

## XMT-JK Instrument and upper monitor ModbusRTU communication protocol

### 1、Interface specification

In order to connect with PC or PLC to centrally monitor or control the instrument, the instrument provides RS232, RS485 two kinds of digital communication interface, photoelectric isolation, wherein the RS232 communication interface can only connect one instrument, three-wire connection, transmission distance is about 15 meters; when using RS485 communication interface, the upper monitor needs to be equipped with a RS232-485 converter, then can connect up to 64 instruments, and use two-wire connection, the transmission distance is about one kilometer.

### 2、Communication protocol (suitable for all 1~16 channels types)

(1) The communication baud rate is adjustable from 1200, 2400, 4800, and 9600. The data format is 1 start bit, 8 data bits, 1 stop bit, and no parity bit.

(2) The upper monitor reads one parameter (2 bytes)

Instrument number	Function code (03)	Parameter first address	Number of words read (0001)	CRC16
1byte	1byte	2byte	2byte	2byte

(3) The meter returns (2 bytes):

Instrument number	Function code (03)	Number of bytes read (02)	Parameter value	CRC16
1byte	1byte	1byte	2byte	2byte

(4) The upper monitor writes one parameter (2 bytes) and the meter returns (2 bytes) (the frame format is the same):

Instrument number	Function code (03)	Parameter first address	Parameter value	CRC16
1byte	1byte	2byte	2byte	2byte

(5) Parameter code and address can be found in the instrument manual.

Channel display value address:

1 channel: 1001H	2 channel: 1002H	3 channel: 1003H	4 channel: 1004H
5 channel: 1005H	6 channel: 1006H	7 channel: 1007H	8 channel: 1008H
9 channel: 1009H	10 channel: 100AH	11 channel: 100BH	12 channel: 100CH
13 channel: 100DH	14 channel: 100EH	15 channel: 100FH	16 channel: 1010H

(6) Instrument main control output status address:

1 channel: 1101H	2 channel: 1102H	3 channel: 1103H	4 channel: 1104H
5 channel: 1105H	6 channel: 1106H	7 channel: 1107H	8 channel: 1108H
9 channel: 1109H	10 channel: 110AH	11 channel: 110BH	12 channel: 110CH
13 channel: 110DH	14 channel: 110EH	15 channel: 110FH	16 channel: 1110H

**Set value (decimal): First channel: 10 (000A) Second channel: 19 (0013) Third channel: 28 (001C) Fourth channel: 37 (0025)**

