

Level Transmitter MODBUS Communication Protocol

I.

Overview

W.

This protocol complies with the MODBUS communication protocol and adopts the subset RTU method of the MODBUS protocol.
Modus operandi.

II. Serial data format.

Serial port settings: no parity, 8-bit data, 1 stop bit.

Example: 9600,N,8,1 Meaning: 9600bps, no parity, 8 data bits, 1 stop bit.

The serial baud rate is: 1200,2400,4800,9600,19200,38400,57600,115200.

Polynomial for CRC checksum: 0xA001.

All data in the data communication process is handled as double-byte signed plastic data, and if the data identifies a floating-point number, the write needs to read the decimal point to determine the size of the data.

III. Format of communication.

1. Read Command Format (03

Function Code) Example

addresses	Function Code	Data start (H)	Data start (L)	Number of data (H)	Number of data (L)	CRC16 (L)	CRC16 (H)
0X01	0X03	0X00	0X00	0X00	0X01	0X84	0X0A

B. Return to read data format: example

addresses	function code	data length	Data (H)	Data (L)	CRC16 (L)	CRC16 (H)
0X01	0X03	0X02	0X00	0X01	0X79	0X84

2. Example of write command

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

read data: Example

3. Exception Answer Returns

addresses	function code	exception code	CRC16 (L)	CRC16 (H)
0X01	0X80+ function code	0x01 (illegal function) 0x02 (illegal data address) 0x03 (Illegal data		

IV. Supported commands and significance of commands and data.

The list of MODBUS-RTU protocol commands is as follows.

function code	data start address	data item	data byte	Data range	meaning of a command
0x03 Function code read data					
0x03	0x0000	1	2	1-255	Read slave address
0x03	0x0001	1	2	0-1200 1-2400 2-4800 3-9600 4-19200 5-38400 6-57600 7-115200	Baud rate reading
0x03	0x0003	1	2	0-#### 1-####. # 2-###.## 3-#. ###	Decimal points represent 0-3 respectively point
0x03	0x0002	1	2	0-Mpa/°C 1-Kpa 2-Pa 3-Bar 4-Mbar 5-kg/cm2 6-psi 7-mh2o 8-mmh2o	pressure unit
0x03	0x0004	1	2	-32768-32767	Measured output values
0x03	0x0005	1	2	-32768-32767	Transmitter Range Zero
0x03	0x0006	1	2	-32768-32767	Transmitter range full point
0x03	0x000c	1	2	-32768-32767	Zero offset value, factory normal is 0
0x06 Function Code Write Data					
0x06	0x0000		2	1-255	Rewrite slave address
0x06	0x0001		2	0-1200 1-2400 2-4800 3-9600 4-19200 5-38400 6-57600 7-115200	Modify baud rate
0x06	0x000c		2	-32768-32767	Zero offset value, pressure output = measurement + zero position offset value
Description: 1. When the baud rate is modified, the transmitter will reply with the baud rate sent by the host, and the baud rate of the transmitter will be changed to the target value after the reply. 2. When you change the address, you will reply the data with the address before you change it, and the transmitter address will be changed automatically after you reply the data. 3. Save and reply factory commands are returned with their original values, indicating that the transmitter has accepted the host's commands.					
0x06	0x000f		2	0 - save to user area 1 - save the factory area	Save the factory parameters saved by the factory
0x06	0x0010		2	1 - Return to factory parameters	Return to factory parameters

4. When recovering the factory data, please note that the factory parameters saved by the factory may not be consistent with those saved by the user, so the address, baud rate and calibration data may not be consistent, so after recovering the factory parameters, you have to search the transmitter again.

5. The user is allowed to modify only three data, namely, address, address, baud rate, and zero offset value.

6. If you need to read the data is a floating-point number identification, such as 6.000. But this protocol specifies that the data are shaped data to communicate,

so read the data is 6000, and then according to the position of the decimal point to do the arithmetic, in order to get 6.000, such as the decimal point is 3, that is, $6000/10^3$, that is, 6000 divided by the third power of 10, to get 6.000.

