1. Technical parameters

Performance

- Velocity range： 0.03～6.0m/s
- Accuracy：2%
- Fluid Type： water
- Working Pressure： Max 1.2MPa

Functional parameter

- Power supply： 24~36VDC
- Temperature：

Environment temperature ：+5℃~+55℃

Storage temperature：0℃~+60℃

- Humidity： 0~95%RH，No condensation.

Physical properties

- Transmitter： aluminium alloy housing
- Transmitter IP Rating： IP54
- Cable length： 1.2m
- Display： OLCD display 128*64

Standards and certification

- Executive Standard: Q/AF01-2019
- CE
- ISO 9001

2. Cable connection

Output cable wiring is as follows：

Brown：+24VDC

Black：GND

Blue：RS485A

White：RS485B

3. Communication protocol

This instrument protocol supports the following function codes of the MODBUS protocol:：

Function code	Represents functional data
0x03	Read register

1. MODBUS Protocol function code 0x03 use

The host sends out the frame format of the read register information：

Slave address	Operation function code	Register header address	Register number	check code
1 byte	1 byte	2 bytes	2 bytes	2 bytes
0x01~0xF9	0x03	0x0000~0xFFFF	0x0000~0x7D	CRC check code

Data frame format from the slave：

Slave address	Read operation function code	Number of bytes of data	Data	check code
1 byte	1 byte	1 byte	N*x2 byte	2 byte
0x01~0xF9	0x03	2xN*	N*x2 data	CRC check code

N*＝Number of data registers.

The address of the meter (the address of the flow meter) ranges from 1 to 249 (hex: 0x01 to 0xF9). The address can be viewed in the Menu Network addr. If the decimal number displayed in Menu Network addr is 12, then the address of this meter in the MODBUS protocol is: 0x0C.

The CRC check code of this instrument is obtained by CRC-16-IBM (polynomial X16 + X15 + X2 + 1, mask word 0xA001) cyclic redundancy algorithm, the low byte of the check code is first, and the high byte is after.

2. MODBUS Register address list

The meter's MODBUS register contains a read-only register and a single write register。

a) Read-only register address list (read with 0x03 function code)

Register address	**Register**	**Data description**	**Date Type**	**Number of registers**	**Description**
$0000	40001	Flow velocity-low byte	32 bits real	2	Unit: m/s
$0001	40002	Flow velocity-high byte			
$0002	40003	Instantaneous flow rate－low byte	32 bits real	2	
$0003	40004	Instantaneous flow rate－high byte			
$0004	40005	Flow totalizer－low byte	32 bits real	2	
$0005	40006	Flow totalizer－high byte			
$0006	40007	Flow totalizer integer－Low byte	32 bits int.	2	
$0007	40008	Flow totalizer integer－high byte			
$0008	40009	Flow totalizer decimal-low byte	32 bits real	2	
$0009	40010	Flow totalizer decimal-low byte			

$000A	40011	Today totalizer integer-low byte	32 bits int.	2	
$000B	40012	Today totalizer integer－high byte			
$000C	40013	Today totalizer decimal-low byte	32 bits real	2	
$000D	40014	Today totalizer decimal-high byte			
$000E	40015	Monthly totalizer-low byte	32 bits real	2	
$000F	40016	Monthly totalizer-low byte			
$0010	40017	Yearly totalizer－low byte	32 bits real	2	
$0011	40018	Yearly totalizer-high byte			
$0012	40019	4-20mA output value－low byte	32 bits real	2	
$0013	40020	4-20mA output value－high byte			
$0014	40021	Running time－low byte	32 bits int.	2	Unit : s
$0015	40022	Running time－high byte			
$0016	40023	Meter Serial Number－Character 1,2	String	4	
$0017	40024	Meter Serial Number－Character 3,4			
$0018	40025	Meter Serial Number－Character 5,6			
$0019	40026	Meter Serial Number－Character 7,8			
$001A	40027	Date and Time		3	Year,month, day,hour,minute,second
$001B	40028				
$001C	40029				
$001D	40030	Signal Quality Q	16 bits int	1	
$001E	40031	Running Status	16 bits int	1	
$001F	40032	Meter Address (1-249)	16 bits int		
$0020	40033	Communication baud rate 0 =2400, 1 = 4800, 2 = 9600, 3 = 19200	16 bits int		
$0021	40034	Flow velocity unit	String		m/s or f/s
$0022	40035				
$0023	40036	Instantaneous flow rate unit	String		
$0024	40037				
$0025	40038	Flow totalizer unit	String		

b) Single write register address list (write with 0x06 function code)

Register address	**Register**	**Data description**	**Read/write**	**Date Type**	**Number of Register**
$1003	44100	Meter Address (1-249)	R/W	16 bits int.	1
$1004	44101	Communication baud rate 0 =2400, 1 = 4800, 2 = 9600, 3 = 19200	R/W	16 bits int.	1
$1005	44102	Instantaneous flow rate unit	R/W	16 bits int	1
$1006	44103	Flow totalizer unit	R/W	16 bits int	1

Note:

1. The instantaneous flow unit has the following options:
    0. 0x30 — m3/h
    1. 0x31 — LPM
    2. 0x32 — GPM
2. The flow totalizer unit has the following options:
    0. 0x30 — m3
    1. 0x31 — L
    2. 0x32 — GAL
3. When changing the address or communication baud rate of the instrument, the instrument will work at the new address or communication baud rate immediately after the instrument returns a response at the original address or communication baud rate.

16 bits int－Represents a short integer，32 bits int－Represents a long integer，32 bits real－Represents a floating point number， String－Represents a string, BCD-Represents a decimal number.