MODBUS level transmitter communication protocol

I. Overview:

This protocol complies with the MODBUS communication protocol and uses a subset of RTU methods in the MODBUS protocol. RS485 half-duplex working mode.

2. Serial data format:

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

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

The serial baud rate supported by this transmitter is:

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

CRC check polynomial: 0xA001.

The data in the data communication process are all processed according to double-byte signed integer data.If the data identifies a floating point number, writing needs to read the decimal point to determine the size of the data.

Communication format:

1. Example of reading command format (03 function code)

A. Send read command format:

address	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 read data format: example

address	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)

address	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 data format: example

address	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 returned

address	function code	Exception code		CRC16 (L)	CRC16 (H)
0X01	0X80 +function code	0x01(Invalid instruction)			
		0x02(Invalid address)			

Four. Supported commands and the meaning of commands and data:

The MODBUS-RTU protocol command list is as follows:

function code	Data start address	Number of data	Data byte	data range	Command meaning
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 read
0x03	0x0002	1	2	0- don't display unit 1- CM 2- MM 3- MPa 4- Pa 5- KPa 6- MA	Pressure unit

0x03	0x0003	1	2	0-#### 1-###.# 2-##.## 3-#.###	Decimal points represent 0-3 decimal places, respectively
0x03	0x0004	1	2	-32768-32767	Measured output value
0x03	0x0005	1	2	-32768-32767	Transmitter range zero
0x03	0x0006	1	2	-32768-32767	Transmitter full scale
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 the baud rate

Explanation:
  1. When modifying the baud rate, the transmitter will respond to the modified data at the baud rate sent by the host. After the reply, the transmitter baud rate will become the modified target value.
2. When modifying the address, the data is also returned with the address before modification, and the transmitter address will be automatically modified after the reply.
3. The user is allowed to modify only two data, which are address, address, baud rate,