
MODBUS Communication Protocol

1.Summary:

This protocol complies with the MODBUS communication protocol, adopts the subset RTU mode of MODBUS protocol, and RS485 half duplex mode.

2.Serial data format:

Serial port settings: no check, 8 bit data, 1 bit stop bits.

For example: 9600, N, 8,1 Meaning: 9600bps, no check, 8 bits, 1 bit stop.

The baud rate of the serial port supported by this transmitter is:

1200,2400,4800,9600,19200,38400,57600,115200

Polynomial of CRC check: 0xA001

The data in the process of data communication is all processed according to double byte shaping data. If the data is identified as floating point number, the write needs to read decimal point to determine the size of the data.

3.Communication format:

1. Read command format (03 function code) example:

A.Send read command format:

AD	Function code	Data start (H)	Data start (L)	Data Nos. (H)	Data Nos. (L)	CRC16 (L)	CRC16 (H)
0X01	0X03	0X00	0X00	0X00	0X01	0X84	0X0A

B.Return read format:

AD	Function code	Data length	Data (H)	Data (L)	CRC16 (L)	CRC16 (H)
0X01	0X03	0X02	0X00	0X01	0X79	0X84

2.Write command format(06 function code) example:

AD	Function code	Data start (H)	Data start (L)	Data (H)	Data (L)	CRC16 (L)	CRC16 (H)
0X01	0X06	0X00	0X00	0X00	0X02	0X08	0X0B

B.Return read format:

AD	Function code	Data start (H)	Data start (L)	Data (H)	Data (L)	CRC16 (L)	CRC16 (H)
0X01	0X06	0X00	0X00	0X00	0X02	0X08	0X0B

3.Abnormal response return

AD	Function code	Abnormal code	CRC16 (L)	CRC16 (H)
0X01	0X80+ Function code	0x01(Illegal function) 0x02(Illegal Data AD) 0x03(Illegal Data)		

4. Supported commands and commands and data meanings

MODBUS-RTU protocol command list is as follows:

Function code	Data start AD	Data Nos.	Data bytes	Data range	Commands meaning
0x03 Function code reads data					
0x03	0x0000	1	2	1-255	Read slave AD
0x03	0x0001	1	2	0-1200 1-2400 2-4800 3-9600 4-19200 5-38400 6-57600 7-115200	Read baud rate
0x03	0x0003	1	2	0-#### 1-####. 2-##.## 3-#.###	Decimal point represents 0-3 decimal places respectively.
0x03	0x0002	1	2	0- Mpa 1- Kpa 2- Pa 3- Bar 4- Mbar 5- kg/cm ² 6- psi 7- mh ² o 8- mmh ² o	Pressure units
0x03	0x0004	1	2	-32768-32767	Measured output value
0x03	0x0005	1	2	-32768-32767	Transmitter zero point
0x03	0x0006	1	2	-32768-32767	Transmitter extreme point
0x03	0x000c	1	2	-32768-32767	Zero offset value, generally is 0
0x06 Function code write data					
0x06	0x0000		2	1-255	Rewrite slave AD
0x06	0x0001		2	0-1200 1-2400 2-4800 3-9600 4-19200 5-38400 6-57600 7-115200	Revise baud rate
0x06	0x000c		2	-32768-32767	Zero offset value, pressure output value = calibration measurement + zero offset value.

Save and restore factory settings					
0x06	0x000F		2	0- Save to user area 1- Save to factory area	
0X06	0x0010		2	1- Back to factory parameters	

NOTES:

1. When modifying the baud rate, the transmitter will reply to the modified data at the baud rate sent by the host. After the reply, the baud rate of the transmitter will become the modified target value.
2. When modifying the address, the data will be returned with the address before the modification, and the transmitter address will be automatically modified after the reply.
3. saving and restoring the factory command will return the original value, indicating that the transmitter has accepted the command of the host.
4. When restoring factory data, it should be noted that the parameters saved by the factory may not be the same as those saved by the user, so the address, baud rate and calibration data may not be the same, so the transmitter must be searched again after restoring factory parameters.
5. there are only 3 data that users can modify. They are addresses, addresses, baud rates, and zero offset values.
6. General users are not allowed to modify the calibration data of the transmitter. If need calibration and change, please contact our company for the transmitter calibration software. For correction of calibration data, please use our calibration software.
7. If you need to read the data floating-point identification, such as 6.000. But this protocol provides that the data are in shaping data communication, so read the data is 6000, and then according to the decimal point position to do the operation, to get 6.000, such as the decimal point is 3, that is 6000/10 (3), is 6000 divided by 10 cubic. Get 6 of this data.