Communication Settings:

Siemens S7-200 (CPU 212)

and

IDEC Touchscreens (5.7"HG2F, 10.4" HG3F, 12.1" HG4F)

Introduction:

The information here will help you configure the Idec toucschreens (5.7" HG2F, 10.4" HG3F, or 12.1" HG4F) and the Siemens S7-200 PLC using S7-200(PPI) protocol. For other supported Siemens PLCs and its communication settings/range of addresses, please refer to WindO/I-NV2 manual. Select "Host Interface" then Connection to a PLC.

http://www.idec.com/Products/ENG/PDF/manuals/WindOI/V282/English/mainmenue.pdf





S7-200 (RS-485) to HG2F/2S/3F/4F

9 Pin Male Connector

25 Pin Male Connector

COMMUNICATION SETTINGS:

5.4.1 S7-200

The communication port settings for S7-200 and HG series host port are as follows.

Items	Details
PLC Address	1 to 126(Dec) (0 to 7e (Hex))
	Set the value to same value as ADDRESS(PLC) in WindO/I-NV2.
Highest Address	1 to 126(Dec) (0 to 7e(Hex))
(Highest Station Address)	Set the value to same value as HSA in WindO/I-NV2.
Baud Rate(bps)	9600 / 19200
	Set the value to same value as Baud Rate in WindO/I-NV2.
HG Address	0 to 7e (Hex) (0 to 126(Dec))
	Set the value as ADDRESS(HG) in WindO/I-NV2.
Data Bits(bit)	8 (fixed)
	Set the value in WindO/I-NV2.
Parity	EVEN (fixed)
	Set the value in WindO/I-NV2.
Stop bit(bit)	1 (fixed)
	Set the value in WindO/I-NV2.

Ŷ

 Set the communication port that communicates with HG2F/2S/3F/4F to PPI/Slave mode. Please make sure to set SMB30 or SMB130 values to 0 in order to select proper communication port settings. Refer to the manual of S7-200 for details.

We checked the following problems in some versions of S7-200.
When S7-200 is set as the master and the address of S7-200 is the same as HSA, token path does not work correctly.

This problem can be solved by setting HSA as a larger value than Address actually used. This problem does not occur when one HG2F/2S/3F/4F is connected to one S7-200 PLC.

AVAILABLE ADDRESSING :

S7-200

Bit Device

Device Name	HG Device Symbol	PLC Device Symbol	Address range	Read /Write	Address Gradual
Variable memory	v	V	0 to 102397	R/W	(*1)
Process-image-input-register	I	I	0 to 157	R	(*1)
Process-image-output-register	ବ	Q	0 to 157	R/W	(*1)
Bit memory	м	М	0 to 317	R/W	(*1)
Special Memory	SM	SM	0 to 5497	R	(*1)
Timer (Bit)	Т	Т	0 to 255	R	Dec
Counter (Bit)	С	С	0 to 255	R	Dec
Sequential control relay	S	S	0 to 317	R/W	(*1)

Word Device

Device Name	HG Device Symbol	PLC Device Symbol	Address range	Read /Write	Address Gradual
Variable memory	vw	vw	0 to 10238	R/W	(*2)
Timer (Current Value)	TW	Т	0 to 255	R/W	Dec
Counter (Current Value)	CW	С	0 to 255	R/W	Dec
Process-image-input-register	IW	IW	0 to 14	R	(*2)
Process-image-output-register	QW	QW	0 to 14	R/W	(*2)
Bit memory	MW	MW	0 to 30	R/W	(*2)
Special Memory	SMW	SMW	0 to 548	R	(*2)
Analog input	AIW	AIW	0 to 62	R	(*2)
Analog output	AQW	AQW	0 to 62	R/W	(*2)
Sequential control relay	SW	SW	0 to 30	R/W	(*2)
High speed counter	HC	HC	0 to 51	R	(*3)

 The devices (V, I, Q, M, SM, S) which include a period in the address in S7-200 are written without a period in HG2F/2S/3F/4F.

- For example, V10.1 is written as V101 in HG2F/2S/3F/4F.

- AC(Accumulator registers),L(Local memory) of PLC Devices can not use in HG2F/2S/3F/4F.

The value of High speed counter which is a double word value is divided into two, and is treated as WORD device in HG2F/2S/3F/4F.

The higher word is written by adding 0 to the lowest digit of the address, the lower word is written by adding 1 to the lowest digit of the address.

For example, the lower word of HC1 is written as HC11 in HG2F/2S/3F/4F.

If you read in a double word value, The lowest digit of the address write 0 . For example, HC2 is written as HC20 in HG2F/2S/3F/4F.

- (*1) The 1st figure is written with the number of octal number, and the 2nd [or more] figure is written with the number of decimal.
- (*2) Only even number can be specified.
- (*3) The 1st figure is written with the number of binary number, and the 2nd [or more] figure is written with the number of decimal.

Requirements for testing:

- 1. Cable part no. HG9Z-XCM1A (programming cable between PC and HG2F/3F/4F)
- 2. Cable part no. HG9Z-2C155A (cable between Siemens S7-200 and HG2F/3F/4F)
- 3. Cable part no. PC/PP1 (programming cable between PC and Siemens S7-200)
- 4. HG9Y-ZSS2W (WindO/I-NV2 programming software for HG2F/3F/4F)
- 5. Siemens programming software called Step 7 Micro/WIN 32 (Windows based)

Step 1: Software for Siemens S7-200 (Step 7 Micro/Win 32)

- 1. Siemens PLC used in this program: S7-200 CPU212
 - a) Connect partnumber PC/PPI cable from PC to Siemens S7-200.

The cable dip switches are set to 1=off, 2=on, 3=off, 4=off, 5=off.

- 2. Launch Siemens programming software.
- 3. Select PLC Type.
- 4. Next, click on the Read PLC button to read your PLC type.
- 5. Click on the Communications button and the settings should appear.



6. Assign the Remote Address (in this testing, #2 is assigned).



7. Double click

Communications Links		/	
Com	munications	Setup	
	(PC/PPI cable(PPI) Address: 0	-
Double click the icon represe with.	enting the PLC to communicate	to Refresh	
Double click the interface icc parameters.	n to change communication		
Double click the modem icon parameters or dial to start mo	to setup the modem dem communications.		
	/		
Communication Paramete	ers		
Remote Address	2		
Local Address	0		
Module	PC/PPI cable (COM 4)		
Protocol	PPI		
Transmission Rate	9.6 kbps		
Mode	11-bit		
			-

- 8. In the Access Path, select PC/PPI cable (PPI).
 - a) Click the Properties button.

Set PG/PC Interface	
Access Path	
Access Point of the Application:	
Micro/WIN> PC/PPI cable(PPI)	_
(Standard for Micro/WIN)	
Interface Parameter Assignment Used:	
PC/PPI cable(PPI)	Properties
(None)	
PC/PPI cable(PPI)	
	Сору

9. Local Connection:

a) Assign the COM Port. Check your COM port before assigning the number.

Properties - PC/PPI cable(PPI) 🛛 🛛
PPI Local Connection	1
COM Port:	

10. PPI :

- a) Assign the station address (#0 is assigned for this test)
- b) Set the transmission rate at 9.6kbps
- c) Highest node addess is 31
- d) Click the OK button to exit from the Properties dialogue box

Prop. ties - PC/PPI cable(PPI)		×
PPI Local Connection		
Station Parameters		
Address:	O	3
Timeout:	1 s	•
Network Parameters Advanced PPI		
Multiple Master Network		
Transmission Rate: Highest Node Address:	3.5 KDps -	
OK Default	Cancel	Help

Now, create a simple logic by clicking on the normally open contact / output coil as shown below.

🚡 STEP 7-Micro	/WIN 32 - Project1					
File Edit View P	LC Debug Tools Windows Help					
12 🖻 🗿 🖉) D. X 🖻 🖻 🗠 🗹 🗹 🔺	▼ ₽↓ ₽	† Q, 🗰 🛛 I	• 💻 🎏 i	ब 📼 क्ल 📡	8 6 6 6
→ ± ← →	H F -O 1□ N _{HO} H _{HO} Ⅲ					
View		ER SIN	ATIC LAD			
Here Sh	AIN (OB1)		Name	Var Type	Data Type	Comr
	SBR_0 (SBR0)			TEMP		
Program Block	INT_0 (INT0)			TEMP		
	E			TEMP		
展				TEMP		
14. <u>4</u>	Data Block					
Symbol Table	System Block					
	Cross Reference	llet	work 1 NETWOR	K TITLE (single)	line)	
	Communications		10.0	Q0.0		
L	i ⊡ · 🔁 Instructions			' N		
Status Chart	🖹 🗐 Bit Logic			· /		
<u></u>	I	Net	work 2			

Download the project by selecting File-Download.

	P 7-Mic	ro/W	IN 32 -	Proj	ect1		
File E	dit View	PLC	Debug	Tools	; Windo	WS	Help
New Oper Close	n B		Ctrl+ Ctrl+	N O	ы <mark>ж</mark> ю	🖸	
Save Save Impo	e As ort		Ctrl+	S	CPU 212 im Block AIN (OB1	01.0	1)
Expo	ort				T_0 (INT	0) '0)	
Uplo	ad		Ctrl+	U)I Table Chart		
Dow	nload	\mathbf{x}	Ctrl+	Ð	3lock		
Page Print	Setup Preview				n Block Referenc	e	

In the Download dialog box, follow all settings as shown in the image below and then click the OK button to download.

Download	
Remote Address Remote PLC Type Blocks to Download Program Block Data Block System Block	2 CPU 212 01.01
	OK Cancel

Step 2: WindO/I-NV2 SOFTWARE

- 1. Connect programming cable to PC and HG2F/3F/4F
- 2. Launch the WindO/I-NV2
- 3. Select File/New Project

20 V	VindO/I-NV2		
<u>F</u> ile	<u>O</u> nline <u>H</u> elp		
<mark>6</mark> ۲	<u>N</u> ew Project	Shift+N	
e	<u>O</u> pen Project	Shift+O	

4. Create a project name. In this example the project name is Siemens HG program. Select the Next button to continue. It will tell you to "create project...", select the OK button.

New Project	×
Project Name:	Siemens HG program
Project:	

5. Select the O/I and Model type. For testing purposes, HG2F is selected. Select the Next button to continue.

Select O/I Type				
	O/I Type: HG2F HG2F(CC Type) HG2S HG2S(CC Type) HG3F HG4F	Model: HG2F-SS22V* HG2F-SB22V*		
< Previous	Next >	Cancel Help		

6. In the Host I/F Driver, Siemens is selected for manufacturer and S7-200(PPI) for protocol. Click the OK button.

Select Host I/F Driver		
Manufacturer: SIEMENS	•	
Protocol:		
S7-200(PPI) S7-300 3964(R)/RK512		

7. In the Project Settings, select the Communication Interface tab.

- Under the Interface Configuration, select Serial 1 Host Communication.
- The Interface Settings are as shown in the image below.

Project Settings			
System Communication Interface Host I/F Driver Interface Configuration: Interface Protocol	Printer CF Card Interface Settings Protocol:	Project Details Contents	
0/I Link N/A SERIAL 1 Host Communic SERIAL 2 Printer USB N/A	Baud Rate: Data Bits: Stop Bits: Parity:	9600	
	Flow Control: Serial Interface:	None	

8. Next, select the Host/IF Driver tab: Make sure the settings in the Address [PLC], Address [HG] and HSA match with the settings in the Siemens PLC. In this example, the Address PLC and HG is assigned #2 and the HSA is # 31. These are the settings from the PLC (see Step 7 & 10 above)

Select OK button to continue.

Project Settings					
User Commur System	nication Communicatio	CF Card on Interface	Host I/F Driver		
0/I Type:	1G2F-SS22V* 61EMENS 67-200(PPI) - 1:	:1 communication			
PLC (Host) Transmission Wa Time Out (x100 m Retry Cycles: ADDRESS (PLC) ADDRESS (HG):	it (x 10 msec): nsec.): :		0 20 5 0x0002 0x0002		
HSA IZ			0x0031	3	

9. In Base Screen 1, select Pilot Lamp device and drop it on the screen.

Double click on the device to set the properties. In the General tab under Operation Mode, select No Blink.

= 1	Base Scr	een	
	SIE	MENS	S PROGRAM
			Properties of Pilot Lamp
	Read	Input	General View Registration Text Trigger Condition Corr
		n et s	Part Name: Lamp2
		<u>, , , , , , , , , , , , , , , , , , , </u>	r Operation Mode
			No Blink (only ON)
	• • •		C Blink (ON + Blink)
			Blink Trigger Device:
		15 et (

10. In the Trigger Condition tab, select While ON and for Device select I0.

💻 1 Base Screen						
SIEMENS PROGRAM						
Properties of Pilot Lamp						
Read Input	General View	Registration Text	Trigger Condition Co			
	TriggerType:	While ON	•			
	Device:	10				
	Commont					
	Comment:					

11. Once the settings are done, select the OK button to exit.

12. DOWNLOAD the project to the HG2F/3F/4F. Select Online-Download.

13. Now connect cable partnumber HG9Z-2C155A between the HG2F/3F/4F to Siemens PLC.

If you are able to view the pilot lamp switching on / off based on the Input from the PLC then the communication is successful. You may now continue with your project.