Pro-face

DIGITAL
Human Machine Interface

Device/PLC Connection Manuals

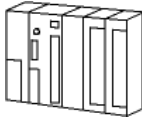## About the Device/PLC Connection Manuals
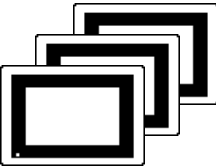
Prior to reading these manuals and setting up your device, be sure to read the "Important: Prior to reading the Device/PLC Connection manual" information. Also, be sure to download the "Preface for Trademark Rights, List of Units Supported, How to Read Manuals and Documentation Conventions" PDF file. Furthermore, be sure to keep all manual-related data in a safe, easy-to-find location.
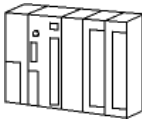
GE Fanuc Automation Ethernet
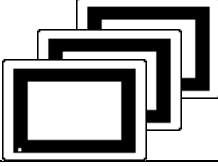
1 System Structure

The following describes the system structure used when connecting the GP/GLC to the GE Fanuc PLC.

■ Series 90-30
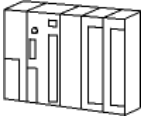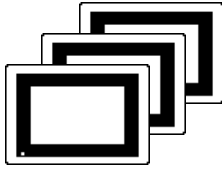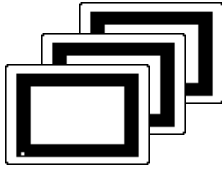
CPU	Link I/F	Cable	Supported Models [1]
	Ethernet unit	↔	
CPU311, CPU313 CPU323, CPU331 CPU340, CPU341 CPU350, CPU351 CPU352, CPU360 CPU363, CSE311 CSE313, CSE323 CSE331, CSE340	IC693CMM321	Ethernet Cable IEEE802.3 standard	GP/GLC Series Factory Gateway
CPU364, CPU374	Ethernet I/F on CPU unit		

■ Series 90-70

CPU	Link I/F	Cable	Supported Modles [1]
	Ethernet Unit	↔	
CPU731, CPU771, CPU772, CPU780, CPU781, CPU782, CPU788, CPU789, CPM915, CPM925, CPM790, CSE784, CSE924, CSE925, CPX772, CPX782, CPX928, CPX935, CGR772, CGR935	IC697CMM742	Ethernet Cable IEEE802.3 Satndard	GP/GLC Series Factory Gateway

1 When using GP/GLC and the optional Ethernet I/F unit, refer to the following List of Connectable GP/GLC Units.

■ RX7i

CPU	Link I/F	Cable	Supported Models [*1]
CPE010 CPE020 CRE020	Ethernet I/F on CPU unit	Ethernet Cable IEEE802.3 Satndard	GP/GLC Series Factory Gateway

*1 When using GP/GLC and the optional Ethernet I/F unit, refer to the following
   List of Connectable GP/GLC Units.

◆ Compatible GP/GLC Types

Series		Product Name	Optional Ethernet Unit	Built-in Ethernet Port
GP77R Series	GP-377R Series	GP-377RT	○ [*1][*2]	X
	GP-477R Series	GP-477RE	○ [*2]	X
	GP-577R Series	GP-577RS	○ [*2]	X
		GP-577RT	○ [*2]	X
GP2000 Series	GP-2300 Series	GP-2300L	X	○
		GP-2300T	X	○
	GP-2400 Series	GP-2400T	X	○
	GP-2500 Series	GP-2500L	○ [*3][*4]	○
		GP-2500S	○ [*3][*4]	○
		GP-2500T	○ [*3][*4]	○
	GP-2501 Series	GP-2501S	○ [*2][*3]	X
		GP-2501T	○ [*2][*3]	X
	GP-2600 Series	GP-2600T	○ [*3][*4]	○
	GP-2601 Series	GP-2601T	○ [*2][*3]	X
GLC2000 Series	GLC2300 Series	GLC2300L	X	○
		GLC2300T	X	○
	GLC2400 Series	GLC2400T	X	○
	GLC2600 Series	GLC2600T	○ [*3][*4]	○
Factory Gateway		—	X	○
ST Series		ST403	X	○

*1 Only Multi unit can be used.

*2 The 2-Way Driver (Pro-Server, GP-Web and others) cannot be used.

*3 When using optional Ethernet I/F unit, a bus conversion unit (PSL-CONV00)
   is required.

*4 Using the optional Ethernet I/F unit allows you to set up separate Class and
   Net No.s for 2-Way Driver applications (Pro-Server, GP-Web and others)
   and the PLC. When doing this, data transfer with the PLC is performed through
   the optional Ethernet I/F Unit.

Note:
- **For cable connection and Optional Unit information, refer to the User Manual for each optional unit. For GP2000 and GLC2000 series units, refer to that unit's User Manual.**

◆**Connection Structure**

<1 : 1 connection>

GP/GLC Series   Series 90-30/90-70/RX7i

10BASE-T Cable

Built-in Ethernet Port
or
Optional Units
•EGP070-ET41
•EGP377-MLTE11
•EGP377-MLTE41
•EGP077-MLTE41

HUB

<n :1 connection>
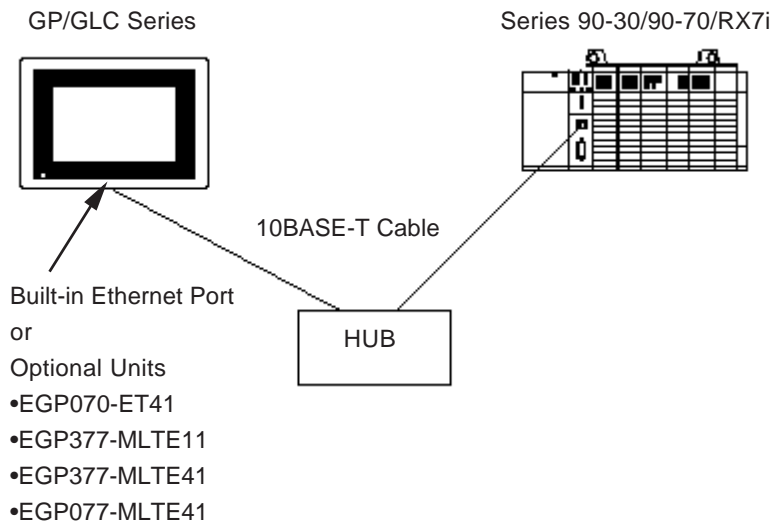
Series 90-30 : Up to 32 units per a PLC unit
Series 90-70/RX7i : Up to 16 units per a PLC unit

GP/GLC Series   GP/GLC Series   Series 90-30/90-70/RX7i

. . . .

10BASE-T Cable

Built-in Ethernet Port
or
Optional Units
•EGP070-ET41
•EGP377-MLTE11
•EGP377-MLTE41
•EGP077-MLTE41

HUB
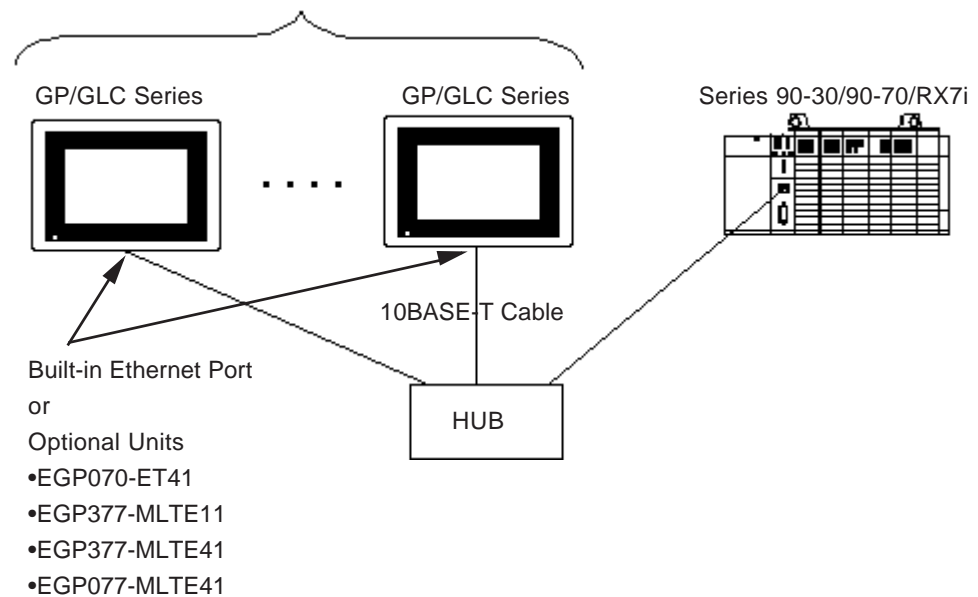
Important
- ***When connecting plural units of Series 90-30, CPU with V6.50 and more is required.***

  The version of CPU can be checked from the [Status Info] menu of ladder software.

*1 In RX7i, 2 Ethernet I/Fs have been installed and any of them can be connected.

3

2	Supported Devices

The following list shows the range of devices supported by the GP/GLC.

■ Series 90-30/90-70/RX7i

⬚⬚⬚⬚ Setup System Area here.

Device	Bit Address	Word Address	Particulars	
Input Relay (I)	I0001 ~ I32768	I00001 ~ I32753	÷16+┃	
Output Relay (Q)	Q00001 ~ Q32768	Q0001 ~ Q32753	÷16+┃	
Internal Relay (M)	M00001 ~ M32768	M0001 ~ M32753	÷16+┃	
Global Relay (G)	G0001 ~ G7680	G0001 ~ G7665	÷16+┃	
Momentary Relay (T)	T0001 ~ T1024	T0001 ~ T1009	÷16+┃	
System Function Relay (SA)	SA001 ~ SA128	SA001 ~ SA113	÷16+┃	L/H
System Function Relay (SB)	SB001 ~ SB128	SB001 ~ SB113	÷16+┃	
System Function Relay (SC)	SC001 ~ SC128	SC001 ~ SC113	÷16+┃	
System Function Relay (S)	S001 ~ S128	S001 ~ S113	÷16+┃ *1	
Register (R)	---	R00001 ~ R32640	Bit┃5┃	
Analog Input (AI)	---	AI0001 ~ AI32640	Bit┃5┃	
Analog Output (AQ)	---	AQ0001 ~ AQ32640	Bit┃5┃	

(Continued on following page.)

*1 Data cannot be written to this relay. If data is written, a host communication error (02:02:05) will be displayed.

⚠ **Important** ***Depending on the CPU used, the devices address ranges may differ.***

■ **Series 90-30/90-70/RX7i** (Continued from previous page)

Device	Bit Address	Word Address	Particulars	
Word (W)	---	W0000001 ~ W0065536 W0065537 ~ W0131072 W0131073 ~ W0196608 W0196609 ~ W0262144 W0262145 ~ W0327680 W0327681 ~ W0393216 W0393217 ~ W0458752 W0458753 ~ W0524288 W0524289 ~ W0589824 W0589825 ~ W0655360 W0655361 ~ W0720896 W0720897 ~ W0786432 W0786433 ~ W0851968 W0851969 ~ W0917504 W0917505 ~ W0983040 W0983041 ~ W1048576 W1048577 ~ W1114112 W1114113 ~ W1179648 W1179649 ~ W1245184 W1245185 ~ W1310720 W1310721 ~ W1376256 W1376257 ~ W1441792 W1441793 ~ W1507328 W1507329 ~ W1572864 W1572865 ~ W1638400 W1638401 ~ W1703936 W1703937 ~ W1769472 W1769473 ~ W1835008 W1835009 ~ W1900544 W1900545 ~ W1966080 W1966081 ~ W2031616 W2031617 ~ W2048000	Bit15] [*2	L/H

*2 *Word (W) are each 65536 words on your GP application.*

   Therefore, you cannot extend over more than a single data block when per-forming some features.

   For example, when using the following features, be sure to set these features' settings so they are within a single data block.

   1) "a-tag" settings

   2) Block Write/Read from Pro-Server

   3) Designating the "Convert from Before" and "Convert to After" addresses for t   h   e "Address Conversion" features.

   4) PLC Device Read/Write using D-Script's Memory Operation Feature

   5) Write from SRAM to PLC Device using Filing Data Feature

⚠ **Important**
- **Depending on the CPU used, the devices address ranges may differ.**

- **Word (W) can be used for RX7i only.**

3   Environment Setup

■ GP Settings

The GP's Ethernet communication settings are as follows.

◆ SET UP OPERATION SURROUNDINGS Menu

```
SETUP OPERATION SURROUNDINGS MENU              [ RETURN ]


         [ 1 ]    SETUP OPERATION SURROUNDINGS
         [ 2 ]    SETUP ETHERNET INFORMATION
         [ 3 ]    SETUP ETHERNET EXT. INFORMATION
```

◆ SET UP ETHERNET INFORMATION

Select "SETUP ETHERNET INFORMATION," and then enter the necessary information for each item.

```
SETUP ETHERNET INFORMATION              [ SET ]  [ CANCEL ]

    SRC IP ADDRESS        [     ].[     ].[     ].[     ]

    SRC PORT NO.          [     ]

    DEST IP ADDRESS       [     ].[     ].[     ].[     ]

    DEST PORT NO.         [     ]



  [  ][ 1 ][ 2 ][ 3 ][ 4 ][ 5 ][ 6 ][ 7 ][ 8 ][ 9 ][ 0 ][  ][  ][ ↑ ][ ↓ ][ BS ]
  [  ][  ][  ][  ][  ][  ][  ][  ][  ][  ][  ][  ][  ][ ← ][ → ][  ]
```

- **SRC IP ADDRESS**

  Enter the IP address for the GP at your station. To do this, separate the 32 bits of the IP address into four segments of eight bits each, delimit those segments with a dot, and then enter them as decimal numbers.

- **SRC PORT NO.**

  Enter your station port number in the range from 1024 to 65535.

- **DEST IP ADDRESS**

  Enter the PLC IP address.

- **DEST PORT NO.**

  Enter the PLC port number. Set the PLC port number to 18245.

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STOP For the IP addresses, check with the network manager. Do not specify any duplicate IP addresses.

⚠ Important *When using the built-in Ethernet port on a GP2000 or GLC2000 series unit, be sure not to set any duplicate "SRC PORT No." values.*

Check the 2-Way driver's "SRC PORT No." setting via the following menu:

GP OFFLINE mode's Main menu [INITIALIZE] -> [SETUP OPERATION SURROUNDINGS] -> [EXTENDED SETTINGS] -> [SETUP ETHERNET INFORMATION].

The default value is 8000. The 2-Way driver uses this port and the following 9 ports (8000 ~ 8009).

◆ **SET UP NETWORK EXT. INFORMATION**

```
SETUP NETWORK EXT. INFORMATION              [ SET ]   [ CANCEL ]

    SEND WAIT TIME               [      ] (ms)

    TIMEOUT                      [      ] (x 2sec)

    IP ROUTER ADDRESS            [     ].[     ].[     ].[     ]

    SUBNET MASK                  [     ].[     ].[     ].[     ]



    [  ][ 1 ][ 2 ][ 3 ][ 4 ][ 5 ][ 6 ][ 7 ][ 8 ][ 9 ][ 0 ][  ][  ][ ↑ ][ ↓ ][BS]
    [  ][  ][  ][  ][  ][  ][  ][  ][  ][  ][  ][  ][  ][ ← ][ → ][  ]
```

- **SEND WAIT TIME (0 to 255)**

    Wait time can be added when a command is transmitted from the GP. Use the wait time if the traffic on the communications line is heavy. If no wait time is required, enter "0."

- **TIMEOUT (0 to 65535)**

    Enter the desired timeout value. If no response is received from the other station within the specified time, a timeout occurs. If "0" is specified, the default time is 15 seconds.

- **IP ROUTER ADDRESS**

    Enter the IP address of the router (only one). If no router is used, enter "0" in all fields.

- **SUBNET MASK**

  Enter subnet masks. If no subnet mask is used, enter "0" in all fields.

⚠️ **Important** *If the memory is initialized in the OFFLINE mode, random values may be included. Be sure to check the displayed values.*

■ PLC Settings

The communications settings for the GP/GLC, which are required for communications via the Ethernet, as shown below:

◆ **Series 90-30/90-70/RX7i**

GP/GLC Setting		PLC Setting	
SRC IP Address	GP IP Address *1	————	————
SRC Port No.	GP Port Number *2	————	————
Target IP Address	PLC IP Address *1	IP Address	PLC IP Address
Target Port No.	PLC Port Number *3	————	————

1 Contact your network administrator about setting values. When the SRC IP Address is 0.0.0.0, the IP address set in the 2-Way driver is effective.

2 When using the following function on a GP2000 Series unit, be sure not to use duplicate port number values. Check the 2-Way driver's port number setting via the following menu:

From the GP OFFLINE mode's Main menu [INITIALIZE] -> [SETUP OPERATION SURROUNDINGS] -> [EXTENDED SETTINGS] -> [SETUP ETHERNET INFORMATION].

The default value is 8000. The 2-Way driver uses this port and the following nine ports for a total of 10 (8000 ~ 8009).

3 Set the PLC Port Number to 18245.

📝 **Note:** • **Protocol Type is TCP/IP Connection.**

4 ▶ Error Codes

▽Reference▷ *About the GP Ethernet Specific Error Codes, refer to Device/PLC Connection Manual's "Protocol Stack Error Codes".*

■ PLC SPECIFIC ERROR CODES

The PLC error codes are displayed by the "Host Communication Error (02:**:##)", and are indicated in the left lower corner of the GP screen.

Error codes are displayed using 2-byte codes; Major Error Status Code and Minor Error Status Code.

"Host Communication Error (02 : ** : **)

Minor Error Status Code
Major Error Status Code
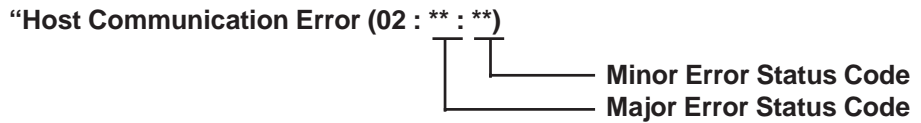
◆ Series 90-30/90-70

Major Error Status Code	Minor Error Status Code	Reason
02	05	Data is written in System Function Relay (S).
05	F4	Designated device is out side allowable range.

◆ RX7i

Major Error Status Code	Minor Error Status Code	Reason
05	E9	Data is written in System Function Relay (S).
05	90	Designated device is out side allowable range.

7.9 Protocol Stack Error Codes

Protocol Stack Error Codes are displayed on the GP as follows.

Host communication error (02:FE:**)

** represents one of the following error codes, from 00 to F0.

Error Code	Description	Notes
00	There is a setup error related to the IP address of your station at initialization.	
05	Initialization has failed.	
06	Cancelling of communications has failed.	
07	An attempt was made to establish a connection before initialization was successfully completed.	
08	Your station's port number is incorrect	
09	The destination station's port number is incorrect.	
0A	The IP address of the other station is incorrectl.	
0B	The same port number is already being used by UDP for establishing the connection.	
0C	The same port number is already being used by TCP for establishing the connection.	
0D	Protocol stack has refused connection establishment.	
0E	Protocol stack has returned the unsuccessful establishment of a connection.	
0F	The connection has been shut down.	
10	All connections are busy. No connection is available.	
13	Your station was aborted by a different station.	
30	There was no reply from the protocol stack.	
32	There was no reply from the other station.	*1 *2
40	No network infomation exists for the designated node.	*1
41	I/O memory type of the random read-out response data is incorrect.	*1
42	Network information does not exist.	
F0	Undefined error.	

*1   When using an OMRON Corporation CS1/CJ/CJ1M Series unit, the error code will appear on the GP screen as shown below. Also, behind the Ethernet error code will appear the designated Network and Node addresses.

Host Communication Error (02:FE:**:###:###)

Node Address (Decimal)
Network Address (Decimal)
Ethernet Error Code (Hex)
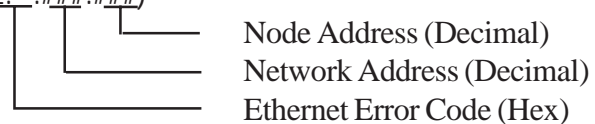
*2   When using a Hitachi Industrial Equipment Corporation's HIDIC H Series or a Schneider Corporation MODBUS TCP unit, the error code will appear on the GP screen as shown below. Also, behind the Ethernet error code will appear the designated Node address.

Host Communication Error (02:FE:**:###:###)

Node Address (Decimal)
Ethernet Error Code (Hex)