MODBUS Protocol（20221011）

Ⅰ：Hardware and Data Format：

Interface：RS485

Baud rate： 9600

Data format : RTU N 8 1

Validation of CRC16 polynomial: A001

Ⅰ Ⅰ：The number range can be set from 01 to 127,

Sensor address modification

Host sends information frames：00 6A 1A 06 00 00 00 4B 40（06 sensor number 06）

Sensor address reading

Host sends information frames：00 6A 0A 00 00 00 00 8A 0B

Slave response information frame：00 6A 0A 06 A6 9A （06 is sensor number ）

Calculation rules for CRC codes：

1、 The preset 16 bit register is a hexadecimal FFFF (i.e. all 1) and is called a CRC register；

2、 Distinguish the first 8-bit data from the low bit of the 16-bit CRC register and place the result in the CRC register；

3、 Check if the lowest bit is 0. If it is 0, move the contents of the register one bit to the right (towards the low bit) and fill the highest bit with 0;If it is 1, shift the contents of the register to the right one bit (towards the low bit), fill the highest bit with 0, and then perform XOR on the CRC register and polynomial A001 (1010 0000 0000 0001)；

4、 Repeat step 3 until shifted 8 times to the right, so that the entire 8-bit data has been processed；

5、 Repeat steps 2 to 4 for the next 8-bit data processing；

6、 The final CRC register obtained is the CRC code. When the CRC result is placed in the information frame, the high and low bits are swapped, with the low bits coming first。

Ⅰ Ⅰ Ⅰ：Function code

Register Address : 0x0000~0x0008；	
0x0000	Measure air distance:UNIT : cm（read-only）；
0x0001	Measure air distance:UNIT : mm（read-only）；
0x0002	Measure water level :UNIT : cm（read-only）；
0x0003	Measure water level:UNIT : mm（read-only）；
0x0004	Measurement status（read-only）； Signal strength in hexadecimal（dB）；
0x0005	Range UNIT : cm（read and write）；
0x0006	Blind area UNIT : cm（read and write）；
0x0007	Low adjustment UNIT : cm（read and write）

0x0008	High level adjustment UNIT : cm（read and write）;
0x0009	485 Fault Mode Switching 0 (NO)： In E14 state, the empty height is the low value, and the material height is 0 1 (YES): Use the value when there is a signal (read and write); Host sending: 01 06 00 09 00 00 59 C8 (NO) 01 06 00 09 00 01 98 08 （YES）
Function code 03, which can read the above registers individually or collectively; **Function code 06,** which can be modified separately for the above 0x0005~0x0008 registers;	

Ⅳ：Example：

1，Read 10 registers（ sensor number 1) starting from register 0x0000

Host sends data（HEX）:

01 03 00 00 000a c5cd

Instrument response：01 03 14 XX--XX（20byte） crc；

2，Modify the instrument parameters and change the range to 10m（1000cm）

Host sends data（HEX）:

01 06 00 05 03e8 9975

Instrument response：01 06 0005 03e8 9975 Indicates successful modification；

If the return values are different, it indicates that the modification failed or the preset data exceeded the limit。