FF
EB 80	CRC16	CRC-16/MODBUS check code

Return as is: 00 10 00 00 00 01 02 00 FF EB 80

Field	Meaning	Comment
00	Fixed value	
10	function code	Write multiple registers
00 00	initial address	
00 01	Number of write registers	
02	Write register bytes	Write register data length
00 FF	Register data	Namely: write device address 0x00FF, range: 0x0001-0x00FF
EB 80	CRC16	CRC-16/MODBUS check code



6, Read device address 255

Send: 00 03 00 00 00 01 85 DB

Field	Meaning	Comment
00	Fixed value	
03	function code	Read holding register
00 00	initial address	
00 01	Number of registers	Number of read registers
85 DB	CRC16	CRC-16/MODBUS check code

Return: 00 03 02 00 FF C5 C4

Field	Meaning	Comment
00	Fixed value	
03	function code	Read holding register
02	Data bytes	Data length read from register
00 FF	Register data	Read the device address as 0x00FF
C5 C4	CRC16	CRC-16/MODBUS check code

7, Read relay status

Send: FF 01 00 00 00 08 28 12

Field	Meaning	Comment
FF	Device address	Range 1-255, default 255
01	function code	Read coil status
00 00	initial address	#1 Relay address
00 08	Number of relays	The total number of relays to be read is 0x0008
28 12	CRC16	CRC-16/MODBUS check code

Return: FF 01 01 01 A1 A0

Field	Meaning	Comment
FF	Device address	Range 1-255, default 255
01	function code	Read coil status
01	Data bytes	Length of data read
01	data	The read data, Bit0-Bit7 respectively represent #1 relay --#8 relay status, 0 is off, 1 is on



A1 A0	CRC16	CRC-16/MODBUS check code
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8, Read optocoupler input status

Send: FF 02 00 00 00 08 6C 12

Field	Meaning	Comment
FF	Device address	Range 1-255, default 255
02	function code	Read discrete input status
00 00	initial address	#1 Optocoupler Address
00 08	Optocoupler quantity	The total number of optocouplers to be read is 0x0008
6C 12	CRC16	CRC-16/MODBUS check code

Return: FF 02 01 01 51 A0

Field	Meaning	Comment
FF	Device address	Range 1-255, default 255
02	function code	Read discrete input status
01	Data bytes	Length of data read
01	data	The read data, Bit0-Bit7 respectively represent the input state of #1 optocoupler--#8 optocoupler, 0 is high level, 1 is low level
51 A0	CRC16	CRC-16/MODBUS check code

9, Set the baud rate to 9600

Send: FF 10 03 E9 00 01 02 00 03 8B CC

Field	Meaning	Comment
FF	Device address	Range 1-255, default 255
10	function code	Write multiple registers
03 E9	initial address	
00 01	Number of write registers	
02	Write register bytes	Write register data length
00 03	Register data	Baud rate write value, range: 0x0002--0x0004, where 0x0002, 0x0003, 0x0004 represent baud rate 4800, 9600, 19200 respectively
8B CC	CRC16	CRC-16/MODBUS check code

Return: FF 10 03 E9 00 01 C5 A7



Field	Meaning	Comment
FF	Device address	Range 1-255, default 255
10	function code	Write multiple registers
03 E9	initial address	
00 01	Number of write registers	
C5 A7	CRC16	CRC-16/MODBUS check code

10, Read the baud rate 19200

Send: FF 03 03 E8 00 01 11 A4

Field	Meaning	Comment
FF	Device address	Range 1-255, default 255
03	function code	Read holding register
03 E8	initial address	
00 01	Number of registers	Number of read registers
11 A4	CRC16	CRC-16/MODBUS check code

Return: FF 03 02 00 04 90 53

Field	Meaning	Comment
FF	Device address	Range 1-255, default 255
03	function code	Read holding register
02	Data bytes	Data length read from register
00 04	Register data	Baud rate read value, range: 0x0002--0x0004, where 0x0002, 0x0003, 0x0004 represent baud rate 4800, 9600, 19200 respectively
90 53	CRC16	CRC-16/MODBUS check code

11, Turn on relay No. 1 (flash close mode 2S)

Send: FF 10 00 03 00 02 04 00 04 00 14 C5 9F

Field	Meaning	Comment
FF	Device address	Range 1-255, default 255
10	function code	Write multiple registers
00 03	Relay address	#1 relay--#8 relay addresses are: 0x0003, 0x0008, 0x000D, 0x0012, 0x0017, 0x001C, 0x0021, 0x0026



00 02	Number of write registers	
04	Write register bytes	Write register data length
00 04	Register 1 data	Flicker/flash value, 0x0004 means flicker, 0x0002 means flicker
00 14	Register 2 data	Delay setting value, range: 0x0001--0xFFFF. The delay base is 0.1S, so the delay time is 0x0014*0.1=20*0.1S=2S, #1 relay will be closed automatically after 2S
C5 9F	CRC16	CRC-16/MODBUS check code

Return: FF 10 00 03 00 02 A4 16

Field	Meaning	Comment
FF	Device address	Range 1-255, default 255
10	function code	Write multiple registers
00 03	Relay address	#1 relay--#8 relay addresses are: 0x0003, 0x0008, 0x000D, 0x0012, 0x0017, 0x001C, 0x0021, 0x0026
00 02	Number of write registers	
A4 16	CRC16	CRC-16/MODBUS check code

12, Turn off relay No. 1 (flash mode 3S)

Send: FF 10 00 03 00 02 04 00 02 00 1E A5 99

Field	Meaning	Comment
FF	Device address	Range 1-255, default 255
10	function code	Write multiple registers
00 03	Relay address	#1 relay--#8 relay addresses are: 0x0003, 0x0008, 0x000D, 0x0012, 0x0017, 0x001C, 0x0021, 0x0026
00 02	Number of write registers	
04	Write register bytes	Write register data length
00 02	Register 1 data	Flicker/flash value, 0x0004 means flicker, 0x0002 means flicker
00 1E	Register 2 data	Delay setting value, range: 0x0001--0xFFFF. The delay base is 0.1S, so the delay time is 0x001E*0.1=30*0.1S=3S, #1 relay will be closed automatically after 3S
A5 99	CRC16	CRC-16/MODBUS check code

Return: FF 10 00 03 00 02 A4 16



Field	Meaning	Comment
FF	Device address	Range 1-255, default 255
10	function code	Write multiple registers
00 03	Relay address	#1 relay--#8 relay addresses are: 0x0003, 0x0008, 0x000D, 0x0012, 0x0017, 0x001C, 0x0021, 0x0026
00 02	Number of write registers	
A4 16	CRC16	CRC-16/MODBUS check code

2, Host computer instructions

The Modbus relay module can receive Modbus RTU commands from the host computer/MCU via the RS485/TTL UART interface to perform related operations. The relay module can be controlled by the following PC software:

- (1) ModbusRTU configuration tool;
- (2) DAM debugging software;
- (3) Serial port debugging software (such as SSCOM).

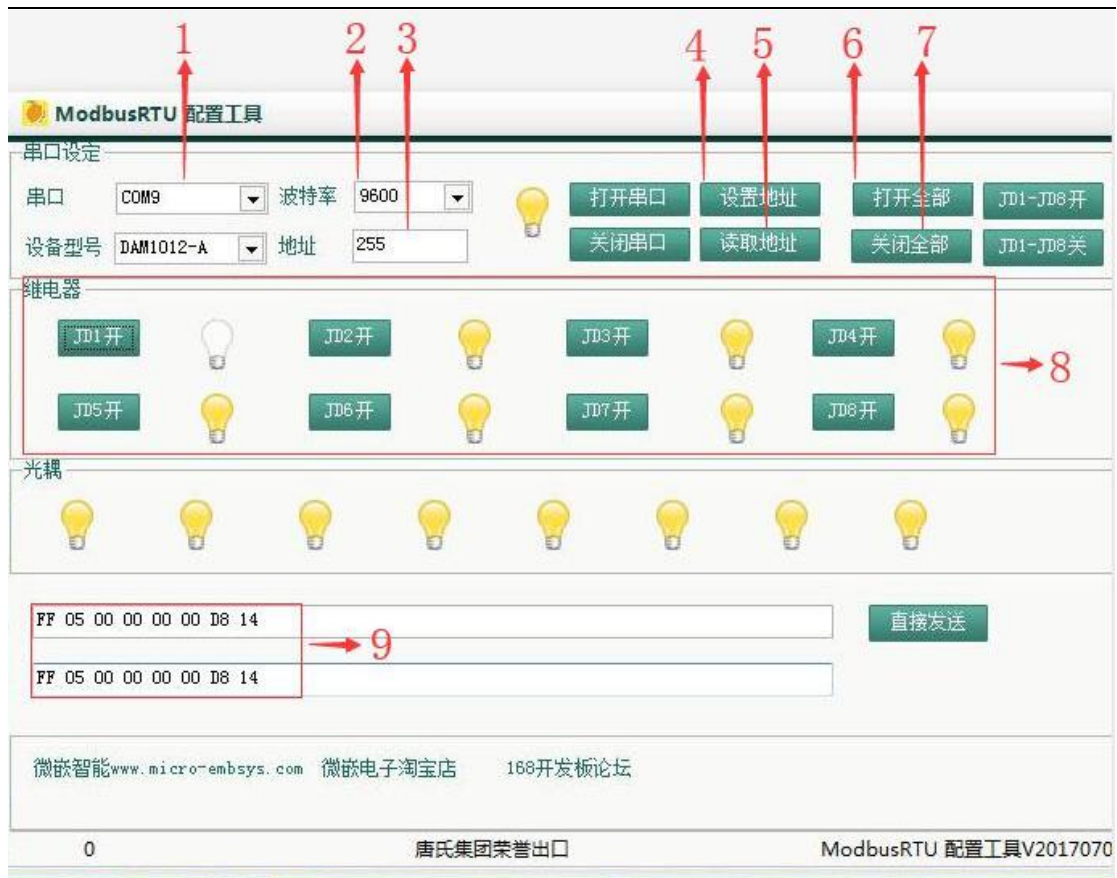
If the initial address of the fake device is 255 and the baud rate is 9600, the usage of each software is as follows:

1. ModbusRTU configuration tool

1.1, preparation

Connect the device, open the "Modbus RTU configuration tool", select the correct "serial port", baud rate 9600, address 255.

1.2, instructions for use



1. Serial port: port number selection;
2. Baud rate: baud rate selection, the default is 9600;
3. Address box: address selection/setting/reading box, default 255;
4. Set the address: After entering the address in the "address box", click the "set address" button to set, the range can be set: 1-255;
5. Read address: Click the "Read Address" button to display the device address in the "Address Box";
6. Open all: open all relays;
7. Close all: close all relays;
8. Relay control area: directly click to turn on/off the corresponding relay;
9. Data Send/Return display box.

Note: This Modbus device does not currently support using this software to read the optocoupler status.



1. DAM debugging software

2.1, preparations

Connect the device, open "DAM debugging software", select the correct "serial port", baud rate 9600, device model DAM0808, address 255, click "open serial port".

2.2, instructions for use



1. Serial port: port number selection;



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2. Equipment model: select DAM0808;
 3. Baud rate: baud rate selection, the default is 9600;
 4. Device address: device address selection box;
 5. Open/close the serial port;
 6. Open all: open all relays;
 7. Close all: close all relays;
 8. Read relay: Click the "read relay" button to display the relay switch status in the "relay control/status display area";
 9. Read optocoupler: click the "read optocoupler" button to display the optocoupler input status in the "optocoupler status display area";
 10. Relay control/status display area: It can be used to control the relay or display the status of the relay. It is lit to indicate that the relay is closed, and gray indicates that the relay is off;
 11. Optocoupler status display area: it can be used to display the input state of the optocoupler. It is lit to indicate that the input is high level, and gray indicates that the input is low level/no input (DAM debugging software will automatically detect the optocoupler input at regular intervals);
 12. Baud rate setting/reading:
 - (1) Set the baud rate: select the desired baud rate in the drop-down box (settable values: 4800/9600/19200), click the "Set" button, and then restart the device after powering off to make the settings take effect (it is recommended to power off 30S Power on again around);
 - (2) Read the baud rate: directly click the "read" button to read the device baud rate;
 13. Manual/flash off/flash mode switch:
 - (1) Manual mode: Click the button of "Relay Control/Status Display Area", click to turn on, and click again to turn off;
 - (2) Flash-off mode: Enter the flash-off delay setting value, such as 20, then the flash-off delay time is $20 \times 0.1 = 2\text{S}$, at this time, click the button in the "relay



control/status display area", and the corresponding relay is closed for 2S Automatically disconnect afterwards;

(3) Flash mode: Enter the flash delay setting value, such as 30, then the flash delay time is $30 \times 0.1 = 3\text{S}$. At this time, click the button in the "Relay Control/Status Display Area", and the corresponding relay will be disconnected. Close automatically after 3S;

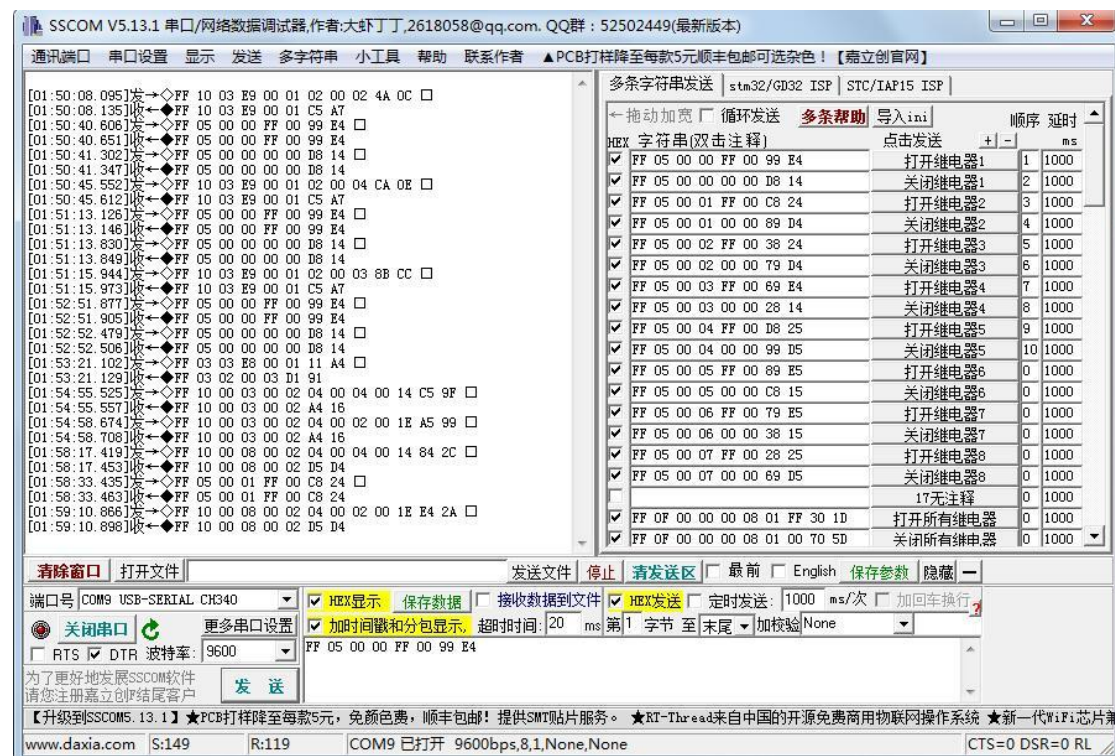
Note: In addition to the 13-point function introduced above, this Modbus device does not currently support the use of other functions of this software.

1. Serial port debugging software

3.1, preparations

Connect the device, open "SSCOMV5.1 software", select the correct "port number", baud rate 9600, check "HEXSend" and other settings, click "open serial port", as shown below:

3.2, instructions for use





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1. Send the correct Modbus RTU command directly in the "Send box" to control the device. All Modbus RTU commands must conform to the protocol specifications in the "Modbus RTU command detailed" at the beginning of this document, otherwise the device will not respond;
 2. The SSCOMV5.1 software provides some ready-made instructions for calling based on the device address 255. If the device address/some other parameters change, the check code needs to be regenerated, otherwise the instruction is invalid.

End!