

PROGRAMMABLE DISPLAY

GT series

FP7 Connection Manual

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1. Introduction

This manual describes how to use programmable displays GT02/GT02L/GT05/GT12/GT32/GT32-E connecting to FP7. Also refer to GT series Reference Manual (ACGM0357V6EN) and GT series User's Manual (ARCT1F511E).

As for requesting for manuals, please contact your dealer or download the PDF data from our web site. http://industrial.panasonic.com/ac/e/dl_center/manual/ (User registration is required. Free of charge)

1.1 GT Models and Versions Connectable to FP7

For using GT series connecting to FP7, the versions of GT series and tool software GTWIN applicable to FP7 are required. For information on the applicable versions, refer to the table below.

If you use an old version of GTWIN, download the upgrade version from our web site to upgrade the old version.

The firmware of GT series can be upgraded from tool software GTWIN. Firmware files can be also downloaded from our web site.

http://industrial.panasonic.com/ac/e/dl_center/software/ (User registration is required. Free of charge)

Applicable versions to FP7

GT model	Applicable version to FP7
GT02	Ver.1.50 or later
GT02L	Ver.1.40 or later
GT05	Ver. 2.10 or later
GT12	Ver. 1.80 or later
GT32	Ver. 2.20 or later
GT32-E	Ver. 1.20 or later
Other GT series	Cannot be used.
GTWIN	Ver. 2.D0 or later

1.2 Restrictions

There are the following restrictions on using GT series connecting to FP7.

The FP monitor function cannot be used.

Projects of FP7 (such as programs) cannot be uploaded or downloaded from the SD memory card slot of GT. Use the SD memory card slot of FP7.

GT and FP7 cannot be connected via Ethernet.

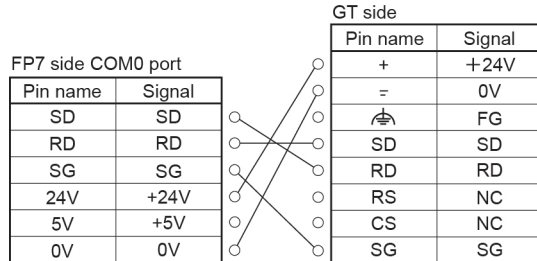
A baud rate of 230400 bps cannot be used for connection. Set the baud rate and communication format within the ranges usable for GT series.

The internal clock of FP7 cannot be changed from GT.

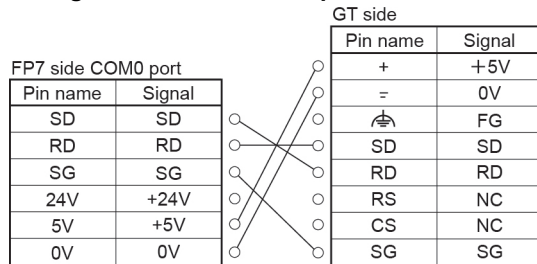
2. Wirings between GT series and FP7

2.1 RS232C Connection

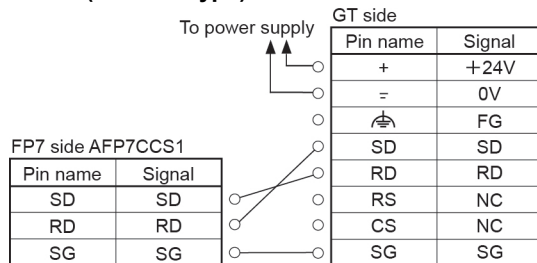
Wiring between FP7 COM0 port and GT series (24V/RS232C type)



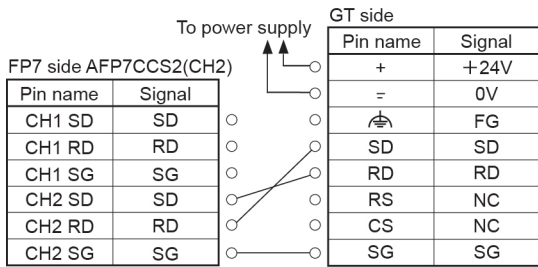
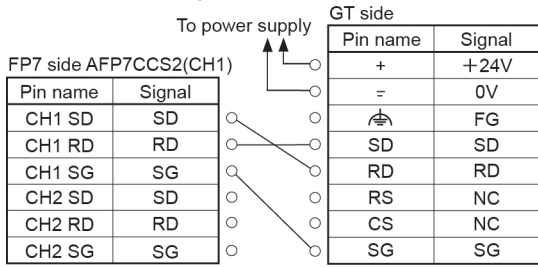
Wiring between FP7 COM0 port and GT series (5V/RS232C type)



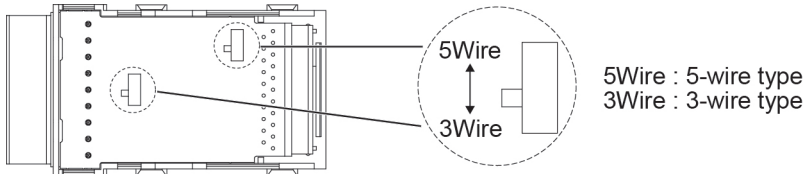
Wiring between FP7 communication cassette AFP7CCS1 (RS232C 1-ch insulated type) and GT series (RS232C type)



Wiring between FP7 communication cassette AFP7CCS2 (RS232C 2-ch insulated type) and GT series (RS232C type)

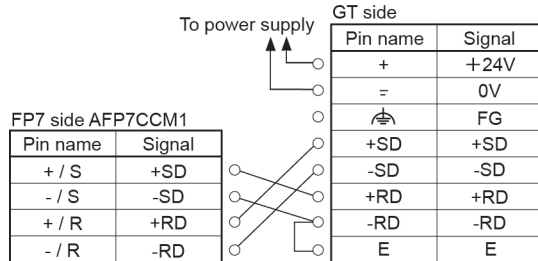


Set the on-board switch of AFP7CCS2 to "3Wire".

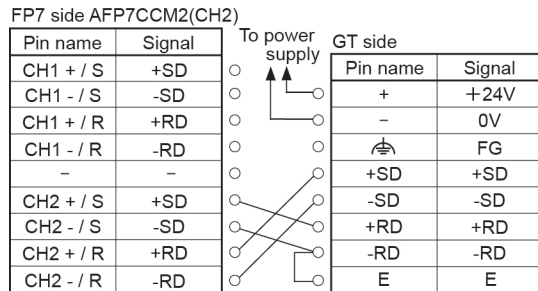
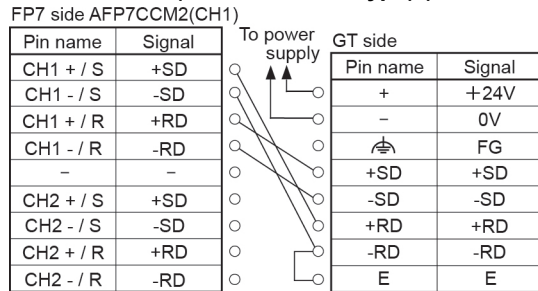


2.2 RS-422 Connection

Wiring between FP7 communication cassette AFP7CCM1 (RS-422/RS-485 1-ch insulated type) and GT series (RS-422/RS-485 type) (RS-422 connection)

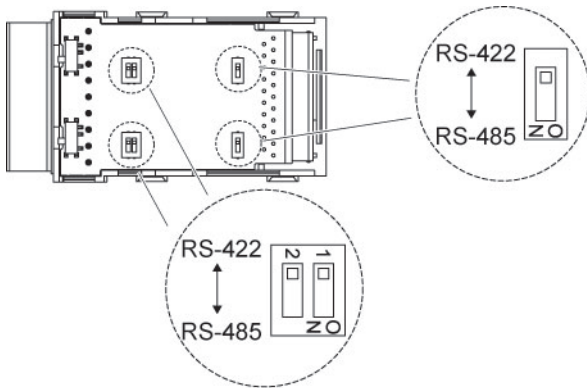
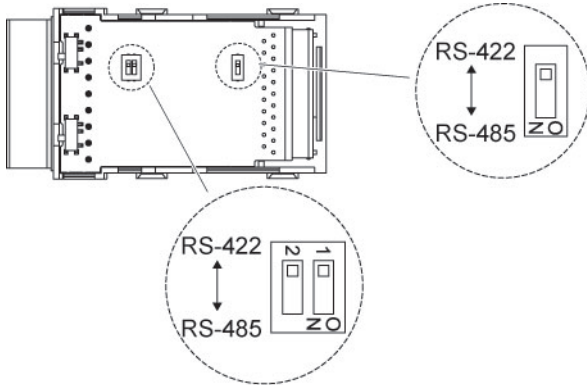


Wiring between FP7 communication cassette AFP7CCM2 (RS-422/RS-485 2-ch insulated type) and GT series (RS-422/RS-485 type) (RS-422 connection)

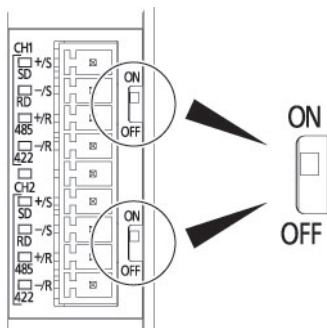
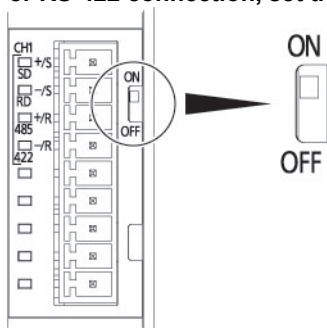


Settings on FP7

Set the on-board switches of each cassette to "RS-422".



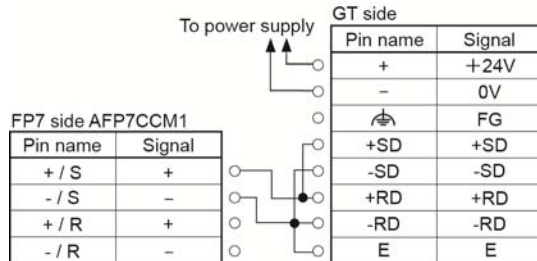
For RS-422 connection, set the termination resistance switches of each cassette to "ON".



2.3 RS-485 Connection

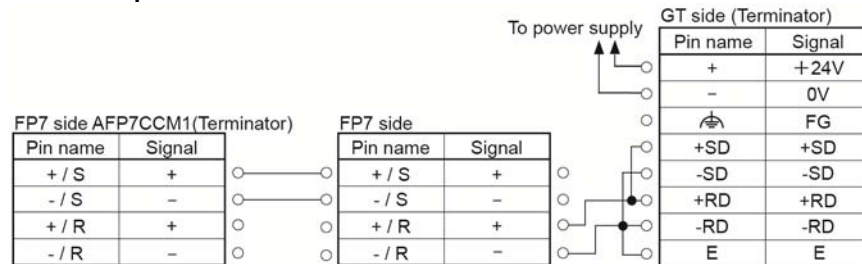
Wiring between FP7 communication cassette AFP7CCM1 (RS-422/RS-485 1-ch insulated type) and GT series (RS-422/RS-485 type) (RS-422 connection)

- 1:1 connection



Terminal resistance switch : ON

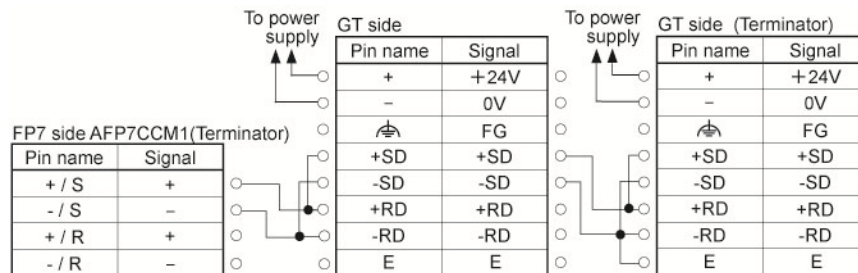
- PLC multiple connection



Terminal resistance switch : ON

Terminal resistance switch : OFF

- GT link function

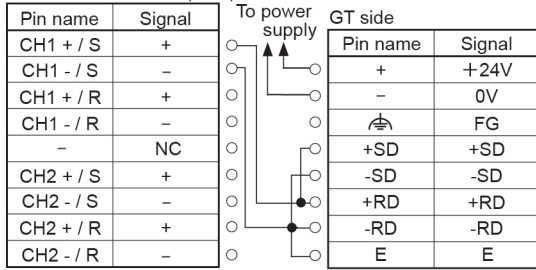


Terminal resistance switch : ON

Wiring between FP7 communication cassette AFP7CCM2 (RS-422/RS-485 2-ch insulated type) and GT series (RS-422/RS-485 type) (RS-485 connection)

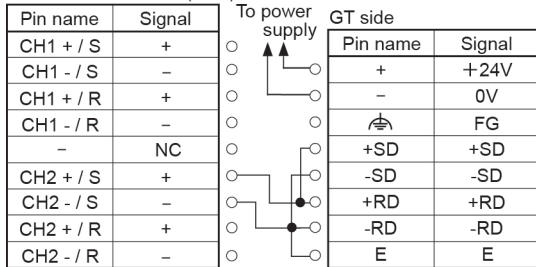
- 1:1 connection

FP7 side AFP7CCM2(CH1)



Terminal resistance switch : ON

FP7 side AFP7CCM2(CH2)

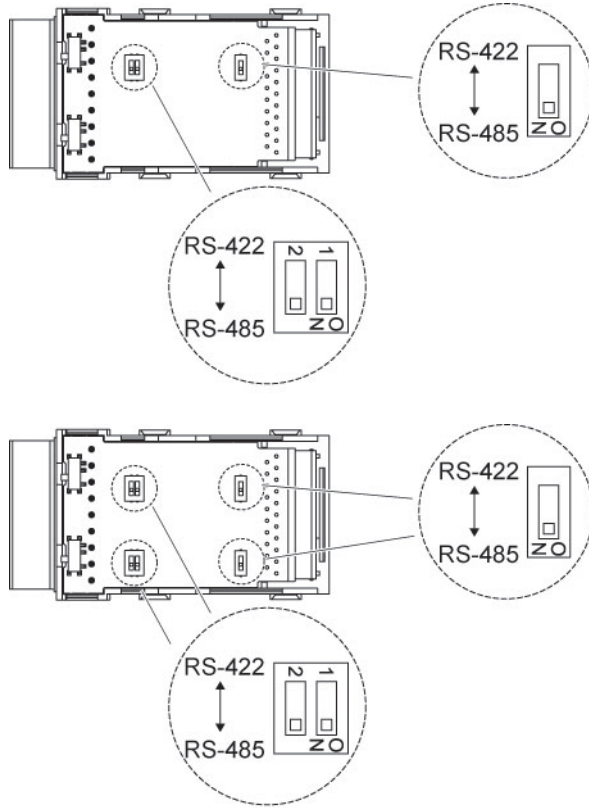


Terminal resistance switch : ON

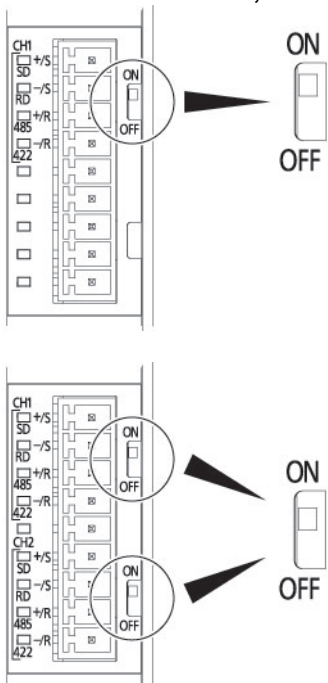
Note) As for the PLC multiple and GT link function connections, refer to the connection diagrams in the previous page.

Settings on FP7

Set the on-board switches of each cassette to "RS-485".



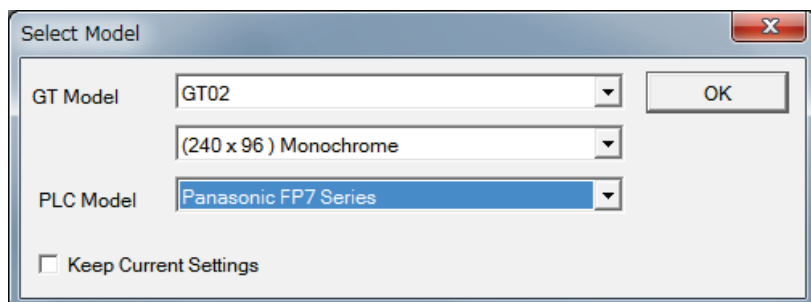
For RS-485 connection, set the termination resistance switches of each cassette to "ON".



3. Settings of GT Series (GTWIN)

3.1 Creating New GT Series Screen Data

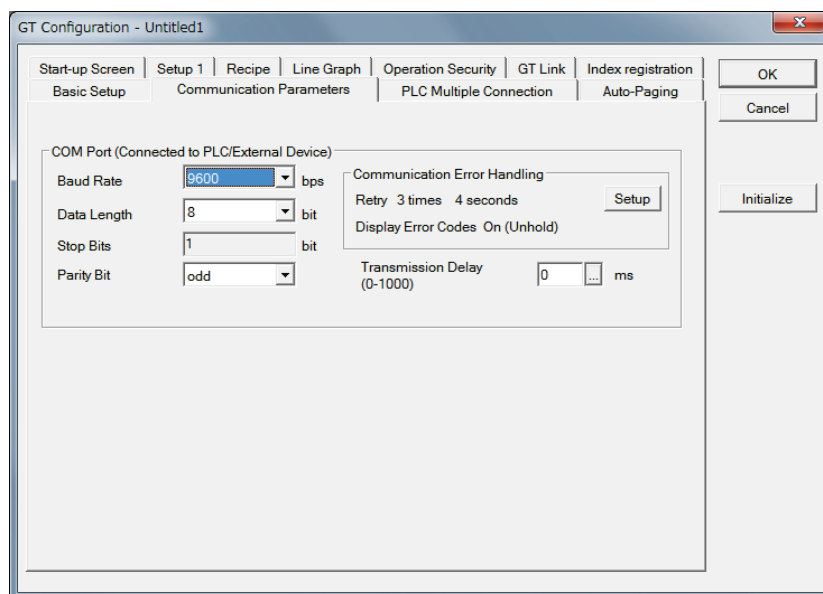
For creating screen data to connect with FP7, "Panasonic FP7 series" should be selected for PLC Model. Select "Panasonic FP7 series" for PLC Model on the GTWIN screen for creating a new file.



When selecting a GT model that is not supported for FP7, "Panasonic FP7 series" cannot be selected for PLC Model. Use a GT model supported for FP7.

3.2 Communication Parameters of GT Series

For connecting GT series and FP7, the communication parameters of GT series and FP7 should be set with GTWIN. Select "File" - "Configuration" - "GT Configuration" from the menu of GTWIN, and set the parameters in the "Communication Parameters" page.

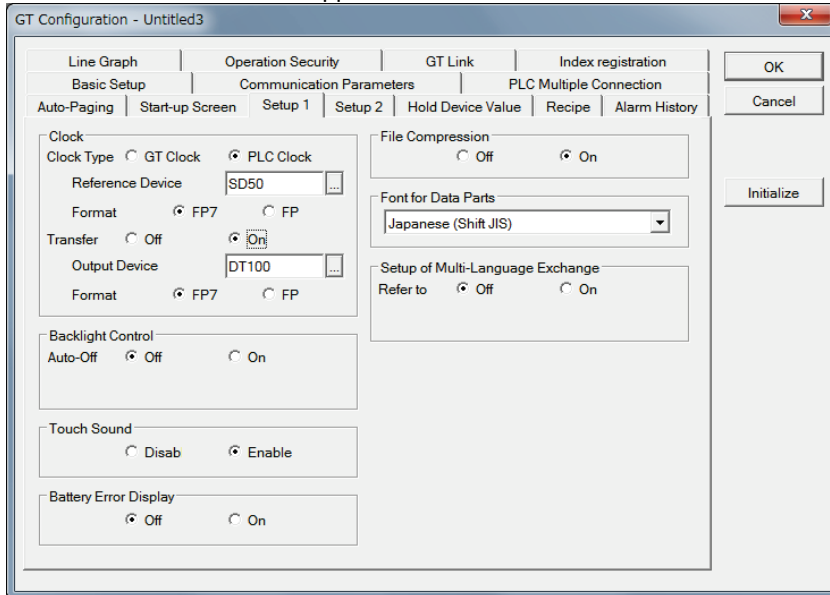


Settings

Baud rate	Select a baud rate. Set the same baud rate as that of FP7.	
Data length	Select a data length. Set the same data length as that of FP7.	
Parity bit	Select a communication parity. Set the same parity as that of FP7.	
Retry	Set the number of retries when a communication error occurs. Communication is retried for the specified number of times. When communication is not achieved, it is considered as an error.	
Wait	Set the wait time for a response being returned from PLC after the transmission of a command from GT to PLC. When no response is received within the specified wait time, the process is retried.	
Display error code	Select whether error codes are displayed at the top right of the screen or not when errors including a communication error are detected.	
	"Off"	Error codes are not displayed.
	"On (Hold)"	Error codes are displayed. Once an error is detected, the error code is held even after recovery from the error state.
	"On (Unhold)"	Error codes are displayed. When the GT is recovered from an error, the error code display is cleared.
Transmission delay	For connecting with RS232C or RS422, specify "0". For connecting with RS485, adjust the setting with the GT and FP7 actually connected.	

3.3 Clock Setting

The reference format of PLC internal clock for "Panasonic FP7 series" is different from that for traditional "Panasonic FP series". GT supports the both formats. Select either FP7 or FP format.



Select from "Clock" - "Format" and "Transfer" - "Format" in "Setup 1" of GT Configuration. The FP7 clock data is stored in SD50 to 56. To refer to the internal clock of FP7, set "Reference Device" to SD50.

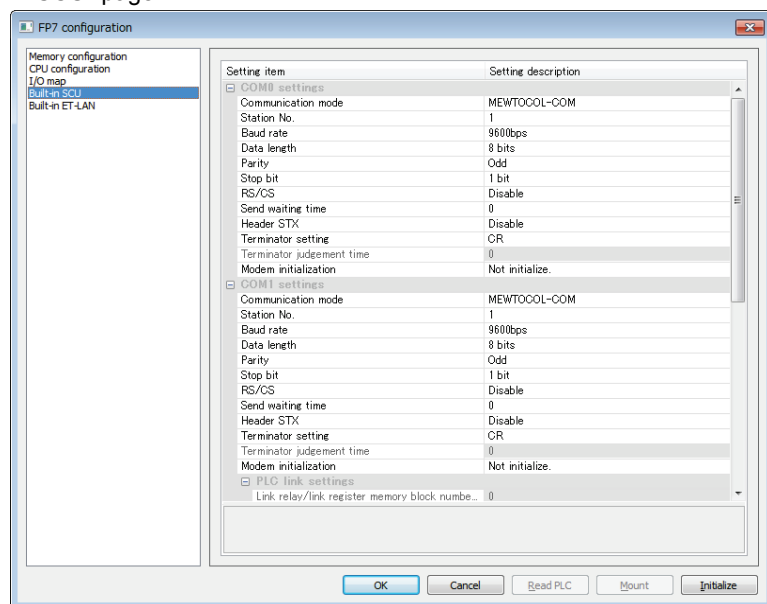
PLC internal clock data storage device and format

Panasonic FP series		Panasonic FP7 series	
Reference device No.	Data format (Hex)	Reference device No.	Data format (Binary)
DT90054 (DT9054)	Higher: Minute (H00 - H59) Lower: Second (H00 - H59)	SD50	Year (Last two digits of year: U1 - U99)
DT90055 (DT9055)	Higher: Day (H01 - H31) Lower: Hour (H00 - H23)	SD51	Month (U1 - U12)
DT90056 (DT9056)	Higher: Year (H01 - H99) Lower: Month (H01 - H12)	SD52	Day (U1 - U31)
DT90057 (DT9057)	Higher: None Lower: Day of the week (H00 - H06)	SD53	Hour (U0 - U23)
		SD54	Minute (U0 - U59)
		SD55	Second (U0 - U59)
		SD56	Day of the week (U0 - U6)

Note) Although the clock data of FP7 is stored in SD50 to SD56, any values cannot be written in these areas. Therefore, the FP7 internal clock cannot be changed even by using the clock transfer function. Update the FP7 internal clock by TIMEWT instruction after outputting the data to data register, etc. using the clock transfer function.

4. Settings for FP7

For connecting GT series and FP7, the communication parameters of FP7 should be set with FPWIN GR7. Execute "Option" - "FP7 Configuration" menu in FPWIN GR7, and set the parameters in the "Built-in SCU" page.



Settings

COM0	Set when connecting the COM0 port of FP7 and GT.
COM1 settings	Set when connecting the 1CH of 1-ch or 2-ch type communication cassette and GT.
COM2 settings	Set when connecting the 2CH of 2-ch type communication cassette and GT.
Communication mode	Select "MEWTOCOL-7".
Unit number	Set a desired unit number. When using the PLC multiple connection, the unit number specified by GTWIN corresponds to this unit number.
Baud rate	Set the same "Baud Rate" as that specified in GTWIN "GT Configuration" - "Communication Parameters" - "Baud Rate".
Data length	Set the same "Data Length" as that specified in GTWIN "GT Configuration" - "Communication Parameters" - "Data Length".
Parity	Set the same "Parity" as that specified in GTWIN "GT Configuration" - "Communication Parameters" - "Parity".
Stop bit	Select "1".
RS/CS	Select "Disable".
Send waiting time	For connecting with RS232C or RS422, specify "0". For connecting with RS485, adjust the setting with the GT and FP7 actually connected.
Header STX	Select "Disable".
Modem initialization	Select "Not initialize".

5. FP7 Devices

The following FP7 devices can be used from GT series.

Type	Symbol	No. range	Output	Local	Slot	
Bit	Input memory	X	0 - 511F	Yes	Yes	No
	Output memory	Y	0 - 511F	Yes	Yes	No
	Internal relay	R	0 - 2047F	Yes	Yes	No
	Link relay	L	0 - 1023F	Yes	Yes	No
	Timer contact	T	0 - 4095	No	Yes	No
	Counter contact	C	0 - 1023	No	Yes	No
	Pulse relay	P	0 - 255F	No	Yes	No
	Error alarm relay	E	0 - 255F	No	No	No
	System relay	SR	0 - 149F	No	No	No
	Direct input	IN	0 - 63F	No	No	Yes
	Direct output	OT	0 - 63F	Yes	No	Yes
	Link register	LD	0.0 - 16383.F	Yes	Yes	No
	Data register	DT	0.0 - 999423.F	Yes	Yes	No
	Unit memory	UM	0.0 - 524287.F	Yes	Yes	Yes
Word	Input memory	WX	0 - 511	Yes	Yes	No
	Output memory	WY	0 - 511	Yes	Yes	No
	Internal relay	WR	0 - 2047	Yes	Yes	No
	Link relay	WL	0 - 1023	Yes	Yes	No
	System relay	WS	0 - 149	No	No	No
	Link register	LD	0 - 16383	Yes	Yes	No
	Data register	DT	0 - 999423	Yes	Yes	No
	System data	SD	0 - 119	No	No	No
	Direct input	WI	0 - 63	No	No	Yes
	Direct output	WO	0 - 63	Yes	No	Yes
Unit memory	UM	0 - 524287	Yes	No	Yes	
Double word	Timer set value	TS	0 - 4095	Yes	Yes	No
	Timer elapsed value	TE	0 - 4095	Yes	Yes	No
	Counter set value	CS	0 - 1023	Yes	Yes	No
	Counter elapsed value	CE	0 - 1023	Yes	Yes	No
	Index register	I	0 - E	Yes	No	No

Note) The device range that can be actually used differs according to settings.

Output

Output is not possible from GT to the devices marked as "No" in "Output" in the above table.
The setting items related to output cannot be set on GTWIN.

Local devices

The devices marked as "Yes" in "Local" in the above table can be used as local devices. For using them as local devices, specify the program block numbers. Program block numbers can be specified in the range of 1 to 468, and they are expressed as "PB?_" before symbols.

Slot specification

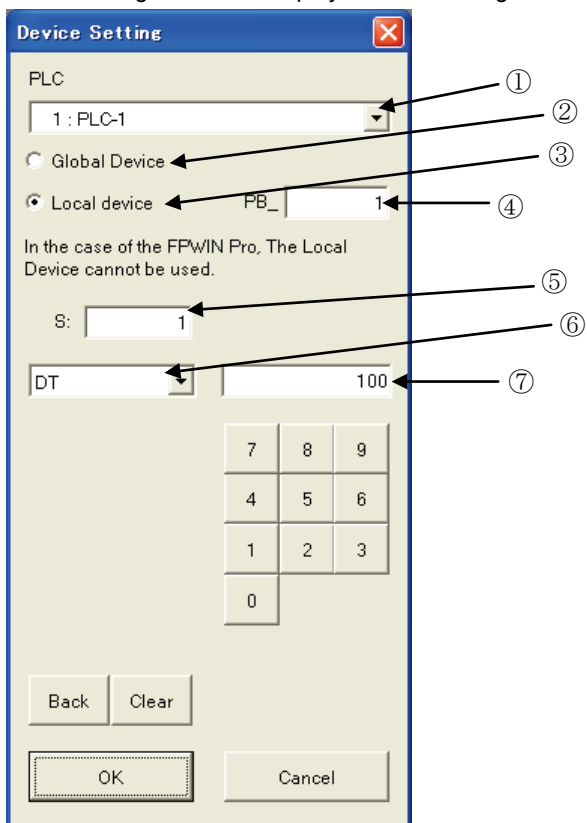
As for the devices marked as "Yes" in "Slot" in the above table, the slot numbers should be specified. Slot numbers can be specified in the range of 1 to 16, and they are expressed as "S?:" before symbols.

Bit specification of link register, data register and unit memory

For using a link register, data register or unit memory as bit devices, the bit numbers should be specified. Bit numbers are specified next to "." (period) after device numbers.

6. Device Setting using GTWIN

The following window is displayed when setting devices on GTWIN.



	Setting item	Description
①	PLC	Select the unit number when using the PLC multiple connection function. This item is displayed only when the PLC multiple connection function is set in the GT configuration setting.
②	Global device	Select when specifying a global device.
③	Local device	Select when specifying a local device.
④	Program block No.	Set the program block number when selecting Local Device. This item is available only when selecting Local Device.
⑤	Slot No.	Specify a slot number. This item is available only when the device with slot specification has been selected.
⑥	Device type	Select a device type.
⑦	Device No.	Specify a device number.

The device input can be directly input not from the above-mentioned screen. When inputting the device directly, input as below.

For global device without slot number specification, input [Device type (symbol)] + [Device No.].

Example) For input memory 511F

X511F

For local device, input [PB] + [Program block No.] + [] + [Device type (symbol)] + [Device No.].

Example) For program block No. 100 and internal relay R200

PB100_R200

For the case with slot number specification, [S] + [Slot No.] + [:] + [Device type (symbol)] + [Device No.].

Example) For slot No. 15 and unit memory UM100

S15:UM100

Record of changes

Manual No.	Date	Description of changes
WUME-GTCONF7-01	Mar.2013	First Edition
WUME-GTCONF7-02	Nov.2013	Second Edition

Please contact

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