LS Industrial Systems

# Master-K Series Cnet Driver

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#### Introduction

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

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

1	System Configuration This section shows the types of External Devices which can be connected and SIO type.	"1 System Configuration" (page 3)
2	Selection of External Device Select a model (series) of the External Device to be connected and connection method.	<sup>জে</sup> "2 Selection of External Device" (page 7)
3	Example of Communication Settings This section shows setting examples for communicating between the Display and the External Device.	ে "3 Example of Communication Setting" (page 8)
4	Setup Items This section describes communication setup items on the Display. Set communication settings of the Display with GP-Pro Ex or in off-line mode.	উ <sup>ল</sup> "4 Setup Items" (page 38)
5	Cable Diagram This section shows cables and adapters for connecting the Display and the External Device.	ি "5 Cable Diagram" (page 43)
	Operation	

# 1 System Configuration

The system configuration in the case when the External Device of LS Industrial Systems and the Display are connected is shown.

Series	CPU	Link I/F	SIO Type	Setting Example	Cable Diagram
	K7P-30AS	G3L-CUEA (K7F-CUEA) <sup>*1</sup>	RS232C	Setting Example 1 (page 8)	Cable Diagram 1 (page 43)
K1000S			RS422/485 (4 wire)	Setting Example 2 (page 10)	Cable Diagram 2 (page 44)
			RS422/485 (2 wire)	Setting Example 3 (page 12)	Cable Diagram 3 (page 48)
			RS232C	Setting Example 1 (page 8)	Cable Diagram 1 (page 43)
K300S	K4P-15AS	G4L-CUEA (K4F-CUEA) <sup>*1</sup>	RS422/485 (4 wire)	Setting Example 2 (page 10)	Cable Diagram 2 (page 44)
			RS422/485 (2 wire)	Setting Example 3 (page 12)	Cable Diagram 3 (page 48)
	WOD 0740	G6L-CUEB (K3F-CU2A) *1	RS232C	Setting Example 4 (page 14)	Cable Diagram 1 (page 43)
K200S	K3P-07AS K3P-07BS K3P-07CS	G6L-CUEC (K3F-CU4A) <sup>*1</sup>	RS422/485 (4 wire)	Setting Example 5 (page 16)	Cable Diagram 2 (page 44)
			RS422/485 (2 wire)	Setting Example 6 (page 18)	Cable Diagram 3 (page 48)
	K7M-DR(T)20U K7M-DR(T)30U K7M-DR(T)40U K7M-DR(T)60U K7M-DT20U K7M-DT30U K7M-DT40U	Port1 on CPU unit	RS232C	Setting Example 7 (page 20)	Cable Diagram 4 (page 51)
		Port2 on CPU unit	RS422/485 (2 wire)	Setting Example 8 (page 22)	Cable Diagram 5 (page 52)
K120S		G7L-CUEB	RS232C	Setting Example 9 (page 24)	Cable Diagram 1 (page 43)
		7M-DT40U	RS422/485 (4 wire)	Setting Example 10 (page 26)	Cable Diagram 2 (page 44)
	K7M-DT60U	G7L-CUEC	RS422/485 (2 wire)	Setting Example 11 (page 28)	Cable Diagram 3 (page 48)
	K7M-DR10S(/DC) K7M-DR20S(/DC) K7M-DR30S(/DC) K7M-DR40S(/DC) K7M-DR60S(/DC) K7M-DT10S K7M-DT10S K7M-DT20S K7M-DT30S K7M-DT40S K7M-DT60S	Port on CPU unit	RS232C	Setting Example 12 (page 30)	Cable Diagram 4 (page 51)
		G7L-CUEB	RS232C	Setting Example 13 (page 32)	Cable Diagram 1 (page 43)
K80S		0S 0S 0S G7L-CUEC 0S	RS422/485 (4 wire)	Setting Example 14 (page 34)	Cable Diagram 2 (page 44)
			RS422/485 (2 wire)	Setting Example 15 (page 36)	Cable Diagram 3 (page 48)

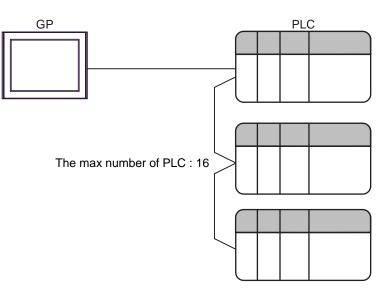
\*1 The module of parenthesis is a old name.

## Connection Configuration

• 1:1 Connection



• 1:n Connection (RS422/485 (4 wire))



## ■ COM Port of IPC

When connecting IPC with External Device, the COM port which can be used changes with series and SIO type. Please refer to the manual of IPC for details.

#### Usable port

Series	Usable port			
Genes	RS-232C	RS-422/485(4 wire)	RS-422/485(2 wire)	
PS-2000B	COM1 <sup>*1</sup> , COM2, COM3 <sup>*1</sup> , COM4	-	-	
PS-3650A, PS-3651A	COM1 <sup>*1</sup>	-	-	
PS-3700A (Pentium®4-M) PS-3710A	COM1 <sup>*1</sup> , COM2 <sup>*1</sup> , COM3 <sup>*2</sup> , COM4	COM3 <sup>*2</sup>	COM3 <sup>*2</sup>	
PS-3711A	COM1 <sup>*1</sup> , COM2 <sup>*2</sup>	COM2 <sup>*2</sup>	COM2 <sup>*2</sup>	

\*1 The RI/5V can be switched. Please switch with the change switch of IPC.

\*2 It is necessary to set up the SIO type with the Dip switch. Please set up as follows according to SIO type to be used.

#### Dip switch setting: RS-232C

Dip switch	Setting	Description	
1	OFF	Reserve (always OFF)	
2	OFF	SIO type: RS-232C	
3	OFF	510 type. K5-252e	
4	OFF	Output mode of SD (TXD) data: Always output	
5	OFF	Terminal resistance (220 $\Omega$ ) insertion to SD (TXD): None	
6	OFF	Terminal resistance (220 $\Omega$ ) insertion to RD (RXD): None	
7	OFF	Short-circuit of SDA (TXA) and RDA (RXA): Does not Exist	
8	OFF	Short-circuit of SDB (TXB) and RDB (RXB): Does not Exist RS (RTS) Auto control mode: Disable	
9	OFF		
10	OFF		

## Dip switch setting: RS-422/485 (4 wire)

Dip switch	Setting	Description	
1	OFF	Reserve (always OFF)	
2	ON	SIO type: RS-422/485	
3	ON	510 type. K5-422/465	
4	OFF	Output mode of SD (TXD) data: Always output	
5	OFF	Terminal resistance (220 $\Omega$ ) insertion to SD (TXD): None	
6	OFF	Terminal resistance (220 $\Omega$ ) insertion to RD (RXD): None	
7	OFF	Short-circuit of SDA (TXA) and RDA (RXA): Does not Exist	
8	OFF	Short-circuit of SDB (TXB) and RDB (RXB): Does not Exist	
9	OFF	– RS (RTS) Auto control mode: Disable	
10	OFF		

#### Dip switch setting: RS-422/485 (2 wire)

Dip switch	Setting	Description	
1	OFF	Reserve (always OFF)	
2	ON	SIO type: RS-422/485	
3	ON	510 type. K5-422/485	
4	OFF	Output mode of SD (TXD) data: Always output	
5	OFF	Terminal resistance (220 $\Omega$ ) insertion to SD (TXD): None	
6	OFF	Terminal resistance (220 $\Omega$ ) insertion to RD (RXD): None	
7	ON	Short-circuit of SDA (TXA) and RDA (RXA): Exist	
8	ON	Short-circuit of SDB (TXB) and RDB (RXB): Exist	
9	ON	- RS (RTS) Auto control mode: Enable	
10	ON	KS (K15) Auto control mode. Endole	

# 2 Selection of External Device

Select the External Device to be connected to the Display.

💰 New Pr	💰 New Project File 🛛 🗙					
Device/PL	C					
Maker	LS Industrial Systems					
Driver	Master-K Series Cnet					
🗖 Use S	ystem Area Refer to the manual of this Device/PLC					
Connection	n Method					
Port	COM1					
Back	Go to Device/PLC Manual Communication Detail Settings New Screen Cancel					

Setup Items	Setup Description	
Maker	Select the maker of the External Device to be connected. Select "LS Industrial Systems".	
Driver	Select a model (series) of the External Device to be connected and connection method. Select "Master-K series Cnet". Check the External Device which can be connected in "Master-K series Cnet" in system configuration.	
Use System Area	<ul> <li>Check this option when you synchronize the system data area of Display and the device (memory) of External Device. When synchronized, you can use the ladder program of External Device to switch the display or display the window on the display.</li> <li>Cf. GP-Pro EX Reference Manual "Appendix 1.4 LS Area (only for direct access method)"</li> <li>This can be also set with GP-Pro EX or in off-line mode of Display.</li> <li>Cf. GP-Pro EX Reference Manual " 5.14.6 Setting Guide of [System Setting Window]■[Main Unit Settings] Settings Guide System Area Setting"</li> <li>Cf. Maintenance/Troubleshooting "2.14.1 Settings common to all Display models ♦ System Area Settings"</li> </ul>	
Port	Select the Display port to be connected to the External Device.	

## 3 Example of Communication Setting

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

#### 3.1 Setting Example 1

#### Settings of GP-Pro EX

#### Communication Settings

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

Device/PLC 1	
Summary	Change Device/PLC
Maker LS Industrial Systems	Driver Master-K Series Cnet Port COM1
Text Data Mode 2 Change	
Communication Settings	
SIO Type 💿 RS232C	C RS422/485(2wire) C RS422/485(4wire)
Speed 38400	•
Data Length 🔿 7	• 8
Parity   NONE	O EVEN O ODD
Stop Bit 💿 1	© 2
Flow Control 💿 NONE	O ER(DTR/CTS) O XON/XOFF
Timeout 3 🗧 (s	ec)
Retry 2	
Wait ToSend 🛛 📑 (n	ns)
RI / VCC	O VCC
In the case of RS232C, you can select or VCC (5V Power Supply). If you use Isolation Unit, please select it to VCC.	
Device-Specific Settings	
Allowable No. of Device/PLCs 16 Unit(s	
No. Device Name	Settings
, , , , , , , , , , , , , , , , , , ,	

#### Device Setting

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

💰 Individual Device Settings 💦 🗙				×
PLC1				
Station		0		*
			Default	
	OK ( <u>O)</u>		Cancel	

Communication setting of external device by setup tool (Cnet Frame Editor). Please refer to the manual of external device for more detail.

- Procedure
- 1 Connect RS-232C port on CPU unit of external device with the personal computer. Refer to the manual of external device for the cable used.
- 2 Set Mode rotary SW in the Cnet module to "9" (On Line Mode), and turn on the power supply of external device again.
- **3** Start setup tool, and set the communication port.

Select [Port] of the [Option] menu, and set the port of external device connected with step 1 and the port of the personal computer.

4 Select [Connect] of the [Online] menu, and put it into the state that external device and personal computer can be communicated.

Setup	Items	Setup Description
Channel		RS232 side
	Station	00
	Туре	Null Modem
Base Parameters	Baud Rate	38400
Dase I arameters	Data Bit	8
	Parity	None
	Stop Bit	1

**5** Set the communication setup of external device with setup tool.

6 Select [Write] of the [Online] menu.

Set in the displayed dialog box, and click [Write].

Setup Items	Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Option	Basic Parameters	Select the written content. Select "Basic Parameters" here.

7 Select [Online Change Mode] of the [Online] menu.

Set in the displayed dialog box, and click [Write].

Setup Items	Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Channel	Stand Alone	
RS-232C	Dedicated Mode	

**8** Select [Change RUN/STOP] of the [Online] menu, and put external device into the state of RUN.

Setup Items	Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Туре	RS_232C	

9 Set Mode rotary SW in the Cnet module to "3" (Dedicated Mode), and turn on the power supply of external device again.

## 3.2 Setting Example 2

Settings of GP-Pro EX

Communication Settings

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

Device/PLC 1				
Summary				Change Device/PLC
Maker LS Industria	al Systems	Driver Ma	ister-K Series Cnet	Port COM1
Text Data Mode	2 Change			
Communication Settings				
SIO Type	C RS232C	C RS422/485(2wi	re) 💿 RS422/485(4wii	e)
Speed	38400	•		
Data Length	O 7	• 8		
Parity	NONE	C EVEN	O ODD	
Stop Bit	● 1	C 2		
Flow Control	O NONE	C ER(DTR/CTS)	C XON/XOFF	
Timeout	3 🔹	(sec)		
Retry	2 +			
Wait To Send	0 🕂	(ms)		
RI / VCC	© BI	C VCC		
	Supply). If you us	et the 9th pin to RI (Ing the Digital's RS2320		ault
Device-Specific Settings				
Allowable No. of De				
No. Device Na No. Device Na No. Device Na	ame	Settings Station=0	)	
		Collection (		

#### Device Setting

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

💣 Individual De	💰 Individual Device Settings 💦 🎽				
PLC1					
Station	0		-		
		Default			
OK (	0)	Cancel			

Communication setting of external device by setup tool (Cnet Frame Editor). Please refer to the manual of external device for more detail.

- Procedure
- 1 Connect RS-232C port on CPU unit of external device with the personal computer. Refer to the manual of external device for the cable used.
- 2 Set Mode rotary SW in the Cnet module to "9" (On Line Mode), and turn on the power supply of external device again.
- **3** Start setup tool, and set the communication port.

Select [Port] of the [Option] menu, and set the port of external device connected with step 1 and the port of the personal computer.

4 Select [Connect] of the [Online] menu, and put it into the state that external device and personal computer can be communicated.

Setup Items		Setup Description
Channel		RS422 side
	Station	00
	Туре	Null Modem
Base Parameters	Baud Rate	38400
Dase I arameters	Data Bit	8
	Parity	None
	Stop Bit	1

**5** Set the communication setup of external device with setup tool.

6 Select [Write] of the [Online] menu.

Set in the displayed dialog box, and click [Write].

Setup Items	Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Option	Basic Parameters	Select the written content. Select "Basic Parameters" here.

7 Select [Online Change Mode] of the [Online] menu.

Set in the displayed dialog box, and click [Write].

Setup Items	Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Channel	Stand Alone	
RS-422	Dedicated Mode	

**8** Select [Change RUN/STOP] of the [Online] menu, and put external device into the state of RUN.

Setup Items	Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Туре	RS_422	

9 Set Mode rotary SW in the Cnet module to "3" (Dedicated Mode), and turn on the power supply of external device again.

## 3.3 Setting Example 3

Settings of GP-Pro EX

Communication Settings

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

Device/PLC 1					
Summary				Change Device/PLC	
Maker LS Industria	l Systems	Driver Ma	ister-K Series Cnet	Port COM1	
Text Data Mode	2 Change				
Communication Settings					
SIO Type	C RS232C	• R\$422/485(2wi	re) 🔿 RS422/485(4w	ire)	
Speed	38400	•			
Data Length	O 7	• 8			
Parity	NONE	C EVEN	O ODD		
Stop Bit	● 1	C 2			
Flow Control	O NONE	C ER(DTR/CTS)	C XON/XOFF		
Timeout	3 🔹	(sec)			
Retry	2 +				
Wait To Send	0 🔅	(ms)			
RI / VCC	© BI	O VCC			
	Supply). If you us	ect the 9th pin to RI (In se the Digital's RS2320 		ault	
Device-Specific Settings					
Allowable No. of De					
No. Device Na No. Device Na No. Device Na	ame	Settings Station=0	)		ļ
		POLL			

#### Device Setting

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

💣 Individual De	💰 Individual Device Settings 💦 🗙				
PLC1					
Station	0	į	÷		
		Default			
OK (	<u>0)</u>	Cancel			

Communication setting of external device by setup tool (Cnet Frame Editor). Please refer to the manual of external device for more detail.

- Procedure
- 1 Connect RS-232C port on CPU unit of external device with the personal computer. Refer to the manual of external device for the cable used.
- 2 Set Mode rotary SW in the Cnet module to "9" (On Line Mode), and turn on the power supply of external device again.
- **3** Start setup tool, and set the communication port.

Select [Port] of the [Option] menu, and set the port of external device connected with step 1 and the port of the personal computer.

4 Select [Connect] of the [Online] menu, and put it into the state that external device and personal computer can be communicated.

Setup Items		Setup Description
Channel		RS422 side
	Station	00
	Туре	Null Modem
Base Parameters	Baud Rate	38400
Dase I arameters	Data Bit	8
	Parity	None
	Stop Bit	1

**5** Set the communication setup of external device with setup tool.

6 Select [Write] of the [Online] menu.

Set in the displayed dialog box, and click [Write].

Setup Items	Setup Description	Description	
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.	
Option	Basic Parameters	Select the written content. Select "Basic Parameters" here.	

7 Select [Online Change Mode] of the [Online] menu.

Set in the displayed dialog box, and click [Write].

Setup Items	Setup Description	Description	
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.	
Channel	Stand Alone		
RS-422	Dedicated Mode		

**8** Select [Change RUN/STOP] of the [Online] menu, and put external device into the state of RUN.

Setup Iten	ns Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Туре	RS_422	

9 Set Mode rotary SW in the Cnet module to "3" (Dedicated Mode), and turn on the power supply of external device again.

## 3.4 Setting Example 4

Settings of GP-Pro EX

Communication Settings

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

ĺ
_

#### Device Setting

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

💣 Individual De	💰 Individual Device Settings 💦 🎽				
PLC1					
Station	0	į	÷		
		Default			
OK (	<u>0)</u>	Cancel			

Communication setting of external device by setup tool (Cnet Frame Editor). Please refer to the manual of external device for more detail.

- Procedure
- 1 Connect RS-232C port on CPU unit of external device with the personal computer. Refer to the manual of external device for the cable used.
- 2 Set Mode rotary SW in the Cnet module to "9" (On Line Mode), and turn on the power supply of external device again.
- **3** Start setup tool, and set the communication port.

Select [Port] of the [Option] menu, and set the port of external device connected with step 1 and the port of the personal computer.

4 Select [Connect] of the [Online] menu, and put it into the state that external device and personal computer can be communicated.

Setup	Items	Setup Description
Channel		RS232 side
	Station	00
	Туре	Null Modem
Base Parameters	Baud Rate	38400
Dase I arameters	Data Bit	8
	Parity	None
	Stop Bit	1

**5** Set the communication setup of external device with setup tool.

6 Select [Write] of the [Online] menu.

Set in the displayed dialog box, and click [Write].

Setup Items	Setup Description	Description	
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.	
Option	Basic Parameters	Select the written content. Select "Basic Parameters" here.	

7 Select [Online Change Mode] of the [Online] menu.

Set in the displayed dialog box, and click [Write].

Setup Items	Setup Description	Description	
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.	
Channel	Stand Alone		
RS-232C	Dedicated Mode		

**8** Select [Change RUN/STOP] of the [Online] menu, and put external device into the state of RUN.

Γ	Setup Items	Setup Description	Description
ſ	Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
	Туре	RS_232C	

9 Set Mode rotary SW in the Cnet module to "1" (Dedicated Mode), and turn on the power supply of external device again.

## 3.5 Setting Example 5

Settings of GP-Pro EX

Communication Settings

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

Device/PLC 1				
Summary				Change Device/PLC
Maker LS Industria	al Systems	Driver Ma	ister-K Series Cnet	Port COM1
Text Data Mode	2 Change			
Communication Settings				
SIO Type	C RS232C	C RS422/485(2wii)	re) 💿 RS422/485(4wir	e)
Speed	38400	•		
Data Length	O 7	• 8		
Parity	NONE	C EVEN	O ODD	
Stop Bit	● 1	C 2		
Flow Control	NONE	C ER(DTR/CTS)	C XON/XOFF	
Timeout	3 📑	(sec)		
Retry	2 📫			
Wait To Send	0 +	(ms)		
RI / VCC	👁 BI	O VCC		
	Supply). If you us	ect the 9th pin to RI (Inj se the Digital's RS2320 		ult
Device-Specific Settings				
Allowable No. of De				
No. Device N	ame	Settings Station=0	)	
		Police 1		

#### Device Setting

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

💣 Individual De	💰 Individual Device Settings 💦 🎽				
PLC1					
Station	0	į	÷		
		Default			
OK (	<u>0)</u>	Cancel			

Communication setting of external device by setup tool (Cnet Frame Editor). Please refer to the manual of external device for more detail.

- Procedure
- 1 Connect RS-232C port on CPU unit of external device with the personal computer. Refer to the manual of external device for the cable used.
- 2 Set Mode rotary SW in the Cnet module to "9" (On Line Mode), and turn on the power supply of external device again.
- **3** Start setup tool, and set the communication port.

Select [Port] of the [Option] menu, and set the port of external device connected with step 1 and the port of the personal computer.

4 Select [Connect] of the [Online] menu, and put it into the state that external device and personal computer can be communicated.

Setup	Items	Setup Description
Channel		RS422 side
	Station	00
	Туре	Null Modem
Base Parameters	Baud Rate	38400
Dase I arameters	Data Bit	8
	Parity	None
	Stop Bit	1

**5** Set the communication setup of external device with setup tool.

6 Select [Write] of the [Online] menu.

Set in the displayed dialog box, and click [Write].

Setup Items	Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Option	Basic Parameters	Select the written content. Select "Basic Parameters" here.

7 Select [Online Change Mode] of the [Online] menu.

Set in the displayed dialog box, and click [Write].

Setup Items	Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Channel	Stand Alone	
RS-422	Dedicated Mode	

**8** Select [Change RUN/STOP] of the [Online] menu, and put external device into the state of RUN.

Setup Iten	ns Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Туре	RS_422	

9 Set Mode rotary SW in the Cnet module to "1" (Dedicated Mode), and turn on the power supply of external device again.

## 3.6 Setting Example 6

Settings of GP-Pro EX

Communication Settings

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

Summary         Change Device/PLC           Maker         LS Industrial Systems         Driver         Master-K Series Cnet         Port         COM1           Text Data Mode         2         Change         Change         COM1
Text Data Mode 2 Change
Communication Settings
SIO Type O RS232C 💿 RS422/485(2wire) O RS422/485(4wire)
Speed 38400
Data Length O 7 💿 8
Parity 💿 NONE 🔿 EVEN 🔿 ODD
Stop Bit 💿 1 🔿 2
Flow Control © NONE C ER(DTR/CTS) C XON/XOFF
Timeout 3 🚔 (sec)
Retry 2
Wait To Send 0 🚔 (ms)
RI/VCC © RI C VCC
In the case of RS232C, you can select the 9th pin to RI (Input) or VCC (5V Power Supply). If you use the Digital's RS232C Isolation Unit, please select it to VCC.
Device-Specific Settings
Allowable No. of Device/PLCs 16 Unit(s)
No. Device Name Settings           No.         Device Name         Settings           I         PLC1         Image: Settings         Settings

#### Device Setting

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

💰 Individual Device Settings 💦 🗙			
PLC1			
Station	0	į	÷
		Default	
OK (	<u>0)</u>	Cancel	

Communication setting of external device by setup tool (Cnet Frame Editor). Please refer to the manual of external device for more detail.

- Procedure
- 1 Connect RS-232C port on CPU unit of external device with the personal computer. Refer to the manual of external device for the cable used.
- 2 Set Mode rotary SW in the Cnet module to "9" (On Line Mode), and turn on the power supply of external device again.
- **3** Start setup tool, and set the communication port.

Select [Port] of the [Option] menu, and set the port of external device connected with step 1 and the port of the personal computer.

4 Select [Connect] of the [Online] menu, and put it into the state that external device and personal computer can be communicated.

Setup	Items	Setup Description
Channel		RS422 side
	Station	00
	Туре	Null Modem
Base Parameters	Baud Rate	38400
Dase I arameters	Data Bit	8
	Parity	None
	Stop Bit	1

**5** Set the communication setup of external device with setup tool.

6 Select [Write] of the [Online] menu.

Set in the displayed dialog box, and click [Write].

Setup Items	Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Option	Basic Parameters	Select the written content. Select "Basic Parameters" here.

7 Select [Online Change Mode] of the [Online] menu.

Set in the displayed dialog box, and click [Write].

Setup Items	Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Channel	Stand Alone	
RS-422	Dedicated Mode	

**8** Select [Change RUN/STOP] of the [Online] menu, and put external device into the state of RUN.

Setup Items	Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Туре	RS_422	

9 Set Mode rotary SW in the Cnet module to "1" (Dedicated Mode), and turn on the power supply of external device again.

## 3.7 Setting Example 7

Settings of GP-Pro EX

Communication Settings

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

Device/PLC 1				
Summary				Change Device/PLC
Maker L	S Industrial Systems	Driver Maste	er-K Series Cnet	Port COM1
Text Data	Mode 2 <u>Chang</u>	e		
Communication	n Settings			
SIO Type	RS232C	C RS422/485(2wire)	C RS422/485(4wire)	l
Speed	38400	<b>~</b>		
Data Len	gth C 7	• 8		
Parity	NONE	C EVEN	O ODD	
Stop Bit	1	C 2		
Flow Con	rol 💿 NONE	C ER(DTR/CTS)	C XON/XOFF	
Timeout	3	÷ (sec)		
Retry	2	÷		
Wait To 9	iend 0	÷ (ms)		
RI / VCC	I RI	O VCC		
or VCC		elect the 9th pin to RI (Input use the Digital's RS232C CC.	:) Defau	lt
Device-Specifi	c Settings			
	No. of Device/PLCs 16			
No.	Device Name PLC1	Settings		
	1	Process 1		

#### Device Setting

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

💰 Individual Device Settings 💦 🗙			
PLC1			
Station	0	į	÷
		Default	
OK (	<u>0)</u>	Cancel	

Communication setting of external device by ladder software (KGL\_WIN). Please refer to the manual of external device for more detail.

- Procedure
- 1 Connect RS-232C port on CPU unit of external device with the personal computer. Turn ON the [BUILT\_IN CNET] switch.

Refer to the manual of external device for the cable used.

- 2 Start the ladder software, and make the project newly. Select "120S" from [MK\_S] of [PLC Type].
- **3** Double-click [Parameter] of the tree view and display the [Parameter] dialog box.
- 4 Click the [CommCh0] tab, and set the communication setup of external device.

Setu	up Items	Setup Description
Communication		Enable
	Station Number	0
	Baud Rate	38400
Communication	Data Bit	8
Method	Parity	None
	Stop Bit	1
	Communication Channel	RS232C Null Modem or RS422/485
Protocol and Mode	Dedicated	Slave

**5** Select [Connect] of the [Online] menu.

6 Select [Write[KGL\_WIN=>PLC]] of the [Online] menu, and download the communication setup of external device.

• When [Write[KGL\_WIN=>PLC]] cannot be selected, it is necessary to stop driving external device.

## 3.8 Setting Example 8

Settings of GP-Pro EX

Communication Settings

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

Summary         Change Device/PLC           Maker         LS Industrial Systems         Driver         Master-K Series Cnet         Port         COM1           Text Data Mode         2         Change         Change         COM1
Text Data Mode 2 Change
Communication Settings
SIO Type O RS232C 💿 RS422/485(2wire) O RS422/485(4wire)
Speed 38400
Data Length O 7 💿 8
Parity 💿 NONE 🔿 EVEN 🔿 ODD
Stop Bit 💿 1 🔿 2
Flow Control © NONE C ER(DTR/CTS) C XON/XOFF
Timeout 3 🚔 (sec)
Retry 2
Wait To Send 0 🚔 (ms)
RI/VCC © RI C VCC
In the case of RS232C, you can select the 9th pin to RI (Input) or VCC (5V Power Supply). If you use the Digital's RS232C Isolation Unit, please select it to VCC.
Device-Specific Settings
Allowable No. of Device/PLCs 16 Unit(s)
No. Device Name Settings           No.         Device Name         Settings           I         PLC1         Image: Settings         Settings

#### Device Setting

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

💰 Individual Device Settings 💦 🎽			×
PLC1			
Station	0	į	÷
		Default	
OK (	<u>0)</u>	Cancel	

Communication setting of external device by ladder software (KGL\_WIN). Please refer to the manual of external device for more detail.

- Procedure
- Connect RS-485 port on CPU unit of external device with the personal computer. Refer to the manual of external device for the cable used.
- 2 Start the ladder software, and make the project newly. Select "120S" from [MK\_S] of [PLC Type].
- **3** Double-click [Parameter] of the tree view and display the [Parameter] dialog box.
- 4 Click the [CommCh1] tab, and set the communication setup of external device.

Setup Items		Setup Description
Communication		Enable
	Station Number	0
	Baud Rate	38400
Communication	Data Bit	8
Method	Parity	None
	Stop Bit	1
	Communication Channel	RS485
Protocol and Mode	Dedicated	Slave

- 5 Select [Connect] of the [Online] menu.
- 6 Select [Write[KGL\_WIN=>PLC]] of the [Online] menu, and download the communication setup of external device.

• When [Write[KGL\_WIN=>PLC]] cannot be selected, it is necessary to stop driving external device.

## 3.9 Setting Example 9

Settings of GP-Pro EX

Communication Settings

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

Device/PLC 1					
Summary					Change Device/PLC
Maker LS Industrial	Systems	Driver Mas	ter-K Series Cnet	P	ort COM1
Text Data Mode	2 <u>Change</u>				
Communication Settings					
SIO Type	RS232C	C RS422/485(2wir	e) 🔿 RS422/48	5(4wire)	
Speed	38400	•			
Data Length	O 7	8     8			
Parity	NONE	C EVEN	O ODD		
Stop Bit	€ 1	C 2			
Flow Control	O NONE	C ER(DTR/CTS)	C XON/XOFF		
Timeout	3 📑 (	sec)			
Retry	2 .				
Wait To Send	0 🕂 (	ms)			
RI / VCC	🖲 BI	C VCC			
	Supply). If you use	st the 9th pin to RI (Inp e the Digital's RS232C	ut)	Default	
Device-Specific Settings					
Allowable No. of Dev					
No. Device Nat No. Device Nat	me	Settings Station=0			
		POLL			

#### Device Setting

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

💰 Individual Device Settings 💦 🎽			×
PLC1			
Station	0	į	÷
		Default	
OK (	<u>0)</u>	Cancel	

Communication setting of external device by ladder software (KGL\_WIN). Please refer to the manual of external device for more detail.

- Procedure
- Connect the link I/F and the personal computer.
   Turn OFF the [BUILT\_IN CNET] switch.
   Refer to the manual of external device for the cable used.
- 2 Start the ladder software, and make the project newly. Select "120S" from [MK\_S] of [PLC Type].
- **3** Double-click [Parameter] of the tree view and display the [Parameter] dialog box.
- 4 Click the [CommCh0] tab, and set the communication setup of external device.

Setup Items		Setup Description
Communication		Enable
	Station Number	0
	Baud Rate	38400
Communication	Data Bit	8
Method	Parity	None
	Stop Bit	1
	Communication Channel	RS232C Null Modem or RS422/485
Protocol and Mode	Dedicated	Slave

5 Select [Connect] of the [Online] menu.

6 Select [Write[KGL\_WIN=>PLC]] of the [Online] menu, and download the communication setup of external device.

• When [Write[KGL\_WIN=>PLC]] cannot be selected, it is necessary to stop driving external device.

#### 3.10 Setting Example 10

- Settings of GP-Pro EX
- Communication Settings

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

Device/PLC 1	
Summary 🖸	hange Device/PLC
Maker LS Industrial Systems Driver Master-K Series Cnet Port	COM1
Text Data Mode 2 Change	
Communication Settings	
SID Type C RS232C C RS422/485(2wire) 💿 RS422/485(4wire)	
Speed 38400 💌	
Data Length O 7 📀 8	
Parity	
Stop Bit    1  2	
Flow Control © NONE C ER(DTR/CTS) O XON/XOFF	
Timeout 3 🙀 (sec)	
Retry 2	
Wait To Send 0 📑 (ms)	
RI/VCC © RI O VCC	
In the case of RS232C, you can select the 9th pin to RI (Input) or VCC (5V Power Supply). If you use the Digital's RS232C Isolation Unit, please select it to VCC.	
Device-Specific Settings	
Allowable No. of Device/PLCs 16 Unit(s)	
No. Device Name Settings           No.         Device Name           I         PLC1         Image: Station=0	

#### Device Setting

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

💰 Individual Device Settings 💦 🎽			×
PLC1			
Station	0	į	÷
		Default	
OK (	<u>0)</u>	Cancel	

Communication setting of external device by ladder software (KGL\_WIN). Please refer to the manual of external device for more detail.

- Procedure
- Connect the link I/F and the personal computer.
   Turn OFF the [BUILT\_IN CNET] switch.
   Refer to the manual of external device for the cable used.
- 2 Start the ladder software, and make the project newly. Select "120S" from [MK\_S] of [PLC Type].
- **3** Double-click [Parameter] of the tree view and display the [Parameter] dialog box.
- 4 Click the [CommCh0] tab, and set the communication setup of external device.

Setup Items		Setup Description
Communication		Enable
	Station Number	0
	Baud Rate	38400
Communication	Data Bit	8
Method	Parity	None
	Stop Bit	1
	Communication Channel	RS232C Null Modem or RS422/485
Protocol and Mode	Dedicated	Slave

**5** Select [Connect] of the [Online] menu.

6 Select [Write[KGL\_WIN=>PLC]] of the [Online] menu, and download the communication setup of external device.

• When [Write[KGL\_WIN=>PLC]] cannot be selected, it is necessary to stop driving external device.

## 3.11 Setting Example 11

- Settings of GP-Pro EX
- Communication Settings

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

Summary         Change Device/PLC           Maker         LS Industrial Systems         Driver         Master-K Series Cnet         Port         COM1           Text Data Mode         2         Change         Change         COM1
Text Data Mode 2 Change
Communication Settings
SIO Type O RS232C 💿 RS422/485(2wire) O RS422/485(4wire)
Speed 38400
Data Length O 7 💿 8
Parity 💿 NONE 🔿 EVEN 🔿 ODD
Stop Bit 💿 1 🔿 2
Flow Control © NONE C ER(DTR/CTS) C XON/XOFF
Timeout 3 🚔 (sec)
Retry 2
Wait To Send 0 🚔 (ms)
RI/VCC © RI C VCC
In the case of RS232C, you can select the 9th pin to RI (Input) or VCC (5V Power Supply). If you use the Digital's RS232C Isolation Unit, please select it to VCC.
Device-Specific Settings
Allowable No. of Device/PLCs 16 Unit(s)
No. Device Name Settings           No.         Device Name         Settings           I         PLC1         Image: Settings         Settings

#### Device Setting

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

💰 Individual Device Settings 💦 🎽			×
PLC1			
Station	0		÷
		Default	
OK (	<u>0)</u>	Cancel	

Communication setting of external device by ladder software (KGL\_WIN). Please refer to the manual of external device for more detail.

- Procedure
- Connect the link I/F and the personal computer. Turn OFF the [BUILT\_IN CNET] switch. Refer to the manual of external device for the cable used.
- 2 Start the ladder software, and make the project newly. Select "120S" from [MK\_S] of [PLC Type].
- **3** Double-click [Parameter] of the tree view and display the [Parameter] dialog box.
- 4 Click the [CommCh0] tab, and set the communication setup of external device.

Setup Items		Setup Description
Communication		Enable
	Station Number	0
	Baud Rate	38400
Communication	Data Bit	8
Method	Parity	None
	Stop Bit	1
	Communication Channel	RS232C Null Modem or RS422/485
Protocol and Mode	Dedicated	Slave

5 Select [Connect] of the [Online] menu.

6 Select [Write[KGL\_WIN=>PLC]] of the [Online] menu, and download the communication setup of external device.

• When [Write[KGL\_WIN=>PLC]] cannot be selected, it is necessary to stop driving external device.

#### 3.12 Setting Example 12

- Settings of GP-Pro EX
- Communication Settings

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

Device/PLC 1				
Summary				Change Device/PLC
Maker LS Industria	l Systems	Driver Ma	ster-K Series Cnet	Port COM1
Text Data Mode	2 Change			
Communication Settings				
SIO Type	RS232C	C RS422/485(2wir	e) 🛛 🔿 RS422/485(4wire	)
Speed	38400	-		
Data Length	O 7	• 8		
Parity	NONE	C EVEN	O ODD	
Stop Bit	● 1	C 2		
Flow Control	O NONE	C ER(DTR/CTS)	C XON/XOFF	
Timeout	3 🔹	(sec)		
Retry	2 +			
Wait To Send	0 🔅	(ms)		
RI / VCC	• RI	O VCC		
	Supply). If you us	ect the 9th pin to RI (Inp e the Digital's RS232C		dt
Device-Specific Settings				
Allowable No. of De				
	ame	Settings		
Stop Bit Flow Control Timeout Retry Wait To Send RI / VCC In the case of RS: or VCC (5V Power Isolation Unit, plea Device-Specific Settings Allowable No. of De No. Device N.	1     NONE     NONE     1     1     1     1     1     2     1     1     2     1     1     2     1     1     2     1     1     2     1     1     2     1     1     2     1     1     2     1     1     2     1     1     2     1     1     2     1     1     2     1     1     2     1     1     2     1     1     2     1     1     2     1     1     1     2     1     1     1     1     2     1	C 2 C ER(DTR/CTS) (sec) (ms) C VCC et the 9th pin to RI (Inp the 9th pin to RI (Inp the bith pin to RI S232C the 10 gital's RS232C the set the Digital's RS232C	© XON/XOFF ut)Defau	ılt

#### Device Setting

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

💣 Individual Device Settings			
PLC1			
Station	0	*	
		Default	
OK (	<u>0)</u>	Cancel	

Communication setting of external device by ladder software (KGL\_WIN). Please refer to the manual of external device for more detail.

- Procedure
- 1 Connect RS-232C port on CPU unit of external device with the personal computer. Turn ON the [BUILT\_IN CNET] switch.

Refer to the manual of external device for the cable used.

- 2 Start the ladder software, and make the project newly. Select "80S" from [MK\_S] of [PLC Type].
- **3** Double-click [Parameter] of the tree view and display the [Parameter] dialog box.
- 4 Click the [Comm] tab, and set the communication setup of external device.

Setup Items		Setup Description
Communication		Enable
	Station Number	0
	Baud Rate	38400
Communication	Data Bit	8
Method	Parity	None
	Stop Bit	1
	Communication Channel	RS232C Null Modem or RS422/485
Protocol and Mode	Dedicated	Slave

**5** Select [Connect] of the [Online] menu.

6 Select [Write[KGL\_WIN=>PLC]] of the [Online] menu, and download the communication setup of external device.

• When [Write[KGL\_WIN=>PLC]] cannot be selected, it is necessary to stop driving external device.

#### 3.13 Setting Example 13

- Settings of GP-Pro EX
- Communication Settings

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

Device/PLC 1				
Summary				Change Device/PLC
Maker LS Industria	l Systems	Driver Ma	ster-K Series Cnet	Port COM1
Text Data Mode	2 Change			
Communication Settings				
SIO Type	RS232C	C RS422/485(2wir	e) 🛛 🔿 RS422/485(4wire	)
Speed	38400	-		
Data Length	O 7	• 8		
Parity	NONE	C EVEN	O ODD	
Stop Bit	● 1	C 2		
Flow Control	O NONE	C ER(DTR/CTS)	C XON/XOFF	
Timeout	3 🔹	(sec)		
Retry	2 +			
Wait To Send	0 🔅	(ms)		
RI / VCC	• RI	O VCC		
	Supply). If you us	ect the 9th pin to RI (Inp e the Digital's RS232C		dt
Device-Specific Settings				
Allowable No. of De				
	ame	Settings		
Stop Bit Flow Control Timeout Retry Wait To Send RI / VCC In the case of RS: or VCC (5V Power Isolation Unit, plea Device-Specific Settings Allowable No. of De No. Device N.	1     NONE     NONE     1     1     1     1     1     2     1     1     2     1     1     2     1     1     2     1     1     2     1     1     2     1     1     2     1     1     2     1     1     2     1     1     2     1     1     2     1     1     2     1     1     2     1     1     2     1     1     2     1     1     2     1     1     1     2     1     1     1     1     2     1	C 2 C ER(DTR/CTS) (sec) (ms) C VCC et the 9th pin to RI (Inp the 9th pin to RI (Inp the bith pin to RI S232C the 10 gital's RS232C the set the	© XON/XOFF ut)Defau	ılt

#### Device Setting

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

💣 Individual Device Settings			
PLC1			
Station	0	*	
		Default	
OK (	<u>0)</u>	Cancel	

Communication setting of external device by ladder software (KGL\_WIN). Please refer to the manual of external device for more detail.

- Procedure
- Connect the link I/F and the personal computer.
   Turn OFF the [BUILT\_IN CNET] switch.
   Refer to the manual of external device for the cable used.
- 2 Start the ladder software, and make the project newly. Select "80S" from [MK\_S] of [PLC Type].
- **3** Double-click [Parameter] of the tree view and display the [Parameter] dialog box.
- 4 Click the [Comm] tab, and set the communication setup of external device.

Setup Items		Setup Description
Communication		Enable
	Station Number	0
	Baud Rate	38400
Communication	Data Bit	8
Method	Parity	None
	Stop Bit	1
	Communication Channel	RS232C Null Modem or RS422/485
Protocol and Mode	Dedicated	Slave

5 Select [Connect] of the [Online] menu.

6 Select [Write[KGL\_WIN=>PLC]] of the [Online] menu, and download the communication setup of external device.

• When [Write[KGL\_WIN=>PLC]] cannot be selected, it is necessary to stop driving external device.

## 3.14 Setting Example 14

- Settings of GP-Pro EX
- Communication Settings

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

1					
				Change Device/PLC	2
LS Industrial	Systems	Driver Mas	er-K Series Cnet	Port COM1	Ĩ
ata Mode	2 <u>Change</u>				
tion Settings					
pe	C RS232C	C RS422/485(2wire	) • RS422/485	(4wire)	
	38400	-			
ength	O 7	• 8			
	NONE	C EVEN	O ODD		
it	• 1	C 2			
ontrol	NONE	C ER(DTR/CTS)	C XON/XOFF		
ut	3 📑 (	sec)			
	2 🔅				
o Send	0 📫 (	ms)			
CC	🖲 BI	O VCC			
CC (5V Power	Supply). If you use			Default	
cific Settings					
o. Device Nai 1 PLC1	ne	Settings			
	ata Mode tion Settings pe ength it ontrol at o Send CC SC (SV Power ion Unit, pleas cific Settings ble No. of Dev o. <u>Device Nar</u>	LS Industrial Systems ata Mode 2 Change tion Settings pe RS232C ask400 ength 7 NDNE it 1 ontrol NONE at 3 c Send 0 C RI a case of RS232C, you can select it to VCC. C (5V Power Supply), If you us; ion Unit, please select it to VCC. cific Settings ble No. of Device/PLCs 16 Unit o, Device Name	LS Industrial Systems       Driver       Mast         ata Mode       2       Change         tion Settings	LS Industrial Systems       Driver       Master-K. Series Cnet         ata Mode       2       Change         tion Settings	LS Industrial Systems       Driver       Master-K Series Cnet       Pot       CDMT         ata Mode       2       Change       Pot       CDMT         tion Settings       pe       RS232C       RS422/485(2wire)       ® RS422/485(4wire)         ge       RS232C       RS422/485(2wire)       ® RS422/485(4wire)         38400       •       •         ge       NONE       EVEN       0DD         it       0       1       2         ontrol       NONE       EVEN       0DD         it       1       2         osend       0       (ms)         2C       @ (ms)         2C

#### Device Setting

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

💣 Individual De	×		
PLC1			
Station	0		÷
		Default	
OK (	<u>0)</u>	Cancel	

Communication setting of external device by ladder software (KGL\_WIN). Please refer to the manual of external device for more detail.

- Procedure
- Connect the link I/F and the personal computer.
   Turn OFF the [BUILT\_IN CNET] switch.
   Refer to the manual of external device for the cable used.
- 2 Start the ladder software, and make the project newly. Select "80S" from [MK\_S] of [PLC Type].
- **3** Double-click [Parameter] of the tree view and display the [Parameter] dialog box.
- 4 Click the [Comm] tab, and set the communication setup of external device.

Setup Items		Setup Description
Communication		Enable
	Station Number	0
	Baud Rate	38400
Communication	Data Bit	8
Method	Parity	None
	Stop Bit	1
	Communication Channel	RS232C Null Modem or RS422/485
Protocol and Mode	Dedicated	Slave

5 Select [Connect] of the [Online] menu.

6 Select [Write[KGL\_WIN=>PLC]] of the [Online] menu, and download the communication setup of external device.

• When [Write[KGL\_WIN=>PLC]] cannot be selected, it is necessary to stop driving external device.

#### 3.15 Setting Example 15

- Settings of GP-Pro EX
- Communication Settings

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

Device/PLC 1			
Summary			Change Device/PLC
Maker LS Industrial Syst	ems Driver Maste	er-K Series Cnet	Port COM1
Text Data Mode 2	Change		
Communication Settings			
SIO Type 🛛 🔿	RS232C	C RS422/485(4wire)	
Speed 38	8400 💌		
Data Length 📀	7 💿 8		
Parity 📀	NONE C EVEN	O ODD	
Stop Bit 📀	1 C 2		
Flow Control 📀	NONE C ER(DTR/CTS)	C XON/XOFF	
Timeout 3	(sec)		
Retry 2	<b></b>		
Wait To Send 0	* (ms)		
RI / VCC 💿	RI O VCC		
In the case of RS232C, or VCC (5V Power Supp Isolation Unit, please set	you can select the 9th pin to RI (Input oly). If you use the Digital's RS232C lect it to VCC.	t) Default	
Device-Specific Settings			
Allowable No. of Device/F			
No. Device Name	Settings Station=0		
	POLL 1		

#### Device Setting

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

💣 Individual De	×		
PLC1			
Station	0		÷
		Default	
OK (	<u>0)</u>	Cancel	

## Settings of External Device

Communication setting of external device by ladder software (KGL\_WIN). Please refer to the manual of external device for more detail.

- Procedure
- Connect the link I/F and the personal computer.
   Turn OFF the [BUILT\_IN CNET] switch.
   Refer to the manual of external device for the cable used.
- 2 Start the ladder software, and make the project newly. Select "80S" from [MK\_S] of [PLC Type].
- **3** Double-click [Parameter] of the tree view and display the [Parameter] dialog box.
- 4 Click the [Comm] tab, and set the communication setup of external device.

Setup Items		Setup Description	
Communication		Enable	
	Station Number	0	
	Baud Rate	38400	
Communication Method	Data Bit	8	
	Parity	None	
	Stop Bit	1	
	Communication Channel	RS232C Null Modem or RS422/485	
Protocol and Mode	Dedicated	Slave	

5 Select [Connect] of the [Online] menu.

6 Select [Write[KGL\_WIN=>PLC]] of the [Online] menu, and download the communication setup of external device.

• When [Write[KGL\_WIN=>PLC]] cannot be selected, it is necessary to stop driving external device.

Select [Change Mode] - [Stop] of the [Online] menu.

# 4 Setup Items

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

"3 Example of Communication Setting" (page 8)

# 4.1 Setup Items in GP-Pro EX

## Communication Settings

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

Devie	ce/PLC 1							
Sum	mary						Ch	ange Device/PLC
	Maker LS Industrial	Systems	Driv	er Masi	er-K Series	Cnet	Port	COM1
	Text Data Mode	2 <u>Change</u>						
Corr	munication Settings							
	SIO Type	RS232C	C RS422/	485(2wire	) O F	RS 422/485(4wire)		
	Speed	38400	•					
	Data Length	O 7	• 8					
	Parity	NONE	C EVEN		O ODD			
	Stop Bit	• 1	C 2					
	Flow Control	NONE	C ER(DTF	(/CTS)	O XON/	XOFF		
	Timeout	3 📑 (	sec)					
	Retry	2 🕂						
	Wait To Send	0 📫 (	ms)					
	RI / VCC	BI     B	C VCC					
	In the case of RS2 or VCC (5V Power Isolation Unit, pleas	Supply). If you use			it)	Default	]	
Dev	rice-Specific Settings							
	Allowable No. of Dev							
	No. Device Nat No. Device Nat No. Device Nat	ne	Settin	gs itation=0				

Setup Items	Setup Description		
SIO Type	Select the SIO type to communicate with the External Device.		
Speed	Select speed between the External Device and the Display.		
Data Length	Select data length.		
Parity	Select how to check parity.		
Stop Bit	Select stop bit length.		
Flow Control	Display the communication control method to prevent overflow of transmission and eception data.		
Timeout	Use an integer from 1 to 127 to enter the time (s) for which the Display waits for the response from the External Device.		
Retry	In case of no response from the External Device, use an integer from 0 to 255 to enter how many times the Display retransmits the command.		
Wait To Send	Use an integer from 0 to 255 to enter standby time (ms) for the Display from receiving packets to transmitting next commands.		
RI/VCC	You can switch RI/VCC of the 9th pin when you select RS232C for SIO type. It is necessary to change RI/5V by changeover switch of IPC when connect with IPC. Please refer to the manual of the IPC for more detail.		

#### Device Setting

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

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

💣 Individual Device Settings		
PLC1		
Station	0	*
	Default	
OK ((	<u>)</u> Cancel	

Setup Items	Setup Description
Station	Use an integer from 1 to 31 to enter the Station No. of the External Device. (Initial value [0])

## 4.2 Setup Items in Off-Line Mode

NOTE

 Please refer to Maintenance/Troubleshooting for more information on how to enter off-line mode or about operation.
 Cf. Maintenance/Troubleshooting "2.2 Offline Mode"

## Communication Settings

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

Comm.	Device	Option	η.	
				-
Master-K Series	Cnet		[COM1]	Page 1/1
SIO Type Speed Data Length Parity Stop Bit Flow Control	RS232C 38400 ○ 7 ● NONE ● 1 NONE	• 8 • EVEN • 2	< ○ ODD	
Timeout(s) Retry Wait To Send(	ms)	3 V A 2 V A 0 V A		
	Exit		Back	2006/05/15 11:28:50

Setup Items	Setup Description		
	Select the SIO type to communicate with the External Device.		
SIO Type	To make the communication settings correctly, confirm the serial interface specifications of Display unit for [SIO Type]. We cannot guarantee the operation if a communication type that the serial interface does not support is specified. For details concerning the serial interface specifications, refer to the manual for Display unit.		
Speed	Select speed between the External Device and the Display.		
Data Length	Select data length.		
Parity	Select how to check parity.		
Stop Bit	Select stop bit length.		
Flow Control	Display the communication control method to prevent overflow of transmission and reception data.		
Timeout	Use an integer from 1 to 127 to enter the time (s) for which the Display waits for the response from the External Device.		

Setup Items	Setup Description
Retry	In case of no response from the External Device, use an integer from 0 to 255 to enter how many times the Display retransmits the command.
Wait To Send	Use an integer from 0 to 255 to enter standby time (ms) for the Display from receiving packets to transmitting next commands.

#### Device Setting

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

Comm.	Device	Option		
Master-K Series	Cnet		[COM1]	Page 1/1
Devic	e/PLC Name PL	01		-
<b>.</b> .		_		
Station		0 🔻		
	Exit		Back	2006/05/15 11:28:53
				11.20.00

Setup Items	Setup Description
Device/PLC Name	Select the External Device for device setting. Device name is a title of External Device set with GP-Pro EX.(Initial value [PLC1])
Station	Use an integer from 0 to 31 to enter the Station No. of the External Device. (Initial value [0])

## Option

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

Comm.	Device	Option		
Master-K Series	Cnet		[COM1]	Page 1/1
	In the case the 9th pin Power Suppl	<ul> <li>RI</li> <li>of RS232C, you</li> <li>to RI(Input) or</li> <li>y). If you use th</li> <li>ation Unit, plea</li> </ul>	can select VCC(5V e Digital's	
	Exit		Back	2006/05/15 11:28:56

Setup Items	Setup Description
RI/VCC	You can switch RI/VCC of the 9th pin when you select RS232C for SIO type. It is necessary to change RI/5V by changeover switch of IPC when connect with IPC. Please refer to the manual of the IPC for more detail.

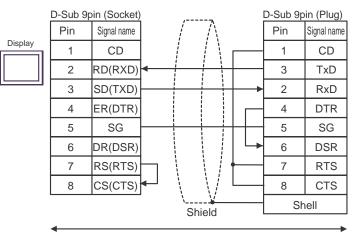
The cable diagram shown below may be different from the cable diagram recommended by LS Industrial Systems. Please be assured there is no operational problem in applying the cable diagram shown in this manual.

- The FG pin of the External Device body must be D-class grounded. Please refer to the manual of the External Device for more details.
- SG and FG are connected inside the Display. When connecting SG to the External Device, design the system not to form short-circuit loop.
- Connect the isolation unit, when communication is not stabilized under the influence of a noise etc..

#### Cable Diagram 1

Display (Connection Port)	Cable	Notes
GP (COM1) IPC <sup>*1</sup>	Your own cable	The cable length must be 15m or less.

\*1 Only the COM port which can communicate by RS-232C can be used. <sup>C</sup> ■ COM Port of IPC (page 5)



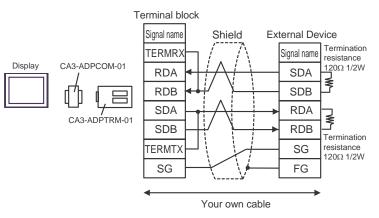
Your own cable

Display (Connection Port)		Cable	Notes
GP <sup>*1</sup> (COM1) AGP-3302B (COM2) IPC <sup>*2</sup>	A	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	
	В	Your own cable	
GP*3 (COM2)		Online adapter by Pro-face CA4-ADPONL-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	The cable length must be 500m or less.
	D	Online adapter by Pro-face CA4-ADPONL-01 + Your own cable	

\*1 All GP models except AGP-3302B

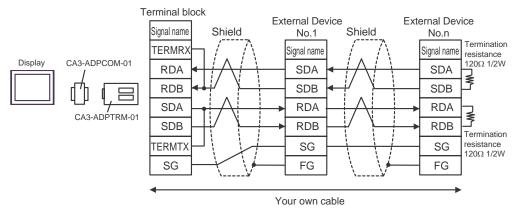
\*2 Only the COM port which can communicate by RS-422/485 (4 wire) can be used. ☞ ■ COM Port of IPC (page 5)

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

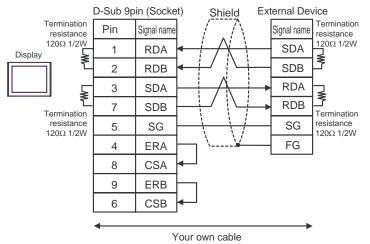


<sup>\*3</sup> All GP models except GP-3200 series and AGP-3302B

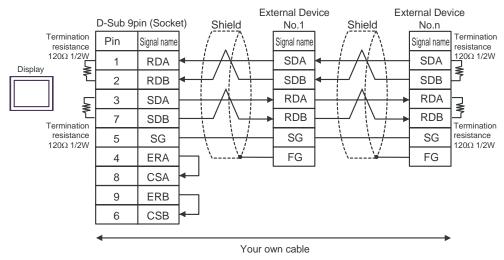
• 1:n Connection



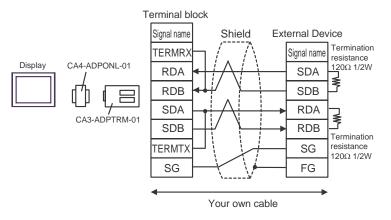
- B) When using your own cable
- 1:1 Connection



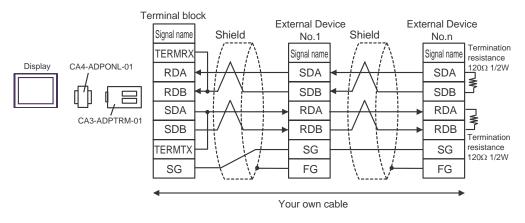
• 1:n Connection



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

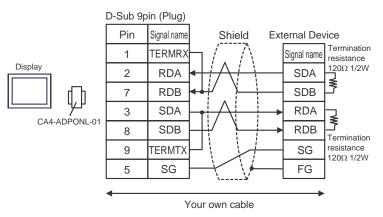


1:n Connection

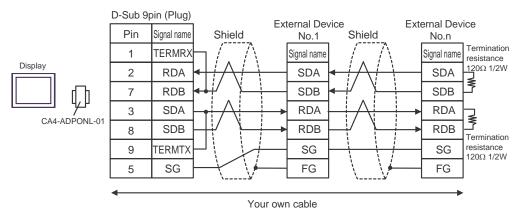


D) When using the online adapter (CA4-ADPONL-01) by Pro-face and your own cable

• 1:1 Connection



• 1:n Connection



Display (Connection Port)		Cable	Notes	
GP <sup>*1</sup> (COM1) AGP-3302B (COM2)	А	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable		
	В	Your own cable		
GP*2 (COM2)	С	Online adapter by Pro-face CA4-ADPONL-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	The cable length must be 500m or less.	
	D	Online adapter by Pro-face CA4-ADPONL-01 + Your own cable		
IPC*3	Е	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable		
	F	Your own cable		

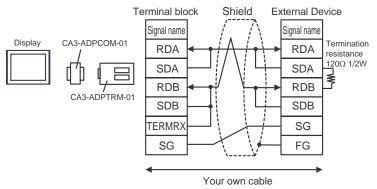
\*1 All GP models except AGP-3302B

\*2 All GP models except GP-3200 series and AGP-3302B

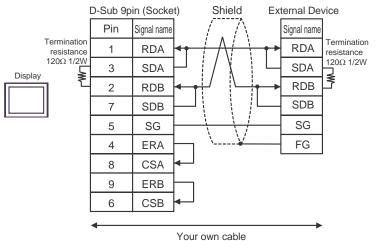
\*3 Only the COM port which can communicate by RS-422/485 (2 wire) can be used.

COM Port of IPC (page 5)

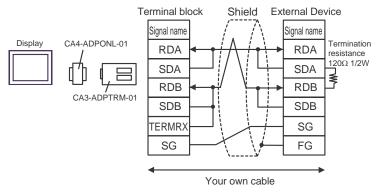
- A) When using the COM port conversion adapter (CA3-ADPCOM-01), the terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable
- 1:1 Connection



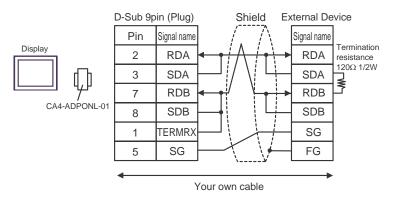
- B) When using your own cable
- 1:1 Connection



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

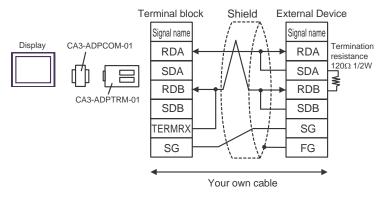


- D) When using the online adapter (CA4-ADPONL-01) by Pro-face and your own cable
- 1:1 Connection



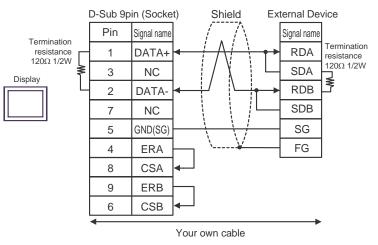
E) When using the COM port conversion adapter (CA3-ADPCOM-01), the terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable

• 1:1 Connection



F) When using your own cable

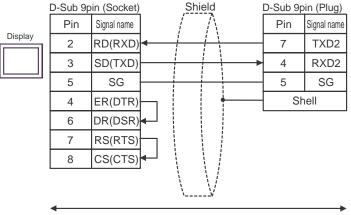
• 1:1 Connection



Display (Connection Port)	Cable	Notes
GP (COM1) IPC <sup>*1</sup>	Your own cable	The cable length must be 15m or less.

\*1 Only the COM port which can communicate by RS-232C can be used.

COM Port of IPC (page 5)



Your own cable

Display (Connection Port)		Cable	Notes
GP <sup>*1</sup> (COM1) AGP-3302B (COM2)	А	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	
	В	Your own cable	
GP <sup>*2</sup> (COM2)	С	Online adapter by Pro-face CA4-ADPONL-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	The cable length must be 500m or less.
	D	Online adapter by Pro-face CA4-ADPONL-01 + Your own cable	
IPC*3	E	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	
	F	Your own cable	

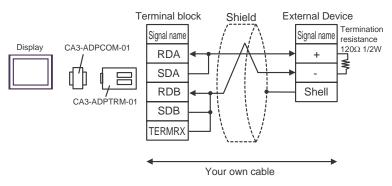
\*1 All GP models except AGP-3302B

\*2 All GP models except GP-3200 series and AGP-3302B

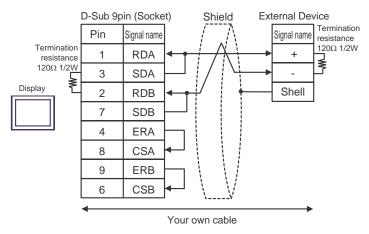
\*3 Only the COM port which can communicate by RS-422/485 (2 wire) can be used.

COM Port of IPC (page 5)

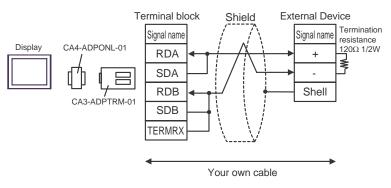
- A) When using the COM port conversion adapter (CA3-ADPCOM-01), the terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable
- 1:1 Connection



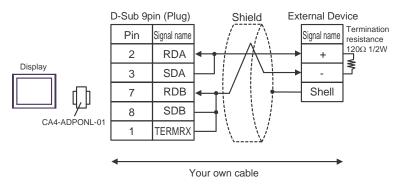
- B) When using your own cable
- 1:1 Connection



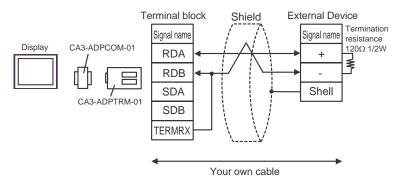
- C) When using the online adapter (CA4-ADPONL-01), the terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable
- 1:1 Connection



- D) When using the online adapter (CA4-ADPONL-01) by Pro-face and your own cable
- 1:1 Connection

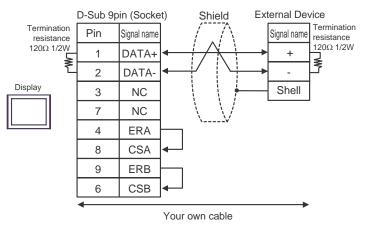


- E) When using the COM port conversion adapter (CA3-ADPCOM-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable
- 1:1 Connection



F) When using your own cable

• 1:1 Connection



This address can be specified as system data area.

# 6 Supported Device

Range of supported device address is shown in the table below. Please note that the actually supported range of the devices varies depending on the External Device to be used. Please check the actual range in the manual of your connecting equipment.

С

Device	Bit Address	Word Address	32 bits	Notes
Input / Output Relay	P000 - P63F	P00 - P63		
Auxiliary Relay	M0000 - M191F	M000 - M191		
Keep Relay	K000 - K31F	K00 - K31		
Link Relay	L000 - L63F	L00 - L63		
Special Relay	F000 - F63F	F00 - F63		*1
Timer (Contact)	T000 - T255		[L/H]	
Counter (Contact)	C000 - C255			
Timer (Elapsed Value)		T000 - T255		
Counter (Elapsed Value)		C000 - C255		
Step Controller		S00 - S99		
Data Register		D0000 - D9999		вit F

\*1 Write disable.

NOTE

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

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

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

"Manual Symbols and Terminology"

# 7 Device Code and Address Code

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

Device	Device Name	Device Code (HEX)	Address Code
Input / Output Relay	Р	0080	Word address
Auxiliary Relay	М	0082	Word address
Keep Relay	K	0083	Word address
Link Relay	L	0084	Word address
Special Relay	F	0085	Word address
Timer (Elapsed Value)	Т	0060	Word address
Counter (Elapsed Value)	С	0061	Word address
Step Controller	S	0062	Word address
Data Register	D	0000	Word address

# 8 Error Messages

Error messages are displayed on the screen of Display as follows: "No. : Device Name: Error Message (Error Occurrence Area)". Each description is shown below.

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

#### Display Examples of Error Messages

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

NOTE
Please refer to the manual of External Device for more detail of received error codes.
Please refer to "When an error message is displayed (Error code list)" of "Maintenance/ Troubleshooting" for a common error message to the driver.