

GP-PRO/PBIII for Windows
Device/PLC CONNECTION MANUAL
ADDITIONAL MANUAL

Hitachi Corporation
S10V Series

Pro-face
Human Machine Interface —

Reading the GP-PRO/PBIII Device/PLC Connection Manual

This document is designed as an addition to the latest GP-PRO/PBIII for Windows Device/PLC Connection manual's Hitachi Corporation data.

When connecting a Factory Gateway unit, please substitute the words "Factory Gateway" for this document's "GP/GLC".

Installation

This CD-ROM includes all the protocol files required by the GP/GLC to communicate with a Hitachi Corporation S10V Series PLC. Also, you will need to have one or more of the following software applications installed. The screen and data transfer files included in the CD-ROM must be installed in each of those applications. For information regarding installing the software, refer to that software's Operation Manual.

■ Software Applications

- GP-PRO/PBIII for Windows Ver. 2.1 or higher.
- Pro-Server with Pro-Studio for Windows Ver. 3.0 *1

- 1) Be sure to confirm that the required software application is installed in your PC prior to starting installation.
- 2) Double-click the CD-ROM's "s10v_eth.exe" file to start the installation process.
- 3) Once the installation program starts, follow the instructions given to install the protocol files.



- ***When using GP-PRO/PBIII for Windows Ver. 6.0 or higher, be sure to select [Others] - [Hitachi Corporation S10V Series (ETHER)] for the "Device/PLC Type".***
- ***When using GP-PRO/PBIII for Windows Ver. 5.0 or earlier, be sure to select [Hitachi Corporation S10V Series (ETHER)] for the "Device/PLC Type".***

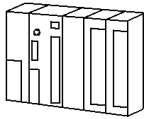

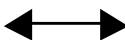
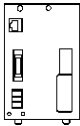

**1 When using the Factory Gateway unit, GP-Web Ver. 1.0 or later or GP-Viewer Ver. 1.0 or later, be sure to select "Pro-Server with Pro-Studio for Windows" as the "Destination Folder".*

8.10 Hitachi

8.10.1 System Structure

This section explains the system structure for the Ethernet connection between a PLC made by Hitachi Corporation and the GP.

■ S10V Series

CPU	Link I/F	Cable	Unit	Target Machine
				
LQP510	LQE520	Ethernet Cable IEEE802.3 standard	Digital Corporation GP Ethernet I/F unit (GP070-ET11/GP070-ET41) GP-377R Series Multi Unit E (GP077-MLTE11, GP377-MLTE41) GP77R Series Multi Unit E (GP077-MLTE41)	GP/GLC Series ^{*2}
LQP520 ^{*1}	Ethernet I/F on CPU			

*1 When using the LQP520, the LQP510 is also required.

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

Series Name		Product Name	Optional Ethernet I/F 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-2300S	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-2501L	○ ^{*2*3}	x
		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	GLC-2300 Series	GLC-2300L	x	○
		GLC-2300T	x	○
	GLC-2400 Series	GLC-2400T	x	○
	GLC-2500 Series	GLC-2500T	○ ^{*3*4}	○
	GLC-2600 Series	GLC-2600T	○ ^{*3*4}	○

*1 Only the Multi unit can be used.

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

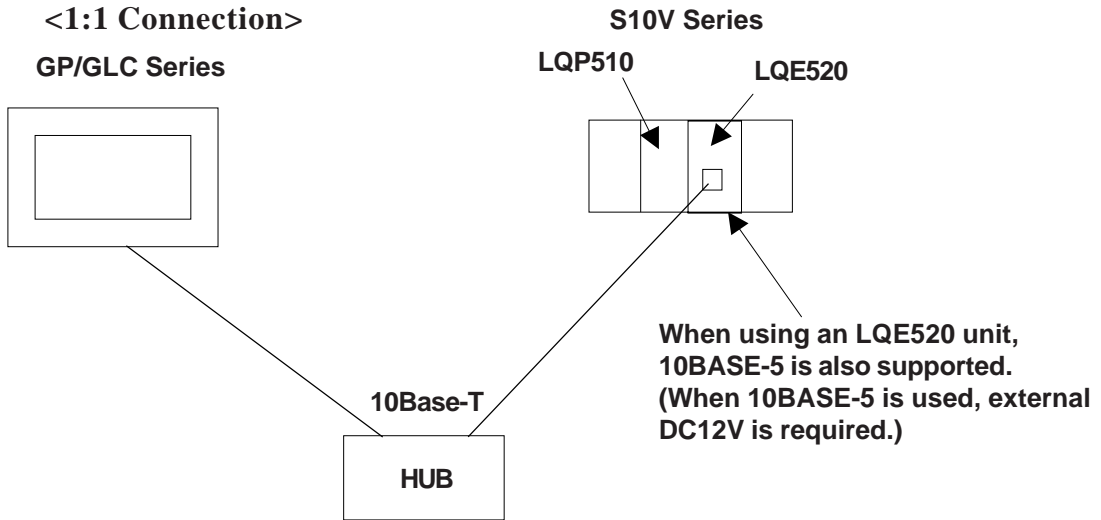
*3 When using the optional Ethernet I/F unit, a bus conversion unit (PSL-CONV00) is required.

*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.

◆ Connection Layout

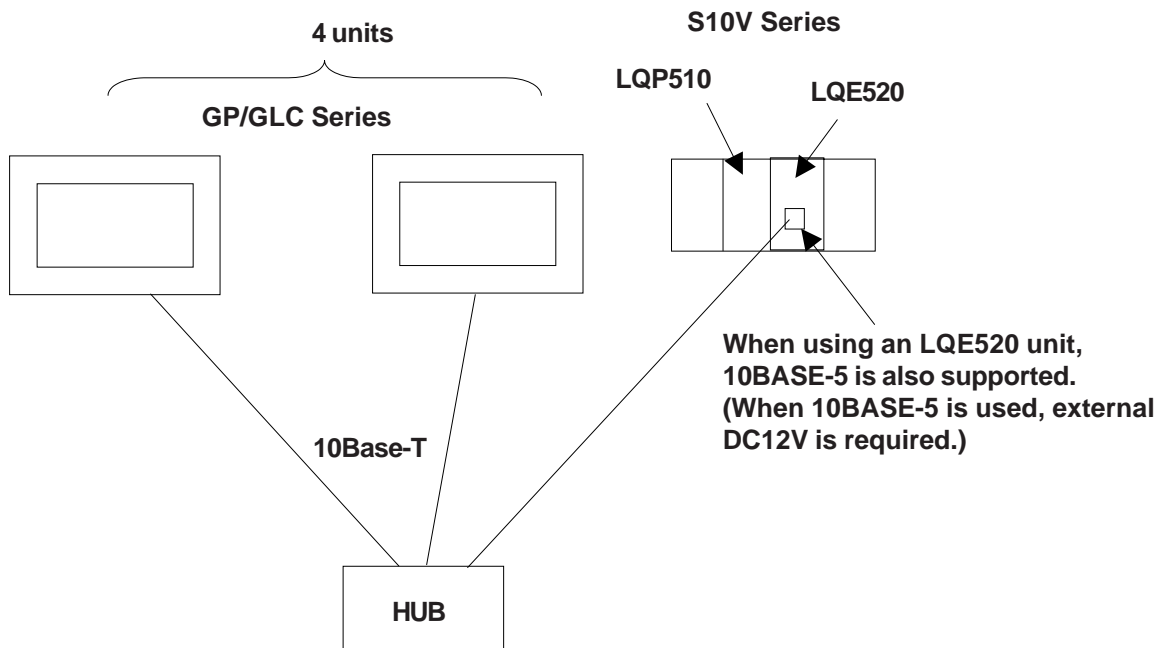
When using an LQE520 unit

<1:1 Connection>



* Fixed as TCP data transfer.

<1:n Connection>



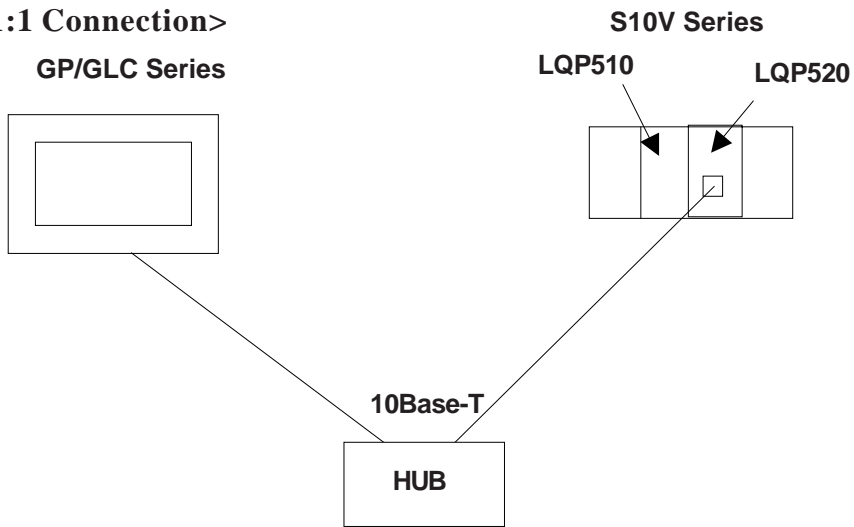
* Communication is fixed as TCP format. Maximum number of GP units is 4, based on PLC specifications.

Maximum number of connectable units is assuming only GP units are connected. When connecting other types of units via an Ethernet connection, the number of connectable units will be limited. These units cannot be connected to PC Link or other types of networks.

◆ Connection Layout

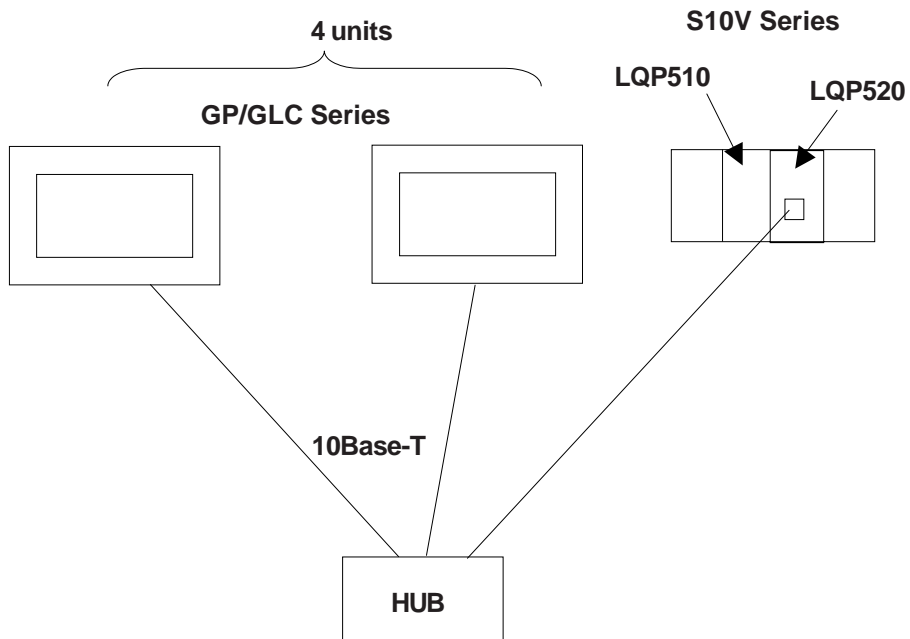
When using an LQP520 unit

<1:1 Connection>



* LQP520 requires LQP510 unit.
Fixed as TCP data transfer.

<1:n Connection>



* LQP520 requires LQP510 unit.
Fixed as TCP data transfer.

8.10.2 Supported Devices

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

■ S10V Series

 Setup System Area here.

Device	Bit Address	Word Address	Reference
External Input	X000 - XFFF	XW000 - XWFFF0	***0 *1
External Output	Y000 - YFFF	YW000 - YWFFF0	***0 *1
Internal Register	R000 - RFFF	RW000 - RWFFF0	***0 *1
Global Link Register	G000 - GFFF	GW000 - GWFFF0	***0 *1
Event Register	E000 - EFFF	EW000 - EWFFF0	***0 *1
Keep Relay	K000 - K0FF	KW000 - KWFFF0	***0 *1
System Register	S000 - SBFF	SW000 - SWBFF0	***0 *1
On-delay Register	T000 - T1FF	TW000 - TW1FF0	***0 *1,*2
One-shot Timer	U000 - U0FF	UW000 - UW0FF0	***0 *1
Up/Down Counter	C000 - C0FF	CW000 - CW0FF0	***0 *1
Transfer Resistor	J000 - JFFF	JW000 - JWFFF0	***0 *1
Receive Register	Q000 - QFFF	QW000 - QWFFF0	***0 *1
Extended Internal Register	M000 - MFFF	MW000 - MWFFF0	***0 *1
Extended Internal Register	A000 - AFFF	AW000 - AWFFF0	***0 *1
Timer Calculation Value	-----	TC000 - TC1FF	
Timer Setting Value	-----	TS000 - TS1FF	
One-shot Timer Calculation value	-----	UC000 - UC0FF	
One-shot Timer Setting Value	-----	US000 - US0FF	
Counter Calculation Value	-----	CC000 - CC0FF	
Counter Setting Value	-----	CS000 - CS0FF	
Work Register	-----	FW000 - FWBFF	Bit F
Data Register	-----	DW000 - DWFFF	Bit F
Work Register	LB0000 - LBF000	LBW0000 - LBWFFF0	***0 *1
Data Converter Special Work Register	LR0000 - LRFFF0	LRW0000 - LRWFFF0	***0 *1
Data Converter Special Work Register (Edge)	LV0000 - LV0FFF	LWV0000 - LWV0FFF0	***0 *1
Word Special Work Register	-----	LWV0000 - LWVFFF0	Bit F
Long Word Special Work Register	-----	LLL0000 - LLL1FFF	Bit 31 *3
Single Precision Floating Decimal Point Work Register	-----	LF0000 - LF1FFF	*3,*4
Word Work Register (Power-cut Retain)	-----	LXW0000 - LXW3FFF	Bit F
Long Word Work Register (Power-cut Retain)	-----	LML0000 - LML1FFF	Bit 31 *3
Single Precision Floating Decimal Point Work Register (Power-cut Retain)	-----	LG0000 - LG1FFF	*3,*4

**1 According to PLC specifications, the highest bit is “0” and the lowest bit is “15”. When the highest bit turns ON, that bit is considered the highest and “32768(0x8000)” is written to that word.*

Ex. When the GP unit’s bit designation turns X000 “ON”, the PLC unit’s bit device “X000” turns ON. At this time the GP and PLC word device XW000 become “32768(0x8000)”.

**2 Write is not possible.*

**3 A 32-bit device.*

**4 A floating decimal point device. Please use E and K-tag 32-bit Float setting.*

*****0** : Designates a Word Address’ right-most digit as “0”.

Bit 31 : Designates data as Bit type. Attaches a bit position after the Word Address. Bit positions can be 0 to F. However, using bit designation to write data will automatically set all other bits to “0” (OFF).

Bit F : Designates data as Bit type. Attaches a bit position after the Word Address. Bit positions can be 0 to 31. However, using bit designation to write data will automatically set all other bits to “0” (OFF).

H/L : When 2 Words (32-bit data) are used, their relationship is as shown below.

0	H (Higher)
1	L (Lower)

L/H : The relationship is the opposite of that shown above.

8.10.3 Environment Setup

■ S10V Series Settings

Using CPU Module (LQP520)

GP Settings		PLC Settings	
Source IP Address	GP Source IP Address ^{*1}	PLC Address ^{*4}	GP IP Address
Source IP Port No.	GP Port No. ^{*2}	-----	-----
Destination IP Address	PLC IP Address ^{*1}	IP Address ^{*4}	PLC IP Address
Destination IP Port No.	PLC Port No. ^{*3}	-----	-----
-----	-----	Station No. Setting Switch ^{*5}	0,0 or F,F

Using ET.NET Module (LQE520)

GP Settings		PLC Settings	
Source IP Address	GP Source IP Address ^{*1}	PLC Address ^{*4}	GP IP Address
Source IP Port No.	GP Port No. ^{*2}	-----	-----
Destination IP Address	PLC IP Address ^{*1}	IP Address ^{*4}	PLC IP Address
Destination IP Port No.	PLC Port No. ^{*6}	-----	-----
-----	-----	Station No. Setting Switch ^{*7}	0 or 2

**1 Confirm these settings with your network administrator.*

**2 When using the 2-Way Driver feature with a GP2000 or GLC2000 Series unit, be sure to set port numbers so they do not overlap.*

The 2-Way Driver feature port number settings are entered via the GP/GLC OFFLINE menu's [INITIALIZE] -> [SETUP OPERATION SURROUNDINGS] -> [EXTENDED SETTINGS] -> [SETUP ETHERNET INFORMATION] area.

Port No. base number's default is 8000, however 8000 to 8009 are reserved for the following settings and cannot be used.

Port No. Offset	Description
1	MtoMLan (GP-PRO/PBIII for Win screen transfer, etc.)
2	ProNet (ProServer with Pro-Studio for Win)
3	Reserved
4	GP-Web
5	Reserved
6	Pro-Control Editor
7	Reserved
8	GP-PRO/PBIII for Win Simulation
9	Reserved

**3 When using the CPU module (LQP520), use numbers 4302 to 4305 for the PLC port number. Only one client can be connected to a single port.*

**4 Use ladder logic software to set this value.*

**5 If the PLC CPU's station number setting switch is set to 0,0, the PLC unit's IP address is enabled. When the switch is set to F, F, the PLC unit's IP address is set to 192.192.192.1*

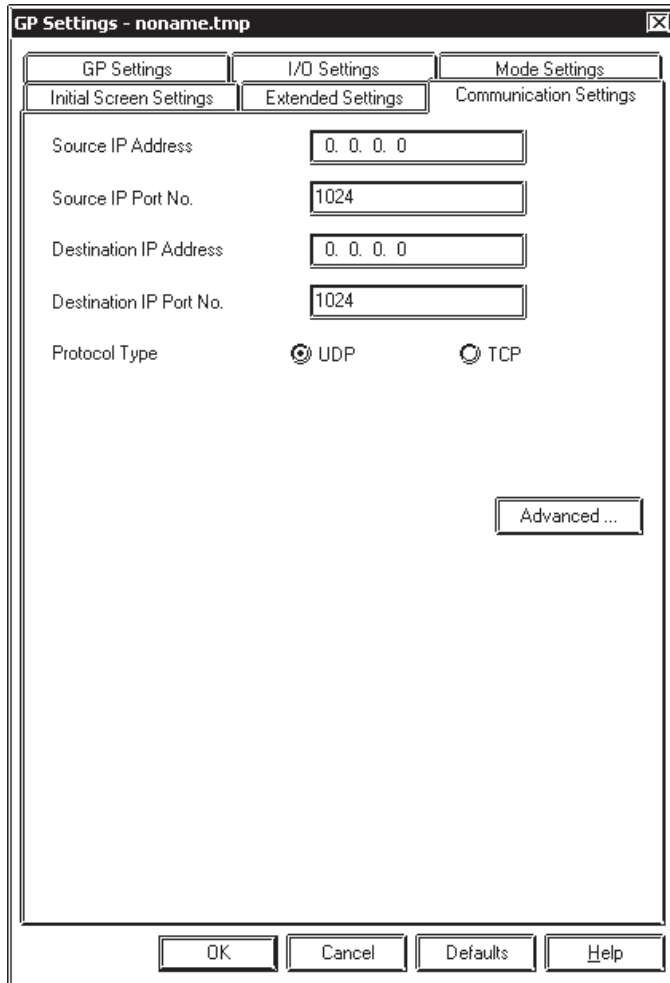
*6 When using the ET.NET module (LQE520) set the port number at 4302. Up to 4 clients can be connected to a single port.

*7 When the ET.NET module (LQE520) Module Number switch is set to "0", data is transferred using 10Base-5. "2" designates 10-Base-T.

◆ **Special Settings**

Screen Creation Software Settings

The Screen Creation software's [GP Setup] screen's [Communication Settings] screen is used to enter settings. The settings are as follows.



Here, the following settings should be entered.

- Source IP Address: GP unit's IP Address

(Each byte: 0 to 255)

Default: 0.0.0.0

- Source IP Port No. :

GP unit's Port No.

(1024 - 65535)

Default: 1024

- Destination IP Address:

PLC unit's IP Address

(Each byte: 0 to 255)

Default: 0.0.0.0

- Destination IP Port No. :

GP unit's Port No.

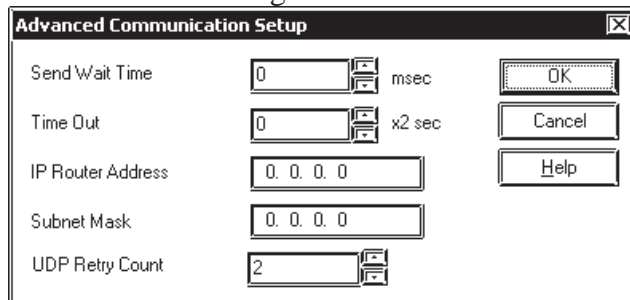
(1024 - 65535)

Default: 1024

* Communication settings are designated in the PLC specifications as only TCP. Even if UDP settings are set, TCP format will be used.

Communication Settings Advanced Settings

The Advanced Settings screen is as follows.



* Since communication settings are designated in the PLC specifications as TCP, setting the UDP Retry Time is not required.

■ GP Settings

The GP unit's communication settings for Ethernet communication are as follows.

◆ SETUP OPERATION SURROUNDINGS

◆ SETUP ETHERNET INFORMATION

• SRC IP ADDRESS

Enter GP's SRC IP Address. Input a dot between every 8 bits to divide the IP Address (32 bits all together) into four groups, and enter decimal numbers in each groups.

• SRC PORT NO.

Set the SRC Port No. between 1024 and 65535.

• DEST IP ADDRESS

Set the PROSEC's DEST IP Address.

• DEST PORT NO.

When using CPU module (LQP520), set the DEST Port No. between 4302 and 4305. When using CPU module (LQE520), set the DEST Port No. at 4302.



When using the GP2000 or GLC2000 Series unit's built-in Ethernet port, be sure the [SRC PORT NO.] does not overlap the 2-Way Driver's port.

The 2-Way Driver feature port number settings are entered via the GP/GLC Offline menu's [INITIALIZE] -> [SETUP OPERATION SURROUNDINGS] -> [EXTENDED SETTINGS] -> [SETUP ETHERNET INFORMATION] area. The default Port No. is 8000. The 2-Way Driver uses this port and the following 9 ports (Default: 8000 to 8009). Also, if the GP unit's IP Address is set to 0.0.0.0, the IP Address entered in the 2-Way Driver's [Ethernet Information Settings] area is enabled.

◆ **SETUP NETWORK EXT. INFORMATION**

SETUP NETWORK EXT. INFORMATION												SET	CANCEL		
SEND WAIT TIME	[]	(ms)											
TCP 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."

•**TCP 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 when it is TCP communication.

•**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.



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

A

Hitachi

A.1

Maximum Number of Consecutive Device Address

The following lists the maximum number of consecutive addresses that can be read by each PLC. Refer to these tables to utilize *Block Transfer*.



Note: When the device is setup using the methods below, the Data Communication Speed declines by the number of times the device is read.

- When consecutive addresses exceed the maximum data number range
- When an address is designated for *division*
- When device types are different

To speed up data communication, plan the tag layout in screen units, as consecutive devices. (Includes the Alarm and Trend screens.)

■ PLCs

<HIDIC-S10a/S10 mini/S10V Series>

Device	Max. No. of Consecutive Addresses	Device	Max. No. of Consecutive Addresses
Input Relay X	256 Words	Receive Register Q	256 Words
Output Relay Y		Extended Internal Register M	
Internal Relay R		On-Delay Timer (Setup Value) TS	
Global Link G		On-Delay Timer (Calculated Value) TC	
Event E		One Shot Timer (Setup Value) US	
Keep Relay K		One Shot Timer (Calculated Value) UC	
On-Delay Timer T		Up/Down Counter (Setup Value) CS	
One Shot Timer U		Up/Down Counter (Calculated Value) CC	
Up/Down Counter C		Word Register FW	
E Word EW		Data Register DW	
Transfer Register J		Extended Register MS	

<HIZAC EC Series>

Device		Max. No. of Consecutive Addresses	
		Address	Vertical Address
Bit Device	External Input X	16 Words	1 Word
	External Output Y		
	Internal Output M		
	Timer, or Counter TC 000 ~ TC 095		---
Word Device	External Input WX	8 Words	1 Word
	External Output WY		
	Internal Output WM		
	Timer, or Counter TC 100 ~ TC 195 TC 200 ~ TC 295		---

◆ Ethernet

<S10V Series>

Device	Maximum No. of Connectable Devices
External Input	256 Words
External Output	
Internal Register	
Global Link Register	
Event Register	
Keep Relay	
System Register	
On-delay Register	
One-shot Timer	
Up/Down Counter	
Transfer Resistor	
Receive Register	
Extended Internal Register	
Extended Internal Register	
Timer Calculation Value	
Timer Setting Value	
One-shot Timer Calculation value	
One-shot Timer Setting Value	
Counter Calculation Value	
Counter Setting Value	
Work Register	
Data Register	
Work Register	
Data Converter Special Work Register	
Data Converter Special Work Register (Edge)	
Word Special Work Register	
Long Word Special Work Register	
Single Precision Floating Decimal Point Work Register	
Word Work Register (Power-cut Retain)	
Long Word Work Register (Power-cut Retain)	
Single Precision Floating Decimal Point Work Register (Power-cut Retain)	

A.2**Device Codes and Address Codes**

Device codes and address codes are used to specify indirect addresses for the E-tags or K-tags.

The word addresses of data to be displayed are coded and stored in the word address specified by the E-tags and K-tags. (Code storage is done either by the PLC, or with T-tag and K-tags)

PLCs

<HIDIC S10 a/S10 mini/S10V Series>

	Device	Word Address	Device code (HEX)	Address code
Bit Device	Input Relay	XW000-	8040	Save as word address value, with the tenths position "0" removed.
	Output Relay	YW000-	8840	Save as word address value, with the tenths position "0" removed.
	Internal Relay	RW000-	9040	Save as word address value, with the tenths position "0" removed.
	Global Link	GW000-	C 840	Save as word address value, with the tenths position "0" removed.
	System Register	SW000-	B040	Save as word address value, with the tenths position "0" removed.
	E Word	EW400-	X	X
	Event	EW000-	A040	Save as word address value, with the tenths position "0" removed.
	Keep Relay	K0000-	C 040	Save as word address value, with the tenths position "0" removed.
	On-Delay Timer	TW000-	E 040	Save as word address value, with the tenths position "0" removed.
	One Shot Timer	UW000-	E 240	Save as word address value, with the tenths position "0" removed.
	Up/Down Counter	CW000-	F040	Save as word address value, with the tenths position "0" removed.
	Transfer Register	JW000-	9240	Save as word address value, with the tenths position "0" removed.
	Receive Register	QW000-	9440	Save as word address value, with the tenths position "0" removed.
	Extended Internal Register	MW000-	B240	Save as word address value, with the tenths position "0" removed.
Word Device	On-Delay Timer (Calculated Value)	TC000-	6000	Word Address
	On-Delay Timer (Setup Value)	TS000-	6800	Word Address
	One Shot Timer (Calculated Value)	UC000-	6200	Word Address
	One Shot Timer (Setup Value)	US000-	6A00	Word Address
	Up/Down Counter (Calculated Value)	CC000-	7000	Word Address
	Up/Down Counter (Setup Value)	CS000-	7800	Word Address
	Data Register	DW000-	0040	Word Address
	Word Register	FW000-	0840	Word Address
	Extended Register	MS000-	3040	Word Address
	LS area	LS0000-	4040	Word Address

<HIZAC EC Series >

	Device	Word Address	Device code (HEX)	Address code
	External Input	WX000-	8240	Word Address
		WX020-		
		WX040-		
		WX060-		
		WX080-		
		WX100-		
		WX120-		
		WX140-		
		WX160-		
		WX180-		
	External Output	WY200-	8A40	Word Address - 200
		WY220-		
		WY240-		
		WY260-		
		WY280-		
		WY300-		
		WY320-		
		WY340-		
	Internal Output	WM400-	9240	(Word Address - 400) / 2
WM700-		9240	(Word Address - 400) / 2	
WM960-		9240	(Word Address - 400) / 2	
Timer / Counter (Elapsed Value)	TC 100-	6000	Word Address - 100	
Timer / Counter (Set Value)	TC 200-	6400	Word Address - 200	
LS Area	LS0000-	4040	Word Address	

◆ DeviceNet Communication

	Device	Word Address	Device code (HEX)	Address code
Word Device	LS area	LS0000 ~	4000	Word Address

◆ Ethernet

<S10V Series>

Device	Word Address	Device Code	Address Code
External Input	XW000~	8040	Remove word address value's right-most "0".
External Output	YW000~	8840	Remove word address value's right-most "0".
Internal Register	RW000~	9040	Remove word address value's right-most "0".
Global Link Register	GW000~	C840	Remove word address value's right-most "0".
Event Register	EW000~	A040	Remove word address value's right-most "0".
Keep Relay	KW000~	C040	Remove word address value's right-most "0".
System Register	SW000~	B040	Remove word address value's right-most "0".
On-delay Register	TW000~	E040	Remove word address value's right-most "0".
One-shot Timer	UW000~	E240	Remove word address value's right-most "0".
Up/Down Counter	CW000~	F040	Remove word address value's right-most "0".
Transfer Resistor	JW000~	9240	Remove word address value's right-most "0".
Receive Register	QW000~	9440	Remove word address value's right-most "0".
Extended Internal Register	MW000~	B240	Remove word address value's right-most "0".
Extended Internal Register	AW000~	B440	Remove word address value's right-most "0".
Timer Calculation Value	TC000~	6000	Word Address
Timer Setting Value	TS000~	6800	Word Address
One-shot Timer Calculation Value	UC000~	6200	Word Address
One-shot Timer Setting Value	US000~	6A00	Word Address
Counter Calculation Value	CC000~	7000	Word Address
Counter Setting Value	CS000~	7800	Word Address
Work Register	FW000~	0840	Word Address
Data Register	DW000~	0040	Word Address
Work Register	LBW0000~	9640	Word Address
Data Converter Special Work Register	LRW0000~	9840	Word Address
Data Converter Special Work Register (Edge)	LVW0000~	9A40	Word Address
Word Special Work Register	LWW0000~	0A40	Word Address
Long Word Special Work Register	LLL0000~	0C80	Word Address
Single Precision Floating Decimal Point Work Register	LF0000~	0E80	Word Address
Word Work Register (Power-cut Retain)	LXW0000~	1040	Word Address
Long Word Work Register (Power-cut Retain)	LML0000~	1280	Word Address
Single Precision Floating Decimal Point Work Register (Power-cut Retain)	LG0000~	1480	Word Address

A.3

Address Conversion Table

	After Conversion																																	
	XW	YW	RW	GW	E	KW	SW	TW	UW	CW	JW	QW	MW	AW	TC	TS	UC	US	CC	CS	FW	DW	LBW	LR	LV	LWW	LLL	LF	LXW	LML	LG	LS		
Before Conversion	External Input	○	○	○	○	○	○	○	○	○	○	○	○	○	○	★	★	★	★	★	★	○	○	○	○	○	○	○	★	○	○	★	○	
	External Output	○	○	○	○	○	○	○	○	○	○	○	○	○	○	★	★	★	★	★	★	○	○	○	○	○	○	○	★	○	○	★	○	
	Internal Register	○	○	○	○	○	○	○	○	○	○	○	○	○	○	★	★	★	★	★	★	○	○	○	○	○	○	○	★	○	○	★	○	
	Global Link Register	○	○	○	○	○	○	○	○	○	○	○	○	○	○	★	★	★	★	★	★	○	○	○	○	○	○	○	★	○	○	★	○	
	Event Register	○	○	○	○	○	○	○	○	○	○	○	○	○	○	★	★	★	★	★	★	○	○	○	○	○	○	○	★	○	○	★	○	
	Keep Relay	○	○	○	○	○	○	○	○	○	○	○	○	○	○	★	★	★	★	★	★	○	○	○	○	○	○	○	★	○	○	★	○	
	System Register	○	○	○	○	○	○	○	○	○	○	○	○	○	○	★	★	★	★	★	★	○	○	○	○	○	○	○	★	○	○	★	○	
	On-delay Register	○	○	○	○	○	○	○	○	○	○	○	○	○	○	★	★	★	★	★	★	○	○	○	○	○	○	○	★	○	○	★	○	
	One-shot Timer	○	○	○	○	○	○	○	○	○	○	○	○	○	○	★	★	★	★	★	★	○	○	○	○	○	○	○	★	○	○	★	○	
	Up/Down Counter	○	○	○	○	○	○	○	○	○	○	○	○	○	○	★	★	★	★	★	★	○	○	○	○	○	○	○	★	○	○	★	○	
	Transfer Resistor	○	○	○	○	○	○	○	○	○	○	○	○	○	○	★	★	★	★	★	★	○	○	○	○	○	○	○	★	○	○	★	○	
	Receive Register	○	○	○	○	○	○	○	○	○	○	○	○	○	○	★	★	★	★	★	★	○	○	○	○	○	○	○	★	○	○	★	○	
	Extended Internal Register	○	○	○	○	○	○	○	○	○	○	○	○	○	○	★	★	★	★	★	★	○	○	○	○	○	○	○	★	○	○	★	○	
	Extended Internal Register	○	○	○	○	○	○	○	○	○	○	○	○	○	○	★	★	★	★	★	★	○	○	○	○	○	○	○	★	○	○	★	○	
	Timer Calculation Value	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★
	Timer Setting Value	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★
	One-shot Timer Calculation Value	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★
	One-shot Timer Setting Value	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★
	Counter Calculation Value	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★
	Counter Setting Value	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★
	Work Register	○	○	○	○	○	○	○	○	○	○	○	○	○	○	★	★	★	★	★	★	○	○	○	○	○	○	○	★	○	○	★	○	
	Data Register	○	○	○	○	○	○	○	○	○	○	○	○	○	○	★	★	★	★	★	★	○	○	○	○	○	○	○	★	○	○	★	○	
	Work Register	○	○	○	○	○	○	○	○	○	○	○	○	○	○	★	★	★	★	★	★	○	○	○	○	○	○	○	★	○	○	★	○	
	Data Converter Special Work Register	○	○	○	○	○	○	○	○	○	○	○	○	○	○	★	★	★	★	★	★	○	○	○	○	○	○	○	★	○	○	★	○	
	Data Converter Special Work Register (Edge)	○	○	○	○	○	○	○	○	○	○	○	○	○	○	★	★	★	★	★	★	○	○	○	○	○	○	○	★	○	○	★	○	
	Word Special Work Register	○	○	○	○	○	○	○	○	○	○	○	○	○	○	★	★	★	★	★	★	○	○	○	○	○	○	○	★	○	○	★	○	
	Long Word Special Work Register	○	○	○	○	○	○	○	○	○	○	○	○	○	○	★	★	★	★	★	★	○	○	○	○	○	○	○	★	○	○	★	○	
	Single Precision Floating Decimal Point Work Register	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★
	Word Work Register (Power-out Retain)	○	○	○	○	○	○	○	○	○	○	○	○	○	○	★	★	★	★	★	★	○	○	○	○	○	○	○	★	○	○	★	○	
	Long Word Work Register (Power-out Retain)	○	○	○	○	○	○	○	○	○	○	○	○	○	○	★	★	★	★	★	★	○	○	○	○	○	○	○	★	○	○	★	○	
Single Precision Floating Decimal Point Work Register (Power-out Retain)	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	
LS Area	○	○	○	○	○	○	○	○	○	○	○	○	○	○	★	★	★	★	★	★	○	○	○	○	○	○	○	★	○	○	★	○		

○ : If Conversion Mode is "Word", both word and bit devices will be converted. If Conversion Mode is "Bit", only bit devices will be converted.

★ : If Conversion Mode is "Word", only word devices will be converted.

7.9 Protocol Stack Error Codes

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

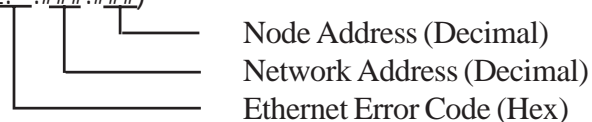
Host communication error (02:FE:**)

** 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 incorrect.	
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 information 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:**:###:###)



*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:**:###:###)

