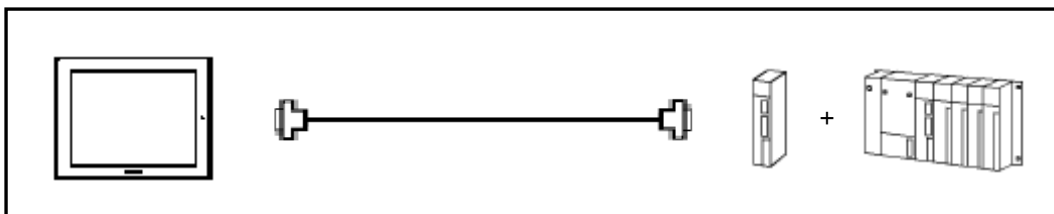# OMRON Corporation PLC

SYSMAC C Series Connection

System Structure

GP

Machine	Model	Remark
GP	GP70 Series GP77/77R Series GP2000 Series	Excepting for handy types.
GLC	GLC2000 Series	

CPU	Host Link Interface	Communication Method	Connection Cable	GP
C500 C500F C1000H C2000 C2000H	C120-LK201-V1 *1	RS-232C	**Connection Method [1]**	
	C120-LK202-V1 *1	RS-422	**Connection Method [2]**	
	C500-LK201-V1 *2	RS-232C	**Connection Method [1]**	
		RS-422	**Connection Method [2]**	
	C500-LK203 *2	RS-232C	**Connection Method [1]**	
		RS-232C	**Connection Method [2]**	
C1000HF	C500-LK203 *2	RS-232C	**Connection Method [1]**	
		RS-422	**Connection Method [3]**	
C120 C120F	C120-LK201-V1 *2	RS-232C	**Connection Method [1]**	
	C120-LK202-V1 *2	RS-422	**Connection Method [2]**	

*1   CPU installation type

*2   Base installation type

OMRON SYSMAC-C Series
(C120 C120F C500 C500F C1000H C2000 C2000H)   2

Procedure to Connect PLC

Select PLC Type on GP-PRO/PB -Package.

Refer to **Selecting PLC Type**

Set the GP and PLC settings as the communication setting sample.

Refer to **Communication Setting Sample**

Set GP communication.
There are 2 ways.
Setting on GP-PRO/PB C-Package and transfer the data
Setting on the Offline of the GP main unit.

Refer to **Communication Settings [GP]**

Set PLC communication.

Refer to **Communication Settings [PLC]**

Connect PLC to GP.
Please check the connection method according to the connection type, or distance.
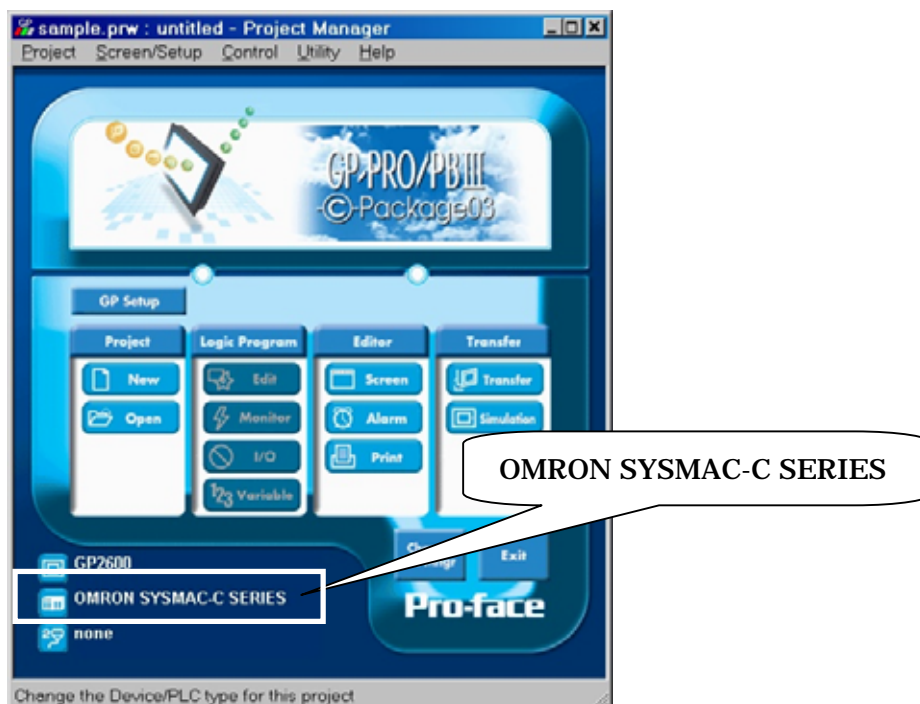
Refer to **Connection Method** & **Recommended Products**

Selecting PLC Type

Start up GP-PRO /PBIII.

Select the following PLC Type when creating the project file.

OMRON SYSMAC-C SERIES

Communication Setting Sample

■ SYSMAC-C Series

GP Setup		PLC Setup	
Baud Rate	19200bps	Baud Rate	19200bps
Data Length	7 bits	Data Length	7 bits
Stop Bit	2 bits	Stop Bit	2 bits
Parity Bit	Even	Parity Bit	Even
Data Flow Control	ER Control	———————	
Communication Format (RS-232)	RS-232C	Communication Format (RS-232)	RS-232C
Communication Format (RS-422)	4 Line	Communication Format (RS-422)	RS-422
———————		Command Level	Level 1,2,and 3 are valid.
———————		Relation	1 to n
———————		5V Power Supply	No
———————		CTS Setup	Normally ON
Unit No.	0	Station Number	0

Communication Settings [GP]

1. [GP-PRO/PB   C-Package Setting]

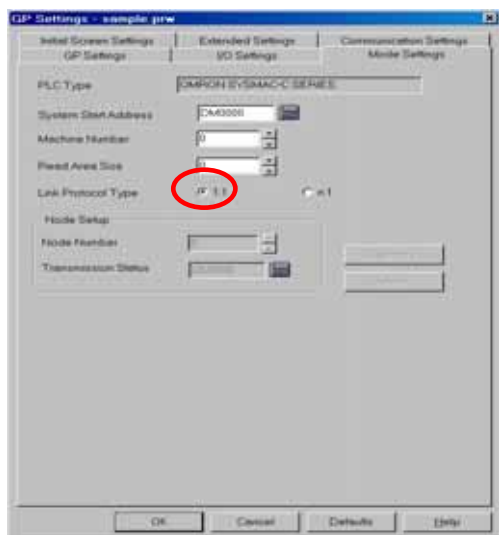Select [GP Setup] on Project Manager.
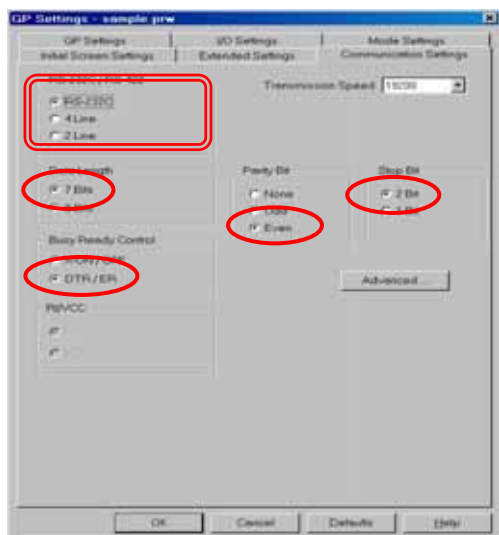
| 1) Communication Settings	1) Communication Settings

	Transmission Speed: 19200bps
	Data Length: 7 Bits
	Stop Bit: 2 Bits
	Parity Bit: Even
	Busy Ready Control: DTR / ER
	RS-232C/ RS-422
	   RS-232C Connection: RS-232C
	   RS-422 Connection: 4 Line
	
	  * Select one in ☐ .

2) Mode Settings	2) Mode Settings
	System Start Address: Arbitrary Address Machine Number: 0 Link Protocol Type: 1:1

Select   [Transfer] -->   [Setup] -->   [Transfer Settings].

3) Transfer Settings
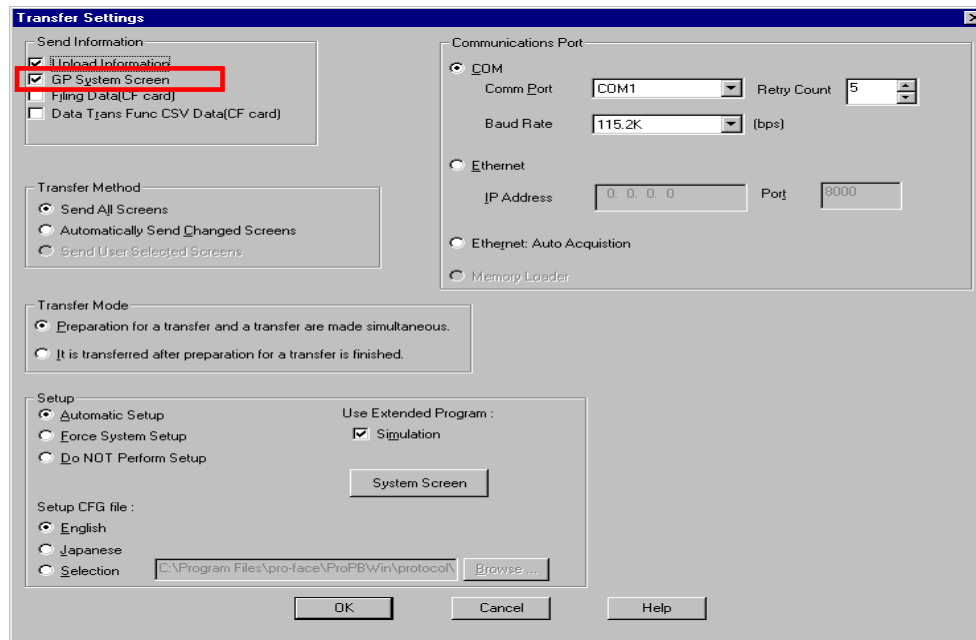
3) Transfer Settings   GP System Settings: Checked
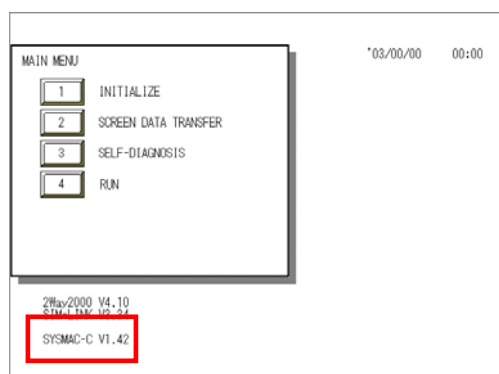
Transfer to GP after settings completed.

2. [GP Settings]

Displaying Setting Screen

Touch the top left of the screen within 10 second after powering on.

Or touch the top right and the bottom right of the screen at the same time. Keep 2 points touched and touch the bottom left. The menu bar will display on the bottom of the screen. Then touch [Offline].
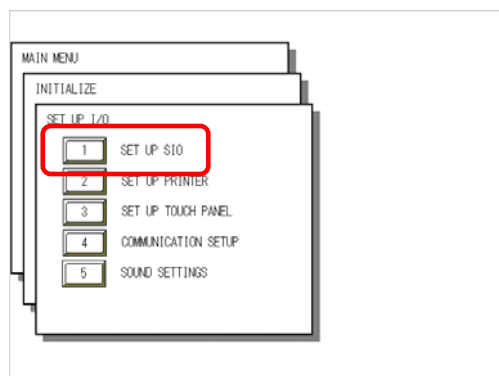
1) Checking GP Type	1) Checking GP Type
MAIN MENU '03/00/00 00:00 1 INITIALIZE 2 SCREEN DATA TRANSFER 3 SELF-DIAGNOSIS 4 RUN 2Way2000 V4.10 SIM-LINK V3.24 SYSMAC-C V1.42	If you have selected OMRON SYSMAC-C Series, following will be shown. "SYSMAC-C"

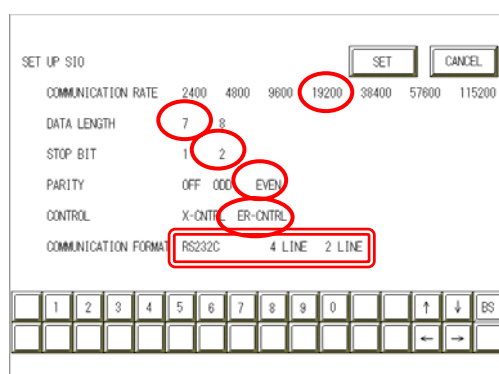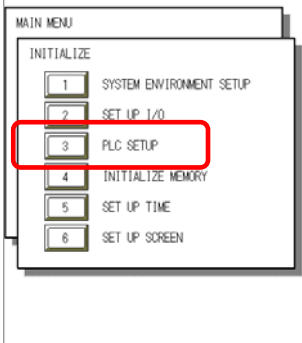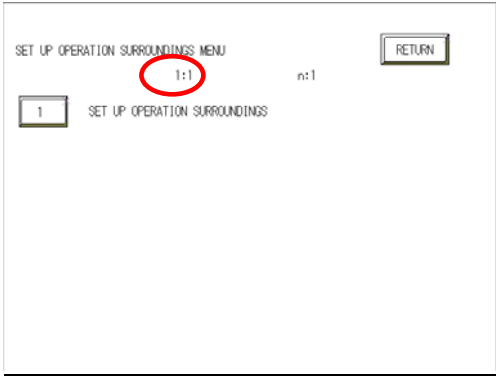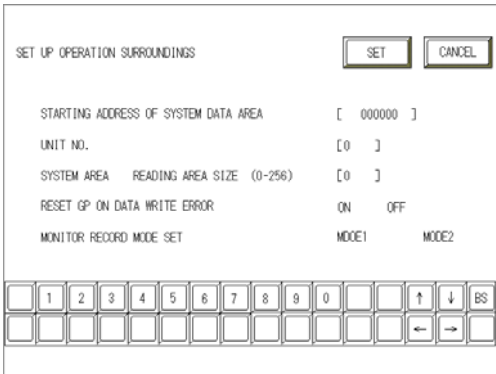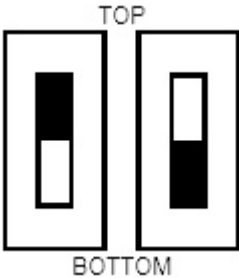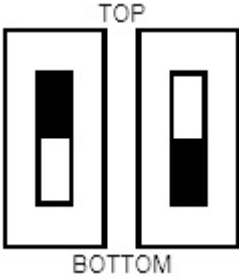| 2) Communication Settings	2) Communication Settings
MAIN MENU INITIALIZE SET UP I/O 1 SET UP SIO 2 SET UP PRINTER 3 SET UP TOUCH PANEL 4 COMMUNICATION SETUP 5 SOUND SETTINGS	[MAIN MENU] ↓ [INITIALIZE] ↓ [SET UP I/O] ↓ [SET UP SIO]

SET UP SIO   SET   CANCEL
COMMUNICATION RATE   2400 4800 9600 19200 38400 57600 115200
DATA LENGTH   7 8
STOP BIT   1 2
PARITY   OFF ODD EVEN
CONTROL   X-CNTRL ER-CNTRL
COMMUNICATION FORMAT RS232C 4 LINE 2 LINE
 	
1 2 3 4 5 6 7 8 9 0 ↑ ↓ BS
← →
	Communication Rate: 19200bps
	Data Length: 7 Bits
	Stop Bit: 2 Bits
	Parity: Even
	Control: ER Cntrl
	Communication Format
	    RS-232C Connection: RS-232C
	    RS-422 Connection: 4 Line
	
	    * Select one in [＿＿＿].
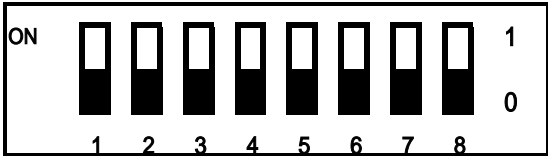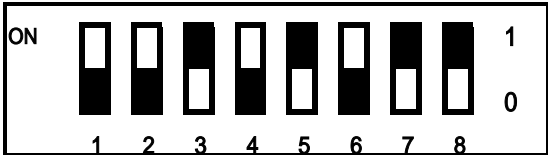
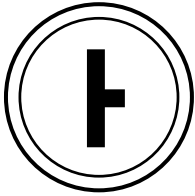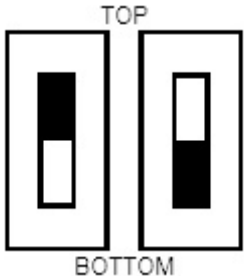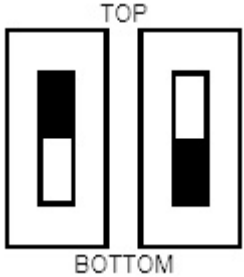| 3) Setting up Operation Surroundings	3) Setting up Operation Surroundings
MAIN MENU INITIALIZE 1 SYSTEM ENVIRONMENT SETUP 2 SET UP I/O 3 PLC SETUP 4 INITIALIZE MEMORY 5 SET UP TIME 6 SET UP SCREEN	[MAIN MENU] ↓ [INITIALIZE] ↓ [PLC SETUP] ↓ [PLC SETUP]
SET UP OPERATION SURROUNDINGS MENU [RETURN] 1:1 n:1 1 SET UP OPERATION SURROUNDINGS	SET UP OPERATION SURROUNDINGS MENU: 1:1
SET UP OPERATION SURROUNDINGS [SET] [CANCEL] STARTING ADDRESS OF SYSTEM DATA AREA [000000] UNIT NO. [0] SYSTEM AREA READING AREA SIZE (0-256) [0] RESET GP ON DATA WRITE ERROR ON OFF MONITOR RECORD MODE SET MODE1 MODE2 1 2 3 4 5 6 7 8 9 0 ↑ ↓ BS ← →	Starting Address of System Data Area: Arbitrary Address Unit No.: 0

Communication Settings [PLC]

1. Host Link Unit C500-LK203 (RS-232C/RS-422 Switchable)

1) 5V Output Switch Settings	1) 5V Output Switch Settings
	Bottom (Not Supply)
2) I/O Port Switch Settings	2) I/O Port Switch Settings
	Top (RS-422) Bottom (RS-232C
3) Sync Switch Settings	3) Sync Switch Settings
	Top (Internal)
4) Termination Resistance Connection Switch Settings	4) Termination Resistance Connection Switch Settings

	RS-232C:
	  Top (Without Termination Resistance)
	RS-422:
	  Bottom (With Termination Resistance)

5) CTS Switch Settings	5) CTS Switch Settings
TOP BOTTOM	Top (0V)

6) Dipswitch 1 Settings	6) Dipswitch 1 Settings
Set the switches to the black. ON ■■■■■■■■ 1 / O 1 2 3 4 5 6 7 8	SW1 – 5 (Station No.): 0 SW6 – 7 (Bit Settings): See below. Data Length: 7 Bits Stop Bit: 2 Bits Parity Bit: Even SW8 (Monitor / Normal): Normal

7) Dipswitch 2 Settings	7) Dipswitch 2 Settings
Set the switches to the black. ON ■■■■■■■■ 1 / O 1 2 3 4 5 6 7 8	SW1 – 4 (Baud Rate): 19200bps SW5 (System): ON SW6 (Relation): 1 to n SW7 - 8 (Level Settings): Level 1,2, and 3 are valid

2. Host Link Unit C500-LK201-V1 (RS-232C/RS-422 Switchable)

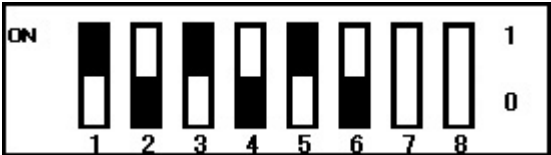| 1) Mode Control Switch Settings	1) Mode Control Switch Settings
      * Set to Host Link.	Host Link
2) I/O Port Switch Settings	2) I/O Port Switch Settings Top (RS-422) Bottom (RS-232C)
3) Sync Switch Settings	3) Sync Switch Settings Top (Internal)

4) Termination Resistance Connection Switch Settings	4) Termination Resistance Connection Switch Settings
	
	RS-232C:
	    Top (Without Termination Resistance)
	RS-422:
	    Bottom (With Termination Resistance)

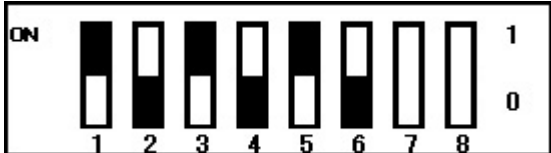| 5) CTS Switch Settings	5) CTS Switch Settings
TOP BOTTOM	Top (0V)
6) Dipswitch 1 Settings **Set the switches to the black.** ON 1 2 3 4 5 6 7 8	6) Dipswitch 1 Settings SW1 – 5 (Station No.): 0 SW6 – 7: Unused SW8 (Run/Stop): Run
7) Dipswitch 2 Settings **Set the switches to the black.** ON 1 2 3 4 5 6 7 8	7) Dipswitch 2 Settings SW1 – 4 (Baud Rate): 19200bps SW5 (System): ON SW6 (Relation): 1 to n SW7 – 8 (Level Settings): Level 1, 2, and 3 are valid.

3. Host Link Unit C120-LK201-V1

1) Dipswitch 1 Settings **Set the switches to the black.** 	1) Dipswitch 1 Settings SW1 – 5 (Station No.): 0 SW6 – 7: Unused SW8 (Run/Stop): Run
2) Dipswitch 2 Settings **Set the switches to the black.** 	2) Dipswitch 2 Settings SW1 – 4 (Baud Rate): 19200bps SW5: Unused SW6 (Relation): 1 to n SW7 – 8 (Level Settings): 　　Level 1, 2, and 3 are valid.
3) Dipswitch 3 Settings **Set the switches to the black.** 	3) Dipswitch 3 Settings SW1 – 2 (CTS Signal): Always ON SW3 – 6 (Sync): Internal Sync SW7 – 8: Unused
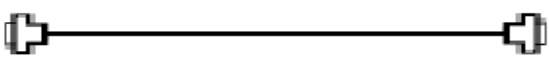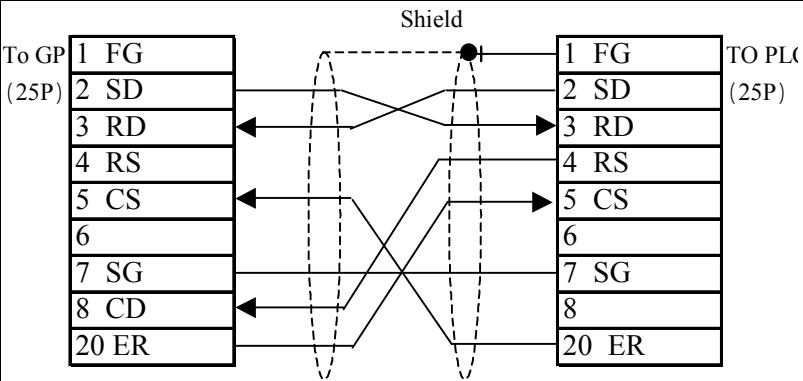
4. Host Link Unit C120-LK202-V1

1) Dipswitch 1 Settings **Set the switches to the black.** 	6) Dipswitch 1 Settings SW1 – 5 (Station No.): 0 SW6 – 7: Unused SW8 (Run/Stop): Run
2) Dipswitch 2 Settings **Set the switches to the black.** 	2) Dipswitch 2 Settings SW1 – 4 (Baud Rate): 19200bps SW5: Unused SW6 (Relation): 1 to n SW7 – 8 (Level Settings): Level 1, 2, and 3 are valid.
3) Dipswitch 3 Settings **Set the switches to the black.** 	3) Dipswitch 3 Settings SW1 – 6 (Terminal Resistance): On SW7 – 8: Unused

OMRON SYSMAC-C Series
(C120 C120F C500 C500F C1000H C2000 C2000H)   14

Connection Method

1. RS-232C Connection

[RS-232C Port on C120-LK201-V1 / C500-LK201-V1 / C500-LK203]

Type	Connection Method	Distance
Using GP410-IS00-O		5m
Creating Cable	To GP 25P — 1 FG, 2 SD, 3 RD, 4 RS, 5 CS, 6, 7 SG, 8 CD, 20 ER / Shield / TO PLC 25P — 1 FG, 2 SD, 3 RD, 4 RS, 5 CS, 6, 7 SG, 8, 20 ER	Within 15

NOTE The option cable GP410-IS00-O is 5 . If you need a longer cable or shorter, please use a User-Created cable to connect.

Recommended Products

Connecter/Cover for GP	D-sub 25 pin Plug	XM2A-2501 <OMRON Co.>
	Cover for D-sub 25 pin	XM2S-2511 <OMRON Co.>
	Jack Screw	XM2Z-0071 <OMRON Co.>
Cable	H-9293A (CO-HC-ESV-3P*7/0.2) <Hirakawa Hewtech Corp.>	
Setscrew	Metric Coarse Screw Tread : M2.6 × 0.45	

2. RS-422 Connection

[C120-LK202-V1 / C500-LK201-V1]

Type	Connection Method	Distance
Using GP230-IS11-O		5
Using GP070-CN10-O		Within 500
Creating Cable		Within 500

! *Important*

* Turn on the termination resistance switch on the PLC.

* Names of Signal A and Signal B are opposite on the GP and the PLC.

* 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-0901

NOTE

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

Recommended Products

Connecter/Cover for GP	D-sub 25 pin Plug	XM2A-2501 \<OMRON Co.\>
	Cover for D-sub 25 pin	XM2S-2511 \<OMRON Co.\>
	Jack Screw	XM2Z-0071 \<OMRON Co.\>
Cable	H-9293A (CO-HC-ESV-3P*7/0.2) \<Hirakawa Hewtech Corp.\>	
Setscrew	Metric Coarse Screw Tread : M2.6 × 0.45	

3. RS-422 Connection

[C500-LK203]

Type	Connection Method	Distance
Using GP230-IS11-O		5
Using GP070-CN10-O		Within 500
Creating Cable		Within 500

Important

* Turn on the termination resistance switch on the PLC.

* Names of Signal A and Signal B are opposite on the GP and the PLC.

NOTE

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

Recommended Products

Connecter/Cover for GP	D-sub 25 pin Plug	XM2A-2501 \<OMRON Co.\>
	Cover for D-sub 25 pin	XM2S-2511 \<OMRON Co.\>
	Jack Screw	XM2Z-0071 \<OMRON Co.\>
Cable	H-9293A (CO-HC-ESV-3P*7/0.2) \<Hirakawa Hewtech Corp.\>	
Setscrew	Metric Coarse Screw Tread : M2.6 × 0.45	