

## Product Overview

This protocol adheres to the MODBUS communication protocol and adopts the subcentralized RTU method in the MODBUS protocol. RS485 half-duplex working mode.

## Serial Data Format

Serial port Settings: No parity, 8-bit data, 1 stop bit.

Example :9600,N,8,1 meaning :9600 BPS, no parity, 8 data bits, 1 stop bit.

The serial port baud rate supported by this transmitter is:  
1200240 0480 0960 0192 00384, 00, CRC check polynomial: 0 xa001.

All data in the data communication process is processed as double-byte signed integer data. If the data is identified as a floating-point number, the writing needs to read the decimal point to determine the size of the data.

## Communication Format

### 1. An Example Of The Read Command Format (03 Function Code)

#### A. Format For Sending Read Commands:

Address	Function Code	Data Initiation (H)	Data Initiation (L)	Number Of Data (H)	Number Of Data (L)	CRC16 (L)	CRC16 (H)
0X01	0X03	0X00	0X00	0X00	0X01	0X84	0X0A

#### B. Return The Format Of The Read Data: Example

Address	Function Code	Data Length	Data (H)	Data (L)	CRC16 (L)	CRC16 (H)
0X01	0X03	0X02	0X00	0X01	0X79	0X84

### 2. Examples Of Command Writing Formats (06 Function Codes)

Address	Function Code	Data Initiation (H)	Data Initiation (L)	Data (H)	Data (L)	CRC16 (L)	CRC16 (H)
0X01	0X06	0X00	0X00	0X00	0X02	0X08	0X0B

#### B. Return The Format Of The Read Data: Example

Address	Function Code	Data Initiation (H)	Data Initiation (L)	Data (H)	Data (L)	CRC16 (L)	CRC16 (H)
0X01	0X06	0X00	0X00	0X00	0X02	0X08	0X0B

### 3. Abnormal Response Return

Address	Function Code	Abnormal Code	CRC16 (L)	CRC16 (H)
0X01	0X80+Function Code	0X01(Invalid Instruction) 0X02(Invalid Address)		

For Example: Liquid Level Range 0-10M, Temperature Range 0-100°C. The Communication Device Address Is 1, That Is, (Address Range 1-247) Liquid Level And Temperature. Communication Example (Reading PV) At This Time, CRC Check =85 CA. The Sent And Returned Data Are As Follows:

Read PV Send: 01 03 00 04 00 02 85 CA

Return: 01 03 04 27 10 00 F0 F1 06

Data 27 10, When Converted From Hexadecimal To Decimal, Is 10000 (Without Retaining The Decimal Point). Therefore, The Current Liquid Level Value Is 10000Mm (In Millimeters).

The Hexadecimal Conversion Of Data 00 F0 To Decimal Is 240 (Retaining One Decimal Place)

Therefore, The Current Temperature Value Is 24.0°C (In Degrees Celsius).

F1 06 Is CRC Check

### 4. Supported Commands And Their Meanings With Data:

The Command List Of The MODBUS-RTU Protocol Is As Follows:

Address	Number Of Data	Data Starting Address	Data Byte	Data Range	Specified Meaning
0X03 Function Code Reads Data					
0X03	0X0000	1	2	1-247	Read The Slave Address
0X03	0X0001	1	2	0-1200 1-2400 2-4800 3-9600 4-19200 5-38400	Baud Rate Reading
0X03	0X0002	1	2	0-Pa 1-Kpa 2-Mpa 3-Mmh2o 4-Mh2 5-Bar 6-Psi 7-Atm 8-Kgf/Cm2 9-Mm 10-M 13-KN	Pressure Unit
0X03	0X0003	1	2	0-#### 1-###.# 2-##.## 3-#.### 4-#.###	The Pressure Decimal Points Represent 0 To 4 Decimal Places Respectively
0X03	0X0004	1	2	-32768-32767	Pressure Measurement Output Value
0X03	0X0005	1	2	-32768-32767	Pressure Measurement Output Value
0X03	0X0006	1	2	11-°C 12-°F	Temperature Unit
0X03	0X0007	1	2	0-#### 1-###.# 2-##.## 3-#.### 4-#.###	The Temperature Decimal Points Represent 0 To 4 Decimal Places Respectively
0X03	0X00025	1	2	0-2	0: No Verification 1: Odd Parity 2: Even Check
0X06 Function Code Writes Data					
0X06	0X0000		2	1-247	Rewrite The Slave Address
0X06	0X0001		2	0-1200 1-2400 2-4800 3-9600 4-19200 5-38400	Modify The Baud Rate

## Explanation

When the baud rate is modified, the transmitter will reply with the modified data based on the baud rate sent by the host. After the reply is completed, the baud rate of the transmitter will become the modified value.

2. When modifying the address, the data is also replied with the address before modification. After the reply is completed, the transmitter address will be automatically modified.

3. Users are only allowed to modify two types of data, namely address and baud rate.