

Astraada HMI <-> TTY Siemens S5 Series

Preface

This tech note introduces how to connect **Siemens S5 Series TTY current Loop RS232 CPU Port** with Astraada HMI.



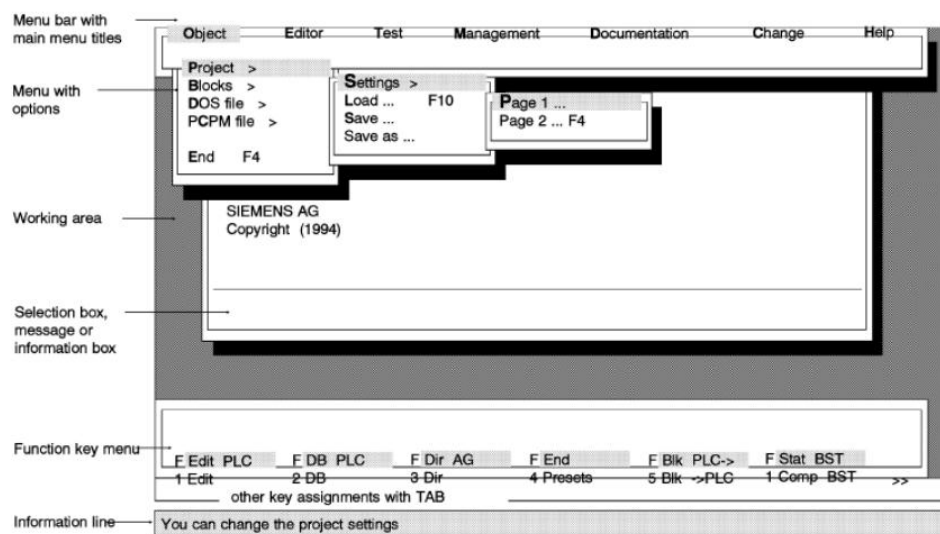
CPU Port

Siemens S5 PLC

1) PLC Data Block Setting:

(a) Below is the Step5 software environment:

STEP 5 functions are activated using the menu bar with its main menus and submenus. With either the mouse or keyboard, you can select the tools and utilities you require for your session. If you prefer to continue using the function keys as in previous STEP 5 versions, you can, of course, do so.



(b) S5 TTY Program Cable:



or

(c) DB editor environment:

The input fields of the DB editor

(1) DB field

This displays the block number (here: DB 2) that you entered when you filled in the job box.

(2) Program file

This field displays the drive and the name of the program file (here: drive C: with the program file DATA@@ST.S5D).

(3) LIB field

In this field you can input a maximum 5-digit long DB library number (number from 0 to 99999).

(4) LEN field

This field displays the block length in data words, including the block header. The number after the slash is the length of the DB preheader. This display is updated whenever you enter a complete line. The figure below shows the editing field of the DB editor with the softkeys of the basic menu and a displayed data block.

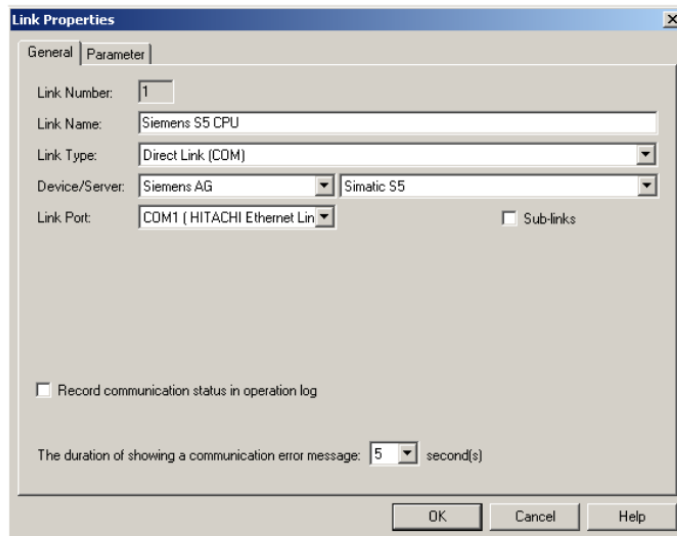
(1) DB2	(2) C:DATA@@ST.S5D	(5) LIB=	(3) LEN = 37 / 22	(4)
(6)(7)	(8)(9)	(10)	(13)	
Data block title				
(11)(12) Data word comment				
1:	KH = FFFF;		Hex number, upper limit	
2:	KF = - 32768;		Fixed point no., lower limit	
3:	KF = +32767;		Fixed point no., upper limit	
4:	KG = - 1469368 - 38;		C Floating point no., lower limit	
6:	KG = +1701412+39;		Floating point no., upper limit	
8:	KT = 001.0;		Timer value /time base 0.1s	
9:	KT = 999.3;		Timer value/time base 9990 s	
10:	KC = 000;		Counter value, lower limit	
11:	KC = 999;		Counter value, upper limit	
12:	KY = 000.001;		Byte or address of a DB	
13:	KY = 255.255;		Byte or address of a DB	
14:	KM = 00000000 00000000;		Bit pattern, lower limit value	
15:	KM = 11111111 11111111;		Bit pattern, upper limit value	
16:	KS = 'Text lines with 25 chars';		ASCII characters enclosed in ' '	
28:	S = 'ENDE';		ASCII characters enclosed in ' '	
30:				
F	F	Lib no	F	Line back
F	F	Line fwd	F	Title
F	F	Comment	F	Help
1 Expand DC	2 Delete DC	3 Expand DF	4 Delete DF	5 KG test
6	7 Enter	8 Cancel		

(5) <i>Title field</i>	Here, you can enter a maximum 32-character long title for the data block.
(6) <i>DW number field</i>	This displays the number of the data word (DW). If the format involves several DWs, the number of the lowest DW is displayed. You can jump to the last data word of the data block by selecting the last DW number or a number higher than the last DW number.
(7) <i>" : " field</i>	Both at this point and in the format field you can insert or delete lines using the function keys. If you delete a line, the whole line including the comment is deleted. When you exit the line with the cursor, all following DW numbers are updated.
(8) <i>Repetition factor field</i>	<p>With the repetition factor, you can reproduce 1 up to a maximum of 12 DWs with the same format. The repetition factor specifies how often the marked block of data words will be entered in the DB. The highest possible repetition factor is 255. All the data words up to and including the cursor position are repeated. The following DW numbers are updated automatically. Data word comments are not reproduced, they remain in their old position.</p> <p>Before executing a repetition factor, the DB editor checks whether the number of DWs to be reproduced plus the existing DWs will exceed the maximum number of 2043 DWs (without DB header). If this is the case, STEP 5 displays the message : "Memory or internal buffer full". The function is then not executed.</p>
(9) <i>Format field</i>	You input the DW format you require in this field. If the field is already displaying a format, you can overwrite it. If a format cannot be represented, the identifier "F" appears in the format error field. If you convert a format that requires several DWs (KG), the next DW is also converted. If several DWs can be represented by a single DW (S, KS) only one DW will be converted.
(10) <i>Editing area</i>	Here, you input data in the current format. If non-interpretable data occur when you change a format, this is indicated in the error field by "F".
(11) <i>Format error field</i>	An "F" in this field indicates that an error occurred when interpreting the DW in the specified format.
(12) <i>Comment display field</i>	With data formats requiring several DWs (KS, S, KG), a comment allocated to a DW that is not the first DW cannot be displayed on the screen. A "C" indicates these " suppressed " comments.
(13) <i>Comment field</i>	Here, you can input a data word comment, if required, for each data word. This is a text up to a maximum of 32 characters long. After the 32nd character, the cursor jumps to the beginning of the comment line again. You can exit the comment line by pressing the Return key. You can only display "suppressed" comments by changing the data format.

NOTE : If you need to know the detail PLC operation, please refer to the operation manual of the Siemens S5 PLC

2) HMI Setting:

Select **【 Direct Link (COM) 】** & **【 Device/Server : Siemens AG → Simatic S5 】**

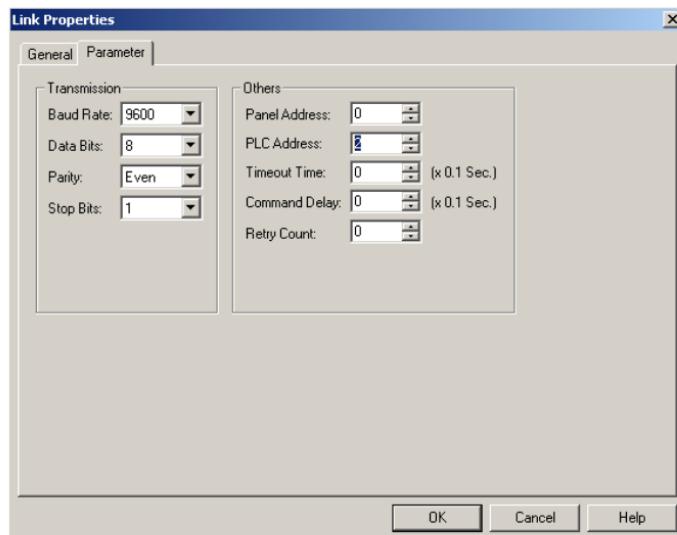


The 'Link Properties' dialog box, General tab, shows the following settings:

- Link Number: 1
- Link Name: Siemens S5 CPU
- Link Type: Direct Link (COM)
- Device/Server: Siemens AG (dropdown), Simatic S5 (dropdown)
- Link Port: COM1 (HITACHI Ethernet Lin) (dropdown)
- ☐ Sub-links
- ☐ Record communication status in operation log
- The duration of showing a communication error message: 5 second(s)

Buttons: OK, Cancel, Help

Set the linking parameter same like below setting.



The 'Link Properties' dialog box, Parameter tab, shows the following settings:

- Transmission:**
 - Baud Rate: 9600
 - Data Bits: 8
 - Parity: Even
 - Stop Bits: 1
- Others:**
 - Panel Address: 0
 - PLC Address: 2
 - Timeout Time: 0 (x 0.1 Sec.)
 - Command Delay: 0 (x 0.1 Sec.)
 - Retry Count: 0

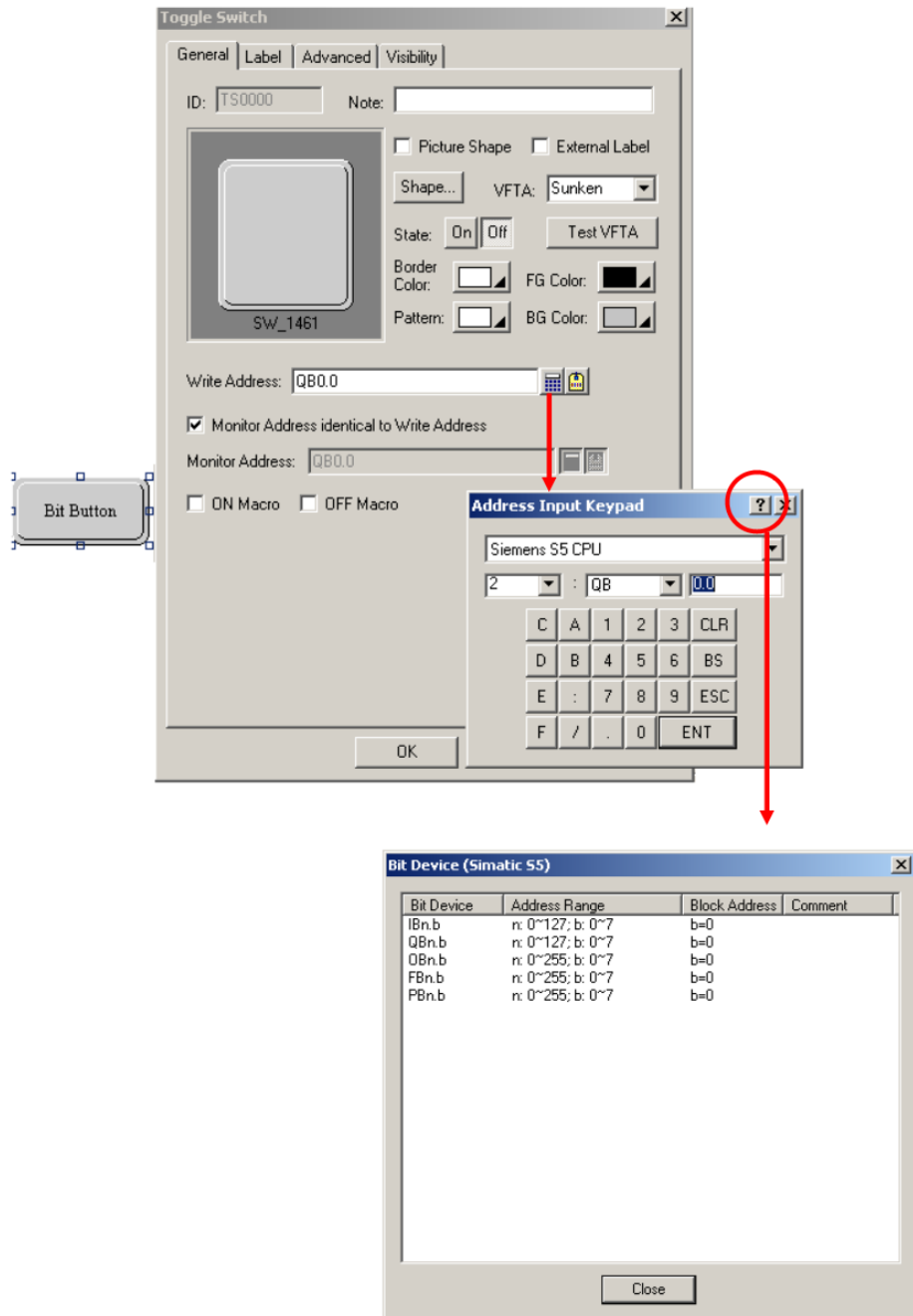
Buttons: OK, Cancel, Help

According to the different CPU type, please set the PLC Address with different number like below:

0: 90U	1: 95U	2: 100U	3: 102U	4: 103U
5: 115U	6: 135U/921	7: 135U/922	8: 135U/928	

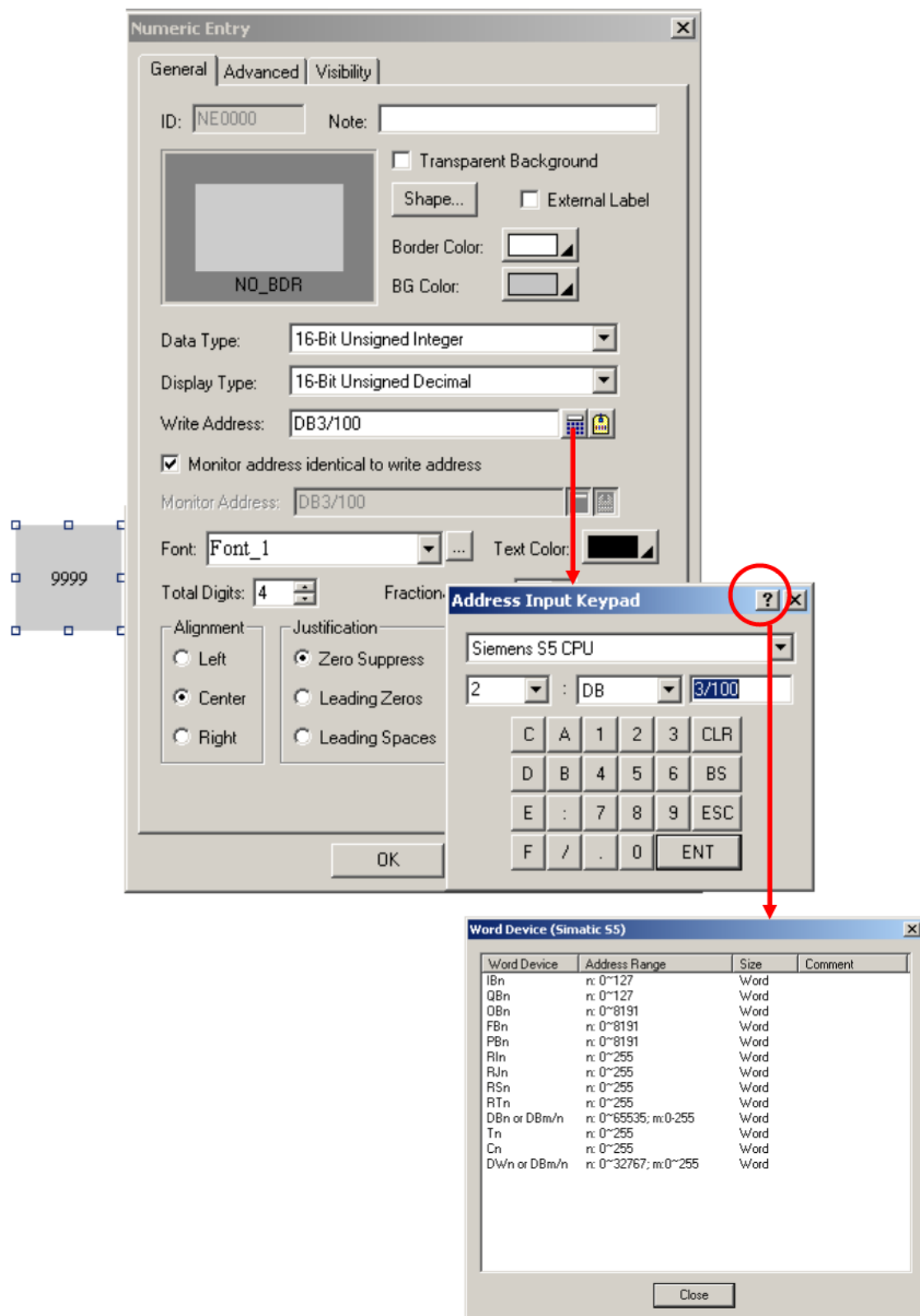
3) PLC Address

Bit Devices:



When you create any "Bit Object", you can press the "?" to know its device range and setting format.

Word Devices:



When you create any “Word Object”, you can press the “?” to know its device range and setting format.