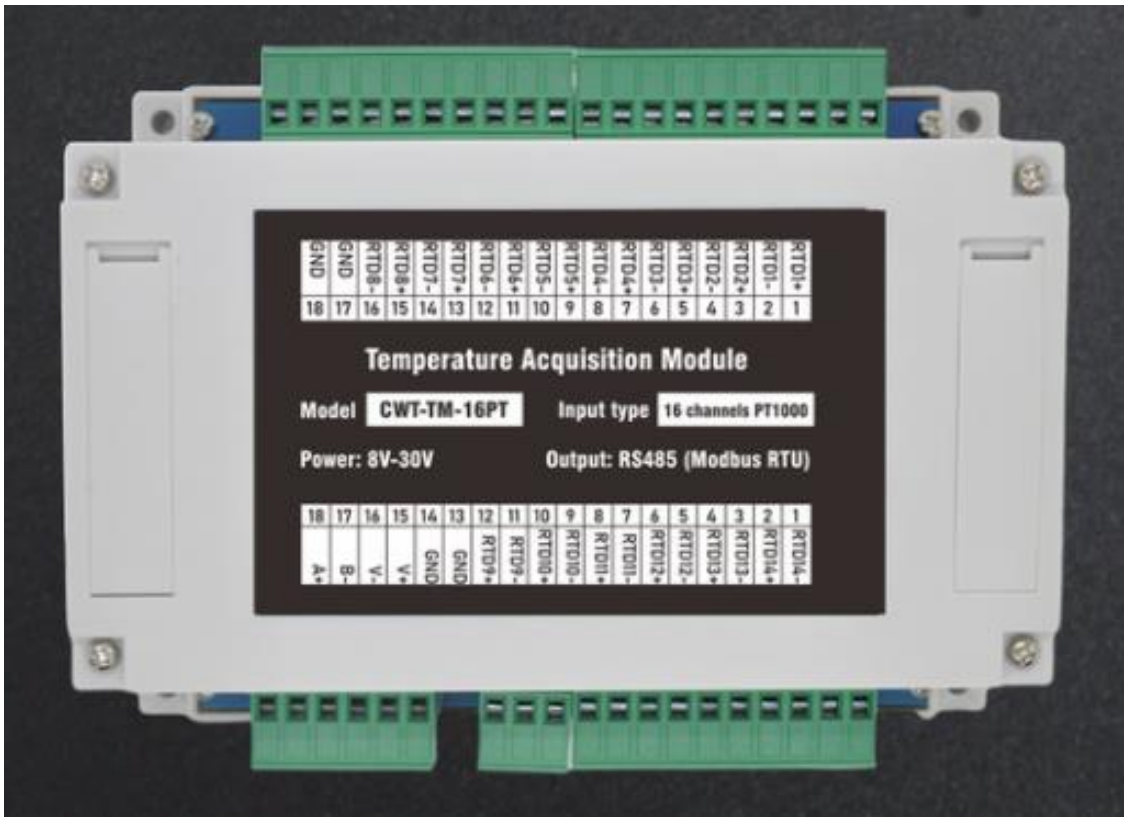
16 channels PT100/PT1000 RS485 module manual



Model: CWT-TM-16PT

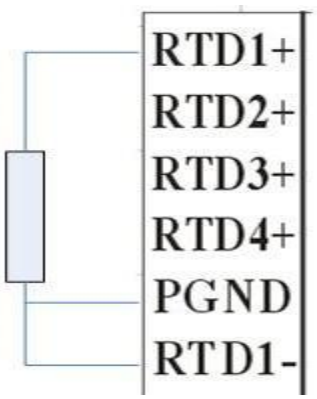
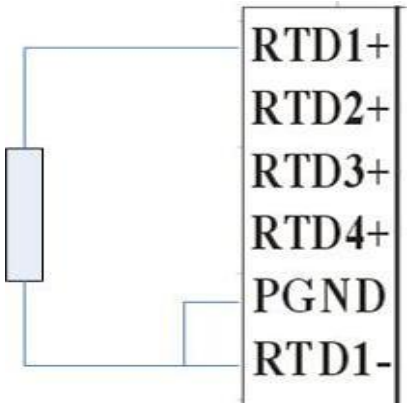
Basic parameters

Power supply	DC8~30V
Power consumption	20mA@30V,23mA@24V, 46mA@12V, 65mA@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	14PT: 145*90*40mm 16PT: 155*110*60mm

Terminal description

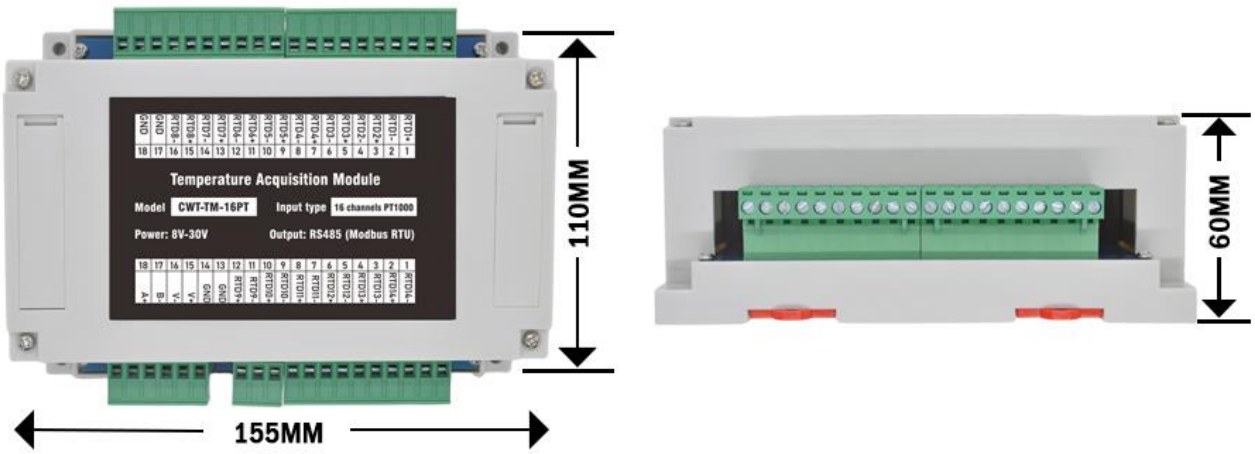
Terminals	description
+V	Power +
GND	Power -
RTDx+	PT100/1000 +
RTDx-	PT100/1000 -
GND	PT100/1000 GND
A（D+）	RS485 +
B（D-）	RS485 -

PT100/PT1000 wiring

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

Note: The PGND is completely isolated from the power negative.

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

2. Data register map

Function code: 03H (read)

Address (hex)	PLC address	Description	Format		Number of bytes	Property
40H	40065-40066	Channel 1	Float32		4	R
42H	40067-40068	Channel 2			4	R
44H	40069-40070	Channel 3			4	R
46H	40071-40072	Channel 4			4	R
48H	40073-40074	Channel 5			4	R
4AH	40075-40076	Channel 6			4	R
4CH	40077-40078	Channel 7			4	R
4EH	40079-40080	Channel 8			4	R
50H	40081-40082	Channel 9			4	R
52H	40083-40084	Channel 10			4	R
54H	40085-40086	Channel 11			4	R
56H	40087-40088	Channel 12			4	R
58H	40089-40090	Channel 13			4	R
5AH	40091-40092	Channel 14			4	R
5CH	40093-40094	Channel 15			4	R
5EH	40095-40096	Channel 16			4	R
20H	40033	Channel 1	UINT16	Scale: 0.1	2	R
21H	40034	Channel 2			2	R
22H	40035	Channel 3			2	R
23H	40036	Channel 4			2	R
24H	40037	Channel 5			2	R

25H	40038	Channel 6			2	R
26H	40039	Channel 7			2	R
27H	40040	Channel 8			2	R
28H	40041	Channel 9			2	R
29H	40042	Channel 10			2	R
2AH	40043	Channel 11			2	R
2BH	40044	Channel 12			2	R
2CH	40045	Channel 13			2	R
2DH	40046	Channel 14			2	R
2EH	40047	Channel 15			2	R
2FH	40048	Channel 16			2	R

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)

Module 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

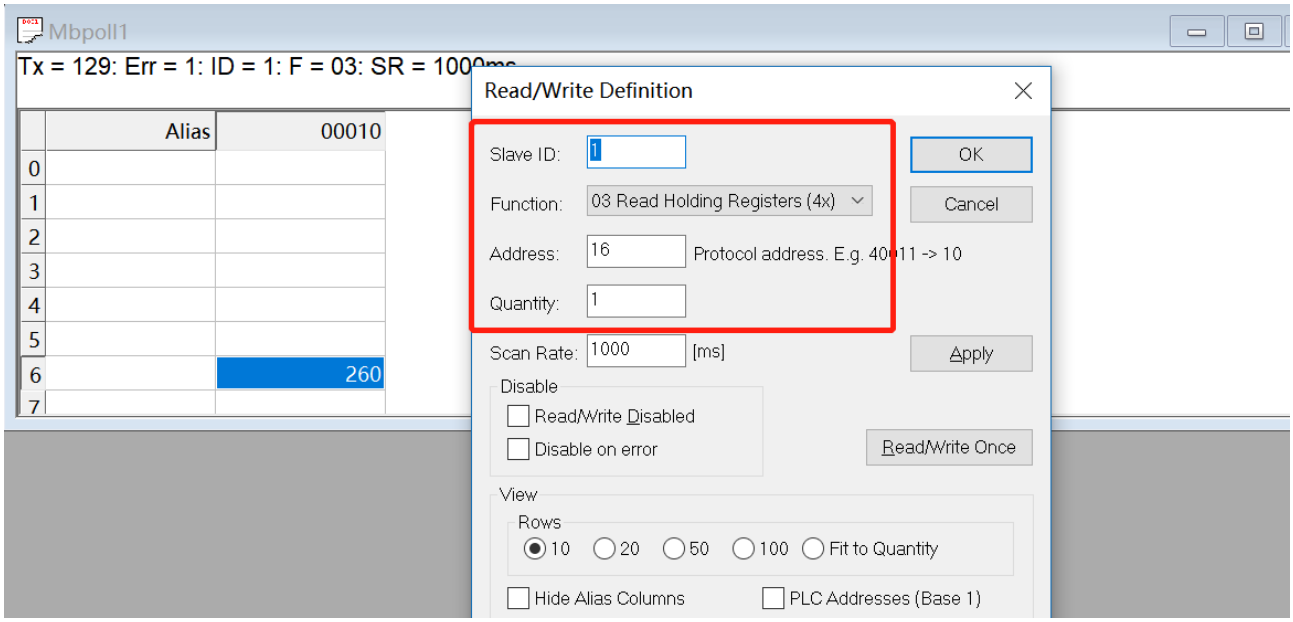
Module responds:

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

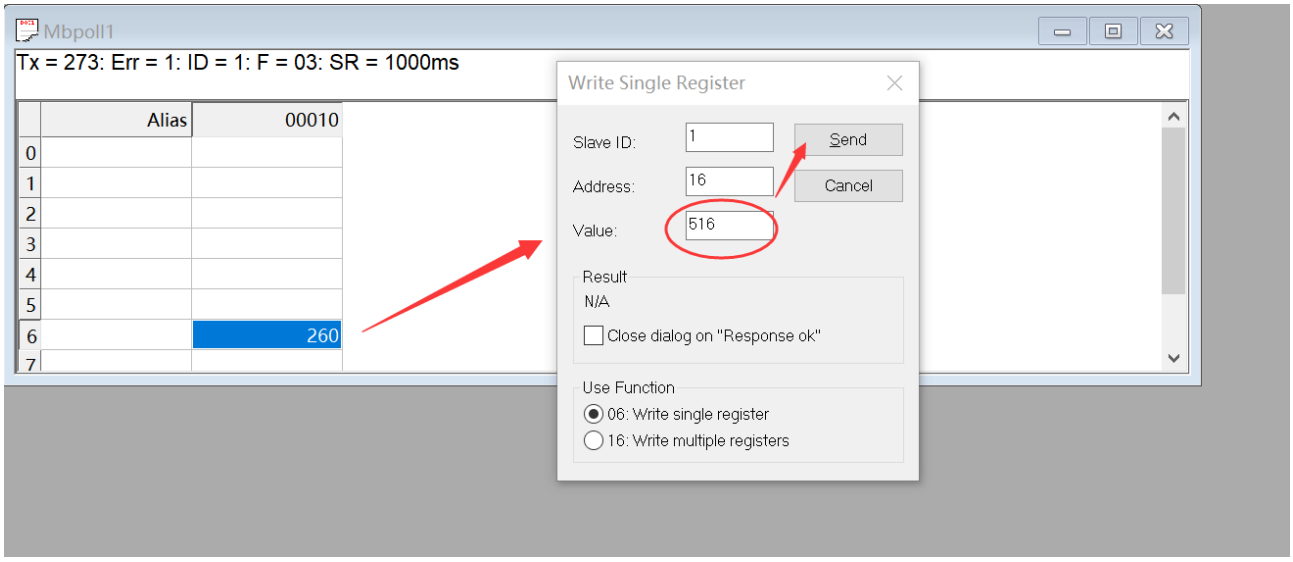
ID=01 (HEX) = 1 (DEC)
baud and parity =0B (HEX) = 0000 1011 (BIN)
so, baud = 011 = 4800, parity = 01 = even

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



Read channel 1 - channel 16 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	0x10	0X45	0XCC

Module responds:

Address	Function Code	Number of byte	value	Error Check (Lo)	Error Check (Hi)
0x01	0x03	0x20	0x00 0xDE 0x01 0x15 0x01 0x05 0x01 0x20 0x01 0x08 0x01 0x22 0x01 0x41 0x00 0xEF 0x01 0x57 0x01 0x69 0x01 0x19 0x01 0x64 0x00 0xC8 0x01 0x1C 0x01 0x6E 0x01 0x60	0x8A	0x4A

Channel 1: DE H=>222 D=22.2

Channel 2: 115 H=>277 D=27.7

Channel 3: 105 H=>261 D=26.1

Channel 4: 120 H=>288 D=28.8

Channel 5: 108 H=>264 D=26.4

Channel 6: 122 H=>290 D=29.0

Channel 7: 141 H=>321 D=32.1

Channel 8: EF H=>239 D=23.9

Channel 9: 157 H=>343 D=34.3

Channel 10: 169 H=>361 D=36.1

Channel 11: 119 H=>281 D=28.1

Channel 12: 164 H=>356 D=35.6

Channel 13: C8 H=>200 D=20.0

Channel 14: 11C H=>284 D=28.4

Channel 15: 16E H=>366 D=36.6

Channel 16: 160 H=>352 D=35.2

Read channel 1- channel 16 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	0x20	0X45	0XC6

Module responds:

Address	Function Code	Number of byte	value	Error Check (Lo)	Error Check (Hi)
0x01	0x03	0x40	0X41 0xCB 0x3E 0XA6 0x41 0xCC 0XD5 0x00	0X4C	0XB3

Channel 1: 41 B2 BD 3C (IEEE) = 22.3424 (DEC), temperature is 22.3424

Channel 2: 41 CC 8A DB (IEEE) = 25.5678 (DEC), temperature is 25.5678

Channel 3: 42 01 4A F5 (IEEE) = 32.3232 (DEC), temperature is 32.3232

Channel 4: 42 09 BC B9 (IEEE) = 34.4343 (DEC), temperature is 34.4343

Channel 5: 41 EE 1D 32 (IEEE) = 29.7645 (DEC), temperature is 29.7645

Channel 6: 41 DF 63 20 (IEEE) = 27.9234 (DEC), temperature is 27.9234

Channel 7: 41 AE 19 65 (IEEE) = 21.7624 (DEC), temperature is 21.7624

Channel 8: 41 A6 E9 AD (IEEE) = 20.8641 (DEC), temperature is 20.8641

Channel 9: 41 CE 16 BC (IEEE) = 25.7611 (DEC), temperature is 25.7611

Channel 10: 42 07 E6 81 (IEEE) = 33.9751 (DEC), temperature is 33.9751

Channel 11: 41 E7 9F 21 (IEEE) = 28.9527 (DEC), temperature is 28.9527

Channel 12: 41 A5 3B 99 (IEEE) =20.6541 (DEC), temperature is 20.6541

Channel 13: 41 D0 E0 DF (IEEE) = 26.1098 (DEC), temperature is 26.1098

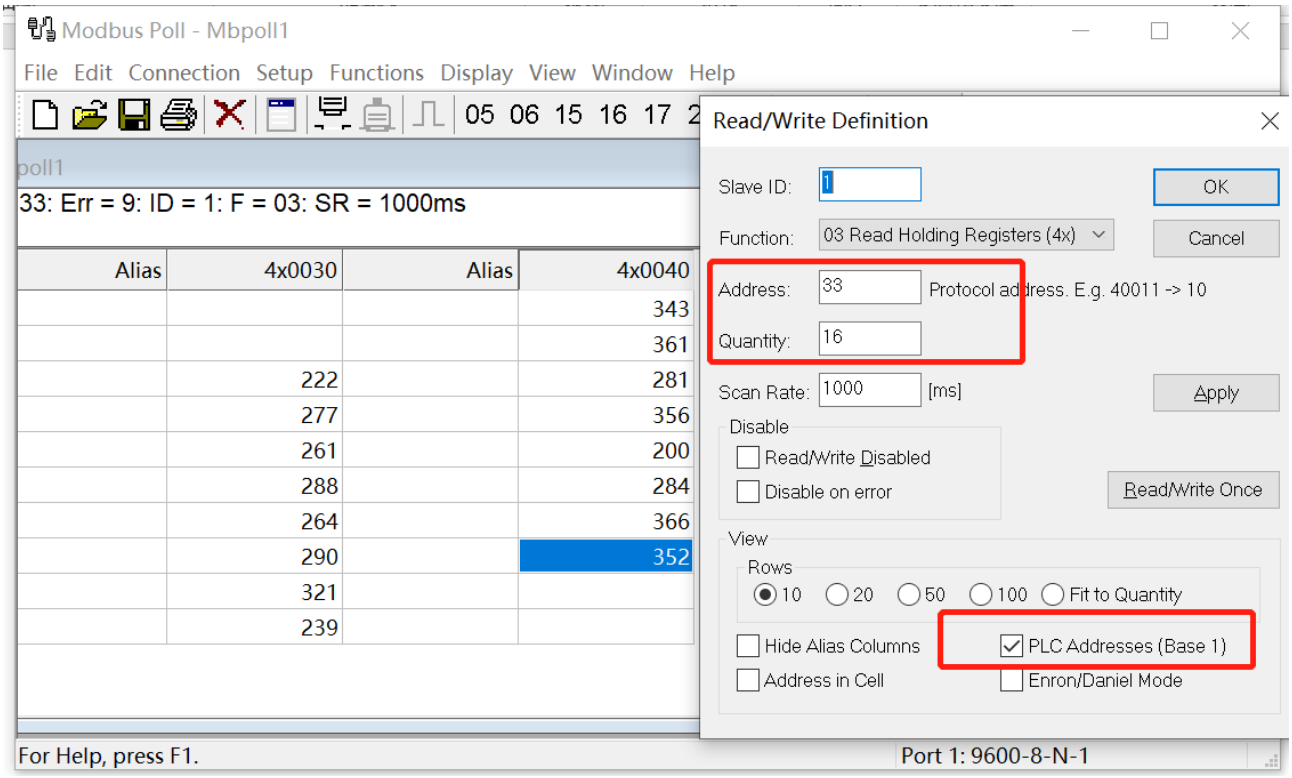
Channel 14: 41 C7 22 34 (IEEE) = 24.8917 (DEC), temperature is 24.8917

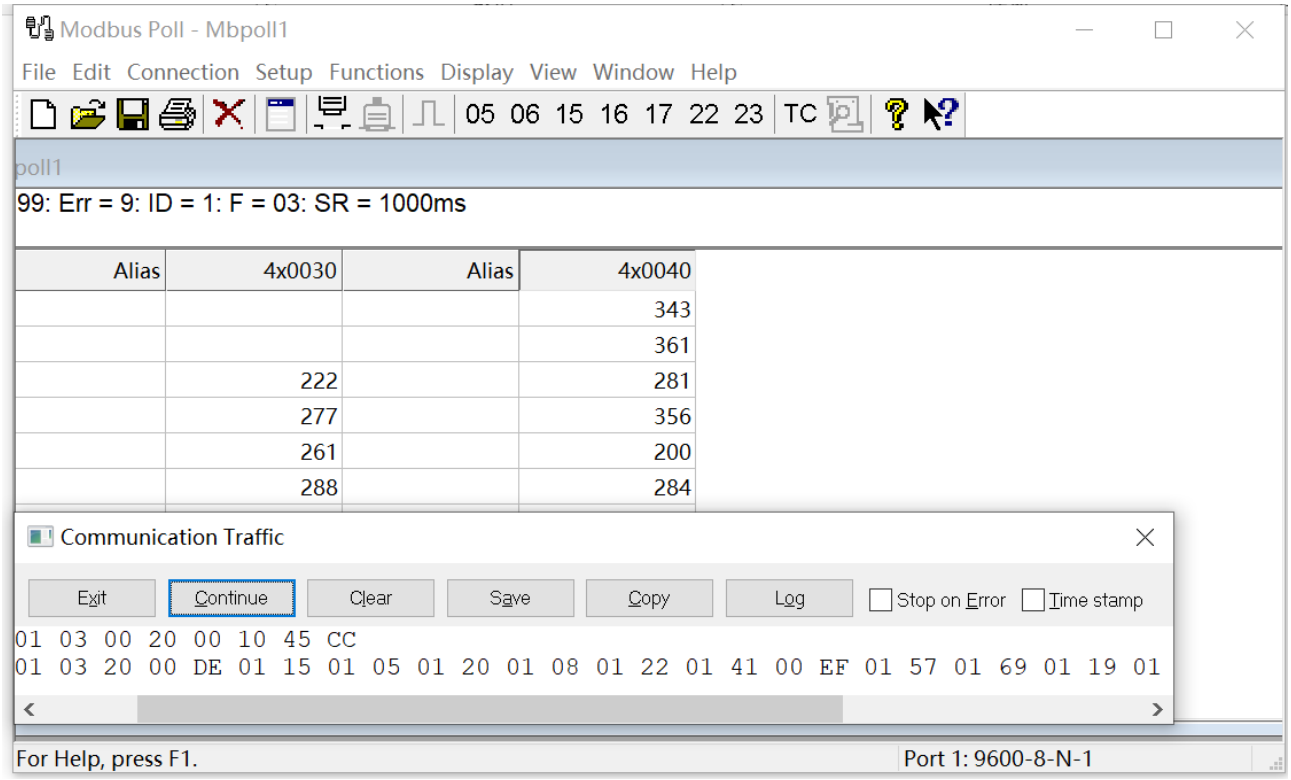
Channel 15: 41 C5 23 05 (IEEE) = 24.6421 (DEC), temperature is 24.6421

Channel 16: 41 C6 36 46 (IEEE) = 24.7765 (DEC), temperature is 24.7765

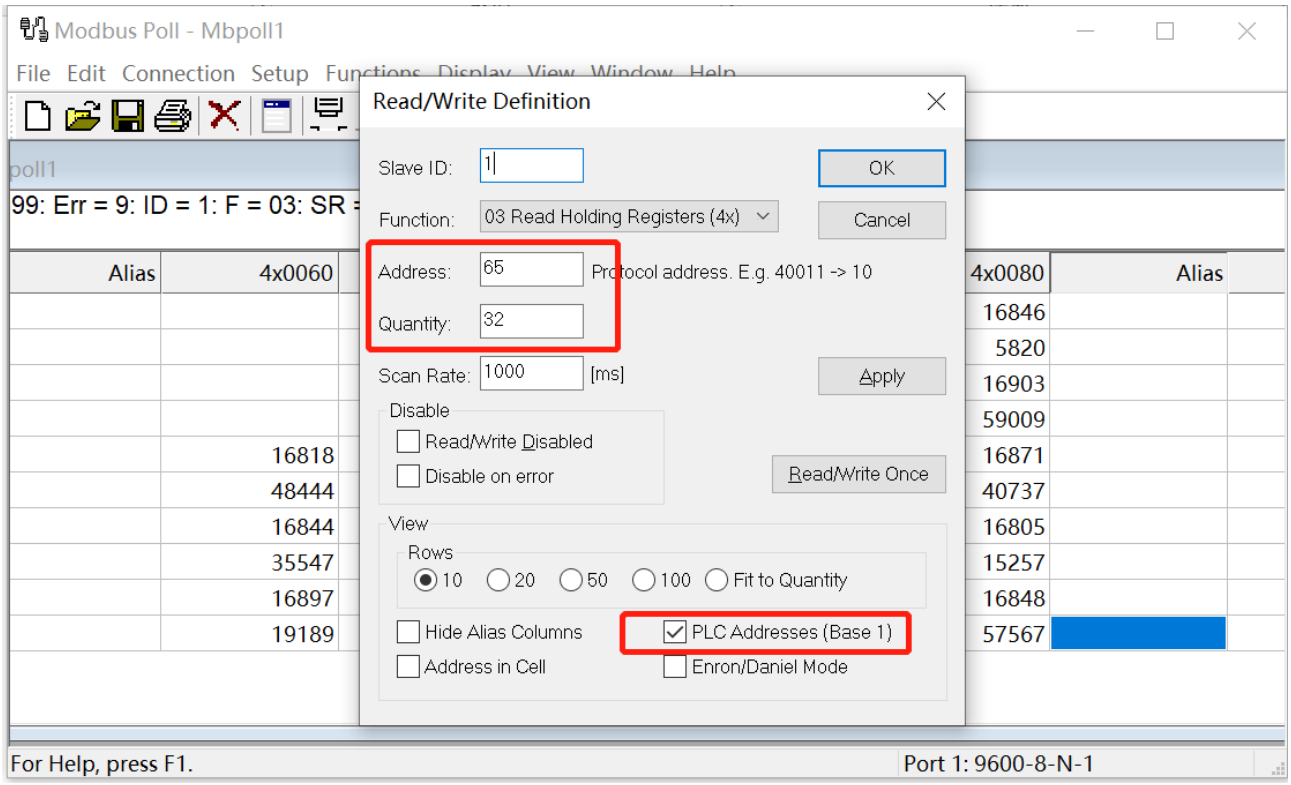
Read by Modbus poll

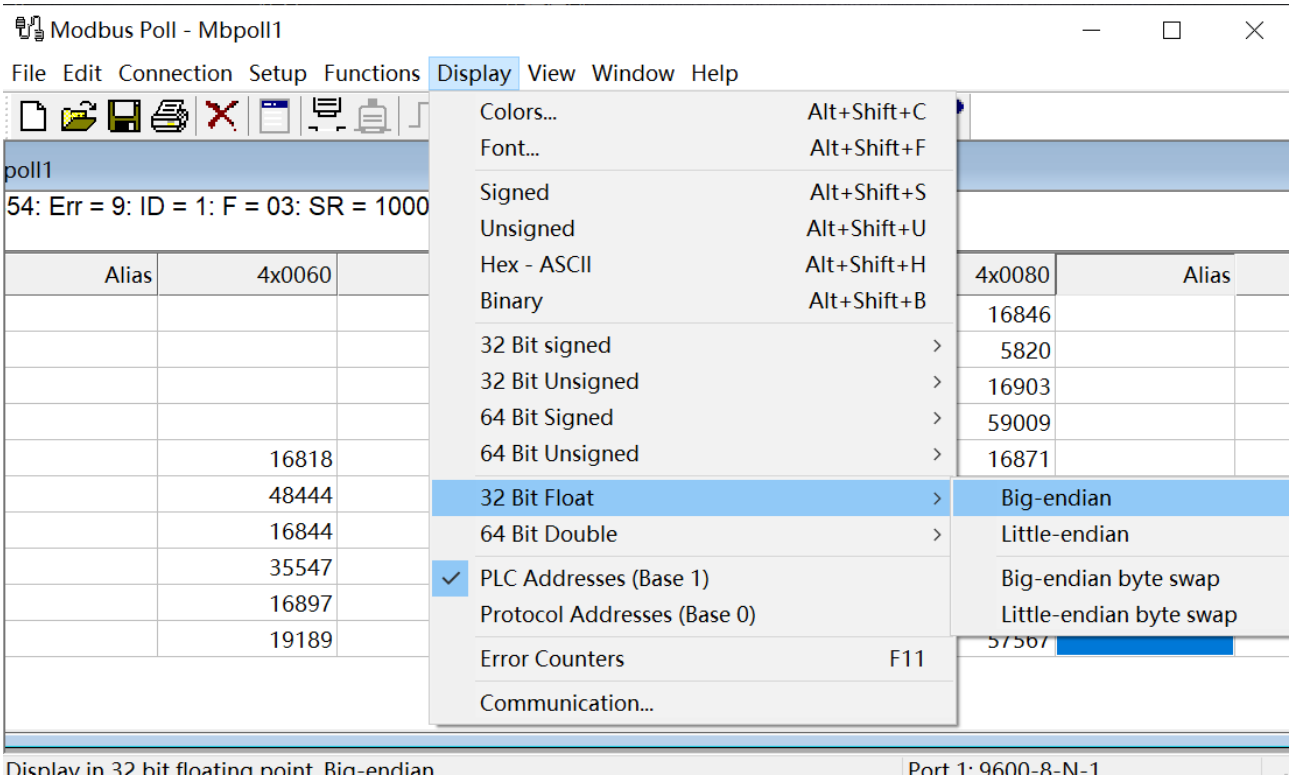
Read channel 1 - channel 16 in unit16

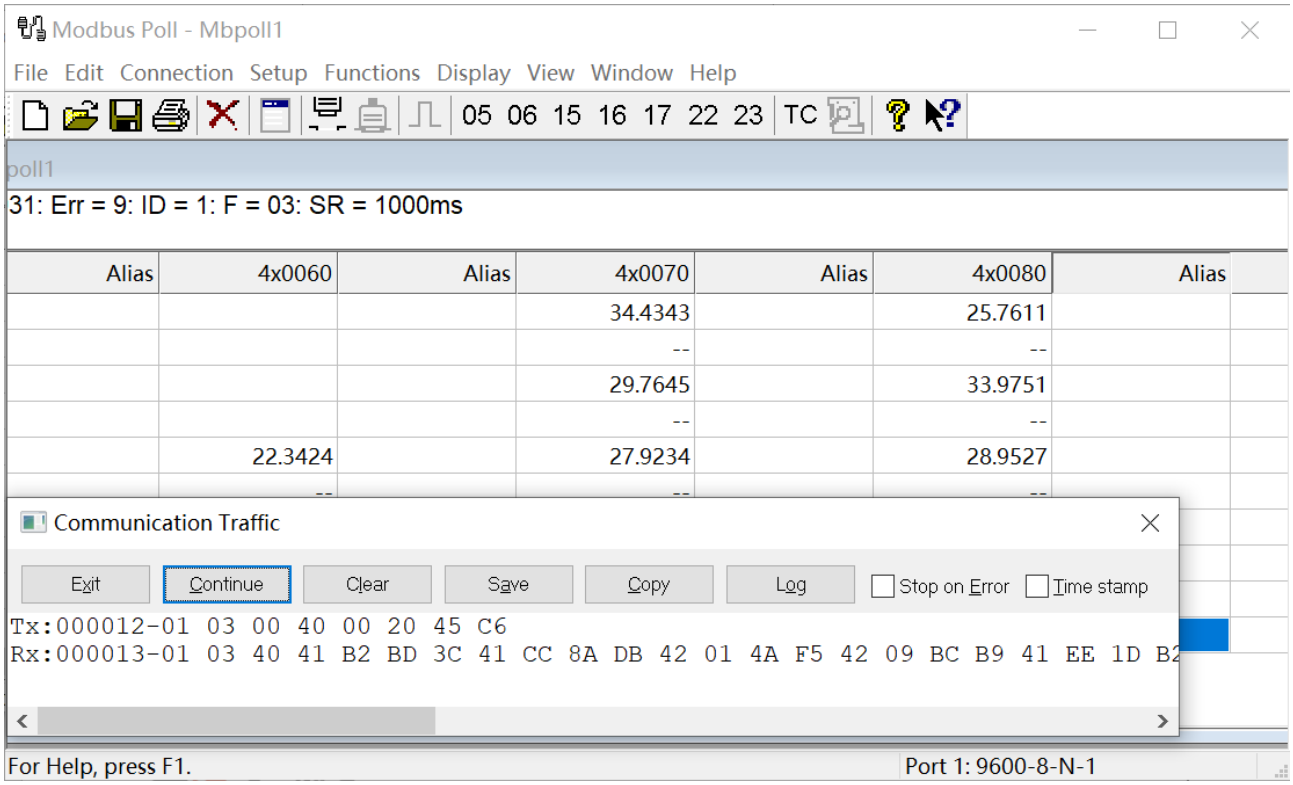




Read channel 1- channel 16 in float32






Modbus Poll - Mbpoll1
File Edit Connection Setup Functions Display View Window Help
05 06 15 16 17 22 23 TC
poll1
31: Err = 9: ID = 1: F = 03: SR = 1000ms
Alias 4x0060 Alias 4x0070 Alias 4x0080 Alias
34.4343 25.7611
-- --
29.7645 33.9751
-- --
22.3424 27.9234 28.9527
Communication Traffic
Exit Continue Clear Save Copy Log Stop on Error Time stamp
Tx:000012-01 03 00 40 00 20 45 C6
Rx:000013-01 03 40 41 B2 BD 3C 41 CC 8A DB 42 01 4A F5 42 09 BC B9 41 EE 1D B2
For Help, press F1.
Port 1: 9600-8-N-1