11.5.2 For Ethernet Communication

11.5.2.1 Ethernet (Configuring the robot controller)

Configure the robot controller from the teach pendant so that WINCAPSIII can communicate with the robot controller via Ethernet.

Make settings for the communication permission and IP address.







σκ)

Check the display contents and press OK. The permission setting becomes valid.

💾 🎯 🗊 🖞 HS -45351G	Joint WOTO 1%
Communication Permission Set	tings
COM1 (Pendant)	Read/write
COM2 (RS-232C)	Disable
СОМЗ	Disable
COM4	Disable
I/O Ports	Read/write
Ethernet	Read/write
	Cancel OK ff
F5: Change the selection, OK: Ex	it with saving
Conn.IP MultiIP	Change.

The screen returns to the Communications Setting Menu window.

💾 💰 😭 🖁	HS -45351G	Joint W 0	тө	1%
Communication	s Setting Menu			
2		2	Ŀ	
Permit. S [F1] [erialIF Modem F2] [F3]	Address [F4]	Gateway [F5]	
L		2		
HiSpeed! [F7]		Client [F10]	Server [F11]	Comm.buff [F12]
Cancel: Close t	his window			(C) SHORT CUT
● ▲ Permit.	SerialIF Mod	em Address	Gateway	



11.5.2.2 Setting Network Environment

To effect connection by EtherNet, it is necessary to set up Windows. The network environment setting procedures will be described here preconditioned on the fact that the network card (adapter) is installed and that the Internet protocol (RCP/IP) is effective.

First, check that the local area connection is effective.

Next, set up an IP address for the TCP/IP property.

Step 1 Select Settings and Control Panel in this order from the START of Windows.

The Control Panel window will appear on the screen.

File Edit View Favorites Tools	Help						æ
🔾 sack 🕤 🕥 r 🏂 🔎	Search 🔀 Fol	ders 🔝 -					
Address 🔂 Control Panel						× 🔁	Go
Control Panel	Ġ.	Ż	6	1	2	N	The second se
Switch to Category View	Accessibility Options	Add Hardware	Add or Remov	Administrative Tools	Automatic Updates	Broadcom Control Suite 2	
See Also 🌸	<i>9</i>	8	1	1	**		
Vindows Update		скорнау		Tons	Controllers	Driver for	
g rop and sopport	格	9	٤	الله الله الله الله الله الله الله الله	O		
	Internal NIC Configuration	Options	Java Plug-in	Keyboard	Mouse	Connections	1000000
	1		يله»	2	<u> </u>	<u>-</u>	
	Network Setup Wizard	Phone and Modem	Power Options	Printers and Eaxes	Regional and Language	Scanners and Cameras	

Step 2 On the above screen, click the icon "Network Connections."

The Local Area Connection icon appears as shown below.

If "Disabled" is displayed with the icon, move the pointer to the icon, click the right mouse button, and then select "Enable."

File Edit View Favorites To	ols	Advanced Help	
🕒 Back 🝷 🔘 🔹 🏂 🍃) se	arch 🌔 Folders 🛄 🔹	
ddress 🔇 Network Connections			💌 🄁 Go
Network Tasks	^	LAN or High-Speed Internet	
HECHOIR TUSKS			

Step 3 Place the pointer on the "Local Area Connection Properties" icon, click the right mouse button and select "Property."

The Local Area Connection Properties appears.

	Addientication	Auvanceu	
Connec	et using:		
III [3roadcom 440x 10/	100 Integrated Cc	Configure.
This co	nnection uses the f	ollowing items:	
🗹 🔓	🖁 QoS Packet Sche	eduler	
V 😵	AEGIS Protocol (I	EEE 802.1x) v3.1.0.	1
🗹 💙	Internet Protocol ((TCP/IP)	
<) >
	nstall	Uninstall	Properties
Desc	ription		
Tran wide acro	smission Control Pro area network proto ss diverse interconr	otocol/Internet Proto icol that provides co nected networks.	col. The default mmunication
C Ch-	w icon in notificatio	n area when connec	ted
alle 💽			

Step 4 In the Local Area Connection Properties window, select the General tab.

In the "This connection uses the following item:" area, press the Properties button with the Internet Protocol [TCP/IP] selected. The Internet Protocol (TCP/IP) Properties window appears.

Step 5 Select the General tab and click the "Use the following IP address:".

Then enter the IP address and the Subnet mask.

For the actual values of the IP address and subnet address, inquire to the network administrator in charge of the pertinent network.

If the network is local (for example, an environment for connecting the personal computer and the robot controller only), the IP address can be set as desired. Therefore, the IP address will be tentatively set here to 192.168.0.1 and the subnet address to 255.255.255.0.

Click on **OK** and the IP address setting is completed.

Note (1): When making connection to a wide area network (for example an in-house network), always inquire to the network administrator before setting the IP address and subnet mask.
If an IP address used for the local area network is connected to the wide area network (for example the in-house network) without first invalidating it, confusion may be occur in the connected network.

Note (2): No redundant IP addresses are allowed within the same network. When making a connection to a widely shared network, care should be taken not to allow an IP address to be redundant with another terminal. The following are examples of IP addresses that have the least probability of redundancy with another terminal: 192.168.0.2 to 192.168.0.xxx (xxx represent 003 to 999.)

General		
You can get IP settings assigned this capability. Otherwise, you ne the appropriate IP settings.	d automatically if your network support sed to ask your network administrator I	rts for
🔘 Obtain an IP address autor	natically	
💿 Use the following IP addres	ss:	
IP address:	192.168.0.2	
Subnet mask:	255 . 255 . 255 . 0	
Default gateway:		
Obtain DNS server address Obtain DNS server address Output Output	s automatically ver addresses:	
Preferred DNS server:		
Alternate DNS server:		
	Advanced	ad
	OK Ca	ancel

11.5.2.3 Ethernet (Configuring WINCAPSIII)

Configure the PC in WINCAPSIII so that WINCAPSIII can communicate with the robot controller via Ethernet.

The interface can be also specified with the WINCAPSIII Project wizard (see Section 11.3.2, step 5). Even after the wizard is finished, the interface can be changed with the procedure given below.

STEP 1 Choose Project | Properties to display the Property window and then choose the Communications setting tab.

See OEthnet	○ <u>R</u> S-232	2C Port: [COM:1	
IP address:		Eaud rate:	38400	~
192 . 168 .	<u>, , , , , , , , , , , , , , , , , , , </u>	Parity Bit:	E - Even parity	*
		Data bits:	8	~
		Stop bits:	1	~
Diption Timeout (I) Retry (C)	0	[3	3000 ms 3 times	

STEP 2 Make sure that Ethernet is selected and enter the IP address of the robot controller.

	Landa -
Communication setting Compile Var	iable I/O
⊙Ethnet	O <u>R</u> 5-232C
IP address:	Eort: COM:1
192 . 168 . 0 . 1	Baud rate: 38400
	Parity Bit: E - Even parity 💌
	Data bits: 8
	Stop bits: 1
Timeout (T)	3000 ms
Potry (C)	
Keu y (C)	
	OK Cancel
	Communication setting Compile Var Ettpret IP address: 192 , 168 , 0 , 1 Timeout (I) Retry (C)

STEP 3 Specify the timeout period and the number of retries, and then press OK. The communications setting for the PC has been completed.

11.6 Transmitting Data with WINCAPSIII

Before transmitting data (sending/receiving data between the robot controller and WINCAPSIII), it is necessary to make the communication permission settings and to check the controller operation status. Depending on the controller status, data transmission may fail.

11.6.1 Preparation in the Controller (Precautions for Transferring Data)

- (1) Check that no error message is displayed on the teach pendant screen.
- (2) Check that the permission settings for the communications port to be used (for RS232C or EtherNet) is "Read/write."

Note: If "Read only" is selected, transmitting data will cause the ERROR200B ("Configuration transmission failure").

(3) Depending on the combination of ON/OFF status of the robot controller motor and the operation mode selected, transmitting data may not be possible, as shown in the table below.

Status		С	ontroller op	eration mod	le	
	Motor	External Auto	Internal Auto	Manual	Teach	Remarks
PAC	ON	Ν	Ν	N	N	Y ¹ : Programs are not saved
programs	OFF	Ν	Y1	Y	Y1	automatically.
Variable	ON	Ν	Y	Y	Y	
variable	OFF	Ν	Y	Y	Y	
1/0	ON	Ν	Ν	N	Ν	
1/0	OFF	Ν	Y	Y	Y	
A	ON	N	Y2	Y2	Y ²	Y ² : Only tool, work, and area
Arm	OFF	N	Y	Y	Y	data can be transmitted.

Y: Transmission possible, N: Transmission impossible

Note (1): WINCAPSIII can receive data regardless of the ON/OFF status of the controller motor and the controller operation mode.Note (2): Receiving data during program execution will slow down the program execution.

(4) Check that neither the Program list window nor Select Variable type window is displayed on the teach pendant screen.

11.6.2 Transferring Program Data to the Robot Controller

At present, the execution program complied in this Chapter so far is still in the PC. To run the program, it is necessary to transmit (upload) it to the robot controller.

STEP 1 In WINCAPSIII, choose Connect | Transfer data to display the following window.



STEP 2 In the WINCAPSIII pane, choose Program | Source file to display the programs held in WINCAPSIII.

Image: Control (Control (Contro) (Control (Contro) (Control (VINCAPS III		Controller
	Cocal data 'SAMPLE-002' Cocal data 'SAMPLE-0	Send -> <- Beceive Cancel	Controller '10.8.102.128' Controller '10.8.102.128' Control Program Control Program Con

STEP 3 Select Program and press Send.

(INCAPS III		Controller
Local data 'SAMPLE-002' Conce file Variant pick-place01.pac pick-place02.pac pick-place02.pac v Executable file / Map file Variable Variable Parameter	Send -> <- Receive Cancel	Controller '10.8.102.128'

STEP 4 Wait for the confirmation dialog to appear. Press Yes to transfer the data to the robot controller.



STEP 5 Confirm that all of the data transfer results are Finished.

STEP 6 On the teach pendant, press [F1 Program] to display the Program List window. Check that programs transferred are shown in the list.

The program transfer to the robot controller has been completed.