Modbus-IDA MOD\_GRS\_27 4/2024

# General MODBUS SIO Master Driver

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#### Introduction

This manual describes how to connect the Display and the External Device (target PLC).

In this manual, the connection procedure will be described in the sections identified below.



# 1 General MODBUS SIO Master Driver

The general MODBUS SIO Master Driver is used to connect the Display to a MODBUS-compatible External Device for general purpose.

The function code and boundary required for communication can be changed according to the External Device.

Up to 31 units of the External Device can be connected to the Display when one COM port of the Display is used.

Up to 32 units are available when two or more COM ports are used.

#### System Configuration 2

The system configuration in the case when the External Device and the Display are connected is shown.

Series	CPU	Link I/F	SIO Type	Setting Example	Cable Diagram
			RS-232C	Setting Example 1 (page 13)	Cable Diagram 1 (page 91)
MODBUS Slave Dev	<i>v</i> ice <sup>*1</sup>		RS-422/485 (4 wire)	Setting Example 2 (page 15)	Cable Diagram 2 (page 97)
			RS-422/485 (2 wire)	Setting Example 3 (page 17)	Cable Diagram 3 (page 107)

\*1 To connect with External Device using the Modbus protocol, configure the [Device Setting] to match the specifications on the External Device.

External Device used to confirm connection •

Series	CPU	Link I/F	SIO Type	Setting Example	Cable Diagram
MICRO-EHV Series by Hitachi IES Co., Ltd.	MVH-A64 MVH-D64 MVH-A40 MVH-D40 MVL-A64 MVL-D64 MVL-A40 MVL-D40	Communication port on OBV-NES	RS-422/485 (2 wire)	Setting Example 4 (page 19)	Cable Diagram 4 (page 120)
MELSEC-FX Series by Mitsubishi Electric Corporation	FX3S-□□M□/□	FX3U-232ADP-MB + FX3S-CNV-ADP	RS-232C	Setting Example 5 (page 21)	Cable Diagram 5 (page 133)
		/□ FX3U-485ADP-MB + FX3S-CNV-ADP	RS-422/485 (4 wire)	Setting Example 6 (page 23)	Cable Diagram 6 (page 135)
			RS-422/485 (2 wire)	Setting Example 7 (page 25)	Cable Diagram 7 (page 143)
MSEP-LC by IAI Corporation	MSEP-LC	SIO connector on MSEP-LC	RS-232C	Setting Example 8 (page 27)	Cable Diagram 8 (page 156)
RCON Series by IAI Corporation	RCON-PC-□ RCON-PCF-□ RCON-AC-□ RCON-DC-□ RCON-SC-□	SIO port on RCON-GW/GWG-□	RS-232C	Setting Example 9 (page 29)	Cable Diagram 8 (page 156)

Series	CPU	Link I/F	SIO Type	Setting Example	Cable Diagram
KV-7000 Series by KEYENCE Corporation	KV-7300	KV-XL402	RS-422/485 (4 wire)	Setting Example 10 (page 31)	Cable Diagram 9 (page 158)
KV-8000 Series by KEYENCE Corporation	KV-8000	KV-XL402	RS-422/485 (4 wire)	Setting Example 11 (page 33)	Cable Diagram 9 (page 158)
	CP2E-N14DR-A CP2E-N14DT-A CP2E-N14DT-D CP2E-N14DT-D CP2E-N14DT-D CP2E-N20DR-A CP2E-N20DT-A CP2E-N20DT-D CP2E-N20DT-D CP2E-N20DT1-D CP2E-N30DR-A CP2E-N30DT-A CP2E-N30DT-D CP2E-N30DT-D CP2E-N30DT1-D CP2E-N40DT-A	CP1W-CIF11	RS-422/485 (4 wire)	Setting Example 12 (page 35)	Cable Diagram 10 (page 164)
CP Series by		CP2W-CIFD2	RS-422/485 (2 wire)	Setting Example 13 (page 37)	Cable Diagram 11 (page 173)
OMRON Corporation	CP2E-N40DR-D CP2E-N40DT-D CP2E-N40DT1-D CP2E-N60DR-A CP2E-N60DT-A CP2E-N60DR-D CP2E-N60DT-D CP2E-N60DT1-D	CP2W-CIFD2	RS-232C	Setting Example 14 (page 39)	Cable Diagram 12 (page 186)
	CP2E-S30DR-A CP2E-S30DT-D CP2E-S30DT1-D CP2E-S40DR-A CP2E-S40DT-D	Built-in RS-422/485 port	RS-422/485 (2 wire)	Setting Example 13 (page 37)	Cable Diagram 11 (page 173)
	CP2E-S40DT-D CP2E-S40DT1-D CP2E-S60DR-A CP2E-S60DT-D CP2E-S60DT1-D	Built-in RS-232C port	RS-232C	Setting Example 14 (page 39)	Cable Diagram 13 (page 188)

Series	CPU	Link I/F	SIO Type	Setting Example	Cable Diagram
		RS232C port of the control unit	RS-232C	Setting Example 15 (page 41)	Cable Diagram 14 (page 190)
		AFP0HCCS1	RS-232C	Setting Example 15 (page 41)	Cable Diagram 15 (page 192)
FP0H Series by Panasonic	AFP0HC32P AFP0HC32T	AFP0HCCS2	RS-232C	Setting Example 15 (page 41)	Cable Diagram 16 (page 194) Cable Diagram 17 (page 197) Cable Diagram 18
Industrial Devices SUNX Co., Ltd.	AFP0HC32EP AFP0HC32ET	AFP0HCCS1M1	RS-232C	Setting Example 15 (page 41)	
		A TORCESTAT	RS-422/485 (2 wire)	Setting Example 16 (page 43)	Cable Diagram 18 (page 199)
		AFP0HCCM1	RS-422/485 (2 wire)	Setting Example 16 (page 43)	Cable Diagram 19 (page 212)
FREQROL FR-A800 Series by	FR-A820-□K FR-A840-□K FR-A842-□K FR-A846-□K	R-A820-□K R-A840-□K RS-485 terminal on the R-A842-□K Inverter R-A846-□K	RS-422/485 (4 wire)	Setting Example 17 (page 45)	Cable Diagram 20 (page 225)
Mitsubishi Electric Corporation			RS-422/485 (2 wire)	Setting Example 18 (page 47)	Cable Diagram 21 (page 234)
FREQROL FR-F800 Series by	FR-F820-□K FR-F840-□K FR-F842-□K FR-F846-□K	RS-485 terminal on the Inverter	RS-422/485 (4 wire)	Setting Example 17 (page 45)	Cable Diagram 20 (page 225)
Mitsubishi Electric Corporation			RS-422/485 (2 wire)	Setting Example 18 (page 47)	Cable Diagram 21 (page 234)
FREQROL A800Pluse Series by	FR-A820-□CRN FR-A840-□CRN FR-A842-□CRN FR-A820-□R2R FR-A840-□R2R FR-A842-□R2R	RS-485 terminal on the Inverter	RS-422/485 (4 wire)	Setting Example 17 (page 45)	Cable Diagram 20 (page 225)
Mitsubishi Electric Corporation			RS-422/485 (2 wire)	Setting Example 18 (page 47)	Cable Diagram 21 (page 234)
FREQROL FR-E800 Series by Mitsubishi Electric Corporation	FR-E820-0.4K-1 FR-E810D-DK-DD FR-E820D-DK-DD FR-E840D-DK-DD FR-E860D-DK-DD	PU connector on the Inverter	RS-422/485 (4 wire)	Setting Example 19 (page 49)	Cable Diagram 22 (page 247)
ACD-13A Series by	ACD-13A-R/M_C5	Terminal of back papel	RS-422/485 (2 wire) ASCII	Setting Example 20 (page 51)	Cable Diagram 23 (page 251)
Co.,Ltd.	1.00 1511 1014, 05	Terminal of back panel	RS-422/485 (2 wire) RTU	Setting Example 21 (page 53)	Cable Diagram 23 (page 251)

Series	CPU	Link I/F	SIO Type	Setting Example	Cable Diagram
ACR-13A Series by Shinko Technos	ACR-13A-R/M. C5	Terminal of back panel	RS-422/485 (2 wire) ASCII	Setting Example 20 (page 51)	Cable Diagram 23 (page 251)
Co.,Ltd.			RS-422/485 (2 wire) RTU	Setting Example 21 (page 53)	Cable Diagram 23 (page 251)
	BCD2R00-06	Terminal of back papel	RS-422/485 (2 wire) ASCII	Setting Example 22 (page 55)	Cable Diagram 23 (page 251)
	BCD2R00-00	Terminal of back panel	RS-422/485 (2 wire) RTU	Setting Example 23 (page 57)	Cable Diagram 23 (page 251)
BC⊡2 Series by	BCP2P00.06	Terminal of back papel	RS-422/485 (2 wire) ASCII	Setting Example 22 (page 55)	Cable Diagram 23 (page 251)
Co.,Ltd.	BCKZK00-00	Terminal of back panel	RS-422/485 (2 wire) RTU	Setting Example 23 (page 57)	age 55)(page 251)etting kample 23 age 57)Cable Diagram 23 (page 251)etting cable Diagram 23Cable Diagram 23
	BCS2R00-06	Terminal of back panel	RS-422/485 (2 wire) ASCII	Setting Example 24 (page 59)	Cable Diagram 23 (page 251)
			RS-422/485 (2 wire) RTU	Setting Example 25 (page 61)	Cable Diagram 23 (page 251)
PCA1 Series by	PCA1R00-200	Terminal of back panel	RS-422/485 (2 wire) ASCII	Setting Example 26 (page 63)	Cable Diagram 23 (page 251)
Co.,Ltd.			RS-422/485 (2 wire) RTU	Setting Example 27 (page 65)	Cable Diagram 23 (page 251)
PCB1 Series by	PCB1R00-06	Terminal of back panel	RS-422/485 (2 wire) ASCII	Setting Example 28 (page 67)	Cable Diagram 23 (page 251)
Co.,Ltd.			RS-422/485 (2 wire) RTU	Setting Example 29 (page 69)	Cable Diagram 23 (page 251)
	QTC1-4PT- RRRRMMMM-00	Terminal of back panel	RS-422/485 (2 wire) RTU	Setting Example 30 (page 71)	Cable Diagram 23 (page 251)
QTC1-4 Series by Shinko Technos Co.,Ltd.	QTC1-40T-	QTC1-4PT- RRRRMMMM-00	RS-422/485 (2 wire) RTU	Setting Example 31 (page 73)	Cable Diagram 23 (page 251)
	RRRRMMMM-00	QMC1-C50-0	RS-422/485 (2 wire) RTU	Setting Example 32 (page 75)	Cable Diagram 24 (page 264)
QMC1 Series by Shinko Technos Co.,Ltd.	QMC1-C50-0	RJ45 port	RS-422/485 (2 wire) RTU	Setting Example 33 (page 77)	Cable Diagram 24 (page 264)

# Connection Configuration

1:1 Connection



- 1: n Connection
  - Using 1 port



• Using 2 or more ports



# ■ IPC COM Port

When connecting IPC with an External Device, the COM port used depends on the series and SIO type. Please refer to the IPC manual for details.

#### Usable port

Sorioo	Usable Port				
Series	RS-232C	RS-422/485(4 wire)	RS-422/485(2 wire)		
PS-2000B	COM1 <sup>*1</sup> , COM2, COM3 <sup>*1</sup> , COM4	-	-		
PS-3450A, PS-3451A, PS3000-BA, PS3001-BD	COM1, COM2 <sup>*1*2</sup>	COM2 <sup>*1*2</sup>	COM2 <sup>*1*2</sup>		
PS-3650A (T41 model), PS-3651A (T41 model)	COM1 <sup>*1</sup>	-	-		
PS-3650A (T42 model), PS-3651A (T42 model)	COM1 <sup>*1*2</sup> , COM2	COM1*1*2	COM1*1*2		
PS-3700A (Pentium®4-M) PS-3710A	COM1 <sup>*1</sup> , COM2 <sup>*1</sup> , COM3 <sup>*2</sup> , COM4	COM3 <sup>*2</sup>	COM3 <sup>*2</sup>		
PS-3711A	COM1 <sup>*1</sup> , COM2 <sup>*2</sup>	COM2 <sup>*2</sup>	COM2 <sup>*2</sup>		
PS4000 <sup>*3</sup>	COM1, COM2	-	-		
PL3000	COM1 <sup>*1*2</sup> , COM2 <sup>*1</sup> , COM3, COM4	COM1*1*2	COM1*1*2		
PE-4000B Atom N270	COM1, COM2	-	-		
PE-4000B Atom N2600	COM1, COM2	COM3 <sup>*4</sup> , COM4 <sup>*4</sup> , COM5 <sup>*4</sup> , COM6 <sup>*4</sup>	COM3 <sup>*4</sup> , COM4 <sup>*4</sup> , COM5 <sup>*4</sup> , COM6 <sup>*4</sup>		
PS5000 (Slim Panel Type Core i3 Model) *5 *6	COM1, COM2 <sup>*4</sup>	COM2 <sup>*4</sup>	COM2 <sup>*4</sup>		
PS5000 (Slim Panel Type Atom Model) *5 *6	COM1, COM2 <sup>*7</sup>	COM2 <sup>*7</sup>	COM2 <sup>*7</sup>		
PS5000 (Enclosed Panel Type) <sup>*8</sup>	COM1	-	-		
PS5000 (Modular Type PFXPU/PFXPP) <sup>*5 *6</sup> PS5000 (Modular Type PFXPL2B5-6)	COM1 <sup>*7</sup>	COM1 <sup>*7</sup>	COM1 <sup>*7</sup>		
PS5000 (Modular Type PFXPL2B1-4)	COM1, COM2 <sup>*7</sup>	COM2 <sup>*7</sup>	COM2 <sup>*7</sup>		
PS6000 (Advanced Box) PS6000 (Standard Box)	COM1 <sup>*9</sup>	*10	*10		
PS6000 (Basic Box)	COM1 <sup>*9</sup>	COM1 <sup>*9</sup>	COM1 <sup>*9</sup>		

\*1 The RI/5V can be switched. Use the IPC's switch to change if necessary.

\*2 Set up the SIO type with the DIP Switch. Please set up as follows according to SIO type to be used.

\*3 When making communication between an External Device and COM port on the Expansion slot, only RS-232C is supported. However, ER (DTR/CTS) control cannot be executed because of the specification of COM port. For connection with External Device, use user-created cables and disable Pin Nos. 1, 4, 6 and 9. Please refer to the IPC manual for details of pin layout.

\*4 Set up the SIO type with the BIOS. Please refer to the IPC manual for details of BIOS.

\*5 When setting up communication between an External Device and the RS-232C/422/485 interface module, use the IPC (RS-232C) or PS5000 (RS-422/485) cable diagrams. However, when using PFXZPBMPR42P2 in a RS-422/485 (4-wire) configuration with no flow control, connect 7.RTS+ and 8.CTS+, and connect 6.RTS- and 9.CTS-. When using RS-422/485 communication with External Devices, you may need to reduce the

When using RS-422/485 communication with External Devices, you may need to reduce the transmission speed and increase the TX Wait time.

\*6 To use RS-422/485 communication on the RS-232C/422/485 interface module, the DIP Switch setting is required. Please refer to "Knowledge Base" (FAQs) on the support site. (http://www.pro-face.com/trans/en/manual/1001.html)

Settings	FAQ ID
PFXZPBMPR42P2, RS422/485 change method	FA263858
PFXZPBMPR42P2 termination resistor setting	FA263974
PFXZPBMPR44P2, RS422/485 change method	FA264087
PFXZPBMPR44P2 termination resistor setting	FA264088

- \*7 Set up the SIO type with the DIP Switch. Please refer to the IPC manual for details of DIP Switch. The BOX Atom has not a switch to set the RS-232C, RS-422/485 mode. Use the BIOS for the setting.
- \*8 For the connection with the External Device, on the user-created cable read as if the connector on the Display-side is a M12 A-coding 8 pin socket. The pin assignment is the same as described in the cable diagram. For the M12 A-coding connector, use PFXZPSCNM122.
- \*9 In addition to COM1, you can also use the COM port on the optional interface.
- \*10 Install the optional interface in the expansion slot.

#### DIP Switch settings (PL3000 / PS3000 Series)

RS-232C

DIP Switch	Setting	Description		
1	OFF <sup>*1</sup>	Reserved (always OFF)		
2	OFF	SIQ type: RS-232C		
3	OFF	510 type. R6-2520		
4	OFF	Output mode of SD (TXD) data: Always output		
5	OFF	Terminal resistance (220 $\Omega$ ) insertion to SD (TXD): None		
6	OFF	Terminal resistance (220 $\Omega$ ) insertion to RD (RXD): None		
7	OFF	Short-circuit of SDA (TXA) and RDA (RXA): Not available		
8	OFF	Short-circuit of SDB (TXB) and RDB (RXB): Not available		
9	OFF	PS (PTS) Auto control mode: Disabled		
10	OFF	- KS (K15) Auto control mode. Disabled		
1 When using PS-3450A PS-3451A PS3000-BA and PS3001-BD turn ON the set value				

RS-422/485 (4 wire)

DIP Switch	Setting	Description	
1	OFF	Reserved (always OFF)	
2	ON	SIO type: PS-422/485	
3	ON	510 type. R5-+22/+05	
4	OFF	Output mode of SD (TXD) data: Always output	
5	OFF	Terminal resistance (220 $\Omega$ ) insertion to SD (TXD): None	
6	OFF	Terminal resistance (220 $\Omega$ ) insertion to RD (RXD): None	
7	OFF	Short-circuit of SDA (TXA) and RDA (RXA): Not available	
8	OFF	Short-circuit of SDB (TXB) and RDB (RXB): Not available	
9	OFF	PS (PTS) Auto control mode: Disabled	
10	OFF	KS (KIS) Auto control mode: Disabled	

## RS-422/485 (2 wire)

DIP Switch	Setting	Description		
1	OFF	Reserved (always OFF)		
2	ON	SIO tupe: PS 422/485		
3	ON	510 type. K5-422/465		
4	OFF	Output mode of SD (TXD) data: Always output		
5	OFF	Terminal resistance (220 $\Omega$ ) insertion to SD (TXD): None		
6	OFF	Terminal resistance (220 $\Omega$ ) insertion to RD (RXD): None		
7	ON	Short-circuit of SDA (TXA) and RDA (RXA): Available		
8	ON	Short-circuit of SDB (TXB) and RDB (RXB): Available		
9	ON	- RS (RTS) Auto control mode: Enabled		
10	ON			

# 3 External Device Selection

Select the External Device to be connected to the Display.

₩elcome to GP-Pro EX		X
GP-Pro EX	-Device/PLC	ces/PLCs
		Device/PLC 1
$\mathcal{O}$	Manufacturer	Modbus-IDA 🔹
	Series	General MODBUS SIO Master
	Port	COM1 💌
		Refer to the manual of this Device/PLC
		Recent Device/PLC
	4	E
	🔲 Use System	Area Device Information
	Back (B	Communication Settings New Logic New Screen Cancel

Setup Items	Setup Description
Number of Devices/ PLCs	Use an integer from 1 to 4 to enter the number of Devices/PLCs to connect to the display.
Manufacturer	Select the manufacturer of the External Device to be connected. Select "Modbus-IDA".
Series	Select a model (series) of the External Device to be connected and connection method. Select "General MODBUS SIO Master". In System configuration, check to make sure the external device to which you are connecting is supported in "General MODBUS SIO Master". "" "2 System Configuration" (page 4)
Port	Select the Display port to be connected to the External Device.
Use System Area	<ul> <li>Check this option to synchronize the system data area of the Display and the device (memory) of the External Device. When synchronized, you can use the External Device's ladder program to switch the display or display the window on the Display.</li> <li>Cf. GP-Pro EX Reference Manual "LS Area (Direct Access Method Area)"</li> <li>This feature can also be set in GP-Pro EX or in the Display's offline mode.</li> <li>Cf. GP-Pro EX Reference Manual "System Settings [Display Unit] - [System Area] Settings Guide"</li> <li>Cf. Maintenance/Troubleshooting Guide "Main Unit - System Area Settings"</li> </ul>

# 4 Communication Setting

Examples of communication settings of the Display and the External Device, recommended by Pro-face, are shown.

# 4.1 Setting Example 1

- GP-Pro EX Settings
- Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1	
Summary	Change Device/PLC
Manufacturer Modbus-IDA	Series General MODBUS SIO Master Port COM1
Text Data Mode 1 Change	
Communication Settings	
SIO Type 💿 RS232C 💿 RS4	22/485(2wire) C RS422/485(4wire)
Speed 19200	
Data Length 07 08	
Parity C NONE C EVE	N O ODD
Stop Bit 💿 1 💿 2	
Flow Control    NONE    C ER(I	DTR/CTS) O XON/XOFF
Timeout 3 🐳 (sec)	
Retry 2	
Wait To Send 3 📑 (ms) 🖡	Z Default Value
Mode © RTU (	) ASCII
RI/VCC © RI © VCC	
In the case of RS232C, you can select the 9th or VCC (5V Power Supply). If you use the Digit Isolation Unit, please select it to VCC.	uin to RI (Input) al's RS232C Default
Device-Specific Settings	
Allowable Number Add Device	
of Devices/PLUs 31	Add Indirect
V 1 PLC1 Slave Equipment	Address=1 Best of the bits in this would be the bits in the bits in this would be the bits in the bits in this would be the bits in the bits

NOTE
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- Select "NONE" or "ER (DTR/CTS)" for the flow control according to the cable to use.

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

#### [Equipment Configuration] Tab

C1 quipment Configuration   Function Equipment Address	n Code and Max	: Quero Ì			
quipment Configuration Function	n Code and Max	Quero			
Equipment Address					
OL E 1 1411					
Slave Equipment Address	1 ই				
Bit manipulation (set/reset) to Ho	lding Register				
Rest of the bits in this word	C Clear	⊙ Do	not clear		
process, the resulting data ma	ay be incorrect.	regiotor d	any are rea		
Address Mode	0-based (Defa	ult)	T		
If you change the setting, pleas	e reconfirm all a	address se	ettings.		
Variables					
Double Word word order	Low word first	L/H)	-		
mport <u>Export</u>					Default
		Г	OK (O)	1	Cancel

#### 💰 Individual Device Settings PLC1 Equipment Configuration Function Code and Max Query Auto adjust to frame length C Custom Frame Length 254 ÷ Start Address Range Read Boundary Write Boundary 000001 100001 300001 400001 65536 65536 65536 65536 2000 2000 125 125 01 02 04 03 OF 800 10 100 Import Export Default OK (O) Cancel

[Function Code and Max Query] Tab

## External Device Settings

External Device settings vary depending on the device. Refer to your External Device manual for details.

# 4.2 Setting Example 2

GP-Pro EX Settings

♦ Communication Settings

Device.	/PLC1					
Summ	ary					Change Device/PLC
Man	ufacturer Modbus-	IDA	Series	General MODBUS SIO M	aster F	Port COM1
Text	Data Mode	1 <u>Change</u>				
Comm	unication Settings					
s	O Type	C RS232C	O RS422/485(2w	ire) 💿 RS422/485	(4wire)	
s	peed	19200	•			
D	)ata Length	0.7	• 8			
F	Parity	O NONE	• EVEN	O ODD		
S	itop Bit	● 1	O 2			
F	low Control	NONE	C ER(DTR/CTS)	C XON/XOFF		
Т	imeout	3 📫 (s	ec)			
F	Retry	2 📫				
	Vait To Send	3 <b>—</b> (m	ns) 🔽 Default \	/alue		
ľ	dada	C		auc		
	Node	• RIU	O ASUI			
F	RI / VCC	© RI	O VCC			
	In the case of RS23	2C, you can select	the 9th pin to RI (In	put)		
	Isolation Unit, please	e select it to VCC.	the Digital's H5232		Default	
Devic	e-Specific Settings					
Allo	wable Number	Add D	evice			
of D	)evices/PLCs (	31				Add Indirect
No.	o. Device Name	Settings		D	-	Device
<b></b>	I PLC1	Slave Ed	quipment Address=1,	Hest of the bits in this wa		<b>1</b>

х

efault Incel

[Function Code and Max Query] Tab

#### Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

## [Equipment Configuration] Tab

💰 Individual Device Settings 🛛 🛛 🔀	💰 Individual Device Settings	
PLC1	PLC1	
Equipment Configuration Function Code and Max Query Compared Address State Equipment Address 1	Equipment Configuration Function Code and Max Query  C Auto adjust to frame length  C Dustom  C	
Bit manpulation (set/reset) to Holding Register Rest of the bits in this word Clear Note on when selecting 'Do not clear' If the ladder program writes data to Holding Register during the read/write process, the resulting data may be incorrect IEC61131 Syntax Address Mode Ubased [Default] If you change the setting, please reconfirm all address settings.	Start Address         Range         Read         Boundary         Write         Bou           000001         65536         01         2000         0F         800           100001         65536         02         2000             300001         65536         03         125          400001         65536         03         125         10         100	
Variables Double Word word order Low word first(L/H)		
Import Export Default	Import Export	D
OK (D) Cancel	OK (0)	Ca

## External Device Settings

External Device settings vary depending on the device. Refer to your External Device manual for details.

# 4.3 Setting Example 3

GP-Pro EX Settings

♦ Communication Settings

Devi	ce/PLC 1		
Sun	nmary		Change Device/PLC
м	anufacturer Modbu	s-IDA Series General MODBUS SIO Master	Port COM1
Τe	ext Data Mode	1 Change	
Con	nmunication Settings		
	SIO Type	C RS232C	
	Speed	19200 💌	
	Data Length	○7 ●8	
	Parity	C NONE C EVEN C ODD	
	Stop Bit	© 1 © 2	
	Flow Control	NONE     O ER(DTR/CTS)     O XON/XOFF	
	Timeout	3 (sec)	
	Retry	2 *	
	Wait To Send	3 (ms) 🔽 Default Value	
	Mode		
	RI / VCC	C RI C VCC	
	In the case of RS2	32C, you can select the 9th pin to RI (Input)	
	Isolation Unit, pleas	se select it to VCC. Default	
Dev	vice-Specific Settings		
A	llowable Number	Add Device	
0	No. Device Name	Settings	Add Indirect
X	1 PLC1	Slave Equipment Address=1,Rest of the bits in this wo	

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

[Equipment	Configuration]	Tab
------------	----------------	-----

Individual Device Settings		×	<i>\delta</i> Individual Devic	e Settings
21.01			PLC1	
Equipment Configuration Func Equipment Address Slave Equipment Address	ion Code and Max Query		Equipment Configura	ation Function C ame length
Bit manipulation (set/reset) to	Holding Register		Frame Length	254
Rest of the bits in this word	C Clear       O not clear		Start Address	Range
Note on when selecting "D If the ladder program writes process, the resulting data	a not clear" : ; data to Holding Register during the read/write may be incorrect.		000001 100001 300001 400001	65536 65536 65536
🔲 IEC61131 Syntax 👘			400001	60006
Address Mode	0-based (Default)			
If you change the setting, pla	ase reconfirm all address settings.			
Variables				
Double Word word order	Low word first(L/H)			
Import Evport		Defeut		
import <u>export</u>		Delauit	Import Export	
	OK (0)	Cancel		

#### [Function Code and Max Query] Tab

🕼 TURIAIRRAI DEAICE	seconys				
PLC1					
Equipment Configuration Function Code and Max Query					
Auto adjust to frame adjust	Auto adjust to frame length     C Custom				
Frame Length	254		÷		
Start Address 000001 100001 300001 400001 400001	Range 65536 65536 65536 65536	Read 01 02 04 03	Boundary 2000 2000 125 125	Write OF  10	Boundary 800  100
Import Export				OK (O)	Default

# External Device Settings

External Device settings vary depending on the device. Refer to your External Device manual for details.

# 4.4 Setting Example 4

- GP-Pro EX Settings
- ♦ Communication Settings

Device/PLC 1	
Summary	Change Device/PLC
Manufacturer Modbus-IDA Series General MODBUS SIO Master	Port COM1
Text Data Mode 1 Change	
Communication Settings	
SIO Type C RS232C C RS422/485(2wire) C RS422/485(4wire)	
Speed 38400 💌	
Data Length C 7 C 8	
Parity C NONE C EVEN C ODD	
Stop Bit   1  2	
Flow Control   NONE C ER(DTR/CTS) C XON/XOFF	
Timeout 3 (sec)	
Retry 2	
Wait To Send 2 (ms) 🔽 Default Value	
Mode C RTU C ASCII	
RI/VCC © RI O VCC	
In the case of RS232C, you can select the 9th pin to RI (Input)	
or VCC (5V Power Supply). If you use the Digital's RS232C Isolation Unit, please select it to VCC. Default	
Device-Specific Settings	
Allowable Number <u>Add Device</u>	
of Devices/PLCs 31	Add Indirect
No. Device Name Settings	Device
1 PLC1 Slave Equipment Address=1,Rest of the bits in this wor	<b>.</b>

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

#### [Equipment Configuration] Tab 🕌 Individual Device Settings × PLC1 Equipment Configuration Function Code and Max Query Equipment Address Slave Equipment Address ÷ Bit manipulation (set/reset) to Holding Register O not clear Rest of the bits in this word 🛛 🔿 Clear Note on when selecting "Do not clear" : If the ladder program writes data to Holding Register during the read/write process, the resulting data may be incorrect. EC61131 Syntax Address Mode 0-based (Default) If you change the setting, please reconfirm all address settings Variables Double Word word order Low word first(L/H) -Import Export Default OK (0) Cancel

#### [Function Code and Max Query] Tab

🎒 Individual Devic	e Settings				×	
PLC1						
Equipment Configurati	Equipment Configuration Function Code and Max Query					
Auto adjust to fra	me length	C C	ustom			
Frame Length	254		-			
Start Address	Range	Read	Boundary	Write	Boundary	
000001	65536	01	2000	OF	800	
100001	65536	02	2000			
300001	65536	04	125			
400001	65536	03	125	10	100	
1						
Import Export					Default	
			(	OK (0)	Cancel	

# External Device Settings (serial communication port on standard unit)

Use the programming software (Control Editor) for communication settings. Please refer to the manual of the External Device for more details.

#### Procedure

- 1. Start the programming software and create the project. The project appears in offline mode.
- 2. In the tree view, from the [CPU Parameters] double-click [Option board settings]. The [Option board settings] dialog box appears.
- 3. Define the settings in the [RS-485 communication] tab as follows, and click [OK].

Setup Items	Setting	Remarks
Purpose	Modbus Slave	
Baudrate	38.4kbps	Select the communication speed from one of the following.: 4.8kbps, 9.6kbps, 19.2kbps, 38.4kbps, 57.6kbps, 115.2kbps
Station No.	1	
Format	8-E-1	Data length: 8-bit, None parity, Stop bit: 1-bit
Analog input filter	1	

- 4. Enter online mode, and transfer the settings to the External Device.
- 5. Restart the External Device.

# 4.5 Setting Example 5

GP-Pro EX Settings

♦ Communication Settings

Device/PLC 1	
Summary	Change Device/PLC
Manufacturer Modbus-IDA Series General MODBUS SIO Master	Port COM1
Text Data Mode 1 Change	
Communication Settings	
SIO Type	
Speed 19200 🔻	
Data Length C 7 © 8	
Parity	
Stop Bit	
Flow Control   NONE  C ER(DTR/CTS)  C XON/XOFF	
Timeout 3 (sec)	
Retry 2	
Wait To Send 2 (ms) V Default Value	
Mode © RTU © ASCII	
In the case of RS232C, you can select the 9th pin to RI (Input)	
or VCC (5V Power Supply). If you use the Digital's RS232C Isolation Unit, please select it to VCC. Default	
Allowable Number Add Device	
of Devices/PLCs 31	Add Indirect
No. Device Name Settings	Device
1  PLC1  Slave Equipment Address=1,Rest of the bits in this wor	<u></u>

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

#### [Equipment Configuration] Tab 🕌 Individual Device Settings х PLC1 Equipment Configuration Function Code and Max Query Equipment Address Slave Equipment Address ÷ Bit manipulation (set/reset) to Holding Register Rest of the bits in this word C Clear O not clear Note on when selecting "Do not clear" : If the ladder program writes data to Holding Register during the read/write process, the resulting data may be incorrect. EC61131 Syntax Address Mode 0-based (Default) If you change the setting, please reconfirm all address settings Variables Low word first(L/H) • Double Word word order Import Export Default OK (0) Cancel

#### [Function Code and Max Query] Tab

ð	Individual Devic	e Settings				×
Pl	.C1					
Ē	Equipment Configurati	on Function	Code and M	ax Query		
	Auto adjust to fra	me length	0.0	ustom		
	Frame Length	254		÷		
	Start Address	Range	Read	Boundary	Write	Boundary
	000001	65536	01	2000	OF	800
	100001	65536	02	2000		
	300001	65536	04	125		
	400001	65536	03	125	10	100
1	import <u>Export</u>					Default
					ОК <mark>(</mark> О)	Cancel

# External Device Settings

Use the ladder software (GX Works2) for communication settings. Write the data to the following special data register in the ladder software.

After setting the data, turn the External Device off then back on. Please refer to the manual of the External Device for more details.

Special Data Register	Setting	Remarks
D8400	0x99	Communication Format Data length: 8-bit, None parity, Stop bit: 1-bit, Baud rate (bps): 19200, H/W type: RS232C
D8401	0x11	Protocol Protocol Selection: MODBUS serial line, Master/slave setting: MODBUS Slave, RTU/ASCII mode setting: RTU
D8411	0x02	Message to Message Delay
D8414	0x01	Slave Node Address

# 4.6 Setting Example 6

# GP-Pro EX Settings

♦ Communication Settings

Device/PLC 1		
Summary		Change Device/PLC
Manufacturer Modbu	us-IDA Series General MODBUS SIO Master	Port COM1
Text Data Mode	1 Change	
Communication Settings		
SIO Type	C RS232C C RS422/485(2wire) C RS422/485(4wire)	
Speed	19200	
Data Length	C 7 • 8	
Parity	NONE O EVEN O ODD	
Stop Bit	© 1 C 2	
Flow Control	NONE     O ER(DTR/CTS)     O XON/XOFF	
Timeout	3 (sec)	
Retry	2	
Wait To Send	2 (ms) V Default Value	
Mode		
RI / VCC	© RI O VCC	
In the case of RS	232C, you can select the 9th pin to RI (Input)	
Isolation Unit, ple	ase select it to VCC. Default	
Device-Specific Setting	s	
Allowable Number	Add Device	
No Device Name	Settings	Add Indirect
1 PLC1	Slave Equipment Address=1,Rest of the bits in this wor	
	- 200 F	

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

#### [Equipment Configuration] Tab 🕌 Individual Device Settings х PLC1 Equipment Configuration Function Code and Max Query Equipment Address Slave Equipment Address ÷ Bit manipulation (set/reset) to Holding Register Rest of the bits in this word C Clear Do not clear Note on when selecting "Do not clear" : If the ladder program writes data to Holding Register during the read/write process, the resulting data may be incorrect. EC61131 Syntax Address Mode 0-based (Default) If you change the setting, please reconfirm all address settings Variables Low word first(L/H) • Double Word word order Import Export Default OK (0) Cancel

#### [Function Code and Max Query] Tab

Individual Devic	e Settings				×
.C1					
Equipment Configurati	on Function	Code and Ma	ax Query		
Auto adjust to fra	me length	C C	ustom		
Frame Length	254		1		
Start Address	Range	Read	Boundary	Write	Boundary
000001	65536	01	2000	OF	800
100001	65536	02	2000	-	
300001	65536	04	125	-	
400001	65536	03	125	10	100
,					
import <u>Export</u>					Default
			(	DK (0)	Cancel
	Individual Devic C1 auioment Configurat C Auto adjust to fra Frame Length Start Address 000001 100001 300001 400001 mport Export	Individual Device Settings C1 automent Configuration Function ( C Auto adjust to frame length Frame Length 254 Star Address Range 000001 65536 100001 65536 400001 65536 400001 65536	Individual Device Settings C1 auioment Configuration Function Code and Mi Auto adjust to frame length C C C Frame Length 254 Start Address Range Read 000001 65536 01 100001 65536 02 300001 65536 04 400001 65536 03 moort Export	Individual Device Settines           C1           auioment Configuration         Function Code and Max Query                • Auto adjust to frame length               • C Lustom                 • Auto adjust to frame length               • C Lustom                 rane Length               • C Lustom                 rane Length               254                 start Address               Range               Read               Boundary                 100001             65536             01             2000	Individual Device Settings           C1           automent Configuration           Function Code and Max Query           C Lato adjust to frame length           C Custom           Frame Length           Start Address           Range           Read           Boundary           Write           000001           65536           01           100001           65536           03           125           400001           65536           03           125           10

# External Device Settings

Use the ladder software (GX Works2) for communication settings. Write the data to the following special data register in the ladder software.

After setting the data, turn the External Device off then back on. Please refer to the manual of the External Device for more details.

Special Data Register	Setting	Remarks
D8400	0x1099	Communication Format Data length: 8-bit, None parity, Stop bit: 1-bit, Baud rate (bps): 19200, H/W type: RS485
D8401	0x11	Protocol Protocol Selection: MODBUS serial line, Master/slave setting: MODBUS Slave, RTU/ASCII mode setting: RTU
D8411	0x02	Message to Message Delay
D8414	0x01	Slave Node Address

# 4.7 Setting Example 7

■ GP-Pro EX Settings

♦ Communication Settings

Device/PLC 1	
Summary	Change Device/PLC
Manufacturer Modbus-IDA Series General MODBUS SIO Master	Port COM1
Text Data Mode 1 Change	
Communication Settings	
SIO Type C RS232C C RS422/485(2wire) C RS422/485(4wire)	
Speed 19200 💌	
Data Length C 7 C 8	
Parity  © NONE  © EVEN  © ODD	
Stop Bit    1	
Flow Control  O NONE  O ER(DTR/CTS)  O XON/XOFF	
Timeout 3 (sec)	
Retry 2	
Wait To Send 2 (ms) 🔽 Default Value	
RI/VCC 💿 RI C/VCC	
In the case of RS232C, you can select the 9th pin to RI (Input) or VCC (5V Power Supply) If you use the Digital's RS232C	
Isolation Unit, please select it to VCC. Default	
Device-Specific Settings	
Allowable Number Add Device	
No. Device Name Settings	Add Indirect Device
1 PLC1 In Slave Equipment Address=1,Rest of the bits in this wor	<b>F</b>

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

#### [Equipment Configuration] Tab 🕌 Individual Device Settings х PLC1 Equipment Configuration Function Code and Max Query Equipment Address Slave Equipment Address ÷ Bit manipulation (set/reset) to Holding Register Rest of the bits in this word C Clear O not clear Note on when selecting "Do not clear" : If the ladder program writes data to Holding Register during the read/write process, the resulting data may be incorrect. EC61131 Syntax Address Mode 0-based (Default) If you change the setting, please reconfirm all address settings Variables Low word first(L/H) • Double Word word order Import Export Default OK (0) Cancel

#### [Function Code and Max Query] Tab

ð	Individual Devic	e Settings				×
Pl	.C1					
Ē	quipment Configurati	on Function	Code and M	ax Query		
	Auto adjust to fra	me length	0.0	ustom		
	Frame Length	254		÷		
	Start Address	Range	Read	Boundary	Write	Boundary
	000001	65536	01	2000	OF	800
	100001	65536	02	2000		
	300001	65536	04	125		
	400001	65536	03	125	10	100
1	import <u>Export</u>					Default
					ОК <mark>(</mark> О)	Cancel

# External Device Settings

Use the ladder software (GX Works2) for communication settings. Write the data to the following special data register in the ladder software.

After setting the data, turn the External Device off then back on. Please refer to the manual of the External Device for more details.

Special Data Register	Setting	Remarks
D8400	0x1099	Communication Format Data length: 8-bit, None parity, Stop bit: 1-bit, Baud rate (bps): 19200, H/W type: RS485
D8401	0x11	Protocol Protocol Selection: MODBUS serial line, Master/slave setting: MODBUS Slave, RTU/ASCII mode setting: RTU
D8411	0x02	Message to Message Delay
D8414	0x01	Slave Node Address

# 4.8 Setting Example 8

GP-Pro EX Settings

♦ Communication Settings

Device/PLC 1	
Summary	Change Device/PLC
Manufacturer Modbus-IDA Series General MODBUS SIO Master	Port COM1
Text Data Mode 1 Change	
Communication Settings	
SIO Type © RS232C © RS422/485(2wire) © RS422/485(4wire)	
Speed 115200	
Data Length C 7 📀 8	
Parity © NONE C EVEN C ODD	
Stop Bit © 1 C 2	
Flow Control   O NONE   O ER(DTR/CTS)   O XON/XOFF	
Timeout 1 (sec)	
Retry 0	
Wait To Send 1 🚔 (ms) 🔽 Default Value	
Mode © RTU C ASCII	
RI/VCC  © RI  © VCC	
In the case of RS232C, you can select the 9th pin to RI (Input) or VCC (5V Power Supply). If you use the Digital's RS232C	
Isolation Unit, please select it to VCC. Default	
Device-Specific Settings	
Allowable Number <u>Add Device</u>	
No. Device Name Settings	Add Indirect Device
1 PLC1 In Slave Equipment Address=208,Rest of the bits in this v	1

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

#### [Equipment Configuration] Tab 🕌 Individual Device Settings × PLC1 Equipment Configuration Function Code and Max Query Equipment Address Slave Equipment Address 208 ÷ Bit manipulation (set/reset) to Holding Register Note on when selecting "Do not clear" : If the ladder program writes data to Holding Register during the read/write process, the resulting data may be incorrect. IEC61131 Syntax Address Mode 0-based (Default) If you change the setting, please reconfirm all address settings. Variables Double Word word order Low word first(L/H) • Import Export Default OK (0) Cancel

#### [Function Code and Max Query] Tab

è	Individual Devic	e Settings					×
Р	LC1						
jī	Equipment Configurat	ion Function	Code and M	ax Query			
	Auto adjust to fra	ame length	C C	ustom			
	Frame Length	254		-			
	Start Address	Range	Read	Boundary	Write	Boundary	
	000001	65536	01	2000	OF	800	
	100001	65536	02	2000	-		
	300001	65536	04	125	-		
	400001	65536	03	125	10	100	
	,						
	Import <u>Export</u>					Default	
					0K (0)	Cancel	

## External Device Settings (serial communication port on standard unit)

Communication settings are fixed, as follows.

Setup Items	Setting
Baud rate	115.2 Kbps
Slave address	208
Data length	8 bit
Parity bit	None
Start bit	1 bit
Stop bit	1 bit

#### Setting Example 9 4.9

- GP-Pro EX Settings
- Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1		
Summary		Change Device/PLC
Manufacturer Modbus	-IDA Series General MODBUS SIO Master	Port COM1
Text Data Mode	1 Change	
Communication Settings		
SIO Type	RS232C     RS422/485(2wire)     RS422/485(4wire)	
Speed	115200 ~	
Data Length	7 • 8	
Parity	● NONE ○ EVEN ○ ODD	
Stop Bit	● 1 ○ 2	
Flow Control	NONE     O ER(DTR/CTS)     O XON/XOFF	
Timeout	3 (sec)	
Retry	0	
Wait To Send	0 (ms) Default Value	
Mode	RTU O ASCII	
RI / VCC		
In the case of RS2 or VCC (5V Power Isolation Unit, plea	32C, you can select the 9th pin to RI (Input) Supply). If you use the Digital's RS232C se select it to VCC. Default	
Device-Specific Settings		
Allowable Number	Add Device	
No. Device Name	31 Settinge	Add Indirect
X 1 PLC1	Slave Equipment Address=1. Rest of the bits in this wor	
		<b>F</b> 11

#### Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings] In .

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

[Equipment Configuration] Tab	[Function Code and Max Query] Tab
🍰 Individual Device Settings 🛛 🕹 🗙	Individual Device Settings
PLC1	PLC1
Equipment Configuration Function Code and Max Query Equipment Address Slave Equipment Address 1 \$	Equipment Configuration Function Code and Max Query O Auto adjust to frame length  O Custom
Bit manipulation (set/reset) to Holding Register Rest of the bits in this word O Clear O Do not clear Note on when selecting "Do not clear" : If the ladder program writes data to Holding Register during the read/write process, the resulting data may be incorrect.	Add         Controlucation         Delete           Start Address         Range         Read         Boundary         Write         Boundary           000001         65536         01         2000         0F         800           100001         65536         02         2000         -
IEC61131 Syntax Address Mode Obased (Default) If you change the setting, please reconfirm all address settings.	400001 65536 04 125
Variables Double Word word order Low word first(L/H) V	
Import Export Default OK (0) Cancel	Import Export Default OK (0) Cancel

# External Device Settings

Use the MODE selector switch on the RCON-GW and the Parameter Configuration Tool in the IAI GateWay Unit Software for defining communication settings. Please refer to the manual of the External Device for more details.

## Procedure

- 1. Set the RCON-GW's MODE selector switch to "MANU".
- 2. Start the Parameter Configuration Tool.
- 3. From SelectGwType, select "RCON".
- 4. Click [Port Config] to set the COM port to use for communication.
- 5. Click [OK].
- 6. Click [Read].
- 7. Click [Detail setting].
- From the Axis No.assgnmt / unit config, click [Manual].
   To change the axis number assignment and edit the driver unit, click [Change].
- 9. Set the axis number assignment and click [OK].
- 10. Click [Write].

# 4.10 Setting Example 10

- GP-Pro EX Settings
- Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1		
Summary		Change Device/PLC
Manufacturer Modbus-	DA Series General MODBUS SIO Master	Port COM2
Text Data Mode	1 Change	
Communication Settings		
SIO Type	○ RS232C ○ RS422/485(2wire)	
Speed	19200 🗸	
Data Length	7 08	
Parity	○ NONE	
Stop Bit		
Flow Control	NONE O ER(DTR/CTS) O XON/XOFF	
Timeout	3 (sec)	
Retry	0	
Wait To Send	0 (ms) Default Value	
Mada		
Mode	RTU O ASCII     Default	
Device-Specific Settings		
Allowable Number of Devices/PLCs 3	Add Device	
No. Device Name	Settings	Add Indirect Device
👗 1 PLC1	Slave Equipment Address=1,Rest of the bits in this wor	5

#### Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

[Equipm	nent Configuration] Tab
🍯 Individual Device Settings	×
PLC1	
Equipment Configuration Functi Equipment Address	ion Code and Max Query
Slave Equipment Address	1
Bit manipulation (set/reset) to Ho	olding Register
Rest of the bits in this word	O Clear   Do not clear
Note on when selecting "Do If the ladder program writes process, the resulting data	onot clear" : a data to Holding Register during the read/write may be incorrect.
EC61131 Syntax	
Address Mode	0-based (Default) $$
If you change the setting, plea	ase reconfirm all address settings.
Variables	
Double Word word order	Low word first(L/H) $\qquad \checkmark$
Import Export	Default
	OK (0) Cancel

[Function Code and Max Query] Tab

Equipment Configura	ation Functio	n Code and I	Max Query		
Auto adjust to fi	rame length	0	Custom		
Frame Length	254		•		
Start Address	Range	Read	Boundary	Write	Boundary
000001	65536	01	2000	0F	800
100001	65536	02	2000	-	
300001	65536	04	125	-	
400001	65536	03	125	10	100
mport Export					Default

# External Device Settings

Use ladder software KV STUDIO Ver. 8 or later to define the External Device communication settings. Refer to your External Device manual for details.

## Procedure

- 1. Start up the ladder software.
- 2. From the [File] menu, select [New project] to display the [New project] dialog box.
- 3. In the [Project name] field enter the project name, in the [PLC model] property select the External Device, and click [OK].
- 4. In the [Confirm unit setting information] dialog box click [Yes], and the [Unit Editor] window will display.
- 5. On the [Select unit] tab, from the displayed list of units select "[1] KV-XL402", then drag & drop to the unit placement area.
- 6. In the unit placement area click "[1] KV-XL402" and then select the [Setup unit] tab.
- 7. Configure the setup items as follows.

Setup Items	Setup Description
Operation Mode	Modbus Slave Mode
Interface	RS-422A/485 (4-wire)
Baud Rate	19200bps
Data Bit Length	8 bits (Fixed value)
Start Bit	1 bit (Fixed value)
Stop Bit	1 bit
Parity	Even
Check Sum	None (Fixed value)
Modbus slave Station No. setting method	Unit Editor
Modbus slave Station No.	1

- 8. From the [Convert] menu, select [Auto-assign relay/DM].
- 9. From the [File] menu, select [Close] and display the [Unit Editor] dialog box.
- 10. Click [Yes].
- 11. From the [Monitor/Simulator] menu, select [Transfer to PLC] to display the [Transfer Program] dialog box.
- 12. Select the [Unit setting info] and [Program] check boxes, and then click [Execute].
  - The settings are transferred.

This completes the setting of the External Device.

# 4.11 Setting Example 11

- GP-Pro EX Settings
- Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1		
Summary		Change Device/PLC
Manufacturer Modbus	-IDA Series General MODBUS SIO Master	Port COM2
Text Data Mode	1 Change	
Communication Settings		
SIO Type	○ RS232C ○ RS422/485(2wire)	
Speed	9600 ~	
Data Length	7 08	
Parity		
Stop Bit		
Flow Control	NONE     O ER(DTR/CTS)     O XON/XOFF	
Timeout	3 (sec)	
Retry	0	
Wait To Send	0 (ms) Default Value	
Marcho Sona		
Mode	RTU O ASCII     Default	
Device-Specific Settings		
Allowable Number of Devices/PLCs	Add Device	
No. Device Name	Settinas	Add Indirect Device
X 1 PLC1	Slave Equipment Address=1,Rest of the bits in this wor	

#### Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

[Equipn	nent Configuration] Tab
🗯 Individual Device Settings	>
PLC1	
Equipment Configuration Funct Equipment Address	tion Code and Max Query
Slave Equipment Address	1
Bit manipulation (set/reset) to H	lolding Register
Rest of the bits in this word	O Clear       O Do not clear
Note on when selecting "D If the ladder program write process, the resulting data	o not clear" : s data to Holding Register during the read/write may be incorrect.
EC61131 Syntax	
Address Mode	0-based (Default) 🗸
If you change the setting, ple	ase reconfirm all address settings.
Variables	
Double Word word order	Low word first(L/H) $\qquad \checkmark$
Import Export	Default
	OK (O) Cancel

[Function Code and Max Query] Tab

Equipment Configura	tion Functio	n Code and I	Max Query		
<ul> <li>Auto adjust to fi</li> <li>Frame Length</li> </ul>	rame length 254	0	Lustom		
Start Address	Range	Read	Boundary	Write	Boundary
000001 100001 200001	65536 65536	01 02	2000 2000	0F 	800
400001	65536	03	125	10	100

# External Device Settings

Use ladder software KV STUDIO Ver. 8 or later to define the External Device communication settings. Refer to your External Device manual for details.

## Procedure

- 1. Start up the ladder software.
- 2. From the [File] menu, select [New project] to display the [New project] dialog box.
- 3. In the [Project name] field enter the project name, in the [PLC model] property select the External Device, and click [OK].
- 4. In the [Confirm unit setting information] dialog box click [Yes], and the [Unit Editor] window will display.
- 5. On the [Select unit] tab, from the displayed list of units select "[1] KV-XL402", then drag & drop to the unit placement area.
- 6. In the unit placement area click "[1] KV-XL402" and then select the [Setup unit] tab.
- 7. Configure the setup items as follows.

Setup Items	Setup Description
Operation Mode	Modbus Slave Mode
Interface	RS-422A/485 (4-wire)
Baud Rate	9600bps
Data Bit Length	8 bits (Fixed value)
Start Bit	1 bit (Fixed value)
Stop Bit	1 bit
Parity	Even
Check Sum	None (Fixed value)
Modbus slave Station No. setting method	Unit Editor
Modbus slave Station No.	1

- 8. From the [Convert] menu, select [Auto-assign relay/DM].
- 9. From the [File] menu, select [Close] and display the [Unit Editor] dialog box.
- 10. Click [Yes].
- 11. From the [Monitor/Simulator] menu, select [Transfer to PLC] to display the [Transfer Program] dialog box.
- 12. Select the [Unit setting info] and [Program] check boxes, and then click [Execute].
  - The settings are transferred.

This completes the setting of the External Device.

# 4.12 Setting Example 12

- GP-Pro EX Settings
- Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1		
Summary		Change Device/PLC
Manufacturer Modbu	s-IDA Series General MODBUS SIO Master	Port COM2
Text Data Mode	1 Change	
Communication Settings		
SIO Type	○ RS232C ○ RS422/485(2wire)	
Speed	9600 ~	
Data Length	07   8	
Parity		
Stop Bit		
Flow Control	NONE     O ER(DTR/CTS)     O XON/XOFF	
Timeout	3 (sec)	
Retry	2	
Wait To Send	5 🚔 (ms) 🔽 Default Value	
Mode		
mode	O ASCII Default	
Device-Specific Settings		
Allowable Number of Devices/PLCs	Add Device 31	
No. Device Name	Settings	Add Indirect Device
👗 1 PLC1	Slave Equipment Address=1,Rest of the bits in this wor	<b>F</b>

#### Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

[Equipment Configuration] Tab				
🗯 Individual Device Settings	:	×		
PLC1				
Equipment Configuration Funct Equipment Address	tion Code and Max Query			
Slave Equipment Address	1 🗢			
Bit manipulation (set/reset) to H	lolding Register			
Rest of the bits in this word	O Clear			
Note on when selecting "D If the ladder program write process, the resulting data	o not clear" : s data to Holding Register during the read/write a may be incorrect.			
EC61131 Syntax				
Address Mode	0-based (Default) V			
If you change the setting, ple	ase reconfirm all address settings.			
Variables				
Double Word word order	Low word first(L/H) $\qquad \checkmark$			
Import Export	Default			
	OK (0) Cancel	1		

[Function Code and Max Query] Tab

Equipment Configura	ation Functio	n Code and I	Max Query		
<ul> <li>Auto adjust to fi</li> <li>Frame Length</li> </ul>	rame length 254	0	Lustom		
Start Address	Range	Read	Boundary	Write	Boundary
000001 100001 200001	65536 65536	01 02	2000 2000	0F 	800
400001	65536	03	125	10	100

# External Device Settings

For External Device communication settings, use the ladder software (CX-Programmer). Refer to your External Device manual for details.

#### Procedure

- 1. Start up the ladder software.
- 2. Select [New] in the [File] menu to display [Change PLC] dialog box.
- 3. Select External Device in the [Device Type].
- 4. Click [Settings...] in the [Device Type] to display the [Device Type Settings] dialog box.
- 5. Select CPU type in the [CPU Type] and click [OK].
- 6. Select connection type in the [Network Type].
- 7. Click [OK].
- 8. Double click [Settings] in the tree view of the work space to display the [PLC Settings] dialog box.
- 9. Check "Custom" in the [Communications Settings] of the [Serial Port 1] tab.
- 10. Set the setup items as below..

Setup Items	Setting Value
Baud	9600
Format	8,1,E
Mode	Modbus RTU Slave
Modbus Slave Address	1

- 11. Close the [PLC Settings] dialog box.
- 12. Transfer the communication settings to External Device.
- 13. Reboot the External Device.

#### Notes

• Do not set the duplicate node address in the same network address group.
# 4.13 Setting Example 13

- GP-Pro EX Settings
- Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1		
Summary		Change Device/PLC
Manufacturer Modbu	s-IDA Series General MODBUS SIO Master	Port COM2
Text Data Mode	1 Change	
Communication Settings		
SIO Type	○ RS232C	
Speed	9600 ~	
Data Length	07   8	
Parity		
Stop Bit		
Flow Control	NONE     O ER(DTR/CTS)     O XON/XOFF	
Timeout	3 (sec)	
Retry	2	
Wait To Send	5 🛋 (ms) 🔽 Default Value	
Mode		
mode	O ASCII Default	
Device-Specific Settings		
Allowable Number of Devices/PLCs	Add Device 31	
No. Device Name	Settings	Add Indirect Device
👗 1 PLC1	Slave Equipment Address=1,Rest of the bits in this wor	<b>F</b> 0

#### Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

[Equipn	nent Configuration] Tab
≶ Individual Device Settings	×
PLC1	
Equipment Configuration Funct Equipment Address	tion Code and Max Query
Slave Equipment Address	1
Bit manipulation (set/reset) to H	olding Register
Rest of the bits in this word	O Clear       O not clear
Note on when selecting "D If the ladder program write process, the resulting data	o not clear" : s data to Holding Register during the read/write a may be incorrect.
EC61131 Syntax	
Address Mode	0-based (Default) $\sim$
If you change the setting, ple	ase reconfirm all address settings.
Variables	
Double Word word order	Low word first(L/H) $\qquad \checkmark$
Import Export	Default
	OK (O) Cancel

[Function Code and Max Query] Tab

quipment Configura	ation Functio	n Code and I	Max Query		
Auto adjust to f	rame length	0	Custom		
Frame Length	254		<b></b>		
Start Address	Range	Read	Boundary	Write	Boundary
000001	65536	01	2000	0F	800
100001	65536	02	2000		
300001	65536	04	125	-	
400001	63336	03	125	10	100

For External Device communication settings, use the ladder software (CX-Programmer). Refer to your External Device manual for details.

### Procedure

- 1. Start up the ladder software.
- 2. Select [New] in the [File] menu to display [Change PLC] dialog box.
- 3. Select External Device in the [Device Type].
- 4. Click [Settings...] in the [Device Type] to display the [Device Type Settings] dialog box.
- 5. Select CPU type in the [CPU Type] and click [OK].
- 6. Select connection type in the [Network Type].
- 7. Click [OK].
- 8. Double click [Settings] in the tree view of the work space to display the [PLC Settings] dialog box.
- 9. Select the tab for the port to be used, and check "Custom" in the [Communications Settings].
- 10. Set the setup items as below..

Setup Items	Setting Value
Baud	9600
Format	8,1,E
Mode	Modbus RTU Slave
Modbus Slave Address	1

- 11. Close the [PLC Settings] dialog box.
- 12. Transfer the communication settings to External Device.
- 13. Reboot the External Device.

### Notes

• Do not set the duplicate node address in the same network address group.

# 4.14 Setting Example 14

- GP-Pro EX Settings
- Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1		
Summary		Change Device/PLC
Manufacturer Modbu	s-IDA Series General MODBUS SIO Master	Port COM1
Text Data Mode	1 Change	
Communication Settings		
SIO Type	RS232C      RS422/485(2wire)      RS422/485(4wire)     RS422/485(4wire)	
Speed	9600 🗸	
Data Length	○ 7	
Parity	○ NONE	
Stop Bit		
Flow Control	NONE     O ER(DTR/CTS)     XON/XOFF	
Timeout	3 (sec)	
Retry	2	
Wait To Send	5 (ms) 🔽 Default Value	
Mode	● RTU ○ ASCII	
RI / VCC		
In the case of RS2 or VCC (5V Power Isolation Unit, plea	I32C, you can select the 9th pin to RI (Input) · Supply). If you use the Digital's RS232C ase select it to VCC. Default	
Device-Specific Settings	3	
Allowable Number	Add Device	
No. Device Name	Settings	Add Indirect Device
3 1 PLC1	Slave Equipment Address=1,Rest of the bits in this wor	

Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

🍜 Individual Device Settings	$\times$					
PLC1						
Equipment Configuration Function Code and Max Query Equipment Address						
Slave Equipment Address						
Bit manipulation (set/reset) to Holding Register						
Rest of the bits in this word O Clear  O Do not clear						
Note on when selecting "Do not clear" : If the ladder program writes data to Holding Register during the read/write process, the resulting data may be incorrect.						
IEC61131 Syntax						
Address Mode 0-based (Default) $\vee$						
If you change the setting, please reconfirm all address settings.						
Variables						
Double Word word order Low word first(L/H) ~						
Import Export Default						
OK (O) Cancel						

[Equipment Configuration] Tab



uipment Configura	ation Functio	n Code and I	Max Query		
Auto adjust to f	rame length	0	Custom		
rame Length	254		•		
Start Address	Range	Read	Boundary	Write	Boundary
000001	65536	01	2000	0F	800
100001	65536	02	2000		
300001	65536	04	125	-	
400001	65536	03	125	10	100
most Evenest					Dofault

For External Device communication settings, use the ladder software (CX-Programmer). Refer to your External Device manual for details.

### Procedure

- 1. Start up the ladder software.
- 2. Select [New] in the [File] menu to display [Change PLC] dialog box.
- 3. Select External Device in the [Device Type].
- 4. Click [Settings...] in the [Device Type] to display the [Device Type Settings] dialog box.
- 5. Select CPU type in the [CPU Type] and click [OK].
- 6. Select connection type in the [Network Type].
- 7. Click [OK].
- 8. Double click [Settings] in the tree view of the work space to display the [PLC Settings] dialog box.
- 9. Select the tab for the port to be used, and check "Custom" in the [Communications Settings].
- 10. Set the setup items as below..

Setup Items	Setting Value
Baud	9600
Format	8,1,E
Mode	Modbus RTU Slave
Modbus Slave Address	1

- 11. Close the [PLC Settings] dialog box.
- 12. Transfer the communication settings to External Device.
- 13. Reboot the External Device.

### Notes

• Do not set the duplicate node address in the same network address group.

# 4.15 Setting Example 15

- GP-Pro EX Settings
- Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1			
Summary			Change Device/PLC
Manufacturer Modbus	IDA Series General	MODBUS SIO Master	Port COM1
Text Data Mode	1 Change		
Communication Settings			
SIO Type	RS232C     RS422/485(2wire)	RS422/485(4wire)	
Speed	115200 ~		
Data Length	07 🛞 8		
Parity	O NONE	ODD	
Stop Bit			
Flow Control	● NONE ○ ER(DTR/CTS) ○	XON/XOFF	
Timeout	3 🔹 (sec)		
Retry	2		
Wait To Send	1 🔶 (ms) 🔽 Default Value		
Mode	RTU O ASCII		
RI / VCC			
In the case of RS2 or VCC (5V Power Isolation Unit, plea	2C, you can select the 9th pin to RI (Input) Supply). If you use the Digital's RS232C ie select it to VCC.	Default	
Device-Specific Settings			
Allowable Number	Add Device		
of Devices/PLCs	\$1 C=#i===		Add Indirect
No. Device Name	Settings	al las stats	Device
I PLC1	Slave Equipment Address=1, Rest of	the bits in this wor	μų

Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

Individual Device Settings	🎒 Indiv
PLC1	PLC1
Equipment Configuration Function Code and Max Query Equipment Address Slave Equipment Address 1	Equipme O Aut
Bit manipulation (set/reset) to Holding Register Rest of the bits in this word O Clear  Note on when selecting "Do not clear" If the ladder program writes data to Holding Register during the read/write process, the resulting data may be incorrect. DIEC61131 Syntax Address Mode Ubased (Default) If you change the setting, please reconfirm all address settings.	Add Start 0000 0020 1000 3000 3000 4000
Variables Double Word word order Low word first(L/H) Import Export Default	Import
OK (O) Cancel	

[Equipment Configuration] Tab



) Autoadjust to Add Configura	frame length ation Delete	۲	Custom		
Start Address	Range	Read	Boundary	Write	Boundary
000001	1760	01	2000	0F	800
02049	8192	01	2000	0F	800
100001	1760	02	2000	-	
300001	128	04	125	-	
02001	256	04	125	-	
400001	65536	03	125	10	100

Use the programming software (FPWIN GR7) to set up communication settings on the External Device. For details on communication settings, please refer to the manual of the External Device.

### Procedure

- 1. Start up the programming software.
- 2. Select the series for the External Device.
- 3. Click [OK] to display a new project.
- 4. From the menu bar, select [Option]-[System register settings...].
- 5. Click the port ("COM0 Port", "COM1 Port" or "COM2 Port") to be used in [PLC Configuration].
- 7. Set the each item as follows, and click [OK].

Setup Ite	ms	Setting Value	
Unit No.		1	
Communication N	lode	MODBUS RTU	
Modem Enabled		Disable	
Baud Rate		115200 bps	
	Char. Bit	8 bits	
Communication format	Parity	Even	
	Stop Bit	1	

# 4.16 Setting Example 16

- GP-Pro EX Settings
- Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1		
Summary		Change Device/PLC
Manufacturer Modbus-	IDA Series General MODBUS SIO Master	Port COM2
Text Data Mode	1 Change	
Communication Settings		
SIO Type	○ RS232C	
Speed	115200 ~	
Data Length	O 7 ● 8	
Parity	○ NONE	
Stop Bit		
Flow Control	● NONE ○ ER(DTR/CTS) ○ XON/XOFF	
Timeout	3 (sec)	
Retry	2	
Wait To Send	1 (ms) Default Value	
Mode		
mode	O ASCII Default	
Device-Specific Settings		
Allowable Number of Devices/PLCs 3	Add Device	
No. Device Name	Settings	Add Indirect Device
👗 1 PLC1	Slave Equipment Address=1,Rest of the bits in this wor	<b>F</b>

#### Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

🎒 Individual Device Sett	ngs X
PLC1	
Equipment Configuration Equipment Address	Function Code and Max Query
Slave Equipment Addre	ess 1 🚖
Bit manipulation (set/reset	) to Holding Register
Rest of the bits in this	word O Clear   Do not clear
Note on when selecti If the ladder program process, the resulting	ng "Do not clear" : writes data to Holding Register during the read/write g data may be incorrect.
EC61131 Syntax	
Address Mode	0-based (Default) $\checkmark$
If you change the settin	g, please reconfirm all address settings.
Variables	
Double Word word ord	er Low word first(L/H) ~
Import Export	Default
	OK (0) Cancel

[Equipment Configuration] Tab

[Function Code and Max Query] Tab

) Auto adjust to	frame length	<ul> <li>(i) Code and i</li> <li>(ii) Code and i</li> </ul>	Custom		
Add Configura	<u>ition Delete</u> Range	Read	Boundary	Write	Boundary
000001	1760	01	2000	0F	800
002049	8192	01	2000	0F	800
100001	1760	02	2000	-	
300001	128	04	125		
302001	256	04	125		
400001	65536	03	125	10	100
					1

Use the programming software (FPWIN GR7) to set up communication settings on the External Device. For details on communication settings, please refer to the manual of the External Device.

### Procedure

- 1. Start up the programming software.
- 2. Select the series for the External Device.
- 3. Click [OK] to display a new project.
- 4. From the menu bar, select [Option]-[System register settings...].
- 5. Click the port ("COM0 Port", "COM1 Port" or "COM2 Port") to be used in [PLC Configuration].
- 7. Set the each item as follows, and click [OK].

Setup Items		Setting Value	
Unit No.		1	
Communication Mode		MODBUS RTU	
Modem Enabled		Disable	
Baud Rate		115200 bps	
	Char. Bit	8 bits	
Communication format	Parity	Even	
	Stop Bit	1	

# 4.17 Setting Example 17

- GP-Pro EX Settings
- Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1		
Summary		Change Device/PLC
Manufacturer Modbus	s-IDA Series General MODBUS SIO Master	Port COM2
Text Data Mode	1 Change	
Communication Settings		
SIO Type	RS232C O RS422/485(2wire)	
Speed	115200 ~	
Data Length	07   8	
Parity		
Stop Bit	● 1 ○ 2	
Flow Control	NONE     O ER(DTR/CTS)     O XON/XOFF	
Timeout	3 (sec)	
Retry	2	
Wait To Send	1 (ms) Z Default Value	
Wait to Solid		
Mode	RTU O ASCII     Default	
Device-Specific Settings		
Allowable Number of Devices/PLCs	Add Device	
No. Device Name	Settinas	Add Indirect Device
X 1 PIC1	Slave Equipment Address=1 Rest of the bits in this work	
		E II

#### Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

[Equipr	nent Configuration] Tab
🍯 Individual Device Settings	×
PLC1	
Equipment Configuration Func Equipment Address	tion Code and Max Query
Slave Equipment Address	1
Bit manipulation (set/reset) to H	Holding Register
Rest of the bits in this word	O Clear
Note on when selecting "D If the ladder program write process, the resulting data	No not clear" : is data to Holding Register during the read/write a may be incorrect.
EC61131 Syntax	
Address Mode	0-based (Default) 🗸
If you change the setting, ple	ase reconfirm all address settings.
Variables	
Double Word word order	Low word first(L/H) ~
Import Export	Default
	OK (O) Cancel

[Function Code and Max Query] Tab

) Auto adjust to	frame length	<ul> <li>• • •</li> </ul>	Custom		
Add Configura	ation Delete				
Start Address 400001	Range 9999	Read 03	Boundary 125	Write 10	Boundary 100

Use the PU/EXT key, MODE key, M dial and SET key in the operation panel of the CPU unit for External Device communication settings.

Refer to your External Device manual for details.

#### Procedure

- 1. Turn ON the power supply.
- 2. Press PU/EXT key to select the PU operation mode.
- 3. Press MODE key to select the parameter setting mode.
- 4. Display the setting parameter number with M dial.
- 5. Press SET key to display the current setting value.
- 6. Set the setting value with M dial.
- 7. Press SET key to confirm the setting value.

Setting Parameter Number	Setting Value	Setup Description
331 (N030)	1	Inverter station number
332 (N031)	1152	RS-485 communication speed
N032	0	RS-485 communication data length: 8 bits (fixed)
334 (N034)	2	RS-485 communication parity check selection: Even parity check available. Stop bit length: 1 bit.
549	1	Protocol Selection: MODBUS RTU protocol

	L
NOTE	

• Always restart the Eternal Device after changing parameters.

# 4.18 Setting Example 18

- GP-Pro EX Settings
- Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1		
Summary		Change Device/PLC
Manufacturer Modbus	-IDA Series General MODBUS SIO Master	Port COM2
Text Data Mode	1 Change	
Communication Settings		
SIO Type	○ RS232C	
Speed	115200 🗸	
Data Length	07 💿 8	
Parity		
Stop Bit	● 1 ○ 2	
Flow Control	NONE     O ER(DTR/CTS)     O XON/XOFF	
Timeout	3 (sec)	
Retry	2	
Wait To Send	0 (ms) Default Value	
Mode	RTU O ASCII     Default	
Device-Specific Settings Allowable Number of Devices/PLCs	Add Device 31	Add Indicast
No. Device Name	Settings	Device
👗 1 PLC1	Slave Equipment Address=1,Rest of the bits in this wor	<b>F</b> 1

#### Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

[Equipn	nent Configuration] Tab
🎒 Individual Device Settings	×
PLC1	
Equipment Configuration Funct Equipment Address	ion Code and Max Query
Slave Equipment Address	1
Bit manipulation (set/reset) to He	olding Register
Rest of the bits in this word	O Clear
Note on when selecting "Do If the ladder program writes process, the resulting data	onot clear" : s data to Holding Register during the read/write may be incorrect.
EC61131 Syntax	
Address Mode	0-based (Default) $\sim$
If you change the setting, plea	ase reconfirm all address settings.
Variables	
Double Word word order	Low word first(L/H) $\qquad \checkmark$
Import Export	Default
	OK (0) Cancel

[Function Code and Max Query] Tab

) Auto adjust to t	frame length	١	Custom		
Add Configura Start Address 400001	Range 9999	Read 03	Boundary 125	Write 10	Boundary 100

Use the PU/EXT key, MODE key, M dial and SET key in the operation panel of the CPU unit for External Device communication settings.

Refer to your External Device manual for details.

#### Procedure

- 1. Turn ON the power supply.
- 2. Press PU/EXT key to select the PU operation mode.
- 3. Press MODE key to select the parameter setting mode.
- 4. Display the setting parameter number with M dial.
- 5. Press SET key to display the current setting value.
- 6. Set the setting value with M dial.
- 7. Press SET key to confirm the setting value.

Setting Parameter Number	Setting Value	Setup Description
331 (N030)	1	RS-485 communication station number: Inverter station number
332 (N031)	1152	RS-485 communication speed
N032	0	RS-485 communication data length: 8 bits (fixed)
334 (N034)	2	RS-485 communication parity check selection: Even parity check available. Stop bit length: 1 bit.
549	1	Protocol Selection: MODBUS RTU protocol

	L
NOTE	

• Always restart the Eternal Device after changing parameters.

# 4.19 Setting Example 19

- GP-Pro EX Settings
- Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1		
Summary		Change Device/PLC
Manufacturer Modbus	s-IDA Series General MODBUS SIO Master	Port COM2
Text Data Mode	1 Change	
Communication Settings		
SIO Type	RS232C O RS422/485(2wire)	
Speed	115200 ~	
Data Length	07   8	
Parity		
Stop Bit	● 1 ○ 2	
Flow Control	NONE     O ER(DTR/CTS)     O XON/XOFF	
Timeout	3 (sec)	
Retry	2	
Wait To Send	1 (ms) Z Default Value	
Wait to Solid		
Mode	RTU O ASCII     Default	
Device-Specific Settings		
Allowable Number of Devices/PLCs	Add Device	
No. Device Name	Settinas	Add Indirect Device
X 1 PIC1	Slave Equipment Address=1 Rest of the bits in this work	
		E II

#### Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

[Equipr	nent Configuration] Tab
🍯 Individual Device Settings	×
PLC1	
Equipment Configuration Func Equipment Address	tion Code and Max Query
Slave Equipment Address	1
Bit manipulation (set/reset) to H	Holding Register
Rest of the bits in this word	O Clear
Note on when selecting "D If the ladder program write process, the resulting data	No not clear" : is data to Holding Register during the read/write a may be incorrect.
EC61131 Syntax	
Address Mode	0-based (Default) 🗸
If you change the setting, ple	ase reconfirm all address settings.
Variables	
Double Word word order	Low word first(L/H) ~
Import Export	Default
	OK (O) Cancel

[Function Code and Max Query] Tab

Equipment Configura	tion Functio	n Code and I	Max Query		
<ul> <li>Auto adjust to fi</li> <li>Frame Length</li> </ul>	rame length 254	0	Lustom		
Start Address	Range	Read	Boundary	Write	Boundary
000001 100001 200001	65536 65536	01 02	2000 2000	0F 	800
400001	65536	03	125	10	100

Use the PU/EXT key, MODE key, M dial and SET key in the operation panel of the CPU unit for External Device communication settings.

Refer to your External Device manual for details.

### Procedure

- 1. Turn ON the power supply.
- 2. Press PU/EXT key to select the PU operation mode.
- 3. Press MODE key to select the parameter setting mode.
- 4. Display the setting parameter number with M dial.
- 5. Press SET key to display the current setting value.
- 6. Set the setting value with M dial.
- 7. Press SET key to confirm the setting value.

Setting Parameter Number	Setting Value	Setup Description
549 N000	1	Protocol Selection: MODBUS RTU protocol
117 N020	1	PU communication station number: Inverter station number
118 N021	1152	PU communication speed
120 N024	2	PU communication parity check: Even parity check available. Stop bit length: 1 bit.
122 N026	0	PU communication check time interval

NOTE
------

• Always restart the Eternal Device after changing parameters.

# 4.20 Setting Example 20

- GP-Pro EX Settings
- Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1	
Summary	Change Device/PLC
Manufacturer Modbus-IDA Series General MODBUS SIO Master	Port COM2
Text Data Mode 1 Change	
Communication Settings	
SIO Type	
Speed 19200 V	
Data Length 🔿 7 🛞 8	
Parity ONNE  EVEN ODD	
Stop Bit	
Flow Control   NONE   ER(DTR/CTS)   XON/XOFF	
Timeout 3 (sec)	
Retry 2	
Wait To Send 0 (ms) Default Value	
Mode O RTU O ASCII Default	
Device-Specific Settings	
Allowable Number <u>Add Device</u>	
No Device Name Settings	Add Indirect
V 1 PIC1	
In the second seco	<b>₽</b> 0

#### Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

[Equipm	ent Configuration] Tab
🍜 Individual Device Settings	×
PLC1	
Equipment Configuration Function Equipment Address	n Code and Max Query
Slave Equipment Address	1 🗢
Bit manipulation (set/reset) to Hole	ding Register
Rest of the bits in this word	O Clear   Do not clear
Note on when selecting "Do If the ladder program writes of process, the resulting data m	not clear" : data to Holding Register during the read/write nay be incorrect.
EC61131 Syntax	
Address Mode	0-based (Default)
If you change the setting, pleas	e reconfirm all address settings.
Variables	
Double Word word order	Low word first(L/H) $\qquad \lor$
Import Export	Default
	OK (0) Cancel

[Function Code and Max Query] Tab

) Auto adjust to f	rame length	۲	Custom		
<u>Add</u> <u>Configura</u> Start Address 400002	Range 8279	Read 03	Boundary 1	Write 06	Boundary 1

Use the SET key, MODE key, UP key and DOWN key of the External Device for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

1. Turn ON the power supply. Press the SET key 4 times in PV/SV Display Mode. 2. Change to Engineering group. Press the MODE key. 3. Change to Input group. Press the SET key multiple times. 4. Change to Communication group. Press the MODE key. 5. Change to Communication protocol. Set to "MODA" (MODBUS ASCII protocol) with the UP key or the DOWN key, and press the MODE key. 6. Set Instrument number. Set to "1" with the UP key or the DOWN key, and press the MODE key. 7. Set Communication speed. Set to "192" (19200 bps) with the UP key or the DOWN key, and press the MODE key. 8. Set Data bit/Parity. Set to "8EVN" (8 bits/Even) with the UP key or the DOWN key, and press the MODE key. 9. Set Stop bit. Set to "1" (1 bit) with the UP key or the DOWN key, and press the MODE key. 10. Set SVTC bias. Press the MODE key.

Completion of setting

# 4.21 Setting Example 21

- GP-Pro EX Settings
- Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1		
Summary		Change Device/PLC
Manufacturer Modbus-IDA	Series General MODBUS SIO Master	Port COM2
Text Data Mode 1	Change	
Communication Settings		
SIO Type O F	RS232C	
Speed 192	00 ~	
Data Length		
Parity	NONE O EVEN O ODD	
Stop Bit	○ 2	
Flow Control	IONE O ER(DTR/CTS) O XON/XOFF	
Timeout 3	(sec)	
Retry 2		
Wait To Send 2	(ms) Default Value	
Mate O		
Mode	RTU O ASCII Default	
Device-Specific Settings		
Allowable Number of Devices/PLCs 31	Add Device	
No. Device Name	Settings	Add Indirect Device
👗 1 PLC1	Slave Equipment Address=1,Rest of the bits in this wor	<b>F</b> 3

#### Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

[Equipm	ent Configuration] Tab	
🖇 Individual Device Settings		×
PLC1		
Equipment Configuration Function Equipment Address	on Code and Max Query	
Slave Equipment Address	1	
Bit manipulation (set/reset) to Ho	lding Register	
Rest of the bits in this word	O Clear   Do not clear	
Note on when selecting "Do If the ladder program writes process, the resulting data r	not clear" : data to Holding Register during the read/write may be incorrect.	
IEC61131 Syntax		
Address Mode	0-based (Default) $\sim$	
If you change the setting, please	se reconfirm all address settings.	
Variables		
Double Word word order	Low word first(L/H) $\qquad \sim$	
Import Export	Default	
	OK (O) Cancel	

[Function Code and Max Query] Tab

Auto adjust to f	frame length	<ul> <li>In code and in</li> <li>Image: Image: Image</li></ul>	Custom		
Add Configura	tion <u>Delete</u>				
Start Address 400002	Range 8279	Read 03	Boundary 1	Write 06	Boundary 1

Use the SET key, MODE key, UP key and DOWN key of the External Device for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

1. Turn ON the power supply. Press the SET key 4 times in PV/SV Display Mode. 2. Change to Engineering group. Press the MODE key. 3. Change to Input group. Press the SET key multiple times. 4. Change to Communication group. Press the MODE key. 5. Change to Communication protocol. Set to "MODR" (MODBUS RTU protocol) with the UP key or the DOWN key, and press the MODE key. 6. Set Instrument number. Set to "1" with the UP key or the DOWN key, and press the MODE key. 7. Set Communication speed. Set to "192" (19200 bps) with the UP key or the DOWN key, and press the MODE key. 8. Set Data bit/Parity. Set to "8NON" (8 bits/No parity) with the UP key or the DOWN key, and press the MODE key. 9. Set Stop bit. Set to "1" (1 bit) with the UP key or the DOWN key, and press the MODE key. 10. Set SVTC bias. Press the MODE key.

Completion of setting

# 4.22 Setting Example 22

- GP-Pro EX Settings
- Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1	
Summary	Change Device/PLC
Manufacturer Modbus-IDA Series General MODBUS SIO Master	Port COM2
Text Data Mode 1 Change	
Communication Settings	
SIO Type	
Speed 9600 V	
Data Length 🔿 7 💿 8	
Parity ONNE  EVEN ODD	
Stop Bit	
Flow Control   NONE   ER(DTR/CTS)   XON/XOFF	
Timeout 3 (sec)	
Retry 2	
Wait To Send 3 (ms) Default Value	
Mode O RTU O ASCII Default	
Device-Specific Settings	
Allowable Number <u>Add Device</u>	
No Device Name Settings	Add Indirect
V 1 PIC1	
In the second seco	FO

#### Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

լ_գաթ	ment Configuration] Tab
Individual Device Settings	s X
LC1	
Equipment Configuration Fun Equipment Address	iction Code and Max Query
Slave Equipment Address	1
Bit manipulation (set/reset) to	Holding Register
Rest of the bits in this word	d 🔿 Clear 💿 Do not clear
Note on when selecting " If the ladder program writ process, the resulting da	'Do not clear" : tes data to Holding Register during the read/write ata may be incorrect.
EC61131 Syntax	
Address Mode	0-based (Default)
If you change the setting, pl	lease reconfirm all address settings.
If you change the setting, pl Variables	lease reconfirm all address settings.
If you change the setting, pl Variables Double Word word order	lease reconfirm all address settings.
If you change the setting, pl Variables Double Word word order	Low word first(L/H)
If you change the setting, pl Variables Double Word word order Import Export	lease reconfirm all address settings.

[Function Code and Max Query] Tab

) Auto adjust to	frame length	۲	Custom		
Add <u>Configura</u> Start Address	ation <u>Delete</u> Range	Read	Boundary	Write	Boundary
300257 400002	20 4143	04 03	100 100	 10	100

Use the MODE key, UP key key and DOWN key in front of the External Device for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

1. Turn ON the power supply.

Press the UP key and the DOWN key (in that order) together for approx. 3 seconds in RUN mode. 2. Change to Engineering Mode 1. Press the MODE key several times. 3. Change to Communication protocol. Set to "MODA" (MODBUS ASCII protocol) with the UP key or the DOWN key, and press the MODE key. 4. Set Instrument number. Set to "1" with the UP key or the DOWN key, and press the MODE key. 5. Set Communication speed. Set to "96" (9600bps) with the UP key or the DOWN key, and press the MODE key. 6. Set Data bit/Parity. Set to "8EVN" (8 bits/Even) with the UP key or the DOWN key, and press the MODE key. 7. Set Stop bit. Set to "1" (1 bit) with the UP key or the DOWN key, and press the MODE key. 8. Set Response delay time. Set to "10" (10 ms) with the UP key or the DOWN key, and press the MODE key several times. 9. Change to RUN mode. Completion of setting

# 4.23 Setting Example 23

- GP-Pro EX Settings
- Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1	
Summary	Change Device/PLC
Manufacturer Modbus-IDA Series General MODBUS SIO Master	Port COM2
Text Data Mode 1 Change	
Communication Settings	
SIO Type	
Speed 9600 V	
Data Length 0 7 💿 8	
Parity ONONE OEVEN ODD	
Stop Bit   1  2	
Flow Control   NONE   ER(DTR/CTS)   XON/XOFF	
Timeout 3 🚖 (sec)	
Retry 2	
Wait To Send 5 (ms) Default Value	
Mode   RTU   ASCII  Default	
Device-Specific Settings	
Allowable Number <u>Add Device</u>	
No Device Name Settings	Add Indirect
V 1 PIC1 V Slave Equipment Address - 1 Rest of the bits in this work	
In Stave Equipitent Address=1, Next of the bits in this work	EU

#### Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

[Equipr	nent Configuration] Tab	
🗯 Individual Device Settings		×
PLC1		
Equipment Configuration Func Equipment Address	tion Code and Max Query	
Slave Equipment Address	1	
Bit manipulation (set/reset) to H	lolding Register	
Rest of the bits in this word	O Clear	
Note on when selecting "D If the ladder program write process, the resulting data	to not clear" : s data to Holding Register during the read/write a may be incorrect.	
Address Mode	0 based (Default)	
Address Mode	0-based (Default)	
If you change the setting, ple	ase reconfirm all address settings.	
Variables		
Double Word word order	Low word first(L/H) $\qquad \lor$	
Import Export	Defa	ult
	OK (O) Cance	1

[Function Code and Max Query] Tab

Auto adjust to	frame length	۲	Custom		
itart Address	Range	Read	Boundary	Write	Boundary
00257	4143	03	100		100

Use the MODE key, UP key key and DOWN key in front of the External Device for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

1. Turn ON the power supply.

Press the UP key and the DOWN key (in that order) together for approx. 3 seconds in RUN mode. 2. Change to Engineering Mode 1. Press the MODE key several times. 3. Change to Communication protocol. Set to "MODR" (MODBUS RTU protocol) with the UP key or the DOWN key, and press the MODE key. 4. Set Instrument number. Set to "1" with the UP key or the DOWN key, and press the MODE key. 5. Set Communication speed. Set to "96" (9600bps) with the UP key or the DOWN key, and press the MODE key. 6. Set Data bit/Parity. Set to "8EVN" (8 bits/Even) with the UP key or the DOWN key, and press the MODE key. 7. Set Stop bit. Set to "1" (1 bit) with the UP key or the DOWN key, and press the MODE key. 8. Set Response delay time. Set to "10" (10 ms) with the UP key or the DOWN key, and press the MODE key several times. 9. Change to RUN mode. Completion of setting

## 4.24 Setting Example 24

- GP-Pro EX Settings
- Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1		
Summary		Change Device/PLC
Manufacturer Modbus	-IDA Series General MODBUS SIO Master	Port COM2
Text Data Mode	1 Change	
Communication Settings		
SIO Type	○ RS232C	
Speed	19200 ~	
Data Length	7 08	
Parity		
Stop Bit		
Flow Control	NONE O ER(DTR/CTS) O XON/XOFF	
Timeout	3 (sec)	
Retry	2	
Wait To Send	0 🔄 (ms) 🗌 Default Value	
Mode	O RTU   ASCII  Default	
Device-Specific Settings Allowable Number of Devices/PLCs	Add Device	
No. Device Name	Settings	Add Indirect Device
👗 1 PLC1	Slave Equipment Address=1,Rest of the bits in this wor	<b>F</b>

#### Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

[Equipr	ment Configuration] Tab	
Individual Device Settings		×
LC1		
Equipment Configuration Func Equipment Address	tion Code and Max Query	
Slave Equipment Address	1	
Bit manipulation (set/reset) to H	Holding Register	
Rest of the bits in this word	O Clear   Do not clear	
Note on when selecting "I If the ladder program write process, the resulting dat	Do not clear" : es data to Holding Register during the read/write a may be incorrect.	
EC61131 Syntax		
Address Mode	0-based (Default)	
If you change the setting, ple	ease reconfirm all address settings.	
Variables		
Double Word word order	Low word first(L/H) $\qquad \sim$	
Import Export	Defa	ult
	OK (O) Cance	

[Function Code and Max Query] Tab

) Auto adjust to	frame length	۲	Custom		
Add <u>Configura</u> Start Address	ation <u>Delete</u> Range	Read	Boundary	Write	Boundary
100257 100002	20 4122	04	100 100	10	100

Use the MODE key, UP key key and DOWN key in front of the External Device for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

1. Turn ON the power supply.

Press the UP key and the DOWN key (in that order) together for approx. 3 seconds in RUN mode. 2. Change to Engineering Mode 1. Press the MODE key several times. 3. Change to Communication protocol. Set to "MODA" (MODBUS ASCII protocol) with the UP key or the DOWN key, and press the MODE key. 4. Set Instrument number. Set to "1" with the UP key or the DOWN key, and press the MODE key. 5. Set Communication speed. Set to "192" (19200bps) with the UP key or the DOWN key, and press the MODE key. 6. Set Data bit/Parity. Set to "8EVN" (8 bits/Even) with the UP key or the DOWN key, and press the MODE key. 7. Set Stop bit. Set to "1" (1 bit) with the UP key or the DOWN key, and press the MODE key. 8. Set Response delay time. Set to "10" (10 ms) with the UP key or the DOWN key, and press the MODE key several times. 9. Change to RUN mode. Completion of setting

# 4.25 Setting Example 25

- GP-Pro EX Settings
- Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1		
Summary		Change Device/PLC
Manufacturer Modbus-IDA	Series General MODBUS SIO Master	Port COM2
Text Data Mode 1	Change	
Communication Settings		
SIO Type O	RS232C	
Speed 192	00 ~	
Data Length		
Parity	NONE O EVEN O ODD	
Stop Bit	○ 2	
Flow Control	IONE O ER(DTR/CTS) O XON/XOFF	
Timeout 3	(sec)	
Retry 2		
Wait To Send 2	(ms) Default Value	
Mate O		
Mode	RTU O ASCII Default	
Device-Specific Settings		
Allowable Number of Devices/PLCs 31	Add Device	
No. Device Name	Settings	Add Indirect Device
👗 1 PLC1	Slave Equipment Address=1,Rest of the bits in this wor	<b>F</b> 3

#### Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

[Equipr	ment Configuration] Tab	
Individual Device Settings		×
LC1		
Equipment Configuration Func Equipment Address	tion Code and Max Query	
Slave Equipment Address	1	
Bit manipulation (set/reset) to H	Holding Register	
Rest of the bits in this word	O Clear   Do not clear	
Note on when selecting "I If the ladder program write process, the resulting dat	Do not clear" : es data to Holding Register during the read/write a may be incorrect.	
EC61131 Syntax		
Address Mode	0-based (Default)	
If you change the setting, ple	ease reconfirm all address settings.	
Variables		
Double Word word order	Low word first(L/H) $\qquad \sim$	
Import Export	Defa	ult
	OK (O) Cance	

[Function Code and Max Query] Tab

) Auto adjust to	frame length	۲	Custom		
Add Configura	ation Delete				
Start Address	Range	Read	Boundary	Write	Boundary
00257	20	04	100	-	
00002	4122	03	100	10	100

Use the MODE key, UP key key and DOWN key in front of the External Device for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

1. Turn ON the power supply.

Press the UP key and the DOWN key (in that order) together for approx. 3 seconds in RUN mode. 2. Change to Engineering Mode 1. Press the MODE key several times. 3. Change to Communication protocol. Set to "MODR" (MODBUS RTU protocol) with the UP key or the DOWN key, and press the MODE key. 4. Set Instrument number. Set to "1" with the UP key or the DOWN key, and press the MODE key. 5. Set Communication speed. Set to "192" (19200bps) with the UP key or the DOWN key, and press the MODE key. 6. Set Data bit/Parity. Set to "8EVN" (8 bits/Even) with the UP key or the DOWN key, and press the MODE key. 7. Set Stop bit. Set to "1" (1 bit) with the UP key or the DOWN key, and press the MODE key. 8. Set Response delay time. Set to "10" (10 ms) with the UP key or the DOWN key, and press the MODE key several times. 9. Change to RUN mode. Completion of setting

# 4.26 Setting Example 26

- GP-Pro EX Settings
- Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1		
Summary		Change Device/PLC
Manufacturer Modbus-IDA	Series General MODBUS SIO Master	Port COM2
Text Data Mode 1 Cha	nge	
Communication Settings		
SIO Type ORS232	2C      RS422/485(2wire)      RS422/485(4wire)	
Speed 19200	~	
Data Length 07	8	
Parity O NONE	E IVEN ODD	
Stop Bit	○ 2	
Flow Control   NONE	E O ER(DTR/CTS) O XON/XOFF	
Timeout 3	(sec)	
Retry 2	× v	
Wait To Send	(me) Default Value	
Wait to Send		
Mode O RTU	ASCII     Default	
Device-Specific Settings		
Allowable Number	Add Device	
No Device Name S	ettings	Add Indirect
	Nave Fourimment Address=1 Rest of the hits in this wor	
	nuve Equipment national - r, nost of the bits in this wor	<b>F</b> 11

#### Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

[Equipm	ent Configuration] Tab
🎒 Individual Device Settings	×
PLC1	
Equipment Configuration Function Equipment Address	n Code and Max Query
Slave Equipment Address	1 🔹
Bit manipulation (set/reset) to Hol	lding Register
Rest of the bits in this word	O Clear   Do not clear
Note on when selecting "Do If the ladder program writes process, the resulting data n	not clear" : data to Holding Register during the read/write nay be incorrect.
EC61131 Syntax	
Address Mode	0-based (Default) ~
If you change the setting, pleas	se reconfirm all address settings.
Variables	
Double Word word order	Low word first(L/H) $\sim$
Import Export	Default
	OK (0) Cancel

[Function Code and Max Query] Tab

Add Configuration Delete			
Start Address Range R 400002 32512 03	ead Bounda	ary Write 10	Boundary 100

External Device Settings
Use the SET/RESET key, STOP/MODE key, HOLD/ENTER key, ADVANCE/DOWN key and PATTERN/UP
key in front of the External Device for communication settings of the External Device.
Please refer to the manual of the External Device for more details.
1. Turn ON the power supply.
Press the SET/RESET key in RUN mode.
2. Change to Group selection mode.
Press the STOP/MODE key 4 times.
3. Change to Engineering setting group.
Press the HOLD/ENTER key.
<ul> <li>Change to Input parameter setting group.</li> </ul>
Press the STOP/MODE key several times.
5. Change to Communication parameter setting group.
Press the HOLD/ENTER key.
Change to Communication protocol.
Set to "MODA" (MODBUS ASCII protocol) with the PATTERN/UP key or the ADVANCE/DOWN key, and press the HOLD/ENTER key.
7. Set Instrument number.
Set to "1" with the PATTERN/UP key or the ADVANCE/DOWN key, and press the HOLD/ENTER key.
8. Set Communication speed.
Set to "192" (19200 bps) with the PATTERN/UP key or the ADVANCE/DOWN key, and press the HOLD/ENTER key.
9. Set Data bit/Parity.
Set to "8EVN" (8 bits/Even) with the PATTERN/UP key or the ADVANCE/DOWN key, and press the HOLD/ENTER key.
10. Set Stop bit.
Set to "1" (1 bit) with the PATTERN/UP key or the ADVANCE/DOWN key, and press the HOLD/ ENTER key.
11. Set Response delay time.
Set to "10" (10 ms) with the PATTERN/UP key or the ADVANCE/DOWN key, and press the HOLD/ ENTER key.
Completion of setting

## 4.27 Setting Example 27

- GP-Pro EX Settings
- Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1				
Summary				Change Device/PLC
Manufacturer Modbus	s-IDA	Series	General MODBUS SIO Maste	er Port COM2
Text Data Mode	1 Change			
Communication Settings				
SIO Type	O RS232C	RS422/485(2)	wire) () RS422/485(4wi	ire)
Speed	19200	$\sim$		
Data Length	07	8		
Parity	NONE	O EVEN		
Stop Bit	1	<b>○</b> 2		
Flow Control	NONE	O ER(DTR/CTS	) OXON/XOFF	
Timeout	3 🗘 (	sec)		
Retry	2			
Wait To Send	2 🗘	ms) 🔽 Defaul	t Value	
Mode	RTU	() ASCII		
	0	0	Defai	ult
Device-Specific Settings	۸dd	Device		
of Devices/PLCs	31	Device		Add Indianat
No. Device Name	Settings			Device
👗 1 PLC1	計 Slave E	quipment Address=	1,Rest of the bits in this wor	<b>F</b>

#### Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

[Equipr	nent Configuration] Tab
Individual Device Settings	×
LC1	
Equipment Configuration Func Equipment Address	tion Code and Max Query
Slave Equipment Address	1 🗢
Bit manipulation (set/reset) to H	Holding Register
Rest of the bits in this word	O Clear       O not clear
Note on when selecting "D If the ladder program write process, the resulting data IEC61131 Syntax	Jo not clear <sup>2</sup> : s data to Holding Register during the read/write a may be incorrect.
Address Mode	0-based (Default) ~
If you change the setting, ple	ease reconfirm all address settings.
Variables	
Double Word word order	Low word first(L/H) $\qquad \checkmark$
Import Evport	Default
mport Export	Default
	OK (O) Cancel

[Function Code and Max Query] Tab

uipment Configur	ation Functio	n Code and f	Max Query		
) Auto adjust to	frame length	•	Custom		
Add Configura	tion <u>Delete</u>				
Start Address	Range	Read	Boundary	Write	Boundary
400002	32512	03	100	10	100

External Davias Sattings
Use the SET/RESET key, STOP/MODE key, HOLD/ENTER key, ADVANCE/DOWN key and PATTERN/UP
key in front of the External Device for communication settings of the External Device.
Please refer to the manual of the External Device for more details.
1. Turn ON the power supply.
Press the SET/RESET key in RUN mode.
Change to Group selection mode
Press the STOP/MODE key 4 times.
3. Change to Engineering setting group.
Press the HOLD/ENTER key.
<ul> <li>4. Change to Input parameter setting group.</li> </ul>
Press the STOP/MODE key several times.
<ul><li>5. Change to Communication parameter setting group.</li></ul>
Press the HOLD/ENTER key.
Change to Communication protocol.
Set to "MODR" (MODBUS RTU protocol) with the PATTERN/UP key or the ADVANCE/DOWN key, and press the HOLD/ENTER key.
7. Set Instrument number.
Set to "1" with the PATTERN/UP key or the ADVANCE/DOWN key, and press the HOLD/ENTER key.
8. Set Communication speed.
Set to "192" (19200 bps) with the PATTERN/UP key or the ADVANCE/DOWN key, and press the HOLD/ENTER key.
9. Set Data bit/Parity.
Set to "8NON" (8 bits/No parity) with the PATTERN/UP key or the ADVANCE/DOWN key, and press the HOLD/ENTER key.
10. Set Stop bit.
Set to "1" (1 bit) with the PATTERN/UP key or the ADVANCE/DOWN key, and press the HOLD/ ENTER key.
▼ 11. Set Response delay time.
Set to "10" (10 ms) with the PATTERN/UP key or the ADVANCE/DOWN key, and press the HOLD/ ENTER key.
Completion of setting

## 4.28 Setting Example 28

- GP-Pro EX Settings
- Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1	
Summary	Change Device/PLC
Manufacturer Modbus-IDA Series General MODBUS	SIO Master Port COM2
Text Data Mode 1 Change	
Communication Settings	
SIO Type	2/485(4wire)
Speed 19200 ~	
Data Length 7 💿 8	
Parity ONONE  EVEN ODD	
Stop Bit   1  2	
Flow Control   NONE  CR(DTR/CTS)  XON/XOF	F
Timeout 3 (sec)	
Retry 2	
Wait To Send 3 (ms) Default Value	
Mode O RTU   ASCII	Default
Device-Specific Settings	
Allowable Number <u>Add Device</u>	
No. Device Name Settings	Add Indirect Device
3 1 PLC1 It Slave Equipment Address=1,Rest of the bits in th	nis wor

#### Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

[Equipn	nent Configuration] Tab
≶ Individual Device Settings	×
PLC1	
Equipment Configuration Funct Equipment Address	tion Code and Max Query
Slave Equipment Address	1
Bit manipulation (set/reset) to H	olding Register
Rest of the bits in this word	O Clear       O not clear
Note on when selecting "D If the ladder program write process, the resulting data	o not clear" : s data to Holding Register during the read/write a may be incorrect.
EC61131 Syntax	
Address Mode	0-based (Default) $\sim$
If you change the setting, ple	ase reconfirm all address settings.
Variables	
Double Word word order	Low word first(L/H) $\qquad \checkmark$
Import Export	Default
	OK (O) Cancel

[Function Code and Max Query] Tab

) Auto adjust to f	irame length	۲	Custom		
Add <u>Configura</u> Start Address	tion <u>Delete</u> Range	Read	Boundary	Write	Boundary
400002	36877	03	100	10	100

Use the UP key, DOWN key and MODE key in front of the External Device for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

1. Turn ON the power supply.

Press the DOWN key and the MODE key (in that order) together for approx. 3 seconds in RUN mode.

2. Change to Engineering setting mode 1.

Press the MODE key several times.

3. Change to Communication protocol.

Set to "MODA" (MODBUS ASCII protocol) with the UP key or the DOWN key, and press the MODE key.

4. Set to Instrument number.

Set to "1" with the UP key or the DOWN key, and press the MODE key.

5. Set Communication speed.

Set to "96" (9600bps) with the UP key or the DOWN key, and press the MODE key.

6. Set Data bit/Parity.

Set to "8EVN" (8 bits/Even) with the UP key or the DOWN key, and press the MODE key.

7. Set Stop bit.

Set to "1" (1 bit) with the UP key or the DOWN key, and press the MODE key.

8. Set Response delay time.

Set to "10" (10 ms) with the UP key or the DOWN key, and press the MODE key.

Completion of setting

## 4.29 Setting Example 29

- GP-Pro EX Settings
- Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1	
Summary	Change Device/PLC
Manufacturer Modbus-IDA Series General MODBUS SIO Master	Port COM2
Text Data Mode 1 Change	
Communication Settings	
SIO Type	
Speed 9600 V	
Data Length 0 7 💿 8	
Parity ONONE   EVEN ODD	
Stop Bit 💿 1 ◯ 2	
Flow Control   NONE  CR(DTR/CTS)  XON/XOFF	
Timeout 3 🜲 (sec)	
Retry 2	
Wait To Send 5 (ms) Z Default Value	
Mode   RTU   ASCII  Default	
Device-Specific Settings	
Allowable Number <u>Add Device</u>	
No Device Name Settings	Add Indirect
▼ 1 PIC1 ■ Save Equipment Address-1 Rest of the bits in this wor	
In Stave Equipitient Address=1, rest of the bits in this work	EU

#### Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

[Equipment Configuration] Tab			
🍯 Individual Device Settings	×		
PLC1			
Equipment Configuration Func Equipment Address	ction Code and Max Query		
Slave Equipment Address	1 🔹		
Bit manipulation (set/reset) to I	Holding Register		
Rest of the bits in this word	○ Clear		
Note on when selecting " If the ladder program write process, the resulting dat	Do not clear" : as data to Holding Register during the read/write a may be incorrect.		
EC61131 Syntax			
Address Mode	0-based (Default) $\sim$		
If you change the setting, ple	ease reconfirm all address settings.		
Variables			
Double Word word order	Low word first(L/H) $\sim$		
Import Export	Default		
	OK (0) Cancel		

[Function Code and Max Query] Tab

Auto adjust to	frame length	<ul> <li>Code and r</li> <li>O</li> </ul>	Custom		
Add Configura	ation <u>Delete</u>				
Start Address 400002	Range 36877	Read 03	Boundary 100	Write 10	Boundary 100

Use the UP key, DOWN key and MODE key in front of the External Device for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

1. Turn ON the power supply.

Press the DOWN key and the MODE key (in that order) together for approx. 3 seconds in RUN mode.

2. Change to Engineering setting mode 1.

Press the MODE key several times.

3. Change to Communication protocol.

Set to "MODR" (MODBUS RTU protocol) with the UP key or the DOWN key, and press the MODE key.

4. Set to Instrument number.

Set to "1" with the UP key or the DOWN key, and press the MODE key.

5. Set Communication speed.

Set to "96" (9600bps) with the UP key or the DOWN key, and press the MODE key.

6. Set Data bit/Parity.

Set to "8EVN" (8 bits/Even) with the UP key or the DOWN key, and press the MODE key.

7. Set Stop bit.

Set to "1" (1 bit) with the UP key or the DOWN key, and press the MODE key.

8. Set Response delay time.

Set to "10" (10 ms) with the UP key or the DOWN key, and press the MODE key.

Completion of setting

# 4.30 Setting Example 30

- GP-Pro EX Settings
- Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1		
Summary		Change Device/PLC
Manufacturer Modbus	-IDA Series General MODBUS SIO Master	Port COM2
Text Data Mode	1 Change	
Communication Settings		
SIO Type	○ RS232C	
Speed	19200 ~	
Data Length	07 08	
Parity		
Stop Bit		
Flow Control	NONE O ER(DTR/CTS) O XON/XOFF	
Timeout	3 (sec)	
Retry	2	
Wait To Send	2 (ms) Default Value	
Mode	RTU O ASCII     Default	
Device-Specific Settings Allowable Number of Devices/PLCs	Add Device 31	
No. Device Name	Settings	Device
👗 1 PLC1	Slave Equipment Address=1,Rest of the bits in this wor	2

#### Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

[Equipment Configuration] Tab		
🍜 Individual Device Settings	×	
PLC1		
Equipment Configuration Function Co Equipment Address	de and Max Query	
Slave Equipment Address	-	
Bit manipulation (set/reset) to Holding	Register	
Rest of the bits in this word	Clear   Do not clear	
Note on when selecting "Do not o If the ladder program writes data process, the resulting data may l	:lear": to Holding Register during the read/write be incorrect.	
EC61131 Syntax		
Address Mode 0-	pased (Default)	
If you change the setting, please re	confirm all address settings.	
Variables		
Double Word word order	w word first(L/H) V	
Import Export	Default	
	OK (O) Cancel	

[Function Code and Max Query] Tab

) Auto adjust to f	frame length	١	Custom		
<u>Add Configura</u> Start Address 400001	Range 1325	Read 03	Boundary 100	Write 10	Boundary 20

Use the communication specification selection dip switch and module address selection rotary switch for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

#### ♦ Setup Items

• Communication specification selection dip switch

Dip Switch	Setting	Setup Description	
SW1	OFF	Communication speed: 19200bps	
SW2	ON		
SW3	OFF	Data bit: 8 bits	
SW4	OFF	Parity: None Stop bit: 1 bit	
SW5	ON		
SW6	OFF	Communication protocol: MODBUS specification	
SW7	OFF	Not used.	
SW8	OFF	Leave it OFF.	

Module address selection rotary switch

Setting	Setup Description
0	When setting the module address to 1, set it to 0. This is the same number as [Slave Equipment Address] in the Display.
## 4.31 Setting Example 31

- GP-Pro EX Settings
- Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1		
Summary		Change Device/PLC
Manufacturer Modbus	s-IDA Series General MODBUS SIO Master	Port COM2
Text Data Mode	1 Change	
Communication Settings		
SIO Type	○ RS232C	
Speed	19200 ~	
Data Length	07   8	
Parity	NONE     OEVEN     ODD	
Stop Bit		
Flow Control	NONE     O ER(DTR/CTS)     O XON/XOFF	
Timeout	3 (sec)	
Retry	2	
Wait To Send	2 (ms) Default Value	
Mode		
mode	O ASCII Default	
Device-Specific Settings		
Allowable Number of Devices/PLCs	Add Device 31	
No. Device Name	Settings	Add Indirect Device
👗 1 PLC1	Slave Equipment Address=1,Rest of the bits in this wor	<b>F</b>

#### Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

[Equipn	nent Configuration] Tab
🍯 Individual Device Settings	>
PLC1	
Equipment Configuration Funct Equipment Address	tion Code and Max Query
Slave Equipment Address	1 🔹
Bit manipulation (set/reset) to H	olding Register
Rest of the bits in this word	O Clear
Note on when selecting "D If the ladder program write process, the resulting data	o not clear" : s data to Holding Register during the read/write a may be incorrect.
EC61131 Syntax	
Address Mode	0-based (Default) $\sim$
If you change the setting, plea	ase reconfirm all address settings.
Variables	
Double Word word order	Low word first(L/H) $\qquad \checkmark$
Import Export	Default
	OK (0) Cancel

[Function Code and Max Query] Tab

Auto adjust to f	rame length	Code and i	Custom		
Add Configura	tion <u>Delete</u>				
Start Address 400001	Range 1325	Read 03	Boundary 100	Write 10	Boundary 20

## External Device Settings

Use the communication specification selection dip switch and module address selection rotary switch on the QTC1-4PT-RRRRMMMM-00 for communication settings of the External Device. Please refer to the manual of the External Device for more details.

#### ♦ Setup Items

Communication specification selection dip switch

Dip Switch	Setting	Setup Description	
SW1	OFF	Communication speed: 10200hps	
SW2	ON	communeation speed. 172000ps	
SW3	OFF	Data bit: 8 bits	
SW4	OFF	Parity: None	
SW5	ON	Stop bit: 1 bit	
SW6	OFF	Communication protocol: MODBUS specification	
SW7	OFF	Not used.	
SW8	OFF	Leave it OFF.	

• Module address selection rotary switch

Setting	Setup Description
0	When setting the module address to 1, set it to 0. This is the same number as [Slave Equipment Address] in the Display.

## 4.32 Setting Example 32

- GP-Pro EX Settings
- Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1		
Summary		Change Device/PLC
Manufacturer Modbus	-IDA Series General MODBUS SIO Master	Port COM2
Text Data Mode	1 Change	
Communication Settings		
SIO Type	RS232C	
Speed	19200 ~	
Data Length	07 🔘 8	
Parity		
Stop Bit	● 1 ○ 2	
Flow Control	NONE O ER(DTR/CTS) O XON/XOFF	
Timeout	3 (sec)	
Retry	2	
Wait To Send	2 (ms) Z Default Value	
Wait to Send		
Mode	RTU O ASCII     Default	
Device-Specific Settings		
Allowable Number of Devices/PLCs	Add Device	
No. Device Name	Settinas	Add Indirect Device
X 1 PIC1	Slave Equipment Address=1 Best of the bits in this wor	
		<b>•</b> 11

#### Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

[Equipr	nent Configuration] Tab
🖇 Individual Device Settings	×
PLC1	
Equipment Configuration Func Equipment Address	tion Code and Max Query
Slave Equipment Address	1
Bit manipulation (set/reset) to H	lolding Register
Rest of the bits in this word	O Clear
Note on when selecting "D If the ladder program write process, the resulting data	io not clear" : s data to Holding Register during the read/write may be incorrect.
Address Mode	0-based (Default)
If you change the setting, ple	ase reconfirm all address settings.
Variables	
Double Word word order	Low word first(L/H) $\qquad \sim$
Import Export	Default
	OK (0) Cancel

[Function Code and Max Query] Tab

) Auto adjust to	frame length	•	Custom		
Add Configura	ation <u>Delete</u> Range	Read	Boundary	Write	Boundary
400001	1325	03	100	10	20

## External Device Settings

Use the communication specification selection dip switch and module address selection rotary switch on the QMC1-C50-0 for communication settings of the External Device. Please refer to the manual of the External Device for more details.

#### ♦ Setup Items

Communication specification selection dip switch

Dip Switch	Setting	Setup Description	
SW1	ON	Communication speed: 19200bps	
SW2	OFF	Communication speed. 172000ps	
SW3	OFF	Data bit: 8 bits	
SW4	ON	Parity: None	
SW5	OFF	Parity: Even	
SW6	OFF	Stop bit: 1 bit	
SW7	OFF	Not used.	
SW8	OFF	Leave it OFF.	

Module address selection rotary switch

Setting	Setup Description
0	When setting the module address to 1, set it to 0. This is the same number as [Slave Equipment Address] in the Display.

## 4.33 Setting Example 33

- GP-Pro EX Settings
- Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1		
Summary		Change Device/PLC
Manufacturer Modbus-IDA	Series General MODBUS SIO Master	Port COM2
Text Data Mode 1	Change	
Communication Settings		
SIO Type O	RS232C	
Speed 192	00 ~	
Data Length		
Parity	NONE O EVEN O ODD	
Stop Bit	○ 2	
Flow Control	IONE O ER(DTR/CTS) O XON/XOFF	
Timeout 3	(sec)	
Retry 2		
Wait To Send 2	(ms) Default Value	
Mate O		
Mode	RTU O ASCII Default	
Device-Specific Settings		
Allowable Number of Devices/PLCs 31	Add Device	
No. Device Name	Settings	Add Indirect Device
👗 1 PLC1	Slave Equipment Address=1,Rest of the bits in this wor	<b>F</b> 3

#### Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

[Equipm	ent Configuration] Tab
🎒 Individual Device Settings	×
PLC1	
Equipment Configuration Function Equipment Address	n Code and Max Query
Slave Equipment Address	1 🔹
Bit manipulation (set/reset) to Hol	lding Register
Rest of the bits in this word	O Clear   Do not clear
Note on when selecting "Do If the ladder program writes process, the resulting data n	not clear" : data to Holding Register during the read/write nay be incorrect.
EC61131 Syntax	
Address Mode	0-based (Default) ~
If you change the setting, pleas	se reconfirm all address settings.
Variables	
Double Word word order	Low word first(L/H) $\sim$
Import Export	Default
	OK (0) Cancel

[Function Code and Max Query] Tab

Auto adjust to	frame length	۲	Custom		
Add Configura Start Address 400001	Range 64128	Read 03	Boundary 100	Write 10	Boundary 20

## External Device Settings

Use the communication specification selection dip switch and module address selection rotary switch for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

#### ♦ Setup Items

• Communication specification selection dip switch

Dip Switch	Setting	Setup Description	
SW1	ON	Communication speed: 19200bps	
SW2	OFF	Communeation speed. 172000ps	
SW3	OFF	Data bit: 8 bits	
SW4	ON	Parity: None	
SW5	OFF	Parity: Even	
SW6	OFF	Stop bit: 1 bit	
SW7	OFF	Not used.	
SW8	OFF	Leave it OFF.	

Module address selection rotary switch

Setting	Setup Description
0	When setting the module address to 1, set it to 0. This is the same number as [Slave Equipment Address] in the Display.

## 5 Setup Items

Set up the Display's communication settings in GP-Pro EX or in the Display's offline mode.

The setting of each parameter must match that of the External Device.

<sup>(3)</sup> "4 Communication Setting" (page 13)

## 5.1 Setup Items in GP-Pro EX

## Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1	
Summary	Change Device/PLC
Manufacturer Modbus-IDA Series General MODBUS SIO Master	Port COM1
Text Data Mode 1 Change	
Communication Settings	
SID Type © RS232C © RS422/485(2wire) © RS422/485(4wire)	
Speed 19200	
Data Length C 7 💿 8	
Parity CINONE O EVEN CI ODD	
Stop Bit 💿 1 💿 2	
Flow Control   NONE  C ER(DTR/CTS)  C X0N/X0FF	
Timeout 3 😴 (sec)	
Retry 2	
Wait To Send 3 👘 (ms) 🔽 Default Value	
Mode © RTU C ASCII	
In the case of RS232C, you can select the 9th pin to RI (Input) or VCC (5V Power Supply). If you use the Digital's RS232C Isolation Unit, please select it to VCC. Default	
Allowable Number <u>Add Device</u>	
of Devices/PLCs 31	Add Indirect
No. Device Name Settings	Device
IFLUT     IFFLUT     IFFLU	<u>≠n</u>

Setup Items	Setup Description
SIO Type	Select the SIO type for communicating with the External Device.
Speed	Select the communication speed between the External Device and the Display.
Data Length	Select a data length.
Parity	Select how to check parity.
Stop Bit	Select a stop bit length.
Flow Control	Select the communication control method to prevent overflow of transmission and reception data.
Timeout	Use an integer from 1 to 127 to enter the time(s) for which the Display waits for the response from the External Device.
Retry	In case of no response from the External Device, enter how many times the Display retransmits the command, from "0 to 255".

Setup Items	Setup Description
	Enter the standby time (ms) from when the Display receives packets until it transmits the next command, from "0 to 5000". When [RTU] is selected for [Mode] and the check box of the default value is checked, the Wait To Send value automatically changes according to the formula below by changing each value for Speed/Data Length/Parity/Stop Bit.
Wait To Send	Wait To Send (ms) = 3500 x (1 + Data Length + Stop Bit + Parity) Speed (bps)
	Value for the parity setting is shown below. No Parity = 0 Parity Even = 1 Parity Odd = 1
Mode	Select either [RTU] or [ASCII] for the communication mode.
RI/VCC	You can switch between RI/VCC on the 9th pin when you select RS-232C for SIO type. To connect to the IPC, you need to switch between RI/5V using the IPC selector switch. Refer to your IPC manual for details.
NOTE • Refer	to the GP-Pro EX Reference Manual for Indirect Device. GP-Pro EX Reference Manual "Changing the Device/PLC at Runtime (Indirect

Device)"

## Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

• [Equipment Configuration] Tab

quipment Configuration   Funct Equipment Address	tion Code and Max Query
Slave Equipment Address	1
Bit manipulation (set/reset) to H	Holding Register
Rest of the bits in this word	C Clear 💿 Do not clear
Note on when selecting "Do If the ladder program writes process, the resulting data r	onot clear" : : data to Holding Register during the read/write may be incorrect.
🗖 IEC61131 Syntax 🦳	
IEC61131 Syntax     Address Mode	0-based (Default)
☐ IEC61131 Syntax Address Mode If you change the setting, ple	D-based (Default)
FIEC61131 Syntax Address Mode If you change the setting, ple Variables	D-based (Default)
IEC61131 Syntax     Address Mode     If you change the setting, ple Variables     Double Word word order	D-based (Default)

Setu	p Items	Setup Description	
Slave Equipment Address		Use an integer from 1 to 247 to enter the slave address of the External Device.	
Bit manipulation (set/reset) to Holding Register		Select how other bits in the same word are handled when you manipulate bits in	
	Rest of the bits in this word	the holding register, from "Clear" or "Do not clear".	
IEC61131 Syntax		Select this item to use the IEC61131 syntax for variables. If you check this item, select the address mode from "0-based" or "1-based".	
Double Word word order		Select the order of storing double word data from "Low word first" or "High word first".	
Import		Import the device settings described in the xml file. ☞ " ◆ Import Procedure in the Device Setting" (page 85)	
Export		Export the device settings into the xml file. ☞ " ◆ Export Procedure in the Device Setting" (page 85)	

• [Function Code and Max Query] Tab (when "Auto adjust to frame length" is selected)

#### RTU mode

#### ASCII mode

💰 Individual Device Settings	×	🍰 Individual Devic	e Settings		×
PLC1		PLC1			
Equipment Configuration Function Code and Max Query		Equipment Configuration	n Function Code and P	/lax Query	
Auto adjust to frame length     C Custom		Auto adjust to fram	ne length C	Custom	
Frame Length 254		Frame Length	254	× 2 + 3 bytes	
Start Address         Range         Read         Boundary           000001         65536         01         2000           100001         65536         02         2000           300001         65536         04         125           400001         65536         03         125	Write         Boundary           0F         800                   10         100	Start Address 000001 100001 300001 400001	Range         Read           65536         01           65536         02           65536         04           65536         03	Boundary Write 2000 OF 2000 125 125 10	e Boundary 800  100
Import Export	Default	Import Export			Default
01	(0) Cancel			OK ( <u>0</u> )	Cancel

Setup Items	Setup Description		
Auto adjust to frame length	Automatically set each function code and the boundary for one communication according to the frame length. Function codes cannot be changed. To change a function code, use "Custom".		
Frame Length	Set the frame length from "6 to 254". After setting, click the device list to display the boundary of Read and Write. Specify the frame length so that the value can be within the range of the boundary of Read and Write for the external device to be used.		
Import	Import the device settings described in the xml file. ☞ " ◆ Import Procedure in the Device Setting" (page 85)		
Export	Export the device settings into the xml file. ☞ " ◆ Export Procedure in the Device Setting" (page 85)		

NOTE

• When "Auto adjust to frame length" is selected, use the following function codes. The read/ write boundary is automatically calculated according to "Frame Length".

Device	Function Code			
Device	Read	Write		
Coil	01	0F: Force Multiple Coils		
Discrete Input	02	Disabled		
Input Register	04	Disabled		
Holding Register	03	10: Preset Multiple Register		

- Use "Custom" in the following cases:
  - When you use a different function code depending on an address.
  - When you use the function code "05: Force Single Coil" or "06: Preset Single Register".
  - When the read/write boundary depends on the device.

• [Function Code and Max Query] Tab (when "Custom" is selected)

C1  quipment Configuration Function Code and Max Query  Auto adjust to frame length  Auto adjust to frame length  Auto Configuration  Delete						
Start Address	Bange	Bead	Boundaru	Write	Boundaru	
000001	65526	01	2000	05	900	
100001	65536	02	2000	0	000	
300001	65536	04	125			
400001	65536	03	125	10	100	
mport Export				OK (D)	Default Cancel	

Setup Items	Setup Description
Custom	Manually set each function code and the boundary for one communication.
Add	Add the function code and its data boundary settings. Up to 20 settings can be added. Add the settings in the [Add setting] dialog box.
Configuration	Change the selected device settings. Change the settings in the [Configuration setting] dialog box.
Delete	Delete the selected device settings.
Import	Import the device settings described in the xml file. <sup>(</sup> → Import Procedure in the Device Setting" (page 85)
Export	Export the device settings into the xml file. ☞ " ◆ Export Procedure in the Device Setting" (page 85)

• [Add setting] Dialog Box / [Configuration setting] Dialog Box

Add setting	
Start Address	000001
Range	65536 ÷
Read Function Code	01
Boundary	2000 ÷
Write Function Code	OF (Multiple)
Boundary	800 .
OK	Cancel

Configuration setting	
Start Address	000001
Range	65536
Read Function Code	01
Boundary	2000
Write Function Code	OF (Multiple)
Boundary	800
ОК	Cancel

	Setup Items	Setup Description	
Start Add	ress	Set the start address of the device.	
Range		Set the range of the device specified in the start address.	
Read		Set the function codes to be used for read and the read boundary in one communication.	
	Function Code	The function code is assigned by the specified start address.	
	Boundary	The boundary depends on the device. Refer to the following table for details.	
Write		Set the function code to be used for write and the write boundary in one communication.	
	Function Code	The function code depends on the device. Refer to the following table for details.	
	Boundary	The boundary depends on the device. Refer to the following table for details.	

NOTE

• When "Custom" is selected, use the following function codes.

	Function Code (Boundary)			
Device	Read	Write		
		Multiple	Single	
Coil	01(2000)	0F: Force Multiple Coils (800)	05: Force Single Coil (Fixed to 1)	
Discrete Input	02(2000)	Disabled	Disabled	
Input Register	04(125)	Disabled	Disabled	
Holding Register	03(125)	10: Preset Multiple Register (100)	06: Preset Single Register (Fixed to 1)	

• If the set device address is disabled to write, you cannot set the write function code and boundary.

• When you select the function code "05" or "06", the write boundary will be fixed to "1", and cannot be changed.

- Import Procedure in the Device Setting
  - 1 Create the xml file based on the following format sample.
  - Format sample when "Auto adjust to frame length" is selected

<?xml version="1.0" encoding="utf-8" ?> <ModbusConfiguration version="1"> <ClearBits>OFF</ClearBits> <AddressMode>ModiconSyntax</AddressMode> <DWORD>L/H</DWORD> <FunctionCode> <Mode>AutoAdjust</Mode> <FrameLength>254</FrameLength> </FunctionCode> </ModbusConfiguration>

Bit manipulation to Holding Register Address Mode Double Word word order

Mode Frame Length

• Format sample when "Custom" is selected

xml version="1.0" encoding="utf-8" ?	
<modbusconfiguration version="1"></modbusconfiguration>	
<clearbits>OFF</clearbits>	Bit manipulation to Holding Register
<addressmode>ModiconSyntax</addressmode>	Address Mode
<dword>L/H</dword>	Double Word word order
<functioncode></functioncode>	
<mode>Custom</mode>	Mode
<setting></setting>	
<address>000001</address>	Start Address
<range>65535</range>	Range
<read></read>	0
<functioncode>01</functioncode>	Read Function Code
<boundary>2000</boundary>	Read Boundary
<write></write>	
<functioncode>0F</functioncode>	Write Function Code
<boundary>800</boundary>	Write Boundary
	,
25	

2 Click [Import] on the [Individual Device Settings] dialog box to display the [Open] dialog box.

**3** Select the created xml file and click [Open].

#### Export Procedure in the Device Setting

- 1 Click [Export] on the [Individual Device Settings] dialog box to display the [Save as] dialog box.
- 2 Enter a name and click [Save].

## 5.2 Setup Items in Offline Mode

## NOTE

• Refer to the Maintenance/Troubleshooting guide for information on how to enter offline mode or about the operation.

- Cf. Maintenance/Troubleshooting Guide "Offline Mode"
- The number of the setup items to be displayed for 1 page in the offline mode depends on the Display in use. Please refer to the Reference manual for details.

#### Communication Settings

To display the setting screen, touch [Device/PLC Settings] from [Peripheral Equipment Settings] in offline mode. Touch the External Device you want to set from the displayed list.



Setup Items	Setup Description
SIO Type	Select the SIO type for communicating with the External Device.   INPORTANT In the communication settings, set [SIO Type] correctly according to the serial interface specifications of the Display. If you select an SIO type that the serial interface does not support, proper operation cannot be guaranteed. Refer to your Display manual for details on the serial interface specifications.
Speed	Select the communication speed between the External Device and the Display.
Data Length	Select a data length.
Parity	Select how to check parity.
Stop Bit	Select a stop bit length.
Flow Control	Select the communication control method to prevent overflow of transmission and reception data.

Setup Items	Setup Description		
Timeout	Use an integer from 1 to 127 to enter the time (s) for which the Display waits for the response from the External Device.		
Retry	In case of no response from the External Device, enter how many times the Display retransmits the command, from "0 to 255".		
Wait To Send	Enter the standby time (ms) from when the Display receives packets until it transmits the next command, from "0 to 5000". When [RTU] is selected for [Mode] and each value for Speed/Data Length/Parity/Stop Bit is changed, set the Wait To Send value calculated with the following formula. Wait To Send (ms) = $\frac{3500 \times (1 + \text{Data Length} + \text{Stop Bit} + \text{Parity})}{\text{Speed (bps)}}$ Value for the parity setting is shown below. No Parity = 0 Parity Even = 1 Parity Odd = 1		
Mode	Select either [RTU] or [ASCII] for the communication mode.		

## ♦ Device Setting

To display the setting screen, touch [Device/PLC Settings] from [Peripheral Equipment Settings]. Touch the External Device you want to set from the displayed list, and touch [Device].

(Page 1/22)

Comm.	Device	Opti	on		
General MODBUS	SIO Master			[COM1]	Page 1/22
Devid	e/PLC Name PL	C1	_		•
	Slave Address			1 🔻	
	Bit manipulation Double Word word IEC61131 Syntax	to HR Iorder	Rest o Low wo OFF	f bits in word a rd first	re not cleared
	Exit			Back	2012/07/10 09:56:24

Setup Items	Setup Description
Device/PLC Name	Select the External Device to set. The device name is the title of the External Device set with GP-Pro EX.(Initial value [PLC1])
Slave Address	Use an integer from 1 to 247 to enter the slave address of the External Device.
Bit manipulation to HR	Displays how other bits in the same word are handled when you manipulate bits in the holding register, as "Rest of bits in word are cleared" or "Rest of bits in word are not cleared". (Not available to set in offline mode.)

Setup Items	Setup Description
Double Word word order	Displays the currently set order of storing double word data as "Low word first" or "High word first". (Not available to set in offline mode.)
IEC61131 Syntax	Displays the usage status of the currently set IEC61131 syntax in ON/OFF. (Not available in offline mode.)

(Page 2/22)

Comm.	Device	Option		
General MODBUS	SIO Master		[COM1]	Page 2/22
Devic	e/PLC Name  PL	C1		
	Function Code an Auto adjust Sett Frame Length	id Max Query Auto a ;ing 254	djust to Frame L	ength
	Exit		Back	2012/07/10 09:56:29

Setup Items	Setup Description           Select the External Device to set. The device name is the title of the External Device set with GP-Pro EX.(Initial value [PLC1])           Displays the option to set the function code and boundary. (Not available to set in offline mode.)			
Device/PLC Name	Select the External Device to set. The device name is the title of the External Device set with GP-Pro EX.(Initial value [PLC1])			
Function Code and Max Query	Displays the option to set the function code and boundary. (Not available to set in offline mode.)			
Auto adjust Setting	Displays the set frame length when "Auto adjust to frame length" is selected			
Frame Length	in the online mode. (Not available to set in offline mode.)			

(Page 3/22 to 22/22)

Comm.	Device	Option		
General MODBUS	SIO Master		[COM1]	Page 3/22
Devid	e/PLC Name PL	C1		-
	Custom Setting 1 Start Address Range Read Write	000001 65536 01 / 2 0F / 0	000 800	<b>+ +</b>
	Exit		Back	2012/07/10 09:56:33

Setup Items	Setup Description
Device/PLC Name	Select the External Device to set. The device name is the title of the External Device set with GP-Pro EX. (Initial value [PLC1])
Start Address	Displays the start address of the device. (Not available to set in offline mode.)
Range	Displays the range of the device specified in the start address. (Not available to set in offline mode.)
Read	Displays the device function codes and boundaries to be read for one communication. (Not available to set in offline mode.)
Write	Displays the device function codes and boundaries to be written for one communication. (Not available to set in offline mode.)

NOTE	• Page 3 and the following pages display the set descriptions in order.
	• When "Auto adjust to frame length" is selected, the Custom setup items are invalid.

## Option

To display the setting screen, touch [Device/PLC Settings] from [Peripheral Equipment Settings]. Touch the External Device you want to set from the displayed list, and touch [Option].

Comm.	Device	Option			
General MODBUS	SIO Master		[COM1]	Page	1/1
	RI / VCC In the case the 9th pin Power Suppl RS232C Isol it to VCC.	• RI of RS232C, you to RI(Input) or y).If you use th ation Unit, plea	VCC can select VCC(5V e Digital's se select		
	Exit		Back	2012/07/1 09:56:37	0

Setup Items	Setup Description					
RI/VCC	You can switch between RI/VCC on the 9th pin when you select RS-232C for SIO type. To connect to the IPC, you need to switch between RI/5V using the IPC selector switch. Refer to your IPC manual for details.					
NOTE • G	P-4100 series, GP-4*01TM, GP-Rear Module, LT-4*01TM and LT-Rear Module do not ave the [Option] setting in the offline mode.					

# 6 Cable Diagrams

The following cable diagrams may be different from cable diagrams recommended by External Device Manufacturer.

Please be assured there is no operational problem in applying the cable diagram shown in this manual.

- The FG pin of the External Device body must be grounded according to your country's applicable standard. Refer to your External Device manual for details.
- SG and FG are connected inside the Display. When connecting the External Device to SG, design your system to avoid short-circuit loops.
- Connect an isolation unit if the communication is not stable due to noise or other factors.
- The connector type or signal name may vary depending on the External Device. Connect correctly corresponding to the External Device interface specifications.

## 6.1 Cable Diagram 1

Display (Connection Port)		Cable	Remarks	
GP3000 (COM1)	1A	User created cable (ER (DTR/CTS) control)		
GP4000 * (COM1) SP5000 *2 (COM1/2) SP-5B00 (COM1) ST3000 (COM1) ST6000 (COM1) STC6000 (COM1) ET6000 (COM1) LT3000 (COM1) IPC*3 PC/AT	GP4000*1 (COM1)       GP5000*2 (COM1/2)       SP-5B00 (COM1)       GT6000	User created cable (without control)	The cable length must be 15m maximum.	
GP-4105 (COM1)	1C	User created cable (ER (DTR/CTS) control)	The cohie longth must be	
GP-4115T3 (COM1)	1D	User created cable (without control)	1 he cable length must be 15m maximum.	
LT-4*01TM (COM1) LT-Rear Module (COM1)	1E	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBRJR21	The cable length must be 5m maximum.	

\*1 All GP4000 models except GP-4100 series and GP-4203T

- \*3 Only the COM port which can communicate by RS-232C can be used.
  - IPC COM Port (page 9)

<sup>\*2</sup> Except SP-5B00

• When the External Device supports RTS/CTS control

	Dis D-Sub 9	play side ) pin (socket	t)	Shield		External Device side
	Pin	Signal name		1 1		Signal name
Display	2	RD(RXD)	<b>↓</b>			SD
	3	SD(TXD)			+ +	RD
	4	ER(DTR)			$\rightarrow$	CTS
	8	CS(CTS)				RTS
	5	SG				SG
			•			DTR
					į Ļ	DSR
				<u></u>	:	FG

• When the External Device supports DTR/DSR control

	Dis D-Sub 9	play side 9 pin (socke	t)	Shiel	d	External Device side
	Pin	Signal name		1		Signal name
Display	2	RD(RXD)	<b>↓</b>	<u> </u>		SD
	3	SD(TXD)				RD
	4	ER(DTR)				DSR
	8	CS(CTS)	┝───			DTR
	5	SG				SG
		•	•		÷ –	RTS
					<b>L</b>	CTS
				`	· •	FG

	Dis D-Sub §	play side 9 pin (socket	t)	Shield		External Device side
	Pin	Signal name				Signal name
Display	2	RD(RXD)				SD
	3	SD(TXD)				RD
	4	ER(DTR)	$\square$			DTR
	8	CS(CTS)	◄┘		¦	DSR
	5	SG				SG
			•			RTS
					Ļ	CTS
				<u> </u>		FG

NOTE	•	The cable length must be 15m maximum.

1B)

1C)When the External Device supports RTS/CTS control

	Display side Terminal block	Shield	External Device side
	Signal name		Signal name
Display	RD(RXD)		SD
	SD(TXD)		→ RD
	ER(DTR)		
	CS(CTS)		RTS
	SG —		SG
			DTR
			DSR
		<u> </u>	FG

• When the External Device supports DTR/DSR control

	Display side Terminal bloc	k k	Shield	E	kternal Device si	de
	Signal name		$\langle \rangle$		Signal name	]
Display	RD(RXD)	<b>↓</b>	+ +		SD	
	SD(TXD)			+	RD	
	ER(DTR)	<u> </u>			DSR	
	CS(CTS)	┝──		<u>i</u>	DTR	
	SG				SG	]
		•		: _	RTS	
				¦	CTS	
			<u> </u>		FG	
						-

1D)	
-----	--

	Display side Terminal block	ζ.	Shie	eld	E>	kternal Device si	de
	Signal name		1			Signal name	]
Display	RD(RXD)	┣━━━	<u> </u>	$\frac{1}{1}$		SD	
	SD(TXD)				<b>→</b>	RD	
	ER(DTR)	$\square$				DTR	
	CS(CTS)	┝┛			4	DSR	]
	SG	┣───				SG	
		•				RTS	
					4	CTS	
			`	<u> </u>		FG	

1E)



NOTE	• The cable length must be 5m maximum.	
------	--	--

## 6.2 Cable Diagram 2

Display (Connection Port)		Cable	Remarks
GP3000 <sup>*1</sup> (COM1) AGP-3302B (COM2) GP-4*01TM (COM1) GP-Rear Module (COM1)	2A	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User created cable	The cable length
ST3000 <sup>*2</sup> (COM2) LT3000 (COM1) IPC <sup>*3</sup>	2B 2C	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + RS-422 cable by Pro-face CA3-CBL422-01 User created cable	maximum.
	2D	Online adapter by Pro-face CA4-ADPONL-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User created cable	
GP3000 <sup>*4</sup> (COM2)	2E	Online adapter by Pro-face CA4-ADPONL-01 + RS-422 cable by Pro-face CA3-CBL422-01	The cable length must be 1000m maximum.
	2F	Online adapter by Pro-face CA4-ADPONL-01 + User created cable	
GP-4106 (COM1) GP-4116T (COM1)	2G	User created cable	The cable length must be 1000m maximum.
GP4000 <sup>*5</sup> (COM2) GP-4201T (COM1) SP5000 <sup>*6</sup> (COM1/2) SP-5B00 (COM2) ST(000 <sup>*7</sup> (COM2)	2Н	RS-422 terminal block conversion adapter by Pro-face PFXZCBADTM1 <sup>*9</sup> + User created cable	
ST6000 * (COM2) ST-6200 (COM1) STM6000 (COM1) STC6000 (COM1) ET6000 <sup>*8</sup> (COM2) PS6000 (Basic Box)	2B	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + RS-422 cable by Pro-face CA3-CBL422-01	The cable length must be 1000m maximum.
(COM1/2)	2C	User created cable	
PE-4000B <sup>*10</sup> PS5000 <sup>*10</sup> PS6000 (Optional Interface) <sup>*10</sup>	21	User created cable	The cable length must be 1000m maximum.

\*1 All GP3000 models except AGP-3302B

- \*2 Except AST-3211A and AST-3302B
- \*3 Only the COM port which can communicate by RS-422/485 (4 wire) can be used. (Except PE-4000B, PS5000, and PS6000)
  - IPC COM Port (page 9)
- \*4 All GP3000 models except GP-3200 series and AGP-3302B
- \*5 All GP4000 models except GP-4100 series, GP-4\*01TM, GP-Rear Module, GP-4201T and GP-4\*03T
- \*6 Except SP-5B00
- \*7 Except ST-6200
- \*8 Due to the COM port specifications, flow control is not possible. Omit wiring the control pins on the Display side of the cable diagram.
- \*9 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 2A.
- \*10 Only the COM port which can communicate by RS-422/485 (4 wire) can be used.
  - IPC COM Port (page 9)

The RS-422/485 cable length is normally 1000m or less, which depends on the External Device. Please refer to the manual of the External Device for more details.
 The connection method and termination resistance depends on the External Device.

• The termination resistance on the Display is not isolated.

#### 2A)

• 1:1 Connection









### 2B)

• 1:1 Connection





NOTE	•	$100\Omega (1/2W)$	termination	resistance	is inserted	between	RDA	and RDE	3 in CA3	-CBL422-	-01.
------	---	--------------------	-------------	------------	-------------	---------	-----	---------	----------	----------	------

## 2C)

• 1:1 Connection





### 2D)

• 1:1 Connection



• 1:n Connection



• When the RDB terminal of CA3-ADPTRM-01 to the TRM terminal, the termination resistance of  $100\Omega$  (1/2W) is inserted between RDA and RDB terminals on the Display.

## 2E)

• 1:1 Connection





NOTE	•	$100\Omega$ (1/2W) termination resistance is inserted between RDA and RDB in CA3-CBL422-01.
NUTE		

## 2F)

### • 1:1 Connection



• 1:n Connection

NOTE



• When the RDB terminal of CA4-ADPONL-01 to the TRMRX terminal, the termination resistance of  $100\Omega (1/2W)$  is inserted between RDA and RDB terminals on the Display.

## 2G)

• 1:1 Connection



1:n Connection



\*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

DIP Switch No.	Set Value
1	OFF
2	OFF
3	ON
4	ON

### 2H)

• 1:1 Connection





## 2I)

### • 1:1 Connection





## 6.3 Cable Diagram 3

Display (Connection Port)		Cable	Remarks
GP3000 <sup>*1</sup> (COM1) AGP-3302B (COM2) GP-4*01TM (COM1) GP-Rear Module (COM1) ST3000 <sup>*2</sup> (COM2) LT3000 (COM1)	3A 3B	COM Port Conversion Adapter by Pro-face CA3-ADPCOM-01 + Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01 + User created cable	The cable length must be 1000m maximum.
GP3000 <sup>*3</sup> (COM2)	3C	Online adapter by Pro-face CA4-ADPONL-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User created cable Online adapter by Pro-face	The cable length must be 1000m maximum.
	3D	CA4-ADPONL-01 + User created cable	
IPC <sup>*4</sup>	3E 3F	COM Port Conversion Adapter by Pro-face CA3-ADPCOM-01 + Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01 + User created cable User created cable	The cable length must be 1000m maximum.
GP-4106 (COM1) GP-4116T (COM1)	3G	User created cable	The cable length must be 1000m maximum.
GP-4107 (COM1) GP-4*03T <sup>*5</sup> (COM2) GP-4203T (COM1)	3Н	User created cable	The cable length must be 1000m maximum.
GP4000 <sup>*6</sup> (COM2) GP-4201T (COM1) SP5000 <sup>*7</sup> (COM1/2) SP-5B00 (COM2) ST6000 <sup>*8</sup> (COM2) ST-6200 (COM1) STM6000 (COM1) STC6000 (COM1) ET6000 <sup>*9</sup> (COM2) PS6000 (Basic Box) (COM1/2)	31	RS-422 terminal block conversion adapter by Pro-face PFXZCBADTM1 <sup>*10</sup> + User created cable	
	3B	User created cable	The cable length must be 1000m maximum.

Display (Connection Port)	Cable		Remarks
LT-4*01TM (COM1) LT-Rear Module (COM1)	3J	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJR81	The cable length must be 200m maximum.
PE-4000B <sup>*11</sup> PS5000 <sup>*11</sup> PS6000 (Optional Interface) <sup>*11</sup>	3K	User created cable	The cable length must be 1000m maximum.

- \*1 All GP3000 models except AGP-3302B
- \*2 Except AST-3211A and AST-3302B
- \*3 All GP3000 models except GP-3200 series and AGP-3302B
- \*4 Only the COM port which can communicate by RS-422/485 (2 wire) can be used. (Except PE-4000B, PS5000, and PS6000)
  - IPC COM Port (page 9)
- \*5 Except GP-4203T
- \*6 All GP4000 models except GP-4100 series, GP-4\*01TM, GP-Rear Module, GP-4201T and GP-4\*03T
- \*7 Except SP-5B00
- \*8 Except ST-6200
- \*9 Due to the COM port specifications, flow control is not possible. Omit wiring the control pins on the Display side of the cable diagram.
- \*10 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 3A.
- \*11 Only the COM port which can communicate by RS-422/485 (2 wire) can be used. ■ IPC COM Port (page 9)

IMPORTANT	•	The RS-422/485 cable length is normally 1000m or less (for LT-4*01TM and LT-Rear Module, 200m or less), which depends on the External Device. Please refer to the manual of the External Device for more details.
	•	The connection method and termination resistance depends on the External Device.
	•	The termination resistance on the Display is not isolated.
#### 3A)



#### 3B)

• 1:1 Connection





#### 3C)

• 1:1 Connection



• 1: n Connection



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#### 3D)

• 1:1 Connection





#### 3E)

1:1 Connection



• 1: n Connection



resistance of  $100\Omega$  (1/2W) is inserted between RDA and RDB terminals on the Display.

#### 3F)

#### • 1:1 Connection





#### 3G)

• 1:1 Connection



• 1: n Connection



\*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

DIP Switch No.	Set Value
1	OFF
2	OFF
3	ON
4	ON

#### 3H)

• 1:1 Connection





IMPORTANT	• The 5V output (Pin #6) on the Display is the power for the Siemens AG's PROFIBUS connector. Do not use it for other devices.
NOTE	• In COM on the GP-4107, the SG and FG terminals are isolated.

#### 3I)

• 1:1 Connection



• 1: n Connection



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#### 3J)

• 1:1 Connection





#### 3K)

• 1:1 Connection





# 6.4 Cable Diagram 4

Display (Connection Port)	Cable		Remarks
GP3000 <sup>*1</sup> (COM1) AGP-3302B (COM2) GP-4*01TM (COM1) GP-Rear Module (COM1) ST3000 <sup>*2</sup> (COM2) LT3000 (COM1)	4A	COM Port Conversion Adapter by Pro-face CA3-ADPCOM-01 + Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01 + User created cable	The cable length must be 500m maximum.
	4B	User created cable	
GP3000 <sup>*3</sup> (COM2)	4C	Online adapter by Pro-face CA4-ADPONL-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User created cable	The cable length must be 500m maximum.
	4D	Online adapter by Pro-face CA4-ADPONL-01 + User created cable	
IPC <sup>*4</sup>	4E 4F	COM Port Conversion Adapter by Pro-face CA3-ADPCOM-01 + Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01 + User created cable User created cable	The cable length must be 500m maximum.
GP-4106 (COM1) GP-4116T (COM1)	4G	User created cable	The cable length must be 500m maximum.
GP-4107 (COM1) GP-4*03T <sup>*5</sup> (COM2) GP-4203T (COM1)	4H	User created cable	The cable length must be 500m maximum.
GP4000 <sup>*6</sup> (COM2) GP-4201T (COM1) SP5000 <sup>*7</sup> (COM1/2) SP-5B00 (COM2)	4I	RS-422 terminal block conversion adapter by Pro-face PFXZCBADTM1 <sup>*10</sup> + User created cable	
S16000 ° (COM2) ST-6200 (COM1) STM6000 (COM1) STC6000 (COM1) ET6000 <sup>*9</sup> (COM2) PS6000 (Basic Box) (COM1/2)	4B	User created cable	The cable length must be 500m maximum.

Display (Connection Port)	Cable		Remarks
LT-4*01TM (COM1) LT-Rear Module (COM1)	4J	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJR81	The cable length must be 200m maximum.
PE-4000B <sup>*11</sup> PS5000 <sup>*11</sup> PS6000 (Optional Interface) <sup>*11</sup>	4K	User created cable	The cable length must be 500m maximum.

\*1 All GP3000 models except AGP-3302B

\*2 Except AST-3211A and AST-3302B

- \*3 All GP3000 models except GP-3200 series and AGP-3302B
- \*4 Only the COM port which can communicate by RS-422/485 (2 wire) can be used. (Except PE-4000B, PS5000, and PS6000)
  - IPC COM Port (page 9)
- \*5 Except GP-4203T
- \*6 All GP4000 models except GP-4100 series, GP-4\*01TM, GP-Rear Module, GP-4201T and GP-4\*03T
- \*7 Except SP-5B00
- \*8 Except ST-6200
- \*9 Due to the COM port specifications, flow control is not possible. Omit wiring the control pins on the Display side of the cable diagram.
- \*10 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 4A.
- \*11 Only the COM port which can communicate by RS-422/485 (2 wire) can be used.
  IPC COM Port (page 9)

#### 4A)

• 1:1 Connection



User-created cable

• 1: n Connection

NOTE



• Turn ON the termination resistor switch on the External Device located at the end to enable the termination resistor  $(120\Omega)$ .

4B)

• 1:1 Connection



• 1: n Connection



NOTE

• Turn ON the termination resistor switch on the External Device located at the end to enable the termination resistor ( $120\Omega$ ).

#### 4C)

1:1 Connection ٠



1: n Connection



the termination resistor ( $120\Omega$ ).

#### 4D)

#### • 1:1 Connection



#### • 1: n Connection



### NOTE

• Turn ON the termination resistor switch on the External Device located at the end to enable the termination resistor ( $120\Omega$ ).

#### 4E)

1:1 Connection





#### 4F)

#### • 1:1 Connection



• 1: n Connection

NOTE



• Turn ON the termination resistor switch on the External Device located at the end to enable the termination resistor (120Ω).

4G)

• 1:1 Connection



• 1: n Connection

NOTE



• Turn ON the termination resistor switch on the External Device located at the end to enable the termination resistor (120Ω).

\*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

DIP Switch No.	Set Value
1	OFF
2	OFF
3	ON
4	ON

#### 4H)

• 1:1 Connection





IMPORTANT	connector. Do not use it for other devices.
NOTE	• Turn ON the termination resistor switch on the External Device located at the end to enable
	the termination resistor ( $120\Omega$ ).
	• In COM on the GP-4107, the SG and FG terminals are isolated.

#### 4I)

• 1:1 Connection



• 1: n Connection



the termination resistor  $(120\Omega)$ .

#### 4J)

• 1:1 Connection



# • Turn ON the termination resistor switch on the External Device located at the end to enable the termination resistor $(120\Omega)$ .



Legend	Name	Notes
(1)	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJR81	

#### 4K)

• 1:1 Connection



• 1: n Connection



NOTE

• Turn ON the termination resistor switch on the External Device located at the end to enable the termination resistor ( $120\Omega$ ).

## 6.5 Cable Diagram 5

Display (Connection Port)	Cable		Remarks
GP3000 (COM1) GP4000 <sup>*1</sup> (COM1) SP5000 <sup>*2</sup> (COM1/2) SP-5B00 (COM1) ST3000 (COM1) ST6000 (COM1) STC6000 (COM1) ET6000 (COM1) LT3000 (COM1) IPC <sup>*3</sup> PC/AT	5A	User created cable	The cable length must be 15m maximum.
GP-4105 (COM1) GP-4115T (COM1) GP-4115T3 (COM1)	5B	User created cable	The cable length must be 15m maximum.
LT-4*01TM (COM1) LT-Rear Module (COM1)	5C	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBRJR21	The cable length must be 5m maximum.

\*1 All GP4000 models except GP-4100 series and GP-4203T

\*2 Except SP-5B00

\*3 Only the COM port which can communicate by RS-232C can be used.
■ IPC COM Port (page 9)

Display side D-sub 9 pin (socket) External Device side D-sub 9 pin (socket) Shield Pin Signal name Pin Signal name 3 2 RD(RXD) SD(TXD) Display 2 3 SD(TXD) RD(RXD) 5 SG 5 SG 4 ER(DTR) 8 CS(CTS) Shell FG

5B)



5C)

		External Device side D-sub 9 pin (socket)		
Display	TVD	Pin	Signal name	
		4	RD(RXD)	
		5	SD(TXD)	
	(1) <u>GND</u>	 6	SG	

Legend	Name	Notes
(1)	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBRJR21	

5A)

## 6.6 Cable Diagram 6

Display (Connection Port)	Cable		Remarks
GP3000 <sup>*1</sup> (COM1) AGP-3302B (COM2) GP-4*01TM (COM1) GP-Rear Module (COM1) ST3000 <sup>*2</sup> (COM2) LT3000 (COM1) IPC <sup>*3</sup>	6A 6B	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User created cable User created cable	The cable length must be 500m maximum.
GP3000 <sup>*4</sup> (COM2)	6C	Online adapter by Pro-face CA4-ADPONL-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User created cable	The cable length must be 500m maximum.
	6D	Online adapter by Pro-face CA4-ADPONL-01 + User created cable	
GP-4106 (COM1) GP-4116T (COM1)	6E	User created cable	The cable length must be 500m maximum.
GP4000 <sup>*5</sup> (COM2) GP-4201T (COM1) SP5000 <sup>*6</sup> (COM1/2) SP-5B00 (COM2)	6F	RS-422 terminal block conversion adapter by Pro-face PFXZCBADTM1 <sup>*9</sup> + User created cable	
ST6000 <sup>+</sup> (COM2) ST-6200 (COM1) STM6000 (COM1) STC6000 (COM1) ET6000 <sup>*8</sup> (COM2) PS6000 (Basic Box) (COM1/2)	6B	User created cable	The cable length must be 500m maximum.
PE-4000B <sup>*10</sup> PS5000 <sup>*10</sup> PS6000 (Optional Interface) <sup>*10</sup>	6G	User created cable	The cable length must be 500m maximum.

\*1 All GP3000 models except AGP-3302B

\*2 Except AST-3211A and AST-3302B

\*3 Only the COM port which can communicate by RS-422/485 (4 wire) can be used. (Except PE-4000B, PS5000, and PS6000)

IPC COM Port (page 9)

- \*4 All GP3000 models except GP-3200 series and AGP-3302B
- \*5 All GP4000 models except GP-4100 series, GP-4\*01TM, GP-Rear Module, GP-4201T and GP-4\*03T

\*6 Except SP-5B00

\*7 Except ST-6200

- \*8 Due to the COM port specifications, flow control is not possible. Omit wiring the control pins on the Display side of the cable diagram.
- \*9 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 6A.
- \*10 Only the COM port which can communicate by RS-422/485 (4 wire) can be used.
  IPC COM Port (page 9)
  - 6A)
    - 1:1 Connection



• 1:n Connection



User-created cable

#### 6B)

#### • 1:1 Connection





#### 6C)

#### • 1:1 Connection





#### 6D)

#### • 1:1 Connection



• 1:n Connection



User-created cable

#### 6E)

• 1:1 Connection



• 1:n Connection



\*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

DIP Switch No.	Set Value
1	OFF
2	OFF
3	ON
4	ON

#### 6F)

• 1:1 Connection





#### 6G)

• 1:1 Connection





# 6.7 Cable Diagram 7

Display (Connection Port)	Cable		Remarks
GP3000 <sup>*1</sup> (COM1) AGP-3302B (COM2) GP-4*01TM (COM1) GP-Rear Module (COM1) ST3000 <sup>*2</sup> (COM2) LT3000 (COM1)	7A	COM Port Conversion Adapter by Pro-face CA3-ADPCOM-01 + Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01 + User created cable	The cable length must be 500m maximum.
	7B	User created cable	
GP3000 <sup>*3</sup> (COM2)	7C	Online adapter by Pro-face CA4-ADPONL-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User created cable	The cable length must be 500m maximum.
	7D	Online adapter by Pro-face CA4-ADPONL-01 + User created cable	
IPC <sup>*4</sup>	7E 7F	COM Port Conversion Adapter by Pro-face CA3-ADPCOM-01 + Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01 + User created cable User created cable	The cable length must be 500m maximum.
GP-4106 (COM1) GP-4116T (COM1)	7G	User created cable	The cable length must be 500m maximum.
GP-4107 (COM1) GP-4*03T <sup>*5</sup> (COM2) GP-4203T (COM1)	7H	User created cable	The cable length must be 500m maximum.
GP4000 <sup>*6</sup> (COM2) GP-4201T (COM1) SP5000 <sup>*7</sup> (COM1/2) SP-5B00 (COM2) ST6000 <sup>*8</sup> (COM2) ST-6200 (COM1) STM6000 (COM1) STC6000 (COM1) ET6000 <sup>*9</sup> (COM2) PS6000 (Basic Box) (COM1/2)	71	RS-422 terminal block conversion adapter by Pro-face PFXZCBADTM1 <sup>*10</sup> + User created cable	
	7B	User created cable	The cable length must be 500m maximum.

Display (Connection Port)		Cable	Remarks
LT-4*01TM (COM1) LT-Rear Module (COM1)	7J	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJR81	The cable length must be 200m maximum.
PE-4000B <sup>*11</sup> PS5000 <sup>*11</sup> PS6000 (Optional Interface) <sup>*11</sup>	7K	User created cable	The cable length must be 500m maximum.

\*1 All GP3000 models except AGP-3302B

\*2 Except AST-3211A and AST-3302B

- \*3 All GP3000 models except GP-3200 series and AGP-3302B
- \*4 Only the COM port which can communicate by RS-422/485 (2 wire) can be used. (Except PE-4000B, PS5000, and PS6000)
  - IPC COM Port (page 9)
- \*5 Except GP-4203T
- \*6 All GP4000 models except GP-4100 series, GP-4\*01TM, GP-Rear Module, GP-4201T and GP-4\*03T
- \*7 Except SP-5B00
- \*8 Except ST-6200
- \*9 Due to the COM port specifications, flow control is not possible. Omit wiring the control pins on the Display side of the cable diagram.
- \*10 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 7A.
- \*11 Only the COM port which can communicate by RS-422/485 (2 wire) can be used.
  IPC COM Port (page 9)
## 7A)

### • 1:1 Connection



------

User-created cable

### 7B)

### • 1:1 Connection





### 7C)

• 1:1 Connection





### 7D)

• 1:1 Connection





## 7E)

1:1 Connection





### 7F)

### • 1:1 Connection





### 7G)

• 1:1 Connection



• 1: n Connection



\*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

DIP Switch No.	Set Value
1	OFF
2	OFF
3	ON
4	ON

### 7H)

• 1:1 Connection





IMPORTANT	<ul> <li>The 5V output (Pin #6) on the Display is the power for the Siemens AG's PROFIBUS connector. Do not use it for other devices.</li> </ul>
NOTE	• In COM on the GP-4107, the SG and FG terminals are isolated.

### 7I)

• 1:1 Connection





## 7J)

• 1:1 Connection





Legend	Name	Notes
(1)	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJR81	

### 7K)

### • 1:1 Connection





## 6.8 Cable Diagram 8

Display (Connection Port)	Cable		Remarks
GP3000 (COM1) GP4000 <sup>*1</sup> (COM1) SP5000 <sup>*2</sup> (COM1/2) SP-5B00 (COM1) ST3000 (COM1) ST6000 (COM1) STC6000 (COM1) ET6000 (COM1) LT3000 (COM1) IPC <sup>*3</sup> PC/AT	8A	RS232C conversion unit by IAI Corporation RCB-CV-MW + Communication cable by IAI Corporation CB-RCA-SIO050	
GP-4105 (COM1) GP-4115T (COM1) GP-4115T3 (COM1)8BUser created cable + RS232C conversion unit by IAI Corporation RCB-CV-MW + Communication cable by IAI Corporation CB-RCA-SIO050		The cable length must be 15m maximum.	
LT-4*01TM (COM1) LT-Rear Module (COM1)	8C	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBRJR21 + RS232C conversion unit by IAI Corporation RCB-CV-MW + Communication cable by IAI Corporation CB-RCA-SIO050	Cable length from Display to RS232C conversion unit 5m or less

\*1 All GP4000 models except GP-4100 series and GP-4203T

\*2 Except SP-5B00

\*3

Only the COM port which can communicate by RS-232C can be used. ■ IPC COM Port (page 9)



• RS232C conversion unit (RCB-CV-MW) and communication cable (CB-RCA-SIO050) are accessories of PC Interface Software (RCM-101-MW) by IAI Corporation.



Legend	Name	Notes
(1)	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBRJR21	

8A)

## 6.9 Cable Diagram 9

Display (Connection Port)	Cable		Remarks
GP3000 <sup>*1</sup> (COM1) AGP-3302B (COM2) GP-4*01TM (COM1) GP-Rear Module (COM1) ST3000 <sup>*2</sup> (COM2) LT3000 (COM1) IPC <sup>*3</sup>	9A 9B	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable User-created cable	The cable length must be 500m or less.
GP3000 <sup>*1</sup> (COM2)	9C	Online adapter by Pro-face CA4-ADPONL-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	The cable length must be 500m or less.
	9D	Online adapter by Pro-face CA4-ADPONL-01 + User-created cable	
GP-4106 (COM1) GP-4116T (COM1)	9E	User-created cable	The cable length must be 500m or less.
GP4000 <sup>*4</sup> (COM2) GP-4201T (COM1) SP5000 (COM1/2) <sup>*5</sup> (COM1/2)	9F	RS-422 Terminal Block Conversion Adapter by Pro-face PFXZCBADTM1 <sup>*8</sup> + User-created cable	
Sr-5B00 (COM2)         ST6000*6 (COM2)         ST-6200 (COM1)         STM6000 (COM1)         STC6000 (COM1)         ET6000*7 (COM2)         PS6000 (Basic Box)         (COM1/2)	9B	User-created cable	The cable length must be 500m or less.
PE-4000B <sup>*9</sup> PS5000 <sup>*9</sup> PS6000 (Optional Interface) <sup>*9</sup>	9G	User-created cable	The cable length must be 500m or less.

\*1 All GP3000 models except AGP-3302B

\*2 Except AST-3211A and AST-3302B

- \*4 All GP4000 models except GP-4100 Series, GP-4\*01TM, GP-Rear Module, GP-4201T and GP-4\*03T
- \*5 Except SP-5B00
- \*6 Except ST-6200

- \*7 Due to the COM port specifications, flow control is not possible. Omit wiring the control pins on the Display side of the cable diagram.
- \*8 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 9A.
- \*9 Available only with COM ports that support RS-422/485 (4wire). ☞ ■ IPC COM Port (page 9)

	Device. Terminal	numbers correspo KV-L20V KV-L21V	Noting to each ser KV-N11L KV-NC20L	es are shown below.
	SDB(+)	5	2	
	SDA(-)	3	1	
	RDB(+)	4	3	
	RDA(-)	2	4	
	SG	1	5	
	Sat the DODT2 to a	ala auritah an tha Eu	tamal Davias to "4	$224.485(4)$    $41_{22}$ turn ON the
NOTE	switch of the termin	gie switch on the Ex	ternal Device to "42	$22A 485(4)^{\circ}$ . Also, turn ON the

• Pay attention that pole A and pole B are reversely named for the Display and the External Device.



9B)

9A)





9D)

9C)





\*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

DIP Switch No.	Set Value
1	OFF
2	ON
3	OFF
4	ON

9F)



9E)



9G)

## 6.10 Cable Diagram 10

Display (Connection Port)	Cable		Notes
GP3000 <sup>*1</sup> (COM1) AGP-3302B (COM2) GP-4*01TM (COM1) GP-Rear Module (COM1) ST3000 <sup>*2</sup> (COM2) LT3000 (COM1) IPC <sup>*3</sup>	10A 10B	COM Port Conversion Adapter by Pro-face CA3-ADPCOM-01 + Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01 + User-created cable User-created cable	The cable length must be 500m or less. <sup>*4</sup>
GP3000 <sup>*5</sup> (COM2)	10C	Online Adapter by Pro-face CA4-ADPONL-01 + Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01 + User-created cable Online Adapter by Pro-face	The cable length must be 500m or less. <sup>*4</sup>
	10D	CA4-ADPONL-01 + User-created cable	
GP-4106 (COM1) GP-4116T (COM1)	10E	User-created cable	The cable length must be 500m or less. <sup>*4</sup>
GP4000 <sup>*6</sup> (COM2) GP-4201T (COM1) SP5000 <sup>*7</sup> (COM1/2) SP-5B00 (COM2) ST6000 <sup>*8</sup> (COM2) ST 6200 (COM1)	10F	RS-422 Terminal Block Conversion Adapter by Pro-face PFXZCBADTM1 *10 + User-created cable	The cable length
STM6000 (COM1) STC6000 (COM1) ET6000 <sup>*9</sup> (COM2) PS6000 (Basic Box) (COM1/2)	10B	User-created cable	must be 500m or less. <sup>*4</sup>
PE-4000B <sup>*11</sup> PS5000 <sup>*11</sup> PS6000 (Optional Interface) <sup>*11</sup>	10G	User-created cable	The cable length must be 500m or less. <sup>*4</sup>

\*1 All GP3000 models except AGP-3302B

- \*2 Except AST-3211A and AST-3302B
- \*3 Only the COM port which can communicate by RS-422/485 (4 wire) can be used. (Except PE-4000B, PS5000, and PS6000)
  - IPC COM Port (page 9)
- \*4 When using CJ1W-CIF11, the cable length must be 50 meters or less.
- \*5 All GP3000 models except GP-3200 series and AGP-3302B
- \*6 All GP4000 models except GP-4100 series, GP-4\*01TM, GP-Rear Module, GP-4201T and GP-4\*03T

- \*7 Except SP-5B00
- \*8 Except ST-6200
- \*9 Due to the COM port specifications, flow control is not possible. Omit wiring the control pins on the Display side of the cable diagram.
- \*10 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 10A.
- \*11 Only the COM port which can communicate by RS-422/485 (4 wire) can be used.
  - IPC COM Port (page 9)

IMPORTANT	<ul> <li>Please turn ON the termination resistance switch on the PLC.</li> <li>Set the 2wire/4wire toggle switch to 4wire.</li> <li>Note that pole A and pole B are reversely named for the Display and the External Device.</li> </ul>

### 10A)



- resistance.
- The cable length must be 500m or less.

### 10B)

### • 1:1 connection



• 1:n connection



NOTE

When the display unit you use is an IPC, turn ON the DIP switch 6 to insert the termination resistance.

### 10C)

• 1:1 connection





10D)

• 1:1 connection





### 10E)

• 1:1 connection



• 1:n connection



\*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

DIP Switch No.	Set Value
1	OFF
2	OFF
3	OFF
4	ON

### 10F)

• 1:1 connection





### 10G)

• 1:1 connection





# 6.11 Cable Diagram 11

Display (Connection Port)	Cable		Notes	
GP3000 <sup>*1</sup> (COM1) AGP-3302B (COM2) GP-4*01TM (COM1)		COM Port Conversion Adapter by Pro-face CA3-ADPCOM-01 +		
GP-Rear Module (COM1) ST3000 <sup>*2</sup> (COM2)	11A	Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01 +	The cable length must be 500m or less.	
LT3000 (COM1)		User-created cable		
	IIB	User-created cable		
		Online Adapter by Pro-face CA4-ADPONL-01 +		
GP3000 <sup>*3</sup> (COM2)	11C	Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01	The cable length	
		User-created cable	must be 500m or less.	
	11D	Online Adapter by Pro-face CA4-ADPONL-01		
		User-created cable		
		COM Port Conversion Adapter by Pro-face CA3-ADPCOM-01		
IPC <sup>*4</sup>	11E	Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01 +	The cable length must be 500m or less.	
		User-created cable		
	11F	User-created cable		
GP-4106 (COM1) GP-4116T (COM1)	11G	User-created cable	The cable length must be 500m or less.	
GP-4107 (COM1) GP-4*03T <sup>*5</sup> (COM2) GP-4203T (COM1)	11H	User-created cable	The cable length must be 500m or less.	
GP4000 <sup>*6</sup> (COM2) GP-4201T (COM1) SP5000 <sup>*7</sup> (COM1/2)	111	RS-422 Terminal Block Conversion Adapter by Pro-face PFXZCBADTM1 *10		
SP-5B00 (COM2) ST6000 <sup>*8</sup> (COM2) ST-6200 (COM1) STM6000 (COM1) STC6000 (COM1) ET6000 <sup>*9</sup> (COM2) PS6000 (Basic Box) (COM1/2)		+ User-created cable	The cable length	
	11B	User-created cable	must be 500m or less.	

Display (Connection Port)	Cable		Notes
LT-4*01TM (COM1) LT-Rear Module (COM1)	11J	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJR81	The cable length must be 500m or less.
PE-4000B <sup>*11</sup> PS5000 <sup>*11</sup> PS6000 (Optional Interface) <sup>*11</sup>	11K	User-created cable	The cable length must be 500m or less.

- \*1 All GP3000 models except AGP-3302B
- \*2 Except AST-3211A and AST-3302B
- \*3 All GP3000 models except GP-3200 series and AGP-3302B
- \*4 Only the COM port which can communicate by RS-422/485 (2 wire) can be used. (Except PE-4000B, PS5000, and PS6000)
  - IPC COM Port (page 9)
- \*5 Except GP-4203T
- \*6 All GP4000 models except GP-4100 series, GP-4\*01TM, GP-Rear Module, GP-4201T and GP-4\*03T
- \*7 Except SP-5B00
- \*8 Except ST-6200
- \*9 Due to the COM port specifications, flow control is not possible. Omit wiring the control pins on the Display side of the cable diagram.
- \*10 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 11A.
- \*11 Only the COM port which can communicate by RS-422/485 (2 wire) can be used.
  - IPC COM Port (page 9)

### 11A)



### 11B)

• 1:1 connection





### 11C)

• 1:1 connection





### 11D)

• 1:1 connection





### 11E)

• 1:1 connection





### 11F)

• 1:1 connection




## 11G)

• 1:1 connection



1:n connection



\*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

DIP Switch No.	Set Value
1	OFF
2	OFF
3	OFF
4	ON

## 11H)

• 1:1 connection



• 1:n connection



# 11I)

• 1:1 connection



• 1:n connection



# 11J)

• 1:1 connection



• 1:n connection



Number	Name	Notes
(1)	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJR81	

## 11K)

• 1:1 connection



1:n connection



# 6.12 Cable Diagram 12

Display (Connection Port)		Cable	Notes
GP3000 (COM1) GP4000 <sup>*1</sup> (COM1) SP5000 <sup>*2</sup> (COM1/2) SP-5B00 (COM1) ST3000 (COM1) ST6000 (COM1) STC6000 (COM1) ET6000 (COM1) LT3000 (COM1) IPC <sup>*3</sup> PC/AT	12A	User-created cable	The cable length must be 15m or less.
GP-4105 (COM1) GP-4115T (COM1) GP-4115T3 (COM1)	12B	User-created cable	The cable length must be 15m or less.
LT-4*01TM (COM1) LT-Rear Module (COM1)	12C	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBRJR21	The cable length must be 5m or less.

\*1 All GP4000 models except GP-4100 series and GP-4203T

\*2 Except SP-5B00

\*3 Only the COM port which can communicate by RS-232C can be used.
■ IPC COM Port (page 9)

12A)



[ Te	Display side erminal bloc	e E	xternal [ Termin	Device side al block
	Signal name	Shield	Pin	Signal name
Display	RD(RXD)	← / / / _ [	1	SD(TXD)
	SD(TXD)	<u> </u>	2	RD(RXD)
	SG / //	3	SG	
	RS(RTS)	⊣ `¥[	4	FG
	CS(CTS)	<b>↓</b>		

12C)

			External Device side Terminal block		
Disalari			Pin	Signal name	
		RXD	1	SD(TXD)	
		2	RD(RXD)		
	(1)	GND	3	SG	
			4	FG	

Legend	Name	Note
(1)	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBRJR21	

# 6.13 Cable Diagram 13

Display (Connection Port)		Cable	Notes
GP3000 (COM1) GP4000 <sup>*1</sup> (COM1) SP5000 <sup>*2</sup> (COM1/2) SP-5B00 (COM1) ST3000 (COM1) ST6000 (COM1) STC6000 (COM1) ET6000 (COM1) LT3000 (COM1) IPC <sup>*3</sup> PC/AT	13A	User-created cable	The cable length must be 15m or less.
GP-4105 (COM1) GP-4115T (COM1) GP-4115T3 (COM1)	13B	User-created cable	The cable length must be 15m or less.
LT-4*01TM (COM1) LT-Rear Module (COM1)	13C	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBRJR21	The cable length must be 5m or less.

\*1 All GP4000 models except GP-4100 series and GP-4203T

\*2 Except SP-5B00

\*3 Only the COM port which can communicate by RS-232C can be used.■ IPC COM Port (page 9)

13A)



Display side E Terminal block			External [ Termin	Device side al block
	Signal name	Shield	Pin	Signal name
Display	RD(RXD)		1	SD(TXD)
	SD(TXD)		2	RD(RXD)
	SG	+	3	RS(RTS)
	RS(RTS)		4	CS(CTS)
	CS(CTS)◀	$\langle \rangle / - $	5	SG
		\¥	6	FG

13C)

13B)



Legend	Name	Note
(1)	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBRJR21	

# 6.14 Cable Diagram 14

Display (Connection Port)		Cable	Notes
GP3000 (COM1) GP4000 <sup>*1</sup> (COM1) SP5000 (COM1/2) <sup>*2</sup> (COM1/2) SP-5B00 (COM1) ST3000 (COM1) ST6000 (COM1) STC6000 (COM1) ET6000 (COM1) LT3000 (COM1) IPC <sup>*3</sup> PC/AT	14A	User-created cable	The cable length must be 3m or less.
GP-4105 (COM1) GP-4115T (COM1) GP-4115T3 (COM1)	14B	User-created cable	The cable length must be 3m or less.
LT-4*01TM (COM1) LT-Rear Module (COM1)	14C	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBRJR21	The cable length must be 3m or less.

\*1 All GP4000 models except GP-4100 Series and GP-4203T

#### \*2 Except SP-5B00

14A)





14C)

External Device side



Number	Name	Notes
(1)	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBRJR21	

# 6.15 Cable Diagram 15

Display (Connection Port)		Cable	Notes
GP3000 (COM1) GP4000 <sup>*1</sup> (COM1) SP5000 (COM1/2) <sup>*2</sup> (COM1/2) SP-5B00 (COM1) ST3000 (COM1) ST6000 (COM1) STC6000 (COM1) ET6000 (COM1) ET6000 (COM1) IPC <sup>*3</sup> PC/AT	15A	User-created cable	The cable length must be 15m or less.
GP-4105 (COM1) GP-4115T (COM1) GP-4115T3 (COM1)	15B	User-created cable	The cable length must be 15m or less.

\*1 All GP4000 models except GP-4100 Series and GP-4203T

\*2 Except SP-5B00

15A)





15B)

# 6.16 Cable Diagram 16

Display (Connection Port)	Cable		Notes	
GP3000 (COM1) GP4000 <sup>*1</sup> (COM1) SP5000 (COM1/2) <sup>*2</sup> (COM1/2) SP-5B00 (COM1) ST3000 (COM1) ST6000 (COM1) STC6000 (COM1) ET6000 (COM1) LT3000 (COM1) IPC <sup>*3</sup> PC/AT	16A	User-created cable (When using the COM.1 port)		
	16B	User-created cable (When using the COM.2 port)	The cable length must be 15m or less.	
GP-4105 (COM1)	16C	User-created cable (When using the COM.1 port)	The cable length must be	
GP-4115T (COM1) GP-4115T3 (COM1)	16D	User-created cable (When using the COM.2 port)	15m or less.	
LT-4*01TM (COM1) LT-Rear Module (COM1)	16E	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBRJR21 (When using the COM.1 port)	The cable length must be	
	16F	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBRJR21 (When using the COM.2 port)	5m or less.	

\*1 All GP4000 models except GP-4100 Series and GP-4203T

\*2 Except SP-5B00

16A)



16B)



16C)



16D)





Number	Name	Notes
(1)	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBRJR21	

16F)



Number	Name	Notes
(1)	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBRJR21	

16E)

# 6.17 Cable Diagram 17

Display (Connection Port)	Cable		Notes
GP3000 (COM1) GP4000 <sup>*1</sup> (COM1) SP5000 (COM1/2) <sup>*2</sup> (COM1/2) SP-5B00 (COM1) ST3000 (COM1) ST6000 (COM1) STC6000 (COM1) ET6000 (COM1) LT3000 (COM1) IPC <sup>*3</sup> PC/AT	17A	User-created cable	The cable length must be 15m or less.
GP-4105 (COM1) GP-4115T (COM1) GP-4115T3 (COM1)	17B	User-created cable	The cable length must be 15m or less.
LT-4*01TM (COM1) LT-Rear Module (COM1)	17C	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBRJR21	The cable length must be 5m or less.

\*1 All GP4000 models except GP-4100 Series and GP-4203T

#### \*2 Except SP-5B00

17A)





17C)

External Device side



Number	Name	Notes
(1)	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBRJR21	

# 6.18 Cable Diagram 18

Display (Connection Port)	Cable		Notes
GP3000 <sup>*1</sup> (COM1) AGP-3302B (COM2) GP-4*01TM (COM1) GP-Rear Module (COM1) ST3000 <sup>*2</sup> (COM2) LT3000 (COM1)	18A	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	The cable length must be 1200m or less.
	101	Online adapter by Pro-face	
GP3000 <sup>*3</sup> (COM2)	18C	CA4-ADPONL-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	The cable length must be 1200m or less.
	18D	Online adapter by Pro-face CA4-ADPONL-01 + User-created cable	
IPC <sup>*4</sup>	18E	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 +	The cable length must be 1200m or less.
		User-created cable	
	18F	User-created cable	
GP-4106 (COM1) GP-4116T (COM1)	18G	User-created cable	The cable length must be 1200m or less.
GP-4107 (COM1) GP-4*03T <sup>*5</sup> (COM2) GP-4203T (COM1)	18H	User-created cable	The cable length must be 1200m or less.
GP4000 <sup>*6</sup> (COM2) GP-4201T (COM1) SP5000 (COM1/2) <sup>*7</sup> (COM1/2)	181	RS-422 terminal block conversion adapter by Pro-face PFXZCBADTM1 <sup>*10</sup> + User-created cable	
SP-5B00 (COM2)         ST6000*8 (COM2)         ST-6200 (COM1)         STM6000 (COM1)         STC6000 (COM1)         ET6000*9 (COM2)         PS6000 (Basic Box)         (COM1/2)	18B	User-created cable	The cable length must be 1200m or less.
LT-4*01TM (COM1) LT-Rear Module (COM1)	18J	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJR81	The cable length must be 200m or less.
PE-4000B <sup>*11</sup> PS5000 <sup>*11</sup> PS6000 (Optional Interface) <sup>*11</sup>	18K	User-created cable	The cable length must be 1200m or less.

- \*1 All GP3000 models except AGP-3302B
- \*2 Except AST-3211A and AST-3302B
- \*3 All GP3000 models except GP-3200 series and AGP-3302B
- \*4 Only the COM port which can communicate by RS-422/485 (2 wire) can be used. (Except PE-4000B, PS5000, and PS6000)
  - IPC COM Port (page 9)
- \*5 Except GP-4203T
- \*6 All GP4000 models except GP-4100 series, GP-4\*01TM, GP-Rear Module, GP-4201T and GP-4\*03T
- \*7 Except SP-5B00
- \*8 Except ST-6200
- \*9 Due to the COM port specifications, flow control is not possible. Omit wiring the control pins on the Display side of the cable diagram.
- \*10 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 18A.

## 18A)

• 1:1 Connection



• Use the DIP switch in the communication cassette to set the termination resistance. Set SW1-1 of the External Device to ON.

• 1:n Connection



the External Device which terminates the connection to ON.

#### 18B)

1:1 Connection



• Use the DIP switch in the communication cassette to set the termination resistance. Set SW1-1 of the External Device to ON.

1:n Connection



NOTE

#### 18C)

• 1:1 Connection



- **NOTE** Use the DIP switch in the communication cassette to set the termination resistance. Set SW1-1 of the External Device to ON.
- 1:n Connection



## 18D)

• 1:1 Connection



• Use the DIP switch in the communication cassette to set the termination resistance. Set SW1-1 of the External Device to ON.

#### • 1:n Connection



NOTE

18E)

• 1:1 Connection



- Use the DIP switch in the communication cassette to set the termination resistance. Set SW1-1 of the External Device to ON.
- 1:n Connection



## 18F)

• 1:1 Connection



- Use the DIP switch in the communication cassette to set the termination resistance. Set SW1-1 of the External Device to ON.
- 1:n Connection



NOTE

#### 18G)

• 1:1 Connection



• Use the DIP switch in the communication cassette to set the termination resistance. Set SW1-1 of the External Device to ON.

1:n Connection



• Use the DIP switch in the communication cassette to set the termination resistance. Set SW1-1 of the External Device which terminates the connection to ON.

\*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

DIP Switch No.	Set Value
1	OFF
2	OFF
3	ON
4	ON

#### 18H)

• 1:1 Connection



of the External Device to ON.

• In COM on the GP-4107, the SG and FG terminals are isolated.



1:n Connection

of the External Device which terminates the connection to ON.In COM on the GP-4107, the SG and FG terminals are isolated.

#### 18I)

• 1:1 Connection



• Use the DIP switch in the communication cassette to set the termination resistance. Set SW1-1 of the External Device to ON.

• 1:n Connection



the External Device which terminates the connection to ON.

# 18J)

• 1:1 Connection



• Use the DIP switch in the communication cassette to set the termination resistance. Set SW1-1 of the External Device to ON.

1:n Connection



Number	Name	Notes
(1)	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJR81	

## 18K)

• 1:1 Connection



- Use the DIP switch in the communication cassette to set the termination resistance. Set SW1-1 of the External Device to ON.
- 1:n Connection



NOTE

# 6.19 Cable Diagram 19

Display (Connection Port)	Cable		Notes
GP3000 <sup>*1</sup> (COM1) AGP-3302B (COM2) GP-4*01TM (COM1) GP-Rear Module (COM1) ST3000 <sup>*2</sup> (COM2)	19A	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	The cable length must be 1200m or less.
	19B	User-created cable	
GP3000 <sup>*3</sup> (COM2)	19C	Online adapter by Pro-face CA4-ADPONL-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	The cable length must be 1200m or less.
	19D	CA4-ADPONL-01 + User-created cable	
IPC <sup>*4</sup>	19E	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 +	The cable length must be 1200m or less.
		User-created cable	
	19F	User-created cable	
GP-4106 (COM1) GP-4116T (COM1)	19G	User-created cable	The cable length must be 1200m or less.
GP-4107 (COM1) GP-4*03T <sup>*5</sup> (COM2) GP-4203T (COM1)	19H	User-created cable	The cable length must be 1200m or less.
GP4000 <sup>*6</sup> (COM2) GP-4201T (COM1) SP5000 (COM1/2) <sup>*7</sup> (COM1/2)	19I	RS-422 terminal block conversion adapter by Pro-face PFXZCBADTM1 <sup>*10</sup> + User-created cable	
SP-5B00 (COM2)           ST6000*8 (COM2)           ST-6200 (COM1)           STM6000 (COM1)           STC6000 (COM1)           ET6000*9 (COM2)           PS6000 (Basic Box)           (COM1/2)	19B	User-created cable	The cable length must be 1200m or less.
LT-4*01TM (COM1) LT-Rear Module (COM1)	19J	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJR81	The cable length must be 200m or less.
PE-4000B <sup>*11</sup> PS5000 <sup>*11</sup> PS6000 (Optional Interface) <sup>*11</sup>	19K	User-created cable	The cable length must be 1200m or less.

- \*1 All GP3000 models except AGP-3302B
- \*2 Except AST-3211A and AST-3302B
- \*3 All GP3000 models except GP-3200 series and AGP-3302B
- \*4 Only the COM port which can communicate by RS-422/485 (2 wire) can be used. (Except PE-4000B, PS5000, and PS6000)
  - IPC COM Port (page 9)
- \*5 Except GP-4203T
- \*6 All GP4000 models except GP-4100 series, GP-4\*01TM, GP-Rear Module, GP-4201T and GP-4\*03T
- \*7 Except SP-5B00
- \*8 Except ST-6200
- \*9 Due to the COM port specifications, flow control is not possible. Omit wiring the control pins on the Display side of the cable diagram.
- \*10 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 19A.
- \*11 Only the COM port which can communicate by RS-422/485 (2 wire) can be used.
   IPC COM Port (page 9)

## 19A)

• 1:1 Connection



• 1:n Connection

NOTE



• Set the termination resistance selector switch of the External Device which terminates the connection to ON.

19B)

1:1 Connection



• 1:n Connection



connection to ON.

# 19C)

• 1:1 Connection



• 1:n Connection



connection to ON.
#### 19D)

• 1:1 Connection





• Set the termination resistance selector switch of the External Device which terminates the connection to ON.

#### 19E)

• 1:1 Connection



• 1:n Connection



• Set the termination resistance selector switch of the External Device which terminates the connection to ON.

19F)

1:1 Connection



• 1:n Connection



connection to ON.

#### 19G)

• 1:1 Connection



1:n Connection



• Set the termination resistance selector switch of the External Device which terminates the connection to ON.

\*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

DIP Switch No.	Set Value
1	OFF
2	OFF
3	ON
4	ON

#### 19H)

• 1:1 Connection



• 1:n Connection



#### 19I)

• 1:1 Connection





Set the termination resistance selector switch of the External Device which terminates the • connection to ON.

## 19J)

• 1:1 Connection



**NOTE** • Set the termination resistance selector switch of the External Device which terminates the connection to ON.

• 1:n Connection



Number	Name	Notes
(1)	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJR81	

#### 19K)

• 1:1 Connection



• 1:n Connection



## 6.20 Cable Diagram 20

Display (Connection Port)		Cable	Notes
GP3000 <sup>*1</sup> (COM1) AGP-3302B (COM2) GP-4*01TM (COM1) GP-Rear Module (COM1) ST3000 <sup>*2</sup> (COM2) LT3000 (COM1) IPC <sup>*3</sup>	20A 20B	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable User-created cable	Cable length: 500m or less
GP3000 <sup>*4</sup> (COM2)	20C 20D	Online adapter by Pro-face CA4-ADPONL-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable Online adapter by Pro-face CA4-ADPONL-01 + User-created cable	Cable length: 500m or less
GP-4106 (COM1) GP-4116T (COM1)	20E	User-created cable	Cable length: 500m or less
GP4000 <sup>*5</sup> (COM2) GP-4201T (COM1) SP5000 (COM1/2) <sup>*6</sup> (COM1/2)	20F	RS-422 Terminal Block Conversion Adapter by Pro-face PFXZCBADTM1 <sup>*8</sup> + User-created cable	
ST-5800 (COM2) ST6000 <sup>*7</sup> (COM2) ST-6200 (COM1) STM6000 (COM1) STC6000 (COM1) PS6000 (Basic Box) (COM1/2)	20B	User-created cable	Cable length: 500m or less
PE-4000B <sup>*9</sup> PS5000 <sup>*9</sup> PS6000 (Optional Interface) <sup>*9</sup>	20G	User-created cable	Cable length: 500m or less

\*1 All GP3000 models except AGP-3302B

\*2 Except AST-3211A and AST-3302B

\*3 Only the COM port which can communicate by RS-422/485 (4 wire) can be used. (Except PE-4000B, PS5000, and PS6000)

IPC COM Port (page 9)

- \*4 All GP3000 models except GP-3200 series and AGP-3302B
- \*5 All GP4000 models except GP-4100 Series, GP-4\*01TM, GP-Rear Module, GP-4201T and GP-4\*03T

\*6 Except SP-5B00

\*7 Except ST-6200

- \*8 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 20A.
- \*9 Only the COM port which can communicate by RS-422/485 (4 wire) can be used. ☞ ■ IPC COM Port (page 9)

## 20A)

• 1:1 Connection



- Please set the terminating resistor switch of the External Device to the "100 $\Omega$ " position.



• 1:n Connection

#### 20B)

• 1:1 Connection





- Please set the terminating resistor switch of the External Device to the "100 $\Omega$ " position.



#### 1:n Connection

#### 20C)

• 1:1 Connection



- Please set the terminating resistor switch of the External Device to the "100 $\Omega$ " position.



• 1:n Connection

#### 20D)

• 1:1 Connection



NOTE

- Please set the terminating resistor switch of the External Device to the " $100\Omega$ " position.

• 1:n Connection



#### 20E)

• 1:1 Connection



NOTE	• Please set the terminating resistor switch of the External Device to the " $100\Omega$ " position.	
NOTE	These set are terminating resistor swhen of the External Device to the Tool Position.	



\*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

DIP Switch No.	Set Value
1	OFF
2	OFF
3	ON
4	ON

## 20F)

• 1:1 Connection



- Please set the terminating resistor switch of the External Device to the "100 $\Omega$ " position.



1:n Connection

#### 20G)

• 1:1 Connection





• Please set the terminating resistor switch of the External Device to the " $100\Omega$ " position.



#### 1:n Connection

# 6.21 Cable Diagram 21

Display (Connection Port)	Cable		Notes
GP3000 <sup>*1</sup> (COM1) AGP-3302B (COM2) GP-4*01TM (COM1) GP-Rear Module (COM1) ST3000 <sup>*2</sup> (COM2) LT3000 (COM1)	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + 21A Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable		Cable length: 500m or less
	21B	User-created cable	
GP3000 <sup>*3</sup> (COM2)	21C	Online adapter by Pro-face CA4-ADPONL-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	Cable length: 500m or less
	21D	Online adapter by Pro-face CA4-ADPONL-01 + User-created cable	
IPC <sup>*4</sup>	21E 21F	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable User-created cable	Cable length: 500m or less
GP-4106 (COM1) GP-4116T (COM1)	21G	User-created cable	Cable length: 500m or less
GP-4107 (COM1) GP-4*03T <sup>*5</sup> (COM2) GP-4203T (COM1)	21H	User-created cable	Cable length: 500m or less
GP4000 <sup>*6</sup> (COM2) GP-4201T (COM1) SP5000 (COM1/2) <sup>*7</sup> (COM1/2)	211	RS-422 Terminal Block Conversion Adapter by Pro-face PFXZCBADTM1 <sup>*9</sup> + User-created cable	
SP-5B00 (COM2) ST6000 <sup>*8</sup> (COM2) ST-6200 (COM1) STM6000 (COM1) STC6000 (COM1) PS6000 (Basic Box) (COM1/2)	21B	User-created cable	Cable length: 500m or less
LT-4*01TM (COM1) LT-Rear Module (COM1)	21J	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJR81	Cable length: 200m or less

Display (Connection Port)		Cable	
PE-4000B <sup>*10</sup> PS5000 <sup>*10</sup> PS6000 (Optional Interface) <sup>*10</sup>	21K	User-created cable	Cable length: 500m or less

- \*1 All GP3000 models except AGP-3302B
- \*2 Except AST-3211A and AST-3302B
- \*3 All GP3000 models except GP-3200 series and AGP-3302B
- \*4 Only the COM port which can communicate by RS-422/485 (2 wire) can be used. (Except PE-4000B, PS5000, and PS6000)

IPC COM Port (page 9)

- \*5 Except GP-4203T
- \*6 All GP4000 models except GP-4100 Series, GP-4\*01TM, GP-Rear Module, GP-4201T and GP-4\*03T
- \*7 Except SP-5B00
- \*8 Except ST-6200
- \*9 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 21A.

## 21A)

• 1:1 Connection



- Please set the terminating resistor switch of the External Device to the "100 $\Omega$ " position.



1:n Connection

## 21B)

• 1:1 Connection





- Please set the terminating resistor switch of the External Device to the "100 $\Omega$ " position.



#### • 1:n Connection

Please set the terminating resistor switch to the " $100\Omega$ " position only on the last Externa Device in the chain.

## 21C)

• 1:1 Connection



- Please set the terminating resistor switch of the External Device to the "100 $\Omega$ " position.



1:n Connection

## 21D)

• 1:1 Connection



NOTE

- Please set the terminating resistor switch of the External Device to the "100 $\Omega$ " position.

• 1:n Connection



## 21E)

• 1:1 Connection



- Please set the terminating resistor switch of the External Device to the "100 $\Omega$ " position.



• 1:n Connection

## 21F)

• 1:1 Connection



NOTE

• Please set the terminating resistor switch of the External Device to the " $100\Omega$ " position.



#### 1:n Connection

## 21G)

• 1:1 Connection







#### • 1:n Connection

NOTE

• Please set the terminating resistor switch to the "100Ω" position only on the last External Device in the chain.

\*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

DIP Switch No.	Set Value
1	OFF
2	OFF
3	ON
4	ON

#### 21H)

• 1:1 Connection

Tormination	Display side D-Sub 9pin (plug)		External Device side Terminal Block		
resistance	Pin	Signal name	Shield	Signal name	
100Ω (1/2W)	3	LINE(+)	< <u>/                                    </u>	SDA1 (TXD1+)	
N.	8	LINE(-)		SDB1 (TXD1-)	
Diaplay	1	NC		RDA1 (RXD1+)	
Display	2	NC		RDB1 (RXD1-)	
	5	GND(SG)		SG (GND)	
	4	RS(RTS)			'
	6	5V	•		
	7	NC			
	9	NC			
	Shell	FG			
• The 5V o connecto	utput (Pin r. Do not ι	#6) on the use it for oth	Display is the powe er devices.	er for the Siemens A	3's PROFIBUS
<ul><li>NOTE</li><li>Please set</li><li>In COM of</li></ul>	the termina on the GP-4	ating resistor 107, the SG	switch of the Extern and FG terminals are	al Device to the "100Ω e isolated.	2" position.

1:n Connection Display side External Device side External Device side D-Sub 9pin (plug) Terminal Block **Terminal Block** Termination resistance Pin Signal name Shield Shield Signal name Signal name 100Ω (1/2W) LINE(+) 3 SDA1 (TXD1+) SDA2 (TXD2+) SDA1 (TXD1+) ≷ 8 LINE(-) SDB1 (TXD1-) SDB2 (TXD2-) SDB1 (TXD1-) NC 1 RDA1 (RXD1+) RDA2 (RXD2+) RDA1 (RXD1+) Display 2 NC RDB1 (RXD1-) RDB2 (RXD2-) RDB1 (RXD1-) GND(SG) 5 SG (GND) SG (GND) SG (GND) 4 RS(RTS) 6 5V 7 NC 9 NC Shell FG • The 5V output (Pin #6) on the Display is the power for the Siemens AG's PROFIBUS **IMPORTANT** connector. Do not use it for other devices. • Please set the terminating resistor switch to the " $100\Omega$ " position only on the last External NOTE

Device in the chain.

• In COM on the GP-4107, the SG and FG terminals are isolated.

## 21I)

• 1:1 Connection



- Please set the terminating resistor switch of the External Device to the "100 $\Omega$ " position.



1:n Connection

## 21J)

• 1:1 Connection





- Please set the terminating resistor switch of the External Device to the " $100\Omega$ " position.

• 1:n Connection



Number	Name	Notes
(1)	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJR81	

## 21K)

• 1:1 Connection





• Please set the terminating resistor switch of the External Device to the " $100\Omega$ " position.



#### 1:n Connection

## 6.22 Cable Diagram 22

Display (Connection Port)	Cable		Notes
GP3000 <sup>*1</sup> (COM1) AGP-3302B (COM2) GP-4*01TM (COM1) GP-Rear Module (COM1) ST3000 <sup>*2</sup> (COM2) LT3000 (COM1) IPC <sup>*3</sup>	22A 22B	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable User-created cable	Cable length: 500m or less
GP3000 <sup>*4</sup> (COM2)	22C 22D	Online adapter by Pro-face CA4-ADPONL-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable Online adapter by Pro-face CA4-ADPONL-01 + User-created cable	Cable length: 500m or less
GP-4106 (COM1) GP-4116T (COM1)	22E	User-created cable	Cable length: 500m or less
GP4000 <sup>*5</sup> (COM2) GP-4201T (COM1) SP5000 (COM1/2) <sup>*6</sup> (COM1/2)	22F	RS-422 Terminal Block Conversion Adapter by Pro-face PFXZCBADTM1 <sup>*8</sup> + User-created cable	
ST-5000 (COM2) ST6000 <sup>*7</sup> (COM2) ST-6200 (COM1) STM6000 (COM1) STC6000 (COM1) PS6000 (Basic Box) (COM1/2)	22B	User-created cable	Cable length: 500m or less
PE-4000B <sup>*9</sup> PS5000 <sup>*9</sup> PS6000 (Optional Interface) <sup>*9</sup>	22G	User-created cable	Cable length: 500m or less

\*1 All GP3000 models except AGP-3302B

\*2 Except AST-3211A and AST-3302B

\*3 Only the COM port which can communicate by RS-422/485 (4 wire) can be used. (Except PE-4000B, PS5000, and PS6000)

IPC COM Port (page 9)

- \*4 All GP3000 models except GP-3200 series and AGP-3302B.
- \*5 All GP4000 models except GP-4100 Series, GP-4\*01TM, GP-Rear Module, GP-4201T and GP-4\*03T

\*6 Except SP-5B00

\*7 Except ST-6200

- \*8 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 22A.
- \*9 Only the COM port which can communicate by RS-422/485 (4 wire) can be used.
   IPC COM Port (page 9)

Recommended cables and connectors

Item	Туре	Manufacturer
10BASE-T cable	SGLPEV-T 0.5mmx4P*1	Mitsubishi Electric Corporation
RJ45 connector	5-554720-3	Tyco Electronics AMP K.K.

\*1 Do not use pin number 2 or 8.

22A)



User-created cable

22B)

	Display side D-Sub 9pin (socket)		E	xterna RJ45	al Device side	e
	Pin	Signal name		Pin	Signal name	
	1	RDA	•	5	SDA	
Display	2	RDB	•	4	SDB	
	3	SDA	▶	3	RDA	
	7	SDB	▶	6	RDB	
	5	SG		1	SG	
	4	ERA				
	8	CSA	<b>4</b>			
	9	ERB				
	6	CSB	<b>↓</b>			
	Shell	FG				



22E)

	Display side Terminal block	E	xterna RJ45	al Device side connector
	Signal name	]	Pin	Signal name
Display	RDA	]◀	5	SDA
	RDB	<b>▲</b>	4	SDB
	SDA		3	RDA
	SDB		6	RDB
	SG		1	SG
	ERA			
	CSA	]₄J		
	ERB	$\mathbf{h}$		
	CSB	] <b>↓</b>		



22G)

	Display side D-Sub 9pin (socket)		External Dev RJ45 conr		al Device side connector
	Pin	Signal name		Pin	Signal name
	3	Rx+	•	5	SDA
Display	4	Rx-	•	4	SDB
	2	Tx+		3	RDA
	1	Tx-		6	RDB
	5	GND		1	SG
	7	NC			
	8	NC			
	9	NC			
	6	NC			
	Shell	FG			

# 6.23 Cable Diagram 23

Display (Connection Port)	Cable		Notes	
GP3000 <sup>*1</sup> (COM1) AGP-3302B (COM2) GP-4*01TM (COM1) GP-Rear Module (COM1) ST3000 <sup>*2</sup> (COM2)	23A	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	The cable length must be 500m or less.	
L13000 (COM1)	23B	User-created cable		
GP3000 <sup>*3</sup> (COM2)	23C	Online adapter by Pro-face CA4-ADPONL-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	The cable length must be 500m or less.	
	23D	Online adapter by Pro-face CA4-ADPONL-01 + User-created cable		
IPC <sup>*4</sup>	23E 23F	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable User-created cable	The cable length must be 500m or less.	
GP-4106 (COM1) GP-4116T (COM1)	23G	User-created cable	The cable length must be 500m or less.	
GP-4107 (COM1) GP-4*03T <sup>*5</sup> (COM2) GP-4203T (COM1)	23H	User-created cable	The cable length must be 500m or less.	
GP4000 <sup>*6</sup> (COM2) GP-4201T (COM1) SP5000 (COM1/2) <sup>*7</sup> (COM1/2)	231	RS-422 Terminal Block Conversion Adapter by Pro-face PFXZCBADTM1 <sup>*9</sup> + User-created cable		
SP-5B00 (COM2)           ST6000*8 (COM2)           ST-6200 (COM1)           STM6000 (COM1)           STC6000 (COM1)           PS6000 (Basic Box)           (COM1/2)	23B	User-created cable	The cable length must be 500m or less.	

Display (Connection Port)	Cable		Notes
LT-4*01TM (COM1) LT-Rear Module (COM1)	23J	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJR81	The cable length must be 200m or less.
PE-4000B <sup>*10</sup> PS5000 <sup>*10</sup> PS6000 (Optional Interface) <sup>*10</sup>	23K	User-created cable	The cable length must be 500m or less.

\*1 All GP3000 models except AGP-3302B

\*2 Except AST-3211A and AST-3302B

\*3 All GP3000 models except GP-3200 series and AGP-3302B

\*4 Only the COM port which can communicate by RS-422/485 (2 wire) can be used. (Except PE-4000B, PS5000, and PS6000)

<sup>C</sup> ■ IPC COM Port (page 9)

- \*5 Except GP-4203T
- \*6 All GP4000 models except GP-4100 Series, GP-4\*01TM, GP-Rear Module, GP-4201T and GP-4\*03T
- \*7 Except SP-5B00
- \*8 Except ST-6200
- \*9 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 23A.
### 23A)

• 1:1 Connection





#### 23B)

• 1:1 Connection





### 23C)

• 1:1 Connection





#### 23D)

• 1:1 Connection



• 1:n Connection



User-created cable

#### 23E)

• 1:1 Connection



• 1:n Connection



User-created cable

### 23F)

• 1:1 Connection





### 23G)

• 1:1 Connection





#### 23H)

• 1:1 Connection



1:n Connection .



connector. Do not use it for other devices.

NOTE

• In COM on the GP-4107, the SG and FG terminals are isolated.

#### 23I)

• 1:1 Connection





### 23J)

• 1:1 Connection





Number	Name	Notes
(1)	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJR81	

#### 23K)

• 1:1 Connection





# 6.24 Cable Diagram 24

Display (Connection Port)		Cable	Notes	
GP3000 <sup>*1</sup> (COM1) AGP-3302B (COM2) GP-4*01TM (COM1) GP-Rear Module (COM1) ST3000 <sup>*2</sup> (COM2) LT3000 (COM1)	24A Terminal block conversion adapter by Pro-face CA3-ADPCOM-01 + 24A Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable		The cable length must be 500m or less.	
L13000 (COM1)	24B	User-created cable		
GP3000 <sup>*3</sup> (COM2)	24C	Online adapter by Pro-face CA4-ADPONL-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	The cable length must be 500m or less.	
	24D Online adapter by Pro-face CA4-ADPONL-01 + User-created cable			
IPC <sup>*4</sup>	24E	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	The cable length must be 500m or less.	
GP-4106 (COM1) GP-4116T (COM1)	24G	User-created cable	The cable length must be 500m or less.	
GP-4107 (COM1) GP-4*03T <sup>*5</sup> (COM2) GP-4203T (COM1)	24H	User-created cable	The cable length must be 500m or less.	
GP4000 <sup>*6</sup> (COM2) GP-4201T (COM1) SP5000 (COM1/2) <sup>*7</sup> (COM1/2)	24I	RS-422 Terminal Block Conversion Adapter by Pro-face PFXZCBADTM1 <sup>*9</sup> + User-created cable		
(COM1/2) SP-5B00 (COM2) ST6000 <sup>*8</sup> (COM2) ST-6200 (COM1) STM6000 (COM1) STC6000 (COM1) PS6000 (Basic Box) (COM1/2)	24B	User-created cable	The cable length must be 500m or less.	

Display (Connection Port)		Cable	Notes
LT-4*01TM (COM1) LT-Rear Module (COM1)	24J	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJR81	The cable length must be 200m or less.
PE-4000B <sup>*10</sup> PS5000 <sup>*10</sup> PS6000 (Optional Interface) <sup>*10</sup>	24K	User-created cable	The cable length must be 500m or less.

\*1 All GP3000 models except AGP-3302B

\*2 Except AST-3211A and AST-3302B

\*3 All GP3000 models except GP-3200 series and AGP-3302B

\*4 Only the COM port which can communicate by RS-422/485 (2 wire) can be used. (Except PE-4000B, PS5000, and PS6000)

<sup>C</sup> ■ IPC COM Port (page 9)

- \*5 Except GP-4203T
- \*6 All GP4000 models except GP-4100 Series, GP-4\*01TM, GP-Rear Module, GP-4201T and GP-4\*03T
- \*7 Except SP-5B00
- \*8 Except ST-6200
- \*9 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 24A.

#### 24A)

• 1:1 Connection





#### 24B)

• 1:1 Connection





#### 24C)

• 1:1 Connection





#### 24D)

• 1:1 Connection



• 1:n Connection



User-created cable

#### 24E)

• 1:1 Connection





### 24F)

• 1:1 Connection





#### 24G)

• 1:1 Connection





#### 24H)

٠ 1:1 Connection



1:n Connection •



IMPORTANT

connector. Do not use it for other devices.

NOTE

• In COM on the GP-4107, the SG and FG terminals are isolated.

#### 24I)

• 1:1 Connection





User-created cable

### 24J)

• 1:1 Connection



• 1:n Connection



User-created Cable

Number	Name	Notes
(1)	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJR81	

### 24K)

• 1:1 Connection





#### **Supported Device** 7

Range of supported device address is shown in the table below. Please note that the actually supported range of the devices varies depending on the External Device to be used. Please check the actual range in the manual of your External Device.

#### 7.1 **MODBUS Series**

**I** : This address can be specified as system data area.

Device	Bit Address	Word Address	32 bits	Remarks
Coil	000001 - 065536	000001 - 065521		+1B+ <b>1</b>
Discrete Input	100001 - 165536	100001 - 165521	[L/H]	( <u>+1B+</u> ) *2
Input Register		300001 - 365536	or	<b>B</b> i t <b>15</b> *2
Holding Register	400001,00 - 465536,15	400001 - 465536	[H/L]	<u>₿ i 1</u> 5) *3
Input Register		D300001 - D365535	*1	<u>Βiτ<b>31</b></u> *2
Holding Register	D400001,00 - D465535,31	D400001 - D465535		<u>₿;</u> , <b>31</b> *4

\*1 Whether the data is stored as higher or lower is determined by the [Double Word word order] setting in [Device Setting].

"5.1 Setup Items in GP-Pro EX" (page 79)

#### \*2 Write disable.

\*3 An access method at the time of Bit Set varies depending on the [Rest of the bits in this word] setting of [Device Setting].

"Clear".....

"Do not clear"...... 400001,00 - 465536,15

\*4 An access method at the time of Bit Set varies depending on the [Rest of the bits in this word] setting of [Device Setting]. ві (31)

"Clear".....

· GP-Pro EX simulation does not synchronize the coil bit address and word address values. NOTE

## ■ IEC61131 Syntax Address Description

The following table compares IEC61131 and MODBUS syntax address descriptions.

	MODBUS Syntax			IEC61131 Syntax				
Device					0-	based	1-	based
Device	Format	Range	First element	Format	Range	First element	Range	First element
Coil	000001+i	i = 0 to 65535	000001	%Mi	i = 0 to 65535	%M00000	i = 1 to 65536	%M00001
Discrete Input	100001+i	i = 0 to 65535	100001	-	-	-		-
Input Register (Word)	300001+i	i = 0 to 65535	300001	-	-	-	-	-
Input Register (Word bit)	300001+i,j	i = 0 to 65535 j = 0 to 15	300001,00	-	-	-	-	-
Holding Register (Word)	400001+i	i = 0 to 65535	400001	%MWi	i = 0 to 65535	%MW00000	i = 1 to 65536	%MW00001
Holding Register (Word bit)	400001+i,j	i = 0 to 65535 j = 0 to 15	400001,00	%Mwi: Xj	i = 0 to 65535 j=0 to 15	%MW00000 :X00	i = 1 to 65536 j=0 to 15	%MW00001 :X00
Input Register (D Word)	D300001+i	i = 0 to 65534	D300001	-	-	-	-	-
Input Register (D Word bit)	D300001+i,j	i = 0 to 65534 j = 0 to 31	D300001,00	-	-	-	-	-
Holding Register (D Word)	D400001+i	i = 0 to 65534	D400001	%MDi	i = 0 to 65534	%MD00000	i = 1 to 65535	%MD00001
Holding Register (D Word bit)	D400001+i,j	i = 0 to 65534 j = 0 to 31	D400001,00	%MDi:Xj	i = 0 to 65534 j=0 to 31	%MD00000 :X00	i = 1 to 65535 j=0 to 31	%MD00001 :X00
NOTE	<ul><li>The a</li><li>If yo</li></ul>	addresses 10 u apply IEC	00000 and 30 261131 syntax	0000 canno	t be accesse t that has a c	ed using IEC61 liscrete input of	131 syntax.	ter already set,

NOTE

• Refer to the GP-Pro EX Reference Manual for system data area.

the addresses become "-Undefined-" and invalid.

Cf. GP-Pro EXReference Manual "LS Area (Direct Access Method Area)"

• Refer to the precautions on manual notation for icons in the table.

#### 7.2 **MICRO-EHV Series**

E

: This address can be specified as system data area.

Device	Bit Address	Word Address	32 bits	Address notation in External Device	Remarks
Coil	000257 - 000288	000257 - 000273		Y0100 - Y0131	
Discrete Input	100001 - 100047	100001 - 100002		X0000 - X0046	*2
Input Register		300001 - 302048		WM000 - WM7FF	*2
Holding Register	400001.00 - 432768.15	400001 - 432768	[ <b>L/H</b> ] *1	WR0000 - WR7FFF	
Input Register		D300001 - D302047		DM000 - DM7FE	*2
Holding Register	D400001.00 - D432767.31	D400001 - D432767		DR0000 - DR7FFE	

\*1 Whether the data is stored as higher or lower is determined by the [Double Word word order] setting in [Device Setting]. Set to [Low word first(L/H)].

\*2 Write disable.

NOTE	GP-Pro EX simulation does not synchronize the coil bit address and word address values.
	Refer to the GP-Pro EX Reference Manual for system data area.
	Cf. GP-Pro EXReference Manual "LS Area (Direct Access Method Area)"
	• Refer to the precautions on manual notation for icons in the table.

 ${}^{\scriptsize\mbox{\tiny GP}}$  "Manual Symbols and Terminology"

## 7.3 FX3S Series

: This address can be specified as system data area.

Device	Bit Address	Word Address	32 bits	Address notation in External Device	Remarks
Holding Register	400001,00 - 403000,15	400001 - 403000		D0000 - D2999	
Holding Register	408001,00 - 408512,15	408001 - 408511		D8000 - D8511	
Holding Register	441281,00 - 441418,15	441281 - 441418		TN000 - TN137	
Holding Register	441793,00 - 441824,15	441793 - 441824		CN00 - CN31	
Holding Register	441993,00 - 442104,15	441993 - 442104		CN200 - CN255	
Holding Register	442105,00 - 442200,15	442105 - 442200		M0000 - M1535	
Holding Register	442585,00 - 442616,15	442585 - 442616		M8000 - M8511	
Holding Register	442617,00 - 442632,15	442617 - 442632		S000 - S255	
Holding Register	442873,00 - 442881,15	442873 - 442881		TS000 - TS137	
Holding Register	442905,00 - 442906,15	442905 - 442906	rL/H)	CS00 - CS31	
Holding Register	442917,00 - 442920,15	442917 - 442920	*1	CS200 - CS255	
Holding Register	442921,00 - 442921,15	442921 - 442921		Y00 - Y15	
Input Register	300001,00 - 303000,15	300001 - 303000		D0000 - D2999	
Input Register	308001,00 - 308512,15	308001 - 308511		D8000 - D8511	
Input Register	341281,00 - 341418,15	341281 - 341418		TN000 - TN137	
Input Register	341793,00 - 341824,15	341793 - 341824	341793 - 341824		
Input Register	341993,00 - 342104,15	341993 - 342104		CN200 - CN255	
Input Register	342105,00 - 342200,15	342105 - 342200		M0000 - M1535	
Input Register	342585,00 - 342616,15	342585 - 342616		M8000 - M8511	
Input Register	342617,00 - 342632,15	342617 - 342632		S000 - S255	

Device	Bit Address	Word Address	32 bits	Address notation in External Device	Remarks
Input Register	342873,00 - 342881,15	342873 - 342881		TS000 - TS137	
Input Register	342905,00 - 342906,15	342905 - 342906		CS00 - CS31	
Input Register	342917,00 - 342920,15	342917 - 342920		CS200 - CS255	
Input Register	342921,00 - 342921,15	342921 - 342921		Y00 - Y15	
Input Register	342937,00 - 342937,15	342937 - 342937		X00 - X17	
Holding Register	D400001,00 - D402999,31	D400001 - D402999		D0000 - D2999(DWord address)	
Holding Register	D408001,00 - D408511,31	D408001 - D408511		D8000 - D8511(DWord address)	
Input Register	D300001,00 - D302999,31	D300001 - D302999		D0000 - D2999(DWord address)	
Input Register	D308001,00 - D308511,31	D308001 - D308511	[ <b>L / H</b> ] *1	D8000 - D8511(DWord address)	
Coil	000001 - 001536	000001 - 001521		M0000 - M1535	
Coil	007681 - 008192	007681 - 008177		M8000 - M8511	
Coil	008193 - 008448	008193 - 008433		S000 - S255	
Coil	012801 - 012833	012801 - 012817		C00 - C31	
Coil	012289 - 012426	012289 - 012411		T000 - T137	
Coil	013001 - 013056	013001 - 013033		C200 - C255	
Coil	013057 - 013070	13057		Y000 - Y015	
Discrete Input	100001 - 101536	100001 - 101521		M0000 - M1535	
Discrete Input	107681 - 108192	107681 - 108177		M8000 - M8511	
Discrete Input	108193 - 108448	108193 - 108433		S000 - S255	
Discrete Input	012801 - 012833	012801 - 012817		C00 - C31	
Discrete Input	112289 - 112426	112801 - 112832	1	T000 - T137	
Discrete Input	113001 - 113056	112801 - 112817	1	C200 - C255	
Discrete Input	113057 - 113070	113057	1	Y000 - Y015	
Discrete Input	113313 - 113328	113313		X000 - X017	

\*1 Whether the data is stored as higher or lower is determined by the [Double Word word order] setting in [Device Setting]. Set to [Low word first(L/H)].

## NOTE

GP-Pro EX simulation does not synchronize the coil bit address and word address values.

- Refer to the GP-Pro EX Reference Manual for system data area.
- Cf. GP-Pro EXReference Manual "LS Area (Direct Access Method Area)"
- Refer to the precautions on manual notation for icons in the table.
- ${}^{\scriptsize\mbox{\tiny GP}}$  "Manual Symbols and Terminology"

#### 7.4 MSEP-LC

: This address can be specified as system data area. 

Device	Bit Address	Word Address	32 bits	Address notation in External Device	Remarks
Holding Register	405137.00 - 405200.15	405137 - 405200		D0000 - D0063	
Holding Register	405265.00 - 405296.15	405265 - 405296		SD0000 - SD0031	*2
Holding Register	404097.00 - 404098.15	404097 - 404098		IX0000 - IX0001	
Holding Register	404129.00 - 404132.15	404129 - 404132		X0000 - X003F	*2
Coil	004097 - 004160	004097 - 004145			
Holding Register	404161.00 - 404164.15	404161 - 404164		Y0000 - Y003F	*2
Coil	004609 - 004672	004609 - 004657			
Holding Register	404353.00 - 404544.15	404353 - 404544		M0000 - M3071	
Coil	007681 - 010752	007681 - 010737			
Holding Register	404865.00 - 404872.15	404865 - 404872		SM0000 - SM0127	*2
Coil	015873 - 016000	015873 - 015985			
Holding Register	404881.00 - 404882.15	404881 - 404882	*1	TS0000 - TS0031	*2
Coil	016129 - 016160	016129 - 016145			
Holding Register	404945.00 - 404946.15	404945 - 404946		TC0000 - TC0031	*2
Coil	017153 - 017184	017153 - 017169			
Holding Register	405329 - 405360	405329 - 405360		TV0000 - TV0031	*2
Holding Register	405393 - 405424	405393 - 405424		TP0000 - TP0031	*2
Holding Register	405009.00 - 405010.15	405009 - 405010		CS0000 - CS0031	*2
Coil	018177 - 018208	018177 - 018193			
Holding Register	405073.00 - 405074.15	405073 - 405074		CC0000 - CC0031	*2
Coil	019201 - 019232	232 019201 - 019217			
Holding Register	405521.00 - 405552.15	405521 - 405552		CV0000 - CV0031	*2
Holding Register	405457.00 - 405488.15	405457 - 405488		CP0000 - CP0031	*2

\*1 Whether the data is stored as higher or lower is determined by the [Double Word word order] setting in [Device Setting]. Set to [Low word first(L/H)].

#### \*2 Write disable.



- GP-Pro EX simulation does not synchronize the coil bit address and word address values.
  - Refer to the GP-Pro EX Reference Manual for system data area.
  - Cf. GP-Pro EXReference Manual "LS Area (Direct Access Method Area)"
  - Refer to the precautions on manual notation for icons in the table.
  - $\ensuremath{\textcircled{\sc smallmatrix}}$  "Manual Symbols and Terminology"

## 7.5 RCON Series

: This address can be specified as system data area.

Device	Bit Address	Word Address	32 bits	Remarks
Device0: Coil	000001 - 065536	000001 - 065521		+18+
Device1: Discrete Input	100001 - 165536	100001 - 165521	r <b>H</b> /l)	+1B+ 1) *1
Device3: Input register		300001 - 365536		<sub>ві t</sub> 15) *1
Device4: Holding register	400001.00 - 465536.15	400001 - 465536		

\*1 Write disable.

## NOTE

• GP-Pro EX simulation does not synchronize the coil bit address and word address values.

- Refer to the GP-Pro EX Reference Manual for system data area.

Cf. GP-Pro EXReference Manual "LS Area (Direct Access Method Area)"

• Refer to the precautions on manual notation for icons in the table.

## 7.6 KV-7000, KV-8000 Series

: This address can be specified as system data area.

Device	Bit Address	Word Address	32 bits	Remarks
Coil	00000 - 65535			
Input	00000 - 65535		687D	*1
Holding register		00000 - 65535		
Input register		00000 - 65535		*1

\*1 Write disable.

NOTE

• Refer to the GP-Pro EX Reference Manual for system data area.

Cf. GP-Pro EXReference Manual "LS Area (Direct Access Method Area)"

• Refer to the precautions on manual notation for icons in the table.

## 7.7 CP Series

: This address can be specified as system data area.

Device	MODBUS Address	Address Specified in Modbus-RTU Commands	Corresponding CP2E I/O Memory Address
Discrete Input			
Coil	0001 - 2048	0000 - 2047	W000.00 - W127.15
Input register			
Holding register	0001 - 4096	0000 - 4095	D0000 - D4095 <sup>*1</sup>
	0001 - 8192	0000 - 8191	D0000 - D8191 <sup>*2</sup>
	00001 - 16384	00000 - 16383	D00000 - D16383 <sup>*3</sup>

\*1 CP2E-E**□□**-type

\*2 CP2E-S□□-type

\*3 CP2E-N□□-type

NOTE

• Refer to the GP-Pro EX Reference Manual for system data area.

Cf. GP-Pro EXReference Manual "LS Area (Direct Access Method Area)"

• Refer to the precautions on manual notation for icons in the table.

## 7.8 FP0H Series

: This address can be specified as system data area.

Device	MODBUS Reference No.	Data on BUS (Hexadecimal)	FP0H Device No.
Coil	000001 - 001760	0000 - 06DF	Y0000 - Y109F
	002049 - 010240	0800 - 27FF	R0000 - R511F
Input	100001 - 101760	0000 - 06DF	X0000 - X109F
Holding register	400001 - 465533	0000 - FFFC	DT00000 - DT65532
Input register	300001 - 300128	0000 - 007F	WL000 - WL127
	302001 - 302256	07D0 - 08CF	LD000 - LD255

NOTE

• Refer to the GP-Pro EX Reference Manual for system data area.

Cf. GP-Pro EXReference Manual "LS Area (Direct Access Method Area)"

• Refer to the precautions on manual notation for icons in the table.
# 7.9 FR-A800, FR-F800, A800Pluse Series

: This address can be specified as system data area.

Device	Bit Address Word Address		32 bits	Remarks
Device0: Coil				+18+
Device1: Discrete Input				+16+ <b>1</b> *1
Device3: Input register			[H/L]	<u>ві t</u> 15) *1
Device4: Holding register	400001 - 409999	400001 - 409999		*2

E

\*1 Write disable.

\*2 If the inverter type is FR-A820-0.4k-1, the maximum address will be 45499.

NOTE

• Refer to the GP-Pro EX Reference Manual for system data area.

Cf. GP-Pro EXReference Manual "LS Area (Direct Access Method Area)"

• Refer to the precautions on manual notation for icons in the table.

#### 7.10 FR-E800 Series

: This address can be specified as system data area.

Device	Bit Address Word Address		32 bits	Remarks
Device0: Coil				+18+
Device1: Discrete Input				+16+ <b>1</b> *1
Device3: Input register			[H/L]	<u>ві t</u> 15] *1
Device4: Holding register	400001 - 409999	400001 - 409999		*2

\*1 Write disable.

\*2 If the inverter type is FR-A820-0.4k-1, the maximum address will be 405999.

NOTE

• Refer to the GP-Pro EX Reference Manual for system data area.

Cf. GP-Pro EXReference Manual "LS Area (Direct Access Method Area)"

• Refer to the precautions on manual notation for icons in the table.

# 7.11 ACD-13A, ACR-13A Series

: This address can be specified as system data area.

Device	Bit Address	Word Address	32 bits	Remarks
Holding register	400002,00 - 408280,15	400002 - 408280	[ <b>L / H</b> ]	

E

NOTE

• Refer to the GP-Pro EX Reference Manual for system data area.

Cf. GP-Pro EXReference Manual "LS Area (Direct Access Method Area)"

• Refer to the precautions on manual notation for icons in the table.

#### 7.12 BCD2R00-06, BCR2R00-06

: This address can be specified as system data area.

Device	Bit Address	Word Address	32 bits	Remarks
Input register	300257,00 - 300276,15	300257 - 300276	rl / Hi	
Holding register	400002,00 - 404144,15	400002 - 404144	2711	

E

NOTE

• Refer to the GP-Pro EX Reference Manual for system data area.

Cf. GP-Pro EXReference Manual "LS Area (Direct Access Method Area)"

• Refer to the precautions on manual notation for icons in the table.

#### 7.13 BCS2R00-06

: This address can be specified as system data area.

Device	Bit Address	Word Address	32 bits	Remarks
Input register	300257,00 - 300276,15	300257-300276	rl / Hi	
Holding register	400002,00 - 404123,15	400002-404123	2711	

#### NOTE

• Refer to the GP-Pro EX Reference Manual for system data area.

Cf. GP-Pro EXReference Manual "LS Area (Direct Access Method Area)"

• Refer to the precautions on manual notation for icons in the table.

## 7.14 PCA1 Series

: This address can be specified as system data area.

Device	Bit Address	Word Address	32 bits	Remarks
Holding register	400002,00 - 432513,15	400002 - 432513	<u>[[] H</u>	

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NOTE

• Refer to the GP-Pro EX Reference Manual for system data area.

Cf. GP-Pro EXReference Manual "LS Area (Direct Access Method Area)"

• Refer to the precautions on manual notation for icons in the table.

## 7.15 PCB1 Series

: This address can be specified as system data area.

Device	Bit Address	Word Address	32 bits	Remarks
Data item	400002,00 - 436878,15	400002 - 436878	[L/H]	

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NOTE

• Refer to the GP-Pro EX Reference Manual for system data area.

Cf. GP-Pro EXReference Manual "LS Area (Direct Access Method Area)"

• Refer to the precautions on manual notation for icons in the table.

## 7.16 QTC1-4 Series

: This address can be specified as system data area.

Device	Bit Address	Word Address	32 bits	Remarks
Holding register	400001,00 - 401325,15	400001 - 401325	[L/H]	

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NOTE

• Refer to the GP-Pro EX Reference Manual for system data area.

Cf. GP-Pro EXReference Manual "LS Area (Direct Access Method Area)"

• Refer to the precautions on manual notation for icons in the table.

## 7.17 QMC1 Series

: This address can be specified as system data area.

Device	Bit Address	Word Address	32 bits	Remarks
Holding register	400001,00 - 464128,15	400001 - 464128	[L/H]	

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NOTE

• Refer to the GP-Pro EX Reference Manual for system data area.

Cf. GP-Pro EXReference Manual "LS Area (Direct Access Method Area)"

• Refer to the precautions on manual notation for icons in the table.

# 8 Device Code and Address Code

Use device code and address code when you set "Device Type & Address" for the address type of the data display or other devices.

Device	Device Name	Device Code (HEX)	Address Code
Coil	0	0080	Value of (word address -1) divided by 16
Discrete Input	1	0081	Value of (word address -1) divided by 16
Input Register	3	0001	Value of (word address - 1)
Holding Register	4	0000	Value of (word address - 1)
Input Register	D3	0002	Value of (word address -1) divided by 2
Holding Register	D4	0003	Value of (word address -1) divided by 2

# 9 Error Messages

Error messages are displayed on the screen of Display as follows: "No. : Device Name: Error Message (Error Occurrence Area)". Each description is shown below.

Item	Description	
No.	Error Number.	
Device Name	Name of the External Device where an error has occurred. The Device name is the title of the External Device set with GP-Pro EX.(Initial value [PLC1])	
Error Message	Displays messages related to an error that has occurred.	
	Displays the IP address or device address of the External Device where an error has occurred, or error codes received from the External Device.	
Error Occurrence Area	<ul> <li>NOTE</li> <li>IP address is displayed as "IP address (Decimal): MAC address (Hex)".</li> <li>Device address is displayed as "Address: Device address".</li> <li>Received error codes are displayed as "Decimal [Hex]".</li> </ul>	

#### Display Examples of Error Messages

"RHAA035: PLC1: Error has been responded for device write command (Error Code: 2[02H])"

NOTE	Refer to your External Device manual for details on received error codes.
	• Refer to "Display-related errors" in "Maintenance/Troubleshooting Guide" for details on the
	error messages common to the driver.

#### Error Codes Specific to the External Device

Please refer to the manual of the External Device for error codes specific to the External Device. General MODBUS error codes are shown below.

Error Code (HEX)	Description
01	Does not support the corresponding Function Code.
02	The specified data address does not exist.
03	Data value error.

#### Error Number Error Message Description When reading the coil or discrete input as a word address while the boundary is less (Node Name): (Device Address) can't be read than 16 bits, or accessing the input or RHxx128 because of the limitation of the Read boundary holding register as a double word while the boundary is set to 1 word, an error will be displayed. When writing the coil as a word address (Node Name): (Device Address) can't be while the boundary is less than 16 bits, or RHxx129 written because of the limitation of the Write accessing the holding register as a double word while the boundary is set to 1 word, boundary an error will be displayed. (Node Name): (Device Address) is not defined When accessing the device out of the RHxx130 on Function Code and Max Query setting defined area, an error will be displayed. When reading the coil or discrete input as a (Node Name): (Device Address) can't be read word address while the range is less than 16 RHxx131 because of the limitation of the Device Range bits, or accessing the input or holding setting register as a double word while the range is set to 1 word, an error will be displayed. When writing the coil as a word address (Node Name): (Device Address) can't be while the range is less than 16 bits, or RHxx132 written because of the limitation of the Device accessing the holding register as a double Range setting word while the range is set to 1 word, an error will be displayed.

#### Error Messages Specific to the External Device