Siemens S7 300 (ISO TCP)

HMI Factory Setting:

IP Address: 192.168.0.1

COM Port: 102

Control Area / Status Area: DBW0 / DBW20

Connection

Standard Jumper Cable / Network Cable without jumper (Auto-detected by HMI)

Definition of PLC Read/Write Address

a. Registers

Type	Format	Read/Write Range	Data Length	Note
	Word No.(n) Bank No.(m)			
Input Image	IWn	IW0 – IW65534	Word	
	IDn	ID0 – ID65532	Double Word	
Output Image	QWn	QW0 – QW65534	Word	
	QDn	QD0 – QD65532	Double Word	
Internal Bits	MWn	MW0 – MW65534	Word	
	MDn	MD0 – MD65532	Double Word	
Data Area	DBm.DBWn	DB1.DBW0 – DB65535.DBW65534	Word	1
	DBm.DBDn	DB1.DBD0 – DB65535.DBW65532	Double Word	1
Data Area (DB10)	DBWn	DBW0 – DBW65534	Word	
	DBDn	DBD0 – DBD65532	Double Word	
	VWn	VW0 – VW65534	Word	
	VDn	VD0 – VD65532	Double Word	
Timer	Tn	T0 – T65535	Word	2
Counter	Cn	C0 – C65535	Double Word	3

b. Contacts

Type	Format Word No.(n) Bank No.(m) Bit No.(b)	Read/Write Range	Note
Input Image	**I**n.b	**I**0.0 – **I**65535.7	
Output Image	**Q**n.b	**Q**0.0 – **Q**65535.7	
Internal Bits	**M**n.b	**M**0.0 – **M**65535.7	
Data Area	**DB**m.DBX**n**.b	**DB**1.DBX0.0 – **DB**65535.DBX65535.7	
Data Area (DB10)	**DBX**n.b	**DBX**0.0 – **DBX**65535.7	
	Vn.b	**V**0.0 – **V**65535.7	

NOTE

1) PLC needs to enable DB memory (**DB**m.DBW**n**、**DB**m.DBD**n**、**DB**m.DBX**n**.b) before DB data can be read.

2) Timer reads only up to 3 digits. If a value input is more than 3 digits, the Timer will regards the highest 3 (decimal) and replace the rest by 0. For example, a value 12345 will be written as 12300 in PLC.

3) Counter reads only up to 3 digits. If a value input is more than 3 digits, the Counter will regards the first 3 digits and leave out the rest. For example, a value 12345 will be written as 123 in PLC.

4) Except register Tn and Cn , data type of register is Byte and its order is opposite to usual controller , for example :

   1、 IW3 is a word which combined from IB3 and IB4，High Byte of IW3 is IB3；Low Byte of IW3 is IB4.

   2、 ID3 is Double Word which combined from IB3, IB4, IB5 and IB6, and its order from highest to lowest is IB3, IB4, IB5 andIB6.

   And please be attentive to use these registers, because their Data type is different with Data Length, it will need more than one register for each access, for example:

   1、 AIW6 which Data Type is Byte and Data Length is 1 Word, when it used for one word Numeric Entry , it will occupy two addresses AIB6 and AIB7。

   2、 MD12 which Data Type is Byte and Data Length is Double Word，when it used for one word Numeric Entry, it will occupy four addresses MB12,MB13,MB14 and MB15；But data only stored in MB14 and MB15.

3、 IW3 which Data Type is Byte and Data Length is 1 Word , when it used for double word Numeric Entry, it will occupy for addresses IB3,IB4,IB5 and IB6，order from highest to lowest byte is IB5,IB6,IB3 和 IB4.
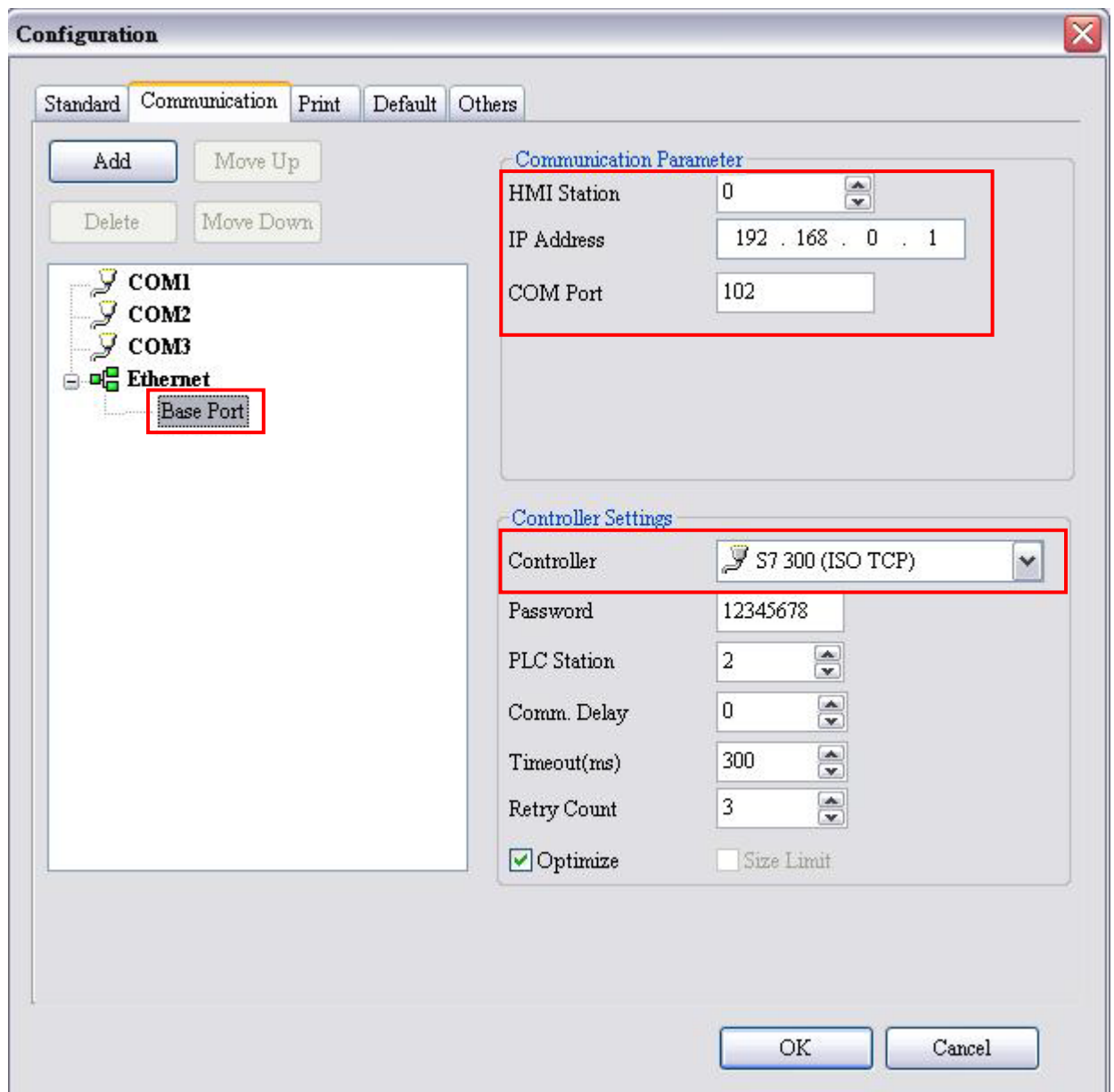
Settings

Screen Editor :

1. HMI Ethernet Setting
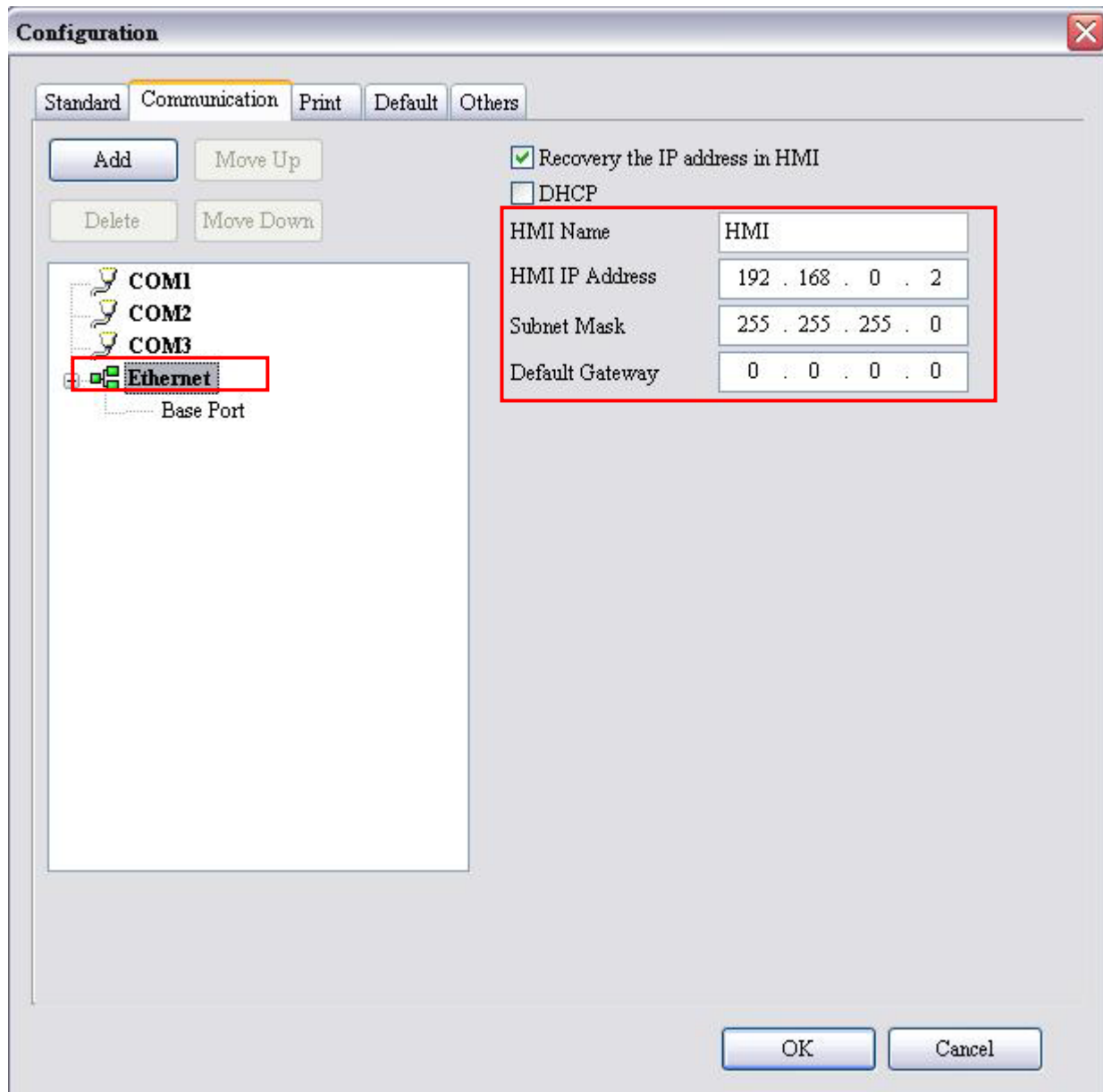
2. PLC Ethernet Setting

Simatic (V5.4) :

1. Right click on "CP343-1 Lean" module and select "Object Properties", on this page set up "IP address" and "Subnet mask" for CP343-1 Lean Module. Please be aware that the "IP address" setting must be the same as PLC Ethernet setting in Screen Editor and the "Subnet mask" setting must be the same as the HMI Ethernet setting in Screen Editor.

2. To add a new "Other station", right click on "Object Properties", add a new Interface and set the "Type" as "Industrial Ethernet". To set up HMI "IP address" and "Subnet mask", go to "Ethernet interface" > "Properties", please be aware that this setting must be the same as the HMI Ethernet setting in Screen Editor. As the setting is completed, left click on the green box above "Other station" and drag to link with the green line above.

3. Right click on the CPU module and select "Insert New Connection", for "Connection Partner" select "Unspecified" and for "Type" select "TCP connection". Then go to "Properties - TCP connection" >"Options", and set "Mode" to "Fetch passive"; please follows the restriction for "Address" setting, set "Address" to Local Port No. must be the same as PLC Ethernet setting in Screen Editor, to Partner's IP must be the same as HMI Ethernet setting in Screen Editor, but Port No. can be any Port No. depending on the structure of network connection.

4. Right click on another CPU to add a new "TCP connection" and repeats setting 3, except the "Mode", go to "Options" > "Mode" and select "Write passive".

5. After setting 1~4 is done, you will see two "TCP connection" at the bottom of PLC Ethernet setting page. PLC Ethernet setting is completed.

6. For detail on parameter setting, please refer to Siemens PLC user manual.