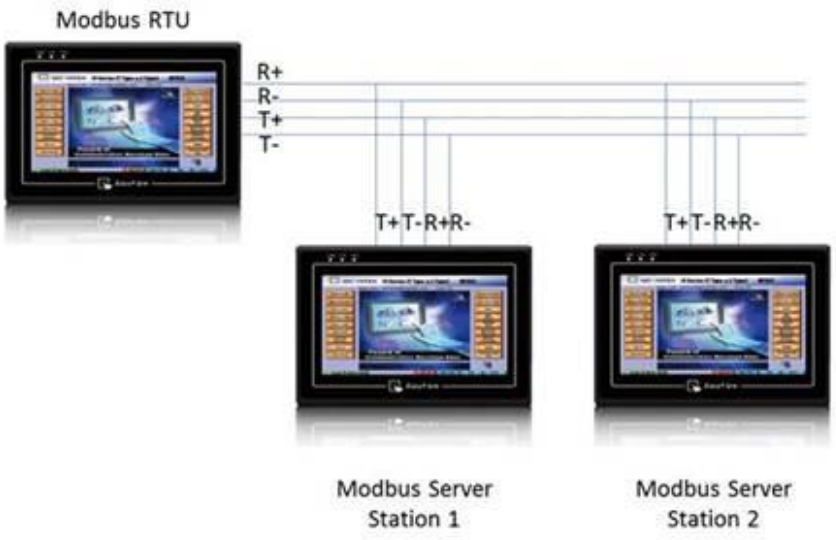
MODBUS Server (COM/Ethernet)

HMI Setting:

Parameters	Recommended	Options	Notes
PLC type	MODBUS Server (COM/Ethernet)		
PLC I/F	RS232	RS232, RS485	
Baud rate	9600	9600~115200 Ethernet	Ethernet supports UDP or TCP/IP protocol
Data bits	8	8	
Parity	Even	Even, Odd,	
Stop bits	1	1	
PLC sta. no.	1	1-31	HMI Modbus Station No.
Port no.		502	

Online simulator	YES	**Extend address mode**	NO
Broadcast command	NO		

If HMI is Modbus Server, connecting two or more Modbus Servers with one Modbus RTU via RS485 4W is not supported. To do so, use RS485 2W instead.

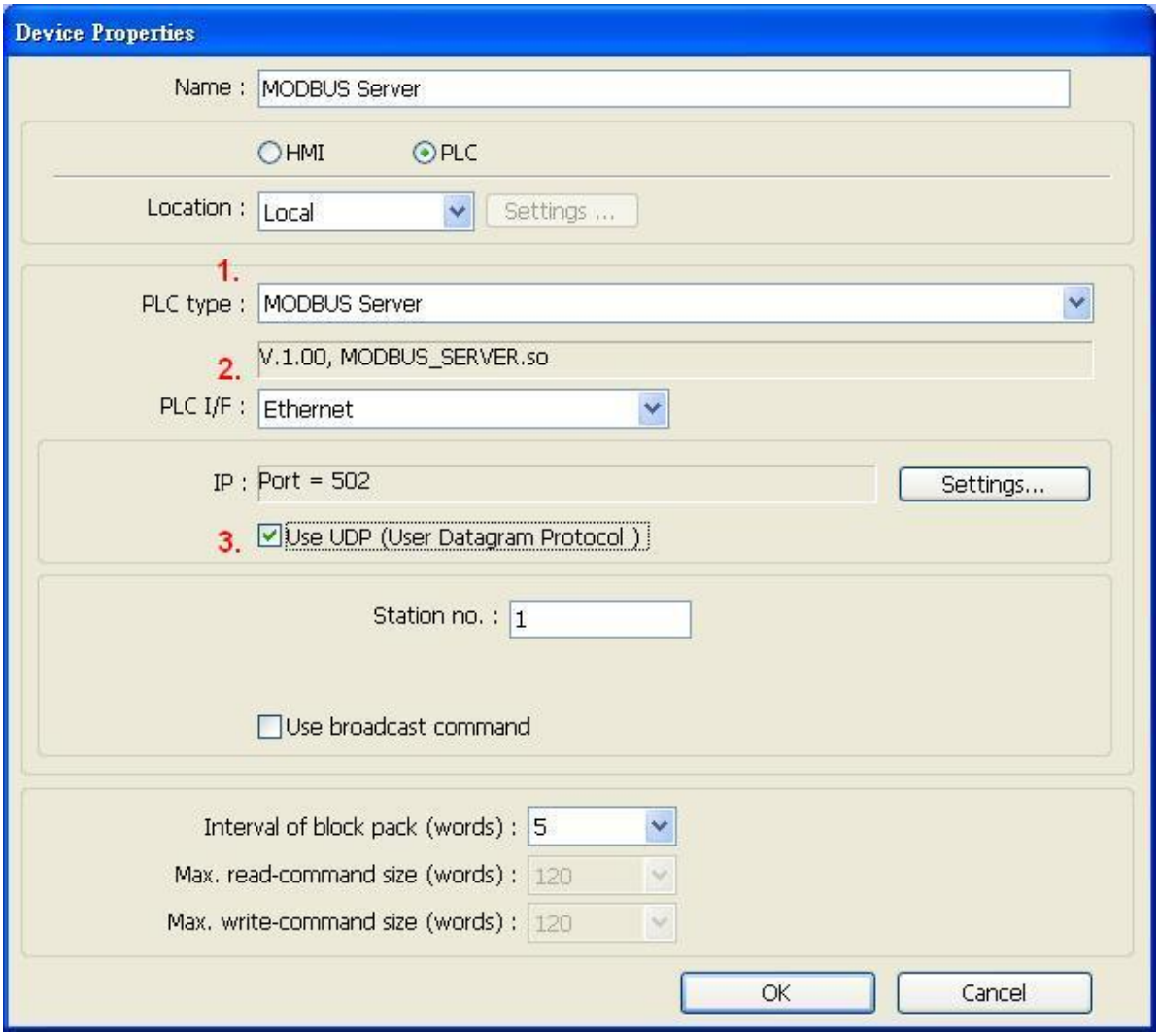


PLC Setting:

Communication mode	Modbus RTU protocol

Modbus Server UDP Protocol Setting:

MODBUS Server (Ethernet) supports UDP communication protocol. To use UDP mode, go to [System Parameter Settings] in editing software, in [Device list] click [New], for [PLC type] select “Modbus Server”, [PLC I/F] set to [Ethernet], and select [Use UDP (User Datagram Protocol)] to finish setting.



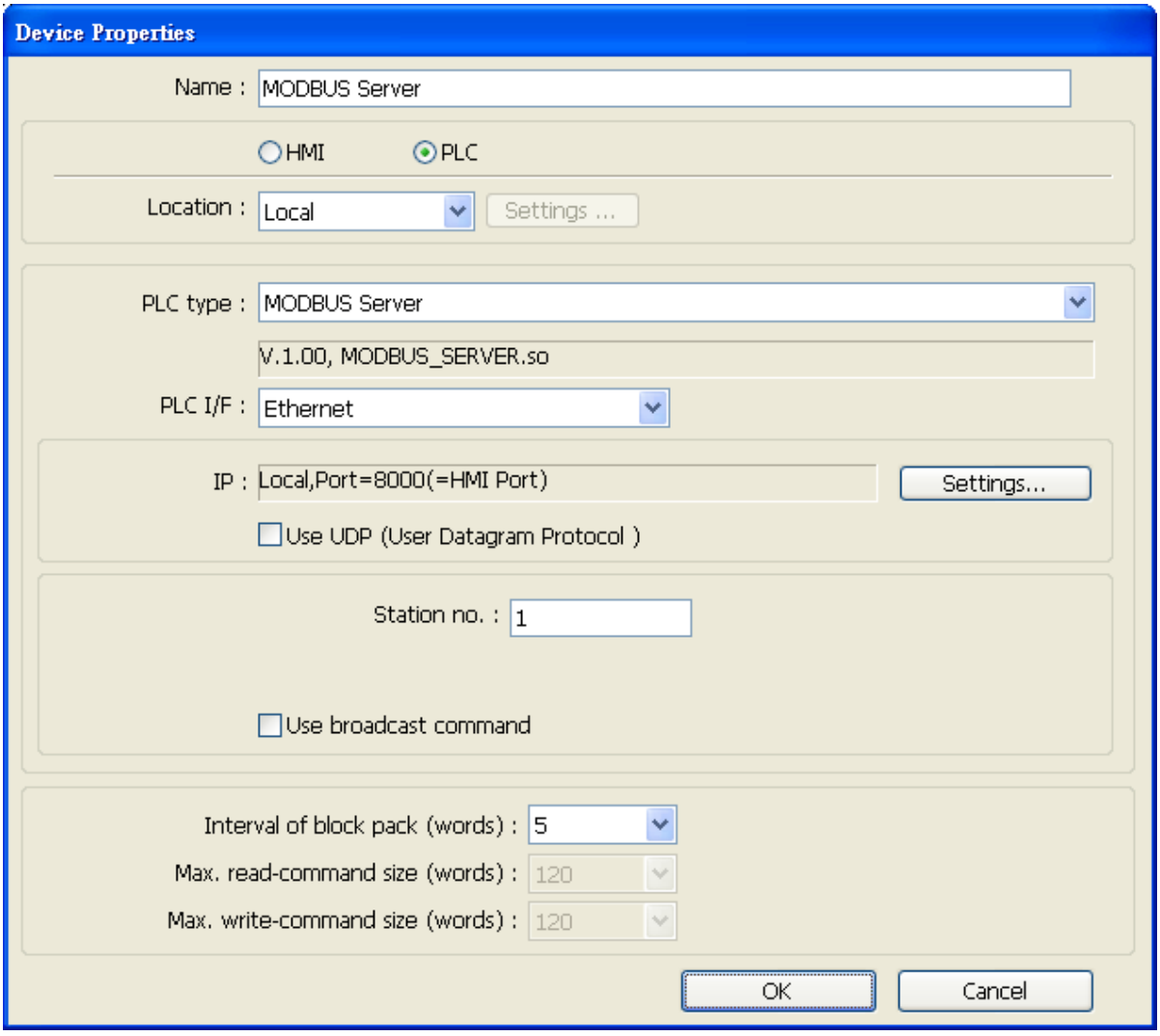
Modbus Server Port No. can be changed by clicking [Settings].

Modbus Server Port No. can not be set identically to HMI Port No. When doing so, the warning message below will be shown requesting users to change setting.

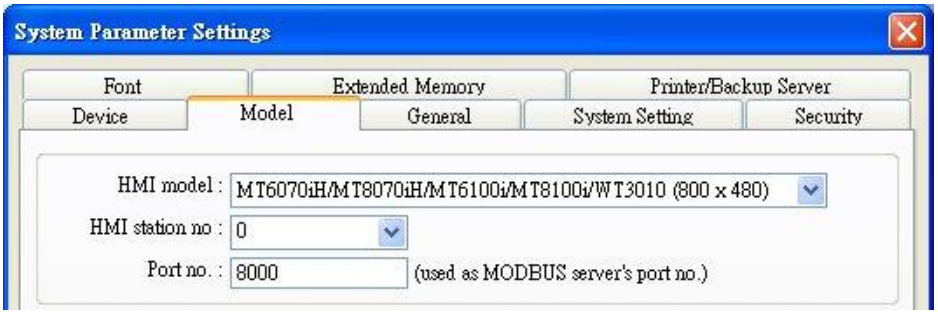
Note:
A maximum of 64 Clients can be connected simultaneously.
Modbus Server Port No. can't be identical to HMI Port No.

Modbus Server TCP/IP Protocol Setting:

MODBUS Server (Ethernet) supports TCP/IP communication protocol. Go to [System Parameter Settings] in editing software, in [Device list] click [New], for [PLC type] select "Modbus Server", [PLC I/F] set to [Ethernet] to finish setting.

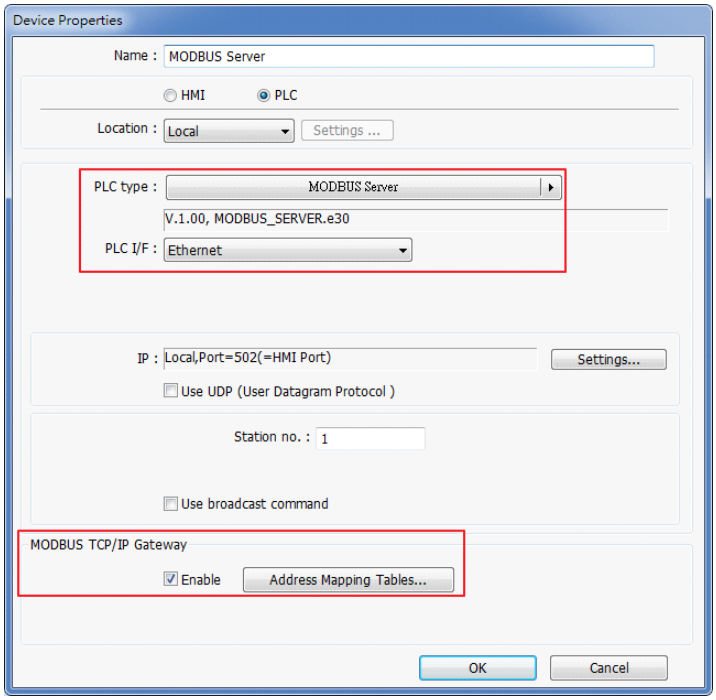


For Modbus Server TCP/IP, HMI Port No. is the same as Modbus Server Port No. To change Prot No. go to [System Parameter Settings] / [Model], the default Port No. is “8000”, and it is allowed to change Modbus Server Port No. here.



MODBUS TCP/IP Gateway:

By adding MODBUS Server with [Ethernet] interface, the [MODBUS TCP/IP Gateway] feature can be enabled by selecting the [Enable] check box.



Note the following two points when enabling the [MODBUS TCP/IP Gateway]:

a. The original mapping between the MODBUS Server and the HMI address will be canceled.

b. The SCADA cannot read from or write in the addresses defined in different Address Mapping Table at one time.

For more information about this, see “Chapter37 MODBUS TCPIP Gateway”.

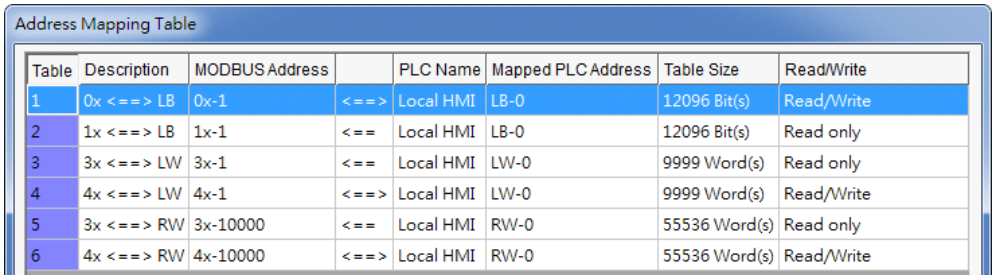
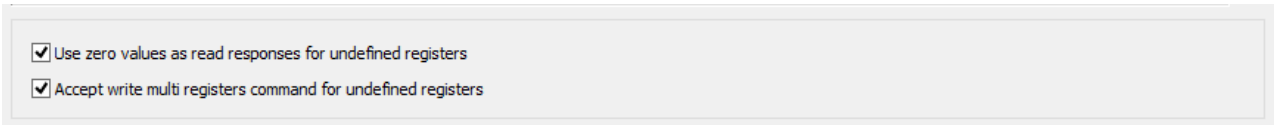

Address Mapping Table

Table	Description	MODBUS Address		PLC Name	Mapped PLC Address	Table Size	Read/Write
1	0x <==> LB	0x-1	<==>	Local HMI	LB-0	12096 Bit(s)	Read/Write
2	1x <==> LB	1x-1	<==	Local HMI	LB-0	12096 Bit(s)	Read only
3	3x <==> LW	3x-1	<==	Local HMI	LW-0	9999 Word(s)	Read only
4	4x <==> LW	4x-1	<==>	Local HMI	LW-0	9999 Word(s)	Read/Write
5	3x <==> RW	3x-10000	<==	Local HMI	RW-0	55536 Word(s)	Read only
6	4x <==> RW	4x-10000	<==>	Local HMI	RW-0	55536 Word(s)	Read/Write

c. The following functions are only supported by cMT series models.



Device Address:

Bit/Word	Device type	Format	Range	Memo
B	LB	dddd	0 ~ 9998	Mapping to 0x/1x 1 ~ 9999
W	LW	dddd	0 ~ 9998	Mapping to 3x/4x 1 ~ 9999
W	RW	ddddd	0 ~ 55536	Mapping to 3x/4x 10000 ~ 65536

LB0 = 0x0001, LB1 = 0x0002, LW0 = 3x0001, LW1 = 3x0002

Supported Modbus Server Function Code:

Function Code	Description
0x01	Read Coils
0x02	Read Discrete Inputs
0x03	Read Holding Register
0x04	Read Input Register
0x05	Write Single Coil
0x06	Write Single Register
0x0f	Write Multiple Coils
0x10	Write Multiple Registers

Modbus Server Error Code:

Error Code	Definition	Condition
01	Incorrect function code	The function code is not supported.
02	Incorrect read address	The read address is not within the range.
03	Incorrect data	The data read is incorrect, for example, the data length is 0.
251	Incorrect data	Read/Write exceeding number of words from/to the register of the Modbus device.
252	Incorrect data	Modbus device replies incorrect data format.
253	Incorrect data	Modbus device checksum error.

Wiring Diagram:

RS232 (Diagram 1 ~ Diagram 3)

Diagram 1

RS-232

The serial port pin assignments may vary between HMI models, please click the following link for more information.

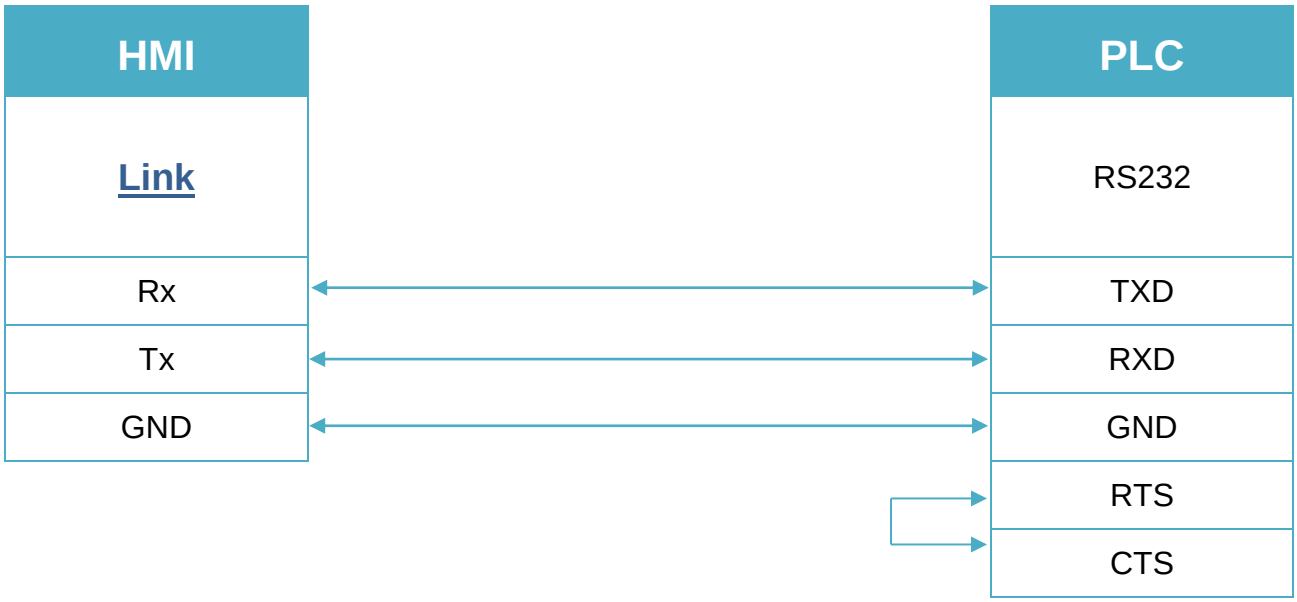


Diagram 2

RS-485 4W

The serial port pin assignments may vary between HMI models, please click the following link for more information.

HMI		PLC
Link		RS485 4W
Rx-	⟷	Tx-
RX+	⟷	Tx+
Tx-	⟷	Rx-
Tx+	⟷	Rx+
GND	⟷	GND

Diagram 3

RS-485 2W

The serial port pin assignments may vary between HMI models, please click the following link for more information.

HMI		PLC
Link		RS485 2W
Data-	⟷	D-
Data+	⟷	D+
GND	⟷	GND

Note: Setting more than one Modbus Server in HMI Device List is of no effect.

Diagram 4

Ethernet cable: