Siemens S7-200 PPI

Supported Series: Siemens S7-200 series PLC
(CPU212/214/215/216/221/222/224/226/226XM)
Website: http://www.siemens.com/entry/cc/en/

HMI Setting:

Parameters	Recommended	Options	Notes
PLC type	SIEMENS S7-200 PPI		
PLC I/F	RS485 2w	RS485 2w	
Baud rate	9600	9600, 19200, 187.5K	Only MT6000/8000V2 support baud rate 187.5 K
Data bits	8	7,8	
Parity	Even	Even, Odd, None	
Stop bits	1	1, 2	
Turn around delay	5		
ACK delay time (ms)	30		
PLC sta. no.	2	1 ~ 126	

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

PLC Setting:

PLC setting	PLC sta. no. can not be the same as HMI sta. no.

Device Address:

Bit/Word	Device type	Format	Range	Memo
B	I	DDDDo	0 ~ 40957	Input (I)
B	Q	DDDDo	0 ~ 40957	Output (O)
B	M	DDDDo	0 ~ 40957	Bit Memory
B	VW_Bit	DDDDDo	0 ~ 102397	V Memory Bit Address
B	S	DDDDo	0 ~ 40957	SCR
B	SM	DDDDo	0 ~ 40957	Special Memory
B	T_Bit	DDD	0 ~ 255	Timer
B	C_Bit	DDD	0 ~ 255	Counter
Byte	VB	DDDDD	0 ~ 10239	

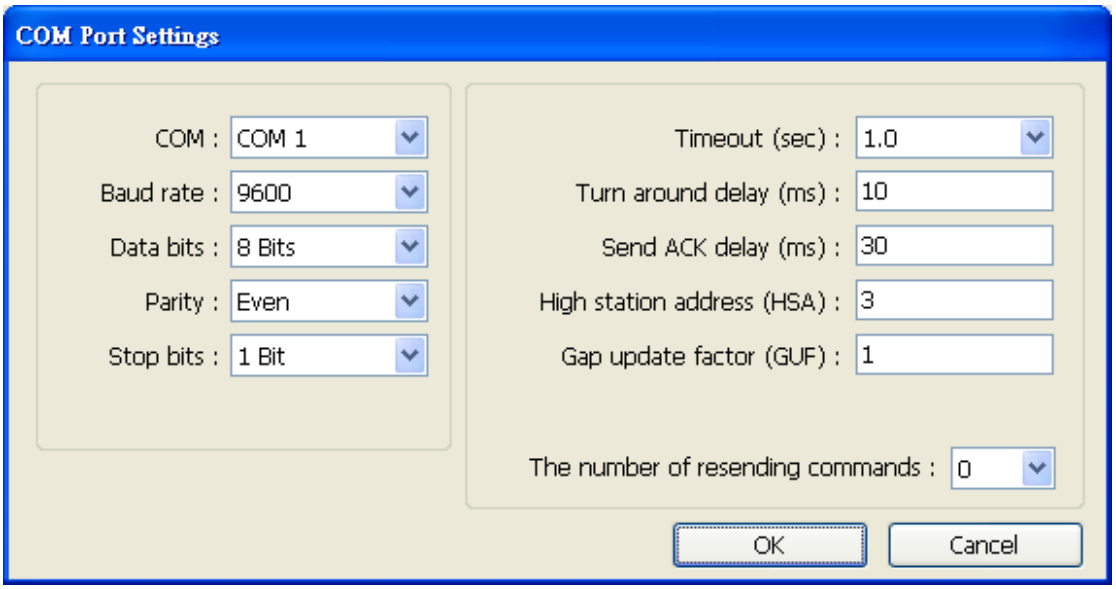
Bit/Word	Device type	Format	Range	Memo
W	VW	DDDDD	0 ~ 10239	V Memory
W	VW_Odd	DDDDD	0 ~ 10239	V Memory
DW	VD	DDDDD	0 ~ 10239	V Memory Double Word
DW	VD_Odd	DDDDD	0 ~ 10239	V Memory Double Word
W	VW_String	DDDDD	0 ~ 10239	String
W	VW_String_Odd	DDDDD	0 ~ 10239	String
DW	VD_String	DDDDD	0 ~ 10239	String
DW	VD_String_Odd	DDDDD	0 ~ 10239	String
Byte	MB	DDDDD	0 ~ 10239	Byte Memory
W	MW	DDDDD	0 ~ 10239	Word Memory
W	MW_Odd	DDDDD	0 ~ 10239	Word Memory
W	T	DDD	0 ~ 255	Timer
W	C	DDD	0 ~ 255	Counter
DW	MD	DDDDD	0 ~ 10239	Word Memory
Byte	SB	DDDDD	0 ~ 10239	SCR
W	SW	DDDDD	0 ~ 10239	SCR
DW	SD	DDDDD	0 ~ 10239	SCR
Byte	SMB	DDDDD	0 ~ 10239	Special Memory
W	SMW	DDDDD	0 ~ 10239	Special Memory
DW	SMD	DDDDD	0 ~ 10239	Special Memory

- Double Word and floating point value must use VD device type.

Multi-HMIs-Multi-PLCs Communication Setting:

For S7-200 PLC, Multi-HMIs-Multi-PLCs communication can be achieved using S7/200 PPI driver, please refer to the settings below.

IN EasyBuilder COM Port Settings, two important parameters must be set:

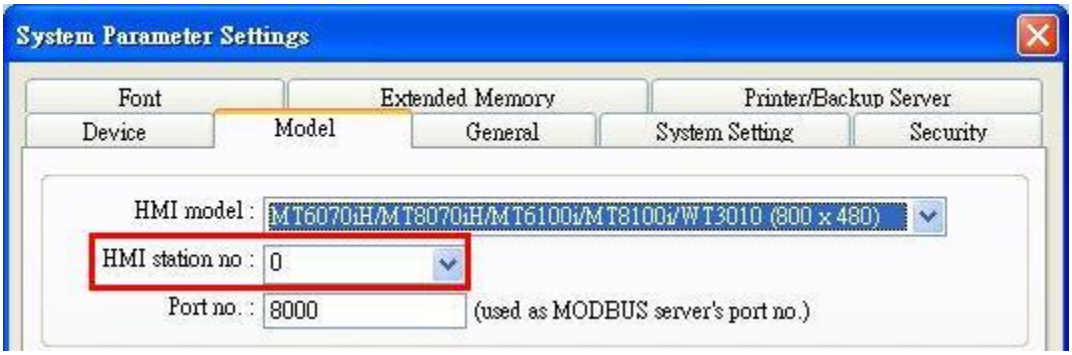


1. [High station address (HSA)]:

Setting Max. Station Number of HMI in PPI network.

For the effectiveness of system operation, it is highly recommended that the HMI station number starts from zero and go on sequentially. If there are 4 HMI in PPI network, set station no. from 0~3, and [High station address (HSA)] to 3.

Set HMI station number in [System Parameters] / [Model] / [HMI station no.]:



2. [Gap update factor(GUF)]:

The condition to pass a Token. In PPI network only HMI can hold a Token, PLC can only be controlled.

When the HMI that holds Token communicates with PLC for a number of times that equals to the value set here, HMI will pass the Token (control of PLC) to the next HMI. For example, if GUF is set to “1”, HMI will pass the control of PLC to the next HMI when read or write the value in an address.

If GUF is set to a bigger value, the HMI that holds Token will control the PLC for a longer time and therefore the Token won't be passed to another HMI and cause failure in communicating with PLC.

A complete communication means HMI reads / writes PLC value for one time.

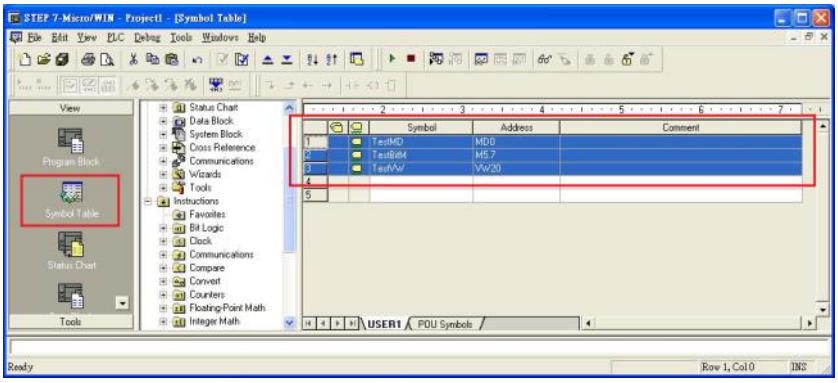
Note:

- HMI sta. no. can not be the same as PLC sta. no.
- Highly recommended that HMI sta. no. starts from 0 and go on sequentially for the effectiveness of operation.

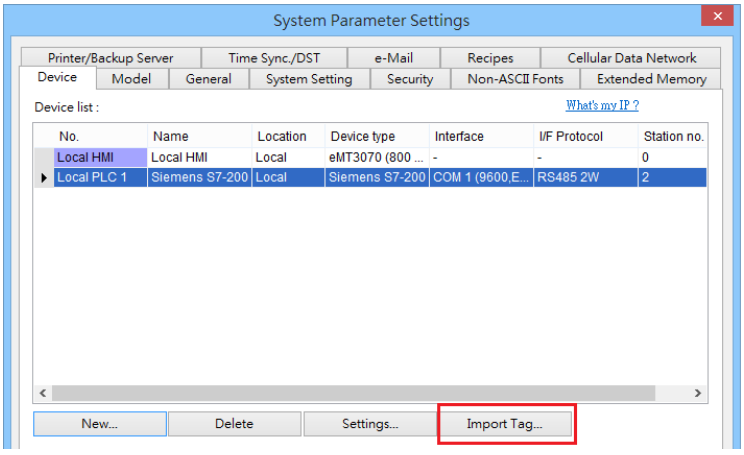
How to Import Tag:

The tags created in the Symbol Table in Step7-MicroWIN software can be imported to EasyBuilder.

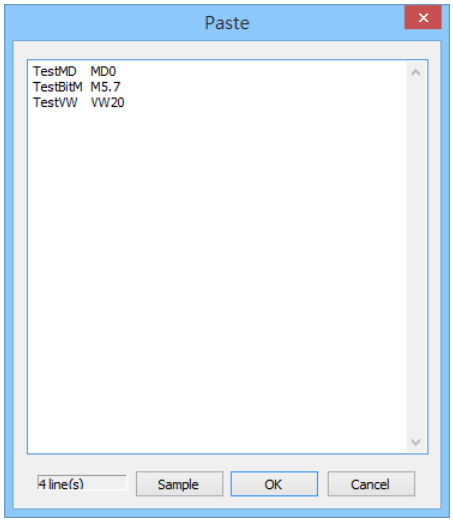
1. In **Symbol Table** create the tags. Select all the tags and click the right mouse button then **copy** the tags.



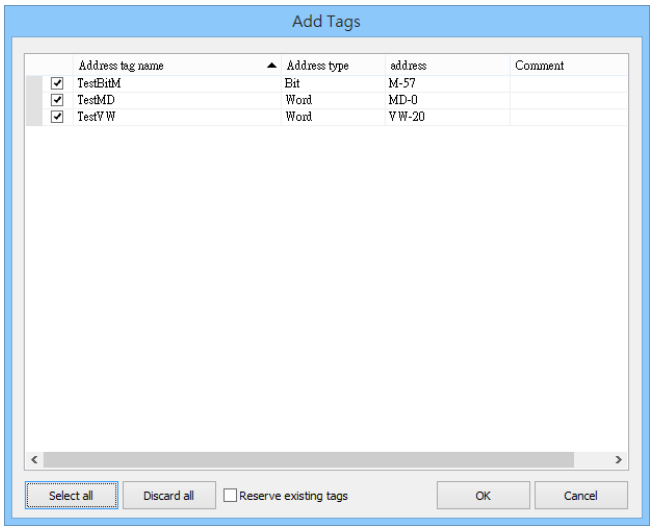
2. Launch EasyBuilder, add the driver in the device list in **System Parameter Settings**, and then click **Import Tag** button.



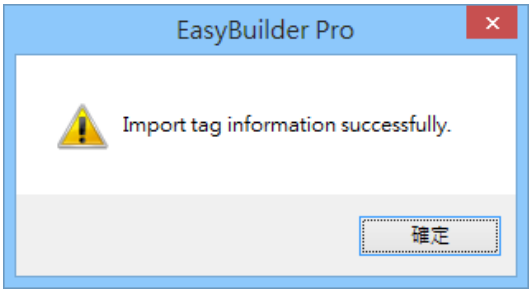
3. **Paste** the tags copied in step 1 and then click **OK**.



4. Select all the tags and then click **OK**.

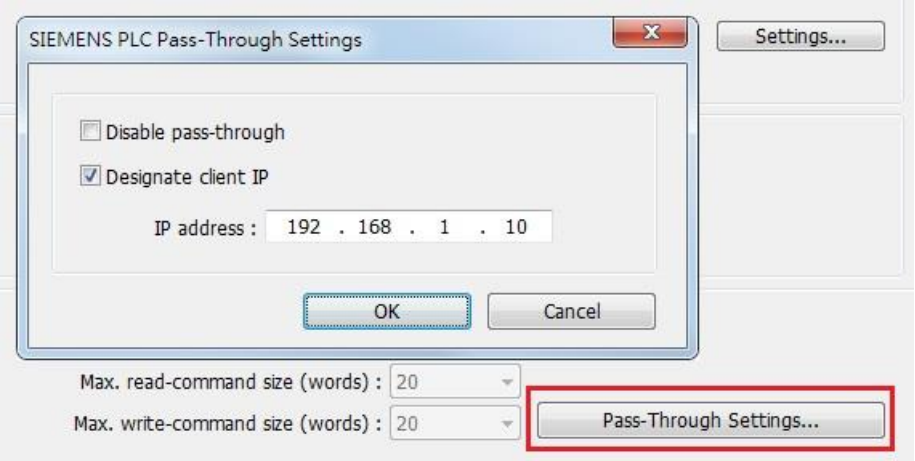


5. If succeeded, the following message window shows.



Pass-Through Settings:

[Designate client IP]: In Pass-through mode designate the client IP address to connect HMI. The “client” usually refers to Siemens Step 7 application.



The following lists the system registers relevant to Siemens S7-200 PPI and Siemens S7-300 MPI Pass-through feature.

- [LW-10850: disable/enable (0 : disable, 1 : normal, 2 : IP limited) (siemens pass-through)]
- [LW-10851: destination COM port (siemens pass-through)]: Generally refers to the COM port connected with PLC.
- [LW-10852: destination PLC station no. (siemens pass-through)]
- [LW-10853: communication protocol (0 : invalid, 1 : PPI, 2 : MPI) (siemens pass-through)]
- [LW-10854 to LW-10857: IP of connecting client (siemens pass-through)]: Displays current client IP address connected with HMI.
- [LW-10858 to LW-10861: IP of designated client (siemens pass-through)]: If LW-10850 is set to 1, the system registers can be used to designate the client IP connected with HMI.
- [LW-10862: connection status (0 : ready, 1 : client connecting) (siemens pass-through)]
- [LW-10863: execution status (0 : normal, 1 : error) (siemens pass-through)]
- [LW-10864: the last error (siemens pass-through)]

The following table lists the error codes, the description of each code, and the possible reason.

Error Code	Description	Possible Reason
0	Successfully executed	
1	Prohibit client from connecting HMI	HMI is already running pass-through and won't accept any request from other client.
2	Prohibit client from connecting HMI	When LW-10850 is set to 1, the client IP for connecting HMI is different from the IP specified in LW-10858 ~ LW-10861.
3	Invalid communication protocol	Invalid setting in LW-10853.
4	Invalid PLC station number	The PLC station number specified in LW-10852 does not exist.
5	Delayed communication	PLC connection failure.
6	Busy communication	PLC does not accept pass-through request, please confirm PLC settings.
7	Invalid pass-through request	Environment setup failure.

Wiring Diagram:

Diagram 1

RS-485 2W

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