MODBUS RTU (Adjustable)

Supported Series : MODBUS RTU CONTROLLER

Website : http://www.modbus.org

HMI Setting:

Parameters	Recommended	Options	Notes
PLC type	MODBUS RTU (Adjustable)		
PLC I/F	RS485	RS232/RS485	
Baud rate	9600	9600/19200/38400/57600/115200	
Data bits	8	7,8	
Parity	Even	Even, Odd, None	
Stop bits	1	1,2	
PLC sta. no.	1	0-255	

Online simulator	YES
Extend address mode	YES

PLC Setting:

Communication mode	Modbus RTU protocol

Device Address:

Bit/Word	Device type	Format	Range	Memo
B	0x	DDDDD	1 ~ 65535	Output bit
B	1x	DDDDD	1 ~ 65535	Input bit (read only)
B	3x_Bit	DDDDDdd	100 ~ 6553515	Input Register bit (read only)
B	4x_Bit	DDDDDdd	100 ~ 6553515	Output Register bit
B	0x_multi_coils	DDDDD	1 ~ 65535	Write multiple coils
W	3x	DDDDD	1 ~ 65535	Input Register (read only)
W	4x	DDDDD	1 ~ 65535	Output Register
W	5x	DDDDD	1 ~ 65535	4x double word swap *Note1
DW	5x (32-bit)	DDDDD	1 ~ 65535	4x double word swap *Note4
W	6x	DDDDD	1 ~ 65535	4x single word write

*Note1: Please assign all the addresses to Even addresses, or all to Odd addresses, in order to prevent communication failure.

*Note2: EBPro V6.03.02 or later supports 64 bits data type **(cMT Series only),** but please note that the address limit range is 48 bits in maximum..

*Note3:

Address type "5x" is mapping to Hold Reg. The communication protocol of "5x" is almost the same as "4x" except that "5x" swaps double words.
If 4x contains the following information:

Address	1	2	3	4	5	6	...
Data in word	0x1	0x2	0x3	0x4	0x5	0x6	
Data	0x0201		0x0403		0x0605		

For 5x, it will be:

Address	1	2	3	4	5	6	...
Data in word	0x1	0x2	0x3	0x4	0x5	0x6	
Data	0x0102		0x0304		0x0506		

Modbus RTU function code:

0x	0x01 Read coil	0x05 Write single coil
0x_multi_coils	0x01 Read coil	0x0f Write multiple coils
1x	0x02 Read discrete input	N/A for writing operation
3x	0x04 Read input register	N/A for writing operation
4x	0x03 Read holding register	0x10 Write multiple registers
5x	0x03 Read holding register	0x10 Write multiple registers

(Note: reverse word order in double words format)

3xbit is equivalent to 3x

4xbit is equivalent to 4x

6x	0x03 Read holding register	0x06 Write single register

(Note: 6x is limited to device of one word only)

*Note4:

5x (32-bit) x 2 -1 = 5x,

5x (32-Bit)	1	2	3
Data	12345678	22345678	6543210
5x	1	3	5
Data	12345678	22345678	6543210

Setting Instructions:

1. Go to [System Parameter Settings] ⚡ , click [New] to add a new device - MODBUS RTU (Adjustable)，as shown below:
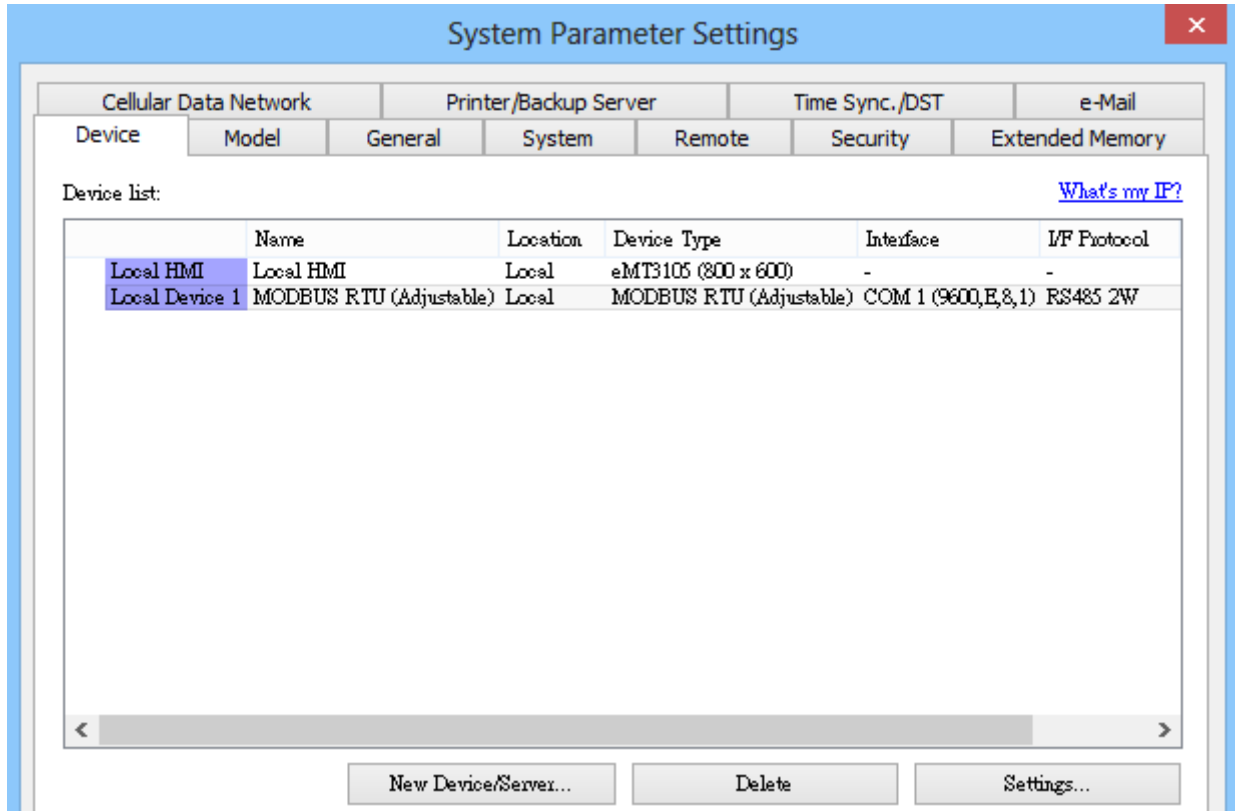
2. After adding MODBUS RTU (Adjustable) driver, [Add Address Range Limit] button will be enabled as below. Users can set maximum read/write command size here.

   ➢ Max.read-command size (words): Pull down to select PLC reading range.

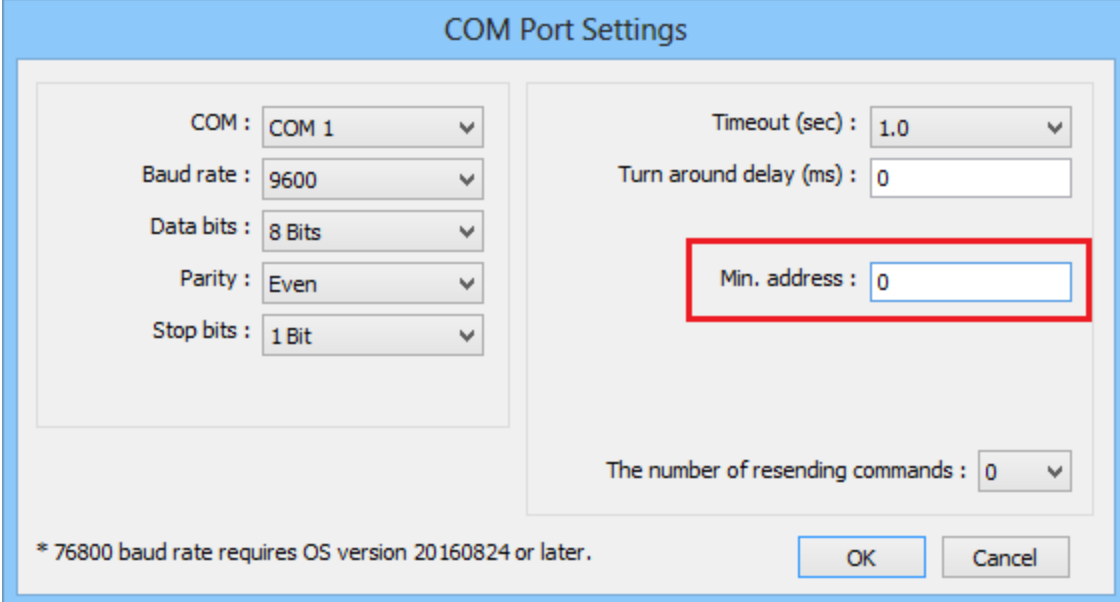   ➢ Max.write-command size (words): Pull down to select PLC writing range.

Note:

MODBUS RTU (adjustable) usage

Users can decide the address range via setting value on **[Min. address]**. For example, when users set 5 to **[Min. address]**, the address range will be 5 ~ 65535.
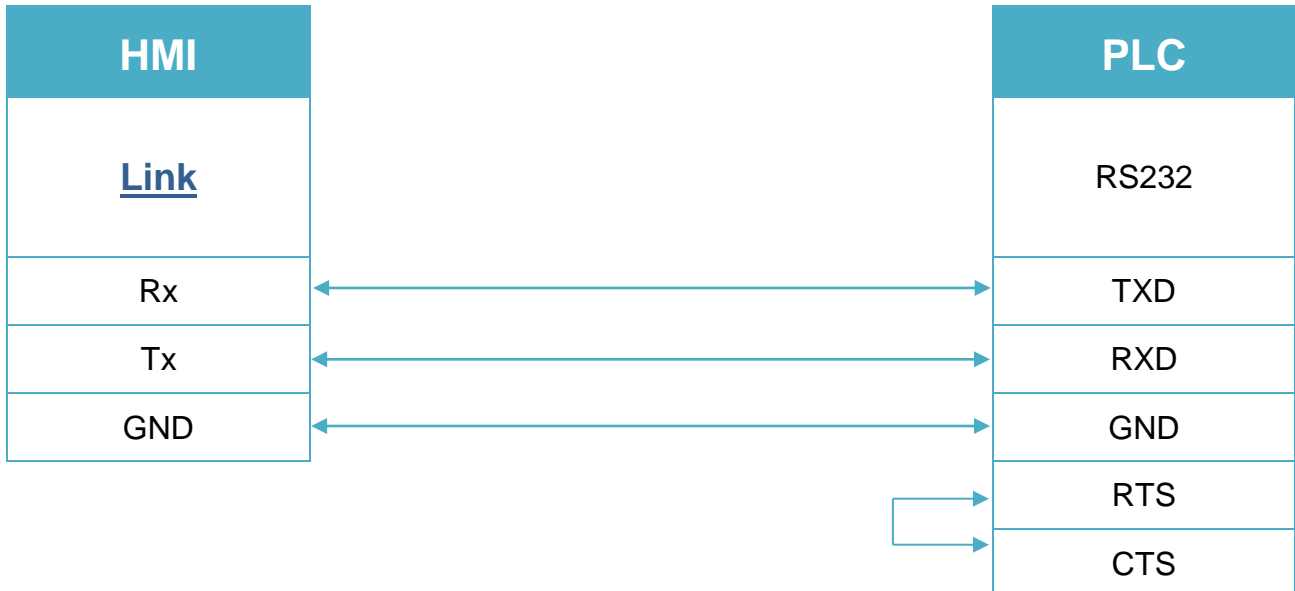
Wiring Diagram:

Diagram 1
RS-232

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

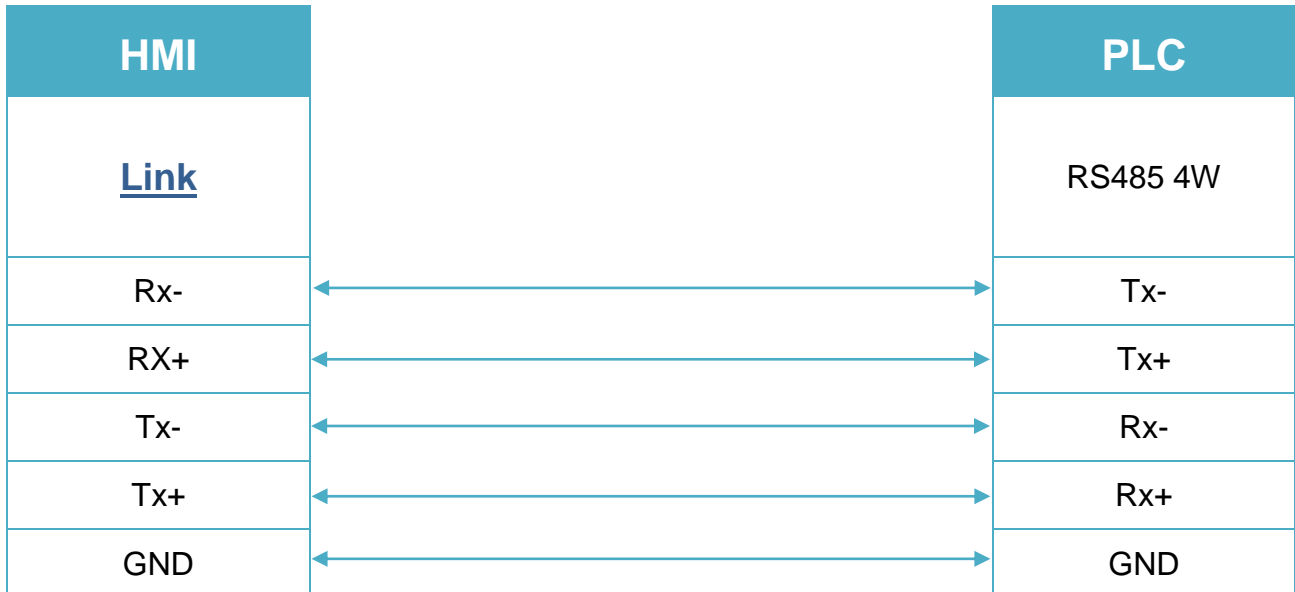| HMI	PLC
Link	RS232
Rx ←	TXD
Tx ←	RXD
GND ←	GND
	RTS
	CTS

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