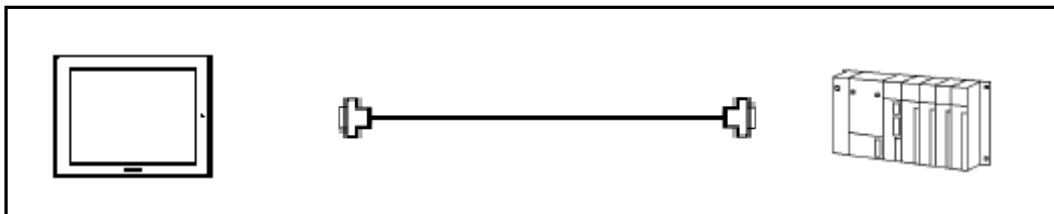


Rockwell (Allen-Bradley)

SLC500 Series (Serial) PLC Connection

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

CPU 	Computer Link I/F 	Communication Method	Connection Cable 	GP 
SLC-5/03 SLC-5/04	Link Unit on the CPU Unit	RS-232C	Connection Method	

Procedure to Connect PLC

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

Refer to

**Communication Setting
Sample**



Set PLC communication.

Refer to

**Communication
Settings [PLC]**



Assign addresses to PLC.

Refer to

Assigning Addresses



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

Refer to

Selecting PLC Type



Set GP communication.

There are 2 ways.

- Setting on GP-PRO/PB III C-Package and transfer the data
- Setting on the Offline of the GP main unit.

Refer to

**Communication
Settings**



Specify the addresses on the GP-PRO PBIII
Screen Creation Software.

Refer to

Specifying Addresses
on GP-PRO PBIII



Connect PLC to GP.
Please check the connection method
according to the connection type, or distance.

Refer to

Communication
Method &
Recommended Products

Communication Setting Sample

GP Setup		PLC Setup	
Communication Rate	19200bps	Baud Rate	19200bps
Data Length	8bits	_____	
Stop Bit	1bit	_____	
Parity	Even	Parity	Even
Control	ER Control	_____	
Communication Format	RS-232C	_____	
_____		Communication Driver	DF1 HALF-DUPLEX SLAVE *1
_____		Duplicate Packet Detection	DISABLE *1
_____		Error Detection	BCC *1
_____		Control Line	NO HANDSHAKING *1
Unit No. (DH GP) *2	0	Station Address	0

*1 Will not operate with any other settings.

*2 Setup the Station Address and the GP Unit No. (DH GP) address to the same value (address set as decimal values). It is unnecessary to setup the DH PLC address.

Communication Settings [PLC]

Two programs are required for SLC500 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 Type

Processor Name: UNTITLED

1747-L552B	5/05	CPU	- 32K	Mem.	OS501	Series C
1747-L551B	5/05	CPU	- 16K	Mem.	OS501	Series C
1747-L553	5/05	CPU	- 64K	Mem.	OS501	
1747-L552	5/05	CPU	- 32K	Mem.	OS501	
1747-L551	5/05	CPU	- 16K	Mem.	OS501	
1747-L553	5/05	CPU	- 64K	Mem.	OS500	
1747-L552	5/05	CPU	- 32K	Mem.	OS500	
1747-L551	5/05	CPU	- 16K	Mem.	OS500	
1747-L543C	5/04	CPU	- 64K	Mem.	OS401	Series C
1747-L542C	5/04	CPU	- 32K	Mem.	OS401	Series C
1747-L541C	5/04	CPU	- 16K	Mem.	OS401	Series C
1747-L543	5/04	CPU	- 64K	Mem.	OS401	
1747-L542B	5/04	CPU	- 32K	Mem.	OS401	
1747-L541	5/04	CPU	- 16K	Mem.	OS401	

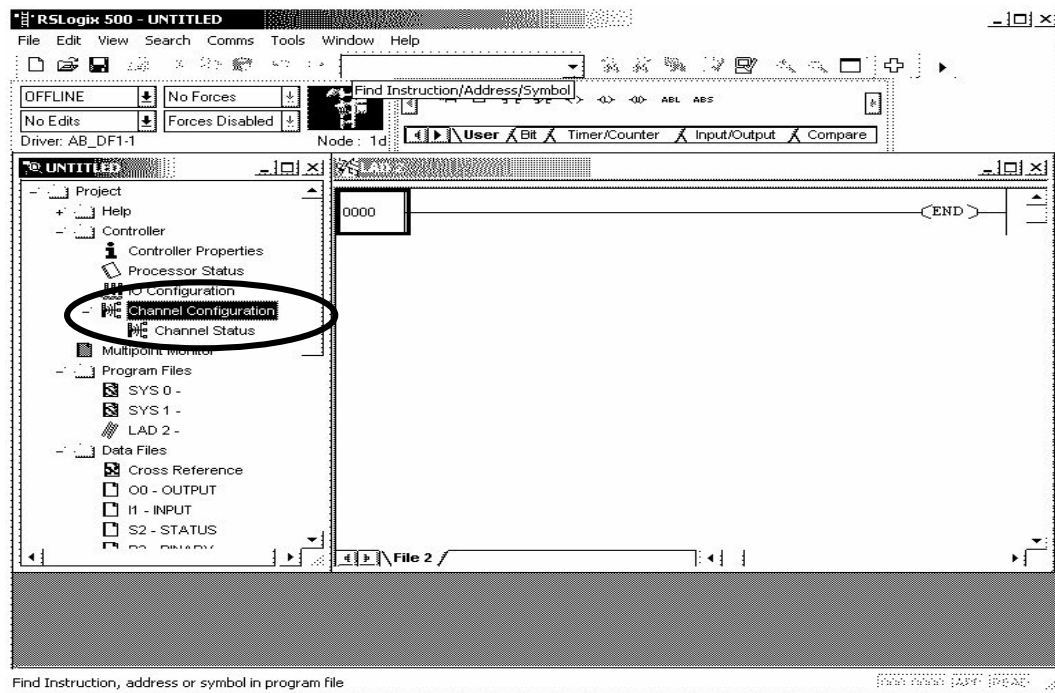
Communication settings:

Driver: AB_DF1-1 Processor Node: 1 Reply Timeout: 10 (Sec.)

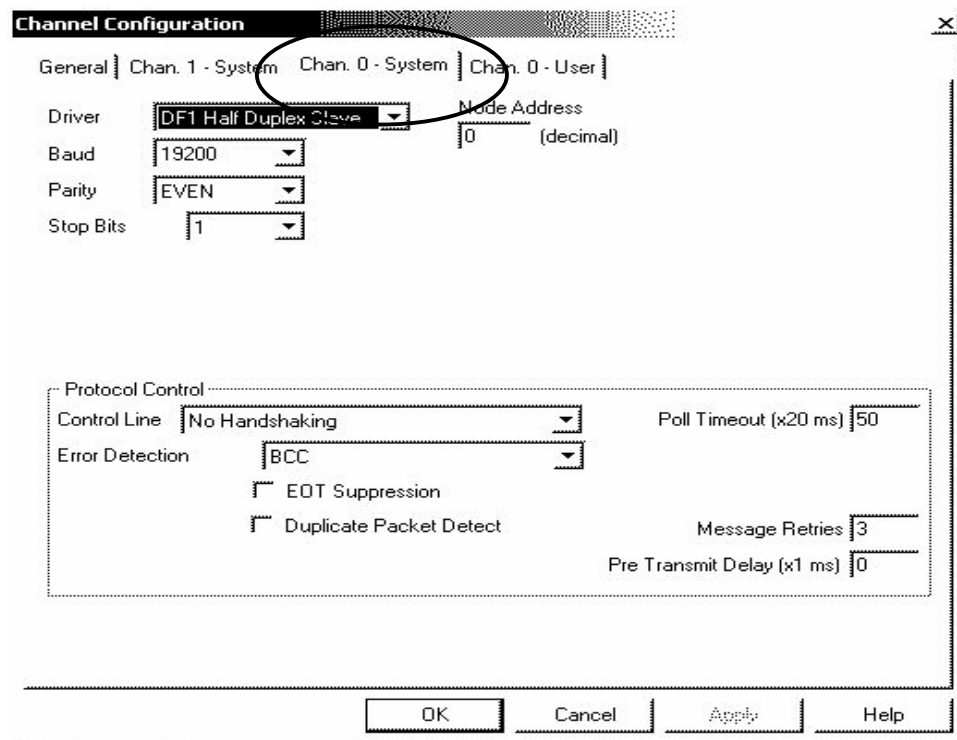
Decimal (=1 Octal) Who Active..

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.



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 Handshaking	System cannot be operated with other settings.
Station Address	0 to 255	Set with the same address as DH GP Address of GP.

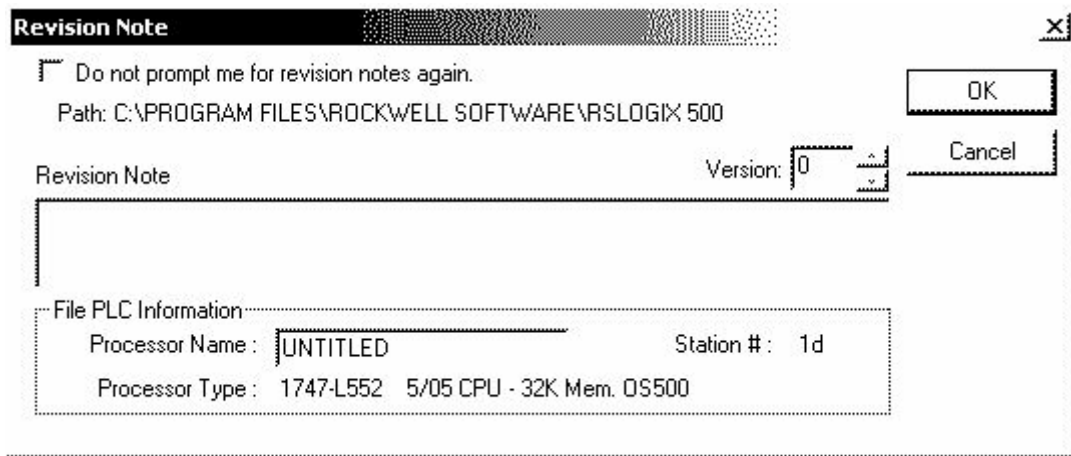
* Other settings can be left by default.

5) Click the [OK] button after complete the settings.

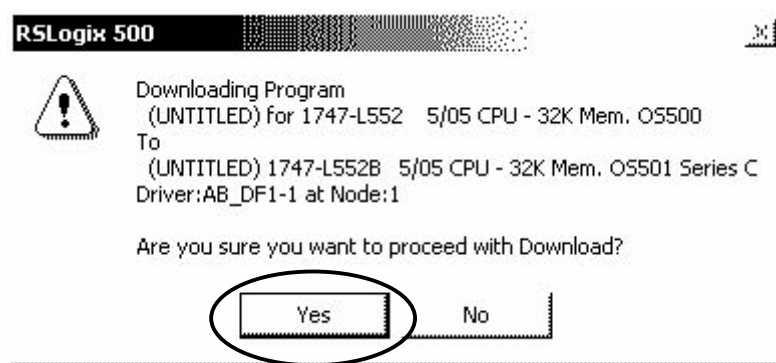
6) Download the driver settings. Click [OFFLINE] and select [Download...].



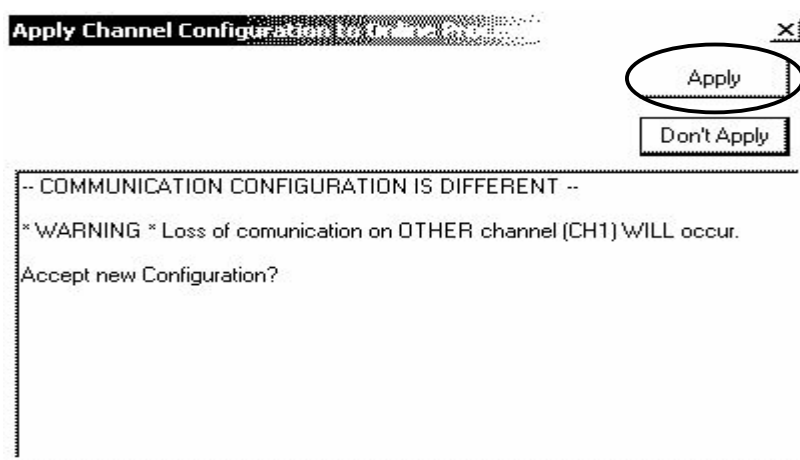
7) The dialog box as below will be displayed, and then click the [OK] button.



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

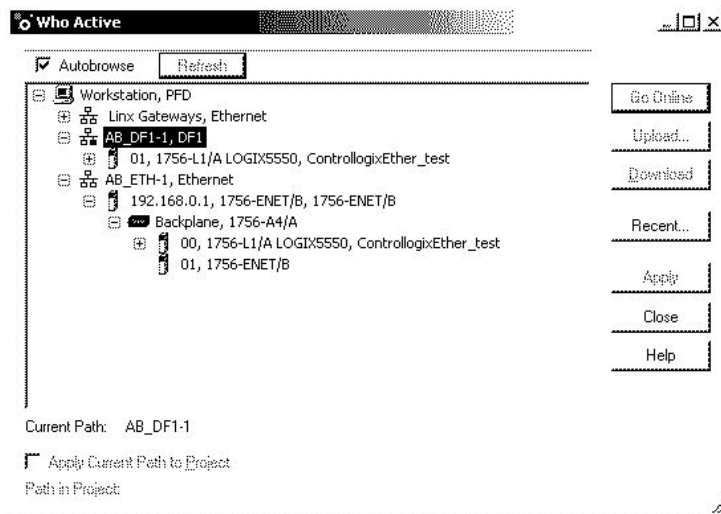


9) The below dialog box warning "Loss of communication on CURRENT channel (CH0) will occur." will be displayed, and then click [Apply].



The port settings for SLC500 are completed.

Confirm that RSLogix recognizes SLC500 Series before downloading the project file.

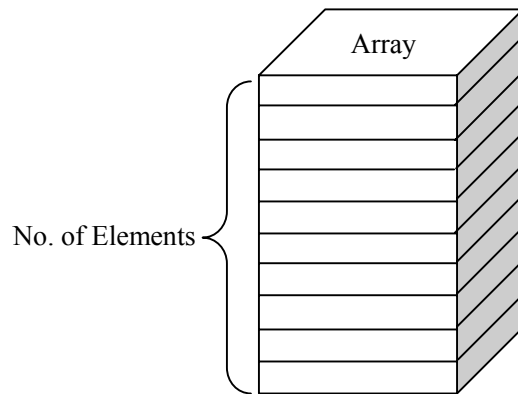


(RSLogix / Who Active screen)

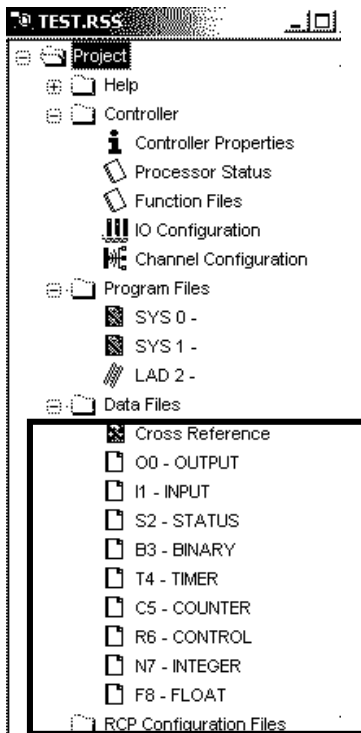
Assigning Addresses

With Rockwell PLC, the required arrays and number of elements are assigned on RSLogix500.

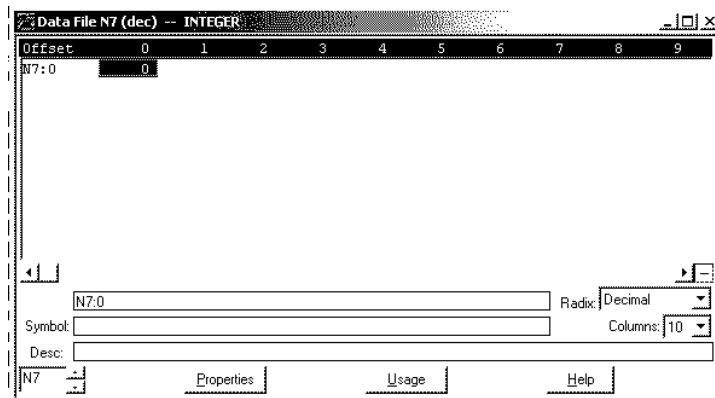
If you connect it to GP/GLC without assigning here, a host communication error will occur.



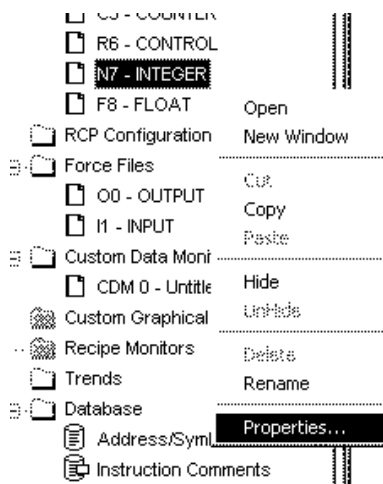
[File Type]



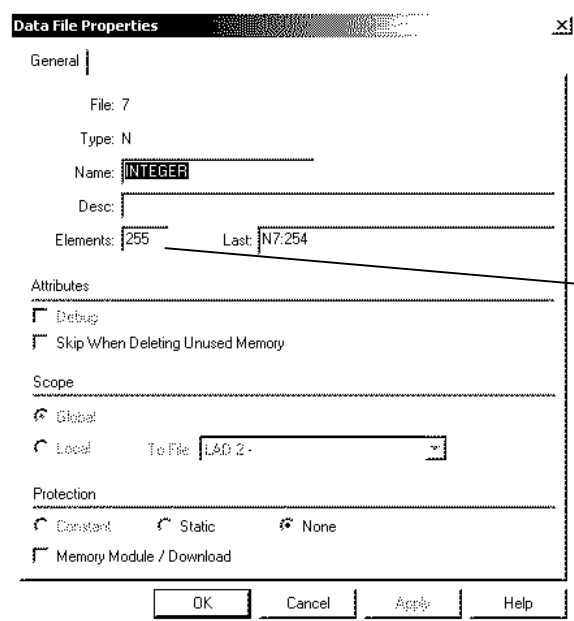
The project file has array types and array numbers as left.



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.



To increase these elements, start setting as left.



Enter the number of required elements.

* N7 needs at least 20 elements to assign the system start address.

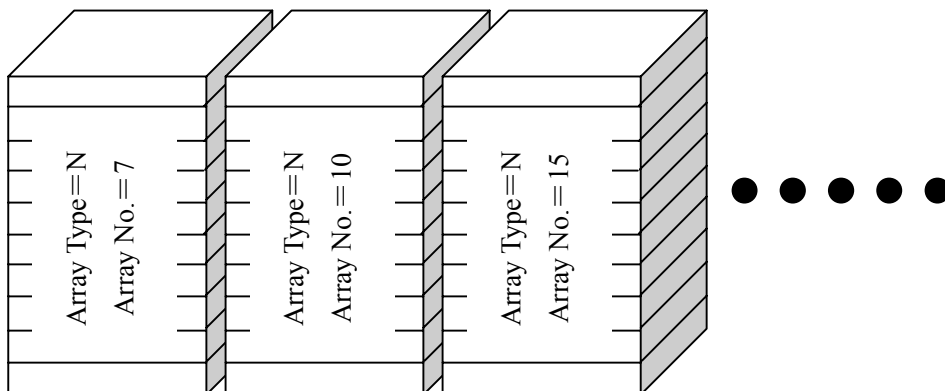
Offset	0	1	2	3	4	5	6	7	8	9
N7:150	0	0	0	0	0	0	0	0	0	0
N7:160	0	0	0	0	0	0	0	0	0	0
N7:170	0	0	0	0	0	0	0	0	0	0
N7:180	0	0	0	0	0	0	0	0	0	0
N7:190	0	0	0	0	0	0	0	0	0	0
N7:200	0	0	0	0	0	0	0	0	0	0
N7:210	0	0	0	0	0	0	0	0	0	0
N7:220	0	0	0	0	0	0	0	0	0	0
N7:230	0	0	0	0	0	0	0	0	0	0
N7:240	0	0	0	0	0	0	0	0	0	0
N7:250	0	0	0	0	0	0	0	0	0	0

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.

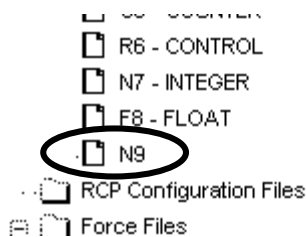
e.g.)



To start creating new arrays, follow as left.

The 'Create Data File' dialog box is shown with the following fields and annotations:

- File:** 9 (Annotated: Specify the array number.)
- Type:** Integer (Annotated: Select the array type.)
- Name:** (Empty field)
- Desc:** (Empty field)
- Elements:** 255 (Annotated: Enter the number of the required elements.)
- Attributes:**
 - ☐ Debug
 - ☐ Skip When Deleting Unused Memory
- Scope:**
 - ☒ Global
 - ☐ Local To File: 2
- Protection:**
 - ☐ Constant
 - ☐ Static
 - ☒ None
- ☐ Memory Module / Download
- Buttons:** OK, Cancel, Help



N9 has been newly created with 255 elements.

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.

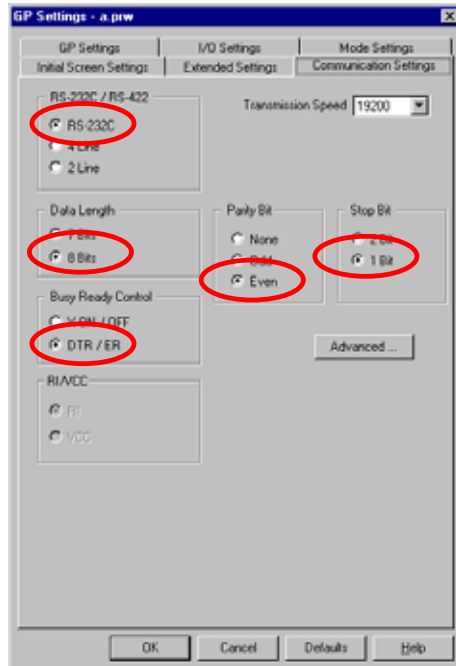


Communication Settings [GP]

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

Select [GP Setup] on Project Manager.

1) Communication Settings



1) Communication Settings

Transmission Speed : 19200bps

Data Length : 8 Bits

Stop Bit : 1 Bit

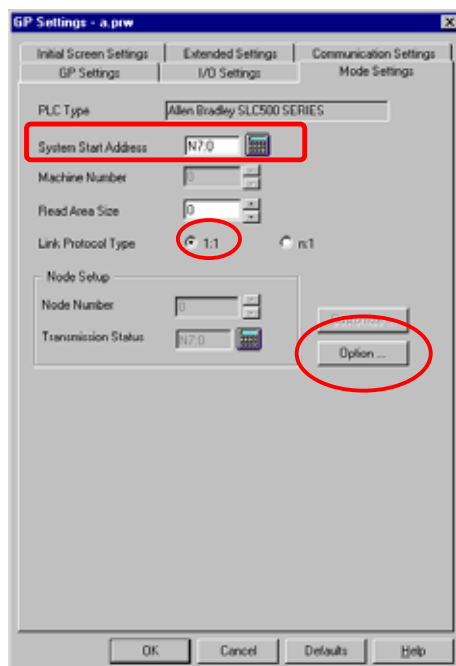
Parity Bit : Even

Busy Ready Control : DTR / ER

RS-232C/ RS-422

RS-232C Connection: RS-232C

2) Mode Settings



2) Mode Settings

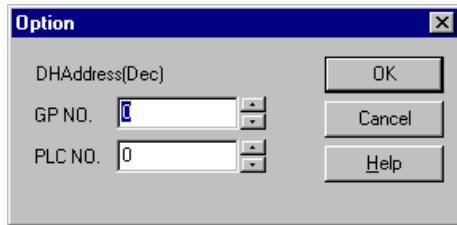
System Start Address:

The N device is fixed.

Array No. and Element No. are set arbitrarily.

Link Protocol Type : 1:1

3) Mode Settings (DH Address Settings)



3) Mode Settings (DH Address Settings)

Click [Option] to set DH Address.

DH Address

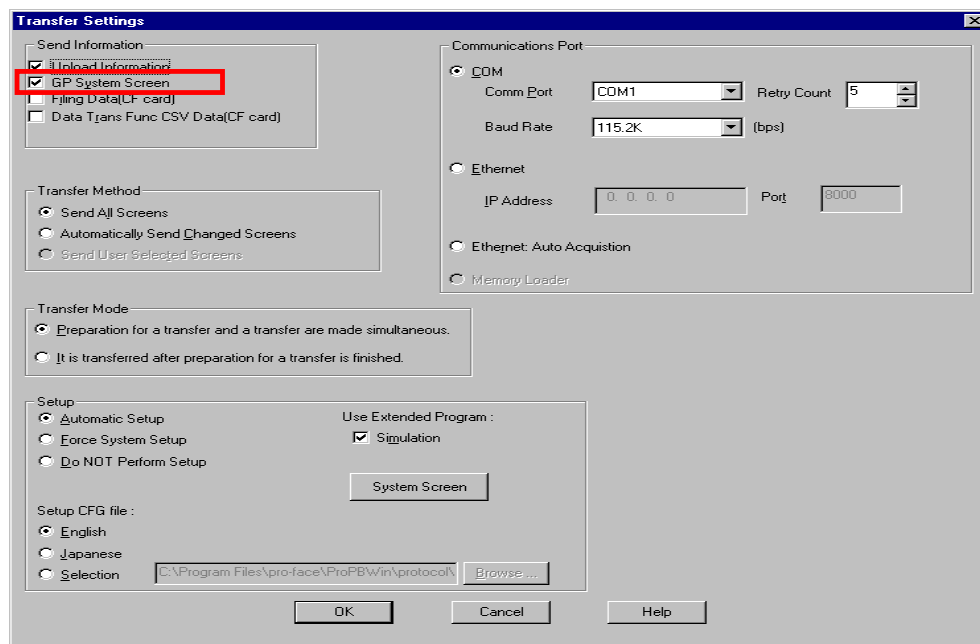
GP NO.: Arbitrary Address (0 - 255)

PLC NO.: Arbitrary Address (0 - 255)

* GP No. and PLC No. must be same address.

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

4) Transfer Settings

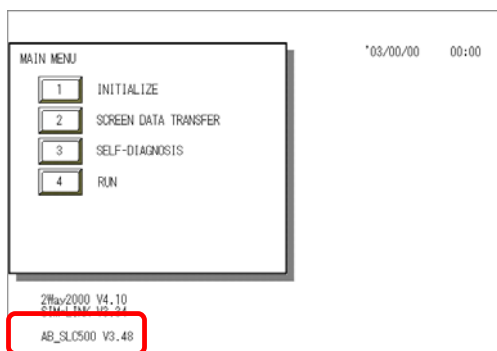


4) Transfer Settings GP System Settings: Checked

Transfer to GP after settings completed.

2 [GP Settings]

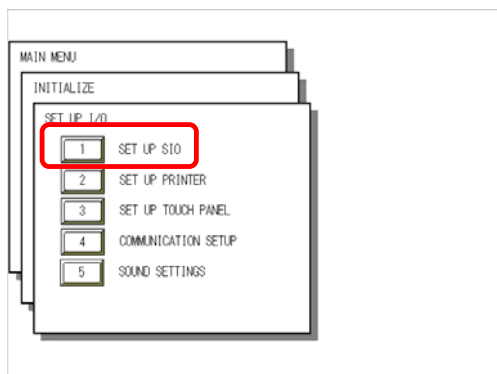
1) Checking GP Type



1) Checking GP Type

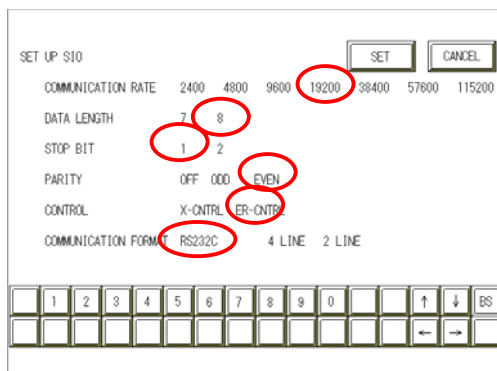
If you have selected Allen-Bradley SLC500 Series, the following will be shown.
"AB_SLC500"

2) Setting Up Communication



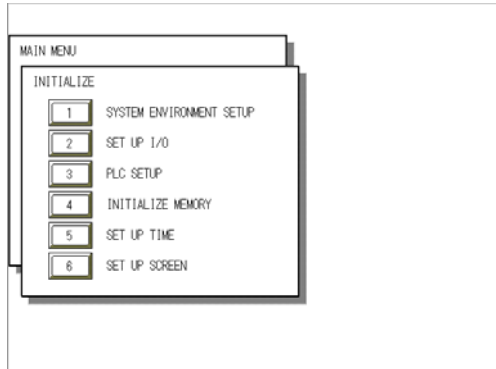
2) Setting Up Communication

MAIN MENU
↓
INITIALIZE
↓
SET UP I/O
↓
SET UP SIO



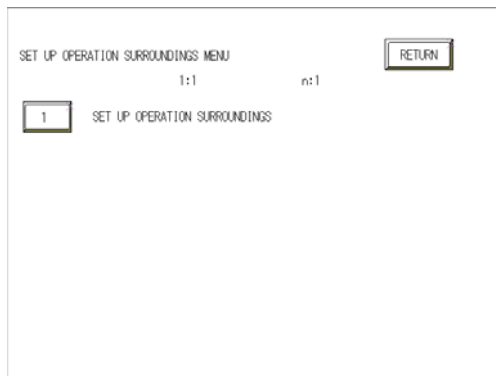
Communication Rate: 19200bps
Data Length : 8 Bits
Stop Bit: 1 Bit
Parity: Even
Control: E R Cntrl
Communication Format
RS-232C Connection: RS-232C

3) PLC Setup

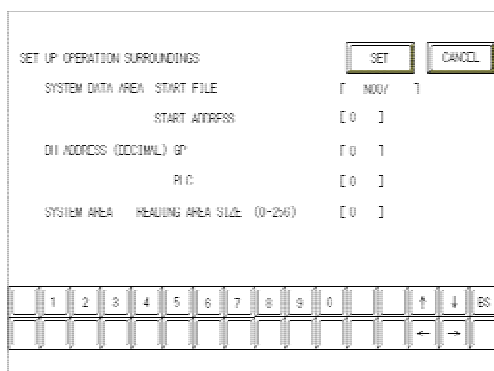


3) PLC Setup

MAIN MENU
↓
INITIALIZE
↓
PLC SETUP
↓
PLC SETUP



SET UP OPERATION SURROUNDINGS
MENU 1: 1



SYSTEM DATA AREA

START FILE:

The N device is fixed.

Array Number (Arbitrary)

START ADDRESS:

Element Number (Arbitrary)

DH ADDRESS GP :

Arbitrary Address (0 - 255)

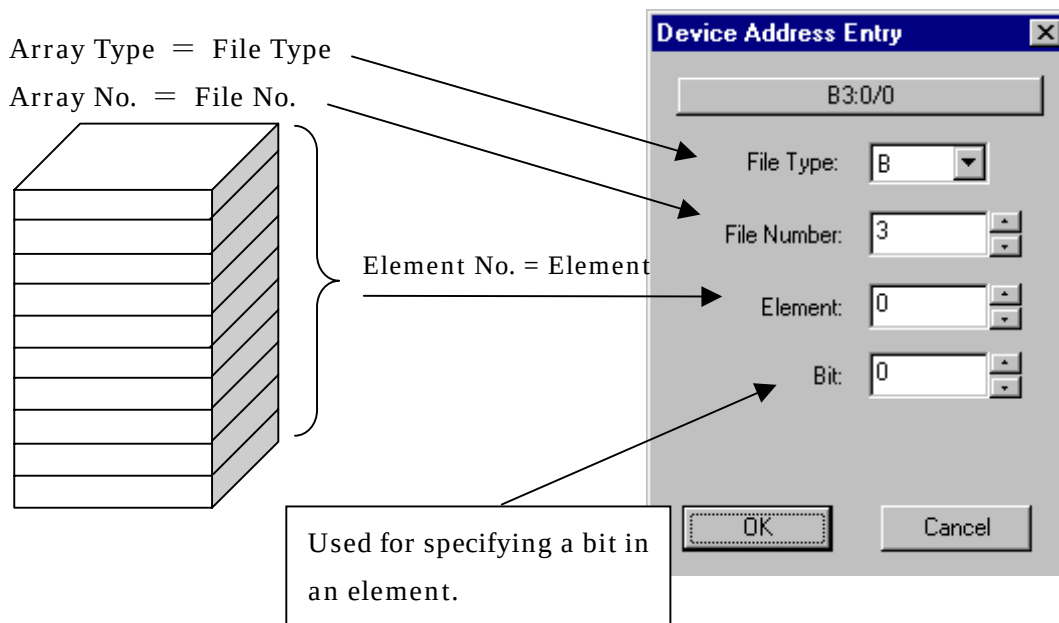
DH ADDRESS PLC :

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-ProPB/III is different from the addressing on other companies PLC.



This is how to see the addresses.

B 255 : 255 / 15 — Bit No.
 — File No.
 — Element No.

* File Number and Element Number that can be specified.

Device	Bit Address	Word Address	Remark	
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)	T004:000/TT-T004:255/TT T009:000/TT-T255:255/TT	-	*4	L/H
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	
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

Remark

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

Description on PLC

N 7 : 015
 ↑ ↑ ↑
 File No. Element
 File Type

Entering to GP-Pro/PB3 for Windows

N 007 015
 ↑ ↑ ↑
 File No. Element
 File Type

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

Description on PLC

B 3 : 021 / 15
 ↑ ↑ ↑ Bit
 File No. Element
 File Type

Entering to GP-Pro/PB3 for Windows

B 003 021 F
 ↑ ↑ ↑ Bit
 File No. Element
 File Type

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

Description on PLC

T 4 : 17 . ACC
↑ ↑ ↑ ↑ ↑
File No. Element
File Type

Entering to GP-Pro/PB3 for Windows

TA 004 017
↑ ↑ ↑
File No. Element
File Type

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

Description on PLC

T 4 : 17 / TT
↑ ↑ ↑ ↑
File No. Element Bit
File Type

Entering to GP-Pro/PB3 for Windows

TT 004 017 0
↑ ↑ ↑ ↑
File No. Element Must be 0
File Type

※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.

Connection Method

RS-232C Connection

Type	Connection Method	Distance
Creating Cable	GP Unit (Dsub25p Male) 1761-CBL-PM02 Cable	Within 15m



• Connect the FG line of the Shield cable to either the GP or PLC, depending on your environment. When using a connector hood and grounding the FG line, be sure to use an electrical conductor.

- For the RS-232C connection, use a cable length less than 15m.
- If a communication cable is used, it must be connected to the SG.



Ground the FG terminal of your PLC according to your country's applicable standard.

Recommended Product

Connector/Cover for GP	D-sub 25 pin Plug	XM2A-2501 <OMRON Co.>
	Cover for D-sub 25 pin	XM2S-2511 <OMRON Co.>
	Jack Screw	XM2Z-0071 <OMRON Co.>
Cable	CO-MA-VV-SB5P × 28AWG <Hitachi Cable Ltd.>	
Setscrew	Metric Coarse Screw Tread : M2.6 × 0.45	