

Connecting Rockwell (Allen-Bradley) PLC

SLC500 Series (Ethernet)

Model	Products	Option Ethernet	Existence of Internal Ethernet Port
GP	GP-377RT	Yes ^{*1 (GP377R-MLTE41)}	No
	GP-477RE	Yes ^{*1} (GP077-MLTE41, GP070-ET41)	No
	GP-577RS	Yes ^{*1} (GP077-MLTE41, GP070-ET41)	No
	GP-577RT	Yes ^{*1} (GP077-MLTE41, GP070-ET41)	No
	GP-2300L	No	Yes
	GP-2300T	No	Yes
	GP-2400T	No	Yes
	GP-2500T	Yes ^{*2*3}	Yes
	GP-2501S	Yes ^{*1*2} (GP077-MLTE41, GP070-ET41)	No
	GP-2501T	Yes ^{*1*2} (GP077-MLTE41, GP070-ET41)	No
	GP-2600T	Yes ^{*2*3}	Yes
GLC	GLC2300L	No	Yes
	GLC2300T	No	Yes
	GLC2400T	No	Yes
	GLC2600T	Yes ^{*2*3}	Yes

Applicable Models

*1 2 Way Driver (Pro-Server, GP-Web) cannot be used.

*2 To use the Option Ethernet I/F Unit, a bus conversion unit (PSL-CONV000) is required separately.

*3 When using the Option Ethernet I/F Unit, it's possible to put the network where applications like 2Way Driver (Pro-Server, GP-Web) can be used and the network that PLC uses into separate classes or net numbers. In this case, the PLC communicates with the Option Ethernet I/F Unit's side.

* Information on the case of connection by using Handy Type is not stated.

PLC	
-----	--

CPU	Link I/F	Usable Cable	Unit	ļ,
SLC05/05	Ethernet I/F on CPU	Ethernet Cable IEEE802.3 compliant	GP070-ET41 GP377-MLTE11 GP377-MLTE41 GP077-MLTE41 Made by Digital	GP



Connection Configuration

<Example of 1 :1 Connection Configuration>







GP377-MLTE41, GP077-MLTE41

* There are two types of "full duplex " and "half duplex" for Ethernet communication. Since GP and GLC have half duplex communication, if PLC is a full-duplex type, their communication may be obstructed. Putting HUB in can solve the problem. Use of HUB is recommended.



Let's Connect to PLC! Rockwell (Allen-Bradley) SLC500 series

Communication Settings [PLC]

In the case of SLC500 PLC, 2 pieces of software are required for communication settings.

1. RSLinx-Software to connect PLC to PC with RSLogix500 installed

(In this sample, Ver.2.41.00 is used.)

2. RSLogix500-Ladder Software (In this sample, Ver.5.20.00 is used.)

* Before making communicate settings and creating a ladder program on RSLogix500, be sure to connect PC to PLC via RSLinx. (For details, ask Rockwell).

- (1) Start RSLogix500.
- (2) Click [Channel Configuration]



(3) Select CPU Type.

Select Processor	Туре	×
Pr	rocessor Name: UNTITLED	OK
1747-L552B	5/05 CPU - 32K Mem. OS501 Series C	Cancel
1747-L551B 1747-L553	5/05 CPU - 64K Mem. 05501 Series C 5/05 CPU - 64K Mem. 05501	Help
1747-L551 1747-L553 1747-L552 1747-L552 1747-L543C 1747-L542C 1747-L542C 1747-L542C 1747-L543 1747-L542B 1747-L541	5/05 CPU - 16K Mem. 05501 5/05 CPU - 64K Mem. 05500 5/05 CPU - 32K Mem. 05500 5/05 CPU - 16K Mem. 05500 5/04 CPU - 16K Mem. 05401 Series C 5/04 CPU - 32K Mem. 05401 Series C 5/04 CPU - 16K Mem. 05401 5/04 CPU - 64K Mem. 05401 5/04 CPU - 16K Mem. 05401	
Communication su Driver	ettings Processor Node: Reply Timeout: 1 Decimal (=1 Who Active 10 (Sec.) Octal)	

(4) The dialog box will appear. Click [Channel1] and make channel settings.



(5) After completing the settings, click the [OK] button.



(6) Download the driver settings.

Click [OFFLINE] and select [Download...].



(7) The dialog box shown below will appear. Click the [OK] button.

				×
r revision note	es again.			
ILES\ROCK\	VELL SOFTWARE\RS	LOGIX 500		
		Version:	0 ÷	Cancel
UNTITLED		Station # :	1d	
1747-L552	5/05 CPU - 32K Mem.	OS500		
	UNTITLED	UNTITLED	Trevision notes again. ILES\ROCKWELL SOFTWARE\RSLOGIX 500 Version: UNTITLED 1747J 552 5/05 CPU - 32K Mem 05500	Trevision notes again. ILES\ROCKWELL SOFTWARE\RSLOGIX 500 Version: 0 UNTITLED Station #: 1d 17474 552 5/05 CPU - 32K Mem 0.05500

(8) The warning dialog shown below will appear. Click the [Yes] button.

RSLogix .	500
	Downloading Program (UNTITLED) for 1747-L552 5/05 CPU - 32K Mem. OS500 To (UNTITLED) 1747-L552B 5/05 CPU - 32K Mem. OS501 Series C Driver:AB_DF1-1 at Node:1
	Are you sure you want to proceed with Download?

(9) The warning dialog, "Loss of communication on OTHER channel [CH1] WILL occur." as shown below will appear. Click [Apply].

opply Channel Configuration (configuration)	
	Don't Apply
COMMUNICATION CONFIGURATION IS DIFFERENT	
*WARNING * Loss of comunication on OTHER channel (C	H1) WILL occur.
Accept new Configuration?	

The settings of SLC500 Port are now completed.

At the time of download, make sure that CPU is recognized on the RSLinx and then send the project.

y Who Active	<u></u>
Autobrowse Rafresh	
C 🖳 Workstation, PFD	Go Online
는 금급 Linx Gateways, Ethernet	Upload
용 🚺 01, 1756-L1/A LOGIX5550, ControllogixEther_test 은 뮮 AB_ETH-1, Ethernet	<u>D</u> ownload
 ☐ 192.168.0.1, 1756-ENET/B, 1756-ENET/B □ □□ Backplane, 1756-A4/A ⊕ ☐ 00, 1756-L1/A LOGIX5550, ControllogixEther_test 	Recent
01, 1756-ENET/B	Apply
	Close
	Help
Current Path: AB_DF1-1	
Apply Current Path to Project	
Path in Project:	

(RSLinx / Who Active Screen)

Assigning addresses

For Rockwell PLC, required number of elements should be assigned on RSLogix500. If the PLC is connected to GP/GLC without assigning them, the host communication error, "02:10 Out of Address Range Error" will occur.



[File Type with settings completed]



As shown left, the array type and number are available for projects.

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n-Tace[®]

At default, only one element exists. Especially for N array where system start addresses are assigned, 20 elements are required. It's necessary to increase the number of elements.





👰 Data File N	7 (dec)	INTEGE	R							<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 i
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					÷
<u>.</u>										ند الل
N7:25	54							Radi	x Decima	al 🔽
Symbol:									Colum	ns: 10 🔻
Desc:										
N7 -		Proper	ties		Usa	ge		Hel	Р	

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

[Creating a new array]

For Rockwell PLC, it's possible to create multiple arrays.

Ex.)





Start to create a new array from the place shown on the left.





Following this method, create required multiple arrays and numbers of elements for each array type.

The array number following the array type must not be duplicated. For example, creating arrays like N15, B15.. is not allowed.



Selecting PLC Type

Start GP-Pro/PBIII.

When creating a project file, select the PLC type shown below.

Sonoame.tmp:Unlitled - Project Manager	
GP-PRO/PBILL C-Package03	
CP Setup Praject Logic Program New Copen Copen VO VO Prajet Caltar Transfer Caltar Transfer	ſ
Allen Bradley SLC5/05 (ETHER)	J
Consus	
Allen Bradley SLC6/06(ETHER)	
Change the Device/PLC type for this project	

Example of Communication Settings

1. Communication settings	1. Communication Settings
GP Settings - noname.tmp	Source IP Address (0 to 255)
GP Settings I/O Settings Mode Settings	Contact the network administrator about
Initial Screen Settings Extended Settings Communication Settings	the IP address to be input.
Source IP Address 0. 0. 0. 0	Source IP Port No. (1024 to 65535)
Source IP Port No. 1024	Set GP's Port No *1
Destination (PAddress 0. 0. 0. 0	Destination IP Address (0 to 255)
Destination IP. Port No. 1024	This setting is not used. Even if set, it'll
Proventione Curre Curre	be disabled.
Dria Gode C ENARY C ASCT	Destination Port No. (1024 to 65535)
	This setting is not used. Even if set, it'll
	be disabled. *1
Advanced	Protocol Type
	This setting is not used. Even if set, it'll
	be disabled.
	*1- As the numbers, 8000 to 8999, are
	used for Pro-Server, do not use them.
OK Cancel Defaults Help	
2. Mode Settings	
GP Settings - a.prw	2. Mode Settings
Initial Screen Settings Extended Settings Communication Settings	System Start Address
GP Settings I/O Settings Mode Settings	The INT Device is fixed.
PLC Type Atten Brodey SLCERD SERIES	Array No. and Element No. are set
System Start, ddress N7.0	arbitrarily.
Machine Numbe	
Read Area Size	The system start address is assigned to the
Link Protocol Type C 11 C n1	designated node of PLC.
- Noda Cabus	
Node Number	
Custorize	
Option	
OK Cancel Defaults Help	

3. Network Information Settings

Net	work Informatio	n	×
	- Destination Nod	e Information	
		IP address	
	Node No. 1	0. 0. 0. 0	
	Node No. 2	0. 0. 0. 0	
	Node No. 3	0. 0. 0. 0	
[["	OK	Cancel <u>H</u> elp	1

Designati	on Node No. Se	tting
to each	address of the only node number.	designation F
Up to 3 no	des are possible	e for settings.

GP Settings		PLC Settings	
Source IP Address	GP' IP address ^{*1}		
Source IP Port No.	GP's port No. * ²		
Network Information	PLC's IP address *1	IP Address	PLC's IP address
Setting			

*1 Contact your network administrator about the setting values. If the Source IP Address is 0.0.0.0, the IP address set on the 2WAY Driver's side will be effective.

*2 With GP2000 series, if Internal Ethernet Port is used, set the target port No. that does not overlap with the 2WAY Driver's port No. Check the 2WAY Driver's port number setting via the following menu:

[INITIALIZE]-->[SETUP OPERATION SURROUNDINGS]-->[EXTENDED

SETTINGS]-->[SETUP ETHERNET INFORMATION]. The default value is 8000. The 2WAY

Driver uses this port and the following nine ports for a total of 10 (8000 to 8009).

Important! PLC's Port No. is 2222(fixed). Protocol Type is TCP/IP Connection.

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

Send Information	Communications P	ort
C Helend Information	⊙ <u>с</u> ом	
Filing Data(CF card)	Comm <u>P</u> ort	COM1 Retry Count 5
Data Trans Func CSV Data(CF card)	Baud Rate	115.2K (bps)
	○ <u>E</u> thernet	
Transfer Method Send All Screens	<u>I</u> P Address	0. 0. 0. 0 Port 8000
Automatically Send Changed Screens Send User Selected Screens	C Ethernet: Auto	Acquistion
	C Memory Loader	
Setup Use C Automatic Setup Use C Eorce System Setup C Do NOT Perform Setup	Extended Program : Simulation System Screen	
Setup CFG file :		
© English		
U Japanese	Win\protocol\ <u>B</u> rowse	
© Selection C:\Program Files\pro-face\ProPB\		
Selection C:\Program Files\pro-face\ProPB\ OK	Cancel	

Transfer to GP after settings completed.



2 [Settings on the GP unit]

1.Checking GP Type	<u>1. Checking GP Type</u>
MAIN MENU *03/00/00 00:00 1 INITIALIZE 2 SCREEN DATA TRANSFER 3 SELF-DIACNOSIS 4 RUN 2010 SUM-10 SUM-10 SUM-24 SLC_505_ETHER V1.60 SUM-10 SUM-10 SUM-10	If Allen Bradley SLC5/05(ETHER) is selected, the following display will appear. [SLC505_ETHER]
2. Settings on GP	2. Communication Settings
SETUP OPERATION SURFOUNDINGS MENU	SETUP OPERATION SURROUNDINGS
SETUP OPERATION SURROUNDINGS	[MAIN MENU]
SETUP ETHERNET INFORMATION SETUP ETHERNET EXT. INFORMATION DESTINATION APPER INFORMATION	[INITIALIZE]
	[PLC SETUP]
	[PLC SETUP]
	[SETUP OPERATION SURROUNDINGS]

3. Setup Operation Surroundings	Source IP Address (0 to 255)
<u></u>	Set GP's IP Address.
	Contact your network administrator about the IP
SET UP ETHERNET INFORMATION SET CANCEL	address to be set.
SRC IP ADDRESS []. []. []. []	Source Port No. (1024 to 65535)
SRC PORT NO. []	Set GP's Port No. (from 1024 to 65535).
	With GP2000 series, if Internal Ethernet Port is used, the source port number that does not overlap with the 2Way Driver's port number must be set. The 2Way Driver's port number can be checked with [INITIALIZE]>[SETUP OPERATION SURROUNDINGS]>[EXTENDED SETUP]>[ETHERNET SETUP]. The numbers from 8000 to 8999 cannot be used because they are used for Pro-Server. If the source IP address is 0.0.0.0., the IP address set on the 2Way side is effective.
DESTINATION NODE	Caution!
	destination node information via
NODE IP ADDRESS SLOT NO	OFFLINE. Select GP-PRO/PB for
	Windows's [GP SETUP]>[Mode
	Settings]>[Network] to set or change it.
	* Refer to the page 6.
Please use GP-FRO/PB3 to change them.	



Address Set on GP-PRO/PBIII

Since there are multiple arrays, a view point of address setup on GP-ProPB/III differs from other companies' PLC Address Setup.



Element File No. File Type *Table of file numbers and element numbers that can be designated.

Device	Bit Address	Word Address	Rem	arks
Bit	B003:000/00 ~ B003:255/00	B003:000 ~ B003:255	*1 *2	Н/І
	B009:000/00 ~ B255:255/00	B009:000 ~ B255:255	., -	• • • –
Timer	T004000/TT ~ T004:255/TT		*4	
(TT:Timing Bit)	T009:000/TT ~ T255:255/TT		т	
Timer	T004:000/TT ~ T004:255/TT	_	*1	
(DN:Complete Bit)	T009:000/TT ~ T255:255/TT	-	4	
Timer	T004:000/EN ~ T004:255/EN			
(EN:Enable)	T009:000/EN ~ T255:255/EN	-		
Timer		F004:000.PRE ~ T004:255.PRE	*2	
(PRE:Setting Value)	-	T009:000.PRE ~ T255:255.PRE		
Timer		004:000.ACC ~ T004:255.AC	*2	
(ACC:Current Value	-	009:000.ACC ~ T255:255.AC	3	
Counter	C005:000/CU ~ C005:255/CU	þ	* 1	
(CU:Up Count)	C009:000/CU ~ C255:255/CU	-	4	
Counter	C005:000/CD ~ C005:255/CI	þ	* 1	I /⊔
(CD:Down Count)	C009:000/CD ~ C255:255/CI	•	4	L/11
Counter	C005:000/DN ~ C005:255/DN		* 1	
(DN:Complete Bit)	C009:000/DN ~ C255:255/DN	-	4	
Counter	C005:000/OV ~ C005:255/O\	1		
(OV:Overflow)	C009:000/OV ~ C255:255/O\	-		
Counter	C005:000/UN ~ C005:255/UN			
(UN:Underflow)	C009:000/UN ~ C255:255/UN	-		
Counter	C005:000/UA ~ C005:255/UA			
(UA:Update)	C009:000/UA ~ C255:255/UA	-		
Counter	_	005:000.PRE ~ C005:255.PR	*3	
(PRE:Setting Value)	-	009:000.PRE ~ C255:255.PR	5	
Counter	_	005:000.ACC ~ C005:255.AC	*3	
(ACC:Current Value	-	009:000.ACC ~ C255:255.AC	5	

Device	Bit Address	Word Address	Rem	arks
Control	R006:000/DN ~ R006:255/DN	_		
(DN:Complete Bit)	R009:000/DN ~ R255:255/DN			
Control	R006:000/EN ~ R006:255/EN	_		
(EN:Enable)	R009:000/EN ~ R255:255/EN	-		
Control	R006:000/ER ~ R006:255/ER	_		
(ER:Error)	R009:000/ER ~ R255:255/ER			
Control	R006:000/UL ~ R006:255/UL	_		
(UL:Unload)	R009:000/UL ~ R255:255/UL	_		
Control	R006:000/IN ~ R006:255/IN	_		
(IN:Inhibit)	R009:000/IN ~ R255:255/IN	-		I /⊔
Control	R006:000/FD ~ R006:255/FD			L/11
(FD:Fund)	R009:000/FD ~ R255:255/FD	-		
Control	R006:000/EU ~ R006:255/EU			
(EU:Unload Enabled)	R009:000/EU ~ R255:255/EU	-		
Control	R006:000/EM ~ R006:255/EM			
(EM:Stuff Empty)	R009:000/EM ~ R255:255/EM	-		
Control		255.LE1 ~ R006:255.LE1	7	
(LEN:Length)	-	1009:000.LEN ~ R255:255.LE	N	
Control		R006:000.POS ~ R006:255.PO	ŝ	
(POS:Position)	-	R009:000.POS ~ R255:255.PO	S	
Integer -	N007:000 ~ N007:255	*1 *9 *5	ц/і	
	-	N009:000 ~ N255:255	1, Z, i	2, 3 Π/L
Floating Point	-	F008:000 ~ F255:255		L/H

Remarks

*1-----With GP-Pro/PB3 for Windows, when inputting devices, input them as shown below.

PLC Notation	GP-Pro/PB3 for Windows
	Input
<u>N</u> $7:015$	<u>N 007 015</u>
$\wedge \wedge \wedge$	$\wedge \wedge \wedge$
Element	Element
File No.	File No.
File Type	File Type

*2----With GP-Pro/PB3 for Windows, when inputting devices, input them as shown below.

PLC Notation	GP-Pro/PB3 for Windows
	Input
<u>B</u> <u>3</u> : <u>021</u> / <u>15</u>	<u>B 003 021 F</u>
↑ ↑ ↑ Bit	↑ ↑ ↑ Bit
Ėlement	Element
File No.	File No.
File Type	File Type
i ne ijpe	i ne ijpe

*3----With GP-Pro/PB3 for Windows, when inputting devices, input them as shown below.



*4--- With GP-Pro/PB3 for Windows, when inputting devices, input them as shown below.

PLC Notation



GP-Pro/PB3 for Windows Input <u>TT 004 017</u> 0 1 Input 0 Element File No. **File Type**

↑

*5---Bit Set Possible (Bit part: Hexadecimal)

Important notes

- (1) The following devices cannot be set in GP: I (Input), O (Output), S (Status), R (Control), ST (Character Strings), L (Long), MG (Message), PD (PID)
- (2) File Type is fixed for the file numbers from 0 to 8. Element (Device Points) is changeable.
- (3) Users can allocate File Type and Element for the file numbers from 9 to 255 in the range of the processor unit's memory volume.