6 channels PT100/PT1000 RS485 module manual

Model: CWT-TM-6PT

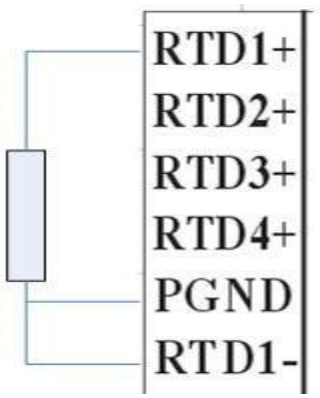
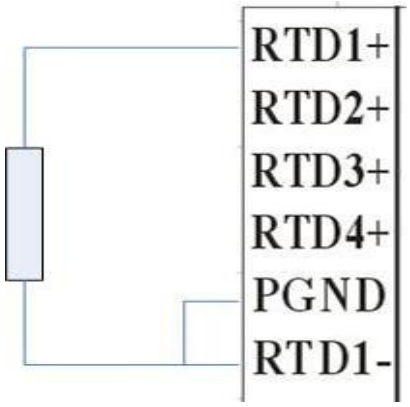
Basic parameters

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

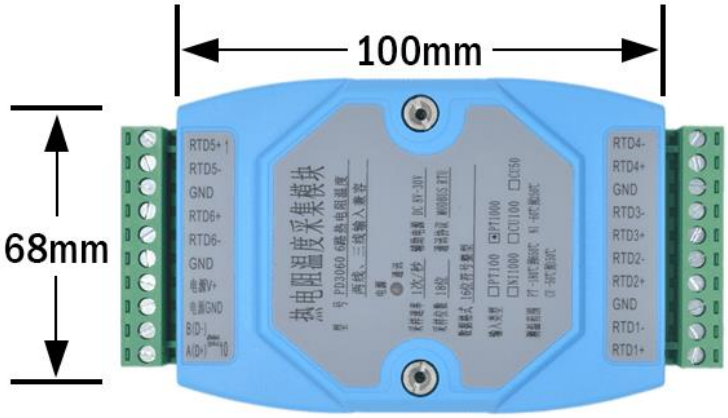
Terminals	description
+V	Power +
GND	Power -
RTDx+	PT100/1000 +
RTDx-	PT100/1000 -
GND	PT100/1000 GND
A（D+）	RS485 +
B（D-）	RS485 -

PT100/PT1000 wiring

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

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

Size



RS485 communication Default parameters: 9600,n,8,1

Default device address is 1

Modbus RTU protocol

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

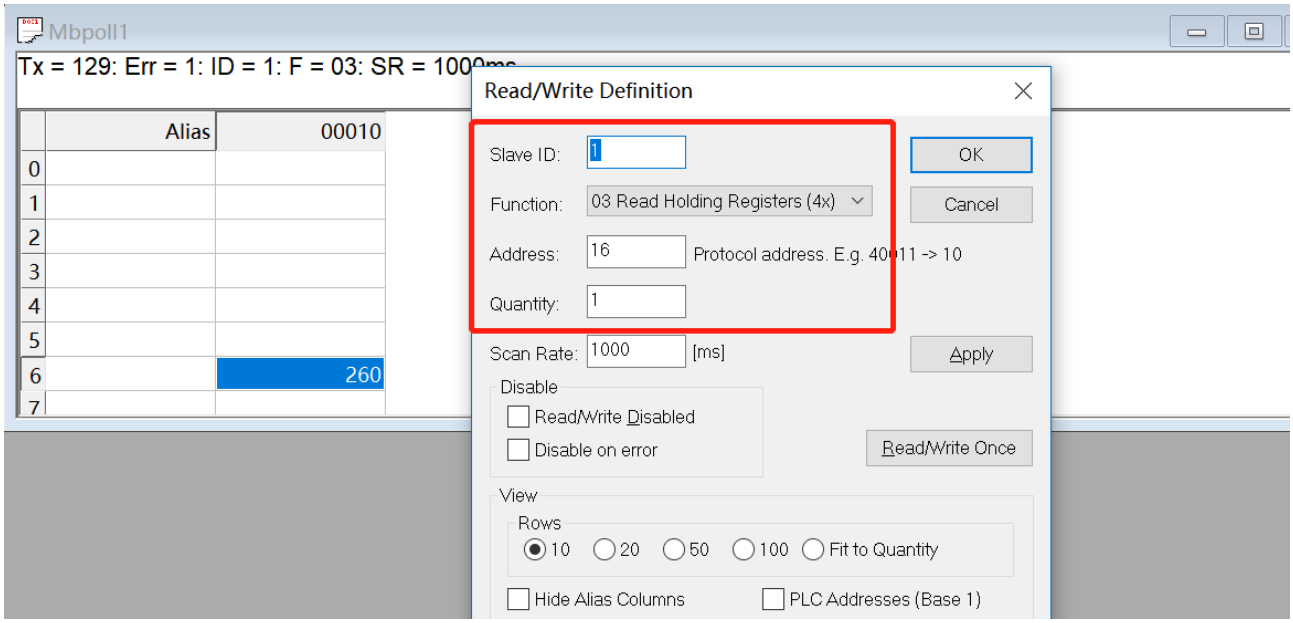
Sensor responds:

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

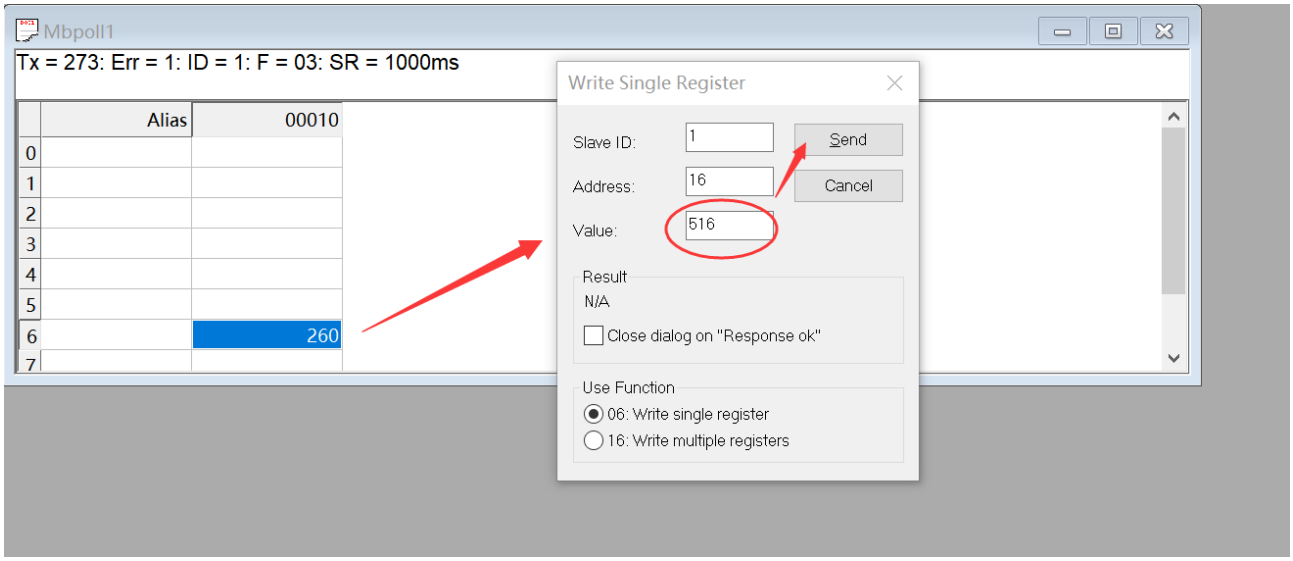
ID=01 (HEX) = 1 (DEC)
baud and parity =0B (HEX) = 0000 1011 (BIN)
so baud = 011 = 4800, parity = 01 = even

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



1. 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
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

E.g., read channel 1—channel 6 in UINT16.

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	0x06	0XC4	0X02

Sensor responds:

Address	Function Code	Number of byte	value	Error Check (Lo)	Error Check (Hi)
0x01	0x03	0x0C	0x00 0XEA 0x00 0XF4 0x01 0x42 0x01 0x00 0x01 0x15 0x00 0XD5	0x39	0xCB

Channel 1: EA H=>234 D=23.4

Channel 2: F4 H=>244 D=24.4

Channel 3: 142 H=>322 D=32.2

Channel 4: 100 H=>256 D=25.6

Channel 5: 115 H=>277 D=27.2

Channel 6: D5 H=>213 D=21.3

E.g., read channel 1- channel 6 in Float 32.

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	0x0C	0X44	0X1B

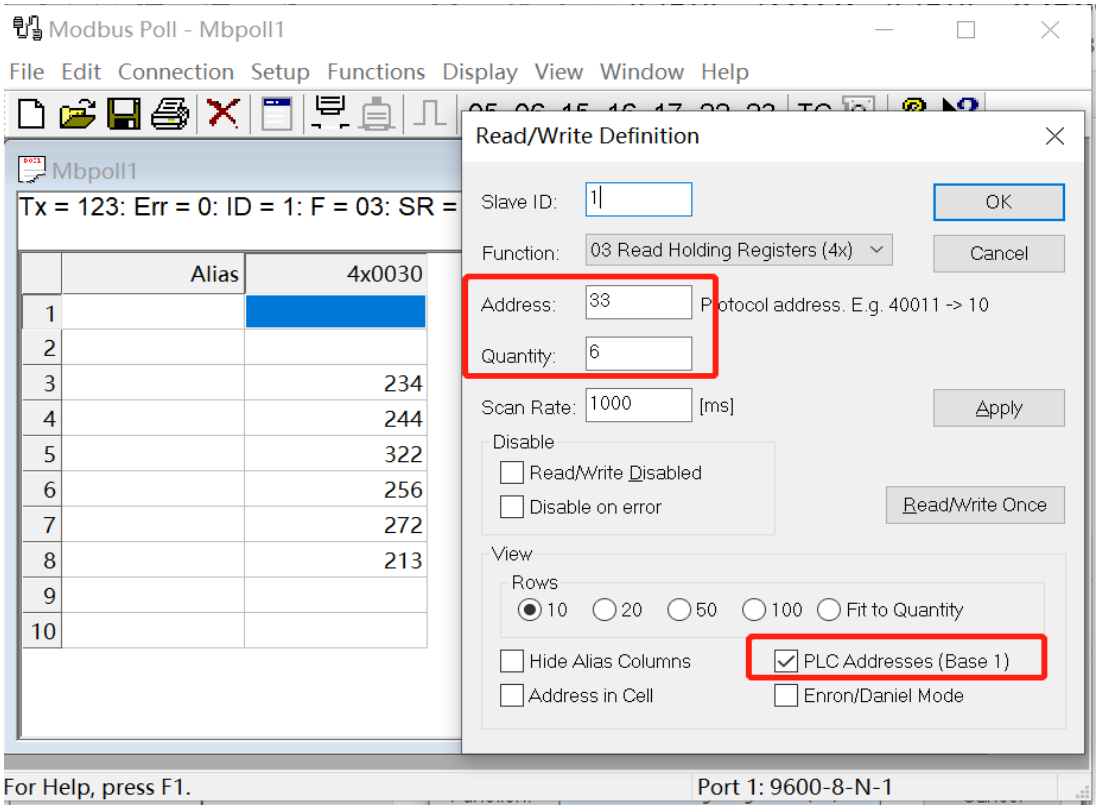
Sensor responds:

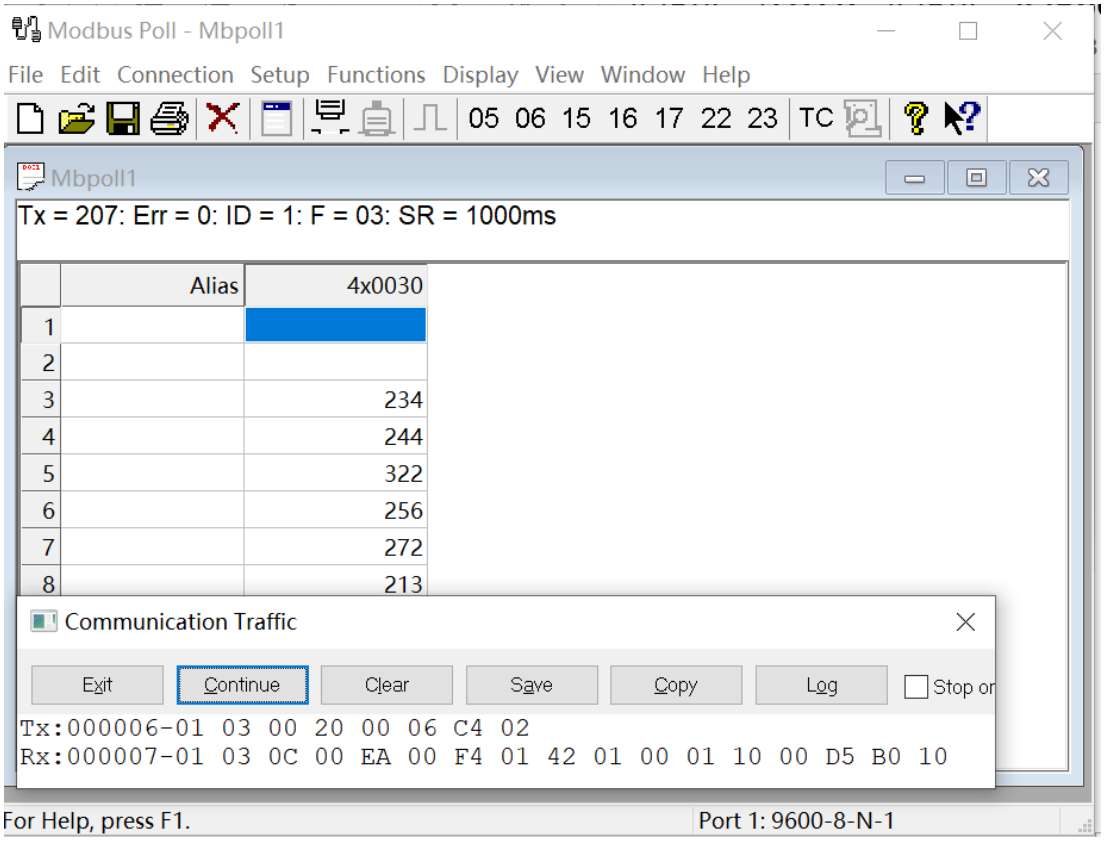
Address	Function Code	Number of byte	value	Error Check (Lo)	Error Check (Hi)
0x01	0x03	0x18	0x41 0xB2 0xBD 0x3C 0x41 0xCC 0x8A 0xDB 0x42 0x01 0x4A 0xF5 0x42 0x09 0xBC 0xB9 0x41 0xEE 0x1D 0xB2 0x41 0xDF 0x63 0x20	0X03	0X7D

Channel 1: 41 B2 BD 3C (IEEE) =>22.3424 (DEC)
Channel 2: 41 CC 8A DB (IEEE) =>25.5678 (DEC)
Channel 3: 42 01 4A F5 (IEEE) =>32.3232 (DEC)
Channel 4: 42 09 BC B9 (IEEE) =>34.4343 (DEC)
Channel 5: 41 EE 1D B2 (IEEE) =>29.7645 (DEC)
Channel 6: 41 DF 63 20 (IEEE) =>27.9234 (DEC)

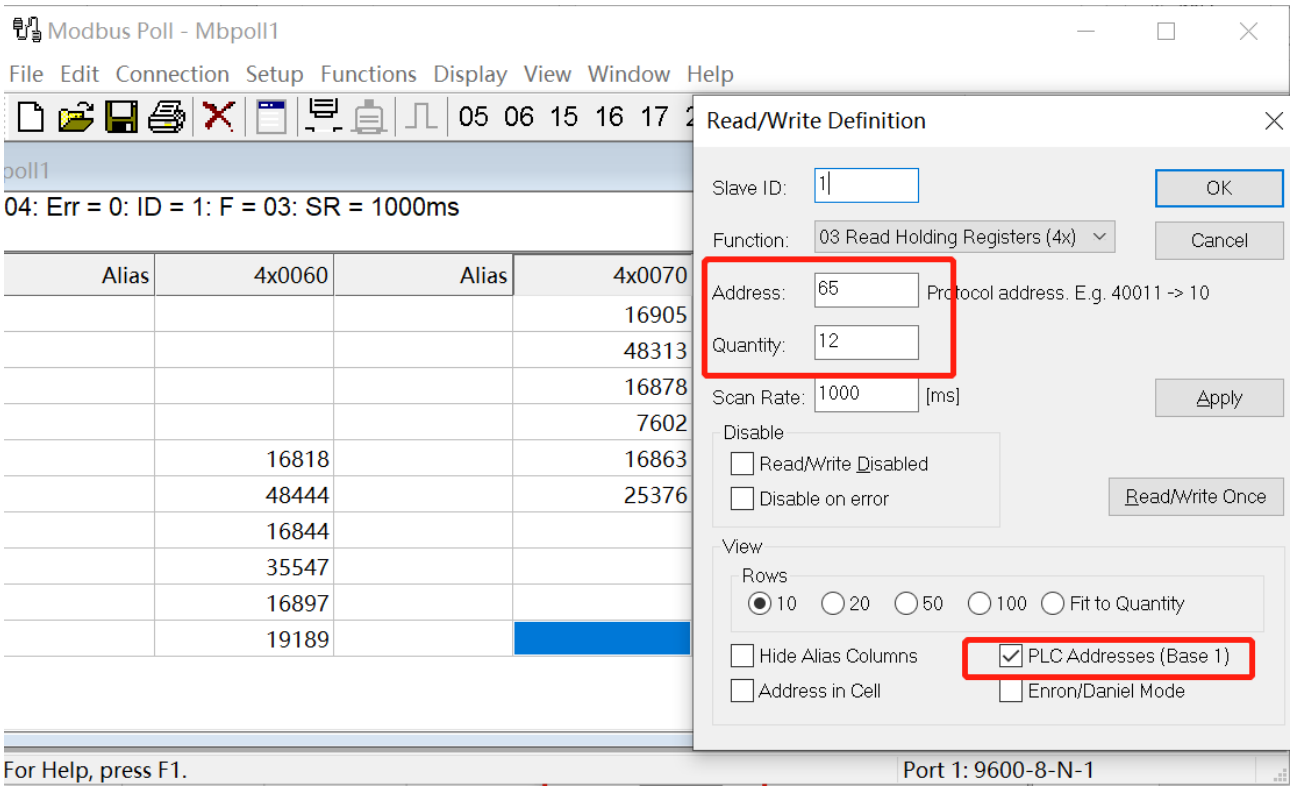
Read by Modbus poll

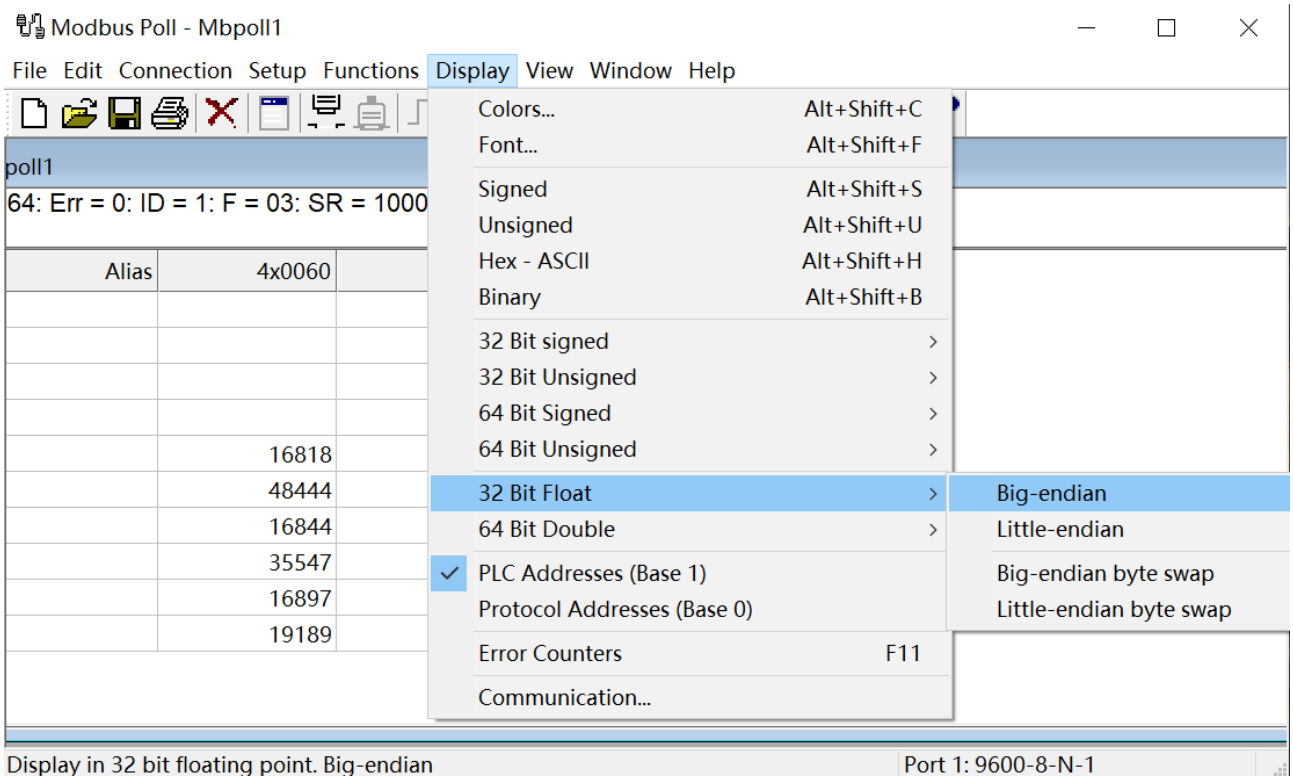
E.g., read channel 1- channel 6 in unit16

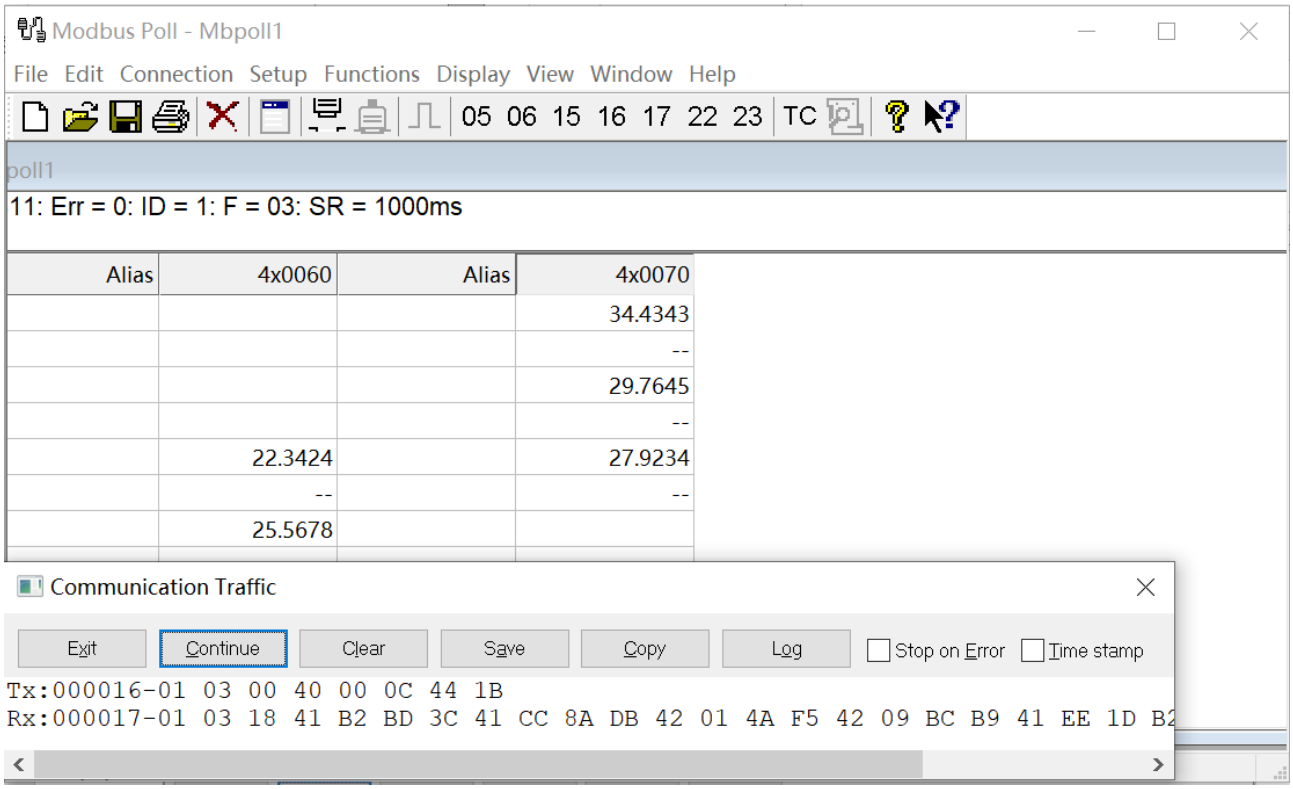




E.g., read channel 1 - channel 6 in Float 32.




Modbus Poll - Mbpoll1
File Edit Connection Setup Functions Display View Window Help
poll1
64: Err = 0: ID = 1: F = 03: SR = 1000
Alias
4x0060
16818
48444
16844
35547
16897
19189
Colors... Alt+Shift+C
Font... Alt+Shift+F
Signed Alt+Shift+S
Unsigned Alt+Shift+U
Hex - ASCII Alt+Shift+H
Binary Alt+Shift+B
32 Bit signed
32 Bit Unsigned
64 Bit Signed
64 Bit Unsigned
32 Bit Float
64 Bit Double
PLC Addresses (Base 1)
Protocol Addresses (Base 0)
Error Counters F11
Communication...
Big-endian
Little-endian
Big-endian byte swap
Little-endian byte swap
Display in 32 bit floating point. Big-endian
Port 1: 9600-8-N-1


Modbus Poll - Mbpoll1
File Edit Connection Setup Functions Display View Window Help
05 06 15 16 17 22 23 TC
poll1
11: Err = 0: ID = 1: F = 03: SR = 1000ms
Alias
4x0060
Alias
4x0070
34.4343
--
29.7645
--
22.3424
27.9234
--
--
25.5678
Communication Traffic
Exit
Continue
Clear
Save
Copy
Log
Stop on Error
Time stamp
Tx:000016-01 03 00 40 00 0C 44 1B
Rx:000017-01 03 18 41 B2 BD 3C 41 CC 8A DB 42 01 4A F5 42 09 BC B9 41 EE 1D B2