Make Life Easy :

User Manual for Communication

HMI

GP/LP Series (OMRON)

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This user manual contains information about the product and its proper use,
and should be kept in a place where it will be easy to access.

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Preface

Thank you for purchasing Autonics product.
Please familiarize yourself with the information contained in the Safety Considerations section before using this product.
This user manual contains information about the product and its proper use, and should be kept in a place where it will be easy to access.

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User Manual Guide

- Please familiarize yourself with the information in this manual before using the product.
- This manual provides detailed information on the product's features. It does not offer any guarantee concerning matters beyond the scope of this manual.
- This manual may not be edited or reproduced in either part or whole without permission.
- A user manual is not provided as part of the product package. Please visit our website (www.autonics.com) to download a copy.
- The manual's content may vary depending on changes to the product's software and other unforeseen developments within Autonics, and is subject to change without prior notice. Upgrade notice is provided through our website.
- We contrived to describe this manual more easily and correctly. However, if there are any corrections or questions, please notify us these on our website.
- Inner device of this user manual for communication is based on GP.
  If you use LP, refer to "LP user manual" for inner device of LP.

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User Manual Symbols

Symbol	Description
 Note	Supplementary information for a particular feature.
 Warning	Failure to follow instructions can result in serious injury or death.
 Caution	Failure to follow instructions can lead to a minor injury or product damage.
 Ex.	An example of the concerned feature's use.
※1	Annotation mark.

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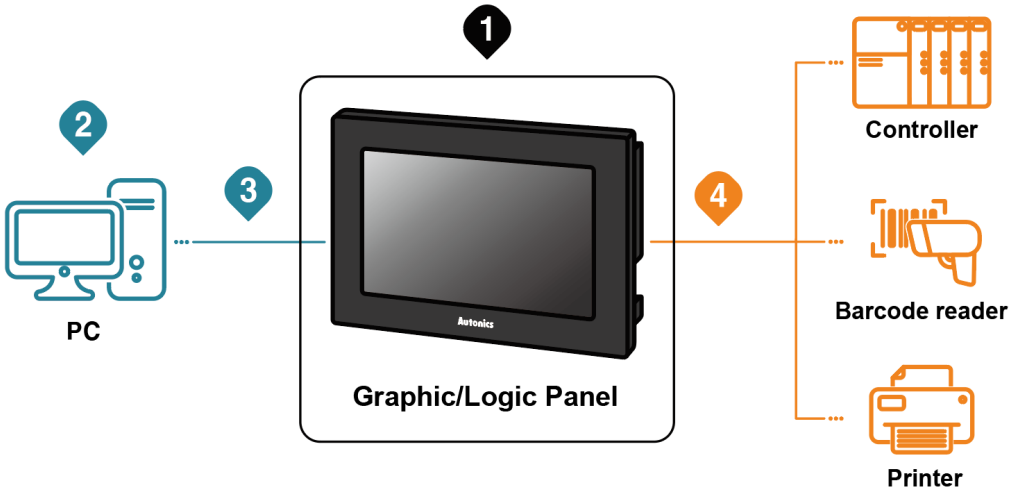
Reference Manual for Each Configuration



1 Graphic/Logic panel device specification, installation, maintenance, management, firmware update and system configuration

Hardware Manual	A Series	GP-A Series User Manual, LP-A Series User Manual
	S Series	GP-S070 User Manual, GP-S044/057 User Manual, LP-S070 User Manual, LP-S044 User Manual

2 Project drawing, programming

Software Manual	Drawing	atDesigner User Manual, GP Editor User Manual
	Programming	atLogic User Manual, atLogic Programming Manual

3 Project Upload/Download

Hardware Manual	A Series	GP-A Series User Manual, LP-A Series User Manual
	S Series	GP-S070 User Manual, GP-S044/057 User Manual, LP-S070 User Manual, LP-S044 User Manual

4 Connected device setting, communication setting

Software Manual	Drawing	atDesigner User Manual, GP Editor User Manual
	Programming	atLogic User Manual, atLogic Programming Manual
Hardware Manual	A Series	GP-A Series User Manual, LP-A Series User Manual
	S Series	GP-S070 User Manual, GP-S044/057 User Manual, LP-S070 User Manual, LP-S044 User Manual

4 Check connectable device, connection cable model name and protocol

Communication Manual	GP/LP Communication Manual

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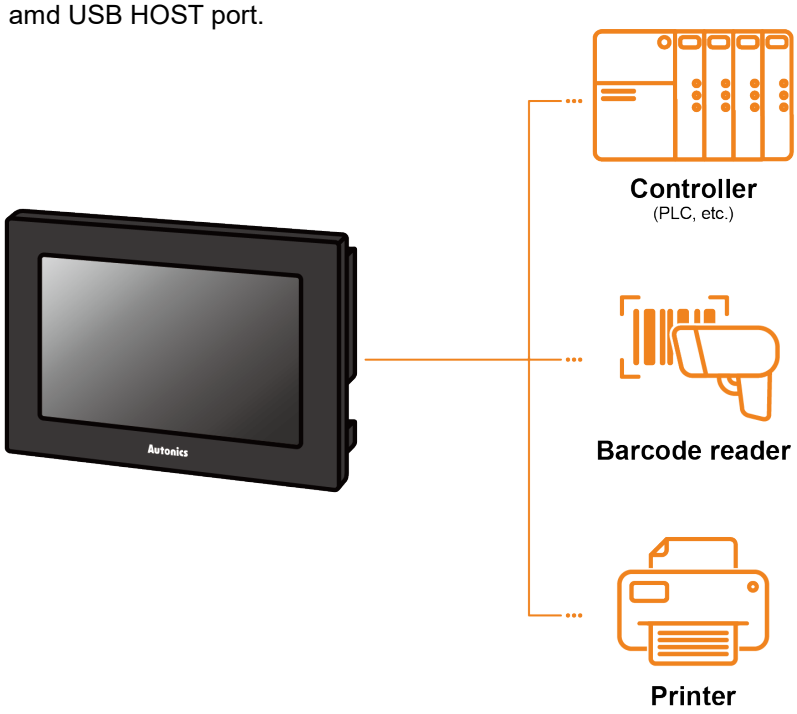
1 System Organization

GP/LP can be connected with various controller, barcode reader and printer via RS232C, RS422, Ethernet, CAN amd USB HOST port.



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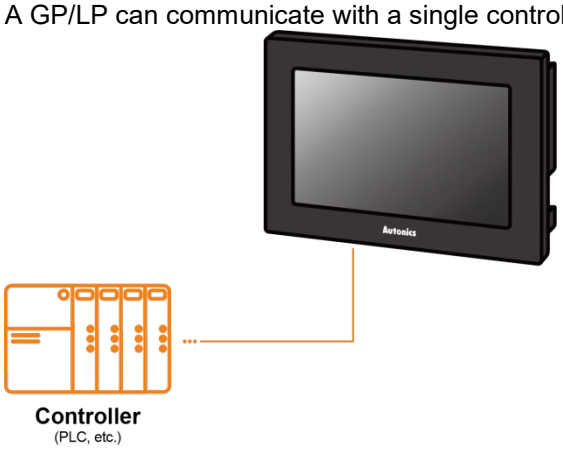
1.1 1:1 Communication

A GP/LP can communicate with a single controller A.



(1) Communication configuration by GP/LP model

The communication configuration by GP/LP model is listed below.
For detailed information about the communication configuration, please refer to 'GP/LP User Manual'.

- GP/LP-S Series

Series	Chanel	Connecting port	Description
GP/LP-S044, GP-S057	CH1	RS232C/RS422	Direct communication available
	CH2	RS422/RS485	Link device※1 communication available
GP/LP-S070	CH1	RS232C/RS422	Direct communication available Link device※1 communication available
	CH2	RS422/RS485	Direct communication available Link device※1 communication available

- GP/LP-A Series

Series	Connecting port	Description
GP/LP-A070	RS422 or RS232C-A port, RS232C or RS232C-B port, Ethernet port	Direct communication available Link device※1 communication available
GP/LP-A104	RS422 or RS232C-A port, RS232C or RS232C-B port, Ethernet port, CAN※2 port	Direct communication available Link device※1 communication available

※1: Please refer to 'GP Editor User Manual' for Link device instruction.

※2: Only Autonics' ARD Series can be connected to CAN port.

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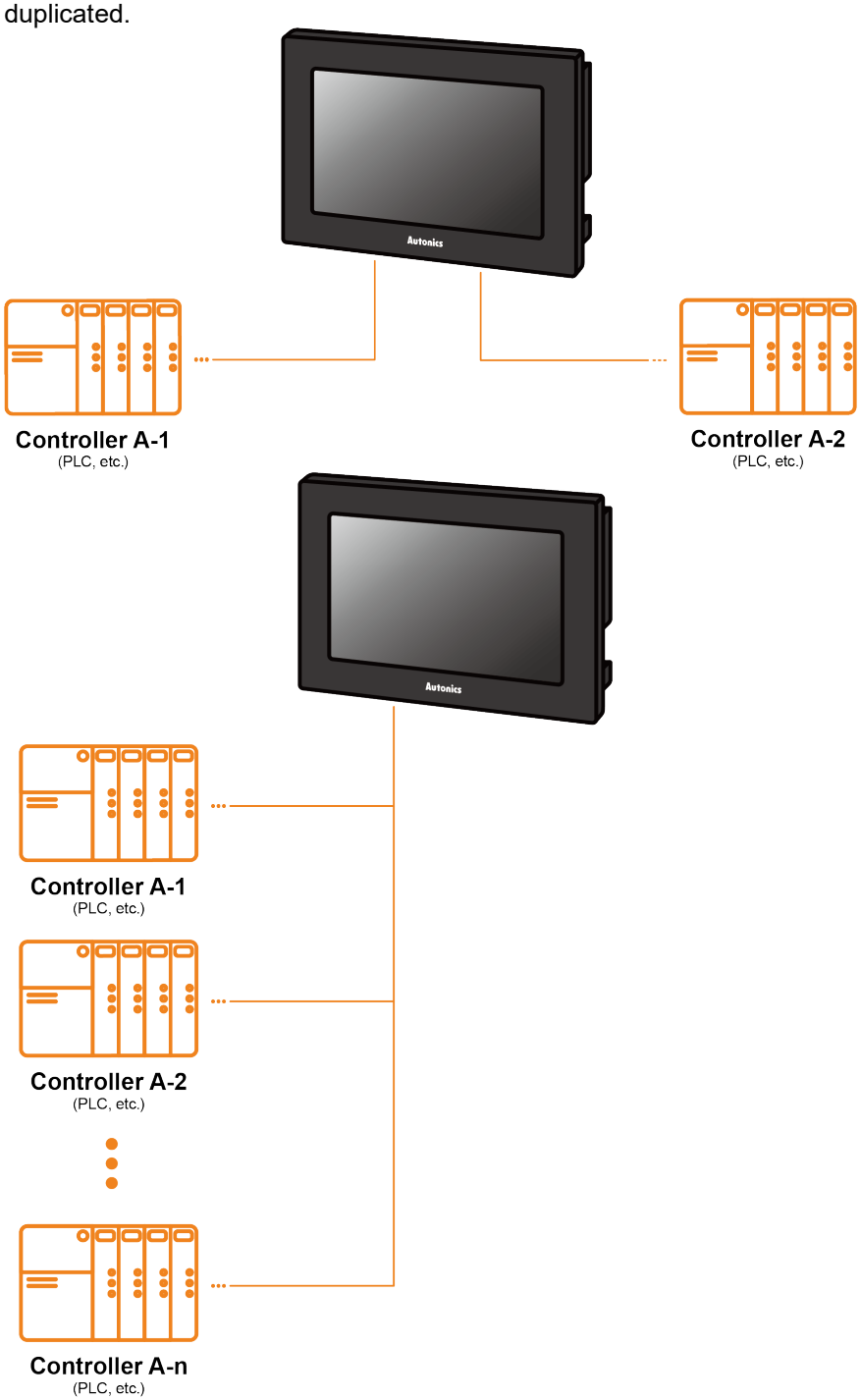
1.2 1:N Communication of Same Controllers

1:N communication stands for one LP communicating with multiple of controllers.
The GP/LP observes the connected controllers or relays data between controllers.
A GP/LP can communicate with the multiple of controller As.
The controller has to be able to set address of each device, and the address should not be duplicated.



(1) Communication configuration by GP/LP model

The communication configuration by GP/LP model is listed below.
For detailed information about the communication configuration, please refer to 'GP/LP User Manual'.

- GP/LP-S Series

Series	Chanel	Connecting port	Description
GP/LP-S044, GP-S057	CH1	-	Multiple connection unavailable
	CH2	RS422	Link device※1 communication available
GP/LP-S070	CH1 or CH2	RS422	Direct communication available Link device※1 communication available

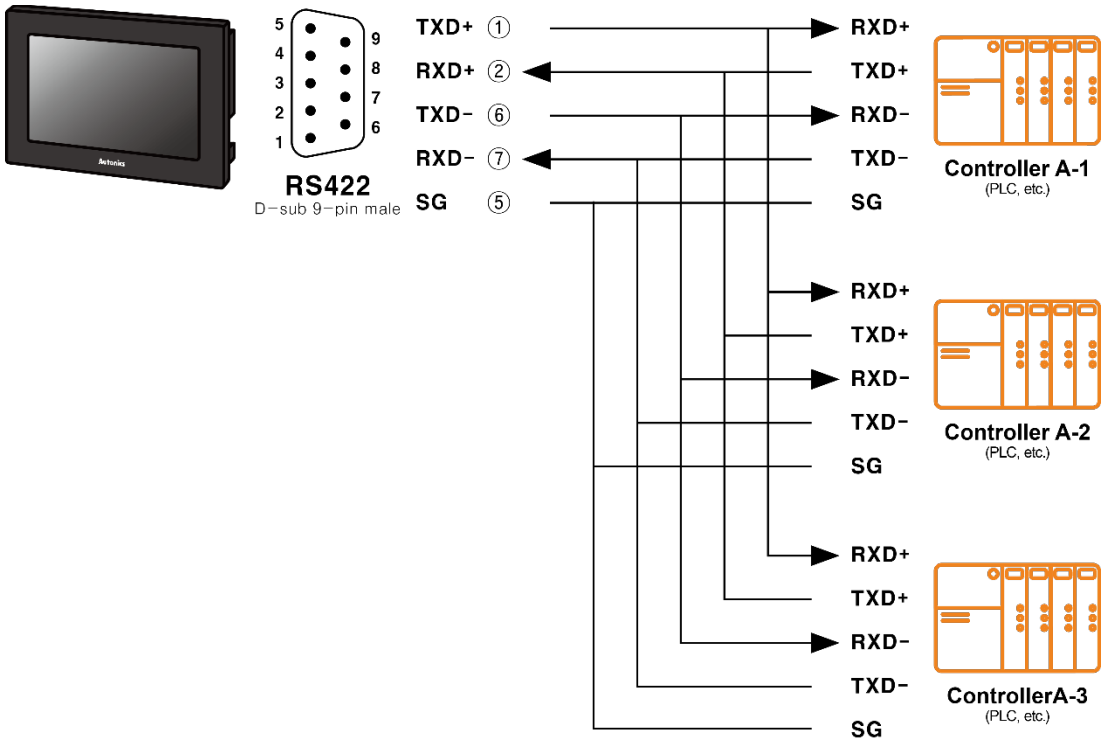
- GP/LP-A Series

Series	Connecting port	Description
GP/LP-A070	RS422 or RS232C-A port, RS232C or RS232C-B port, Ethernet port	Direct communication available Link device※1 communication available
GP/LP-A104	RS422 or RS232C-A port, RS232C or RS232C-B port, Ethernet port, CAN※2port	Direct communication available Link device※1 communication available

※1: Please refer to 'GP Editor User Manual' for Link device instruction.

※2: Only Autonics' ARD Series can be connected to CAN port.

(2) RS422 communication connection diagram



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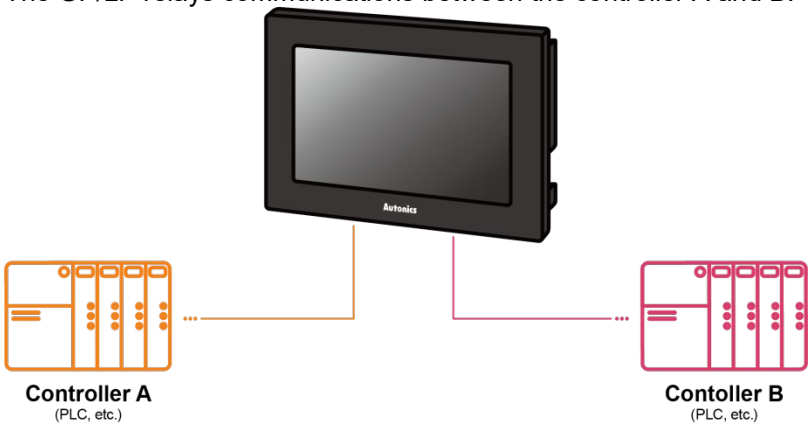
1.3 1:N Communication of Different Controllers

1:N communication stands for one GP/LP communicating with multiple of controllers.
The GP/LP observes the connected controllers or relays data between controllers.
The GP/LP can communicate with the multiple of different controllers.

1.3.1 1:1:1 Communication

A GP/LP can communicate with a signle controller A and a signle controller B.
The GP/LP relays communications between the controller A and B.



(1) Communication configuration by GP/LP model

The communication configuration by GP/LP model is listed below.
For detailed information about the communication configuration, please refer to 'GP/LP User Manual'.

- GP/LP-S Series

Series	Chanel	Connecting port	Description
GP/LP-S044, GP-S057	CH1	RS232C/RS422	Direct communication available
	CH2	RS422/RS485	Link device※1 communication available
GP/LP-S070	CH1 or CH2	RS422/RS485	Direct communication available Link device※1 communication available

- GP/LP-A Series

Series	Connecting port	Description
GP/LP-A070	RS422 or RS232C-A port, RS232C or RS232C-B port, Ethernet port	Direct communication available Link device※1 communication available
GP/LP-A104	RS422 or RS232C-A port, RS232C or RS232C-B port, Ethernet port, CAN※2 port	Direct communication available Link device※1 communication available

※1: Please refer to 'GP Editor User Manual' for Link device instruction.

※2: Only Autonics' ARD Series can be connected to CAN port.

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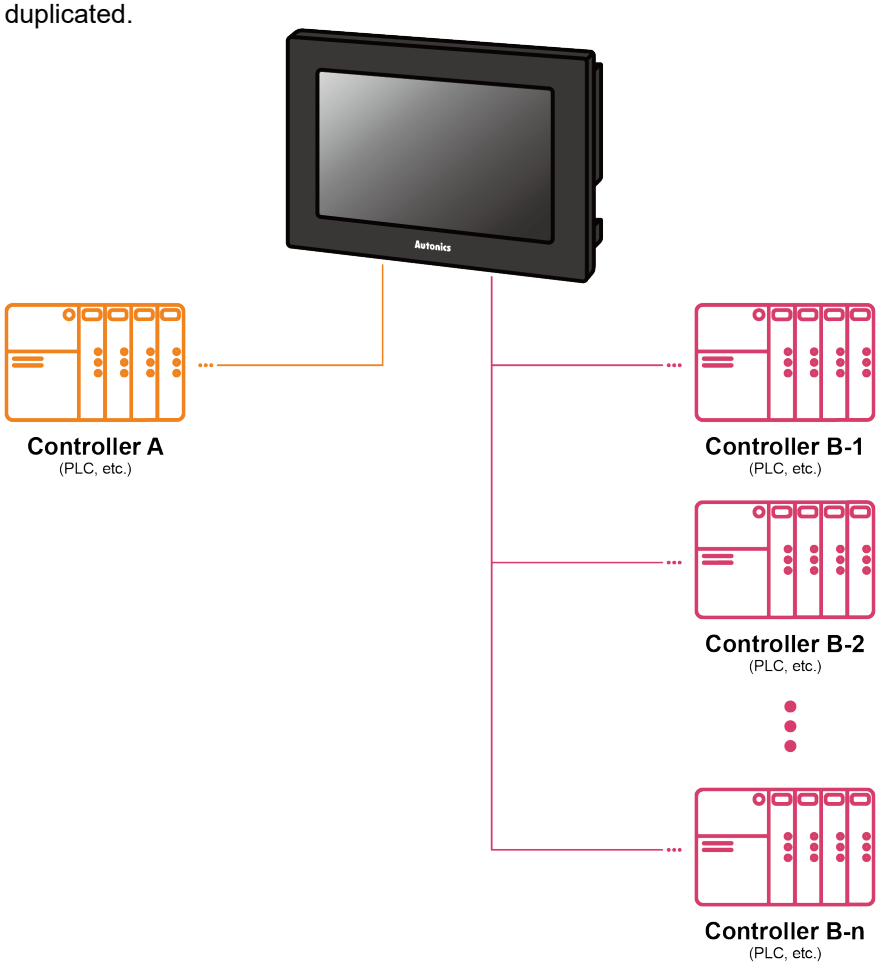
1.3.2 1:1:N Communication

A GP/LP can communicate with a single controller A and the multiple of controller Bs..
The GP/LP relays communication between the controller A and B.
The controller has to be able to set address of each device, and the address should not be duplicated.



(1) Communication configuration by GP/LP model

The communication configuration by GP/LP model is listed below.
For detailed information about the communication configuration, please refer to 'GP/LP User Manual'.

- GP/LP-S Series

Series	Chanel	Connecting port	Description
GP/LP-S044, GP-S057	CH1	RS232C	Single direct communication available
	CH2	RS422/RS485	Link device※1 multiple communication available
GP/LP-S070	CH1 or CH2	RS232C	Single direct communication available Link device※1 single communication available
		RS422/RS485	Multiple direct communication available Link device※1 multiple communication available

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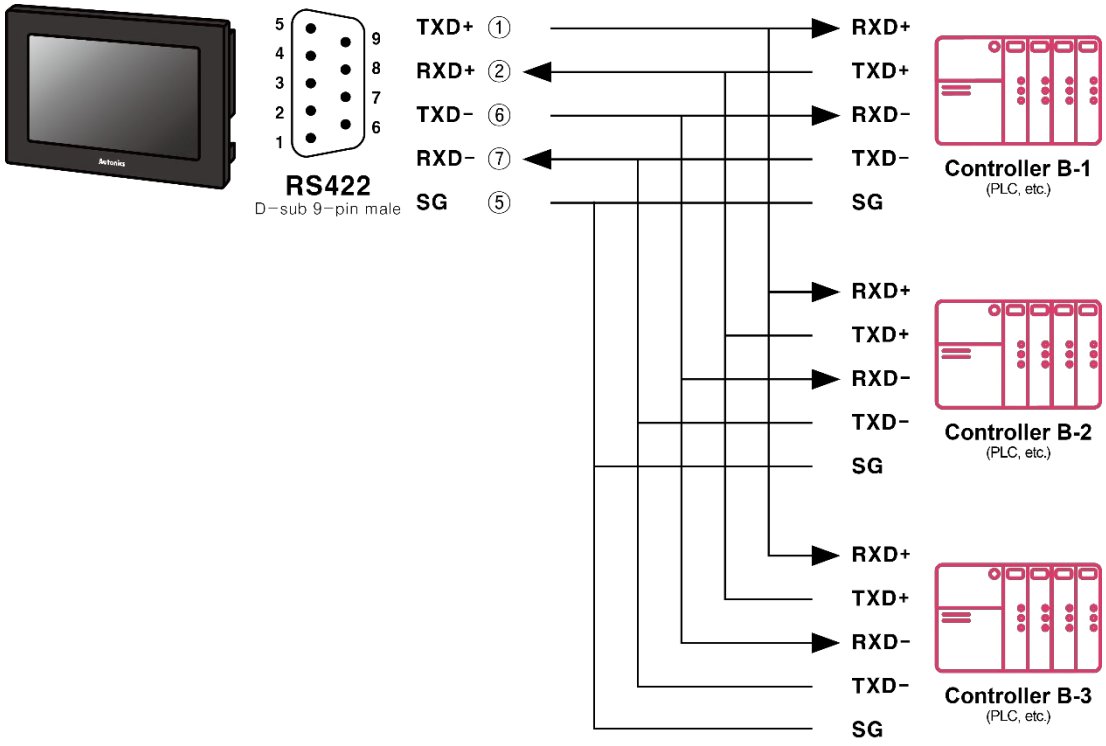
- GP/LP-A Series

Series	Connecting port	Description
GP/LP-A070	RS422 or RS232C-A port, RS232C or RS232C-B port, Ethernet port	Direct communication available Link device※1 communication available
GP/LP-A104	RS422 or RS232C-A port, RS232C or RS232C-B port, Ethernet port, CAN※2 port	Direct communication available Link device※1 communication available

※1: Please refer to 'GP Editor User Manual' for Link device instruction.

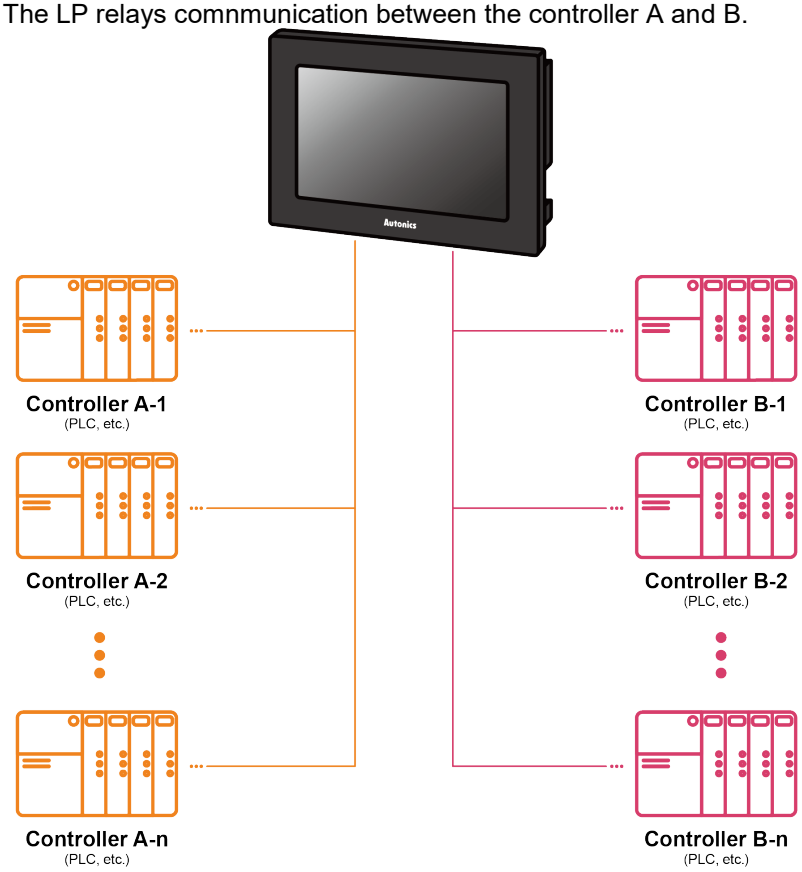
※2: Only Autonics' ARD Series can be connected to CAN port.

(2) RS422 communication connection diagram



1.3.3 N:1:N Communication

A GP/LP can communicate with the multiple of controller As and Bs.
The LP relays comnmunication between the controller A and B.



(1) Communication configuration by GP/LP model

The communication configuration by GP/LP model is listed below.
For detailed information about the communication configuration, please refer to 'GP/LP User Manual'.

- GP/LP-S Series

Series	Chanel	Connecting port	Description
GP/LP-S070	CH1 or CH2	RS232C/RS422	Multiple direct communication available Link device※1 multiple communication available

- GP/LP-A Series

Series	Connecting port	Description
GP/LP-A070	RS422 or RS232C-A port, RS232C or RS232C-B port, Ethernet port	Direct communication available Link device※1 communication available
GP/LP-A104	RS422 or RS232C-A port, RS232C or RS232C-B port, Ethernet port, CAN※2 port	Direct communication available Link device※1 communication available

※1: Please refer to 'GP Editor User Manual' for Link device instruction.

※2: Only Autonics' ARD Series can be connected to CAN port.

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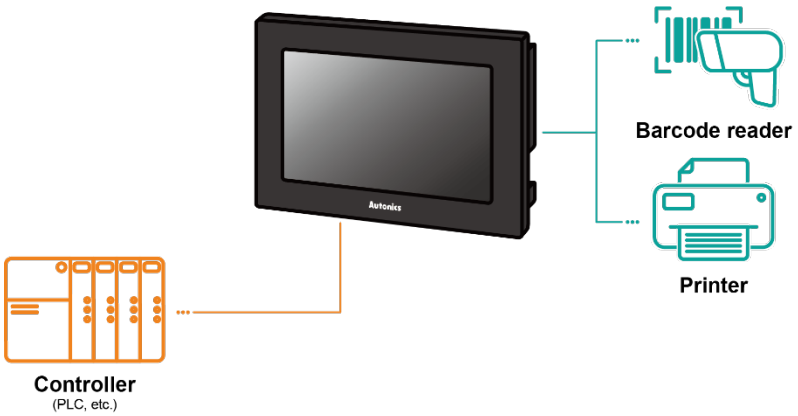
1.4 Barcode Reader, Printer Communication

A GP/LP can communicate with the barcode reader and printer.
Connect the barcode reader to utilize the barcode data.
Connect the printer to print the alarm log or the screen.

- GP/LP-S Series: printing alarm log
- GP/LP-A Series: print alarm log and screen



1.4.1 Communication Configuration

1.4.1.1 Barcode Reader

(1) Connected communication port

- GP/LP-S Series

Series	Connected device	Communication port		
		RS232C※	RS422※	USB Host
GP/LP-S044, GP-S057	Controller	○	○	-
	Barcode reader	○	○	-
GP/LP-S070	Controller	○	○	-
	Barcode reader	○	○	-

- GP/LP-A Series

Series	Connected device	Communication port		
		RS232C※	RS422※	USB Host
GP/LP-A070 GP/LP-A104	Controller	○	○	-
	Barcode reader	○	○	○

※RS232C/422 converter allows to opposite communication.

(2) Configuration method

1st Set the items related to the use of bar codes in the project in the drawing program, GP Editor/atDesigner.

Series	Description	Drawing program menu
GP/LP-S	Device setting for data storage	Common > Barcode
	System device setting for action control	Common > System Information > System Signal 1
GP/LP-A	Device setting for connection port/data storage	Project > Project Property > Special Device Setting

※For detailed information about system device setting, please refer to 'GP Editor/atDesigner User Manual'.

2nd Download the set project in the drawing program , GP Editor/atDesigner, to GP/LP device.

3rd Make communication settings for each port in the GP/LP system menu.

※For detailed information about communication setting, please refer to 'GP/LP User Manual'.

(3) Communication specification

Item	Specification
Baud rate	300, 600, 1200, 3200, 4800, 9600, 19200, 38400, 57600, 115200bps
Data length	7, 8 bit
Parity	None, Odd, Even
Stop bit	1, 2 bit
Flow control	DSR/DTR, XON/XOFF

1.4.1.2 Printer

(1) Connected communication port

- GP/LP-S Series

Series	Connected device	Communication port		
		RS232C※	RS422※	USB Host
GP/LP-S044, GP-S057	Controller	○	○	-
	Printer	○	○	-
GP/LP-S070	Controller	○	○	-
	Printer	○	○	-

- GP/LP-A Series

Series	Connected device	Communication port		
		RS232C※	RS422※	USB Host
GP/LP-A070, GP/LP-A104	Controller	○	○	-
	Printer	-	-	○

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(2) Configuration method

1st Set screen printing/alarm log printing device and touch key/switch in drawing program, GP Editor/atDesigner.

Series	Description	Drawing program menu
GP/LP-S	System device setting for action control	Common > System Information > System Signal
GP/LP-A	Device setting for screen print control	Project window > Right-click menu of the screen to print > Screen Printer Setting
	Device setting for alarm log print	Project window > Alarm History > Use Print

2nd Download the set project in the drawing program , GP Editor/atDesigner, to GP/LP device.

3rd Make communication settings for each port in the GP/LP system menu.

※ For detailed information about communication setting, please refer to 'GP/LP User Manual'.

(3) Communication specification

Item	Specification
Baud rate	300, 600, 1200, 3200, 4800, 9600, 19200, 38400, 57600 bps
Data length	7, 8 bit
Parity	None, Odd, Even
Stop bit	1, 2 bit
Flow control	DSR/DTR, XON/XOFF

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2 Communication Configuration by Devices

2.1 OMRON SYSMAC C PLC Connection

GP/LP is able to communicate with Omron SYSMAC C Series.

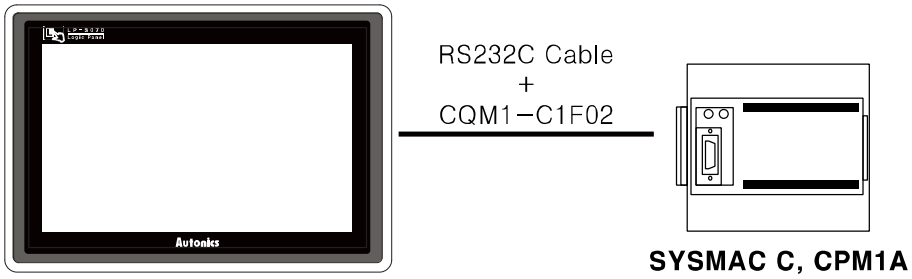
2.1.1 Connection Support PLC Model

PLC type		Communication method	Communication type	Baud rate (bps)
SYSMAC C	CPM1A	RS232C	CPU direct Loader	9600

2.1.2 Connectable GP/LP Model

Connected devices	Connection method	GP/LP Model								
		GP-2480 (under V2.70)	GP-2480 (over V3.00)	GP-S057	GP/LP-S044	GP/LP-S070	GP-S057 (V2)	GP/LP-S044 (V2)	GP/LP-S070 (V2)	GP/LP-A Series
CPM1A	CPU direct Loader	○	○	○	○	○	○	○	○	○

2.1.3 System Organization



GP/LP Series **SYSMAC C, CPM1A**

SYSMAC C Series executes RS232C commnication with GP/LP by Tool Port. It executes also RS-422 communication with RS-232/422 converter.

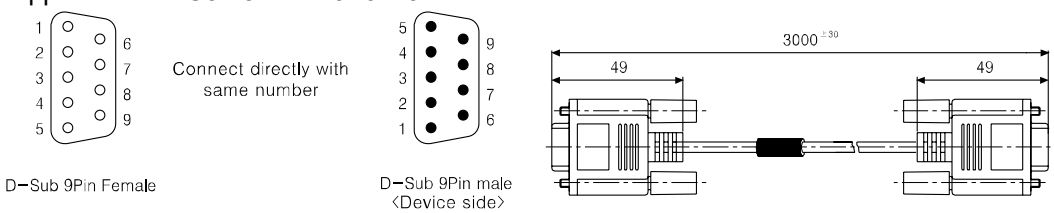
2.1.4 Communication Cable

(1) Connecting to GP/LP

Use CQM1-C1F02 cable by OMRON to connect.

(2) Using extension cable

- Applied cable: C3M5P12-D9F0-D9M1

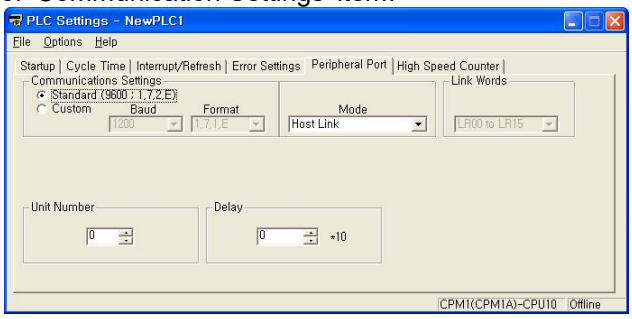


D−Sub 9Pin Female D−Sub 9Pin male 〈Device side〉

2.1.5 Communication Configuration

PLC communication configuration for baudrate is set from the dedicated ladder program (CX-Programmer).

1st Connect the dedicated ladder program and set PLC as connectable status.
2nd From the workspace window of the ladder program, select 'Setting' item.
3rd 'PLC Settings' dialog box appears. Select 'Peripheral Port' tab. Click 'Standard (9600;1,7,2,E)' of 'Communication Settings' item.



If PLC mode is Run, PLC device is available only monitor from GP/LP, and every device status is not able to change. (PLC specification) For changing PLC device status from GP/LP, set PLC mode to Program or Monitor.

2.1.6 Available Device

The device range differs depending on the PLC model and the number of I/O contacts.
The available PLC model in GP/LP are as follows.
For detailed information about each device, please refer to the manuals provided by each manufacturer and

For detailed information about GP/LP internal device, please refer to 'atLogic Programing Manual'.

2.1.6.1 Device Structure

IR	00	0

① Device name ② Word address ③ Bit address

Type	①	②	③	Note
Bit	IR	Decimal	Decimal	Bit address 0 to 15
	HR	Decimal	Decimal	Bit address 0 to 15
	SR	Decimal	Decimal	Bit address 0 to 15
	AR	Decimal	Decimal	Bit address 0 to 15
	LR	Decimal	Decimal	Bit address 0 to 15
	TC	Bit address (Decimal)		
Word	IR	Word address (Decimal)	None	
	HR	Word address (Decimal)	None	
	SR	Word address (Decimal)	None	
	AR	Word address (Decimal)	None	
	LR	Word address (Decimal)	None	
	TC	Word address (Decimal)		
	DM	Word address (Decimal)		

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2.1.6.2 Device Range

Type	Device	Mark	Range	
			Start	End
Bit	Input relay	IR	IR0	IR915
	Output relay	IR	IR1000	IR1915
	Internal auxiliary relay ※1	IR	IR20000	IR23115
	Memory protection relay	HR	HR0	HR1915
	Special relay	SR	SR23200	SR25515
	Special relay 2	AR	AR0	AR1515
	Link relay	LR	LR0	LR1515
	Timer contact [10ms]	TC	TC0	TC127
	Timer contact [100ms]	TC	TC0	TC127
	Counter contact [16 bit]	TC	TC0	TC127
Word	Input relay	IR	IR0	IR9
	Output relay	IR	IR10	IR19
	Internal auxiliary relay	IR	IR200	IR231
	Memory protection relay	HR	HR0	HR19
	Special relay	SR	SR232	SR255
	Special relay 2	AR	AR0	AR15
	Link relay	LR	LR0	LR15
	Timer current value [10ms]	TC	TC0	TC127
	Timer current value [100ms]	TC	TC0	TC127
	Counter current value	TC	TC0	TC127
	Data register ※2	DM	DM0	DM6655

※1. The relay of PLC IR20000 to IR23115 range is work area. This range relay operate similar as inner auxiliary relay of other PLCs, GP/LP assigns these as inner auxiliary relay.

※2. Available data register range

No	Range		Note
	Start	End	
1	DM0	DM999	Read, Write available
2	DM1000	DM1021	Save error code and time
3	DM1022	DM1023	Read, Write available
4	DM6144	DM6599	Read only
5	DM6600	DM6655	Read only

For further details of this function, refer to the specific PLC manual.

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2.1.7 Monitorable Device in GP/LP

GP/LP is able to monitor PLC device and change the status.
The following is avilable device list of this menu, please refer to ‘Available device’ for available device range.

Type	Mark	Device	Note
Bit	IR	Input relay, Output relay, Internal auxiliary relay	
	HR	Memory protection relay	
	SR	Special relay	
	AR	Special relay	
	LR	Link relay	
	TC	Timer/Counter contact	
Word	IR	Input relay, Output relay, Internal auxiliary relay	
	HR	Memory protection relay	
	SR	Special relay	
	AR	Special relay	
	LR	Link relay	
	TC	Timer/Counter current value	
	DM16	Data register	16 bit
	DM32	Data register	32 bit type combining designated number of device and next number of device

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2.2 OMRON SYSMAC CS/CJ/CP PLC Connection

GP/LP is able to communicate with Omron SYSMAC CS/CJ/CP Series.

2.2.1 Connection Support PLC Model

PLC type		Communication method	Communication type	Baud rate (bps)
SYSMAC CS	CS1H-CPU67/66/65/64/63	RS232C, RS422	CPU & Communication module	9600
	CS1G-CPU45/44/43/42			
	CS1H-CPU67H/66H/65H/64H/63H			
	CS1G-CPU45H/44H/43H/42H			
	CS1D-CPU67H/65H			
	CS1D-CPU67S/65S/44S/42S			
SYSMAC CJ	CJ2H-CPU68/67/66/65/64/68-EIP/67-EIP/66-EIP/65-EIP/64-EIP			
	CJ2M-CPU11/12/13/14/15/31/32/33/34/35			
	CJ1G-CPU45/44			
	CJ1G-CPU45H/44H/43H/42H			
	CJ1G-CPU45P/44P/43P/42P			
	CJ1H-CPU67H-R/66H-R/65H-R/64H-R/67H/66H/65H			
	CJ1M-CPU23/22/21/13/12/11			
SYSMAC CP	CP1H-XA□□□□-□			
	CP1H-X□□□□-□			
	CP1H-Y□□□□-□			

2.2.2 Connectable GP/LP Model

Connected devices	Connection method	GP/LP Model								
		GP-2480 (under V2.70)	GP-2480 (over V3.00)	GP-S057	GP/LP-S044	GP/LP-S070	GP-S057 (V2)	GP/LP-S044 (V2)	GP/LP-S070 (V2)	GP/LP-A Series
CS1H	CPU direct Load & Communication module (Host Link)	×	×	○	○	○	○	○	○	○
CS1G		×	×	○	○	○	○	○	○	○
CS1D		×	×	○	○	○	○	○	○	○
CJ2H		×	×	○	○	○	○	○	○	○
CJ2M		×	×	○	○	○	○	○	○	○
CJ1G		×	×	○	○	○	○	○	○	○
CJ1H		×	×	○	○	○	○	○	○	○
CJ1M		×	×	○	○	○	○	○	○	○
CP1E		×	×	○	○	○	○	○	○	○
CP1H		×	×	○	○	○	○	○	○	○
CP1L		×	×	○	○	○	○	○	○	○

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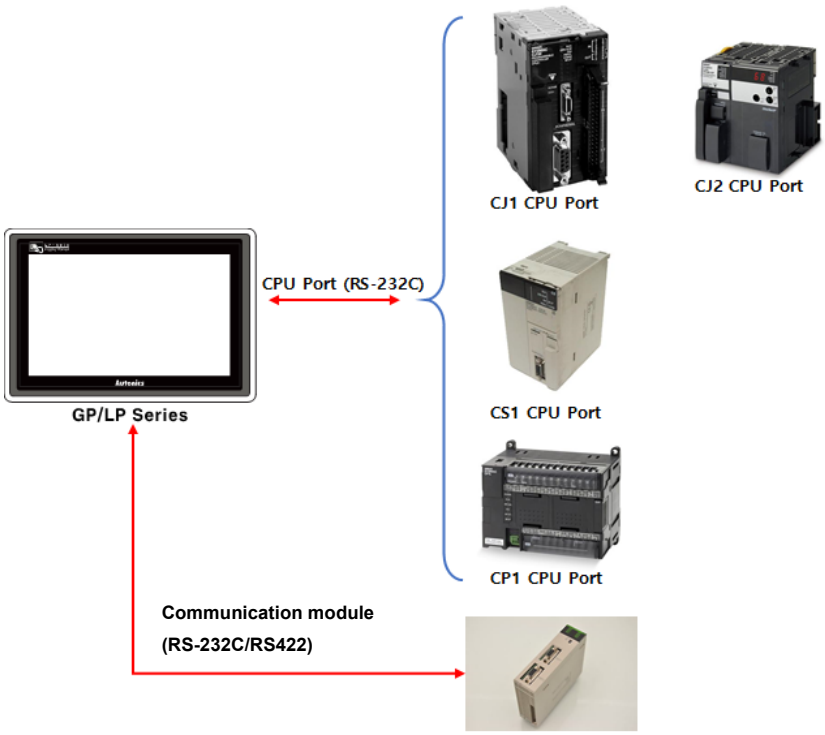
2.2.3 System Organization

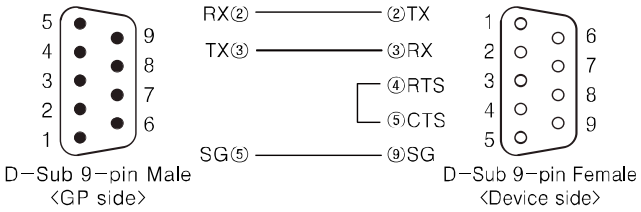


SYSMAC CS/CJ/CP Series executes RS232C/RS422 commnication by Tool Port with GP/LP.

2.2.4 Communication Cable

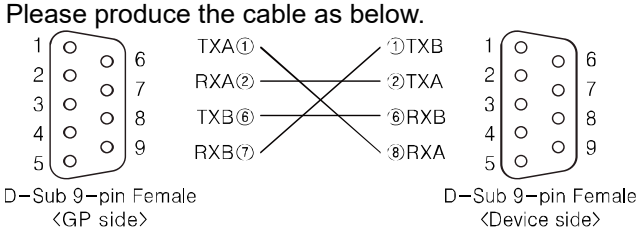
(1) RS232C

Please produce the cable as below.



(2) RS422

Please produce the cable as below.



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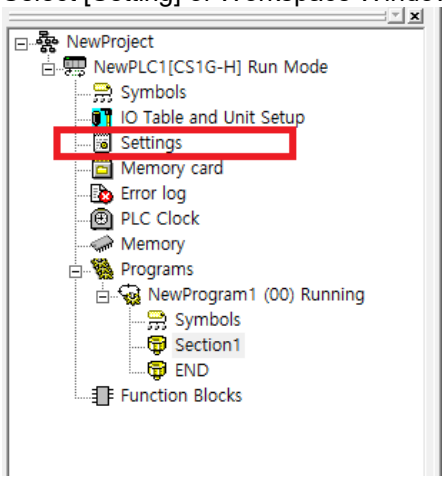
2.2.5 Communication Configuration

When using SYSMAC CS/CJ/CP, communication configuration is set from the dedicated ladder program (CX-Programmer).
(For more information, please refer to the manual from OMRON.)
Configure communications as below.

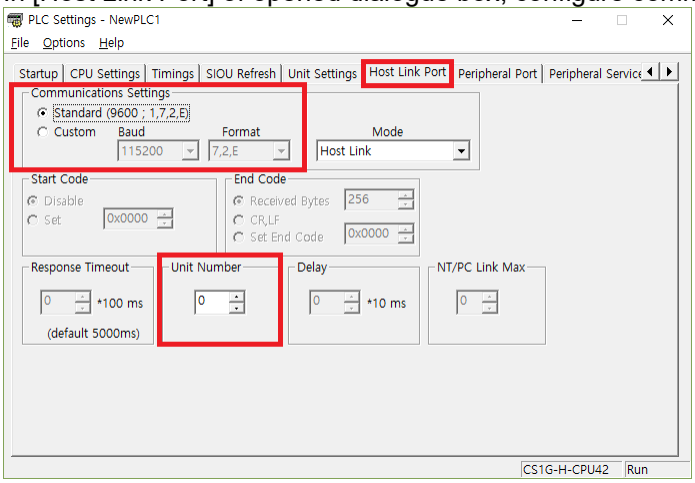
Item	Setting	Note
Stop bit	2	Fixed
Data bit	7	Fixed
Parity	Even	Fixed
Baud rate	9600	Fixed

(1) Change Tool Port setting

1st Connect CX-Programmer and PLC.
2nd Select [Setting] of Workspace Window in the left side of CX-Programmer.



3rd In [Host Link Port] of opened dialogue box, configure communication settings and unit number.



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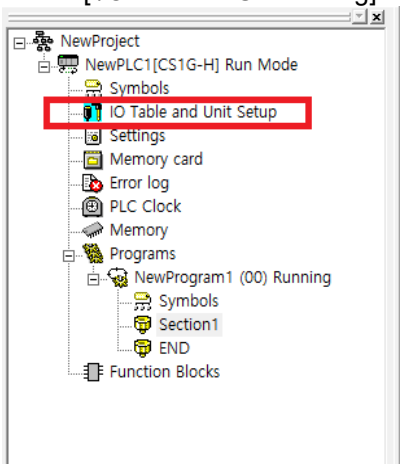
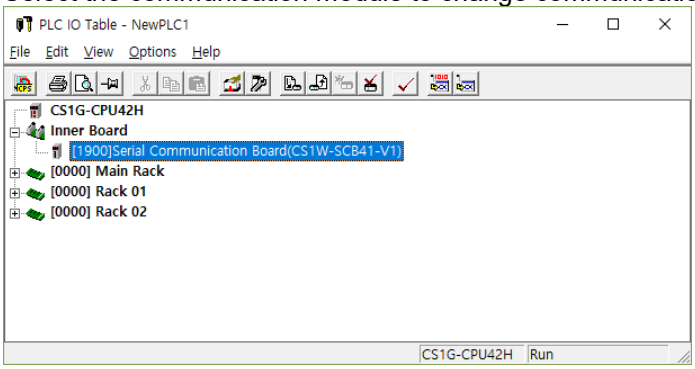
(2) Communication module setting

1st Connect CX-Programmer and PLC.

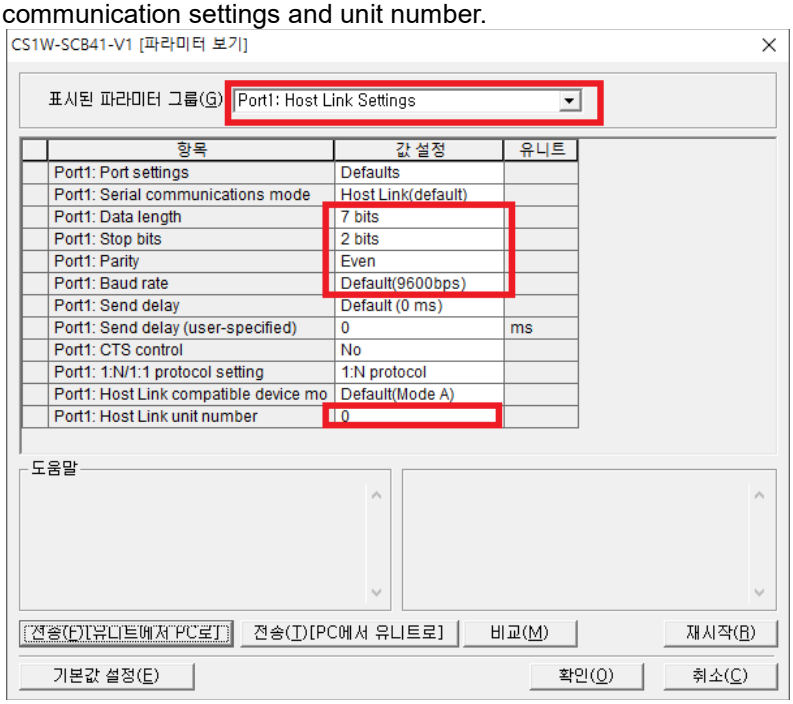
2nd Select [I/O Table or Unit setting] of Workspace Window in the left side of CX-Programmer.



3rd Select the communication module to change communication settings.



4th Select [Host Link Settings] parameter group of each communication module by port, configure communication settings and unit number.



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2.2.6 Available Device

The device range differs depending on the PLC model and the number of I/O contacts.
The available PLC model in GP/LP are as follows.
For detailed information about each device, please refer to the manuals provided by each manufacturer and

For detailed information about GP/LP internal device, please refer to 'atLogic Programing Manual'.

2.2.6.1 Device Structure

IO	00	0

① Device name ② Word address ③ Bit address

Type	①	②	③	Note
Bit	IO	Decimal	Decimal	Bit address 0 to 15
	W	Decimal	Decimal	Bit address 0 to 15
	H	Decimal	Decimal	Bit address 0 to 15
	A	Decimal	Decimal	Bit address 0 to 15
	T	Decimal	Decimal	Bit address 0 to 15
	C	Decimal	None	
	DM	Decimal	None	
Word	IO	Word address (Decimal)	None	
	W	Word address (Decimal)	None	
	H	Word address (Decimal)	None	
	A	Word address (Decimal)	None	
	T	Word address (Decimal)	None	
	C	Word address (Decimal)	None	
	DM	Word address (Decimal)	None	
	DR	Word address (Decimal)	None	

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2.2.6.2 Device Range

(1) CS / CJ series

Type	Device	Mark		Range	
		PLC	GP/LP	Start	End
Bit	CIO Area	CIO	IO	IO000	IO614315
	Work Area	W	W	W00	W51115
	Holding Bit Area	H	H	H00	H51115
	Auxiliary Bit Area	A	A	A00	A44715
	Timer Area	T	T	T0	T4095
	Counter Area	C	C	C0	C4095
	DM Area	D	DM	DM00	DM3276715
Word	CIO Area	CIO	IO	IO000	IO6143
	Work Area	W	W	W00	W511
	Holding Bit Area	H	H	H00	H511
	Auxiliary Bit Area	A	A	A00	A447
	Timer Area	T	T	T0	T4095
	Counter Area	C	C	C0	C4095
	DM Area	D	DM	DM00	DM32767
	Data Register	DR	DR	DR00	DR15

(2) CP1E

Type	Device	Mark		Range	
		PLC	GP/LP	Start	End
Bit	CIO Area	CIO	IO	IO000	IO028915
	Work Area	W	W	W00	W09915
	Holding Bit Area	H	H	H00	H04915
	Auxiliary Bit Area	A	A	A00	A75315
	Timer Area	T	T	T0	T0255
	Counter Area	C	C	C0	C0255
	DM Area	D	DM	DM00	DM081915
Word	CIO Area	CIO	IO	IO000	IO0289
	Work Area	W	W	W00	W099
	Holding Bit Area	H	H	H00	H049
	Auxiliary Bit Area	A	A	A00	A753
	Timer Area	T	T	T0	T0255
	Counter Area	C	C	C0	C0255
	DM Area	D	DM	DM00	DM0819
	Data Register	-	-	-	-

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(3) CP1H

Type	Device	Mark		Range	
		PLC	GP/LP	Start	End
Bit	CIO Area	CIO	IO	IO00	IO614315
	Work Area	W	W	W00	W51115
	Holding Bit Area	H	H	H00	H51115
	Auxiliary Bit Area	A	A	A00	A44715
	Timer Area	T	T	T0	T4095
	Counter Area	C	C	C0	C4095
	DM Area	D	DM	DM00	DM3276715
Word	CIO Area	CIO	IO	IO00	IO6143
	Work Area	W	W	W00	W511
	Holding Bit Area	H	H	H00	H511
	Auxiliary Bit Area	A	A	A00	A447
	Timer Area	T	T	T0	T4095
	Counter Area	C	C	C0	C4095
	DM Area	D	DM	DM00	DM32767
	Data Register	DR	DR	DR00	DR15

(4) CP1L

Type	Device	Mark		Range	
		PLC	GP/LP	Start	End
Bit	CIO Area	CIO	IO	IO00	IO614315
	Work Area	W	W	W00	W51115
	Holding Bit Area	H	H	H00	H51115
	Auxiliary Bit Area	A	A	A00	A44715
	Timer Area	T	T	T0	T4095
	Counter Area	C	C	C0	C4095
	DM Area	D	DM	DM00	DM3276715
Word	CIO Area	CIO	IO	IO00	IO6143
	Work Area	W	W	W00	W511
	Holding Bit Area	H	H	H00	H511
	Auxiliary Bit Area	A	A	A00	A447
	Timer Area	T	T	T0	T4095
	Counter Area	C	C	C0	C4095
	DM Area	D	DM	DM00	DM32767
	Data Register	DR	DR	DR00	DR15

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2.2.7 Monitorable Device in GP/LP

GP/LP is able to monitor PLC device and change the status.
The following is avilable device list of this menu, please refer to ‘Available device’ for available device range.

Type	Mark	Device	Note
Bit	IO	CIO Area	
	W	Work Area	
	H	Holding Bit Area	
	A	Auxiliary Bit Area	
	T	Timer Area	
	C	Counter Area	
	DM	DM Area	
Word	IO	CIO Area	
	W	Work Area	
	H	Holding Bit Area	
	A	Auxiliary Bit Area	
	T	Timer Area	
	C	Counter Area	
	DM	DM Area	

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2.3 OMRON SYSMAC CS/CJ/CP Ethernet Communication Module Connection

GP/LP is able to communicate with Omron SYSMAC CS/CJ/CP Series by Ethernet Communication module.

2.3.1 Connection Support PLC Model

PLC type		Connection method	Communication method	Connection module
SYSMAC CS	CS1H-CPU67/66/65/64/63	Extension	Ethernet	CJ1W-ETN2
	CS1G-CPU45/44/43/42			
	CS1H-CPU67H/66H/65H/64H/63H			
	CS1G-CPU45H/44H/43H/42H			
	CS1D-CPU67H/65H			
	CS1D-CPU67S/65S/44S/42S			
SYSMAC CJ	CJ2H-CPU68/67/66/65/64/68-EIP/67-EIP/66-EIP/65-EIP/64-EIP	Extension	Ethernet	CJ1W-EIP21
	CJ2M-CPU11/12/13/14/15/31/32/33/34/35			
	CJ1G-CPU45/44			
	CJ1G-CPU45H/44H/43H/42H			
	CJ1G-CPU45P/44P/43P/42P			
	CJ1H-CPU67H-R/66H-R/65H-R/64H-R/67H/66H/65H			
	CJ1M-CPU23/22/21/13/12/11			
SYSMAC CP	CP1H-XA□□□□-□	Extension	Ethernet	CP1W-CIF41
	CP1H-X□□□□-□			
	CP1H-Y□□□□-□			

2.3.2 Connectable GP/LP Model

Connected devices	Connection method	GP/LP Model								
		GP-2480 (under V2.70)	GP-2480 (over V3.00)	GP-S057	GP/LP-S044	GP/LP-S070	GP-S057 (V2)	GP/LP-S044 (V2)	GP/LP-S070 (V2)	GP/LP-A Series
CS1H	Ethernet Communication module	×	×	×	×	×	×	×	×	○
CS1G		×	×	×	×	×	×	×	×	○
CS1D		×	×	×	×	×	×	×	×	○
CJ2H		×	×	×	×	×	×	×	×	○
CJ2M		×	×	×	×	×	×	×	×	○
CJ1G		×	×	×	×	×	×	×	×	○
CJ1H		×	×	×	×	×	×	×	×	○
CJ1M		×	×	×	×	×	×	×	×	○
CP1H		×	×	×	×	×	×	×	×	○

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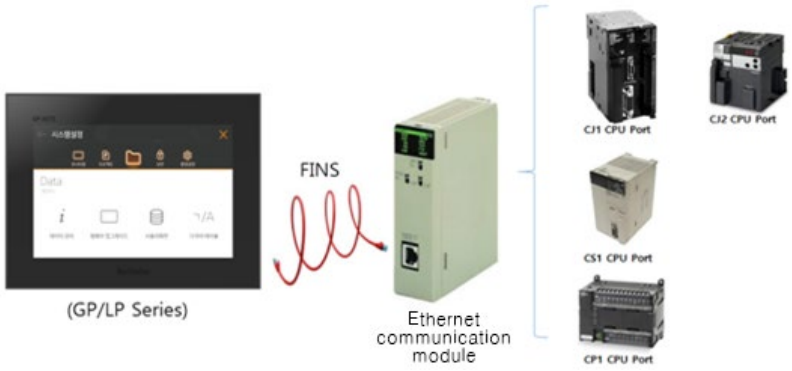
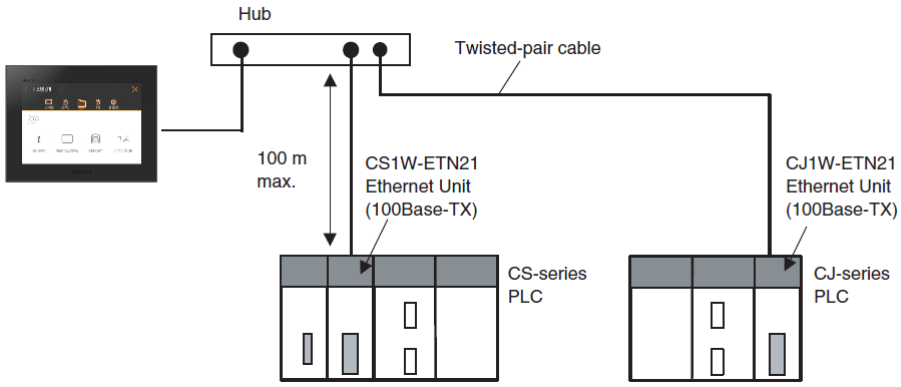
2.3.3 System Organization





Connect between Ethernet Port of GP/LP-A Series and Ethernet Communication module of OMRON SYSMAC CS/CJ/CP to use.

2.3.4 Communication Cable

Use regular Ethernet LAN Cable on market.

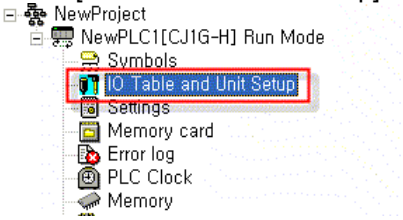
2.3.5 Communication Configuration

When using SYSMAC CS/CJ/CP, communication configuration is set from the dedicated ladder program (CX-Programmer).
(For more information, please refer to the manual from OMRON.)
Configure communications as below.

- Change Tool Port setting

1st Connect CX-Programmer and PLC.

2nd Select [I/O Table and Unit Setup] of Workspace Window in the left side of CX-Programmer..



3rd Select Ethernet Communication module which connected to PLC, when I/O setting window displays.

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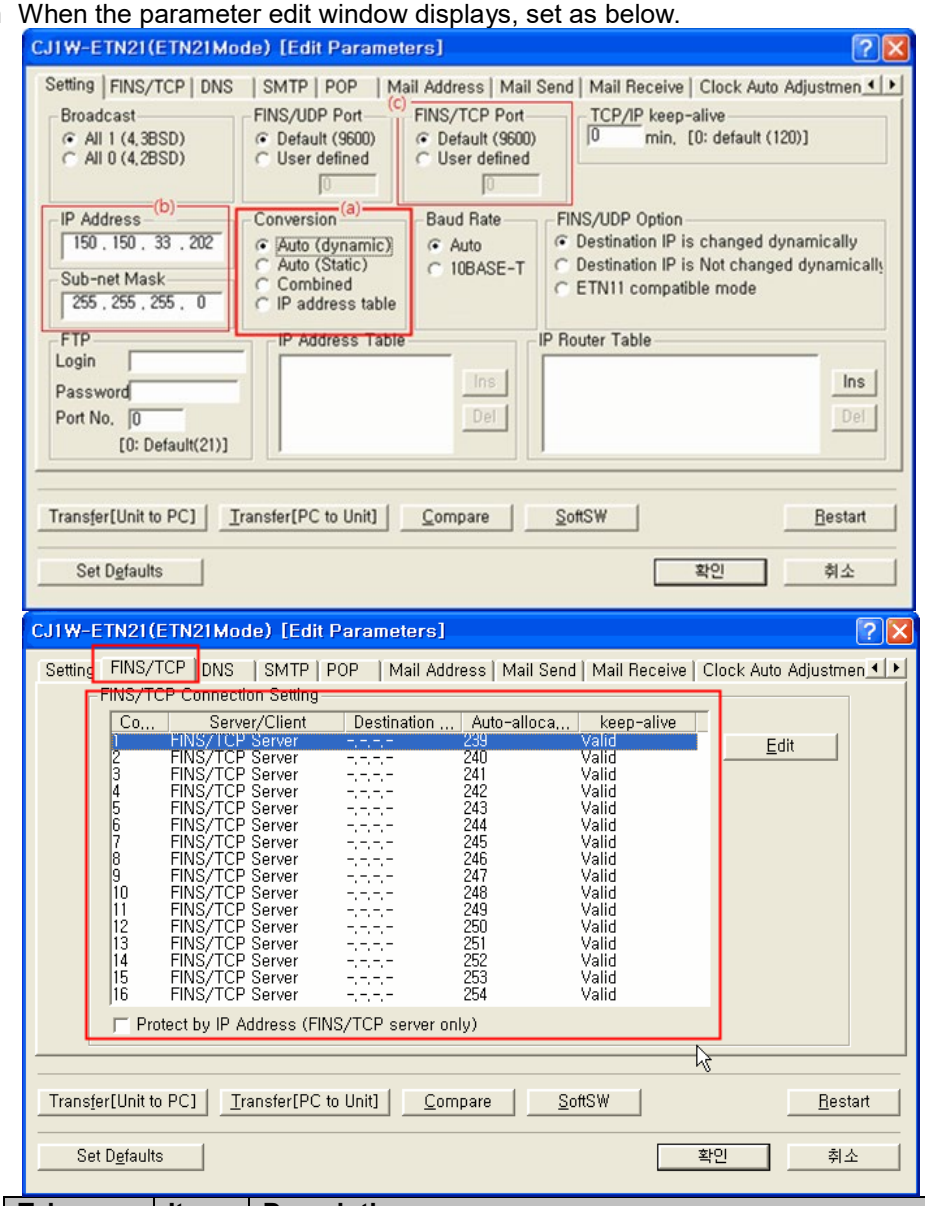
4th When the parameter edit window displays, set as below.



Tab	Item	Description
Setting	a	Set ‘Conversion’ as ‘Auto (dynamic)’.
	b	Configure ‘IP Address’ as same as the first 3 digits of IP address (XXX.XXX.XXX.to) of the GP/LP to be connected. (must be connected on the same network.) Set ‘Sub-net Mask’ as ‘255.255.255.0’.
	c	Set ‘FINS/TCP Port’ as ‘Default (9600)’.
FINS/TCP	d	In ‘FINS/TCP’ tab, FINS/TCP Connection Setting must be set as ‘Server’. Please check default setting or corresponding tab.

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2.3.6 Available Device

The device range differs depending on the PLC model and the number of I/O contacts.
The available PLC model in GP/LP are as follows.
For detailed information about each device, please refer to the manuals provided by each manufacturer and

For detailed information about GP/LP internal device, please refer to 'atLogic Programing Manual'.

2.3.6.1 Device Structure

IO	000	0

① Device name ② Word address ③ Bit address

Type	①	②	③
Bit	SM	Decimal	Decimal
	X	Hexadecimal	Hexadecimal
	Y	Hexadecimal	Hexadecimal
	M	Decimal	Decimal
	L	Decimal	Decimal
	F	Decimal	Decimal
	V	Decimal	Decimal
	B	Hexadecimal	Hexadecimal
	TS	Decimal	-
	CS	Decimal	-
Word	SD	Word address (Decimal)	-
	D	Word address (Decimal)	-
	W	Word address (Hexadecimal)	-
	TN	Word address (Decimal)	-
	CN	Word address (Decimal)	-
	Z	Word address (Decimal)	-

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2.3.6.2 Device Range

Type	Device	Mark	Range	
			Start	End
Bit	Special relay	SM	SM0	SM2047
	Input relay	X	X0	X1FFF
	Output relay	Y	Y0	Y1FFF
	Internal auxiliary relay	M	M0	M8191
	Memory protection relay	L	L0	L8191
	Signal display	F	F0	F2047
	Edge relay	V	V0	V2047
	Link relay	B	B0	B1FFF
	Timer contact	TS	TS0	TS2047
	Count contact	CS	CS0	CS1023
Word	Special register	SD	SD0	SD2047
	Data register	D	D0	D12287
	Link register	W	W0	W1FFF
	Timer current value	TN	TN0	TN2047
	Current counting value	CN	CN0	CN1023
	Index register	Z	Z0	Z19

2.3.7 Monitorable Device in GP/LP

GP/LP is able to monitor PLC device and change the status.

The following is avilable device list of this menu, please refer to ‘Available device’ for available device range.

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2.4 OMRON Temperature Controller Connection

GP/LP is able to communicate with Omron temperature controller E5□□ Series.

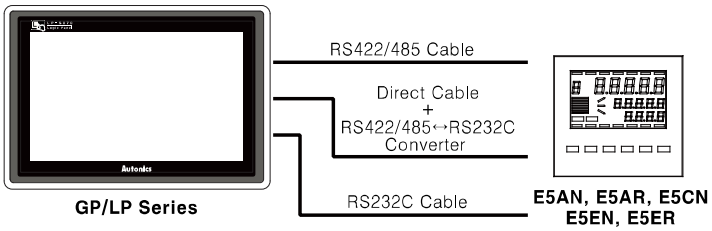
2.4.1 Connection Support Products

Controller type	Communication method	Communication type
E5AN	RS485, RS232C	CPU direct Loader
E5AR	RS485	CPU direct Loader
E5CN	RS485	CPU direct Loader
E5EN	RS485, RS232C	CPU direct Loader
E5ER	RS485	CPU direct Loader

2.4.2 Connectable GP/LP Model

Connected devices	Connection method	GP/LP Model								
		GP-2480 (under V2.70)	GP-2480 (over V3.00)	GP-S057	GP/LP-S044	GP/LP-S070	GP-S057 (V2)	GP/LP-S044 (V2)	GP/LP-S070 (V2)	GP/LP-A Series
E5AN	Modbus	○	○	○	○	○	○	○	○	○
E5AR	Modbus	○	○	○	○	○	○	○	○	○
E5CN	Modbus	○	○	○	○	○	○	○	○	○
E5EN	Modbus	○	○	○	○	○	○	○	○	○
E5ER	Modbus	○	○	○	○	○	○	○	○	○

2.4.3 System Organization

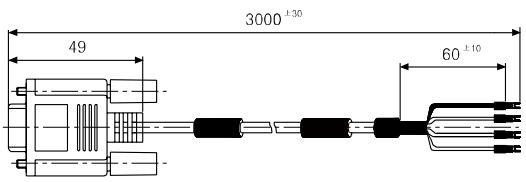


Omron E5□□ Series executes RS485 commnication. It executes also RS232C commnication with RS485/232 converter. E5AN and E5EN support RS232C communication without converter depending on the model.

2.4.4 Communication Cable

(1) RS-485

- Applied cable: C3M5P03-D9M0-T4Y0



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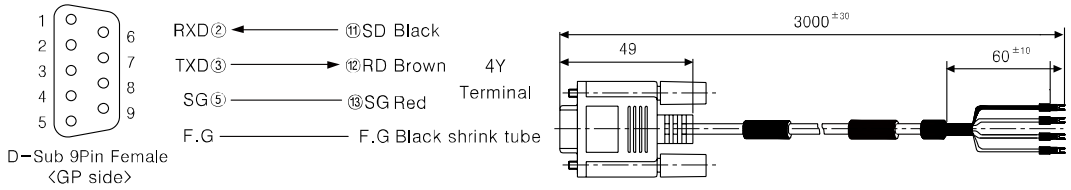
(2) RS-232C

- Applied cable: C3M5P13-D9F0-T4Y0



2.4.5 Communication Configuration

The below table is for communication configuration of Omron E5□□ Series with GP/LP.

No	Item	Description		Note
1	Communication mode	Modbus RTU		
2	Baud rate	9600 bps		Fixed
3	Data type	Data length	8 bit	Fixed
		Parity	None	Fixed
		Stop bit	1 bit	Fixed
4	Address	0 to 31		Selectable

(1) Omron E5□□ Series communication configuration

Designate communication configuration for Omron E5□□ Series. For more details, refer to 'Omron E5□□ Series user manual'.

1st At operation level, press front button in 3 sec and it moves to input initial configuration level.

2nd At input initial configuraion level, press button, it moves to communication configuration level.
At each menu, press keys to set.

3rd Press key and it moves to other menus and press also to set as same method.

Display status	Description	Setting value	Note
PSEL	Select protocol	nod	Modbus
U-no	Communication station	0 to 99	Enable to set as user-defined
bPS	Baud rate	9.6	9.6 kbps
LEn	Communication data length	8	8bit
Sbit	Stop bit	1	1bit
Prty	Parity	nonE	NONE
Sbwt	Waiting time of transmission	-	Display only when PSEL is CUF

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2.4.6 Available Device

The device range differs depending on the PLC model and the number of I/O contacts.
The available PLC model in GP/LP are as follows.
For detailed information about each device, please refer to the manuals provided by each manufacturer and

For detailed information about GP/LP internal device, please refer to 'atLogic Programing Manual'.

2.4.6.1 Device Structure

UB	00	0

① Device name ② Word address ③ Bit address

Type	①	②	③
Word	M	Word address (Decimal)	
	D	Word address (Hexadecimal)	

2.4.6.2 Device Range

(1) E5AN, E5CN, E5EN

Type	Device	Mark	Range	
			Start	End
Word	Operation command device※1	M	M0	M0
	Variable device※2	D	D0	D3FFF

(2) E5AR, E5ER

Type	Device	Mark	Range	
			Start	End
Word	Operation command device※1	M	M0	M0
	Variable device※2	D	D0	DFFFF

※1. It is used device when operating command. Enter the specific value, it executes the below table operation.

※2. Device address is same as each variable of temperature controller. For further details of each variable, refer to the each product manual.

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Command value(DEC)	Command description	Executing operation	Note
00000	Communication Write	Disable Communication Write	
00001		Able Communication Write	
00256	RUN/STOP	RUN	
00257		STOP	
00512	Multi SP	Target value 0	
00513		Target value 1	
00514		Target value 2	
00515		Target value 3	
00768	AT	Stop AT	
00769		Execute AT	Available in STOP
01024	Write mode	Backup write mode	
01025		Write mode RAM	
01280	Preserves RAM DATA	Preserves RAM DATA	
01536	Soft reset	Soft reset	
01792	Executes setting area 1	Executes setting area 1	
02048	Executes protect level	Executes protect level	
02304	AUTO/ MANUAL	AUTO mode	
02305		MANUAL mode	
02816	Initializes setting value	Initial default of setting value	
02817		Initial setting service value	
04352	Starts program	Start reset program	
04353		Starts program	

2.4.7 Monitorable Device in GP/LP

GP/LP is able to monitor PLC device and change the status.
The following is avilable device list of this menu, please refer to 'Available device' for available device range.

Type	Mark	Device	Note
Word	M	Operation command device	
	DM16	Variable device	16 bit
	DM32	Variable device	32 bit type combining designated number of device and next number of device

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* Dimensions or specifications on this manual are subject to change and some models may be discontinued without notice.

MTA-GPLPC_OMRON-V1.0-1907US