GP-PRO/PB III

C Package 03

– SETUP GUIDE –

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■ CD-ROM Package Contents

The following items are included in the GP-PRO/PB III C-Package03 package. Prior to installing this software, use the list below to check that all items are included. If you find that any items are defective or missing, please contact your local Pro-face distributor or sales representative for replacement.

Item	Quantity	Remarks
Disc1	1	Contains GP-PRO/PB III C-Package03 PDF manual and application.
Disc2	1	Contains GP-PRO/PB III C-Package03 sample Parts and ISO symbols.
User Registration Card	1	
Setup Guide (This manual)	1	Contains instructions on installation and operation of GP-PRO/PB III C-Package03.

■ Description

GP-PRO/PB III C-Package03 includes the new GP-PRO/PB III for Windows Ver. 7.0 and Pro-Control Editor Ver. 5.0 software. This single package allows you to perform a wide variety of tasks, from screen creation and editing to logic programming.

■ System Requirements

	Requirements		Remarks
PC	Windows compatible type		Pentium® II 266 MHz or higher is recommended.
Screen Resolution	SVGA 800 x 600 or higher is recommended.		
Hard Disk Space	Minimum	Maximum	Space required for installation.
	85 MB	215 MB	
Memory	32 MB		64 MB or more is recommended.
CD-ROM Drive	Windows compatible type		
Data Transfer Cable	GPW-CB02 (sold separately) manufactured by Digital Electronics Corporation		RS-232C connectors that are not 9-pin D-sub type will require an optional adapter. The operation of USB-type conversion adaptors is not guaranteed.
USB Data Transfer Cable	GPW-CB03 (sold separately) manufactured by Digital Electronics Corporation		Refer to the USB Data Transfer Cable Installation Guide.
OS	Windows® 95/98/ME/2000/XP Windows NT® 4.0 compatible		Windows NT® 4.0 requires Service Pack 3 or higher
Mouse	Windows compatible type		Required for software installation.
Printer	Windows compatible type		

On a PC running Windows® 95, the “Parts Palette’s“ Part selection tabs may not display correctly. This problem can be fixed by installing “comctl32.dll” in your PC. This file can be downloaded from the following Internet site:
http://www.microsoft.com/msdownload/ieplatform/ie/comctrlx86.asp.
At this site, click on the “Download 50comupd.exe(x86)” icon to download the update program.

* As of May 2002, this URL is correct. It is, however, subject to change without notice.
* After you update your system file, there is the possibility that other applications in your PC may be affected.

■ Installing GP-PRO/PB III C-Package03

Prior to Installation

- Be sure to quit all application programs and close (disable) all resident programs, such as virus detection software.
- When using a PC with Microsoft® Windows NT® 4.0 (Service Pack 3 or later), Microsoft® Windows® 2000, or Microsoft® Windows® XP, install this software in a User Account that has Administrator privileges.

Installation

Normally, the GP-PRO/PB III C-Package03 installation program starts automatically when Disc1 CD-ROM is inserted into the CD-ROM drive. To complete the installation process, simply follow the instructions given on each screen.

If, however, the installation program does not start automatically, please do the following to install the software:

1. With Disc1 CD-ROM inserted in the CD-ROM drive, click the desktop's [Start] button and then click [Run].
2. In the text window, enter [X:\INSTALL.EXE] and click [OK]. (Here, "X" represents your CD-ROM drive's drive character.)
3. After the installation program starts, simply follow the instructions given on each screen to complete the installation process.

■ Viewing GP-PRO/PB III C-Package03 PDF Manuals

GP-PRO/PB III C-Package03 has a total of seven (7) manuals and the table on the following page explains the contents of each. These manuals are located in Disc1 CD-ROM, however, this manual is not included as a PDF file.
Also, supplemental product explanations and additional or revised feature information is included in the software as a Readme file.
After installation is completed, click the Windows [Start] button, point to [Programs]-[Pro-face]-[ProPB3 C-Package], and click [ReadMe] to view this file.

For detailed Pro-face hardware information, please refer to that product's User Manual.

Manual Contents

GP-PRO/PB III C-Package03	
Setup Guide (this manual)	Describes software installation and basic application development steps.
Pro-Control Editor Ver.5.0	
User Manual	Describes the GLC/LT unit's software settings for variables and commands.
Operation Manual	• Explains basic software set up and operation, and error messages. • Explains steps for using GLC variables created in Pro-Control on GP-PRO/PB III display screens.
GP-PRO/PB III for Windows Ver.7.0	
Operation Manual	Describes software features and their use in developing GP screens.
Tag Reference Manual	Explains the features and set up of "Tags" for GP screen features.
Parts List	Lists the pre-made Parts and standardized symbols provided in GP-PRO/PB III.
Device/PLC Connection Manual	Describes procedures for connecting the GP to PLCs, temperature controllers and inverters.

Note:

- The GP-PRO/PB III Manual describes the procedures for developing GP screens. The steps for developing GLC/LT screens are identical; simply substitute "GLC/LT" for "GP."

- In addition to the manuals listed here, detailed explanations are also available in each software's on-line help.
- Disc2 CD-ROM also contains sound files. The [\eng\lib\manual] folder contains a list of the sound file filenames, and the [\eng\lib\audio] folder contains the sound files.

Additionally, data layout sheets (Microsoft® Excel files) are installed during the standard installation of this software. These sheets are useful for specifying device/PLC registers and designating tag addresses. These files are located in the folder named "Pro-face\propbwin\sheet".
For directions on using Microsoft® Excel, please refer to your Microsoft® Excel documentation and Help features.

Folder Name	File Name	Contents
Pro-face \propbwin\sheet	Device1E.xls	List of device assignments
	TAG1E.xls,TAG2E.xls, TAG3E.xls,TAG4E.xls	Tag layout sheet

Adobe® Acrobat® Reader is required to view PDF manuals.

■ Installing Adobe® Acrobat® Reader 5.0.5

1.Start up your PC, and insert Disc1 CD-ROM into the CD-ROM drive.
2.Click [Start], then [Run].
3.In the text entry box, enter [X:\manual\eng\reader\ar505eng.exe] and click [OK]. ("X" represents the letter corresponding to your CD-ROM drive.
4.When installation starts, follow the step-by-step instructions that appear. After installation is completed, Acrobat Reader will start automatically.

■ Viewing PDF Manuals

1. Insert Disc1 CD-ROM into your PC's CD-ROM drive.
2. Click [Start], then [Programs], then [Acrobat Reader 5.0].
3. After the program starts, click [Files], and choose [Open].
4. In the [File Name] box, enter the PDF file name and click [Open].
   The following PDF files provide access to individual manual files.

GP-PRO/PB III	[X:\manual\eng\gpwmnl_m.pdf]
Pro-Control Editor	[X:\manual\eng\pcemnle.pdf]

("X" represents the letter corresponding to your CD-ROM drive.)

For details on using Acrobat Reader, refer to Acrobat Reader Help.

■ Project Development Flow

The following steps are the usual “flow” for developing logic programs with the GP-PRO/PB III C-Package03 software. (It is assumed that GP-PRO/PB III C-Package03 is already installed.)

■ Prior to beginning project development:

When using Windows NT® 4.0, Windows® 2000, or Windows® XP, be sure to use this application only with Administrator level access. Using this application with other access levels may cause faulty operation.

• GP Project Screen Development and Testing
Follow steps 1, 5, 6, 7.

• GLC/LT Screen/Logic Program Development and Testing
Follow steps 1 through 7.

1. Start Up
   Start up GP-PRO/PB III C-Package03.
   Select the “GP Type” and the “Device/PLC Type”.
2. Assigning Variables to External I/O and Enabling I/O
   Here, associate the terminal numbers used for I/O input/output with the variable you intend to use in the logic program.
3. Create Internal Variables
   Create the variables used for internal relays, registers, timers, and counters.
4. Create the Logic Program
   Use Pro-Control Editor to create your logic program.
5. Create the GP Project
   Use GP-PRO/PBIII to create project screens.
6. Transfer Project and Logic Program to GLC/Check Operation
   Transfer the screens and logic programs. Confirm that GP/GLC operates as designed.
7. Begin Operation

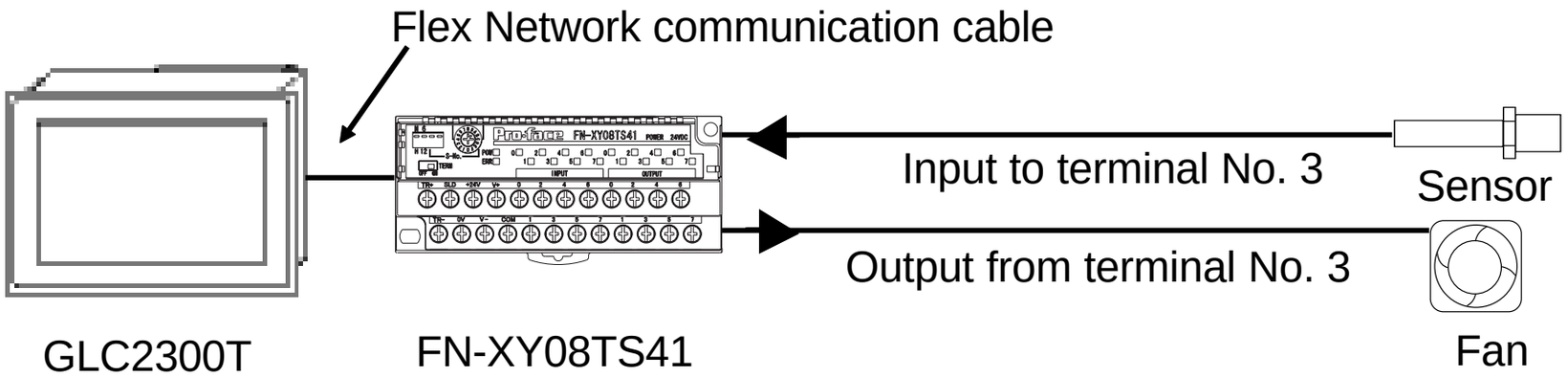
GLC Program Development Example

Here, a simple example is used to explain the procedures, functions and unit operation required to develop a GLC logic program.
Users developing GLC programs for the first time should find these examples helpful, as they show how to create a program using a variety of simple devices.
This example assumes you have already installed GP-PRO/PB III C-Package03.

Operating Environment

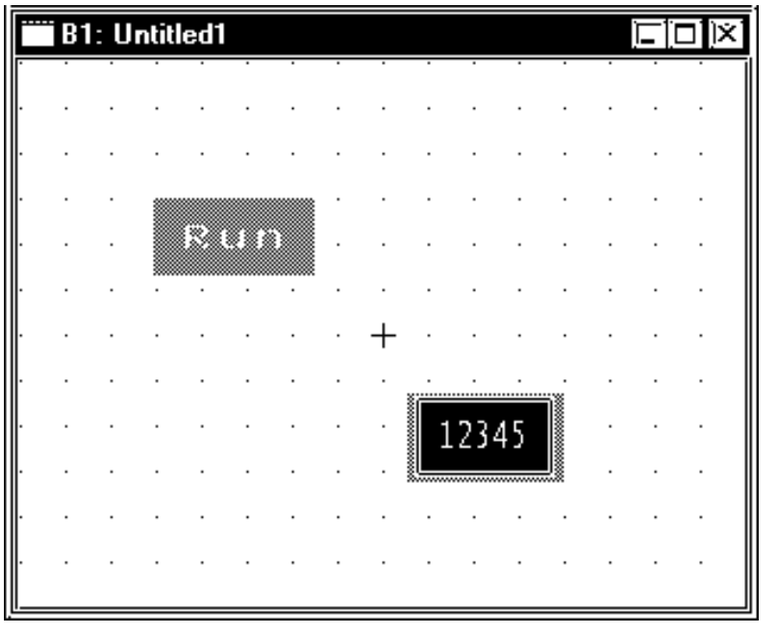
Main Unit	GLC2300T
I/O Unit	FN-XY08TS41 (Combining 8-point input/8-point output)
Cables	Flex Network communication cable, Data transfer cable
Fan	DC 24 V fan
Sensor	DC 24 V proximity switch

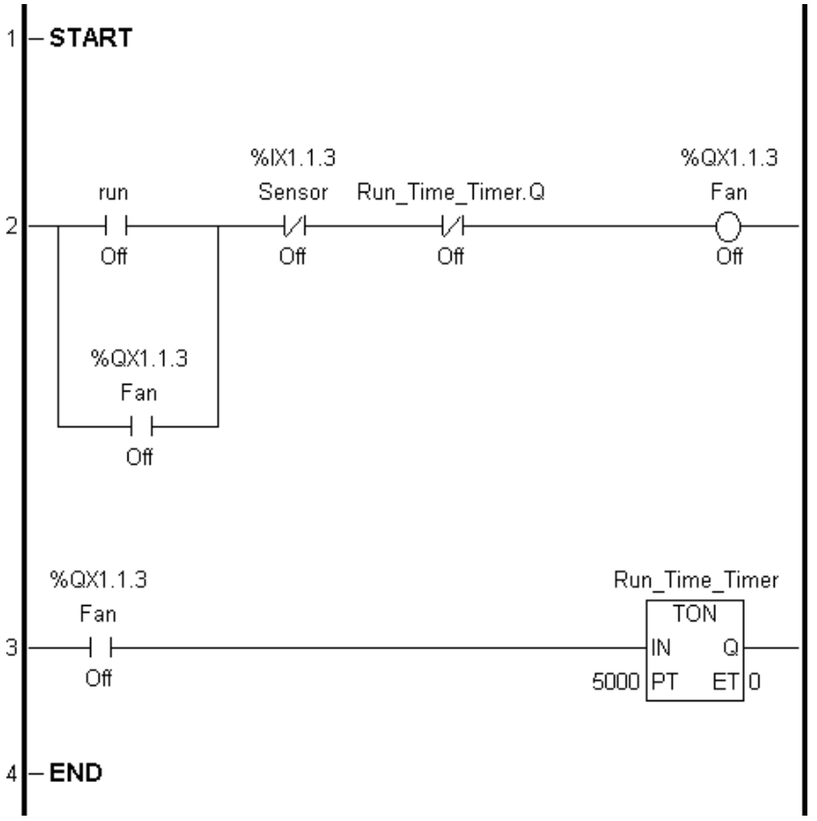
Diagram



Example Application

This example will create the following screen and logic program.





Explanation

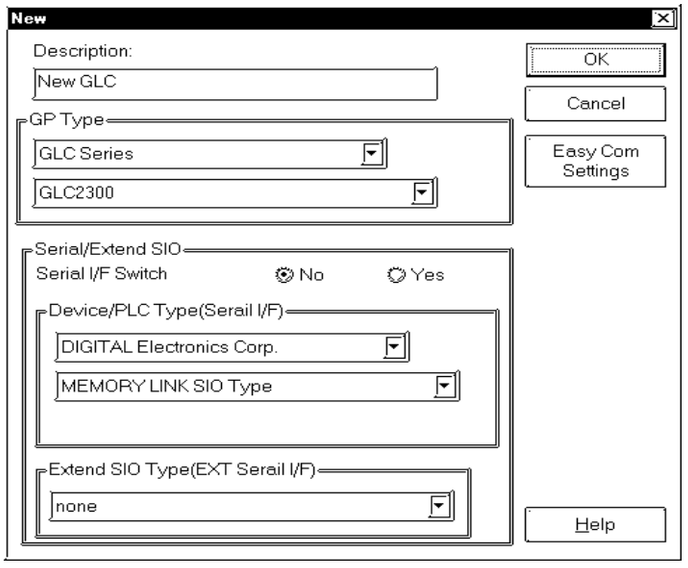
- The fan rotates for five seconds after the GLC screen's switch is touched.
- To change the fan's stop time, simply touch the Keypad Input Display (above - "12345") and a popup keypad will appear.
- The fan will stop rotating if a signal is received from the sensor.

1. Starting up the GP-PRO/PB III C-Package03

1.

Click the Windows® desktop's [Start] button, and point to [Programs] -> [Pro-face] -> [ProPB3 C-Package] -> [Project Manager].

2.



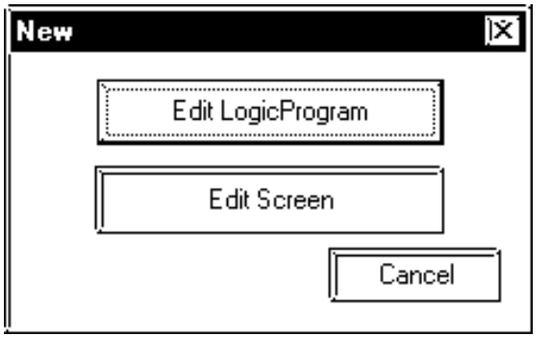
Click the [New] icon. When the [New] dialog box appears, enter the following settings.

- [Description]: New GLC
- [GP Type]: GLC2300
- [Serial I/F Switch]: No
- [Device/PLC Type]: MEMORY LINK SIO Type
- [Extend SIO Type]: none

NOTE: When the GLC will not be connected to any I/O devices, select [DIGITAL Electronics Corp.] and [MEMORY LINK SIO Type] for the [Device/PLC Type] field.

Last, click the [OK] button

3.



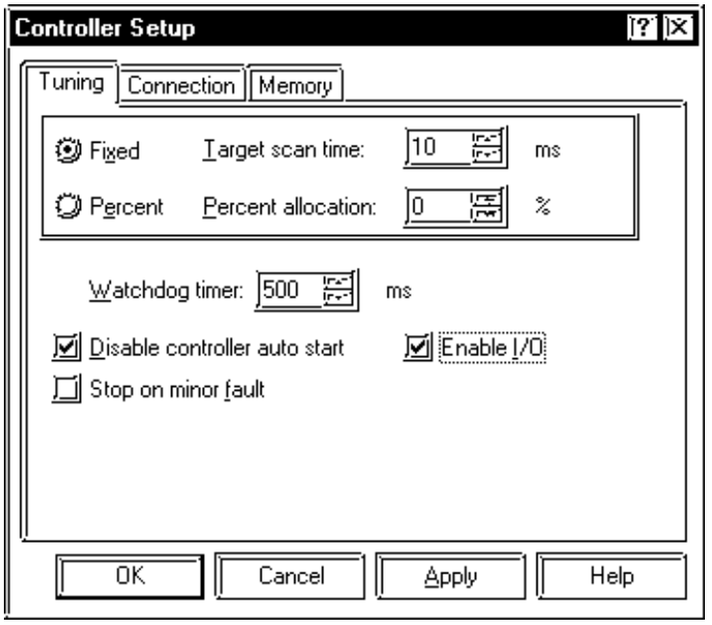
After all settings have been entered in the [New] dialog box, a second dialog box will appear. In this example, click the [Edit LogicProgram] button to start up the Logic Program Editor and begin to create a logic program.

2. Assigning Variables to External I/O and Enabling I/O

With conventional PLCs, each PLC vendor uses their own naming system to handle External I/O addresses as I/O Device addresses. Pro-Control Editor, however, allocates arbitrary names to I/O Device addresses. These are referred to as variables.
These variables can be used for internal relays and timers, depending on the parameters that apply to each type of variable and other related settings.

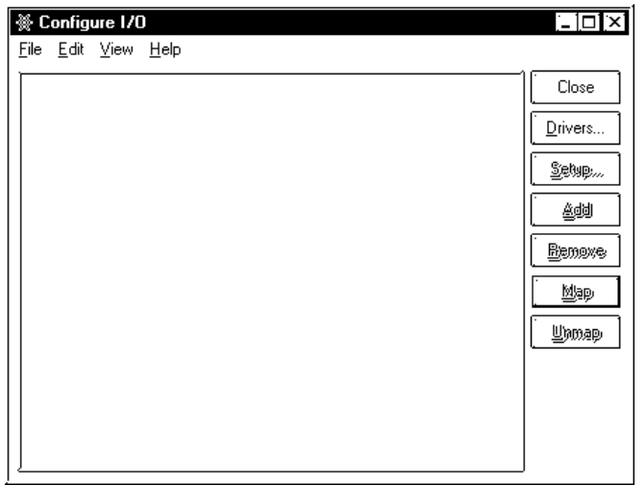
To use External I/O, variable names must be assigned to external I/O according to Pro-Control Editor's I/O configuration.

1.



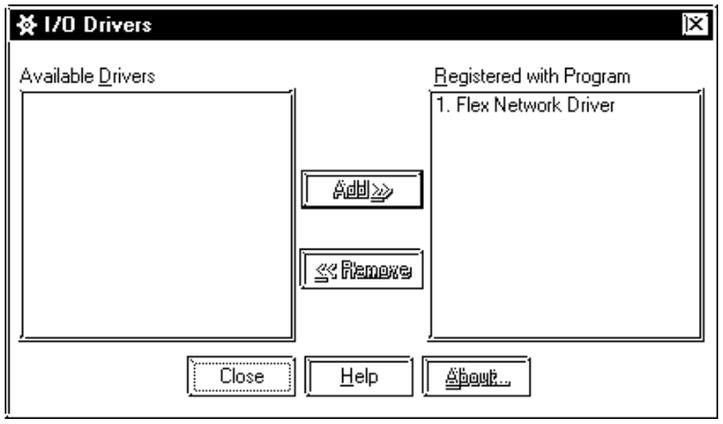
Settings for Using External I/O.
In the Pro-Control Editor [Controller] menu, select [Setup] and the [Setup] dialog box will appear.
Click on the [Tuning] tab, select (check) [Enable I/O], and click the [OK] button.
Important: If [Enable I/O] is not selected, external input/output cannot be performed and only the GLC's internal logic program will operate. (with I/O disabled, debugging and other work can be performed.)

2.



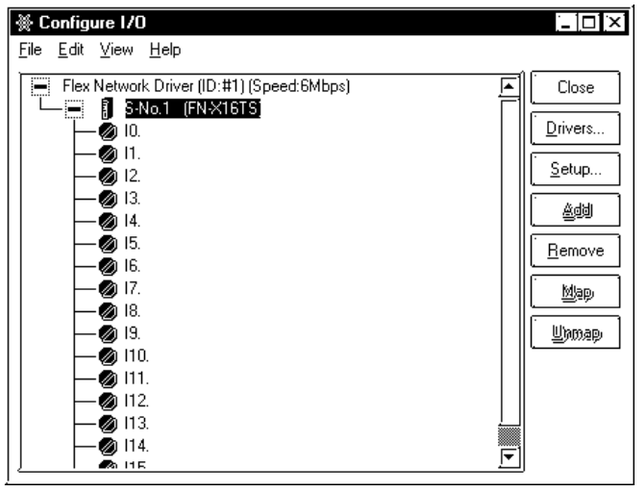
Here, to assign the variable names [Sensor] and [Fan] to external I/O, first, click the [Data] menu's [Configure I/O] selection. The [Configure I/O] window will then appear. Next, click the [Drivers] button and the following [I/O Drivers] dialog box will appear.

3.



Select the Flex Network Driver listed in the GLC I/O list (left side), click the [Add] button, and click the [Close] button. The Configure I/O screen will then appear.

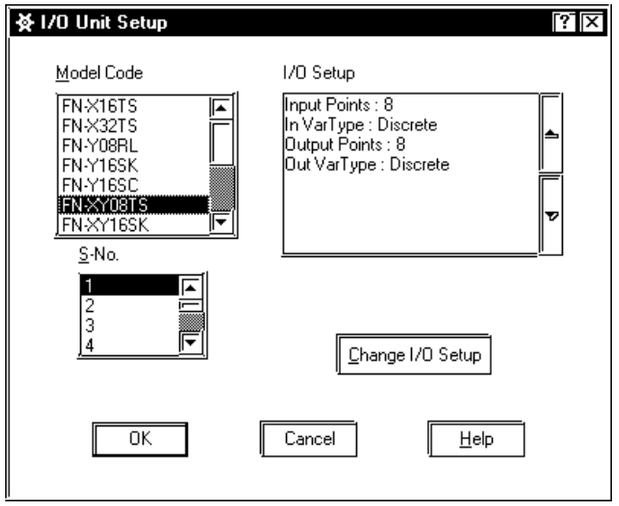
4.



Select the desired I/O unit and click the [Setup] button.

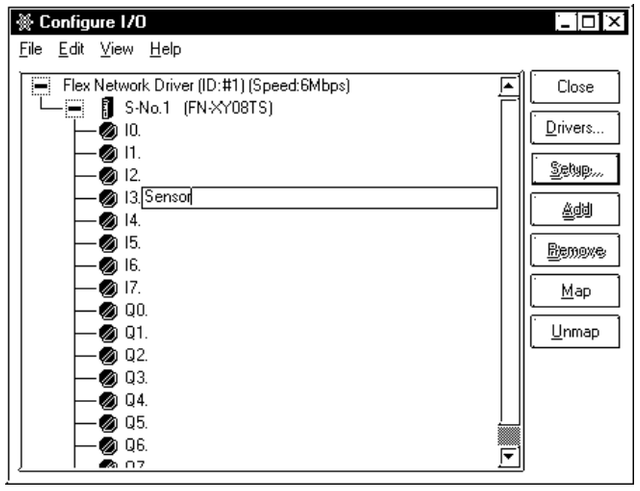
(Default I/O unit setting is [FN-X16TS].)

5.



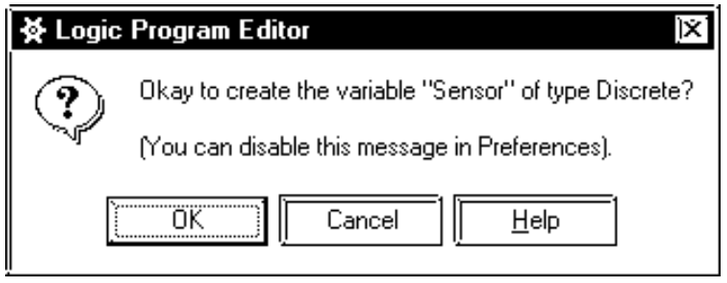
In the I/O Unit Setup screen's [Model Code] selection box, click on [FN-XY08TS] and click on [OK]. Control then returns to the Configure I/O screen.

6.



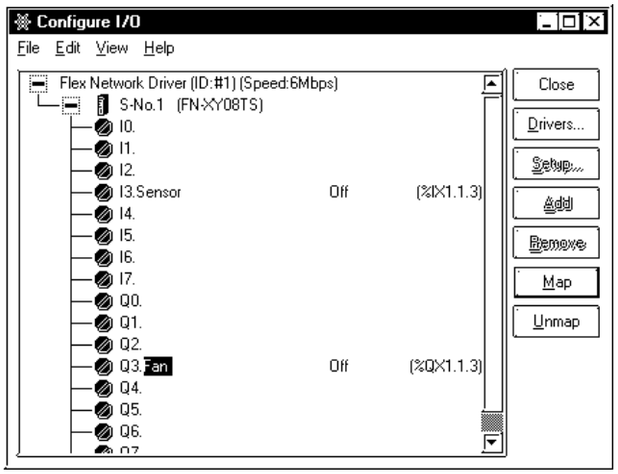
Under the FN-XY08TS, I0 through I7 and Q0 through Q7 are displayed. **The "I" represents input, and the "Q" represents the output signal's external I/O.**
Here, double-click "I3", type "Sensor" and press [ENTER].

7.



When the following dialog box appears, click the [OK] button.
Naming I3 creates a variable name for I3, and allocates that variable to the FN-XY08TS unit's No. 3 input terminal.
NOTE: "Discrete" indicates a variable type that uses bit units for processing.

8.

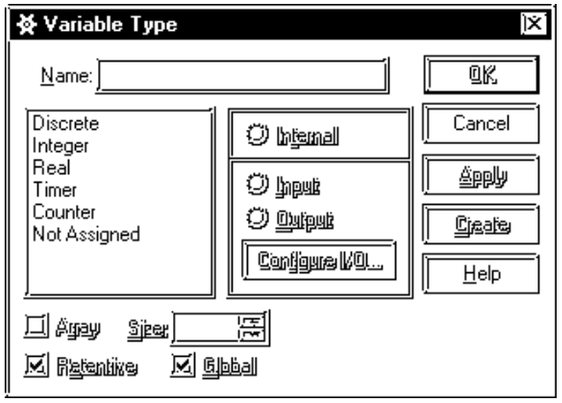


Next, use the same procedure to assign the name "Fan" to "Q3". Variable names allocated here are used by the logic program and/or screen creation software to access external devices.
Here, we will assign “sensor” to a Normally-Open contact or a Normally-Closed contact instruction that will receive input from an external input terminal. Similarly, output to the external output terminal can be created by assigning “fan” to an OUT instruction.

3. Creating Internal Variables

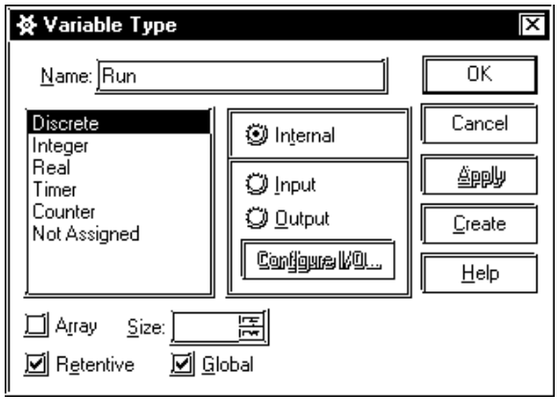
Here, we will create named variables to be used for internal relays, registers, timers, and counters.

1.



Let’s create the variable “Run”, which will represent an internal relay.
First, in the Pro-Control Editor [Data] menu click [Variable Type] to call up the [Variable Type] dialog box.

2.

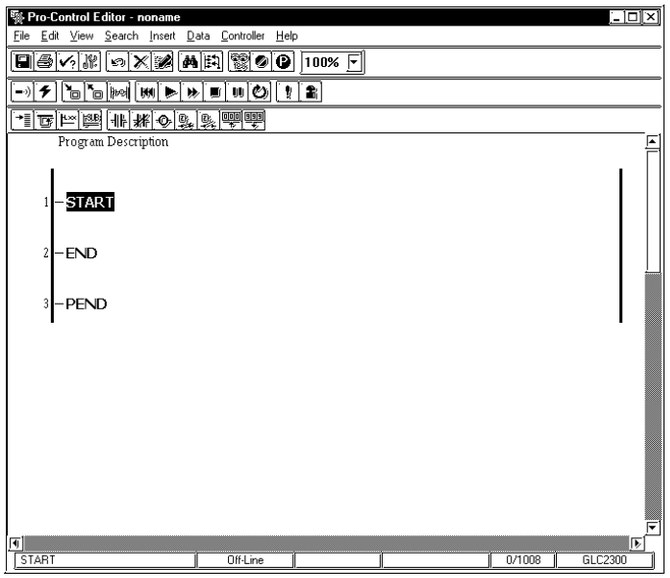


Enter “Run” in the “Name” field, and select “Discrete” from the left-side Variable type menu, which processes data in bit units.
Select "Internal" to specify that the variable being created is an internal variable, and click on [OK].

4. Creating Logic Programs

A logic program can be created by simply inserting instructions in a rung.

1.

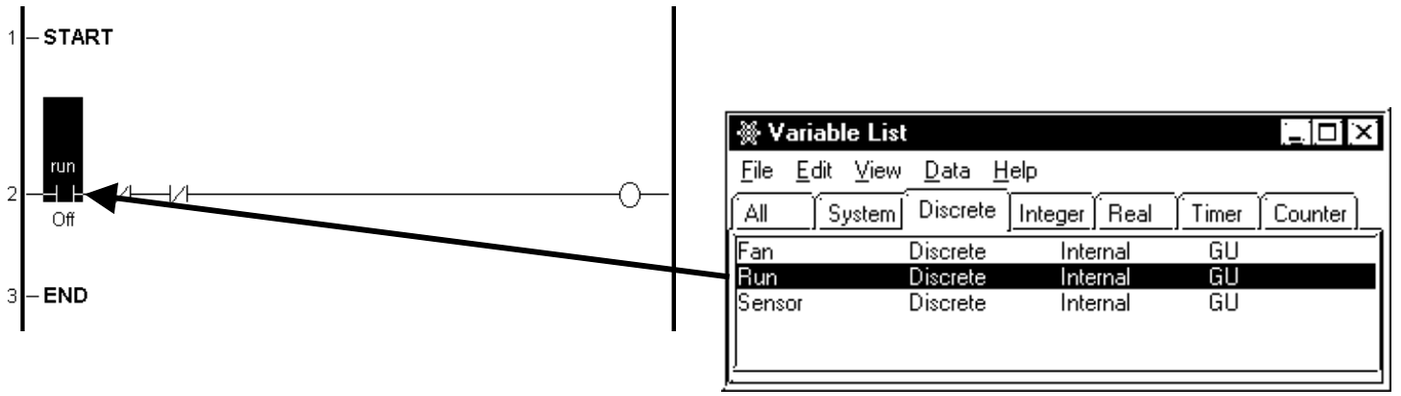


Select [START] on Rung 1, and click the Tool Bar's icon. Be sure to select [START] when creating the first rung.

2.

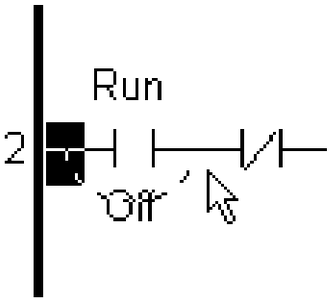
Click the Tool Bar's icon and create a Normally-Open contact on Rung 2. Next, on the same rung, click twice to create two (2) Normally-Closed contacts. Last, click to create a Coil.

3.



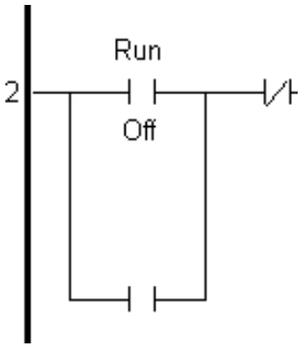
In Pro-Control's [Data] menu, click [Variable List]. From the list of variables, select "Run". Without releasing your mouse button, drag and drop "Run" to the far left side Normally-Open contact.

4.



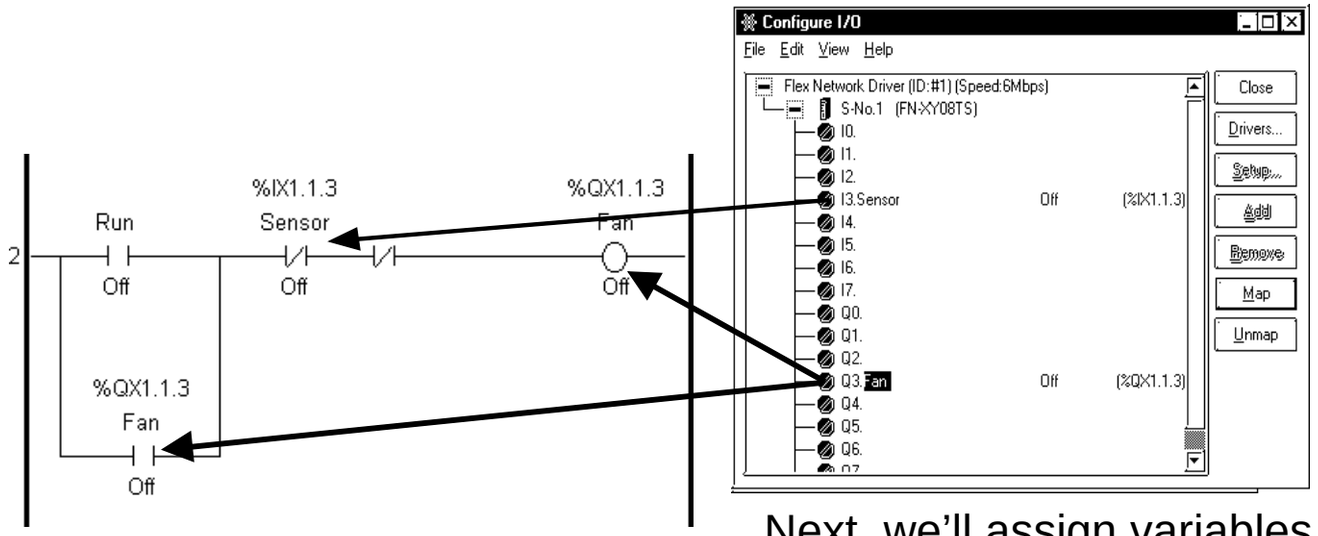
To create an automatic hold circuit, drag the "Run" circuit's left-side connection line to the right side to create an OR circuit. (see figure)

5.



Click on the lower branch of the OR circuit to select it. Then, click to create a Normally-open contact. (see figure)

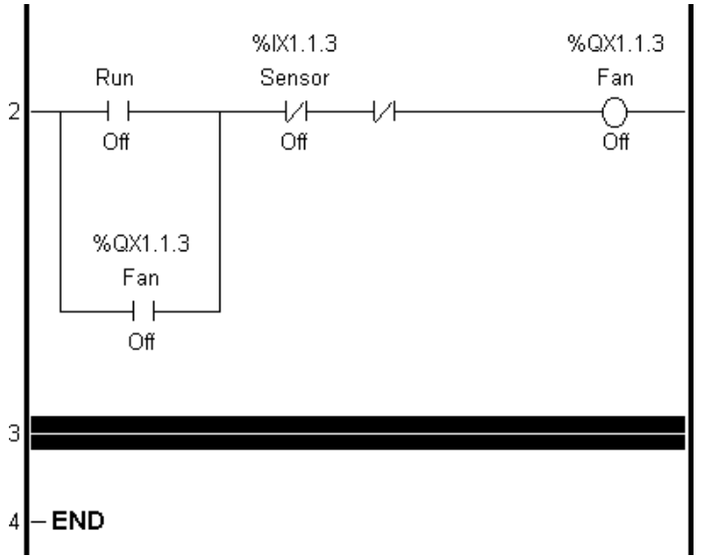
6.



Next, we'll assign variables from the I/O Configuration to the logic program.

Select "Sensor" and drag it to the left-most Normally-Closed contact. Repeat the process twice with "Fan", by dragging it to the OP circuit's Normally-Open contact and to the Coil.

7.



To insert a new rung below Rung 2, select Rung 2 and click on the icon.

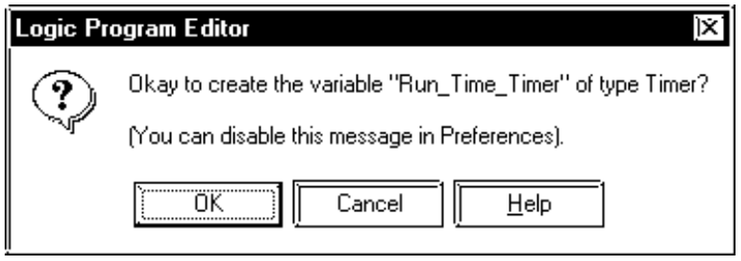
8.

Click on the icon to create a Normally-Open contact on Rung 3. (see diagram)

9.

Click on the icon to create an On-Delay timer (TON) instruction. Enter the timer name "Run_Time_Timer" and press [Enter].

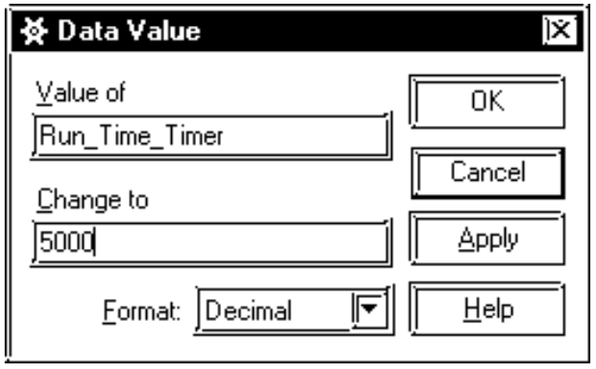
10.



When the variable confirmation dialog box appears, click [OK].

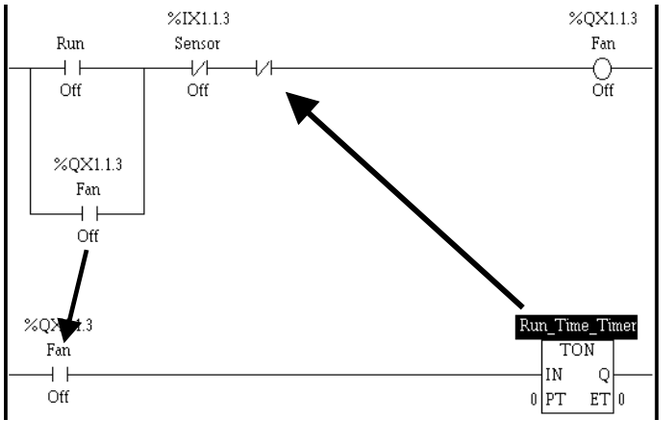
The name (variable) assigned to the On-Delay timer will be designated as a “Timer” type of variable. Use the same process to assign variables to contacts and coils.

11.



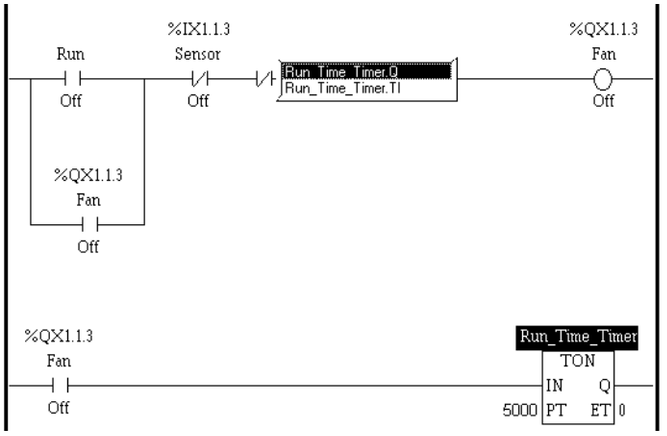
Double-click the "0" that appears in the lower left corner of the On-Delay timer to call up the [Data Value] dialog box. Enter "5000" (milliseconds) in the "Change to" field to set the operating time to five seconds, and click [OK].

12.



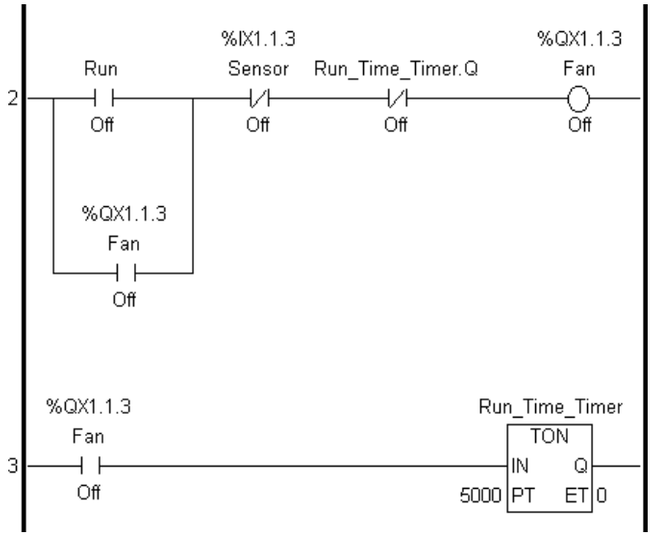
Drag the variable name "Fan" from Rung 2 and drop it onto the Normally-open contact in Rung 3.
In the same way, drag "Run_Time_Timer," from Rung 3, and drop it on the second Normally-closed contact in Rung 2.
(as shown)

13.



After "Run_Time_Timer" is dropped on Rung 2, a pop-up variable window will appear. Double-click on this window's [Run_Time_Timer. Q] variable, which designates the output bit used for "Run_Time_Timer."
NOTE: The variable "Run_Time_Timer. Q" is a dedicated variable, and is created automatically when the Run Time Timer is created in step 10. This bit information (contact information) indicates that the time set in the Run Time Timer has elapsed.

14.



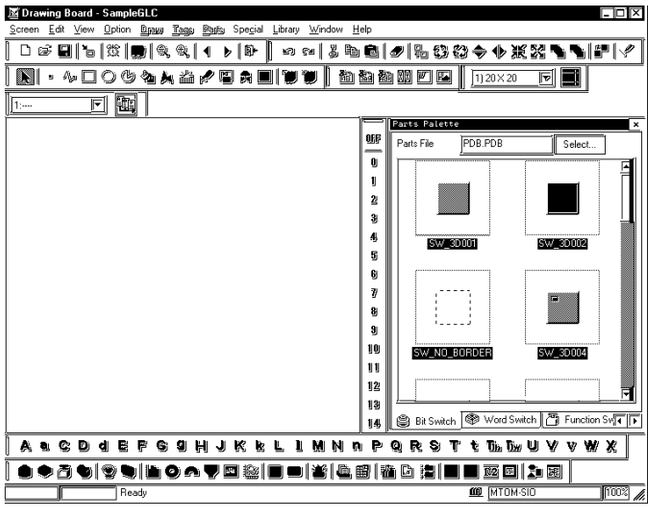
Your logic program is now completed. Click on the Tool Bar's icon to save the logic program.

Important: This program's variable information is imported to GP-PRO/PB III editor when the program is saved. Be sure to save your logic program before using the editor to create a GLC screen.

5. Creating GLC Screens

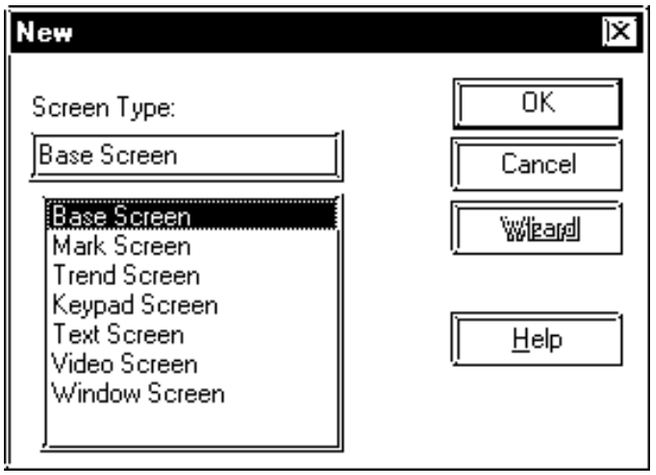
Here, we will create a GLC display screen. Do not quit Pro-Control Editor after starting up GP-PRO/PBIII.

1.



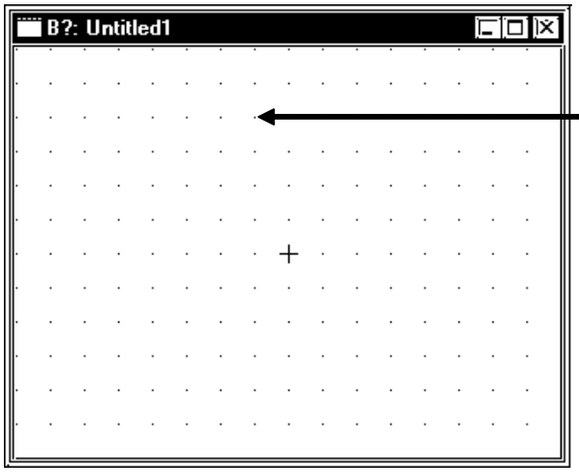
After saving your logic program, click the Project Manager's [Screen] icon to call up the Screen Editor. Next, click on the Tool Bar's (New) icon to create a new screen.

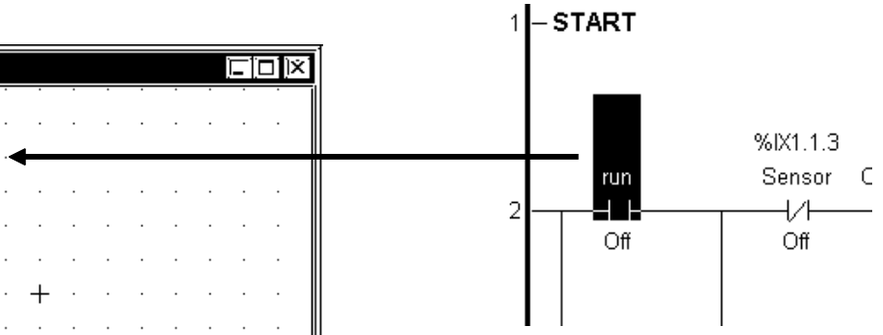
2.



Select “Base Screen” as the screen type and click the [OK] button.

3.

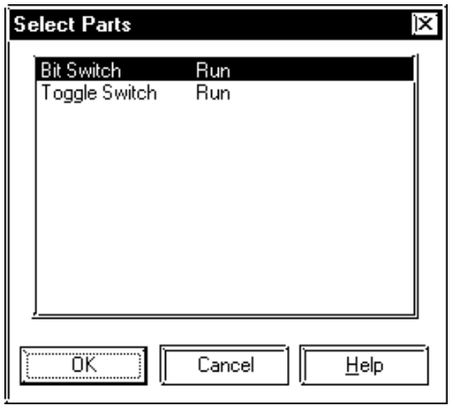




Click on Pro-Control Editor to activate it and drag "Run" (Rung 2 Normally-open contact) to the GP-PRO/PBIII base screen. Be sure to drag/select the entire command, not just the variable, to the GP-PRO/PBIII screen.

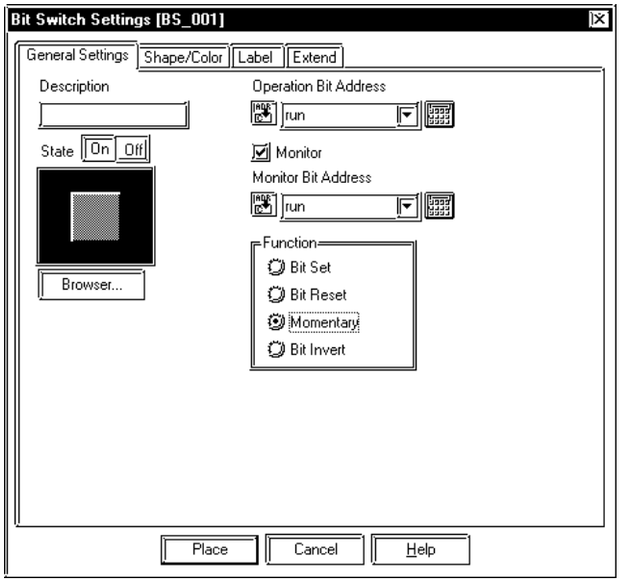
Important: You must save your logic program before dragging and dropping an instruction.

4.



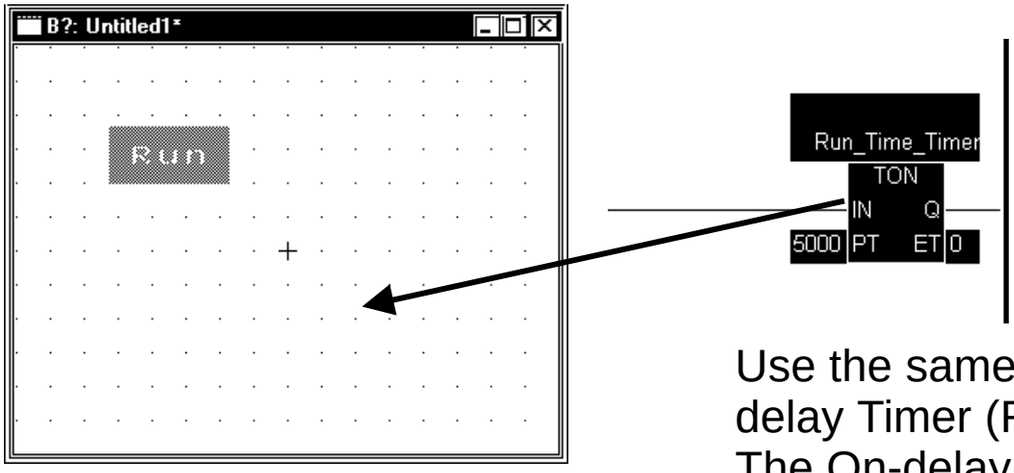
Select "Bit Switch" for the Part to use, and click [OK].

5.



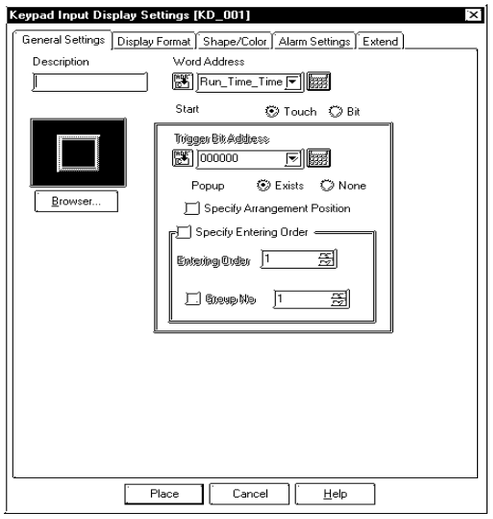
In the [Bit Switch Settings] dialog box, select "Momentary" in the "Function" area, which turns a bit (switch) ON only while the touch panel switch is touched.
Next, click [Place] and position the bit switch on the base screen.
The switch’s label (text displayed on the switch) and shape can also be set.

6.



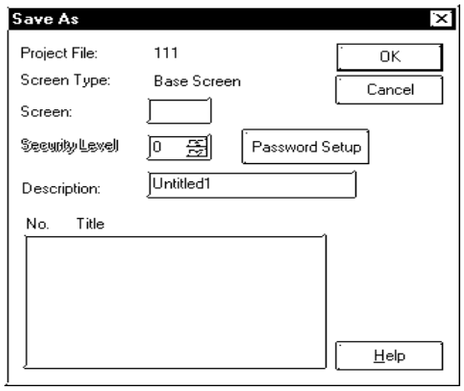
Use the same procedure to drag the On-delay Timer (Rung 2) to the base screen. The On-delay timer is treated as a Keypad Input Display when it is placed on a base screen.

7.



In the [Keypad Input Display Setting] dialog box, designate [Pop-up/ Exists].
Next, click [Place] and position the Keypad Input Display on the base screen.
The Keypad Input Display, when touched, displays a keypad on the GLC screen, allowing you to input numerical values.

8.

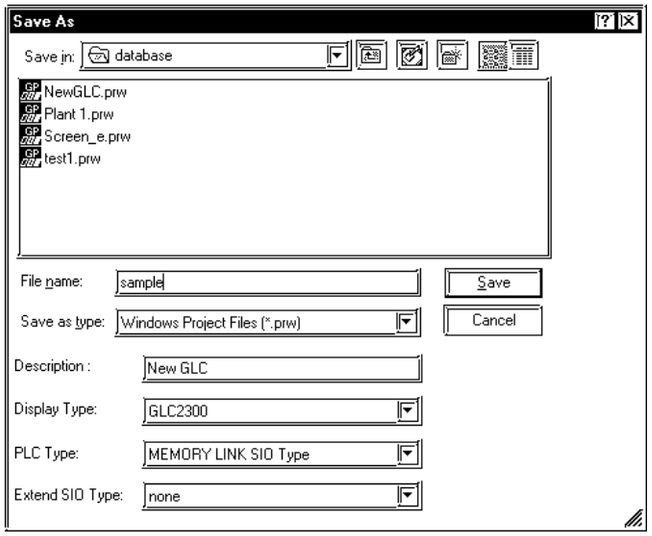


Next, click the Tool Bar's icon to call up the [Save As] dialog box. Enter "1" in the "Screen" field and click the [OK] button. Setting the screen number to "1" designates that the screen will be used as the initial screen when the GLC is started.

6. Transferring Screens and Logic Programs/ Checking Operation

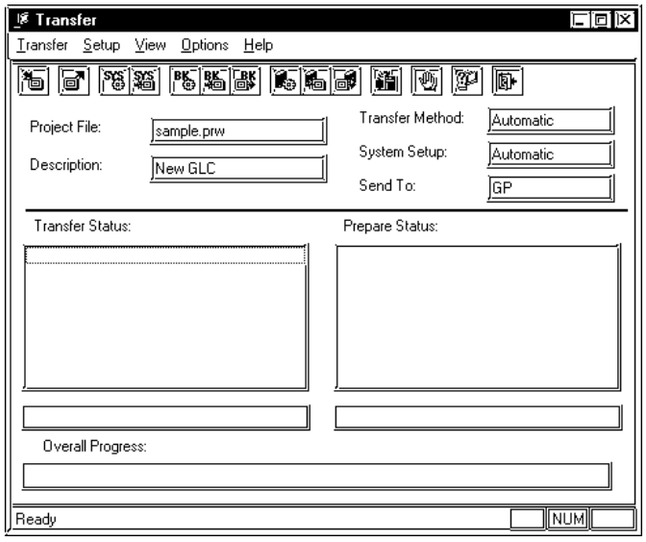
In this step, we will transfer the logic program and project screens we created to the GLC to confirm that they operate correctly.
Prior to transferring GP-PRO/PBIII data, be sure to save your project (.prw) file.

1.



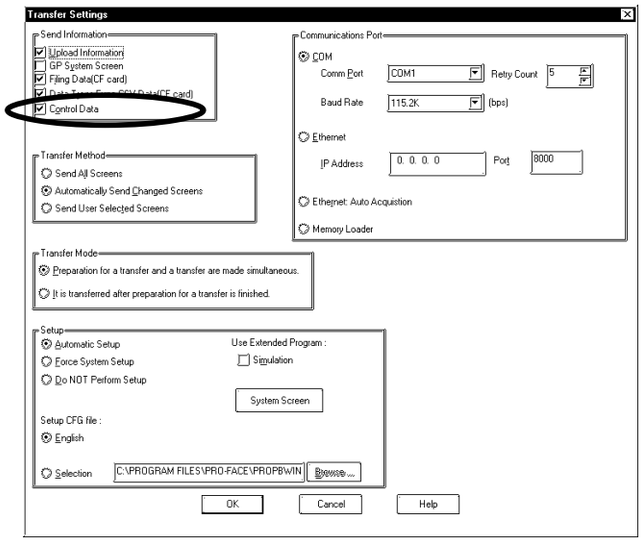
Quit both Pro-Control Editor and GP-PRO/PBIII.
Next, click on the Project Manager's [Project] menu and select [Save As].
Enter a file name and click [Save].

2.



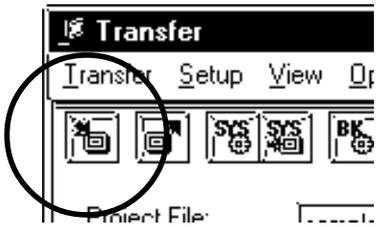
Click the Project Manager's [Transfer] icon and the following screen will appear.

3.



Click the Tool Bar's icon to call up the [Transfer Settings] dialog box. In the "Send Information" field, select "Control Data" and click [OK].
Next, select the desired port in the [Communication Port] field, and click on [OK].

4.



Connect the data transfer cable to the GLC, and click on the Tool Bar's icon. (sends both the screen and control data to the GLC).

5.

After data transfer is completed, the GLC is reset and the screen you created is displayed.

Check that all screens and logic programs operate as expected.
The logic program created in this exercise should perform the following actions.

- The fan starts rotating when "Run" is touched, and halts after five seconds.
- Touching the Keypad Input Display on the touch panel allows you to adjust the fan's stop (OFF) time.
- If the sensor is activated while the fan is rotating, the fan is stopped.

This completes the basic procedure for developing an application. For a detailed explanation of the features of GP-PRO/PB III and Pro-Control Editor, please refer to each product's manuals and help files.

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