MODBUS Level transmitter communication protocol

one.summary:

This protocol complies with the MODBUS communication protocol and adopts the subset RTU mode in the MODBUS protocol. RS485 semi-duplex working mode.

two. Serial data format:

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

Example: 9600, N, 8,1 meaning: 9600bps, no check, 8 bit data bit, 1 bit stop.

The serial port port rate supported by this transmitter is:

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

Polynomial of CRC check: 0 xA 001.

In the process of data communication, all the data is in accordance with two bytes, symbolic plastic data to process, if the data identifies the floating point number, write needs to read the decimal point to determine the size of the data.

three. Communication format:

1. Read the command format (03 function code) for example

A. Send read command format:

address	FC	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 the read-data format: for example

address	FC	DL	data (H)	data (L)	CRC16 (L)	CRC16 (H)
0X01	0X03	0X02	0X00	0X01	0X79	0X84

Communication example (read PV):

0-5m is 1, ie (address range 1-255)

Now the CRC check =C5 CB. Send and return data are as follows:

Sent: 01 03 00 04 00 01 C5 CB

Return: 01 03 02 09 C4 BF 87

Data 09 C4 x in decimal system is 2500 (retain one decimal place)

Therefore, the current liquid level is 250.0cm (in centimeters)

2. Write the command format (06 function code) for example

address	FC	Data Start (H)	Data Start (L)	data (H)	data (L)	CRC16 (L)	CRC16 (H)
0X01	0X06	0X00	0X00	0X00	0X02	0X08	0X0B

B. Return to the read-data format: for example

address	FC	Data Start (H)	Data Start (L)	data (H)	data (L)	CRC16 (L)	CRC16 (H)
0X01	0X06	0X00	0X00	0X00	0X02	0X08	0X0B

Modify examples:

For example: 01 address changed to 02 address

Sent: 01 06 00 00 00 02 08 0B

Return: 01 06 00 00 00 02 08 0B

The original address is 01, modified to 02 success

Note: After successful modification, the address is the unique address, lost cannot be recovered!

3. Abnormal response was returned

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

four. Supported commands and commands and data meanings:

The MODBUS-RTU protocol command list is as follows:

FC	Data start address	Number of data	data byte	data area	Directive meaning
0x03 Functional code reads the data					
0x03	0x0000	1	2	1-255	Read from machine address
0x03	0x0001	1	2	0-1200 1-2400 2-4800	Porter rate read

				3-9600 4-19200 5-38400 6-57600 7-115200	
0x03	0x0002	1	2	0- The unit is not shown 1- CM 2- MM 3- MPa 4- Pa 5- KPa 6- MA	pressure unit
0x03	0x0003	1	2	0-#### 1-###.# 2-##.## 3-#.###	The decimal points represent the 0 – 3 decimal points, respectively
0x03	0x0004	1	2	-32768-32767	Measure the output value
0x03	0x0005	1	2	-32768-32767	Transmitter range zero
0x03	0x0006	1	2	-32768-32767	The transmitter range is full point
0x06 the function code to write the data					
0x06	0x0000		2	1-255	Overwrite the from-machine address
0x06	0x0001		2	0-1200 1-2400 2-4800 3-9600 4-19200 5-38400 6-57600 7-115200	Modify the Baud rate

Description:

1. Modifying the wave rate time transmitter will reply the modified data with the port rate sent by the host. After the response, the then the transmitter port rate will change to the modified target value.
2. When the address is modified, the data is also replied with the address before the modification. After the reply, the transmitter address will be automatically modified.
3. Users allows only 2 data, address, address, port rate,