2 channels PT100/PT1000 RS485 module

Manual

Model: CWT-TM-2PT

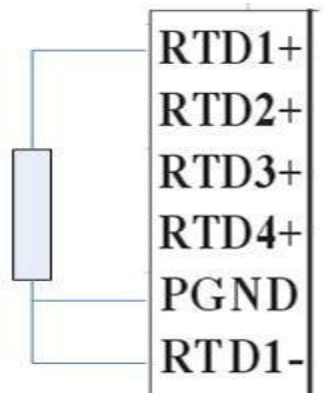
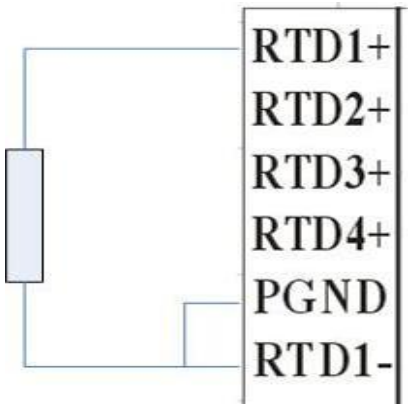
Basic parameters

Power supply	DC8~30V
Power consumption	9mA@30V,12mA@24V, 23mA@12V, 33mA@8V
Input	• Input sensor type: PT100 or PT1000 • Measure range: -180℃～+650℃ • Resolution 0.1℃； accuracy 0.25℃ • Support two and three wire connections • Supports disconnection and short circuit detection
Output	RS485 （Modbus RTU protocol），isolation design
Working environment	-30~+55℃ / 0 -95%RH
Material	ABS
mounting type	35mm Din-rail
Dimensions	88*72*59mm

Terminal description

Terminals	description
+V	Power +
GND	Power -
RTDx+	PT100/1000 +
RTDx-	PT100/1000 -
GND	PT100/1000 GND
A（D+）	RS485 +
B（D-）	RS485 -

PT100/PT1000 wiring

Three wires connection	Two wires connection Need to short RTD(n)- and GND
	

Size

RS485 communication (Modbus RTU protocol)

Default parameters: 9600,n,8,1

Default device address is 1

Modbus register map

1. Parameter register map

Function code: 03H (read), 06H (write)

Address (hex)	Byte order	Meaning	Description	Property
10	LO	Communication parameters initial value: 00	BIT<7:5> reserve BIT<4:3> 00=none 01=even 10=odd （11= odd） BIT<2:0> 000=9600 001=1200 010=2400 011=4800 100=9600 101=14400 110=19200	RW
	Hi	address initial value: 01	1-250	RW

Set slave ID

E.g., set slave ID=2, baud=9600, parity=none,

Master sends

Address	Function Code	Start Address (Hi)	Start Address (Lo)	ID	baud and parity	Error Check (Lo)	Error Check (Hi)
0x01	0x06	0x00	0x10	0x02	0x04	0x88	0xAC

ID=02 (HEX) = 2 (DEC)

Band and parity=0000 0100 (BIN) = 04 (HEX)

Sensor responds:

Address	Function Code	Start Address (Hi)	Start Address (Lo)	ID	baud and parity	Error Check (Lo)	Error Check (Hi)
0x01	0x06	0x00	0x10	0x02	0x04	0x88	0xAC

Enquiry slave ID, baud and parity

Master sends

Address	Function Code	Start Address (Hi)	Start Address (Lo)	Number of Points (Hi)	Number of Points (Lo)	Error Check (Lo)	Error Check (Hi)
0x00	0x03	0x00	0x10	0x00	0x01	0x84	0x11

Sensor responds:

Address	Function Code	Number of Points	ID	baud and parity	Error Check (Lo)	Error Check (Hi)
0x01	0x03	0x02	0x01	0x0B	0xF8	0x13

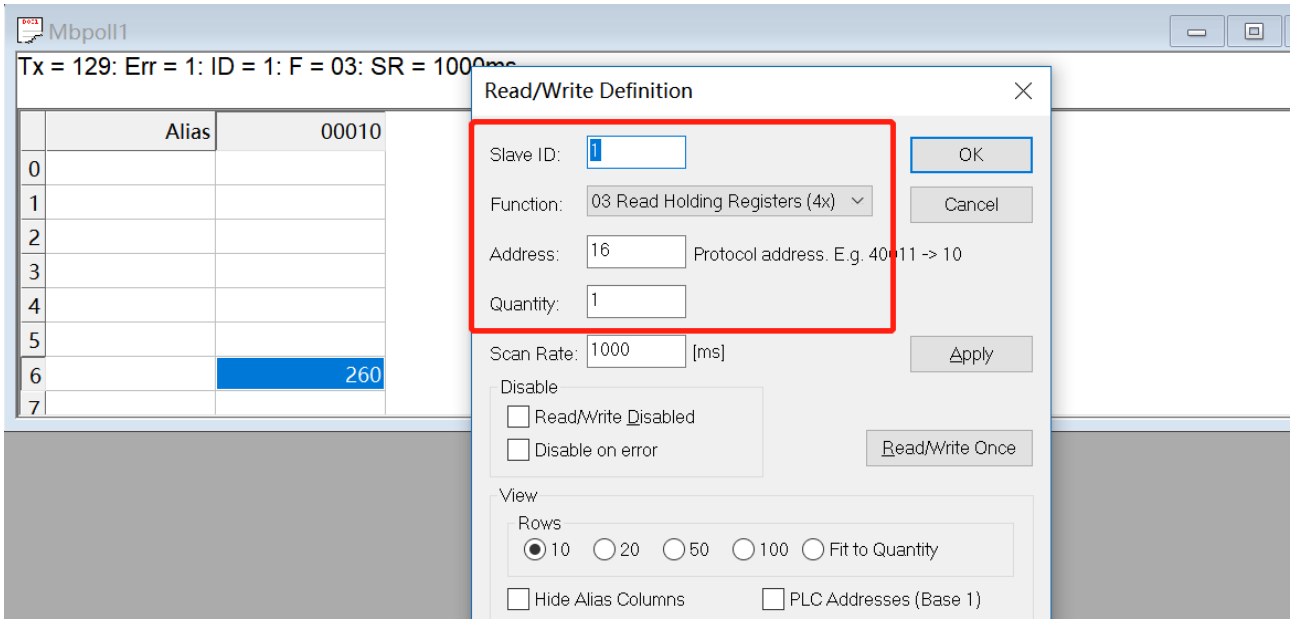
ID=01 (HEX) = 1 (DEC)

baud and parity =0B (HEX) = 0000 1011 (BIN)

so, baud = 011 = 4800, parity = 01 = even

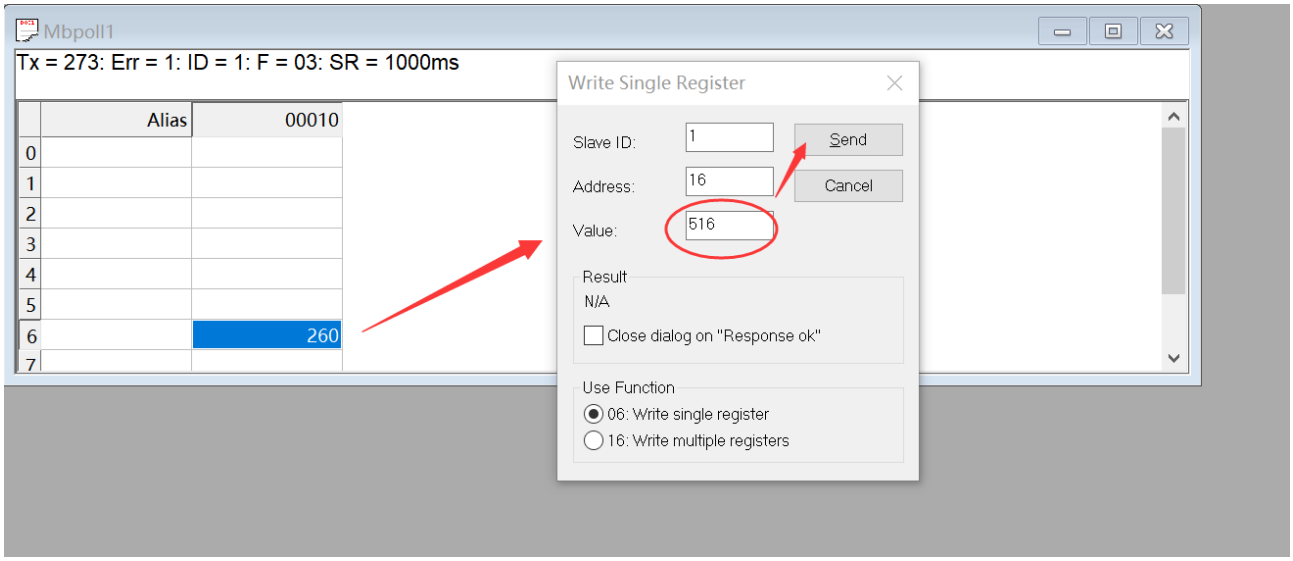
Set id by Modbus poll

1. Read Parameter register (address = 10 Hex = 16)



2. E.g., Set id=2, baud=9600, parity=none (corresponding value= 02 04 H = 516)

Double click register value, enter 516 and click send



2. Data register map

Function code: 03H (read)

Address (hex)	PLC address	Description	Format		Number of bytes	Property
40H-41H	40065-40066	Channel 1	Float32		4	R
42H-43H	40067-40068	Channel 2			4	R
20H	40033	Channel 1	UINT16	Scale: 0.1	2	R
21H	40034	Channel 2			2	R

E.g., read channel 1 and 2 in unit16

Master sends

Address	Function Code	Start Address (Hi)	Start Address (Lo)	Number of Points (Hi)	Number of Points (Lo)	Error Check (Lo)	Error Check (Hi)
0x01	0x03	0x00	0x20	0x00	0x02	0XC5	0XC1

Sensor responds:

Address	Function Code	Number of byte	value	Error Check (Lo)	Error Check (Hi)
0x01	0x03	0x04	0x00 0XEF 0X00 0xEF	0x8A	0x4A

Temperature calculates:

Channel 1: EF (HEX) = 239 (DEC), temperature is 23.9

Channel 2: EF (HEX) = 239 (DEC), temperature is 23.9

E.g., read channel 1 and 2 in float32

Master sends

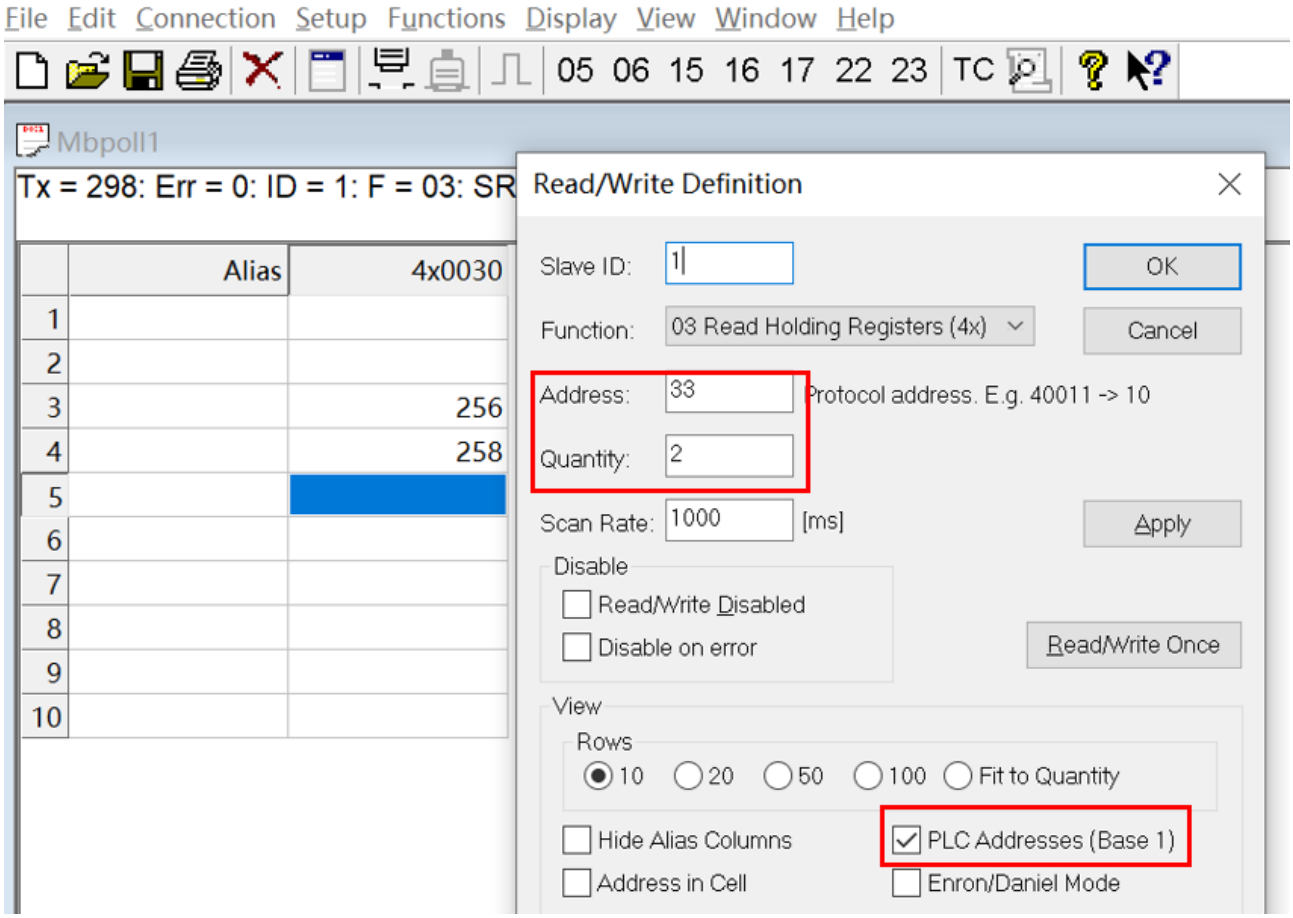
Address	Function Code	Start Address (Hi)	Start Address (Lo)	Number of Points (Hi)	Number of Points (Lo)	Error Check (Lo)	Error Check (Hi)
0x01	0x03	0x00	0x40	0x00	0x04	0X45	0XDD

Sensor responds:

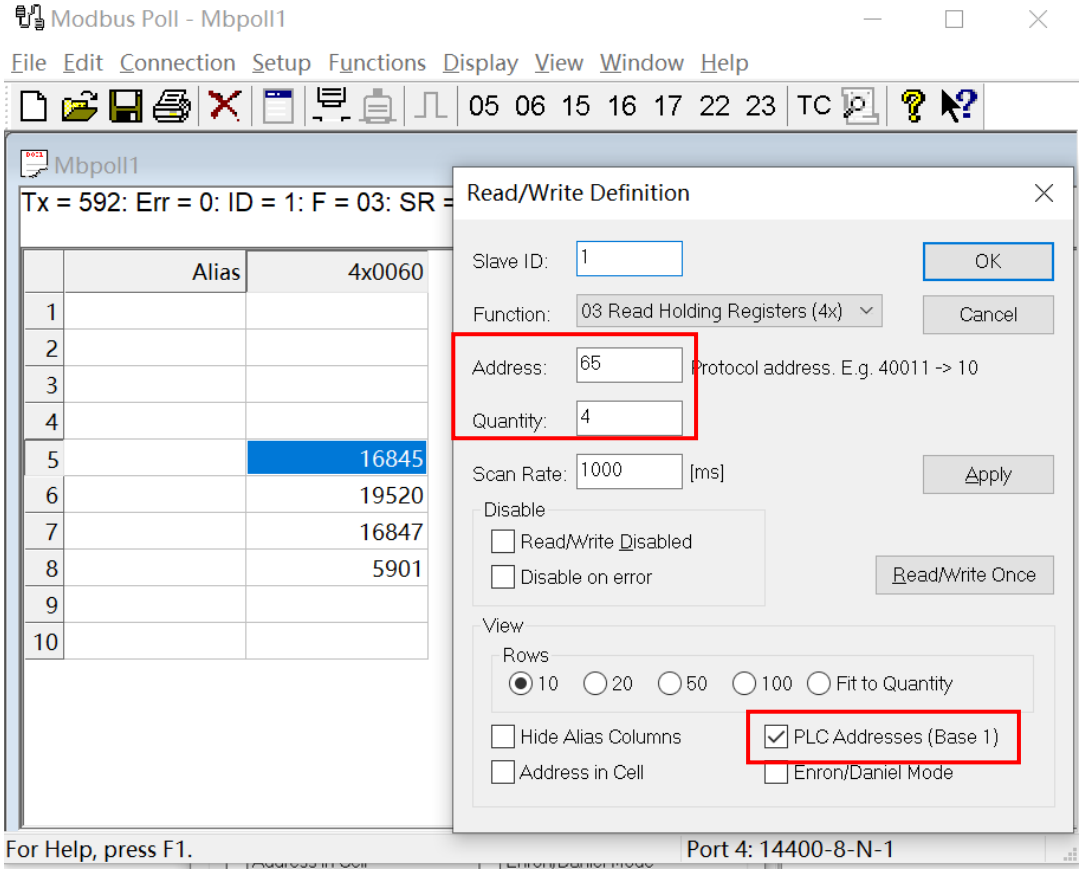
Address	Function Code	Number of byte	value	Error Check (Lo)	Error Check (Hi)
0x01	0x03	0x08	0X41 0xCB 0x3E 0XA6 0x41 0xCC 0XD5 0x00	0XAC	0XB3

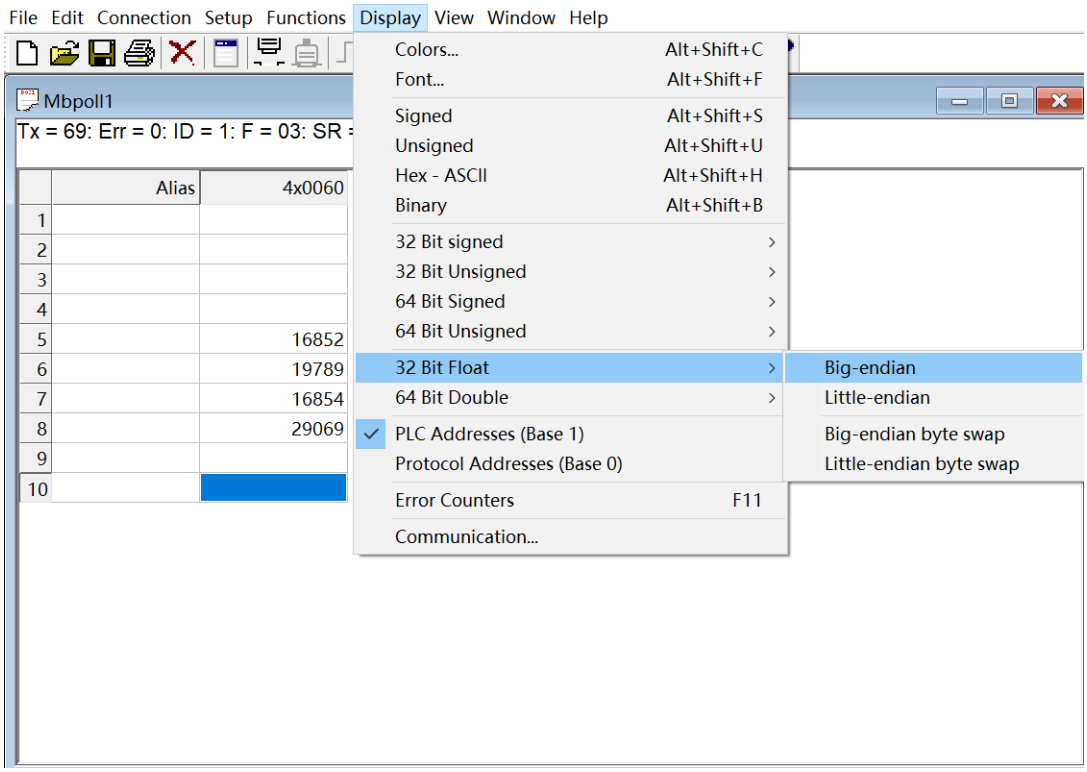
Temperature calculates:
Channel 1: 41 CB 3E A6 (IEEE) = 25.4 (DEC), temperature is 25.4
Channel 2: 41 CC D5 00 (IEEE) = 25.5 (DEC), temperature is 25.5

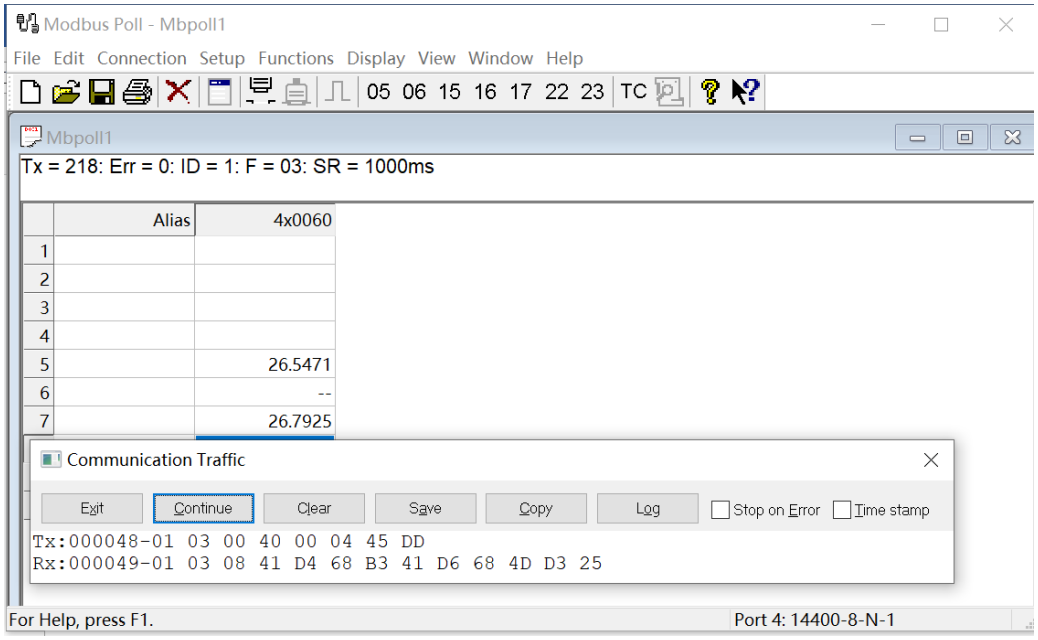
Read temperature by Modbus poll
E.g., read channel 1 and 2 in unit16



E.g., read channel 1 and 2 in float32






Modbus Poll - Mbpoll1
File Edit Connection Setup Functions Display View Window Help
05 06 15 16 17 22 23 TC
Mbpoll1
Tx = 218: Err = 0: ID = 1: F = 03: SR = 1000ms
Alias
4x0060
1
2
3
4
5
26.5471
6
--
7
26.7925
Communication Traffic
Exit
Continue
Clear
Save
Copy
Log
Stop on Error
Time stamp
Tx:000048-01 03 00 40 00 04 45 DD
Rx:000049-01 03 08 41 D4 68 B3 41 D6 68 4D D3 25
For Help, press F1.
Port 4: 14400-8-N-1