Schneider Electric Industries

MODBUS SIO Master Driver

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Introduction

This manual describes how to connect the Display (GP3000 series) and the External Device (target PLC).

In this manual, the connection procedure will be described by following the below sections:

1	System Configuration This section shows the types of External Devices which can be connected and SIO type.	"1 System Configuration" (page 3)
2	Selection of External Device Select a model (series) of the External Device to be connected and connection method.	"2 Selection of External Device" (page 6)
3	Example of Communication Settings This section shows setting examples for communicating between the Display and the External Device.	"3 Example of Communication Setting" (page 7)
4	Setup Items This section describes communication setup items on the Display. Set communication settings of the Display with GP-Pro Ex or in off-line mode.	^{ভেল} "4 Setup Items" (page 27)
5	Cable Diagram This section shows cables and adapters for connecting the Display and the External Device.	ঞি" "5 Cable Diagram" (page 36)
	Operation	

1 System Configuration

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

Series	CPU	Link I/F	SIO Type	Setting Example	Cable Diagram
	TSX 37 05 028DR1 TSX 37 08 056DR1 TSX 37 10 128DT1 TSX 37 10 128DR1 TSX 37 10 128DR1	TER port on CPU	RS232C	Setting Example 1 (page 7)	Cable Diagram 2 (page 41)
	TSX 37 10 128DTK1 TSX 37 10 164DTK1 TSX 37 10 028AR1 TSX 37 10 028DR1	Accessory box TSX SCA 50	RS485 (2wire)	Setting Example 3 (page 11)	Cable Diagram 3 (page 42)
Micro		TER port on CPU	RS232C	Setting Example 1 (page 7)	Cable Diagram 2 (page 41)
	TSX 37 21 101 TSX 37 22 101	Accessory box TSX SCA 50	RS485 (2wire)	Setting Example 3 (page 11)	Cable Diagram 3 (page 42)
	TSX 37 21 001 TSX 37 22 001	PCMCIA card for RS232C TSX SCP 111	RS232C	Setting Example 2 (page 9)	Cable Diagram 4 (page 47)
		PCMCIA card for RS485 TSX SCP 114	RS485 (2wire)	Setting Example 3 (page 11)	Cable Diagram 5 (page 48)
	TSX P57 103M TSX P57 153M TSX P57 203M	PCMCIA card for RS232C TSX SCP 111	RS232C	Setting Example 4 (page 13)	Cable Diagram 4 (page 47)
Premium	m TSX P57 253M TSX P57 303M TSX P57 353M TSX P57 453M PCMCIA card for RS485 TSX SCP 114 (2w	RS485 (2wire)	Setting Example 5 (page 15)	Cable Diagram 5 (page 48)	
	TWD LCAA 10DRF TWD LCAA 16DRF TWD LCAA 24DRF	Programming port on CPU	RS232C	Setting Example 6 (page 17)	Cable Diagram 2 (page 41)
Twido	TWD LMDA 20DTK TWD LMDA 20DUK TWD LMDA 20DRT TWD LMDA 40DTK TWD LMDA 40DUK	TWD NAC 485T	RS485 (2wire)	Setting Example 7 (page 19)	Cable Diagram 1 (page 36)
Quantum	140 CPU 113 02 140 CPU 113 03 140 CPU 434 12A 140 CPU 534 14A	Modbus port on CPU	RS232C	Setting Example 8 (page 21)	Cable Diagram 6 (page 51)

Series	CPU	Link I/F	SIO Type	Setting Example	Cable Diagram
	171 CCS 700 00 171 CCS 700 10 171 CCS 760 00 171 CCC 760 10	Modbus port 1 on CPU	RS232C	Setting Example 9 (page 23)	Cable Diagram 7 (page 52)
Momentum	171 CCS 780 00	Modbus port 1 on CPU	RS232C	Setting Example 9 (page 23)	Cable Diagram 7 (page 52)
	171 CCC 780 10	Modbus port 2 on CPU	RS485 (4wire)	Setting Example 10 (page 25)	Cable Diagram 8 (page 53)
	171 CCC 980 20 171 CCC 980 30	Modbus port 2 on CPU	RS485 (4wire)	Setting Example 10 (page 25)	Cable Diagram 8 (page 53)

Connection Configuration

Micro Series

• 1:1 Connection



Premium Series

• 1:1 Connection



Twido Series

1:1 Connection



• 1:n Connection



Quantum Series

1:1 Connection



- Momentum Series
 - 1:1 Connection



2 Selection of External Device

Select the External Device to be connected to the Display.

ð	New Proje	ct File
Γ	-Device/PL	C
	Maker	Schneider Electric Industries
	Driver	MODBUS SIO Master
Use System Area Refer to the manual of this Device		ystem Area Refer to the manual of this Device/PLC
Γ	Connection	Method
	Port	COM1
L		
		Gio to Device/PLC Manual
	Back	Communication Detail Settings New Screen Cancel

Setup Items	Setup Description	
Maker	Select the maker of the External Device to be connected. Select "Schneider Electric Industries".	
Driver	Select a model (series) of the External Device to be connected and connection method. Select "MODBUS SIO Master". Check the External Device which can be connected in "MODBUS SIO Master" in syste configuration.	
Use System Area	 Check this option when you synchronize the system data area of Display and the device (memory) of External Device. When synchronized, you can use the ladder program of External Device to switch the display or display the window on the display. Cf. GP-Pro EX Reference Manual "Appendix 1.4 LS Area (only for direct access method)" This can be also set with GP-Pro EX or in off-line mode of Display. Cf. GP-Pro EX Reference Manual " 6.13.6 Setting Guide of [System Setting Window]■[Main Unit Settings] Settings Guide ♦ System Area Setting" Cf. GP3000 Series User Manual "4.3.6 System Area Setting" 	
Port	Select the Display port to be connected to the External Device.	

3 Example of Communication Setting

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

When using MODBUS Series, use GP-Pro EX and the ladder software to set as below.

3.1 Setting Example 1

Settings of GP-Pro EX

Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

Device/PLC 1	
Summary	Change Device/PLC
Maker Schneider B	Electric Industries Driver MODBUS SIO Master Port COM1
Text Data Mode	1 Change
Communication Settings	
SIO Type	RS232C RS422/485(2wire) RS422/485(4wire)
Speed	9600
Data Length	07 08
Parity	O NONE O EVEN O ODD
Stop Bit	© 1 © 2
Flow Control	NONE O ER(DTR/CTS) O X0N/X0FF
Timeout	3 🔫 (sec)
Retry	2 *
Wait To Send	5 (ms) 🔽 Default Value
RI / VCC	RI C VCC
In the case of RS2 or VCC (5V Power Isolation Unit, plea	232C, 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 No. of De	vice/PLCs 16 Unit(s) 📊
No. Device N.	ame Settings Slave Equipment Address=1 Best of the bits in this word-Do not clear IECC11
m ' preci	In place Equipment Address=1, hest of the bits in this word=Do hot clear, ECOT

[Max Query] tab

Device Setting

To display the setting screen, click III ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click if from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

FIndividual Device Settings	💰 Individual Devic	e Settings		
LC1	PLC1			
Equipment Configuration Max Query Equipment Address	Equipment Configuration	Max Query		
Slave Equipment Address	Address	Function Codes	Max Query	
Bit manipulation (set/reset) to Holding Register	Coil (0)	Read (01H)	1008 🕂	bits
Rest of the bits in this word C Clear 💿 Do not clear	Coil (0)	Write (OFH)	800 ÷	bits
Note on when selecting "Do not clear" : If the ladder program writes data to Holding Register during the	Discrete Input (1)	Read (02H)	1008 🕂	bits
read/write process, the resulting data may be incorrect.	Input Register (3)	Read (04H)	63 ÷	words
IEC61131 Syntax	Holding Register (4)	Read (03H)	63 ÷	words
Address Mode	Holding Register (4)	Write (10H)	61 ÷	words
have changed the setting.			· _	
Variables				
Double Word word order Low word first(L/H)				
Default				Default
OK (<u>0</u>) Cancel		0)K (<u>0</u>) (Cancel

[Equipment Configuration] tab

Settings of External Device

Use the ladder software "PL7 PRO" for communication settings.

Double-click "Hardware Configuration" from "Configuration" in "Application Browser" of "PL7 PRO". Next, double-click "Comm" in the "Configuration" dialog box. Perform the settings in the displayed dialog box.

Setup Items		Setup Description
CHANNEL	CHANNEL 0	
	MODBUS/JBUS LINK	MAST
Slave number	1	
Transmission speed	9600bps	
Delay between characters	5msec	
Data	RTU (8 bit)	
Stop	1 bit	
Parity	Even	

Notes

· Please refer to the manual of the ladder software for more detail on other setting description.

3.2 Setting Example 2

Settings of GP-Pro EX

♦ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

Device/PLC 1	
Summary	Change Device/PLC
Maker Schneider	Electric Industries Driver MODBUS SIO Master Port COM1
Text Data Mode	1 Change
Communication Settings	
SIO Type	RS232C C RS422/485(2wire) C RS422/485(4wire)
Speed	9600
Data Length	C 7 C 8
Parity	O NONE O EVEN O ODD
Stop Bit	© 1 O 2
Flow Control	NONE O ER(DTR/CTS) O XON/XOFF
Timeout	3 (sec)
Retry	2
Wait To Send	5 (ms) 🔽 Default Value
RI / VCC	RI O VCC
In the case of RS or VCC (5V Powe Isolation Unit, plea	232C, you can select the 9th pin to RI (Input) er Supply). If you use the Digital's RS232C ase select it to VCC. Default
Device-Specific Sottings	
Allowable No. of De	evice/PLCs 16 Unit(s) 🚮
No. Device N	lame Settings
👗 1 PLC1	Slave Equipment Address=1,Rest of the bits in this word=Do not clear,IEC61

Device Setting

To display the setting screen, click III ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click if from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

Individual Device Setti	ngs X
я 	
quipment Configuration Max Q	uery
Slave Equipment Address	1
Bit manipulation (set/reset) to H	olding Register
Rest of the bits in this word	C Clear 💿 Do not clear
Note on when selecting "Do If the ladder program writes read/write process, the resul	not clear" : data to Holding Register during the ting data may be incorrect.
Address Made	
Please reconfirm all of address have changed the setting.	settings that you are using if you
/ariables	
Double Word word order	Low word first(L/H)
	Default

[Equipment Configuration] tab

🤌 Individual Devic	e Settings				
Earliement Configuration	May Queru				
Equipment Configuration					
Address	Function Codes	Max Query			
Coil (0)	Read (01H)	1008 🕂	bits		
Coil (0)	Write (OFH)	800 🗧	bits		
Discrete Input (1)	Read (02H)	1008 ≑	bits		
Input Register (3)	Read (04H)	63 🗧	words		
Holding Register (4)	Read (03H)	63 ÷	words		
Holding Register (4)	Write (10H)	61 🗧	words		
			Default		
Default					
	0)K (<u>D</u>) (Cancel		

[Max Query] tab

Settings of External Device

Use the ladder software "PL7 PRO" for communication settings.

Double-click "Hardware Configuration" from "Configuration" in "Application Browser" of "PL7 PRO". Next, double-click "Comm" in the "Configuration" dialog box. Perform the settings in the displayed dialog box.

Setup Items	Setup De	escription
	CHANNEL 1	
CHANNEL	TSX SCP 111 RS232 MP PCMCIA CARD	
	MODBUS/JBUS LINK	MAST
Slave number	1	
Туре	Slave	
Transmission speed	9600bps	
Delay between characters	4msec	
Data	RTU (8 bit)	
Stop	1 bit	
Parity	Even	

Notes

Please refer to the manual of the ladder software for more detail on other setting description.

3.3 Setting Example 3

Settings of GP-Pro EX

♦ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

Devid	ce/PLC 1	
Sum	mary	Change Device/PLC
	Maker Schneider El	ectric Industries Driver MODBUS SIO Master Port COM1
	Text Data Mode	1 Change
Corr	munication Settings	
	SIO Type	C RS232C RS422/485(2wire) C RS422/485(4wire)
	Speed	9600
	Data Length	€7 €8
	Parity	C NONE C EVEN C ODD
	Stop Bit	
	Flow Control	O ER(DTR/CTS) C XON/XOFF C
	Timeout	3 📑 (sec)
	Retry	2
	Wait To Send	5 (ms) 🔽 Default Value
Γ	RI / VCC	© RI O VCC
	In the case of RS23 or VCC (5V Power 1 Isolation Unit, pleas	j2C, you can select the 9th pin to RI (Input) Supply). If you use the Digital's RS232C e select it to VCC. Default
L	ioo Caosifia Collingo	
Dev	Allowable No. of Devi	ce/PLCs 16 Unit(s)
	No. Device Nar	ne Settings
	👗 1 PLC1	Iter Slave Equipment Address=1,Rest of the bits in this word=Do not clear,IEC611

Device Setting

To display the setting screen, click III ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click if from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

Individual Device Sett	tings 🗙
PLC1	
Equipment Configuration Max	Query
Slave Equipment Address	1 🔹
Bit manipulation (set/reset) to	Holding Register
Rest of the bits in this word	◯ Clear
Note on when selecting "D If the ladder program write read/write process, the res	to not clear" : s data to Holding Register during the sulting data may be incorrect.
EC61131 Syntax	
Address Mode	0-based (Default)
Please reconfirm all of addre have changed the setting.	ss settings that you are using if you
Variables	
Double Word word order	Low word first(L/H)
	Default
	OK (<u>0</u>) Cancel

Equipment Configuration	n Max Query		
Address	Function Codes	Max Query	
Coil (0)	Read (01H)	1008 📑 t	oits
Coil (0)	Write (OFH)	800 📑 t	oits
Discrete Input (1)	Read (02H)	1008 📑 t	oits
Input Register (3)	Read (04H)	63 📫 v	vord
Holding Register (4)	Read (03H)	63 🕂 v	vord
Holding Register (4)	Write (10H)	61 📫 v	vord
		D	efau

[Max Query] tab

[Equipment Configuration] tab

Settings of External Device

Use the ladder software "PL7 PRO" for communication settings.

Double-click "Hardware Configuration" from "Configuration" in "Application Browser" of "PL7 PRO". Next, double-click "Comm" in the "Configuration" dialog box. Perform the settings in the displayed dialog box.

Setup Items	Setup D	escription
	CHANNEL 1	
CHANNEL	TSX SCP 114 RS485 MP PCMCIA CARD	
	MODBUS/JBUS LINK	MAST
Slave number	1	
Туре	Slave	
Transmission speed	9600bps	
Delay between characters	4msec	
Data	RTU (8 bit)	
Stop	1 bit	
Parity	Even	

Notes

Please refer to the manual of the ladder software for more detail on other setting description.

3.4 Setting Example 4

Settings of GP-Pro EX

♦ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

Devic	e/PLC1	
Sum	mary	Change Device/PLC
	Maker Schneider El	ectric Industries Driver MODBUS SID Master Port COM1
	Text Data Mode	1 Change
Comr	munication Settings	
	SIO Type	RS232C RS422/485(2wire) RS422/485(4wire)
	Speed	9600
	Data Length	C 7 • 8
	Parity	C NONE C EVEN O ODD
	Stop Bit	
	Flow Control	NONE O ER(DTR/CTS) O XON/XOFF
	Timeout	3 :: (sec)
	Retry	2
	Wait To Send	5 ↔ (ms) I Default Value
	RI / VCC	RI O VCC
	In the case of RS23 or VCC (5V Power Isolation Unit, pleas	I2C, you can select the 9th pin to RI (Input) Supply). If you use the Digital's RS232C e select it to VCC. Default
Devi	ce-Specific Settings	
	Allowable No. of Devi	ce/PLCs 16 Unit(s) 📊
1	No. Device Nar	ne Settings
	A PLUI	In this word=Do not clear, IEU611

Device Setting

To display the setting screen, click III ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click if from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

💣 Individual Device Settings 🛛 🛛 🔀	💣 Indivi
PLC1	PLC1
Equipment Configuration Max Query Equipment Address Slave Equipment Address I Bit manipulation (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 O-based (Default)	Equipmen Addres Coil (0) Coil (0) Discret Input R Holding Holding
Please reconfirm all of address settings that you are using if you have changed the setting. Variables Double Word word order Low word first(L/H) Default OK (0) Cancel	

[Equipment Configuration] tab

[Max	Query]	tab
Linear	Z	

💰 Individual Devic	e Settings		×
PLC1			
Equipment Configuration	Max Query		
Address	Function Codes	Max Query	
Coil (0)	Read (01H)	1008 📑 bit:	s
Coil (0)	Write (0FH)	800 📑 bit:	s
Discrete Input (1)	Read (02H)	1008 📫 bit:	s
Input Register (3)	Read (04H)	63 📫 wo	ords
Holding Register (4)	Read (03H)	63 📫 wo	ords
Holding Register (4)	Write (10H)	61 🔹 wo	ords
		Def	ault
		OK (<u>D)</u> Cano	el

Settings of External Device

Use the ladder software "PL7 PRO" for communication settings.

Double-click "Hardware Configuration" from "Configuration" in "Application Browser" of "PL7 PRO". Next, double-click "Comm" in the "Configuration" dialog box. Perform the settings in the displayed dialog box.

Setup Items		Setup Description
	CHANNEL 1	
CHANNEL	TSX SCP 111 RS232 MP PCMCIA CARD	
	MODBUS/JBUS LINK	MAST
Туре	Slave	
Slave number	1	
Transmission speed	9600bps	
Delay between characters	4msec	
Data	RTU (8 bit)	
Stop	1 bit	
Parity	Even	

Notes

• Please refer to the manual of the ladder software for more detail on other setting description.

3.5 Setting Example 5

Settings of GP-Pro EX

♦ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

Devid	ce/PLC1	
Sum	mary	Change Device/PLC
	Maker Schneider El	ectric Industries Driver MODBUS SID Master Port COM1
	Text Data Mode	1 Change
Corr	munication Settings	
	SIO Type	C RS232C C RS422/485(2wire) C RS422/485(4wire)
	Speed	9600
	Data Length	○7 ④8
	Parity	C NONE C EVEN C ODD
	Stop Bit	
	Flow Control	NONE C ER(DTR/CTS) C X0N/X0FF
	Timeout	3 📑 (sec)
	Retry	2
	Wait To Send	5 (ms) I✓ Default Value
Γ	RI / VCC	RI O VCC
	In the case of RS23 or VCC (5V Power Isolation Unit, pleas	2C, you can select the 9th pin to RI (Input) Supply). If you use the Digital's RS232C a select it to VCC. Default
Dev	ice-Specific Settinas	
	Allowable No. of Dev	ce/PLCs 16 Unit(s) 📊
	No. Device Nat	ne Settings
	M PLUI	International and the second s

Device Setting

To display the setting screen, click III ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click if from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

💣 Individual Device Settings 🛛 🗙	💣 Individual Devic
PLC1	PLC1
Equipment Configuration Max Query Equipment Address Slave Equipment Address Slave Equipment Address Bit manipulation (set/reset) to Holding Register Rest of the bits in this word C 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 O-based (Default) Please reconfirm all of address settings that you are using if you have changed the setting.	Equipment Configuratio Address Coil (0) Coil (0) Discrete Input (1) Input Register (3) Holding Register (4) Holding Register (4)
Variables Double Word word order Low word first(L/H)	
Default DK (D)	

[Equipment Configuration] tab

[Max Query] tab

🎋 Individual Device	e Settings		>
LC1			
Equipment Configuration	Max Query		
Address	Function Codes	Max Query	
Coil (0)	Read (01H)	1008 📫 b	its
Coil (0)	Write (0FH)	800 📑 b	its
Discrete Input (1)	Read (02H)	1008 📑 b	its
Input Register (3)	Read (04H)	63 📫 v	vords
Holding Register (4)	Read (03H)	63 📫 v	vords
Holding Register (4)	Write (10H)	61 🔹 v	vords
		D	efault
		JK (D) Car	ncel

Settings of External Device

Use the ladder software "PL7 PRO" for communication settings.

Double-click "Hardware Configuration" from "Configuration" in "Application Browser" of "PL7 PRO". Next, double-click "Comm" in the "Configuration" dialog box. Perform the settings in the displayed dialog box.

Setup Items	Setup De	escription
	CHANNEL 1	
CHANNEL	TSX SCP 114 RS485 MP PCMCIA CARD	
	MODBUS/JBUS LINK	MAST
Туре	Slave	
Slave number	1	
Transmission speed	9600bps	
Delay between characters	4msec	
Data	RTU (8 bit)	
Stop	1 bit	
Parity	Even	

Notes

Please refer to the manual of the ladder software for more detail on other setting description.

3.6 Setting Example 6

Settings of GP-Pro EX

♦ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

Device	e/PLC 1	
Sumr	nary	Change Device/PLC
	Maker Schneider El	ectric Industries Driver MODBUS SIO Master Port COM1
	Text Data Mode	1 Change
Comr	nunication Settings	
	SIO Type	RS232C C RS422/485(2wire) C RS422/485(4wire)
	Speed	19200
	Data Length	C 7 @ 8
	Parity	NONE C EVEN C 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) 🔽 Default Value
	RI / VCC	RI C VCC
	In the case of RS23 or VCC (5V Power Isolation Unit, pleas	2C, you can select the 9th pin to RI (Input) Supply). If you use the Digital's RS232C e select it to VCC. Default
Devid	ce-Specific Settings	
	Allowable No. of Devi	ce/PLCs 16 Unit(s) 📊
г	No. Device Nar	ne Settings
	👗 i jelot	Little Stave Equipment Address=1, Hest of the bits in this word=Do not clear, IEUb11

Device Setting

To display the setting screen, click III ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click if from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

🟄 Individual Device Settings 🛛 🗙	💰 Individual D
PLC1	PLC1
Equipment Configuration Max Query Equipment Address Slave Equipment Address Slave Equipment Address Bit manipulation (set/reset) to Holding Register Rest of the bits in this word C 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. I IEC61131 Syntax Address Mode O-based (Default) Please reconfirm all of address settings that you are using if you have changed the setting. Variables Double Word word order Low word first(L/H)	Equipment Configu Address Coil (0) Coil (0) Discrete Input (1 Input Register (3 Holding Registe Holding Registe
Default DEfault OK (<u>0</u>)	

[Equipment Configuration] tab

💰 Individual Device Settings			×
PLC1			
Equipment Configuration	n Max Query		1
Address	Function Codes	Max Query	
Coil (0)	Read (01H)	2000 📑 bits	
Coil (0)	Write (OFH)	800 📫 bits	
Discrete Input (1)	Read (02H)	2000 📫 bits	
Input Register (3)	Read (04H)	125 🔹 word	ls
Holding Register (4)	Read (03H)	125 📫 word	ls
Holding Register (4)	Write (10H)	100 📫 word	ls
		Defa	ult
)K (<u>D)</u> Cancel	

Settings of External Device

Use the ladder software "TwidoSoft" for communication settings.

Select "Hardware" from "TWDLMDA40DUK" in "Application Browser" of "TwidoSoft", and right-click on "Port 1 : Remote Link, 1" to select "Edit Controller Comm Setup...".

Perform the settings in the "Controller Communication Setup" dialog box displayed next.

Setup Items		Setup Description
Protocol	Туре	Modbus
1 1010001	Address	1
	Baud Rate	19200
Doromotoro	Data Bits	8
i alameters	Parity	None
	Stop Bits	1
End of Frame		10
Response Timeout		10 x 100msec
Frame Timeout		4msec

Notes

Please refer to the manual of the ladder software for more detail on other setting description.

3.7 Setting Example 7

Settings of GP-Pro EX

♦ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

revice/PLC 1	Charac Davies /01 C
Summary	
Maker JSchneider	Liectric Industries Driver MUDBUS SIU Master Port JCDM I
Text Data Mode	1 <u>Change</u>
Communication Settings	
SIO Type	C RS232C © RS422/485(2wire) C RS422/485(4wire)
Speed	19200
Data Length	07 08
Parity	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	2 🙀 (ms) 🔽 Default Value
RI / VCC	© RI O VCC
In the case of RS2 or VCC (5V Power Isolation Unit, plea	232C, you can select the 9th pin to RI (Input) Supply). If you use the Digital's RS232C se select it to VCC.
	Delauit
Device-Specific Settings	
Allowable No. of De No. Device N	vice/PLUs 16 Unit(s) [11] ame Settings
1 PLC1	Slave Equipment Address=1,Rest of the bits in this word=Do not clear,IEC6

×

Device Setting

To display the setting screen, click III ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click if from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

🌾 Individual Device Settings	🗙 💣 Individual Device Settings
PLC1	PLC1
Equipment Configuration Max Query	Equipment Configuration Max Query
Slave Equipment Address	Address Function Codes Max Query
Bit manipulation (set/reset) to Holding Register	Coil (0) Read (01H) 2000 📑 bits
Rest of the bits in this word 🔹 Clear 💿 Do not clear	Coil (0) Write (0FH) 800 🚎 bits
Note on when selecting "Do not clear" : If the ladder program writes data to Holding Register during the	Discrete Input (1) Read (02H) 2000 📑 bits
read/write process, the resulting data may be incorrect.	Input Register (3) Read (04H) 125 🐳 words
EC61131 Syntax	Holding Register (4) Read (03H)
Address Mode O-based (Default)	Holding Begister (4) Write (10H)
Please reconfirm all of address settings that you are using if you have changed the setting.	
Variables	
Double Word word order Low word first(L/H)	
Default	Default
OK (<u>D</u>) Cancel	OK (D) Cancel

[Equipment Configuration] tab

[Max Query] tab

Settings of External Device

Use the ladder software "TwidoSoft" for communication settings.

Right-click on "Hardware" from "TWDLMDA40DUK" in "Application Browser" of "TwidoSoft" to select "Add Option...". Right-click on "Port 2 : Modbus, 1" added to "Hardware" in "TWDLMDA40DUK" to select "Edit Controller Comm Setup...".

Perform the settings in the "Controller Communication Setup" dialog box displayed next.

Setup Items		Setup Description
Protocol	Туре	Modbus
	Address	1
	Baud Rate	19200
Doromotoro	Data Bits	8
	Parity	None
	Stop Bits	1
End of Frame		10
Response Timeout		10 x 100msec
Frame Timeout		10msec

Notes

Please refer to the manual of the ladder software for more detail on other setting description.

3.8 Setting Example 8

Settings of GP-Pro EX

♦ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

Devic	e/PLC1			
Sum	mary	Change Device/PLC		
	Maker Schneider El	ectric Industries Driver MODBUS SIO Master Port COM1		
	Text Data Mode	1 Change		
Com	munication Settings			
	SIO Type	RS232C C RS422/485(2wire) C RS422/485(4wire)		
	Speed	19200		
	Data Length	C 7 C 8		
	Parity	C NONE C EVEN C ODD		
	Stop Bit			
	Flow Control	NONE C ER(DTR/CTS) C XON/XOFF		
	Timeout	3 😴 (sec)		
	Retry	2 📫		
	Wait To Send	3 ÷ (ms) ✓ Default Value		
	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			
Devi	ice-Specific Settings			
	Allowable No. of Devi	ce/PLCs 16 Unit(s) 📊		
	No. Device Nar	ne Settings Slave Equipment Address=1 Best of the hits in this word-Do not clear IECC11		
	l i h con	Joint Clear Contract of the bits in this word-Do hot clear Contract		

×

Device Setting

To display the setting screen, click III ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click if from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

券 Individual Device Settings	🖌 💣 Individual Device Settings
PLC1	PLC1
Equipment Configuration Max Query Equipment Address Slave Equipment Address	Equipment Configuration Max Query Address Function Codes
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. IEC61131 Syntax Address Mode Obased (Default) Please reconfirm all of address settings that you are using if you have channed the setting.	Coil (0)Read (01H)Coil (0)Write (0FH)Discrete Input (1)Read (02H)Input Register (3)Read (04H)Holding Register (4)Read (03H)Holding Register (4)Write (10H)
Variables Double Word word order Low word first(L/H) Default OK (D) Cancel	

[Equipment Configuration] tab

[Max Query] tab

Max Query

800

2000

125

125

100

OK (<u>O</u>)

🕂 bits

📑 bits

🕂 bits

÷ words

÷ words

→ words

Default

Cancel

Settings of External Device

Use the ladder software "Concept" for communication settings.

After selecting the External Device in Quantum Series in "PLC Selection" of "Concept", select "Modbus Port Settings" and perform the settings in the "Modbus Port Settings" dialog box.

Setup Items	Setup Description
Baud	19200
Data Bits	8
Stop Bits	1
Parity	Even
Delay(ms)	10
Address	1
Head slot	0
Mode	RTU
Protocol	RS232

Notes

Please refer to the manual of the ladder software for more detail on other setting description.

3.9 Setting Example 9

Settings of GP-Pro EX

♦ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

Devid	ce/PLC 1	
Sum	nmary	Change Device/PLC
	Maker Schneider El	ectric Industries Driver MODBUS SID Master Port COM1
	Text Data Mode	1 Change
Corr	nmunication Settings	
	SIO Type	RS232C C RS422/485(2wire) C RS422/485(4wire)
	Speed	19200
	Data Length	C 7 @ 8
	Parity	C NONE C EVEN C ODD
	Stop Bit	● 1
	Flow Control	NONE O ER(DTR/CTS) O XON/XOFF
	Timeout	3
	Retry	2
	Wait To Send	3 ★ (ms) ✓ Default Value
Γ	RI / VCC	RI © VCC
	In the case of RS23 or VCC (5V Power Isolation Unit, pleas	12C, you can select the 9th pin to RI (Input) Supply). If you use the Digital's RS232C e select it to VCC. Default
Dev	vice-Specific Settings	
	Allowable No. of Dev	ce/PLCs 16 Unit(s) 📷
	No. Device Nar	ne Settings Slave Equipment Address-1 Best of the bits in this word-Do not close (ECC11
	l · hreet	Joint Clear, Econ

Device Setting

To display the setting screen, click III ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click if from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

💣 Individual Device Settings 🛛 🛛 🔀	💣 Individu
PLC1	PLC1
Equipment Configuration Max Query Equipment Address	Equipment C Address
Bit manipulation (set/reset) to Holding Register	Coil (0)
Rest of the bits in this word C Clear	Coil (0)
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 imported.	Discrete Ir
read/write process, the resulting data may be inconcet.	Input Reg
EC61131 Syntax	Holding R
Address Mode O-based (Default)	Holding B
Please reconfirm all of address settings that you are using if you have changed the setting.	
Variables	
Double Word word order Low word first(L/H)	
Default	
OK (<u>0</u>) Cancel	

[Equipment Configuration] tab

|--|

🏂 Individual Devic	e Settings		×
PLC1			
Equipment Configuration	n Max Query		1
Address	Function Codes	Max Query	
Coil (0)	Read (01H)	2000 🕂 bits	
Coil (0)	Write (0FH)	800 🕂 bits	
Discrete Input (1)	Read (02H)	2000 🕂 bits	
Input Register (3)	Read (04H)	125 📫 word	is
Holding Register (4)	Read (03H)	125 📫 word	is
Holding Register (4)	Write (10H)	100 🕂 word	ls
		Defa	ult
)K (D) Cancel	

Settings of External Device

Use the ladder software "Concept" for communication settings.

After selecting the External Device in Momentum Series in "PLC Selection" of "Concept", select "Modbus Port Settings" and perform the settings in the "Modbus Port Settings" dialog box.

Setup Items	Setup Description
Baud	19200
Data Bits	8
Stop Bits	1
Parity	Even
Delay(ms)	10
Address	1
Head slot	0
Mode	RTU
Protocol	RS232

Notes

Please refer to the manual of the ladder software for more detail on other setting description.

3.10 Setting Example 10

- Settings of GP-Pro EX
- ♦ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

Devic	ce/PLC 1	
Sum	mary	Change Device/PLC
	Maker Schneider El	ectric Industries Driver MODBUS SID Master Port COM1
	Text Data Mode	1 Change
Com	munication Settings	
	SIO Type	C RS232C C RS422/485(2wire) © RS422/485(4wire)
	Speed	19200
	Data Length	€7 €8
	Parity	C NONE • EVEN C ODD
	Stop Bit	
	Flow Control	NONE O ER(DTR/CTS) O XON/XOFF
	Timeout	3 <u>*</u> (sec)
	Retry	2 *
	Wait To Send	3 (ms) I Default Value
Γ	RI / VCC	© RI O VCC
	In the case of RS2 or VCC (5V Power Isolation Unit, pleas	I2C, you can select the 9th pin to RI (Input) Supply). If you use the Digital's RS232C e select it to VCC. Default
Dev	rice-Specific Settings	
	Allowable No. of Dev	ce/PLCs 16 Unit(s) 🔢
	No. Device Nat	ne Settings
	I I FLUI	The provide the pr

Device Setting

To display the setting screen, click III ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click if from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

💣 Individual Device Settings	×	💣 Individual Devic	e Settings	
PLC1		PLC1		
Equipment Configuration Max Query Equipment Address Slave Equipment Address Slave Equipment Address Bit manipulation (set/reset) to Holding Register Rest of the bits in this word C Clear Note on when selecting "Do not clear": If the ladder program writes data to Holding Registr read/write process, the resulting data may be incom IEC61131 Syntax Address Mode D-based (Default) Please reconfirm all of address settings that you are thave changed the setting. Variables Double Word word order Low word first(L/H)	Do not clear er during the rect.	Equipment Configuration Address Coil (0) Discrete Input (1) Input Register (3) Holding Register (4) Holding Register (4)	Max Query Function Codes Read (01H) Write (0FH) Read (02H) Read (02H) Read (03H) Write (10H)	Ma 200 200 125 125 100
OK (D)	Default		0	IK (<u>O)</u>

[Equipment Configuration] tab

[Max Query] tab

Query

bits
 bits
 bits
 bits
 words
 words
 words
 words

Default Cancel

Settings of External Device

Use the ladder software "Concept" for communication settings.

After selecting the External Device in Momentum Series in "PLC Selection" of "Concept", select "Modbus Port Settings" and perform the settings in the "Modbus Port Settings" dialog box.

Setup Items	Setup Description
Baud	19200
Data Bits	8
Stop Bits	1
Parity	Even
Delay(ms)	10
Address	1
Head slot	0
Mode	RTU
Protocol	RS485

Notes

Please refer to the manual of the ladder software for more detail on other setting description.

4 Setup Items

Set communication settings of the Display with GP-Pro EX or in off-line mode of the Display. The setting of each parameter must be identical to that of External Device.

"3 Example of Communication Setting" (page 7)

4.1 Setup Items in GP-Pro EX

Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

Devid	ce/PLC1			
Sum	nmary			Change Device/PLC
	Maker Schneider El	ectric Industries Dri	iver MODBUS SIO Master	Port COM1
	Text Data Mode	1 Change		
Com	nmunication Settings			
	SIO Type	• RS232C C RS422	/485(2wire) O RS422/485(4wire)	
	Speed	19200 💌		
	Data Length	C 7 C 8		
	Parity	○ NONE ● EVEN	C ODD	
	Stop Bit	© 1 © 2		
	Flow Control	NONE O ER(DT	R/CTS) O XON/XOFF	
	Timeout	3 📫 (sec)		
	Retry	2 ÷		
	Wait To Send	3 📩 (ms) 🔽	Default Value	
	RI / VCC	RI C VCC		
	In the case of RS23 or VCC (5V Power Isolation Unit, pleas	2C, you can select the 9th pin supply). If you use the Digital's select it to VCC.	to RI (Input) RS232C Default	
Dev	vice-Specific Settings			
	Allowable No. of Devi	ce/PLCs 16 Unit(s) 🔢		
	No. Device Nar	ne Settin	ιgs Slave Equipment Address=1 Best of the bits is	n this word=Do not clear JEC611
	le i heer		orano Equipment Address=1, nest of the bits in	n allo nora-bo nor cicar, iECOTT

Setup Items	Setup Description
SIO Type	Select the SIO type to communicate with the External Device.
Speed	Select speed between the External Device and the Display.
Data Length	Select data length.
Parity	Select how to check parity.
Stop Bit	Select 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, use an integer from 0 to 255 to enter how many times the Display retransmits the command.

continued to next page

Setup Items	Setup Description
Wait To Send	Use an integer from 0 to 255 to enter standby time (ms) for the Display from receiving packets to transmitting next commands. When the check box of the default value is checked, the Wait To Send value automatically changes in the formula below by changing each value for Speed/Data Length/Parity/Stop Bit. Wait To Send (ms) = $\frac{3500 \text{ x} (1 + \text{Data Length} + \text{Stop Bit} + \text{Parity})}{\text{Speed (bps)}}$ Value for the parity setting is shown below. No Parity = 0 Parity Even = 1 Parity Odd = 1
RI/VCC	You can switch RI/VCC of the 9th pin when you select RS232C for SIO type.

Device Setting

To display the setting screen, click I ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click if from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

Individual Device Sett	ings
C1	
quipment Configuration Max I	Query
Equipment Address	· · ·
Slave Equipment Address	1 📑
Bit manipulation (set/reset) to I	Holding Register
Rest of the bits in this word	🔿 Clear 🛛 💿 Do not clea
If the ladder program writes read/write process, the res	edata to Holding Register during the ulting data may be incorrect.
If the ladder program writes read/write process, the res	data to Holding Register during the ulting data may be incorrect.
If the ladder program writes read/write process, the rest IEC61131 Syntax	data to Holding Register during the ulting data may be incorrect.
If the ladder program writes read/write process, the res IEC61131 Syntax Address Mode	edata to Holding Register during the ulting data may be incorrect.
If the ladder program writes read/write process, the resi IEC61131 Syntax Address Mode Please reconfirm all of addres have changed the setting.	data to Holding Register during the alting data may be incorrect.
If the ladder program writes read/write process, the resi IEC61131 Syntax Address Mode Please reconfirm all of addres have changed the setting. Variables	data to Holding Register during the alting data may be incorrect.
If the ladder program writes read/write process, the resi IEC61131 Syntax Address Mode Please reconfirm all of addres have changed the setting. Variables Double Word word order	data to Holding Register during the alting data may be incorrect.
If the ladder program writes read/write process, the resi IEC61131 Syntax Address Mode Please reconfirm all of addres have changed the setting. Variables Double Word word order	data to Holding Register during the ulting data may be incorrect.

[Equipment Configuration] tab

Setup Items		Setup Description	
Slave Equipment Address		Use an integer from 1 to 247 to enter the slave equipment address of the External Device.	
Bit manipulation (set / reset) to Holding Resister		From "Clear" or "Do not clear", select treatment of the rest of the bits in the	
	Rest of the bits in this word	same word when the bit manipulation to Holding Register is performed.	
IEC61131 Syntax		Check this item when you use the IEC61131 syntax for variables. In case that you check on, select Address Mode, [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".	

EN /	0 1	1.1
Max	Query	tab

🎽 Individual Devic	e Settings		:
Equipment Configuration	n Max Query		
Address	Function Codes	Max Query	
Coil (0)	Read (01H)	2000 📑 bit:	s
Coil (0)	Write (0FH)	800 📑 bit:	s
Discrete Input (1)	Read (02H)	2000 📑 bit:	s
Input Register (3)	Read (04H)	125 📑 wa	rds
Holding Register (4)	Read (03H)	125 📑 wa	rds
Holding Register (4)	Write (10H)	100 📑 wa	rds
		Def	ault
		ЭК <u>(0)</u> Сапо	el

Setup Items		Setup Description	
Coil		Set the number of max data for device [coil] which can be read for one	
	Read	communication, using 16 to 2000 bits.	
Coil		Set the number of max data for device [coil] which can be written for one	
	Write	communication, using 1 to 800 bits.	
Discrete Input		Set the number of max data for device [discrete input] which can be read for	
	Read	one communication, using 16 to 2000 bits.	
Input Register		Set the number of max data for device [input register] which can be read for one communication, using 1 to 125 words.	
	Read		
Holding Register		Set the number of max data for device [holding register] which can be read	
	Read	for one communication, using 1 to 125 words.	
Holding Register Write		Set the number of max data for device [holding register] which can be written	
		for one communication, using 1 to 100 words.	

4.2 Setup Items in Off-Line Mode

NOTE

 Please refer to GP3000 Series User Manual for more information on how to enter off-line mode or about operation.

Cf. GP3000 Series User Manual "Chapter 4 Settings"

Communication Settings

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

Comm.	Device	Option		
MODBUS SIO Mast	ser		[COM1]	Page 1/1
	SIO Type Speed Data Length Parity Stop Bit Flow Control Timeout(s) Retry Wait To Send(ms)	RS232C 19200 7 NONE 1 NONE	8 EVEN 2 3 4 3 4	
	Exit		Back	2005/09/02 13:11:46

Setup Items	Setup Description		
SIO Type	Select the SIO type to communicate with the External Device.		
Speed	Select speed between the External Device and the Display.		
Data Length	Select data length.		
Parity	Select how to check parity.		
Stop Bit	Select 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, use an integer from 0 to 255 to enter how many times the Display retransmits the command.		

continued to next page

Setup Items	Setup Description		
Wait To Send	Use an integer from 0 to 255 to enter standby time (ms) for the Display from receiving packets to transmitting next commands. When each value of Speed/Data Length/Parity/Stop Bit is changed, calculate the Wait To Send value in the formula below and set it. Wait To Send (ms) = $\frac{3500 \text{ x} (1 + \text{Data Length} + \text{Stop Bit} + \text{Parity})}{\text{Speed (bps)}}$ Value for the parity setting is shown below. No Parity = 0 Parity Even = 1 Parity Odd = 1		

Device Setting

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

Comm.	Device	Option		
MODBUS SIO Mast	er		[COM1]	Page 1/1
Devic	e/PLC Name PL	01		_
	Slave Address Bit manipulation IEC61131 Syntax Double Word word	to HR Rest o OFF Lorder Low wo	1 ▼ f bits in word a rd first	re not cleared
Ma	x Query Read Coil Write Coil Read Discrete Ir Read Input Regis Read Holding Reg Write Holding Reg	put ter ister gister	2000 ▼ 800 ▼ 2000 ▼ 125 ▼ 125 ▼ 100 ▼	
	Exit		Back	2021/01/31 07:00:08

Setup Items		Setup Description	
Device/PLC Nar	ne	Select the External Device for device setting. Device name is a title of External Device set with GP-Pro EX.(Initial value [PLC1])	
Slave Address		Use an integer from 1 to 247 to enter the slave equipment address of the External Device.	
Bit manipulation	to HR	From "Rest of bits in word are cleared" or "Rest of bits in word are not cleared", select treatment of the rest of the bits in the same word when the bit manipulation to Holding Register is performed. (Not available to set in off-line mode.)	
IEC61131 Synta	x	Displays the usage status of the currently set IEC61131 syntax in ON/OFF. (Not available in off-line mode.)	
Double Word wo	ord order	Displays the currently set order of storing double word data from "Low word first" or "High word first". (Not available to set in off-line mode.)	
Coil		Set the number of max data for device [coil] which can be read for one communication, using 16 to 2000 bits.	
	Read		
Coil		Set the number of max data for device [coil] which can be written for one	
	Write	communication, using 1 to 800 bits.	
Discrete Input		Set the number of max data for device [discrete input] which can be read for	
Read		one communication, using 16 to 2000 bits.	
Input Register		Set the number of max data for device [input register] which can be read for	
	Read	one communication, using 1 to 125 words.	

continued to next page

Setu	p Items	Setup Description
Holding Register		Set the number of max data for device [holding register] which can be read
	Read	for one communication, using 1 to 125 words.
Holding Register		Set the number of max data for device [holding register] which can be written
	Write	for one communication, using 1 to 100 words.

Option

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

Comm.	Device	Option		
MODBUS SIO Mast	er		[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) o y).If you use t ation Unit, ple	VCC can select r VCC(5V he Digital's ase select	
	Exit		Back	2005/09/02 13:11:50

Setup Items	Setup Description
RI/VCC	You can switch RI/VCC of the 9th pin when you select RS232C for SIO type.

The cable diagram shown below may be different from the cable diagram recommended by Schneider Electric Industries. 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 D-class grounded. Please refer to the manual of the External Device for more details.
- SG and FG are connected inside the Display. When connecting SG to the External Device, design the system not to form short-circuit loop.

Cable Diagram 1

Display (Connection Port)		Cable	Notes
GP ^{*1} (COM1) AGP-3302 (COM2)	A Connector terminal block conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable		
	B Your own cable		
GP ^{*1} (COM2)	C Online adapter by Pro-face CA4-ADPONL-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable		The cable length must be 200m or less.
	D	Online adapter by Pro-face CA4-ADPONL-01 + Your own cable	

*1 All GP models except AGP-3302

- A) When using the COM port conversion adapter (CA3-ADPCOM-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable
- 1:1 Connection



1:n Connection



Your own cable

B) When using your own cable

• 1:1 Connection



• 1:n Connection



- C) When using the online adapter (CA4-ADPONL-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable
- 1:1 Connection



1:n Connection







Your own cable

D) When using the online adapter (CA4-ADPONL-01) by Pro-face and your own cable

• 1:1 Connection



• 1:n Connection



Display (Connection Port)	Cable	Notes
GP (COM1)	Cable by Schneider Electric Industries TSX PCX 1031 (2.5m) ^{*1}	

*1 Set the rotary switch to "3 (OTHER DIRECT)".



Display (Connection Port)		Cable	Notes	
GP ^{*1} (COM1) AGP-3302 (COM2)	А	COM port conversion adapter (for COM1) by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable + Accessory box by Schneider Electric Industries TSX SCA 50		
	В	Your own cable + Accessory box by Schneider Electric Industries TSX SCA 50		
GP ^{*1} (COM2)	С	Online adapter by Pro-face CA4-ADPONL-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable + Accessory box by Schneider Electric Industries TSX SCA 50	The cable length must be 10m or less. ^{*2}	
	D	Online adapter by Pro-face CA4-ADPONL-01 + Your own cable + Accessory box by Schneider Electric Industries TSX SCA 50		

*1 All GP models except AGP-3302

*2 Max length between the "GP" and the "Accessory Box connected to GP". Total cable length between accessory boxes must be 1000m or less.

- A) When using the COM port conversion adapter (CA3-ADPCOM-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and the accessory box (TSX SCA 50) by Schneider Electric
- 1:1 Connection



• 1:n Connection



Your own cable

B) When using the accessory box (TSX SCA 50) by Schneider Electric and your own cable

• 1:1 Connection



• 1:n Connection



Your own cable

- C) When using the online adapter (CA4-ADPONL-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face, your own cable and the accessory box (TSX SCA 50) by Schneider Electric
- 1:1 Connection



• 1:n Connection





- D) When using the online adapter (CA4-ADPONL-01) by Pro-face and the accessory box (TSX SCA 50) by Schneider Electric
- 1:1 Connection



• 1:n Connection



Display (Connection Port)	Cable	Notes
GP (COM1)	Your own cable + RS 232 D tap link cable by Schneider Electric TSX SCP CC 1030 (3m) + PCMCIA card for RS232C by Schneider Electric TSX SCP 111	The cable length must be 15m or less. *1

*1 Total length for TSX SCP CC 1030 and your own cable.

When using your own cable, the RS 232 D tapLink cable (TSX SCP CC 1030) by Schneider Electric and the PCMCIA card (TSX SCP 111) for RS232C by Schneider Electric



Display (Connection Port)		Cable	Notes
GP ^{*1} (COM1) AGP-3302 (COM2)	А	COM port conversion adapter (for COM1) by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable + Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m) + PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114	
	В	Your own cable + Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m) + PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114	
GP ^{*1} (COM2)		Online adapter by Pro-face CA3-ADPONL-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable + Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m) + PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114 Online adapter by Pro-face	
	D	Online adapter by Pro-face CA4-ADPONL-01 + Your own cable + Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m) + PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114	

*1 All GP models except AGP-3302

A) When using the COM port conversion adapter (CA3-ADPCOM-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face, the Uni-Telway connection cable (TSX SCP CU 4030) and the PCMCIA card for RS485 (TSX SCP 114) by Schneider Electric



B) When using your own cable, the Uni-Telway connection cable (TSX SCP CU 4030) and the PCMCIA card for RS485 (TSX SCP 114) by Schneider Electric



C) When using the online adapter (CA4-ADPONL-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face, the Uni-Telway connection cable (TSX SCP CU 4030) and the PCMCIA card for RS485 (TSX SCP 114) by Schneider Electric



D) When using the online adapter (CA4-ADPONL-01) by Pro-face, your own cable, the Uni-Telway connection cable (TSX SCP CU 4030) and the PCMCIA card for RS485 (TSX SCP 114) by Schneider Electric



Display (Connection Port)	Cable	Notes
GP (COM1)	Your own cable	The cable length must be 15m or less.



Display (Connection Port)	Cable	Notes
GP (COM1)	D-Shell adapter by Schneider Electric 110 XCA 203 00 + Modbus RS485 (RJ45/RJ45) Master Communication cable by Schneider Electric 170 MCI 041 10 (0.3m)	The cable length must be 9.5m or less.



Display (Connection Port)		Cable	Notes
GP ^{*1} (COM1) AGP-3302 (COM2)	А	COM port conversion adapter (for COM1) by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	
	В	Your own cable	
GP ^{*1} (COM2)	С	Online adapter by Pro-face CA4-ADPONL-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	The cable length must be 500m or less.
	D	Online adapter by Pro-face CA4-ADPONL-01 + Your own cable	

*1 All GP models except AGP-3302

A) When using the COM port conversion adapter (CA3-ADPCOM-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable



B) When using your own cable

		D-sub 9 pin (socket)		ub 9 pin (socket) Shield			Ext	ternal Device Modbus port 2 D-sub 9 pin (plug)		
		Pin	Signal name		/		[Pin	Signal name	
	5	1	RDA	-	$ \land$	-A	1	TXD+		
		2	RDB	┥ ┥/\		6	TXD-			
Display Termination resistance 100Ω 1/2W	3	SDA					2	RXD+		
	7	SDB	/		7	RXD-				
	5	SG					3	SG		
	4	ERA								
	8	CSA	↓							
	9	ERB								
	6	CSB	┫							
		Shell	FG		4	V				

C) When using the online adapter (CA4-ADPONL-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable





D) When using the online adapter (CA4-ADPONL-01) by Pro-face and your own cable

6 Supported Device

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 connecting equipment.

This address can be specified as system data area.

Device	Bit Address	Word Address	32 bits	Notes
Coil	000001 - 065536	000001 - 065521		+16+
Discrete Input	100001 - 165536	100001 - 165521	[L/H]	(<u>+16+</u> 1) *2
Input Register		300001 - 365536	or	Bit15] *2
Holding Register	400001,00 - 465536,15 ^{*3}	400001 - 465536	[Н/Ц *1	_{₿11} 15)

*1 High and low relationship of the stored data is specified by the [Double Word word order] setting of [Device Setting].

"4.1 Setup Items in GP-Pro EX" (page 27)

- *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..... B i t 15
 - Do not clear 400001,00 465536,15

Supported Function Code

Below is the list of Supported Function Code.

Function Code (Hex)	Description
FC01 (0x01)	Reads the ON/OFF status of coils (0X references) in the slave.
FC02 (0x02)	Reads the ON/OFF status of discrete inputs (1X references) in the slave.
FC03 (0x03)	Reads the binary content of holding registers (4X references) in the slave.
FC04 (0x04)	Reads the binary content of input registers (3X references) in the slave.
FC05 (0x05)	Forces a single coil (0X references) to either ON or OFF
FC06 (0x06)	Presets a value into a single holding register (4X references).
FC15 (0x0F)	Forces each coil (0X references) in a sequence of coils to either ON or OFF.
FC16 (0x10)	Presets values into a sequence of holding registers (4X references).
NOTE • FC15	/ FC16 will be used for writing. In case if the connected controller do not support these

• FC15 / FC16 will be used for writing. In case if the connected controller do not support the function codes, then FC05 / FC06 will be used.

■ IEC61131 address syntax

The following table gives the equivalences between the Modbus syntax and the IEC61131 syntax.

Device	Modbus address syntax			IEC61131syntax				
					0-based		1-based	
	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 to15	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 to15	400001,00	%MWi: Xj	i=0 to 65535 j=0 to 15	%MW00000: X00	i=1 to 65535 j=0 to15	%MW00001 :X00

NOTE

• The two areas 100000 and 300000 are not accessible with the IEC syntax.

• Once you change the project which you have setup Discrete Input Register to IEC 61131 Syntax, the address will be undefined.

NOTE

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

Cf. GP-Pro EX Reference Manual "Appendix 1.4 LS Area (only for direct access method)"

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

"Manual Symbols and Terminology"

7 Device Code and Address Code

Use device code and address code when you select "Device Type & Address" for the address type in data displays.

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 from which 1 is deducted	
Holding Register	4	0000	Value of word address from which 1 is deducted	

8 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 No.				
Device Name	Name of External Device where error occurs. Device name is a title of External Device set with GP-Pro EX. (Initial value [PLC1])				
Error Message	Displays messages related to the error which occurs.				
	Displays IP address or device address of External Device where error occurs, or error codes received from External Device.				
Error Occurrence Area	 NOTE Received error codes are displayed such as "Decimal [Hex]". IP address is displayed such as "IP address (Decimal): MAC address (Hex)". 				

Display Examples of Error Messages

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

NOTE • Please refer to the manual of External Device for more detail of received error codes.