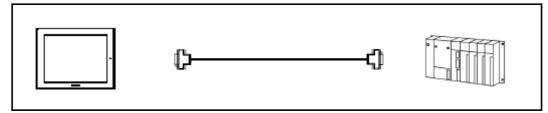


Connecting Rockwell (Allen-Bradley) PLC

MicroLogix 1200/1500 Series Serial

System Structure



GP

	Model	Product	Remark
(GP	GP70 Series	
		GP77 / 77R Series	
		GP2000 Series	
(GLC	GLC2000 Series	

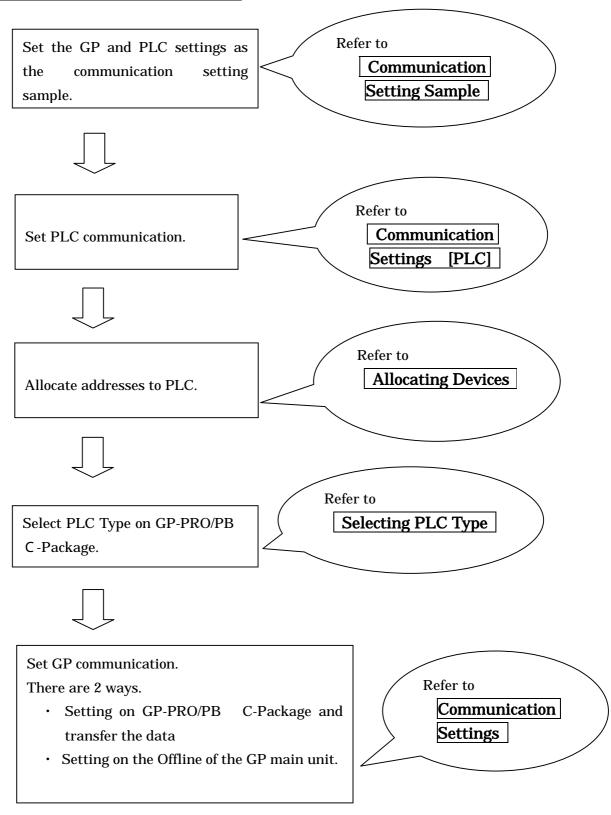
* Information for connecting Handy Type is not on this instruction.

PLC

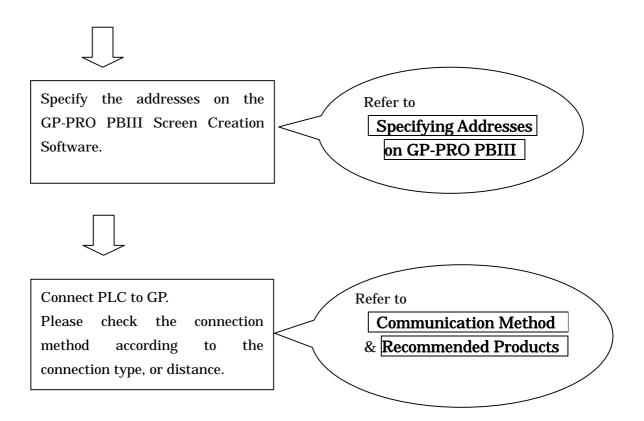
	r	r		
CPU	232C Port	Communication Method		
1200 Series 1762-L24AWA 1762-L24BWA 1762-L24BXB 1762-L40AWA 1762-L40BWA 1762-L40BXB	RS-232C Port on the CPU Unit	RS-232C	Connection Method	GP
1500 Series	RS-232C Port on			
1764-LSP	the BASE Unit			



Procedure to Connect PLC









Communication Setting Sample

MicroLogix 1200/1500 Series

GP Sett	ings	PLC Settings			
Speed	19200bps	Baud Rate	19200bps		
Data Length	8bits	-	-		
Stop Bit	1bit	-	-		
Parity	Even	Parity	Even		
Flow Control	ER (DTR/CTS)	-	-		
SIO Type	RS-232C	-	-		
DH Address GP	0 to 254	Node Address	0 to 254		
DH Address PLC*1					
SIO Type	RS-232C	-	-		
-	-	Driver	DF1 Half Duplex		
			Slave		
-	-	Control Line	No Handshaking		
-	-	Error Detection	BCC		
-	-	EOT Suppression	Not Checked		
-	-	Duplicate Packed	Not Checked		
		Detect			
-	-	Poll Timeout	3000		
-	-	Message Retries	3		
-	-	Pre Transmit	0		
		Delay			

*1 Set with same address for [DH Address GP] and [DH Address PLC]



Communication Settings [PLC]

Two programs are required for MicroLogix PLC communication settings.

- 1. RSLinx Software to connect PLC and PC with RSLogix500 installed (Ver.2.41.00 is used in this sample.)
- 2. RSLogix500 Ladder Software

(Ver.5.20.00 is used in this sample.)

- * Communication Settings on RSLogix500 Please connect PLC and PC with RSLinx before creating a ladder. (Contact Rockwell Automation, Inc. for more details.)
- 1) Start up RSLogix500.

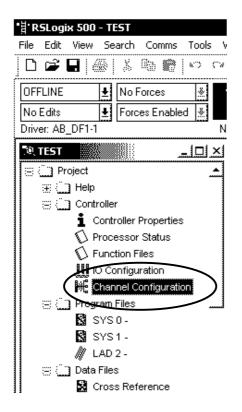
2) Select the CPU type

Select Processor T	уре							2
Pro	ocessor Name		1					OK
1747-L552B 1747-L551B	5/05 CP 5/05 CP		Mem. Mem.		Series		<u> </u>	Cancel
1747-L551B 1747-L553 1747-L552	5/05 CP 5/05 CP	U - 64K	Mem.		Series	C	_	Help
1747-L551 1747-L553 1747-L552 1747-L551 1747-L551 1747-L543C	5/05 CP 5/05 CP 5/05 CP 5/05 CP 5/04 CP 5/04 CP 5/04 CP 5/04 CP 5/04 CP 5/04 CP	U – 64K U – 32K U – 16K U – 64K U – 32K U – 16K	Mem . Mem . Mem . Mem . Mem . Mem . Mem . Mem .	OS501 OS500 OS500 OS500 OS401 OS401 OS401 OS401 OS401	Series Series Series	Ċ	<u> </u>	
Communication se		essor Node:			, Re	ply Timeout	:	
AB_DF1-1	<u> </u>	Decimal (Octal)	=1	Vho Active		0 (Se	c.)	

Communication Settings can be left by default.



3) Click [Channel Configuration] .



4) A dialog box will appear. Then double-click the [Channel 0] tab and set the channel.

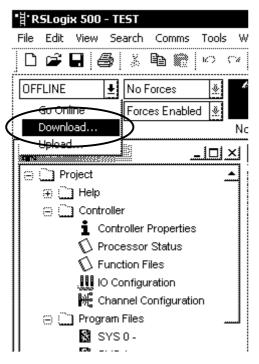
Channel Configuratio	n	6.55			×
General Channel O	\mathbf{D}				4
Driver DF1 Ha Baud 19200 Parity EVEN	If Duplex Slave	lode Address) (decim	ial)		
Protocol Control					20. 10000
Control Line No H Error Detection	landshaking BCC	<u>ت</u> ۲	Pol	l limeout (x)	20 ms) 3000
	T EOT Suppression	tect	Pre Tran:	Message F smit Delay (>	
	OK	Cano	:el	Apply	Help

Setting Item Setting Detail		Remark
Baud Rate	19200bps	
Parity	Even	
Communication Driver	DF1 Half-Duplex	
Duplicate Packet Detection	Disable	System cannot be operated with other settings.
Error Detection	BCC	System cannot be operated with other settings.
Control Line	No Hand shaking	System cannot be operated with other settings.
Station Address	0 to 255	Set with the same address as DH GP Address of GP.

* Other settings can be left by default.

Click the [OK] button after complete the settings.

Download the driver settings. Click [OFFLINE] and select [Download...].





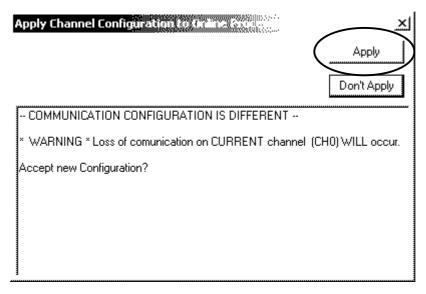
The dialog box as below will be displayed, and then click the [OK] button.

Revision Note	×
To not prompt me for revision notes again.	
Path: C:\WORKING FOLDER\TEST.RSS	
Revision Note Version: 0	Cancel
File PLC Information	
Processor Name : UNTITLED Station # : 1d	
Processor Type : Bul. 1764 Micrologix 1500 LSP Series C	
1	

The following alert dialog box will appear, and then click [Yes].

RSLogix	500	×
$\hat{\mathbf{A}}$	Downloading Program (UNTITLED) for Bul.1764 Micrologix 1500 LSP Series To	с
	(UNTITLED) Bul.1764 Micrologix 1500 LSP Series C Driver:AB_DF1-1 at Node:1	
	Are you sure you want to proceed with Download?	
	Yes No	

The below dialog box warning "Loss of communication on CURRENT channel (CH0) will occur." will be displayed, and then click [Apply].



The port settings for MicroLogix 1200/1500 are completed.

Note)

When redownloading a project, please be noted that you may not be able to download it because 0 Channel of PLC has been changed to the port settings to communicate to GP.

In case to redownload it, open the cover on MicroLogix 1200/1500 and press the communication toggle push button. After pressing the button, the communication settings of the RS-232C port on the Base Unit will be the default settings. Confirm that PLC is recognized on RSLINX before redownloading.

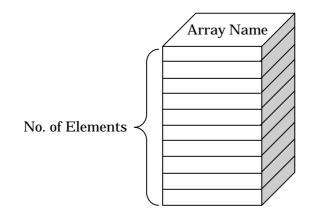
Setting Item	Setting Detail
Protocol	DF1 Full-Duplex
Baud Rate	19,200 bps
Parity	none
Stop Bits	1bit
Node Address	1
Control Line	No Hand shaking
Error Detection	CRC
Embedded Responses	auto detect
Duplicate Packet Detect	enable
ACK Timeout	50 Counts
NAK Retries	3 retries
ENQ Retries	3 retries

Default Communication Settings of RS-232C Port on Base Unit



Assigning Devices

With Rockwell PLC, the required arrays and number of elements are assigned on RSLogix500. If you connect it to GP/GLC without assigning here, a host communication error will occur.



[File Type]

Test.RSS
🗃 🛄 Controller
Controller Properties
🚺 Processor Status
🚺 Function Files
. IO Configuration
💥 Channel Configuration
🕀 🆳 Program Files
📓 SYSO-
SYS1-
🦧 LAD 2 -
⊖. 🗋 Data Files
Cross Reference
11 - INPUT
S2 - STATUS
F8 - FLOAT
RCP Configuration Files

The project file has array types and array numbers as left.



Data File N7 (dec) INTEGER Offset 0 N7:0 0 N7:0 0 N7:0 0 Image: Symbol:	X_ 7 8 9 7 8 9 	Only one element exists by default. Because N array to which the system start address is assigned needs 20 elements, it is necessary to increase elements.
Image: Normalized state Image: Norma	ncrease these elen ≚	nents, start setting as left.
File: 7 Type: N Name: NTEGER Desc: Elements: 255 Last: N7:254 Attributes Detrug Skip When Deleting Unused Memory Scope Globat Closel To File LAD 2- Protection Constant C Static C None Memory Module / Download	* N7	er the number of required nents. 7 needs at least 20 elements to cate the system start address.

Help

ΟK

Cancel

Apply



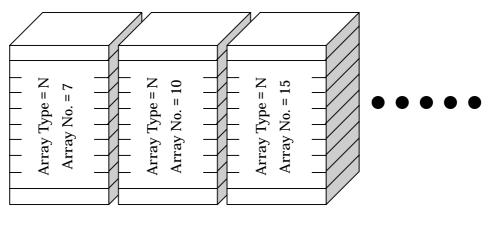
🗿 Data File N	7 (dec)	INTEGE	\$							<u> </u>
Offset	0	1	2	3	4	5	6	7	8	9
N7:150	0	0	0	0	0	0	0	0	0	0 🔺
N7:160	0	0	0	0	0	0	0	0	0	0
N7:170	0	0	0	0	0	0	0	0	0	0
N7:180	0	0	0	0	0	0	0	0	0	0
N7:190	0	0	0	0	0	0	0	0	0	0
N7:200	0	0	0	0	0	0	0	0	0	0
N7:210	0	0	0	0	0	0	0	0	0	0 1
N7:220	0	0	0	0	0	0	0	0	0	0
N7:230	0	0	0	0	0	0	0	0	0	0
N7:240	0	0	0	0	0	0	0	0	0	0
N7:250	0	0	0	0	0					_
N7:25									x Decima	نے - <u>ار</u> آب ا
Symbol:	14									ns: 10 🔻
Desc:		Proper	ties		Usa	ge		Hel	р	

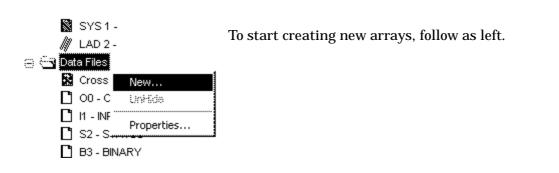
As you can see left, 255 elements have been created in N7.

[Creating New Array]

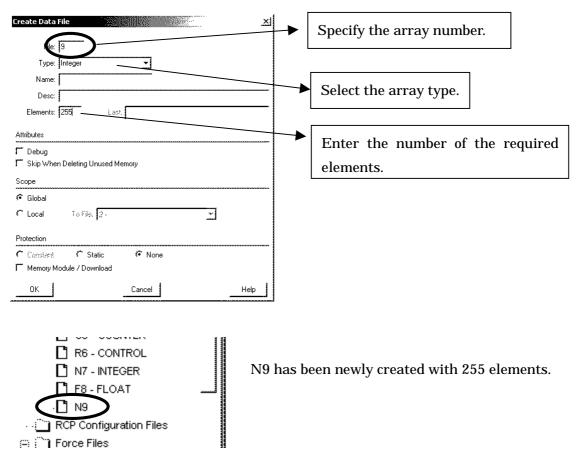
It is possible to create multiple arrays with Rockwell PLC.

e.g.)









Following this way, create arrays and elements towards each array type.

Duplication of array numbers following array type is not allowed. For example, you cannot create such as N15, B15.



Selecting PLC Type

Start up GP-PRO /PBIII.

Select the following PLC Type when creating the project file.

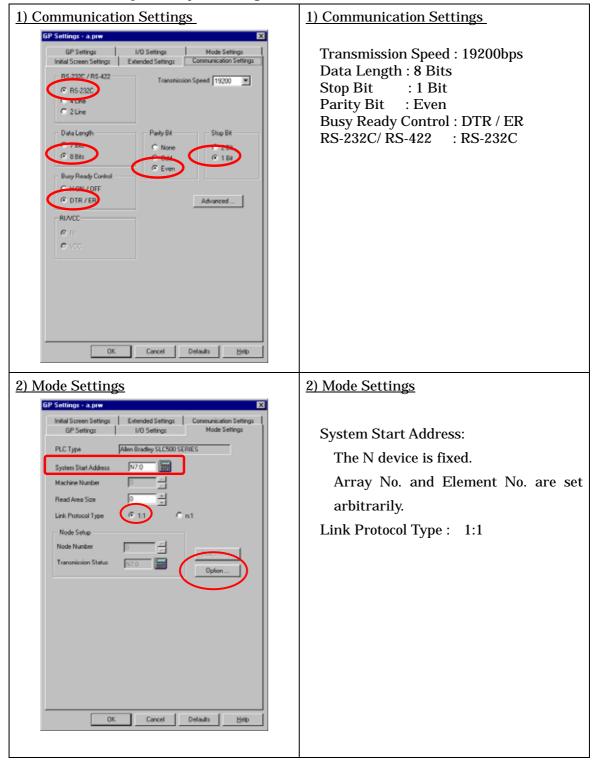




Communication Settings [GP]

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

Select [GP Setup] on Project Manager.





<u>3) Mode Settings (DH Address Settings)</u>	<u>3) Mode Settings (DH Address Settings)</u>
Option X DHAddress(Dec) OK	Click [Option] to set DH Address.
GP NO. Cancel	DH Address
PLC NO. 0 Help	GP NO.: Arbitrary Address (0 - 255)
	PLC NO.: Arbitrary Address (0 - 255)
	* GP No. and PLC No. must be same address.

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

	Communications Port
Upload Information	
GP System Screen Fjling Data(CF card)	Comm Port COM1 Retry Count 5
Data Trans Func CSV Data(CF card)	
	Baud Rate 115.2K 💌 (bps)
	C Ethernet
Transfer Method	
Send All Screens	IP Address U. U. U. U. Port 0000
 Automatically Send Changed Screens 	
C Send User Selected Screens	C Ethernet: Auto Acquistion
	C Memory Loader
Transfer Mode	
Preparation for a transfer and a transfer are made :	simultaneous
O It is transferred after preparation for a transfer is fin	ished.
-Setup • Automatic Setup Use	Extended Program :
	Simulation
2	
C Do NOT Perform Setup	System Screen
Setup CFG file :	
Setup CFG file :	
Setup CFG file : © English © Japanese	
Setup CFG file :	Win\protocol\ <u>Browse</u>
Setup CFG file : © English © Japanese © Selection C.\Program Files\pro-face\ProPB'	
Setup CFG file : © English © Japanese	Win\protocol\ Browse
Setup CFG file : © English © Japanese © Selection C.\Program Files\pro-face\ProPB'	

Transfer to GP after settings completed.



2 [GP Settings]

1) Checking GP Type	1) Checking GP Type
MAIN MENU *03/00/00 00:00 1 INITIALIZE SCREEN DATA TRANSFER 3 SELF-DIAGNOSIS 3 SELF-DIAGNOSIS 4 RUN	If you have selected Allen-Bradley SLC500 Series, the following will be shown. "AB_SLC500"
2) Communication Settings	2) Communication Settings
MAIN MENU INITIALIZE SET UP SIO 2 SET UP PRINTER 3 SET UP TOUCH PANEL 4 COMMANICATION SETUP 5 SOUND SETTINGS	[MAIN MENU] [INITIALIZE] [SET UP I/O] [SET UP SIO]
SET UP SIO SET CANCEL COMMUNICATION RATE 2400 4800 9604 19200 38400 57600 115200 DATA LENGTH 7 8 7 8 7 7 8 STOP BIT 1 2 2 9604 19200 38400 57600 115200 DATA LENGTH 7 8 7 8 7 8 7 10 10 CONTROL X-CNTRL EVEN COMMUNICATION FORMA R52320 4 LINE 2 LINE 1 2 3 4 5 6 7 8 0 1 4 ES 1 2 3 4 5 6 7 8 0 1 4 ES	Communication Rate :19200bps Data Length : 8 Bit Stop Bit :1 Bit Parity :Even Control :ER Communication Format:RS-232C

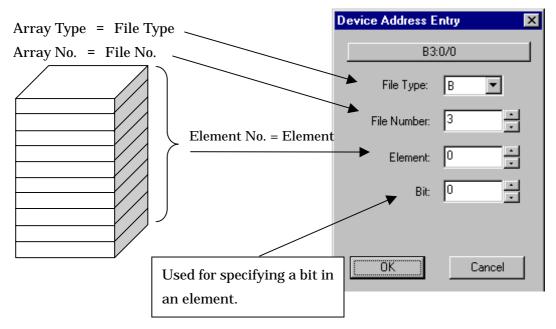


3) Setting up Operation Surroundings	3) Setting up Operation Surroundings
MAIN MENU INITIALIZE 1 SYSTEM ENVIRONMENT SETUP 2 SET UP 1/0 3 PLC SETUP 4 INITIALIZE MEMORY 5 SET UP TIME 6 SET UP SCREEN	[MAIN MENU] [INITIALIZE] [PLC SETUP] [PLC SETUP]
SET UP OPERATION SURROUNDINGS	SET UP OPERATION SURRORNDINGS MENU:1:1
SET UP OPERATION SURROUNDINGS SET CANCEL SYSTEM DATA AREA START FILE [N007] START ADDRESS [0] DH ADDRESS (DECIMAL) GP [0] PLC [0] SYSTEM AREA READING AREA SIZE (0-256) [0] RESET GP ON DATA WRITE ERROR ON OFF 1 2 3 4 5 6 7 8 8 0 ↑ ↑ ↓ BS	SYSTEM DATA AREA START FILE: The INT device is fixed. Array Number (Arbitrary) START ADDRESS: Element Number (Arbitrary) DH ADDRESS GP : Arbitrary Address (0 - 255) DH ADDRESS PLC : Arbitrary Address (0 - 255)
	* GP No. and PLC No. must be same address.

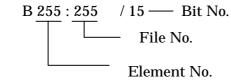


Specifying Addresses on GP-PRO PBIII

Because two or more arrays exist, the idea of addressing on GP-PRO PB / III is different from the addressing on other companies PLC.



This is how to see the addresses.





Device	Bit Address	Word Address	Remar	k
Bit	B003:000/00-B003:255/00 B009:000/00-B255:255/00	B003:000-B003:255 B009:000-B255:255	*1, *2	H/L
Timer (TT: Timing Bit)	T004000/TT-T004:255/TT T009:000/TT-T255:255/TT	-	*4	
Timer (DN: Complete Bit)	T004:000/TT-T004:255/TT T009:000/TT-T255:255/TT	-	*4	
Timer (PRE:Preset Value)	-	T004:000.PRE-T004:255.PRE T009:000.PRE-T255:255.PRE	*3	
Timer (ACC: Current Value)	-	T004:000.ACC-T004:255.ACC T009:000.ACC-T255:255.ACC	*3	
Counter (CU: Up Count)	C005:000/CU-C005:255/CU C009:000/CU-C255:255/CU	-	*4	L/H
Counter (CD: Down Count)	C005:000/CD-C005:255/CD C009:000/CD-C255:255/CD	-	*4	
Counter (DN: Complete Bit)	C005:000/DN-C005:255/DN C009:000/DN-C255:255/DN		*4	
Counter (PRE: Preset Value)	-	C005:000.PRE-C005:255.PRE C009:000.PRE-C255:255.PRE	*3	
Counter (ACC: Current Value)	-	C005:000.ACC-C005:255.ACC C009:000.ACC-C255:255.ACC	*3	
Integer	-	N007:000-N007:255 N009:000-N255:255	*1, *2, *5	H/L
Floating Point	-	F008:000-F255:255		L/H

* File Number and Element Number that can be specified.

Remark

*1 ······ Enter devices as followings with GP-Pro/PB3 for Windows

Description on PLC

<u>007</u> <u>015</u> Element File No. **File** Type

* 2 ······ Enter devices as followings with GP-Pro/PB3 for Windows

Description on PLC

<u>3</u> : <u>021</u> / <u>15</u> В Bit Element File No. **File Type**

Entering to GP-Pro/PB3 for Windows

Entering to GP-Pro/PB3 for Windows

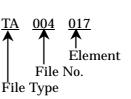
003 021 F В Bit Element File No. **File** Type



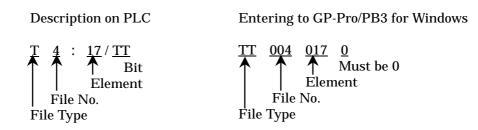
Entering to GP-Pro/PB3 for Windows

* 3 ······ Enter devices as followings with GP-Pro/PB3 for Windows

Description on PLC		
T 4 : <u>17</u> . <u>ACC</u> Word Element File No. File Type		



* 4 ······ Enter devices as followings with GP-Pro/PB3 for Windows



* 5 ····· possible to specify bits (Bits: hexadecimal)

Notes:

- 1) I (input), O (output), S (status), R (control), ST (text), L (long), MG (message), and PD (PID) cannot be set on GP.
- 2) The file type of the file number from 0 to 8 is fixed. The element (device point) can be changed.
- 3) It is possible to assign the file type and elements of file number from 9 to 255 in the range of the memory capacity of the processor unit, as you like.

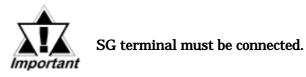


Let's Connect to PLC! <u>Rockwell (Allen-Bradley) MicroLogix1200/1500 Series</u>

Connection Method

RS-232C Connection

Туре	Connection Method Distance		Distance
Creating Cable	GP Unit (Dsub25n Male) Shield 1.FG 2.SD 3.RD 4.RS 5.CS 6. 7.SG 8.CD 20.ER	1761-CBL-PM02 Cable 1.CD 2.TXD 3.RXD 5.GND	Within 15m



Recommended Product

Connecter/Cover	Dsub25 pin Plug	XM2A-2501 <omron co.=""></omron>
for GP	Cover for Dsub25 pin	XM2S-2511 <omron co.=""></omron>
	Jack Screw	XM2Z-0071 <omron co.=""></omron>
Cable	CO-MA-VV-SB5P × 28AWG <hitachi cable="" ltd.=""></hitachi>	
Setscrew	Metric Coarse Screw Tread : $M2.6 \times 0.45$	