



**Programming Software Version 4.0
User Manual**

(Manual P/N MAN-UTICW-M)

WARNING!

Programmable control devices such as the G² Series PowerPanel must not be used as stand-alone protection in any application. Unless proper safeguards are used, unwanted start-ups could result in equipment damage or personal injury. The operator must be made aware of this hazard and appropriate precautions must be taken.

In addition, consideration must be given to the use of an emergency stop function that is independent of the programmable controller.

The diagrams and examples in this user manual are included for illustrative purposes only. The manufacturer cannot assume responsibility or liability for actual use based on the diagrams and examples.

WARNING: If the PowerPanel is used in a CLASS I, DIV. 2 environment, the following conditions must be met: Class I, Div. 2 methods; AND — must conform to all rules and requirements of applicable jurisdictions regarding Class I, Div. 2 installations; ALSO — peripheral equipment controlling this device or being controlled by it shall be suitable for service in the location in which they are used. ***Failure to comply with any of the above installation requirements will invalidate the device's qualifications for service in CLASS I, DIV. 2 hazardous locations.***

WARNING: EXPLOSION HAZARD — SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.

WARNING: EXPLOSION HAZARD — DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NON-HAZARDOUS.

CAUTION

Do not press the PowerPanel touchscreen with any sharp objects. This practice may damage the unit beyond repair.

Trademarks

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Manual Part No. MAN-UTICW-M Version 4.0 (05/2003)

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PowerPanel™

MANUFACTURED and MARKETING by

UTICOR

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Manual Revisions

Manual Part Number: MAN-UTICW-M, Revision 4

Manual Title: PowerPanel Programming Software Version 4.0 User Manual

The following table provides you with update information. If you call technical support with a question about this manual, please be aware of the revision number.

Revision	Date	Effective Pages	Description of Changes
Original Release	07/2001	Cover Warning/Copyright i–vi 1–160 Appendix A Appendix B Index	Original Release of Manual
Version 2.0 Release	02/2002	All pages	Software Release 2.0 — Changes to all objects, new objects/features added. Appendix C and D added.
Version 2.1 Release	02/2002	All pages Appendix C Appendix D	Software Release 2.1 — G*Square Series and Q2Panel information added. Masking option added to Multi-state Bitmap and Multi-state Indicator object. Switch to Screen option added to Project Attributes.
Version 2.2 Release	05/2002	Cover Warning/Copyright v 1–200 (pages added, changes to pages)	Software Release 2.2 — Math Logic object name changed to Multi-function object. Copy Screen selection added to File Menu. COM Configuration selection added to Panel Menu. Objects Overlapping Warning option and Overlapping Objects information added to Edit Menu. Read Alarm History/Count, Monitor Tags, Read Linegraph from Panel features added to Panel Menu. 15-inch G*Square Panel selection added. 8- and 10-inch Q2Panel selection added.
Version 2.5	10/2002	Cover 1—200 (various changes)	Software Release 2.5 — added support for Uni-Telway Driver, CTC 2600-2700 Binary driver, generic DeviceNet driver. Add/Edit Alarm changed to allow Alarm State selections of In Range, Equal, Not Equal, Greater Than, and Less Than. Line Graph object allows you to plot points from right to left. Multi-state Bitmap Object allows you to mask number based bitmap/message. Change Screen object now allows you to enter a 0 to change to previously viewed screen.

Manual Revisions — continued

Revision	Date	Effective Pages	Description of Changes
Version 3.0	12/2002	Cover Warning/Copyright i-vi 1–220 Index	Software Release 3.0 — Data Acquisition Objects added. Global Objects added. Import Messages option added. Initial Tag Value and Retentive Initial Tag Value option added. Copy Screens option now allows copying tags. Port assignment tab added to Project Attributes . Allow Stretching, Maintain Aspect Ratio option available for all bitmap objects. Bitmaps larger than 64K or 640 x 480 can now be imported. Decimal Point control by a tag is now an option for the Numeric Entry and Numeric Display objects.
Version 4.0	05/2003	All	Software Release 4.0 — Some of the major additions to this extensive software revision are: Dual PLC Driver Support added. Expression Tags added. Duplicate Tags option and Search and Replace test option added to Tag Database. Touch PRLS, Alarm List, Screen List Selector, Control List Selector objects added. Notification and Handshake Flags added to Numeric Entry Objects.

EU Information

The G*Square Series PowerPanel is manufactured in compliance with European Union (EU) Directives and carries the CE mark. The G*Square Series PowerPanel has been tested under CE Test Standard #EN55011, and is listed under UL File #E209355. The following information is provided to comply with EU documentation requirements.



Please NOTE: Products with CE marks perform their required functions safely and adhere to relevant standards as specified by EU Directives provided they are used according to their intended purpose and that the instructions in this manual are adhered to. The protection provided by the equipment may be impaired if this equipment is not used in accordance with this manual. Only replacement parts supplied by UTICOR Technology, L. P. or its agents should be used.

Technical Support

Consult PowerPanel Programming Software Help or you may find answers to your questions at our web site @ www.uticor.net. If you still need assistance, please call our technical support at 1-800-832-3647 or FAX us at 1-563-359-9094.

SELV Circuits

All electrical circuits connected to the communications port receptacle are rated as Safety Extra Low Voltage (SELV).

Environmental Specifications	Operating Temperature	
	G*Square and Q2Panel 6" Monochrome/6" Color	0 to 45 °C
	G*Square and Q2Panel 8" Color	0 to 40 °C
	G*Square 10" Color	0 to 50 °C
	G*Square 15" Color	0 to 45 °C
	Storage Temperature	
	G*Square and Q2Panel 6" Mono	-20 to +60 °C
	G*Square and Q2Panel 6" Color	-25 to +60 °C
	G*Square 8" Color	-20 to +60 °C
	Q2Panel 8" Color	-25 to +60 °C
	G*Square 10" Color	-25 to +60 °C
	G*Square 15" Color	-25 to +60 °C
Operating Humidity		10–95% R.H., noncondensing
Air Composition		No corrosive gases permitted

Preventative Maintenance and Cleaning

No preventative maintenance is required. The PowerPanel touchscreen should be cleaned as needed with warm, soapy water. See the PowerPanel Hardware User Manual (P/N MAN-UTICW-001) for a list of compatible/incompatible chemicals and compounds.

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Introduction

In this chapter....

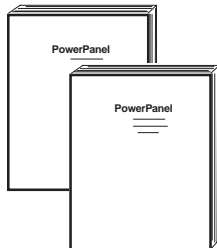
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- Introduction
- What you need to get started
- Need HELP?
- Models
- Features
- PLCs Supported by PowerPanels
- PLC Cable Part Numbers
- Programming Cable Part Number
- PowerPanel Programming Software Installation

Manual Organization

The PowerPanel Programming Software User Manual is arranged in chapters. A description of key information contained in each chapter is provided below.

Chapter	Description
	Introduction Provides Manual Organization, and lists what you need to get started, hardware and software. Discusses how to get help with questions or problems you might encounter through Onscreen Help and Technical Support. Provides you with a table listing the various models, and their special features. Lists the important features of all PowerPanels. Lists the PLCs supported by the panels, by brand, model and protocol. Lists the part numbers for PLC cables and the programming cable. Tells how to install programming software.
	Tutorial Provides instructions to create an example (or "demo") project. Discusses how to configure a PLC ladder logic program to use with the demo project. Takes you through the steps necessary to create a PowerPanel project using the programming software. Shows you how to transfer the project to the panel, and testing the project once transferred.
	Project Setup Discusses ON-LINE and OFF-LINE configuration options. Tells you how to set up a project by entering project information (Step 1). Discusses screen design (Step 2), and how to transfer the project to the panel (Step 3).
	Objects Provides step-by-step instructions for configuring each of the PowerPanel objects.
	Reference Provides more details on menu commands. Takes you through the main menu bar item by item, command by command, with instructions. Contains information on the various tool bars and the status bar. Describes right click menus
	Appendix A Troubleshooting Aids in diagnosing problems you might encounter when installing or operating your PowerPanel. Provides steps to take to isolate and correct problems. Lists panel error messages, programming software error messages, and PLC Driver Error messages.
	Appendix B Characters Provides a list of the ASCII Characters supported by the PowerPanel. This information may be useful when creating a Text Entry or Dynamic Text object.
	Appendix C PLC Communications Setup Provides instructions on how to set up most PLC Types to communicate with the PowerPanel.
	Appendix D Assigning Ports in Panel Setup Mode Provides instructions on how to assign the COM1 and PLC Ports on the Power-Panel.

Introduction



Install the PowerPanel using the instructions in the Hardware Manual.

Program the PowerPanel using the instructions in this Software Manual.

There are *two manuals* that you will need for installation — this manual, the PowerPanel Software User Manual, Version 4.0 and the PowerPanel Hardware User Manual (P/N MAN-UTICW-001) shipped with your PowerPanel.

Don't worry — you won't be bouncing back and forth between them — and we'll always let you know exactly where the information is that you will need for the next step.

These manuals will take you through the steps necessary to get your PowerPanel up and running in the shortest possible time. Although your familiarity with programmable graphic operator interface devices will determine how quickly you move through the steps — it's as easy as 1 — 2 — 3.

What you need to get started....

Hardware

- **PowerPanel G² Series:** G*2 6" Monochrome, G*2 6" Color, G*2 8" Color, G*2 10" Color, and G*2 15" Color
- **Q²Panels:** Q*2 6" Monochrome, Q*2 6" Color, Q*2 8" Color, Q*2 10" Color
- 24 Volt DC Power Supply
- RS-232C Programming Cable (P/N CBL-UTICW-009)
- RS-232C or RS-422A/485A PLC Interface Cable (see page 8 for part numbers)
- PC requirements:
 - IBM or compatible PC (Pentium 166 MHZ or better) with a mouse and separate serial port
 - VGA display with at least 800 x 600 resolution (1024 x 768 recommended)
 - Standard Windows 98/NT4.0/2000/ME/XP Professional/XP Home® Requirements
 - CD ROM Drive

Software

- PowerPanel Programming Software Version 4.0 (P/N ACC-UTICW-CD)

Need HELP?



PLEASE NOTE: The Troubleshooting section (Appendix A) should be able to help you with most problems you might encounter.



Onscreen HELP

One of the most important features of the PowerPanel Programming Software is the availability of context sensitive onscreen help. To access the Help windows, simply press the F1 function key while on the topic where you need help. For example, if you need help while working with screens, press the F1 function key while in that area and a popup window will be displayed. You may also click on the Help button located at the bottom of most dialog boxes to go to the help topic.

Fly-Over HELP

When the mouse cursor comes to rest over any tool bar or object button for a short while, a small window will appear containing a brief description of the function of that particular button. The window will disappear as soon as the cursor has been moved off the button.

PLC HELP

If you need help with the PLC to PowerPanel Interface, consult the PowerPanel Programming Software Help. Each PLC Driver has a Help Topic that lists the error messages and provides an explanation for each. Also provided are PLC to PowerPanel wiring diagrams.



Technical Support

Although most questions can be answered with PowerPanel HELP or the manuals, you may find answers to your questions in the operator interface section of our web site @ www.uticor.net. If you still need assistance, please call our technical support at **1-800-832-3647** or **FAX us at 1-563-359-9094**.

PowerPanel Models

The PowerPanel is an intelligent, programmable, flat panel display. It has been designed to interchange and display graphical data from a PLC by merely viewing or touching the screen.

The PowerPanel is available in a variety of models to suit your application. Refer to the table below for a list of model descriptions and some important options that are available.

G2 Series PowerPanels

G*2 Model Description	User Memory	Field Expandable User RAM?	Nonvolatile Flash Backup Card Option for Program Backup?	PLC Drivers Supported? *	Option Cards Available
6" Monochrome Panel	512K	Yes — to 1 MEG	Yes	All	A-B Data Highway Plus
6" STN Color Panel					A-B Remote I/O
8" STN Color Panel					DeviceNet I/O
10" TFT Color Panel**					ModBus Plus
15" TFT Color Panel	1 MEG	Yes — to 1.5 MEG			Ethernet/IP Profibus-DP
* A list of PLC Drivers supported is provided on page 7 of this manual. ** The 10" TFT Color Model is offered in two sizes. One that has the same footprint as the previous version of the PowerPanel and the new PowerPanel standard size (smaller than previous version).					

Q2Panels

Q*2 Model Description	User Memory	Field Expandable User RAM?	Nonvolatile Flash Backup Card Option for Program Backup?	PLC Drivers Supported? *	Option Cards Available
6" Monochrome Panel	512K	No	Yes	All	A-B Data Highway Plus
6" STN Color Panel		No			A-B Remote I/O
8" STN Color Panel		Yes — to 1 MEG			DeviceNet I/O
8" TFT Color Panel					ModBus Plus
10" TFT Color Panel					Ethernet/IP
					Profibus-DP
* A list of PLC Drivers supported is provided on page 7 of this manual.					

Features

The following is a list of important features for the PowerPanels:

- Pre-built panel components for easy screen design
- Special parts, such as: Toggle Switch, Slide Switch, Selector Switch, Throw Switch, Thumbwheel Object, Meters, PID Faceplates, and Analog Clock
- Flash based design for easy firmware upgrade
- Field expandable user RAM (not available with all models)
- Nonvolatile flash card option for user program backup
- Color models support 128-color palette for components and bitmaps
- 16 shades of gray on monochrome models
- Multiple languages (up to 9)
- Two communications ports — Computer (RS-232C or RS-422A) and PLC (RS-232C, RS-422A, or RS-485A)
- Up to 999 screens
- Built-in clock and calendar or reference the PLC clock
- Built-in soft keypad for numeric and alphanumeric entry
- Password Protection for every touch object
- Passwords for up to 8 definable user groups
- 16 level undo and redo
- Import bitmaps
- Serial Printer support
- 40-character tag names allow you to use meaningful names for PLC memory locations instead of cryptic PLC addresses
- Expressions tags
- Data Acquisition and Global objects

PLCs Supported by PowerPanels

PLC Brand	Model		Protocols Supported
Allen-Bradley	Micrologix 1000/1200/1500, SLC 500, 5/01, /02, /03		DH485/AIC/AIC +
	SLC 5/04, PLC 5		DH+ (Option Card)
	Micrologix 1000, 1200 and 1500 SLC 5/03, /04, /05 (with DF1)		DF1 Half Duplex; DF1 Full Duplex
	PLC 5		DF1
	PLC 2, 3, and 5		Remote I/O (DH+ Option Card)
Control Techniques	Unidrive 2-wire, 4-wire		Binary
Control Technology Corporation (CTC)	CTC 2600, 2700, and 5100		CTC Binary
DeviceNet	DeviceNet I/O		Generic DeviceNet I/O (Option Card)
Ethernet	Ethernet/IP		Generic Ethernet/IP (Option Card)
General Electric	90/30 and 90/70 Versamax		SNPX SNP
Mitsubishi	FX Series (all)		Direct
Modicon	984 CPU, Quantum 113 CPU AEG Modicon Micro Series 110 CPU: 311-xx, 411-xx, 512-xx, 612-xx		Modbus RTU
	984 Series, Quantum Series		Modbus Plus (Option Card)
Omron	C200, C500		Host Link
Profibus	Profibus-DP		Generic Profibus-DP (Option Card)
DirectLogic	DL05		K-Sequence; DirectNet; ModBus (Koyo addressing)
	DL105		K-Sequence
	DL205	D2-230	K-Sequence
		D2-240	K-Sequence; DirectNet
		D2-250	K-Sequence; DirectNet; ModBus (Koyo addressing)
		D2-240/250 DCM	DirectNet
	DL305	D3-330/330P	DirectNet
		D3-340	DirectNet
		D3-350	K-Sequence; DirectNet; ModBus (Koyo addressing)
		D3-350 DCM	DirectNet
	DL405	D4-430	K-Sequence; DirectNet
		D4-440	K-Sequence; DirectNet
		D4-450	K-Sequence; DirectNet; ModBus (Koyo addressing)
		All with DCM	DirectNet
Siemens	Siemens S7 MPI Adapter		3964R
Square D Symax	300 Series CPU, 400 Series CPU		Symax
Texas Instruments	TI5X5 Series— TI 505, TI545-1102, TI545-1104		TBP (Transparent Byte Protocol) or NITP (Non-Intelligent Terminal Protocol)
Uni-Telway	Telemecanique TSX 37 Micro		UNI-TE (Version 1.1)
Other	H2- WinPLC (Think & Do V6.3, Think & Do Studio, check for version compatibility)		Modbus RTU (serial port)

PLC Cable Part Numbers — 3m (9.8 ft.)

Part Number	Cable Description
CBL-UTICW-001	GE 90/30 and 90/70 15-pin Dsub port (RS-422A)
CBL-UTICW-002	A-B SLC 5/03/04/05 DF1 port (RS-232C)
CBL-UTICW-003	A-B PLC5 DF1 port (RS-232C)
CBL-UTICW-004	A-B SLC DH485 port (RS-485A)
CBL-UTICW-005	A-B MicroLogix 1000, 1200 & 1500 (RS-232C)
CBL-UTICW-006	Mitsubishi FX Series 25-pin port (RS-422A)
CBL-UTICW-007	Mitsubishi FX Series 8-pin MINI-DIN (RS-422A)
CBL-UTICW-008	Omron C200, C500 (RS-232C)
CBL-UTICW-010	ModBus with RJ45 (RS-232C)
CBL-UTICW-011	Modicon ModBus (RS-232C)
CBL-UTICW-012	Siemens S7 MPI Adaptor (RS-232C)
CBL-UTICW-013	Omron 9-pin Programming Port (RS-232C)
CBL-UTICW-014	GE Versmax (RS-232C)
CBL-UTICW-016	Control Technics Unidrive 4-wire (RS-485A)
CBL-UTICW-017	Control Technics Unidrive 2-wire (RS-485A)
CBL-UTICW-019	Control Technology Corp phone type 6-position (RS-232C)
CBL-UTICW-021	Uni-Telway Telemecanique TSX 37 Micro (RS-485A)

Programming Cable Part Number — 2m (6.56 ft.)

CBL-UTICW-009	RS-232 Programming Cable
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See the PowerPanel Hardware User Manual (P/N MAN-UTICW-001), Appendix A for cable pinouts, or use the PowerPanel Programming Software Help Topics.

PowerPanel Programming Software

PowerPannels are configured with software running on an IBM or compatible personal computer. This software is available through Uticor Technology, L. P., part number MAN-UTICW-CD. The panel can be configured on-line or off-line.



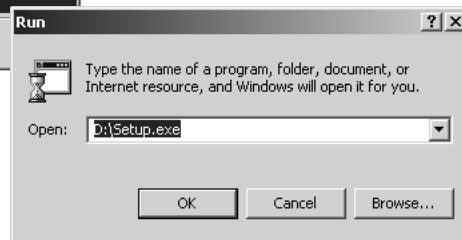
(See page 3 for requirements.)

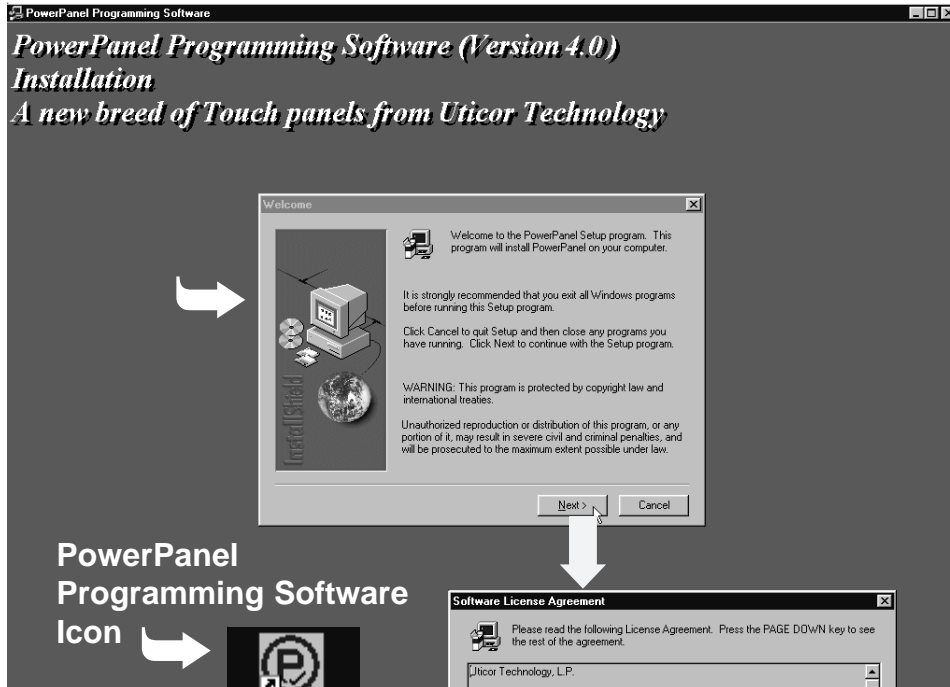
Installing the Software

Perform the following steps to install the PowerPanel Programming Software onto your PC.



- Place the CD into your **CD ROM drive**.
- The CD should automatically start the install program, if it does not, perform the following 2 steps:
 1. From Windows click on the **Start** Button, and then click on **Run** from the menu. The **Run** dialog box will pop up.
 2. At the prompt type D:\ (or your CD ROM drive) setup.exe or click on the **Browse** Button and find the **Setup.exe** file for PowerPanel Programming Software.
- Click on the **OK** button to begin the installation. The PowerPanel Programming Software Installation Screen will appear.
- Follow the onscreen prompts to load the software. (Installation screens are shown, next page.)





PowerPanel Programming Software Icon



This icon will appear on your desktop after installation.



This is the final installation screen. Here you select the destination folder where your software program will be installed. The default destination location is C:\Program Files\PowerPanel. If you wish to select another destination, click on the Browse button.

To complete the installation, click on Next> button. That's all there is to it! The PowerPanel icon shown above will appear on your desktop. Simply click on it to open the Programming Software!



2

Tutorial

In this chapter....

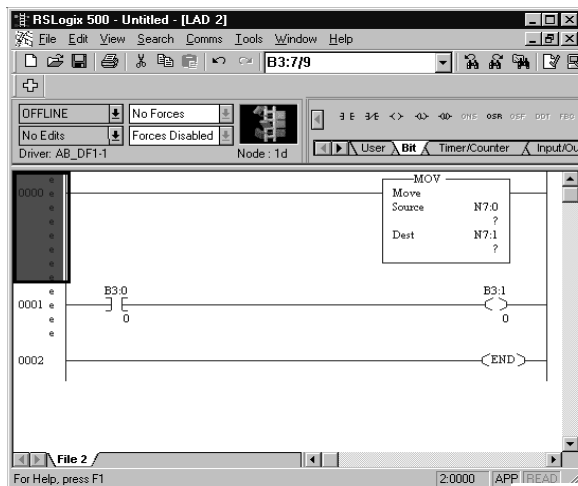
- Configure a PLC
- Create a Project

Tutorial — Configure PLC

For the purposes of this Tutorial, we will be using an Allen-Bradley SLC 500 Programmable Logic Controller (PLC), with Full Duplex Protocol (one PLC only). To configure the PLC we are using RSLogix® Programming Software. The purpose of this part of the tutorial is to show you how to configure your PLC to communicate with a PowerPanel.

Connect the programming PC to the Allen-Bradley SLC 500 PLC. With RSLogix Programming Software running on your PC, perform the following steps.

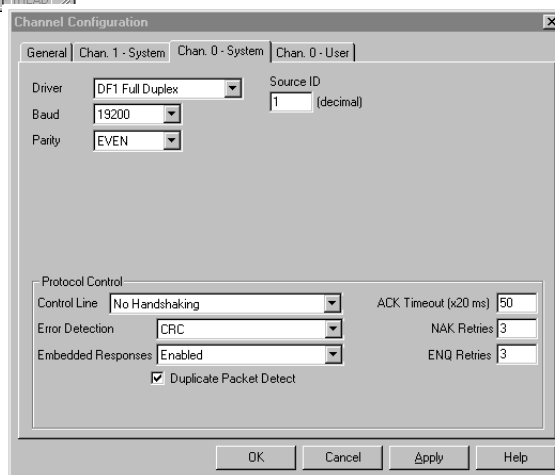
1. Enter the Ladder Logic as shown in the example (below, left). These PLC locations will be used by Tags that you will create in the PowerPanel Programming Software.



2. Configure **Channel 0, System**, as shown in the graphic (below, right).
3. Save this program and transfer it to the PLC. Place the PLC in Run Mode.
4. Exit RSLogix Programming Software.

For this tutorial, we will be connecting the panel to DF1 Port of an Allen-Bradley SLC 500 with Full Duplex Protocol. These are the settings that will be used when setting up the panel communications.

You have now configured the PLC to communicate with a PowerPanel Project that you will create in the next section of this tutorial.



Tutorial — Create a Project

The following is a project tutorial. You've already configured your PLC to work with the PowerPanel project you will be creating in this section. Now we'll take you through the process of creating a new project, placing objects on the screen, and transferring a project to the PowerPanel. This should help familiarize you with the PowerPanel Programming Software environment.

Let's assume you have the programming software installed on your PC (if you don't, go back to page 9 and install now). Connect the PowerPanel to your PC using the P/N CBL-UTICW-009 cable. Connect the PowerPanel to your PLC using the appropriate panel to PLC cable.

Step 1

In **Step 1, Project Information**, you will be setting up your project by entering project information.

1. From the **Project Information** screen, click on the **Edit Program OFF-LINE (Write to Panel Later)** button.
2. Under **Project Name**, type in **Demo Project 1**. Press **Enter**. The primary PowerPanel Program file has a ".prp" suffix.
3. Under **Start Editing Screen**, leave the screen number as 1. Click in the field next to **Name**. Replace **Scr1** by typing in **Numeric Entry Screen**.

Click here to begin.

Enter project name here.

Step 1: Project Information

PowerPanel™

PowerPanel Programming Software Version 4.0
UTICOR Technology, L.P. Phone: 1-563-359-7501
www.uticor.net

Step 1
It's as easy as 1-2-3...

Selected Action : Edit OFF-LINE Write Later

ENTER PROJECT INFORMATION

Project Location : Browse...

Project Name :

Start Editing Screen

Number Name

Panel Type Firmware Revision

PLC 1

PLC Type and Protocol

Think-in-Do Map file

☐ **PLC 2**

PLC Type and Protocol

Think-in-Do Map file

Buttons: Read Program from Panel and Edit OFF-LINE, Edit Program ON-LINE, Ethernet/COM Port Configuration..., Ok, Help, Clear, Exit

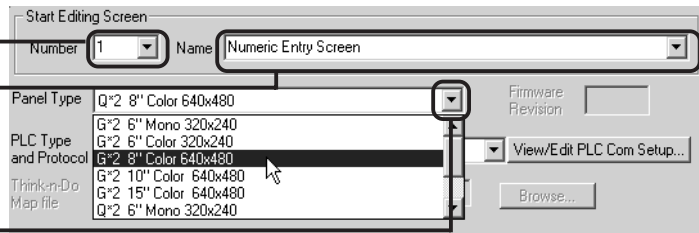
Enter Screen Number.

Type in "Numeric Entry Screen" here.

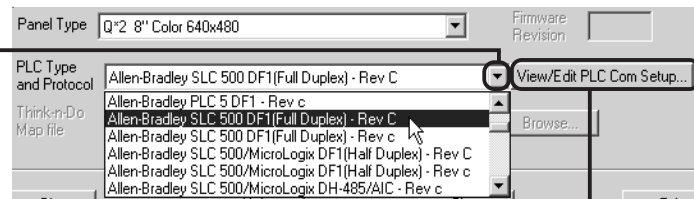
Click on DOWN arrow to view Panel Types and select the Part Number/ Model Type you are using.

Click on DOWN arrow to view PLC Type and Protocol and select the type you are using.

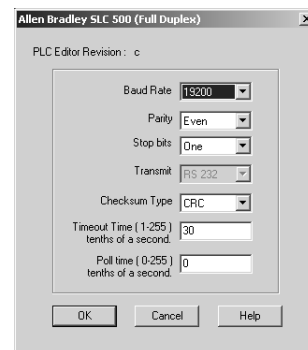
To set PLC Attributes, click on this button. A dialog box particular to the type PLC and Protocol you have selected will appear.



4. Click on the DOWN arrow to the right of the **Panel Type** field to view choices. Select the Panel Type you are using. In this Demo Program we are using the **G*2 8" Color 640x480**.



5. Under **First PLC**, click on the DOWN arrow to the right of **PLC Type and Protocol** to view the list. For the purpose of this Demo Program, select **Allen-Bradley SLC 500 DF1 (Full Duplex)**. (We are using an Allen-Bradley SLC 500 with Full Duplex Protocol.)
6. Leave the box next to **Second PLC** unchecked. For the purposes of this tutorial, we will only be configuring the project for one PLC.
7. Click on the **View/Edit PLC Com Setup** to edit the PLC Attributes. Set the attributes to match those in the **Allen Bradley SLC 500 (Full Duplex)** attributes dialog box shown below. Click **OK**. *(These settings must match the PLC Com Port settings. Check your PLC User Manual for port settings for your particular PLC.)*

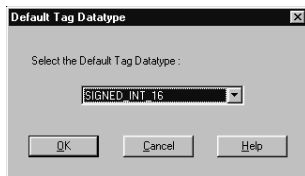


Step 1 is complete!

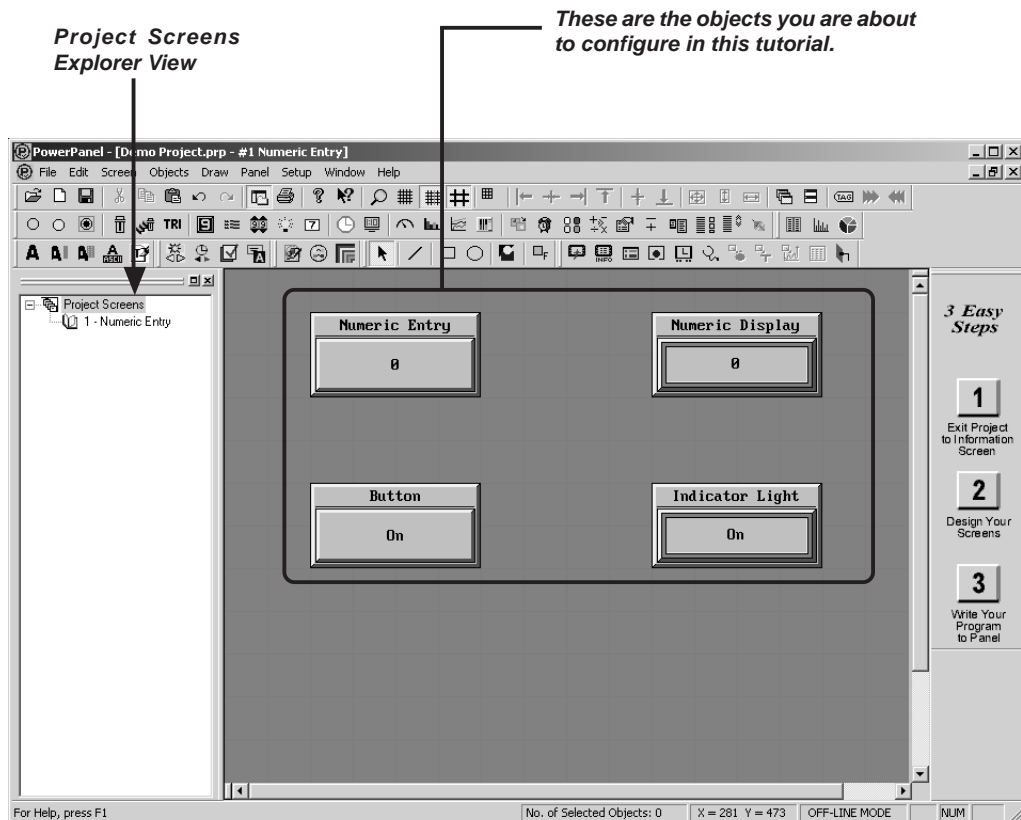
Step 2

You are now ready for **Step 2, Design Your Screens**. In Step 2 we will place 4 objects on the screen. You have already configured your PLC ladder logic for this Demo Project in the first part of the tutorial.

The PowerPanel Programming Software working environment is shown below. Toolbars provide easy access to all major programming functions and features. The objects shown below represent the touch buttons and displays that will be transferred to the panel and communicate with the PLC when this tutorial is completed. The Main Programming Screen opens with the toolbars shown below.

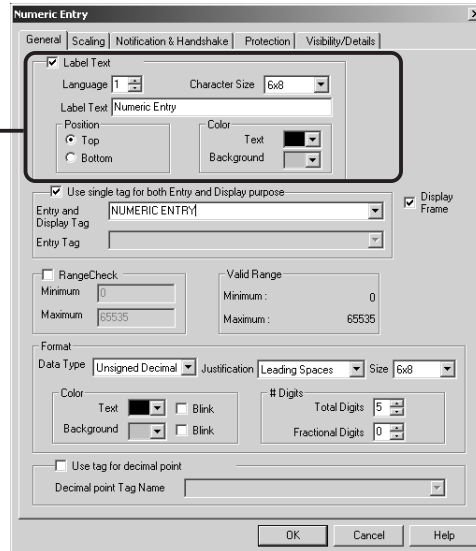


PROGRAMMING TIP: Before you begin placing objects on the programming screen, click on **Edit > Default Tag Data Type** and select **SIGNED_INT_16**. By selecting the default data type as SIGNED_INT_16 here, you won't have to select it later when configuring the tag details for the objects. Please note, however, that if the data type for an object requires something other than the default data type you have selected, it will show the required data type (i.e., Discrete).

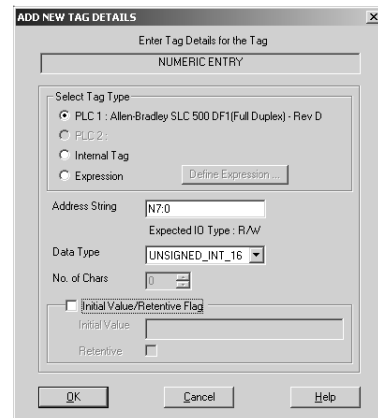


There are many more features that you may program, such as, Position of Label, Color of Text and Background, and Language, but for the purposes of this tutorial, we will use the Defaults.

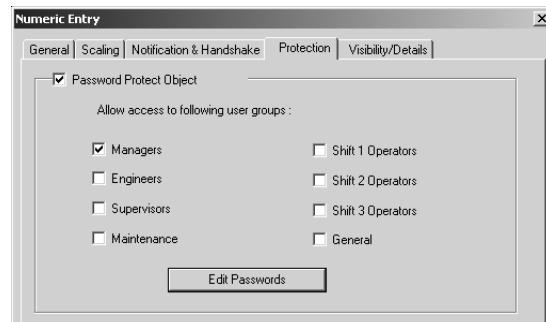
1. Click on **Objects>Numeric Entry**. The following screen will appear.



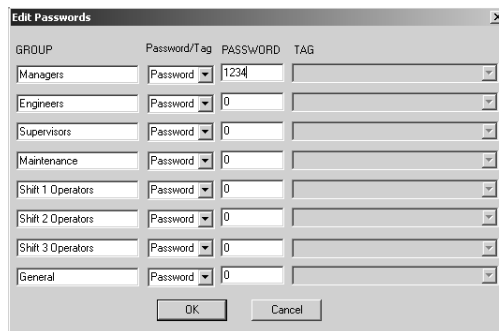
2. Click on the box in front of **Label Text** to activate the object label.
3. In the field next to **Label Text**, type in **Numeric Entry** as shown above.
4. The object defaults to **Use single tag for both Entry and Display purpose** (check mark in box in front of phrase). Leave this selected.
5. Click in the field next to **Entry and Display Tag** and type in the name **NUMERIC ENTRY**. Press **Enter**. The following screen will appear.
6. Under **Select Tag Type**, leave **PLC 1: Allen-Bradley SLC 500...** selected as shown to the right.
7. In the field next to **Address String**, type in **N7:0**, as shown in the example to the right. Select **SIGNED_INT_16** for the **Data Type**.
8. Leave **Initial Value/Retentive Flag** unchecked. Click **OK**.



9. For the purposes of this tutorial, we have opted to leave the remainder of the options under the object's General tab (Range Check, Format and Decimal Point Tag) set to the default (leave as is).
10. Click on the **Protection** tab. The following screen will appear.



11. Click on the box in front of **Password Protect Object**, and then click on the **Edit Passwords** button. The following screen will appear.



12. Under **PASSWORD** for the **GROUP, Managers**, type in "1234". Click **OK**.



Please Note: Once the password is entered for Managers, all objects that you configure for Protection at the "Managers" level, will now require the Password "1234".

*Please Note: You can also assign passwords by clicking on **Setup** in the Main Menu Bar and then **Project Attributes > Passwords** (tab).*

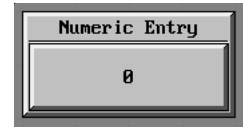


NOTES ON RESIZING AN OBJECT:

Drag the object to move, or drag a handle to resize, the object. The pointer changes to a four-way arrowhead (for moving), or a two-way arrow (for resizing).

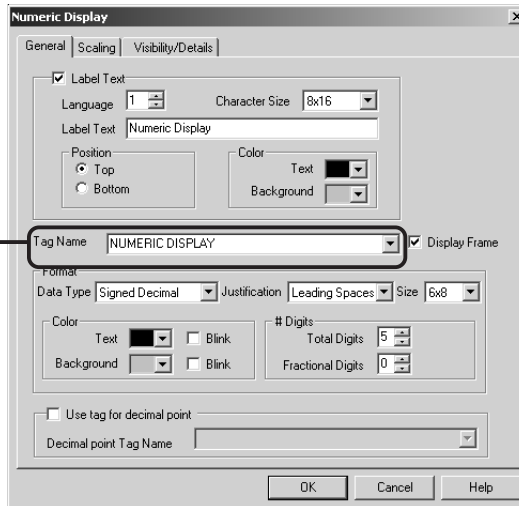
Dragging a side handle changes the width or height only; dragging a corner handle changes the width and height simultaneously.

13. For the purposes of this tutorial, we will leave the remaining options set to their defaults or not configured. (Ignore Scaling tab, Notification & Handshake, Visibility/Details tab — they are explained in detail for this object in Chapter 4 of the manual.)
14. Click **OK** at the bottom of the dialog box.
15. A crosshair cursor will appear on the programming screen. Position crosshair where you want the object to appear, and click once.
16. Grab the object by a handle and drag to resize it until the label displays in its entirety, as shown to the right.

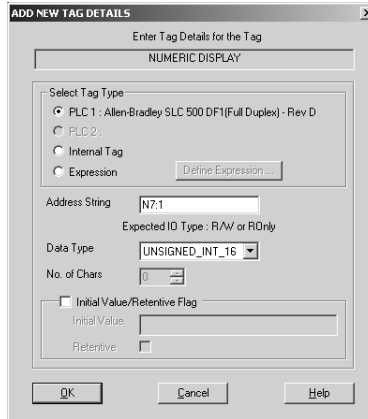


17. Next, we'll create a **Numeric Display** object. Click on **Objects > Numeric Display**. The following dialog box will appear.

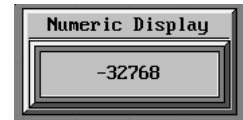
To EDIT TAG DETAILS, right click the mouse while the cursor is on the Tag Name.



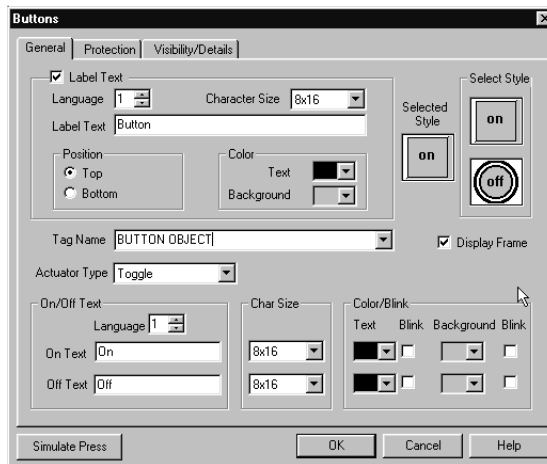
18. Click on the box in front of **Label Text** to activate the object label.
19. In the field next to **Label Text**, type in **Numeric Display** as shown above.
20. Click in the field next to **Tag Name** and type in **NUMERIC DISPLAY**. Press **Enter**. The following screen will appear.



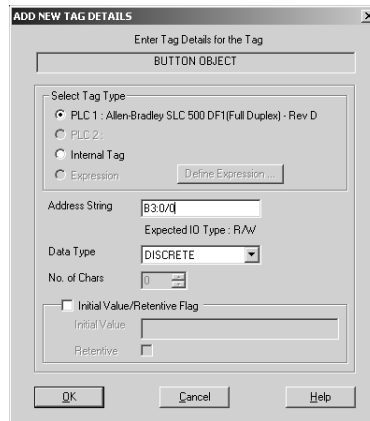
21. Under **Select Tag Type**, leave **PLC 1: Allen-Bradley SLC 500....** selected as shown above.
22. In the field next to **Address String**, type in **N7:1**, as shown above. Select **SIGNED_INT_16** as the **Data Type**. Click **OK**.
23. A crosshair cursor will appear on the programming screen. Position crosshair where you want the object to appear, and click once.
24. Grab the object by a handle and drag to resize it until the label displays in its entirety, as shown to the right.



25. Next, we'll create a **Button** object. Click on **Objects > Buttons**. The following dialog box will appear.



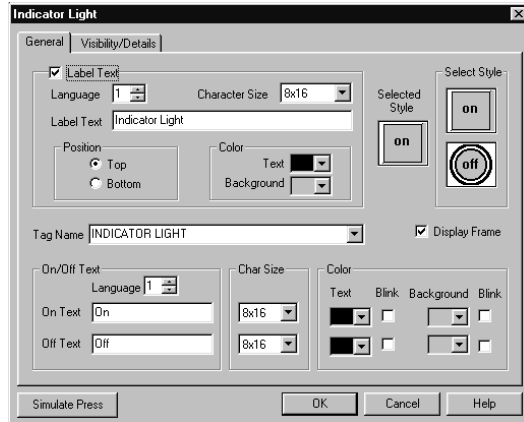
26. Click on the box in front of **Label Text** to activate the object label.
27. In the field next to **Label Text**, type in **Button**.
28. Click in the field next to **Tag Name** and type in **BUTTON OBJECT**. Press **Enter**. The following screen will appear.



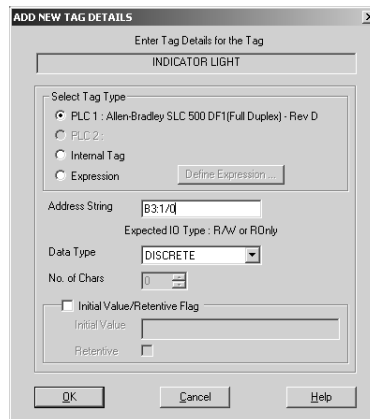
29. Leave **PLC 1: Allen-Bradley SLC 500 DF1...** selected.
30. In the field next to **Address String**, type in **B3:0/0**, as shown above. The **Data Type** will remain as **DISCRETE**. Click **OK**.
31. A crosshair cursor will appear on the programming screen. Position where you want the object to appear (under the Numeric Entry object), and click once.
32. Grab the object by a handle and drag to resize it until the label displays in its entirety, as shown to the right.



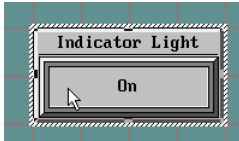
33. Next, we'll create an **Indicator Light** object. Click on **Objects > Indicator Lights**. The following dialog box will appear.



34. Click on the box in front of **Label Text** to activate the object label.
35. In the field next to **Label Text**, type in **Indicator Light** as shown above.
36. Click in the field next to **Tag Name** and type in **INDICATOR LIGHT**. Press **Enter**. The following screen will appear.



37. Leave **PLC1: Allen-Bradley SLC 500 DF1....** selected under **Select Tag Type**.
38. In the field next to **Address String**, type in **B3:1/0**, as shown above. The **Data Type** will remain as **DISCRETE**. Click **OK**.



To select an object on the screen, move your cursor over the object and a line will appear around the object to highlight it, click the left mouse button to select.

32. A crosshair cursor will appear on the programming screen. Position the crosshair where you want the object to appear (under the Numeric Display object), and click once.

33. Grab the object by a handle and drag to resize it until the label displays in its entirety, as shown to the right.



34. Click on **File > Save Project**.

You've just completed Step 2, Design Your Screens! Now we will transfer Demo Project 1 to the PowerPanel.

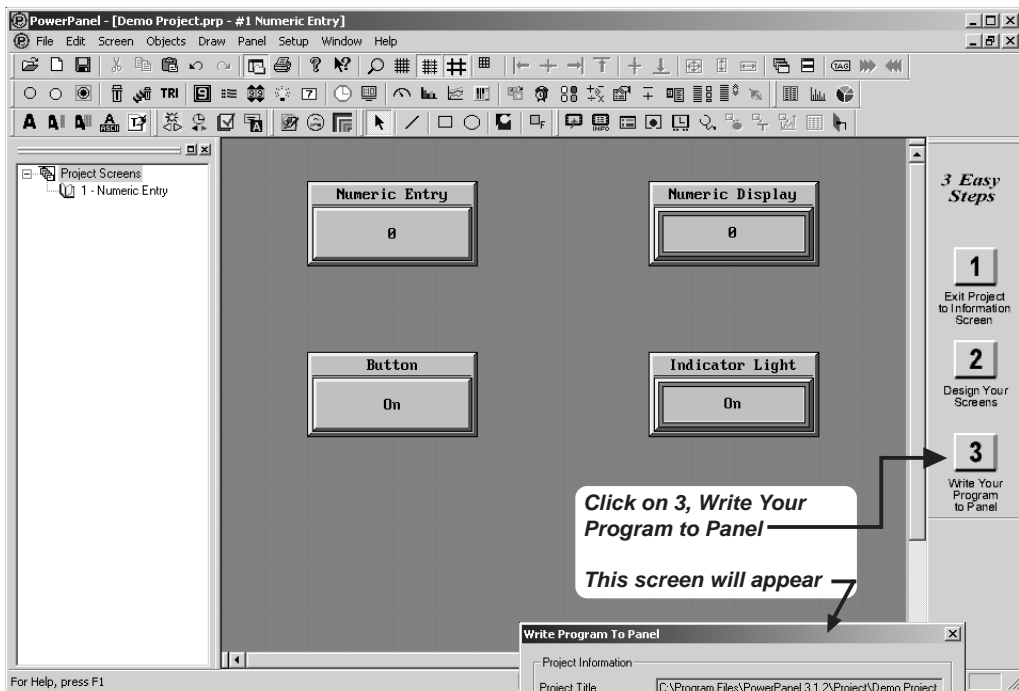


The PowerPanel is shipped with a bitmap program installed. The image shown to the left will display on the PowerPanel screen upon initial power-up. The first project you transfer to the panel will replace this bitmap program!

Step 3

You are now ready for **Step 3, Write Your Program to Panel. Demo Project 1** should look similar to that shown below.

1. Click on the **3** button (**Write Your Program to Panel**) as shown in the graphic below.
2. Click on the **Start** button at the bottom of the **Write Program to Panel** dialog box to begin transferring the project to the panel.



Project Information is provided here. Make sure the information is correct before proceeding.

Ethernet/COM Port is shown here. Click on the Configuration button to choose COM Port. Make sure the correct COM port is selected before proceeding.

Click on Start button to write the program to the PowerPanel.

Write Program To Panel

Project Information

Project Title: C:\Program Files\PowerPanel 3.1.2\Project\Demo Project

Panel Type: 6" x 2.8" Color 640x480

PLC 1 Type and Protocol: Allen-Bradley SLC 500 DF1(Full Duplex) - Rev D

PLC 2 Type and Protocol:

Panel Information

Total Memory: Bytes

Free Memory: Bytes

Firmware Revision:

Panel to PLC Link: ☐ Not Connected

Press START to write program to panel

CAUTION
Pressing Start will OVERWRITE program already in the panel. If you do not want to lose program in the panel, press Cancel, and first Read program from Panel and save it on your PC.

Ethernet/COM Port:

3. Your user program, **Demo Project 1**, should now be written to the PowerPanel, and the screen you have created should be displayed on the panel.
4. **Panel Information** will be updated with information it receives from establishing a link with the panel and the PLC.

The Panel to PLC Link will display a green dot next to the "Connected" message to indicate that a link between the panel and PLC is established.

Panel Information will display the Total and Free Memory in Bytes. It will also display the Firmware Revision number — the revision of the PowerPanel internal software.

Enter password on this keypad.

ENTER SECURITY CODE			
<input type="text"/>			
7	8	9	
4	5	6	
1	2	3	Enter
0	CL	Cancel	

Write Program To Panel

Project Information

Project Title: C:\Program Files\PowerPanel 3.1.2\Project\Demo Project

Panel Type: G*2 8" Color 640x480

PLC 1 Type and Protocol: Allen-Bradley SLC 500 DF1(Full Duplex) - Rev D

PLC 2 Type and Protocol:

Panel Information

Total Memory: 524288 Bytes

Free Memory: 436932 Bytes

Firmware Revision: e.0

Panel to PLC Link: ☒ Connected

Operation Complete - Project Written to the Panel

CAUTION: Pressing Start will OVERWRITE program already in the panel. If you do not want to lose program in the panel, press Cancel, and first Read program from Panel and save it on your PC.

Ethernet/COM Port: Configuration...

Start Abort Help

5. To test the link, press the **Numeric Entry** button on your PowerPanel panel screen. A popup keypad similar to the one shown to the left should display.
6. Enter the Password "1234" on the keypad. Press **Enter**.
7. Another keypad similar to the one shown below will display.

Numeric Entry			
<input type="text"/>			
7	8	9	
4	5	6	
1	2	3	
0	Clear		
MINIMUM 0			
MAXIMUM 9999			
CURRENT 0			
Cancel		Enter	

8. Enter a number on the keypad by pressing the number keys. Press **Enter**. The keypad will disappear and the number you entered should appear on the **Numeric Display** on your panel screen.
9. Press the **Button** on your panel screen. It will change from Off to On. The **Indicator Light** should change from Off to On, also.

You've just completed Step 3, Write Your Program to Panel!

You have now successfully configured a PLC, created a user program, transferred it to the PowerPanel and established communication between the PLC and panel.

This simple tutorial has taken you through the major steps to creating a working link between your application and a PowerPanel. Of course, there are almost unlimited capabilities for creating a program unique to your application!

Changes are easy, too. Create your own Demo project based on this one, adding color, password protection, and dynamic graphics, for instance.

The PowerPanel and PowerPanel Programming Software are practical, versatile— and best of all — make it easy for you to create a dynamic interface for your application!

The PowerPanel 15" TFT Flat Panel "Glove Model"



Project Setup

In this chapter....

- ON-LINE and OFF-LINE Projects
- Project Setup
- Entering Project Information (Step 1)
- Designing Screens (Step 2)
- Write Your Program to Panel (Step 3)

Project Setup

Decide now if you want to work ON-LINE or OFF-LINE....

You may create a new project on your PC by working off-line (not connected to a PowerPanel.) You may also work on-line with the PowerPanel unit to make changes to an existing project.

Working **off-line** you may use PowerPanel Programming Software to design your PowerPanel in your office or home — or even while traveling. Your project becomes as portable as your laptop, and your PowerPanel is not “down” while you are redesigning or making modifications as your unique application needs grow or change. Your project may be transferred to the PowerPanel at any time. The transfer function allows you to select a project to be transferred to the Panel.

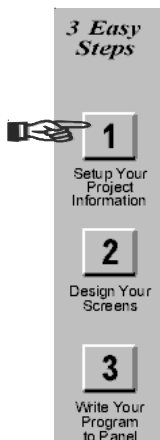
Working **on-line** is unique to PowerPanels. Working in this mode allows you to make quick fixes or design changes to an installed PowerPanel and its existing program. You can eliminate a step or two and save time by transferring these changes directly to the current opened screen. Now you can see the effect of the screen design changes you have made immediately, eliminating the traditional “edit-compile-download” cycle. Simply click on **Save Screen** or **Save Project** and all changes on the current opened screen will immediately be saved in the PowerPanel.

Most users will employ both methods at one time or another, but whether working off-line or on-line — you will certainly appreciate the versatility and accessibility provided by the PowerPanel and its easy-to-use programming software.

The next section takes you through the steps necessary to create a project and transfer it to the PowerPanel. PowerPanel Programming Software simplifies this process by using Windows-based architecture and lots of popup and pulldown selections that guide you through the process to quickly build your screens and get you up and running in no time at all!

We recommend you go through the tutorial beginning on page 11 of this manual. You'll see how easy it is to get up and running!

Step 1 Project Information



To have the toolbar, shown above, appear on the righthand side of the Main Programming Screen, click on Edit > Toolbar > 3 Easy Steps on the Main Menu. (You can do this after you've opened a project.)

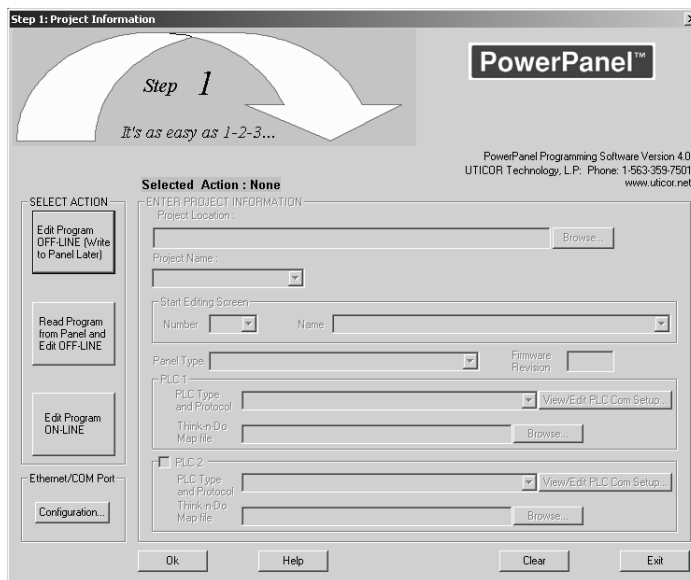
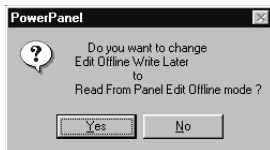
SELECT ACTION

Edit Program OFF-LINE (Write to Panel Later)



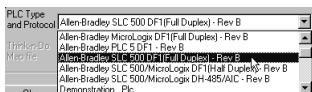
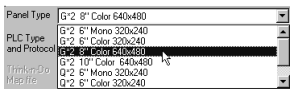
PLEASE NOTE:

If you change your mind and click on another SELECT ACTION button, a “confirm action” message will appear, just to make sure that this is what you intended to do. Click on Yes or No.

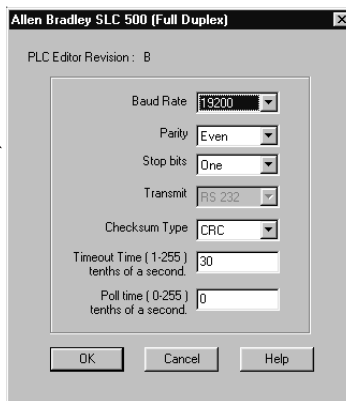


Under **SELECT ACTION**, click on one of the three “working mode buttons.” If you want to work offline (not connected to a PowerPanel), click on the button labeled **Edit Program OFF-LINE (Write to Panel Later)**. You will use this mode when creating a new project.

1. From **Project Information** screen, click on the **Edit Program OFF-LINE (Write to Panel Later)** button.
2. Click on the **Browse** button if you want to navigate to another Directory or Folder where you will store your project. If you want to accept the default folder (where PowerPanel Programming Software resides), just enter the name of your new project in the empty field under **Project Name**.
3. Under **Start Editing Screen**, leave the screen number as **1**. Click in the field next to **Name** to highlight **New Screen**. Replace this by typing in the name of your first screen. If you haven't decided on a name, just leave it as is, you can change it later.
4. Click on the DOWN arrow to the right of the **Panel Type** field to view choices. Select the **Panel Type** you are using.
5. Under PLC 1, click on the DOWN arrow to the right of **PLC Type and Protocol** to view the list. Select the PLC Type and Protocol you are using. Under PLC 2, select the second PLC Type and Protocol. (If using a Touch PRLS panel, select the TPRLS driver under PLC 2.)

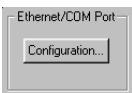
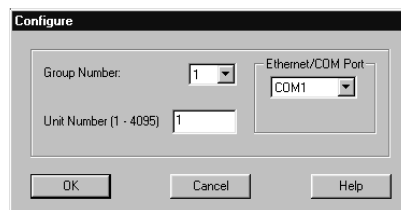


- Click on the **View/Edit PLC COM Setup*** to edit the PLC Attributes. A dialog box will appear that is particular to the type of PLC you have selected in the previous step. Set the attributes to match your PLC. Click **OK**. Do this for both PLCs, if needed.



* Please note:
If using a Touch PRLS, communication setup is done automatically, so you don't need to click on the View/Edit PLC Com Setup button.

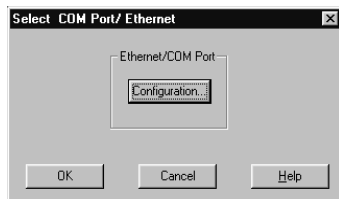
- You should now be back to the **Project Information** screen. Check to ensure that your **Ethernet/COM Port** is set to match your PC. Click on the **Configuration** button to make changes or check settings. The following dialog box will appear.



Click on the Ethernet/COM Port Configuration button on the Project Information Screen

or

Click on Panel > Com Configuration on the Main Menu Bar and then click on the Configuration button to check/change the port settings.



- Select **COM1, COM2, COM3, COM4** or **Ethernet**. If necessary, select **Group Number (1-15)** and **Unit Number (1-4095)**. Click on **OK** to accept COM port configuration and return to the **Project Information** screen.
- Click on the **OK** button to accept all settings.

You are now ready to begin configuring your first screen!

Read Program from Panel and Edit OFF-LINE



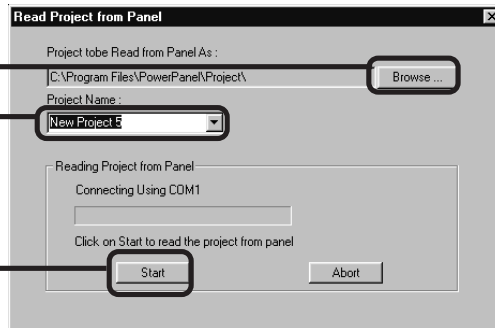
If you are connected to a panel and want to transfer a project from the panel to your PowerPanel Programming Software for editing, click on the **Read Program from Panel and Edit OFF-LINE** button. Any changes you make to the project will not take effect until you write the edited project to your PowerPanel.

1. From the Project Information screen, click on the **Read Program from Panel and Edit OFF-LINE**. The following screen will appear.

If not using the default directory, click on the Browse button to go to directory and folder where project will be stored.

Select or enter Project Name.

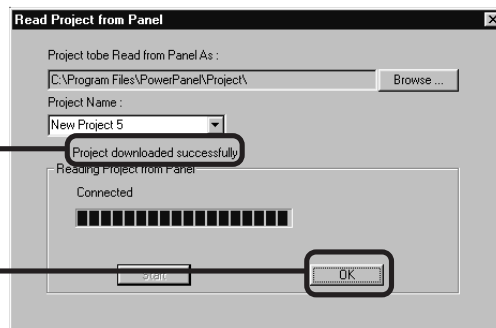
Click on Start button to Start Reading Project from Panel or Abort to quit.



2. Click on the **Browse** button if you want to navigate to another Directory or Folder where you will store your program. If you want to accept the default folder (usually where the PowerPanel Programming Software resides), just enter the name that you desire for the project you are about to Read in the empty field under **Project Name**.
3. Click on the **Start** button to start reading the project from the panel.
4. When the program has been read from panel, click **OK**.

The message "Project downloaded successfully" will appear when the program has finished downloading.

Click on OK to exit screen.



5. You will be taken back to the **Project Information** Screen. Notice that the project name entered now appears under **Project Name** in this screen.
6. Under **Start Editing Screen**, the **Name** and **Number** of Screen number 1 will appear. If you want to begin editing another screen, click on the down arrow next to Name or Number and select.
7. Click on the **OK** button to begin editing. You will go to the PowerPanel Main Programming Screen. You are now ready to edit the selected screen.

Edit Program ON-LINE



The third choice available is to make changes to the project online. Click on the button labeled, **Edit Program ON-LINE**. The changes are effective each time **Save Screen** or **Save Project** is selected, reducing downtime. Click on **Save Screen** or **Save Project** and the changes will appear on the panel screen immediately. This is recommended when you need to make changes quickly to an existing user program without shutting down the system.

1. From the **Project Information** screen, click on the button labeled, **Edit Program ON-LINE**. The **Panel Type**, **PLC Type**, and **Firmware Revision** of the panel will soon display.
2. Under **Start Editing Screen**, screen **Number** 1 will appear with that screen's **Name**. If you want to begin editing a screen other than Number 1, click on the down arrow next to the **Number** field or the down arrow next to the **Name** field to select the screen you want to edit.
3. Click on **OK**. The screen you have selected will open on the main programming screen for you to make changes.
4. Click on **Save Screen** to download changes to the screen immediately. Click on **Save Project** to transfer all changes, including project attributes and databases. They will be immediately downloaded to the PowerPanel.

A QUICK REVIEW for “ENTER PROJECT INFORMATION”

Under **ENTER PROJECT INFORMATION** you will perform all or some of the following actions (depending upon the working mode you have selected):

1. **Project Location** will default to the directory where the PowerPanel Software program is stored. If your project resides in another location, click on the **Browse** button to navigate to a different directory and folder.
2. Under **Project Name**, click on the down arrow to view saved projects or enter the new project name.
3. **Start Editing Screen** allows you to select the screen that you want to begin editing. To have the project open to the screen you wish to edit, click on the down arrow to select the **Name** or the **Number** of the screen. If it is a new project, the screen will default to screen 1 with **New Screen** in the Name field. Replace this with whatever name you wish or wait until later and rename.
4. The next field, **Panel Type**, allows you to select, or change, your PowerPanel type. Choose from the following available types:

G*2 6" Mono 320 x 240, G*2 6" Color 320 x 240, G*2 8" Color 640 x 480, G*2 10" Color 640 x 480, G*2 15" Color 640 x 480, Q*2 6" Mono 320 x 240, Q*2 6" Color 320 x 240, Q*2 8" Color 640 x 480, Q*2 8" Color TFT 640 x 480, Q*2 10" Color 640 x 480

If you are connected to the panel (editing project on-line), the **Firmware Revision** of the PowerPanel's internal software will be displayed.

5. Enter information for **PLC1**. If using a second type PLC, click in the box in front of **PLC2** and then select type for both.

Click on the **Help** Button at anytime for help.

Click on **Clear** to clear your entries and start over.

Click on **Exit** to quit without saving your selections, or click on **OK** to save and begin editing.

**Please NOTE:**

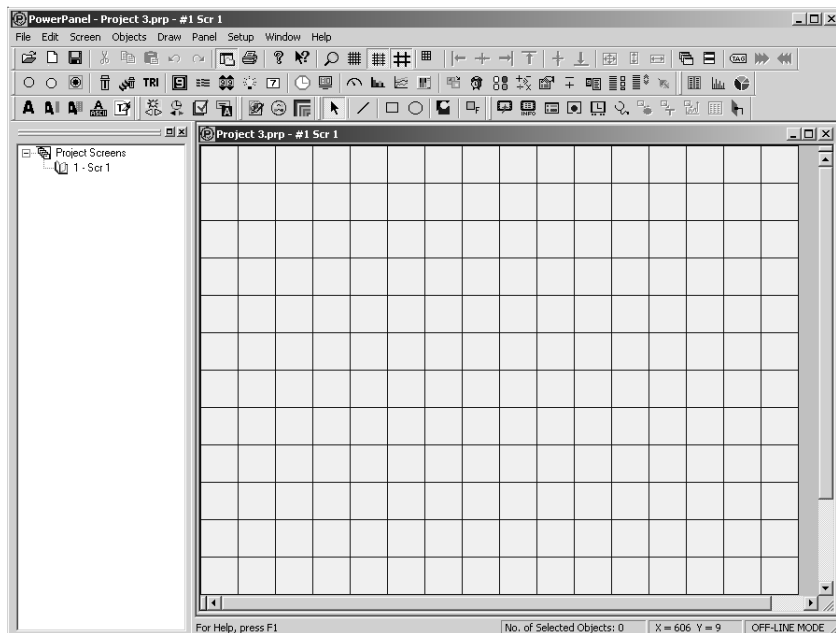
PLC compatibility is always being updated. If you don't see your type PLC and protocol, visit our website @ www.UTICOR.net to see if your PLC driver is now available to download. If the desired PLC driver is not available, call technical support at (800) 832-3647.

6. **PLC Type and Protocol** allows you to further define your project by selecting the PLC(s) used in your application and the protocol it uses. Click on the down arrow for a list of the available PLC types.
7. Click on the **View/Edit PLC COM Setup** button to display the PLC Attributes (for both PLC1 and PLC2, if necessary). The attributes screen particular to the PLC and Protocol type you have selected will appear. You may change attributes from this screen.
8. If you are using a **Think-N-Do Map File**, click on the Browse button to go to the directory or folder where the map file resides.

The map file is simply a text delimited file that resides in any Think-N-Do project. The PowerPanel Programming Software is set up to pull tag names from your Think-N-Do project. This frees the user from having to remember these tag names.

The map file will load into the project's **Tag Database**. **Tag Database Log View** will open if there are problems. You may correct any problems from within the Think-N-Do map file or the Tag Database.

Once you click on **OK**, the project will open to the screen you have selected and you may begin creating or editing your project!



Step 2 *Design Your Screens*

3 Easy Steps

- 1 Setup Your Project Information
- 2 Design Your Screens
- 3 Write Your Program to Panel

Your project information has been entered and you are now ready to begin designing your screens. Remember that you can go back to step one and change project information, if necessary. Just click on the 1 button on the 3 Easy Steps Navigation Tool Bar, shown to the left. (This toolbar does not display by default. To have it display on your main programming screen as shown below, click on Edit > Toolbars > 3 Easy Steps.

For more information on the Main Programming Screen, see page 138.

Right click here in the Project Screens Explorer View window and this menu will appear.

New Screen...
Open Screen...
Rename Screen...
Delete Screen...

3 Easy Steps

- 1 Exit Project to Information Screen
- 2 Design Your Screens
- 3 Write Your Program to Panel

Project Setup

1. Right click anywhere in the Project Screens Explorer View window (shown above on the left hand side) and a popup menu will appear. Click on New Screen (or you may click on the **2** button, **Design Your Screens**, on the right hand side) and the following screen will appear.

Open New Screen

Number Title

1

Screen List

1 - Numeric Entry Screen

Open Cancel Help

2. Double click on one of the screens in the **Screen List** to open it, or enter a new screen number and name and click on the **Open** button.
3. Right click the mouse at any time while designing your screens to access the following menu.

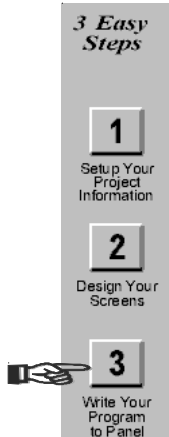


Some of the screen design features available to you are:

- Program labels in up to 9 languages
 - Popup Keypad that allows you to enter data
 - Vector-based graphics for easy sizing, displayed in up to 128 colors
 - Graphical trending
 - PID loop tune face plates
 - Recipe download
 - Thumbwheel interface
 - Radio buttons
 - Analog clocks
 - Meters, switches and lamps
 - Math objects
 - Symbol Factory® library of over 3,000 factory objects
4. You are now ready to begin configuring objects.

Step 3

Write Your Program to Panel



Click on button for **Step 3, Write Your Program to Panel**. Check to ensure that **“Use PC Port”** matches the port that is connected to your panel and click on the **Start** button. Read the information below to learn more about the **“Write Program to Panel”** screen.

Project Information:
Provides information about the current project you are about to transfer to the panel.

Panel to PLC Link will display “Not Connected” until download is completed.

DON'T LOSE AN EXISTING PROGRAM! If you're not sure of the changes you have made, save the existing program to a different project name from the one you are about to transfer to the panel before you click on the **Start** button.

Press the Start Button, the program will be transferred to the panel.

Before Panel Write....

Panel Write Completed....

If the panel is connected to a PLC, the Panel to PLC Link will display a green dot next to the “Connected” message to indicate that a link is established.

Panel Information will display the Total and Free Memory in Bytes. (Most models allow you to increase memory by adding another RAM card.) It will also display the Firmware Revision number — the revision of the PowerPanel internal firmware.



The PowerPanel is shipped with a bitmap program installed. The image shown above will display on the PowerPanel screen upon initial power-up. The first project you transfer to the panel will replace this bitmap program!

Objects

In this chapter you will be shown how to create....

- Buttons
- Indicator Buttons
- Radio Buttons
- Switches
- Step Switch
- Tri-state Switch
- Numeric Entry
- Recipe
- Thumbwheel
- Indicator Lights
- Numeric Display
- Text Objects
- Clock
- Meter
- Bar Graphs
- Line Graph
- PID Face Plate
- Change Screen
- Alarm History
- System Objects
- Multi-state Indicator
- Bitmap Objects
- Increment/Decrement Value
- Multi-function
- Report
- Data Acquisition Objects
- Control List Selector
- Screen List Selector
- Alarm List
- Touch PRLS

Objects Menu



In PLC-based control, the PLC performs the following control sequence continuously: reads inputs, solves control logic (ladder logic), writes values, and sets/resets outputs. The state of inputs and outputs is kept as bits in a data table. The data table is typically organized in words, with each word having 16 bits. Data values, such as parts count, are also kept as words in the data table.

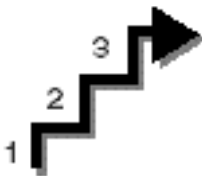
The PowerPanel provides direct access to the bits and words of the PLC data table, without going through I/O modules. The panel provides this access through its tags. The PowerPanel has tags that are mapped to the PLC data table. The mapping between panel tags and PLC data tables is user-defined through a simple dialog box. PowerPanel objects allow you to set/reset bits and to read/write from the PLC data table through the panel tags.

For example, when a panel button object is pressed, it sets a panel tag. The panel transfers the state of this tag to the mapped bit in the PLC data table. Similarly, the PLC may set an output bit that turns on a pilot light on the panel.

Please Note: Panel Tags may be internal (not mapped to the PLC) or external (mapped to the PLC).

Panel Tags may be:

- Discrete
- 16-bit (Signed/Unsigned)
- 32-bit (Signed/Unsigned)
- 16-bit BCD
- 32-bit BCD
- 32-bit Floating Point
- ASCII String



IMPORTANT! To learn all the steps to configuring an object, read the instructions for the first object, Button Object, in its entirety. It will take you through each step in detail, explaining all the variables and choices. Because the objects share many common features, they are not repeated for each object. Any features that are unique to a particular object are explained in its own section. We recommend that you try out the tutorial, beginning on page 11, to learn the steps involved in creating a PowerPanel project.

BASIC OBJECTS TOOL BAR



TEXT OBJECTS TOOL BAR



SYSTEM OBJECTS TOOL BAR



BITMAP OBJECTS TOOL BAR



DATA Acquisition OBJECTS TOOL BAR



Configure an object by selecting it from the OBJECT MENU or OBJECT TOOL BARS






The **Objects** menu allows you to choose from several predefined objects. Objects provide generic panel functions. The objects can be accessed from the **Object Tool Bars — Basic Objects, Text Objects, System Objects, Bitmap Objects, and Data Acquisition Objects** — shown above and to the left, and the Objects Menu shown on the preceding page.

All of the objects in this menu have user-defined frame types, line and fill colors, and text. To configure an object, click on the object icon on the object tool bar or on the object name in the menu drop down list with your mouse.





Basic Objects Tool Bar Icons

- Button
- Indicator Button
- Radio Button
- Switches
- Step Switch
- Tri-State Switch
- Numeric Entry
- Recipe
- Thumbwheel
- Indicator Light
- Numeric Display
- Analog Clock
- Digital Clock
- Meter
- Bar Graph
- Line Graph
- PID Face Plate
- Dynamic Bitmap
- Change Screen
- Alarm History
- Multi-state Indicator
- Multi-function
- Report
- Increment/Decrement Value
- Control List Selector
- Screen List Selector
- Alarm List
- Touch PRLS




Text Objects Tool Bar Icons

-  Static Text
-  Triggered Text
-  Lookup Text
-  Dynamic Text
-  Text Entry




System Objects Tool Bar Icons

-  Adjust Contrast
-  Increment/Decrement Hour
-  Activate Screen Saver
-  Select Language

Bitmap Objects Tool Bar Icons

-  Dynamic Bitmap
-  Bitmap Button
-  Multi-state Bitmap

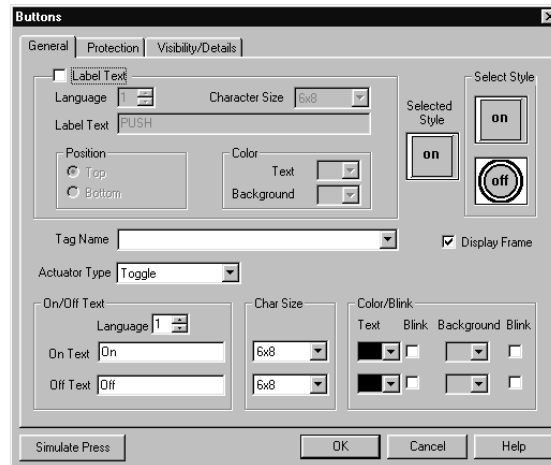
Data Acquisition Tool Bar Icons

-  Table View
-  Frequency Chart
-  Statistics

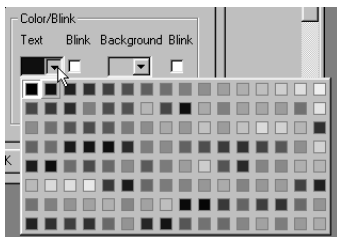
Button Object



Pressing a **Button** object allows you to WRITE to a Tag. It can be displayed in a variety of colors, sizes and shapes and has a simulation option (allowing you to see how it will look when pressed). You may select from 5 types of button states: Momentary ON, Momentary OFF, Set ON, Set OFF and TOGGLE.



Choose from 128 Colors!



Click on the down arrow next to the default color block for text or background to view the color palette. Move the cursor over your choice and simply click to select.

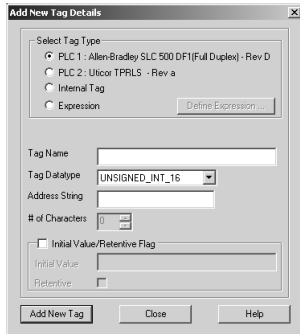
To put a Label on a Button, perform the following steps:

1. Click on the box in front of **Label Text**.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See section on Language, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the button to be visible, click on the box to deselect (the box will be empty).

To Choose a Button Style, perform the following steps:

1. Under **Select Style**, click on the style you prefer for the button object you are creating.
2. Your choice will appear under **Selected Style**.





For more information about Tags, see Tag Database, page 190.



PLEASE NOTE: If your panel is connected to multiple PLCs, use the Station Number to address a specific PLC. For example: 2-V2002 would address the PLC Station Number 2.



PLEASE NOTE: If you select Momentary ON or Momentary OFF, the PLC must set bit to proper state on powerup. This must be done when programming PLC Logic.

Enter a Tag Name:

1. Enter a **Tag Name** or click on the down arrow and select the Tag Name that you want the button to correspond to.
2. If the Tag Name is new, the **Add New Tag Details** dialog box will appear where you will map the tag. The **Tag Name** will appear in the first field. Enter an **Address String** appropriate for your type PLC. Click on the **OK** button.

NOTE: To edit the Address String, with your cursor in the Tag Name field, click on the right mouse button. The **Edit Tag Details** screen will appear.

Select from the following Actuator Types:

Actuator Type determines how the tag will be controlled. **NOTE:** If you have assigned Password Protection for this object and select **Momentary On or Momentary Off**, the protection feature is disabled with this actuator type.

- **Momentary On** will turn the tag on for as long as you touch the button. (Password Protection is disabled.)
- **Momentary Off** will turn the tag off for as long as you touch the button. (Password Protection is disabled.)
- **Set On** will latch the tag ON.
- **Set Off** will latch the tag OFF.
- **Toggle** will change the state of the tag every time the button is pressed.

Enter On/Off Text:

Here you will enter the Text that will appear within the object, and control how that text will appear.

1. Select the **Language** number (1–9) for the **On/Off Text**.
2. Type in what you want to appear within the button for the **On Text** and for the **Off Text** (i.e., you might want to place the words STOP and RUN inside the buttons, instead of Off and On).
3. Select **Character Size** from the available choices
4. Select the **Color** of the **Text** and the **Color** of the **Background**.
5. If you want the **Text** or the **Background** to **Blink**, click on the box below **Blink** to place a check mark indicating that the option is enabled.

OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

Place Button on the screen and size it.

- To size the button, grab a handle and drag it to the size you want.

Hello...

Hola...

Guten Tag...

For each object, you may program the text to display in up to 9 Languages! (See Language section on page 221.)

Grab a handle with
your mouse



- To move the button, select it, click and hold left mouse button and drag it to the area of the screen where you want it to appear.

Simulate Press

To Simulate Press, double click the object to bring up the object dialog box. You may also click on the object(s) on the screen that you want to simulate and then click on the arrows in the standard tool bar to simulate previous state or simulate next state. (You may have to drag the dialog box to see the object on the programming screen.) Click on the Simulate Press button to see how the button object will display on the screen when pressed or when it switches between states.

Protection Tab

Click on the Protection Tab



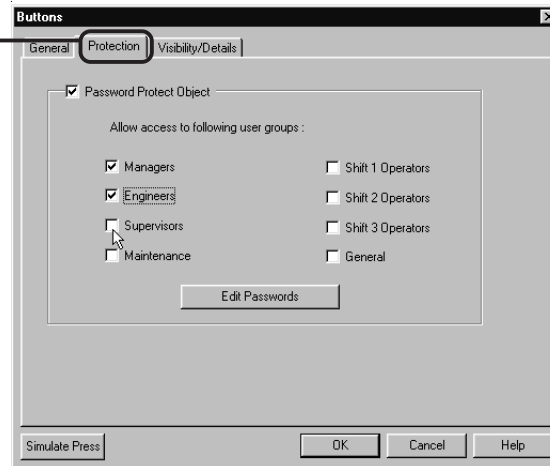
The following touch objects allow you to enable protection and assign passwords to allow a group or individual (user-defined) to have access to that object:

- Buttons
- Indicator Buttons
- Switches
- Step Switches
- Tri-State Switches
- Numeric Entry
- Recipe
- Thumbwheel
- Text Entry
- Change Screen
- Alarm History
- Increment/Decrement Hour
- Activate Screen Saver
- Adjust Contrast
- Select Language
- Bitmap Button
- Increment/Decrement Value
- Multi-function
- Report
- Screen List Selector
- Control List Selector
- Alarm List



IMPORTANT!

Password Protection is not intended to work with objects when the actuator type selected is Momentary On and Momentary Off.



The **Password Protect Object** feature allows you to prevent unauthorized users from accessing certain objects and their functions. With Protection enabled, when the operator presses the object on the panel screen, a keypad will appear prompting the operator to enter the password. This feature is useful when several people will be using the PowerPanel to perform different tasks, such as, changing initial values, or monitoring system status. To enable password protection for the object, click in the box in front of the groups you wish to allow access.

Edit Passwords

There are eight groups that you may assign Names and Passwords to. Passwords allow you to implement restrictions on who can use the password protected objects (e.g., to make system or internal panel adjustments, enter text or values, or control a machine function in your application). Click on the **Edit Passwords** button to setup or change the passwords.

The Group names that you enter here will then appear in the Protection tab dialog boxes of all applicable objects.

Click in the box in front of the group to allow access by that group to the object.



Please NOTE: If you enter a password with leading zeroes, e.g., 00003 or 00533, the leading zeroes will be ignored!

A keypad similar to the one shown below will appear on the panel when a protected object is pressed, prompting the operator to enter the password.

ENTER SECURITY CODE			
<input type="text"/>			
7	8	9	
4	5	6	
1	2	3	Enter
	0	CL	Cancel

GROUP

(You may change the Group names to suit your application.)

- ✓ Managers
- ✓ Engineers
- ✓ Supervisors
- ✓ Maintenance
- ✓ Shift 1 Operator
- ✓ Shift 2 Operator
- ✓ Shift 3 Operator
- ✓ General

GROUP	Password/Tag	PASSWORD	TAG
Managers	Password	0	
Engineers	Password	0	
Supervisors	Password	0	
Maintenance	Password	0	
Shift 1 Operators	Password	0	
Shift 2 Operators	Password	0	
Shift 3 Operators	Password	0	
General	Password	0	

OK Cancel

Password/Tag

Select whether or not you want your password to be stored in the PowerPanel or in the PLC. If you choose Password, it will be stored in the panel. If you choose Tag, it will be stored in the PLC.

PASSWORD

A 1–10 digit number (numeric only) is assigned here that the user must enter to perform protected functions for a particular Group. You will not be allowed to enter a password if you select Tag in the second column.

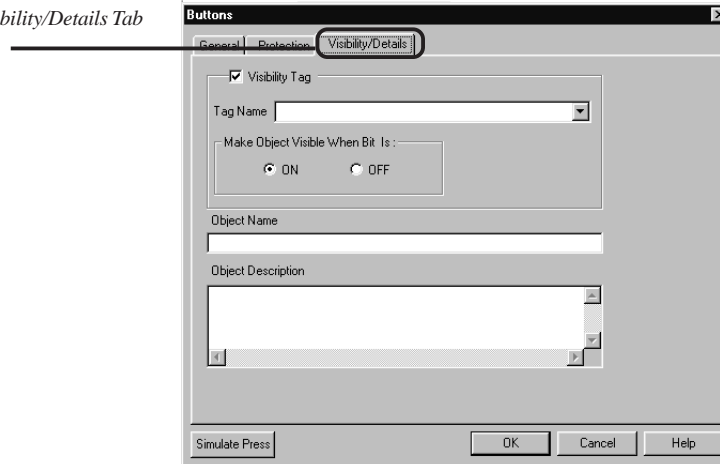
Do not enter leading zeroes in a password. Leading zeroes are ignored. In other words, if you enter a password of 00456, your password will be 456.

TAG

Tag names are assigned to PLC addresses that hold the passwords. This allows you to store the codes in your PLC. You will not be allowed to enter a **Tag** if you select **Password** in the second column.

Visibility/Details Tab

Click on the Visibility/Details Tab



Visibility

1. Check the box in front of **Visibility Tag** if you want to control when the object is visible on the screen. (If it is not checked the object will always be visible.)
2. Click on the down arrow next to the **Tag Name** box to view a list of the tags you have previously programmed or create a new one. Select the tag that links the object to the register bit that you want to control it.
3. Select whether you want the **Object Visible** when the bit is ON or OFF.

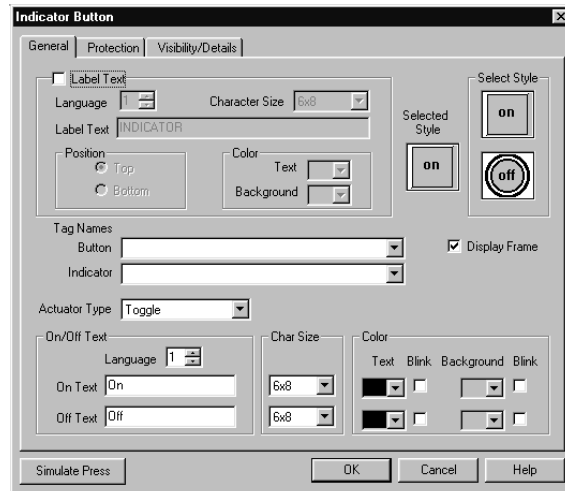
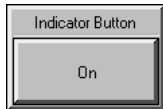
Details

1. Type in a name for the object in the space provided under **Object Name**. The name can be up to 40 characters long.
2. Type in a description of the object in the space provided under **Object Description**. An Object Description can be up to 400 characters long.

Indicator Button Object



An **Indicator Button** combines a regular button with an indicator light. It allows you to perform a WRITE operation to one bit and a READ operation from a second discrete location. The state of that READ location determines whether the button is displayed in the ON or OFF mode. You may choose to make the READ and WRITE location the same.



To put a Label on an Indicator Button, perform the following steps:

1. Click on the box in front of **Label Text**.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See section on Language, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the button to be visible, click on the box to deselect (the box will be empty).

To Choose an Indicator Button Style, perform the following steps:

1. Under **Select Style**, click on the style you prefer for the button object you are creating.
2. Your choice will appear under **Selected Style**.

Enter a Tag Name:

1. Enter a **Tag Name** or click on the down arrow and select the Tag Name that you want the Indicator button and the Indicator to correspond to.
2. If the Tag Name is new, the **Add New Tag Details** dialog box will appear where you will enter tag details. The **Tag Name** will



NOTE: To edit the Address String, with your cursor in the Tag Name field, click on the right mouse button. The Edit Tag Details screen will appear.

appear in the first field. Enter an **Address String** appropriate for your type PLC. Click on the **OK** button.



PLEASE NOTE: If you have assigned Password Protection for this object and select Momentary On or Momentary Off, the protection feature will not be enabled.

Also, if you select Momentary ON or Momentary OFF, the PLC must set bit to proper state on powerup. This must be done when programming PLC Logic.

Select from the following Actuator Types: Actuator Type determines how the tag will be controlled.

- **Momentary On** will turn the tag on for as long as you touch the button. (Password Protection is disabled.)
- **Momentary Off** will turn the tag off for as long as you touch the button. (Password Protection is disabled.)
- **Set On** will latch the tag ON.
- **Set Off** will latch the tag OFF.
- **Toggle** will change the state of the tag every time the button is pressed.

Enter On/Off Text:

Here you will enter the Text that will appear within the object, and control how that text will appear.

1. Select the **Language** number (1–9) for the On/Off Text.
2. Type in what you want to appear within the button for the On Text and for the Off Text (i.e., you might want to place the words **STOP** and **RUN** inside the buttons, instead of Off and On).
3. Select **Character Size** from the available choices
4. Select the **Color** of the **Text** and the **Color** of the **Background**.
5. If you want the **Text** or the **Background** to **Blink**, click on the box below **Blink** to place a check mark indicating that the option is enabled.

Protection (See Button Object.)

Visibility/Details (See Button Object.)

OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

Place Indicator Button on the screen and size it.

- To size the Indicator button, select it, grab a handle and drag.
- To move the button, select it, click and hold left mouse button and drag it to where you want it to appear on the screen.

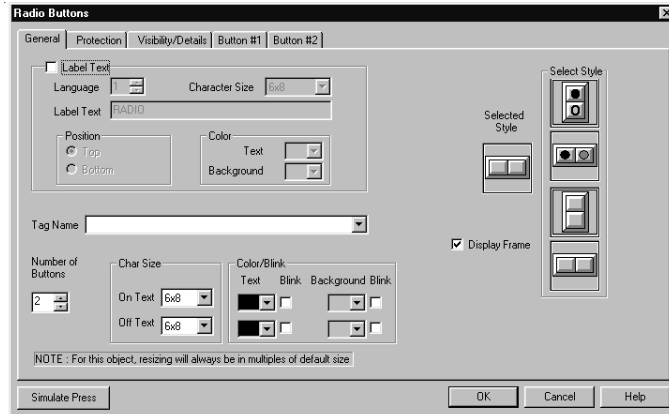
Simulate Press

To Simulate Press, double click the object to bring up the object dialog box. You may also click on the object(s) on the screen that you want to simulate and then click on the arrows in the standard tool bar to simulate previous state or simulate next state. (You may have to drag the dialog box to see the object on the programming screen.) Click on the Simulate Press button to see how the button object will display on the screen when pressed or when it switches between states.

Radio Buttons



The **Radio Button** object has a maximum of 8 buttons, however, only one can be ON at any given time. When a button is pressed it releases any button that may be ON, and becomes the active button. Each button controls a bit and is assigned an area of the touchscreen. Radio buttons can have from 2 to 8 buttons. (Please note that no more than 6 vertical buttons can be used for 6-inch panels.)



To put a Label on a Radio Button, perform the following steps:

1. Click on the box in front of **Label Text**.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See section on Language, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the button to be visible, click on the box to deselect (the box will be empty).

To Choose a Radio Button Style, perform the following steps:

1. Under **Select Style**, click on the style you prefer for the button object you are creating.
2. Your choice will appear under **Selected Style**.

Enter a Tag Name:

1. Enter a **Tag Name** or click on the down arrow and select the Tag Name that you want to button to correspond to.
2. If the Tag Name is new, the **Add New Tag Details** dialog box will appear where you will enter tag details. The **Tag Name** will appear in the first field. Enter an **Address String** appropriate for your type PLC. Click on the **OK** button.



NOTE: To edit the Address String, with your cursor in the Tag Name field, click on the right mouse button. The **EDIT TAG DETAILS** screen will appear.



Please Note: This object can use a signed or unsigned Data Type. **Button 1 = Bit 0** in assigned tag. **Button 8 = Bit 7** in assigned tag. **Bit 9 to 15, not used.**

Select Number of Buttons:

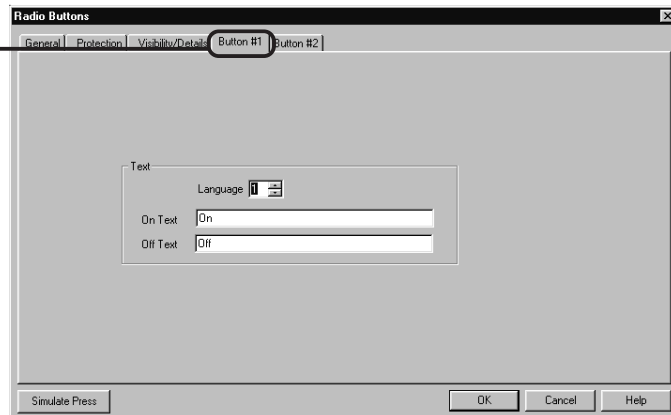
1. Click on the UP or DOWN arrow to select the number of radio buttons. You may choose from 2 to 8 buttons. (You may only have 6 buttons for 6-inch panels.)

Enter On/Off Text:

Text size and color are programmed under the General Tab. These characteristics will be implemented for all of the inside button text.

1. Select the **Character Size** for the On Text and the Off Text.
2. Choose the **Color** of the **Text** by clicking on the arrow button to view the color palette. Move the cursor over the color you want and click to select.
3. Select whether or not the Text will **Blink**.
4. Next, select the **Background Color** of the button and whether or not it will **Blink**.
5. Each Radio Button (from 2 to 8) may contain different text and a different language. Click on the **Button #1** tab.

Click on the Button #1 Tab to edit Language and On/Off Text.



6. Choose the **Language** number (1–9) and type in the text as you want it to appear within that button when ON and when OFF (i.e., you might want to place the words **STOP** and **RUN** inside the buttons, instead of Off and On).

Remember that the other universal characteristics for the button text and background have been chosen under the General Tab (character size, color, etc.).

Protection (See *Button Object*.)

Visibility/Details (See *Button Object*.)

OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

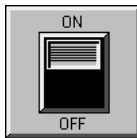
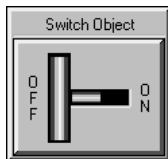
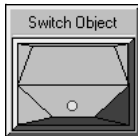
Place Radio Button on the screen and size it.

- To size the button, select it, grab a handle and drag.
- To move the button, select it, click and hold left mouse button and drag to where you want it to appear on the screen.

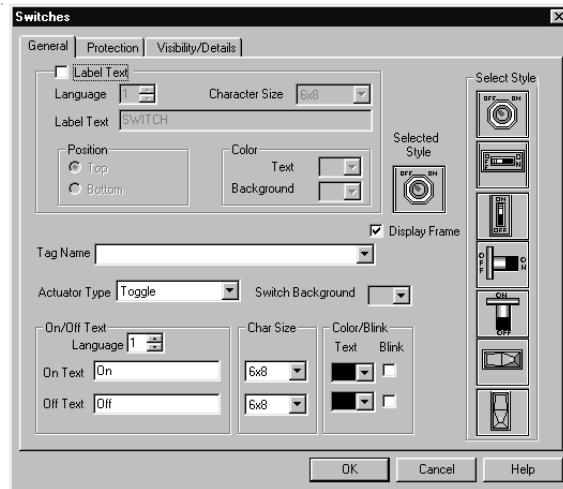
Simulate Press

To Simulate Press, double click the object to bring up the object dialog box. You may also click on the object(s) on the screen that you want to simulate and then click on the arrows in the standard tool bar to simulate previous state or simulate next state. (You may have to drag the dialog box to see the object on the programming screen.) Click on the Simulate Press button to see how the button object will display on the screen when pressed or when it switches between states.

Switch Object



There are several types of **Switch** objects that you may place on the PowerPanel screen. They simulate mechanical switches of the same type, e.g.; Throw Switch, Selector Switch, Slide Switch, Toggle Switch, etc.



To put a Label on a Switch, perform the following steps:

1. Click on the box in front of **Label Text**.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See section on Language, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the button to be visible, click on the box to deselect (the box will be empty).

To Choose a Switch Style, perform the following steps:

1. Under **Select Style**, click on the style you prefer for the switch object you are creating.
2. Your choice will appear under **Selected Style**.

Enter a Tag Name:

1. Enter a **Tag Name** or click on the down arrow and select the Tag Name that you want the switch to correspond to.
2. If the Tag Name is new, the **Add New Tag Details** dialog box will appear where you will enter tag details. The **Tag Name** will appear in the first field. Enter an **Address String** appropriate for your type PLC. Click on the **OK** button.



NOTE: To edit the Address String, with your cursor in the Tag Name field, click on the right mouse button. The **EDIT TAG DETAILS** screen will appear.



PLEASE NOTE: If you select Momentary ON or Momentary OFF, the PLC must set bit to proper state on powerup. This must be done when programming PLC Logic.

Select the **Switch Background** color by clicking on the DOWN arrow and selecting a color from the palette.

Select from the following Actuator Types:

Actuator Type determines how the tag will be controlled. **If you have assigned Password Protection for this object and select Momentary On or Momentary Off, the protection feature will not be enabled with this actuator type.**

- **Momentary On** will turn the tag on for as long as you touch the switch. (Password Protection is disabled.)
- **Momentary Off** will turn the tag off for as long as you touch the switch. (Password Protection is disabled.)
- **Set On** will latch the tag ON.
- **Set Off** will latch the tag OFF.
- **Toggle** will change the state of the tag every time the switch is pressed.

Enter On/Off Text:

Here you will enter the Text that will appear within the object, and control how that text will appear.

1. Select the **Language** number (1–9) for the On/Off Text.
2. Type in what you want to appear within the switch for the On Text and for the Off Text (i.e., you might want to place the words **STOP** and **RUN** inside the switches, instead of Off and On).
3. Select **Character Size** from the available choices
4. Select the **Color** of the **On Text** and the **Color** of the **Off Text**.
5. If you want the **Text** to **Blink**, click on the box below **Blink** to place a check mark indicating that the option is enabled.

Protection (See Button Object.)

Visibility/Details (See Button Object.)

OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

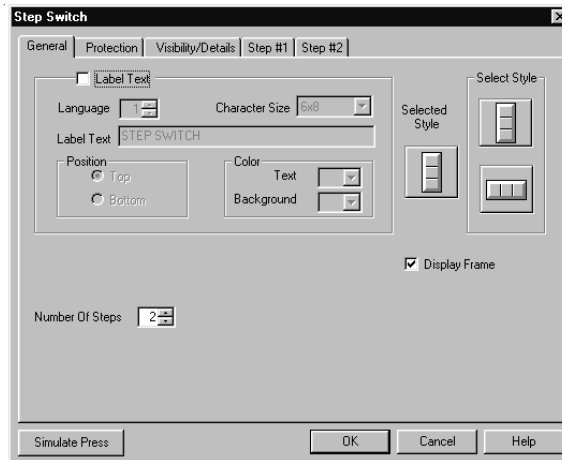
Place Switch on the screen and size it.

- To size a switch, click on it to select, grab a handle with the mouse and drag to the size you want.
- To move the switch, select it, click and hold left mouse button, and drag to where you want it to appear on the screen.

Step Switch Object



The **Step Switch** object simulates a Mechanical Step Switch on the PowerPanel. It allows you to simultaneously monitor and control two, three, or four different bits and display ON and OFF text for each bit. Each time the Step Switch is pressed, each bit will be cycled one at a time from OFF to ON with only one bit ON at a time.



To put a Label on a Switch, perform the following steps:

1. Click on the box in front of **Label Text**.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See section on Language, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the button to be visible, click on the box to deselect (the box will be empty).

To Choose a Step Switch Style, perform the following steps:

1. Under **Select Style**, click on the style you prefer for the button object you are creating.
2. Your choice will appear under **Selected Style**.

Choose the **Number of Steps** (from 1 to 4) in the process or application that you want your switch to control. Enter the number of steps or click on the up/down arrows to select.

Step #1 Tab

The screenshot shows the 'Step Switch' dialog box with the 'Step #1' tab selected. The 'General' tab is also visible. The 'Tag Name' field is empty. The 'On / Off Text' section has a 'Language' dropdown set to '1'. Below it are 'On Text' and 'Off Text' fields, both containing 'On' and 'Off' respectively. The 'Char Size' section has 'On Text' and 'Off Text' dropdowns both set to '6x8'. The 'Color' section has four checkboxes: 'Text', 'Blink', 'Background', and 'Blink', all of which are unchecked. At the bottom, there are four buttons: 'Simulate Press', 'OK', 'Cancel', and 'Help'.



NOTE: To edit the Address String, with your cursor in the Tag Name field, click on the right mouse button. The EDIT TAG DETAILS screen will appear.

1. Click on **Step #1** tab.
2. Enter **Tag Name** for Step #1.
3. Select **Language** (1 to 9) for **On/Off Text** and then enter the **On Text** and **Off Text** that you want to appear within Step Switch #1.
4. Select **Character Size**, **Color** of **Text** and **Background** and whether or not, Text and/or Background will **Blink**.
5. Repeat for **Step #2**, **Step #3** and **Step #4**, if necessary.

Protection (See *Button Object*.)Visibility/Details (See *Button Object*.)

OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

Place Step Switch on the screen and size it.

- To size the switch, grab a handle and drag.
- To move the switch, select it, click and hold left mouse button and drag.

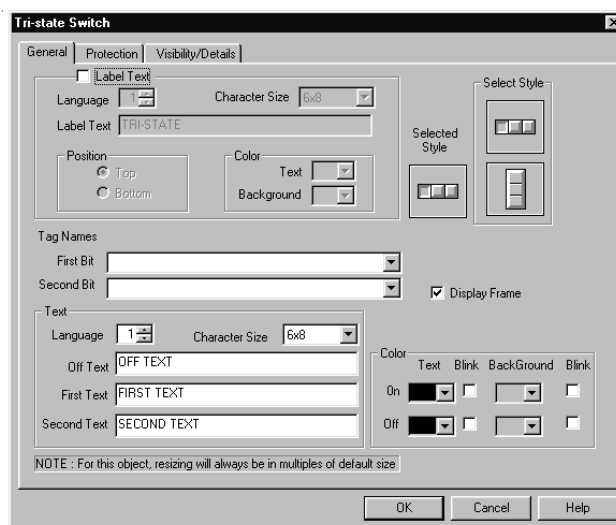
Simulate Press

To Simulate Press, double click the object to bring up the object dialog box or click on the object to highlight and then click on the arrows in the standard tool bar to simulate previous state or simulate next state. Select the tab of the Step you want to simulate (if on **General** tab, will simulate Step 1 only). Click on the **Simulate Press** button to see how the switch object will display on the screen when pressed

Tri-State Switch Object



The **Tri-State Switch** object controls two bits at a time from two different tags. It consists of three buttons. If the first button is pressed, both the bits are OFF. If the second button is pressed, the first bit is ON and second bit is OFF. If third button is pressed, the first bit is OFF and second bit is ON.



PLEASE NOTE:

The Tri-State switch object is always snapped to a touch cell to ensure that it operates properly on the panel screen. If you select the vertical style, you will notice that a label is not available (grayed out).



NOTE: To edit the Address String, with your cursor in the Tag Name field, click on the right mouse button. The **EDIT TAG DETAILS** screen will appear.

To put a Label on a Switch, perform the following steps:

1. Click on the box in front of **Label Text**.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See section on Language, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the button to be visible, click on the box to deselect (the box will be empty).

To Choose a Tri-State Switch Style, perform the following steps:

1. Under **Select Style**, click on the style you prefer for the button object you are creating.
2. Your choice will appear under **Selected Style**.

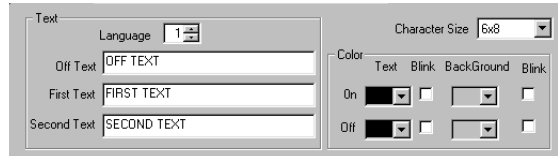
Tag Names

Click on the down arrow to select or enter new **Tag Names** for the **First Bit** and for the **Second Bit**. If the Tag Name is new, the **Add New Tag Details** dialog box will appear where you will enter tag details. The **Tag**

Name will appear in the first field. Enter an **Address String** appropriate for your type PLC. Click on the **OK** button.

Text

Here you will enter the **Text** that will appear within the object, and control how that text will appear.



1. Select the **Language** number for the **Off**, **First** (bit) and **Second** (bit) Text.
2. Type in what you want to appear within the button for the Off Text, First Text and for the Second Text.
3. Select **Character Size** from the available choices.
4. Select the **Color** of the **Text** and the **Color** of the **Background**. If you want the Text or the Background to **Blink**, click on the box below **Blink** to place a check mark indicating that the option is enabled.

Protection (see *Button Object*.)

Visibility/Details (see *Button Object*.)

OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

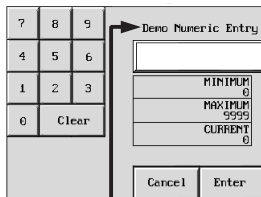
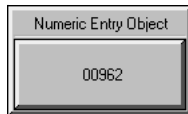
Place Tri-State Switch on the screen and size it.

- To size the switch, grab a handle and drag it to size you want.
- To move the switch, select it, click and hold left mouse button and drag to where you want it to appear on the screen.

Numeric Entry Object



The **Numeric Entry** object allows you to write a value to a PLC register. A numeric keypad will pop up when the Numeric Entry object is pressed on the PowerPanel screen. When you select a **Tag Name**, you will be selecting the PLC location where you want the keypad accumulator data to go. In other words, the value the operator enters on the keypad will be written to the PLC location.



Please Note: Numeric label is truncated to 20 characters on the popup keypad.

To put a Label on the Numeric Entry object, perform the following steps:

1. Click on the box in front of **Label Text**.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See section on Language, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the object to be visible, click on the box to deselect (the box will be empty).



NOTE: To edit the Address String, with your cursor in the Tag Name field, click on the right mouse button. The EDIT TAG DETAILS screen will appear.



PLEASE NOTE: When a single tag is used, the I/O type the tag can accept is Read/Write. When two tags are used, the first tag's I/O type also accepts Read Only and, therefore, can define source expressions.

Choose Tag(s):

1. Choose whether or not you want to use a single tag for both **Entry** and **Display** purposes, or two tags — a **Display Tag** and an **Entry Tag**. Two tags will be necessary if you are using Expressions in the tag. (See Note to the left.)
2. Enter a **Tag Name** or click on the down arrow and select the Tag Name that you want the object to correspond to.
3. If the **Tag Name** is new, the **Tag Entry** dialog box will appear where you will enter tag details. The **Tag Name** will appear in the first field. Enter an **Address String** appropriate for your type PLC and select the **Data Type** (from available choices). Click on the **OK** button.

To Enter Range Check , perform the following steps:

1. Under **Range Check**, set the minimum and maximum set points. Click on **Minimum**, the low end point, and enter a value. The operator will not be allowed to enter a value lower than the value in this field.
2. Click on **Maximum**, the high end point, and enter a value. The operator will not be allowed to enter a value higher than the value in this field. (Valid Range is shown in the next window.)
3. The **Valid Range** is shown. Your minimum and maximum set points must be within these limits.

To Select the Format of the Numeric Entry Keypad, perform the following steps:

The **Data Type** is dependent upon the Tag data type. In turn, the Tag data type is dependent upon the type of PLC you are using. Therefore, your selections next to Data Type in this object will be limited by your Tag and PLC data type. PowerPanel Programming Software will automatically limit your selections based on the PLC and Tag address format. The program will also let you know if you have entered an invalid data type.

SIGNED DATA TAG: SIGNED Keypad only

UNSIGNED DATA TAG: UNSIGNED, OCTAL, HEX Keypad

BCD DATA TAG: BCD Keypad only
 FLOATING POINT TAG (if available for that PLC): FLOATING POINT Keypad only

The **Data Types**, and their respective ranges, that may be available, are as follows:

Signed 16 Decimal: -32768 to +32767
 Signed 32 Decimal: -2147483648 to +2147483647
 Unsigned 16 Decimal: 0 to 65535
 Unsigned 32 Decimal: 0 to 4294967295
 Octal 16: 0 to 177777
 Octal 32: 0 to 3777777777
 Hex 16: 0 to FFFF
 Hex 32: 0 to FFFFFFFF
 BCD 16: 0 to 9999
 BCD 32: 0 to 99999999

1. Click on **Data Type** and select from the available choices.
2. Click on **Justification** and select from the following: **Leading Zeroes**, **Leading Spaces**, or **Trailing Spaces**.
3. Click on **Size** and select from the available character sizes. (Click on down arrow to view list of sizes.)
4. Under **Color**, click on down arrow to view the color palette for **Text**. Click on any color to select.
5. Click on the box in front of **Blink** if you want your text characters to blink.
6. Select color for **Background** and whether or not you want it to **Blink**.
7. Click on **Total Digits** under **# Digits**. The PowerPanel will display the minimum value and the maximum number inside the keypad. Here you will select how many digits, from 1 to 10 (depending on the data type and tag value type chosen), that you want to display.
8. If you want **Fractional Digits**, enter 1 through 10 here (select 0 for none). For example, if your maximum value is 999, you would enter 3 under total digits. If your maximum value is 99.9, enter 3 under **Total Digits** and 1 under **Fractional Digits**.
9. If you want a tag to control the decimal points, click in the box in front of **Use tag for decimal point** and then enter or select a **Decimal point Tag Name**.



NOTE: If a Decimal Point tag is selected, the Fractional Digits will not be used. The number of fractional digits will come from the value of the tag.

<input checked="" type="checkbox"/> Use tag for decimal point
Decimal point Tag Name <input type="text"/>

Scaling Tab

Click on the Scaling tab if you want the Display Value to be different than the PLC Value.

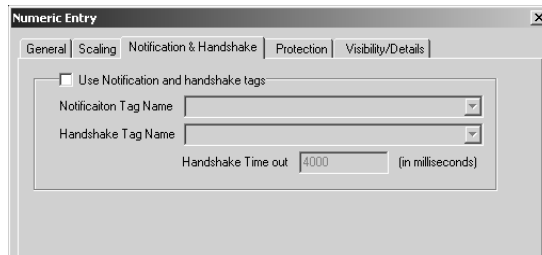
Under the **Numeric Entry** object **Scaling** tab, you can scale the entered value from the numeric entry object to another value in the PLC. Enter the **Point 1** and **Point 2 PLC Values** and **Point 1** and **Point 2 Display Values**. (An example of SCALING is provided on the dialog box, above.)

This is an example of a **SIGNED DECIMAL Popup Keypad** as it will display on your PowerPanel Screen. If you enter an invalid value, press the Clear (CLR) button and reenter.



Notification and Handshake Tab:

Click on this tab if you want to configure a discrete tag that will notify the panel when the numeric entry has been received. To let the operator know, the keypad will automatically close when the value has been received.



1. Click in the box in front of **Use Notification and Handshake tags** to enable this option.
2. In the **Notification Tag Name** field, enter or select a tag name where the tag will notify a location that a numeric entry value has been received.
3. In the **Handshake Tag Name** field, enter or select a tag name where the tag will return a value to the panel that will close the keypad thereby letting the operator know that the value was received and entered.
4. Enter a **Handshake Time out** time in milliseconds. Enter a number between 1 and 65535.

Protection (see *Button Object*.)

Visibility/Details (see *Button Object*.)

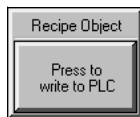
OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

Place Object on the screen and size it.

- To size the Numeric Entry object, grab a handle and drag.
- To move the object, select it, click and hold left mouse button and drag to where you want it to appear on the screen.

Recipe Object

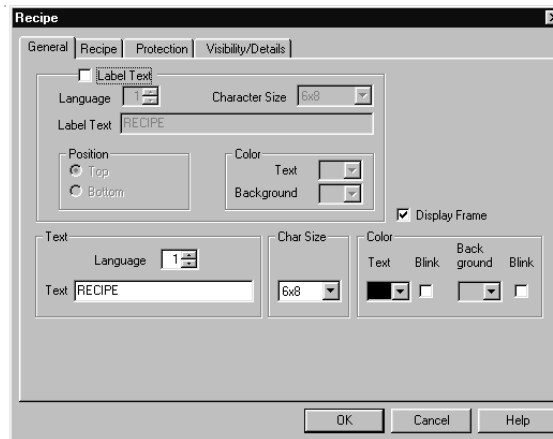


Important Note: If you are using a Recipe object that was created in an older version of PowerPanel Programming Software (1.x), this version (V3.0) will recognize it and convert the old Recipe object to the new Recipe object. This is true whether you are reading from the panel or from the project file. Ensure that you have the latest version of the firmware.



Important Note: If overlapping this object, the maximum number of tags that can be written to is 40.

The **Recipe** object allows you to write preset values of up to 20 Tags to the PLC to change the process. Thus, this feature can be used to download "recipes" to the PLC.



To put a Label on the Recipe object button, perform the following steps:

1. Click on the box in front of **Label Text**.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See section on Language, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the object to be visible, click on the box to deselect (the box will be empty).

Enter Text:

Here you will enter the Text that will appear within the object, and control how that text will appear.

1. Select the **Language** number (1–9) for the Text.
2. Type in what you want to appear within the button.
3. Select **Character Size** from the available choices.
4. Select the **Color** of the **Text** and the **Color** of the **Background**.
5. If you want the **Text** or the **Background** to **Blink**, click on the box below **Blink** to place a check mark indicating that the option is enabled.

Enter Tag Name and Register Values:

[illegible]

Pressing the **Recipe** button allows you to write values to several locations at once. The screen shown above is where you will enter the values to be written to the PLC location.

1. Click on the **Add/Edit Tags** button. The following window will appear.

Add Recipe Tag Details

Destination

Tag Name

Source

Value for this tag would be from

☒ Constant ☐ Another tag

Value from a constant:

Value Data format

Value from another tag

Tag Name

(Note: Destination tag and source tag data type must match)

Help Add New Tag Close

2. Under **Destination, Tag Name**, click on the down arrow to view list of available tags (or enter a new name). Select the tag you wish to use. If you enter a new tag name the **Add New Tag Details** dialog will open. Enter the tag details.
3. The **Destination tag** type determines the data format.
4. Under **Source**, choose **Constant** (default) or **Another tag** for the value.
5. If you choose **Constant**, the **Value from a constant** group will be enabled and **Value from another tag** will be disabled.
6. Enter a **Value** that you want written to the register.

7. Select from the available **Data Format** choices (i.e., Unsigned Decimal, Signed Decimal, Octal or Hex.)
8. If you choose **Another tag**, the **Value from another tag** will be enabled and **Value from a constant** will be disabled.
9. Enter a new source tag or choose an existing tag from those available. Only the tags that are of the same data type as the destination tag will be displayed.
10. Repeat for the second entry. You may continue writing values for up to 20 Tags (locations).

Note: If a Discrete tag is chosen, enter a 0 for OFF or a 1 for ON.

Protection (see Button Object.)

Visibility/Details (see Button Object.)

OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

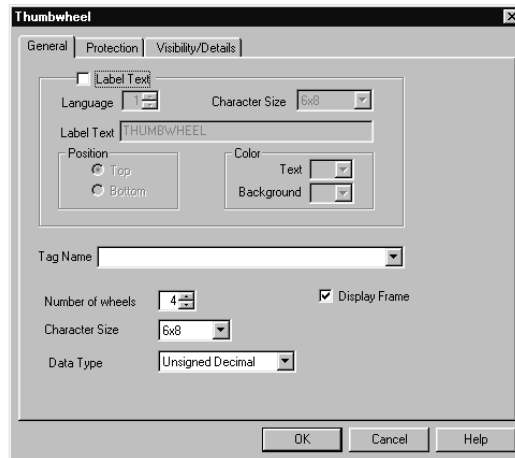
Place Recipe object button on the screen and size it.

- To size the object, grab a handle and drag.
- To move the object, select it, click and hold left mouse button while dragging the object to where you want it placed on the screen.

Thumbwheel Object



The function of this object is similar to Numeric Entry Button. The **Thumbwheel** object allows you to display a Thumbwheel keypad on the panel. This button can be 1 to 5 digits. Using the popup thumbwheel, the operator can change each digit separately. The operator presses the UP or DOWN arrow to increment or decrement the value of each digit. Press the enter button to write that value to the defined tag. This allows the operator to assign a value to a specific PLC register.



To put a Label on the Thumbwheel object button, perform the following steps:

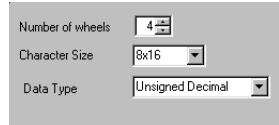
1. Click on the box in front of **Label Text**.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See section on Language, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the object to be visible, click on the box to deselect (the box will be empty).



PLEASE NOTE:
ONLY TWO TAG TYPES are available for the Thumbwheel object—**UNSIGNED_INT_16** (can be **UNSIGNED Decimal** or **HEX Data type**) and **BCD_INT_16**.

Enter a Tag Name:

1. Enter a **Tag Name** or click on the down arrow and select the Tag Name that you want the object to correspond to.
2. If the Tag Name is new, the **Add New Tag Details** dialog box will appear where you will enter tag details. The **Tag Name** will appear in the first field. Enter an **Address String** appropriate for your type PLC and select the **Data Type** (from available choices). Click on the **OK** button.

Select Thumbwheel Format:

Number of wheels	4
Character Size	8x16
Data Type	Unsigned Decimal

1. Select the **Number of Wheels** (from 1 to 5) for the object. *You will only be able to use 4 digits (wheels) when using BCD or Hex data formats.*
2. Choose the size of the numbers (**Character Size**) that will appear within the thumbwheels.
3. Select the **Data Type** of the numbers from the available selections.

Protection (see *Button Object*.)

Visibility/Details (see *Button Object*.)

OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

Place Thumbwheel object button on the screen and size it.

- To size object, grab a handle and drag the object to the size that you want.
- To move the object, select it, click and hold left mouse while dragging to where you want it to appear on the screen.

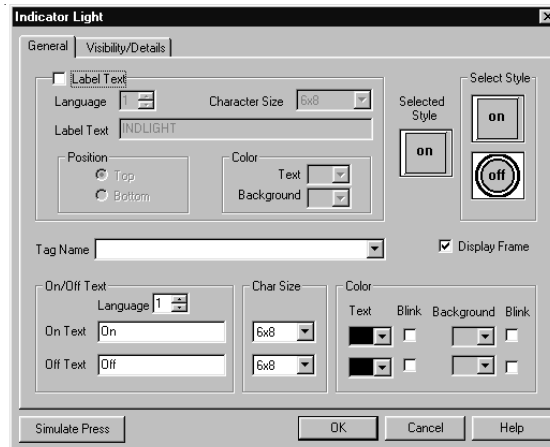
Indicator Light Object



An **Indicator Light** object allows you to monitor and display the state of a bit. The Indicator Light reads the bit information and produces the appropriate display. For example, the Indicator Light could display the status of a bit linked to a push button.



No Frame



To put a Label on the Indicator Light object, perform the following steps:

1. Click on the box in front of **Label Text**.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See section on Language, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the object to be visible, click on the box to deselect (the box will be empty).

To Choose an Indicator Light Style, perform the following steps:

1. Under **Select Style**, click on the style you prefer for the indicator light object you are creating.
2. Your choice will appear under **Selected Style**.

Enter a Tag Name:

1. Enter a **Tag Name** or click on the down arrow and select the Tag Name that you want the Indicator Light to monitor.
2. If the Tag Name is new, the **Add New Tag Details** dialog box will appear where you will enter tag details. The **Tag Name** will appear in the first field. Enter an **Address String** appropriate for your type PLC. Click on the **OK** button.

Enter On/Off Text:

Here you will enter the Text that will appear within the object, and control how that text will appear.



1. Select the **Language** number (1–9) for the On/Off Text.
2. Type in what you want to appear within the Indicator Light object for the On Text and for the Off Text (i.e., you might want to place the words **STOPPED** and **RUNNING** inside the Indicator light, instead of Off and On).
3. Select **Character Size** from the available choices.
4. Select the **Color** of the **Text** and the **Color** of the **Background**.
5. If you want the **Text** or the **Background** to **Blink**, click on the box below **Blink** to place a check mark indicating that the option is enabled.

Visibility/Details (See Button Object.)**OK/Cancel/Help Buttons**

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

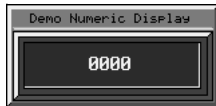
Place Indicator Light object on the screen and size it.

- To size it grab a handle and drag it to the size that you want.
- To move the object, select it, click and hold left mouse button and drag to where you want it to appear on the screen.

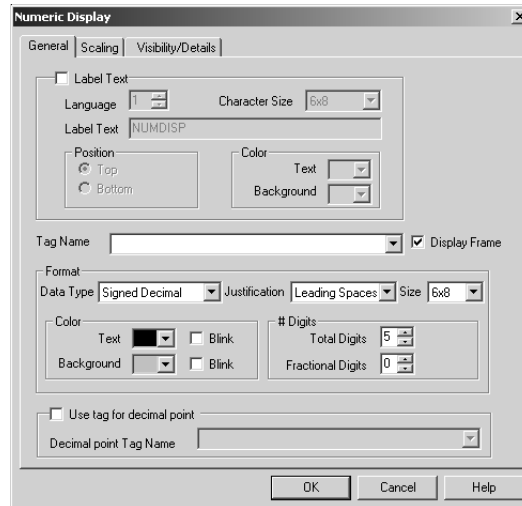
Simulate Press

To Simulate Press, double click the object to bring up the object dialog box. (You may have to drag the dialog box to see the object on the programming screen.) Click on the **Simulate Press** button to see how the Indicator Light object will display on the screen when pressed.

Numeric Display Object



The **Numeric Display** object allows you to display a Tag value within a frame on the screen.



To put a Label on the Numeric Display object, perform the following steps:

1. Click on the box in front of **Label Text**.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See section on Language, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the object to be visible, click on the box to deselect (the box will be empty).



NOTE: To edit the Address String, with your cursor in the Tag Name field, click on the right mouse button. The EDIT TAG DETAILS screen will appear.

Enter a Tag Name:

1. Enter a **Tag Name** or click on the down arrow and select the Tag Name that you want the Numeric Display object to monitor.
2. If the Tag Name is new, the **Tag Entry** dialog box will appear where you will enter tag details. The **Tag Name** will appear in the first field. Enter an **Address String** appropriate for your type PLC and select the **Data Type** (from available choices). Click on the **OK** button.

Enter the Format of the Numeric Display:

The **Data Type** is dependent upon the Tag type. In turn, the Tag data type is dependent upon the type of PLC you are using. Therefore, your selections next to Data Type in this object will be limited by your Tag and PLC data type. PowerPanel Programming Software will automatically limit your selections based on the PLC and Tag address format.

The **Data Types**, and their respective ranges, that may be available, are as follows:

Signed 16 Decimal:	-32768 to +32767
Signed 32 Decimal:	-2147483648 to +2147483647
Unsigned 16 Decimal:	0 to 65535
Unsigned 32 Decimal:	0 to 4294967295
Octal 16:	0 to 177777
Octal 32:	0 to 3777777777
Hex 16:	0 to FFFF
Hex 32:	0 to FFFFFFFF
BCD 16:	0 to 9999
BCD 32:	0 to 99999999

1. Click on **Data Type** and select from the available choices.
2. Click on **Justification** and select from the following: Left Justify, Right Justify, or Leading Zeroes.
3. Click on **Size** and select from the available character sizes. (Click on down arrow to view list of sizes.)
4. Under **Color**, click on down arrow to view the color palette for **Text**. Click on any color to select.
5. Click on the box in front of **Blink** if you want your text characters to blink.
6. Select color for **Background** and whether or not you want it to **Blink**.
7. Click on **Total Digits** under **# Digits**. Here you will select how many digits, from 1 to 10 (depending on the Data Type and Tag Type), that you want to display.
8. If you want **Fractional Digits**, enter 1 through 10 here (select 0 for none). For example, if your maximum value is 999, you would enter 3 under total digits. If your maximum value is 99.9, enter 3 under Total Digits and 1 under Fractional Digits.
9. If you want a tag to control the decimal points, click in the box in front of **Use tag for decimal point** and then enter or select a **Decimal point Tag Name**.



NOTE: If a Decimal Point tag is selected, the Fractional Digits will not be used. The number of fractional digits will come from the value of the tag.

Scaling Tab

Click on the Scaling tab if you want the Display Value to be different than the PLC Value.

Numeric Display

General | Visibility/Details | **Scaling**

☒ Scaling

	PLC Value	Display Value
Point 1	0	0
Point 2	4095	500

Example

Scaling is only for display purpose on this object. The value you enter would be interpolated using these two points for display.

Example

Point 1: PLC Value = 1, Display Value = 10
 Point 2: PLC Value = 5, Display Value = 50

Your value will be scaled by a factor of 10 for display on this object

If PLC value is 23, it will be displayed as 230

OK Cancel Help

Under the **Scaling** tab, you can scale the value in the PLC to another value on the Numeric Display. Enter **Point 1** and **Point 2 PLC Values**. Scale these values by entering the **Point 1** and **Point 2 Display Values**.

For example, say the PLC values are an analog value of 0–4095, and represent a range of 0–500 PSI.

Enter a PLC Value (Point 1) = 0 and a Display Value (Point 1) = 0 (PSI)

Enter a PLC Value (Point 2) = 4095 and a Display Value (Point 2) = 500 (PSI)

If the PLC Value is then = 1024, the Display Value will be 125.

Visibility/Details (See *Button Object*.)

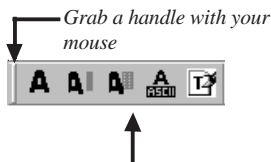
OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

Place Object on the screen and size it.

- To size the object, grab a handle and drag it to the size you want.
- To move the button, select it, click and hold left mouse button and drag to the area on the screen that you want it to appear.

Text Object



The Text Object Tool Bar as it originally appears in the programming window.

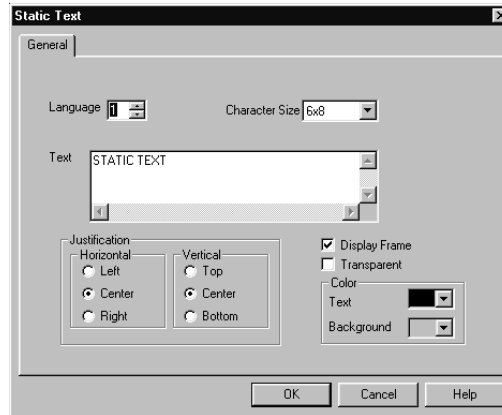
You can move the tool bar to other locations on the programming window by clicking and holding the left mouse button on the handle bar (see above), and dragging to where you want it to appear in the Programming Window.

The Text Tool bar as it appears on the programming screen.



Static Text

This object allows you to place text anywhere on the screen to provide information, screen description, etc. You can choose whether or not to display a frame around the text and whether or not you want it to be transparent.



Under the General tab you will make the following selections:

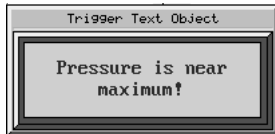
1. Select a **Language** (1–9) that you want the text to display in.
2. Select a **Character Size** from those available (e.g., 6 x 8, 8 x 16, 8 x 32).
3. Type in the **Text** as you want it to display on the PowerPanel Panel screen. The text can be up to 500 characters and wraps within the frame.
4. Select **Horizontal** (Left, Center, or Right) and **Vertical** (Top, Center, or Bottom) **Justification** for the text. Default for both is "Center".
5. If you want the text to appear within a frame, click on the box in front of **Display Frame** to enable. If you want to see through the text and/or frame to what lies underneath, click on the box in front of **Transparent**.
6. Select the Text and Background **Color** from the available choices. Default Text color is black and the default Background color is gray.

OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

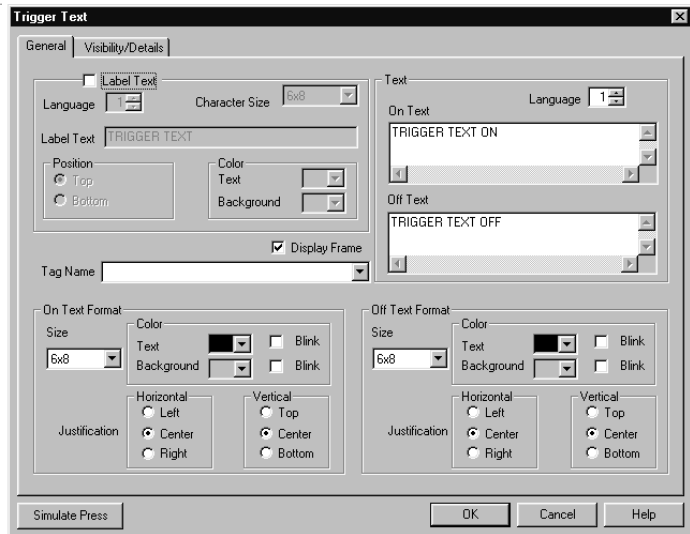
Place Text Object on the screen and size it.

- To size the object, grab a handle and drag.
- To move the button, select it, click and hold left mouse button, and drag to where you want it to appear on the screen.



Triggered Text

The **Triggered Text** object monitors a bit to display different text strings for “ON” and “OFF” conditions. This would be used in applications where you want to provide a message or a description of the process or condition. **To put a Label on the Triggered Text object, perform the following steps:**



1. Click on the box in front of **Label Text**.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See section on Language, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the text to be visible, click on the box to deselect (the box will be empty).

Enter the Text you want to appear on the display when ON and when OFF:

1. Select the **Language** number for the On Text and the Off Text.
2. Type in what you want to appear within the frame for the On Text and for the Off Text (up to 500 characters).



NOTE: To edit the Address String, with your cursor in the Tag Name field, click on the right mouse button. The EDIT TAG DETAILS screen will appear.

Enter a Tag Name:

1. Enter a **Tag Name** or click on the down arrow and select the Tag Name that you want the Trigger Text object to monitor.
2. If the Tag Name is new, the **Add New Tag Details** dialog box will appear where you will enter tag details. The **Tag Name** will appear in the first field. Enter an **Address String** appropriate for your type PLC. Click on the **OK** button.

Make selections for On Text and Off Text Format:

Under **On Text Format**:

1. Select **Size** from the available choices.
2. Select the **Color** of the **Text** and the **Color** of the **Background**.
3. If you want the Text or the Background to **Blink**, click on the box below **Blink** to place a check mark indicating that the option is enabled.
4. Choose the Horizontal and Vertical **Justification** for the On Text. For **Horizontal** justification, click in front of one of the following: **Left**, **Center**, or **Right**. For **Vertical** Justification, click in front of **Top**, **Center**, or **Bottom**.

Under **Off Text Format**, repeat the steps above.

Visibility/Details (See *Button Object*.)

OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

Place Text Object on the screen and size it.

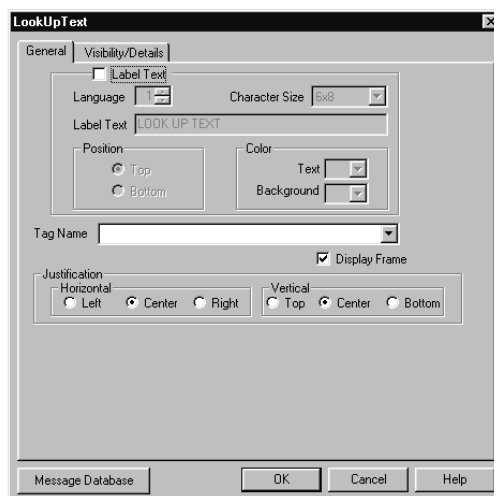
- To size the object, select it, grab a handle and drag.
- To move the object, select it, click and hold left mouse button and drag it to where you want it to appear on the screen.



Lookup Text

Lookup Text is an object that is created to display preprogrammed messages within a frame on the PowerPanel screen. These preprogrammed messages are stored in the "Message Database." It displays one message at a time. (Click on the Message Database button at the bottom of the dialog box to program messages in the database.)

A Value corresponding to the Tag Name is the Message Number that will be displayed inside the frame of the Lookup Text. Each message designed in the Message Database is numbered from 1 to 999. So, if the Value corresponding to the Tag Name is 10, Message Number 10 will be displayed within the Lookup Text Frame.



To put a Label on the Lookup Text object, perform the following steps:

1. Click on the box in front of **Label Text**.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See section on Language, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the text to be visible, click on the box to deselect (the box will be empty).



NOTE: To edit the Address String, with your cursor in the Tag Name field, click on the right mouse button. The EDIT TAG DETAILS screen will appear.

Enter a Tag Name:

1. Enter a **Tag Name**, or click on the down arrow and select the Tag Name from the available choices.



Please Note: The value corresponding to the Tag Name tells which message number from the message database is to be displayed.

2. If the Tag Name is new, the **Add New Tag Details** dialog box will appear where you will enter tag details. The **Tag Name** will appear in the first field. Enter an **Address String** appropriate for your type PLC and select the **Data Type** (from available choices). Click on the **OK** button.

Select Message Text Justification:

Messages created in the Lookup Text object are saved in the **Message Database**. (See page 180 for **Message Database setup**.) This is a local attribute for each Lookup Text object. So, the same message in one Lookup text object can be left justified within the frame while in another Lookup Text object, it can be right justified.

1. Select the **Horizontal** and **Vertical** Justification for the text as it will appear within the frame when displayed on the panel.
2. To create a message, click on the **Message Database** button.

Visibility/Details (See *Button Object*.)

OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

Place Lookup Text object on the screen and size it.

- To size it grab a handle and drag.
- To move the object, select it, click and hold left mouse button and drag.

Message Database

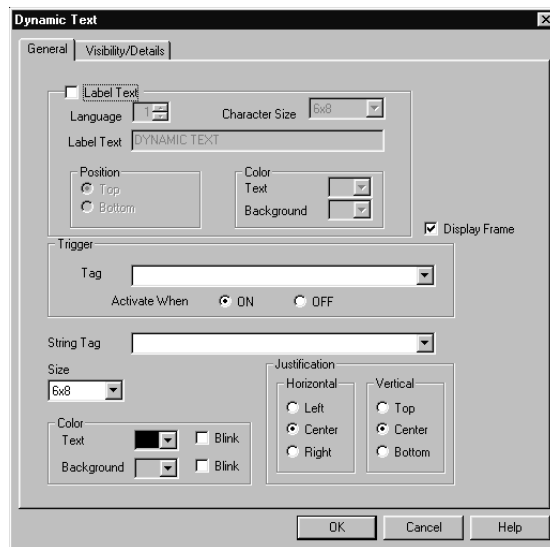
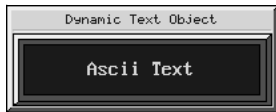
The **Message Database** stores programmed messages that can be accessed by the Lookup Text object. Create messages in the database dialog box to be used by the Lookup Text object. Up to 999 messages (limited by available memory) may be stored in the database. Each message may be up to 200 characters and you can choose various message attributes such as, **Character Size**, **Text Color**, **Background Color**, **Blink**, and **Language**. Use the scroll bar to view more messages. To add a new message, or edit an existing message, click on **Add/Edit** button, then click in the **Message Text** field and type your message. To delete a Message, select the message text, then click on the **Delete** button. A screen will appear asking you to confirm the delete message. Click on **OK** to delete message. You can import messages into the database from an Excel or Comma delimited file. You can also export messages from the Message Database into an Excel or Comma delimited file.

For more information on the Message Database — see page 189.



Dynamic Text

The **Dynamic Text** object will allow you to display the characters from ASCII values stored in a Tag. The tag will read a block of registers in the PLC. Each 16-bit register in the PLC can contain 2 ASCII characters. The maximum number of PLC registers in the block is 20 (a maximum of 40 ASCII characters). This object allows you to place text anywhere on the screen to provide information. It is typically used for displaying part numbers, VIN numbers, or production numbers. Dynamic Text is triggered by a bit Tag in the PLC. You choose whether the Text is triggered by the bit when it is in the ON state or the OFF state. The **Dynamic Text** object will then display a text string that is programmed in the PLC.



To put a Label on the Dynamic Text object, perform the following steps:

1. Click on the box in front of **Label Text**.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See section on Language, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the text to be visible, click on the box to deselect (the box will be empty).



NOTE: To edit the Address String, with your cursor in the Tag Name field, click on the right mouse button. The EDIT TAG DETAILS screen will appear.

Choose the Trigger Tag Name:

This Tag allows the PowerPanel to monitor a bit in the PLC and display text based on the ASCII values in a block of PLC registers.

1. Select the **Trigger** Tag Name by clicking on the down arrow to display the list or enter a Tag Name in the entry field. If the Tag Name is new, the **ADD NEW TAG DETAILS** dialog box will appear. The **Tag Name** will appear in the first field. Enter an **Address String** appropriate for your type PLC. Click on the **OK** button.
2. Choose to **Activate** when **ON** or **Activate** when **OFF**. If you choose ON, the Text will display when the bit is ON. When the bit is OFF, the Text will disappear.



Please Note: For a list of ASCII Characters that the PowerPanel Supports, see Appendix B.

Choose the String Tag Name:

The **String** Tag is the **PLC register** location where the values are read and displayed in a character string. The string may be up to 40 characters long. The **Address String** is the beginning register for the text.

Choose the Tag Name by clicking on the down arrow to display the list of Tags or type in the Tag Name in the entry field. If the Tag Name is new, the **ADD NEW TAG DETAILS** dialog box will appear where you will enter tag details. The **Tag Name** will appear in the first field. Enter an **Address String** appropriate for your type PLC (ASCII STRING is the only choice). Click on the **OK** button.

Select the Dynamic Text Characteristics:

1. Select the **Character Size** from the available choices.
2. Select the **Color** of the **Text** and **Background** and whether or not they will **Blink**.
3. Choose the **Justification** of the Text that is displayed within the frame. Choose both **Horizontal** (Left, Center, or Right) and **Vertical** (Top, Center, or Bottom) justification for the Text within the frame.

Visibility/Details (See *Button Object*.)

OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

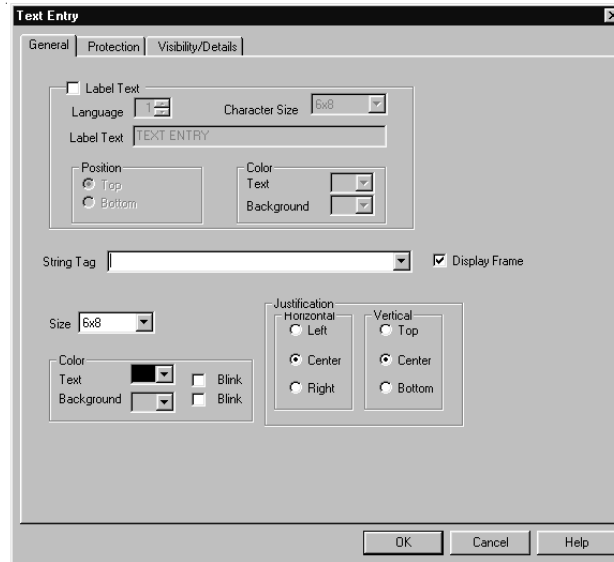
Place object on the screen and size it.

- To size the object, grab a handle and drag it to the size you want.
- To move the object, select it, click and hold left mouse button and drag to where you want it to appear on the screen.



Text Entry

The **Text Entry** object, when pressed on the panel, brings up a character entry (alphanumeric) keypad. This allows the operator to enter text up to 40 characters to send to a Tag assigned to an address in a PLC. It has many uses, some of which may be: to send part numbers or production numbers to a PLC, or to send a message to a PLC that will, in turn, route



it to one or more plant floor message display(s).

To put a Label on the Text Entry object, perform the following steps:

1. Click on the box in front of **Label Text** if you want a label for your object.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See section on Language, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the text to be visible, click on the box to deselect (the box will be empty).



NOTE: To edit the Address String, with your cursor in the Tag Name field, click on the right mouse button. The EDIT TAG DETAILS screen will appear.

Choose the String Tag Name:

The **String Tag** represents the PLC locations where the values are sent. The string may be up to 40 characters long.

1. Choose the **Tag Name** by clicking on the down arrow to display the list of Tags or type in the Tag Name in the entry field. If the



PLEASE NOTE: For a list of ASCII Characters that the PowerPanel Supports, see Appendix B.

PLEASE NOTE: Each ASCII character uses 1 byte of data. There are 2 characters per register. 40 character maximum uses 20 consecutive registers. The Address String is the first register of the consecutive register block.

Tag Name is new, the **Add New Tag Details** dialog box will appear where you will enter tag details. The **Tag Name** will appear in the first field. Enter an **Address String** appropriate for your type PLC. (ASCII STRING is only choice available.) Select the **Number of Characters**. Click on the **OK** button.

Select the String Characteristics:

1. Select the **Character Size** from the available choices.
2. Select the **Color** of the **Text** and **Background** and whether or not they will **Blink**.
3. Choose the **Justification** of the **Text** that is displayed within the frame. Choose both **Horizontal** (Left, Center, or Right) and **Vertical** (Top, Center, or Bottom) justification for the Text within the frame.

Protection (See Button Object.)

Visibility/Details (See Button Object.)


OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

Place Text object on the screen and size it.

- To size the Text Entry object, select it, grab a handle, and drag until it is the size you want.
- To move the object, select it, click and hold left mouse button, and drag to where you want it to appear on the screen.

This is the Popup (alphanumeric) Keypad that displays on the PowerPanel touchscreen when the Text Entry object is pressed.



						CAN	ENT
A	B	C	D	E	F	G	H
I	J	K	L	M	N	O	P
Q	R	S	T	U	U	U	X
Y	Z	1	2	3	4	CAP	SP
5	6	7	8	9	0	DEL	CLR

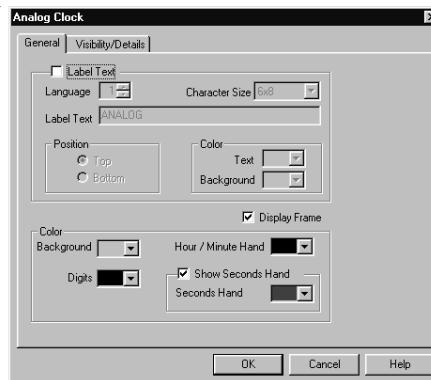
Clock Object

The **Clock** object allows you to display a real time clock, showing the current date, time, or both (analog clock displays time only.) It can display as either an **Analog** or **Digital** Clock.



See page 186 to set up the Clock Attributes.

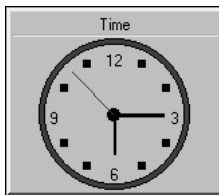
Analog Clock



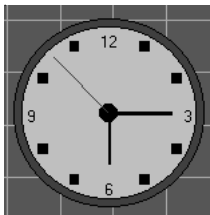
To put a **Label** on the Clock object, perform the following steps:

1. Click on the box in front of **Label Text** if you want a label for your object.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See Language section, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the clock to be visible, click on the box to deselect (the box will be empty).

Clock with label



Clock without label



To Choose how the Analog Clock will appear, perform the following steps:

1. Under **Color**, choose the color of the **Background** (face of the clock), **Digits**, and **Hour/Minute Hand**.
2. Select whether or not you want the **Second Hand** to Display and the **Color**, if enabled.

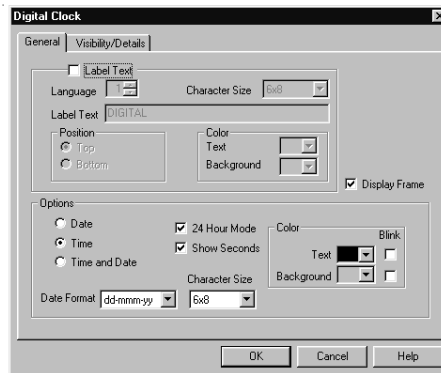
Visibility/Details (See *Button Object*.)

OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.



Digital Clock



To put a **Label** on the **Clock** object, perform the following steps:

1. Click on the box in front of **Label Text** if you want a label for your object.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See **Language** section, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the clock to be visible, click on the box to deselect (the box will be empty).

To choose how the **Digital Clock** will appear, perform the following steps:

1. Under **Options**, choose to display just the **Date**, just the **Time**, or both **Time and Date**.
2. Select whether or not you want the Time to be displayed in **24-Hour Mode** and whether or not to **Show Seconds**.
3. Choose the **Date Format** from the available choices and the **Character Size**.
4. Under **Color**, click on the down arrow next to **Text** and **Background** to view the color palette. Click on a color swatch to select.
5. Click on the box under **Blink** if you want the **Background** or **Text** to Blink.

Visibility/Details (See Button Object.)

OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.



Clock with Frame and Label



Clock with Frame, NO Label



Clock with Label, NO Frame

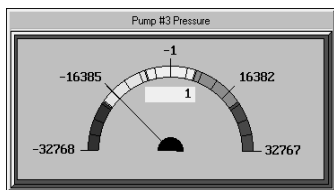
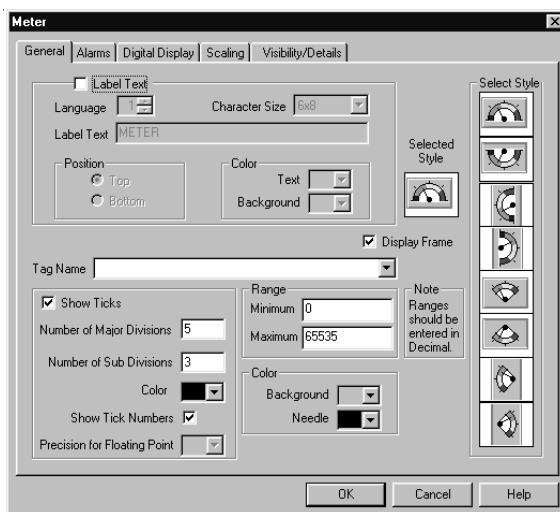


Meter Object



A **Meter** object is used to display an analog gauge, such as a speedometer. The meter consists of a data tag, a data type, data value range, location of the meter on the screen, the sweep direction for the needle, the needle color, and the number of ticks to display.

In simulating an analog gauge, the Meter object displays a needle that sweeps through an arc as the tag value changes. Tick marks are displayed along the arc.



NOTE: To edit the Address String, with your cursor in the Tag Name field, click on the right mouse button. The **EDIT TAG DETAILS** screen will appear.

To put a Label on the Meter object, perform the following steps:

1. Click on the box in front of **Label Text** if you want a label for your object.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See Language section, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. Click on a Style under **Select Style**.
8. **Display Frame** is selected by default. If you do not want the frame around the Meter to be visible, click on the box to deselect (the box will be empty).

Enter a Tag Name:

1. Enter a **Tag Name** or click on the down arrow and select the Tag Name from the available choices.
2. If the Tag Name is new, the **Tag Entry** dialog box will appear where you will enter tag details. The **Tag Name** will appear in the first field. Enter an **Address String** appropriate for your

type PLC and select the **Data Type** (from available choices). Click on the **OK** button.

Make the following selections to Format your meter:

1. If you want to show tick marks on your meter, click on box in front of **Show Ticks** to enable.
2. Next select the **Number of Major Divisions** and the **Number of Minor (Sub) Divisions** to display (maximum for each is 20).
3. Click on the down arrow next to **Color** to view the color palette for the Tick marks. Place the cursor over a color, and click to select.
4. If you want to show numbers indicating the value of a particular Tick mark, click on the box behind **Show Tick Numbers**.
5. If you have selected a Floating Point Tag, the **Precision for Floating Point** entry will be enabled. This will allow you to display the value of a tick mark on the bar graph with up to 5 decimal points. Click on the down arrow to select number of decimal points.
6. Select the **Minimum** and **Maximum Range** of the values represented in the meter display. Ranges should be entered in decimal only
6. Select the **Color** of the **Background** and the **Color** of the **Needle** from the available choices.

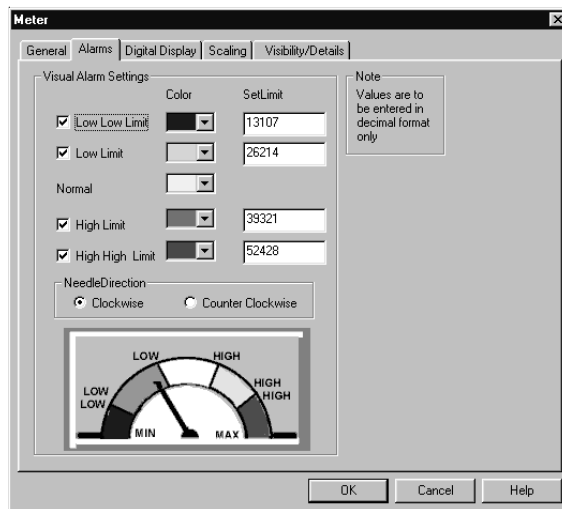
Click on the **Alarms** Tab to set the Visual Alarm parameters:



NOTE: When entering limits, the ranges cannot overlap!



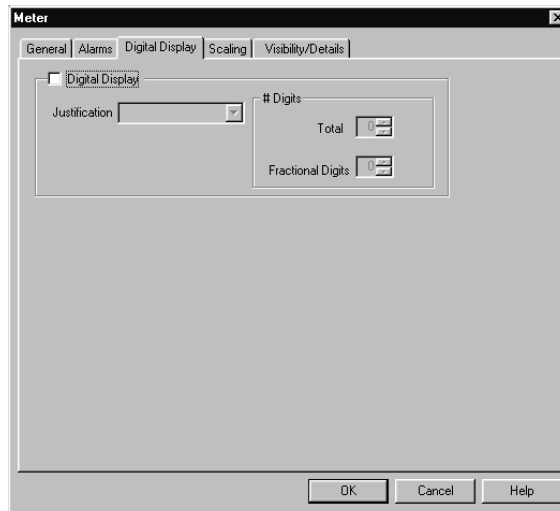
NOTE: These visual alarm settings are only for display on the meter, and are not related to actual alarms in the alarm database.



The **Visual Alarm Settings**, provide a color band on the arc representing various limit parameters set by the programmer. They provide the operator with a visual indication of current readings (as needle sweeps over area) that may or may not exceed/fall below important values for the process or function the meter is monitoring.

1. Click on the box in front of **Low Low Limit**, **Low Limit**, **High Limit**, and/or **High High Limit**, to display a visual alarm for that parameter.
2. Click on the down arrow under **Color** to view the color palette. Move your cursor over the color you want and click to select.
3. Enter the **Set Limit** for each of the parameters. They must fall within the **Range Minimum** and **Maximum** set under the **General** tab.
4. Choose the **Needle Direction**, **Clockwise** or **Counterclockwise**.

Click on the **Digital Display** Tab to Format the numbers and how they will be displayed on the Meter:



1. Click on the box in front of **Digital Display** if you want the current register values to display on the meter.
2. Click on **Justification** and select from the following: **Leading Zeroes**, **Leading Spaces**, or **Trailing Spaces**.
3. Click on **Total** under **# Digits**. Here you will select how many digits, from 1 to 10 (depending on the Data Type of the Tag), that you want to display.
4. If you want **Fractional Digits**, enter 1 through 10 here (select 0 for none). For example, if your maximum value is 999, you would enter 3 under total digits. If your maximum value is 99.9, enter 3 under Total Digits and 1 under Fractional Digits.

Scaling Tab

Click on the Scaling tab if you want the Meter's Display Value to be different than the PLC Value.

Meter

General | Alarm | Digital Display | **Scaling** | Visibility/Details

☒ Scaling

	PLC Value	Display Value
Point 1	0	0
Point 2	65535	65535

Example

Scaling is only for display purpose on this object. The value you enter would be interpolated using these two points for display.

Example

Point 1: PLC Value = 1, Display Value = 10
 Point 2: PLC Value = 5, Display Value = 50

Your value will be scaled by a factor of 10 for display on this object
 If PLC value is 23, it will be displayed as 230

OK Cancel Help

Under the **Meter** object **Scaling** tab, you can scale the value in the PLC to another value on the Meter. Enter **Point 1** and **Point 2 PLC Values** and **Point 1** and **Point 2 Display Values**.

(An example of SCALING is provided on the dialog box, above.)

Visibility/Details (See Button Object.)

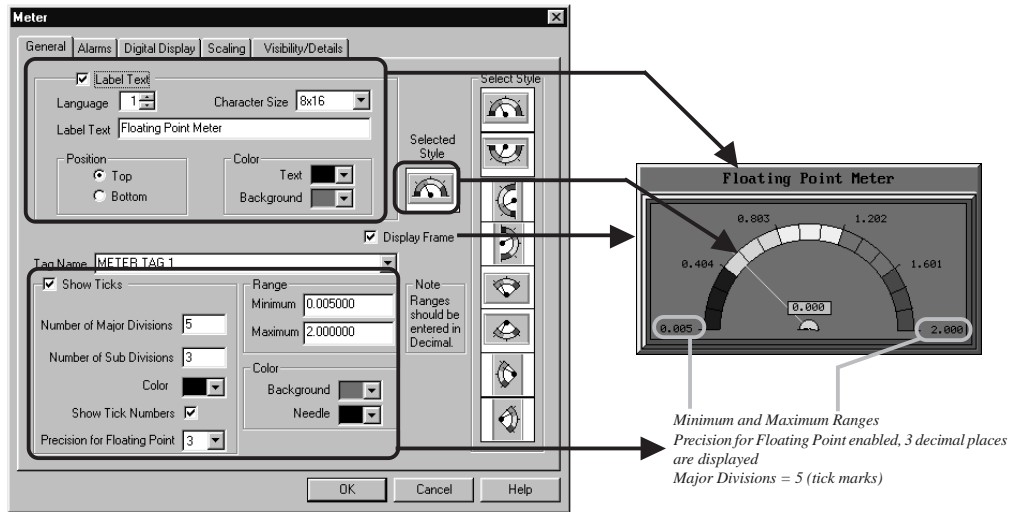
OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

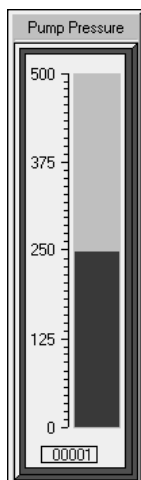
Place Meter on the screen and size it.

- To size the Meter, select it, grab a handle and drag to the size you want.
- To move the Meter, select it, click and hold left mouse button and drag to where you want it to appear on the screen.

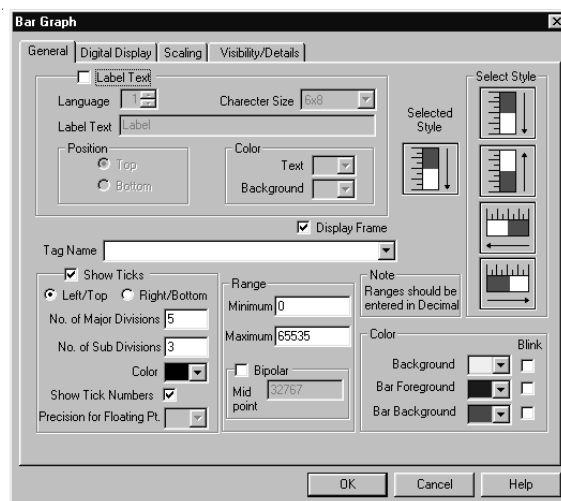
See top of next page for an illustration of how meter image on the panel corresponds to attributes programmed using the dialog box.



Bar Graph Object



The **Bar Graph** object allows you to monitor and display a tag value in a bar graph form on the screen. The Bar Graph can be displayed in various formats and can be programmed to read from top to bottom, left to right, right to left, etc.



To put a **Label** on the Bar Graph object, perform the following steps:

1. Click on the box in front of **Label Text** if you want a label for your object.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See Language section, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the Bar Graph object to be visible, click on the box to deselect (the box will be empty).

Enter a **Tag Name**:

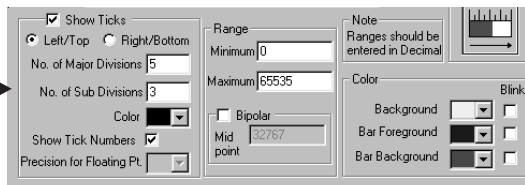
1. Enter a **Tag Name** or click on the down arrow and select the Tag Name from the available choices.
2. If the Tag Name is new, the **Add New Tag Details** dialog box will appear where you will enter tag details. The **Tag Name** will appear in the first field. Enter an **Address String** appropriate for your type PLC and select the **Data Type** (from available choices). Click on the **OK** button.

NOTE: To edit the Address String, with your cursor in the Tag Name field, click on the right mouse button. The EDIT TAG DETAILS screen will appear.



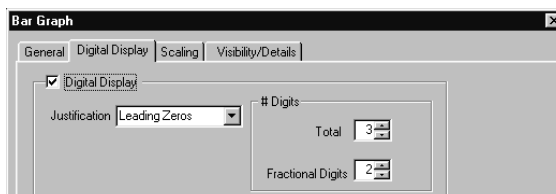
Make the following selections to Format the Bar Graph:

Maximum Number for the Major Divisions and Sub Divisions is 20!



1. If you want to show tick marks on your bar graph, click on box in front of **Show Ticks** to enable.
2. Select where you want the tick marks to be on the graph; **Left/Top**, or **Right/Bottom**.
3. Select the **Number of Major Divisions** and the **Number of Minor (Sub) Divisions** to display. **The maximum ticks allowed for Major or Minor Divisions is 20.**
4. Click on the down arrow next to **Color** to view the color palette for the tick marks. Place the cursor over a color, and click to select.
5. If you want to show numeric values for the tick marks, click on the box behind **Show Tick Numbers**.
6. If you have selected a Floating Point Tag, the **Precision for Floating Point** entry will be enabled. This will allow you to display the value of a tick mark on the bar graph with up to 5 decimal points. Click on the down arrow to select number of decimal points.
7. Select the **Minimum** and **Maximum Range** of the values represented in the bar graph display. Ranges must be entered in Decimal.
8. If you want a Bipolar bar graph, click on the box in front of **Bipolar** and enter a **Midpoint** value. A **Midpoint** between the Minimum and Maximum Range will appear.
9. Under **Color**, click on the down arrows next to **Background**, **Bar Foreground** (fill) and **Bar Background** to view the color palettes and make your selections. Click on the box below **Blink** to enable that feature.

Click on the Digital Display Tab to Format the numbers and how they will be displayed on the Bar Graph:



1. Click on the box in front of **Digital Display** if you want the current register values to display on the bar graph.

- Click on **Justification** and select from the following: **Leading Zeroes**, **Leading Spaces**, or **Trailing Spaces**.
- Click on **Total** under **# Digits**. Here you will select how many digits, from 1 to 10 (depending on the Data Type of the Tag), that you want to display.
- If you want **Fractional Digits**, enter 1 through 10 here (select 0 for none). For example, if your maximum value is 999, you would enter 3 under total digits. If your maximum value is 99.9, enter 3 under Total Digits and 1 under Fractional Digits.

Scaling tab

Click on the **Scaling** tab if you want the **Meter's Display Value** to be different than the **PLC Value**.

Bar Graph

General | Digital Display | **Scaling** | Visibility/Details

☒ **Scaling**

	PLC Value	Display Value
Point 1	0	0
Point 2	65535	65535

Example

Scaling is only for display purpose on this object. The value you enter would be interpolated using these two points for display.

Example

Point 1: PLC Value = 1, Display Value = 10
 Point 2: PLC Value = 5, Display Value = 50

Your value will be scaled by a factor of 10 for display on this object
 If PLC value is 23, it will be displayed as 230

Under the **Meter** object **Scaling** tab, you can scale the value in the PLC to another value on the Meter. Enter **Point 1** and **Point 2 PLC Values** and **Point 1** and **Point 2 Display Values**.

(An example of SCALING is provided on the dialog box.)

Visibility/Details (See **Button Object**.)

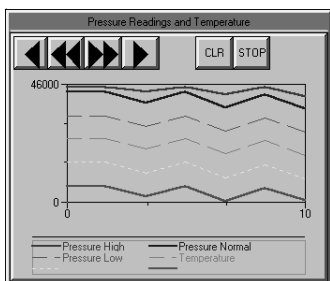
OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

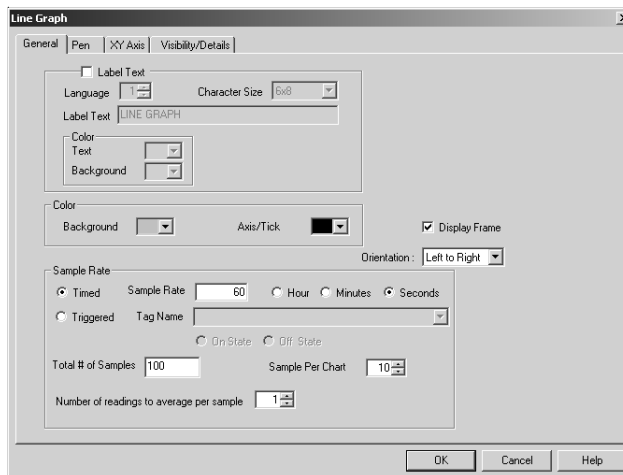
Place Bar Graph on the screen and size it.

- To size the Bar Graph, grab a handle and drag to size you want.
- To move the Bar Graph, select it, click and hold left mouse button, and drag to where you want it to appear on the screen.

Line Graph Object



The **Line Graph** object will continuously monitor specific Tags in the PowerPanel Panel and display the value of these data tags as they change over time. This allows the panel to display the graph as soon as the screen containing the graph is selected. Up to 6 tags can be monitored per line graph and up to 100 line graphs can be programmed. Line graphs are unique in that most of the work is done for you. The line graph plots the tag values on a line as they change over a period of time.



To put a **Label** on the **Line Graph** object, perform the following steps:

1. Click on the box in front of **Label Text** if you want a label for your object.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See Language section, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.

Select the **Background Color** and the **Axis/Tick Color** from those offered on the color palette. To select a Color, click on the down arrow to see the palette, and then simply click on the color swatch you want.

Display Frame is selected by default. If you do not want the frame around the Line Graph to be visible, click on the box to deselect (the box will be empty).

Select **Orientation**: Select **Left to Right** (default) if you want to plot the line graph points from left to right. Select **Right to Left** if you want to plot the points from right to left on the line graph.

The **Sample Rate** for the Line Graph can be timed or triggered by an event.

- **Timed** — how often, in **Seconds**, **Minutes**, or **Hours** the line graph will update. Enter this parameter next to **Sample Rate** and select (per) **Hour**, **Minutes** or **Seconds**.
- **Triggered** — triggered by a bit that will be monitored to update the line graph. The trigger state conveys whether the line graph will be updated when the monitor bit is on or off. Select the **Tag Name** for the monitor bit. Select **On State** or **Off State**.

Total # of Samples is the number of readings stored in the line graph at one time. The maximum number of readings is 999. **Sample per Chart** is the maximum number of readings that will be visible on the chart. Use the arrow buttons on the object to view more of the chart.



NOTE: The minimum number of readings is two!

Number of readings to average per sample: You may choose to have the graph average a number of readings in a sample and display that sample average on a the chart. For instance, if you want to take several temperature readings in an hour's time and then have the graph display this average as one sample on the chart. Select a number between 1 and 255.

Click on the **Pen** tab to program the individual readings/lines:

Pen	Tag Name	Color	Line Type	Language	Legend
1				1	
2				1	
3				1	
4				1	
5				1	
6				1	

☒ Display Legend

Note :
If unsigned data type is selected for range, then the pen tags must also have unsigned data types assigned to them. Signed and Unsigned data types CANNOT be mixed on the same line graph.

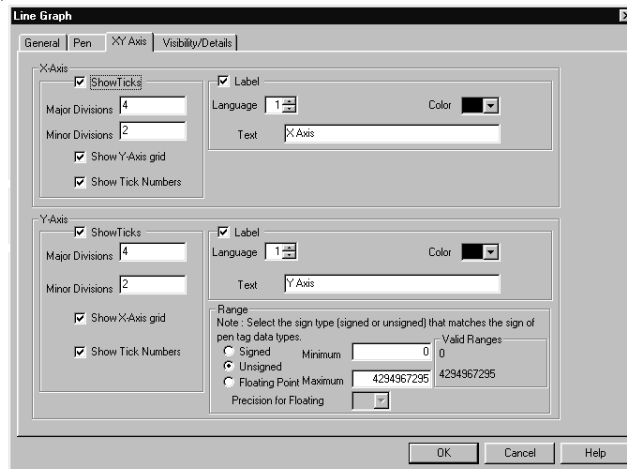
OK Cancel Help



NOTE: To edit the Address String, with your cursor in the Tag Name field, click on the right mouse button. The EDIT TAG DETAILS screen will appear.

1. Click on the down arrow to select the **Tag Name** for the register you want Pen 1 (or 2, 3, 4, 5, 6) to monitor and illustrate.
2. Select the **Color** and **Line Type** from the available choices.
3. Select the **Language** Number (1–9).
4. Click in the “**Legend**” field and type in the text you would like to display in the legend for Pens 1 through 6. (The legend will display the Color and Line type and what you enter in the Legend field.) Limit the legend names to 16 characters (maximum).
5. Click on the box in front of **Display Legend** if you want the legend to appear on the line graph object.

Click on the XY Axis tab to continue formatting your Line Graph:



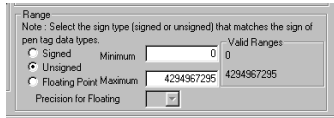
The Line Graph is set up with the vertical axis (Y) representing the Tag value (Value), and the horizontal axis (X) represents time (Readings)

Under X-Axis make the following selections:

1. Choose whether or not to **Show Ticks** for the X-Axis (Reading). Click on the box in front of **Show Ticks** if you want them to display on the object.
2. Enter the number of **Major Divisions** and the number of **Minor Divisions** you want to display on the graph. 20 tick marks are the maximum allowable for major and minor divisions.
3. Choose whether or not to **Show X-Axis Grid** and **Show Tick Numbers**.
4. Click in the box in front of **Label** if you want if you want a label for the X-Axis. Here you will enter the label **Text** and make selections for the text **Language** number, and **Color**.

Under Y-Axis make the following selections:

1. Choose whether or not to **Show Ticks** for the Y-Axis (Value). Click on the box in front of **Show Ticks** if you want them to display on the object.
2. Enter the number of **Major Divisions** and the number of **Minor Divisions** you want to display on the graph. 20 tick marks are the maximum allowable for major and minor divisions.
3. Choose whether or not to **Show Vertical Grid** and **Show Tick Numbers**.
4. Click in the box in front of **Label** if you want a label for the X-Axis. Here you will enter the label **Text** and make selections for the text **Language** number, and **Color**.
5. Under **Range**, click on **Signed** or **Unsigned** (they must match Pen tag type — signed or unsigned.) **Valid Ranges** will display for your selection.



6. Enter a **Minimum** and **Maximum** Range within the **Valid Range** displayed.
7. If you have selected **Floating Point**, you may choose 0 to 5 decimal points to display on the Y- Axis Major Divisions for precise graph readings. Select 0, 1, 2, 3, 4, or 5 decimal point display next to **Precision for Floating**.

Visibility/Details (See *Button Object*.)

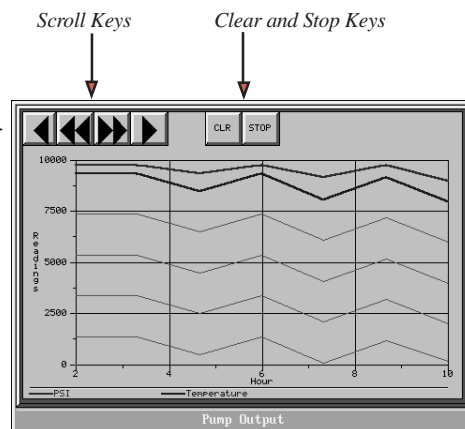
OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

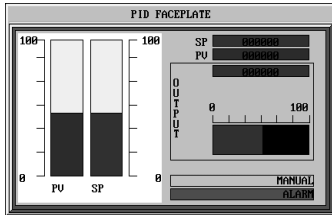
Place Line Graph on the screen and size it.

- To size the Line Graph, select it, grab a handle and drag to the size you want.
- To move the Line Graph, select it, click and hold left mouse button and drag to where you want it to appear on the screen.

Not all of the line graph may be shown on the panel. Use the **ARROW** keys to scroll forwards and backwards along the graph. Press the **CLR** button to clear the readings displayed on the line graph. Press the **STOP** button to stop the line graph from displaying the current readings.



PID Faceplate Object



In addition to a ladder logic program, some PLCs have process control loop capability. These PLCs use a Proportional Integral Derivative (PID) algorithm to generate the control output value. The **PID Faceplate**, below, is an object that reads three controlled values of the PID loop and displays them in the form of a bar graph. This graph provides valuable and timely process information, that allows the operator to take suitable action at the appropriate time.

The **PID Faceplate** also monitors two discrete bits: **Mode Bit** and **Alarm Bit**. **Mode Bit** tells the operator whether the process is in **Auto Mode** or **Manual Mode**. **Alarm Bit** tells the operator if any alarm for the process is active or not.

Process Variable (PV) is the controlled variable in the process. It is the actual value measured.

Set Point (SP) is the theoretical perfect value of the Process Variable. Output Variable controls the Process Variable. Using PID algorithm, the PLC calculates this value and uses it to keep the Process Variable as close to Set Point value as possible.

To put a Label on the PID Faceplate object, perform the following steps:

1. Click on the box in front of **Label Text** if you want a label for your object.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See Language section, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.

5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the PID Faceplate to be visible, click on the box to deselect (the box will be empty).

Under **Process Variable/Set Point** you will make the following selections:



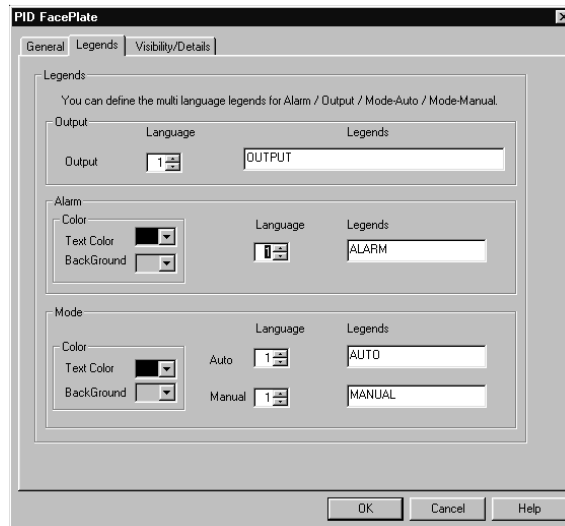
NOTE: To edit the Address String, with your cursor in the Tag Name field, click on the right mouse button. The EDIT TAG DETAILS screen will appear.

1. Select the **Tag Name** for **Process Variable** that will monitor the process.
2. Select the **Bar Color** and **Background Color** for the **Process Variable** as displayed on the PID Faceplate object.
3. Select the **Tag Name** for the **Set Point**.
4. Select the **Bar Color** and the **Background Color** for the **Set Point** as displayed on the PID Faceplate object.
5. Select the **Minimum** and **Maximum** Range for the bar graph. Select the **Total** number of digits you want to display and how many, if any, of those digits should be **Fractional**.

Under **Output** you will make the selections for the output as displayed on the PID Faceplate object:

1. Click on the down arrow to reveal **Tag Names** and make your selection.
2. Enter the **Minimum** and **Maximum** ranges for the Output bar graph display.
3. Select the **Total** number of digits you want to display and how many, if any, of those digits should be **Fractional**.
4. Choose the **Color** for the **Bar** and **Background**.
5. The PID Faceplate monitors two discrete bits:
 - **Mode Bit** tells the operator whether the process is in Auto Mode or Manual Mode. Enter the tag name for the discrete bit to be monitored for Mode. **ON= Manual, OFF = Auto**
 - **Alarm Bit** tells the operator if any alarm for the process is active or not. Enter the tag name for the discrete bit to be monitored for active alarms. **ON = Alarm, OFF = no display**

Click on the Legend tab to make your selections for the Legend that will display on the object:



1. Under **Output**, select the **Language** number for the Legend text you want to enter. You may program up to 9 different languages to display on the legend. (See Language section, page 221.)
2. Type in the text for the **Legend**.
3. Under **Alarm**, select the **Text** and **Background Color**.
4. Select the **Language** number, and type in the text you want to appear for the **Legend**.
5. Under **Mode**, select the **Text** and **Background Color**.
6. Select the **Language** number for **Auto** and **Manual**.
7. Type in the **Legend** text for **Auto** and for **Manual** that you want to appear on the object

Visibility/Details (See *Button Object*.)

OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

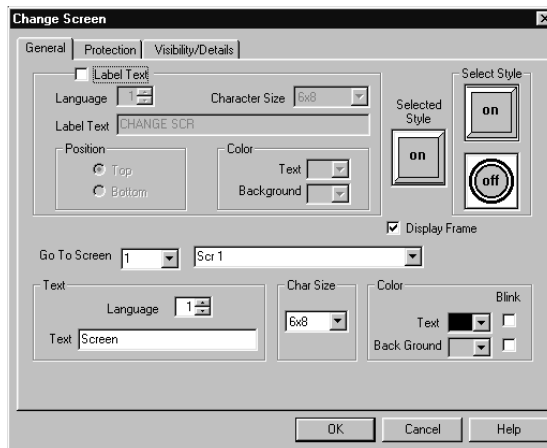
Place PID Faceplate object on the screen and size it.

- To size the object, select it, grab a handle and drag to the size you want.
- To move the object, select it, click and hold left mouse button and drag to where you want it to appear on the screen.

Change Screen Object



This object will allow the PowerPanel to change to (display) another Screen.



To put a Label on the Change Screen object, perform the following steps:

1. Click on the box in front of **Label Text** if you want a label for your object.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See Language section, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the object to be visible, click on the box to deselect (the box will be empty).

To Create the Change Screen Button object:

1. Select the **Style** of the button from the available choices.
2. Click in the empty field next to **Go To Screen** and type in the name of the screen or click on the down arrow for a list of screens in the project and select. **Enter a zero (0) if you want the operator to change back to the previously displayed screen.**
3. Select the **Language** Number (1–9) for the **Text** that will appear within the button.
4. Type in the **Text** that you wish to appear within the button.
5. Select **Character Size** from the available choices.
6. Select the **Color** of the **Text** and the **Background** (inside the button) from the available choices.
7. Click in the box under **Blink** if you want the **Text** or **Background** to blink.

Protection (See *Button Object*.)

Visibility/Details (See *Button Object*.)

OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

Place Change Screen Button on the screen and size it.

- To size the button, select it, grab a handle and drag to the size you want.
- To move the button, select it, click and hold left mouse button and drag to where you want it to appear on the screen.

Alarm History Object



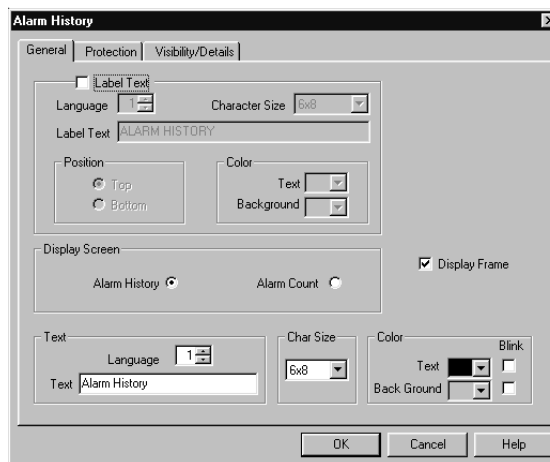
The **Alarm History Object** allows you to configure a button, that when pressed, will provide the **Alarm Count** or **Alarm History**. **Alarm Details** are accessed through the Alarm History object. Alarms are set up in the Alarm Database (see page 177 for setup instructions.)

The **Alarm Count** lists all alarms and shows the total count for each alarm.

The **Alarm History** will show each alarm that has occurred with the most recent at the top. When you press the **Alarm Detail** button, you will get the Entry Number (No.) of the Alarm, when it was activated (time and date), when it was cleared, actual value, high/low limits, and which limit is tripped (HIGH/LOW/DIS).



PLEASE NOTE: The steps necessary to program your PowerPanel to monitor the PLC for errors and trigger an alarm are provided in Appendix A, Troubleshooting, “How do I Log and Display a PLC Error Message?”



To put a Label on the Alarm History object, perform the following steps:

1. Click on the box in front of **Label Text** if you want a label for your object.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See Language section, page 221.)
3. Select **Character Size** from the available sizes.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the object to be visible, click on the box to deselect (the box will be empty).

Under **Display Screen**, you will choose which alarm screen you want to display when the Alarm History button object is pressed — **Alarm History** or **Alarm Count**. It should be noted that you can switch from one to the other from either screen.



NOTE: An active alarm will be displayed across the bottom of the panel screen. To see a history, use the Alarm History object.

Under **Text**, choose the **Language**, **Character Size**, **Color** of **Text** and **Background**, and whether or not you want to enable the **Blink** feature for the text that will appear within the Alarm History button. Enter the **Text** that you want to appear.

Protection (See *Button Object*.)

Visibility/Details (See *Button Object*.)

OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

Place Alarm History Button on the screen and size it.

- To size the button, select it, grab a handle and drag to the size you want.
- To move the button, select it, click and hold left mouse button and drag to where you want it to appear on the screen.

ALARM HISTORY

TOTAL OF 07 ALARMS

ENTRY	MESSAGE
01	ALARM REGISTER 1003012345678901234
02	ALARM DISCRETE 1000
03	ALARM DISCRETE 1001
04	ALARM DISCRETE 1001
05	ALARM DISCRETE 1000
06	ALARM DISCRETE 1001
07	ALARM DISCRETE 1002

ALARM COUNT

ALARM COUNT	MESSAGE
001	00001 ALARM DISCRETE 1000
002	00001 ALARM DISCRETE 1001
003	00001 ALARM REGISTER 1002
004	00001 ALARM REGISTER 1003012345678901234

EXIT

PAGE UP

PAGE DOWN

LINE UP

LINE DOWN

DETAILS

CLEAR ALL

ALARM COUNT

EXIT

PAGE UP

PAGE DOWN

LINE UP

LINE DOWN

CLEAR

CLEAR ALL

ALARM HISTORY

ALARM HISTORY DETAILS

ENTRY NO.:

01

ALARM REGISTER 1003012345678901234

ACTUATED:

1:03:56 7-02-00

CLEARED:

ACTUAL VALUE:

500

HIGH/LOW/DIS:

HIGH

LOW LIMIT:

0

HIGH LIMIT:

100

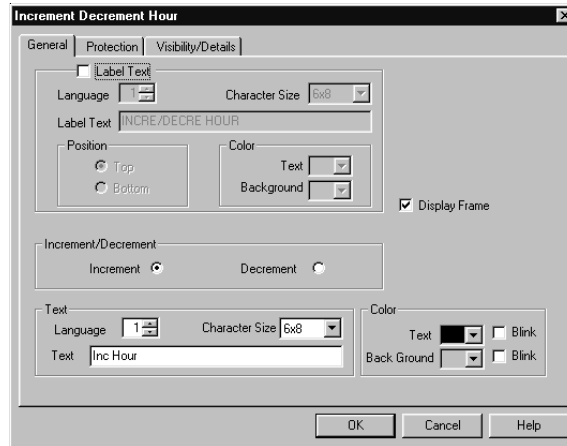
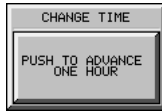
Please Note: Alarm History and Alarm Count CLEAR ALL buttons may be Password Protected. See Project Attributes, Alarm Protection, page 204.

System Objects



Increment/Decrement Hour

The Increment/Decrement Hour object allows you to place a button on the screen that allows you to adjust the hour (up or down) of the internal Real-Time clock.

**IMPORTANT NOTE:**

This object is to be used with the Internal clock, only. Do not use the Increment/Decrement object if you have chosen External clock under Project Attributes > Clock.

To Create Label Text, perform the following steps:

1. Click on the box in front of **Label Text** if you want a label for your object.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See Language section, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the object to be visible, click on the box to deselect (the box will be empty).

Choose the function of the button:

Select **Increment** or **Decrement** for the button function. If increment is selected, when pressed it will increase the time on a clock object by one hour. If decrement is selected, when pressed it will decrease the time on a clock object by one hour.

Enter Text for the button object:

Choose the **Language**, **Character Size**, **Color** of **Text** and Background, and whether or not you want to enable the **Blink** feature for the text that will appear within the button and/or the background. Enter the **Text** that you want to appear.

Protection (See *Button Object*.)

Visibility/Details (See *Button Object*.)

OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

Place Increment/Decrement Clock object on the screen and size it.

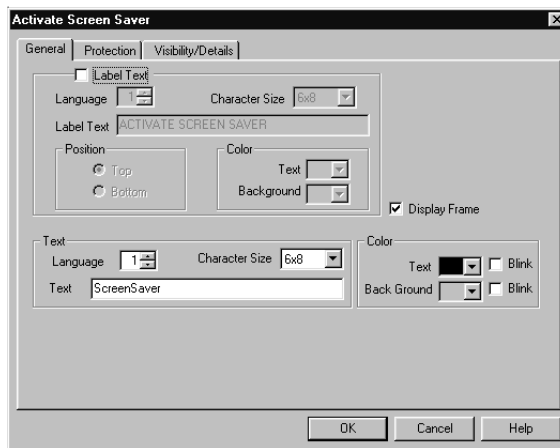
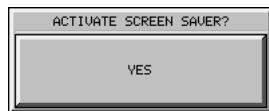
- To size the object, select it, grab a handle and drag to the size you want.
- To move the object, select it, click and hold left mouse button and drag to where you want it to appear on the screen.



Activate Screen Saver

The **Activate Screen Saver** object allows you to place a button on the screen that enables you to activate the panel screen saver. (Screen Saver time-out is programmed under Setup > Project Attributes > General Tab > Display Saver.)

To put a Label on the object, perform the following steps:



1. Click on the box in front of **Label Text** if you want a label for your object.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See Language section, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.

5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the object to be visible, click on the box to deselect (the box will be empty).

Enter Text for the button object:

Choose the Language, Character Size, Color of Text and Background, and whether or not you want to enable the Blink feature for the text that will appear within the button. Enter the Text that you want to appear.

Protection (See *Button Object*.)**Visibility/Details (See *Button Object*.)****OK/Cancel/Help Buttons**

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

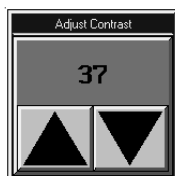
Place Screen Saver object on the screen and size it.

- To size the object, select it, grab a handle and drag to the size you want.
- To move the object, select it, click and hold left mouse button and drag to where you want it to appear on the screen.

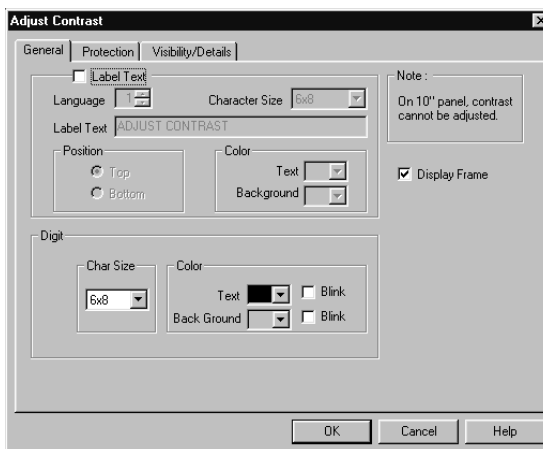


Adjust Contrast

Use the **Adjust Contrast** object to place a button on the PowerPanel screen that gives you access to the panel's adjust contrast feature. Use the UP and DOWN arrows that appear on the button to adjust the screen contrast. The current setting will appear on the button above the arrows and will change as you press the arrow keys.



NOTE: Contrast cannot be adjusted on 10-inch PowerPanels.



To put a Label on the Adjust Contrast object, perform the following steps:

1. Click on the box in front of **Label Text** if you want a label for your object.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See Language section, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the object to be visible, click on the box to deselect (the box will be empty).

Select Digit Format:

This allows you to program characteristics of the current contrast setting that will display on the button. The current setting will appear on the button above the UP and DOWN arrows. Use the arrows to increment or decrement the setting. Select the **Size** and **Color** of the characters (**Text**) and whether or not they will **Blink**, and set the color of the button **Background** and whether or not it will **Blink**.

Protection (See *Button Object*.)

Visibility/Details (See *Button Object*.)

OK/Cancel/Help Buttons

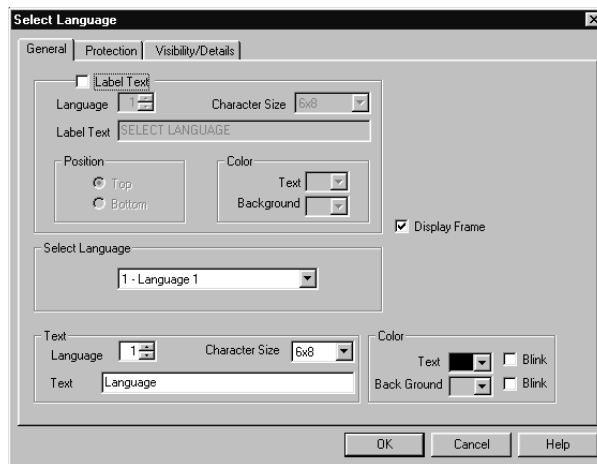
- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

Place Adjust Contrast Object on the screen and size it.

- To size the object, select it, grab a handle and drag to the size you want.
- To move the object, select it, click and hold left mouse button and drag to where you want it to appear on the screen.

**Select Language**

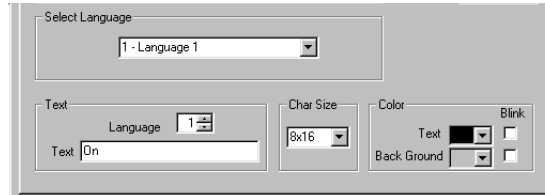
The **Select Language** object allows the operator to change the Language by pressing a button on the PowerPanel. Text that has been programmed for that language will convert to the language that the operator selects. If an object's text has not been programmed for the language selected, it will default to Language 1.

**To put a Label on the Select Language object, perform the following steps:**

1. Click on the box in front of **Label Text** if you want a label for your object.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See Language section, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.

6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the object to be visible, click on the box to deselect (the box will be empty).

Select Language that you want to switch to.



Languages are named under Setup > Project Attributes > Language tab.

Enter Text for the button object:

Choose the Language, Character Size, Color of Text and Background, and whether or not you want to enable the Blink feature for the text that will appear within the button. Enter the Text that you want to appear.

Protection (See *Button Object*.)

Visibility/Details (See *Button Object*.)

OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

Place Select Language object on the screen and size it.

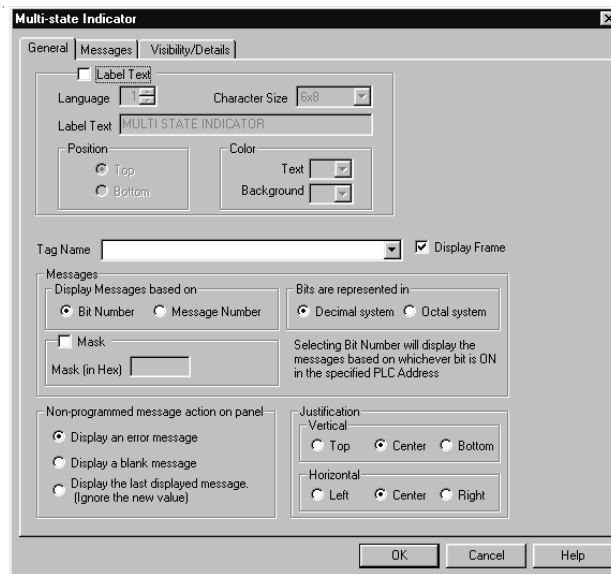
- To size the object, select it, grab a handle and drag to the size you want.
- To move the object, select it, click and hold left mouse button and drag to where you want it to appear on the screen.

Multi-state Indicator



Multi-state Indicator is an object that is created to display preprogrammed messages within a frame on the PowerPanel screen. Each object has preprogrammed messages that are stored in the object itself. In other words, Messages are stored in the object, **not** the Message Database. It displays one message at a time based on a bit (the one that is set), or a value in the tag. The maximum number of messages that can be programmed is 255. Click on the Messages tab to program messages in the database.

Messages designed in the Database are numbered based on the tag data type. If the Value corresponding to the Tag Name is 10, Message Number 10 will be displayed within the Multi-state Indicator Text Frame.



To put a Label on the Multi-state Indicator object, perform the following steps:

1. Click on the box in front of **Label Text**.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See section on Language, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.

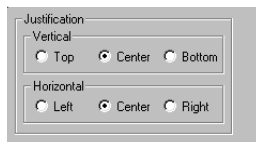
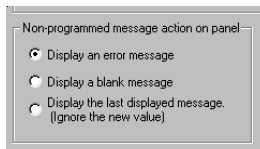
Display Frame is selected by default. If you do not want the frame around the object to be visible, click on the box to deselect (the box will be empty).



NOTE: To edit the Address String, with your cursor in the Tag Name field, click on the right mouse button. The EDIT TAG DETAILS screen will appear.



Please note: Selecting Bit Number will display the messages based on whichever bit is ON in the tag. Selecting Message Number will display the messages based on the tag value.



Enter a Tag Name:

1. Enter a **Tag Name** or click on the down arrow and select the Tag Name from the available choices.
2. If the Tag Name is new, the **Add New Tag Details** dialog box will appear where you will enter tag details. The **Tag Name** will appear in the first field. Enter an **Address String** appropriate for your type PLC and select the **Data Type** (from available choices). Click on the **OK** button.

Choose how Messages will be displayed:

Messages can be displayed based on bit (only 1 bit at a time in Bit Mode — if more than 1 it will error), or based on a value in the tag. The maximum number of messages that can be programmed for an object depends on the tag data type.

1. Under **Messages**, select to **Display messages based on Bit Number** or **Message Number**.
2. If displaying messages based on Bit Number and you only want certain bits in a register to be used, click on the box in front of **Mask**. Then enter the HEX value in the field provided — **Mask (HEX)** — for the bits that you want to use. These will be the only active bits used by the object. This option is not available (grayed out) if you choose to display messages based on message number.
3. If you chose **Bit Number**, select either **Bits are represented in Decimal system** or in **Octal system**.
4. Next you will choose the **Non-programmed message action on panel**. If a value or a message number is sent to the panel that does not have a valid programmed message associated with it, an error message will display by default (**Display an error message** is selected). You may choose instead to have the panel **Display a blank message**, or **Display the last displayed message (ignore the new value)**.
5. Select **Justification of Text**: This is a local attribute for each Multi-State Indicator object. So, a message in one object can be left justified within the frame while in another object, it can be right justified. Select the **Horizontal** and **Vertical** justification for the text as it will appear within the frame when displayed on the panel.

Enter Message and Attributes:

Messages created in each Multi-state Indicator object are saved in the object. (Only the Lookup Text object uses the project Message Database.)

The first column will either be titled Msg# or Bit # depending on what you selected previously.

[illegible]

1. Click on the **Messages** Tab.
2. Click on the **Add/Edit Message** button. If you have selected to **Display Messages based on “Bit Number”** (under the **General** tab), the dialog box shown to the left will appear. (See Step 3, below, if you are displaying a message based on message number.)
 - a. Select the **Message Number** that you want to display (Decimal: DEFAULT or 0–15 for 16-Bit Address, 0–31 for 32-Bit Address. Octal: DEFAULT or 0–17 for 16-Bit Addresses or 0–37 for 32-Bit Address). A DEFAULT Message can be programmed that will display if NO bit is ON in the register address. If you choose not to program a DEFAULT message, an error message will display on the panel if NO bit is ON (If you don't want error messages to display, you must deselect the **Display Error Message** option under the **General** tab.)
 - b. Under **Limits**, select the **Text Color** and the **Background Color** and whether or not they will **Blink**.
 - c. Select the **Character Size** from the available choices.
 - d. Click on the box in front of **Print this Message** if you want the message to print when triggered. (See note to the left.)
 - e. Click on the box in front of **Send Message to PMD Marquee/Slave** if you want this message to be send to a slave device. Enter or select the **Group** and **Unit Number (0–4095)** of the slave device.
 - f. Select the **Language Number (1–9)**.
 - g. Enter the **Message Text** (up to 200 characters) for the message you are creating, or edit the text of the Message Number selected, above.

Add New Message #DEFAULT [X]

Message Number: **DEFAULT**

☒ Limits ☐ Blink Char Size: **6x8**

Background Color: ☐ Blink ☐ Print this Message

☒ Send Message To PMD Marquee / Slave

Group Number: **0** Unit Number (0 - 4095): **0**

Message Text

Language: **1**

Press F7 to embed a data variable.
Press CTRL-ENTER to go to next line of this message.

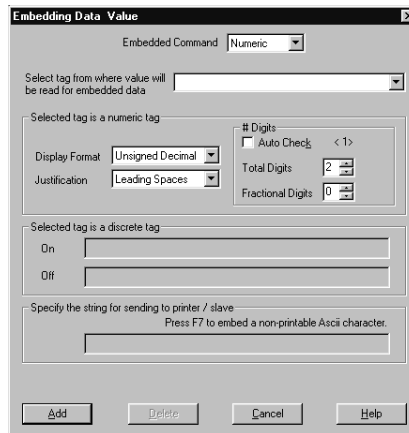
Help &Add New Message Close



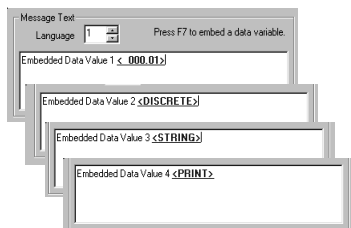
Please Note: To set the printer parameters, see page 195, Project Attributes, Printer tab. To set the PowerPanel COM1 port to "Printer," see Appendix D.



- h. Press the **F7** function key on your keyboard to **embed a data value** within the message. (See Step 4, below, for more information on embedding a data value.)
3. Click on the **Add/Edit Message** button. If you have selected to **Display Messages based on "Message Number"** (under the **General** tab), the dialog box shown to the left will appear.
 - a. Enter a **Message Number** consistent with the Data Type selected (Signed, Unsigned, BCD).
 - b. Under **Limits**, select the **Text Color** and the **Background Color** and whether or not they will **Blink**.
 - c. Select the **Character Size** from the available choices.
 - d. Click on the box in front of **Print this Message** if you want the message to print when triggered.
 - e. Click on the box in front of **Send Message to PMD Marquee/ Slave** if you want this message to be send to a slave device. Enter or select the **Group** and **Unit Number (0–4095)** of the slave device.
 - f. Select the **Language Number (1–9)**.
 - g. Enter the **Message Text** (up to 200 characters) for the message you are creating, or edit the text of the Message Number selected, above.
 - h. Press the **F7** function key on your keyboard to **embed a data value** within the message. (See next step to embed a data value.)
4. The following dialog box will appear when you press F7 to embed a data value within a message.

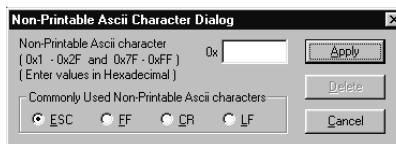


Special characters in the message determine where the embedded data from the registers should go. Up to four data values may be embedded in a single message. Program how the data value will be displayed as follows:



Embedded data values are represented as shown above in the message where they are programmed. They will be replaced with the actual value when displayed in the message on the panel. Up to 4 embedded data values may be programmed in each message.

- a. Select the **Embedded Command** that determines the type of value to embed. Available choices are **Discrete**, **Numeric**, **String**, **Printer**, and **Slave**. Depending on what type command you choose, certain areas of the dialog box become available or unavailable (grayed out) for selection or data entry.
- b. If you choose **Discrete**, **Numeric**, or **String**, select or enter the Tag name where the data value will be read by clicking in the field or on the down arrow next to **Select tag from where value will be read for embedded data**.
- c. If you have selected **Numeric**, the options under **Selected tag is a numeric tag** will be enabled.
- d. Select **Display Format** from the available choices.
- e. Select **Justification** from **Leading Zeroes**, **Leading Spaces**, or **Trailing Spaces**.
- f. Under **# Digits**, click on the box in front of **Auto Size** if you want to have the panel automatically determine the number of digits to be placed for the embedded value. **Total Digits** and **Fractional Digits** will be disabled if you choose **Auto Size**.
- g. Also, under **# Digits**, you may enter the **Total Digits** that you want to display, and enter the **Fractional Digits** you want to display (leave at default, 0, if you do not want fractional digits).
- h. If you have selected **Discrete**, the fields under **Selected tag is a discrete tag**, will be available. Enter the text that you want to appear within the message when the Discrete register is **ON** and when the Discrete register is **OFF**.
- i. If you have selected **Printer** or **Slave** under **Embedded Command**, the field, **Specify string for sending to printer**, will be available.
- j. Enter the ASCII string that you want to send to the printer.
- k. To embed a **non-printable ASCII character**, click in the field where you want it to appear and press F7. The following dialog box will appear.



- l. Enter values in Hexadecimal in field next to **0x**, or you may click in front of **ESC** (for escape), **FF** (form feed), **CR** (carriage return), or **LF** (line feed) to embed these commonly used printer commands.



PLEASE NOTE: Consult your printer manual for appropriate printer ASCII character commands.

Slave devices include any of UTICOR's Slave PMDs (Programmable Message Displays) or Slave Marquees.

- m. Click on **Apply** to enter your selections. You will exit the **Non-Printable ASCII Character** dialog and return to the **Embedding Data Value** dialog.
- n. The ASCII characters will appear in blue, and underlined, in the printer string field (example shown below.)

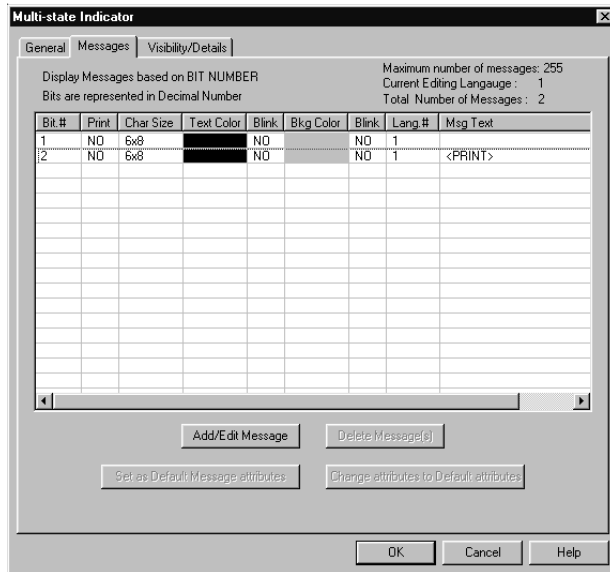
- o. Press the **Add** button to add the embedded data to the message. You will return to the **Add New Message** dialog. When inserted in a message, each **Embedded Data Value** will be represented in blue, and underlined, as shown below.

This example shows how an embedded printer command will be represented in a message

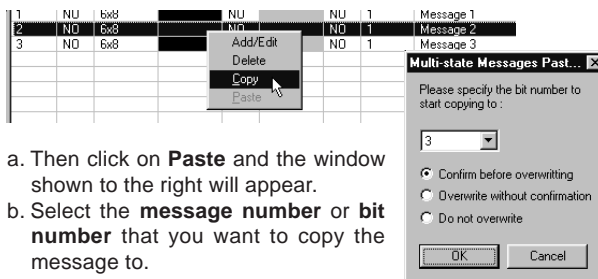
**PROGRAMMING TIP:**

If you want the Multi-state Indicator object to act as a Multi-state Indicator "Light," simply create your Messages with different Background Colors and no Message Text. Use the Blink feature to draw the operator's attention!

5. You may continue to add messages or click on the **Close** button to return to the **Messages** tab dialog. Your programmed messages will display in the list.



6. If you want a programmed message's attributes to become the default for all new messages created, click on the message in the list (to highlight) and then click on the **Set as Default Message Attributes** button.
7. If you want to change a programmed message to the current default attributes, click on the message in the list and then click on the **Change Attributes to Default Attributes** button.
8. To copy a Message, click on it in the list to highlight and then right click your mouse. A popup menu will appear. Click on **Copy**.



- a. Then click on **Paste** and the window shown to the right will appear.
- b. Select the **message number** or **bit number** that you want to copy the message to.

When you have selected the Confirm before overwriting option, the following message will appear. Click on YES, to replace message, or No to cancel the overwrite.



- c. You may also choose to have the software **Confirm before overwriting**, **Overwrite without confirmation**, or **Do not overwrite** (a message). Click on the radio button in front of the option you want to enable.
- d. Check to ensure that you have made the proper selections and then click **OK** to accept, or **Cancel** to quit without copying.
- e. You can make changes to the message you have copied by clicking on it and then selecting **Add/Edit**.

Visibility/Details (See Button Object.)

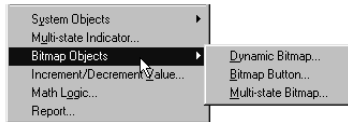
OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

Place Multi-state Indicator object on the screen and size it.

- To size the object, select it, grab a handle and drag to the size you want.
- To move the object, select it, click and hold left mouse button and drag to where you want it to appear on the screen.

Bitmap Objects

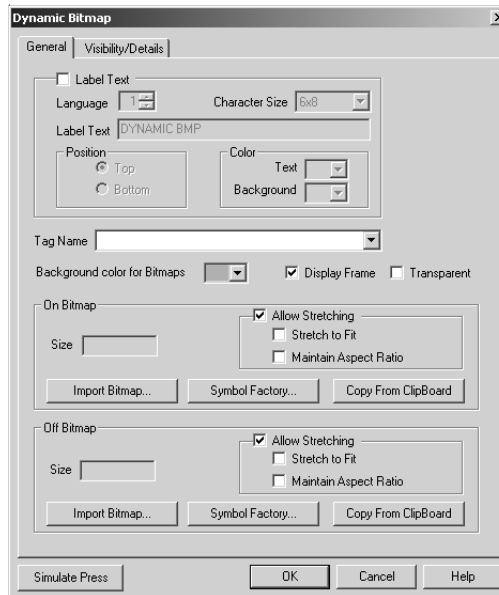


Bitmap Objects allow you to create simple to complex objects. You can use the extensive built-in **Symbol Factory** library to copy and paste hundreds of graphic files directly to the project screen. You can also use your own Bitmap (.BMP), Windows Metafile (.WMF), Enhanced Windows Metafile (.EMF), Graphics Interchange Format (.GIF), JPEG File Interchange Format (.JPG), or Windows Icon (.ICO) graphic files. They can be arranged and positioned in just about any manner you prefer to represent your application functions or processes.



Dynamic Bitmap Object

A **Dynamic Bitmap** can show a visual representation of a process. There are two bitmaps per object, one that is shown when a bit is ON and another that is displayed when the bit is OFF. For example, you could create a green blower and a red blower to display. If the process is running, the green blower would be shown. If the process is not running, the red blower would be displayed.



PLEASE NOTE: If you select **Label** for this object, the **Display Frame** and **Transparent** options will be disabled.

To put a **Label** on the **Dynamic Bitmap** object, perform the following steps:

1. Click on the box in front of **Label Text** if you want a label for your object. (See note to the left.)
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See Language section, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.



NOTE: To edit the Address String, with your cursor in the Tag Name field, click on the right mouse button. The EDIT TAG DETAILS screen will appear.



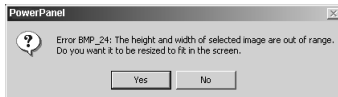
PLEASE NOTE:
You can import these different graphic file formats: .BMP, .WMF, .EMF, .JPG, .GIF or .ICO.



PLEASE NOTE:
(IMPORT BITMAP option) To size a Bitmap once it has been placed on the screen, click on it to select, grab one of the handles and drag to the size you want.



PLEASE NOTE:
(SYMBOL FACTORY option) To SIZE a symbol in Symbol Factory, go to Options in the Symbol Factory when selecting the symbol. (See instructions on page 161.)



6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.

To create On Bitmap and Off Bitmap:

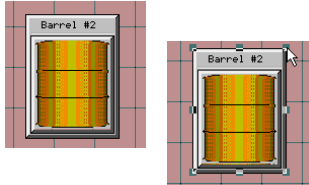
1. Enter a **Tag Name** or click on the down arrow and select the Tag Name from the available choices.
2. If the Tag Name is new, the **Tag Entry** dialog box will appear where you will enter tag details. The **Tag Name** will appear in the first field. Enter an **Address String** appropriate for your type PLC. Click on the **OK** button.
3. Select **Background color for Bitmaps**. Click on the down arrow to view the color palette. Select the color for the background of the Bitmap object.
4. Select whether or not you want to **Display Frame** (selected by default) around the bitmap and whether or not you want the Background to be **Transparent**.
5. Under **On Bitmap** or **Off Bitmap** (the On Bitmap is the one that is triggered to display when the bit is ON, the Off Bitmap is triggered to display when the bit is OFF).
6. Click on the box in front of **Allow Stretching**, for the On Bitmap and/or the Off Bitmap if you want the bitmap to stretch to fit the area of the object as you size it on the screen. Choose from the following two options: **Stretch to Fit** or **Maintain Aspect Ratio**.
7. There are three choices for bringing a bitmap into the object, they are:
 - a. Click on the **Import Bitmap** button and a window will appear allowing you to navigate to the directory/folder where the bitmap file resides. Click on it to highlight and click on the **Open** button. The **File Name** and **Size** of the Bitmap will be displayed.
If the graphic file is too large, you will be asked if you want it to be resized to fit the screen (see message to the left).
 - b. You may also click on **Symbol Factory®** to gain access to a library of over 3,000 symbols for industrial automation, including pumps, pipes, valves, tanks, mixers, motors, ducts, electrical symbols, flow meters, material handling, sensors, PLCs, transmitters, and ISA symbols. Once in Symbol Factory, navigate to the symbol you want to import, click on Copy and the symbol is automatically imported into the object.
 - c. The third option is to click on **Copy from Clipboard**. This will copy a bitmap you have saved to the clipboard onto the current screen. You can copy a bitmap saved or created in another program onto the system clipboard, and then import it into the current screen.

Visibility/Details (See *Button Object*.)

Simulate Press

Press the **Simulate Press** button to see how the Dynamic Bitmap object will be displayed on the screen when pressed.

Click on the bitmap to highlight, grab a handle with the cursor and drag to size the object

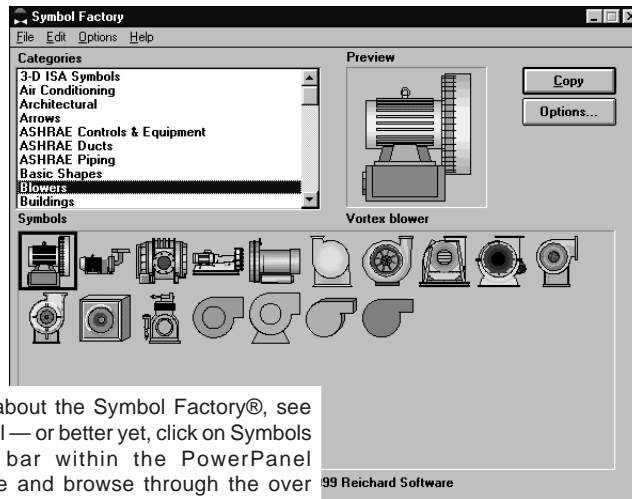


OK/Cancel/Help Buttons

- Click on **OK** button to save your selections, exit the dialog box, and place the object on the screen.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

Place Dynamic Bitmap on the screen and size it.

- To size the bitmap, select it, grab a handle and drag to the size you want.
- To move the bitmap object, select it, click and hold left mouse button and drag to where you want it to appear on the screen.

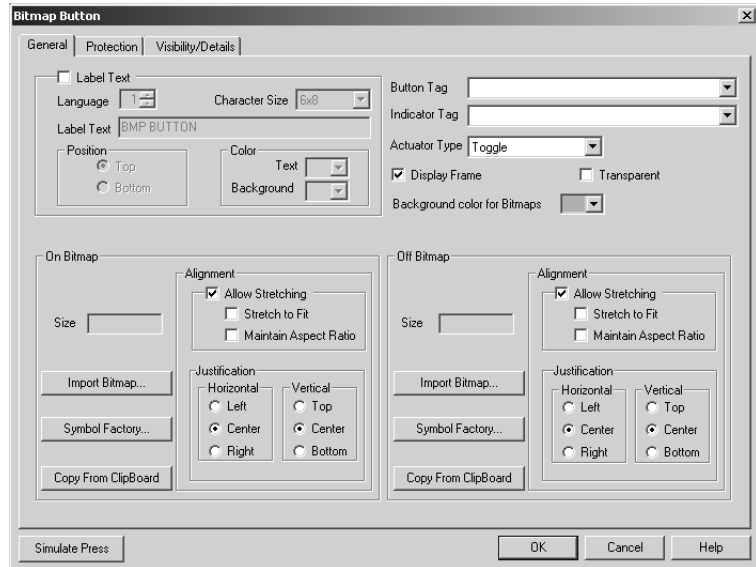


For more information about the Symbol Factory®, see page 170, in this manual — or better yet, click on Symbols on the main menu bar within the PowerPanel Programming Software and browse through the over 3,000 symbols to see for yourself what is available (and how simple it is) to use in building dynamic PowerPanel screens!



Bitmap Button

A **Bitmap Button** is a touch object that combines functions of a button, a Dynamic Bitmap, and an Indicator Light. It allows you to perform a WRITE operation to one bit and a READ operation from a second discrete location. The state of that READ location determines whether the button is displayed in the ON or OFF mode. You may choose to make the READ and WRITE location the same.



PLEASE NOTE: If you select *Label for this object*, the *Display Frame* and *Transparent* options will be disabled.

To put a Label on the Bitmap Button, perform the following steps:

1. Click on the box in front of **Label Text** if you want a label for your object. (See note to the left.)
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See Language section, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.



NOTE: To edit the Address String, with your cursor in the Tag Name field, click on the right mouse button. The **EDIT TAG DETAILS** screen will appear.

Enter a Tag Names:

1. Enter a **Tag Name** or click on the down arrow and select the Tag Name that you want the Button (tag) and the Indicator (tag) to correspond to.
2. If the Tag Name is new, the **Add New Tag Details** dialog box will appear where you will enter tag details. The **Tag Name** will appear in the first field. Enter an **Address String** appropriate for your type PLC. Click on the **OK** button.



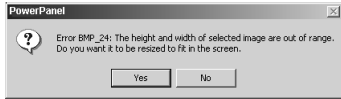
PLEASE NOTE: If you select *Momentary ON* or *Momentary OFF*, the PLC must set bit to proper state on powerup. This must be done when programming PLC Logic.

3. Select from the **Actuator Type**. Actuator Type determines how the tag will be controlled. **If you have assigned Password Protection for this object and select Momentary On or Momentary Off, the protection feature will not be enabled.**

- **Momentary On** will turn the tag on for as long as you touch the button. (Password Protection is disabled.)
 - **Momentary Off** will turn the tag off for as long as you touch the button. (Password Protection is disabled.)
 - **Set On** will latch the tag ON.
 - **Set Off** will latch the tag OFF.
 - **Toggle** will change the state of the tag every time the button is pressed.
4. Select **Background color for Bitmaps**. Click on the down arrow to view the color palette. Select the color for the background of the Bitmap Button.
 5. Select whether or not you want to **Display Frame** (selected by default) around the bitmap and whether or not you want the Background to be **Transparent**. (These options are not available if you have selected a Label for this object.)

To create On Bitmap and Off Bitmap:

1. Under **On Bitmap** or **Off Bitmap** (the On Bitmap is the one that is triggered to display when the bit is ON, the Off Bitmap is triggered to display when the bit is OFF).
2. Select the **Alignment** parameters for the bitmap. If you want the bitmap to stretch when the object is sized on the screen, make sure that the box in front of **Allow Stretching** is checked and then select **Stretch to Fit** or **Maintain Aspect Ratio**. Select the **Justification** for the bitmap within the object.



3. You have three choices for bringing a bitmap into the object, they are:
 - a. Click on the **Import Bitmap** button and a window will appear allowing you to navigate to the directory/folder where the bitmap file resides. Click on it to highlight and click on the **Open** button. The **Size** of the Bitmap will be displayed. If the graphic file is too large, you will be asked if you want it to be resized to fit the screen (see message to the left).
 - b. You may also click on **Symbol Factory®** to gain access to a library of over 3,000 symbols for industrial automation, including pumps, pipes, valves, tanks, mixers, motors, ducts, electrical symbols, flow meters, material handling, sensors, PLCs, transmitters, and ISA symbols. Once in Symbol Factory, navigate to the symbol you want to import, click on Copy and the symbol is automatically imported into the object.
 - c. The third option is to click on **Copy from Clipboard**. This will copy a bitmap you have saved to the clipboard onto the current screen. You can copy a bitmap saved or created in another program onto the system clipboard, and then import it into the current screen.

Visibility/Details (See *Button Object*.)

Simulate Press

Press the **Simulate Press** button to see how the Bitmap Button will be displayed on the screen when pressed.

OK/Cancel/Help Buttons

- Click on **OK** button to save your selections, exit the dialog box, and place the object on the screen.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

Place Bitmap Button on the screen and size it.

- To size the button, select it, grab a handle and drag to the size you want.
- To move the button object, select it, click and hold left mouse button, and drag to where you want it to appear on the screen.



Multi-state Bitmap

Multi-state Bitmap is an object that is created to display images within a frame on the PowerPanel screen. Each object has its own programmed images. The object will display one image at a time based on a bit (the one that is set), or a value in the tag. The maximum number of images that can be programmed is based on available memory. Click on the Images tab to program images for the object.

Images stored in the object are numbered based on the Tag Data type (Signed, Unsigned, BCD). If the Value corresponding to the Tag Name is 10, Image Number 10 will be displayed within the Multi-state Bitmap image frame. Keep in mind that the number of images that you can program are limited by available memory.



Please Note: If you convert images from one to the other type of display (Bit Number, Image Number), you may lose some of the programmed images during the conversion.

To put a Label on the Multi-state Bitmap object, perform the following steps:

1. Click on the box in front of **Label Text**. (See note to the left.)
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See section on Language, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.



PLEASE NOTE: If you select Label for this object, the Display Frame and Transparent options will be disabled.

Display Frame is selected by default. If you do not want the frame around the image to be visible, click on the box to deselect (the box will be empty). NOT AVAILABLE if **Label** is selected.



NOTE: To edit the Address String, with your cursor in the Tag Name field, click on the right mouse button. The EDIT TAG DETAILS screen will appear.

Enter a Tag Name:

1. Enter a **Tag Name** or click on the down arrow and select the Tag Name from the available choices.
2. If the Tag Name is new, the **Add New Tag Details** dialog box will appear where you will enter tag details. The **Tag Name** will appear in the first field. Enter an **Address String** appropriate for your type PLC and select the **Data Type** (from available choices). Click on the **OK** button.

Choose how Images will be displayed and other Image options:

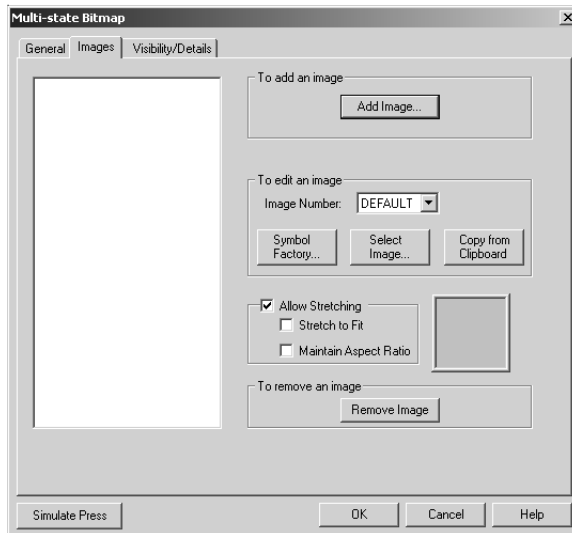
Images can be displayed based on bit (whichever is set), or based on a value in the tag. The maximum number of Images that can be programmed for an object depends on the available memory and/or tag data type.

1. Under **Images**, select to **Display images based on Bit Number** or **Image Number**.
2. If you chose **Bit Number**, select either **Bits are represented in Decimal System** or in **Octal System**.
3. If you only want certain bits in a register to be used, click on the box in front of **Mask**. Then enter the HEX value in the field provided — **Mask (HEX)** — for the bits that you want to use. These will be the only active bits used by the object. For a number based bitmap/message the masked value is zero-justified, e.g., a mask of C0 allows message number 0-3.
4. Select **Background** Attributes of bitmap: This is a local attribute for each Multi-state Bitmap object. Click on the down arrow next to **Color** to select the background color from the available selections.
5. Choose whether or not you want the background to be **Transparent** when it appears on the panel.
6. Next you will choose the **Non-programmed bitmap action on panel**. If a value or a image number is sent to the panel that does not have a valid programmed image associated with it, an error message will display by default (**Display an error message** is selected). When Bit Number is selected as the Display Image option, only one bit at a time is used — if more than one is triggered, an error message is displayed. You may choose instead to have the panel **Display a blank bitmap**, or **Display the last displayed bitmap (ignore the new value)**.

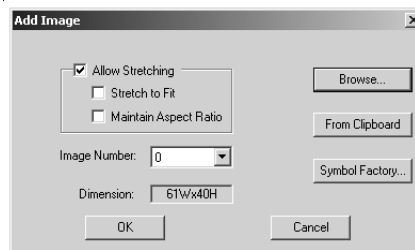
Program Images:

Images programmed to display in the Multi-state Bitmap object are saved in the object's own Image database. To program images, perform the following steps:

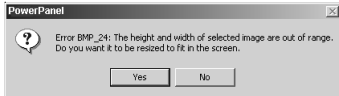
1. Click on the **Images** tab, the following dialog box will open.



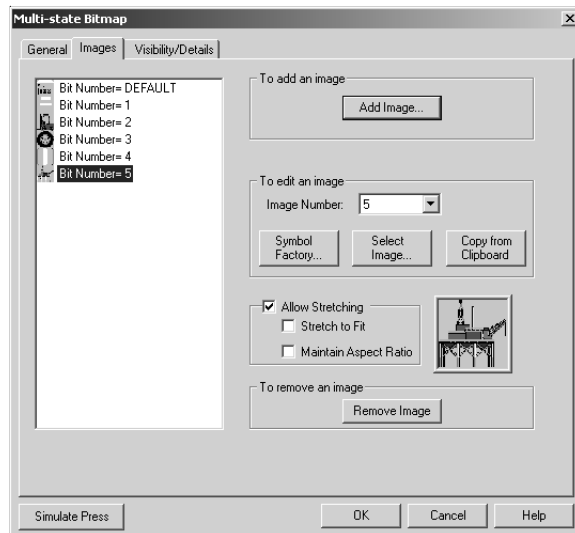
2. To add an image, click on the **Add Image...** button. The following dialog box will open.



3. Click on the box in front of **Allow Stretching** if you want the bitmap to stretch with the object when sized. Choose how you want the image to stretch from the options **Stretch to Fit**, or **Maintain Aspect Ratio**.
4. Select an **Image Number**. If displaying images by Bit Number, you may program up to 17 (0–15, and the **DEFAULT** image) images for an object. The **DEFAULT** image is displayed when no bits are on.



5. Select from the 3 available options, **Browse...**, **From Clipboard**, or **Symbol Factory...**
 - a. If you click on the **Browse** button, a window will appear allowing you to navigate to the directory/folder where the bitmap file resides. Click on it to highlight and click on the **Open** button.
 - b. Click on **From Clipboard**. This will copy a bitmap you have saved to the clipboard onto the current screen. You can copy a bitmap saved or created in another program onto the system clipboard, and then import it into the current screen.
 - c. You may also click on **Symbol Factory®** to gain access to a library of over 3,000 symbols for industrial automation, including pumps, pipes, valves, tanks, mixers, motors, ducts, electrical symbols, flow meters, material handling, sensors, PLCs, transmitters, and ISA symbols. Once in Symbol Factory, navigate to the symbol you want to import, click on Copy and the symbol is automatically imported into the object.
6. The size of the bitmap you have selected will appear in the field next to **Dimensions**. If the graphic file is too large, you will be asked if you want it to be resized to fit the screen (see message to the left).
7. Click on **OK** to save or **Cancel** to close without saving.
8. To edit an image, click on the **Image** in the list to highlight it. The number of the image will appear in the **Image Number** field. A thumbnail view of the image will also appear as shown in the example below.



9. You may then click on the **Symbol Factory**, **Select Image**, or **Copy from Clipboard** buttons to select or import another bitmap.

10. To delete an image from the list, click on it to highlight, and then click on the **Remove Image** button.
11. Click on **OK** to save or **Cancel** to close window without saving.

Visibility/Details *(See Button Object.)*

Simulate Press

Press the **Simulate Press** button to see how the Multi-state Bitmap object will be displayed on the screen when pressed.

OK/Cancel/Help Buttons

- Click on **OK** button to save your selections, exit the dialog box, and place the object on the screen.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

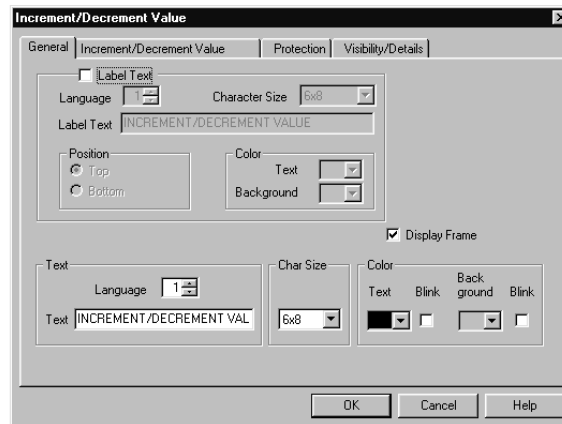
Place Multi-state Bitmap object on the screen and size it.

- To size the object, select it, grab a handle and drag to the size you want.
- To move the object, select it, click and hold left mouse button, and drag to where you want it to appear on the screen.

Increment/Decrement Value Object



The **Increment/Decrement Value Object** allows you to configure a button, that when pressed, will Add or Subtract from a value using two tags and a programmed value. You will be able to Read a value in the first tag and then Write to another using the value you have programmed to increment or decrement that register value.



To put a Label on the Increment/Decrement Value object, perform the following steps:

1. Click on the box in front of **Label Text** if you want a label for your object.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See Language section, page 221.)
3. Select **Character Size** from the available sizes.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the object to be visible, click on the box to deselect (the box will be empty).

Enter Text:

Here you will enter the Text that will appear within the touch object, and control how that text will appear.

1. Select the **Language** number (1–9) for the **Text**.
2. Type in what you want to appear within the button.
3. Select **Character Size** from the available choices.
4. Select the **Color** of the **Text** and the **Color** of the **Background**.
5. If you want the **Text** or the **Background** to **Blink**, click on the box below **Blink** to place a check mark indicating that the option is enabled.

To program the Increment/Decrement Value operation:



NOTE: To edit the Address String, with your cursor in the Tag Name field, click on the right mouse button. The EDIT TAG DETAILS screen will appear.

1. Click on the **Increment/Decrement Value** tab.
2. Enter a **Read from Tag** or click on the down arrow and select the Tag Name that you want the button to correspond to.
3. If the Tag Name is new, the **Add New Tag Details** dialog box will appear where you will map the tag. The **Tag Name** will appear in the first field. Enter an **Address String** appropriate for your type PLC. Click on the **OK** button.
4. Under **Do**, click on the down arrow next to the **Operation** field and select **+ (ADD)** or **– (SUBTRACT)**. Select **+ (ADD)** if you want to increment a register value, or select **– (SUBTRACT)** if you want to decrement a value.
5. Select your **Data Format** (type) from the available choices (Signed Decimal, Unsigned Decimal, Octal, Hex, BCD, or Floating Point).
6. Enter the **Value**. This value will be either added to or subtracted from (depending on which operation you have chosen) the destination tag, each time you press the INC/DEC Value object button.
7. Select or enter the **Write to Tag**. (The **Write to Tag** may be the same as the **Read from Tag**.)

Protection (See *Button Object*.)

Visibility/Details (See *Button Object*.)

OK/Cancel/Help Buttons

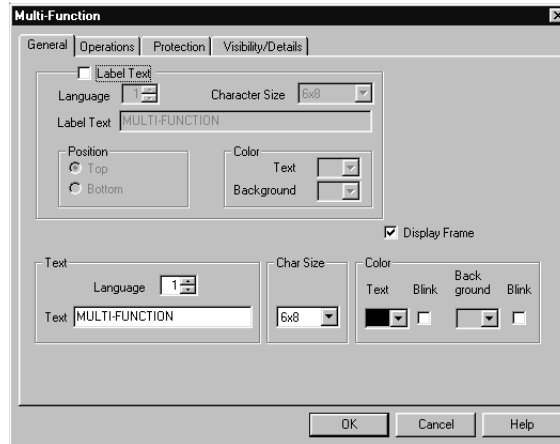
- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

Multi-function Object



Important NOTE: If overlapping this object, the maximum number of tags that can be written to is 40.

The **Multi-function Object** allows you to configure a button, that when pressed, will perform a Boolean or Arithmetic operation using two tags and will store the result in a third tag. The operations supported are **+** (ADD), **-** (SUBTRACT), ***** (MULTIPLY), **/** (DIVIDE), **%** (MODULO), **~** (NEGATE), **!!** (ABSOLUTE), (ROUND), **&**(AND), **I** (OR), **~I** (XOR), **!** (NOT), **<<** (LEFT SHIFT), **>>** (RIGHT SHIFT), and (MOVE).



To put a Label on the Multi-function object, perform the following steps:

1. Click on the box in front of **Label Text** if you want a label for your object.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See Language section, page 221.)
3. Select **Character Size** from the available sizes.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the object to be visible, click on the box to deselect (the box will be empty).

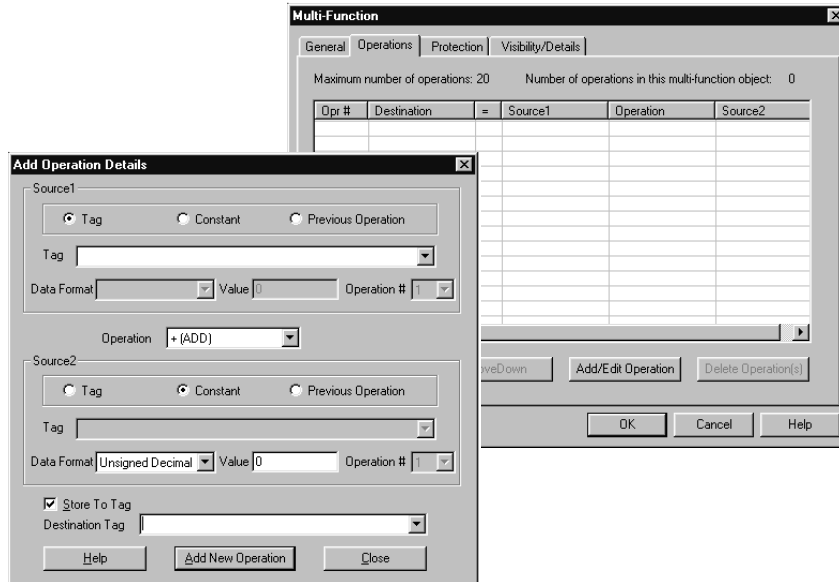
Enter Text that will appear on the button.

Here you will enter the Text that will appear within the touch object, and control how that text will appear.

1. Select the **Language** number (1–9) for the **Text**.
2. Type in what you want to appear within the button.
3. Select **Character Size** from the available choices.
4. Select the **Color** of the **Text** and the **Color** of the **Background**.
5. If you want the **Text** or the **Background** to **Blink**, click on the box below **Blink** to place a check mark indicating that the option is enabled.

Enter Math Logic Operation.

1. Click on the **Operations** tab, and then click on the **Add/Edit Operation** button. The following dialog box will appear.



2. Under **Source 1**, select whether the value will be read from a **Tag**, or will be a **Constant**, or a **Previous Operation**. (**Previous Operation** is not available for the first operation you program.)
 - a. If you select **Tag**, you must select or enter a tag.
 - b. If you select **Constant**, you must enter the **Data Format** (Signed Decimal, Unsigned Decimal, Octal, Hex, BCD or Floating Point) and then enter a **Value**. The Value must match the Data Format.
 - c. If you select **Previous Operation**, you must choose the number of a previous programmed operation. The resulting value of the previous operation will be used in the current operation. You cannot skip numbers or enter a number that has not been programmed (i.e., if you have programmed operations 1 through 6, you cannot choose 7!)
3. Now you will select the **Operation**. Click on the down arrow next to the Operation field to view options. Choose from **+** (ADD), **-** (SUBTRACT), ***** (MULTIPLY), **/** (DIVIDE), **%** (MODULO), **~** (NEGATE), **!!** (ABSOLUTE), **(ROUND)**, **&** (AND), **|** (OR), **~|** (XOR), **!** (NOT), **<<** (LEFT SHIFT), **>>** (RIGHT SHIFT), **(MOVE)**.

4. Certain operations do not require a second source. If you select these operations, the Source 2 field will be unavailable (grayed out). The are: ~ (**NEGATE**), **II** (**ABSOLUTE**), (**ROUND**), **!** (**NOT**), and (**MOVE**). If you select << (**LEFT SHIFT**), or >> (**RIGHT SHIFT**), the Tag field will be unavailable, Source 2 can only be a Constant.
5. Under **Source 2**, select the second value used in the math logic operation. Select **Tag**, **Constant**, or **Previous Operation**.
6. If you want to store the result of the Math Logic Operation in another location, ensure that the **Store to Tag** box is checked and then select the **Destination Tag**.
7. Click on the **Add/New Operation** button to accept selections/entries and go to next operation that you want to program. Click on **Close** to exit without adding operation.

Protection (See *Button Object*.)

Visibility/Details (See *Button Object*.)

OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

Report Object



The **Report Object** allows you to configure a button that, when pressed, will send a report to a printer or to a slave from the PowerPanel. Slaves can be any of UTICOR's Slave PMDs or Marquees.

To put a **Label** on the **Report** object, perform the following steps:

1. Click on the box in front of **Label Text** if you want a label for your object.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See Language section, page 221.)
3. Select **Character Size** from the available sizes.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the object to be visible, click on the box to deselect (the box will be empty).

Enter Text:

Here you will enter the Text that will appear within the touch object, and control how that text will appear.

1. Select the **Language** number (1–9) for the **Text**.
2. Type in what you want to appear within the button.
3. Select **Character Size** from the available choices.
4. Select the **Color** of the **Text** and the **Color** of the **Background**.
5. If you want the **Text** or the **Background** to **Blink**, click on the box below **Blink** to place a check mark indicating that the option is enabled.

Print Selections:

☐ Print Form Feed at the end of the page ☒ Print Report

Decide how you want the Report to print. Click in the box in front of **Print Form Feed at the end of the page**, if you want the form feed to print at the end of each page. Click in the box in front of **Print Report**, if you just want the report to print from the panel when triggered.

Send to PMD Marquee or Slave:

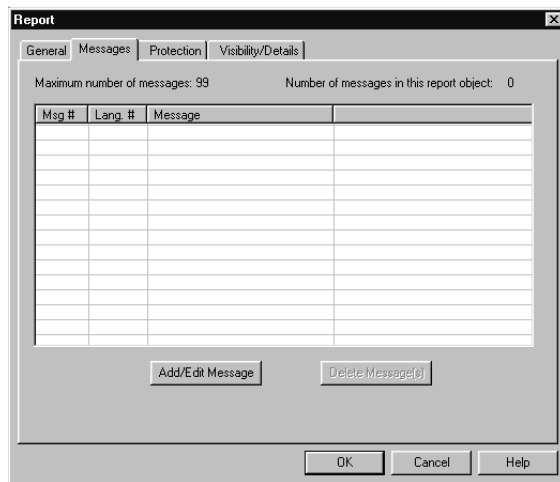
☐ Send Message To PMD Marquee / Slave

Group Number Unit Number (0 - 4095)

This option allows you to send the report Message to a PMD (Programmable Message Display) Marquee or Slave. Click in the box in front of **Send Message to PMD Marquee/Slave** to enable this function. Then enter the **Group Number** and **Unit Number (0-4095)** of the PMD or Slave that you want to send the message to.

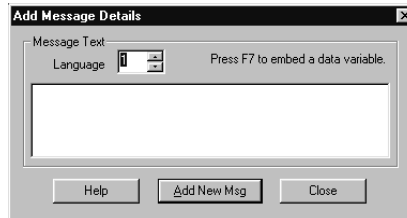
Report Messages:

1. Click on the **Messages** tab to view the following dialog.

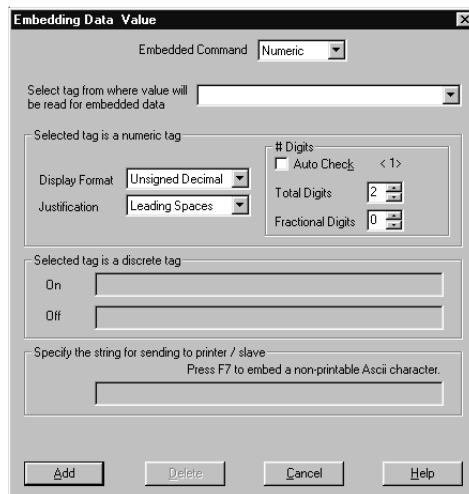


2. From this dialog box you can see the **Maximum number of Messages** (99, limited by memory) and the number of messages you have programmed for this report object (**Number of messages in this report object**). A list of programmed Messages is displayed showing the Message Number, Language Number, and Message Text.

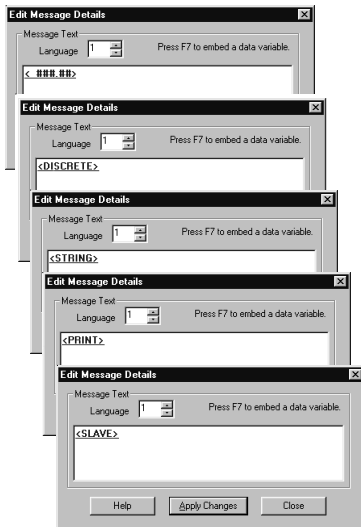
3. To add a message, click on the **Add/Edit Message** button. The following window will appear.



4. Select the **Language** Number (1–9).
5. Enter the **Message Text** (up to 200 characters) for the message you are creating, or edit the text of the Message Number you have selected previously.
6. Press the **F7** function key on your keyboard to **embed a data value** within the message. The following dialog box will appear.



7. Special characters in the message determine where the embedded data from the registers should go. Up to four data values may be embedded in a single message. Program how the data value will be displayed as follows:
 - a. Select the **Embedded Command** that determines the type of value to embed. Available choices are **Discrete**, **Numeric**, **String**, **Printer**, or **Slave**. Depending on what type command you choose, certain areas of the dialog box become available or unavailable (grayed out) for selection or data entry.

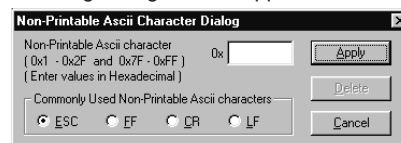


Embedded Data values are represented as shown above in the message where they are programmed. They will be replaced with the actual values (if applicable) when displayed in the message report on the panel. Up to 4 embedded data values may be programmed in each message.



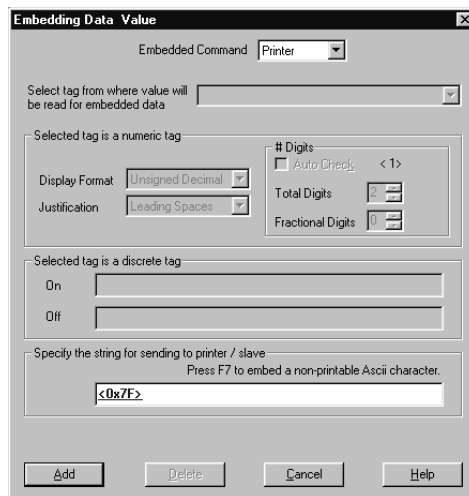
PLEASE NOTE: Consult your Printer or Slave manual for appropriate ASCII character commands.

- b. If you choose **Discrete**, **Numeric**, or **String**, select or enter the Tag name where the data value will be read by clicking in the field or on the down arrow next to **Select tag from where value will be read for embedded data**.
- c. If you have selected **Numeric**, the options under **Selected tag is a numeric tag** will be enabled.
- d. Select **Display Format** from the available choices.
- e. Select **Justification** from **Leading Zeroes**, **Leading Spaces**, or **Trailing Spaces**.
- f. Under **# Digits**, click on the box in front of **Auto Size** if you want to have the panel automatically determine the number of digits to be placed for the embedded value. **Total Digits** and **Fractional Digits** will be disabled if you choose **Auto Size**.
- g. Also, under **# Digits**, you may enter the **Total Digits** that you want to display, and enter the **Fractional Digits** you want to display (leave at default, 0, if you do not want fractional digits).
- h. If you have selected **Discrete**, the fields under **Selected tag is a discrete tag**, will be available. Enter the text that you want to appear within the message when the Discrete register in **ON** and when the Discrete register is **OFF**.
- i. If you have selected **Printer** or **Slave** under **Embedded Command**, the field, **Specify string for sending to printer/slave**, will be available.
- j. Enter the ASCII string that you want to send to the printer.
- k. To embed a **non-printable ASCII character**, click in the field where you want it to appear and press F7. The following dialog box will appear.



- l. Enter values in Hexadecimal in field next to **0x**, or you may click in front of **ESC** (for escape), **FF** (form feed), **CR** (carriage return), or **LF** (line feed) to embed these commonly used printer commands.

- m. Click on **Apply** to enter your selections. You will exit the **Non-Printable ASCII Character** dialog and return to the **Embedding Data Value** dialog.
- n. The ASCII characters will appear in blue, and underlined, in the printer string field (example shown below.)

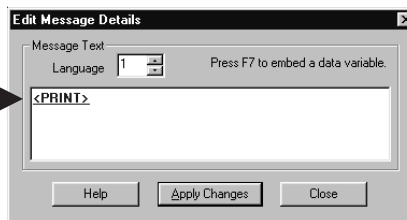


The **Embedding Data Value** dialog box contains the following elements:

- Embedded Command:** A dropdown menu set to **Printer**.
- Select tag from where value will be read for embedded data:** A text input field.
- Selected tag is a numeric tag:**
 - Display Format:** A dropdown menu set to **Unsigned Decimal**.
 - Justification:** A dropdown menu set to **Leading Spaces**.
 - # Digits:** A checkbox for **Auto Check** and a spin box set to **< 1 >**.
 - Total Digits:** A spin box set to **2**.
 - Fractional Digits:** A spin box set to **0**.
- Selected tag is a discrete tag:** Two text input fields labeled **On** and **Off**.
- Specify the string for sending to printer / slave:** A text input field containing **<0x7F>**. Above the field is the instruction: **Press F7 to embed a non-printable Ascii character.**
- Buttons:** **Add**, **Delete**, **Cancel**, and **Help**.

- o. Press the **Add** button to add the embedded data to the message. You will return to the **Add New Message** dialog. When inserted in a message, each **Embedded Data Value** will be represented in blue, and underlined, as shown below.

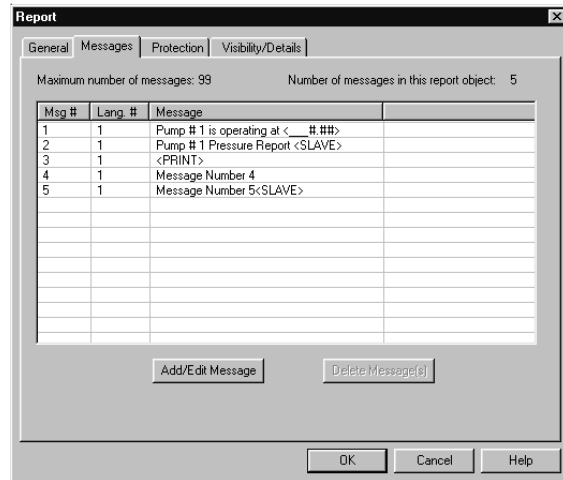
This example shows how an embedded printer command will be represented in a message



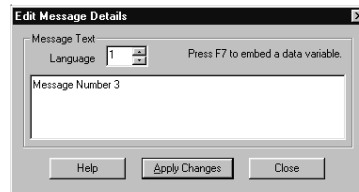
The **Edit Message Details** dialog box contains the following elements:

- Message Text:** A text input field containing **<SPRINT>**. Above the field is the instruction: **Press F7 to embed a data variable.**
- Language:** A dropdown menu set to **1**.
- Buttons:** **Help**, **Apply Changes**, and **Close**.

8. You may continue to add messages or click on the **Close** button to return to the **Messages** tab dialog. Your programmed messages will display in the list as shown below.



9. To edit an existing message, click on it in the list to highlight it and then click on the **Add/Edit Message** button. The **Edit Message Details** dialog will appear. Make your changes and click on the **Apply Changes** button when finished.



Protection (See *Button Object*.)

Visibility/Details (See *Button Object*.)

OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

Place Report object on the screen and size it.

- To size the object, select it, grab a handle and drag to the size you want.
- To move the object, select it, click and hold left mouse button, and drag to where you want it to appear on the screen.

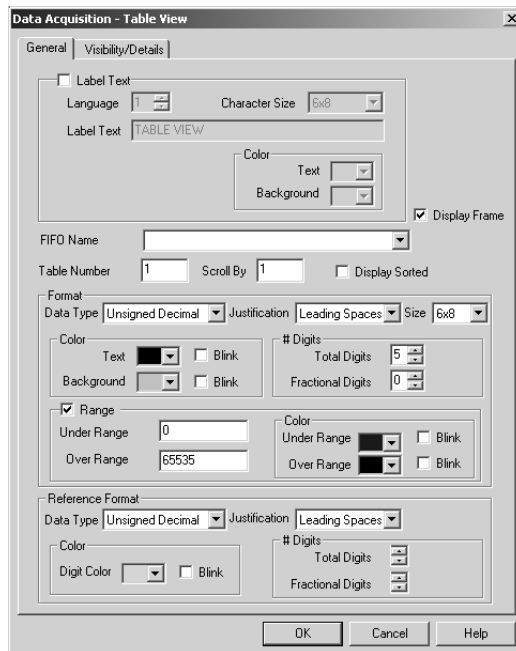
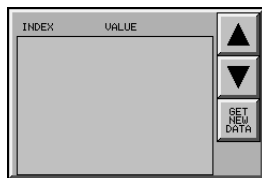
Data Acquisition Objects



Data Acquisition Objects allow you to display or analyze data collected by the **Global** Object, Data Acquisition FIFO (found under the Setup menu). Global objects are non-visual and remain active all the time for data collection. The Global Data Acquisition FIFO object implements a FIFO (first in first out) of the supported data type. You must set up the Global Object, Data Acquisition FIFO first. (See Setup > Global Objects page 208,)

Table View

This object will display data from the Global Data Acquisition Object in a table format. The operator will use the scroll buttons to view more data points when they exceed the number of displayed rows.



To put a Label on the Data Acquisition - Table View object, perform the following steps:

1. Click on the box in front of **Label Text**.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See section on Language, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.

Display Frame is selected by default. If you do not want the frame around the object to be visible, click on the box to deselect (the box will be empty).

FIFO:

1. Enter or select the **FIFO Name**. The FIFO name is the tag name where the global data is collected.
2. Enter Table **Number** (1-127).
3. Enter **Scroll By Number** (1-100).
4. Select whether or not you want the **Display Sorted**.

Data Format:

1. Select the **Data Type** (depends on FIFO data type, see note to the left) of the table data.
2. Choose the **Justification** (Leading Spaces, Leading Zeroes, or Trailing Spaces) of the table data.
3. Choose the **Size** of the displayed data.
4. Select the **Color** of the data **Text** (digits) and whether or not it will **Blink**.
5. Select the **Color** of the **Background** and whether or not it will **Blink**.
6. Under **# Digits**, select the **Total Digits** (depends upon FIFO type, see note to the left) that you want to display and the number, if any, of those digits that you want to be **Fractional Digits** (depends upon FIFO data type).
7. Place a check mark in front of **Range** if you want the data table to indicate when data is over or under a set range. Select the **Under Range** (minimum) and the **Over Range** (maximum).
8. Select the Color that you want the **Under Range** (below minimum) data to appear as in the table and whether or not you want it to **Blink**.
9. Select the **Color** that you want the **Over Range** (above maximum) data to appear as in the table and whether or not you want it to **Blink**.



Please Note: The Data Type defaults to the Data Type selected for the FIFO Input Tag. The Data Type is only selectable when unsigned (unsigned, octal, and hex).

The Data Types, and their respective ranges, that may be available, are as follows:

Signed 16 Decimal:	-32768 to +32767
Signed 32 Decimal:	-2147483648 to +2147483647
Unsigned 16 Decimal:	0 to 65535
Unsigned 32 Decimal:	0 to 4294967295
Octal 16:	0 to 177777
Octal 32:	0 to 3777777777
Hex 16:	0 to FFFF
Hex 32:	0 to FFFFFFFF
BCD 16:	0 to 9999
BCD 32:	0 to 99999999



Please Note: If you choose to display a Reference value, Table View is the only place on the panel display that the reference data will be displayed.

Reference Format:

1. Select the **Data Type** of the **Reference** Data to display on the table (it will display to the right of the input value.)
2. Select the **Justification** of the data.
3. Select the **Color** of the **Digits** and whether or not you want it to **blink**.
4. Under **# Digits**, select the **Total Digits** you want to appear in the reference, and how many, if any, of these digits should be **Fractional Digits**.

Visibility/Details (See Button Object.)

OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.

- Click on **Help** button to go to the Help Topic for that dialog box.

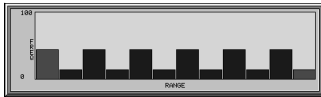
Place Data Acquisition - Table View object on the screen and size it.

- To size the object, select it, grab a handle and drag to the size you want.
- To move the object, select it, click and hold left mouse button, and drag to where you want it to appear on the screen.



Frequency Chart

This object will display data from the Global Data Acquisition Object in a graph format. The Data Acquisition - Frequency Chart plots the frequency of occurrence of a data value and displays it in graph form. The Y-axis charts frequency, and the X-axis charts the data values acquired.



The range of the Y-axis is defined by a tag. If the tag value is 0 (zero) then the range will be set to the number of entries that the table is defined to hold.

The range of the X-axis is defined when the object is created. If you select the optional "Show Out of Range Bar," the left most bar on the chart will show all readings that are less than the minimum. The right most bar will show all readings that are greater than the maximum. The number of bars on the chart are defined when the object is created.

Data Acquisition - Frequency Chart

General | Visibility/Details

☐ Label Text
 Language: 1 Character Size: 6x8
 Label Text: FREQ
 Position: ☒ Top ☐ Bottom
 Color:
 Background:
☒ Display Frame

FIFO Name:
 Table Number: 1
☒ Use Frequency Tag
 Maximum Frequency Tag:

Range
☒ Use Values
 Minimum Range Value: 0
 Maximum Range Value: 65535
☐ Use Tags
 Minimum Range Tag:
 Maximum Range Tag:

Number of Bars: 3
☒ Show Out of Range Bar

Format
 Data Type: Unsigned Decimal
 # Digits: Total Digits: 5 Fractional Digits: 0
 Bar Color:
 Bar Outline:
 Background:
 Out of Range Bar:

OK Cancel Help

**IMPORTANT!**

Please keep in mind that the Frequency Chart uses the TOTAL NUMBER OF ENTRIES that are contained in the data table to perform its calculations — therefore, the more entries in the data table, the longer the calculation time



Please Note: If the number of readings of a specific value exceeds the maximum Frequency, that bar will exceed the top of the chart. If Show Out of Range Bars is selected, that Bar will be displayed in the Out of Range Bar color.



Please Note: If the Number of Bars selected is greater than the range that is selected, the panel will display a blank Frequency Chart.

To put a Label on the Data Acquisition - Frequency Chart object, perform the following steps:

1. Click on the box in front of **Label Text**.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See section on Language, page 221.)
3. Select **Character Size** from the available choices.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.

Display Frame is selected by default. If you do not want the frame around the object to be visible, click on the box to deselect (the box will be empty).

FIFO:

1. Enter or select the **FIFO Name**. The FIFO name is the tag name where the global data is collected. (You must have already programmed the FIFO under **Setup > Global Objects > Data Acquisition - FIFO**.)
2. Enter **Table Number** (from 1 to 127).

Frequency Tag: Select whether or not you want a tag to set the maximum frequency on the Y-axis. This tag will hold the a maximum value. Click in the box in front of **Use Frequency Tag** and then select a tag in the **Maximum Frequency Tag** field. If you do not select this option, it defaults to the number of readings selected when you defined the FIFO.

Range:

You may choose the X-axis Range that will appear on the Frequency Chart to be set by the **Use Values** or by the **Use Tags** option. The minimum and maximum depend on the FIFO Input tag data type.

1. If you select **Use Values**, you will enter a **Minimum Range Value** and a **Maximum Range Value**. Enter a number between 1 and 65535 in the field provided.
2. If you select **Use Tags**, you will enter or select a **Minimum Range Tag** and a **Maximum Range Tag** in the field provided. The tag values will be used for the minimum and maximum values.

Format Frequency Chart:

1. Define the **Number of Bars** to be display on the Frequency Chart Object. Enter a number between 1 and 100 (maximum).
2. Under **Format**, select the **Data Type** from the available choices.
3. Under **# Digits**, select the **Total Digits** (depends on data type, see data type table in left margin on page 139) that you want to display and the number, if any, of those digits that you want to be **Fractional Digits**.
4. Click in the box in front of **Show Out of Range Bars** if you want them to display on the object.
5. Select the color from the available choices for the **Bar Color**, **Bar Outline**, **Background**, and **Out of Range Bar**.

Visibility/Details (See *Button Object*.)**OK/Cancel/Help Buttons**

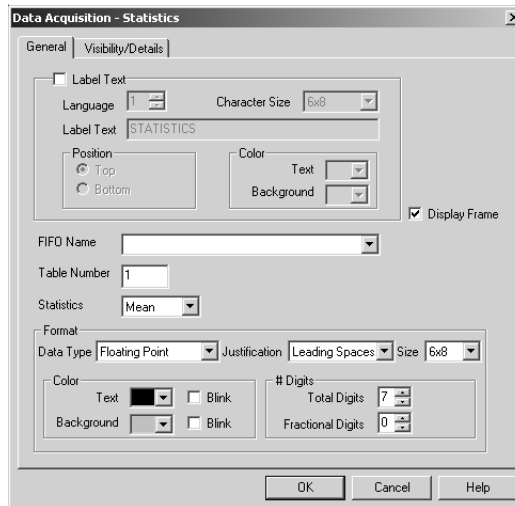
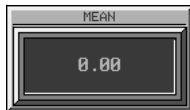
- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

Place Data Acquisition - Frequency Chart object on the screen and size it.

- To size the object, select it, grab a handle and drag to the size you want.
- To move the object, select it, click and hold left mouse button, and drag to where you want it to appear on the screen.

**Statistics**

This Data Acquisition Object will allow you to display various Statistical characteristics of data collected by a Global Object Data Acquisition - FIFO. Only one statistic can be displayed per object. You must program a separate object for each statistic you want displayed.

**To put a Label on the Data Acquisition - Statistics object, perform the following steps:**

1. Click on the box in front of **Label Text**.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See section on Language, page 221.)
3. Select **Character Size** from the available choices.

4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.

Display Frame is selected by default. If you do not want the frame around the object to be visible, click on the box to deselect (the box will be empty).

FIFO:

1. Enter or select the **FIFO Name**. The FIFO name is the tag name where the global data is collected. (You must have already programmed the FIFO under **Setup > Global Objects > Data Acquisition - FIFO**.)
2. Enter **Table Number** (from 1 to 127).

Statistic:

Select the **Statistic** from the Data Acquisition - FIFO that you want to display on the Panel. Remember you can only display one type of Statistic per object. Choose from the following.

- | | |
|-----------|-----------|
| • Mean | • Median |
| • Range | • Minimum |
| • Maximum | • Mode |

Please Note that the Sort FIFO option must be selected when defining the FIFO in order for the Statistic Object to function properly (except for the MEAN statistic option).

Also, the MEAN is always displayed in Floating Point. Range, Maximum, Minimum, Median, and Mode default to the data type of the Input Tag defined in the FIFO.

If you select the MODE Statistic option be aware that this object uses the total number of entries that are contained in the data table to perform its calculations — therefore, the more entries in the data table, the longer the calculation time.

Format:

Choose how the statistic will display.

1. Select the **Data Type** from the available choices
2. Select the **Justification** of the data.
3. Select the **Size** of the statistic display characters.
4. Select the **Color** of the **Text (digits)** and whether or not you want it to **blink**.
5. Select the color of the **Background** and whether or not you want it to Blink.
6. Under **# Digits**, select the **Total Digits (depends on data type, see data type table in left margin on page 139)** you want to appear in the reference, and how many, if any, of these digits should be **Fractional Digits**.

IMPORTANT!



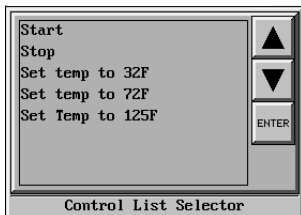
Visibility/Details (See *Button Object*.)**OK/Cancel/Help Buttons**

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

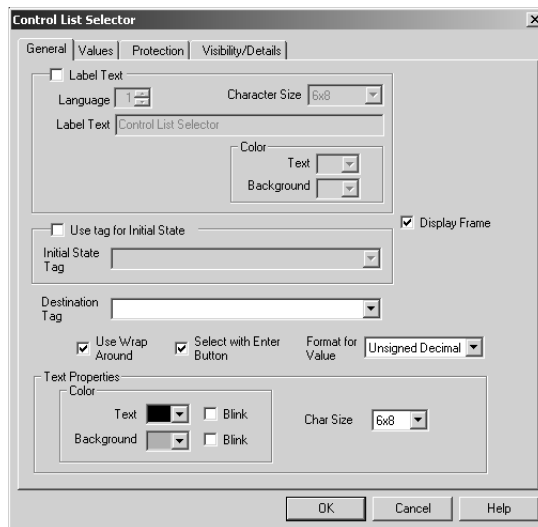
Place Data Acquisition - Statistics object on the screen and size it.

- To size the object, select it, grab a handle and drag to the size you want.
 - To move the object, select it, click and hold left mouse button, and drag to where you want it to appear on the screen.
-

Control List Selector Object



The **Control List Selector** Object allows you to group common or frequently used controls (value) into a list. The operator can scroll the list and choose from a descriptive list of operator friendly control value names, and execute the control with the press of a button.



To put a Label on the Control List Selector object, perform the following steps:

1. Click on the box in front of **Label Text** if you want a label for your object.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See Language section, page 221.)
3. Select **Character Size** from the available sizes.
4. Enter **Label Text** up to 40 characters.
5. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the object to be visible, click on the box to deselect (the box will be empty).

Enter Tags:

1. Click in the box in front of **Use tag for Initial State** if you want the object to read an initial value whenever the object is used. This means that when you use the Control List Object, the object will read the starting value from the tag you select here.
2. Click on the down arrow next to **Initial State Tag** to select from the available tags, or enter a new tag.

3. If the Tag Name is new, the **Add New Tag Details** dialog box will appear where you will map the tag. The **Tag Name** will appear in the first field. Enter an **Address String** appropriate for your type PLC. Click on the **OK** button.
4. Click on the down arrow or enter a new tag for the **Destination Tag**. This is where the control value will be sent when the operator selects it from the object list.

Choose how the Control Selector List will function:

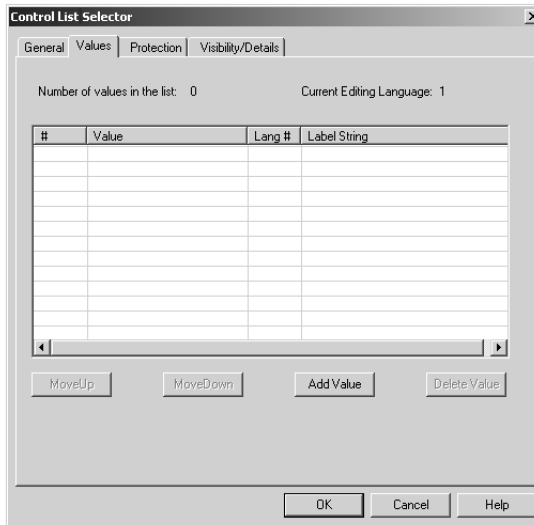
The screenshot shows a configuration window for a Control Selector List. At the top, there are two checked checkboxes: 'Use Wrap Around' and 'Select with Enter Button'. To the right is a 'Format for Value' dropdown menu currently set to 'Unsigned Decimal'. Below these is a 'Text Properties' section. Inside this section, there are two rows of controls: 'Text' and 'Background'. Each row has a color selection dropdown (currently black for text and grey for background) and a 'Blink' checkbox. To the right of the 'Text Properties' section is a 'Char Size' dropdown menu set to '6x8'.

1. Leave the **Use Wrap Around** check box selected if you want the list to automatically wrap (return) to the starting control value when the end of the list is reached. In other words, if the operator presses the down arrow when he reaches the end of the list, he will be taken back to the first control value in the list. Likewise, if he presses the up arrow and is on the first control value in the list, he will be taken to the last value on the list.
2. Leave the **Select with Enter Button** selected if you want the operator to be able to choose and execute a control value from the list. If it is not selected the **Enter** button will not appear on the object and the operator will only be able to use the up/down scroll arrows to view the list.
3. Choose the data type for the control value by clicking on the down arrow in the field next to **Format for Value**. Select from the available choices.

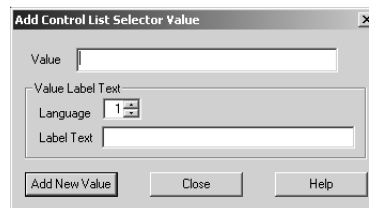
Choose **Text Properties**:

1. Select the **Color** of the object **Text** and **Background**.
2. Click in the box in front of **Blink** if you want the Text and/or Background to **Blink**.
3. Select the **Character Size** from the available choices. Keep in mind the size of the object on the panel screen when choosing size.

Click on the **Values** tab and the following window will appear.



1. Click on the **Add Value** button to begin configuring the control list. The following window will appear.



2. Enter the value in decimal.
3. Under **Value Label Text**, select the Language of the text and then enter a description name in the **Label Text** (up to 40 characters) field. This is that name that will appear in the Control List Selector object. When the operator clicks on this name the control value that it represents will be sent to the destination tag.
4. Click on the **Add New Tag** button and the Control Value will be added to the list. It will now appear in the list on the Value tag dialog.
5. Continue until you have added all the values you want to appear in the list and then click on Cancel.

Protection (See *Button Object*.)

Visibility/Details (See *Button Object*.)

OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

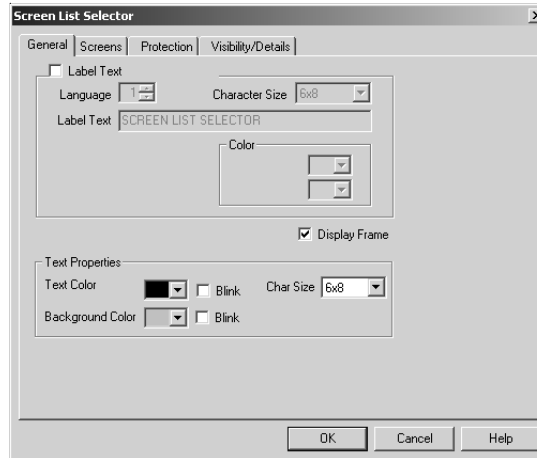
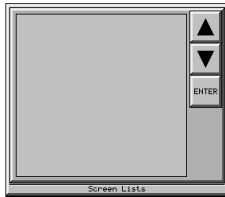
Place Control List Selector object on the screen and size it.

- To size the object, select it, grab a handle and drag to the size you want.
- To move the object, select it, click and hold left mouse button, and drag to where you want it to appear on the screen.

Screen List Selector Object



This object allows you to group programmed screens of your choosing and display them on the panel. From this list you can select one of more of the screen lists to go to. Use the arrows to scroll up and down the list and press the enter key to select a screen.



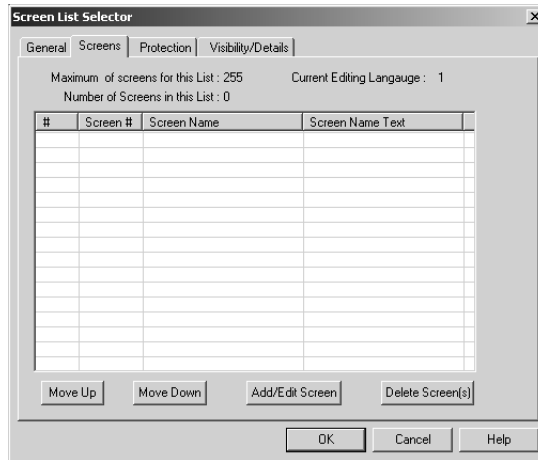
To put a Label on the Screen List Selector object, perform the following steps:

1. Click on the box in front of **Label Text** if you want a label for your object.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See Language section, page 221.)
3. Select **Character Size** from the available sizes.
4. Enter **Label Text** up to 40 characters.
5. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
6. **Display Frame** is selected by default. If you do not want the frame around the object to be visible, click on the box to deselect (the box will be empty).

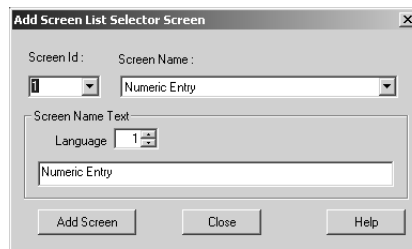
Text Properties

1. Select the properties of the text that will appear in the list.
2. Select Text and Background color, Character Size and whether or not the Text, Background, or both, will blink.

Click on the **Screens** tab to place screens on the list. The following window will appear.



1. Click on the **Add/Edit Screen** button to add a screen to the list. The following window will appear.



2. Find the screen you want to add by clicking on the down arrow in the **Screen ID** or **Screen Name** fields.
3. Select the **Language** number from the available list.
4. When you have the the screen that you want to appear in the list, clickon the **Add Screen** window.
5. Continue to do this until you have all the screens that you want to include in the Screen List object.
6. Click the Close button when finished.

7. The screens you have selected should now appear in the list. From this list you can **Move Up** or **Move Down** a screen, **Add/Edit Screen** or **Delete Screen(s)** from the list.

Protection (See *Button Object*.)

Visibility/Details (See *Button Object*.)

OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

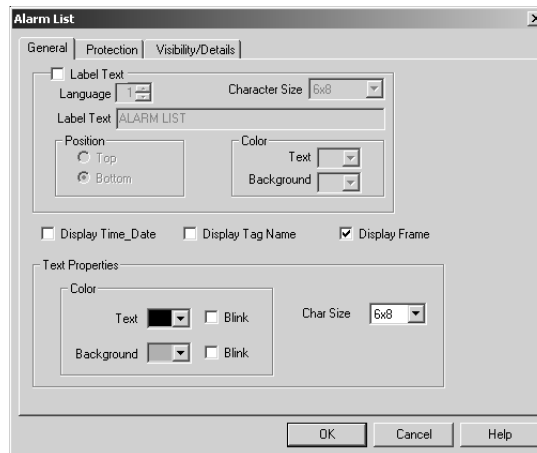
Place Screen List Selector object on the screen and size it.

- To size the object, select it, grab a handle and drag to the size you want.
- To move the object, select it, click and hold left mouse button, and drag to where you want it to appear on the screen.

Alarm List Object



The Alarm List Object provides the operator with a list of up to 99 of the most recently triggered alarms. The time and date that the alarm was triggered, as well as the tag name that triggered the alarm can be displayed in the list.



To put a Label on the Alarm List object, perform the following steps:

1. Click on the box in front of **Label Text** if you want a label for your object.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See Language section, page 221.)
3. Select **Character Size** from the available sizes.
4. Enter **Label Text** up to 40 characters.
5. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the object to be visible, click on the box to deselect (the box will be empty).

Choose how you want the object to display by making the following selections:

1. Click in the box in front of **Display Time and Date** if you want the time and date that the alarm was triggered to be displayed.
2. Click in the box in front of **Display Tag Name** if you want the name of the tag that triggered the alarm to be displayed.
3. Under **Text Properties**, choose the **Color** of the **Text** and **Background** and whether or not they will **Blink**. Choose the **Character Size** of the text in the list.

Protection (See *Button Object*.)

Visibility/Details (See *Button Object*.)

OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

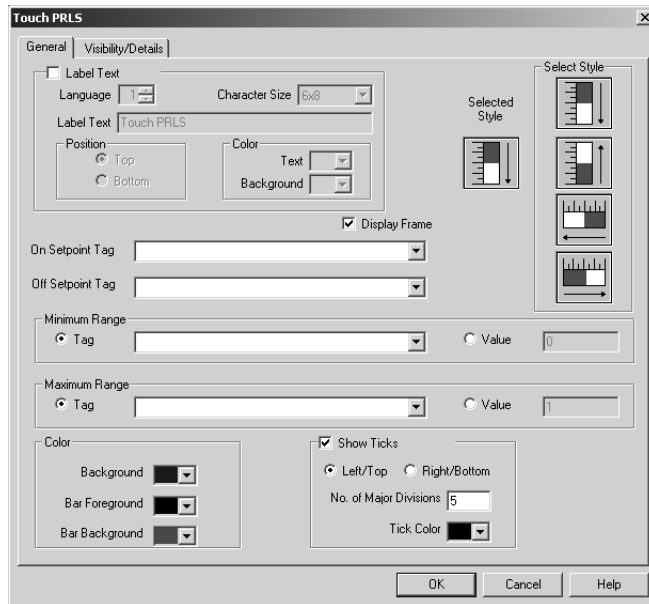
Place Alarm List object on the screen and size it.

- To size the object, select it, grab a handle and drag to the size you want.
- To move the object, select it, click and hold left mouse button, and drag to where you want it to appear on the screen.

Touch PRLS Object



The **Touch PRLS Object** allows you to configure a bar graph that when triggered, will provide a graphic display of resolver-based encoder values. From this object you can configure the encoder's ON and OFF Setpoints, the Range of the bar graph display based on a tag or a preset value, and choose how you want the bar graph to appear on the panel display.



To put a Label on the Touch PRLS object, perform the following steps:

1. Click on the box in front of **Label Text** if you want a label for your object.
2. Use the UP/DOWN arrows after the **Language** box to select a language number. (See Language section, page 221.)
3. Select **Character Size** from the available sizes.
4. Enter **Label Text** up to 40 characters.
5. Select the **Position** of the label, whether you want it to appear at the **Top** or the **Bottom** of the object frame.
6. Select the **Text** and **Background Color**. Click on the down arrow to view the color palette.
7. **Display Frame** is selected by default. If you do not want the frame around the object to be visible, click on the box to deselect (the box will be empty).

On Setpoint Tag/Off Setpoint Tag:

1. Enter or select a tag that will store the On and Off Setpoints for the object.

2. If the Tag Name is new, the **Add New Tag Details** dialog box will appear where you will map the tag. The **Tag Name** will appear in the first field. Enter an **Address String** appropriate for your type PLC. Click on the **OK** button when finished.

Minimum Range/Maximum Range:

1. Choose the Minimum and Maximum Ranges for the bar graph display to be controlled by a tag or a value. Ranges must be entered in decimal. Select or enter a new tag, or enter the value (s).

Choose how the TPRLS bar graph will display.

1. Click on the style that you want to display under Select Style. It will appear under Selected Style.
2. Under **Color**, click on the down arrows next to **Background**, **Bar Foreground** (fill) and **Bar Background** to view the color palettes and make your selections. Click on the box below **Blink** to enable that feature.
- 3.. If you want to show tick marks on your bar graph, click on box in front of **Show Ticks** to enable.
4. Select where you want the tick marks to be on the graph; **Left/Top**, or **Right/Bottom**.
5. Select the **Number of Major Divisions** and the **Number of Minor (Sub) Divisions** to display. *The maximum ticks allowed for Major or Minor Divisions is 20.*
6. Click on the down arrow next to **Tick Color** to view the color palette for the tick marks. Place the cursor over a color, and click to select.

Visibility/Details (See Button Object.)

OK/Cancel/Help Buttons

- Click on **OK** button to save your selections and exit the dialog box.
- Click on **Cancel** button to exit the dialog box without saving your selections.
- Click on **Help** button to go to the Help Topic for that dialog box.

Place Touch PRLS object on the screen and size it.

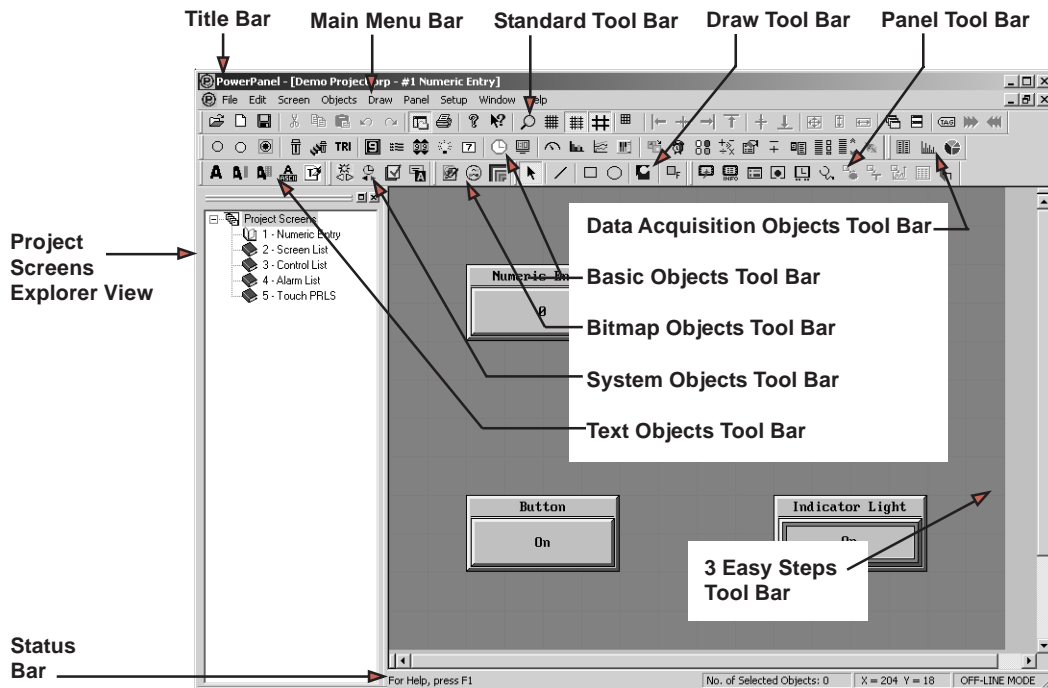
- To size the object, select it, grab a handle and drag to the size you want.
- To move the object, select it, click and hold left mouse button, and drag to where you want it to appear on the screen.

Main Programming Screen

In this chapter....

- Title Bar
- Main Menu Bar
- Standard Tool Bar
- Object Tool Bars
 - Basic Objects Tool Bar
 - Text Objects Tool Bar
 - System Objects Tool Bar
 - Bitmap Objects Tool Bar
 - Data Acquisition Objects Tool Bar
- Draw Tool Bar
- Panel Tool Bar
- Status Bar
- 3 Easy Steps Tool Bar
- Programming Screen
- Project Screens Explorer View

Main Programming Screen



The Main Programming Screen is shown above. It is here that you will design your PowerPanel operator interface screens. In this section, we'll briefly identify and describe the main features of this screen and familiarize you with the PowerPanel Programming Software work area.

PowerPanel - [Demo Project 1.prp - #3 Blank screen]

Title Bar

The **Title Bar** tells you the name of the project and name and number of the screen that you currently have open.

File Edit Screen Objects Draw Panel Setup Window Help

Main Menu Bar























This is the **Main Menu Bar**. PowerPanel Programming Software menus are represented by the names listed across the top of the Main Programming Screen and directly under the Title Bar. Each menu item is discussed in detail in Chapter 6, *Reference*, beginning on page 146.










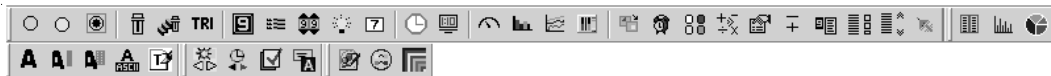
Standard Tool Bar

The **Standard Tool Bar** consists of icons for frequently used commands. These commands are also found in, and accessible from, the Main Menu Bar.

From left to right as placed on the tool bar, the icons and their functions are shown below.

-  Open Project
-  Open Screen
-  Save Screen
-  Cut the selection and put it on the clipboard
-  Copy the selection and put it on the clipboard
-  Paste clipboard contents
-  Undo the last action or Redo the previously undone action
-  Display Project Screens Explorer View
-  Print the active document
-  Display program information, version number, and copyright
-  Display help for clicked on buttons, menus and windows
-  Zoom to a predefined screen magnification
-  Displays Grid on the Screen
-  Snaps to Grid
-  Show or Hide Touch Cells
-  Show 320 x 240 Rectangle (size of 6-inch panel screen)
-  Aligns left sides of all the selected objects to that of left most object
-  Aligns all the selected objects to the vertical center of screen
-  Aligns right sides of all the selected objects to that of right most object
-  Aligns top sides of all the selected objects to that of top most object
-  Aligns all the selected objects to the horizontal center of screen
-  Aligns bottom sides of all the selected objects to that of bottom most object

-  Make all selected objects the same size
-  Make all selected objects the same height
-  Make all selected objects the same width
-  Arrange windows so they overlap
-  Arrange windows as non-overlapping tiles
-  Shows Tag Database
-  Simulate Next State/Simulate Previous State (highlight object(s) and then click on this icon to simulate ON/OFF states, etc.)






























Object Tool Bars

The Object Tool bars consist of icons that provide a shortcut to the predefined programming objects. These object shortcut icons are grouped into four tool bars: **Basic Objects Tool Bar**, **Text Objects Tool Bar**, **System Objects Tool Bar**, **Bitmap Objects Tool Bar**, and **Data Acquisition Objects Tool Bar**. The objects provide generic panel replacement functions. Click on the icon to place the object on the screen and set the object parameters. These objects are also found in, and accessible from the **Main Menu Bar > Objects**.






From left to right as placed on the tool bar, the icons and the object they represent are shown below.

Basic Objects Tool Bar





-  Push Button
-  Indicator Button
-  Radio Button
-  Switches
-  Step Switch
-  Tri-State Switch
-  Numeric Entry
-  Recipe
-  Thumbwheel
-  Indicator Light

-  Numeric Display
-  Analog Clock
-  Digital Clock
-  Meter
-  Bar Graph
-  Line Graph
-  PID Face Plate
-  Change Screen
-  Alarm History
-  Multi-state Indicator
-  Math Logic
-  Report
-  Increment/Decrement Value
-  Control List Selector
-  Screen List Selector
-  Alarm List
-  Touch PRLS



Text Objects Tool Bar

-  Static Text
-  Triggered Text
-  Lookup Text
-  Dynamic Text
-  Text Entry




System Objects Tool Bar

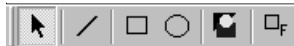
-  Adjust Contrast
-  Increment/Decrement Hour
-  Activate Screen Saver
-  Select Language

Bitmap Objects Tool Bar

-  Dynamic Bitmap
-  Bitmap Button
-  Multi-state Bitmap







Data Acquisition Tool Bar

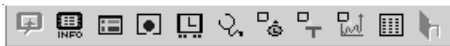
-  Table View
-  Frequency Chart
-  Statistics



Draw Tool Bar



Any of the following draw functions can be accessed by choosing the selection from the Draw Menu or by clicking on the specific Draw Tool Bar icons shown below.










-  Pointer
-  Line
-  Rectangle
-  Circle
-  Static Bitmap
-  Draw Frame



Panel Tool Bar

The Panel Tool bar consists of icons for frequently used commands. These commands are also found in, and accessible from the Main Menu Bar. From left to right, they are as follows:

-  Transfer to Panel
-  Panel Information

-  Display Screen
-  Reboot Panel
-  Panel Time and Date
-  Diagnostics
-  Read Alarm History/Count*
-  Monitor Tags*
-  Read Line Graph from Panel*
-  Read FIFO from Panel*
-  COM Configuration

*Must be in ONLINE Mode to use these features

Height=80, Width=160, Obj. Type=Buttons No. of Selected Objects: 2 X = 199 Y = 331 OFF-LINE MODE

Status Bar

The Status Bar is located at the bottom of the Programming Screen and shows the status of the current screen. It provides information about a tool bar or menu item on the main programming screen that the pointer passes over, displays the number of selected objects, the XY location (coordinates) of the cursor, and the current programming mode (ONLINE or OFFLINE). If you pass your cursor over an object on the screen the status bar will provide you with the Height and Width (in pixels) of the object and the Object Type (e.g., Buttons).

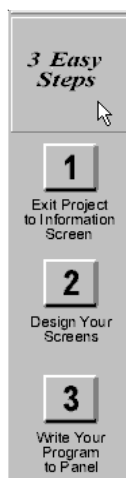
3 Easy Steps Tool Bar

This tool bar appears on the right hand side of the main programming screen. It allows you to easily navigate to one of the three main steps in creating a program for your PowerPanel using the PowerPanel Programming Software. To open, click on **Edit > Toolbar > 3 Easy Steps**.

Click on button number **1** to **Exit Project to Information Screen**. You will exit your current project and return to the **Step 1, Project Information Screen**.

Click on button number **2** to **Design Your Screens**. The **Open New Screen** dialog box will appear. You can select from one of the current project's screens, or enter a new number and name to create a new screen. Click on this button to quickly go to another screen in your project for editing, or create a new screen.

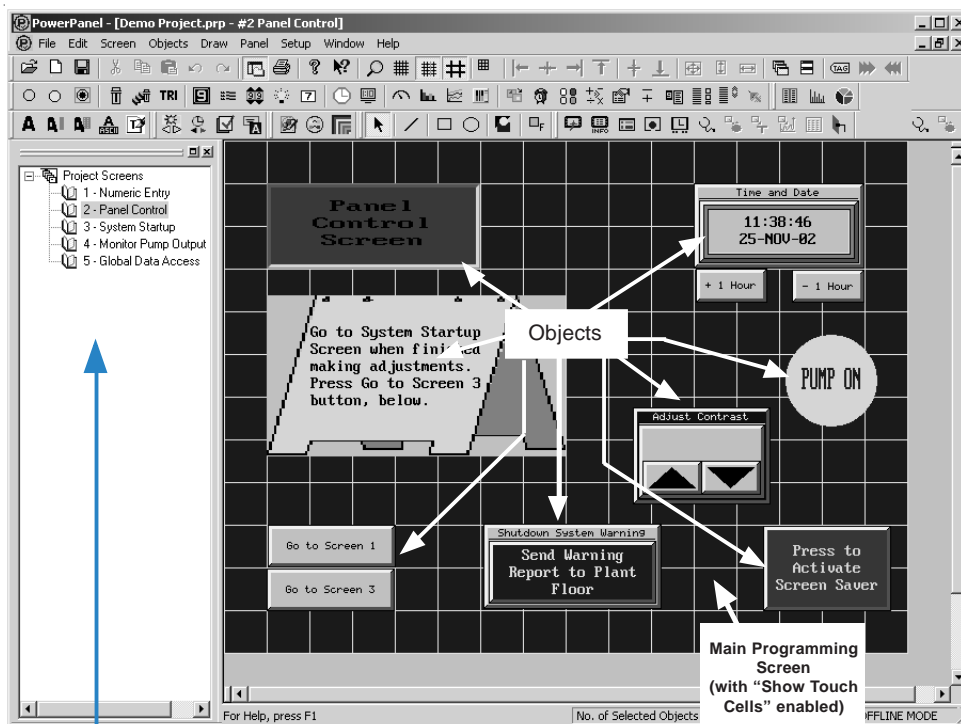
Click on button number **3** to **Write Your Program to Panel**. When you are finished with the project, or want to test it on the PowerPanel, select this button. The **Write Program to Panel Screen** will appear allowing you to transfer the current project to the panel memory. Click on this button to transfer your project to the PowerPanel.



Programming Screen

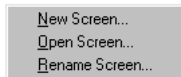
This is the programming screen where you will build project screens that will in turn be displayed on the PowerPanel. You may program from 1 to 999 screens in a project.

These screens are used primarily to incorporate objects, messages, and graphics. Placing these items onto the programming screen allows you to have input and control over what is being displayed on the panel.



Main Programming Screen

Project Screens Explorer View



Right click your mouse anywhere in the project screens window and a popup menu will appear allowing you to **Open**, **Rename**, or add a **New Screen**.

This view opens to show you the project screens that you have created and to allow you to easily navigate between the screens. If you click on the "+" in front of Project Screens, the screens you have designed will cascade in the window. (A "-" will display in front of Project Screens indicating you have opened the Project Screens Explorer View.) To open or switch to another screen in your project, double click on the book icon in front of the screen. Your programming window will display the selected screen and the book icon will change to an "open" book to show you that the screen is open in your project.

Reference

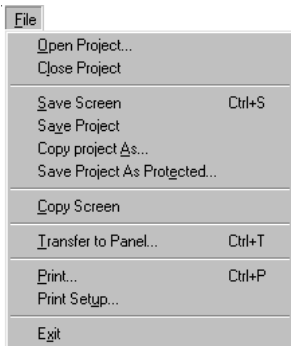
In this chapter....

- File Menu
- Edit Menu
- Screen Menu
- Draw Menu
- Panel Menu
- Setup Menu
- Window Menu
- Help Menu
- Right Click Menus
- Symbol Factory

Reference

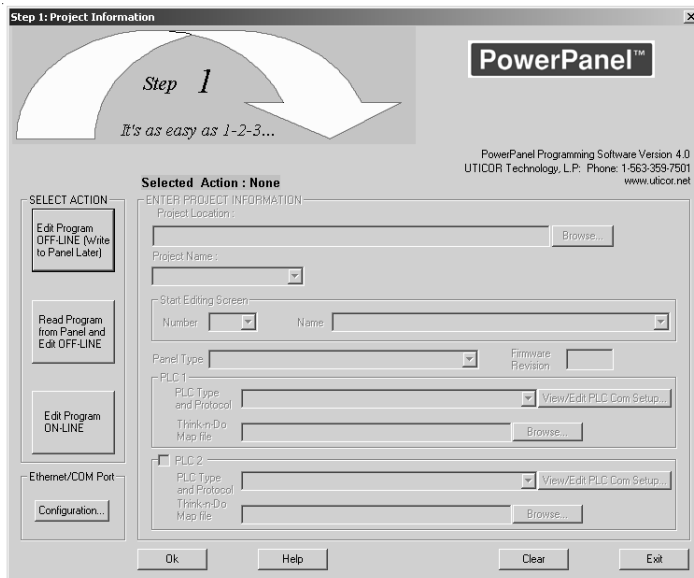
The Reference Section provides more details on Menu commands. It takes you through the Main Menu Bar item by item, command by command, with instructions. It also contains information about the various tool bars and the status bar.

File Menu



Open Project

To open an existing project or to create a new project while in a programming window, click on **File > Open Project**. The **Step 1, Project Information** dialog box will appear. Click on one of the **SELECT ACTION** buttons. Choose from the available project files or enter a new Project Name. Click on **OK** to open the project, or **Exit** to quit without opening.



Close Project

Click on **File>Close Project** to quit the current project.

Save Screen

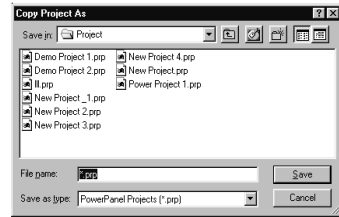
Click on **File > Save Screen** to save the current, active screen.

Save Project

Click on **File > Save Project** to save the current project. Screens, Project Attributes and databases will all be saved.

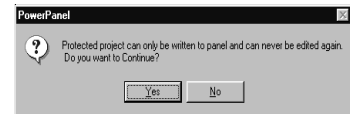
Copy Project As...

Click on **File > Copy Project As...** to save your project under another name. The dialog box shown to the right will appear allowing you to enter a name for the copied project.



Save Project As Protected

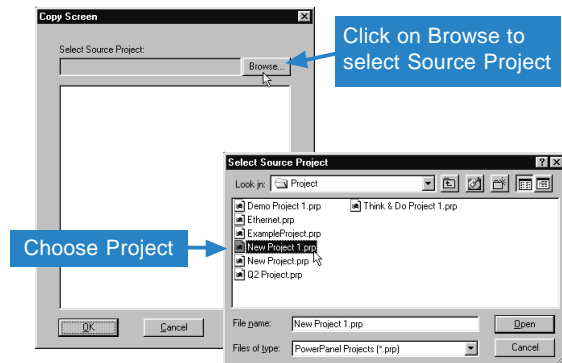
If you click on **Save Project As Protected**, you will only be able to transfer the project, to and from the panel, as is. The project will not open in PowerPanel Programming Software to allow editing. This protects the project from unauthorized changes after distribution. Make sure you have another copy saved if it will require changes or updates.



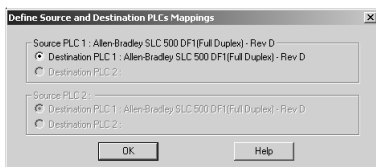
Copy Screen

If you want to copy screens from another project (.prp) into the current project, click on **Copy Screen**. You will be copying the tags associated with objects in the screen also.

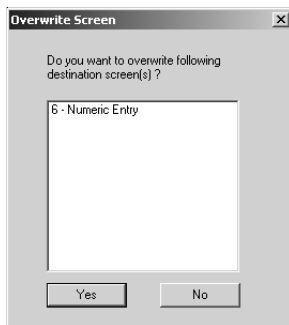
1. In the **Copy Screen** window, click on the **Browse** button and the **Select Source Project** window will open.



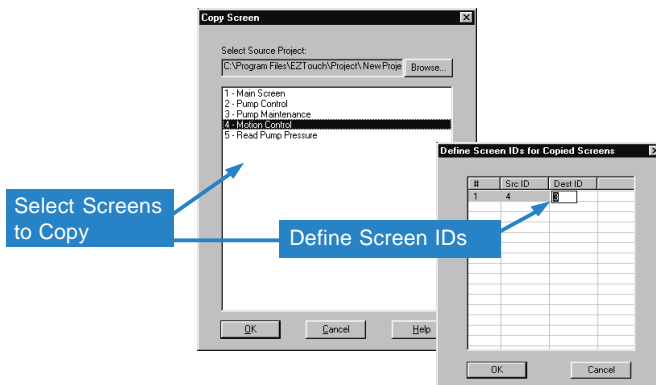
2. Click on the project that contains the screens you want to copy into your current (open) project.
3. You will receive the prompt shown to the left where you will select the **Source** and **Destination** PLC. For projects with Dual PLCs you will make the selections for both PLCs.



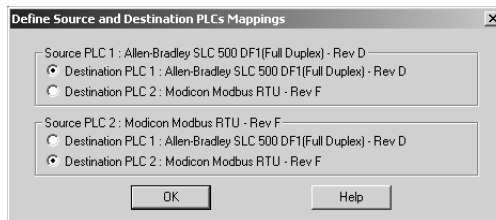
If the **Source ID** is the same as the **Destination ID**, a dialog box will appear asking you if you want to **Overwrite the Destination ID** (screen). Click **Yes** if you want to overwrite the screen, click **No** if you do not want to overwrite the screen(s).



4. The **Copy Screen** window will list the programmed screens. Click on the screen(s) that you want to copy to highlight them, and then click on **OK**.



5. The **Define Screen IDs for Copied Screens** window will open listing the Source ID (**Src ID**) for each screen you have selected to copy. The Source ID is the number of the screen in the Source Project. Under the column Destination ID (**Dest ID**), enter the screen number you want for the copied screen in your current project. Click **OK** when finished.
6. Next you will define the Source and Destination PLCs for copying the tags from the selected screens. Select the Destination PLC 1 and, if applicable, PLC 2. Click **OK** when finished.



7. On the **Copying Tags Screen** you may change the name and/or address of the Source Tag before it is copied in the Destination Tag database. This prevents overwriting tags with the same name and/or address. The screens will be copied into your current project with the number you have assigned. The name of the screen in the Source project will be the same in your current project. They will appear in the Project Screens Explorer view. You can also change the names by using the Rename feature. Click on menu item **Screen > Rename**.

Copying Tags : 4 of 4

Completed Tags : 4 of 4

#	Src Tag Name	Dest Tag
1	NUMERIC EN...	NUMERIC...
2	BUTTON OBJ...	BUTTON...
3	NUMERIC DI...	NUMERIC...
4	INDICATOR L...	INDICATI...

Source Tag

Selected PLCs

PLC 1: Allen-Bradley SLC 500 DF1(Full Duplex) - Rev D

PLC 2: Modicon Modbus RTU - Rev F

Name : INDICATOR LIGHT

Address : B3:1/0

Destination Tag

Selected PLCs

PLC 1: Allen-Bradley SLC 500 DF1(Full Duplex) - Rev D

PLC 2: Modicon Modbus RTU - Rev F

Name : INDICATOR LIGHT

Select Tag Type

☒ PLC 1 Tag

☐ PLC 2 Tag

☐ Internal Tag

☐ Expression

Address : B3:1/0

Expected Attributes

Data Type : DISCRETE

I/O Type : R/W

No. of chars : 0

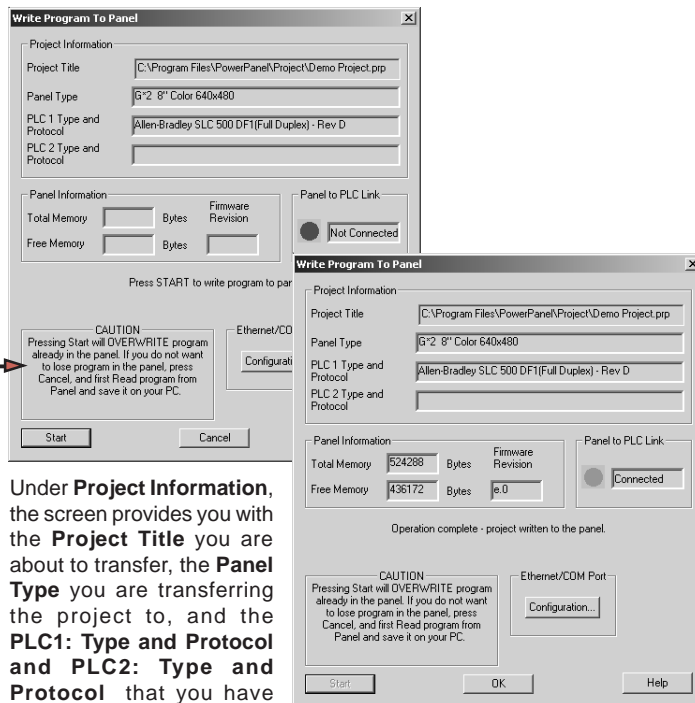
Update Ok Cancel Help

Transfer to Panel...

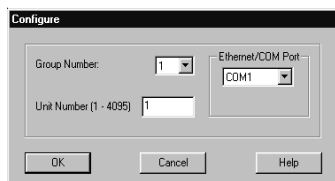
Transfer to Panel... allows you to transfer the current (open) project to the PowerPanel.

Click on **Transfer to Panel** and the following dialog box will open. This dialog box provides information about the current project and the PowerPanel memory available.

DON'T LOSE AN EXISTING PROGRAM! When you write the program to the panel, it will write over any program already loaded into panel. Save the existing program before you click on the Start button to transfer your new program. To do this, exit project and Read Program from Panel, then save it to your PC.



Under **Project Information**, the screen provides you with the **Project Title** you are about to transfer, the **Panel Type** you are transferring the project to, and the **PLC1: Type and Protocol** and **PLC2: Type and Protocol** that you have selected as used by your application. (If you are connected to 2 PLCs, it will list both.) Press **Start** to begin the transfer or **Cancel** to abort.



If you receive an error message, check to ensure your panel to PC connections are correct. Under **Ethernet/COM Port**, click on **Configuration** button. The window shown to the left will appear. Click on the down arrow under **Ethernet/COM Port** to select the correct PC Port — **COM1**, **COM2**, **COM3**, or **COM4**. Group Number and Unit Number must match that of the panel you are trying to communicate with.

The Progress Bar indicates that the transfer is in process and then when the process is complete.

After the transfer is complete, **Panel Information** gathered during transfer

communication is displayed. It will tell you the **Total Memory** installed in your panel (in bytes) and the **Free Memory** available after the project upload. The panel **Firmware Revision** (internal software) number is displayed and whether or not a **Panel to PLC Link** is established.

Print

Be sure to select screens
(click on them to select)
here —
if you choose *Selected
Screens* here!

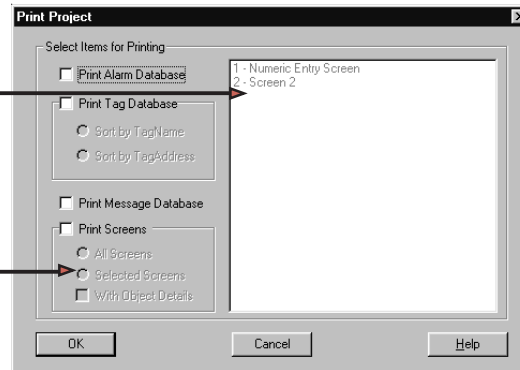


Printing from Panel

Only Alarms and Messages will print from the Panel. To print alarms from the Panel, see the *Alarm Database* section, page 177. To print Messages from the Panel, see the *Message Database* section on page 180.



Please Note: To set the printer parameters, see page 184, *Project Attributes, Printer tab*. To set the PowerPanel COM1 port to "Printer," see Appendix D.



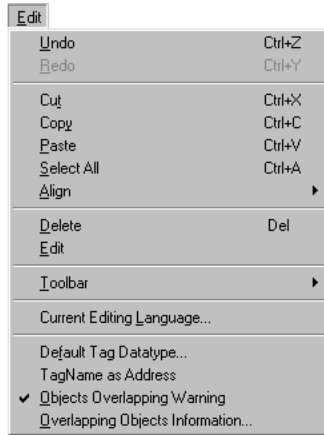
When you click on the **Print** menu item, the screen, above, will appear. **Select Items for Printing** — Choose **Print Alarm Database**, **Print Tag Database** (select **Sort by Tag Name** or **Sort by Tag Address**), or **Print Message Database**. If you want to **Print Screens**, select **All Screens** to print all of the screens from the project, or **Selected Screens** to print selected screens from the list. Click on the box in front of **With Object Details**, if you want the details of the selected screens to print, also. Click on a screen in the list to highlight it. Press and hold the **Ctrl** key and click to select more than one. Click on **OK** when you have made your selections.

Print Setup

Choose or change your print settings here.

Exit

Click on **Exit** to quit the program.



Edit Menu

Undo

The **Undo** command is used to reverse the previous action. This function must be performed next in order for the action to be undone. The undo command goes back sixteen levels of undo. **Redo** will "redo" the previously undone action.

Cut

This allows you to **Cut** (remove) a selected item(s) to the clipboard.

Copy

This allows you to **Copy** (without removing) a selected item(s) to the clipboard.

Paste

This allows you to **Paste** a selected item from the clipboard onto the displayed screen.

Select All

Click on **Select All** to select all items on the displayed screen.

Align

This allows you to **Align** selected items on the screen. You may also execute these commands by clicking on their respective icons on the standard tool bar. You must have at least two objects selected in order to execute the **Left**, **Right**, **Top**, or **Bottom** Align commands.



Left— Aligns left sides of all the selected objects to that of left most object

Vertical Center— Aligns all the selected objects to the vertical center of screen

Right — Aligns right sides of all the selected objects to that of right most object

Top — Aligns top sides of all the selected objects to that of top most object

Horizontal Center — Aligns all the selected objects to the horizontal center of screen

Bottom — Aligns bottom sides of all the selected objects to that of bottom most object

Delete

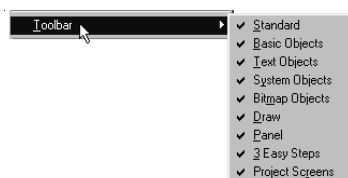
Click on **Delete** to remove a selected item without placing it on the clipboard.

Edit

Select an object and then click on the **Edit** command to make changes to an object's characteristics.

Tool bar

Click on **Tool bar** to see menu. Click on **Standard**, **Basic Objects**, **Text Objects**, **System Objects**, **Bitmap Objects**, **Draw**, **Panel**, **3 Easy Steps** (Navigation Tool bar), or **Project Screens** (Explorer View) to place a check mark enabling that tool bar, or click on a selected tool bar to remove check mark and thereby remove it from view.



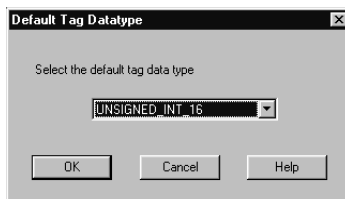
Current Editing Language

Allows you to select the **Current Editing Language**. Click on the down arrow to view a list of the languages.



Default Tag Data Type

Click on this menu item to set the **Default Tag Data Type**. Click on the down arrow to view the list of data types.



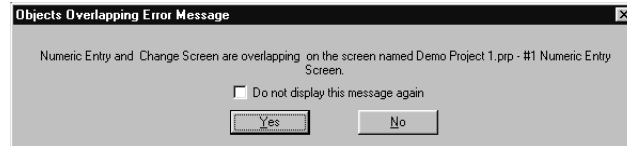
The Default Data Type automatically switches to the last data type used. For example, if you set UNSIGNED_INT_16 as default and create a Pushbutton object (DISCRETE) the default will switch to DISCRETE.

Tag Name as Address

Click on this to use the Tag Name that you type in as the Tag Address. The Address must be in the correct Data Format. For example, if using an Allen-Bradley SLC 500, you might name the tag N7:2, which is the address format of the PLC register.

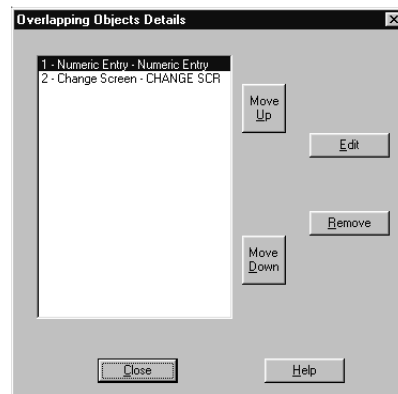
Objects Overlapping Warning

This is enabled by default. Click on it to deselect (check mark in front of item will disappear). This warning message, if enabled, will pop up when you attempt to save a screen or project with overlapping objects. Click **Yes** to save with overlapping objects or **No** to cancel the save.



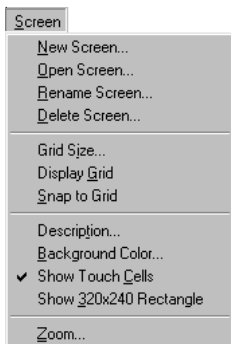
Overlapping Objects Information...

Click on this to bring up the following dialog box. Information about the overlapping objects is displayed. From here you can rearrange the order of the overlapping objects by bringing them forward (**Move Up**) or sending them back (**Move Down**). Click on the object in the list that you want to move to highlight it, and then click on the **Move Up** or **Move Down** button. You can also click on an object in the list and click on the **Edit** button to edit the object details or click on **Remove** to remove the object from the screen.

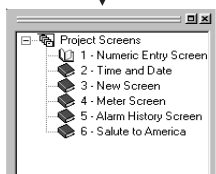


This dialog shows overlapping Dynamic Objects only. It does not show Static Objects (such as Static Bitmap and a rectangle or circle),

Screen Menu



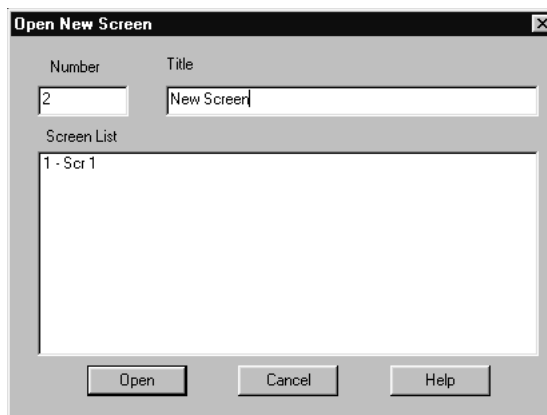
NOTE: See page 144 for more information about Project Screen Explorer View.



You may also use the Project Screens Explorer View to navigate between screens. Double click on an existing screen listed in the Explorer window that you want to edit. The Main Programming Screen will open to the selected screen. You can easily switch between screens you are working on, to copy, paste, make changes, etc.

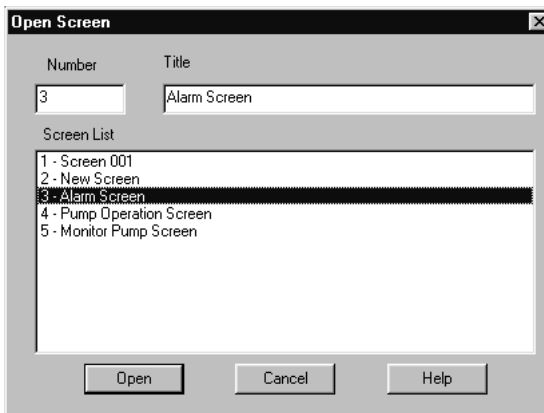
New Screen

Enter a screen **Number** and a **Title** for the New Screen. Click on **Open** to display the new screen or Cancel to exit without saving the new screen.



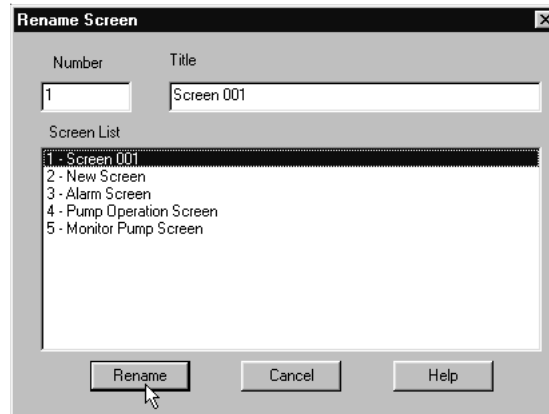
Open Screen

The Open Screen command brings up the dialog box shown below. Click on the screen in the **Screen List** that you want to open and then click on the **Open** button.



Rename Screen

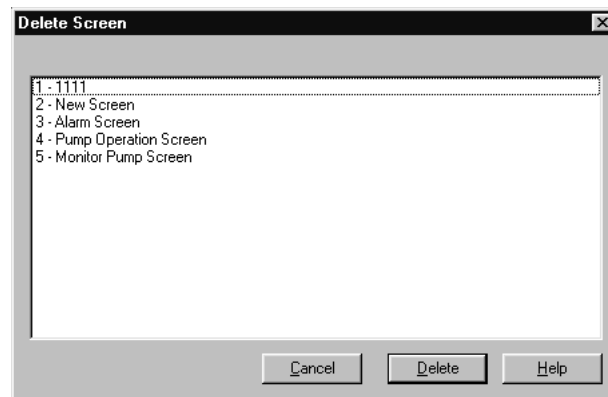
This dialog box allows you to **Rename** an existing screen in your project.



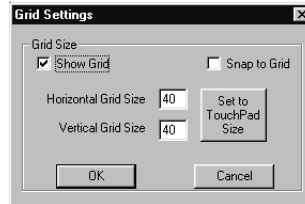
1. Select the screen you wish to change from the **Screen List**.
2. Click in the **Title** box and change the title to the new name.
3. Click on the **Rename** button. Your screen will be renamed to the Title you have entered.

Delete Screen

Click on the screen(s) you want to delete from the project, and then press the **Delete** button.



Grid Size



When you click on **Grid Size** on the Screen Menu, the dialog box shown above will appear, allowing you to adjust the spacing between the grid points. You may want to adjust to a character size, touch cell size or specific values. The size range is 3 to 100 (you will not be allowed to enter a value outside these parameters.) From here you may enable the **Show Grid** and the **Snap to Grid** features.


To adjust the grid size:

1. Type in a value in the box after Horizontal and Vertical Grid Size, or click on the Set to TouchPad Size to set the grid to 40 by 40. 40 pixels by 40 pixels is the size of a single touch cell on the PowerPanel.
2. Click OK to exit and save settings, or Cancel to exit without making any changes.

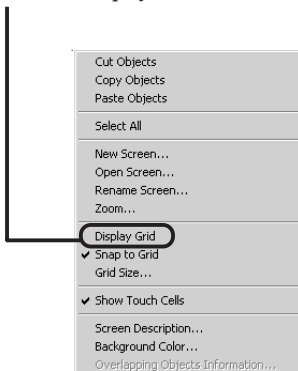
Display Grid

The Display Grid function is the display equivalent of graph paper. Represented by a series of dots, the grid helps you align your drawings and objects and make them more precise.

There are three ways to enable this function:

1. Click on the  icon in the Standard Tool bar.
2. Right click on an empty area of the screen window. The menu shown to the left will appear. Click on **Display Grid**.
3. From the Main Menu Bar, click on **Screen>Display Grid**. (You can also activate this feature from the **Grid Size** dialog box, described above.) A check mark will appear to show you that it is enabled. Click on it again to hide the Grid.

Click here to Display Grid




Snap to Grid

Snap to Grid attaches lines, rectangles, circles and other drawn objects to grid points as they are drawn. Objects placed on the screen will align with the grid also.

Click here to Snap to Grid

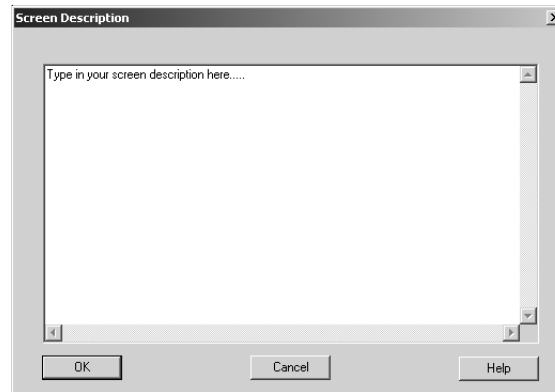


There are three ways to enable this function:

1. Click on the  icon in the Standard Tool bar.
2. Right click on an empty area of the screen window. The menu shown to the left will appear. Click on **Snap to Grid**.
3. From the Main Menu Bar, click on **Screen > Grid Size**. A dialog box will appear. Click on the box in front of **Snap to Grid**. (You can also activate this feature from the **Grid Size** dialog box, described on the previous page.) A check mark will appear to show you that it is enabled. Click on it again to disable snap feature.

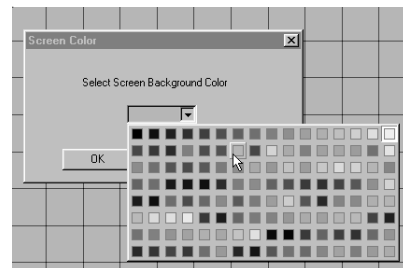
Description (Screen)

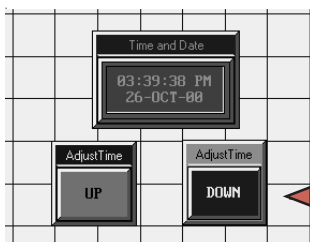
Click on this menu item to view, enter, or edit a description of the current screen. You may enter up to 400 characters. When you print this screen, the description you have entered here will appear on the printed page beneath the picture of the screen. You must save the project before any changes made to Screen Description will print.



Screen Background Color

This feature allows you to change the color of your Screen Background. Click on the down arrow to view the color palette. Move the pointer over the color swatches to view the color of the background on your current screen. Click on the color you want to select.

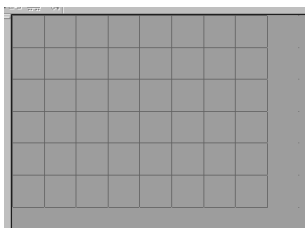





Show Touch Cells

Click on Show Touch Cells and a grid will appear on the screen representing the touch cells on your size screen. This makes it easier to place your objects directly over touch cells. Click on this menu item again to disable.

with Show Touch Cells selected




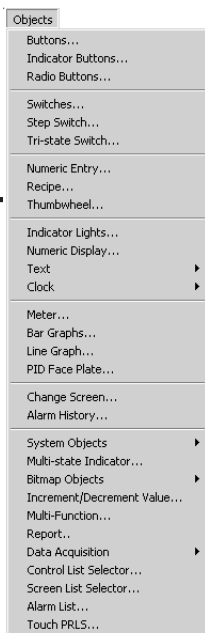
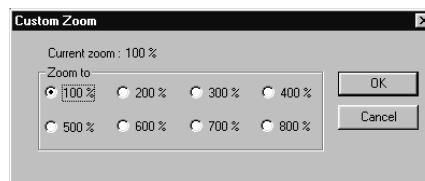
Show 320x240 Rectangle

Click on this menu item or the  icon to show a 320 x 240 area on your 8-inch or 10-inch programming screen. The 320 x 240 area depicts the size of the 6-inch PowerPanel screen. This is useful when designing screens for more than one panel size. Be sure to select **Screen > Show Touch Cells** when using this feature, in order to actually see the rectangle.

Zoom

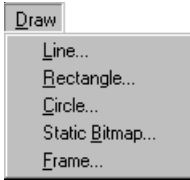


Click on  Zoom to view your screens at preset magnifications. Select from the available magnifications. Use the scroll bars to the right and bottom of the screen to view another area of the screen.



Objects Menu

Because objects are the main screen creation tool in the project, a section of this manual is dedicated to explaining each object in detail. For information about an object seen on the menu to your left, see the **OBJECTS** chapter of this manual beginning on page 37.




Note: To toggle between horizontal/vertical lines and diagonal lines, you may press F8 on your keyboard.

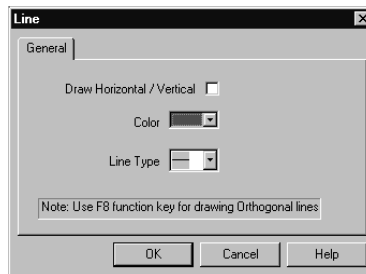
Draw Menu

Line

The Line draw tools allows you to draw a line.

To draw a **Line**:

1. Click on the Line icon  on the tool bar or select Line from the Draw Menu.
2. A dialog box will appear allowing you to select the color and type of line to draw.




3. Click on the box following **Draw Horizontal/Vertical** to limit the line draw to horizontal and vertical lines. All lines will automatically be drawn either up and down (vertically), or across the screen (horizontally).
4. Select a point on the screen with the pointer and click the left mouse button. Move the mouse to draw the line. When you've completed the line, click the button again to terminate the segment.

Rectangle

This Draw tool allows you to draw a Rectangle


To draw a Rectangle:

1. Click on the Rectangle icon  on the tool bar or select Rectangle from the Draw Menu.
2. A dialog box will appear allowing you to select the outline and the fill color.
3. Select a point on the screen with the pointer and click the left mouse button to locate the first corner of the rectangle. Pull the box with the mouse to the size you want and release the mouse button to set the box size.

Circle

The Circle Draw tool allows you to draw a circle.


To draw a Circle:

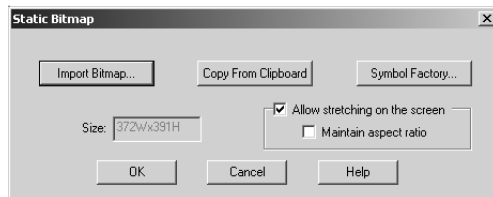
1. Click on the Circle icon  or select Circle from the Draw Menu.
2. A dialog box will appear allowing you to select the outline and fill color of the circle.
3. Select a point on the screen with the pointer and click the left mouse button to locate the starting point of the circle. Pull the circle with the mouse to the size you want and release the mouse button to set the perimeter size.

Static Bitmap

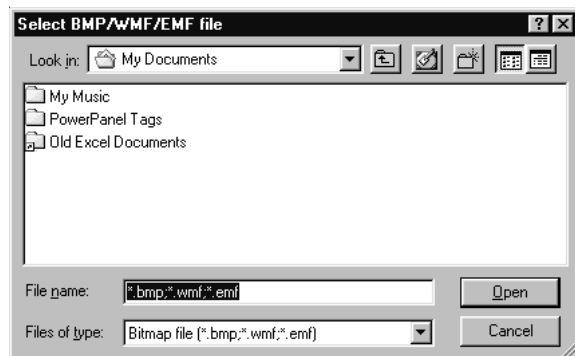
This object allows you to import a bitmap and place it on the screen.

To place a Bitmap on the screen:

1. Click on the Static Bitmap icon  or select Static Bitmap from the Draw Menu. The following dialog box will appear.



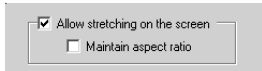
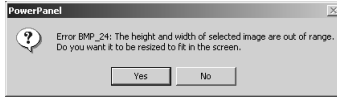
2. There are 3 options for importing a bitmap:
 - a. Click on the **Import Bitmap** button and a window will appear (shown below) allowing you to navigate to the directory/folder where a Bitmap (.BMP) file, a Windows Metafile (.WMF), an Enhanced Windows Metafile (.EMF), Graphics Interchange Format (.GIF), JPEG File Interchange Format (.JPG), or a Windows Icon (.ICO) file resides.



IMPORTANT NOTE:
(**IMPORT BITMAP** option) To size a Bitmap once it has been placed on the screen, click on it to select, grab one of the handles and drag to the size you want.

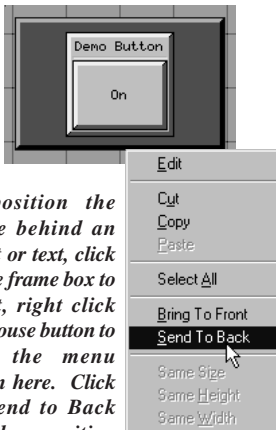


IMPORTANT NOTE:
(**SYMBOL FACTORY** option) To **SIZE** a symbol in Symbol Factory, go to Options in the Symbol Factory when selecting the symbol. (See instructions on page 170.)



If you want to be able to stretch the image once it is placed on the screen, click in the box in front of Allow stretching on the screen. If you want to Maintain aspect ratio, click in that box, also.

Draw a Frame around a Button object.



To position the frame behind an object or text, click on the frame box to select, right click the mouse button to view the menu shown here. Click on Send to Back and then position the frame around the object.

Click on it to highlight and click on the Open button. The File Name and Size of the graphic file will be displayed. If the Bitmap is too large, you will be asked if you want to resize the image to fit the screen (see message to the left).

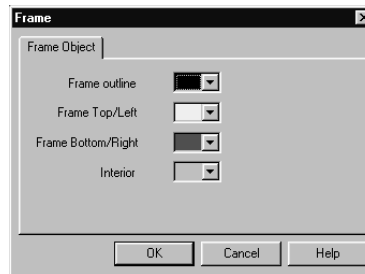
b. You may also click on **Symbol Factory®** to gain access to a library of over 3,000 symbols for industrial automation, including pumps, pipes, valves, tanks, mixers, motors, ducts, electrical symbols, flow meters, material handling, sensors, PLC's, transmitters, and ISA symbols. Once in Symbol Factory navigate to the symbol you want to import, click on Copy and the symbol is automatically imported into the object. (See next page, 170, for sizing a bitmap in Symbol Factory.)

c. The third option is to click on **Copy from Clipboard**. This will copy a bitmap you have saved to the clipboard onto the current screen. You can copy a bitmap saved or created in another program onto the system clipboard, and then import it into the current screen.


3. Click **OK** to import the bitmap, or **Cancel** to quit.

Frame

This Draw tool allows you to draw a Frame. It can then be placed behind an object or text.



To draw a Frame:

1. Click on the Frame  icon on the tool bar or select Frame from the Draw Menu.
2. A dialog box will appear allowing you to select the color of the Frame outline, Frame Top/Left, Frame Bottom/Right and Interior.
3. Select a point on the screen with the pointer and click the left mouse button to locate the first corner of the frame. Grab a corner or side handle of the frame with the mouse to the size you want and release the mouse button to set the frame size.

Sizing a Bitmap in Symbol Factory

Double click on the Static Bitmap symbol already placed on the screen to change the size (resize object). The screen to the right will appear. Click on **Symbol Factory** button.

The **Symbol Factory** screen to the right will appear.

Click on the **Options...** button.

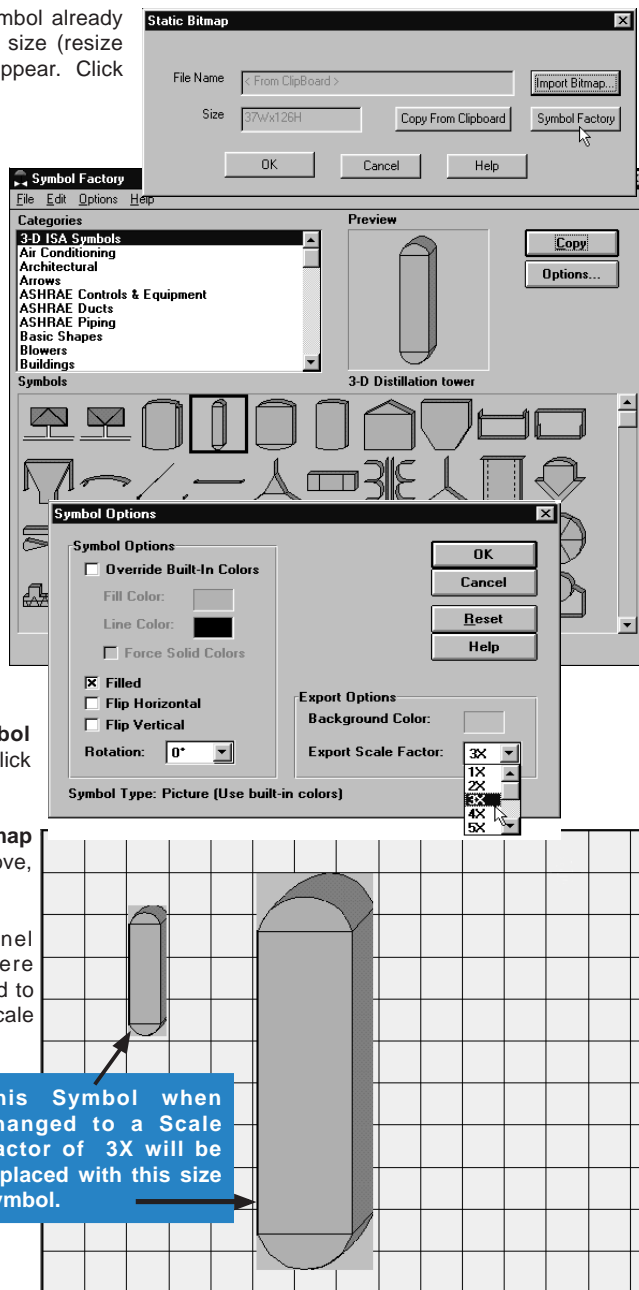
When picture symbols are exported as bitmaps, they are exported at the size of the **Preview** window. If you need a larger bitmap, you can increase the **Export Scale Factor** from 1X to 10X from the **Symbol Options** screen. Fine adjustment of the exported bitmap size can be done by resizing the **Preview** window. To resize the **Preview** window, drag its right or bottom edge.

From the **Symbol Options** screen, click on the DOWN Arrow next to **Export Scale Factor** under **Export Options**. Select the Scale Factor (in this case 3X). Click on **OK**.

You will be taken back to the **Symbol Factory** screen shown to the right. Click on the **Copy** button.

You will be taken back to the **Static Bitmap** Screen (first screen capture shown above, right), click on **OK**.

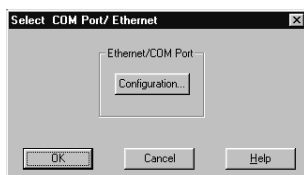
You will return to the PowerPanel Programming Screen you were configuring. Your object will be scaled to the size you have selected. If the Scale Factor you have selected is too large for the screen, you will receive a warning message and will not be allowed to import the bitmap. If this happens, select a smaller Scale Factor.



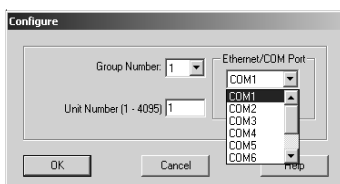
Sizing a Dynamic Bitmap object in Symbol Factory works the same way!



If you are programming off-line and then click on a Panel Menu item, the programming software will automatically put you on-line to communicate with the panel. Ensure that you are connected to the correct COM port. Click On COM Configuration from the Panel Menu. The following window will appear.

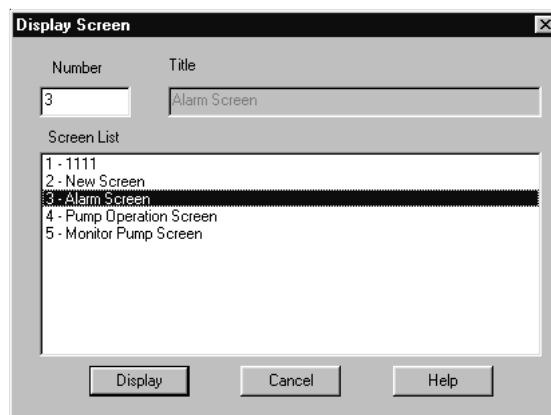


You will be prompted to select the COM Port/Ethernet connection you are using. Click on the Configuration button. The following window will appear. Select the correct COM port from the available choices.



Panel Menu

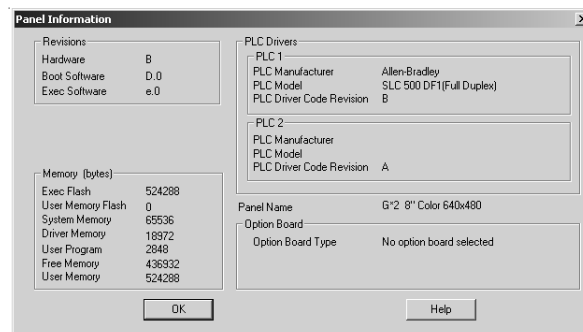
Display Screen



This selection allows you to select a screen to display on the PowerPanel. To display a screen, enter the number or click on the name in the Screen List to highlight it, and then click on the **Display** button.

Information

Click for important information about the PowerPanel you are using and your PLC. Information includes:



Revisions:

Hardware: This is the revision of the PowerPanel unit.

Boot Software: This is internal panel firmware used to power-up the panel.

Exec Software: This is also internal firmware, used to display panel information and allow panel adjustments to the internal clock, Contrast adjustment, and testing of the Touch cells and Display.

Memory (bytes):

Exec Flash: Amount of memory available to hold the boot and exec firmware.

User Memory Flash: This will let you know if the PowerPanel has a Flash Memory card installed. (It will say 0 if not installed.) This feature allows you to back up your program from the panel itself. There are two available memory sizes — 512K and 1 MEG. Once the program is backed up onto the card, you can use it to load the program into different units — no programming computer is necessary.

System Memory: This tells you how much RAM memory is used by the firmware.

Driver Memory: This is the memory used by the PLC Driver.

User Program: This is the size of the program that you currently have loaded into your PowerPanel.

Free Memory: This is the RAM memory that you have left to use in the PowerPanel.

User Memory: This is the total RAM Memory available for use in the PowerPanel.

PLC Driver:

PLC Manufacturer, PLC Model, PLC Driver Code Revision: This provides information about the type of PLC you are using.

Panel Name: A description of the panel model is provided.

Option Board:

Option Board Type: This tells you if you have an option board installed and the type.

Reboot

Click here to reboot the PowerPanel. (Performs a Soft Boot.)

Clear Program

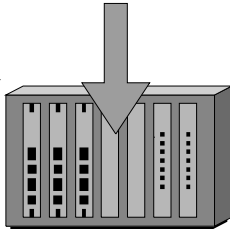
Click here to Clear the current user program from the panel.

Flash

Click on **RAM to Flash** to copy RAM memory to Flash card. This will transfer the user program loaded on your panel to the Flash Card. Flash card may then be removed and installed into another panel to transfer to the RAM. You may also backup your user program to save it before shutting off power to the panel. You may then reinstall the program later.

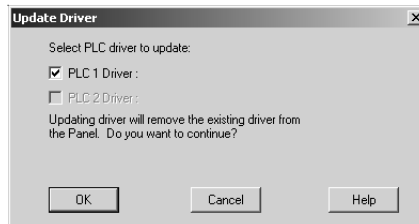
Click on **Flash to RAM** to copy the contents of the Flash card to the panel RAM memory. This is used to copy the user program from one panel to another or to reinstall a program to the panel.

PLC DRIVER CODE only



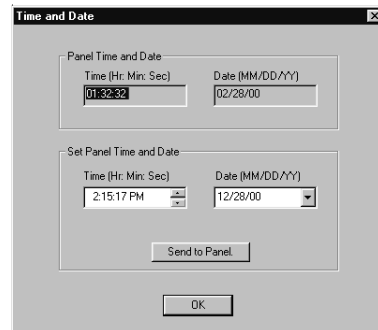
Update PLC Driver

Click on this to update your PLC Driver. This will send the current PLC Driver code to your panel (other project information is not sent.)



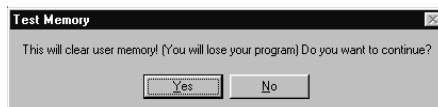
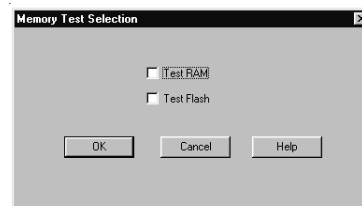
Time/Date

Here you may view and set the **Panel Time and Date** and then send it to the PowerPanel. The current Panel Time and Date will display in the window. Under **Set Panel Time and Date**, your PC time will display. To change the **Time**, click on the hour, minutes or seconds and type in the appropriate numbers or use the UP/DOWN arrows to change the time. To change the **Date**, click the DOWN arrow next to the date field. A calendar, shown below, will appear. Use the arrows to search for date. (The current PC date will be circled.) Click on the **Send to Panel** button to send your changes to the PowerPanel clock.



Diagnostics

To run a diagnostic program on the panel, click here. The screen shown to the right will appear, letting you choose from **Test RAM** and **Test Flash**. Click **OK** to begin diagnostic.



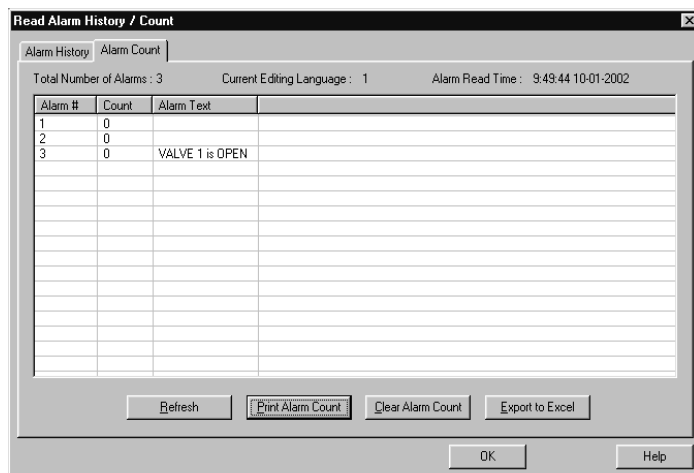
When you click on OK, you will receive the "warning" message shown to the left. Save program to disk before testing the panel memory!

Read Alarm History/Count (ON-LINE Only)

If you are in the Edit ON-LINE Mode, you can click on **Read Alarm History/Count** to read the current alarm history or alarm count from the PowerPanel. From the screen shown below you will be able to **Print Alarm History**, **Clear Alarm History**, or **Export to Excel**. Click on **Refresh** to get an updated history.



Click on the **Alarm Count** tab to view a list of the programmed Alarms and the number of times they have been triggered. From the screen shown below you will be able to **Print Alarm Count**, **Clear Alarm Count**, or **Export to Excel**. Click on **Refresh** to get an updated count.





Please Note: If all tags are removed, the software will stop monitoring automatically.

Monitor Tags (ON-LINE Only)

Monitor Tags

Select the tags which are to be monitored from this list and click on

Total Tags : 9

TagName	Address
PUMP #1 ON/OFF	N7:2
PUMP #3 IS ON/OFF	N7:3
PUMP # 2 IS ON/OFF	N7:4
OPEN VALVE 1	N7:5
PUMP 1 PRESSURE	N7:88
BUTTON OBJECT	B3:0/0
INDICATOR LIGHT	B3:1/0
NUMERIC ENTRY	N7:0
NUMERIC DISPLAY	N7:1

Read Time : 10:21:46 10-01-2002
Total Tags : 0

DataFormat for Unsigned: Unsigned Decimal

TagName	Value
---------	-------

Buttons: Close, Help, Add >>, << Remove, Start Monitoring

Click on **Monitor Tags** if you want to monitor tag values from the PowerPanel. You may select up to 100 tags to monitor at one time. Click on the **Tag Names** (in the first column/list) that you want to monitor. Press the Shift key and then click to highlight more than one tag name. Then click on the **Add >>** button. To remove tag names from the list to be monitored, click on them to highlight and then click on the **<<Remove** button. They will be added to the list (on the right hand side) to be monitored. Select the **Data Format** for the value. Click on the **Start Monitoring** button to begin the monitoring process. The tag values from the panel will display in the **Value** column.

Monitor Tags

Select the tags which are to be monitored from this list and click on

Total Tags : 5

TagName	Address
PUMP #1 ON/OFF	N7:2
PUMP #3 IS ON/OFF	N7:3
PUMP # 2 IS ON/OFF	N7:4
OPEN VALVE 1	N7:5
PUMP 1 PRESSURE	N7:88

Read Time : 10:21:46 10-01-2002
Total Tags : 4

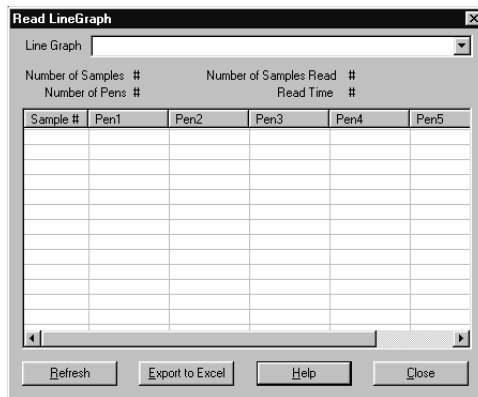
DataFormat for Unsigned: Unsigned Decimal

TagName	Value
BUTTON OBJECT	??
INDICATOR LIGHT	??
NUMERIC ENTRY	??
NUMERIC DISPLAY	??

Buttons: Close, Help, Add >>, << Remove, Start Monitoring

Read Line Graph from Panel (ON-LINE Only)

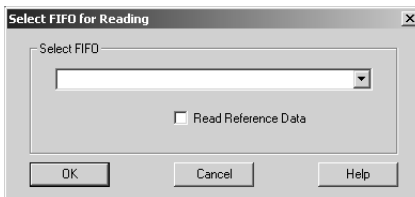
Click on **Read Line Graph from Panel** if you want to download data from a programmed Line Graph from the PowerPanel. The Line Graph data will be displayed in the window shown below. From here you may **Export** the data to an **Excel** file. Select the Line Graph from those available. Click on the **Refresh** button to read the current data from the panel.



The 'Read LineGraph' dialog box contains a dropdown menu for 'Line Graph'. Below it are labels for 'Number of Samples #', 'Number of Pens #', 'Number of Samples Read #', and 'Read Time #'. A table with 6 columns (Sample #, Pen1, Pen2, Pen3, Pen4, Pen5) and 10 rows is present. At the bottom are buttons for 'Refresh', 'Export to Excel', 'Help', and 'Close'.

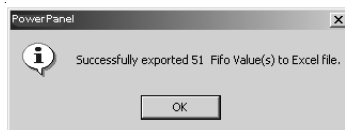
Read FIFO from Panel (ON-LINE Only)

Click on this to select and read current data from a **Global Object, Data Acquisition - FIFO**. The data from each FIFO table will be displayed in an **Excel** File.

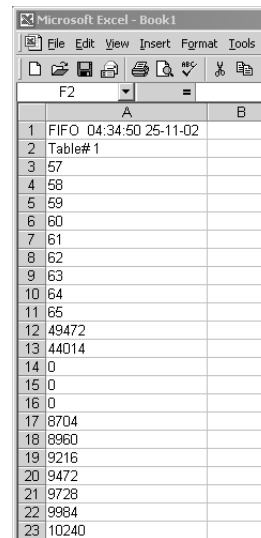


The 'Select FIFO for Reading' dialog box has a 'Select FIFO' dropdown menu. Below it is a checkbox labeled 'Read Reference Data'. At the bottom are buttons for 'OK', 'Cancel', and 'Help'.

Click on the down arrow next to the **Select FIFO** field and select the FIFO you want to read. Click in the box in front of **Read Reference Data** if you want the Reference Data to be listed in the **Excel** file also.



The 'PowerPanel' dialog box shows an information icon and the text 'Successfully exported 51 Fifo Value(s) to Excel file.' with an 'OK' button.

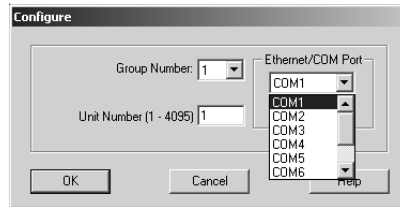


The screenshot shows an Excel spreadsheet with data in column A. The data includes timestamps, table numbers, and numerical values.

	A	B
1	FIFO 04:34:50 25-11-02	
2	Table# 1	
3	57	
4	58	
5	59	
6	60	
7	61	
8	62	
9	63	
10	64	
11	65	
12	49472	
13	44014	
14	0	
15	0	
16	0	
17	8704	
18	8960	
19	9216	
20	9472	
21	9728	
22	9984	
23	10240	

COM Configuration

If you will be programming on-line, ensure that you have selected the COM Port/Ethernet connection you are using. Click on **COM Configuration**. The following window will appear.

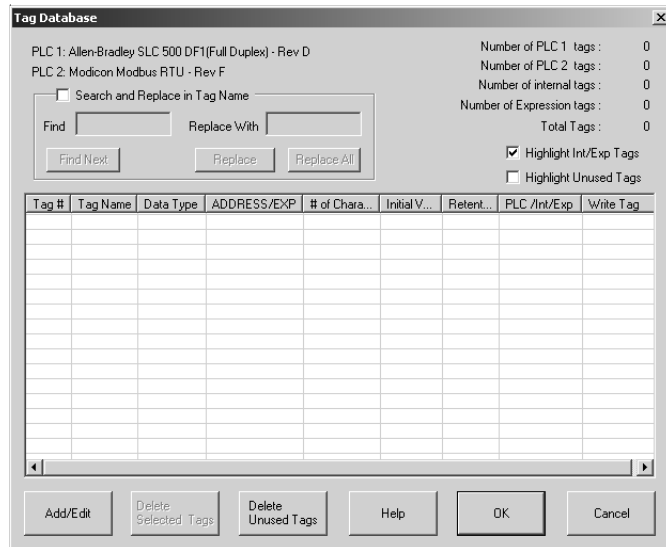


Select the appropriate **Ethernet/COM Port** from the available choices (COM1 through COM8 and Ethernet.)

Setup Menu

Tag Database

The **Tag Database** is where you define the Tags for your project. A Tag can be a discrete (single bit) location or word location within the PowerPanel. Tags may be either **Internal** (no address), **External** (PLC 1 or 2 Address) or Expression (math or logic function). In other words, a Tag is an alias for a PLC address or an Internal panel location that an object is communicating with.



PLC 1: and PLC 2:

The model and manufacturer of the PLC (s) used in the project are provided at the top of this dialog box.

Search and Replace in Tag Name

This feature allows you to search for a character string (up to 40 characters) in the Tag Database, specifically, the Tag Name, and replace each instance of the character string with another character string. To use this feature, perform the following steps:

1. Click in the box in front **Search and Replace in Tag Name**.
2. Enter the characters (up to 40) in the text field next to **Find** that you want to search for in the **Tag Name**.
3. Enter the characters (up to 40) in the text field next to **Replace With** that you want to replace in the **Tag Name**.

4. Click on the **Find Next** button. The program loader will find the character string in applicable **Tag Names** and highlight the line(s) where it appears.
5. Click on **Replace** if you want to approve/check each item before replacing. Click on the **Replace All** button if you want to replace all instances of the character string without checking.

Number of PLC 1 tags, Number of PLC 2 tags, Number of internal tags, Number of Expression tags, and Total Tags

The number of PLC 1 and PLC 2 tags that are programmed in the project are listed here. Also, the number of internal tags and Expression tags that are currently programmed in the project are provided. Total Tags is the combined total of all kinds of tags.

Highlight Internal/Expression Tags

This is enabled by default. Click on the box with the check mark to deselect this option. When it is selected the internal tags in the list will be displayed in blue and the expression tags will display in red.

Highlight Unused Tags

Click in the box in front of Highlight Unused Tags to enable this option. The tags that are not currently linked to an object or attribute are highlighted in the list. The unused tags are highlighted in yellow. If you want to delete the unused Tags, click on the **Delete Unused Tags** button at the bottom of the screen.

Tag

This is the number of the Tag in the list.

Tag Name

You may enter a descriptive **Tag Name** of up to 40 characters.

Data Type

This is the format of the data. Select the **Data Type** that is appropriate for your type PLC. Choose from DISCRETE, SIGNED_INT_16, SIGNED_INT_32, UNSIGNED_INT_16, UNSIGNED_INT_32, BCD_INT_16, BCD_INT_32, FLOATING_PT_32, and ASCII_STRING.



ADDRESS/EXP

The syntax for entering PLC addresses depends on the type of PLC. A message (similar to the one shown to the left) will display letting you know if the PLC Address type and Tag Data Type don't match or if the Address is invalid. If you are configuring an Expression tag, the expression will appear in this column.

Number of Characters

If the Tag will read a character (ASCII) string from the PLC or write a character string to the PLC, you will need to enter the number of characters here. Each PLC register can contain 2 characters. You may enter up to

40 characters. The PLC will assign the correct number of sequential registers needed for the string. The address you have entered for the tag is the starting address. **See Appendix B for a list of ASCII characters supported by the PowerPanel.**

Initial Value

This option affects the values of the tags when the program is loaded into the panel and when the panel is reset. If you enter a value in the **Initial Value** field, when the program is loaded into the panel or reset, the tag will be set to this value and sent to the PLC. If not selected, the values are set to zero (numeric), off (discrete), or "" (text) when program is loaded into the panel or reset.

Retentive

This appears if you have selected **Retentive** when configuring the tag Initial Value. Select this option if you want the initial value to be used **ONLY** when the program is loaded into the panel. When the panel is reset, the tag values will be retained. In other words, it will not cause the tag values to change. The values will be sent to the PLC.



PLEASE NOTE: If your panel is connected to multiple PLCs, see *Mapping Tags in the Help file for your PLC Type*.

PLC/Int/Exp

This column tells you whether the tag is a PLC1, PLC2, Internal, or Expression tag.

Write Tag

This column will display the name of the destination or Write tag. A value from an expression will be written to this tag.

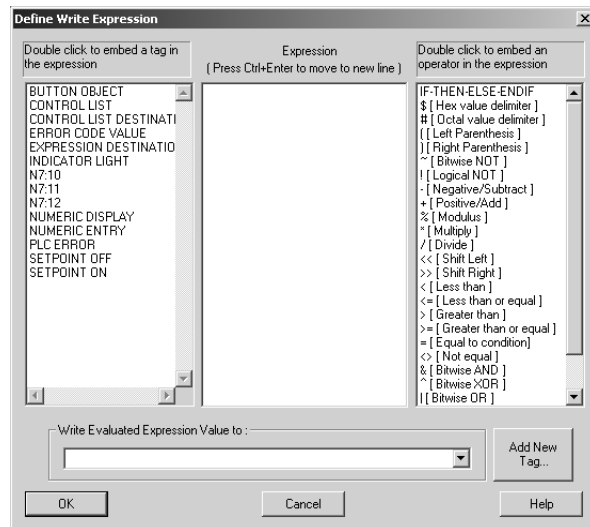
Add/Edit Button

Click on this button to **Add** a new tag, or **Edit** an existing tag.

To Add a New Tag:

1. Click on **Add/Edit** button. (If you have existing tags, ensure that none are highlighted or you will go to the edit tag window.) The screen shown to the right will appear.

2. Under **Select Tag Type**, select from **PLC1**, **PLC 2** (if applicable), **Internal Tag**, or **Expression**.
 - a. When you are connected to two different types of PLCs, **PLC 1** or **PLC 2** allows you to configure tags for each separately according to the data format they use. If your application does not require a second PLC, and you have not selected dual PLCs when you set up your project, PLC 2 will be unavailable (grayed out) as a selection.
 - b. Select **Internal tag** if the tag you are adding does not use a PLC address. **Address String** will be grayed out (unavailable).
 - c. Select **Expression** if the tag you are adding is comprised of a constant and/or operands and/or predefined tags. To **Define Write Expression**, click on the button so named. The following window will appear. **Before creating an EXPRESSION TAG read the following explanation.**



Expression Tags

Display and Entry Expression Tags

Display expression tags are expressions that do not assign the result to a destination tag. The result is used as the display value for objects (for example, an Indicator Light object.) These tags are read-only and can only be used where read-only tags are permitted. These tags are updated when the operand values change.

Entry Expression Tags

Entry expression tags assign the result to a destination tag. These tags are write-only and can only be used where write-only tags are permitted.



Expression tags are also not allowed in the following System Attributes tags under the Panel to PLC tab — Current Screen, Good Communication Toggle., Low Battery, Screen Buffer Overload, Popup Keypad, and PLC1 and/or PLC2 Error tags

The destination tag is updated when a new value is assigned to the tag, for example when entering a value into a numeric entry object.

Objects that read and write to the same tag CANNOT use Expression tags. These include the following objects: Button, Switch, Radio Button, Step Switch, Tri-state Switch, Thumbwheel Switch, the Numeric Entry when using a single tag and as an object's Protection tag.

Conditional Expressions: The format for the conditional is:

IF <expression> THEN <expression> ELSE <expression> ENDIF

The ELSE and ENDIF are required. All expressions require at least one operand. The conditional can be used as an operand. For example:

tag1 * IF tag2 THEN tag3 + 10 ELSE 5 ENDIF

The following table provides a list of the Operators, their Symbol, order of Precedence and Direction

Operators	Symbol	Precedence	Direction
End of expression	none	13	Left to right
Left parenthesis	(	13	Left to right
Right parenthesis	)	13	Left to right
Bitwise NOT	~	12	Right to left
Logical NOT	!	12	Right to left
Negative	-	12	Right to left
Positive	+	12	Right to left
Modulus	%	11	Left to right
Multiply	*	11	Left to right
Divide	/	11	Left to right
Add	+	10	Left to right
Subtract	-	10	Left to right
Shift left	<<	9	Left to right
Shift right	>>	9	Left to right
Less than	<	8	Left to right
Less than or equal	<=	8	Left to right
Greater than	>	8	Left to right
Greater than or equal	>=	8	Left to right
Equal	=	7	Left to right
Not equal	<>	7	Left to right
Bitwise AND	&	6	Left to right
Bitwise XOR	^	5	Left to right
Bitwise OR	|	4	Left to right
Logical AND	&&	3	Left to right
Logical OR	||	2	Left to right
Assignment		1	Right to left
Special Symbols			
Hex constant	\$	Used to indicate a hexadecimal constant i.e. \$3F	
Octal constant	#	Used to indicate a octal constant i.e. #377	
Accumulator	?	Used in entry expressions to represent the user-entered value	

Click in the middle column to type in a **Constant**. Double click on a **Tag** in the list on the left hand column to insert it into an **Expression**. The tag will appear in the center column. Select (double click) an **Operator** in the right hand column to insert into the **Expression**. Insert another tag into the **Expression**. Select a **Destination Tag** where the value of the **Expression Tag** result will be stored.

When the Expression Tag is triggered, the operation that is expressed in the tag will be performed and the result will be stored in the **Destination Tag**. See the below for an example.

For example:

N7:12 is the Expression Tag:

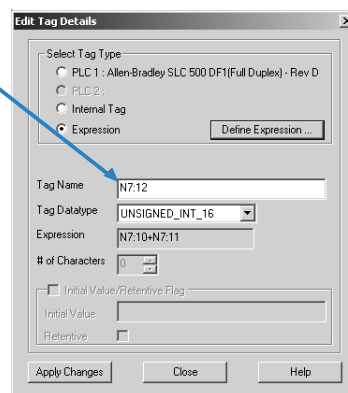
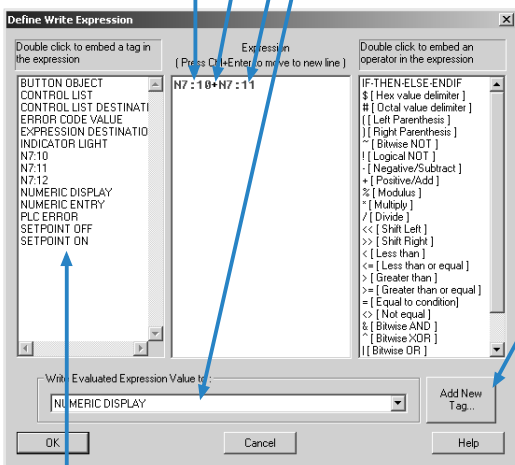
N7:10 Tag Value = 1

Operator = + [Positive/Add]

N7:11 Tag Value = 3

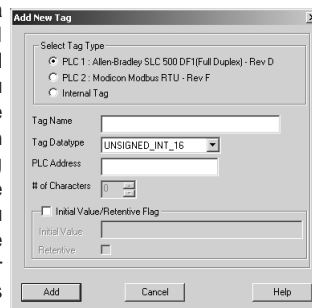
Numeric Display is the Destination Tag:
Value = 4

$$1 + 3 = 4$$



This is a very simple example of the complex computations that can be accomplished with Expression tags. However, please be aware that Expression Tags are limited to a maximum of 40 operands per tag. Complex operands may use more memory and may further limit the number of operands per expression. In order to avoid errors when trying to use the tag, avoid using too many operands per expression.

Click on this button, if you have not previously created a Write Evaluated Expression Value tag, or need to create a new tag. The **Add New Tag** dialog will appear. After you have created the tag it will appear in the first column tag list. Please be aware that you cannot create Expression tags or modify existing tags with this button.





PLEASE NOTE:

This “right click” menu (shown below) is available when you have the Tag Database window open. Just right click your mouse button while your cursor resides anywhere in the window, and you can select from this popup menu.

- After you have selected the type of tag, click in the field next to **Tag Name** and enter a name for the tag.
- Click on the DOWN arrow next to the **Tag Data Type** field and select the data type from the list.
- If you have selected **Internal Tag**, the **Address String** field will not be available. If you have selected Expression, the Address String Field will contain the expression. If you have selected PLC 1 or PLC 2, enter a PLC **Address String**.
- If you have selected **ASCII String** as your **Data Type**, the **# of Characters** field will become available. Enter or select the number of characters (up to 40) for the ASCII String.
- Select **Initial Value/Retentive Flag**. This option affects the values of the tags when the program is loaded into the panel and when the panel is reset. If you enter a value in the **Initial Value** field, when the program is loaded into the panel or reset, the tag will be set to this value and sent to the PLC. If not selected, the values are set to zero (numeric), off (discrete), or "" (text) when program is loaded into the panel or reset. If you have entered a value into the **Initial Value** field, the **Retentive** option becomes available. Click in the box in front of **Retentive** if you want the initial value to be used ONLY when the program is loaded into the panel. When the panel is reset, the tag values will be retained. In other words, it will not cause the tag values to change. The values will be sent to the PLC.
- Click on the **Add New Tag** button. The new tag will appear in the Tag Database list.

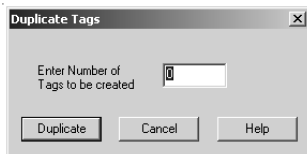
To edit an existing tag:

- Highlight the tag in the list that you wish to edit.
- Click on the **Add/Edit** button. The **Edit Tag Details** window will appear.
- Make any changes and then click on the **Apply Tag Changes** button. The changes will be made to the tag and are reflected in the Tag Database list.

To sort the Tag Database list:

- Right click your mouse while your cursor resides anywhere in the Tag Database list. The popup menu to the left will appear.
- From here you may **Add**, **Edit**, or **Delete** a tag. You may also choose to sort the list by **Address**, **Tag Name**, or **Data Type**.

If you click on **Sort by Address**, the list will be sorted alphanumerically by the PLC address. If you click on **Sort by Tag Name**, the list will be



sorted alphabetically (A to Z) by the name of the tag. If you click on **Sort by Data Type**, the tag list will be sorted by Data Type. For tags with same data type, it will perform a second sort by the address.

To duplicate a Tag:

1. Highlight the tag you want to duplicate in the Tag Database list.
2. Right click your mouse button, and then click on Duplicate Tag in the popup menu that appears.
3. Simply enter the number of the tags that you want created in the field provided and then click on the **Duplicate** button.
4. The duplicates will appear in the Tag Database list.

Tag Cross Reference

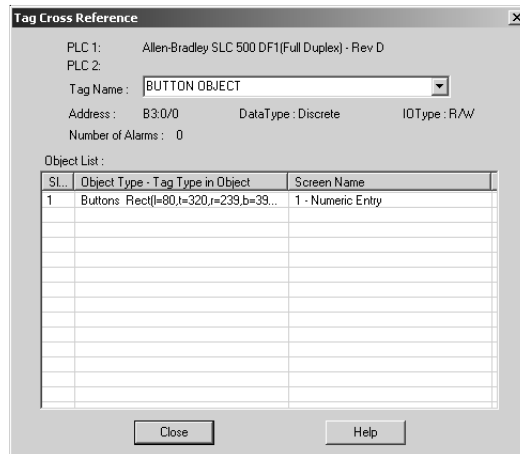
The **Tag Cross Reference** screen provides you with a list of the programmed tags and a cross reference to the objects that use them. Information is provided on the PLC type and protocol next to **PLC1:** and **PLC2:** (if applicable) at the top of the screen.

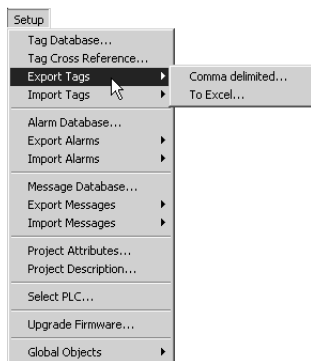
Tag Names are listed alphabetically. Click on the arrow to scroll to a particular tag name. Information on the **Address**, **Data Type**, **I/O Type** and **Number of Alarms** programmed to the tag is given.

In the **Object List** you are provided with the objects or Project Attributes that use the selected Tag. The **Object Type**, **Tag Type in Object**, and the **Screen Name** of where the Object appears is listed in the window. To view specifics for each Tag, go to the **Tag Name** field, click on the DOWN arrow, and select one from the drop down list.



NOTE: The Tag Cross Reference screen is for information purposes only. You cannot change or edit the tag parameters from this window.





Export Tags

Click on the **Export Tags** menu item to write the tags from your current (open) project to an Excel file or a CSV file.

Comma delimited...

The CSV (Comma delimited or Comma-separated values) file format saves only the text and values as they are displayed in cells of the Tag Database. All rows and all characters in each cell are saved. Columns of data are separated by commas, and each row of data ends in a carriage return. If a cell contains a comma, the cell contents are enclosed in double quotation marks.

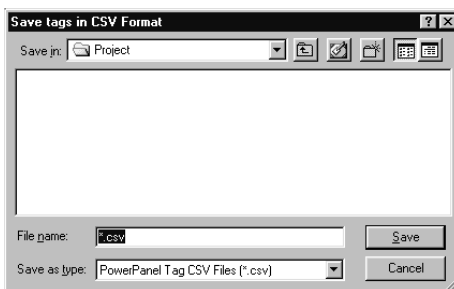
Example of what a CSV file looks like opened in Notepad:

```

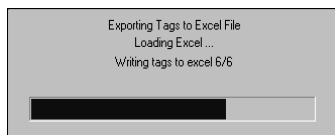
TAG NAME,TAG DATATYPE,TAG ADDRESS,# OF CHARACTERS,INITIAL
VALUE,RETENTIVE FLAG,PLC NO/INTERNAL
EXPRESSION TAG SUBTRACT,UNSIGNED_INT_16,,,,,4
N7:12,UNSIGNED_INT_16,,,,,4
BUTTON OBJECT,DISCRETE,B3:0/0,,,1
INDICATOR LIGHT,DISCRETE,B3:1/0,,,1
NUMERIC ENTRY,UNSIGNED_INT_16,N7:0,,,1
NUMERIC DISPLAY,UNSIGNED_INT_16,N7:1,,,1
N7:10,UNSIGNED_INT_16,N7:10,,,1
N7:11,UNSIGNED_INT_16,N7:11,,,1

```

Click on **Comma delimited...** if you want to save the tag database as a .CSV file. The following window will appear allowing you to name the file and navigate to the directory and folder where you want to save it.



A status window will appear letting you know the progress of the Exporting Tags process.



To Excel...

Click on the **To Excel...** menu item to write the tags from your current (open) project to a Microsoft Excel® file. The PowerPanel Programming Software will open Microsoft Excel and write the tags to an Excel book as shown on the next page. Click on File > Save As in the Excel program and enter a name for the file. Click on the Save button to save the file under the name you have entered. Close Excel to return to PowerPanel Programming Software.

Microsoft Excel opens with exported tags written to the book.

Click on File > Save As, navigate to directory/folder where you want to save the Tag Database as an Excel file.

The first line is a header line.

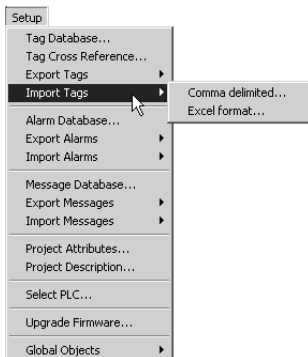
	A	B	C	D	E	F	G	H
1	TAG NAME	TAG DATATYPE	ADDRESS/EXP	# OF CHA	INITIAL VALU	RETENT	PLC /INT/EXP	DEST TAG
2	ERROR CODE	UNSIGNED_INT_16					INTERNAL	
3	PLC ERROR	DISCRETE					INTERNAL	
4	EXPRESSION	UNSIGNED_INT_16	0.000/00				PLC1	
5	N7.12	UNSIGNED_INT_16					PLC1	
6	BUTTON OBJ	DISCRETE	B3.0/0				PLC1	
7	INDICATOR LI	DISCRETE	B3.1/0				PLC1	
8	NUMERIC ENT	UNSIGNED_INT_16	N7.0				PLC1	
9	NUMERIC DISI	UNSIGNED_INT_16	N7.1				PLC1	
10	CONTROL LIS	UNSIGNED_INT_16	N7.5				PLC1	
11	CONTROL LIS	UNSIGNED_INT_16	N7.6				PLC1	
12	N7.10	UNSIGNED_INT_16	N7.10				PLC1	
13	N7.11	UNSIGNED_INT_16	N7.11				PLC1	
14	SETPOINT OF	UNSIGNED_INT_16					EXPRESSION	
15	SETPOINT ON	UNSIGNED_INT_16	[[N7:10]]+[[N7:11]]				EXPRESSION	
16	ADD TAG	UNSIGNED_INT_16	[[N7:10]]+[[N7:11]]				EXPRESSION	[[NUMERIC DISPLAY]]
17								

Column Headers in the Excel file will be:

TAG NAME, **TAG DATA TYPE**, **ADDRESS/EXP** (an expression will appear within double brackets [[]]), **# OF CHARACTERS**, **INITIAL VALUE**, **RETENTIVE FLAG** (if applicable), **PLC/INT/EXP** (will list if the tag is a PLC1 or PLC 2 tag, and Internal tag or a Expression tag), **DEST TAG** (if an Expression tag, the Destination Tag will be listed here and appear in double brackets). These attributes are listed for each tag in the project database.



A message will appear letting you know whether or not the export was successful and how many tags were exported.

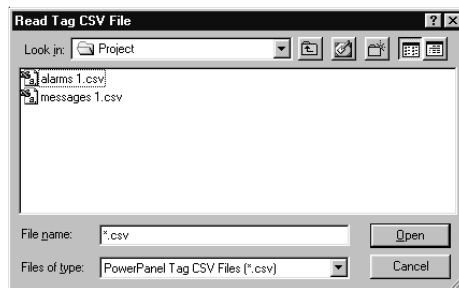


Import Tags

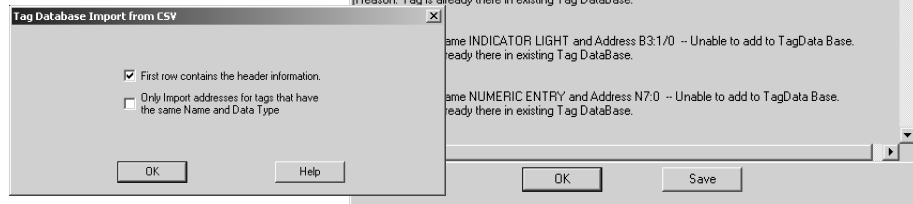
Click on the **Import Tags** menu item to import the tags into your current (open) project from a Microsoft Excel® (.xls) file or a CSV (Comma delimited or Comma-separated values) file format.

Comma delimited...

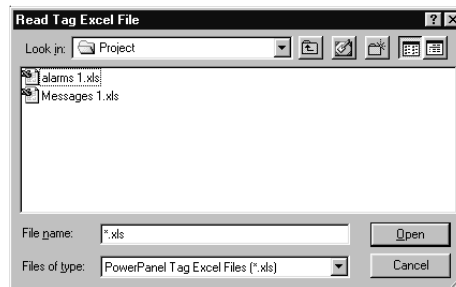
1. Click on **Import Tags > Comma delimited...** to import tags from a .CSV file. The following window will appear. Navigate to the folder where the file is stored.



The dialog below allows you to choose whether or not there is header information in the .CSV file and allows you to only import addresses for PLC tags with the same Name and Data Type as in the tag database. However, this is not true for Expression tags — if an Expression Tag with the same name already exists in the project, it will not be imported.



- Click on **Setup>Tag Database** to view the database and make any corrections or changes.




Excel Format...

Click on the **Import Tags > Excel Format...** menu item to select the Microsoft Excel® file where the tag database resides. Navigate to the file you want, click on it to highlight it and then click on the **Open** button. The Tag Database Import from Excel window will appear (shown on the next page). PowerPanel Programming Software will read the **Excel Database Fields** and allow you to choose the field name that correlates with the **PowerPanel Tag Database** field in your project.


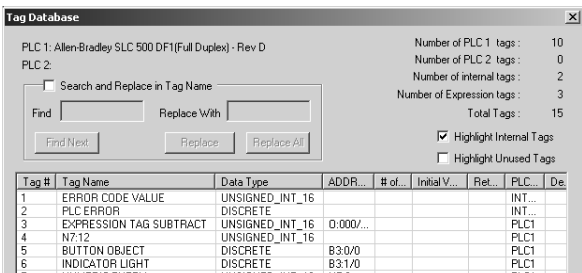
1. Click on the down arrow to view the **Excel Database Fields** and select the Excel field that corresponds to the **PowerPanel Tag Database** field (**TAG NAME, TAG DATA TYPE, ADDRESS/EXP, # OF CHARACTERS, INITIAL VALUE, RETENTIVE FLAG, PLC/INT/EXP, DEST TAG**). (See **Tag Database Import from Excel** dialog, below, right.) Click on **First row contains the header information** if the first row in the Excel file is a header row. Click on **Only Import addresses for Tags that have the same Name and Data Type** if you want to import new addresses for tags that already exist in your project.
2. Each column heading in the Excel file you have imported will display when you click on the down arrow next to each field. (You may have other information in the file that you cannot import into the Tag Database. The Tag Database only allows the types of information shown in the dialog box.) Select the heading of the Excel column that corresponds to the column headings in the Tag Database.
3. Click on the **Import** button to import tags. The tags will be written to your project. Tags that already exist will not be overwritten. A message will appear letting you know if the **Excel** file was successfully imported into the **Tag Database**. The **Error Log View** will appear to let you know if there were problems in the import process or if the tags already exist in the project. Open the Tag Database to make changes.

This is a sample of an Excel file that is selected to import into the Tag Database.



	A	B	C	D	E	F	G	H
1	TAG NAME	TAG DATA TYPE	ADDRESS/EXP	# (INITIAL	RETE	PLC /INT/EXP	DEST TAG	
2	ERROR C	UNSIGNED_INT_16				INTERNAL		
3	PLC ERR	DISCRETE				INTERNAL		
4	EXPRESS	UNSIGNED_INT_16	0:000/00			PLC1		
5	N7:12	UNSIGNED_INT_16				PLC1		
6	BUTTON C	DISCRETE	B3:0/0			PLC1		
7	INDICATO	DISCRETE	B3:1/0			PLC1		
8	NUMERIC	UNSIGNED_INT_16	N7:0			PLC1		
9	NUMERIC	UNSIGNED_INT_16	N7:1			PLC1		
10	CONTROL	UNSIGNED_INT_16	N7:5			PLC1		
11	CONTROL	UNSIGNED_INT_16	N7:6			PLC1		
12	N7:10	UNSIGNED_INT_16				PLC1		

Here you will select the columns in the Excel file that correspond to the Tag Database columns.

Tag Database

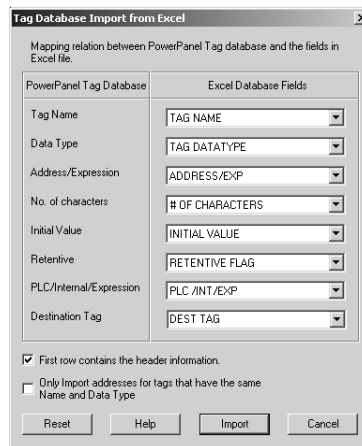
PLC 1: Allen-Bradley SLC 500 DF1(Full Duplex) - Rev D
 PLC 2:

Search and Replace in Tag Name
 Find: Replace With:

Number of PLC 1 tags: 10
 Number of PLC 2 tags: 0
 Number of internal tags: 2
 Number of Expression tags: 3
 Total Tags: 15

☒ Highlight Internal Tags
☐ Highlight Unused Tags

Tag #	Tag Name	Data Type	ADDR...	# of...	Initial V...	Ret...	PLC...	De...
1	ERROR CODE VALUE	UNSIGNED_INT_16					INT...	
2	PLC ERROR	DISCRETE					INT...	
3	EXPRESSION TAG SUBTRACT	UNSIGNED_INT_16	0:000/...				PLC1	
4	N7:12	UNSIGNED_INT_16					PLC1	
5	BUTTON OBJECT	DISCRETE	B3:0/0				PLC1	
6	INDICATOR LIGHT	DISCRETE	B3:1/0				PLC1	




Tag Database Import from Excel

Mapping relation between PowerPanel Tag database and the fields in Excel file.

PowerPanel Tag Database	Excel Database Fields
Tag Name	TAG NAME
Data Type	TAG DATATYPE
Address/Expression	ADDRESS/EXP
No. of characters	# OF CHARACTERS
Initial Value	INITIAL VALUE
Retentive	RETENTIVE FLAG
PLC/Internal/Expression	PLC /INT/EXP
Destination Tag	DEST TAG

☒ First row contains the header information.
☐ Only Import addresses for tags that have the same Name and Data Type

Once you have made your selections and click on **Import**, the data in the Excel fields will be placed into the Tag Database columns, shown here.



Alarm Database

To program the panel to monitor the PLC for errors and trigger an alarm, see page 188, **Project Attributes, Panel to PLC tab, PLC Error and PLC Error Code Value**.

[illegible]

To program an alarm in the Alarm Database, perform the following steps:
(Alarms are numbered from 1 to 999.)



PLEASE NOTE:

The steps necessary to program your PowerPanel to monitor the PLC for errors and trigger an alarm are provided in Appendix A, Troubleshooting, “How do I Log and Display a PLC Error Message?”

1. Click on the **Add/Edit** button to add a new alarm. To edit an existing alarm, click on it in the list to highlight and then click on the **Add/Edit** button. One of the following screens will appear.

Add New Alarm Dialog Box

Add New Alarm #1

Alarm Number: 1

Tag Name:

Alarm State: ☒ On ☐ Off

Limits:

Alarm State: Out of Range

Low Limit:

High Limit:

☒ Log

☐ Print

☒ Display

☐ Send Message To FMD Marquee / Slave

Group Number: 0 Unit Number: 0 - 4095

Alarm Text:

Language: 1

Help Add New Alarm Close

Edit Alarm Details Dialog Box



IMPORTANT NOTE: Under Limits, Alarm States, your selections are: Out of Range, In the Range, Equal, Not Equal, Greater Than, Less Than. If you select Equal, Not Equal, Greater Than, or Less Than, you will only be allowed to enter one value (in the field next to Low Limit).



Please Note: The Add New Alarm dialog box defaults to Log and Display enabled (check mark in box preceding option).



2. Use the UP/DOWN arrows next to the **Alarm Number** field to scroll to the alarm number you wish to add. Click on the DOWN arrow next to the **Tag Name** field and select the tag that will trigger the alarm.
3. If your Data Type is **DISCRETE**, you will be able to select whether the alarm will be displayed when the bit is **On** or when the bit is **Off**. (If the data type of the tag is another data type, the **Alarm State** selections are not available.) The default is "On."
4. Select the **Alarm State** (see note to left.) Enter the **Limits** (tag set points) — **Low Limit** and **High Limit**. The alarm will activate when the tag value goes outside the set point limits. The available ranges for the Low and High Limits will be displayed in these fields and are particular to the data type. The limits you place here must be within these ranges. (If the data type of tag is Discrete then data boxes for Low Limit and High Limit will not be available.)
5. Click on the box next to **Log** if you want the alarm to be logged in Alarm History when it is triggered. **The Alarm History object will store up to 64 alarms and, when the 65th alarm comes in, it will dump the oldest alarm.**
6. Click on the box next to **Print** if you want the alarm message to print out the Serial Port of the panel every time it is triggered. The Alarm print outs will look similar to the following:

```

TIME & DATE: 10:40:38 23-MAY-01
ACTUAL VALUE:                                     STATE:  ON
ALARM:      DISCRETE ALARM #1

TIME & DATE: 10:41:30 23-MAY-01
ACTUAL VALUE:                                     STATE:  OFF
ALARM:      DISCRETE ALARM #1

TIME & DATE: 10:43:04 23-MAY-01
ACTUAL VALUE:                                     555
STATE:      LOW
ALARM:      NUMERIC ALARM #1

TIME & DATE: 10:43:31 23-MAY-01
ACTUAL VALUE:                                     3000
STATE:      OFF
    
```

- Click on the box next to **Display** if you want the alarm to be displayed on the panel when triggered.
- Select the **Language** number and type in the **Alarm Text** (message) you want to display on the PowerPanel when the alarm is triggered. The message can be up to 34 characters in up to 9 different languages.
- Click on **Add New Alarm #** or **Apply Changes Alarm #** button to save and exit the dialog box.

Export Alarms

Click on the **Export Alarms** menu item to write the alarms from your current (open) project to an Excel file or a CSV file.

Comma delimited...

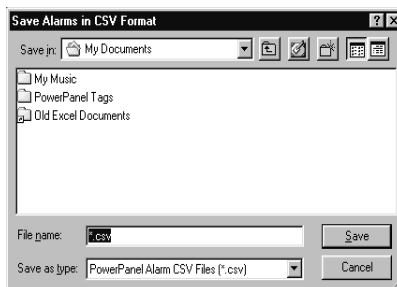
The CSV (Comma delimited or Comma-separated values) file format saves only the text and values as they are displayed in cells of the Alarm Database. All rows and all characters in each cell are saved. Columns of data are separated by commas, and each row of data ends in a carriage return. If a cell contains a comma, the cell contents are enclosed in double quotation marks.

Example of what a CSV file looks like opened in Notepad:

```
ALARM #,TAG NAME,ALARM STATE,LOW LIMIT,HIGH LIMIT,DISPLAY,LOG,PRINT,LANG #,ALARM TEXT
1,MOTOR RUNNING,ON,,YES,YES,NO,1,The Motor is Running
2,MOTOR STOPPED,OFF,,YES,YES,NO,1,The motor has stopped
3,OVER TEMP,,0,100,YES,YES,NO,1,Oven Temperature is over maximum
```

Click on Comma delimited...

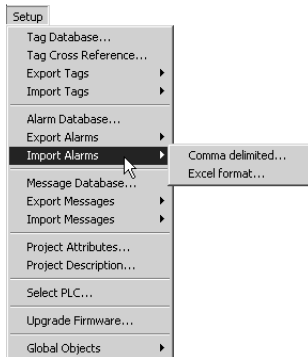
if you want to save the alarm database as a .CSV file. The following window will appear allowing you to name the file and navigate to the directory and folder where you want it to be saved.



To Excel...

Click on the **To Excel...** menu item to write the alarms from your current (open) project to a Microsoft Excel® file. The PowerPanel Programming Software will open Microsoft Excel and write the alarms to an Excel book as shown below. Click on File > Save As in the Excel program and enter a name for the file. Click on the Save button to save the file under the name you have entered. Close Excel to return to PowerPanel Programming Software.

Book1										
	A	B	C	D	E	F	G	H	I	J
1	ALARM #	TAG NAME	ALARM STATE	LOW LIMIT	HIGH LIMIT	DISPLAY	LOG	PRINT	LANG #	ALARM TEXT
2	1	MOTOR RUNNING	ON			YES	YES	NO	1	The Motor is Running
3	2	MOTOR STOPPED	OFF			YES	YES	NO	1	The motor has stopped
4	3	OVER TEMP		0	100	YES	YES	NO	1	Oven Temperature is over maximum



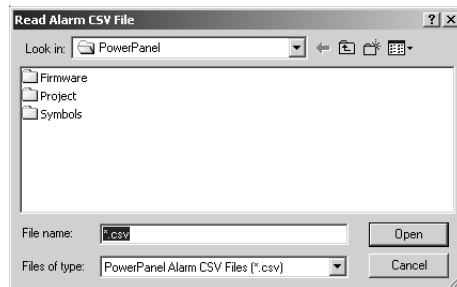
Import Alarms

Click on the **Import Alarms** menu item to import the tags into your current (open) project from a Microsoft Excel® (.xls) file or a CSV (Comma delimited or Comma-separated values) file format. Please be aware that the alarm will not be imported if :

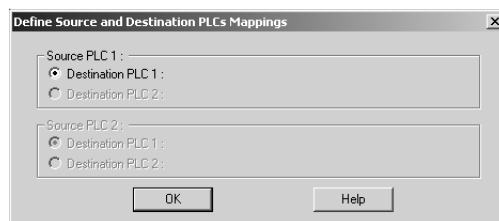
- the tag name doesn't exist in the database
- the existing tag's data type cannot accommodate low/high limits
- an alarm with the same number exists in the Alarm Database

Comma delimited...

1. Click on **Import Alarms> Comma delimited...** to import alarms from a .CSV file. The following window will appear. Navigate to the folder where the file is stored.



2. Click on the .csv file you want to import to highlight it and then click on the **Open** button. The following window will appear.



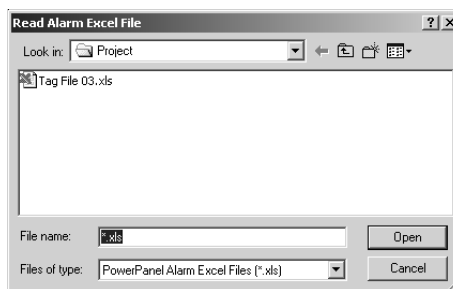
3. If connected to two PLCs, here you will select which PLC Alarm Database the alarms will be copied to. Make your selections and click **OK**. If only connected to one PLC, you will have no other options available (Destination PLC 1) is selected for you. Just click on the **OK** button to begin the import.

The file will be written to the Alarm Database. An **Errors Log View** will display letting you know if there were any problems importing the file into your current project.

4. Click on **Setup>Alarm Database** to view the database and make any corrections or changes.

Excel Format...

1. Click on the **Import Alarms>Excel Format...** menu item to select the Microsoft Excel® file where the Alarm Database resides. The following window will open. Navigate to the file you want, click on it to highlight it and then click on the **Open** button.



2. A window will open showing you the status of the import process. When finished importing the Alarms, you will receive a message telling you how many Alarms were successfully imported.
3. The **Error Log View** will appear to let you know if there were problems in the import process or if the Alarms already exist in the project. Open the Alarm Database to make any changes. (You may also open the .csv or Excel file, make changes, and then try to import again.)



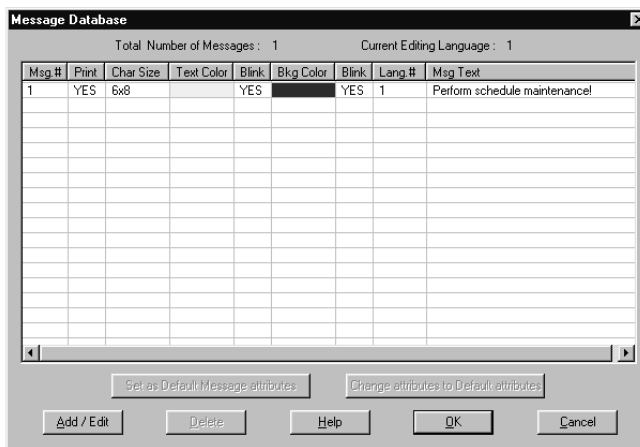
Please Note:

The Message Database is used by the Lookup Text Object. For information on how to use the Message Database in a Lookup Text Object, see Chapter 4, Lookup Text, page 73.

Message Database

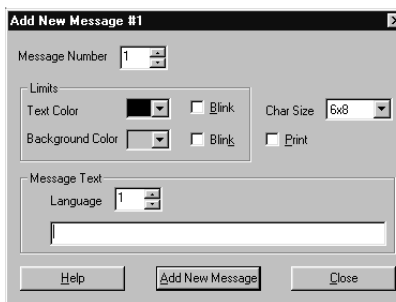
Here you may create up to 999 messages (limited by available memory). Each message may be up to 200 characters and you can choose various message attributes such as, **Character Size**, **Text Color**, **Background Color**, **Blink** (for text and/or background), and **Language**. The Message Database is used by the **Lookup Text** object to display a message on the panel. The value for the message is assigned in the Tag associated with a **Lookup Text** object.

To create a new message:



1. Click on the **Add** button. The following **Add New Message** dialog box will appear.

Add New Message Dialog Box



Colors you have selected for the message text and background display right in the message database window!

Msg #	Print	Char Size	Text Color	Blink	Bkg Color	Lang #	Msg Text
1	YES	8x16	(black)	NO	(black)	1	
2	NO	6x8	(black)	NO	(black)	1	
3	NO	6x8	(black)	NO	(black)	1	
4	YES	6x8	(black)	YES	(black)	1	

2. Select the **Message Number** using the UP/DOWN arrows.
3. Select the **Text Color** by clicking on the DOWN arrow to view the color palette. Click on the box in front of **Blink** if you want the text in the message to blink on and off.
4. Select the **Background Color** and whether or not you want the background of the message to **Blink**.



Please Note: To set the printer parameters, see page 195, Project Attributes, Printer tab. To set the PowerPanel COM1 port to "Printer," see Appendix D.



5. Select the Character Size of the Message Text by clicking on the down arrow next to the **Char. Size** field to choose from the available choices.
6. Click on the box in front of **Print** if you want the message to print to a printer anytime it is displayed on the Panel. The message print out will look similar to the following:

TIME & DATE: 8:18:57 28-MAY-01
MESSAGE: THIS IS MESSAGE NO. 1 THIS IS MESSAGE NO. 1

TIME & DATE: 8:25:47 28-MAY-01
MESSAGE: THIS IS MESSAGE NO. 1 THIS IS MESSAGE NO. 1

TIME & DATE: 8:25:51 28-MAY-01
MESSAGE: THIS IS MESSAGE NO. 2 THIS IS MESSAGE NO. 2

TIME & DATE: 8:25:53 28-MAY-01
MESSAGE: HI!

TIME & DATE: 8:25:55 28-MAY-01
MESSAGE: BYE!

TIME & DATE: 8:25:58 28-MAY-01
MESSAGE: THIS IS MESSAGE NO. 1 THIS IS MESSAGE NO. 1

7. Under **Message Text**, select the **Language** for the message (up to 9) and then enter the text for the message. When finished, click on the **Add New Message #** button.

To edit an existing message:

1. Click on the message in the **Message Database** list to highlight it and then double click or click on the **Add** button. The following dialog box will appear.

Edit Message Details Dialog Box

2. Make changes and then click on the **Apply Changes Message #** button. The changes will be saved to the Message Database.

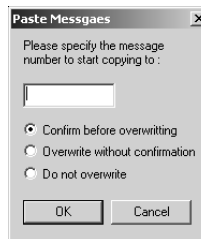
If you want to set the Default Message Attributes to the same as a configured message, click on it in the Message Database dialog box list to highlight it, and then click on the **Set as Default Message attributes** button. To change an existing message's attributes to the default attributes, click on the message in the list to highlight it, then click on the **Change Attributes to Default Attributes** button.



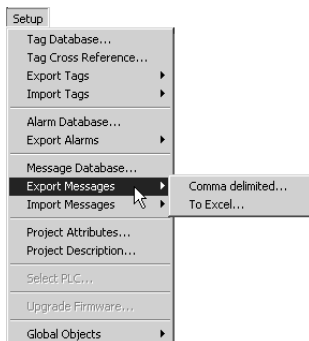
Message Edit Right Click Menu

If you right click the mouse button while your cursor resides anywhere in the Message Database window, the menu shown to the left will appear.

- If you want to **Add** a message, click on **Add/Edit**. If you want to **Edit** a message, click on the message in the database to highlight it, right click to bring up the menu and then select **Add/Edit**.
- If you want to **Delete** a message, click on the message (click while holding the Shift Key to select more than one message) to highlight and then select **Delete** from the menu.
- If you want to **Copy** a message, click on the message (click while holding the Shift Key to select more than one message) to highlight and then select **Copy** from the menu.
- Open the Right Click Menu again and click on **Paste** to paste the copied messages into the database. The following window will appear.



Enter a message number to start copying to. Select from the options — Confirm before overwriting, Overwrite without confirmation and Do not overwrite. Click OK. The messages will be pasted into the Message Database.



Export Messages

Click on the **Export Messages** menu item to write the messages from your current (open) project to an Excel file or a CSV file.

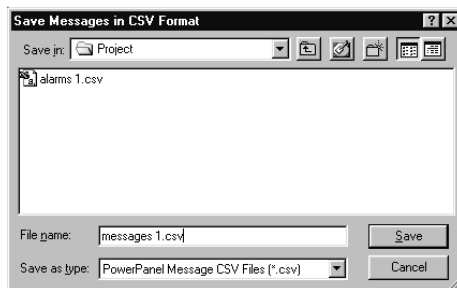
Comma delimited...

The CSV (Comma delimited or Comma-separated values) file format saves only the text and values as they are displayed in cells of the Message Database. All rows and all characters in each cell are saved. Columns of data are separated by commas, and each row of data ends in a carriage return. If a cell contains a comma, the cell contents are enclosed in double quotation marks.

Example of what a CSV file looks like opened in Notepad:

```
1,YES,6x8,144,NO,3195072,NO,1,This is message number 1.
2,NO,6x8,49152,NO,15765504,NO,1,This is message number 2.
3,NO,8x16,0,NO,12632256,NO,1,This is message number 3.
4,NO,6x8,15728640,YES,12632304,YES,1,This is message number 4.
```

Click on **Comma delimited...** if you want to save the Message Database as a .CSV file. The following window will appear allowing you to name the file and navigate to the directory and folder where you want to save it.



To Excel...

Click on the **To Excel...** menu item to write the messages from your current (open) project to a Microsoft Excel® file. The PowerPanel Programming Software will open Microsoft Excel and write the messages to an Excel book as shown below. Click on File > Save As in the Excel program and enter a name for the file. Click on the Save button to save the file under the name you have entered. Close Excel to return to PowerPanel Programming Software.

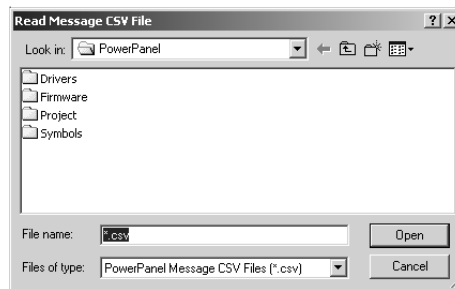
	A	B	C	D	E	F	G	H	I	J
	MESSAGE #	PRINT	CHAR SIZE	TEXT COLOR	BLINK	BKG COLOR	BLINK	MAX LANGUAGES	MESSAGE LANGUAGE 1	MESSAGE LANGUAGE 2
1	1	NO	6x8	17	NO	3	NO	1	Message Number 1	
2	2	YES	8x16	0	YES	15	YES	1	Message Number 2	
3	3	NO	8x16	32	NO	112	NO	1	Message Number 3	
4	4	NO	8x16	81	YES	34	NO	1	Message Number 4	
5										
6										
7										

Import Messages

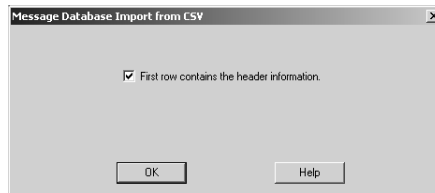
Click on the **Import Messages** menu item to import Messages into your current (open) project from a Microsoft Excel® (.xls) file or a CSV (Comma delimited or Comma-separated values) file format.

Comma delimited...

1. Click on **Import Messages> Comma delimited...** to import messages from a .CSV file. The following window will appear. Navigate to the folder where the file is stored.

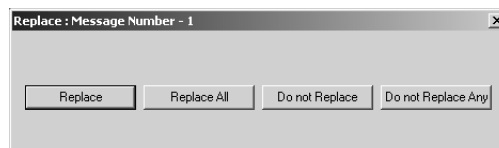


2. Click on the .csv file you want to import to highlight it and then click on the **Open** button. The following dialog box will appear.



Click OK, if the first row in the .csv file contains header information. If it does not, click in the box to remove the check mark and then click OK. (If the box is not checked, and the first row does contain the header information, click in the box to place a check mark, and click OK.)

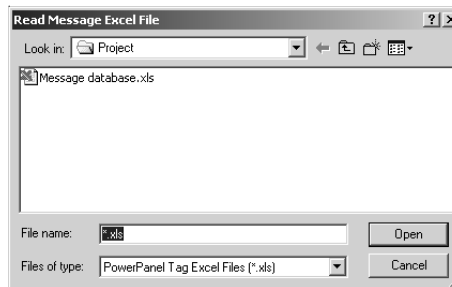
3. The file will be written to the Message Database. To avoid overwriting or replacing an existing message(s), a dialog box will appear providing you with import options.



4. Click on **Replace** if you want to Replace the existing Message No. 1 with Message No. 1 in the imported .csv file. Click on **Do not Replace** if you want to keep the existing Message No. 1. Click on **Replace All** if you want to overwrite/replace all Messages, or **Do Not Replace Any**, if you want to stop importing the messages.
5. Open the Message Database to view the imported messages.

Excel Format...

1. Click on the **Import Messages> Excel Format...** menu item to select the Microsoft Excel® file where the Message database resides. The following **Read Message Excel File** window will appear. Navigate to the file you want, click on it to highlight it and then click on the **Open** button.

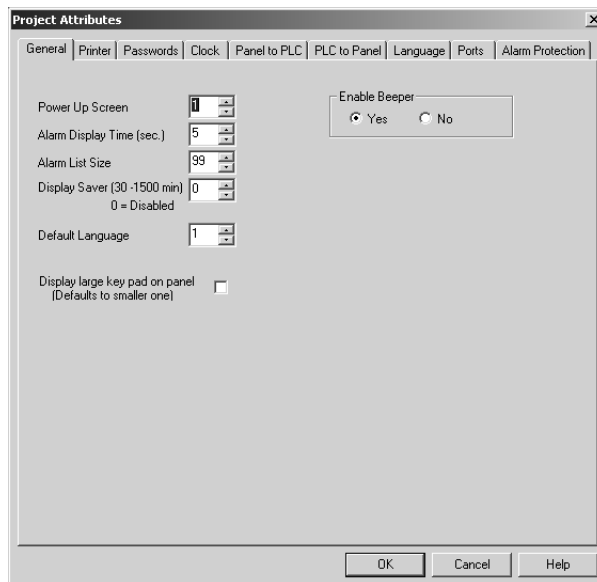


2. The file will be written to the Message Database. To avoid overwriting or replacing an existing message(s), a dialog box will appear providing you with import options (the same as for the .csv file shown on previous page.)
3. Click on **Replace** if you want to Replace the existing Message No. 1 with Message No. 1 in the imported .xls file. Click on **Do not Replace** if you want to keep the existing Message No. 1. Click on **Replace All** if you want to overwrite/replace all Messages, or **Do Not Replace Any**, if you want to stop importing the messages.
4. Open the **Message Database** to view the imported messages.

Project Attributes

Project Attributes represent the attributes that contribute to the configuration of the PowerPanel. Attributes listed under the General, Printer, Passwords, Clock, Panel to PLC, PLC to Panel, and Language tabs are provided below.

Under the **General** tab, you will enter the following attributes:



Power-Up Screen

This is the screen that will be displayed after the unit completes its power-up sequence. If the initial value of the "Switch to Screen Number" (from PLC) is anything but zero, this entry will be ignored. Range is 1–999.

Alarm Display Time (sec.)

Specifies the length of time in seconds (1 to 60) that each alarm will remain displayed before the next alarm, in the circular queue, is displayed.

Alarm List Size

If two or more alarms are active, they are placed in a circular queue and displayed one after another. This parameter specifies the length of the queue. Range is 1-99. In other words, this is the maximum number of alarms that will be on at one time. This is not the number of alarm inputs that are monitored. See the section on alarms for more information.

Display Saver (30-1500 minutes) 0 = Disabled

The length of time in minutes that passes before the screen saver is activated. The timer is reset when a new screen is displayed, or when the screen is touched or an alarm is activated.

Default Language

This value is the language that the panel will use when it powers up. Choose from Languages 1 to 9. Languages are programmed when creating the object text or in the Message Database. Languages are named under the Language Tab.

To change the active language when in the PowerPanel Programming Software, click on Edit > Current Editing Language.

Enable Beeper

When the buzzer is enabled, the buzzer will sound when the screen is touched on an active area. If the buzzer is disabled, the buzzer never sounds. Select Yes or No.

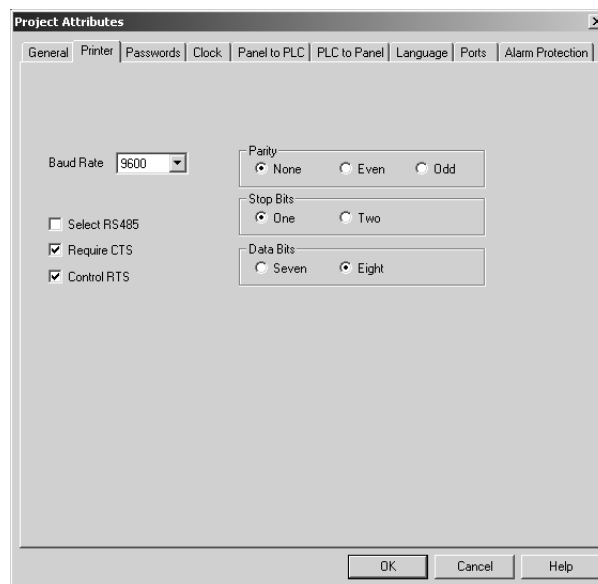
Display large keypad on panel (Defaults to smaller one)

Enable this attribute if you want the popup keypad to take up the entire screen of your panel (for 8-, 10- and 15-inch models).

Under the **Printer** tab, you will make selections for the following attributes:



Please Note: To set the PowerPanel COM1 port to "Printer," see Appendix D.



Baud Rate

Select baud rate to match Printer. Select from 1200, 2400, 4800, 9600, 19200, or 38400. Default is 9600.

Parity, Stop Bits, Data Bits

Select the corresponding attributes of the printer.

Select RS485

This allows you to select RS-485 as the communication protocol. If you are connecting RS-232 or RS-422, do NOT select this feature. Click on the box to place a check mark, if you want to enable RS-485.

Require CTS

Select this to match the printer.

Control RTS

Select this to match the printer.

Under the **Passwords** tab, you can make the following selections:

GROUP	Password/Tag	PASSWORD	TAG
Managers	Password	0	
Engineers	Password	0	
Supervisors	Password	0	
Maintenance	Password	0	
Shift 1 Operators	Password	0	
Shift 2 Operators	Password	0	
Shift 3 Operators	Password	0	
General	Password	0	

There are eight groups to which you may assign Passwords. Passwords restrict a user from using objects, such as push Buttons, Numerical Entry, etc. Passwords can also be used with Change Screen buttons to restrict access to other screens. Select from the following Group headings, or enter your own.

GROUP

- Managers
- Engineers
- Supervisors
- Maintenance
- Shift 1 Operator
- Shift 2 Operator
- Shift 3 Operator
- General

All “touch” objects allow you to select the security or Protection level of those that have access to that screen. A numerical keypad will pop up

**PLEASE NOTE:**

Leading Zeroes are ignored in passwords. In other words, if you enter a password of 000455, the password will be 455.

when the touch object is pressed, prompting the user to enter a password. Select Password or Tag under the **Password/Tag** heading. If you select Tag, the password value will be stored in the PLC. If you select Password, you will enter the password here. Passwords are entered by the operator with a popup keypad.

PASSWORD

A 1-10 digit number is assigned here that the user must enter to perform protected functions for a particular Group level. A password is an internal value stored in the panel.

TAG

Tag names are assigned to PLC registers that hold the passwords. This allows you to change the codes by writing new code values in the assigned PLC registers. It also gives you the ability to design a screen that allows a Supervisor to change security codes from the touch screen. **Only use positive values when assigning tag values.**

Under the **Clock** tab, you will select the following attributes:

The screenshot shows the 'Project Attributes' dialog box with the 'Clock' tab selected. The dialog has several tabs: General, Printer, Passwords, Clock, Panel to PLC, PLC to Panel, Language, Ports, and Alarm Protection. The 'Clock' tab contains the following fields and options:

- Date Tags:** Three dropdown menus for 'Year (word)', 'Month (word)', and 'Day (word)'.
- Time Tags:** Three dropdown menus for 'Hour (word)', 'Minute (word)', and 'Seconds (word)'.
- Clock Source:** Two radio buttons: 'Internal' (selected) and 'External'.
- INTERNAL:** Text description: 'Panel maintains clock using onboard Realtime Clock Chip. Panel will write date and time values to PLC, if above tags are mapped to PLC.' Below this is a caution: 'CAUTION: Use Read/Write PLC addresses to use Internal Clock option'.
- EXTERNAL:** Text description: 'Panel uses values from the above tags in place of internal realtime clock. Panel will read these values from PLC, if the tags are mapped to PLC.'

At the bottom of the dialog are 'OK', 'Cancel', and 'Help' buttons.

Date Tags:

Year (word): Tag for the location that the panel sets with the year (0–99).

Month (word): Tag for the location that the panel sets with the month (1–12).

Day (word): Tag for location that the panel sets with the day (1–31).

Time Tags

Hour (word): Tag for internal location that the panel sets with the hour (1–12).

Minute (word): Tag for internal location that the panel sets with the minute (00–59).

Second (word): Tag for internal location that the panel sets with the second (00–59).

Clock Source

If you select **Internal**, the panel maintains the clock using the onboard Real-Time Clock chip. The panel will write data and time values to the PLC if the tags are mapped to the PLC. **(SEE NOTE TO THE LEFT.)**

If you select **External**, the panel uses values from the tags in place of internal Real-Time Clock. The panel will read these values from the PLC if the tags are mapped to the PLC. **(SEE NOTE TO THE LEFT.)**



*NOTE: If using **Internal**, the tag address string must use a **READ/WRITE** register in the PLC. The PLCs use **READ ONLY** registers for their internal clock/calendars and cannot be written to. If using **External**, be sure to use the correct PLC addresses!*

Under the **Panel to PLC** tab, you will enter the following attributes:

Item	Tag Name
Current Screen (word)	
Good Communication Toggle (Discrete)	
Low Battery (Discrete)	
Screen Buffer Overflow (Discrete)	
Popup Keypad (Discrete)	
Current Language Number (word)	
Switch to Screen Number (Map To Internal Tag Only)	
"Map To Internal Tag Only" Do not assign PLC addresses or Other objects to these	
<div>PLC 1</div> <div>Error Code Value (word)</div> <div>PLC Error (Discrete)</div>	
<div>PLC 2</div> <div>Error Code Value (word)</div> <div>PLC Error (Discrete)</div>	

Current Screen (word)

Tag for the register that the panel writes to, indicating the screen number that is currently displayed on the panel.

Good Communication Toggle (Discrete)

Watchdog — this bit is toggled every 5 seconds allowing the PLC to determine if the panel is communicating.

Low Battery (Discrete)

Indicates battery for system RAM needs to be replaced. Cleared on power-up, set when low battery is detected.

Screen Buffer Overflow (Discrete)

Indicates that the current screen and its objects and graphics contain more data than the screen buffer can hold. Set/cleared when switching screens.

Popup Keypad (Discrete)

Indicates that the Popup Keypad is active on the panel screen.

Current Language Number (word)

Shows the value (1–9) of the current language being used on the screen.

Switch to Screen Number (Map to Internal Tag Only)

Tag for the internal register that stores a screen number value. Writing a screen number to this tag will cause the panel to display the screen. This tag can be used by the Recipe, Math Logic, and Numeric Entry objects.

PLC Error (discrete) and PLC Error Code Value (word)**Error Code Value (word)**

Tag for internal location that the panel writes values to, indicating which PLC errors have occurred in the unit. The values are in decimal only. Convert them to Hex to find the PLC Error Code Value. PLC Error messages are listed in the Appendix A, PLC Error Messages, and in the programming software help under the PLC Help topic, Driver Errors.

PLC Error (Discrete)

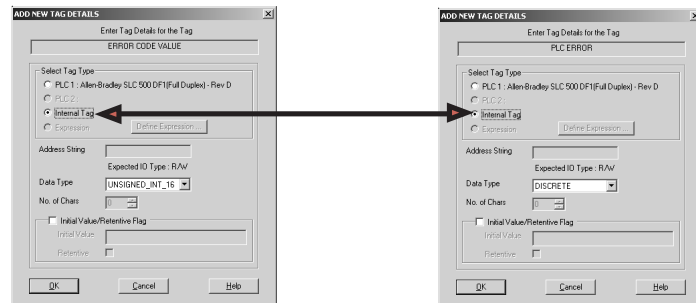
Tag for internal location where the panel sets a bit to indicate that a PLC error has occurred.



NOTE: The steps necessary to program your PowerPanel to monitor the PLC for errors and trigger an alarm are provided in the Troubleshooting Appendix A (see “How do I Log and Display PLC Error Messages?”).



NOTE: Map to Internal Tag only — DO NOT assign PLC addresses or other objects to these tags:



Under the **PLC to Panel** tab, you will enter the following attributes:

Item	Tag Name
Switch to Screen Number (word)	
Beeper On / Off (Discrete)	
Increase Clock by 1 hour (Discrete)	
Decrease Clock by 1 hour (Discrete)	
Clear Alarm History (Discrete)	
Clear Alarm Count (Discrete)	
Trigger Screen Saver (Discrete)	
Select Current Language (word)	

Under this Project Attributes tab, you will enter a tag to an internal panel location. These locations can be written to by the PLC.

Switch to Screen Number (word)

This tag can be written to by the PLC to display a screen on the PowerPanel. This will allow the PLC to change screens at anytime. A zero (0) placed in the tag will return the customer to the previous screen.

How do I switch screens from a PLC?



How to Switch Screens from a PLC:

1. Create a project or open an existing project that contains multiple screens.
2. From the Main Menu Bar select **Setup > Project Attributes** and click on the **PLC to Panel** tab.
3. For the item labeled **"Switch to Screen Number"** enter a tag for this item. (Note: Must be a word type tag and the data type for this tag should be unsigned decimal or BCD.)
4. Save the project and then write the project to your Panel.
5. When communications between the PLC and the Panel are established, the PLC can control the screen that will be displayed on the Panel.

- a. In the PLC write a value to the register that was assigned to the **“Switch to Screen Number”** tag. The value should correspond to the screen number you wish to display. (Note: this attribute is value oriented not bit oriented.)
- b. If a value is written that does not correspond to a valid screen number, the displayed screen will not change or give any indication that the value was invalid.
- c. Writing a value of zero to the **“Switch to Screen Number”** tag will change the screen displayed on the panel to the previously displayed screen.
- d. Writing the same value to the **“Switch to Screen Number”** tag will be ignored.

For Example: Assume the PLC wrote a 5 to the “Switch to Screen Number” tag and the Panel is displaying screen 5. If the panel screen is changed using a Change Screen Object to change to screen 6, writing a 5 to the “Switch to Screen Number” tag a second time will be ignored. The panel will not respond until it sees a new value in the “Switch to Screen Number” tag.

Beeper On/Off (Discrete)

This tag can be written to by the PLC to turn on the panel beeper. This will allow the PLC to turn on the panel beeper at anytime. (Beeper is activated by PLC and not by a press to a touch cell.)

Increase Clock by 1 hour (Discrete)

This allows the PLC to increment the panel system clock by 1 hour.

Decrease Clock by 1 hour (Discrete)

This allows the PLC to decrement the system clock by 1 hour.

Clear Alarm History (Discrete)

This allows the PLC to clear the panel alarm history.

Clear Alarm Count (Discrete)

This allows the PLC to clear the panel alarm count.

Trigger Screen Saver (Discrete)

This allows the PLC to trigger the panel screen saver.

Select Current Language (word)

This allows the PLC to select the current language (1–9).

Under the **Language** tab, you will assign the following attributes:



NOTE: For an operator to change the language on a configured panel, see *System Objects, Select Language*.

The PowerPanel supports Multiple Languages. Language Preference allows you to select and view different versions of text strings while you are working in the programming software. Each version can be created for a different language (up to 9) for each object where text is displayed. For each Language, type in a name for that Language under the heading **Enter Language Name**.

The Default Language is the language to be used by the PowerPanel on power-up.

A brief tutorial is provided here to show you how the Multi-Language Support Feature works. If, for instance, you are creating a Push Button Object, and you want the text within the button to say "Hello" in Language Number 1, "HOLA" (Spanish equivalent) in Language Number 2, and "GUTEN TAG" (German equivalent) in Language Number 3, do the following:

1. Click on the Button Object, and then click on the General tab, if necessary.
2. In the **Language Number** box type in "1" (or click on arrows to scroll up or down), then type **"HELLO"** in the text box. Go back to Language Number box and type in "2", then type **"HOLA"** in the text box, and repeat for "3" and **"GUTEN TAG."**
3. Click on **OK**.

Hello...

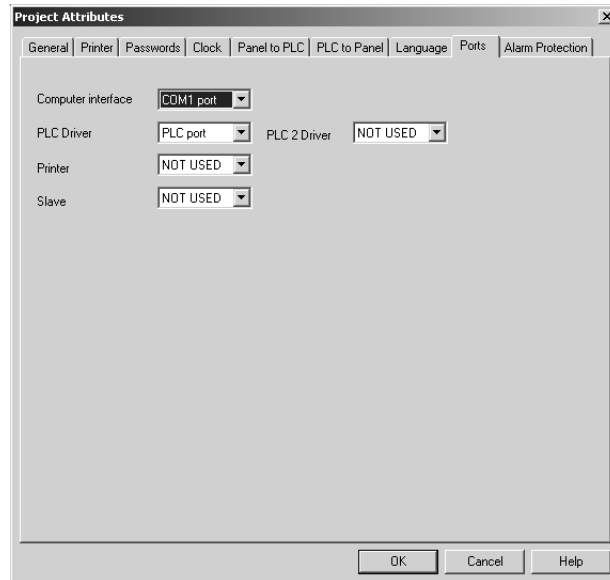
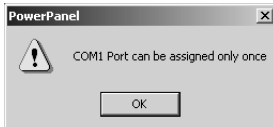
Hola...

Guten Tag...

- The next time you type in **Language Number** 1, 2 or 3, the corresponding text string will come up in the text box.
- To view the different languages for the **Button** object text, click on **Edit** on the **Main Menu Bar** and select **Current Editing Language...**, and then enter the "Working" language number that you want to view in PowerPanel Programming Software. The text in your Button Object will change accordingly. Keep in mind that this is for viewing only while working in the PowerPanel Programming Software. To set the language preference that will be displayed on the PowerPanel, you must select the preferred Language Number as the **Default Language** while programming your **Project Attributes**.

Under the **Ports** tab, you can make the following selections:

Please be aware that you can only assign a port to one device. If you attempt to duplicate the COM1 (e.g.) port assignment, you will receive the following message.



Computer Interface

Select the panel port that you will use to connect to a programming computer when you create a PowerPanel Project and load it into a panel.

PLC Driver/PLC 2 Driver

Select the panel port that you will use to connect to a PLC Driver (and PLC Driver 2 if used).

Printer/Slave

Select the panel port that you will use to connect to a serial printer or a slave device. Select **NOT USED** if not connecting to a Printer and/or a slave.

Under the **Alarm Protection** tab, you can make the following selections:



There are eight groups to which you may assign Passwords. Passwords restrict a user or group of users from clearing the Alarm History or Alarm Counts. See note on dialog box, above. Select from the following Group headings. Place a check mark in the box in front of group to enable access to that group by entering a password. To program passwords to the groups see Passwords feature beginning on page 196.

GROUP

- Managers
- Engineers
- Supervisors
- Maintenance
- Shift 1 Operator
- Shift 2 Operator
- Shift 3 Operator
- General

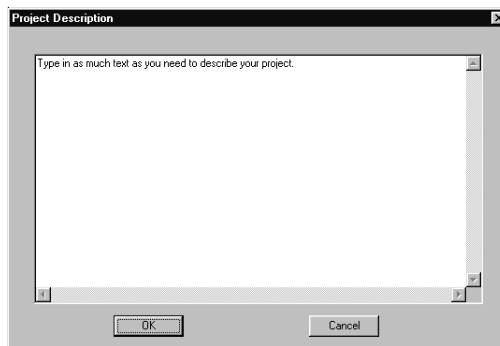


Note: This does not effect the Alarm History Object.

Alarms allow you to select the security or Protection level of those that can clear alarm history or counts. A numerical keypad will pop up when the Clear or Clear All buttons are pressed on the Alarm History screen or the Alarm Counts screen, prompting the user to enter a password. Passwords are entered by the operator with the popup keypad.

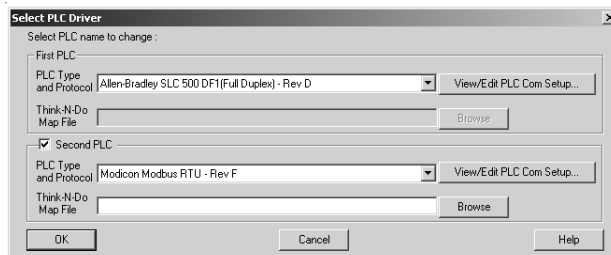
Project Description

Enter text here to describe your project. You may enter up to 400 characters. Click on the **OK** button when you are finished.



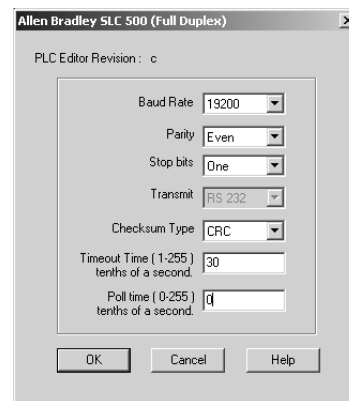
Select PLC

Click on the down arrow to view the available PLCs. Select the **PLC Type and Protocol** for the **First PLC** you are using. If using a Second PLC, click in the box in front of Second PLC and make selections. If your PLC Type and Protocol is Entivity's (Think & Do) Modbus, the Think N Do Map File field will become available, allowing you to select a map file to import into the project.



NOTE: These PLC Attribute settings must match the PLC Communications Port that you are connecting the PowerPanel to.

If you want to view or edit the PLC Attributes (for First and Second PLC, if applicable), click on the **View/Edit PLC Com Setup** button. An example of PLC Attributes is shown to the right. Here you can make changes to the PLC communication setup. Click on **OK** to save your changes or **Help** to view the help topics available for that particular PLC.



Upgrade Firmware (SEE CAUTION, BELOW)

There may be occasional upgrades to the PowerPanel internal software, also referred to as the Exec or Firmware.

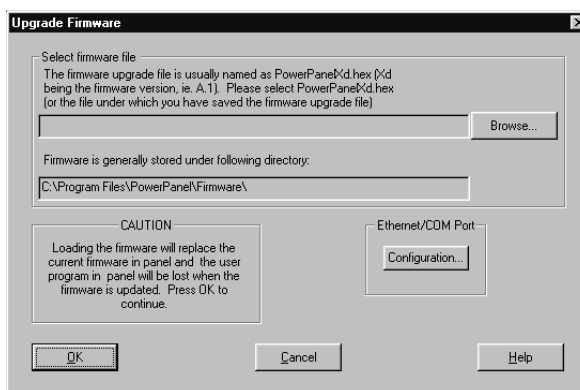
(Check the www.uticor.net website periodically for information about software and firmware upgrades.)



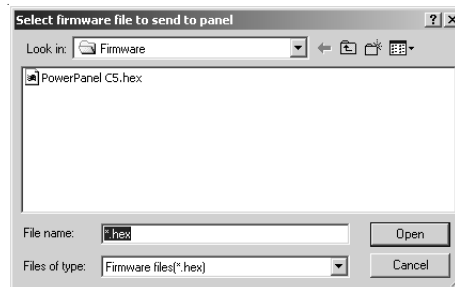
CAUTION: If Panel Firmware version is earlier than C.4, existing programs that are saved to Flash memory must be resaved to Flash after upgrade. When upgrading firmware, **YOU MUST** write the program to the panel and save the program to FLASH using **Panel > Flash > RAM to Flash**.

To Upgrade Firmware:

1. Back up the user program currently stored in the PowerPanel and save to disk or Flash option card.



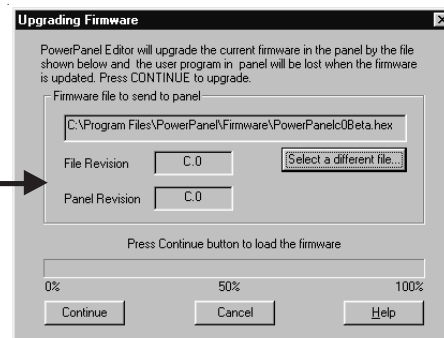
2. Click on **Upgrade Firmware**, the following window will appear.
3. Click on **Browse** button and navigate to the new firmware file (.hex file). Firmware is generally stored in the PowerPanel Program file, in the "Firmware" folder. Click on the .hex file that you want to import and click on the **Open** button.



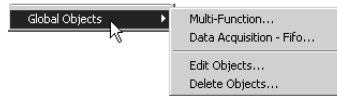
4. Select the appropriate COM port under **Ethernet/COM Port** and click on the **OK** button to begin the upgrade. A status bar will let you know when the upgrade is complete.

The dialog box will show the **File Revision** number of the firmware and the **Panel Revision** of the Firmware. Check these revision numbers. If they are the same (no upgrade is needed) you may click on the **Cancel** button to exit. If the file you have selected is not the right one, click on the **Select a different file...** button.

*Check File Revision number
against Panel Revision.*



Global Objects



Global Objects

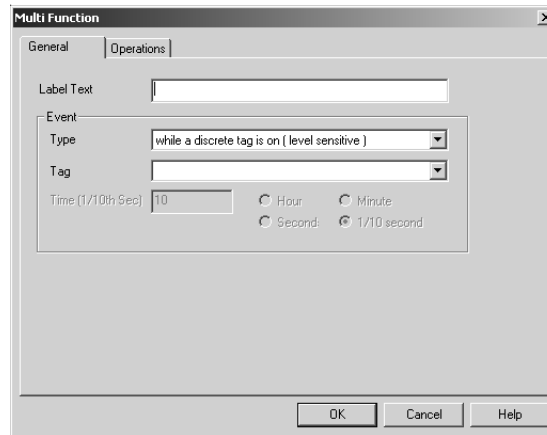
Global Objects are always active and are working behind the scenes. In other words, they are invisible and not a part of a base screen. They can collect, change, and/or store PLC register data. This means that Global Objects can be controlled by a PLC.

Data collected from a Data Acquisition - FIFO Global Object can be displayed using the Data Acquisition Objects found under the Objects Menu (See page 138.)

Multi-Function

The Multi-Function Global Object is very similar to the Multi-Function Basic Object. The only difference is that the Multi-Function Global Object is triggered by an “event” rather than by an operator pressing a touch screen object. When the event (or actuator condition) is met, the operations will be performed and the results written to the destination tags. It can be controlled by a PLC.

The **Multi-Function Global Object** allows you to perform a Boolean or Arithmetic operation using two tags and will store the result in a third tag. The operations supported are **+** (ADD), **-** (SUBTRACT), ***** (MULTIPLY), **/** (DIVIDE), **%** (MODULO), **~** (NEGATE), **!!** (ABSOLUTE), (ROUND), **&**(AND), **I** (OR), **~I** (XOR), **!** (NOT), **<<** (LEFT SHIFT), **>>** (RIGHT SHIFT), and (MOVE).

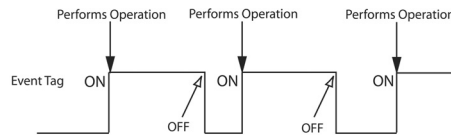


Under the **General** tab for the Multi-Function Global Object, perform the following steps:

1. Click in the field after **Label Text** and type in a name for the object (up to 40 characters).
2. Select the Event that will actuate the operation. Events that you may choose from are:

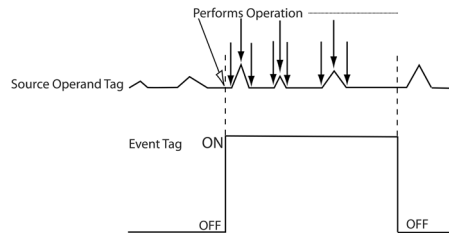
- **when the source operands change** — performs the operation only when the Multi-function source operand changes
- **when a discrete tag turns on (edge sensitive)** — performs the Multi-function operation when the event tag is turned on, performs the Multi-function operation again only when event tag is turned on again.

Positive (ON) Edge Sensitive Actuator - Multi-function



- **when a discrete tag turns off (edge sensitive)** — performs the Multi-function operation when the event tag is turned off, performs the Multi-function operation again only when the event tag is turned off again.
- **when a discrete tag is on (level sensitive)** — performs the Multi-function operation when the event tag is ON and will update as long as the event tag remains ON and when source operand changes.

Positive (ON) Level Sensitive Actuator - Multi-function




- **when a discrete tag is off (level sensitive)** — performs the Multi-function operation when the event tag is OFF and will update as long as the event tag remains OFF and when the source operand changes.
- **Time Based** — performs the operation at set times. If you select Time Based, the Event Tag will be grayed out and the time setting parameters will become available, as shown to the left. Select the time by Hour, Minute, Second or 1/10 Second and then enter the time interval in the field provided.

Enter the Multi-Function Global Operation.

1. Click on the **Operations** tab, the following dialog will appear.

The screenshot shows a window titled "Multi Function". It has two tabs: "General Page" and "Operations". The "Operations" tab is selected. Below the tabs, there are two labels: "Maximum number of operations: 20" and "Number of operations in this multi-function object:" followed by a value of "0". A table with five columns is present: "Opr #", "Destination", "=", "Source1", "Operation", and "Source2". The table contains 19 empty rows. At the bottom of the table area is a horizontal scrollbar. Below the table are four buttons: "MoveUp", "MoveDown", "Add/Edit Operation", and "Delete Operation(s)". At the very bottom of the window are three more buttons: "OK", "Cancel", and "Help".

When programmed, the operations are listed here in this window. Click on the  on the **Add/Edit Operation** button. The following dialog box will appear.

Add Operation Details

Source1

☒ Tag ☐ Constant ☐ Previous Operation

Tag [dropdown]

Data Format [dropdown] Value [0] Operation # [dropdown]

Operation [+ (ADD)]

Source2

☐ Tag ☒ Constant ☐ Previous Operation

Tag [dropdown]

Data Format [Unsigned Decimal] Value [0] Operation # [dropdown]

☒ Store To Tag
Destination Tag [dropdown]

[Help] [Add New Operation] [Close]

2. Under **Source 1**, select whether the value will be read from a **Tag**, or will be a **Constant**, or a **Previous Operation**. (**Previous Operation** is not available for the first operation you program.)
 - a. If you select **Tag**, you must select or enter a tag.

- b. If you select **Constant**, you must enter the **Data Format** (Signed Decimal, Unsigned Decimal, Octal, Hex, BCD or Floating Point) and then enter a **Value**. The Value must match the Data Format.
 - c. If you select **Previous Operation**, you must choose the number of a previous programmed operation. The resulting value of the previous operation will be used in the current operation. You cannot skip numbers or enter a number that has not been programmed (i.e., if you have programmed operations 1 through 6, you cannot choose 7!)
3. Now you will select the **Operation**. Click on the down arrow next to the Operation field to view options. Choose from **+** (ADD), **-** (SUBTRACT), ***** (MULTIPLY), **/** (DIVIDE), **%** (MODULO), **~** (NEGATE), **II** (ABSOLUTE), **(ROUND)**, **&** (AND), **I** (OR), **~I** (XOR), **!** (NOT), **<<** (LEFT SHIFT), **>>** (RIGHT SHIFT), **(MOVE)**.
4. Certain operations do not require a second source. If you select these operations, the Source 2 field will be unavailable (grayed out). The are: **~** (NEGATE), **II** (ABSOLUTE), **(ROUND)**, **!** (NOT), and **(MOVE)**. If you select **<<** (LEFT SHIFT), or **>>** (RIGHT SHIFT), the Tag field will be unavailable, Source 2 can only be a Constant.
5. Under **Source 2**, select the second value used in the math logic operation. Select **Tag**, **Constant**, or **Previous Operation**.
6. If you want to store the result of the operation in another location, ensure that the **Store to Tag** box is checked and then select the **Destination Tag**.
7. Click on the **Add/New Operation** button to accept selections/entries and go to next operation that you want to program. Click on **Close** to exit without adding operation.
8. If you need to edit an operation, click on the operation you want to change in the list under the **Operations** tab, and then click on the **Add/Edit Operation** button. You can also move the operation up or down in the list using the **MoveUp**, **MoveDown** buttons. To delete one or more operations, click on them in the list to highlight and then press the **Delete Operation(s)** button. You will be asked if you want to delete the selected operation(s), click on **Yes** to delete, or **No** to exit without deleting.

Data Acquisition - FIFO

The Data Acquisition - FIFO Global Object is a nonvisual object that remains active behind the scenes acquiring data. When an event is met (triggered in the Event Tag or at set time intervals), data is collected (read) from the Input Tag and stored (written) to a FIFO table. It can be controlled by a PLC.

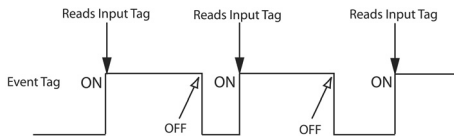
To program this object, perform the following steps:

1. Enter a **Name** for the FIFO of up to 40 characters.
2. Enter the **Number of Tables** in the object (between 1 and 127).
3. Enter the **Number of Samples Per Table** (between 1 and 65535).
4. Enter or select an **Input tag** for the object. This is where the object acquires the data to be stored in a table
5. If you want the FIFO data sorted (selected by default), leave this box checked. If you don't want the FIFO data sorted, click in the box in front of **Sort FIFO** to remove the check mark and disable this option. Sorted data is sorted by value rather than by the order in which it is received.
6. If you want the data acquisition to stop when the FIFO is full, click in the box in front of **Stop when Full** to place a check mark and enable this option. If not selected, the new data will overwrite the first data stored in the table.

7. Click in the box in front of **Use Reference** if you want the object to read a reference value at the same time it reads the input tag value. The reference value will be stored in the FIFO along with the input tag value so that they can be displayed together if needed. (See Data Acquisition Objects > Table View for information about displaying FIFO data on the panel screen.)
8. Next you will select the **Event** that will actuate the data collection. Events that you may choose from are:

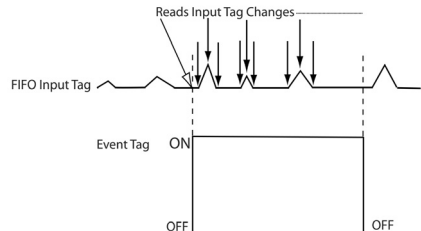
- **when the source operands change** — takes a reading only when the FIFO input tag changes
- **when a discrete tag turns on (edge sensitive)** — reads FIFO input tag when the Event Tag is turned ON, takes another reading from FIFO input tag only when event tag is turned ON again.

Positive (ON) Edge Sensitive Actuator - FIFO



- **when a discrete tag turns off (edge sensitive)** — reads the FIFO input tag when the Event Tag is turned OFF, takes another reading from FIFO input tag only when the event tag is turned OFF again.
- **when a discrete tag is on (level sensitive)** — reads FIFO input tag when the Event Tag turns ON and continues to read the FIFO input tag changes while the Event Tag remains ON.

Positive (ON) Level Sensitive Actuator - FIFO



- **when a discrete tag is off (level sensitive)** — reads FIFO input tag when the Event Tag turns OFF and continues to read the FIFO input tag changes while the Event Tag remains OFF.

- **Time Based** — reads FIFO input tag at set times. If you select Time Based, the Event Tag will be grayed out and the time setting parameters will become available, as shown below. Select the time by Hour, Minute, Second or 1/10 Second and then enter the time interval in the field provided.

9. Click in the box in front of **Clear FIFO** if you want to be clear all data in the FIFO and all tables.

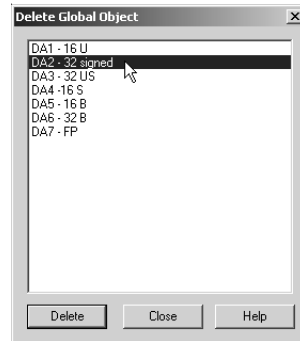
10. Select or enter a tag that will clear the FIFO. Select On or Off depending on whether the FIFO will be cleared when the tag **State** is **On** or the tag state is **Off**.
11. Click **OK** when finished or **Cancel** to close without saving the **Data Acquisition - FIFO**.

Edit Objects

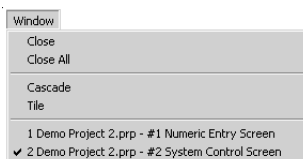
Click on the Edit Objects menu item to select a Global Object to edit. Click on the object you want to change to highlight it and then click on the Edit button. The Global Object you have selected will open so that you can make changes.

Delete Objects

Click on the Delete Objects menu item to select a Global Object to delete. Click on the object (s) you want to delete to highlight it, and then click on the Delete button. The object will be deleted from your PowerPanel Project.



Window Menu



Close/Close All

Click on Close to close the current open project screen. Click on Close All to close all the open project screens.

Cascade

Click here to view open screen files in the window. Screens will cascade down window, overlapping each other, but with their title bars in view. This is helpful when you are making changes to two or more screens at the same time. Click on the title bar of one of the screens to bring it to the front. The title bar is grayed out in screens that are not currently active.

Tile

Click here to view open screen files in the window. Screens will be arranged within the window. This is helpful if you want to copy or cut and paste objects or drawings between screens. The title bar is grayed out in screens that are not currently active.

1 Demo Project 2.prp - #1 Numeric Entry Screen

2 Demo Project 2.prp - #2 System Control Screen

This is a list of the project screens that are currently open. Click on a screen in this list to bring it into view. A check mark will appear in front of the active screen in this list.

Help

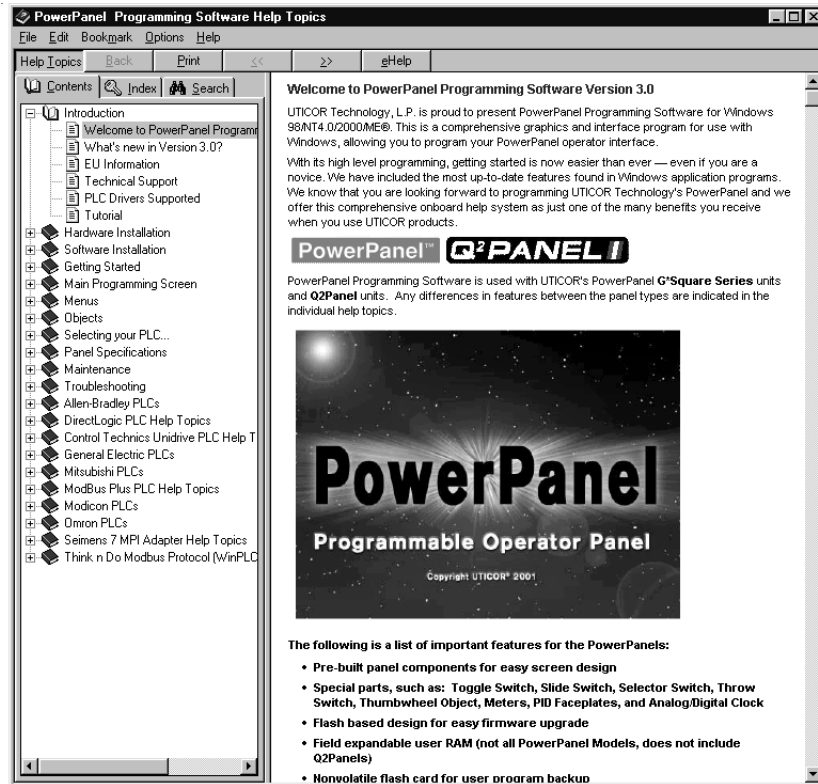
Help Topics...

About PowerPanel...

Help Menu

Help Topics

Click on Help Topics to view the help topics for PowerPanel Programming Software. The help window is in Windows 2000 format. Use the **Contents** tab to view help topics by category. Click on the **Index** tab to view an alphabetical list of all help topics. Click on the **Search** tab and enter a word or words to search the help topics for.



About PowerPanel

Click on About PowerPanel for copyright, manufacturer, and version number of the PowerPanel Programming Software.



Right Click Menus

Right click while cursor is on programming screen



Some functions are accessible with a click on the right mouse button. With your cursor anywhere on the programming window, click the right mouse button. The menu to your left will appear. Some items may be grayed out (not available), depending upon the objects you have selected.

From this menu you can:

- ◆ Cut, Copy, or Paste selected Objects (you must select more than one object)
- ◆ Select All objects on screen
- ◆ Create New, Open an existing, or Rename a Screen
- ◆ Change the screen magnification with the Zoom control
- ◆ Display Grid, activate Snap to Grid, or change Grid Size
- ◆ Show Touch Cell grid
- ◆ Enter or Change the current Screen Description
- ◆ Change Background Color of the screen
- ◆ Provides information about Overlapping Objects on the current screen and allows you to make changes.

Right click while cursor is on an object

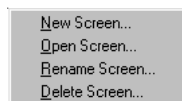


The functions on the menu to the left are accessible when you have one or more objects selected on a screen and click the right mouse button. Some items may be grayed out (not available), depending upon the objects you have selected.

From this menu you can:

- ◆ Edit an object
- ◆ Cut, Copy, or Paste an object
- ◆ Select All objects on current screen
- ◆ Bring selected object(s) to Front of screen
- ◆ Send selected object(s) to Back of screen
- ◆ Make selected objects the Same Size, Height, or Width (you must select more than one object) All selected objects will be sized to the **first object** you select.
- ◆ Provides information about Overlapping Objects on the current screen and allows you to make changes.
- ◆ Allows you to simulate the next or previous state of a selected object on the current screen.

Right click while cursor is in the Project Screens Explorer View window



The functions on the menu to the left are accessible when you right click the mouse button while in the Project Screens Explorer View window.

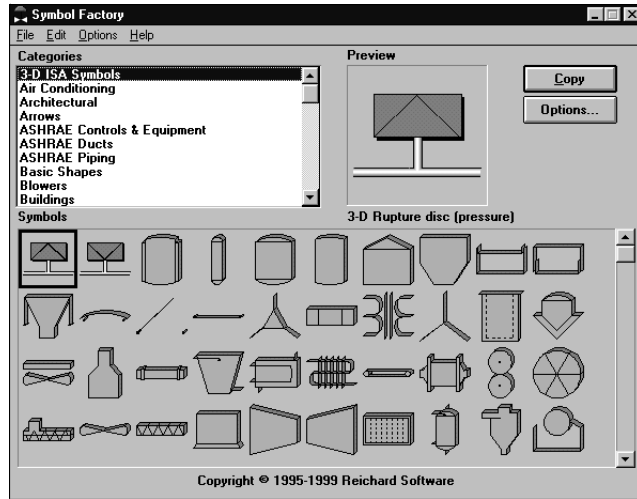
- ◆ Add a New Screen to your project
- ◆ Open an existing Screen
- ◆ Rename a Screen from your project
- ◆ Delete a Screen

Symbol Factory®

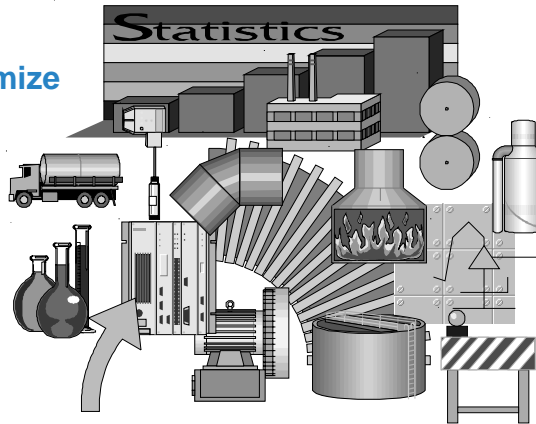
Symbol Factory® is a product we have included in our software for your use in creating screen graphics. The Symbol Factory is a library of over 3,000 symbols for industrial automation, including pumps, pipes, valves, tanks, mixers, motors, ducts, electrical symbols, flow meters, material handling, sensors, PLCs, transmitters, and ISA symbols. It is accessible from the **Draw > Static Bitmap** and **Objects > Dynamic Bitmap** menus. Once opened, click on Symbol Factory Help menu item for Help.



NOTE: Go back to page 161 for instructions on how to size a symbol bitmap before or after importing onto a screen, or see *Symbol Factory Help*.



Over 3000 Symbols to choose from — customize your panel screens!





Troubleshooting

In this Appendix....

- Frequently Asked Questions (FAQs)
- Troubleshooting
- PowerPanel Error Messages
- PowerPanel Programming Software Error Messages

Frequently Asked Questions (FAQs)

1. *How do I format an address string when connecting to multiple PLCs?*

Simply add the PLC Station Number to the beginning of the address string. (For example, if the PLC Station number is 3 and the address is 40001, enter **3-40001** for the address string.)

2. *Can I change the Data Type of a Tag Name's assigned Address String (PLC Address)?*

Yes, but only if the Tag is used on no more than one object. If it is currently used by more than one object, you must:

- assign the other objects to a new or different tag(s)—or delete those objects
- change the data type of the PLC Address under Setup > Tag Database
- reassign the other objects to the original tag as necessary

3. *Can the Tag Database be exported to other applications?*

Yes, the Tag Database can be exported. You can export your Tag Database from the PowerPanel to Microsoft Excel® or you can export it as a Comma Separated Value (.CSV) file (also referred to as a Comma delimited file format).

4. *How do I convert a project from one panel size to another?*

Converting a project created on a 6" panel to an 8" or 10" panel requires nothing more than opening the project with the new size selected. Converting from 8" or 10" to 6" size is best done by the following procedure:

- Select Screen > Show 320x240 Rectangle.
- Move all the objects onto the new small 6" grid shown.
- Save the project.
- Open the project again, selecting the new panel size on the Project Information box.

5. *Can I use the Power Up Screen selection (under the Project Attributes > General menu) and also use the Switch to Screen Number (under Project Attributes > PLC to Panel)?*

Not exactly, because before the panel can actually display the Power Up Screen, it reads from the PLC and displays the Switch to Screen Number.

6. *Can I place objects anywhere on the screen?*

Yes, objects may be placed anywhere on the screen, but you must make sure that you have the Snap to Grid feature OFF and the object must be placed over touch cells.

7. *What is a touchcell?*

A touchcell is the physical area on the panel that defines user selection by touching. A Touch Object can contain more than one touchcell and can be as small as 10 x 10 pixels. On all PowerPanels, the size of a touchcell is 40 x 40 pixels. However, since the screen size differs, the physical size of 40 pixels does as well. On the 6-inch panels, 40 pixels = 0.57". On the 8-inch panel 40 pixels = 0.52". On the 10-inch panel 40 pixels = 0.41", and on the 15-inch panel, 40 pixels = .738".

8. Can I use the floating point data type with all objects?

Not on all objects. Only Numeric Entry, Numeric Display, Recipe, Meters, Bar Graphs, Line Graphs, PID Faceplates, and Multi-function objects support floating point tags. All other objects do not support floating point tags.

9. Why do I not see all the discrete tags in a pushbutton object on the Tag Name pulldown?

You may have defined tags as discrete but if the PLC addresses assigned to these tags are read only addresses, then you will not see these tags. The reason is because a pushbutton writes discrete data to the PLC address and if a tag is mapped to a Read Only PLC address, the pushbutton is not allowed to write the data.

10. Can I use a label on a vertical Radio button?

No, a label is not available for either vertical style Radio button or vertical style Tri-State Switch.

11. How does a Radio button work?

A Radio button is assigned to a word (16 bit register) in the PLC. Each bit in the word (of this associated tag) corresponds to an individual button of the Radio button object. Only one button can be ON at a time. So, turning one button ON automatically turns all other buttons OFF.

12. What is the initial state of objects when the project is written to the panel?

In the **Add Tag Details** or **Edit Tag Details** dialog you can select the **Initial Value/Retentive Flag** option. This option affects the values of the tags when the program is loaded into the panel and when the panel is reset. If you enter a value in the **Initial Value** field, when the program is loaded into the panel or reset, the tag will be set to this value and sent to the PLC. If not selected, the values are set to zero (numeric), off (discrete), or "" (text) when program is loaded into the panel or reset. If you have entered a value into the **Initial Value** field, the **Retentive** option becomes available. Select the **Retentive** flag option if you want the initial value to be used ONLY when the program is loaded into the panel. When the panel is reset, the tag values will be retained. In other words, it will not cause the tag values to change. The values will be sent to the PLC.

13. What will be the state of objects if they are mapped to internal tags?

The same holds true as discussed in FAQ number 12, above.

14. When I have objects at the boundary of the screen, I am not able to move the objects freely (vertically up/down or Horizontally left/right near the boundary). What can I do to correct this?

You can use the PC's keyboard arrow keys to move objects up or down along the boundary line.

15. What is the maximum number of screens that a project can have?

The maximum possible is 999. However, the panel's memory may limit the achievable maximum to a lower number of screens, depending on the complexity of bitmaps and objects.

16. What is the maximum number of alarms that a project can have?

The maximum is 999, but there is no limit to how many times each alarm can be used in the panel.

17. What is the maximum number of messages that a project can have?

You can define a maximum of 999 messages in a project.

18. Can I insert a 640 x 480 or larger bitmap on a screen?

Yes, on an 8", 10", or 15" panel, the screen size is 640 x 480 pixels. If the bitmap is larger, you will be asked if you want to resize the bitmap to fit. Select **Yes** and the bitmap will be scaled to fit the screen.

19. Is there a limit to the number of objects that can be placed on a single screen?

No, not exactly, but the maximum memory size of a screen is 512K bytes.

20. How does the programming software determine whether or not an image can be selected?

Once an image is selected, the PowerPanel Programming Software compresses and converts the image in a format that the panel understands. If the converted image is larger than 512K, it cannot be imported.

Troubleshooting



Problem: Panel won't power up.

Action:

1. Connect power to the PowerPanel (24 VDC).
2. Apply power while observing the LED in the back of the panel.
 - a. LED does not light means: NO POWER to unit or power supply failed. Check power supply or replace.
 - b. LED turns RED and stays RED means: Unit failure, return for service.
 - c. LED flashes RED and turns GREEN means: normal operation.
 - (1) the display does not light after 10 seconds, see Display Blank, below.
 - (2) the display lights, normal operation.

Refer to the PowerPanel Programming Software Help topic, or the PowerPanel Hardware Manual chapter on "Connections and Wiring" for more information.



Problem: Cannot communicate with PowerPanel from Programming Computer.

Action:

1. Check cable, ensure that it is the correct cable and that it is properly connected at both ends.
2. Check panel for power.
3. Check to ensure the correct PC COM port is selected in the PowerPanel Programming Software and that it is available in the PC.
4. Check the COM1 setting in Setup Mode on the panel.

Refer to the PowerPanel Programming Software Help topic, or the PowerPanel Hardware Manual chapter on "Connections and Wiring" for more information.



Problem: Panel does not communicate with PLC.

Action:

1. Check communications cable:
 - a. Is it the right cable?
 - b. Is it connected?
 - c. Is the cable terminated properly?
2. Check PLC settings:
 - a. Is PLC system powered?
 - b. Is PLC COM Port properly configured?
 - c. If there is a RUN switch on PLC, is it in the term/remote mode?

Refer to the *PowerPanel Programming Software Help* topic, or the *PowerPanel Hardware Manual* chapter on "Connections and Wiring" for more information.



Problem: Memory unavailable.

Action:

1. G* Square Series panels only: Make sure that the Flash Card is in top slot, and the RAM Card is in the bottom slot.

Refer to the *PowerPanel Programming Software Help* topic, or the *PowerPanel Hardware Manual* chapter on "Connections and Wiring" for more information.



Problem: Display is Blank.

Action:

1. Display indicates NO SCREEN for 3 seconds after power up. There is no user program installed into the panel.
2. Display is blank. Push extreme upper left and extreme lower left touch cells on front of panel (top and bottom of column 1 on panel.) At this point, one of the following will occur:
 - a. There is no change, and the display remains blank. This indicates UNIT FAILURE: return for service.
 - b. Unit SETUP screen appears, screen is hard to read. Adjust screen contrast control for 6- or 8-inch units (10-inch units have no contrast adjustment).
 - c. Unit SETUP screen appears normal. Unit has no user program — transfer user program to panel.

Refer to the *PowerPanel Programming Software Help* topic, or the *PowerPanel Hardware Manual* chapter on "Connections and Wiring" for more information.



Problem: Display hangs when unit is powered up, "Initializing..." message remains on screen (unit has invalid RAM memory)

Action:

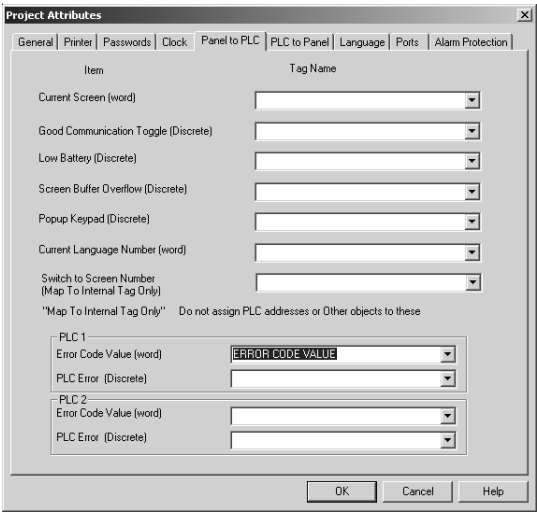
1. Remove power. While pressing extreme upper and lower left touch cells on the panel, reapply power.
2. You will now be in setup mode, press exit to enter run mode. Screen will be blank.
3. Run PowerPanel Programming Software. Select Panel > Clear Memory from main menu bar, or transfer a new user program to the panel.



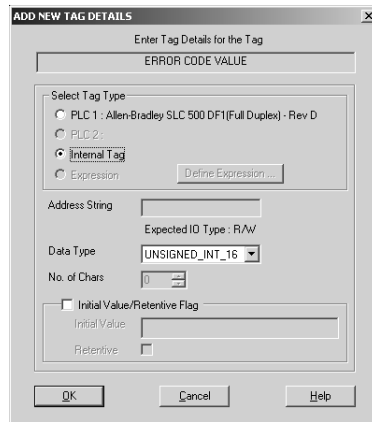
Problem: “How do I log and display PLC Error Messages?”

Action: Following is a description of how to set up the panel to monitor communications between the PLC and panel. This will allow the panel to detect a PLC error and log the PLC ERROR CODE VALUE in the Alarm Database. Open your PowerPanel Project in the PowerPanel Programming Software. For the purposes of this demo, we are using Allen-Bradley SLC 500 DF1(Full Duplex) Protocol.

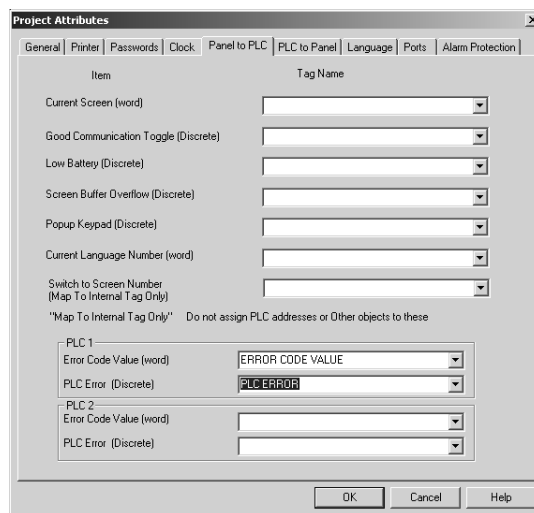
- From the Main Menu Bar, click on **Setup > Project Attributes** and then click on the **Panel to PLC** tab.
 - Click in the field next to Error Code Value (word). Type in **ERROR CODE VALUE** for the tag name as shown below.



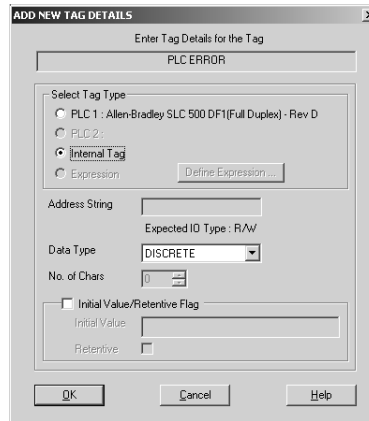
- Press **Enter**. The following **ADD NEW TAG DETAILS** dialog box will appear.



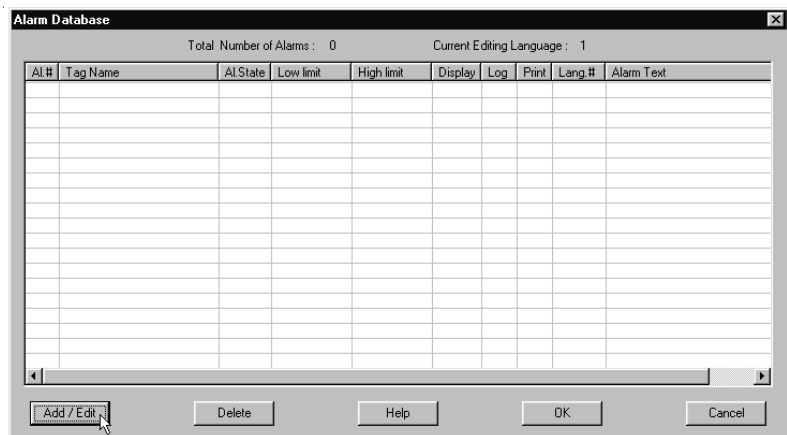
4. Under **Select Tag Type**, select **Internal Tag**, and then select **UNSIGNED_INT_16** as the Data Type. Click **OK**.
5. Click in the field next to **PLC Error (Discrete)** and type in **PLC ERROR** as shown below.



6. Press **Enter**. The following **ADD NEW TAG DETAILS** dialog box will appear.



- Under **Select Tag Type**, choose **Internal Tag** and select **DISCRETE** as the Data Type. Click **OK**.
- From the Main Menu Bar, click on **Setup > Alarm Database**. The following dialog box will appear.



- On the **Alarm Database** dialog box, click on the **Add/Edit** button. The following **Add New Alarm** dialog box will appear.

10. For **Alarm No. 1**, click on the down arrow next to **Tag Name** and select **ERROR CODE VALUE** from the list.
11. Select **Out of Range** for **Alarm State** under **Limits**, and set both the **Low Limit** and the **High Limit** to **0**. Leave **Log** and **Display** selected.
12. If you want the message sent to a PMD Marquee or Slave, click in the box in front of **Send Message to PMD Marquee/Slave**. Enter the **Group Number** and **Unit Number** of the slave.
13. Under **Alarm Text**, type in the alarm message as **ERROR CODE VALUE**.
14. Click on the **Add New Alarm Button**. The Alarm has been saved to the database.

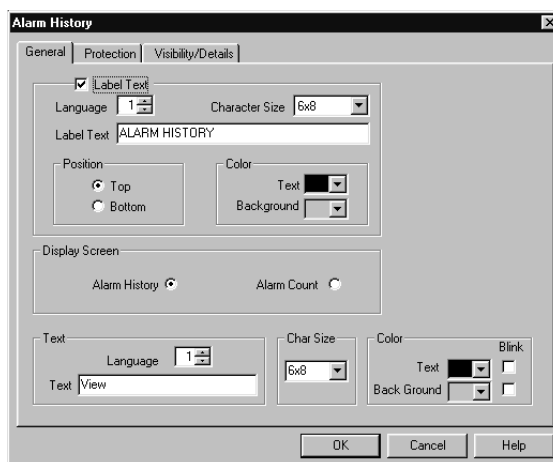
15. For **Alarm No. 2**, click on the down arrow next to **Tag Name** and select **PLC ERROR** from the list.

16. For **Alarm State**, leave the selection to **On**. Leave **Log** and **Display** selected, also.
17. If you want the message sent to a PMD Marquee or Slave, click in the box in front of **Send Message to PMD Marquee/Slave**. Enter the **Group Number** and **Unit Number** of the slave.
18. Under **Alarm Text**, type in the alarm message as **PLC ERROR**.
19. Click on the **Add New Alarm** button. The Alarm has been saved to the Alarm Database. Click on the **Close** button.
20. The **Alarm Database** should now show the two new alarms that you have just added, as shown below.

[illegible]

To be able to view the Alarm History and the PLC ERROR CODE VALUE, perform the steps below.

1. First we'll program a screen with an **Alarm History** button that will allow you to view alarm history. Open the screen in your PowerPanel Programming Software where you want to place the **Alarm History** Button.
2. Click on **Objects > Alarm History**. The following screen will appear.



3. Type in **View** in the **Text** field. Click on **OK**.
4. A crosshair cursor will appear on the programming screen. Position the crosshair where you want the object to appear (center at the bottom of the screen), and click once.
5. Grab the object by a handle and drag to resize it until the label displays in its entirety, as shown below.



6. Click on **File > Save Project**.
7. Transfer the saved Project to the panel.

8. To test the Alarms, perform the following steps.
- a. Disconnect the PLC and then reconnect it as soon as you can after the first error message flashes on the panel screen.

(While disconnected the “**PLC COMMUNICATION TIMEOUT**” error message will flash across the top of the PowerPanel Screen, and the “**01/02 ERROR CODE VALUE**” error message will flash across the bottom of the screen.)

Please Note: Alarm History and Alarm Counts are retentive — they are cleared from the Alarm History/Count screen or from Project Attributes (PLC to Panel).

- b. Press the **ALARM HISTORY** button on the panel screen. The Alarm History screen will appear. It will look similar to the one shown below. (Each time the error message flashes on the panel screen it is counted as an entry.)
- c. Press the **ALARM COUNT** button. The following screen will appear, showing you the number of times the messages was sent.

ALARM HISTORY		TOTAL OF 08 ALARMS				
ENTRY		MESSAGE				
01	PLC ERROR					
02	ERROR CODE VALUE					
03	PLC ERROR					
04	ERROR CODE VALUE					
05	PLC ERROR					
06	ERROR CODE VALUE					
07	PLC ERROR					
08	ERROR CODE VALUE					

- d. Press the **ALARM HISTORY** button. From this screen press the **DETAILS** button. The following screen will appear, showing the details of the alarm.

ALARM COUNT

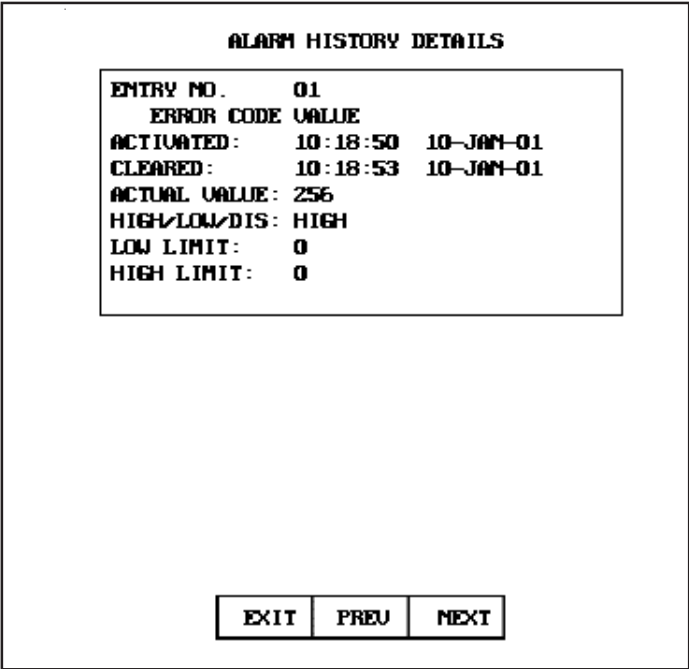
ALARM	COUNT	MESSAGE
001	00004	ERROR CODE VALUE
002	00004	PLC ERROR

ALARM HISTORY	PAGE UP	PAGE DOWN	LINE UP	LINE DOWN	CLEAR	CLEAR ALL	EXIT
---------------	---------	-----------	---------	-----------	-------	-----------	------

ALARM HISTORY DETAILS

```
ENTRY NO.      01
PLC ERROR
ACTIVATED:     10:18:50  10-JAN-01
CLEARED:       10:18:53  10-JAN-01
ACTUAL VALUE:  TRIGGER ONSTATE
HIGH/LOW/DIS: DISCRETE
LOW LIMIT:
HIGH LIMIT:
```


- e. Press on the **NEXT** button to view details of the second alarm. Remember or write down the **ACTUAL VALUE**. (In this case, the actual decimal value is **256**.)



- f. Press the **EXIT** button to return to **ALARM HISTORY** screen, and then press the **EXIT** button on this screen to return to the project screen.
- g. Convert the **Actual Value** of the error that you wrote down from the **Alarm History Details** screen. All PLC ERROR CODE VALUEs are in decimal. Convert them to HEX. From the Actual Value of 256, you will get a Hex value of 100. Look for this value under Driver Errors (0x0100).

See the [PowerPanel Programming Software Help for PLC Driver Error Messages](#) —

PowerPanel Error Messages

WRITE QUEUE OVERFLOW

This message indicates that the panel was unable to write all of the tags to the PLC. The panel can queue up to 40 tags to write to the PLC. After the tag is written to the PLC it is removed from the queue. If a write is attempted while the queue is full then this error message is displayed and the write is ignored.

EXTERNAL CLOCK - OBJECT IGNORED

This message indicates that the increment/decrement hour system object was pressed while the external clock has been selected in the project attributes. The object can not change the external clock.

RAM TEST FAILED

This message indicates that the RAM test performed at reset failed. The RAM in the unit may be unreliable.

VIDEO CHIP TEST FAILED

This message indicates that the video controller chip did not program correctly.

VIDEO RAM TEST FAILED

This message indicates that the video RAM test performed at reset failed. The video RAM in the unit may be unreliable.

KEYPAD ENTRY TOO HIGH

This message indicates that the user attempted to enter a value that was greater than the maximum value for the numeric keypad. The value is ignored.

KEYPAD ENTRY TOO LOW

This message indicates that the user attempted to enter a value that was less than the minimum value for the numeric keypad. The value is ignored.

TAG TYPE VALUE MISMATCH

This message indicates that the object contains a value that is of a different type than the object's tag. For example, the value may be a signed value but the tag may be an unsigned value. The object should be edited to contain the correct value type.

INVALID CODE

This message indicates that the user entered an invalid password for a protected object. The user must enter a valid password. The passwords are defined in the project attributes.

SCREEN BUFFER OVERFLOW

This message indicates that there are more objects on the screen than the panel can display. When a screen is displayed, the panel copies the objects to a buffer. If the buffer is filled then this message is displayed and any remaining objects are ignored. The amount of memory used by an object is dependent on the type of object, visibility, the label, and strings used by the object. Some objects should be removed from the screen.

PowerPanel Programming Software Error Messages

Error Codes

Error Codes are divided into categories and are numbered with prefixes and 3 digits as follows:

Value Range Errors	Vxx_x
PLC Conversion Errors	Pxx_x
Tag Errors	Txx_x
Project Information (Step 1) Errors	Ixx_x
Saving Errors	Sxx_x
Object Errors	Jxx_x
Communication Errors	Cxx_x
Miscellaneous Errors	Mxx_x
Bitmap Errors	BMP_xx

Value Range Errors (Vxx_x)

Value Errors common to all objects:

Error V01_1: Minimum value is not within range.

Error V01_2: Maximum value is not within range.

Error V01_3: Minimum value is greater than maximum value.

Error V01_4: Maximum value is less than minimum value.

Value Errors related to Meter object:

Error V02_1: LowLow limit is not within range.

Error V02_2: Low limit is not within range.

Error V02_3: High limit is not within range.

Error V02_4: HighHigh limit is not within range.

Value Errors related to Numeric Entry/Numeric Display.

Error V03_1: PLC Value 1 is not within range.

Error V03_2: PLC Value 2 is not within range.

Error V03_3: Display Value 1 is not within range.

Error V03_4: Display Value 2 is not within range.

Value Error related to Bar Graph:

Error V04_1: Mid value is not within range.

Value Errors related to PID Faceplate:

Error V05_1: Process value (Minimum) is not within range.

Error V05_2: Process value (Maximum) is not within range.

Error V05_3: Output value (Minimum) is not within range.

Error V05_4: Output value (Maximum) is not within range.

Value Error related to Recipe object:

Error V06_1: Value is not within range.

Reason: These errors occur when a value is not within selected tag's data range.

Solution: Enter a value that is within the appropriate range.

Valid ranges for various tag data types are:

<u>TAG DATA TYPE</u>	<u>MINIMUM</u>	<u>MAXIMUM</u>
Signed 16 bit	-32768	32767
Signed 32 bit	-2147483648	2147483647
Unsigned 16 bit	0	65535
Unsigned 32 bit	0	4294967295
BCD 16 bit	0	9999
BCD 32 bit	0	99999999
Floating point	-9999999999	9999999999

PLC Conversion Errors (Pxx_x)

Error P01_1: The selected panel type does not support the PLC chosen for the project. Do you want to continue?

Reason: Some PowerPanels support all of the available PLC drivers and some support only DirectLOGIC drivers.

Solution: Select an appropriate panel.

Error P02_1: <PLCFrom> is not compatible with <PLCTo>. If you continue, the PLC address from each tag will be lost and all the tags will become internal tags. Do you want to continue?

Error P02_2: Change in selected PLC would result in possible loss of tag data. Do you want to continue?

Error P02_3: Unable to convert to <PLCTo>.

Error P02_4: Unable to convert PLC Address.

Reason: This error occurs if, after creating a project with addressed tags, an attempt is made to change to a PLC with a different address format.

Solution: When changing PLCs, check the addressing in the PLC manuals to see if they are compatible. If they are not compatible, then the tag database is no longer valid and the addresses will have to be reentered.

Error P02_5: Unable to build PLC details structure while converting to <>.

Error P02_6: Unable to build PLC details.

Reason: This error message indicates a that .dll files are corrupt.

Solution: Reinstall software.

Error P02_7: Please make sure that enough information is provided in the configuration dialog box for proper tag conversion.

Reason: While changing PLC to Ethernet, there can be certain addresses in the project that may require node definition in configuration dialog box.

Tag Related Errors (Txx_x)

Error T01_2: Tag name already exists.

Reason: The tag name that was entered is a name that already has a data type and/or PLC address assigned to it in the tag database.

Solution: Change the tag name entered to a name that is unique when compared to all the other tags in the Tag Database.

Error T01_3: Tag category does not match.

Reason: This error occurs when a Tag Name of an incorrect data type is typed into the Tag Name field of an object.

Solution: Select a valid Tag Name from the pulldown list, or create a new valid Tag Name.

Error T02_1: Invalid Unit Number.

Error T02_2: Invalid Address Type.

Error T02_3: Invalid Address.

Error T02_4: Invalid Bit Number.

Error T02_5: Address in not Word Aligned (Even address is required).

Error T02_6: Address is not Word Aligned (Odd address is required).

Reason: Address entered for the tag is not correct.

Solution: Specify a valid PLC address.

Error T02_7: Address type does not match Tag data type, or the address is invalid.

Error T02_8: Tag IO Type does not match Object type.

Reason: If you specify a discrete address to an object requiring a word address or vice versa, you will receive this error message.

Solution: Specify a valid PLC address with appropriate I/O Type.

Error T02_9: This object requires a Read/Write PLC address. Entered address is Read Only location.

Reason: This error occurs if a Read Only PLC address was entered for a Touch Object.

Solution: Enter a Read/Write location for touch objects.

Object Type	Type of Address
Touch Objects	Read/Write
Display Objects	Read/Write or Read Only
Alarms	Read/Write or Read Only
Project Attributes (Internal Clock)	Read/Write
Project Attributes (External Clock)	Read/Write or Read Only
Project Attributes (Passwords)	Read/Write or Read Only
Project Attributes (Panel to PLC)	Read/Write
Project Attributes (PLC to Panel)	Read/Write or Read Only

Error T02_10: Number of Characters must be even and valid range is from 2 to 40.

Reason: In the process of making an ASCII tag, the number of characters must remain between 2 and 40. If you enter a number outside of this range, this error occurs.

Solution: You can either reenter a number within the specified range or use the wheel to the right edge of that field.

Error T02_11: IO Type is not valid for <ControlName>. Unable to convert.

Reason: If you specify a discrete address to an object requiring a word address or vice versa, you will receive this error message.

Solution: Specify a valid PLC address.

Error T03_1: Unable to get the data type.

Reason: The Tag Database has become corrupted.

Solution: Try the following:

- 1) Go to Tag Database (Setup > Tag Database) and select a tag not associated with any object.
- 2) Delete the tag by pressing Delete button or by using delete key on keyboard.
- 3) Save the project.
- 4) Close and then restart PowerPanel software.
- 5) Open the project and check for the error again.

Error T03_2: Tag index not found. Creating internal tags .

Solution: Try the following:

- 1) Accept defaults
- 2) Open Tag Database and check to see if all tags are there.
- 3) Some Tags will be UNKNOWN, modify to your requirements.

Error T03_3: Unable to open tag database file (*.ptd).

Reason: This error occurs if the project map file (.ptd) gets deleted or is missing when an attempt to load the program is made.

Solution: Recovering or finding original map file will recover project; if this cannot be done, creating a new project with a new map file is the only solution.

Error T03_4: Tag index limit reached; unable to create a new tag.

Reason: You've reached the tag maximum. Maximum number of tags that can be entered is 30,000.

Error T03_5: Incorrect number of PLC tags and Internal tags.

Reason: Tag database is corrupted.

Solution: Rebuild the project.

Error T03_6: Tag expected but not found. Creating it as an internal tag.

Solution: Try the following:

- 1) Accept defaults
- 2) Open Tag Database and check to see if all tags are there.
- 3) Some Tags will be UNKNOWN, modify to your requirements.

Error T04_1: Cannot delete <Tag>. Tag associated with an object.

Reason: The selected tag is associated with an object/alarm/project attribute.

Solution: Use **Setup> Tag Cross Reference** to see what objects/alarms/project attributes are linked to the tag.

Error T04_2: No map data found in tag database file named.

Reason: Tag database is corrupted.

Solution: Rebuild the project.

Project Information Dialog box (STEP 1) Errors (lxx_x)

Error I01_1: Attributes file associated with this project not found; creating one with default attributes.

Reason: There are six different files that make up the project. If the saved attributes file (.atr) is moved, deleted, or is altered outside of programming software, the file may not load or will not be found.

Solution: The program loader will reset the attributes to default. Go to Setup > Select PLC and redefine the communication parameters required.

Error I01_2: Unable to open annotation file. Creating one with default annotation values.

Reason: You will receive this error message if the annotation file (*.pan) project file is missing and the program loader creates one. Default annotation value means all objects, screen descriptions and project description will be empty.

Solution: You will need to re-enter the information.

Error I02_1: Invalid file name or path

Reason: You have specified an invalid file name.

Solution: You have to specify a valid file name. Do not include any special characters (\, /, ,, *, ?, <, >, |, etc.) while naming your files. First character should be alphanumeric.

Error I02_2: Invalid file name. Do not use symbols.

Reason: You have specified an invalid file name.

Solution: To avoid getting these messages, when creating a project do not use character symbols (/ , { , } , [,] , < , > , ... etc.) in the project name. Only use letters A-Z and/or numbers 0-9 for a unique project name.

Error I02_3: Invalid Think and Do map file.

Reason: When working with Think & Do PLC type, this program will map the PowerPanel project to an existing Think & Do map file. If you try to map the PowerPanel project to a map file generated by any program other than Think & Do, this message will appear and prevent you from continuing with the project.

Solution: Select a valid Think & Do map file.

Error I03_1: Unable to find the DLL Path. Unable to build the Tag Database

Solution: If you have moved the DLLs to some other directory move them back. If you have deleted them, you must reinstall the software.

Error I03_2: Cannot edit Online unless the panel has a program. Edit Offline first and write a program to the panel.

Reason: If you have no project loaded into the touch panel, the program loader will not allow you to go into ON-LINE Edit mode, or, if the map file has been altered, you will receive this message.

Solution: Get into OFF-ILINE Edit mode and upload a project, exit out to "Step 1: Project Information", click on the ON-LINE Edit mode, and select "OK". If that doesn't work, make a new project with a new map file.

Error I03_3: Screen Number must be in the 1..999 range.

Reason: You have entered an invalid Screen number

Solution: Enter a valid Screen number.

Error_I03_04: Project file is created using some new version of s/w. Please upgrade the program loader version.

Reason: You are attempting to open a project that was created in a newer version of the PowerPanel Programming Software than you are currently using.

Solution: Upgrade your PowerPanel Programming Software to the newer version.

Saving Errors (Sxx_x)

Error S01_1: The PowerPanel Editor has detected that one or more static objects (line, arc, circle, pie, static bitmap and static text) are on top of dynamic objects. Static objects cannot be on top of dynamic objects. These static objects will be placed below the dynamic objects.

Reason: If you have static and dynamic objects on the same screen, you need to make sure the

dynamic objects are always on top or away from the static objects. Panel refreshes only the dynamic objects once all the objects are drawn. If for any reason a static object gets on top of a dynamic (or brought to front with the right-click menu option with dynamic object on top), this message will appear.

Solution:

- 1) The Editor will take care of this automatically. It will sequence the objects in such a way that static objects are drawn below the dynamic objects.
- 2) You can also select the objects, right-click on the mouse and select Bring Forward/Send Backward to rearrange them manually.

Error S01_2: PowerPanel Editor detected that one or more objects on screen number x are outside the 320x240 resolution. Please move objects on this and all other screens within 320x240 limits BEFORE changing the panel. You may use “Show 320x240 Rectangle” icon to show a 320x240 rectangle. Please ensure on all screens that the objects are within this rectangle before trying to change to a lower resolution panel.

Solution: Move the objects to within the 320x240 rectangle on all screens.

Error S01_3: Unable to save this screen. Screen size exceeds the maximum: 512K. Please delete a few objects and try to save again.

Solution: Either delete a few of the objects or move the objects to a different screen.

Error S02_1: Unable to save the project to the panel.

Reason: When working ON-LINE, the panel loses power or the communication link between the panel and PC is interrupted or disconnected. When you select Save Screen or Save Project, you will receive this error message.

Solution: Check to see if panel is receiving power, then check the COM line between the panel and PC for a good connection.

Object Errors (Jxx_x)

Radio Buttons

Error J01_1: Object cannot be accommodated in the new position.

Reason: The Radio Buttons object cannot have any buttons overhanging the screen. Vertical and horizontal Radio Buttons will only allow enough buttons to extend from one end of the screen to the other. More buttons will generate this message.

Solution: One of two courses of action may be taken. The first is to reduce the size of the object itself. The second option is to reduce the number of buttons in the object.

Error J01_2: Cannot add another button. To do so would exceed the panel size.

Reason: The Radio Button object will not allow more buttons when the object is the same height/width as the touch panel screen.

Error J01_3: Vertical Radio Button can not accommodate more than 6 buttons.

Reason: 6" panels have a maximum of 6 vertical touch cells, therefore you can't select more than 6 buttons.

Step Switch

Error J02_1: Number of steps: Range is from 2 to 4.

Solution: Enter a number between 2 and 4 or use the wheel next to the box.

Error J02_2: Step Switch x Tag is not Defined. (x being the step number)

Reason: The "Tag Name", under the "Step #1" tab, was empty when the "OK" button was selected.

Solution: Click on a tag from the drop-down menu for the "Tag Name" box, or type in a valid tag name in the "Tag Name" box, use the tab "Step #1".

Thumbwheel**Error J03_1: Number of Wheels: Range is from 1 to 5.**

Solution: Only enter a number between 1 and 5 into the "Number of Wheels" field, or use the wheel to the right side of the entry field. UNSIGNED DECIMAL format: 5 digits (wheels), HEX: 4 digits (wheels)

Recipe**Error J04_1: At least one valid recipe tag should be defined.**

Reason: When creating a Recipe button, if there are no tags entered under the "Recipe" tab, this message will appear.

Solution: Click on the "Recipe" tab and enter a tag in the first box.

Numeric Entry/Numeric Display**Error J05_1: PLC Value 1 is greater than PLC Value 2.**

Solution: Enter a value for PLC Value 1 that is less than PLC Value 2.

Error J05_2: Display Value 1 is greater than Display Value 2.

Solution: Enter a value for Display Value 1 that is less than Display Value 2.

Meter**Error J06_1: LowLow limit should be greater than Minimum value.****Error J06_2: Low limit should be greater than LowLow limit.****Error J06_3: LowLow limit is greater than High limit.****Error J06_4: High limit is greater than HighHigh limit.****Error J06_5: HighHigh limit is greater than Maximum value.**

Reason: You will get above errors when the following rule is not met.

Minimum Value < Low Low Limit < Low Limit < High Limit < High High Limit < Maximum Value

Solution: Change the values appropriately.

Note: while changing the values of alarm limits, use the following rule of thumb: If you are changing the values towards higher values, start from HighHigh limit and go backwards. If you are changing the values towards lower values, start from LowLow limit and go upwards.

Bar Graph**Error J07_1: Mid value is not in between Minimum and Maximum values.**

Reason: You will receive above errors when the limits (for alarm) are not within the selected tag's data range.

Solution: You need to modify the values so that the values are within appropriate range.

PID Faceplate**Error J08_1: Process Variable Tag and Set Point Tag must be of same Data Type.**

Solution: Ensure that the Process Variable Tag and the Set Point Tag are of the same data type. In other words, if you define a signed tag for Process Variable, define a signed tag for Set Point, also. Always assign the same data tag type to both the Process Variable and Set Point.

Error J08_2: Process value (Maximum) is less than Present value (Minimum).

Solution: Ensure that Present value (Maximum) is greater than Present value (Minimum).

Error J08_3: Output value (Minimum) cannot be greater than Present value (Maximum).

Solution: Ensure that Output value (Maximum) is greater than Output value (Minimum).

Line Graph

Error J10_1: At least one valid Pen tag must be defined.

Reason: When using a Line Graph, there must be a minimum of one tag (signed, unsigned, or BCD) assigned to the Pen entries.

Solution: Be sure to assign a minimum of one tag (signed, unsigned, or BCD) to the Pen.

Error J10_2: All Pen tags must be of the same sign type.

Reason: The program loader requires that all the Pen tags have the same sign type for each Line Graph object. If you assign tags with different sign types (signed 16/32 and unsigned 16/32, or BCD 16/32 and signed 16/32) to the same Line Graph object, this message will appear.

Solution: If you need a Line Graph that contains a signed tag and an unsigned tag, they will then require multiple Line Graph objects (one for each individual sign type).

Error J10_3: Pen tags and Range type must be of same sign type.

Reason: When assigning tags to the Pen page, they all must be of the same tag type, and that also has to agree with the Range type under the XY Axis tab. If one is different from the other and the "OK" button is selected, this message will appear.

Solution: After assigning the Pen tags, (same sign type) go to the XY Axis tab and select the appropriate range type corresponding to the assigned Pen tags (or select the range type before assigning any tags to the Pen). Either way, the Pen tags and the Range type must be the same before the "OK" button is selected.

Error J10_4: Total number of line graphs must be between 0 and 255.

Reason: You will not be able to create more than 255 line graphs in a single screen.

Dynamic Bitmap/Static Bitmap

Error J11_1: Selected file is not a BMP file.

Solution: Select a valid Windows BMP file.

Error J11_2: No Bitmap file was selected. Please select a BMP File.

Solution: One of three actions can be taken:

- 1) Select "Copy from Clipboard" to copy the file name chosen from the Symbol Factory.
- 2) Select "Import Bitmap..." to choose a bitmap from a file somewhere in your computer or off the network to enter in the "File Name" box.

Error J11_3: Select either ON or OFF bitmap.

Reason: Dynamic bitmaps require at least one bitmap to be selected.

Error J11_4: Compressed BMP size exceeds the maximum size usable BMP size

Reason: PowerPanels use a Run Length Encoding (RLE) technique to compress Bitmaps for display and saving purposes. The maximum allowable size of a compressed BMP is 512K. If the selected BMP results more than 512K during compression, this error occurs. Even if the bitmap size is less than the panel's resolution, you may get this error.

Solution: You need to select a different BMP. If you would like to use the same bitmap, you need to reduce the complexity of the bitmap. Although, there is no straight forward way to tell that a bitmap would result in less than 512K during compression, the following tips might be useful:

- 1) Try to have the same color across the bitmap. If you mix lot of color patches, that may increase the compressed bitmap size.
- 2) Try to reduce the font usage in the bitmap.

Error J11_5: Selected BMP files combined must not exceed 512K size. Please select a different BMP file.

Reason: There are two BMP files for dynamic bitmap. Both BMP files would be compressed using RLE technique and combined length of compressed BMPs together should not exceed 512K in size. If it exceeds, you would get this error.

Solution: Select BMPs which do not exceed the 512K size limit.

Error J11_6: Height and Width out of range. BMP's height must be less than (h). BMP's width must be less than (w).

Reason: This error indicates that a bitmap exceeds the maximum size.

Solution: Select a smaller bitmap.

Error J11_7: Compressed BMP size exceeds the maximum usable BMP size; unable to save ON bitmap.

Error J11_8: Compressed BMP size exceeds the maximum usable BMP size; unable to save OFF bitmap.

Error J11_9: Compressed BMP size exceeds the maximum usable BMP size; unable to save Static Bitmap.

Reason: PowerPanels use a Run Length Encoding (RLE) technique to compress Bitmaps for display and saving purposes. The maximum allowable size of a compressed BMP is 512K. If the selected BMP results in more than 512K during compression, this error occurs. Even if the bitmap size is less than the panel's resolution, you may get this error.

Solution: You need to select a different BMP. If you would like to use the same bitmap, you need to reduce the complexity of the bitmap. Although, there is no straight forward way to tell that a bitmap will result in less than 512K during compression, the following tips might be useful:

- 1) Try to have the same color across the bitmap. If you mix lot of color patches, that may increase the compressed bitmap size.
- 2) Try to reduce the font usage in the bitmap.

Error J11_10: Error in extracting Bitmap for ON button.

Solution: Delete the bitmap object and recreate the object again. If you still receive this error message, close and then reopen the application and try again.

Error J11_11: Decompression was not successful.

Reason: The Project file is corrupted.

Solution: If you get this error, you will have to recreate this project.

Error J11_12: NOT USED.

Miscellaneous

Error J12_1: This field cannot be empty.

Solution: Your cursor will be located in the data entry field that requires data entry. Enter an appropriate value.

Communication Errors (Cxx_x)

Port Related Errors

Error C01_1: Unable to open communication port.

Solution: Select another COM port.

Error C01_2: Communications port not found.

Reason: No valid communication port is found on the computer.

Solution: At least one valid serial communication port should be available for communication between the panel and PC.

Error C01_3: Communications port is being used by some other application. Access denied.

Solution: Close the other application and try to communicate from PowerPanel or, if you have an extra serial port, connect the cable to that port and select that extra port for communication from PowerPanel.

Write to Panel Related Errors

Error C02_1: Selected panel does not match connected panel. Write to panel is aborted.

Reason: When writing to the panel, if the panel type selected on the screen "Step 1: Project Information" does not match the panel that the computer and PLC are physically connected to, the program loader will not upload project.

Solution: Exit the OFF-LINE Editor to the "Step 1: Project Information" screen, and select the appropriate panel type for the connected panel.

Error C02_2: Unable to update PLC driver.

Reason: You will receive this error message if communication is not working between the programming software and the panel, or if the panel is still trying to communicate with the old driver and you are attempting to update the driver.

Solution: Restart the panel and try communicating with the panel. If you still face this problem, clear memory from panel (using Panel > Clear Memory) and update the PLC driver and then, save your project. Ensure that you have the project saved to disk before you do clear memory.

Error C02_3: PLC Attributes could not be written to the Panel.

Error C02_4: Tags could not be written to the Panel.

Error C02_5: Error in sending Project attributes to panel.

Error C02_6: Error in sending screens to panel.

Error C02_7: Error in sending alarm database to panel.

Error C02_8: Error in sending message database to panel.

Solution: Check the connections between the panel and computer. Restart the panel and try communicating again.

Error C02_9: NOT USED.

Error C02_10: Uploading could not be completed.

Solution: Check the connections between the panel and computer. Restart the panel or resave the project and try communicating again.

Error C02_11: Out of Memory Error.

Reason: Flash card is smaller than user RAM size.

Solution: Please contact your panel vendor.

ONLINE Programming Communication Errors

Error C03_1: Unable to delete screen from panel.

Reason: If Screen > Delete Screen (on main menu bar) is selected while there is a disruption in the communication between the panel and computer, this error message is produced.

Solution: Check the COM line, power to panel, and COM port used for correct setting and function.

Error C03_2: Memory diagnosing failed.

Solution: Check connections and COM port settings. Ensure the proper function and power distribution of panel (no system faults). If all checks out OK and you are still receiving this error message, there maybe a physical problem with the panel's memory.

Error C03_3: Errors in Warm Boot.

Reason: Panel is not warm booting.

Solution: This could be due to panel not active/communication is not there between PC to panel. Please check the connection between panel to PC. If the problem persists, restart the panel.

Error C03_4: Unable to program User Flash.

Error C03_5: Errors in Reading Flash card.

Reason: If the flash card is not set properly / communication is not happening between the panel and editor, you would get this error.

Solution: Check whether the flash card is fit properly in the slot / restart the panel / check the cable for communication.

Error C03_6: Unable to read PLC Attributes from Panel.

Error C03_7: Unable to delete screen <screen number> from the panel.

Error C03_8: Unable to get Information from Panel. Please check the connection between panel and computer.

Error C03_9: Unable to read System Attributes from panel.

Error C03_10: Unable to read tags from the panel.

Solution: Check the connection between panel and computer. Restart the panel and try communicating again.

Error C03_11: Testing RAM - failed

Solution: If you have a RAM Card installed in the panel, remove this RAM card and redo the test. If the test passes, replace the RAM card with a new RAM card. If the test fails, there is a problem with the panel. Please contact technical support.

Error C03_12: Testing Flash - failed

Solution: Replace the Flash card.

Miscellaneous Errors (Mxx_x)

Error M01_1: Error in memory allocation.

Reason: You will get this error if PowerPanel Editor is not able to allocate certain amount of memory for doing some operations.

Solution: close other applications and try. If you still get this error, save the project and close the application. Restart your computer and try again.

Error M02_2: Unable to open the Project file (*.prp).

Error M02_3: Unable to open message database file (*.pmd).

Error M02_4: Unable to open alarm database file (*.pad).

Error M02_5: Unable to open PLC attributes file (*.atr).

Error M02_6: Unable to open annotations file (*.pan).

Error M02_7: Unable to open project options file (*.ppo).

Solution: You have renamed your project accidentally while project was open in PowerPanel .
Close this project and open it again.

Error M03_1: Unable to create project file (*.prp).

Error M03_2: Unable to create PLC attributes file (*.atr).

Error M03_3: Unable to create message database file (*.pmd).

Error M03_4: Unable to create alarm database file (*.pad).

Error M03_5: Unable to create annotation file (*.pan).

Error M03_6: Unable to create project options file (*.ppo).

Error M03_7: Unable to save PLC Attributes file (*.atr).

Error M04_1: Unable to create temporary project file (*.prp).

Error M04_2: Unable to create temporary annotations file (*.pan).

Error M04_3: Unable to create temporary PLC attributes file (*.atr).

Reason: You might receive these error messages if you are running two instances of the PowerPanel Programming Software, opened a project in one and then gave the same project name in another to be downloaded from panel.

Solution: Give a valid project file name that is not open in any application. If you still face the problem, close all your applications and run only one instance of PowerPanel and try again.

Error M05_1: Unable to unload.

Error M05_2: Unable to load.

Reason: There is a .dll file in the directory that doesn't belong. The program loader will report this error.

Solution: Remove the specified file, and reinstall the software.

Error M06_1: Not a PowerPanel .

Solution: Connect a PowerPanel to the computer and try to communicate with the panel.

Error M06_2: File corrupted; number of bytes in the screen is zero.

Error M06_3: Unable to rename the selected screen.

Error M06_4: Problems in project checksum

Error M06_5: Invalid screen checksum

Solution: You need to recreate the project. If this problem persists, please report it to technical support.

Error M06_6: There are no PLC DLLs available in this execution directory.

Reason: If you have moved all the PLC DLLs from the directory where PowerPanel .exe resides, you will receive this error message.

Solution: Reinstall the software

Error M06_7: PLC DLL file being used by this project is not found.

Reason: A PLC .dll file has been moved or deleted from the program directory.

Solution: Reinstall the software.

Error M06_8: Received checksum is not equal to calculated checksum.

Solution: Reinstall software and try again.

Error M06_9: No PLC has been selected.

Solution: Reinstall software and try again.

Error M07_1: Invalid Screen Name.**Error M07_2: Invalid screen ID , screen ID range is 1..999.**

Reason: Valid screen name's length is 1 to 40 characters.

Solution: You have to specify a valid screen name. Do not include any special characters (\, / ,., *, ?, <, >, |, etc.) while naming your files. First character should be alphanumeric.

Error M08_1: Downloaded project is a protected project. This cannot be edited/viewed in the editor."

Reason: Project is write protected.

Solution: You will not be able to open this project for viewing / editing purpose. Contact the people from whom you got this project.

Error M09_1: System out of memory to run Symbol Factory."

Solution: Restart your system

Error M09_2: Invalid Symbol Factory.exe file."

Solution: Reinstall the software

Error M09_3: Unable to find Symbol Factory application."

Solution: If you have moved symbols directory to some other place, please copy it back. Otherwise, reinstall the software.

Bitmap Errors (BMP_xx)

Error BMP_1: Unable to display dynamic bitmap object

Error BMP_5: Unable to display static bitmap object

Reason: You will receive this message if there is a problem in displaying the bitmap data.

Solution: Delete and then reinsert the bitmap object.

Error BMP_2: Unable to read *.wmf file

Error BMP_3: Unable to read *.emf file

Error BMP_4: Unable to read meta file data from clipboard

Reason: Unable to convert the .wmf/.emf file selected to .bmp.

Solution: Check whether you are able to insert this bitmap in another application (e.g., Word). If yes, restart the system and try again.

Error BMP_6: Unable to calculate enhanced meta file dimension, \ntaking default 80Wx80H

Error BMP_7: Unable to calculate meta file dimension, taking default 80Wx80H

Reason: Editor is unable to calculate enclosing rectangle of the selected .wmf/.emf.

Error BMP_8: Total compressed buffer size of on and off bitmaps must not \n exceed 512K; please reduce the size of object

Error BMP_9: Compressed buffer size of bitmap must not \nexceed 512K; please reduce the size of object

Solution: Insert a different bitmap / try to reduce the complexity of this bitmap.

Error BMP_10: Unable to calculate static bitmap size

Error BMP_12: Unable to calculate dynamic bitmap size

Reason: Editor is unable to calculate the bitmap size.

Solution: Delete the object and try to reinsert the object.

Error BMP_11: Unable to read the project file

Solution: You might get this message when attempting to download a project, or edit a project online, that contains bitmaps. If this happens, restart the system and try again.

Error BMP_13: Image file type is not supported.

Reason: You will receive this message if you attempt to import an image in a format that is invalid (not supported).

Error BMP_14: Image for this bit has already been defined. Select a different bit.

Reason: You will receive this error when configuring a Multi-state bitmap, and you attempt to redefine an image that has already been defined.

Error BMP_15: Unable to create bmp icons for tree view.

Error BMP_16: Unable to add icon to image list.

Error BMP_17: Unable to add icon to tree.

Error BMP_18: Display of default bmp on preview button failed.

Error BMP_19: Bmp Loading Failed.

Error BMP_20: Bmp loading for preview icon failed.

Reason: This error occurs when there is insufficient memory. If you receive this message contact your panel vendor.

Error BMP_21: There should be at least one image selected for this object.

Reason: You will receive this message if you exit a bitmap object without defining an image.

Solution: Define an image for the bitmap object.

Error BMP_22: When you have selected image number, mask value should be represented by consecutive bits.

Reason: You will receive this error message when you have selected an image number, and the entered mask value, when represented in binary format, does not have consecutive 1s.

Solution: Enter a mask value represented by consecutive bits.

Error BMP_23: Cannot add image. Object size exceeds maximum limit.

Reason: Addition of new image is exceeding maximum object size (512K bytes).

Solution: Select a smaller image, or use an image editing application to reduce size and attempt to import again.

Error BMP_24: The height and width of selected image are out of range. Do you want to resize it to fit the screen?

Solution: Click **Yes** and the image will automatically be resized and imported.

Error BMP_25: Image for this value has already been defined. Select a different bit for image.

Reason: You will receive this error message when configuring a Multi-state bitmap and attempt to redefine an image.

Solution: Select a different bit for the image.

Error BMP_26: A log file named has been generated; it contains summary of modified bitmap objects in the project.

Reason: When a project created by an older version of the program loader is opened and there are objects that couldn't be converted to latest format, a log file is generated with a description of those objects.

Error BMP_27: Static Bitmap OBJECT SIZE LIMIT exceeded; please reduce the size of object or select a smaller bitmap.

Reason: While saving or selecting an image, the Static Bitmap size exceeds the 512K maximum.

Solution: Reduce size of bitmap or select another image.

Error BMP_28: Dynamic Bitmap OBJECT SIZE LIMIT being exceeded; please reduce the size of object or select a smaller bitmap.

Reason: While saving or selecting an image, the Dynamic Bitmap size exceeds the 512K maximum.

Solution: Reduce size of bitmap or select another image.

Error BMP_29: Bitmap Button OBJECT SIZE LIMIT being exceeded; please reduce the size of object or select a smaller bitmap.

Reason: While saving or selecting an image, the Bitmap Button size exceeds the 512K maximum.

Solution: Reduce size of bitmap or select another image.

Error BMP_30: Adding another image to the Multi-state Bitmap object or stretching it exceeds the max object size limit.

Reason: While saving or selecting an image, the Multi-state Bitmap size exceeds the 512K maximum.

Solution: Reduce size of bitmap or select another image.

Error BMP_31: Object can't have more than 255 images in the object.

Reason: When configuring a Multi-state bitmap and images are displayed based on "Image Number, you have exceeded the maximum of 255 images.

Solution: Reduce the number of images.

Error BMP_32: Object can't have more than xx images due to the limit imposed by selected tag's data type.

Reason: When configuring a Multi-state bitmap and images are being displayed based on "Bit Number", you are limited by the tag data type to the number of images you can define. For example: a 16-bit data type allows you to define only 16 images.

Solution: Reduce the number of images to under the maximum imposed by the tag data type

Error BMP_33: Shrinking the images result in one of the non-stretching images to be reduced in size; therefore not allowing shrinking of images.

Reason: One of the images you have selected cannot be resized.

Solution: Check your images to see if you have deselected the "Allow Stretching" option.



ASCII Characters

In this Appendix....

— Character List

PowerPanel ASCII Characters

<u>Name</u>	<u>Octal</u>	<u>Dec</u>	<u>Hex</u>	<u>Description</u>
SP	040	32	20	Space
!	041	33	21	Exclamation point
"	042	34	22	Double quote
#	043	35	23	Pound sign
\$	044	36	24	Dollar sign
%	045	37	25	Percent sign
&	046	38	26	Ampersand
'	047	39	27	Apostrophe (single quote)
(	050	40	28	Left parenthesis
)	051	41	29	Right parenthesis
*	052	42	2A	Asterisk
+	053	43	2B	Plus
,	054	44	2C	Comma
-	055	45	2D	Hyphen (minus)
.	056	46	2E	Period (decimal point)/dot
/	057	47	2F	Slant (slash)
0	060	48	30	Zero
1	061	49	31	One
2	062	50	32	Two
3	063	51	33	Three
4	064	52	34	Four
5	065	53	35	Five
6	066	54	36	Six
7	067	55	37	Seven
8	070	56	38	Eight
9	071	57	39	Nine
:	072	58	3A	Colon
;	073	59	3B	Semicolon
<	074	60	3C	Less than / Left angle bracket
=	075	61	3D	Equals sign
>	076	62	3E	Greater than / Right angle bracket
?	077	63	3F	Question mark
@	0100	64	40	"At" sign
A	0101	65	41	Uppercase A
B	0102	66	42	Uppercase B

<u>Name</u>	<u>Octal</u>	<u>Dec</u>	<u>Hex</u>	<u>Description</u>
C	0103	67	43	Uppercase C
D	0104	68	44	Uppercase D
E	0105	69	45	Uppercase E
F	0106	70	46	Uppercase F
G	0107	71	47	Uppercase G
H	0110	72	48	Uppercase H
I	0111	73	49	Uppercase I
J	0112	74	4A	Uppercase J
K	0113	75	4B	Uppercase K
L	0114	76	4C	Uppercase L
M	0115	77	4D	Uppercase M
N	0116	78	4E	Uppercase N
O	0117	79	4F	Uppercase O
P	0120	80	50	Uppercase P
Q	0121	81	51	Uppercase Q
R	0122	82	52	Uppercase R
S	0123	83	53	Uppercase S
T	0124	84	54	Uppercase T
U	0125	85	55	Uppercase U
V	0126	86	56	Uppercase V
W	0127	87	57	Uppercase W
X	0130	88	58	Uppercase X
Y	0131	89	59	Uppercase Y
Z	0132	90	5A	Uppercase Z
[	0133	91	5B	Left square bracket
\	0134	92	5C	Back slash
]	0135	93	5D	Right square bracket
^	0136	94	5E	Caret
_	0137	95	5F	Underscore
`	0140	96	60	Back quote
a	0141	97	61	Lowercase a
b	0142	98	62	Lowercase b
c	0143	99	63	Lowercase c
d	0144	100	64	Lowercase d
e	0145	101	65	Lowercase e
f	0146	102	66	Lowercase f
g	0147	103	67	Lowercase g
h	0150	104	68	Lowercase h
i	0151	105	69	Lowercase i

<u>Name</u>	<u>Octal</u>	<u>Dec</u>	<u>Hex</u>	<u>Description</u>
j	0152	106	6A	Lowercase j
k	0153	107	6B	Lowercase k
l	0154	108	6C	Lowercase l
m	0155	109	6D	Lowercase m
n	0156	110	6E	Lowercase n
o	0157	111	6F	Lowercase o
p	0160	112	70	Lowercase p
q	0161	113	71	Lowercase q
r	0162	114	72	Lowercase r
s	0163	115	73	Lowercase s
t	0164	116	74	Lowercase t
u	0165	117	75	Lowercase u
v	0166	118	76	Lowercase v
w	0167	119	77	Lowercase w
x	0170	120	78	Lowercase x
y	0171	121	79	Lowercase y
z	0172	122	7A	Lowercase z
{	0173	123	7B	Left curly brace
|	0174	124	7C	Vertical bar
}	0175	125	7D	Right curly brace
~	0176	126	7E	Tilde



PLC Communications Setup

In this Appendix....

- Allen-Bradley PLC Communications Setup
 - MicroLogix DF1 Full Duplex
 - MicroLogix DF1 Half Duplex
 - MicroLogix DH485/AIC
 - SLC 5/03, 5/04 and 5/05 DF1 Full Duplex
 - SLC 5/03, 5/04 and 5/05 DF1 Half Duplex
 - SLC 500, 5/01, 5/02 and 5/03 D485/AIC
 - PLC 5 DF1
 - Data Highway Plus
 - Remote I/O
- DeviceNet I/O (Generic) Communications Setup
- DirectLogic PLC Communications Setup
- Ethernet/IP (Generic) Communications Setup
- General Electric (GE) PLC Communications Setup
 - GE 90-30/90-70 SNPX
 - GE VERSAMAX
- Mitsubishi PLC Communications Setup
- Modicon PLC Communications Setup
- Omron PLC Communications Setup
- Profibus-DP (Generic) Communications Setup
- Entivity's Think & Do (WinPLC) Communications Setup

IMPORTANT NOTE:

This section provides examples of the communications setup for several PLC types. It is provided for your reference and is not intended to cover all PLCs and applications.

New PLC drivers will be added to the Power Panel Programming Software based on customer feedback. If your PLC driver is not shown here, please check our website for the latest version of Power Panel Software and check the Help File to see if your PLC has been added.

Allen-Bradley PLC Communications Setup

MicroLogix DF1 Full Duplex

The following screens provide you with an example of how to set up a MicroLogix PLC with DF1 Full Duplex Protocol.

To set up the MicroLogix PLC (DF1 Full Duplex) using RSLogix configuration software, program the Channel Configuration screen as shown to the right.

Open PowerPanel Programming Software and configure Project Information as shown in the figure below.

After selecting the **PLC Type and Protocol**, click on the **View/Edit PLC Com Setup**. The PLC Attributes dialog box will appear. Enter the parameters shown. Click on the **OK** button to save your selections. You will return to the **Project Information** screen. Click on the **OK** button to begin creating your PowerPanel Project.

Channel Configuration

General Chan. 0 - System

Driver: DF1 Full Duplex Source ID: 1 (decimal)

Baud: 19200

Parity: EVEN

Protocol Control:

Control Line: No Handshaking ACK Timeout (x20 ms): 50

Error Detection: CRC NAK Retries: 3

Embedded Responses: Auto Detect ENQ Retries: 3

☒ Duplicate Packet Detect

OK Cancel Apply Help

Step 1: Project Information

PowerPanel™

Step 1
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SELECT ACTION

Edit Program OFF-LINE (Write to Panel Later)

Selected Action : Edit Offline Write Later

ENTER PROJECT INFORMATION

Project Location: C:\Program Files\PowerPanel\Project\ Browse...

Project Name: New Project.prp

Start Editing Screen:

Number: 1 Name: New Screen

Panel Type: G*2 8" Color 640x480 Firmware Revision:

PLC Type and Protocol: Allen-Bradley MicroLogix DF1(Full Duplex) - Rev B View/Edit PLC Com Setup

Thinker-Do Map file: Browse...

Ok Help Clear Exit

Allen Bradley MicroLogix DF1 (Full Duplex)

PLC Editor Revision: B

Baud Rate: 19200

Parity: Even

Stop bits: One

Transmit: RS 232

Checksum Type: CRC

Timeout Time (1-255) (tenths of a second): 30

Poll Time (0-255) (tenths of a second): 0

OK Cancel Help

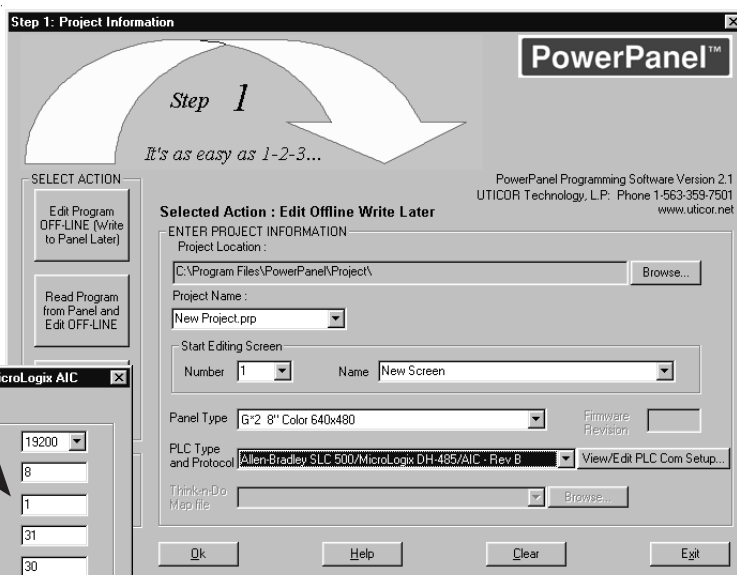
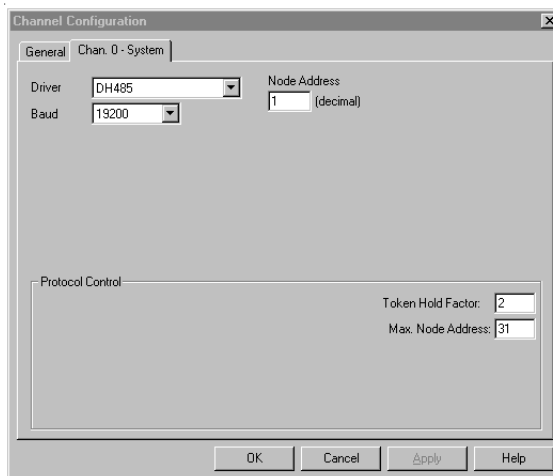
MicroLogix DH485/AIC

The following screens provide you with an example of how to set up a MicroLogix PLC with DH485 Protocol.

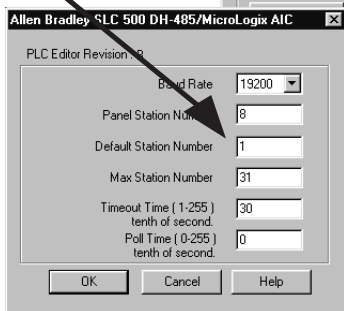
To set up the MicroLogix PLC (DH485) using RSLogix configuration software, program the Channel Configuration screen as shown to the right.

Open Programming Software and configure Project Information screen as shown in the figure below.

After selecting the **PLC Type and Protocol**, click on the **View/Edit PLC Com Setup**. The PLC Attributes dialog box will appear. Enter the parameters shown. Click on the **OK** button to save your selections. You will return to the **Project Information** screen. Click on the **OK** button to begin creating your PowerPanel Project.



NOTE: The **Default PLC Address** can be any valid unused address from 0 to 31.



NOTE on TAGS for this type PLC:
If communicating to other than the default PLC, the address string must be preceded by the PLC address of the unit you want to communicate with. For example, 3-N7:0 is PLC address 3.

SLC 5/03, 5/04, and 5/05 DF1 Full Duplex

The following screens provide you with an example of how to set up a SLC 500 Series PLC with DF1 Full Duplex Protocol.

To set up the SLC 500 PLC (DF1 Full Duplex) using RSLogix configuration software, program the Channel Configuration screen as shown to the right.

Open PowerPanel Programming Software and configure Project Information as shown in the figure below.

After selecting the **PLC Type and Protocol**, click on the **View/Edit PLC Com Setup**. The PLC Attributes dialog box will appear. Enter the parameters shown. Click on the **OK** button to save your selections. You will return to the **Project Information** screen. Click on the **OK** button to begin creating your PowerPanel Project.

The Channel Configuration dialog box has four tabs: General, Chan. 1 - System, Chan. 0 - System, and Chan. 0 - User. The General tab is active, showing the following settings:

- Driver: DF1 Full Duplex
- Baud: 19200
- Parity: EVEN
- Source ID: 1 (decimal)
- Protocol Control:
 - Control Line: No Handshaking
 - Error Detection: CRC
 - Embedded Responses: Enabled
 - ☒ Duplicate Packet Detect
 - ACK Timeout (x20 ms): 50
 - NAK Retries: 3
 - ENQ Retries: 3

Buttons at the bottom: OK, Cancel, Apply, Help.

The Step 1: Project Information dialog box shows the following information:

- PowerPanel™** logo and version: PowerPanel Programming Software Version 2.1, UTICOR Technology, L.P. Phone 1-563-359-7501, www.uticor.net
- SELECT ACTION:** Edit Program OFF-LINE (Write to Panel Later)
- ENTER PROJECT INFORMATION:**
 - Project Location: C:\Program Files\PowerPanel\Project\
 - Project Name: New Project.prp
 - Start Editing Screen: Number 1, Name New Screen
 - Panel Type: G*2 8" Color 640x480
 - PLC Type and Protocol: Allen-Bradley SLC 500 DF1(Full Duplex) - Rev 8
 - Buttons: View/Edit PLC Com Setup..., Browse...

Buttons at the bottom: OK, Help, Clear, Exit.

The **Allen Bradley SLC 500 (Full Duplex)** dialog box is overlaid on the bottom left, showing the following settings:

- PLC Editor Revision: B
- Baud Rate: 19200
- Parity: Even
- Stop bits: One
- Transmit: RS 232
- Checksum Type: CRC
- Timeout Time (1-255 tenths of a second): 30
- Poll time (0-255 tenths of a second): 0

Buttons at the bottom: OK, Cancel, Help.

SLC 500, 5/01, 5/02 and 5/03 DH485/AIC

The following screens provide you with an example of how to set up a SLC500 Series PLC with DH485 Protocol.

To set up the SLC500 PLC (DH485) using RSLogix configuration software, program the Channel Configuration screen as shown to the right.

Open PowerPanel Programming Software and configure Project Information screen as shown in the figure below.

After selecting the **PLC Type and Protocol**, click on the **View/Edit PLC Com Setup**. The PLC Attributes dialog box will appear. Enter the parameters shown. Click on the **OK** button to save your selections. You will return to the **Project Information** screen. Click on the **OK** button to begin creating your PowerPanel Project.

Channel Configuration

General | Chan. 1 - System | Chan. 0 - System | Chan. 0 - User

Driver: DH485 Node Address: 1 (decimal)

Baud: 19200

Protocol Control:

Token Hold Factor: 1

Max. Node Address: 31

OK Cancel Apply Help

Step 1: Project Information

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SELECT ACTION

Edit Program OFF-LINE (Write to Panel Later)

Read Program from Panel and Edit OFF-LINE

Edit Program ON-LINE

Selected Action: Edit Offline Write Later

ENTER PROJECT INFORMATION

Project Location: C:\Program Files\PowerPanel\Project\ Browse...

Project Name: New Project.prp

Start Editing Screen: Number 1 Name New Screen

Panel Type: G*2 8" Color 640x480 Firmware Revision

PLC Type and Protocol: Allen-Bradley SLC 500/MicroLogix DH-485/AIC - Rev B View/Edit PLC Com Setup...

Thinker-Do Map file Browse...

OK Help Clear Exit

NOTE: The **Default PLC Address** can be any valid unused address from 0 to 31.

Allen Bradley SLC 500 DH-485/MicroLogix AIC

PLC Editor Revision: 8

Baud Rate: 19200

Panel Station Number: 8

Default Station Number: 1

Max Station Number: 31

Timeout Time (1-255) tenth of second: 30

Poll Time (0-255) tenth of second: 0

OK Cancel Help

NOTE on TAGs for this type PLC:
If communicating to other than the default PLC, the address string must be preceded by the PLC address of the unit you want to communicate with. For example, 3-N7:0 is PLC address 3.

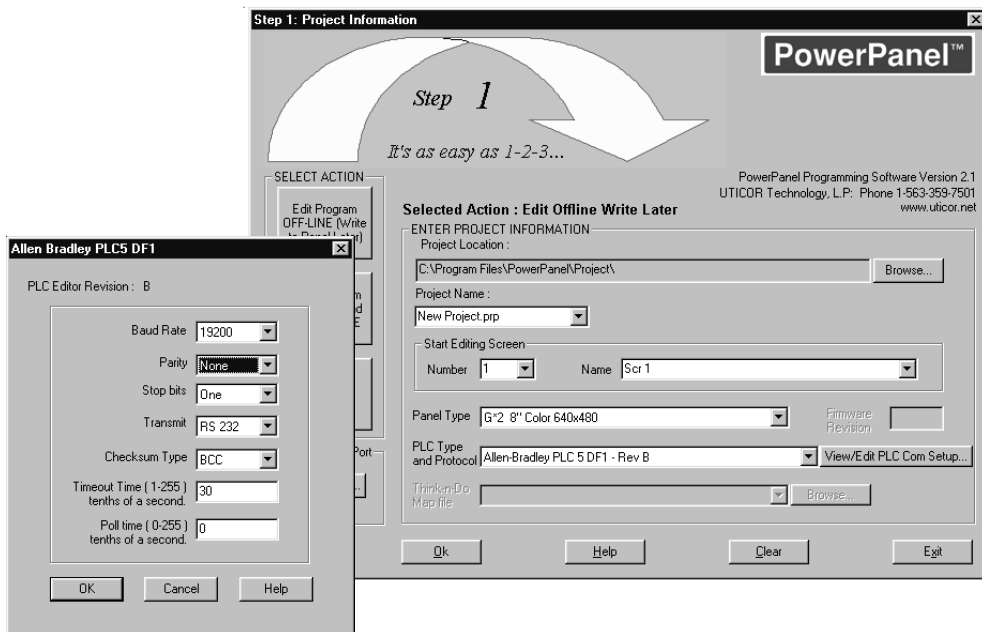
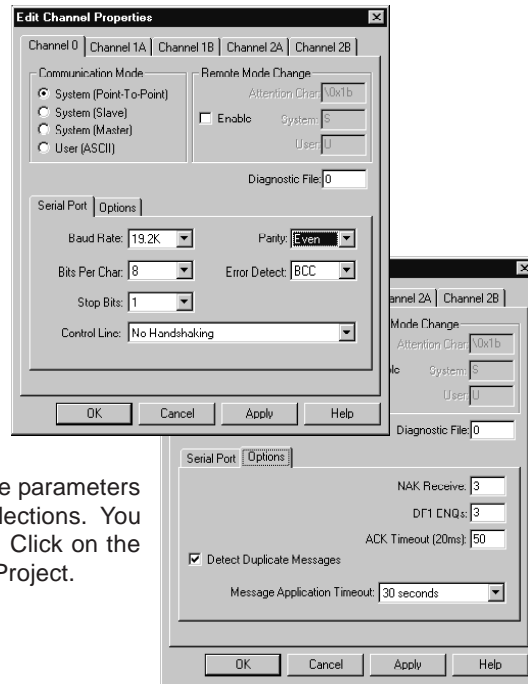
PLC5 DF1

The following screens provide you with an example of how to set up a PLC5 with DF1 Protocol.

To set up the PLC5 DF1 using RSLogix configuration software, program the Channel Configuration screens as shown to the right.

Open PowerPanel Programming Software and configure Project Information as shown in the figure below.

After selecting the **PLC Type and Protocol**, click on the **View/Edit PLC Com Setup**. The PLC Attributes dialog box will appear. Enter the parameters shown. Click on the **OK** button to save your selections. You will return to the **Project Information** screen. Click on the **OK** button to begin creating your PowerPanel Project.



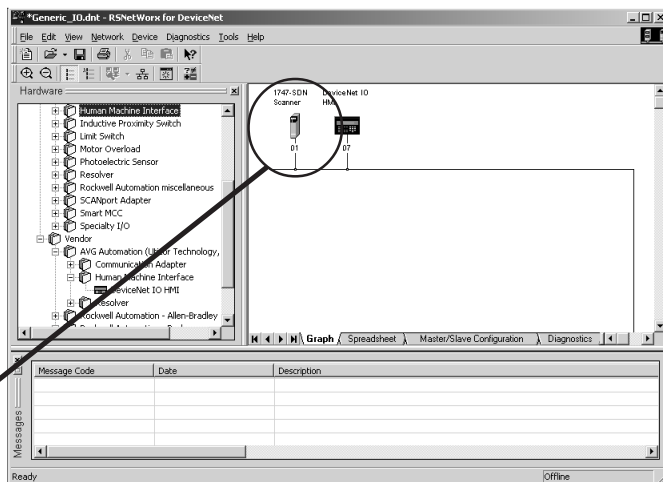
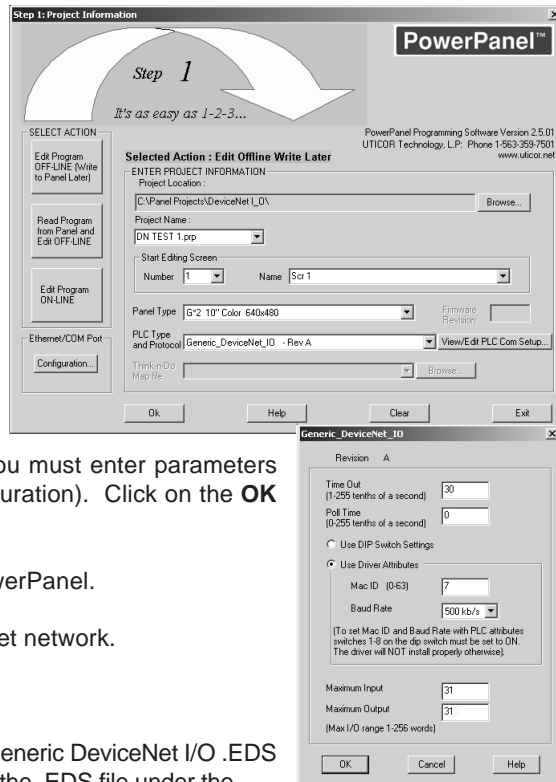
DeviceNet I/O Communications Setup

The following screens provide you with an example of how to set up a Generic DeviceNet I/O Network project using RSNetWorx configuration software with an Allen-Bradley 1747-SDN Scanner Module.

To set up DeviceNet I/O communications, open PowerPanel Programming Software and configure **Project Information** screen as shown in the figure to the right.

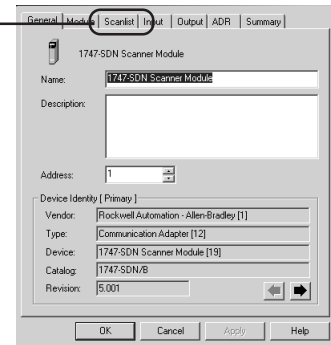
After selecting the **PLC Type and Protocol**, click on the **View/Edit PLC Com Setup**. The PLC Attributes dialog box will appear. Enter the parameters shown (remember this is an example, you must enter parameters that are applicable to your system configuration). Click on the **OK** button to save your selections.

1. Download the project to the PowerPanel.
2. Attach the panel to the DeviceNet network.
3. Run RSNetWorx.
4. Now, you must commission the Generic DeviceNet I/O .EDS file using RSNetWorx. You'll find the .EDS file under the PowerPanel Programming Software directory that was created when you installed the software.
5. Scan the network so the DeviceNet software will find the PowerPanel and place it on the network.
6. Click on the Scanner Module icon.



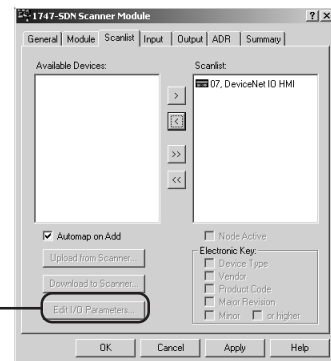
7. The Scanner Module window will open.

8. Click on the **Scanlist** tab.



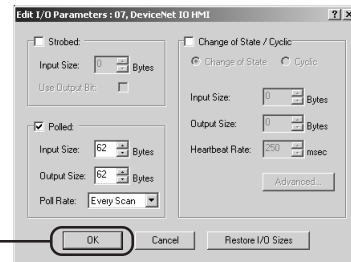
9. Look in field under **Available Devices**, and find the **DeviceNet I/O HMI** (This represents the PowerPanel). Add to the **Scanlist**.

10. Click on the **Edit I/O Parameters** button.

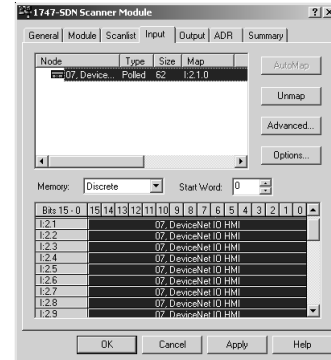
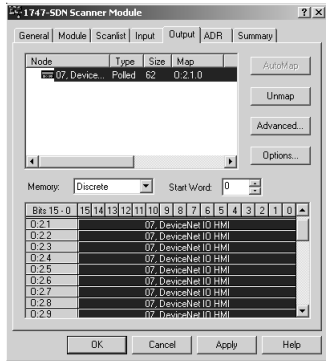


11. Match the **Input Size** and **Output Size** to the attributes that you set up in the PowerPanel Programming Software project.

12. Click on **OK** button, the Inputs and Outputs will be mapped to the scanner module.



13. The following two bitmaps show examples of the Output and Input Mapping to the scanner module. (This example uses discrete I/O mapping. It is possible to map this to the M0/M1 files.)



Return to **PowerPanel Programming Software** and begin creating your PowerPanel project.

DirectLogic PLC Communications Setup

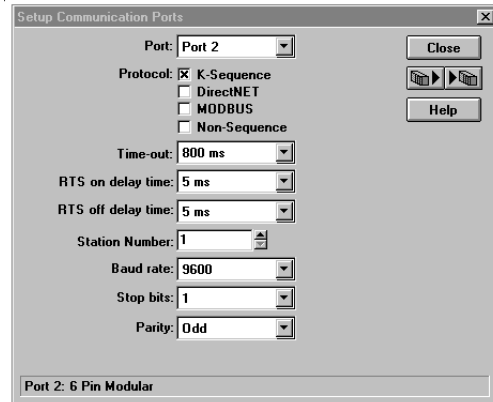
K-Sequence, DirectNet and Koyo Modbus

The following screens provide you with an example of how to set up a DirectLogic PLC with K-Sequence Protocol using DirectSoft configuration software.

To set up the DL05 PLC K-Sequence using DirectSoft configuration software, program the Setup Communication Ports screen as shown to the right. DirectNet and Modbus are selected here also.

Open PowerPanel Programming Software and configure Project Information screen as shown in the figure below.

After selecting the **PLC Type and Protocol**, click on the **View/Edit PLC Com Setup**. The PLC Attributes dialog box will appear. Enter the parameters shown. Click on the **OK** button to save your selections. You will return to the **Project Information** screen. Click on the **OK** button to begin creating your PowerPanel Project.



Setup Communication Ports

Port: Port 2

Protocol: ☒ K-Sequence
☐ DirectNET
☐ MODBUS
☐ Non-Sequence

Time-out: 800 ms

RTS on delay time: 5 ms

RTS off delay time: 5 ms

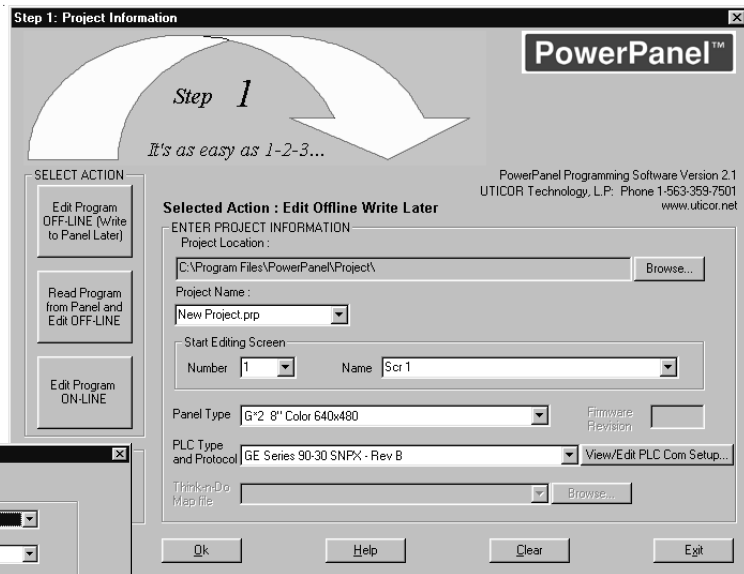
Station Number: 1

Baud rate: 9600

Stop bits: 1

Parity: Odd

Port 2: 6 Pin Modular



Step 1: Project Information

PowerPanel™

It's as easy as 1-2-3...

SELECT ACTION

Edit Program OFF-LINE (Write to Panel Later)

Read Program from Panel and Edit OFF-LINE

Edit Program ON-LINE

Selected Action : Edit Offline Write Later

ENTER PROJECT INFORMATION

Project Location: C:\Program Files\PowerPanel\Project\ Browse...

Project Name: New Project.prp

Start Editing Screen

Number: 1 Name: Scr 1

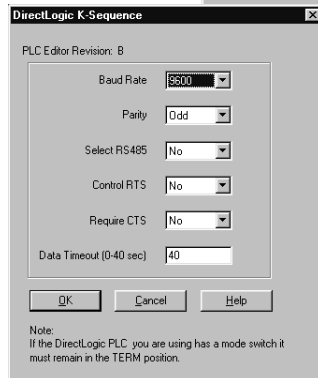
Panel Type: G-2 8" Color 640x480

PLC Type and Protocol: GE Series 90-30 SNPX - Rev B View/Edit PLC Com Setup...

ThinkerDo Map file: Browse...

Ok Help Clear Exit

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 www.uticor.net



DirectLogic K-Sequence

PLC Editor Revision: 8

Baud Rate: 9600

Parity: Odd

Select RS485: No

Control RTS: No

Require CTS: No

Data Timeout (0-40 sec): 40

OK Cancel Help

Note:
 If the DirectLogic PLC you are using has a mode switch it must remain in the TERM position.

NOTE on TAGs for this type PLC:
 The PLC driver defaults to station 1. To communicate with another station number, the map string must be preceded by the station number of the unit you want to communicate with. For example, 4-V2000 to communicate with station number 4.

General Electric (GE) PLC Communications Setup

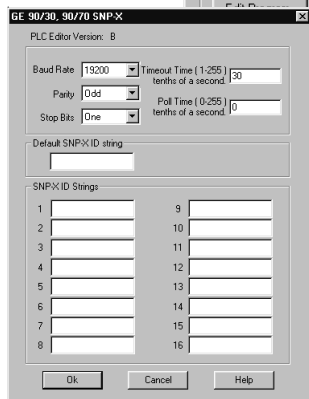
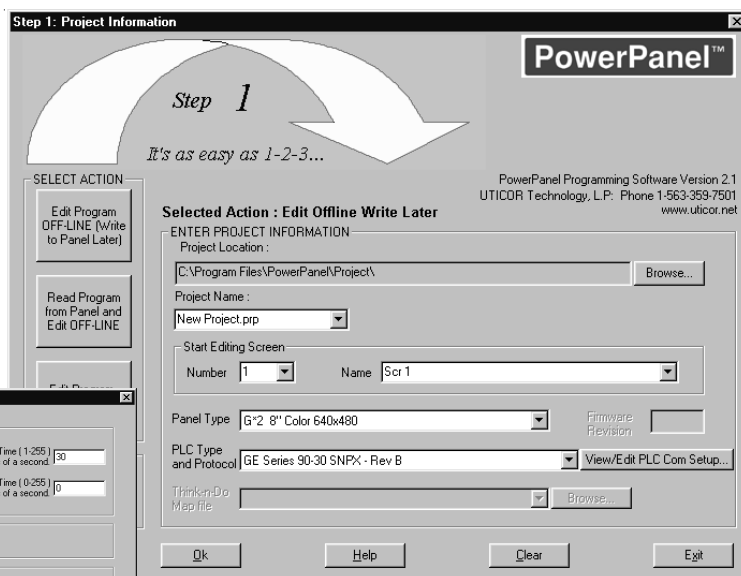
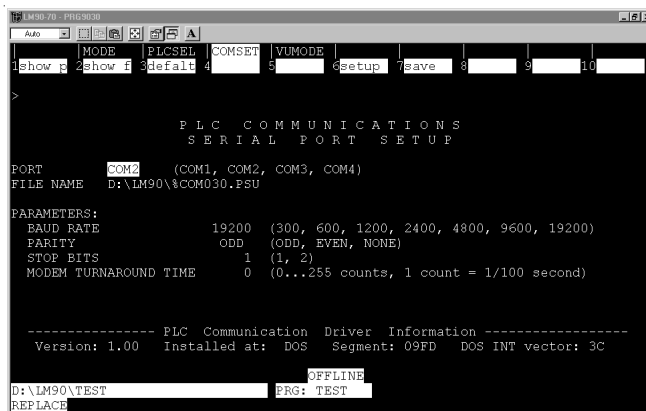
GE 90-30/90-70 SNPX

The following screens provide you with an example of how to set up a GE 90-30 PLC with SNPX Protocol.

To set up the PLC using Logic Master configuration software, program the PLC Communications Serial Port Setup screen as shown to the right.

Open PowerPanel Programming Software and configure Project Information screen as shown in the figure below.

After selecting the **PLC Type and Protocol**, click on the **View/Edit PLC Com Setup**. The PLC Attributes dialog box will appear. Enter the parameters shown. Click on the **OK** button to save your selections. You will return to the **Project Information** screen. Click on the **OK** button to begin creating your PowerPanel Project.



GE VERSAMAX

The following screens provide you with an example of how to set up a GE Versamax PLC with SNP Protocol.

To set up the PLC using GE Fanuc Software VersaPro configuration software, program the Port 1 and Port 2 as shown to the right.

Open PowerPanel Programming Software and configure Project Information screen as shown in the figure below.

After selecting the **PLC Type and Protocol**, click on the **View/Edit PLC Com Setup**. The PLC Attributes dialog box will appear. Enter the parameters shown. Click on the **OK** button to save your selections. You will return to the **Project Information** screen. Click on the **OK** button to begin creating your PowerPanel Project.

Parameters	Values
Port Mode:	SNP
Port Type:	Slave
Data Rate (bps):	19200
Parity:	Odd
Stop Bits:	1
Timeout:	Long
Turnaround Delay (mSec in 10 mSec)	0
SNP ID:	

Step 1: Project Information

Step 1

It's as easy as 1-2-3...

SELECT ACTION

- Edit Program OFF-LINE (Write to Panel Later)
- Read Program from Panel and Edit OFF-LINE

Selected Action : Edit Offline Write Later

ENTER PROJECT INFORMATION

Project Location: C:\Program Files\PowerPanel\Project\ Browse...

Project Name: New Project.pip

Start Editing Screen:

Number: 1 Name: Scr 1

Panel Type: G*2 8" Color 640x480 Firmware Revision:

PLC Type and Protocol: GE Series 90-30 SNP-X - Rev B View/Edit PLC Com Setup...

Thinker-Do Help file: Browse...

GE 90/30, 90/70 SNP-X

PLC Editor Version: B

Baud Rate: 19200 Timeout Time (1-255) tenths of a second: 30

Parity: Odd Poll Time (0-255) tenths of a second: 0

Stop Bits: One

Default SNP-X ID string:

SNP-X ID Strings:

1	9
2	10
3	11
4	12
5	13
6	14
7	15
8	16

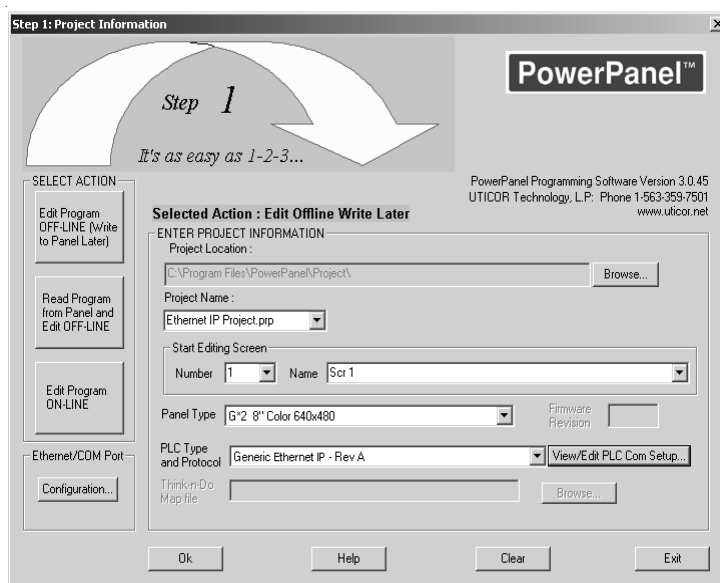
Ok Cancel Help

Generic Ethernet/IP Communications Setup

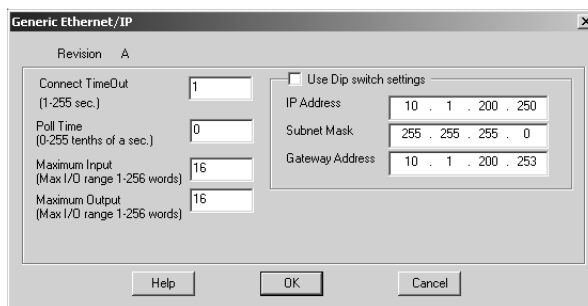
The following screens provide you with an example of how to set up a Generic Ethernet /IP Network project using RSLogix 5000 configuration software. This example assumes that the EtherNet/IP Bridge module has been added to the configuration in the Control Logix PLC.

To set up EtherNet/IP communications, open PowerPanel Programming Software and configure **Project Information** screen as shown in the figure to the right.

After selecting the **PLC Type and Protocol**, click on the **View/Edit PLC Com Setup**. The PLC Attributes dialog box will appear. Enter the parameters shown (remember this is an example, you must enter parameters that are applicable to your system configuration). Click on the **OK** button to save your selections.

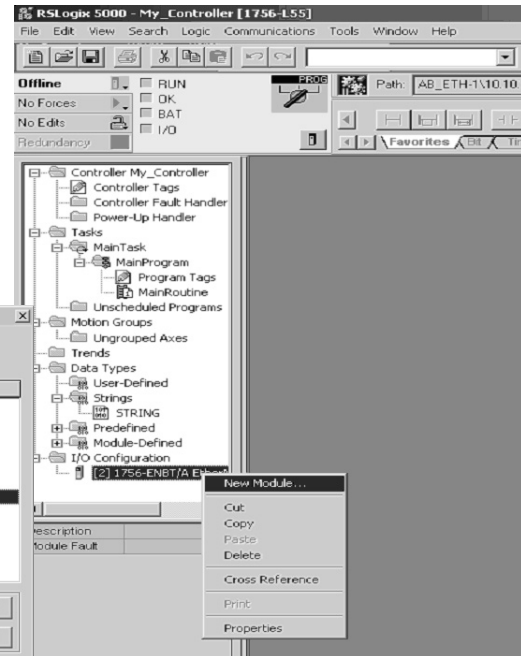
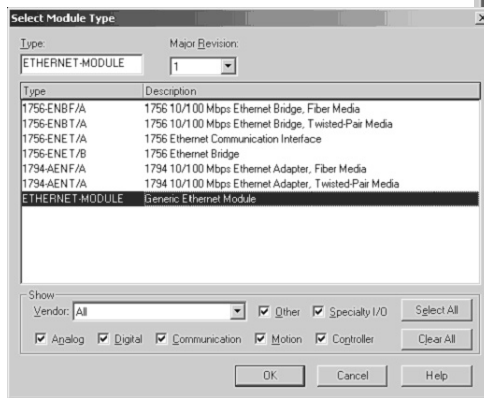


Please Note: There are special considerations when the Power Panel is connected to a n Ethernet/IP network: When leaving the PowerPanel Setup Mode, all values currently residing in the INPUT TAGS are cleared to a value of 0 (zero). Also, when leaving the PowerPanel Setup Mode, there can be a delay of approximately 10 to 15 seconds (while the Ethernet/IP interface card is being initialized) before the panel values being displayed are updated.

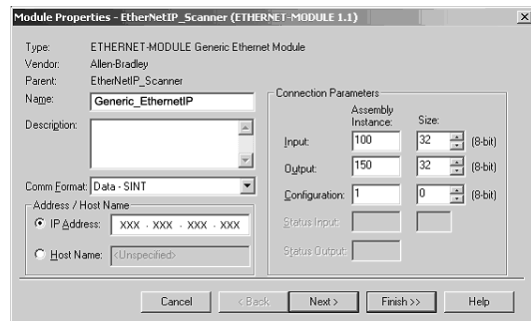


1. Download the project to the PowerPanel.
2. Attach the panel to the Ethernet/IP network.

3. Run RSLogix 5000.
4. Under **I/O Configuration**, right click the Ethernet Module, and from the pop up menu select New Module, as shown to the right.
5. The **Select Module Type** window will appear. Select Generic Ethernet Module, as shown below.

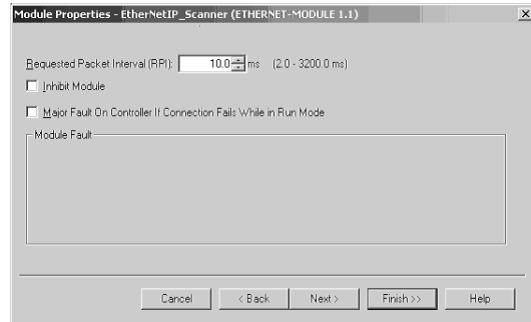


6. In the next window, RSLogix will ask for information regarding the communication to the Generic Module. Enter a name for the module. (We have used **Generic_EthernetIP**.) This name will create a tag in RSLogix that can be used to access the memory location in the PLCs memory where the data for the Generic Ethernet/IP module will be stored.



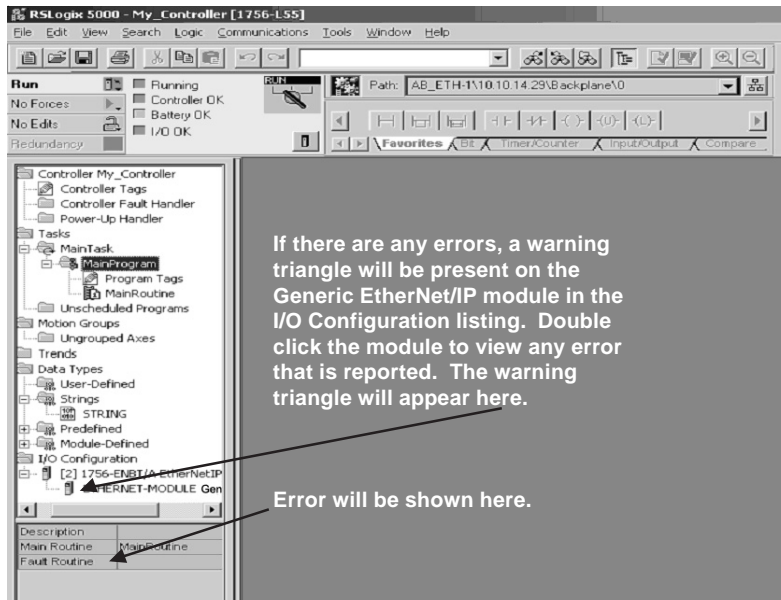
7. Select the **Comm Format**. Here we have selected **Data- SINT** that will represent the data in the Generic module as a field of 8-bit bytes.
8. I/O data is accessed in input instance 100 and output instance 150, so these values have to be entered as the instance values for input and output. The size of the input connection and the output connection should correspond to the size that we have configured the Generic module for. In this case we are using 32 bytes of input data, so that is the size we will enter (in both input and output).

9. The Generic Module does not support a configuration assembly, but RSLogix requires that a value be entered here. An instance value of 0 is not a valid instance ID, but any non-zero value will work. We have selected 1. The data size of the configuration instance is then set to 0.
10. As a final step we enter the **IP Address** that we have configured for the module. Press the **Next** button. The dialog box to the right will open.
11. Enter a value for the time between each scan of the module. For this example, we will leave it at the default of 10 msec. Click on the **Finish** button.



12. The Generic Module has been added to the configuration in RSLogix. Select **Go Online** in the **Communications Menu** and download the configuration. The configuration will now be downloaded to the PLC, and if no errors are detected, the window will look as follows.

13. Return to **PowerPanel Programming Software** and begin creating your PowerPanel project.



Mitsubishi PLC Communications Setup

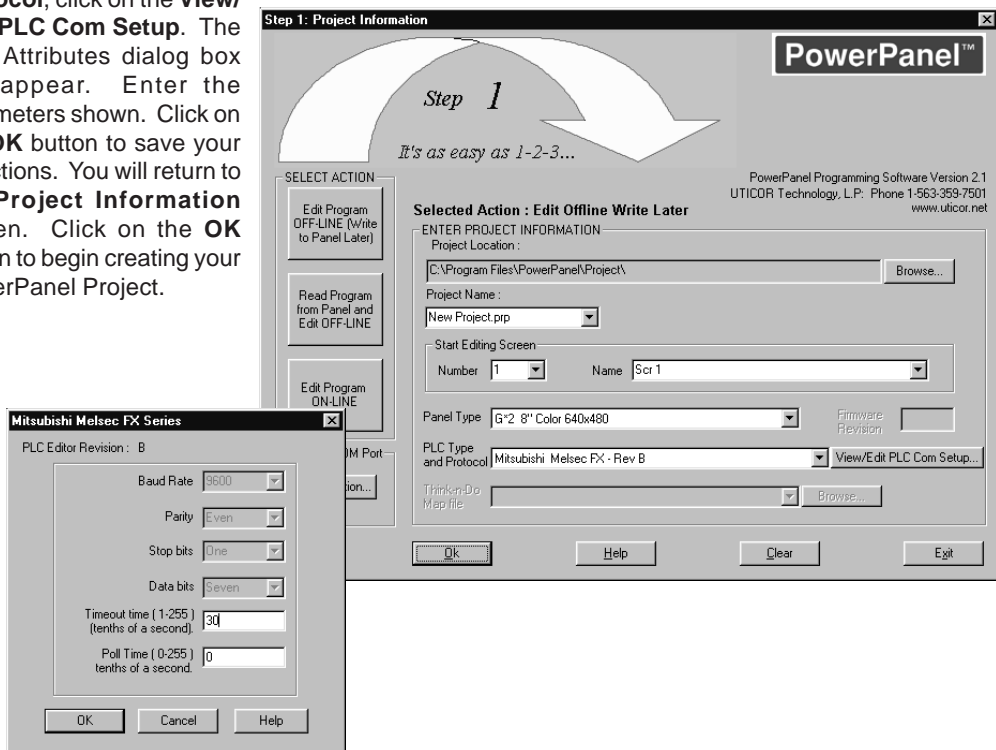
Melsec FX

The following screens provide you with an example of how to set up a MFX PLC Communications Driver.

To set up the MFX PLC using MEDOC configuration software, program the Communication Setup screen as shown to the right.

Open PowerPanel Programming Software and configure Project Information screen as shown in the figure below.

After selecting the **PLC Type and Protocol**, click on the **View/Edit PLC Com Setup**. The PLC Attributes dialog box will appear. Enter the parameters shown. Click on the **OK** button to save your selections. You will return to the **Project Information** screen. Click on the **OK** button to begin creating your PowerPanel Project.



Modicon PLC Communications Setup

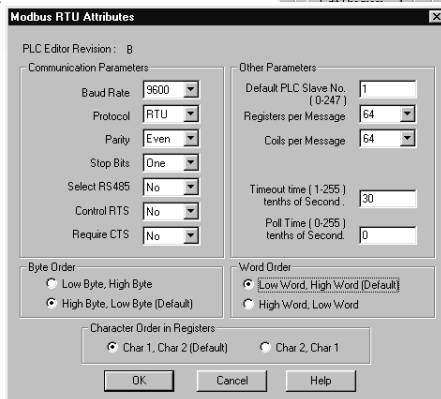
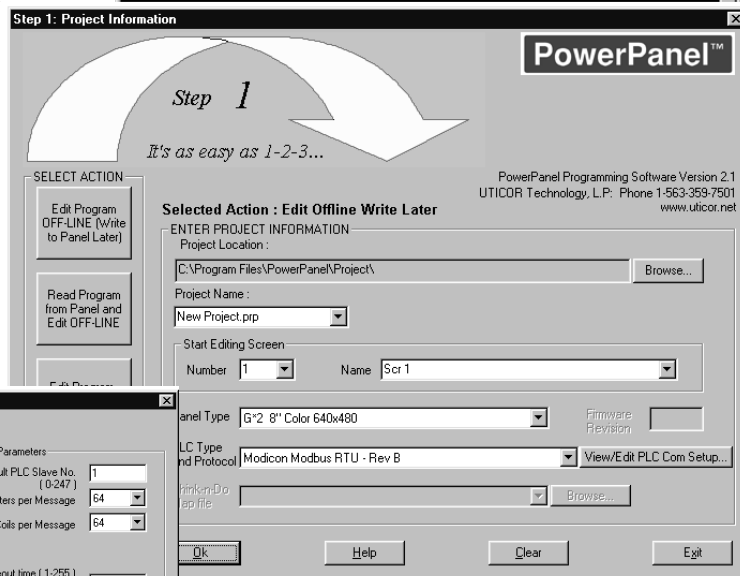
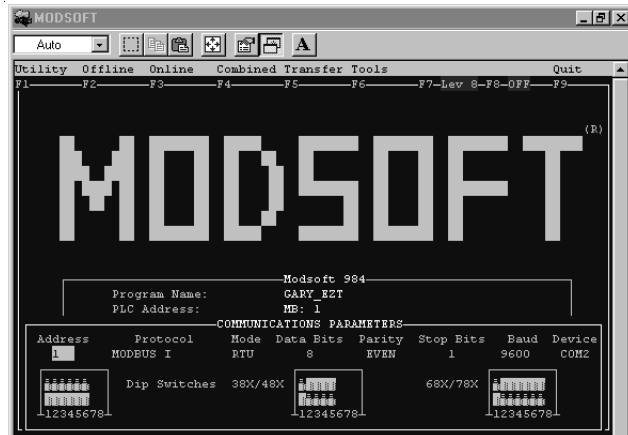
Modbus RTU

The following screens provide you with an example of how to set up a Modicon PLC with Modbus RTU Protocol.

To set up the Modicon Modbus RTU using MODSOFT configuration software, program the PLC Communications Parameters screen as shown to the right.

Open PowerPanel Programming Software and configure Project Information screen as shown in the figure below.

After selecting the **PLC Type and Protocol**, click on the **View/Edit PLC Com Setup**. The PLC Attributes dialog box will appear. Enter the parameters shown. Click on the **OK** button to save your selections. You will return to the **Project Information** screen. Click on the **OK** button to begin creating your PowerPanel Project.



NOTE on TAGs for this type PLC:
If communicating to other than the default PLC, the address string must be preceded by the PLC address of the unit you want to communicate with. For example, 3-40001 is PLC address 3.

OMRON C200 and C500 PLC Communications Setup

The following provides you with an example of how to set up an OMRON PLC.

OMRON PLC's Host Link setup configuration is done by setting a series of switches on the Host Link unit. Set the switches in accordance with the figure and tables provided below.

Setting Switches

Before setting switches, be sure to turn off the power to the PC. Using a standard screwdriver, set each switch so that the desired set value appears on the window below the switch. SW1 to SW4 are set to 0 as a factory-set condition.

SW1	Unit No.
SW2	
SW3	Transmission Rate
SW4	Command level, parity, transmission format

FRONT PANEL SWITCH SETTINGS

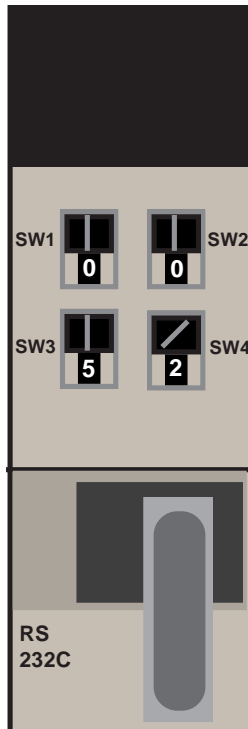
SW1 and SW2

Set the Unit No. of the Host Link Unit by using SW1 and SW2. A Unit No. from 00 to 31 can be set. Do not set the same Unit No. in duplicate.

SW3

Sets the transmission speed. Match the transmission speed of the Host Link Unit to the host computer.

SW3	Transmission Speed
0	300 bps
1	600 bps
2	1,200 bps
3	2,400 bps
4	4,800 bps
5	9,600 bps
6	19.2K bps
7	Inhibited
8	
9	



SW4

Sets the command level, parity, and transmission format.

SW4	Command Level	Parity	Transmission Format
0	Only 1	Even	ASCII, 7 bits, w/2 stop bits
1	1 and 2		
2	1, 2, and 3		
3	Inhibited		
4	Only 1	Odd	
5	1 and 2		
6	1, 2, and 3		
7	Inhibited		
8	Only 1	Even	JIS, 8 bits, w/1 stop bit
9	1 and 2		
A	1, 2, and 3		
B	Inhibited		
C	Only 1	Odd	
D	1 and 2		
E	1, 2, and 3		
F	Inhibited		

BACK PANEL SWITCH SETTINGS

Set Switches SW1 through SW4 in the OFF position as shown in the figure below. This is the **Single-Link** setting.

Set **CTS Switch** to always ON (the 0, or down position).

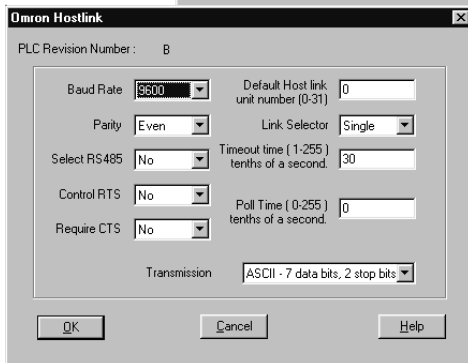
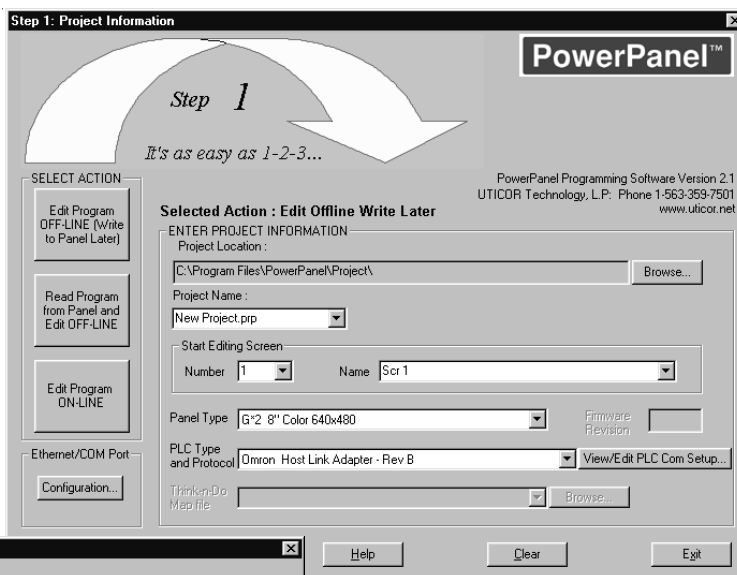


Switch No.	Function	ON	OFF
1	Not used		
2			
3	Operation	1:N	1:1
4	5V Power Supply	Present	Absent



Open PowerPanel Programming Software and configure Project Information as shown in the figure to the right.

After selecting the PLC Type and Protocol, click on **View/Edit PLC Com Setup**. The PLC Attributes dialog box will appear. Enter the parameters shown. Click on the **OK** button to save your selections. You will return to the Project Information screen. Click on the **OK** button to begin creating your PowerPanel Project.



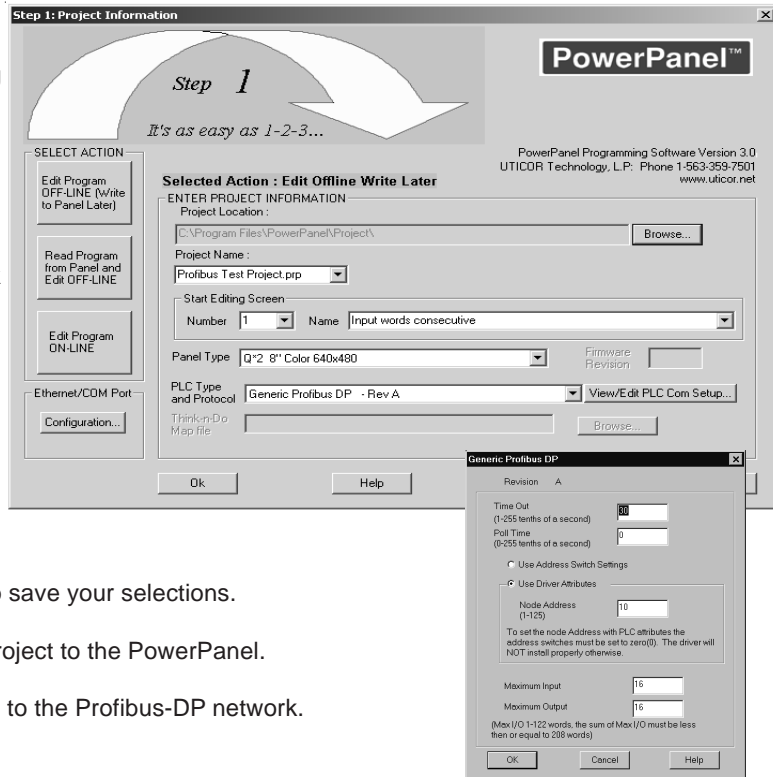
NOTE on TAGs for this type PLC:
If communicating to other than the default Host Link Unit, the address string must be preceded by the Host Link Number of the unit you want to communicate with. For example, 2-HR05 is Host Link Unit 2.

Generic Profibus-DP Communications Setup

The following screens provide you with an example of how to set up a Generic Profibus-DP Network project using Simatic Step 7 configuration software.

To set up Profibus-DP communications, open PowerPanel Programming Software and configure **Project Information** screen as shown in the figure to the right.

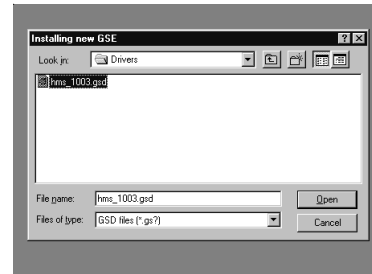
After selecting the **PLC Type and Protocol**, click on the **View/Edit PLC Com Setup**. The PLC Attributes dialog box will appear. Enter the parameters shown (remember this is an example, you must enter parameters that are applicable to your system configuration). Click on the **OK** button to save your selections.



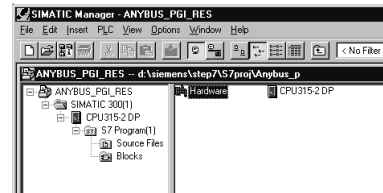
1. Download the project to the PowerPanel.
2. Attach the panel to the Profibus-DP network.
3. Run Simatic Step 7 software.
4. First you must add the .GSD file as follows.
 - a. Using the SIMATIC Manager, open the **Hardware** settings window.
 - b. From **Hardware Config** window, choose **OPTIONS>INSTALL NEW GSE...**



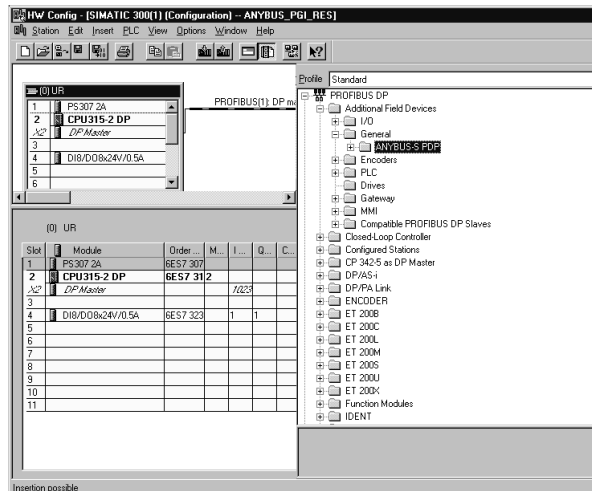
- c. The “Installing new GSE” window will appear.
- d. You'll find the .GDS file under the PowerPanel Programming Software directory that was created when you installed the software. (The default directory is C:\Program Files\PowerPanel.) Select “hms_1003.gsd” and click **OPEN**.
- e. Follow the onscreen prompts and the installation is complete.



5. Now you will set up the module as follows:
 - a. Create a **New Project** or **Open** an existing project using SIMATIC Manager
 - b. Open the Hardware Configuration window by double clicking the “Hardware” icon as shown to the right.

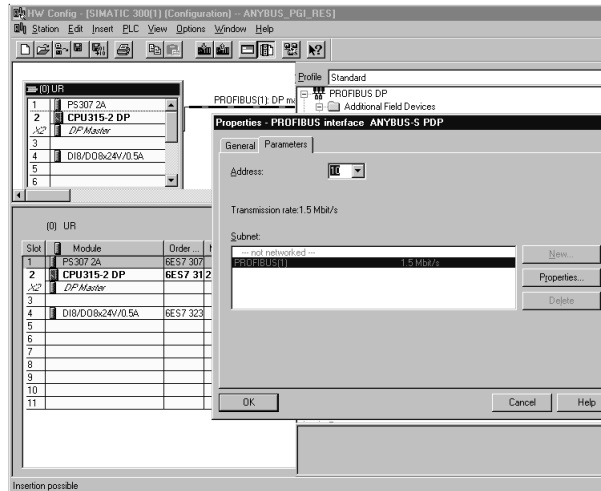


- c. Select **VIEW>CATALOG** or press CTRL+K to open the catalog shown to the right.
- d. Open the **PROFIBUS DP** folder until you get to **ANYBUS-S PDP**. Click on the folder and drag it to the line in the window shown in the picture to the right.



Please Note: When dragging the folder, make sure you have it right on the line before releasing the mouse button.

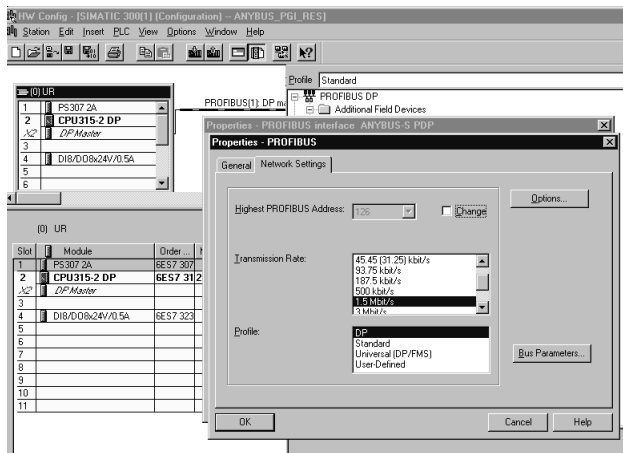
- e. The properties window will open as shown to the right (once you drag and drop).
- f. Under the **PARAMETERS** tab configure your **PROFIBUS ADDRESS**.
- g. Click the **PROPERTIES** button in order to configure the modules profibus connection.



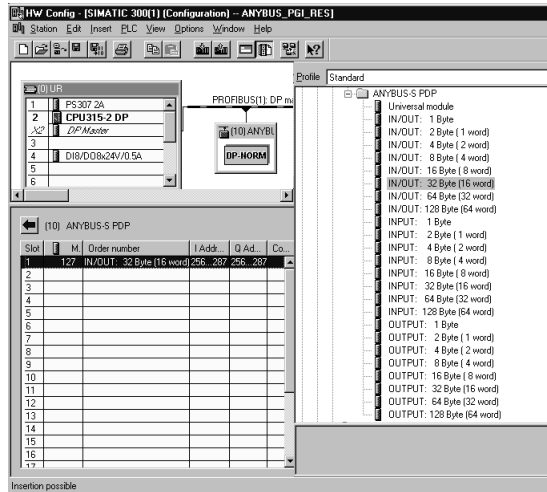
- h. Go to the **NETWORK SETTINGS** tab and configure the "Transmission Rate" you want your module to use.

NOTE: This must match that of your Profibus Network.

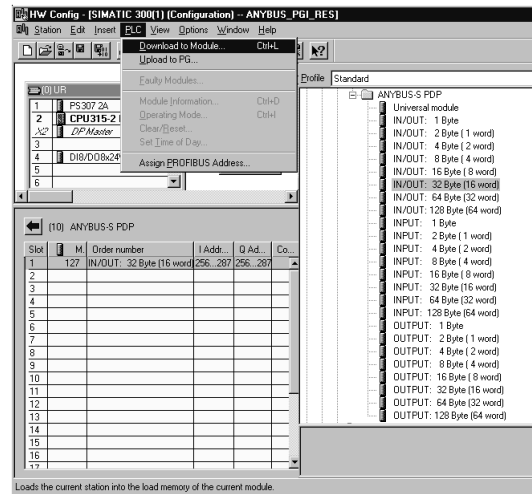
- i. Click **OK** to exit the window and save changes.
- j. Click **OK** again to exit the properties window and save changes.
6. The Module is now set up. All that is left is setting up I/O.



7. To add the I/O, simply double-click the ANYBUS-S PDP folder.
8. A list of available I/O will drop down. Drag and Drop the desired I/O from right to left.



9. Once the I/O is configured, your module is properly configured choose PLC>DOWNLOAD TO MODULE...
10. Follow the on-screen prompts and you are finished.
11. Return to **PowerPanel Programming Software** and begin creating your PowerPanel project.



Seimens S7 MPI Adaptor PLC Communications Setup

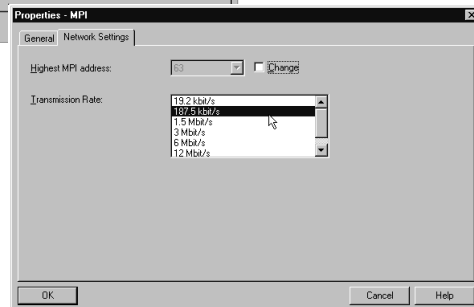
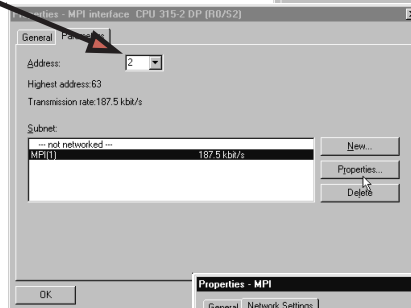
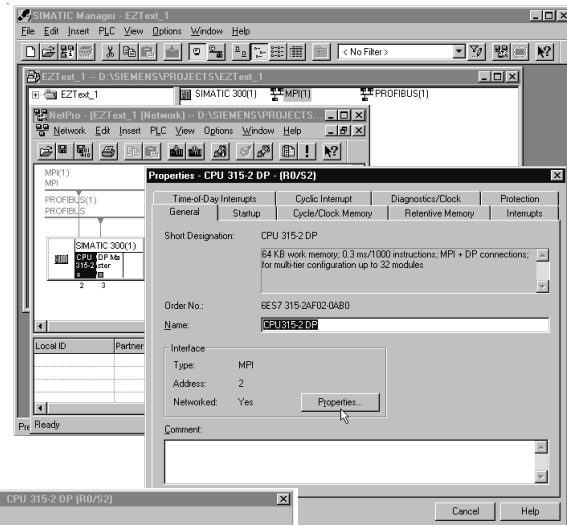
The following screens provide you with an example of how to set up a Siemens S7 MPI Adaptor with Siemens' 3964R Protocol.

Using the Seimens Step 7 Programming Software, open your project and proceed to the **MPI Interface Setup** Screen.

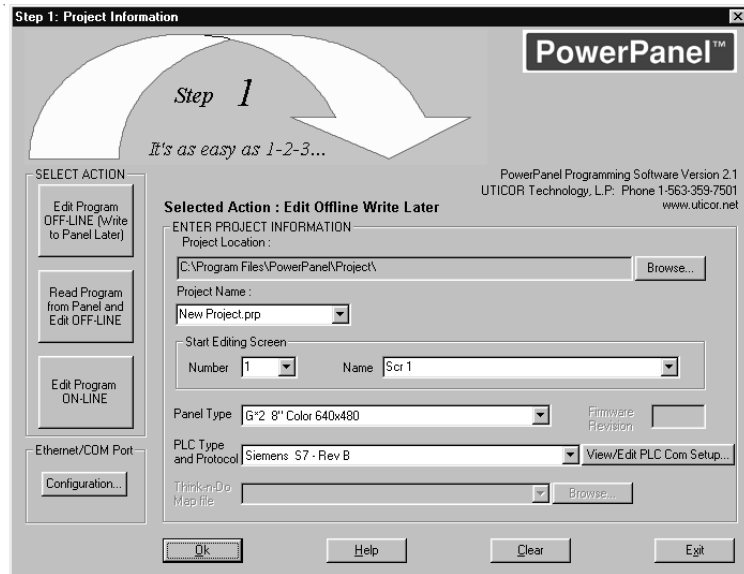
Click on the **Properties** button, then click on the **Parameters** tab, and set the **MPI Address** to 2.

Click on the **Properties** button, then click on the **Network Settings** tab.

Set the **Transmission Rate** to 187.5 kbit/s.



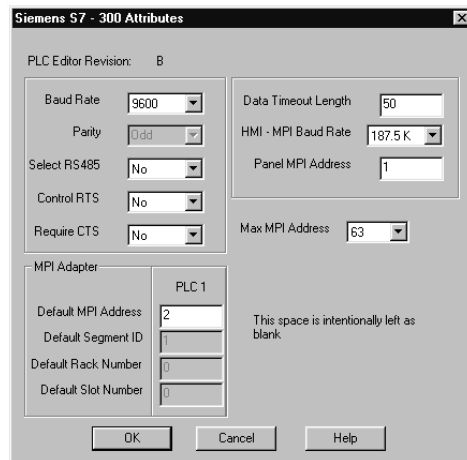
Open PowerPanel Programming Software and configure **Project Information** as shown in the following figure.



After selecting the **PLC Type and Protocol**, click on the **View/Edit PLC Com Setup**. The PLC Attributes dialog box will appear. Enter the parameters shown.

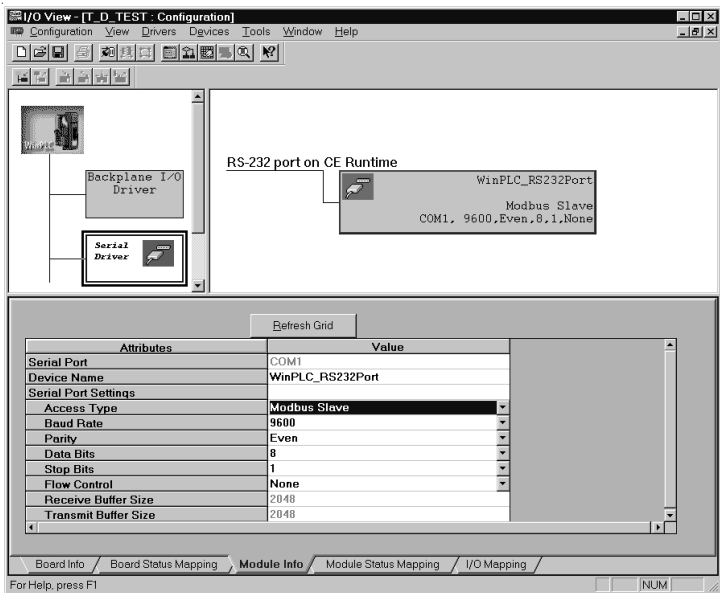
Click on the **OK** button to save your selections. You will return to the **Project Information** screen.

Click on the **OK** button to begin creating your PowerPanel Project.



Entity's Think & Do (WinPLC) Communications Setup

The following screens provide you with an example of how to set up a Think & Do (WinPLC) Project with Modbus RTU Protocol. To set up the PLC using Think N Do configuration software, program the PLC Communications Serial Port Setup screen as shown below.



Data Types that PowerPanel Programming Software can import from Think & Do Software:

Think & Do Live

Flag
 Number
 Input
 Output
 Counter
 Float

Think & Do Studio

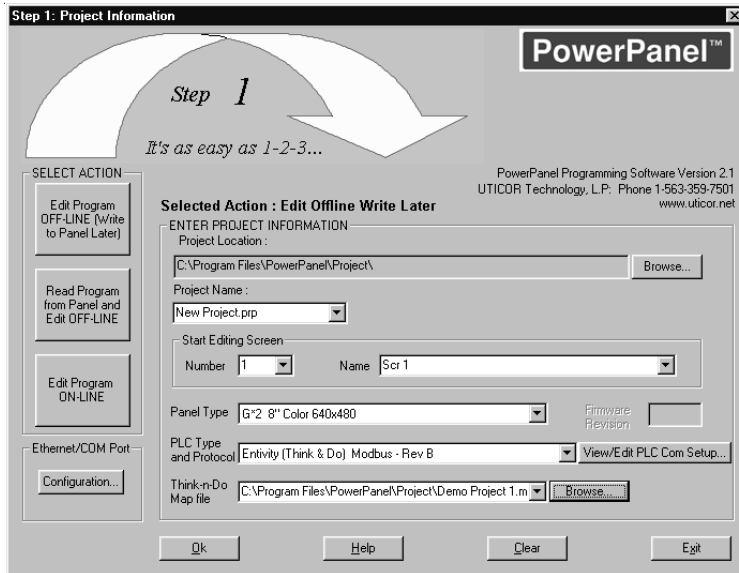
Flag
 Number
 Input
 Output
 N/A
 Float*
 String**

*Think & Do Studio supports double precision (64-bit) floating point numbers. However, PowerPanel only supports single precision (32-bit) floating point numbers. This means that the PowerPanel cannot display numbers greater than seven digits. Anything larger will be rounded into an exponent number.

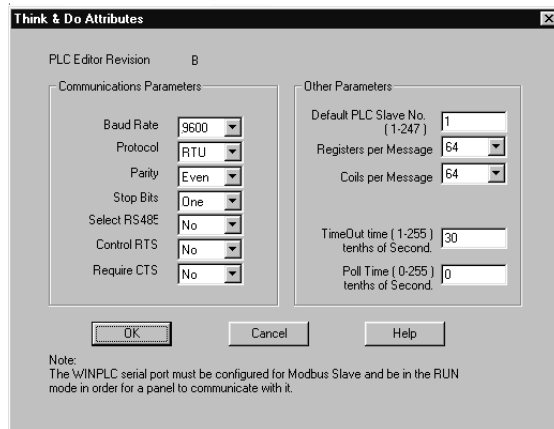
** Go to www.entity.com for software version 6.311 or later that will support strings. The maximum number of characters that the String Data Type will handle is 40.

PLEASE NOTE: Entity's Studio Version 6.5 (or later) currently supports the string data types for PowerPanel. Entity's Think & Do Live Version 5.5 (or later) String Data Type support was planned for release in February, 2002.

How do I import a Think & Do Map file into an PowerPanel Project?

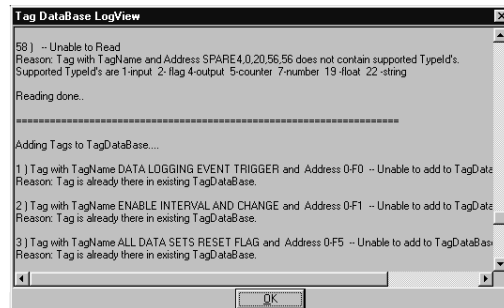


1. Start the PowerPanel Software and select **EDIT PROGRAM OFF-LINE (Write to panel later)**. From here you can either create a NEW project or EDIT an EXISTING project. If you are creating a new project proceed to step 2, below. If you are editing an existing project proceed to step 3, below.
2. Enter the name of your new project into the **Project Name** field and press ENTER.
3. Select the **Panel Type** that you are using.
4. Select the **PLC Type and Protocol** for the Think N Do — **Entity (Think & Do) Modbus - Rev B**— driver.
5. Click on the **View/Edit PLC Com Setup** button. The PLC Attributes dialog box will appear (shown to the right). Enter the parameters shown. Click on the **OK** button to save your selections. You will return to the Project Information screen.



6. Once the Think & Do driver is selected, the **Think & Do Map file** field is available. In this field type the path where your Think & Do map file can be found or click on the **Browse** button and navigate to its location.
7. Click the **OK** button. PowerPanel Programming Software will load and convert your Think & Do map so it can be used by the PowerPanel project.

NOTE: Once in the main programming screen the PowerPanel software will display the **Tag Database Log View** dialog box showing the tags that could not be converted.



These tags could not be converted because they were not one of the 7 commands supported by PowerPanel. The supported commands are Counter, Flag, Float, Input, Number, Output, and String.

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Assigning Ports in Panel Setup Mode

In this Appendix....

— Instructions

Assigning Ports in Panel Setup Mode

1. Place the PowerPanel into Setup Mode by pressing the upper left and lower left corners of the touch screen simultaneously. When the panel is in Setup Mode, the following screen will appear.

Main Setup Screen

Revision Firmware D.0 Boot D.0 Hardware B		Memory Used 80596 Free 443692 Total 524200 Flash 0	
Clock 22:12:50 04-DEC-02		Contrast 51 Group 1 Unit 1	
Clock	Assign Ports	Group & Unit	
Contrast	Touchpad Test	Display Test	Exit

2. Press the Assign Ports button. When the Assign Ports button is pressed, the following screen will appear.

Assign Ports Screen

COM1 is assigned to the computer while in setup.			
Port	Device		
COM1	Computer		
PLC	PLC Driver		
Computer	PLC Driver		
Printer	Slave	Not Used	Exit

Please Note: COM1 is assigned to the computer while in Setup Mode. It will change to the device you have assigned when you Exit Setup Mode.

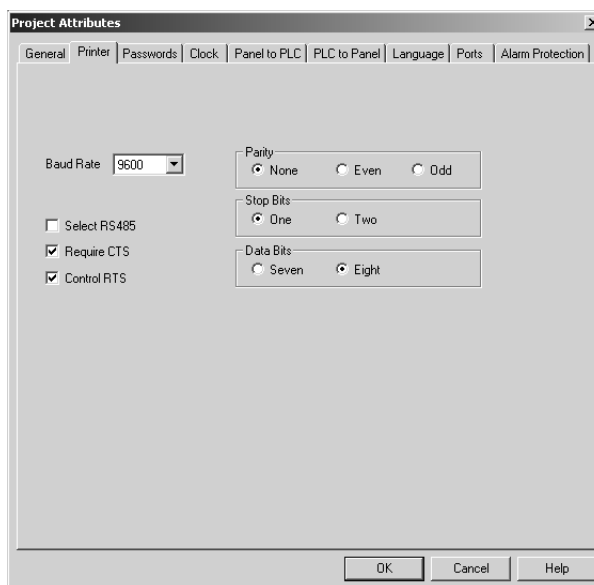
3. Press the ▲▼ Arrow buttons to switch between the COM1 and PLC Port. Select the **Device** you want to connect to the **COM1 Port** by pressing the **Computer**, **PLC Driver**, **Printer**, or **Slave** button. If COM1 will not connected a device, press the **Not Used** button. Your selection will appear next to the port you are configuring. Do the same for the **PLC Port**. **Please be aware that you will not be allowed to assign the same device to both ports. If you are pressing one of the device buttons and nothing is happening, you have already assigned that device to the other port.** When you press the **Exit** button, the panel will return to the Main Setup

screen. The PowerPanel is now set up to recognize the particular device assigned to the ports.

Printer Communication Parameters

If you have selected a printer as one of your devices, you must set up the communication parameters for your printer using PowerPanel Programming Software.

The communication parameters must be set in the Project Attributes windows of your PowerPanel Project. From the Main Menu, go to Setup > Project Attributes and click on the Printer tab. The window shown below will appear.

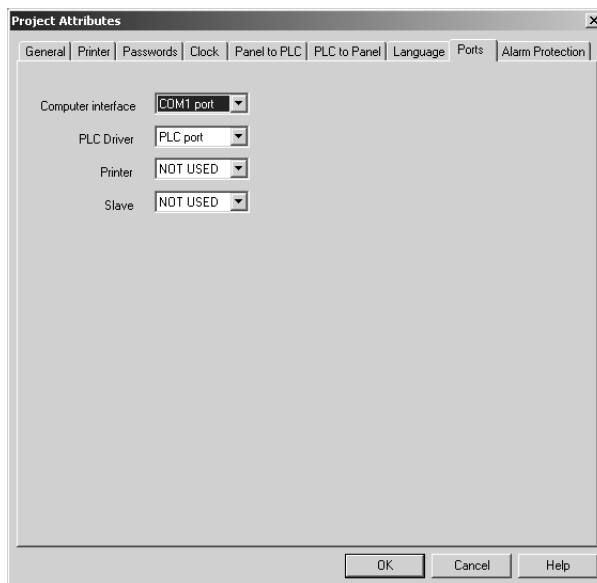


You must match the communication settings in PowerPanel to that of the printer that you are using. Those settings can usually be found in the printer's hardware/user manual.

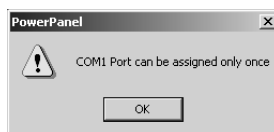
The objects that can be printed from the panel are Messages from the Message Database (Lookup Text Object), Alarms, and Messages from the Multi-state Indicator.

Port Setup Options

You must also set the ports in the Project Attributes window of your PowerPanel Project. From the Main Menu, go to Setup > Project Attributes and click on the **Ports** tab. The window shown below will appear.



Computer interface, **PLC Driver**, **Printer**, and **Slave** are the devices that the **COM1 port** or **PLC port** may be assigned to. Please be aware that you can only assign a port to one device. If you attempt to duplicate the COM1 (e.g.) port assignment, you will receive the following message.



If the device will not be connected to the COM1 or PLC port, select **NOT USED**. Click **OK** to save your selections.

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