

DM500-Modbus Manual

V1.0

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Introduction

The DM500 controller supports the modbus RTU communication protocol;

- Interface: serial port;
- Level: RS232
- The default baud rate is 9600;
- Master-slave mode: default host mode
- Support function codes: 01H, 02H, 03H, 04H, 0FH, 10H;

If you need to cascade multiple modbus slave devices, you need to use a 232-485 adapter board.

Modbus Macro Operation

1.1 Write operation

1.1.1 #1200 (send data buffer start address)

Send data buffer start macro address;

For example: #1200 =1230

#1230 = 10 (data buffer byte 1)

#1231 = 12 (data buffer byte 2)

#1232 = 20 (data buffer byte 3)

.....

1.1.2 #1201 (serial port number)

Serial communication port number, DM500 has only one serial port, the default is 0;

1.1.3 #1202 (slave ID)

Slave device ID number;

1.1.4 #1203 (start address of write data)

Slave register start address;

1.1.5 #1204 (write data byte length)

0FH: #1204 indicates the number of coils

10H: #1204 indicates the number of bytes

1.1.6 #1205 (configuration macro)

Unsigned 32 bit quantity

Features	Bit	description
type of data	[7:0]	0x00: byte 0x01: Bit
Read and write mode	[15:8]	0x00: R/W 0x01: Read only
Communication mode	[31:16]	0x0000: RTU 0x0001: ASCII

Write operation function code allocation table (RTU mode)

function code	[7:0]	[15:8]	[31:16]
0FH	0x01	0x00	0x0000
10H	0x00	0x00	0x0000

1.1.7 #1206 (write operation status return value)

Exception response code list:

return value	description
0x00	normal
0x01	Invalid or unsupported function code
0x02	Invalid or unsupported address
0x03	Invalid or unsupported data
0x04	Action execution failed
0x05	Action execution (may take a long time)
0x06	The device is busy and cannot perform the action temporarily.
0x08	File data verification error
0x0A	Invalid gateway path
0x0B	Target device is not responding
0xE0	Transmission error or illegal modbus data frame
0xFF	time out
0xe1	Undefined action

Read #1206 when #1209 changes from 1 to 0;

1.1.8 #1209 (trigger write operation)

Read and write

#1209 = 1 : Perform a write operation;

If #1209 == 0, the write action is completed;

1.1.9 Examples 1 (0FH)

G04 P0

#1200 = 1230 (send data buffer address)

#1201 = 0 (communication port 0)

#1202 = 1 (slave ID)

#1203 = 6 (slave start address)

#1204 = 12 (number of coils)

#1205 = 1 (communication mode: 0FH, RTU)

#1230 = 3 (byte 1)

#1231 = 4 (byte 2)

#1209 = 1 (trigger sending)

WHILE [#1209 NE 0] DO4 (waiting for completion)

G04P0

END4

The data frame is as follows:

01 0F 00 06 00 0C 02 03 04 E4 E5

domain name	Hex
ID	01
Features	0F
Starting address Hi	00
Starting address Lo	06
Output quantity Hi	00
Output quantity Li	0C
Number of bytes	02
Output value Hi	03
Output value Lo	04
CRC Hi	E4
CRC Lo	E5

1.1.10 Examples 2 (10H)

G04 P0

#1200 = 1230 (send data buffer address)

#1201 = 0 (communication port 0)

#1202 = 1 (slave ID)

#1203 = 5 (slave start address)

#1204 = 4 (number of bytes)

#1205 = 0 (communication mode: 10H, RTU)

#1230 = 7 (byte 1)

#1231 = 8 (byte 2)

#1232 = 9 (byte 3)

#1233 = 10 (byte 4)

#1209 = 1 (trigger sending)

WHILE [#1209 NE 0] DO4 (waiting for completion)

G04P0

END4

The data frame is as follows:

01 10 00 05 00 02 04 08 07 0A 09 46 97

domain name	Hex
ID	01
Features	10
Starting address Hi	00
Starting address Lo	05
Number of registers Hi	00
Number of registers Li	02
Number of bytes	04
Register value Hi	08
Register value Lo	07
Register value Hi	0A
Register value Lo	09
CRC Hi	46
CRC Lo	97

1.2 Read operation

To be continued...