Pro-face

Device/PLC Connection Manuals

About the Device/PLC Connection Manuals

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

2.2 Omron

2.2.1 System Structure

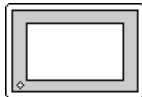The following describes the system structure for connecting the GP to Omron PLCs.

Reference *The Cable Diagrams mentioned in the following tables are listed in the section titled "2.2.2 Cable Diagrams".*

⚠ **Important** **If the PLC is used in RUN mode, "PLC COM. ERROR (02: 01)" may briefly display. The GP subsequently forces the PLC to enter the MONITOR mode (data can be written to the PLC, while it is in RUN mode); data communication will not be affected.**

■ SYSMAC C Series (using Link I/F)

CPU	Link I/F	Cable Diagram	Cables	GP
	Upper Link Unit	⟷	⟷	
C200H	C200H-LK201 [*1] C120-LK201-V1 [*2]	RS-232C (Cable Diagram 1)	Digital's GP410-IS00-O (5m)	
	C200H-LK202 [*1] C120-LK202-V1 [*2]	RS-422 (Cable Diagram 2)		
C200HS	C200H-LK201 [*1] C120-LK201-V1 [*2]	RS-232C (Cable Diagram 1)	Digital's GP410-IS00-O (5m)	
	C200H-LK202 [*1]	RS-422 (Cable Diagram 2)		
	CPU unit Link I/F [*3]	RS-232C (Cable Diagram 3)	Digital's GP000-IS03-MS (3m)	
C500, C500F, C1000H, C2000, C2000H	C120-LK201-V1 [*2]	RS-232C (Cable Diagram 1)	RS-232C Digital's GP410-IS00-O (5m)	GP Series
	C120-LK202-V1 [*2]	RS-422 (Cable Diagram 2)		
	C500-LK201-V1 [*1]	RS-232C (Cable Diagram 1) RS-422 (Cable Diagram 2)		
	C500-LK203 [*1]	RS-232C (Cable Diagram 1) RS-422(Cable Diagram 4)		
C1000HF	C500-LK203 [*1]			
C20H, C28H, C40H	CPU unit Link I/F [*3]	RS-232C (Cable Diagram 5)		
C120, C120F	C120-LK201-V1 [*2]	RS-232C (Cable Diagram 1)	Digital's GP410-IS00-O (5m)	
	C120-LK202-V1 [*2]	RS-422 (Cable Diagram 2)		

* 1 Base installation type.
* 2 CPU installation type.
* 3 Connect to the RS-232C port.

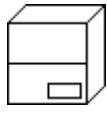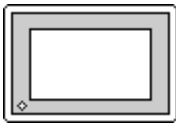| CPU	Link I/F	Cable Diagram	Cables	GP
CQM1-CPU42	RS-232C Port on CPU unit	RS-232C (Cable Diagram 3)	Omron's RS-232C cable XW2Z-200S (2m) XW2Z-500S (5m) Digital's GP000-IS03-MS (3m)	GP Series
SRM1-C02 CPM2A	CPM1-CIF01	RS-232C (Cable Diagram 3)	Omron's RS-232C cable XW2Z-200S (2m) XW2Z-500S (5m) Digital's GP000-IS03-MS (3m)	
	RS-232C Port on CPU unit			
	CPM1-CIF11	RS-422 (Cable Diagram 9)		
CPM1-20CDR-A	CPM1-CIF01	RS-232C (Cable Diagram 3)	Omron's RS-232C cable XW2Z-200S (2m) XW2Z-500S (5m) Digital's GP000-IS03-MS (3m)	
	CPM1-CIF11	RS-422 (Cable Diagram 9)		
CQM1H-CPU21	RS-232C Port on CPU unit	RS-232C (Cable Diagram 3)	Omron's RS-232C cable XW2Z-200S (2m) XW2Z-500S (5m) Digital's GP000-IS03-MS (3m)	
CPM2C	Peripheral port on CP2C-CIF01	RS-232C	Omron's cable CS1W-CN114 and CQM1-CIF01are required.	
	RS-232C port on CPM2C-CIF01	RS-232C (Cable Diagram 3)	Omron's RS-232C cable XW2Z-200S (2m) XW2Z-500S (5m) Digital's GP000-IS03-MS (3m)	
CQM1H-CPU51 CQM1H-CPU61	CQM1H-SCB41 *1	RS-422 (1:n communication) *2 (Cable Diagram 12)	OMRON's B500-AL001 link adaptor *3	GP Series *4
		RS-422 (1:n communication) *2 (Cable Diagram 13)		

*1 Use the RS-422A/485 port, which is port 2 of the COM1H-SCB41 series communication board.

*2 When "n" COM1H-CPU51/CCM1H-CPU61 units are connected to one GP unit for communication, the maximum for "n" is 8.

*3 The RS-422 communication port on the PLC is a D-sub. For 1:n connections, use OMRON's link adaptor or terminal block.

*4 Within the GP70 series units, this applies only to the GP377 series.

■ SYSMAC C Series (CPU Direct Connection)

CPU [*1]	Cables	GP
C200HS, SRM1-C02, CQM1-CPU11, CQM1-CPU42, CPM1-20CDR-A, CQM1H-CPU21 [*2] CPM2C [*2]	Omron Isolation Cable CQM1-CIF01	GP Series

*1 Connect to a peripheral port.

*2 Omron's cable (CSIW-CN114) is required.

STOP

The CQM1-CPU11 has only one peripheral port, so a programming console cannot be used at the same time with the GP.
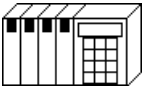
Careful!
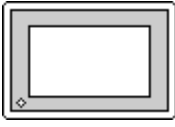
If power to CQM1 is turned OFF while it is connected to the GP, "RUN" (operation) will stop. To change CQM1 to RUN mode when the power is turned back ON, change the CQM1's [Power ON Operation Mode Setting] to [RUN].

■ SYSMAC-α Series (using Link I/F)
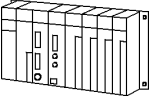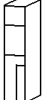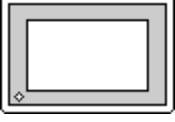
CPU	Link I/F	Cable Diagram	Cables	GP
	Communication board			
C200HX-CPU85-Z C200HE-CPU64 C200HG-CPU44 C200HG-CPU42 C200HG-CPU63 C200HG-CPU43	C200HW-COM06	RS-232C (Cable Diagram 3) RS422 (Cable Diagram 6)	Omron's RS232C cable XW2Z-200S (2m) XW2Z-500S (5m) Digital's RS232C cable GP000-IS03-MS (3m)	
C200HE-CPU42-Z	RS-232C Port on CPU unit	RS-232C (Cable Diagram 3)	Omron's RS232C cable XW2Z-200S (2m) XW2Z-500S (5m) Digital's RS232C cable GP000-IS03-MS (3m)	GP Series
	C200H-LK202-V1	RS-422 (Cable Diagram 2)		
C200HX-CPU64-Z	C200H-LK201-V1	RS-232C (Cable Diagram 1)	Digital's RS232C cable GP410-IS00-0 (5m)	

■ **SYSMAC CV Series** (using Link I/F)

CPU	Link I/F	Cable Diagram	Cables	GP
	Upper Link Unit			
CV500, CV1000, CVM1	CV500-LK201	RS-232C <SIO port 1 connection> (Cable Diagram 1) RS-232C <SIO port 2 connection> (Cable Diagram 7) RS422 <SIO port 2 connection> (Cable Diagram 8)	RS232C (SIO port 1 connection) Digital's GP410-IS00-O (5m)	GP Series
	CPU unit Link I/F [*1]	RS-232C (Cable Diagram 7) RS422 (Cable Diagram 8)		
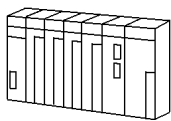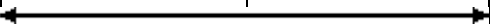
1 Connect to the Host Link Port

■ **SYSMAC CS1 Series** (1:1)

CPU	Link I/F	Cable Diagrams	Cables	GP
CS1H-CPU67 CS1H-CPU66 CS1H-CPU65 CS1H-CPU64 CS1H-CPU63 CS1G-CPU45 CS1G-CPU44	RS-232C port for CPU unit	RS-232C (Cable Diagram 3)	Digital's GP000-IS03-MS(3m) Omron's XW2Z-200S(2m) XW2Z-500S(5m)	
CS1G-CPU43 CS1G-CPU42 CS1H-CPU67H	Peripheral Port for CPU unit	RS-232C [*1] (Cable Diagram 11)	Omron's CS1W-CN225 [*1] CS1W-CN625 [*1]	GP Series
CS1H-CPU66H CS1H-CPU65H	CS1W-SCU21	RS-232C (Port 1,2) (Cable Diagram 3)	Digital's GP000-IS03-MS(3m)	
CS1H-CPU64H CS1H-CPU63H	CS1W-SCB21	RS-232C (Port 1,2) (Cable Diagram 3)	Omron's	
CS1G-CPU45H CS1G-CPU44H	CS1W-SCB41	RS-232C (Port 1) (Cable Diagram 3)	XW2Z-200S(2m) XW2Z-500S(5m)	
CS1G-CPU43H CS1G-CPU42H		RS-422 (Port 2) (Cable Diagram 10)		
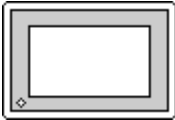
*1 When connecting to the peripheral port, a particular cable is needed between GP and the CS1W-CN*25 cable, refer to this section's Cable Diagram 11 for the required cable.*

■ SYSMAC CJ Series

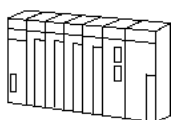| CPU	Link I/F	Cable Diagrams	Cables	GP
CJ1G-CPU44 CJ1G-CPU45	Peripheral port on CPU unit	RS-232C (Cable Diagram 11)	Digital's CS1W-CN225 [*1] CS1W-CN625 [*1]	
	RS-232C port on CPU unit	RS-232C (Cable Diagram 3)	Digital's GP000-IS03-MS (3m) Omron's XW2Z-200S (2m) XW28-500S (5m)	GP Series
	CJ1W-SCU41	RS-232C (Port 2) (Cable Diagram 3)	Digital's GP000-IS03-MS (3m) Omron's XW2Z-200S (2m) XW28-500S (5m)	
	CJ1W-SCU41	RS-422 (Port 1) (Cable Diagram 10)		

*1 When connecting to the peripheral port, another cable is required between the GP and the CS1W-CN*25 cable. For details, refer to this section's Cable Diagram 11.*

■ SYSMAC CJ1MSeries

CPU	Link I/F	Cable Diagrams	Cables	GP
CJ1M-CPU12 CJ1M-CPU13 JP1M-CPU22 JP1M-CPU23	Peripheral port on CPU unit	RS-232C (Cable Diagram 11)	Digital's CS1W-CN225 [*1] CS1W-CN625 [*1]	
	RS-232C port on CPU unit	RS-232C (Cable Diagram 3)	Digital's GP000-IS03-MS (3m) Omron's XW2Z-200S (2m) XW28-500S (5m)	GP Series
	CJ1W-SCU41	RS-232C (Port 2) (Cable Diagram 3)	Digital's GP000-IS03-MS (3m) Omron's XW2Z-200S (2m) XW28-500S (5m)	
	CJ1W-SCU41	RS-422 (Port 1) (Cable Diagram 10)		

*1 When connecting to the peripheral port, another cable is required between the GP and the CS1W-CN*25 cable. For details, refer to this section's Cable Diagram 11.*

██ **2.2.2** ▶   **Cable Diagrams**

The cable diagrams illustrated below and the cable diagrams recommended by Omron Corp. may differ; in any case, using these cables for your PLC operations will not cause any problems.

Careful!   *Ground your PLC's FG terminal according to your country's applicable standard. For details, refer to the corresponding PLC manual.*

Important
- **Connect the FG line of the Shield cable to either the GP or PLC, depending on your environment. When using a connector hood and grounding the FG line, be sure to use an electrical conductor.**

- **For the RS-232C connection, use a cable length less than 15m.**

Cable Diagram 1 (RS-232C)
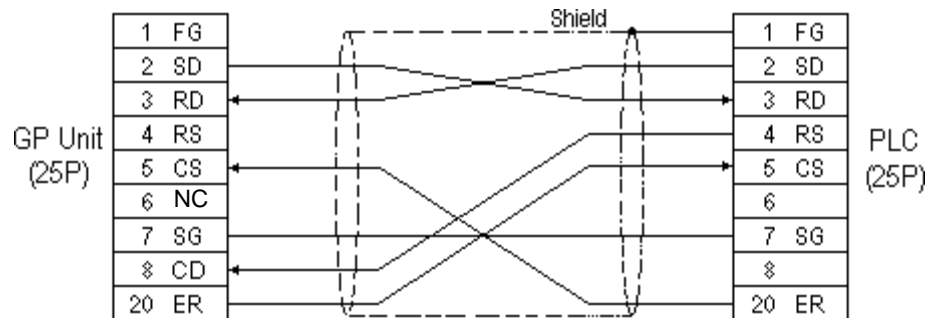
Cable Diagram 2 (RS-422)

 Important

• *Turn on the* **Termination Resistor** *switch, on the PLC.*

• *Signals A and B are opposite on the GP and PLC.*

• When using Digital's RS-422 connector terminal adapter GP070-CN10-0
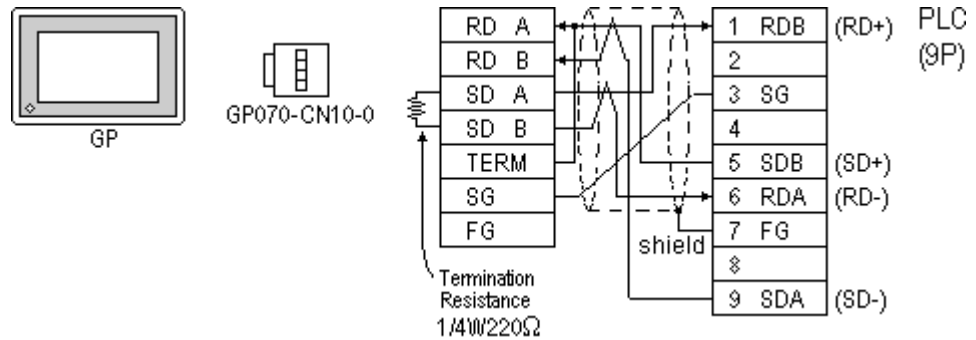
• When using Digital's RS-422 Cable, GP230-IS11-0
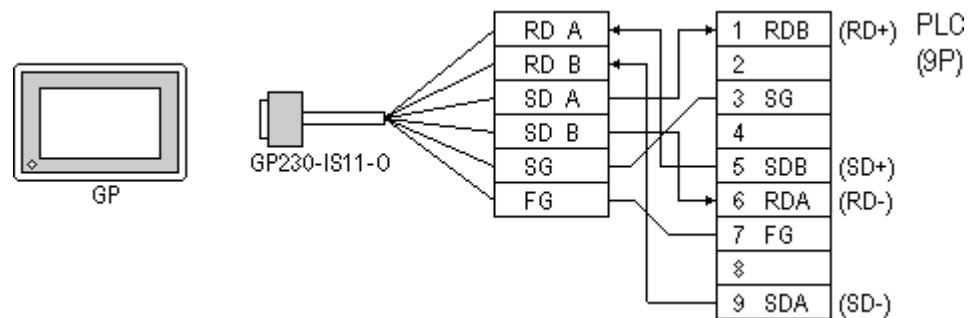
• When making your own cable connections
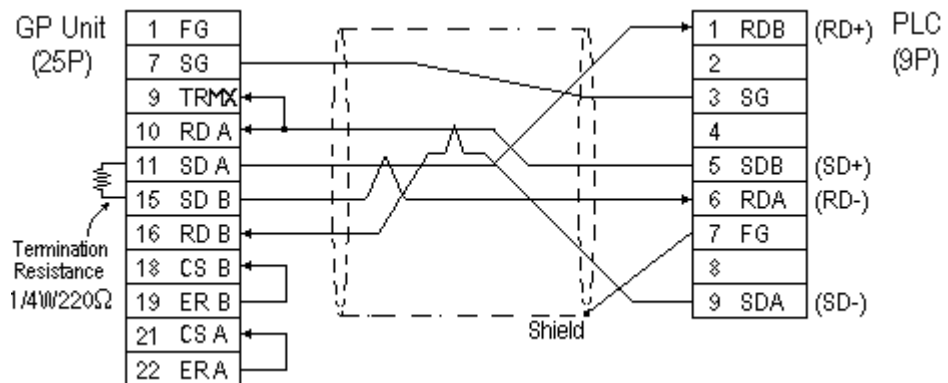
Note: When making your own cable connections, we recommend using Hirakawa Densen's H-9293A (CO-HC-ESV-3P*7/0.2) cable.

Important
- *When connecting the #9 and #10 pins in the GP Serial I/F, a termination resistance of 100Ω is added between RDA and RDB.*
- *If a shielded cable is connected to the RS-422 port, it must be no longer than 500 meters.*
- *If a communications cable is used, it must be connected to the SG (signal ground).*

Cable Diagram 3 (RS-232C)

Note: While the above connection diagram will differ slightly from the Omron XW2Z-200S (2m) and XW2Z-500S (5m) RS-232C cables, the system will operate smoothly using this design.

Cable Diagram 4 (RS-422)

Important
- *Turn the* **PLC's Termination Resistor** *switch ON.*
- *Signals A and B are opposite on the GP and PLC.*

• When using Digital's RS-422 connector terminal adapter GP070-CN10-0
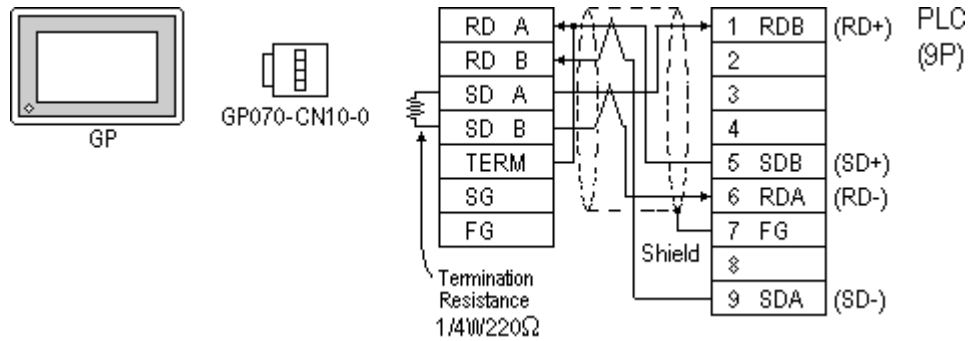
• When using Digital's RS-422 Cable, GP230-IS11-0
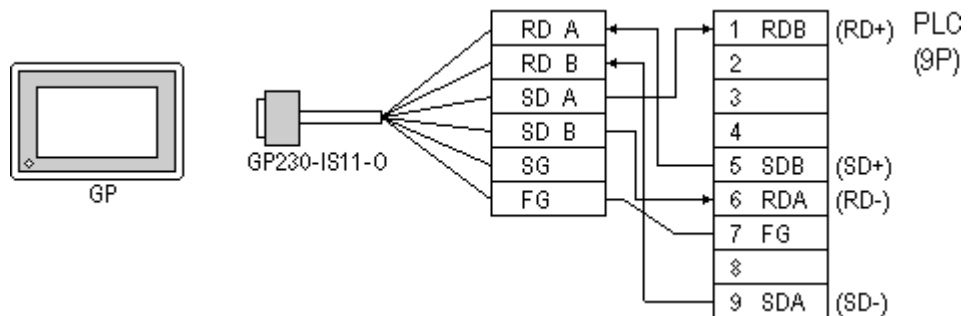
• When making your own cable connections
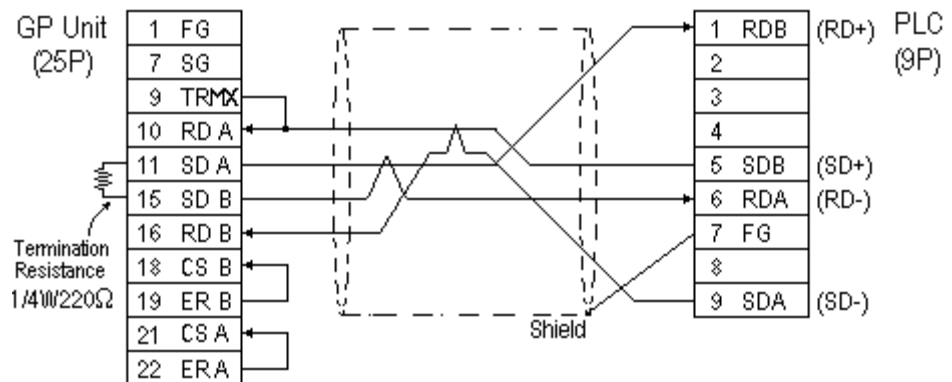
Note:
- **When making your own cable connections, we recommend using Hirakawa Densen's H-9293A (CO-HC-ESV-3P*7/0.2) cable.**
- **When connecting the #9 and #10 pins in the GP Serial I/F, a termination resistance of 100Ω is added between RDA and RDB.**

Cable Diagram 5 (RS-232C)

Note: **Hirakawa Densen's H-9293A (CO-HC-ESV-3P*7/0.2) cable is recommended as the connection cable.**

Cable Diagram 6 (RS-422)

Important
- *Turn on the* **Termination Resistor** *switch, on the PLC side.*
- *Signals A and B are opposite on the GP and PLC.*
- *The connector and the connector hood, listed below, are included with the Communication board.*

  Connector   *XW2A-0901*

  Connector Hood   *XW2S-0901*

• When using Digital's RS-422 connector terminal adapter GP070-CN10-0
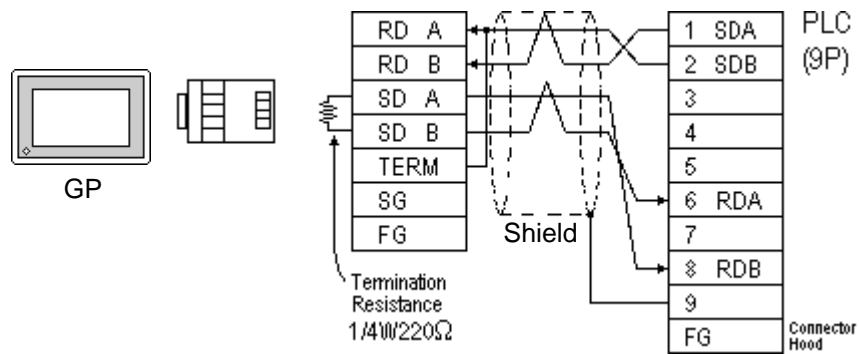
• When using Digital's RS-422 connector terminal adapter GP230-IS11-0
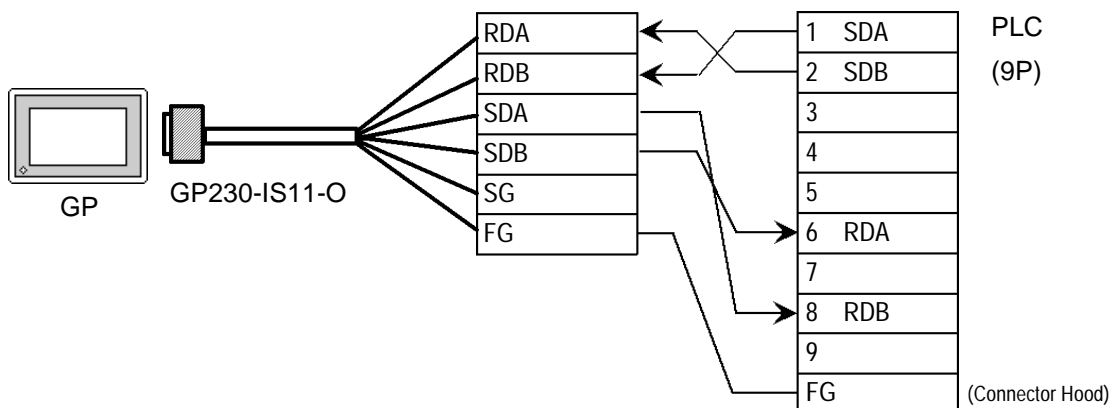
• When making your own cable connections
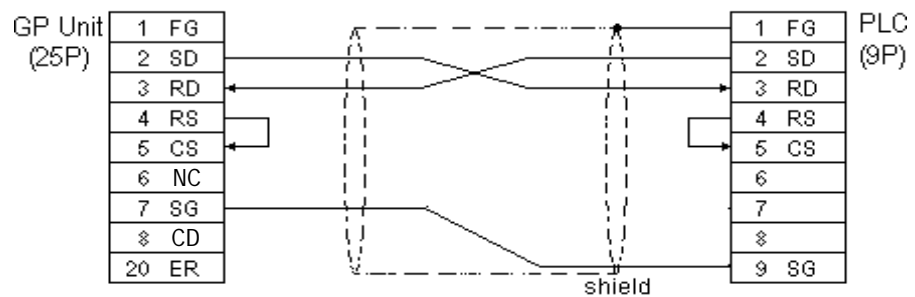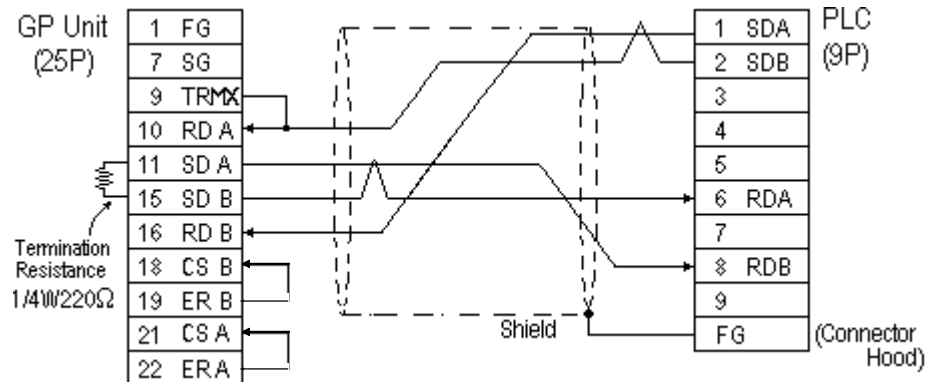

Note:

• **When making your own cable connections, we recommend using Hirakawa Densen's H-9293A (CO-HC-ESV-3P*7/0.2) cable.**

• **When connecting the #9 and #10 pins in the GP Serial I/F, a termination resistance of 100Ω is added between RDA and RDB.**

Cable Diagram 7 (RS-232C)
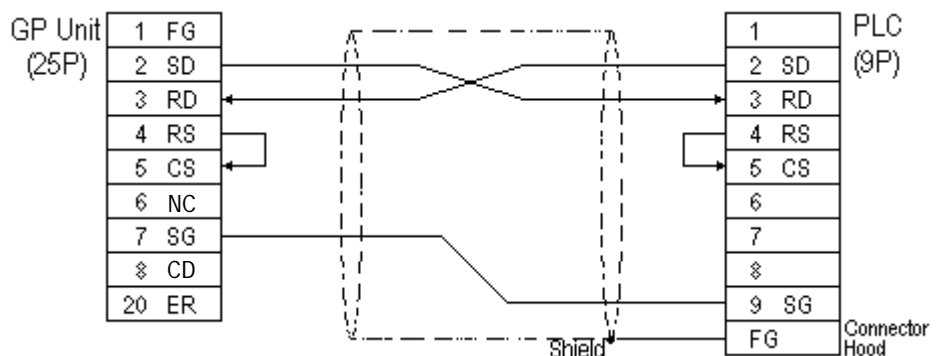
Note:

• **One each of the connector and connector hood, listed below, are included with the CV500/CV1000 CPU unit. Only these connectors listed below can be used.**

    Connector   XM2A-0901

    Connector Hood   XM2S-0911

• **Hirakawa Densen's H-9293A (CO-HC-ESV-3P*7/0.2) cable is recommended as the connection cable.**

Cable Diagram 8 (RS-422)

Important

- *Setup the PLC's RS-232C/RS-422 toggle switch to RS-422.*

- *Turn on the Termination Resistor switch, on the PLC side.*

- *Signals A and B are opposite on the GP and PLC*

- *The connector and connector hood, listed below, are included with the CV500/CV1000 CPU unit. Only these connectors can be used.*
 *1 Connector   XM2A-0901*
  1 Connector Hood   XM2S-0911

• When using Digital's RS-422 connector terminal adapter GP070-CN10-0
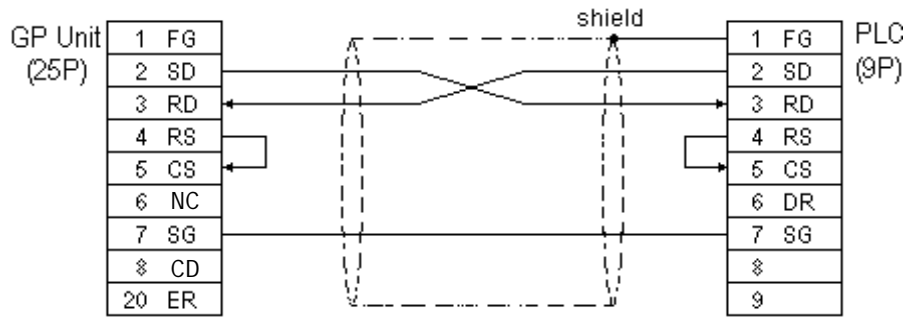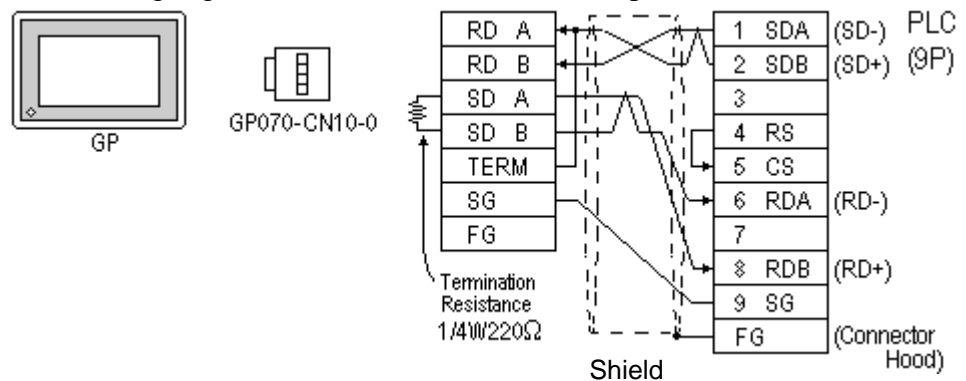

• When using Digital's RS-422 Cable, GP230-IS11-0
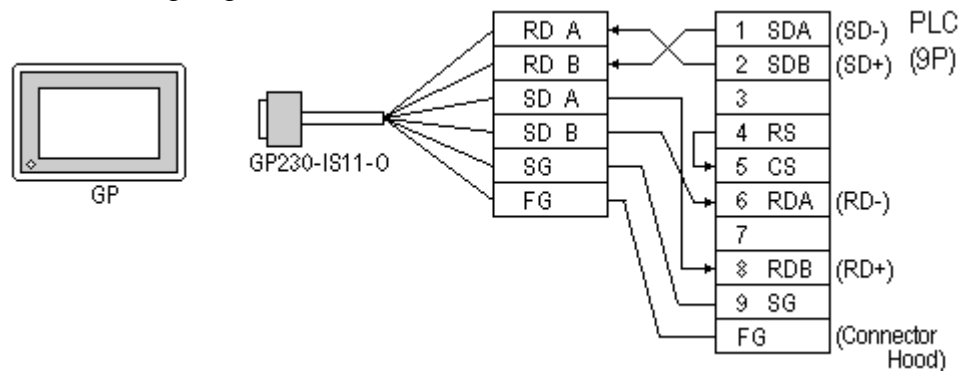
• When making your own cable connections

Note: • When making your own cable connections, we recommend using Hirakawa Densen's H-9293A (CO-HC-ESV-3P*7/0.2) cable.

• When connecting the #9 and #10 pins in the GP Serial I/F, a termination resistance of 100Ω is added between RDA and RDB.

Cable Diagram 9 (RS-422)

• When using Digital's RS-422 connector terminal adapter GP230-IS11-0

• When making your own cable connections
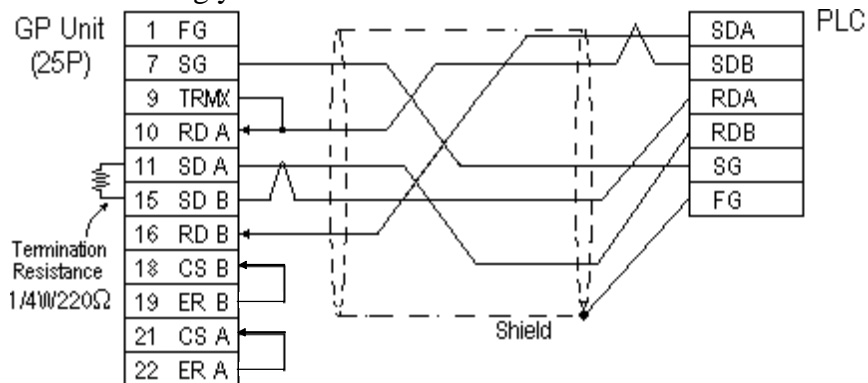
Cable Diagram 10 (RS-422)

• When using Digital's RS-422 connector terminal adapter GP070-CN10-0

PLC

(9P)

RS-422	RDA		1 SDA
GP	RDB		2 SDB
	SDA		6 RDA
	SDB		8 RDB
GP070-CN10-O	TERM		FG (Connector hood)
Termination Resistance 220Ω	SG		
	FG		

Shield

• When making your own cable connection

PLC

(9P)

Shield

RS-422	1 FG		1 SDA
GP(25P)	7 SG		2 SDB
	9 TRMX		6 RDA
	10 RDA		8 RDB
Termination Resistance 220Ω	11 SDA		FG (Connector hood)
	15 SDB		
	16 RDB		
	18 CSB		
	19 ERB		
	21 CSA		
	22 ERA		
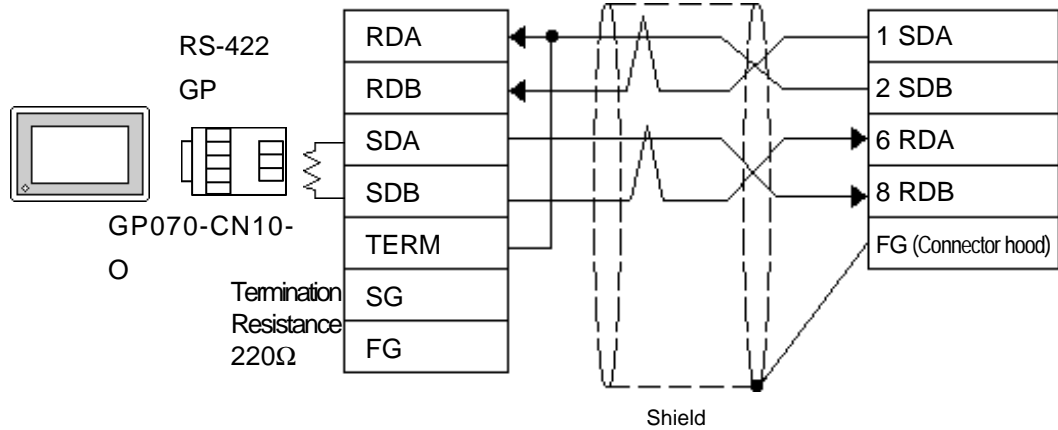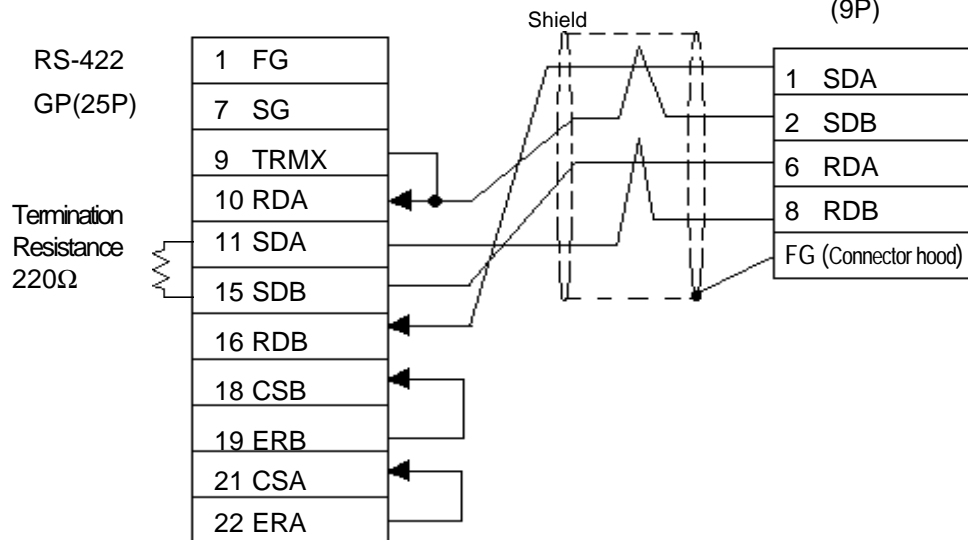
Note:

• **Turn ON the PLC's termination resistance switch.**

• **When connecting the #9 and #10 pins in the GP Serial I/F, a termination resistance of 100Ω is added between RDA and RDB.**

• **Be aware the A and B signals of the GP and PLC are opposite to each other.**

• **The cable length must be 500 meters or less.**

• **The Hiraga Hutech's CO-HC-ESV-3PX7/0.2 cable is recommended for this connection.**

Cable Diagram 11 (RS-232C)

RS-232C
GP's 25p

PLC,s
Peripheral Cable's
25pin side

1	FG		1	FG
2	SD	→	2	RD
3	RD	←	3	SD
4	RS		4	CS
5	CS		5	RS
7	SG		7	SG

CS1W-CN225(2m) or
CS1W-CN625(6m)
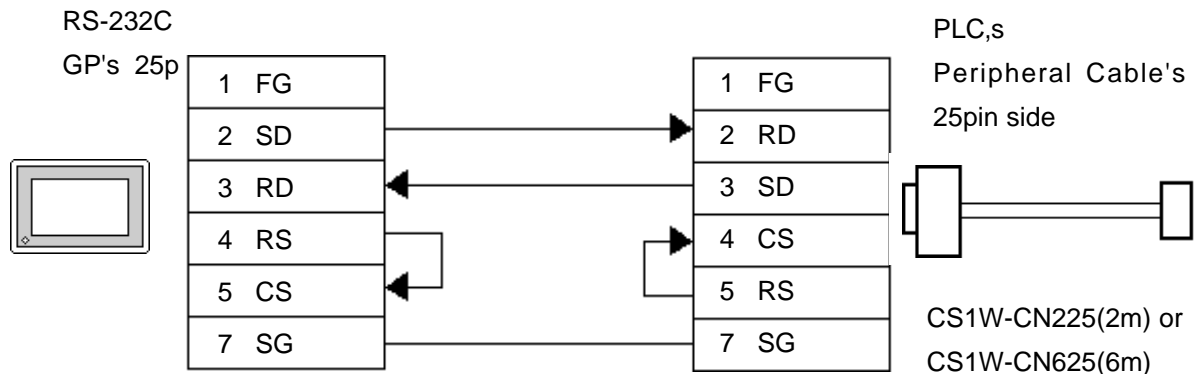
Cable Diagram 12 (RS-422, 4-wire type)

⚠ Important

- *Hiraga Hutech's CO-HC-ESV-3P*7/0.2 cable is recommended for this connection.*

- *Ground one end of the communication cable to either the RS-422A/RS-485 connector hood on the serial communication board, or to the GP.*

- *The PLC has no SG connector, but its internal signal line is electrically insulated. Therefore, the SG connector on the GP/GLC requires no connection.*

- *Set the termination resistance selector switch, [TERM] on the terminating SYSMAC-COM1H, to the "ON" position. If two units of PLCs are connected to the GP/GLC, the one having the longer distance for communication becomes the terminating station.*

- *Set the 2-wire/4-wire selector switch, [WIRE] on the PLC to the "4" position.*

- *The maximum cable length for RS-422/RS-485 communication is 500 meters. The total branch line length for T-branching is 10 meters. In the following cable diagram, the communication distance between the GP and No. n unit is covered by the total length of the cable i.e. main cable and branches. In cable diagram 1, No. 0 and No. 1 units are connected by a branch line.*

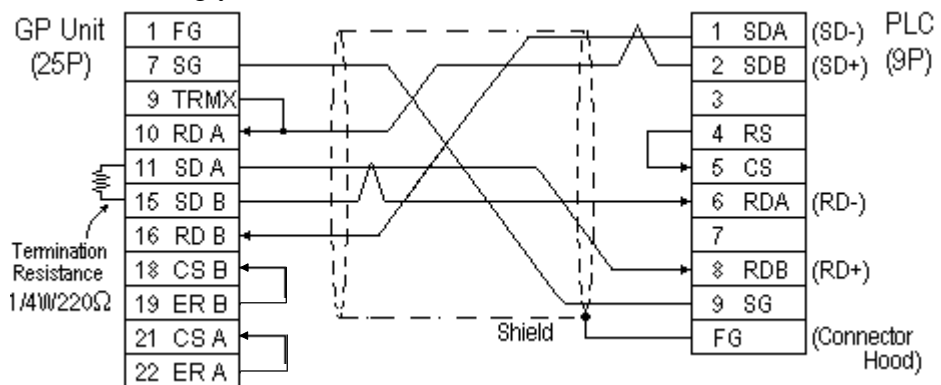- *To connect the PLC, use OMRON's B500-AL001 link adaptor or a terminal block.*

• When using Digital's RS-422 connector terminal adapter GP070-CN10-0

• When using Digital's RS-422 cable GP230-IS11-0

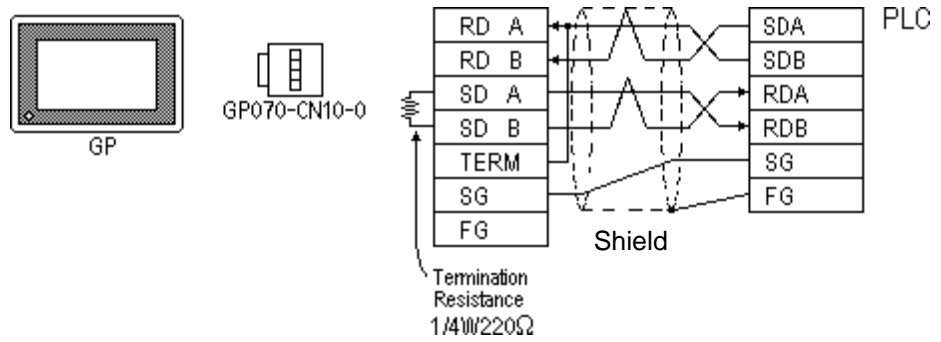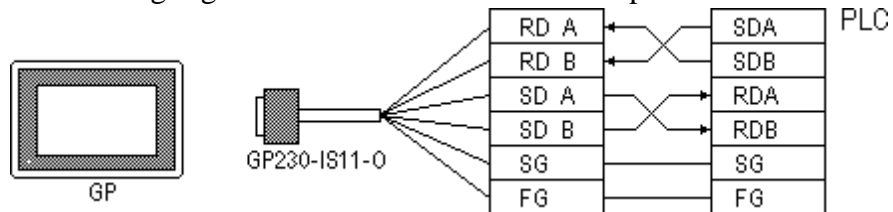• When making your own cable connection

Cable Diagram 13 (RS-422, 4-wire type)

⚠
Important

- *Hiraga Hutech's CO-HC-ESV-3P*7/0.2 cable is recommended for this connection.*

- *Ground one end of the communication cable to either the RS-422A/RS-485 connector hood on the serial communication board, or to the GP.*

- *The PLC has no SG connector, but its internal signal line is electrically insulated. Therefore, the SG connector on the GP/GLC requires no connection.*

- *Set the termination resistance selector switch, [TERM] on the terminating SYSMAC-COM1H, to the "ON" position. If two units of PLCs are connected to the GP/GLC, the one having the longer distance for communication becomes the terminating station.*

- *Set the 2-wire/4-wire selector switch, [WIRE] on the PLC to the "4" position.*

- *The maximum cable length for RS-422/RS-485 communication is 500 meters. The total branch line length for T-branching is 10 meters. In the following cable diagram, the communication distance between the GP and No. n unit is covered by the total length of the cable i.e. main cable and branches. In cable diagram 1, No. 0 and No. 1 units are connected by a branch line.*

- *To connect the PLC, use OMRON's B500-AL001 link adaptor or a terminal block.*

• When using Digital's RS-422 connector terminal adapter GP070-CN10-0

• When using Digital's RS-422 cable GP230-IS11-0

• When making your own cable connection

 2.2.3 **Supported Devices**

The following describes the range of devices supported by the GP.

■ SYSMAC C Series

 Setup System Area here.

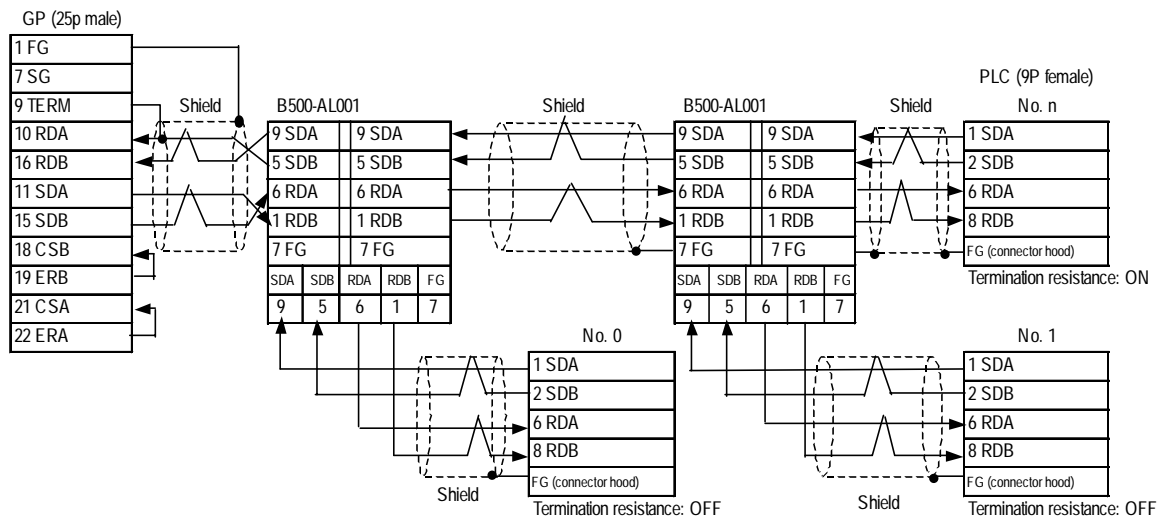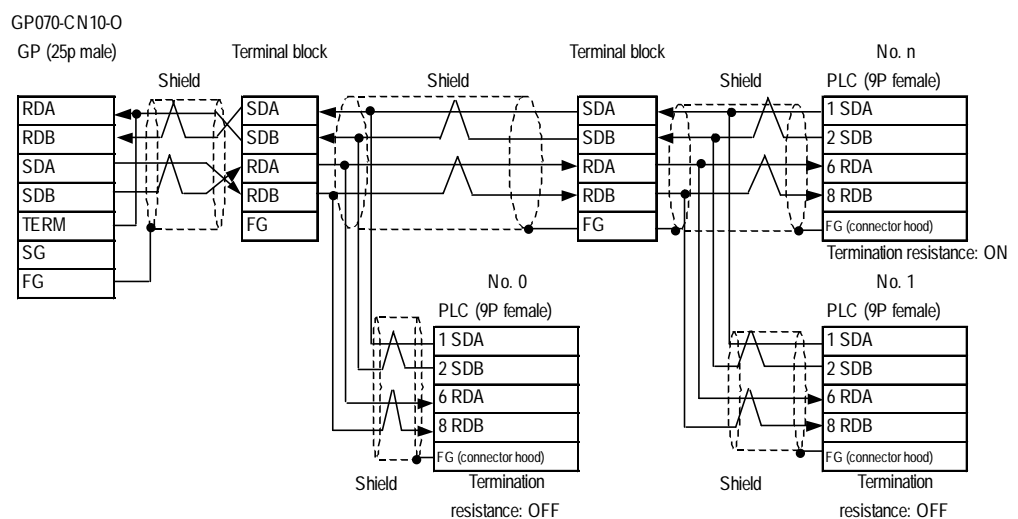| Device	Bit Address	Word Address	Particulars	
I/O Relay	00000 ~ 51115	000 ~ 511	*1	
Internal Hold Relay				
Special Hold Relay				
Analog Setup Value Storage Area	22000 ~ 22315	220 ~ 223	*2	
Data Link Relay	LR0000 ~ LR6315	LR00 ~ LR63		
Auxilary Memory Relay	AR0000 ~ AR2715	AR00 ~ AR27		L/H
Latch Relay	HR0000 ~ HR9915	HR00 ~HR99		
Timer (contact)	TIM000 ~ TIM511	---		
Counter (contact)	CNT000 ~ CNT511	---		
Timer (current value)	---	TIM000 ~ TIM511		
Counter (current value)	---	CNT000 ~ CNT511		
Data Memory	---	DM0000 ~ DM9999	Bit 5	

* 1 *Depending on the CPU, differ the range of each supported device and the possibility of Data wirte. Before using, refer to each CPU User Manual.*

* 2 *Can only be used by CQM1-CPU42.*

STOP · **The method of writing bits will differ depending on the GP series.**

<GP-*30 series>

When the bit write operation (other than *Reverse*) is performed, the corresponding word address will set the bits to 0 (except the designated bits).

<Except GP-*30 series>

When the bit write operation is performed, the GP reads the PLC's corresponding word address and turns a bit ON, then send back to PLC. Do not write to the word address from the ladder program in the middle of this operation.

· **When running a GP-*30 Series ladder program, be aware of the above points.**

■ SYSMAC Series (COM1H-CPU51/COM1H-CPU61)

☐ Setup System Area here.

Device	Bit Address	Word Address	Particulars
Input Relay	00000 ~ 24315	000 ~ 243	*1
Internal Hold Relay			*2
Special Hold Relay	24400 ~ 25507	244 ~ 255	
Link Relay	LR0000 ~ LR6315	LR00 ~ LR63	
Latch Relay	HR0000 ~ HR9915	HR00 ~ HR99	
Auxiliary Memory Relay	AR0000 ~ AR2715	AR00 ~ AR27	L/H
Timer (contact)	TIM000 ~ TIM511	---	
Counter (contact)	CNT000 ~ CNT511	---	
Timer	---	TIM000 ~ TIM511	
Counter	---	CNT0100 ~ CNT511	
Data Memory	---	DM0000 ~ DM6655	Bit 15 *3 *5
Extended Data Memory	---	EM0000 ~ EM6143	Bit 15 *4

*1 Some addresses do not exist in the I/O relay/internal hold relay's address range. For further information, refer to OMRON's Users' manual for SYSMAC-COM1H.

*2 The bit addresses for the special hold relay are 24400 to 25415 and 25500 to 25507. Bit addresses 25508 to 25515 are not available.

*3 Designation of first address in system

Each station number is attached to the device name, DM. Select the device name for the station number you want to specify in the [GP SYSTEM SETUP] MODE SETUP and the SET UP OPERATION SURROUNDINGS menu on the offline GP/GLC.

*4 The extended data memory EM is only supported by the COM1H-CPU61.

*5 Do not write any data to the error storage area DM6569 to DM6599 and the PC system setup area DM6600 to DM6655 in the data memory DM. For further information, refer to OMRON's related manual.

🛑 STOP
• **When bit write is selected, the GP reads a word of data from the PLC's corresponding word address, turns a single bit ON, and then sends the entire word of data back to the PLC.**

When the GP reads data from the PLC and writes it to the PLC, the data may not be written correctly if data is written to the same word address using the ladder program.

Note:
- **When parts and tags are created in GP-PRO/PBIII, the PLC station number is attached to each device. The station numbers range from 0 to 7. This means that eight options are available for each device. See the following illustration:**

Word Address


```
2   HR 00
          └─── Address
      └─────── Device name
└──────────── Unit number of CQM1H series
```
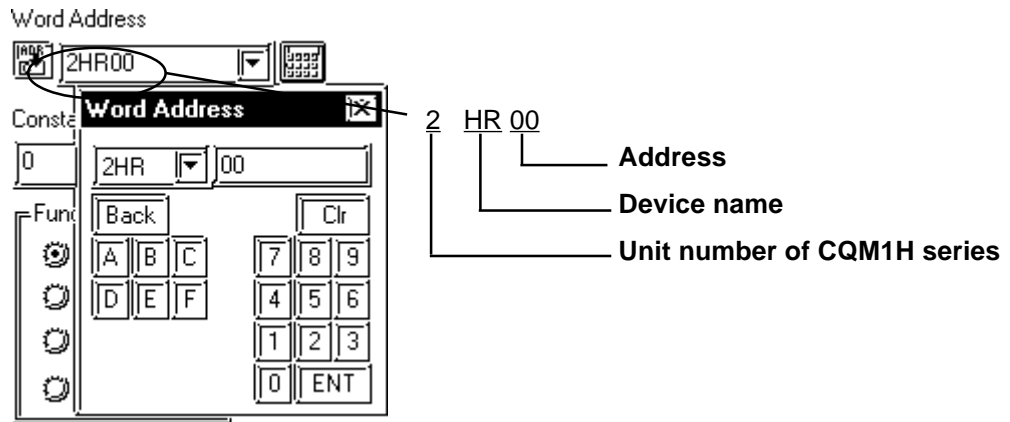
■ SYSMAC-α Series

Setup System Area here.

Device	Bit Address	Word Address	Particulars	
I/O Relay I	00000 ~ 02915	000 ~ 029		
I/O Relay II	30000 ~ 30915	300 ~ 309		
Internal Hold Relay I	03000 ~ 23515	030 ~ 235		
Internal Hold Relay II	31000 ~ 51115	310 ~ 511		
Special Hold Relay I	23600 ~ 25507	236 ~ 255		
Special Hold Relay II	25600 ~ 29915	256 ~ 299		
Latch Relay	HR0000 ~ HR9915	HR00 ~ HR99		
Auxilary Memory Relay	AR0000 ~ AR2715	AR00 ~ AR27		L/H
Link Relay	LR0000 ~ LR6315	LR00 ~ LR63		
Timer (contact)	TIM000 ~ TIM511	---		
Counter (contact)	CNT000 ~ CNT511	---		
Timer (current value)	---	TIM000 ~ TIM511		
Conter (current value)	---	CNT000 ~ CNT511		
Data Memory	---	DM0000 ~ DM6655	Bit 5]	

STOP
- **The method of writing bits will differ depending on the GP series.**

  <GP-*30 series>

  When the bit write operation (other than *Reverse*) is performed, the corresponding word address will set the bits to 0 (except the designated bits).

 **<Except GP-*30 series>**

  When the bit write operation is performed, the GP reads the PLC's corresponding word address and turns a bit ON, then send back to PLC. Do not write to the word address from the ladder program in the middle of this operation.

- **When running a GP-*30 Series ladder program, be aware of the above points.**

◆ **SYSMAC C or α series communications mode selection**

When using the SYSMAC C or α series with the GP in OFFLINE mode, either mode 2 or mode 1 can be selected during the entry of the initial settings. Be aware you cannot disignate this settings from GP-PRO/PBIII for Windows.

- Mode 2: This is a newly added communications mode. This mode is enabled when less than 64 devices have been designated by a single screen's tags. The communications speed has been improved. Select this mode when using less than 64 devices.

- Mode 1: A communications mode equivalent to the old one. This mode is valid for 64 or more devices have been specified by a single screen's tags. The communications speed has been improved. Select this mode when using 64 or more devices.

⚠
Important

- *If the on-screen data memory area in the GP is initialized or if the on-screen data is transferred from the drawing software, the GP returns to mode 1 (its initial setting). Use the offline settings area to select mode 2.*

- *In mode 2, the communications speed may not always be improved depending on which tags and system area are used, as well as how the read areas are allocated.*

■ SYSMAC-CV Series

☐ Setup System Area here.

Device	Bit Address	Word Address	Particulars	
I/O Relay I	00000 ~ 19915	000 ~ 199		
Internal Hold Relay				
Sysmac BUS/2 Remote I/O Relay	020000 ~ 099915	0200 ~0999		
Data Link Relay	100000 ~ 119915	1000 ~ 1199		
Special Hold Relay	A00000 ~ A51115	A000 ~ A511		
Latch Relay	120000 ~ 149915	1200 ~ 1499		
Internal Aux. Relay	190000 ~ 229915	1900 ~ 2299		L/H
SYSBUS Remote I/O Relay	230000 ~ 255515	2300 ~ 2555		
Timer (contact)	T0000 ~ T1023	---		
Counter (contact)	C0000 ~ C1023	---		
Timer (current value)	---	T0000 ~ T1023		
Conter (current value)	---	C0000 ~ C1023		
Data Memory	---	D0000 ~ D9999	Bit 15	

STOP
• Write operations cannot be performed on the *Timer* and *Counter* bit devices.
• The method of writing bits will differ depending on the GP series.
<GP-*30 series>
When the bit write operation (other than *Reverse*) is performed, the corresponding word address will set the bits to 0 (except the designated bits).
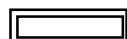
<Except GP-*30 series>
When the bit write operation is performed, the GP reads the PLC's corresponding word address and turns a bit ON, then send back to PLC. Do not write to the word address from the ladder program in the middle of this operation.
• When running a GP-*30 Series ladder program, be aware of the above points.

■ SYSMAC CS1/CJ /CJ1MSeries

In this list, "Exp." means "Expansion".

[▭] Setup system area here.

Device	Bit Address	Word Address	Particulars	
Channel I/O	CI0000000 ~ CI0614315	CI00000 ~ CI06143		
Internal Auxiliary Relay	W00000 ~ W51115	W000 ~ W511		
Hold Relay	H00000 ~ H51115	H000 ~ H511		
Special Auxiliary Relay	A00000 ~ A95915	A000 ~ A959	*1	
Timer(Contact)	T0000 ~ T4095	----	*3	
Counter(Contact)	C0000 ~ C4095	----	*3	
Task Flag (Bit)	TKB00 ~ TKB31	----	*6	
Timer(Current)	----	T0000 ~ T4095		
Counter(Current)	----	C0000 ~ C4095		L/H
Data Memory	D0000000 ~ D3276715	D00000 ~ D32767	*2	
Exp. Data Memory (E0 ~ EC)	E00000000 ~ EC3276715	E000000 ~ EC32767	[Bit 15] *4	
Exp. Data Memory (Current Bank)	----	EM00000 ~ EM32767	[÷ 2] [Bit 15] *5	
Task Flag	----	TK0 ~ TK30	[Bit 31] *3	
Index Register	----	IR0 ~ IR15	[Bit 15] *3	
Data Register	----	DR0 ~ DR15	*3	

1 Addresses A000 to A477 cannot be written to.

2 When using the Communication Unit (CS1W-SCU21/CJ1W-SCU41), addresses D30000 to D31599, since they are used for PLC system settings, should not be written to from the GP.

   When using the Communication Board (CS1W-SCB21/41), addresses D32000 to D32767 are used for PLC settings, should not be written to from the GP.

3 Cannot be written to while running.

4 The range of Expansion Data Memory varies depending on the CPU type.

▽ Reference △ *For details about each device, refer to Omron's SYSMAC CS/ CJ Series Communication Board CS1W-SCB21-/41 Communication CS1W-SCU21/CJ1W-SCU41 Users Manual.*

5 Expansion Data Memory (Current Bank) does not exist on SYSMAC CJ/CJ1M Series.

6 Cannot be written to.

2.2.4   **Environment Setup**

The following lists Digital's recommended PLC and GP communication settings.

■ SYSMAC C Series

GP Setup		Upper Link Unit Setup	
Baud Rate	19200 bps	Baud Rate	19200 bps
Data Length	7 bits	Data Bit	7 bits
Stop Bit	2 bits	Stop Bit	2 bits
Parity Bit	Even	Parity Bit	Even
Data Flow Control	ER Control	---	
Communication Format (RS-232C)	RS-232C	Communication Format [*1] (RS-232C)	RS-232C
Communication Format (RS-422)	4-wire type	Communication Format [*1] (RS422)	RS-422
---		Command Level [*1]	Level 1,2,3 is valid
---		Relation [*1]	1:N
---		DC +5V power supply [*1]	No
---		CTS Setup [*1]	Normally On
---		Mode Setup [*2]	Host Link
---		Communication Conditons Setting Switch [*3]	OFF
---		Communication Port Function Setting Switch [*4]	SW1:OFF SW2:ON
Unit No.	0	Station Number	0

*1   This setup is unavailable for the RS-232C port of C200HS, CQM1 and CPH2A.
*2   This setup is available only for the RS-232C port of C200HS and CQM1.
*3   This setup is available only for CPM2A.
*4   This setup is available only for CPM2C.

■ SYSMAC C Series (CQM1H-CPU51/CQM1H-CPU61)

(1:n Communication)

GP/GLC Settings		PLC Settings	
Baud Rate	9600 bps	Baud Rate	9600 bps
Data Length	7 bits	Data Length	7 bits
Stop Bit	2 bit	Stop Bit	2 bit
Parity Bit	Even	Parity Bit	Even
Data Flow control	ER	———	———
Communication Format	4 wire type	2 wire/4 wire [WIRE]	4 wire
Unit No.	0	Station No.[*1]	0
———		Communication Conditions Format Setting[*2]	0
		Serial Communication Mode Setting[*3]	Host Link
———		Terminator Switch [TERM]	Terminal station: ON Intermediate station: OFF

*1 Although Nos. 00 to 31 can be used for PLC station Nos., the maximum number of PLCs that can communicate with the GP on the 1:n communication basis is eight. Therefore, set up PLC station Nos. within the range of 00 to 07.

*2 Communication Conditions Format Settings: DM6550 (Bits 0 to 3)

DM6550 (Bit 0 to 3)	Communication Settings			
Default: 0	Baud Rate	Data Length	Stop Bit	Parity
(Standard Setting)	9600bps	7 bits	2 bits	Even

*3 Leave the serial communication mode setting DM6550 (bits 12 to 15) set to the default setting, 0.

■ SYSMAC-α Series (using Communication board)

GP Setup		Communication board Setup	
Baud Rate	19200 bps	Baud Rate	19200 bps
Data Length	7 bits	Data Bit	7 bits
Stop Bit	2 bits	Stop Bit	2 bits
Parity Bit	Even	Parity Bit	Even
Data Flow Control	ER Control	---	
Communication Format (RS-232C)	RS-232C	---	
Communication Format (RS-422)	4-wire type	RS-422/485 cable (2-wire/4-wire type) switching setting (dip switch 1)	4
Unit No.	0	Station Number	0

Note: **When using the above list's recommended settings, please perform the following.**
Port A: Store "0001" in DM6555, and store "0304"<HEX> in DM6556.
Port B: Store "0001" in DM6550, and store "0304"<HEX> in DM6551.

■ SYSMAC-α Series (when using the CPU's RS-232C port)

GP Setup		RS-232C port Setup	
Baud Rate	19200 bps	Baud Rate	19200 bps
Data Length	7 bits	Data Bit	7 bits
Stop Bit	2 bits	Stop Bit	2 bits
Parity Bit	Even	Parity Bit	Even
Data Flow Control	ER Control	---	
Communication Format	RS-232C	Using Mode	Host (PLC) Link
Unit No.	0	Station Number	0

Note: **When using the above list's recommended settings, please follow the instructions given here. CPU 232C Port: Store "0001" in DM6645, and store "0304" <HEX> in DM6646.**

■ SYSMAC CV Series

GP Setup		Upper Link Unit Setup	
Baud Rate	19200 bps	Baud Rate	19200 bps
Data Length	7 bits	Data Bit	7 bits
Stop Bit	2 bits	Stop Bit	2 bits
Parity Bit	Even	Parity Bit	Even
Data Flow Control	ER Control	---	
Communication Format (RS-232C)	RS-232C	Communication Format (RS-232C)	RS-232C
Communication Format (RS-422)	4-wire type	Communication Format (RS-422)	RS-422
Unit No.	0 [*1]	Station Number	0 [*1]

*1 When GP is connected to the Port 1 on the Upper Link Unit CV500-LK201, the station number must be fixed as "0". (The station number cannot be set on the PLC.)

■ SYSMAC CS1/CJ/CJ1M Series<CPU unit's RS-232C Port>

GP Setup		PLC Setup	
Baud Rate	19200	Baud Rate	19200
Data Length	7	Data Length	7
Stop Bit	2	Stop Bit	2
Parity Bit	Even	Parity Bit	Even
Data Flow Control	ER	——	——
Communication Format	RS-232C	——	——
Unit No.	0	Station No.	0
——	——	Dip Switch	SW1: OFF SW5: OFF SW7: OFF SW8: OFF
——	——	Mode Setup	Host Link

■ SYSMAC CS1/CJ/CJ1M Series<CPU unit's Peripheral Port>

GP Setup		PLC Setup	
Baud Rate	19200	Baud Rate	19200
Data Length	7	Data Length	7
Stop Bit	2	Stop Bit	2
Parity Bit	Even	Parity Bit	Even
Data Flow Control	ER	——	——
Communication Format	RS-232C	——	——
Unit No.	0	Station No.	0
——	——	Dip Switch	SW1: OFF SW4: ON SW7: OFF SW8: OFF
——	——	Mode Setup	Host Link

■ SYSMAC CS1/CJ/CJ1M Series

< When using the Communication Board /Unit>

GP Setup		PLC Setup	
Baud Rate	19200	Baud Rate	19200
Data Length	7	Data Length	7
Stop Bit	2	Stop Bit	2
Parity Bit	Even	Parity Bit	Even
Data Flow Control	ER	——	——
Communication Format (using RS-232C)	RS-232C	——	——
Communication Format (using RS-422)	4-wire type	WIRE (2-wire/4-wire type Switch)	4-wire type
		TERM (Termination Resistance Switch)	Termiantion Resistance ON
Unit.No	0	Host Link Station No.	0
——	——	Serial Communicaion mode	Host Link
——	——	Communication Delay Time	0
——	——	CTS Control	None