

PowerText Panel User Manual

**Models: UPT-2X20N-001, UPT-2X20L-001,
and UPT-4X20N-001**

Manual Part Number MAN-PTEXT-HDW

WARNING!

Programmable control devices such as the PowerText 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 PowerText 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 PowerText pushbuttons with any sharp objects. This practice may damage the unit beyond repair.

Trademarks

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Manual P/N MAN-PTEXT-HDW

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POWERTEXT 2X20N, 2X20L, & 4X20N PANELS

WARNING/ Caution	inside cover
Table of Contents	i
Manual Revisions	iv
EU Information	v

1 INTRODUCTION

Manual Organization	2
Introduction to the PowerText Panel	4
What you need to get started	5
Hardware	5
Software	5
Need Help?	5
Onscreen HELP	5
PLC HELP	5
Technical Support	6
Models	7
PLCs Supported by PowerText Panels	8
PLC and Programming Cable Part Numbers	9
Accessories and Optional Equipment	9
Front Panel Features	10
Operator Controls and Indicators	10
PLC Message LED	10
Control Pushbuttons	11
Function Pushbuttons	11
Pushbutton LEDs	11
Character LCD Display with LED Backlight	11
Messages	12
Rear Panel Indicators	12
Specifications	13

2 HARDWARE INSTALLATION

Custom Labels	16
Create Custom Labels	16
Install Custom Labels	17
EMI Noise Filter Installation	18
Mounting	19
Models 2X20N and 4X20N Outline and Cutout Dimensions	19
Model 2X20L Outline and Cutout Dimensions	20
DIN Clips	21
Connections and Wiring	22
2X20N and 4X20N Rear Panel Connections and Wiring	22
Power Connector	24
Serial Port	25
Connect a PLC	25



POWERTEXT 2X20N, 2X20L, & 4X20N PANELS

- 3 LEARNING THE FEATURES**
 - Learning the Features 28
 - Memory Mapping/PLC Data Registers 28
 - Pushbuttons 29
 - LEDs 29
 - PLC Message Registers 30
 - Embedded Data Registers 30
 - PLC Messages and Local Messages 32
 - Embedded Data 32
 - Message Types 33
 - Displaying PLC Messages 34
 - PLC Message LED 35
 - Displaying Local Messages 35
 - Local Message File Structure Example 36
 - Local Message Menu Structure Example 37

- 4 TUTORIAL**
 - Text Panel Setup 40
 - SETUP Mode 40
 - Adjust Display Contrast 40
 - Internal Software and Hardware Revisions 40
 - Preparing for Configuration 40
 - Installing Text Panel Programming Software 41
 - Tutorial — Plan the Project using Application Worksheets 43
 - Tutorial — Create the Project using Text Panel
 - Programming Software 47
 - Tutorial — Configure a PLC 56

- 5 CONFIGURATION**
 - Configure New System 60
 - Configure Existing System 74
 - Connect to Panel, View Panel Status and Firmware Version 75
 - Upgrade Firmware 76

- 6 MAINTENANCE and TROUBLESHOOTING**
 - Maintenance 80
 - Fuse Reset 80
 - Precautions 80
 - Screen Overlay/Chemical Compatibility 80
 - Screen Overlay Cleaning 82
 - Troubleshooting 83
 - Panel Configuration Problems 83
 - PLC Errors 84
 - Still Need Help? 85
 - Warranty Repairs 86



POWERTEXT 2X20N, 2X20L, & 4X20N PANELS

Out of Warranty Repairs	86
Frequently Asked Questions (FAQs)	87
Appendix A	A-1
PowerText Panel Application Worksheets	A-2
Appendix B	B-1
Cable/Wiring Diagrams	B-2
Appendix C	C-1
PLC Driver Error Messages.....	C-2
PowerText Panel Error Messages	C-13
PowerText Programming Software Error Messages	C-14
INDEX	I-1



POWERTEXT 2X20N, 2X20L, & 4X20N PANELS

Manual Revisions

Manual Part Number: MAN-PTEXT-HDW

Manual Title: PowerText Panel User Manual, Models UPT-2X20N-001, UPT-2X20L-001, and UPT-4X20N-001

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	10/2002	Cover Warning/Copyright i-iv 1-90 Appendix A Appendix B Appendix C Index	Original Release of Manual



POWERTEXT 2X20N, 2X20L, & 4X20N PANELS

EU Information

The PowerText Panel is manufactured in compliance with European Union (EU) Directives and carries the CE mark. The PowerText Panel 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 PowerText Programming Software Help or 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-TEC-ENGR 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 0 to 45 °C
- Storage Temperature -20 to +70 °C
- Operating Humidity 10–95% R.H., noncondensing
- Air Composition No corrosive gases permitted

Preventative Maintenance and Cleaning

No preventative maintenance is required. The PowerText Panel overlay should be cleaned as needed with warm, soapy water. See Chapter 6, Maintenance and Troubleshooting, for a list of compatible/incompatible chemicals and compounds.



POWERTEXT 2X20N, 2X20L, & 4X20N PANELS

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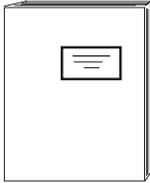
1

Introduction

In this chapter....

- Manual Organization
- Introduction to the PowerText Panel
- What you need to get started
- Need HELP?
- Models
- PLCs Supported by the PowerText Panel
- Accessories and Optional Equipment
- PLC and Programming Cable Part Numbers
- Front Panel Features
- Specifications

Manual Organization



In this manual we will take you through the steps necessary to get your PowerText Panel up and running in the shortest possible time. Although your familiarity with programmable operator interface devices will determine how quickly you move through the steps — it's as easy as 1 — 2 — 3. This 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, their part numbers and special features. Lists the important features of all PowerText Panels. 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.
	Hardware Installation Provides instructions on how to install custom labels and the EMI Noise Filter. Discusses mounting technique — using DIN clips. Provides Outline Dimensions and Mounting Template. Provides you with instructions on connecting the unit to power, a programming PC and a PLC.
	Learning the Features Provides an Overview of the panel features. Front Panel Features, including; Function Pushbuttons/LEDs, Character LCD Display, PLC Message LED and Control Pushbuttons are discussed. Local and PLC Messages are described, along with types of Messages and Embedded Data Variables (DATA 1, 2, and 3).
	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 PowerText Panel project using the programming software and application worksheets. Shows you how to transfer a project to the panel.

Chapter	Description
 5	Configuration Step-by-step instructions for configuring the PowerText Panel (new system) using the PowerText Programming Software are provided.
 6	Maintenance and Troubleshooting Instructions for maintaining the 2X20N/2X20L/4X20N panel are provided, including; Fuse Reset, Precautions, Chemical Compatibility, Cleaning, and Gasket Replacement. Troubleshooting section aids in diagnosing problems you might encounter when installing or operating the panel. Provides steps to take to isolate and correct problems.
 A	Appendix A Application Worksheets are provided to help you plan and implement your system configuration.
 B	Appendix B Wiring diagrams for several PLC cables are provided.
 C	Appendix C Error Messages for PLC Drivers, PowerText Panel, and PowerText Programming Software.



POWERTEXT 2X20N, 2X20L, & 4X20N PANELS

Introduction to the PowerText Panel

The PowerText Panels provide a man-machine interface to your PLC automation system. The panels provide features such as 5 user-defined pushbuttons with LED indicators, arrow adjust buttons, and a built-in menu system. The panels communicate with a PLC using either RS-232C or RS-422A/485A serial communication. Configuration software and panel programming are covered in chapter 5 of this manual.

The panels allow you to configure up to 256 20-character text strings configured as PLC Messages and Local Messages. Local Messages are internal panel messages that the operator can scroll in a menu tree hierarchy. PLC Messages are displayed when prompted from the PLC program. A PLC Message LED illuminates whenever a PLC Message is being displayed. Either message type can have up to three embedded data variables, one of which can be edited by using the arrow adjust buttons.

The panels have sealed membrane function pushbuttons that allow you to trigger PLC actions with the push of a button. These pushbuttons are used for input signals to the PLC. Each pushbutton can be configured to function as one of three switch types:

- **ALTERNATE**—keeps its current state until the button is pushed again
- **MOMENTARY**— is activated only while the button is being pushed
- **PANEL SET AND PLC RELEASE** —sets a bit in the PLC when pressed and is reset by either the PLC program or by pressing the button again.

The LCD display window supports two or four message lines that can display up to 20 characters each. The messages are programmed using the Text Panel Programming Software. The message control type may be either **static**—text displays that have NO embedded data, **dynamic** —text messages that include embedded data (READ access only), or **interactive** —text messages that allow the operator to enter data, or change values that are stored in the PLC registers (READ/WRITE access).

The PowerText Panel is available in a variety of models to suit your application. Key features are provided on page 7.

What you need to get started

Hardware

- PowerText Panel (Models 2X20N, 2X20L, and 4X20N)
- 24 Volt DC Power Supply (FA-24PS recommended)
- RS-232C Programming Cable (P/N CBL-PTEXT-001)
- RS-232C or RS-422A/485A PLC Cable (see page 9 for part numbers)
- Programmable Logic Controller (PLC)
- PC requirements:
 - IBM or compatible PC (486 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

- PowerText Programming Software (P/N ACC-PTEXT-EDIT)

Need HELP?



PLEASE NOTE: Chapter 6, Maintenance and Troubleshooting, should be able to help you with most problems you might encounter.

Onscreen HELP

One of the most important features of the PowerText 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 panel configuration, hit the F1 function key when that dialog box is open and a pop-up HELP window will be displayed.

PLC HELP

If you need help with the PLC to PowerText Panel Interface, consult the PowerText 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 PowerText Panel wiring diagrams, see Appendix B or the PowerText Programming Software Help topics.



Technical Support

Although most questions can be answered with PowerText Programming Software HELP topics or the manual, if you are still having difficulty with a particular aspect of installation or screen design, technical support is available at **1-800-TEC-ENGR (832-3647)** or **FAX us at 1-563-359-9094**. Visit our website at www.uticor.net.





POWERTEXT 2X20N, 2X20L, & 4X20N PANELS

Models

The PowerText Panels provide a low-cost, easy-to-use operator interface alternative for your PLC system. With easy to configure Windows-based software and simple installation, you can be connected and running in minutes. If your application requires pushbuttons, LEDs, or text display, but your budget is low, check out the complete line of PowerText Panels. The following features are common to the Panel models shown below:

- stores up to 256 20-character messages
- 5 user-defined function pushbuttons and LEDs
- 4 control pushbuttons
- up to three embedded PLC data variables per message
- built-in menu system
- EMI filtered power supply to reduce communication problems

Part Number

UPT-2X20N-001

2 lines by 20 characters LCD display
Character height of 0.22" (5.55 mm)
External dimensions are 4.1" x 6.7" x 1.7"



UPT-2X20L-001

2 lines by 20 characters LCD display
Character height 0.316" (8.06 mm)
External dimensions are 4.1" x 9.3" x 1.7"



UPT-4X20N-001

4 lines by 20 characters display
Character height of 0.187" (4.75 mm)
External dimensions are 4.1" x 6.7" x 1.7"



PLCs Supported by PowerText Panels

Below is a list of various PLCs and their protocols supported by PowerText Panel. Please note that we continue to add new drivers to this list. If you don't see your PLC listed here, please contact UTICOR or visit our website.

PLC Brand	Model	Protocols Supported	
Allen-Bradley	Micrologix 1000, 1200 and 1500 SLC5/03, /04, /05 (with DF1)	DF1 Half Duplex; DF1 Full Duplex	
	PLC5	DF1	
General Electric	90/30 and 90/70	SNPX	
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	
Omron	C200, C500, and CQM1, CPM1	Host Link	
DirectLogic	DL05, DL06	K-Sequence; DirectNet; ModBus (Koyo addressing)	
	DL105	K-Sequence	
	DL205	D2-230	K-Sequence
		D2-240	K-Sequence; DirectNet
		D2-250/D2-250-1/260	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 7 MPI Adapter	3964R	
Other	H2- WinPLC (Think-N-Do V5.2, check for version compatability)	Modbus RTU (serial port)	



PLC Cable Part Numbers

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)

Accessories and Optional Equipment

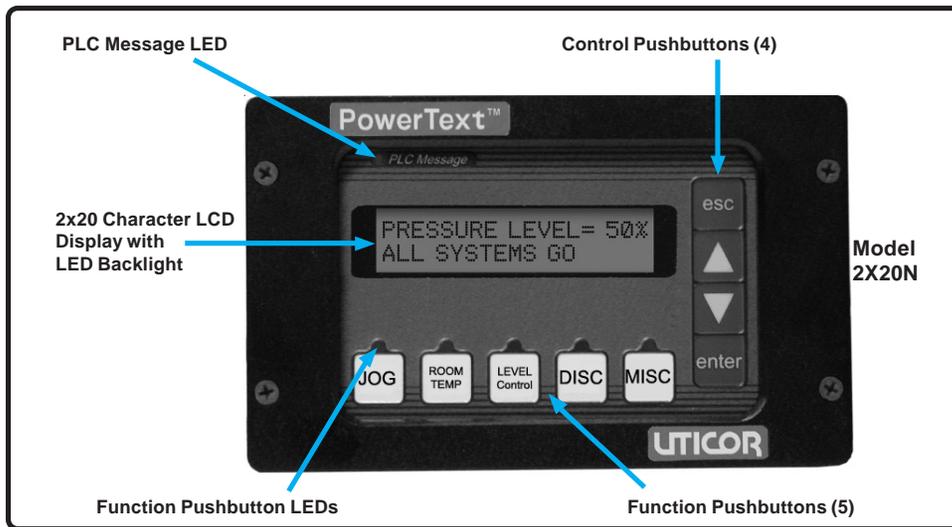
Part Number	Description
ACC-PTEXT-EDIT	PowerText Programming Software and Getting Started Manual (see below)
UPT-05MUX-001	PowerText Multiplexer (Serial Communication Master Unit)
MAN-05MUX-001	PowerText Multiplexer Hardware Manual
CBL-PTEXT-001	PowerText Panel Programming Cable
MAN-PTEXT-HDW	2X20N/2X20L/4X20N PowerText Panel User Manual
MAN-PTEXT-KP	2X20K Keypad PowerText Panel User Manual
MAN-PTEXT-SP	SP000 Setpoint PowerText Panel User Manual
MAN-PTEXT-GET	PowerText Programming Software Getting Started Manual

Front Panel Features

In this section, we will describe the front panel features of the PowerText Panel. Descriptions of the PLC Message LED, Pushbuttons, Pushbutton LEDs, PLC Messages, and Local Messages are provided. To understand the Features, see Chapter 3, *Learning the Features*. For a demonstration of how to program the panel indicators and controls, please refer to Chapter 4, *Tutorial*.

Operator Controls and Indicators

Each PowerText Panel provides sealed membrane Pushbuttons for operator interface with a PLC. Pushbuttons may be used to begin events or tasks within the PLC, such as Start/Stop Control. Pushbutton inputs are monitored for ON/OFF conditions in your PLC ladder logic program. Text Panel Pushbuttons are Control Pushbuttons or Function Pushbuttons.



PLC Message LED

This LED will illuminate to indicate that the PLC has triggered a message that will be displayed in the LCD window. The pushbuttons are disabled for 3 seconds after a PLC message is displayed to ensure that the operator sees the message. The LED will turn OFF when the operator presses the escape pushbutton, thereby acknowledging message received.





Control Pushbuttons

There are 4 Control Pushbuttons on the front panel. These buttons consist of an **esc** (escape), ▲ (UP Arrow), ▼ (DOWN Arrow), and **enter** pushbutton. The arrow buttons are used to scroll through local messages or to change a value within an interactive message. As the operator presses the buttons, the numeric value will increment or decrement, respectively. As it is adjusted, the value WILL NOT BE UPDATED in the PLC data register until the **enter** pushbutton is pressed. When completed, the operator will press the **enter** pushbutton and the value will be written to the PLC. Press **esc** to abort or cancel the adjustment without writing the value to the PLC.

Function Pushbuttons

There are 5 Function Pushbuttons that are user-defined. They may be configured as one of three “switch” types; **Alternate**, **Momentary**, or **Panel Set & PLC Release** (described on page 65.) They are configured as discrete input signals to the PLC. These pushbuttons are labeled **F1** through **F5** or may be **custom labeled** to suit their function or application.



Pushbutton LEDs

There are LEDs located above each of the user-defined pushbuttons. These LEDs can indicate if the pushbutton status condition is ON or OFF, or it can be controlled independently by a PLC. You may choose the type of **LED Control** while configuring your panel (see *Configuration*, Chapter 5). There are three different controls—**By Button**, **By Button & Flash**, or **By PLC**, that will determine LED response when the pushbuttons are pressed.

Character LCD Display with LED Backlight

Messages display in the Character LCD Display Window with LED Backlight. The LCD window supports two line by twenty characters (2X20N or 2X20L models), or four line by twenty character (4X20N models) messages.



Messages

PLC Messages can be programmed to display PLC register values and allow the operator to change a PLC register value. Up to 3 data variables can be programmed to display in each message. The messages are entered using PowerText Programming Software. Up to 256 **PLC Messages** may be configured and stored in the Panel (Local Messages take away from the 256 total messages.) PLC Messages are numbered 1 to 256. The message control type may be static text, dynamic, or interactive. The PLC logic program controls which messages are displayed. The **PLC Message LED** illuminates when a PLC generated message is being displayed.

Local Messages are also displayed in the LCD Display Window. Local Messages provide pertinent information or instructions to the operator and are displayed in a menu hierarchy. They can also be programmed to display values from a PLC register that the operator may change using the Panel control buttons. You may create **Folders** to group messages pertaining to the same topic. Local Messages and Folders can be grouped in up to 3 levels using the PowerText Programming Software. The first character in a Folder message display is a "+" or "-" indicating folder status (closed or open). The next 19 characters of the display are for the Folder text (Messages do not have a + or -, so all 20 characters can be used for text.) Local Messages allow the operator to select and initiate user-defined interaction. See Chapter 3, *Learning the Features*, for more information.

Rear Panel Indicators

TXD LED

This LED will toggle "on" and "off" to signal activity on the transmission line.

RXD LED

This LED will toggle "on" and "off" to signal activity on the receive line.





POWERTEXT 2X20N, 2X20L, & 4X20N PANELS

Specifications

Display Type:	2X20N/2X20L: Character LCD, 2 lines by 20 characters w/LED backlight 4X20N : Character LCD, 4 lines by 20 characters w/LED backlight
Character Height:	2X20N: 0.22 inches (5.55 mm) 4X20N: 0.187 inches (4.75 mm) 2X20L: 0.316 inches (8.06 mm)
Keypad Overlay:	5 Function Pushbuttons and 4 Control Pushbuttons
CPU Type:	8-bit
Service Power:	24 VDC (20–30 VDC operating range)
Power Consumption:	2X20N/4X20N: 4 Watts @ 24 VDC 2X20L: 4.5 Watts @ 24 VDC
Inrush:	< 1 Amp with 50 mSec rise time to 30 VDC
Fuse:	Auto-Reset (0.65 Amp polyfuse)
Enclosure:	NEMA 4, 4X (Indoors)
Agency Approvals:	UL, CUL and CE
Operating Temperature:	0 to 45 °C (32 to 113 °F)
Storage Temperature:	–20 to +70 °C (–4 to +158 °F)
Humidity:	10–95% R.H. (noncondensing)
Electrical Noise Tolerance:	NEMA ICS 2-230 showering arc, ANSI C37.90a-1974 SWC Level C Chattering Relay Test
Vibration:	5 to 55 Hz 2G for 2 hours in the X, Y, and Z axes
Shock:	10G for under 12 ms in the X, Y, and Z axes
Serial Communications:	Download/Program/PLC Port — RS-232C, RS-422A, RS-485A 15-pin D-sub (female)
External Dimensions:	2X20N/4X20N: 4.124 x 6.650 x 1.672 inches (104.75 x 168.91 x 42.469 mm) 2X20L: 4.124 x 9.250 x 1.672 inches (104.75 x 234.95 x 42.469 mm)
Weight:	2X20/4X20N : 1.4 lbs. (approx.) 2X20L: 2 lbs. (approx.)
LED/LCD Life:	100,000 hours



POWERTEXT 2X20N, 2X20L, & 4X20N PANELS

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2

Hardware Installation

In this chapter....

- Custom Labels
- EMI Noise Filter Installation
- Mounting
- DIN Clips
- Connections and Wiring



POWERTEXT 2X20N, 2X20L, & 4X20N PANELS

Custom Labels

Create Custom Labels

You may create custom labels for the PowerText Panel Function Pushbuttons that are particular to their function within your application. The labels slide into an existing slot in the panel overlay so that the text or numbers you have printed will rest over the pushbuttons.

A Microsoft Word® document (POWERTEXT_INSERTS.doc) was installed in the PowerText Panel's Program folder on your computer when you installed your programming software. You must have Word installed on your computer to open this document. This document will help you create your labels. Two sheets of cover stock have also been shipped with your panel.

Install Custom Labels

A 1/2-inch x 4-inch flat metal tool (ramp tool) is shipped with each unit to aid in the installation of the label inserts.

To install the pushbutton labels into the slots, perform the following steps.

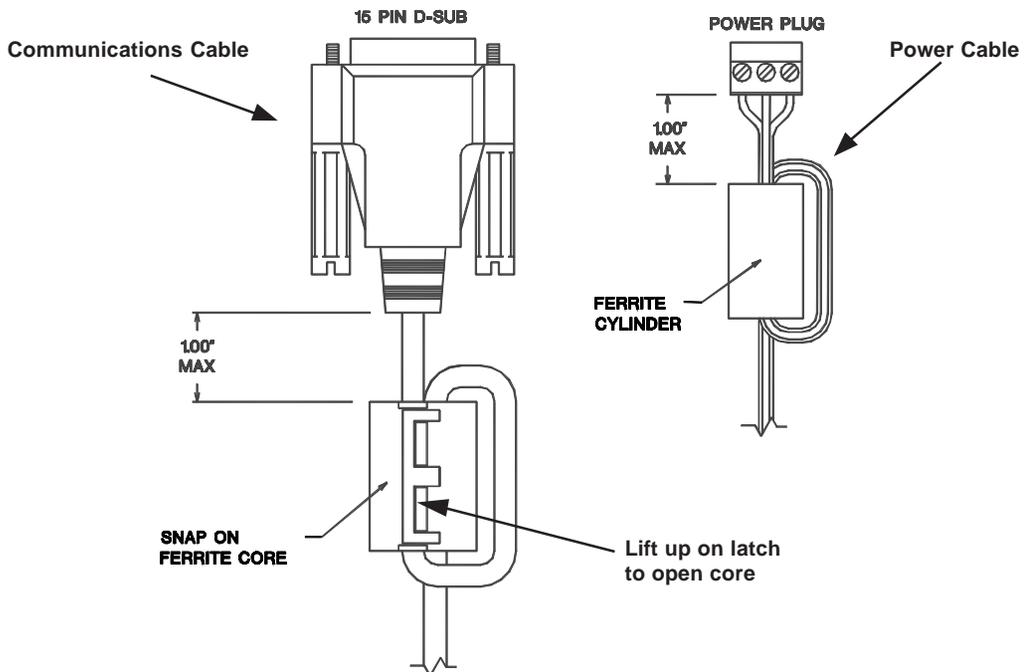
1. Remove four screws from front bezel assembly and set aside.
2. Remove front bezel assembly.
3. The recessed slot(s) where the labels are inserted should now be visible.
4. Remove the factory installed label insert.
5. Use the corner of the ramp tool to lift the top layer of the overlay, just enough to start the custom label into the slot. Hold the overlay up with the ramp tool and start the custom label into the slot.
6. Once the label has been started into the slot, move the ramp tool behind the label insert and use as a ramp to guide the label insert into the slot until properly positioned.
7. Push label tab down into slot with the ramp tool.
8. Replace the front bezel assembly and secure with the 4 screws.

EMI Noise Filter Installation

PowerText Panels are supplied with two ferrite cores that should be attached to the cables prior to installation of the Panel. These cores are *required to suppress EMI emissions* that are conducted through the Power Cable and the Communications Cable. The figure, below, shows the ferrite cores properly installed. Attach the cores within one inch of the Panel connector. The cable should be snugly wrapped once around the core, providing two passes through the core.

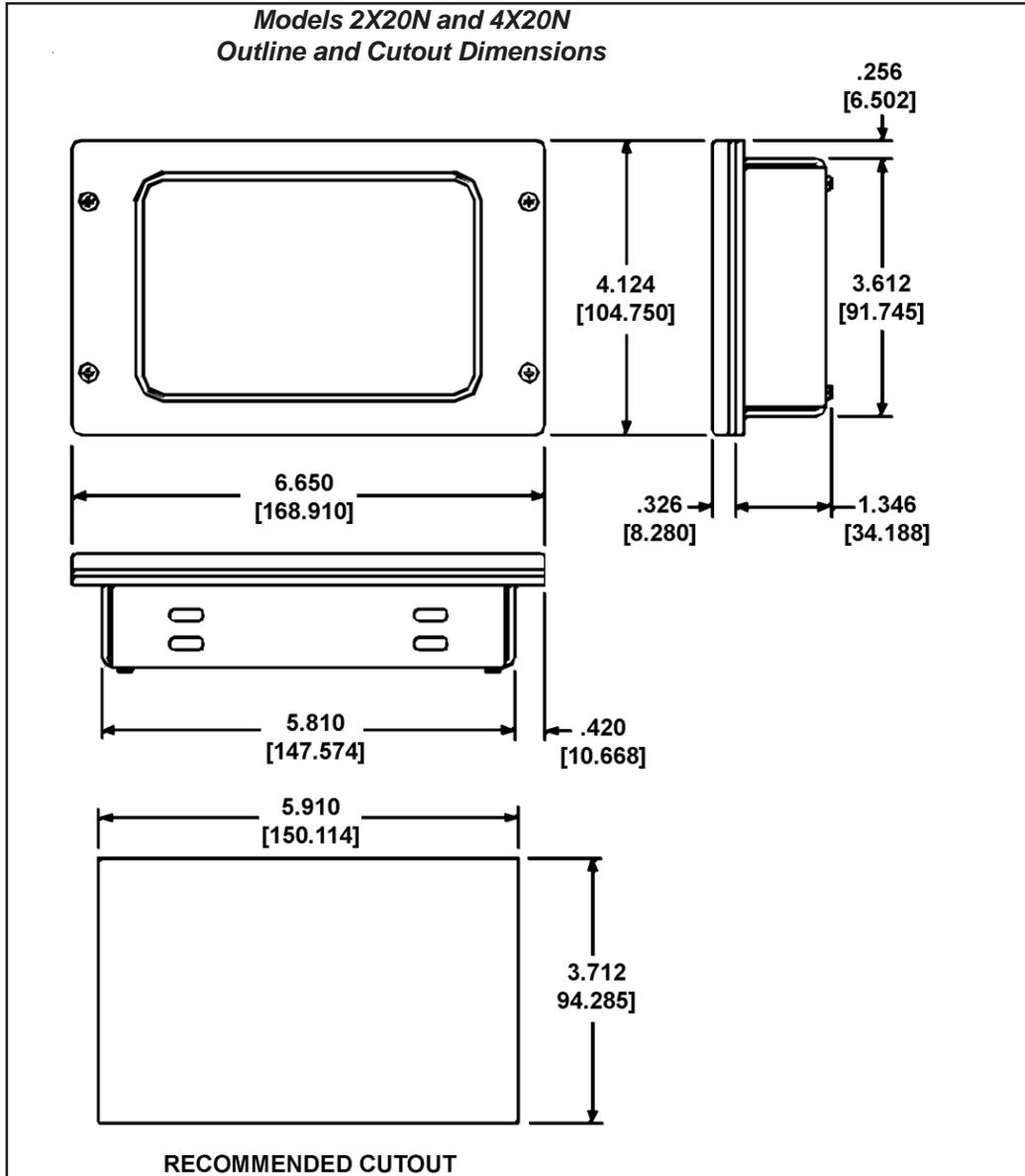
The **Power Cable Core** is a solid ferrite cylinder. The Power Cable should pass once through the core, be looped around and pass through a second time. Pull the excess cable so that it rests snugly against the outside of the core.

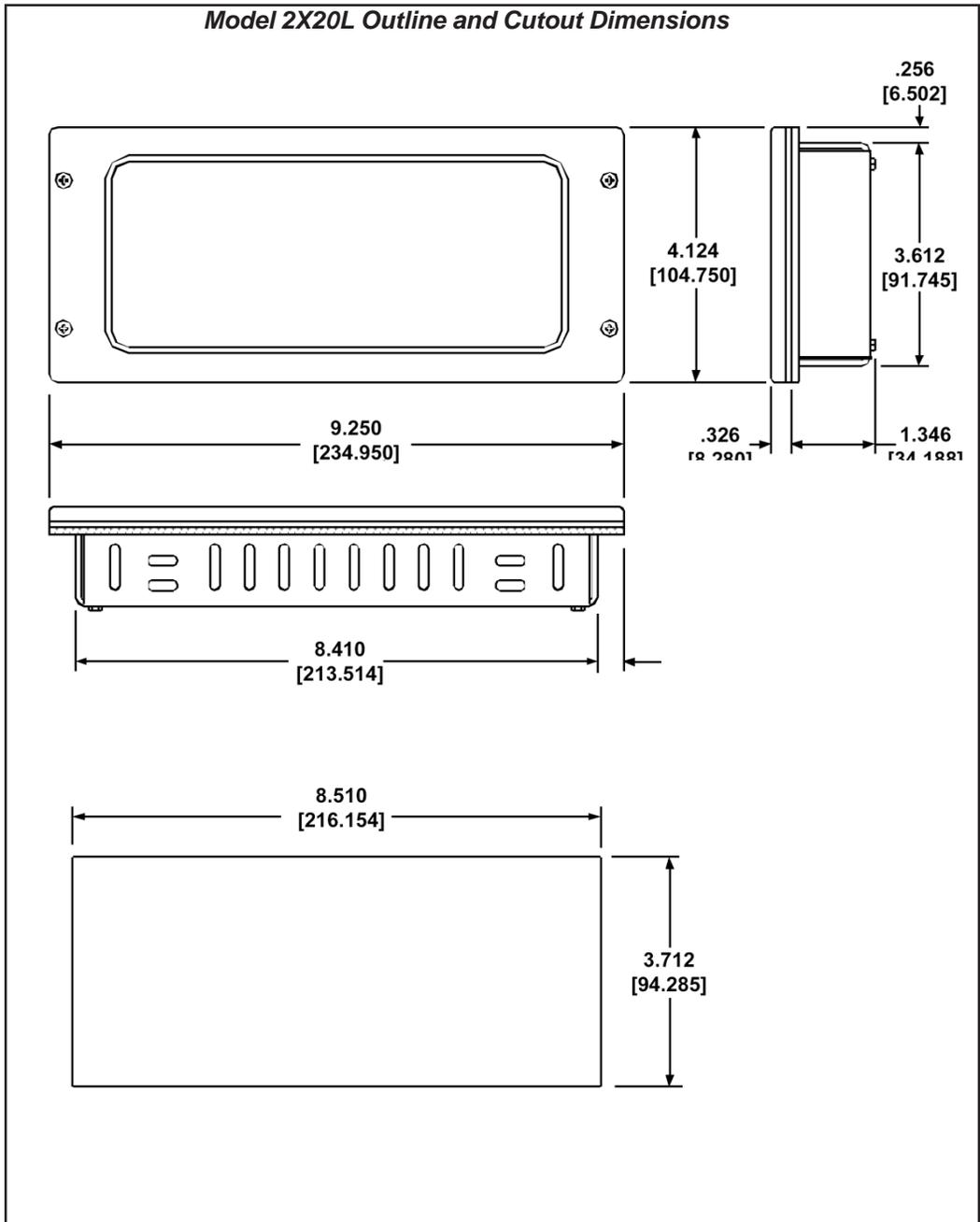
The **Communications Cable Core** is a snap-together, split, ferrite core. This core can be installed on a finished cable. Lift the latch to open the core. Wrap the wire through the core center, snugly around the outside, and again through the center. Close the core until the latch snaps. Ensure that the cable jacket is not pinched between the two halves of the core. The finished cable should look similar to the drawing shown below.



Mounting

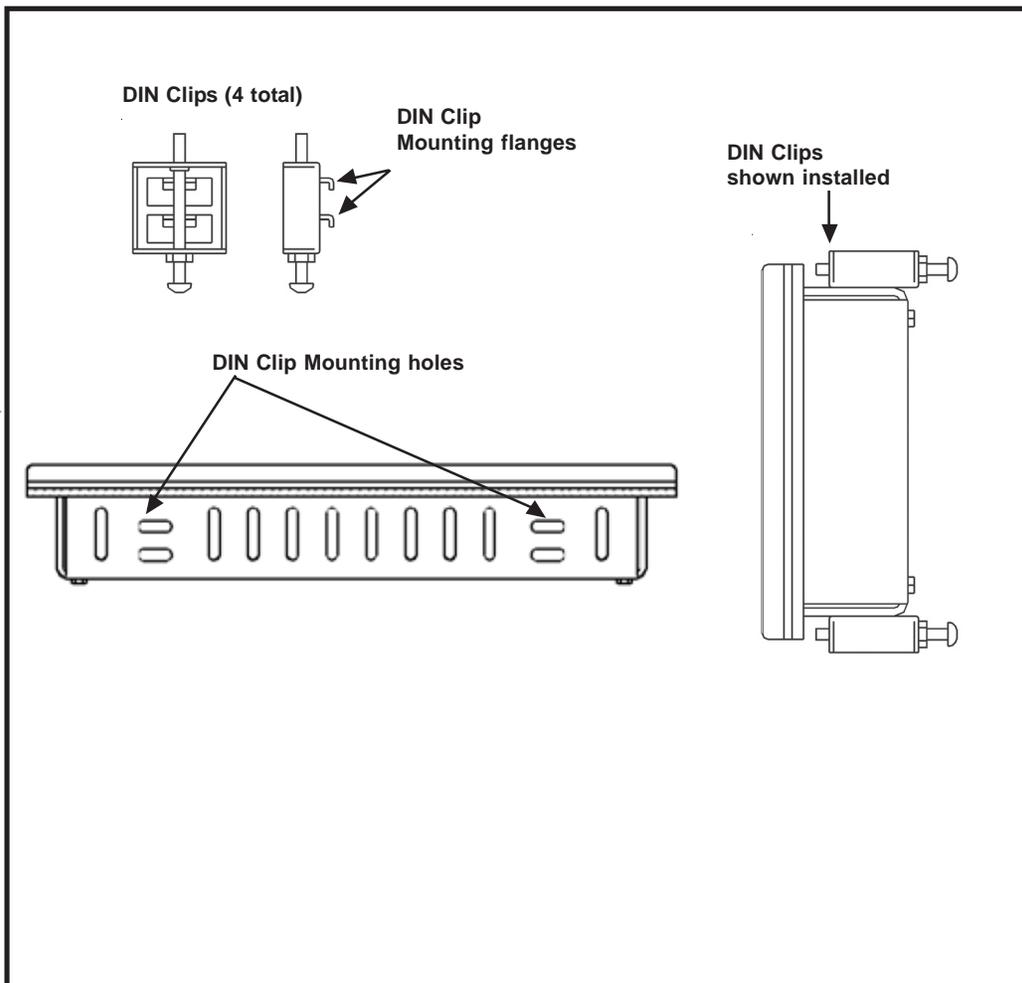
PowerText Panels are panel mounted units. Shown below are the outline and cutout dimensions of the PowerText Panel. Dimensions are shown in inches and millimeters. Millimeters are enclosed in brackets [].





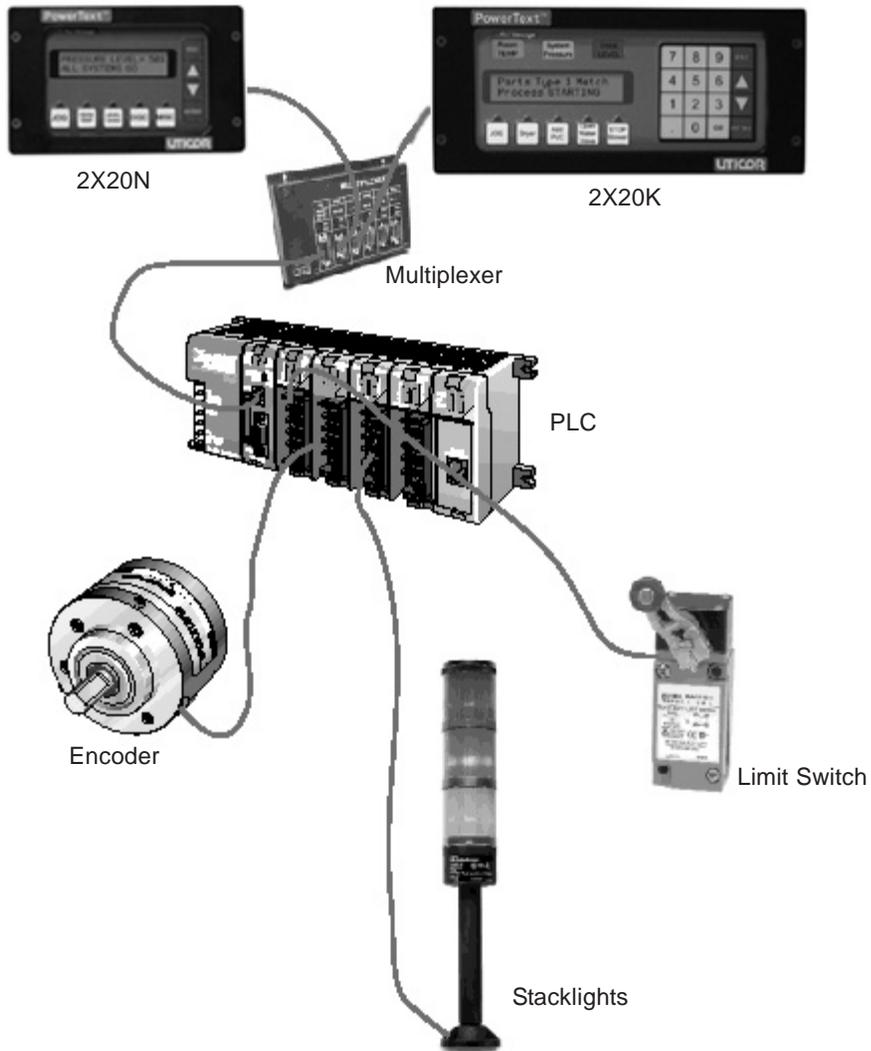
DIN Clips

PowerText Panels are mounted using DIN Clips. The panel comes with all the necessary mounting hardware required (4 DIN Clips in a package). DIN Clips are metal brackets that attach to the panel housing and secure the front bezel to a mounting surface with a screw. There are 4 square holes in the chassis (two on the top and two on the bottom). Insert the clip flanges into the holes and secure the panel by tightening the DIN CLIP screws until the front bezel is firmly pressed to the mounting surface.

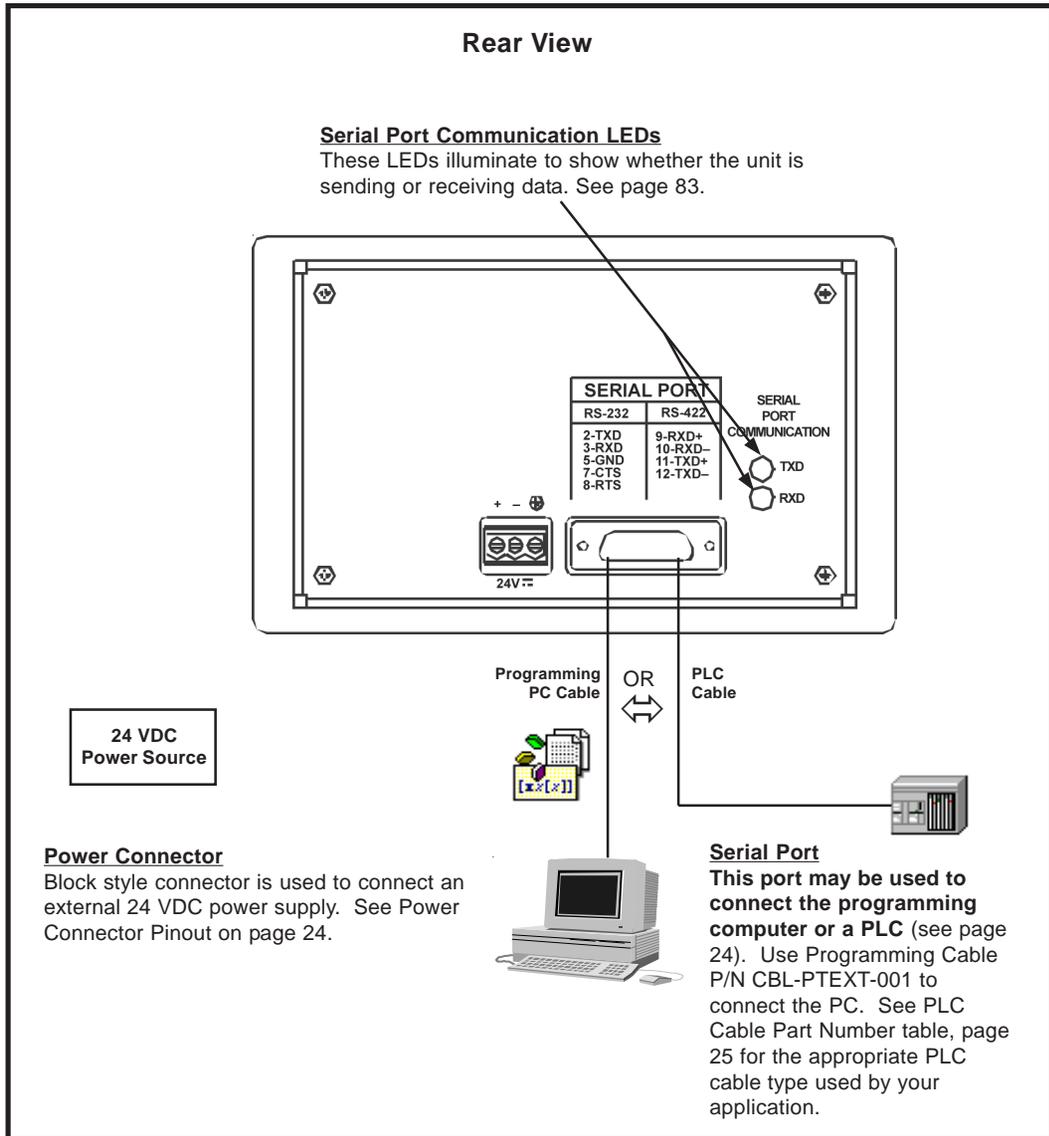


Connections and Wiring

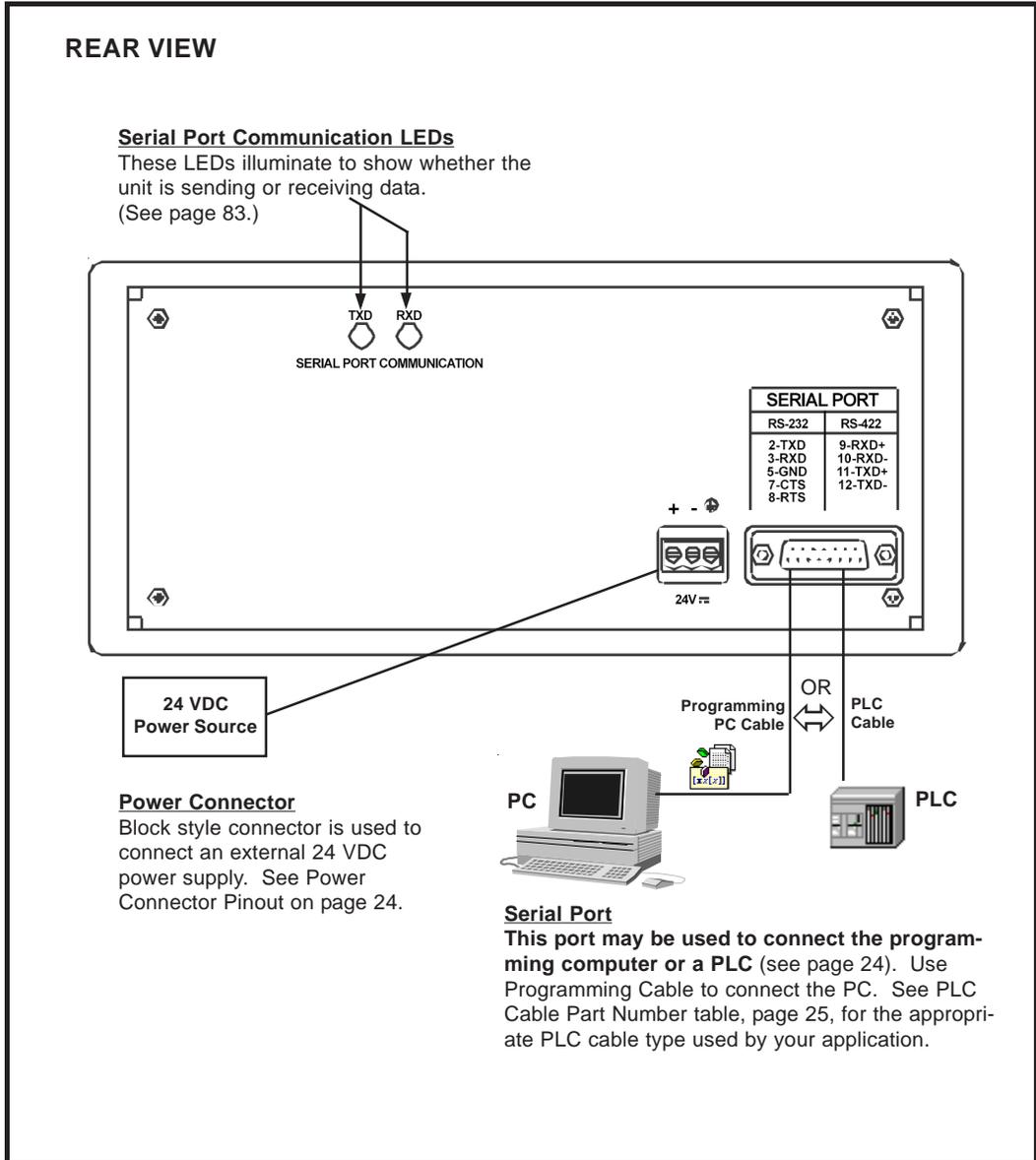
Example of a PowerText Panel Application



2X20N and 4X20N Rear Panel Connections and Wiring



2X20L Rear Panel CONNECTIONS and WIRING



Power Connector

This block style connector is used to connect an external 24 VDC power supply. The connector with screw terminals is provided with your PowerText Panel and allows you to plug into the power receptacle. A pinout is shown below. An external power supply is adapted to supply operating voltage to the Panel. The power supply must deliver a range of 20 to 30 VDC.

In multi-panel applications, if separate power supplies are used, please ensure the electrical ground common does not have a great potential difference. In a multi-panel application, the power supply must maintain the specified voltage and current consumption under all conditions (this includes powerup) for each of the individual units. Please refer to the specifications on page 13 for the individual units.

Pin #	Connection	
1	+V	24VDC (20–30 VDC)
2	–V	
3	Chassis Ground	

Connect (+) on the unit to the (+) lead of your power source; (-) on the unit is connected to the (-) lead; and chassis GND (on the unit) is connected to the chassis ground of the cabinet. It is recommended you use a regulated power source isolated from relays, valves, etc.

Serial Port

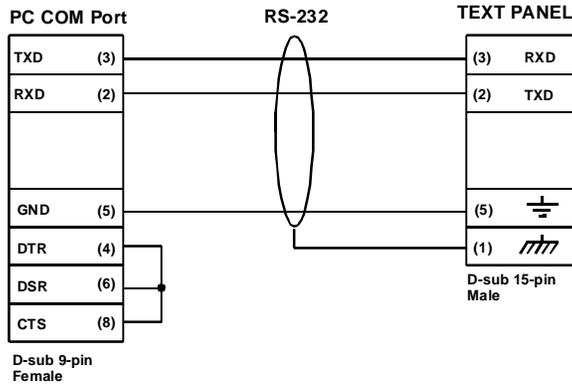
The **Serial Port** may be used to connect your panel to a programming computer (PC) or a Programmable Logic Controller (PLC). You will only need to connect to a PC when you initially configure and program the panel. The Serial Port is then available for connection to the PLC. When you power up the panel, it will come up in RUN Mode. While in RUN Mode the Serial Port will only communicate with a PLC. To program the panel and have the Serial Port communicate with a PC, you will have to enter the SETUP Mode (see following paragraph).

Connect a Programming PC

To program the PowerText Panel, you must put the panel into SETUP Mode. When the panel is powered up, it will be operating in the RUN Mode. To enter the SETUP Mode, you must press and hold the UP Arrow button while simultaneously pressing the DOWN Arrow button. (Please Note: While in the SETUP Mode you may also adjust the screen contrast by pressing the UP or DOWN Arrow buttons—ensure that you are in SETUP Mode!)

The Panel is configured using a PC running the PowerText Programming Software. When you are ready to download the program, connect the programming cable (P/N CBL-PTEXT-001) to the serial port of the panel and the serial port of the PC. A wiring diagram follows.

Programming Cable P/N CBL-PTEXT-001



Connect a PLC

Connect your PLC to the PowerText Panel with one of the cables listed below.

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)



POWERTEXT 2X20N, 2X20L, & 4X20N PANELS

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3

Learning the Features

In this chapter....

- Learning the Features
- Memory Mapping/PLC Data Registers
 - Pushbuttons
 - LEDs
 - PLC Message
 - Embedded Data
- PLC and Local Messages
 - Message Types
- Displaying PLC Messages
- PLC Messages LED
- Displaying Local Messages
 - Local Message File Structure Example
 - Local Message Menu Structure Example

Learning the Features

In this section, we will help you to learn and understand the Features of the PowerText Panels. Details for using pushbuttons, LEDs, PLC messages, and Local Messages are discussed. We recommend that you read this chapter well before you attempt to configure and use the Panel features and controls. As you proceed through this section, relate the topics discussed with how you will implement your panel.

Regardless of the PLC product type, the concepts discussed here are applicable. DirectLogic PLCs are used in any examples of addressing and ladder logic, but the principles can be applied to any type PLC. Once again, this section is showing “concepts” for using the panel features. For complete DirectLogic examples and other PLC solutions, such as Allen-Bradley, please refer to the PLC manufacturer’s manual.

- Memory Mapping/PLC Data Registers
 - Pushbuttons Register
 - LEDs Register
 - PLC Message Registers
 - Embedded Data Registers
- PLC and Local Messages
 - Embedded Data
 - Message Types
 - Static
 - Dynamic
 - Interactive
- Displaying PLC Messages
- PLC Messages LED
- Displaying Local Messages

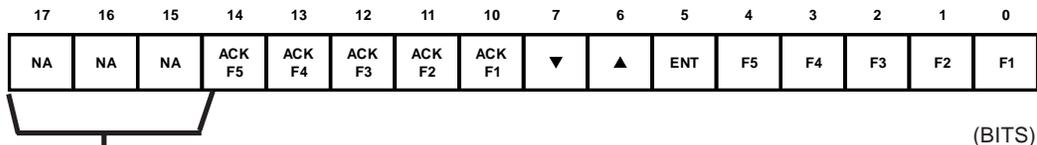
Memory Mapping/PLC Data Registers

The PowerText Panels communicate with the PLC through user-defined PLC data registers. PLC registers are assigned during configuration using the Text Panel Programming Software. For discrete operations, such as pushbuttons and LEDs, the register bits are accessed by the PLC control program. The following page shows how the pushbuttons and LEDs are assigned to the PLC bit registers.

Pushbuttons

Pushbuttons use one 16-bit register. All bit designations are depicted in octal (0–7 and 10–17). Use bits 0 through 15 for PLCs using decimal numbering. Address used here must be READ/WRITE.

BUTTONS (BIT WRITE) PLC WORD — (FROM PANEL)



Please NOTE:

Any unused bit address should not be used in your PLC program. The panel will control the unused bits. Bit 15 is toggled by the ESC key.

F1–F5 = Function Pushbuttons 1–5

ENT = Enter

▲ ▼ = Arrow UP/DOWN

ACK F1–F5 = Panel acknowledge of PLC button release

NA = not used (Do not use for other PLC program addresses)

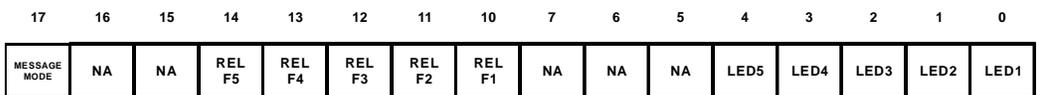
Bits 0–7 are set when pressing the corresponding button on the panel.

Bits 10–14 are set when the **Panel Set and PLC Release** Option is selected for the corresponding Function Pushbutton and the Release Bit for that button is set by the PLC in the LED (BIT READ) PLC WORD.

LEDs

LEDs use one 16-bit register. All bit designations are depicted in octal (0–7 and 10–17). Use bits 0 through 15 for PLCs using decimal numbering.

LED (BIT READ) PLC WORD — (TO PANEL)



LED1–LED5 = Only used when **By PLC** has been chosen.

REL F1–REL F5 = Used by PLC to release a button that is set by the panel.

MESSAGE MODE = set by PLC and takes panel out of PLC Message Mode (when PLC Message is displayed on panel) and back into Local Message Mode.

NA = not used (Do not use for other PLC program addresses)

Use Bit 17 to take the panel out of PLC Message Mode when a PLC Message is triggered. When the PLC sets this bit (from 0 to 1), and the panel has a PLC Message displayed, the panel will go back into the Local Message Mode.

Example when using Panel Set & PLC Release Option for a Function Pushbutton:

Operator Presses Button:

F1 is set by the Panel (Bit 0 in Button Word).

This is a maintained pushbutton to the PLC.

PLC Releases Button:

REL F1 is set by the PLC (Bit 10 in LED Word).

The PLC resets the panel button by setting this bit in the ladder program.

Panel Acknowledge Button Release:

ACK F1 is set by the Panel (Bit 10 in Button Word).

This is the panel acknowledging to the PLC that it has reset the button.

PLC Message Registers

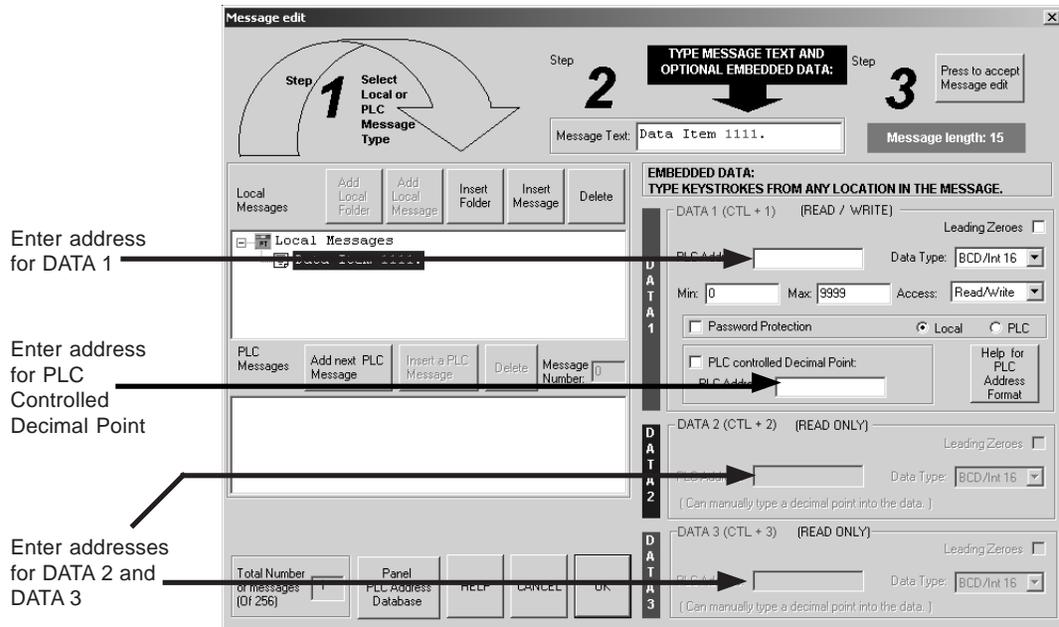
The 2X20N, 2X20L, and 4X20N panels have 2 or 4 lines of PLC Message display. Each message line references a user-defined register in the PLC. The registers are assigned using the PowerText Programming Software. The panel monitors each register for a value (message number) and displays the message associated with the value (i.e., a value of 3 displays message 3).

Embedded Data Registers

Each message can have up to three embedded data values, DATA 1, DATA 2, and DATA 3. Embedded data registers are user-defined.

DATA 1 (Two 16-Bit Registers, READ/WRITE)

This is a PLC register that contains the first of three possible embedded data values on a line for the message displayed. DATA 1 can be set as a READ/WRITE Register allowing the operator to change a data value. It can also be set to READ ONLY. This is the only data value that has this option.



PLC CONTROLLED DECIMAL POINT (16-Bit Register)

This is a register in the PLC for controlling a decimal point within an embedded data value (DATA 1 only). One register holds the value and the other controls the decimal point. The register addresses are assigned from the **Message Edit** screen as shown above. No ASCII characters are allowed in DATA 1 with a PLC controlled decimal point.

DATA 2 (Two 16-Bit Registers, READ ONLY)

This is a PLC register that contains the second of three possible embedded data values on a line for the message displayed. You may *manually* insert a decimal point. The **PLC Address** and **Data Type** are assigned from the **Message Edit** screen, shown above.

DATA 3 (Two 16-Bit Registers, READ ONLY)

This is a PLC register that contains the third of three possible embedded data values on a line for the message displayed. You may *manually* insert a decimal point. The **PLC Address** and **Data Type** are assigned from the **Message Edit** screen, shown above.

PLC Messages and Local Messages

Embedded Data

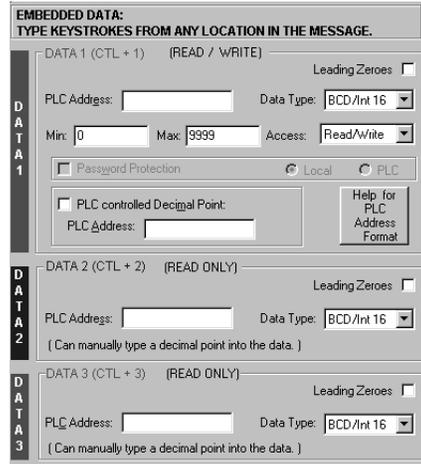
The user message contains the ASCII characters and optional embedded data to be displayed. The embedded data can be up to 3 different values — **DATA 1**, **DATA 2**, and **DATA 3**.



NOTE:

There is support for double words in each data set. You can choose a **32-bit integer address BCD and Binary**. The range for 32-bit Binary is 4294967295 (a 10-digit value can be used). The range for 32-bit BCD is 0 – 99999999 (an 8-digit value can be used).

Special characters in the message determine where the embedded data from the registers should go. When programming, each character for **DATA 1** values will be represent by a “1” for up to ten digits. (See note to the left.) For example, if you want to display a five digit value from the PLC, you will press Ctrl + 1 or F5, five times, and “11111” will display in your message (in red) representing the five digit value.



The screenshot shows a configuration window titled "EMBEDDED DATA: TYPE KEYSTROKES FROM ANY LOCATION IN THE MESSAGE." It contains three sections for DATA 1, DATA 2, and DATA 3. Each section includes a "PLC Address" field, a "Data Type" dropdown menu (set to "BCD/Int 16"), and a "Leading Zeros" checkbox. The DATA 1 section also includes "Min:" (0) and "Max:" (9999) fields, an "Access:" dropdown (set to "Read/Write"), a "Password Protection" checkbox, and a "PLC controlled Decimal Point" checkbox with its own "PLC Address" field. A "Help for PLC Address Format" button is also present. The DATA 2 and DATA 3 sections include a note: "(Can manually type a decimal point into the data.)".

Only **DATA 1**'s embedded value can be **Interactive (READ/WRITE register)**, meaning that data values will display and can be changed from the message. **DATA 2** and **DATA 3** are **Dynamic (READ ONLY register)** meaning that they will display a value, but the value cannot be changed from the message. **DATA 2** values are entered into the message by pressing Ctrl +2 or F6, and are represented by a “2” for each numeric digit, displayed in blue. **DATA 3** values are entered into the message by pressing Ctrl +3 or F7, and are represented by a “3” for each numeric digit, displayed in green. Again, these values can be up to ten digits. Data values are only represented by a “1,” “2,” or “3” when you are programming the message. The actual values will be displayed on the PowerText Panel LCD Display window, or will be blank if no value is present. (Password Protection is only available with PowerText Panel Model 2X20K.)

For **DATA 1**, you can select a minimum and maximum range for the embedded data value. The *Maximum* is to test for the upper limit for the data value and *Minimum* is to test for the lower limit for the data value. This will let the user update the value between the ranges. Data values are incremented or decremented with the **UP/DOWN Arrow** Buttons.

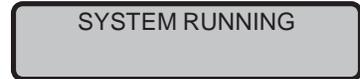
Also for **DATA 1**, you can choose to have the Decimal Point in the value controlled by the PLC, or you can manually insert it in the message.

Message Types

There are three types of messages: Static, Dynamic, and Interactive identify the different message types.

Static Messages

Static Messages are text displays that have NO embedded data. The Static Message may be displayed when an event or condition becomes true. You will enter the messages using the PowerText Panel Programming Software.



Dynamic Messages

Dynamic messages are text messages that include embedded data. These messages are used to display values from the PLC (READ only access to a PLC register). This data is information that helps the operator closely monitor and/or control the machine or process.

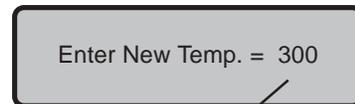


Data Value update from PLC register

Embedded Data Values in messages can be of two types — BCD or Binary. DATA 1 can have a decimal point controlled by the PLC or manually inserted. DATA 2 and DATA 3 allow you to manually insert a decimal point. The maximum number of data values per message is three. Data type and decimal points are programmed when configuring the message from the Message Edit screen.

Interactive Messages

(With an embedded DATA 1 value, only). An Interactive Message is commonly used for operator data entry. This type of message is used for changing values that are stored in the PLC registers (READ/WRITE access). These values are typically; Setpoint, Upper and Lower Limits, etc. Interactive Messages may be configured to enter data using the **UP/DOWN Arrow** buttons.



Data value entered by operator

Displaying PLC Messages

PLC Messages are triggered by the PLC. The PLC Message LED will illuminate to let you know that the PLC has generated the message. You cannot press the **esc** key to exit the PLC Message mode until 3 seconds after the message has been triggered. This delay is to ensure that the message has been seen

by the operator. After the 3 seconds, press the **esc** key and you will return to Local Message mode. If you press the **esc** key again, the last PLC Message will be redisplayed.

Static Message Operation

To display a Static PLC message, you simply put the message number (1–256) in the appropriate PLC register. These messages are text only, no embedded data.

Dynamic Message Operation

Dynamic messages are text messages that include embedded data. These messages present the operator with important PLC data. You may program message numbers 1–256 to be used as dynamic messages. Dynamic messages may be displayed on either the top or bottom line. The maximum number of digits that may be displayed is 8 for BCD/Int 32, 4 for BCD/Int 16, 10 for Binary/Int 32, or 5 for Binary/Int 16. Use the PowerText Programming Software to configure Dynamic messages. See Section 5, *Configuration* for more information.

Interactive Message Operation

An interactive message is a text display that allows operator data entry. Use these messages to enter or change values that are stored in PLC registers. When the interactive message is displayed, the operator can enter data. Check the PLC product user manual to verify which data formats are supported. Depending on the PLC, the data format will be either Binary or BCD (Binary Coded Decimal). Five digits may be entered in a 16-bit register using Binary data format or ten in a 32-bit Binary data format. Four digits may be entered in a 16-bit register using BCD data format or eight digits in a 32-bit register using BCD data format.

Interactive messages are configured within the Text Panel Programming Software by embedding a DATA 1 value in a PLC message. An interactive message requires that you define the Format (Binary or BCD), and Decimal Point Position. There are two types of decimal point placements — PLC controlled and fixed placement (decimal point entered between characters when configuring the message). A PLC controlled decimal is only allowed in DATA 1. DATA 2 and DATA 3 allow you to enter a fixed point (manually inserted). Two PLC registers are used to store PLC controlled decimal point values, one for the data value and the other for decimal point control. When the decimal point is PLC controlled it must be configured in your PLC logic program. For more information, see Chapter 5, *Configuration*, or your PLC Configuration Manual.

Arrow Adjustment Entry

Arrow adjust is often used when minimum and maximum setpoint ranges are required or a setpoint value requires only minor adjustment. These arrow adjustments are only possible using the **UP** or **DOWN Arrow** pushbuttons. As

you press the **UP** and **DOWN Arrow** pushbuttons, the numeric value will increment (up) or decrement (down) one count at a time. When the UP/DOWN Arrow buttons are used to increment or decrement a value, the cursor is disabled and will not be visible again until you press **enter**, **esc**, or return from an error or PLC message. Also, the longer you hold the key down, the faster the count will increase. When the adjustment is complete, press the **enter** pushbutton, and the value will be placed in the data register for display and the bit is set.

PLC Message LED

The PLC Message LED will illuminate any time a PLC message is being displayed. When you press the **esc** key, after a PLC Message has been displayed, the panel will return to the Local Message mode. To redisplay the PLC Message, press **esc** again.

Displaying Local Messages

In a **Local Message**, the first message (root level) or folder in the hierarchy is displayed on the top line at start up and the following message or folder is displayed on the second line.

A plus (+) is displayed in front of a folder's or subfolder's name if it is closed. If a folder or subfolder is open, a minus (-) is placed in front of the name. Any messages within that folder will be displayed below it.

```
+Local Folder 1
+Local Folder 2

-Local Folder 2
Local Message 2.1
```

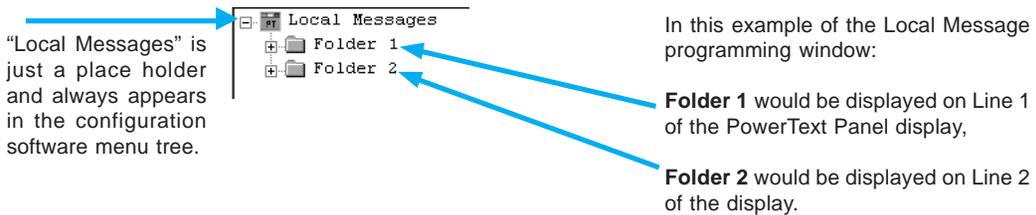
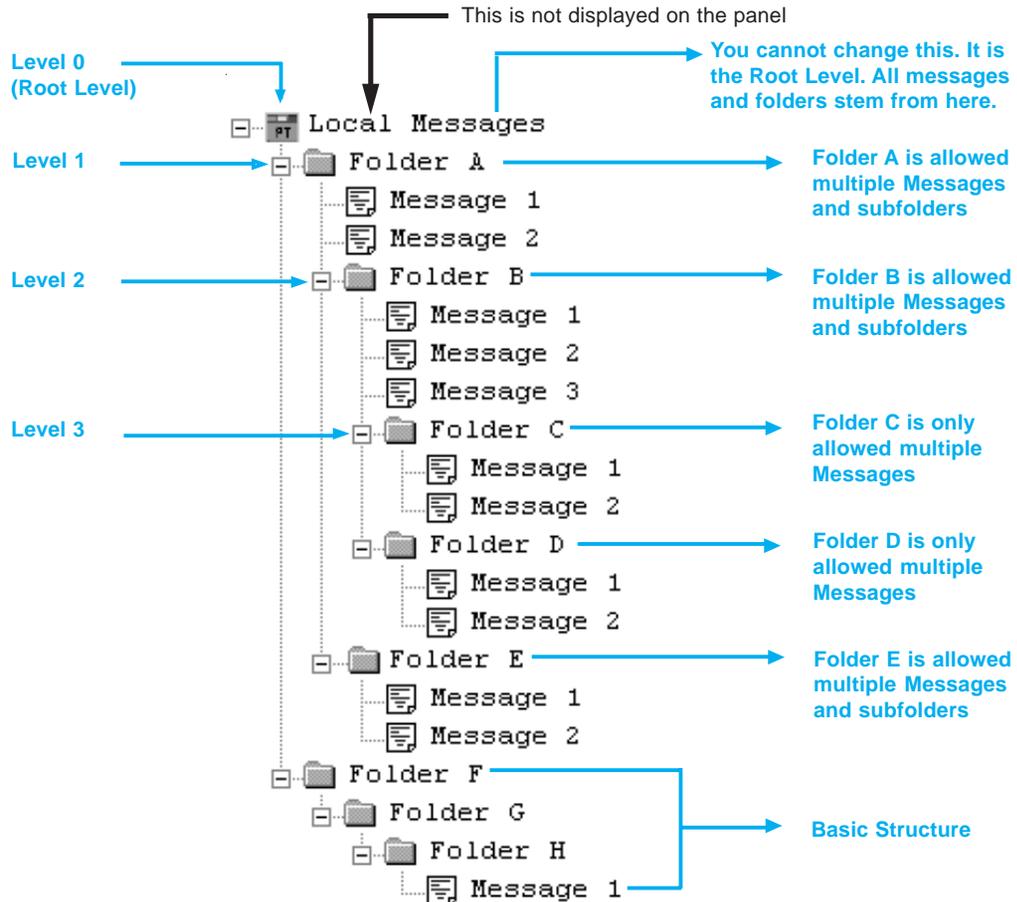
Therefore, a folder is limited to 19 characters after the + or -, a message allows 20 characters. (The PowerText Programming Software only allows 19 characters for folder text when you are configuring the Local Messages.)

You may use the **UP/DOWN Arrow** buttons to scroll down to the next message in that folder. At the end of the messages for that folder, you can press the **esc** button to move to the previous folder or level.

The **Local Message** menu hierarchy can only extend three levels deep (after the root level) but each folder (level 1 and level 2) may have many subfolders or messages on that level. Folder level 3 may have many messages, but no folders. Messages can contain up to three embedded data values. See the following examples of a menu tree and how it may appear from within the PowerText Programming Software and how it may appear on your display.

Local Message File Structure Example

(as seen when configuring messages in the PowerText Programming Software)



A plus (+) is displayed in front of the folder icon  if it is closed. If a folder is open, a minus (-) is placed next to the folder icon , and any message in that folder will be displayed.



POWERTEXT 2X20N, 2X20L, & 4X20N PANELS

Local Message Menu Structure Example

(as would be seen on the PowerText Panel Display, except that Levels are indented here to make them easier to see.)

Viewing the menu from the root (*A folder is also counted as a message.*)

Local Messages (Root)

- Message 1 (*Root message*)
- Message 2 (*Root message*)
- +Folder A (*Folder is closed, but it contains 3 messages and two subfolders with 3 messages each*)
- Message 16 (*Root message*)
- Message 17 (*Root message*)
- +Folder D (*Folder is closed, but it contains 5 messages and one subfolder also with 5 messages*)
- Message 29 (*Root message*)

Viewing the menu from open Folder A

- Folder A (*Folder is open and it contains 3 messages and one subfolder with 3 messages*)
 - Message 4 (*Folder A message*)
 - Message 5 (*Folder A message*)
- +Folder B (*Folder is closed, but it contains 3 messages and one subfolder also with 3 messages*)
- Message 14 (*Folder A message*)

Viewing the menu from open Folder B

- Folder B (*Folder is open and it contains 3 messages and one subfolder with 3 messages*)
 - Message 7 (*Folder B message*)
 - Message 8 (*Folder B message*)
 - Message 9 (*Folder B message*)
- +Folder C (*Folder is closed, but it contains 3 messages*)

When a folder is opened, a minus sign “-” appears before the folder name. A “+” sign indicates that the folder is closed.

Local Messages (Root)

- Message 1 (*Root message*)
- Message 2 (*Root message*)
- Folder A (*Folder A is open*)
 - Message 4 (*Folder A message*)
 - Message 5 (*Folder A message*)
 - Folder B (*Folder B is open and is a subfolder of Folder A*)
 - Message 7 (*Folder B message*)
 - Message 8 (*Folder B message*)
 - Message 9 (*Folder B message*)
 - Folder C (*Folder C is open and is a subfolder of Folder B*)
 - Message 11 (*Folder C message*)
 - Message 12 (*Folder C message*)
 - Message 13 (*Folder C message*)
- Message 14 (*Folder A message*)
- Message 15 (*Root message*)
- Message 16 (*Root message*)
- +Folder D (*Folder D is closed*)
- Message 29 (*Root message*)



POWERTEXT 2X20N, 2X20L, & 4X20N PANELS

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4

Tutorial

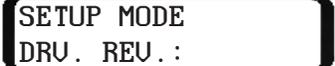
In this chapter....

- PowerText Panel Setup
- Installing PowerText Programming Software
- Installation Screens
- Tutorial
 - Plan the Project using Application Worksheets
 - Create the Project using PowerText Programming Software
 - Configure a PLC

PowerText Panel Setup

SETUP Mode

In order to download the program to the PowerText Panel using the PowerText Programming Software, you must be in the Setup Mode. Setup Mode is also where you will **adjust the display contrast** of the PowerText Panel.



SETUP MODE
DRU. REV. :

The Panel will start up in the RUN Mode. To access the SETUP Mode, follow these steps:

1. Press the **UP Arrow** Pushbutton and hold while simultaneously pressing the **DOWN Arrow** Pushbutton to enter the SETUP Mode.
2. At any time you may press the Escape (**esc**) button to go back to RUN Mode. You will be taken back to the start of the Local Message menu (cursor is placed at root level when you return from setup).

Adjust Display Contrast

You may only adjust the Display Contrast when in Setup Mode. To adjust the display contrast use the UP and DOWN arrows to increase or decrease the contrast.

Internal Software and Hardware Revisions

While in **SETUP** Mode the Panel Hardware Revision, Driver Revision, Boot Revision, and Exec (Firmware) Revision numbers will display on the panel.

Preparing for Configuration

If you prepare and plan ahead of time, your use of the PowerText Programming software will be successful. Below are a few important steps to take to prepare to program your application.

- Prepare your personal computer and ensure proper installation of the PowerText Programming Software
- Know your operator interface requirements. Determine the type of Panel and the number of Panels required by your application
- Know your PLC type and available resources, such as, programming tools, CPU capabilities, user memory, etc.
- Verify type of communications port, as well as protocol used. Determine the CPU link(s) available for connecting a PowerText Panel (RS-232/RS-422, baud rate, parity, stop bits.)

- Determine how the pushbuttons, LEDs, PLC Messages, and Local Messages will be assigned in your panels with respect to your machine or process.
- To prepare your application, use the application worksheets provided in Appendix A of this manual. The example worksheets will help you understand how the PowerText Panel program is configured. Blank worksheets can be used in planning, implementing, and using your PowerText Panels.

Installing PowerText Programming Software

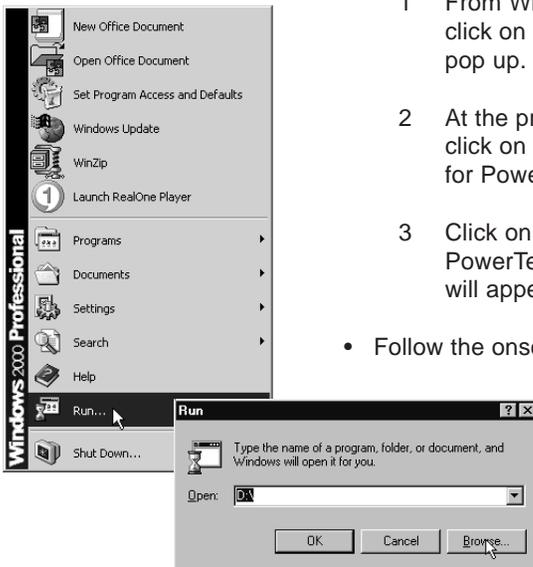
PowerText Panels are configured with software running on an IBM or compatible personal computer. This software is available through UTICOR, part number ACC-PTEXT-EDIT. The software is used to download your configuration before connecting the panel and communicating with a PLC. Help Topics are provided to help you configure your panel. You design and configure your Panel program off-line and save it to disk. The program may then be transferred to the PowerText Panel. To install PowerText Programming Software, perform the following steps:



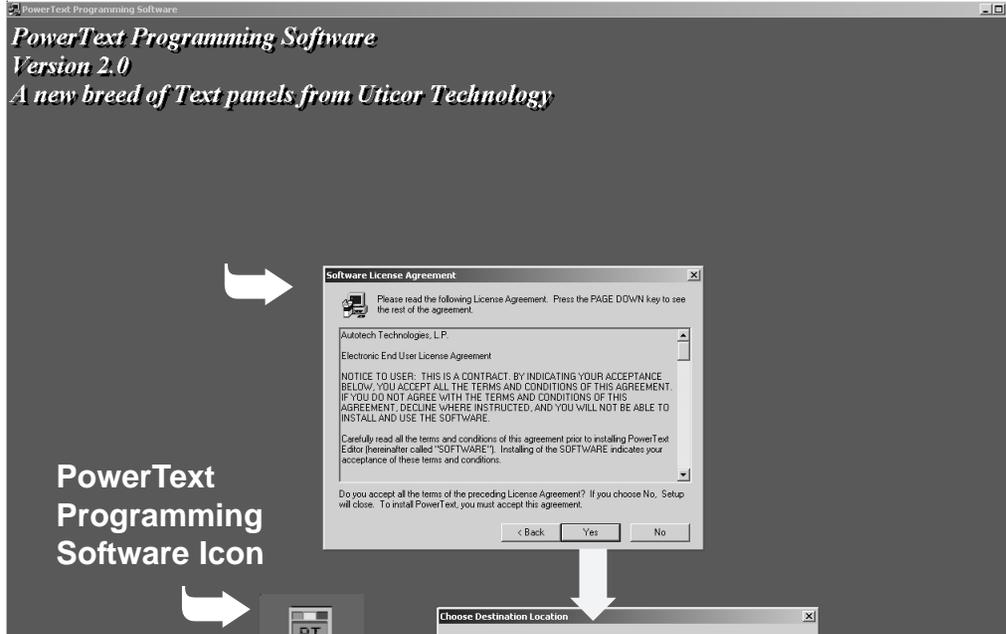
- Place the CD into your **CD ROM Drive**. The install program should launch automatically. If it does not, perform the following steps:

- 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 Drive) setup.exe or click on the **Browse** Button and find the **Setup.exe** file for PowerText Programming Software.
- 3 Click on the **OK** button to begin the installation. The PowerText Programming Software Installation Screen will appear.

- Follow the onscreen prompts to load the software.



Installation Screens



**PowerText
Programming
Software Icon**

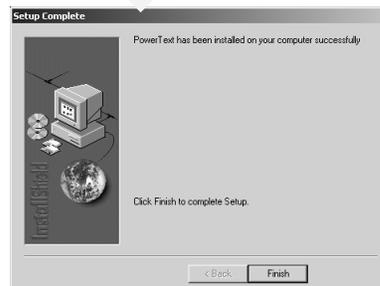


This icon will appear on your desktop after installation.



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\PowerText. 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 PowerText Icon shown above will appear on your desktop. Simply click on it to open the Programming Software!





POWERTEXT 2X20N, 2X20L, & 4X20N PANELS

Tutorial — Plan the Project using Application Worksheets

The following is a project tutorial. It will take you through the process of creating a new project, configuring buttons, creating messages, and transferring a project to the Text Panel. This should help familiarize you with the Text Panel Programming Software.

Let's start by filling out the application worksheet found in Appendix A. For tutorial purposes, we have already filled in the information. For your project, make copies of the forms in Appendix A. Follow steps 1 through 4 as shown below to fill out the application worksheet for the PowerText Panel Demo Project.

TEXT PANEL APPLICATION WORKSHEET

1 PROJECT NAME: Demo Project PANEL TYPE: 2X20N
 Multi-Panel Port No. _____
 (1-5, or NA if Single Panel System)

1 Fill in the Project and PLC information.

PLC CONFIGURATION:
 PLC MANUFACTURER: DirectLogic Baud Rate: 9600
 PLC Model: 250 Parity: odd
 PLC Protocol: K-Sequence Data Bits: _____
 PLC Address: 1 Stop Bits: _____
 PLC Timeout: 40 secs. Checksum: _____

2 **BUTTONS/LEDS**

2 Assign a PLC Word (V40600) to the buttons and to the Panel Acknowledge (if using Panel Set/ PLC Release for Button Action). See next page.

BUTTON ACTION/PANEL ACKNOWLEDGE (BIT WRITE) PLC WORD V40600

Button Action:				* Panel Acknowledge of PLC Release:
	(PLC Address)	Mom.	Alt.	Pnl Set/ PLC Rel *
F1	<u>C0</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
F2	<u>C1</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F3	<u>C2</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F4	<u>C3</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
F5	<u>C4</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	(PLC Address)	
ACK F1	<u>not used</u>	
ACK F2	<u>not used</u>	
ACK F3	<u>not used</u>	
ACK F4	<u>C13</u>	
ACK F5	<u>not used</u>	

3 **LED CONTROL/PLC BUTTON RELEASE (BIT READ) PLC WORD** V40601

3 Assign a PLC Word (V40601) to the LED Control (if using By PLC) and PLC Button Release (if using Panel Set & PLC Release Button Action). See next page.

LED Control:				* PLC Button Release:
	(PLC Address)	By Button	By Button & Flash	PLC **
LED1	<u>not used</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LED2	<u>C21</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
LED3	<u>not used</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LED4	<u>not used</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LED5	<u>not used</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	(PLC Address)	
REL F1	<u>not used</u>	
REL F2	<u>not used</u>	
REL F3	<u>not used</u>	
REL F4	<u>C33</u>	
REL F5	<u>not used</u>	

4 **PLC Messages (PLC Words)**

4 Assign a PLC Word for each PLC Message Line.

Line 1	<u>V3000</u>	Line 3	<u>not used</u> (4X40N only)
Line 2	<u>V3001</u>	Line 4	<u>not used</u> (4X40N only)

This is a copy of page 29 from Chapter 3, Learning the Features. Shown here are the bit addresses for the Button PLC Word (V40600) and LED PLC Word (V40601) in this tutorial.



Please note that any unused bit address SHOULD NOT BE USED in your PLC program. The PowerText Panel will control the unused bits.

Pushbuttons

Pushbuttons use one 16-bit register. All bit designations are in octal (0–7 and 10–17), used by DirectLogic PLCs. Use bits 0 to 15 for PLCs using decimal numbering.

BUTTONS (BIT WRITE) PLC WORD — (FROM PANEL)

V40600 C17 C16 C15 C14 C13 C12 C11 C10 C7 C6 C5 C4 C3 C2 C1 C0

17	16	15	14	13	12	11	10	7	6	5	4	3	2	1	0
NA	NA	NA	ACK F5	ACK F4	ACK F3	ACK F2	ACK F1	▼	▲	ENT	F5	F4	F3	F2	F1

F1–F5 = Function Pushbuttons 1–5

ENT = Enter

▲ ▼ = Arrow UP/DOWN

ACK F1–F5 = Panel acknowledge of PLC button release

NA = not used (Do not use for other PLC program addresses)

Bits 0–7 are set when pressing the corresponding button on the panel.

Bits 10–14 are set when the **Panel Set and PLC Release** Option is selected for the corresponding Function Pushbutton and the Release Bit for that button is set by the PLC in the LED (BIT READ) PLC WORD.

LEDs

LEDs use one 16-bit register. All bit designations are in octal (0–7 and 10–17), used by DirectLogic PLCs. Use bits 0 to 15 for PLCs using decimal numbering.

LED (BIT READ) PLC WORD — (TO PANEL)

V40601 C37 C36 C35 C34 C33 C32 C31 C30 C27 C26 C25 C24 C23 C22 C21 C20

17	16	15	14	13	12	11	10	7	6	5	4	3	2	1	0
MESSAGE MODE	NA	NA	REL F5	REL F4	REL F3	REL F2	REL F1	NA	NA	NA	LED5	LED4	LED3	LED2	LED1

LED1–LED5 = Only used when **By PLC** has been chosen.

REL F1–REL F5 = Used by PLC to release a button that is set by the panel.

NA = not used (Do not use for other PLC program addresses)

For the next part of our project planning, we'll create four Local Messages using the Local Message Worksheet. These messages will be configured later in our PowerText Panel Demo Project using the PowerText Programming Software.

LOCAL MESSAGES:

- 1** Add a Folder at Level 1

Folder
 Message

Level: 1 2 3 4

Process Control

Folder = 19 characters, Message = 20 characters

DATA 1 _____ Read Only
 BCD Binary Read/Write
 PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____
 BCD Binary BCD Binary

- 2** Add a Message under the Folder at Level 2

Folder
 Message

Level: 1 2 3 4

Press F1 to Start Y0

Folder = 19 characters, Message = 20 characters

DATA 1 _____ Read Only
 BCD Binary Read/Write
 PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____
 BCD Binary BCD Binary

- 3** Add another Message at Level 2. This Message is a READ Only with one data point (DATA1).

Folder
 Message

Level: 1 2 3 4

Zone 1 Temp = 111.1

Folder = 19 characters, Message = 20 characters

DATA 1 V2010 Read Only
 BCD Binary Read/Write
 PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____
 BCD Binary BCD Binary

- 4** Add another Message at Level 2. This Message is a READ/WRITE for data entry with one data point (DATA1) with a min. and max. value range.

Folder
 Message

Level: 1 2 3 4

Load Part #1111

Folder = 19 characters, Message = 20 characters

DATA 1 V2011 Read Only
 BCD Binary Read/Write
 PLC Decimal _____ Min 1200 Max 1999

DATA 2 _____ DATA 3 _____
 BCD Binary BCD Binary

The last part of our project planning is creating three PLC Messages using the PLC Message Worksheet. These messages will be configured later in our PowerText Panel Demo Project using the PowerText Programming Software.

1

PANEL APPLICATION WORKSHEET

- 1 Add Message No. 1. When F3 button on panel is pressed, this message will be displayed.

PLC MESSAGES:

Message No. 1

F	3		B	u	t	t	o	n		m	e	s	s	a	g	e				
---	---	--	---	---	---	---	---	---	--	---	---	---	---	---	---	---	--	--	--	--

20 characters

DATA 1 _____ Read Only
 BCD Binary Read/Write
 PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____

BCD Binary BCD Binary

2

- 2 Add Message No. 2. This message will be displayed to let the operator know that the PLC has turned off F4 button on the panel.

Message No. 2

P	L	C		R	e	i	e	a	s	e		B	i	t		A	c	k	n	
---	---	---	--	---	---	---	---	---	---	---	--	---	---	---	--	---	---	---	---	--

20 characters

DATA 1 _____ Read Only
 BCD Binary Read/Write
 PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____

BCD Binary BCD Binary

3

- 3 Add Message No. 3. This message will be displayed when either of the other messages are displayed, to let the operator know how to return to Local Messages.

Message No. 3

E	S	C		f	o	r		L	o	c	a	l		M	s	g	s			
---	---	---	--	---	---	---	--	---	---	---	---	---	--	---	---	---	---	--	--	--

20 characters

DATA 1 _____ Read Only
 BCD Binary Read/Write
 PLC Decimal _____ Min _____ Max _____

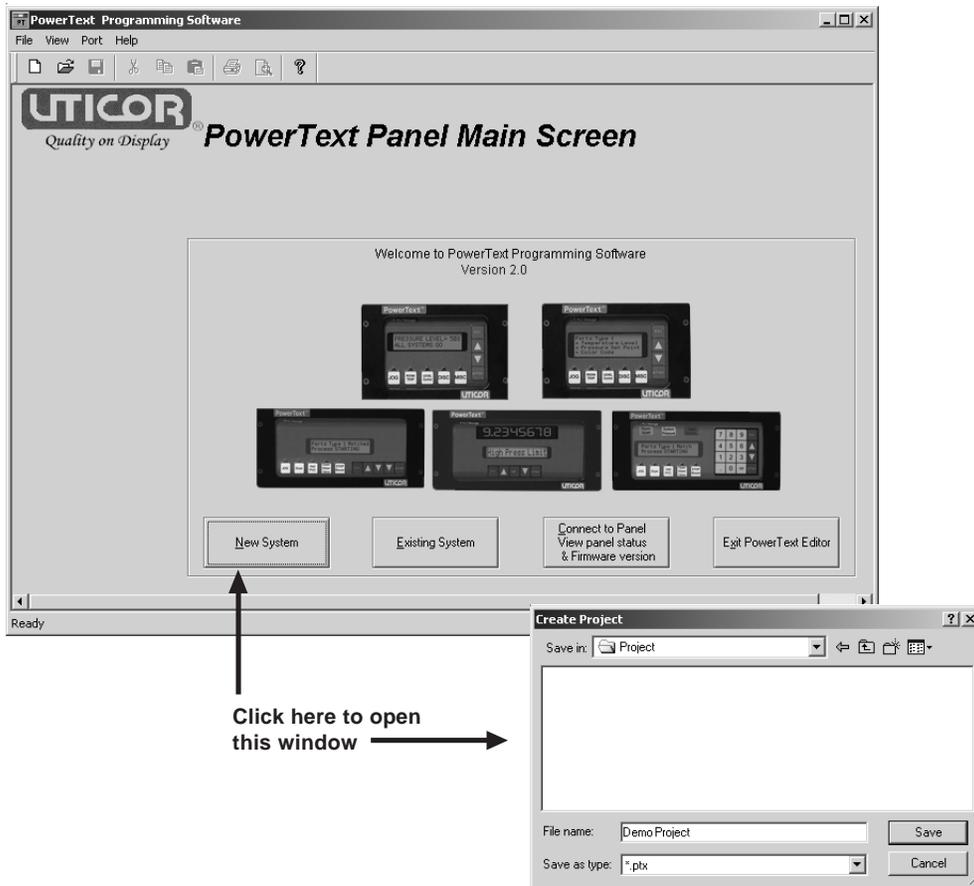
DATA 2 _____ DATA 3 _____

BCD Binary BCD Binary

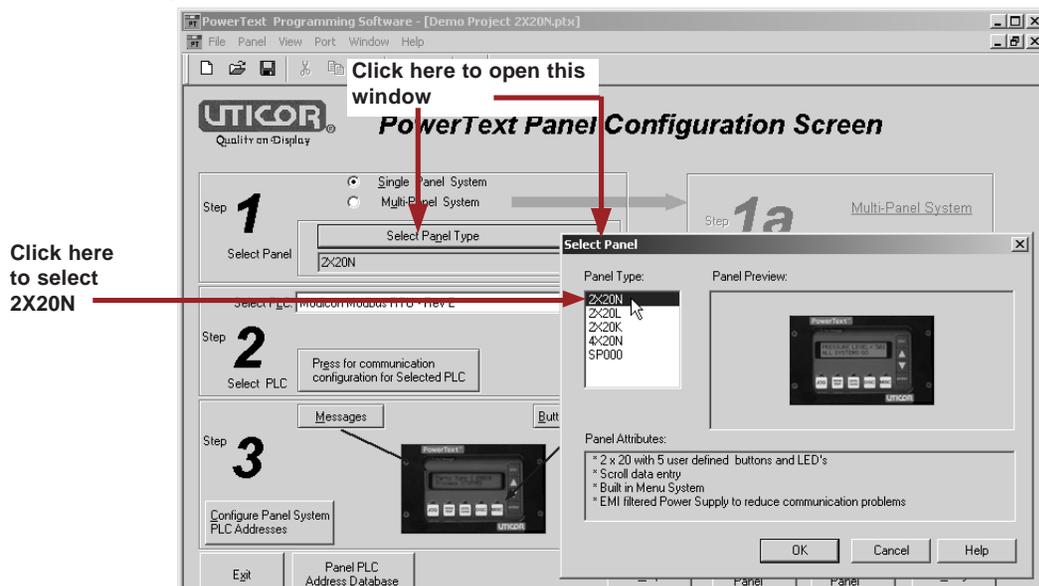
Tutorial — Create the Project using PowerText Programming Software

Let's assume you have the programming software installed on your PC (if you don't, go back to page 41 and install now). Connect the PowerText Panel to your PC using the P/N CBL-PTEXT-001 cable. Apply 24 VDC to the panel power connector.

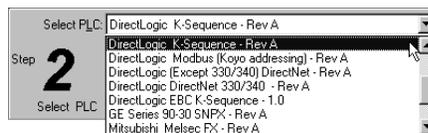
1. From the **Welcome** screen, click on the **New System** button.
2. The **Create Project** window will appear. Type in "Demo Project" in the **File name** field. Click on **Save**. (If you don't want your project saved to the default "Project" folder, navigate to the directory and/or folder where you want it to reside.)



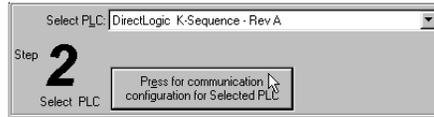
3. In **Step 1, Select Panel**, you will start your project by selecting the panel type you are using. Leave **Single Panel System** selected.
 - a. From the **Configuration Screen**, click on the **Select Panel Type** button.
 - b. The **Select Panel** dialog box will open. Under **Panel Type**, click on the panel type you are using to highlight it. A picture of the panel will appear under **Panel Preview**, and key features of the panel are displayed under **Panel Attributes**.
 - c. Click on the **OK** button to select and close the dialog box.



4. In **Step 2, Select PLC**, you will choose the type PLC you are using.
 - a. Click on the DOWN arrow next to the **Select PLC** field to view the drop down menu of available PLCs. Click on the PLC Type to select.



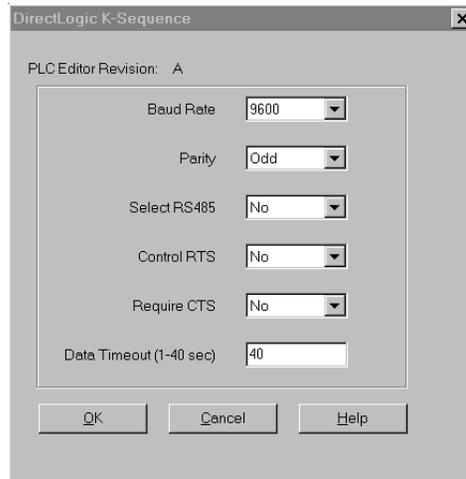
- b. Click on the **Press for communication configuration for Selected PLC** button.



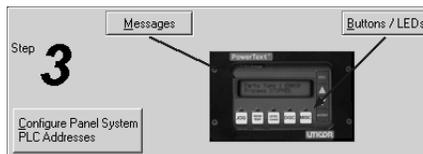
- c. The **PLC Communications Attributes** window will appear for the PLC you have selected. (In this case, DirectLogic K-Sequence.) Set the attributes to match those in the screen capture, below. Click on the **OK** button.



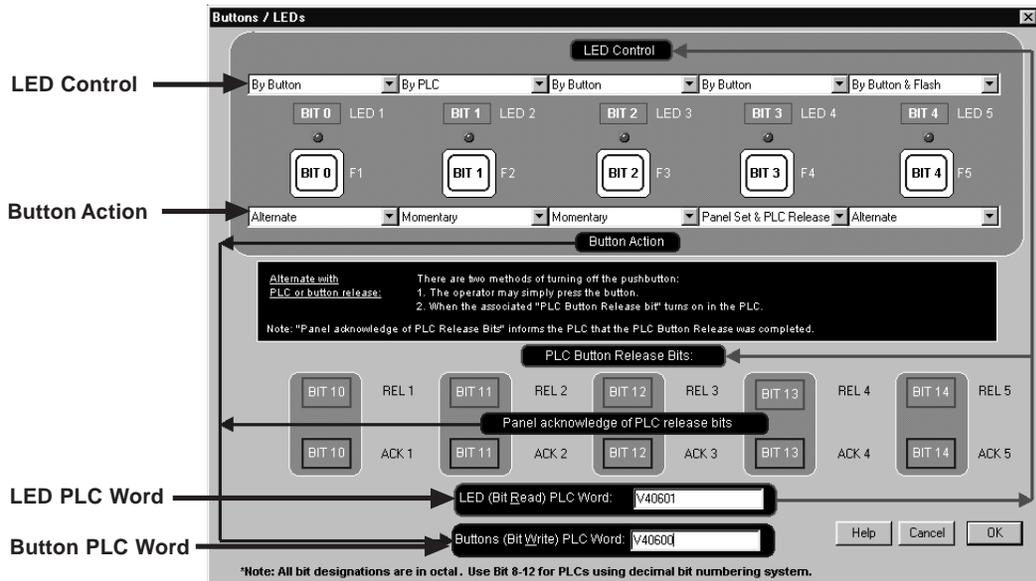
Please Note:
The PLC communication attributes must match the COM port settings for your selected PLC.



- 5. In **Step 3** you will configure the **Buttons/LEDs, Messages** and **Panel System PLC Addresses**.

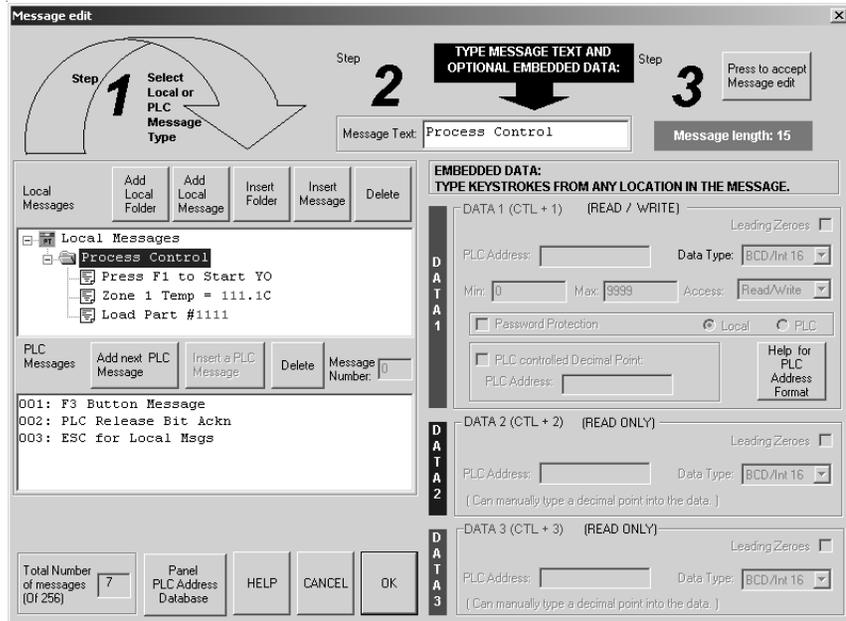
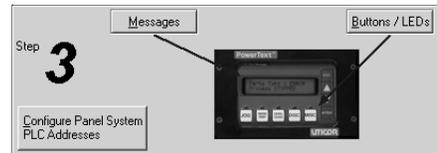


- 6. Click on the **Buttons/LEDS** button. The following screen will appear.

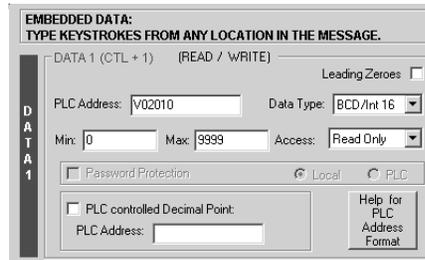


- a. Under **LED Control**, click on the down arrow to view control choices. Select **By Button** for **LED 1**, **LED 3** and **LED 4**. Select **By PLC** for **LED 2**, and **By Button & Flash** for **LED 5** (selections should be as shown in the screen capture above).
- b. Under **Button Action**, click on the down arrow to view control choices. Select **Alternate** for **F1** and **F5**, **Momentary** for **F2** and **F3**, and **Panel Set & PLC Release** for **F4**.
- c. Assign a PLC Word for the LEDs and the Buttons. These PLC Words should be a BIT Register.
- d. Click on **OK** to accept and exit the screen.

7. Next, we'll show you how to configure **Local Messages**. Click on the **Messages** button for **Step 3** on the Configuration Screen. The following screen will appear.

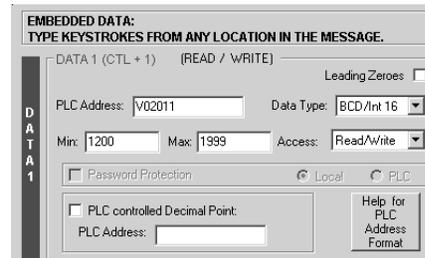


- a. Click on the **Add Local Folder** button (**Step 1**). In the **Message Text** field (**Step 2**), type in **“Process Control.”** Click on the **Press to accept Message edit** button (**Step 3**).
- b. Click on the **Process Control** Folder to select it, and then click on the **Add Local Message** button.
- c. Enter **“Press F1 to Start Y0”** in the **Message Text** field and then click on the **Press to accept Message edit** button.
- d. Next we'll configure a dynamic message. Click on the **Process Control** Folder, then click on **Add Local Message** and type in **“Zone 1 Temp =”**. After **Zone 1 Temp =**, enter a space and press F5 (or Ctrl +1) three times, type in a decimal point, then press F5 again. Type in a **“C”** immediately after the **“111.1”**. (DATA 1 will appear as four, red ones in the message.)



- e. Under the **DATA 1** section of the screen shown above, type in “V02010” in the **PLC Address** field. The **Data Type** should be set to **BCD/Int 16**, and **Access** should be **Read Only**. Leave **Leading Zeroes** and **PLC controlled Decimal Point** unchecked.
- f. Click on the **Press to accept Message edit** button.
- g. The last **Local Message** to be configured will be an **Interactive message (DATA 1)**.
- h. Click on the **Process Control** Folder, then click on **Add Local Message**.
- i. In the **Message Text** field, type in “**Load Part #**”, leave a space, and then press F5, or Ctrl + 1, four times. (**DATA 1** will appear in the **Message Text** field as four, red ones.)

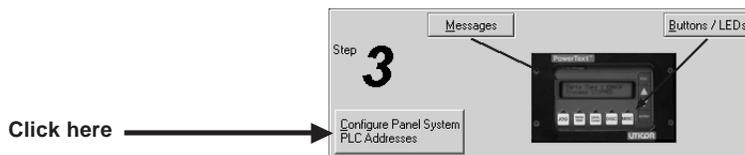
Message Text: Load Part #1111



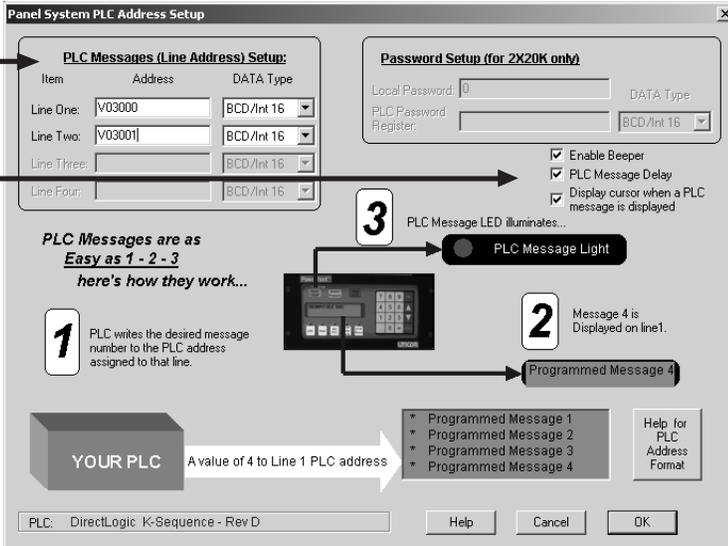
- j. The **DATA 1** configuration area is now available (no longer grayed out.) Next to **PLC Address**, type in “V02011”. **Data Type** should be **BCD/Int 16**. **Access** is **Read/Write**. Set the **Min.** value to “1200” and the **Max.** value to “1999” (settings are shown in the screen capture, above.) This will limit what value can be entered by the operator. Leave **Leading Zeroes** and **PLC Controlled Decimal Point** unchecked.
- k. Click on the **Press to accept Message edit** button to save it.



8. To create PLC Messages 001, 002, and 003 as shown in the screen capture above, perform the following steps:
 - a. Click on the **Add next PLC Message** button.
 - b. Type in the **Message Text** field, “**F3 Button Message**”.
 - c. Click on the **Press to accept Message edit** button to save it.
 - d. Click on the **Add next PLC Message** button.
 - e. Type in the **Message Text** field, “**PLC Release Bit Ackn**”.
 - f. Click on the **Press to accept Message edit** button to save it.
 - g. Click on the **Add next PLC Message** button.
 - h. Type in the **Message Text** field, “**ESC for Local Msgs**”.
 - i. Click on the **Press to accept Message edit** button to save it.
9. You are now finished configuring the messages for this tutorial, click on **OK** to exit the **Message Edit** screen.
10. The final part of **Step 3** is to configure the panel system PLC addresses. To configure PLC addresses, click on the **Configure Panel System PLC addresses** button.



11. The **Panel System PLC Address Setup** screen will appear. Enter settings as follows:



PLC Messages Setup

Enable Beeper
PLC Message Delay,
and Display cursor
options (selected by
default)

PLC Messages (Line Address) Setup:

Item	Address	DATA Type
Line One:	V03000	BCD/Int 16
Line Two:	V03001	BCD/Int 16
Line Three:		BCD/Int 16
Line Four:		BCD/Int 16

PLC Messages are as Easy as 1 - 2 - 3 here's how they work...

- 1 PLC writes the desired message number to the PLC address assigned to that line.
- 2 Message 4 is Displayed on line1.
- 3 PLC Message LED illuminates...

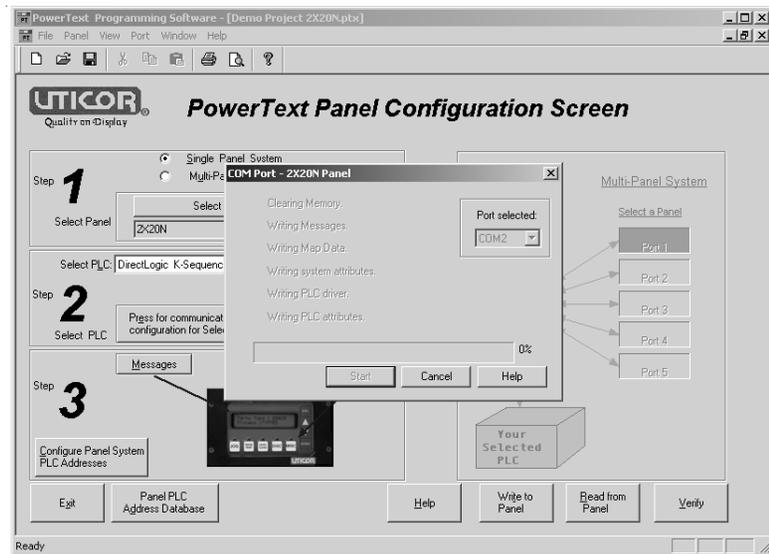
YOUR PLC A value of 4 to Line 1 PLC address

- * Programmed Message 1
- * Programmed Message 2
- * Programmed Message 3
- * Programmed Message 4

PLC: DirectLogic K-Sequence - Rev D

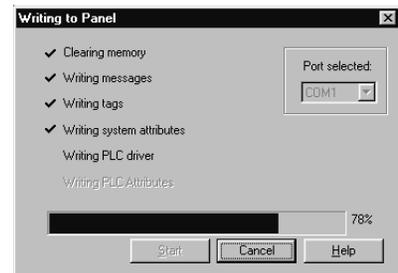
- Type in “**V3000**” in the **Line One** field. Select **BCD** as the **DATA Type**. Type in “**V3001**” in the **Line Two** field. Select **BCD** as the **DATA Type**.
- The panel beeper is selected by default. If you do not want to hear the beeper each time a button is pressed, click in the box in front of **Enable Beeper** to remove check mark and disable the feature.
- PLC Message Delay is also selected by default. If you do not want the buttons on your PowerText Panel to be locked for 3 seconds after a PLC Message is triggered, click in the box in front of **PLC Message Delay** to remove check mark and disable this feature.
- If you **DO NOT** want the cursor to display in the panel display window when a PLC message has been triggered, click in the box in front of **Display cursor when a PLC Message is displayed** to remove check mark (it is selected by default.)
- Click on the **OK** button to save and exit.

12. You are now ready to write the project to the PowerText Panel.



13. Click on the **Write to Panel** button on the **Configuration Screen**.
14. The **Writing to Panel** screen will appear. Click on the down arrow under **Port selected** and select the COM port on your PC that is connected to the Text Panel (COM1, COM2, COM3 or COM4).
15. Before preceding, ensure that the panel you are about to write to is in the **Setup Mode**. To enter the **Setup Mode**, press the UP and DOWN arrows on the Text Panel simultaneously. The panel display will read **SETUP MODE** on the first line.
16. Click on the **Start** button on the **Writing to Panel** screen, as shown above.

17. The progress of the **Write to Panel** process will be shown by a check mark placed in front of the items as the project is written to the panel. The status bar along the bottom portion of the screen will also show the progress.



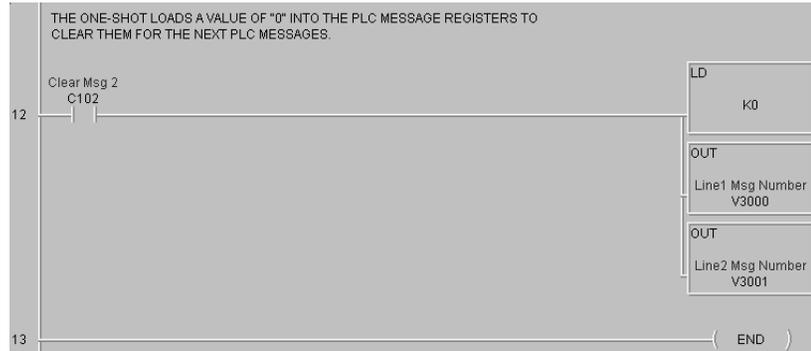
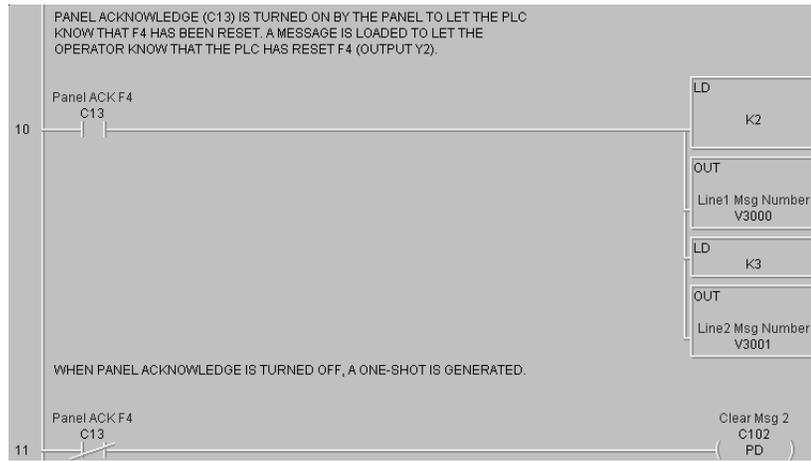
18. Now that the panel is configured, let's connect our PLC programming software to the PLC and write the ladder program.

Tutorial — Configure a PLC

For the purposes of this tutorial, we will be using a DirectLogic® DL05 PLC. To configure the PLC we are using DirectSOFT® Programming Software. The purpose of this part of the tutorial is to show you how to configure your PLC to communicate with a PowerText Panel.

1. Connect to the PLC with DirectSOFT.
2. Enter the following ladder logic.







POWERTEXT 2X20N, 2X20L, & 4X20N PANELS

3. Save the Program to the PLC and to disk (DemoProject).
4. Place the PLC in Run Mode.

The PLC is now configured and running. Now, to test our project, connect the Panel to PLC communications cable (P/N CBL-PTEXT-001, to the panel port and the PLC port.

1. Press the **esc** (escape) button on the Text panel. The Local Message (folder), "**+ Process Control**", will be displayed on the first line.
2. Press the **enter** button to open the folder. Level 2 Local Message "**Press F1 to Start Y0**" will be displayed. Use the **▲▼**(arrow) buttons to scroll through the messages. Press the **esc** button to go back to the Folder Level 1.
3. Press **F1** to turn ON or OFF **Y0**.
4. Press **F2** to turn ON **Y1** for 5 seconds.
5. Press **F3** to display **PLC Message No. 1**.
6. Press **F4** to turn ON **Y2**. Either press **F4** again to turn it OFF, or turn ON **X0** in the PLC. If the PLC turns OFF **F4**, a message will be displayed.
7. Press **F5** to see an alternate button with flashing LED.

CONGRATULATIONS! You have now successfully configured a UTICOR PowerText Panel!

5

Configuration

In this chapter...

- Configure New System
 - Step 1, Select Panel
 - Step 2, Select PLC
 - Step 3, Panel System PLC Address Setup
 - Configure Local and PLC Messages
- Configure Existing System
- Connect to Panel, View Panel Status and Firmware Version
- Upgrade Firmware

This section will take you through the steps necessary to configure a new system, edit an existing system, view panel status, and upgrade the PowerText Panel firmware.

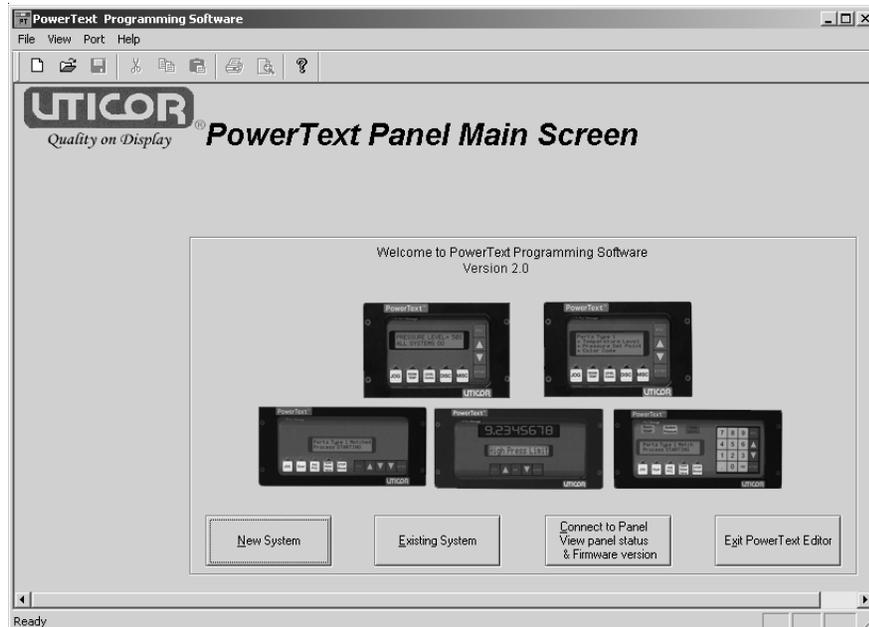
We recommend that you go through the tutorial in Chapter 4, page 39, before configuring your panel.

If you don't already have the PowerText Programming Software installed, go to Chapter 4, Tutorial, page 41.

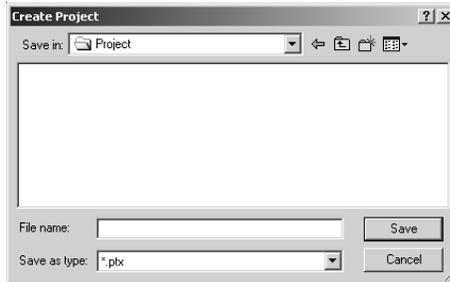


Configure New System

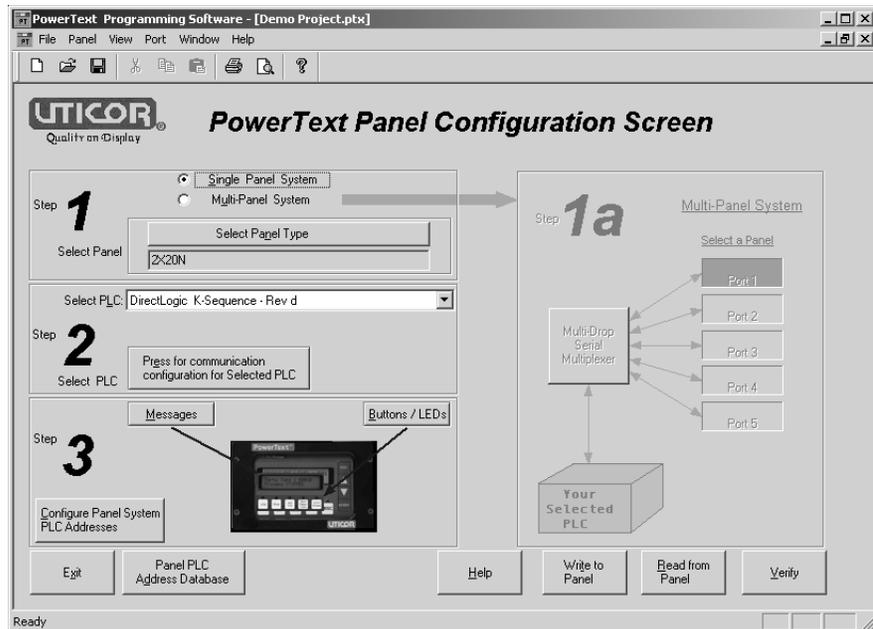
1. Click on the PowerText Icon to open the PowerText Programming Software. The following screen will appear.



- Click on the **New System** button to configure the PowerText Panel program. The following screen will appear.



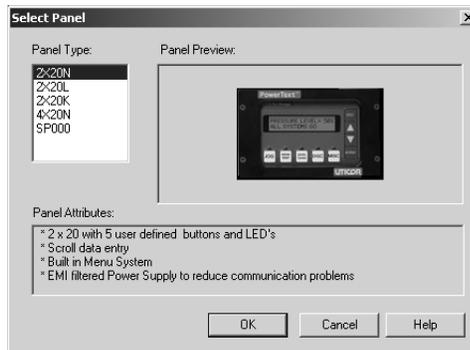
- Enter a name for the project in the **File name** field. Navigate to the directory and folder where you want to keep the file (or except default location), and click on the **Save** button to save. The following screen will appear.



4. In **Step 1**, you will select **Single Panel System** or **Multi-Panel System**. If you select **Multi-Panel System**, **Step 1a** on the right hand side of the screen will become available. You will also notice that two buttons at the bottom of the screen will change to **Write to Multiplexer**, and **Read from Multiplexer**. You may program up to 5 panels connected to a Multiplexer.

SINGLE PANEL SYSTEM

- a. If you have selected a **Single Panel System**, click on the **Select Panel Type** button. The following screen will appear. Under **Panel Type**, click on the model you are using. A **Panel Preview** and **Panel Attributes** specific to the type of panel you have chose will appear in this dialog box. Click **OK** to enter your selection. Skip to step 8.



MULTI-PANEL SYSTEM

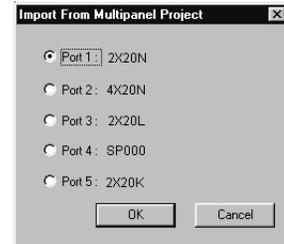
- b. If you have selected a **Multi-Panel System**, under **Step 1a**, **Select a Panel**, you will choose the first panel that you want to configure. There are three ways that you can choose the panel type for each port: 1) click on **Port 1** and then click on the **Select Panel Type** button under **Step 1**, or 2) double click on **Port 1**, or 3) click on **Port 1** and then right click your mouse to open the popup menu and choose **Select Panel**. You may configure the panel connected to **Port 1, 2, 3, 4, or 5** in any order. The ports do not have to be configured sequentially.
 - c. The **Select Panel** dialog box will open. Under **Panel Type**, click on the panel type that is connected to that port. A picture (as shown above) of the panel will appear under **Panel Preview**, and key features of the panel are displayed under **Panel Attributes**.
 - d. Click on the **OK** button to select and close the dialog box. The Panel type you have selected will appear above Port 1, or 2, or 3, etc.
5. You may also import a panel configuration from another project. Click on the Port/Panel that you want to copy the project to. Right click your mouse button to bring up the Right Click Menu. Select **Import**



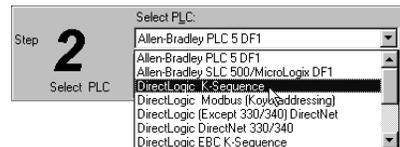
Configuration. For more information on the Multi-Panel System Right Click Menu options, see PowerText Programming Software Help topics.

6. The **Open** project dialog will open. You may select either a Single Panel or a Multi-Panel project to import. Click on the project you want to import to highlight it, and then click on the **Open** button.

7. If you have selected a Multi-Panel project to import, the dialog box to your right will open allowing you to select the particular Port/Panel configuration that you want to import into your current project. Click **OK**. In a Multi-Panel PowerText project, you may only import one Port/Panel configuration from an existing project into one Port/Panel in the current project with each **Import Configuration** command.



8. In **Step 2, Select PLC**, you will choose the type PLC you are using. You will only be able to select one PLC type per project (whether it is a Single Panel System or a Multi-Panel System). If you need more information on PLC configuration, consult your PowerText Programming Software Help Topics, or your PLC Manual.



9. Click on the **Press for Communication Configuration for Selected PLC** button.

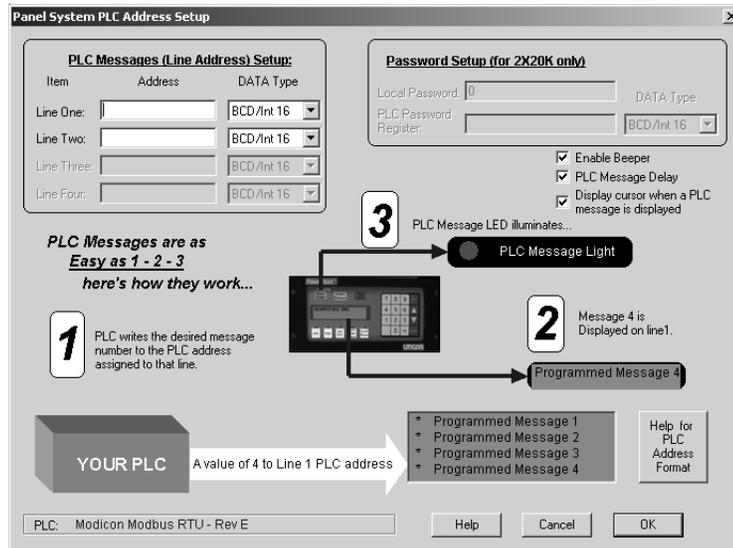
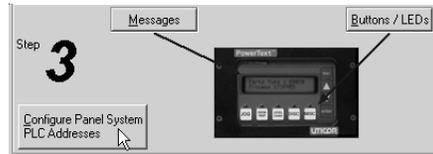


A PLC Attributes dialog box specific to your type PLC will appear. Complete the communications information. After selecting the PLC type, you must define the remaining protocol items, such as baud rate, parity, etc. Consult the PLC's user manual to determine the port communications capabilities.

During configuration, ensure that your address and communications parameters match the PLC port settings. There will be a selection for PLC timeout. When the panel sends a message to the PLC and does not receive a response or does not understand the response, it will wait the timeout period before sending the message again.

A communication failure initiates the error message "PLC COMMUNICATION TIMEOUT" on the panel.

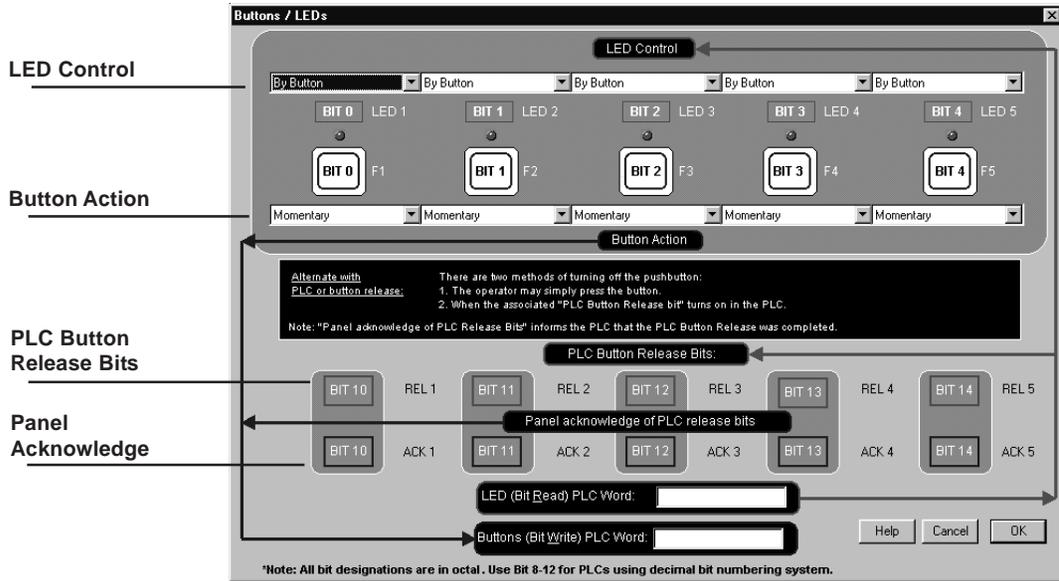
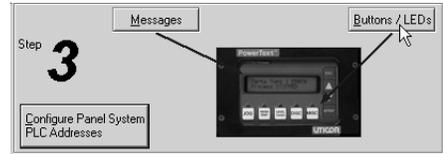
10. For **Step 3**, click on the **Configure Panel System PLC Addresses** button. The **Panel System PLC Address Setup** window will appear.



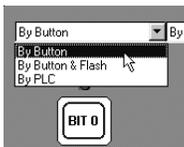
11. Under **PLC Messages (Line Address) Setup**, enter the PLC Addresses for **Line One** and **Line Two** (and **Line Three** and **Line Four** if using a **4X20N** Model). Select the **Data Type** for the PLC.
12. **Enable Beeper** is selected by default. If you do not want to hear the panel's beeper each time a button is pressed on the panel, click on the box in front of **Enable Beeper** to remove the check mark and deselect it.
13. **PLC Message Delay** is selected by default. When a PLC Message is displayed on the panel, the panel buttons will not function for 3 seconds. This allows time for the operator to view the PLC Message before inadvertently pressing a button to perform another operation. To disable this 3-second delay feature, click on the check box in front of **PLC Message Display** to remove the check mark.

14. **Display cursor when a PLC message is displayed** is selected by default. If you don't want the cursor to display in the PowerText Panel message window when a PLC Message has been triggered, you must disable this feature here by clicking in the box in front of **Display cursor when a PLC Message is displayed** to remove the check mark.

15. Next, click on the **Buttons/LEDs** button (shown to the right) to configure the Panel Functions. The following screen will appear.

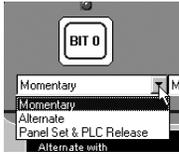


16. First select the **LED Control** for the first button LED, **Bit 0**. You may choose to have the LED controlled **By Button**, **By Button & Flash**, or **By PLC**. Make selections for Bit 0 through Bit 4. The LED function depends on the type of **Button Action** selected.



- **By Button** means that the LED illuminates when the button is pressed.
- **By Button & Flash** means that the LED illuminates and flashes when the button is pressed.
- **By PLC** means that the LED illuminates when triggered by the PLC.

17. Select the **Button Action** for each button Bit 0 through Bit 4 You may choose from **Momentary**, **Alternate**, or **Panel Set and PLC Release**.



- **Momentary** means that the Button is ON only while the button is being pressed.
- **Alternate** means that the Button is turned ON when pressed and only turns OFF when the button is pressed again.
- **Panel Set and PLC Release** means that the Button and LED are ON when the button is pressed and turn OFF when pressed again or when turned off by the PLC.
 - **PLC Button Release Bits** use Bit 10 through Bit 14 (Octal) or Bit 8 through Bit 12 (Decimal). If the button is ON, the PLC can release the button by setting the corresponding release bit.
 - **Panel Acknowledge of PLC Release Bits** use Bit 10 through Bit 14 (Octal) or Bit 8 through Bit 12 (Decimal). The panel turns ON these bits to acknowledge the PLC Release Bits.

18. Enter a **LED (Bit Read) PLC Word** and a **Buttons (Bit Write) PLC Word** address.

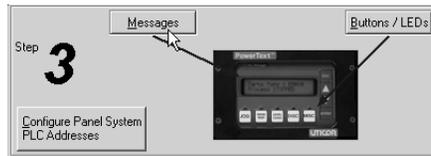


This register controls LEDs and PLC Button Release (Read Only or Read/Write address)

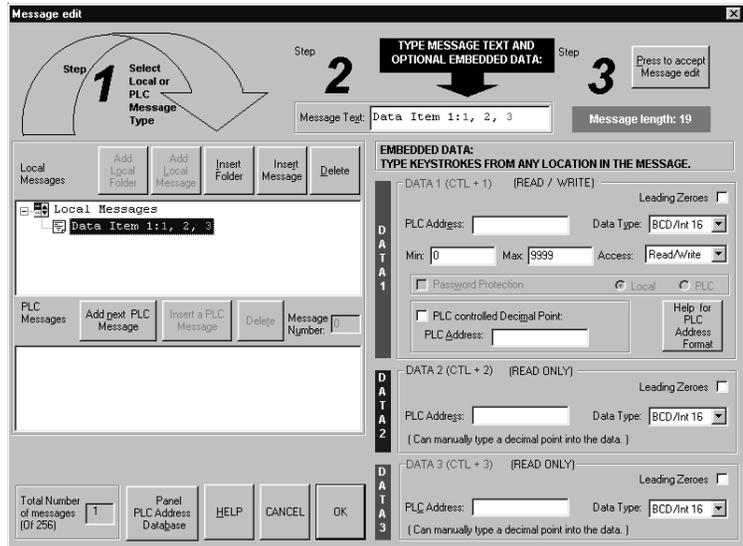
This register controls Buttons and Panel Acknowledge (must be READ/WRITE address)

19. Click on **OK** to save your Button/LED control selections.

20. Now you are ready to configure **Local** and **PLC Messages**. Click on the **Message** button (shown below.)

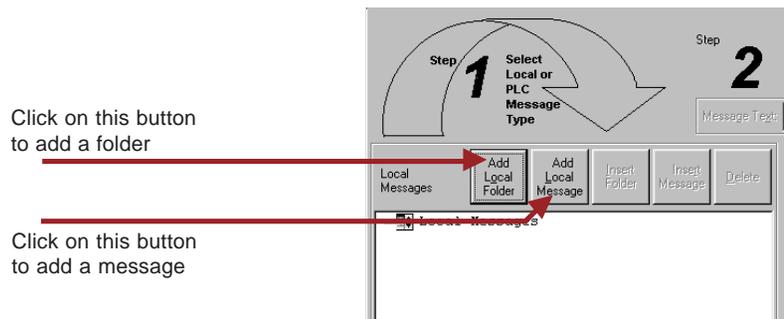


21. The **Message Edit** screen, shown at the top of the next page, will appear.



22. For **Step 1**, choose to configure a Local or PLC Message. Local Messages are messages stored in the panel in a menu hierarchy and provide information and instructions to the operator. PLC Messages are triggered by a value in a PLC register. The PLC Message LED will illuminate to tell the operator that the PLC has triggered a message. The buttons will not respond for 3 seconds after the PLC Message has been triggered to ensure that the operator has a chance to read the message. See step 16 (next step) to program a **PLC Message**. To program a **Local Message**, perform the following steps.

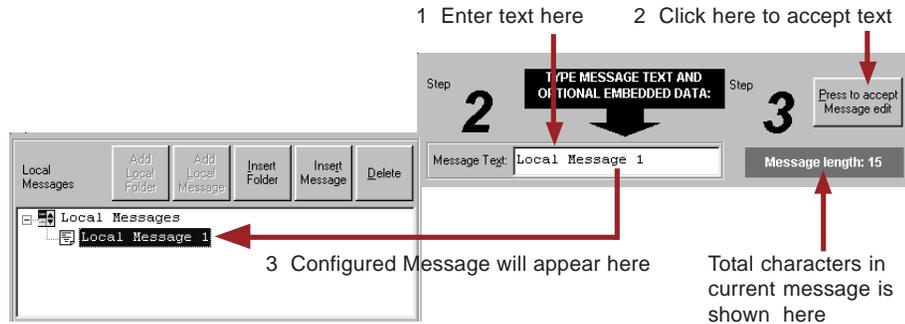
- a. Next to **Local Messages**, click on the **Add Local Folder** button or the **Add Local Message** Button.





NOTE: Folders can have up to 19 characters maximum.

- b. Under **Step 2**, type in up to 20 characters in the **Message Text** field.
- c. **Step 3**, click on the **Press to Accept Message Edit** button. The message text you have typed in will appear in the Local Message field.



- d. If you want to embed data from a PLC register in a Local Message, place the cursor in the message where you want the value to appear and press F5 or (CTRL+1) for DATA 1, F6 or (CTRL+2) for DATA 2, or F7 or (CTRL+3) for DATA 3. Each press of the function key will enter one data value digit. You may enter up to 10 characters (depending on the data type).



In the message, the data will be represented by red 1's for DATA 1, blue 2's for DATA 2, and green 3's for DATA 3. (The actual value will display in the message on your panel.)

PLEASE NOTE: DATA 1 is READ/WRITE and allows the option for the operator to change data values in the PLC register using the Control Keys on the PowerText Panel. DATA 2 and DATA 3 are READ ONLY and will display a value from the PLC register. You cannot change the DATA 2 or DATA 3 value from the panel.

EMBEDDED DATA:
TYPE KEYSTROKES FROM ANY LOCATION IN THE MESSAGE.

DATA 1 (CTL + 1) (READ / WRITE) Leading Zeros:

PLC Address: Data Type: BCD/Int 16

Min: 0 Max: 9999 Access: Read/Write

Password Protection Local PLC

PLC controlled Decimal Point: Help for PLC Address Format

PLC Address:

DATA 2 (CTL + 2) (READ ONLY) Leading Zeros:

PLC Address: Data Type: BCD/Int 16

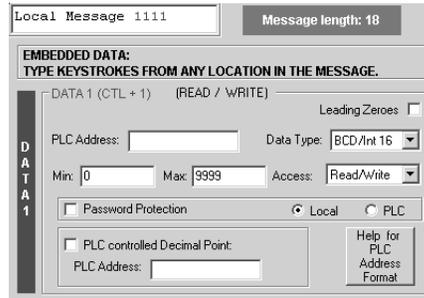
(Can manually type a decimal point into the data.)

DATA 3 (CTL + 3) (READ ONLY) Leading Zeros:

PLC Address: Data Type: BCD/Int 16

(Can manually type a decimal point into the data.)

- e. Now you will need to configure the embedded data . If you have embedded data, you will notice that the DATA 1, DATA 2, or DATA 3 field is now available.



- f. You must first enter the **PLC Address** where the value resides. Select the **Data Type** (format) for your PLC Type (either **BCD/Int 16**, **BCD/Int 32**, **Binary/Int 16**, or **Binary/Int 32**).
- g. Select the **Access** for the PLC register. Will you want the message to display a register value (READ only)? Do you want the message to display a register value and allow the operator to change the value with the panel ARROW Keys (READ/WRITE)?
- h. If you select **READ/WRITE** Access, you can enter a **Minimum** and **Maximum** Range that the operator can write to the PLC.
- i. You will notice that Password Protection is not available for the PowerText Panel models covered by this manual. Password Protection is only available in the 2X20K model, that offers a keypad for numerical data entry.
- j. You may configure **DATA 1** to display a decimal point that is controlled by the PLC. The location of the decimal point must be configured in your PLC ladder logic program. Place a check mark in the box next to **PLC Controlled Decimal Point** and then enter the **PLC Address** where the control resides. (This is DATA 1 only — you cannot configure PLC Control for a DATA 2 or DATA 3 embedded value.)

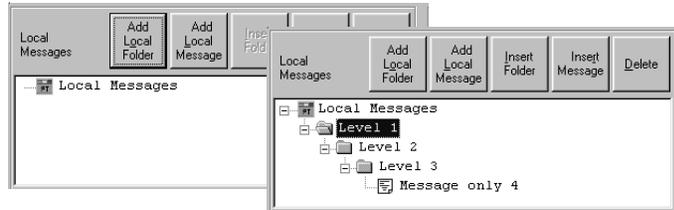
Message Text: Local Message 1111.

If PLC control for the decimal point is enabled, the program will place a decimal point at the end of the characters representing the data value in the Message Text field — **1111.** in the figure to the left. Then placing a value of 1–4 (BCD/Int 16), 1–8 (BCD/Int 32), 1–5 (Binary/Int 16), or 1–10 (Binary/Int 32) in the PLC register will place the decimal in the appropriate location.

- k. You may manually enter a decimal point in DATA 1, DATA 2 or DATA 3, by placing your cursor in the message where you want it to appear in the value, and then insert the decimal point as shown below.

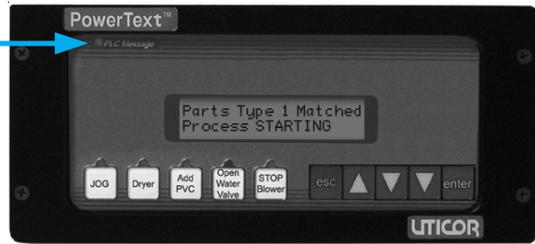


- l. Create Folders to group messages relating to the same topic. The first message or folder you program will appear on the first line of the panel display when it is in **Run Mode**. (Second programmed message displays on second line, etc., up to four lines, depending on the type of panel you are using.) The Local Message and Folder menu tree can have up to 3 levels as shown in the following example.



- m. To add a folder, click on the **Add Local Folder** button.
 - n. To insert a Message or Folder between already configured messages, you must first have a message or folder highlighted. Click on **Insert Folder** or **Insert Message**. The inserted Message or Folder will be placed above the highlighted Message or Folder.
 - o. To delete a Message or Folder, click on it to highlight it and then click on the **Delete** button.
 - p. To save your messages and exit the **Message Edit** window, click on the **OK** button at the bottom of the **Message Edit** window. To exit without saving, click on the **Cancel** button.
23. **PLC Messages** are triggered by a value in a PLC register. The PLC Message LED will illuminate to show the operator that the PLC has triggered the message. To program a PLC Message, click on the **Add Next PLC Message** button.

PLC Message LED illuminates to indicate panel is displaying a PLC triggered message



- a. Type in text up to 20 characters in the **Message Text** field. The 20 character maximum includes **Data Items**, also, if you choose to enter them. You will see the **Message Length** value change as you enter characters to let you know how many you have used. The current **Message Number** and **Total Number of Messages (of 256)** programmed are also displayed for your information.

To configure a PLC message out of sequence, click in the message number field and type in the message number

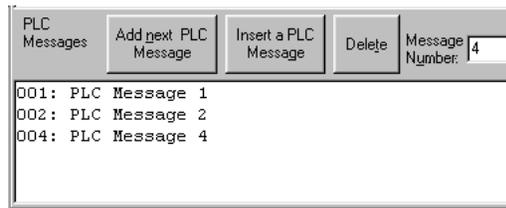
Total number of messages (Local and PLC) configured is shown here

- b. If you want to embed data values from a PLC register in the message, press **F5 or (Ctrl+1)** for **DATA 1**, **F6 or (Ctrl+2)** for **DATA 2**, or **F7 or (Ctrl+3)** for **DATA 3**. Each press of the function key will enter 1 data value character. You may enter up to 10 characters depending on the data type you have selected.

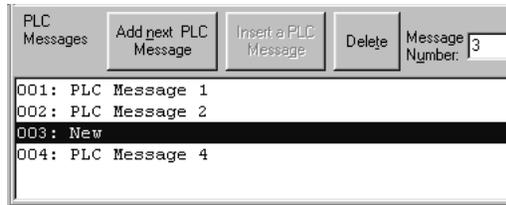
- c. You will configure Data 1, Data 2, and Data 3 values the same way as described in a Local Message.
- d. If you have configured messages out of sequence and you want to insert a message between messages already programmed, click on **Insert a PLC Message**. Be aware that blank messages count in the Total Messages allowed.

For example:

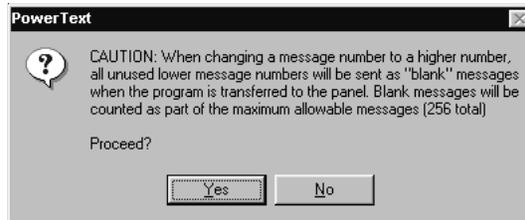
You have programmed PLC Messages numbered 001, 002 and 004, skipping PLC Message number 003, as shown below.



Click on **004: PLC Message 4** in the message field to highlight it, and then click on the **Insert a PLC Message** button. PLC Message Number 003 will appear above PLC Message Number 004 and you may enter the new message.

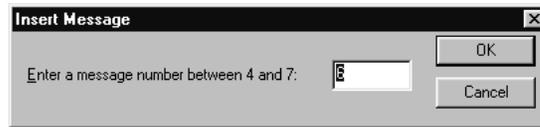


Be aware that when programming messages out of sequence, that the “blank” messages are counted in the Total Messages allowed. The following “CAUTION” message will appear when you enter a message number higher than the next number in sequence.

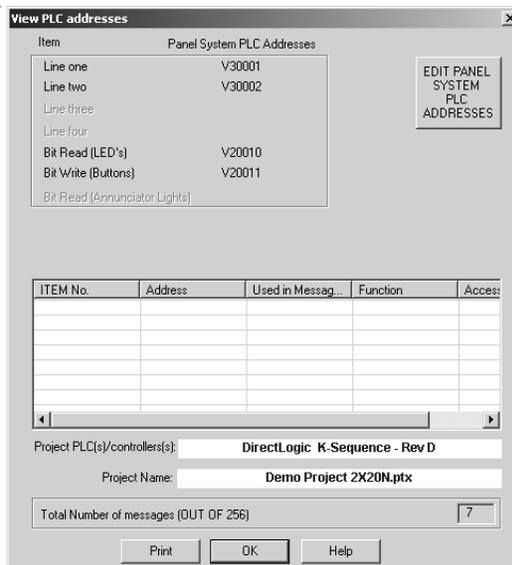


If you have skipped more than one message number (e.g., you have programmed messages 1 through 4, skipped messages 5,

and 6, and then programmed 7), and highlight message 7 and click on Insert a PLC message, the following dialog box will appear asking you to enter the number (e.g., 5 or 6) of the message you want to insert.



- e. To delete a message, click on it to highlight and then click on the **Delete** button.
24. To view the PLC Addresses you have programmed click on the **Panel PLC Address Database** button. The following window will open.

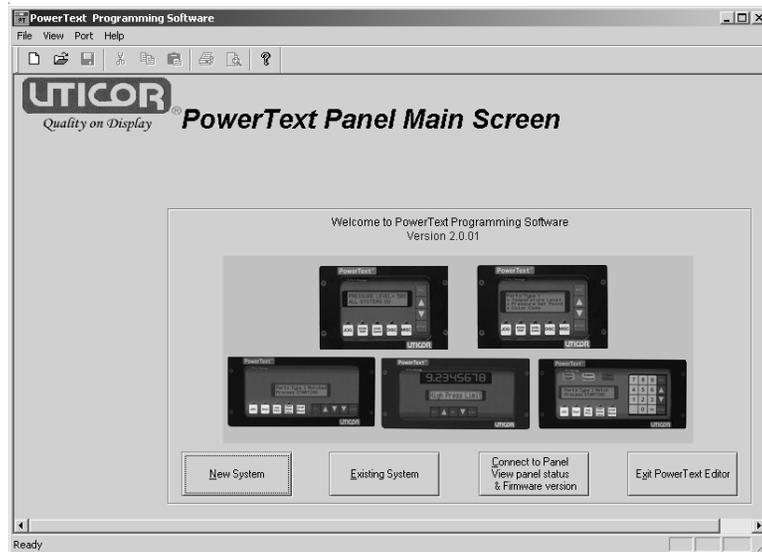


Shown here will be the addresses mapped to the panel display lines (**Line one**, **Line two**, etc.), the **Bit Write (Buttons)**, **Bit Read (LEDs)**, and the PLC Message Data Items. Items grayed out are not available for the Panel model you have selected. The **PLC/controller** you have selected and the **Project Name** are also displayed, along with the **Total Number of messages (OUT OF 256)** programmed. This is for information only—to edit the addresses, click on the **EDIT PANEL SYSTEM PLC ADDRESSES** button.

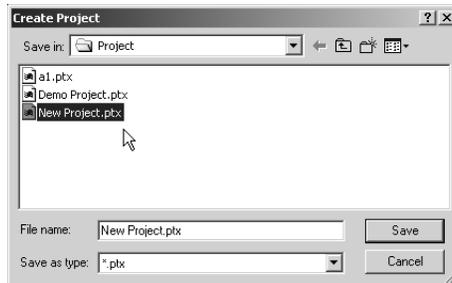
- 25. Click on the **Print** button to print the database or the **OK** button to exit.

Configure Existing System

1. Click on the PowerText Icon to open the PowerText Programming Software. The following screen will appear.

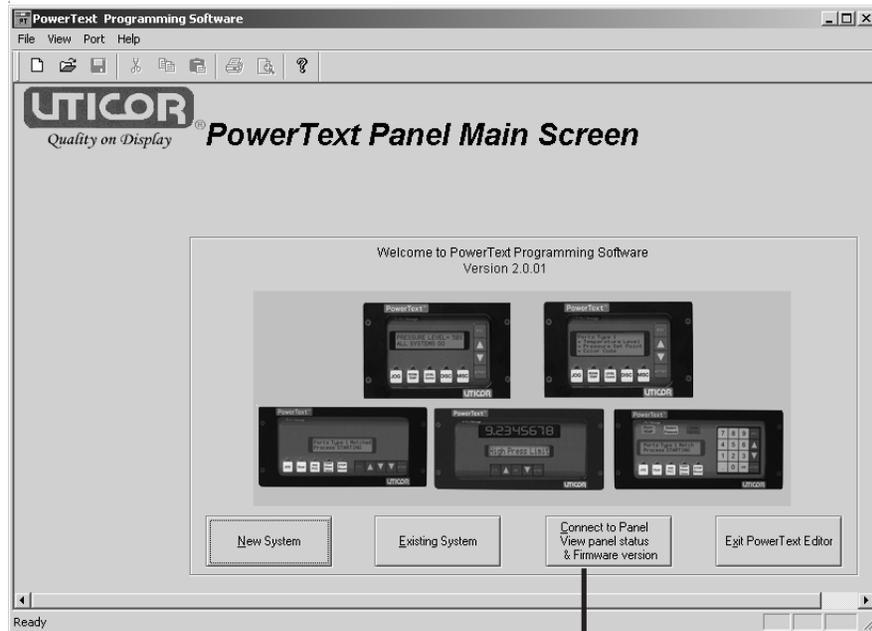


2. Click on the **Existing System** button to edit an Text Panel program. The following screen will appear.



3. Select the project you want to edit from the default program directory or navigate to where the project resides. Click on it to highlight, and then click on the **Open** button and the project you have selected will open to the Main Configuration Screen.
4. Begin editing your project.

Connect to Panel, View Panel Status and Firmware Version



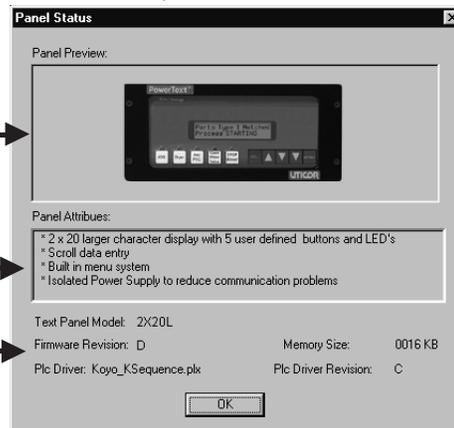
Click on the Connect to Panel, View Panel Status & Firmware Version button to view the panel status. The **Panel Status** window will open. An example is shown below.

Picture of the panel type you are connected to

Key features of the current panel

Panel and PLC information is

displayed, including panel model, Firmware Revision, Memory Size, PLC Driver, and PLC Driver Revision number



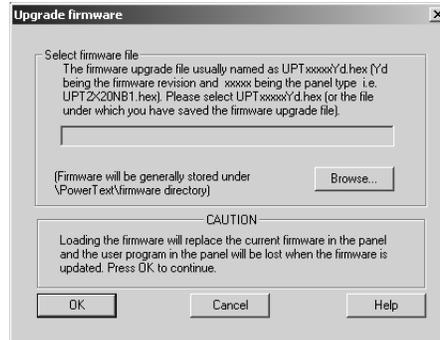
Upgrade Firmware

There may be occasional upgrades to the Text Panel internal software, also referred to as the Exec or Firmware. Check the www.uticor.net web site periodically for information about software and firmware upgrades.

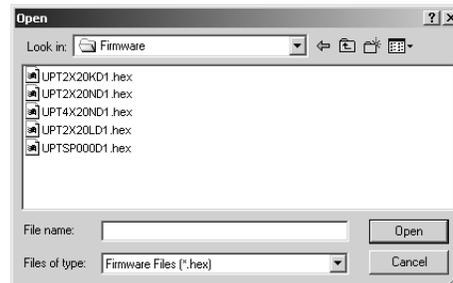


To Upgrade Firmware:

1. Place the panel in **Setup Mode** by pressing the UP/DOWN arrows on the PowerText Panel simultaneously.
2. Under the **Panel Menu**, click on **Upgrade Firmware**. The following screen will appear.

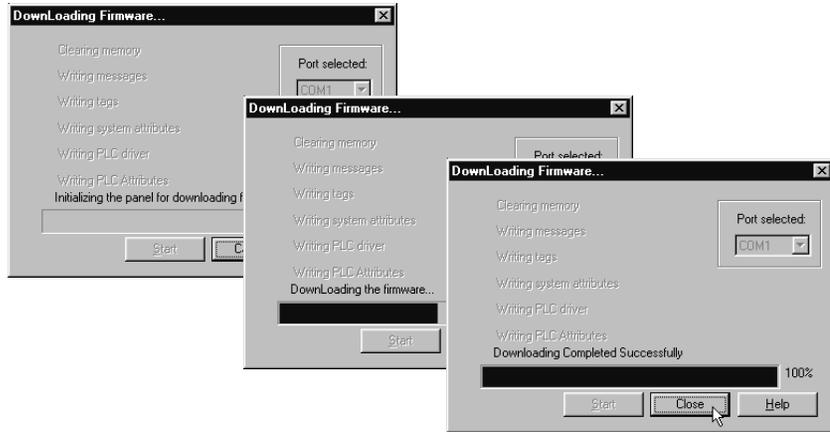


4. Click on the **Browse** button. The window, shown to the right, will open to the default folder, **Firmware** (located in the PowerText Program directory). If the firmware file has been downloaded from the www.uticor.net website to another location, navigate to the new firmware file (.hex file).



There are five types of firmware files (.hex) for the different types of PowerText Panels: **UPT2X20NYd** — for the 2X20N panel; **UPT2X20LYd** — for the 2X20L panel; **UPT4X20NYd** — for the 4X20N panel; **UPT2X20KYd** — for 2X20K panel; and the **UPTSP000Yd** — for the SP000 Set Point Panel. The “Y” represents the major revision of the firmware (e.g., B). “d” represents the minor revision (e.g., 1). **Make sure that you select the correct firmware.hex file for your type panel, and send the upgrade to the panel.**

4. Select the appropriate **COM** port under **Port Selected** (if necessary) and click on the **Start** button to begin downloading the firmware to the PowerText Panel. A status bar will let you know when the upgrade is complete. Click on **Close** when complete.



When you initialize the **Upgrade Firmware** process, the PowerText Panel Message display will read **SELF TESTING**. When the download begins, the display will read **LOADING EXEC**. When the download is complete, the panel will enter the Run Mode.

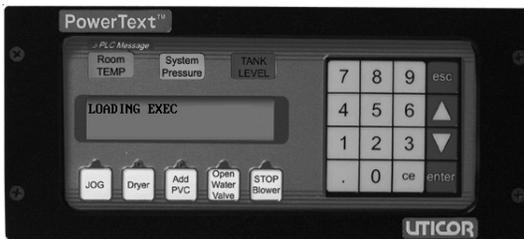
If the message **INCOMPATIBLE EXEC** is displayed on the panel while the Upgrade is in process, it means that the wrong firmware file has been sent to the panel. You will also receive an error message from the PowerText Programming Software, as shown below. If this happens, do the following:



POWERTEXT 2X20N, 2X20L, & 4X20N PANELS

1. Click on the **OK** button on the Error Message.
2. Click on the **Cancel** button on the **Downloading Firmware** window.
3. Click on **Upgrade Firmware** to start the process over, being careful to select the correct firmware.hex file.

Upgrade Firmware, when you press the Start button, the panel will display **SELF TESTING** while the upgrade is initializing.



When the download begins, the panel will display **LOADING EXEC**.

If you get the message, **INCOMPATIBLE EXEC**, you have sent the wrong firmware file. Exit all windows and start the Upgrade Firmware process again, being careful to select the correct file.



6

Maintenance and Troubleshooting

In this chapter....

Maintenance

- Fuse Reset
- Precautions
- Screen Overlay/Chemical Compatibility
- Screen Overlay Cleaning

Troubleshooting

- Panel Configuration Problems
- PLC Errors
- Warranty Repairs
- Out of Warranty Repairs
- Frequently Asked Questions (FAQs)



POWERTEXT 2X20N, 2X20L, & 4X20N PANELS

Maintenance

Fuse Reset

The PowerText Panel features an AUTO-RESET fuse (0.65 Amp polyfuse). It is reset by removing power for 5 minutes and then reapplying power to the unit.

Precautions

To ensure the longevity and effectiveness of the panel, please take note of the following precautions:

- Do not press sharp objects against the pushbuttons or screen overlay.
- Do not strike the panel with hard objects.
- Do not press the pushbuttons or screen overlay with excessive force.
- Once the panel is mounted and has power applied, do not place any objects over the ventilation slots. This will result in heat buildup and may damage the unit.

Screen Overlay/Chemical Compatibility

The screen overlay has a polycarbonate surface. The following list is provided to make you aware of the general compatibility between chemicals that may be present in your work environment and the polyester surface of the overlay. Use the chart to determine those chemicals that are safe to use around your Panel and those that may harm the overlay. The list rates these chemicals as **E—Excellent**, **G—Good**, **F—Fair**, and **N—Not Recommended**. Because the ratings are for conditions at 134 °F (57°C), consider all factors when evaluating your application.

<u>CHEMICAL</u>	<u>RATING</u>	<u>CHEMICAL</u>	<u>RATING</u>
Acetaldehyde	N	Ammonium Glucate	F
Acetamide	N	Ammonium Hydroxide @ 5%	N
Acetic Acid @ 5%	G	Ammonium Hydroxide @ 30%	N
Acetic Acid @ 50%	G	Ammonium Oxalate	E
Acetone	N	Ammonium Salts	G
Acetonitrile	N	n-Amyl Acetate	N
Acrylonitrile	N	Amyl Chloride	N
Adipic Acid	E	Aniline	N
Alanine	N	Benzaldehyde	N
Allyl Alcohol	F	Benzene	N
Alum. Hydroxide	N	Benzoic Acid	G
Aluminum Salts	G	Benzyl Acetate	G
Amino Acids	E	Benzyl Alcohol	G
Ammonia	N	Bromine	F
Ammonium Acetate	E	Bromobenzene	N



POWERTEXT 2X20N, 2X20L, & 4X20N PANELS

<u>CHEMICAL</u>	<u>RATING</u>	<u>CHEMICAL</u>	<u>RATING</u>
Bromoform	N	Ethylene Glycol	F
Butadiene	N	Ethylene Glycol Methyl Ether	N
n-Butyl Acetate	N	Ethylene Oxide	N
n-Butyl Alcohol	F	Fluorides	E
sec-Butyl Alcohol	F	Fluorine	F
tert-Butyl Alcohol	F	Formaldehyde	
Butyric Acid	N	Formaldehyde @ 40%	G
Calcium Hydroxide	N	Formic Acid @ 3%	G
Calcium Hypochlorite	N	Formic Acid @ 50%	G
Carbazole	N	Formic Acid @ 99%	F
Carbon Disulfide	N	Fuel Oil	G
Carbon Tetrachloride	N	Gasoline	F
Cedarwood Oil	F	Glacial Acetic Acid	N
Cellosolve Acetate	N	Glycerin	E
Chlorine @ 10% in air	G	n-Heptane	G
Chlorine @ 10% moist	F	Hexane	N
Chloroacetic Acid	N	Hydrochloric Acid @ 5%	E
p-Chloroacetophenone	N	Hydrochloric Acid @ 20%	F
Chloroform	N	Hydrochloric Acid @ 35%	N
Chromic Acid @ 10%	N	Hydrofluoric Acid @ 5%	F
Chromic Acid @ 50%	N	Hydrofluoric Acid @ 48%	N
Cinnamon Oil	F	Hydrogen Peroxide @ 5%	E
Citric Acid @ 10%	G	Hydrogen Peroxide @ 30%	E
Cresol	N	Hydrogen Peroxide @ 90%	E
Cyclohexane	G	Isobutyl Alcohol	G
Decalin	N	Isopropyl Acetate	N
o-Dichlorobenzene	N	Isopropyl Alcohol	E
p-Dichlorobenzene	N	Isopropyl Benzene	N
Diethyl Benzene	N	Kerosene	E
Diethyl ether	N	Lactic Acid @ 3%	G
Diethyl Ketone	N	Lactic Acid @ 85%	G
Diethyl Malonate	N	Methoxyethyl Oleate	N
Diethylene Glycol	F	Methyl Alcohol	F
Diethylene Glycol Ethyl Ether	N	Methyl Ethyl Ketone	N
Dimethylformamide	N	Methyl Isobutyl Ketone	N
Dimethyl Sulfoxide	N	Methyl Propyl Ketone	N
1, 4-Dioxane	F	Methylene Chloride	N
Dipropylene Glycol	F	Mineral Oil	G
Ether	N	Nitric Acid @ 10%	G
Ethyl Acetate	N	Nitric Acid @ 50%	F
Ethyl Alcohol	G	Nitric Acid @ 70%	N
Ethyl Alcohol @ 40%	G	Nitrobenzene	N
Ethyl Benzene	N	n-Octane	F
Ethyl Benzoate	N	Orange Oil	F
Ethyl Butyrate	N	Ozone	G
Ethyl Chloride Liquid	N	Perchloric Acid	N
Ethyl Cyanoacetate	N	Perchloroethylene	N
Ethyl Lactate	N	Phenol Crystals	N
Ethylene Chloride	N	Phosphoric Acid @ 5%	E



POWERTEXT 2X20N, 2X20L, & 4X20N PANELS

CHEMICAL	RATING	CHEMICAL	RATING
Phosphoric Acid @ 85%	G	Sulfuric Acid @ 6%	E
Pine Oil	E	Sulfuric Acid @ 20%	G
Potassium Hydroxide @ 1%	N	Sulfuric Acid @ 60%	F
Potassium Hydroxide conc.	N	Sulfuric Acid @ 98%	N
Propane Gas	N	Sulfur Dioxide Liquid	G
Propylene Glycol	F	Sulfur Dioxide dry	G
Propylene Oxide	F	Sulfur Salts	N
Resorcinol sat.	F	Tartaric Acid	G
Resorcinol @ 5%	F	Tetrahydrofuran	N
Salicylaldehyde	F	Thionyl Chloride	N
Salicylic Acid Powder	G	Toluene	N
Salicylic Acid sat.	G	Tributyl Citrate	N
Salt Solutions Metallic	E	Trichloroethane	N
Silver Acetate	G	Trichloroethylene	N
Silver Nitrate	E	Triethylene Glycol	G
Sodium Acetate sat.	G	Tripropylene Glycol	G
Sodium Hydroxide @ 1%	N	Turpentine	N
Sodium Hydroxide @ 50%+	N	Undecyl Alcohol	F
Sodium Hypochlorite @ 15%	F	Urea	N
Stearic Acid Crystals	G	Vinylidene Chloride	N
		Xylene	N
		Zinc Stearate	E

Screen Overlay Cleaning

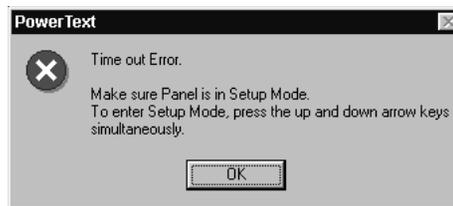
The Panel screen should be cleaned as needed with warm, soapy water.

Troubleshooting

In this section we will explain how to isolate potential problems. If you cannot isolate and remedy the problem using the procedures we have outlined below, call technical support. For a list of PowerText Panel, PowerText Programming Software, and PLC Driver Error Messages, see Appendix C.

Panel Configuration Problems

PowerText Programming Software is used to create panel applications and to download/upload panel programs. If you are online with the PowerText Panel and communication fails, the following error message is displayed:



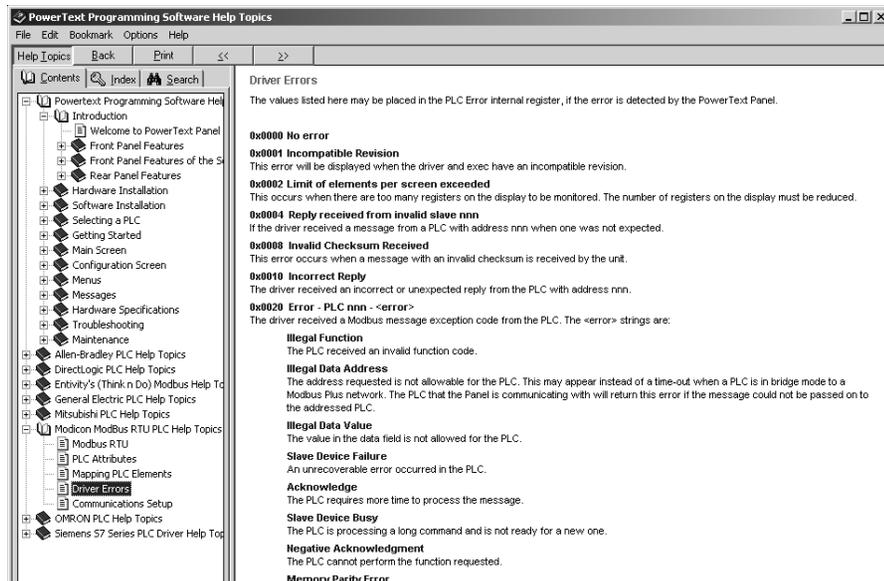
If you receive this PowerText Programming Software error message, check the following:

1. On the rear panel of the unit, observe Serial Port Communication TXD/RXD LEDs while attempting to Upload/Download a program. Both LEDs should be slowly and alternately flashing to indicate that the programming PC and the panel are connected. If the TXD (transmitter) LED is the only one flashing, or if the TXD/RXD LEDs are NOT alternating between flashes, check to ensure that the PowerText Panel is set to the Setup (programming) Mode. (To enter the Setup Mode, press and hold the UP Arrow Button while simultaneously pressing the DOWN Arrow button.)
2. Check to ensure that the programming cable (part number CBL-PTEXT-001) is properly connected at both ends.
3. Check that the correct communications port is selected with the Text Panel Programming Software (i.e., COM1, COM2)
4. Check the 24 VDC power source and its connections.
5. After completing steps 1 through 4, above, repeat the procedure to Upload/Download a program.

PLC Errors

If you experience communication problems between the Panel and your PLC, you will receive an error message that is unique to that particular PLC. Look in the **Appendix C** of this manual, or the PowerText Programming Software Help for error messages for your type PLC. Each PLC Help topic lists the error messages and provides an explanation for each PLC driver. To access the PLC Help topics, perform the following steps.

- a. Run PowerText Programming Software.
- b. From the Main Menu, click on **Help > Help Topics**.
- c. Under the **Contents** tab, find the type PLC you are using (next to a closed book icon) and click on it to view help topics.
- d. Click on Driver Errors Topic.



You may also notice that the **Pushbuttons, Pushbutton LEDs, and/or Messages** are not working, Check the following:

1. Observe the TXD and RXD LEDs on the rear of the panel. If both LEDs are not steadily flashing or illuminated (depending upon the baud rate) check to ensure the proper communications cable is connected securely at both ends.

2. Check the PLC Communication information for the PLC type, protocol, baud rate, parity, stop bits, and address number. Use the PLC manual to determine the proper settings.
3. If you have configured your own cable, verify cable pinout using the PLC Wiring diagrams provided in Appendix B.
4. Check the 24 VDC power source.
5. If connected to a multiplexer, connect the panel directly to the PLC port.
6. Verify that the PowerText Panel registers are mapped correctly. Does the Panel register exist in the PLC? Is the register Read Only? Is the register Write Only?



Still need Help?

You have two additional sources for more information other than this manual.

Visit our website at www.uticor.net. Our web site contains all of this information, any new feature releases, technical support, plus much more ...

Call **Technical Support**, Monday–Friday at **1-800-TEC-ENGR (832-3647)** or FAX us at **1-563-359-9094**.

If you have any questions that you can't find an answer to, give us a call at the number above and we will be glad to assist you.





POWERTEXT 2X20N, 2X20L, & 4X20N PANELS

Warranty Repairs

If your PowerText Panel is under warranty, **contact UTICOR Technology @ 1-563-359-7501.**

Out of Warranty Repairs

If your PowerText Panel is out of warranty, **contact UTICOR's Service Department for an evaluation of repair costs @ 1-563-359-7501.** You can then decide whether it is more economical to proceed with factory repairs or purchase a new panel.



Frequently Asked Questions (FAQs)

- 1. How do I format an address string when connecting to multiple PLCs?**

Add the PLC station number to the beginning of the address string. Ex: PLC station is 3 and the address is V2000 the string would look like this, 3-V2000.
- 2. Can I convert a project from one Panel type to another?**

Yes, to do this simply change the panel type from one to another. This will keep all address and message information intact. The only exception is switching from any of the panels to the Set Point panel. This will cause all messages and addressing to be deleted. *Note: Switching panel types does not create a new project. If you wish to create a new project select NEW from the FILE menu.*
- 3. Can I connect multiple panels to a single PLC?**

Yes, there are two methods of doing this. The first would be to use the Multiplexer (P/N UPT-05MUX-001). You can connect up to five panels per multiplexer, and one multiplexer per serial port. The second method is to connect one panel per serial port.
- 4. What is the maximum number of messages I can have in a project?**

The maximum amount of PLC and Local messages is 256.
- 5. What are Local Messages?**

A Local Message is a text message that is used to provide instructions or information to the machine operator using a hierarchical file structure. The operator can scroll through these messages using the arrow keys to find information pertaining to a particular part of a process.
- 6. What are PLC Messages?**

A PLC Message is a text message that can be triggered by the PLC to provide the operator with important instructions, information, or warnings. By default, PLC Messages will be displayed for 3 seconds before they can be cleared in order to make sure the operator has a chance to read the message. (See question 13, below for information on how to disable this option.) The operator can also view the last PLC Message displayed by pressing the ESC key.
- 7. How many characters can I have per message?**

The maximum number of characters per message is 20. This is true for all messages except folder names. They are limited to 19 because of the plus "+" or minus "-" sign displayed in front of the folder name.

8. I am using a UPT-2X20N-001 panel and I can not access the password option. How do I do this?

The only panel that can have password protection is the keypad panel (P/N UPT-2X20K-001). This is because the 2X20K is the only panel that has a keypad usable for data entry.

9. What is the maximum number of Embedded Data values I can have in a project?

The maximum number of Embedded Data values in a project is 300.

10. How do I get my panel into Setup Mode?

To get the panel into Setup Mode press and hold the up arrow key while simultaneously pressing the down arrow key. To exit Setup Mode, press the **ESC** key.

11. How do I get my panel to display PLC Messages?

To display a PLC message, using your ladder logic, place the number of the PLC Message you wish to display into one of the PLC Message Line Addresses (up to four if using the 4X20N model). When the message number is placed in this register the panel will display the message corresponding with that number.

Example: I want to display PLC Message One on Line One of my panel display. Using the ladder logic, I write a value of 1 to register V2000, which is set as PLC Message Line Address One. The panel displays PLC Message One on Line One of my panel display. The message will remain on the display until the **ESC** key is pressed.

12. Why won't the panel display the same PLC Message twice in a row on the same message line?

This is because the message line must be reset by either setting the Line Register to zero, or by changing the value in the Line Register to some unused PLC Message number.

13. Why do PLC Messages not clear when the ESC key is pressed?

The panel locks out all key presses for 3 seconds after a PLC Message is displayed in order to ensure the operator has a chance to read the message. Pressing **ESC** 3 seconds after the PLC Message is displayed will display the Local Message screen. If you want to disable this feature, open your project in PowerText

Programming Software and go to the **Panel System PLC Address Setup** screen and click in the box in front of **PLC Message Delay** to remove the check mark and disable this option.



14. Do the PowerText Panels support discrete addresses?

No, the PowerText Panels do not support discrete addresses. All addressing for the PowerText Panels must be in Word format.

15. How do I insert a PLC Message?

In order to insert a PLC Message, there must be a gap in the message numbers. For example, I have PLC Message #1 and PLC Message #3 programmed. If I click on PLC Message #3 and click the INSERT A PLC MESSAGE button, PLC Message #2 will be inserted between PLC Messages 1 and 3.

16. Can I renumber PLC Messages?

Yes, you can renumber PLC Messages; however, when changing a message number to a higher message number, all unused lower message numbers will be sent as “blank” messages when the project is transferred to the panel. Blank messages will count towards the maximum number of allowed messages in a project (256).

17. Can you copy and paste messages?

Yes, you can copy and paste messages. Currently, however, you can copy or paste only one message at a time. (This may be changed to multiple message and folders in the future.)

18. It is hard to read the display on my panel. It's too bright. Is there a way to adjust the contrast?

Yes, to adjust the contrast on the display, simply place the panel into Setup Mode. While in Setup Mode you can use the up and down arrow keys to adjust the contrast.



POWERTEXT 2X20N, 2X20L, & 4X20N PANELS

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Appendix A



In this appendix....

- PowerText Panel Application Worksheets*
- Local Message Worksheet*
- PLC Message Worksheet*

APPENDIX A

POWERTEXT PANEL APPLICATION WORKSHEET

PROJECT NAME: _____

PANEL TYPE: _____
 Multi-Panel System Port No. _____
 (0-5, or N/A if Single Panel System)

PLC CONFIGURATION:

PLC MANUFACTURER: _____
 PLC Model: _____
 PLC Protocol: _____
 PLC Address: _____
 PLC Timeout: _____

Baud Rate: _____
 Parity: _____
 Data Bits: _____
 Stop Bits: _____
 Checksum: _____

BUTTONS/LEDS

BUTTON ACTION/PANEL ACKNOWLEDGE (BIT WRITE) PLC WORD _____

Button Action:

(PLC Address)	Mom.	Alt.	Pnl Set/ PLC Rel *
F1 _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F2 _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F3 _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F4 _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F5 _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*** Panel Acknowledge of PLC Release:**

(PLC Address)
ACK F1 _____
ACK F2 _____
ACK F3 _____
ACK F4 _____
ACK F5 _____

LED CONTROL/PLC BUTTON RELEASE (BIT READ) PLC WORD _____

LED Control:

(PLC Address)	By Button	By Button & Flash	PLC **
LED1 _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LED2 _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LED3 _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LED4 _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LED5 _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*** PLC Button Release:**

(PLC Address)
REL F1 _____
REL F2 _____
REL F3 _____
REL F4 _____
REL F5 _____

Bit 17(Octal) Message Mode _____

PLC Messages (PLC Words)

Line 1 _____

Line 3 _____ (4X20N only)

Line 2 _____

Line 4 _____ (4X20N only)

* Panel Acknowledge and PLC Button Release are only used when using the Panel Set & PLC Release Button Action.

** LED Control by PLC is the only LED function that uses a PLC Address.

POWERTEXT PANEL APPLICATION WORKSHEET

LOCAL MESSAGES:

Multi-Panel Port # _____

Folder Message

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Folder = 19 characters, Message = 20 characters

Level:
1 2 3 4

DATA 1 _____ Read Only

BCD Binary Int 16 Int 32 Read/Write

PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____

BCD Binary BCD Binary

Int 16 Int 32 Int 16 Int 32

Folder Message

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Folder = 19 characters, Message = 20 characters

Level:
1 2 3 4

DATA 1 _____ Read Only

BCD Binary Int 16 Int 32 Read/Write

PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____

BCD Binary BCD Binary

Int 16 Int 32 Int 16 Int 32

Folder Message

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Folder = 19 characters, Message = 20 characters

Level:
1 2 3 4

DATA 1 _____ Read Only

BCD Binary Int 16 Int 32 Read/Write

PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____

BCD Binary BCD Binary

Int 16 Int 32 Int 16 Int 32

Folder Message

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Folder = 19 characters, Message = 20 characters

Level:
1 2 3 4

DATA 1 _____ Read Only

BCD Binary Int 16 Int 32 Read/Write

PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____

BCD Binary BCD Binary

Int 16 Int 32 Int 16 Int 32

APPENDIX A

POWERTEXT PANEL APPLICATION WORKSHEET

LOCAL MESSAGES:

Multi-Panel Port # _____

Folder Message

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Folder = 19 characters, Message = 20 characters

Level:
1 2 3 4

DATA 1 _____ Read Only

BCD Binary Int 16 Int 32 Read/Write

PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____

BCD Binary BCD Binary

Int 16 Int 32 Int 16 Int 32

Folder Message

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Folder = 19 characters, Message = 20 characters

Level:
1 2 3 4

DATA 1 _____ Read Only

BCD Binary Int 16 Int 32 Read/Write

PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____

BCD Binary BCD Binary

Int 16 Int 32 Int 16 Int 32

Folder Message

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Folder = 19 characters, Message = 20 characters

Level:
1 2 3 4

DATA 1 _____ Read Only

BCD Binary Int 16 Int 32 Read/Write

PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____

BCD Binary BCD Binary

Int 16 Int 32 Int 16 Int 32

Folder Message

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Folder = 19 characters, Message = 20 characters

Level:
1 2 3 4

DATA 1 _____ Read Only

BCD Binary Int 16 Int 32 Read/Write

PLC Decimal _____ Min _____ Max _____

DATA 2 _____ DATA 3 _____

BCD Binary BCD Binary

Int 16 Int 32 Int 16 Int 32

POWERTEXT PANEL APPLICATION WORKSHEET

PLC MESSAGES:

Multi-Panel Port # _____

Message No. _____

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

20 characters

DATA 1 _____

Read Only

BCD Binary Int 16 Int 32

Read/Write

PLC Decimal _____

Min _____ Max _____

DATA 2 _____ DATA 3 _____

BCD Binary BCD Binary

Int 16 Int 32 Int 16 Int 32

Message No. _____

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

20 characters

DATA 1 _____

Read Only

BCD Binary Int 16 Int 32

Read/Write

PLC Decimal _____

Min _____ Max _____

DATA 2 _____ DATA 3 _____

BCD Binary BCD Binary

Int 16 Int 32 Int 16 Int 32

Message No. _____

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

20 characters

DATA 1 _____

Read Only

BCD Binary Int 16 Int 32

Read/Write

PLC Decimal _____

Min _____ Max _____

DATA 2 _____ DATA 3 _____

BCD Binary BCD Binary

Int 16 Int 32 Int 16 Int 32

Message No. _____

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

20 characters

DATA 1 _____

Read Only

BCD Binary Int 16 Int 32

Read/Write

PLC Decimal _____

Min _____ Max _____

DATA 2 _____ DATA 3 _____

BCD Binary BCD Binary

Int 16 Int 32 Int 16 Int 32

APPENDIX A

POWERTEXT PANEL APPLICATION WORKSHEET

PLC MESSAGES:

Multi-Panel Port # _____

Message No. _____

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

20 characters

DATA 1 _____

Read Only

BCD Binary Int 16 Int 32

Read/Write

PLC Decimal _____

Min _____ Max _____

DATA 2 _____ DATA 3 _____

BCD Binary BCD Binary

Int 16 Int 32 Int 16 Int 32

Message No. _____

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

20 characters

DATA 1 _____

Read Only

BCD Binary Int 16 Int 32

Read/Write

PLC Decimal _____

Min _____ Max _____

DATA 2 _____ DATA 3 _____

BCD Binary BCD Binary

Int 16 Int 32 Int 16 Int 32

Message No. _____

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

20 characters

DATA 1 _____

Read Only

BCD Binary Int 16 Int 32

Read/Write

PLC Decimal _____

Min _____ Max _____

DATA 2 _____ DATA 3 _____

BCD Binary BCD Binary

Int 16 Int 32 Int 16 Int 32

Message No. _____

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

20 characters

DATA 1 _____

Read Only

BCD Binary Int 16 Int 32

Read/Write

PLC Decimal _____

Min _____ Max _____

DATA 2 _____ DATA 3 _____

BCD Binary BCD Binary

Int 16 Int 32 Int 16 Int 32



B

Appendix B - Wiring Diagrams

In this appendix...

- Allen-Bradley SLC DF1 RS-232*
- Allen-Bradley PLC5 DF1 RS-232*
- Allen-Bradley Micrologix 1000/1200/1500 RS-232*
- General Electric 90/30 and 90/70 RS-422*
- General Electric Versamax RS-232*
- Mitsubishi FX Series 25-pin RS-422*
- Mitsubishi FX Series 8-pin MINI-DIN RS-422*
- Modicon ModBus with RJ45*
- Modicon ModBus RS-232*
- Omron C200, C500 RS-232*
- Omron Programming Port*
- Siemens 7 MPI Adapter*

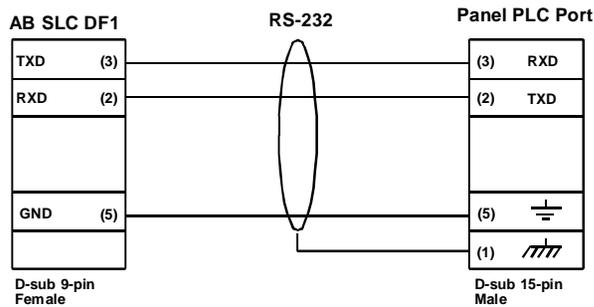
- RS-232 PowerText Panel Programming Cable*

APPENDIX B

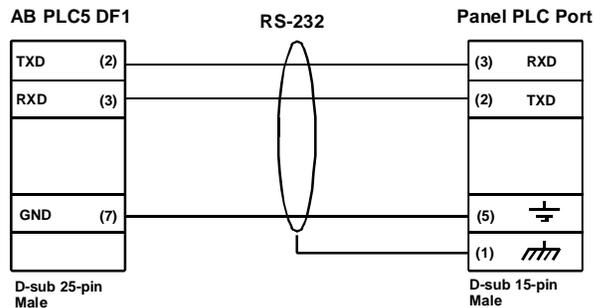
Wiring Diagrams

The following diagrams depict the wiring pinouts for the PowerText Panel to PLC Cables. If UTICOR provides the cable, the part number is included with the description. Wiring diagrams for some PLCs are provided so that you may construct your own cable.

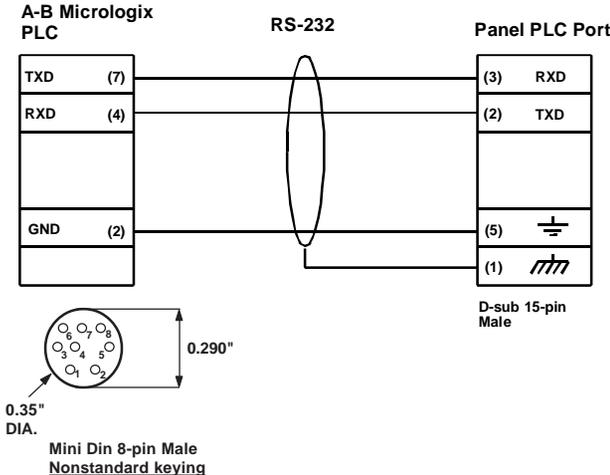
Allen-Bradley SLC DF1 RS-232 (P/N CBL-UTICW-002)



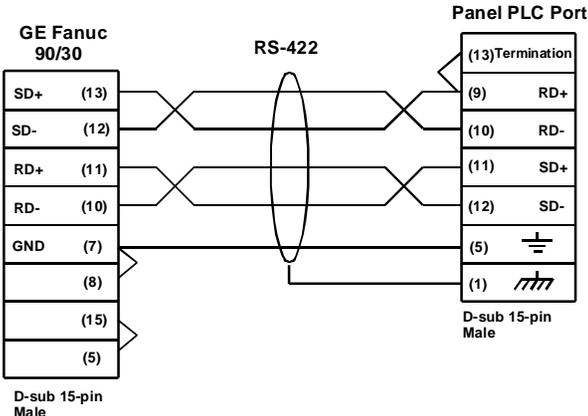
Allen-Bradley PLC5 DF1 RS-232 (P/N CBL-UTICW-003)



Allen-Bradley Micrologix 1000/1200/1500 RS-232 (P/N CBL-UTICW-005)

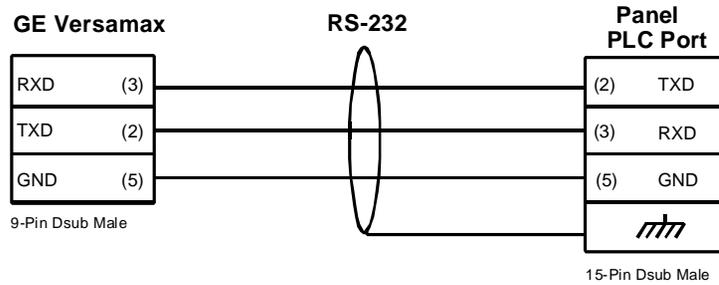


General Electric 90/30 and 90/70 15-pin D-SUB RS-422 (P/N CBL-UTICW-001)

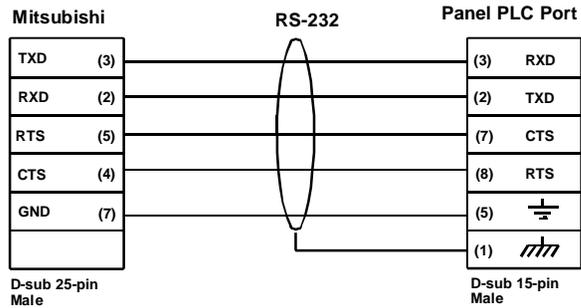


APPENDIX B

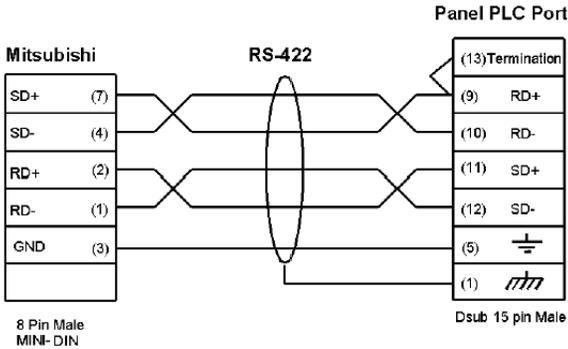
General Electric Versamax RS-232 (P/N CBL-UTICW-014)



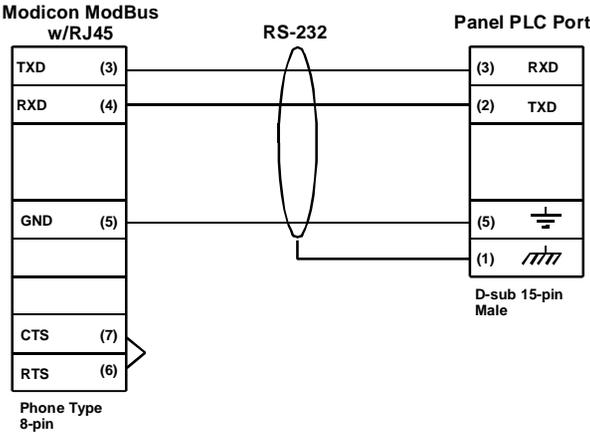
Mitsubishi FX Series 25-pin RS-422 (P/N CBL-UTICW-006)



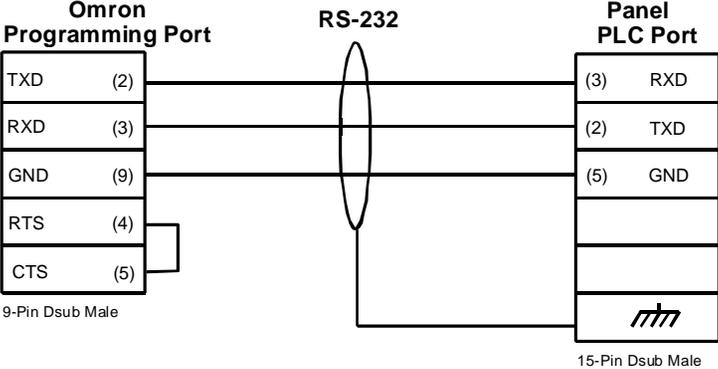
Mitsubishi FX Series 8-pin MINI-DIN RS-422 (P/N CBL-UTICW-007)



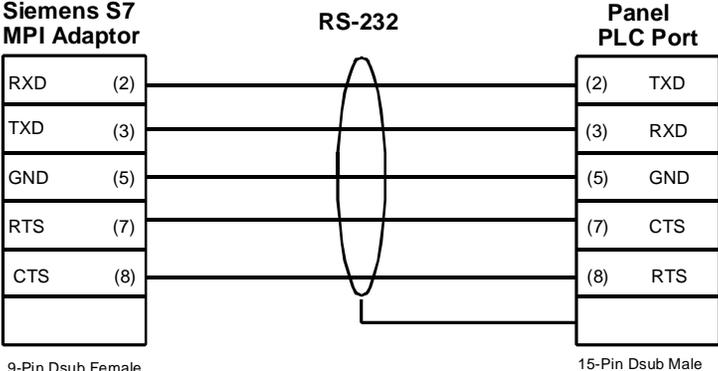
Modicon ModBus with RJ45 (P/N CBL-UTICW-010)



Omron Programming Port (P/N CBL-UTICW-013)

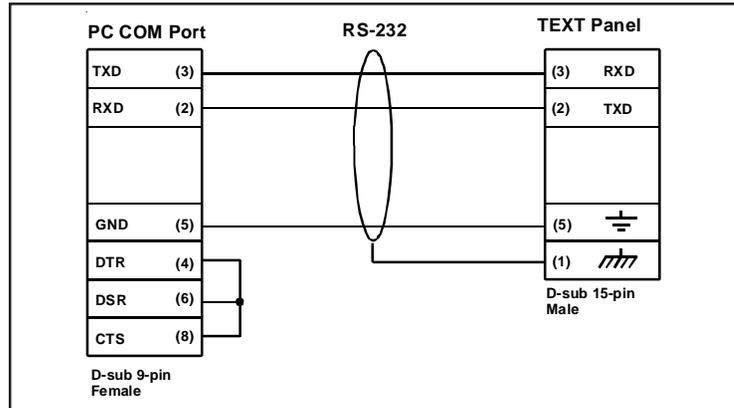


Siemens S7 MPI Adaptor (P/N CBL-UTICW-012)



APPENDIX B

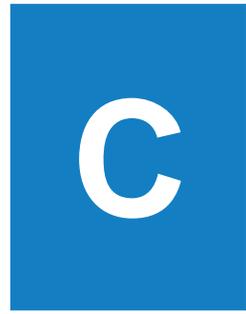
PowerText Panel Programming Cable RS-232 (P/N CBL-PTEXT-001)



Communication Connector (J1, D-sub 15-pin female)

Pin #	Connection
1	Chassis GND
2	PLC TXD (RS-232)
3	PLC RXD (RS-232)
4	+5V (100 Ω)
5	Logic GND
6	LE (DO NOT CONNECT)
7	PLC CTS (RS-232)
8	PLC RTS (RS-232)
9	RD+ (RS-422)
10	RD- (RS-422)
11	SD+ (RS-422)
12	SD- (RS-422)
13	Termination Resistor (connect to pin 9)
14	NC
15	NC

Appendix C



In this appendix....

- PLC Driver Error Messages
- PowerText Panel Error Messages
- PowerText Programming Software Error Messages

APPENDIX C

PLC Driver Error Messages

ALLEN-BRADLEY PLCs

Driver Errors for Micrologix/SLC 500 with DF1 Half Duplex Protocol

0x0000 No error

0x0001 Incompatible Revision

This error will be displayed when the driver and exec have incompatible revision.

0x0002 PLC error incorrect map size

This error occurs when an incompatible map is loaded into the unit. The driver will not attempt to communicate with the PLC when this occurs.

0x0004 Limit of elements per screen exceeded

This occurs when there are too many registers on the display that can be monitored.

0x0008 PLC MSG time-out CMD=X

This error occurs when the unit does not receive a reply to its command. The unit will retry a command and wait for the specific time-out period before reporting this command. The command ID causing this error is reported. CMD 0xAA=READ CMD 0xA2=WRITE.

0x0010 Invalid PLC attributes - using defaults

This will occur if the PLC driver receives an invalid set of attributes. The default attributes will be used when this occurs.

0x0020 PLC bad checksum CMD=X

This occurs when a reply with an invalid checksum is received by the unit. The command ID of the command that incurred the error is reported as part of the message. CMD 0XAA=Read CMD 0XA2=Write.

0x0040 PLC Error STS=XX EXTSTS=XX CMD=ZZ

This is reported when a controller responds to a command with an error. The error code is shown and can be looked up in the Allen-Bradley documentation. The command ID of the command causing the error is reported. CMD 0XAA=Read, CMD 0XA2=Write.

0x0080 PLC Nack Error

This error is reported when a controller responds to a command with a negative acknowledgment.

0x0100 PLC element read-only

This is reported when an attempt is made to write to an element with a read-only map entry. Read-only map entries are: input file, output file, and all discrete entries. The driver can only read discrete entries, it cannot write to a single bit within a word.

0x0200 PLC TX buffer full

The error is reported if the transmit buffer becomes full in the PLC driver.

0x0400 PLC error no reply

This occurs when the DF1 modules indicate the PLC has no reply to the last message. It is usually displayed when the unit reestablishes communications after a PLC message time-out error. This can also occur when the panel message time-out is too short. If the PLC message time-out does not give the PLC enough time to respond to the message this error will be displayed.

0x0800 Error code xx

This is reported when the PLC driver encounters an unknown error. This should never occur.

Driver Errors for PLC5 with DF1 Protocol

0x0000 No error

0x0001 Incompatible Revision

This error will be displayed when the driver and exec have an incompatible revision.

0x0002 PLC error incorrect map size

This error occurs when an incompatible map is loaded into the unit. The driver will not attempt to communicate with the PLC when this occurs.

0x0004 Limit of elements per screen exceeded

This occurs when there are too many registers on the display to be monitored. The number of registers on the display must be reduced.

0x0008 PLC MSG Time-out CMD=X

This occurs when the unit does not receive a reply to its command. The unit will retry a command and wait for the specified time-out period before reporting this command. The command ID causing the error is reported.

0x0010 Invalid PLC attributes - using defaults

This error is reported when the PLC driver receives an invalid set of PLC attributes. The default attributes will be used when this error occurs.

0x0020 PLC Bad checksum CMD=X

This error occurs when a reply with an invalid checksum is received by the unit. The command ID of the command that incurred the error is reported as part of the message.

0x0040 PLC Error STS=xx EXTSTS=yy CMD=zz

This error is reported if a controller responds to a command with an error. The error code is shown and can be looked up in the Allen-Bradley documentation. The command ID of the command causing the error is reported.

APPENDIX C

0x0080 PLC Nack Error

This error is reported if a controller responds to a command with a negative acknowledgment error.

0x0100 PLC Element Read Only

This error is reported if an attempt is made to write to an element with a read only map entry. Read only map entries are: INPUT file, OUTPUT file, and the control word of TIMERS, COUNTERS, and CONTROL structures.

0x0200 PLC Transmit Buffer Full

The error is reported if the transmit buffer becomes full in the PLC driver.

0x8000 Error Code XX

This error is reported when the PLC driver encounters an unknown error. This should never occur.

Time-outs

This specifies the amount of time the Text Panel will wait for a reply to a message before triggering an error. Each message sent to the PLC must be acknowledged by the PLC. The acknowledgment must be received within the time-out period. After the message has been sent twice with no response, the time-out message will be displayed.

Driver Errors for Micrologix/SLC 500 with DF1 Full Duplex Protocol

0x0000 No error

0x0001 Incompatible Revision

This error will be displayed when the driver and exec have incompatible revision.

0x0002 PLC error incorrect map size

This error occurs when an incompatible map is loaded into the unit. The driver will not attempt to communicate with the PLC when this occurs.

0x0004 Limit of elements per screen exceeded

This occurs when there are too many register on the display that can be monitored.

0x0008 PLC MSG time-out CMD=X

This error occurs when the unit does not receive a reply to its command. The unit will retry a command and wait for the specific time-out period before reporting this command. The command ID causing this error is reported. CMD 0xAA=READ CMD 0XA2=WRITE.

0x0010 Invalid PLC attributes - using defaults

This will occur if the PLC driver receives an invalid set of attributes. The default attributes will be used when this occurs.

0x0020 PLC bad checksum CMD=X

This occurs when a reply with an invalid checksum is received by the unit. The command ID of the command that incurred the error is reported as part of the message. CMD 0XAA=Read CMD 0XA2=Write.

0x0040 PLC Error STS=XX EXTSTS=XX CMD=ZZ

This is reported when a controller responds to a command with an error. The error code is shown and can be looked up in the Allen-Bradley documentation. The command ID of the command causing the error is reported. CMD 0XAA=Read, CMD 0XA2=Write.

0x0080 PLC Nack Error

This error is reported when a controller responds to a command with a negative acknowledgment.

0x0100 PLC element read-only

This is reported when an attempt is made to write to an element with a read-only map entry. Read-only map entries are: input file, output file, and all discrete entries. The driver can only read discrete entries, it cannot write to a single bit within a word.

0x0200 PLC TX buffer full

The error is reported if the transmit buffer becomes full in the PLC driver.

0x0400 PLC error no reply

This occurs when the DF1 modules indicate the PLC has no reply to the last message. It is usually displayed when the unit reestablishes communications after a PLC message time-out error. This can also occur when the panel message time-out is too short. If the PLC message time-out does not give the PLC enough time to respond to the message this error will be displayed.

0x0800 Error code xx

This is reported when the PLC driver encounters an unknown error. This should never occur.

DIRECTLOGIC PLCS

K-Sequence Protocol/Direct Logic PLC Models: DL05, DL105, D2-230, D2-240, D2-250, D3-350, D4-430, D4-440, D4-450

0x0000 No Error

0x0001 Incompatible Revision

This error will be displayed when the driver and exec have an incompatible revision.

0x0002 Limit of elements per screen exceeded.

This occurs when there are too many registers on the display to monitor.

APPENDIX C

0x0004 Invalid Checksum

This error occurs when a message with an invalid checksum is received by the unit. The unit is receiving invalid data.

0x0008 Protocol Error

The driver has received a serial communications protocol error from the PLC. The driver is unable to communicate with the PLC when this error occurs.

0x0040 PLC Error Incorrect Map Size

An incompatible map has been loaded into the unit. The driver will not attempt to communicate with the PLC when this error occurs.

0x0080 Invalid write to panel register nnn

A write was attempted to the panel's internal register nnnn when that register is mapped to a read-only location in the PLC.

0x0100 PLC Communications Timeout

The panel is unable to communicate with the PLC.

0x0200 Invalid attributes - using defaults

The driver received attributes it could not use. The default values for all PLC attributes will be used.

DirectNet Protocol (except DL330/340)/ Direct Logic PLC Models: DL05, D2-240, D2-250, D2-240/250 DCM, D3-350, D3-350 DCM, D4-430, D4-440, D4-450, DL405 Series all with DCM

0x0000 No Error

0x0001 Incompatible Revision

This error will be displayed when the driver and exec have an incompatible revision.

0x0002 Limit of elements per screen exceeded.

This occurs when there are too many registers on the display to monitor.

0x0004 Invalid Checksum

This error occurs when a message with an invalid checksum is received by the unit. The unit is receiving invalid data.

0x0008 Protocol Error

The driver has received a serial communications protocol error from the PLC. The driver is unable to communicate with the PLC when this error occurs.

0x0040 PLC Error Incorrect Map Size

An incompatible map has been loaded into the unit. The driver will not attempt to communicate with the PLC when this error occurs.

0x0080 Invalid write to panel register nnn

A write was attempted to the panel's internal register nnnn when that register is mapped to a read-only location in the PLC.

0x0100 PLC Communications Timeout

The panel is unable to communicate with the PLC.

0x0200 Invalid attributes - using defaults

The driver received attributes it could not use. The default values for all PLC attributes will be used.

ModBus (Koyo Addressing) RTU Protocol/Direct Logic PLC Models: DL05, D2-250, D3-350, D4-450

0x0000 No error

0x0001 Incompatible Revision

This error will be displayed when the driver and exec have an incompatible revision.

0x0002 Limit of elements per screen exceeded

This occurs when there are too many registers on the display to monitor.

0x0004 Reply received from invalid slave nnn

If the driver received a message from a PLC with address nnn when one was not expected.

0x0008 Invalid Checksum Received

This error occurs when a message with an invalid checksum is received by the unit.

0x0010 Incorrect Reply

The driver received an incorrect or unexpected reply from the PLC with address nnn.

0x0020 Error - PLC nnn - <error>

The driver received a ModBus message exception code from the PLC. The <error> strings are:

Illegal Function

The PLC received an invalid function code.

Illegal Data Address

The address requested is not allowable for the PLC. This may appear instead of a time-out when a PLC is in bridge mode to a ModBus Plus network. The PLC that the Panel is communicating with will return this error if the message could not be passed on to the addressed PLC.

Illegal Data Value

The value in the data field is not allowed for the PLC.

Slave Device Failure

An unrecoverable error occurred in the PLC.

Acknowledge

The PLC requires more time to process the message.

Slave Device Busy

The PLC is processing a long command and is not ready for a new one.

APPENDIX C

Negative Acknowledgment

The PLC cannot perform the function requested.

Memory Parity Error

An error was detected in the PLC memory.

0x0040 Broadcast not allowed in read command

If a broadcast message to read was attempted.

0x0080 PLC time-out - PLC nnn

The Text Panel is unable to communicate with the PLC with address nnn. This may be corrected by increasing the time-out time or increasing the baud rate. An alternative may be to lower the number of registers or coils per message. This causes the panel to use smaller messages, that the PLC should be able to respond to at a faster rate.

0x0100 PLC reply length exceeded - PLC nnn

The driver received, or is receiving a message with a length exceeding the maximum allowed by ModBus protocol from the PLC with address nnn.

0x0200 Invalid write to panel register nnn

A write was attempted to the panel's internal register nnn when that register is mapped to a read-only location in the PLC.

0x0400 Invalid attributes - using defaults

The driver received attributes it could not use. The default values for all PLC attributes will be used.

DirectNet Protocol DL330, DL340/Direct Logic PLC Models: D3-330/330P, D3-340

0x0000 No Error

0x0001 Incompatible Revision

This error will be displayed when the driver and exec have an incompatible revision.

0x0002 Limit of elements per screen exceeded.

This occurs when there are too many registers on the display to monitor.

0x0004 Invalid Checksum

This error occurs when a message with an invalid checksum is received by the unit. The unit is receiving invalid data.

0x0008 Protocol Error

The driver has received a serial communications protocol error from the PLC. The driver is unable to communicate with the PLC when this error occurs.

0x0040 PLC Error Incorrect Map Size

An incompatible map has been loaded into the unit. The driver will not attempt to communicate with the PLC when this error occurs.

0x0080 Invalid write to panel register nnn

A write was attempted to the panel's internal register nnnn when that register is mapped to a read-only location in the PLC.

0x0100 PLC Communications Timeout

The panel is unable to communicate with the PLC.

0x0200 Invalid attributes - using defaults

The driver received attributes it could not use. The default values for all PLC attributes will be used.

GENERAL ELECTRIC PLCS

0x0000 No error

0x0001 Incompatible Revision

This error will be displayed when the driver and exec have an incompatible revision.

0x0002 Limit of elements per screen exceeded

This occurs when there are too many registers on the display to monitor.

0x0004 PLC Time-out - X = YYYYY

This error results from a loss of communication with a PLC. The X shown stands for the PLC that timed out. This will be a number one through 16 or default. The YYYYY stands for the actual SNP-X ID string entered for the PLC that timed out. If the SNP-X ID string is a null string, the space after the equal sign will be the last character in the error string.

0x0008 Invalid PLC Attributes - using default

The attributes passed from the program loader, or the existing attributes in memory do not match those expected by the driver. The default attributes will be used and normal operations will commence.

0x0010 Invalid Write to panel register xxx

There was an attempted write to panel internal register number xxx which is mapped to an address which has read-access only.

0x0020 PLC Message Error

A communications error occurred which resulted in an invalid message. It could also indicate that an address was requested which is out of the range limits of the PLC.

0x0040 Incorrect Map Size

This error occurs when a map is stored that is not the size the PLC expects.

APPENDIX C

MITSUBISHI PLCs

0x0001 Incompatible Revision

This error will be displayed when the driver and exec have incompatible revision.

0x0002 Limit of elements per screen exceeded

This occurs when there are too many elements on the display to monitor.

0x0004 Communications Error

This error occurs when there is an error involving communications between the panel and PLC. A communications error results from one of the following: no or bad physical connection between panel and PLC, bad checksum in reply from the PLC, bad checksum in command from the panel, bad command from the panel, bad format of command from the panel, or unexpected reply from the PLC.

0x0010 Invalid Write - Panel register : xxxx

This error will occur when an attempt to write to a read only MFX element. The panel register xxxx contains the address of the MFX element that is read-only.

0x0020 PLC Message Time-out

This message occurs when the unit does not receive a reply to its command. The unit will retry a command and wait for the specified time-out period before reporting this command.

0x0040 Invalid PLC attributes - using defaults

This error is reported when the PLC driver receives an invalid set of PLC attributes. The default attributes will be used when this error occurs.

Timeouts

The timeout time specifies the amount of time the panel will wait for a reply to a message before triggering an error. Each message sent to the PLC must be acknowledged by the PLC. The acknowledgment must be received within the time-out period. If the acknowledgment is not received the driver will retry the command. After the message has been sent twice with no response, the time-out error message will be posted.

MODICON PLC WITH MODBUS RTU PROTOCOL

0x0000 No error

0x0001 Incompatible Revision

This error will be displayed when the driver and exec have an incompatible revision.

0x0002 Limit of elements per screen exceeded

This occurs when there are too many registers on the display to be monitored. The number of registers on the display must be reduced.

0x0004 Reply received from invalid slave nnn

If the driver received a message from a PLC with address nnn when one was not expected.

0x0008 Invalid Checksum Received

This error occurs when a message with an invalid checksum is received by the unit.

0x0010 Incorrect Reply

The driver received an incorrect or unexpected reply from the PLC with address nnn.

0x0020 Error - PLC nnn - <error>

The driver received a Modbus message exception code from the PLC. The <error> strings are:

Illegal Function

The PLC received an invalid function code.

Illegal Data Address

The address requested is not allowable for the PLC. This may appear instead of a time-out when a PLC is in bridge mode to a Modbus Plus network. The PLC that the Text Panel is communicating with will return this error if the message could not be passed on to the addressed PLC.

Illegal Data Value

The value in the data field is not allowed for the PLC.

Slave Device Failure

An unrecoverable error occurred in the PLC.

Acknowledge

The PLC requires more time to process the message.

Slave Device Busy

The PLC is processing a long command and is not ready for a new one.

Negative Acknowledgment

The PLC cannot perform the function requested.

Memory Parity Error

An error was detected in the PLC memory.

0x0040 Broadcast not allowed in read command

If a broadcast message to read was attempted.

0x0080 PLC time-out - PLC nnn

The Text Panel is unable to communicate with the PLC with address nnn. This may be corrected by increasing the time-out time or increasing the baud rate. An alternative may be to lower the number of registers or coils per message. This cause the Text Panel to use smaller messages, which the PLC should be able to respond to at a faster rate.

0x0100 PLC reply length exceeded - PLC nnn

The driver received, or is receiving a message with a length exceeding the maximum allowed by Modbus protocol from the PLC with address nnn.

0x0200 Invalid write to Panel register nnn

A write was attempted to the Text Panel's internal register nnnn when that register is mapped to a read-only location in the PLC.

0x0400 Invalid attributes - using defaults

The driver received attributes it could not use. The default values for all PLC attributes will be used.

APPENDIX C

OMRON HOST LINK PLCs

0x0000 No error

0x0001 Incompatible Revision

This error will be displayed when the driver and exec have an incompatible revision.

0x0002 Limit of elements per screen exceeded

This occurs when there are too many registers on the display to monitor.

0x0004 Incorrect Unit Response

This will occur when there are too many registers on the display to be monitored. The number of registers on the display must be reduced.

0x0008 PLC Invalid Checksum received

An invalid checksum was received in a message from the PLC.

0x0010 Incorrect reply received

The driver received an incorrect reply from a PLC.

0x0020 Response to an undefined command

The driver received the undefined command response.

0x0040 Command cc Error Response Code xx

This error occurs when a response code xx is returned to a PLC message command of cc.

0x0080 Incorrect Map Size

This error occurs when an incorrect map is stored that is not the correct map entry size the driver expects.

0x0100 Invalid Write to Text Panel register r

This error occurs when an attempt is made to write to a register r when r is mapped to read-only element.

0x0400 PLC Message Time-out

This error occurs when a no reply or error is seen within the time-out time in the Text Panel PLC attributes. If the Text Panel is displaying time-out errors, the timeout may need to be increased.

0x2000 Invalid PLC attributes - using defaults

The driver received attributes it could not use. The default values for all PLC attributes will be used.

Siemens 7 MPI Adapter PLCs

Please Note: If the panel is disconnected from the HMI adapter, and then reconnected, it may take up to 70 seconds for the panel to regain communications and become synchronized with the adapter.

0x0000 No Error

0x0001 Incompatible Revision

This error will be displayed when the driver and exec have an incompatible revision.

0x0002 Limit of elements per screen exceeded

This occurs when there are too many registers on the display to monitor.

0x0008 Protocol Error

The driver has received a serial communications protocol error from the PLC. The driver is unable to communicate with the PLC when this error occurs.

0x0040 PLC Error Incorrect Map Size

An incompatible map has been loaded into the unit. The driver will attempt to communicate with the PLC when this error occurs.

0x0080 Invalid Write to Panel register nnnn

A write was attempted to an internal Panel register number nnnn that has been mapped as a read-only location.

0x0100 PLC Communication Timeout

The Panel is unable to or has lost communication with the PLC.

0x0200 Invalid PLC Attributes - Using Defaults

The panel has received invalid attributes. The default attributes for all PLC attributes will be used. This error occurs when the PLC detects an error condition. Consult the PLC Communication Error Responses List.

APPENDIX C

PowerText Panel Error Messages

READ ONLY VALUE

This message indicates that the operator has tried to edit to a read only data item.

INVALID

This message indicates that the operator has entered an illegal password.

NO DATA SET

This message indicates that the operator has tried to enter a data item in a message that contains no data items.

OUT OF RANGE

This message indicates that the operator has entered a value in a data item that is out of range.

PowerText Programming Software Error Messages

Error Codes are divided into categories and are numbered with prefixes and 3 digits as follows:

PLC DLL Errors	Pxxx
Communications Errors	Cxxx
Tag Errors	Txxx
Message Errors	Mxxx
Miscellaneous Errors	Zxxx

PLC DLL Error Messages:

Error P001: Load dll Procedure failed. Unable to validate PLC address. Possible reason: Unable to locate correct PLC DLL.

Reason: A PLC .dll file has been moved or deleted from the program directory.

Solution: Reinstall the software.

Error P002: Unable to load library : PlcUtils.dll

Error P003: Unable to load PLC dll.

Error P004: Unable to unload PLC dll.

Error P005: PLC DLL load failed.

Reason: Unable to load selected PLC dl.

Solution: (1) Try closing all other applications and retry; (2) reboot the system; (3) reinstall the software.

Error P006: PLC1 is not compatible with PLC2. Do you want to change the PLC anyway?

Error P007: Unable to rebuild the address for new PLC.

Reason: When changing PLCs, check the addressing in the PLC manuals to see if they are compatible (same addressing type is followed in both PLCs). If they are not compatible, then the database is no longer valid and the addresses will have to be reentered.

Communication Error Messages:

Error C001: The panel connected to the PC is different from the configured one

Reason: When writing to the panel, if the panel type selected does not match the panel that the computer is physically connected to, the program loader will not upload the project.

Solution: Select appropriate panel type for the connected panel.

Error C002: Cannot Locate the Driver File

Reason: Driver file (*.plx) has been moved or deleted from the program directory.

Solution: Reinstall the software.

APPENDIX C

Error C003: Error opening port

Reason: Either you have not selected a valid COM port available on your computer or some other program is using this port.

Solution: Select another available COM port or close the program that is using this COM port. If this does not work, reboot your system and try again.

Error C004: Error in setting communication attributes

Reason: Unable to set the attributes for the Panel to PC communication.

Solution: Reboot the system.

Error C005: Unable to write to Panel. Possible cause: No local messages configured.

Reason: No local messages are configured. At least one local message should be configured before downloading the program to the panel.

Solution: Configure local messages.

Error C006: Error in reading the project from the panel. Project in the panel is corrupted.

Solution: Please upload the project from the computer to the panel. You cannot read the project from the panel.

Error C007: Invalid Length in Reply

Reason: Length of the panel reply buffer is less than the maximum replay length (70)

Solution: If you receive this error message consistently, please report it to technical support.

Standard reply error messages:

Error Code	Error Message
1	Error C008: Checksum error
2	Error C009: Time out Error. Make sure Panel is in Setup Mode. To enter Setup Mode, press the up and down arrow keys simultaneously
3	Error C010: Invalid Message Code
4	Error C011: Start Load Not Requested
5	Error C012: Start Dump Not Requested
6	Error C013: Insufficient space in Text Panel
7	Error C014: Invalid Message Number
8	Error C015: Invalid Message Length
9	Error C016: The firmware being loaded into the panel does not match the panel type
10	Error C017: E2 Memory failed to program correctly
11	Error C018: Invalid Load Format
12	Error C019: Invalid LED control
13	Error C020: Option Not included
14	Error C021: Memory is Read Only
21	Error C022: Invalid with Random PLC loaded
22	Error C023: Invalid with Random/standard format
24	Error C024: Invalid Byte in the data fields of Command

PLC Address Error Messages:

Error T001: PLC Address count exceeds maximum limit.

Solution: You cannot assign another PLC address. Only 300 PLC addresses can be defined. If you want to assign a new address, delete one or more addresses and try again.

Error T002: Invalid Access Type

Reason: Access type of the specified address is invalid (e.g., entering a READ only address where a READ/WRITE address type is expected).

Solution: Supply the correct address.

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 PLC Address is not correct.

Solution: Specify a valid PLC address.

Error T003: The value entered is invalid.

Reason: The value entered for Minimum or Maximum field is out of range.

Solution: Supply values in the range 0...9999 for BCD and 0...65535 for Binary

Error T004: Unable to open tag map file : <filename> Please choose the map file

Error T005: Unable to open map file <map file>

Reason: Think N Do map (.map) file not found.

Solution: Locate the correct map file.

Error T006: Error in reading PLC Addresses

Reason: Unable to generate PLC address while reading from the panel.

Solution: Project in the Panel is corrupted. Reload the project to the panel.

Error T007: Unknown access type specified for PLC Address.

Reason: Invalid access type found while reading a project from disk.

Solution: Project in the Panel is corrupted. Reload the project to the panel.

Message Error Messages:

Error M001: Unable to add a new Message/Folder. Possible cause: All the available 256 messages have been programmed

Solution: Delete one or more messages or folders and try adding your message again.

Error M002: Invalid message number or this message number has already been configured.

Solution: Please change the message number to a valid message number and ensure that this message number was not programmed earlier.

Error M003: Cannot add a message with message number greater than 256.

Solution: Message numbers have to be numbered with the range of 1 to 256. Please enter a valid message number within this range.

APPENDIX C

Error M004: Invalid Message Number.

Solution: Valid range for message number is 1 to 256. Please enter a valid message number.

Error M005: Message number is out of range.

Solution: Message number is out of range. Valid range is 1-256

Miscellaneous Error Messages:

Error Z001: Error in printing page.

Solution: (1) Check whether you have printer attached to the PC and set to Ready; (2) if still receiving this error, reboot the system and check printer to PC connection.

Error Z002: You are trying to read from an invalid file.

Reason: Either project file is corrupted or you are trying to open a non-PowerText file.

Solution: If the project file is corrupted, then, recreate the project.

Error Z003: The file may be corrupted.

Reason: The Exec file is corrupted.

Solution: If you receive this error message consistently, please report this to technical support.

Error Z004: Unable to open the PLC driver file.

Reason: Invalid PLC driver file.

Solution: If you receive this error message consistently, please report this to technical support.

Error Z005: The Maximum message length has exceeded.

Reason: Maximum message length exceeded.

Solution: Reduce length of message.

Error Z006: Unknown value type encountered while loading project. Known values are 0 (BCD) and 1 (Binary)

Reason: Invalid value type found while reading project from disk.

Solution: Project file in the panel is corrupted. Reload the project to the panel.

Error Z007: Discrete addresses are not allowed here.

Reason: Discrete addresses are not allowed in the PowerText Panel.

Solution: Use the correct address type.

Error Z008: Invalid Device Type

Reason: The connected equipment may not be a PowerText Panel.

Solution: Ensure that you are connected to an PowerText Panel.

Error Z009: Error in project file Line : <line number> Column : <column number> <filename>

Reason: The project file (XML version) is invalid.

Solution: Use a valid project file.

Symbols

20-character messages, 7
 20-character text strings, 4
 24 VDC (20–30 VDC operating range), 13
 24 VDC power, 22, 23, 24
 24 VDC Power Supply, 5

A

abort, 11
 Access, 69
 Accessories, 9
 Accessories and Optional Equipment, 9
 ACK, 29
 Add Local Folder, 67
 Add Local Folder button, 67
 Add Local Message, 67
 Add Local Message Button, 67
 address, 63, 66
 Adjust Display Contrast, 40
 Agency Approvals, 13
 Air Composition, v
 Allen-Bradley PLC Cable Wiring Diagrams
 Micrologix 1000/1200/1500 RS-232, B-3
 PLC5 DF1 RS-232, B-2
 SLC DF1 RS-232, B-2
 alternate, 4, 11, 66
 application, 40
 APPLICATION WORKSHEET, A-2
 Application Worksheets, 43
 Arrow Adjustment Entry, 34
 Arrow buttons, 33, 35
 Arrow pushbutton keys, 35
 ASCII, 32
 AUTO-RESET, 80
 Auto-Reset, 13

B

baud rate, 63
 BCD, 33
 Binary, 33
 Binary Coded Decimal, 34
 Bit, 65
 bit addresses, 44
 blank messages, 72
 Boot Revision, 40
 Button Action, 65, 66
 Buttons (Bit Write) PLC Word, 66

BUTTONS (BIT WRITE) PLC WORD — (FROM
 PANEL), 29
 Buttons/LEDs, 65
 Buttons/LEDs button, 65
 By Button, 11, 65
 By Button & Flash, 11, 65
 By PLC, 65

C

cable pinout, 85
 cancel (pushbutton), 11
 CAUTION, 72
 CD ROM Drive, 5, 41
 CE Test Standard, v, 13
 character
 maximum, 71
 Size, 13
 Character LCD Display with LED Backlight, 11
 characters, 69, 71
 Chemical Compatibility, 80
 chemicals, v
 Cleaning, 82
 COM port, 77
 Communication Connector, B-8
 communications, 63
 parameters, 63
 port, 40, 83
 Communications Cable Core, 17
 compounds, v
 Configuration, 40
 Preparing for, 40
 software, 4
 Configure
 Existing System, 74
 New System, 60
 Panel System PLC Addresses, 64
 Configure Panel System PLC Addresses button, 64
 Connect
 a PLC, 25
 a Programming PC, 24
 Connect to Panel, View Panel Status and Firmware,
 75
 context sensitive onscreen help, 5
 Control Keys, 68
 Control Pushbuttons, 11, 13
 controls, 10, 28
 corrosive gases, v
 cover stock, 16
 CPU, 40
 Create Custom Labels, 16
 Ctrl + 1, 32, 68

INDEX

Ctrl + 2, 32, 68
Ctrl + 3, 32, 68
CUL, 13
Custom Labels, 11, 16

D

DATA 1, 68
 (16-Bit Register, READ/WRITE), 30
DATA 2, 68
 (16-Bit Register, READ Only), 31
DATA 3, 68
 (16-Bit Register, READ only), 31
Data Type, 33, 64, 68, 69
data value, 69
 character, 68, 71
database, 73
Decimal Point, 31, 32, 69
 fixed placement, 34
 fixed point, 34
 manually insert, 33, 70
 PLC controlled, 34
 value, 34
decrement, 11
default destination, 42
Delete, 70
delete a message, 73
desktop, 42
destination folder, 42
DIN Clips, 20
DirectLogic PLC, 28
discrete
 input signals, 11
 operations, 28
Display Contrast, 40
Display Type, 13
Displaying Local Messages, 35
Displaying PLC Messages, 33
DOWN arrow, 11
download, 41
Driver Errors
 ALLEN-BRADLEY PLCs, C-2
 Micrologix/SLC 500 (DF1 Full Duplex), C-4
 Micrologix/SLC 500 DH-485/AIC, C-2
 PLC5 with DF1 Protocol, C-3
 DirectLogic PLCs, C-5
 DirectNet Protocol (except DL330/340), C-6
 DirectNet Protocol DL330, DL340, C-8
 K-Sequence Protocol, C-5
 ModBus (Koyo Addressing) RTU Protocol, C-7
 General Electric PLCs, C-9
 MITSUBISHI PLCs, C-10

Modicon PLC (MODBUS RTU Protocol), C-10
OMRON HOST LINK PLCs, C-12
Siemens 7 MPI Adapter PLCs, C-13
Driver Revision, 40
Dynamic, 4, 12, 32, 33
 Messages, 33

E

electrical
 circuits, v
 ground common, 24
 noise tolerance, 13
embed data, 68
embedded data, 32, 69
 values, 30, 31, 71
embedded data value, 33
EMI
 emissions, 17
 filtered power supply, 7
 Noise Filter Installation, 17
Enclosure, 13
enter pushbutton, 11
Environmental Specifications, v
error message, 83, 84
Escape, 11, 40
EU Information, v
European Union (EU) Directives, v
Exec, 76
 Revisions, 40
Existing System, 74
External Dimensions, 13
external power supply, 24

F

F1 function key, 5
F5, 32, 68
F6, 32, 68
F7, 32, 68
factory repairs, 86
features, 4, 7, 28
ferrite cores, 17
File name, 61
Firmware, 76
firmware
 revision, 77
fixed placement, 34
folder, 35
 icon, 36
 status, 12
Folders, 12, 70
format, 69

Frequently Asked Questions (FAQs), 87
 front panel
 features, 10
 function key, 68
 Function Pushbutton
 Panel Set and PLC Release
 Example, 30
 Function Pushbuttons, 11, 13
 Fuse, 13
 Reset, 80

G

General Electric PLC Wiring Diagram, B-3

H

Hardware, 5
 Revisions, 40
 Help, 5, 85
 Topics, 41
 windows, 5
 hierarchy, 35
 Humidity, 13

I

IBM or compatible PC, 5
 icon, 42
 INCOMPATIBLE EXEC, 77
 increment, 11
 indicators, 10
 input signals, 4
 Insert
 a PLC Message, 72
 Folder, 70
 Message, 70
 Installation Screens, 42
 Installing PowerText Programming Software, 41
 interactive, 4, 12, 32, 33
 Interactive Message Operations, 34
 Interactive Messages, 33
 Internal Software, 40, 76
 and Hardware Revisions, 40
 INVALID, C-14

K

key information, 2
 Keypad Overlay, 13

MAN-PTEXT-HDW

L

ladder logic program, 10
 LCD Display, 32
 window, 4, 10
 Learning the Features, 28
 LED
 backlight, 13
 Control, 43, 65
 LED (Bit Read) PLC Word, 66
 LED (BIT READ) PLC WORD (TO PANEL), 29
 Limits, 33
 Line One, 64
 LOADING EXEC, 77
 Local Message, 32, 35, 67
 File Structure Example, 36
 Menu Structure Example, 37
 Worksheet, A-2, A-4
 Lower Limit, 32

M

Main Configuration Screen, 74
 maintenance, v, 80
 man-machine interface, 4
 Manual Revisions, iv
 mapped, 85
 Memory Mapping, 28
 menu hierarchy, 35
 menu tree, 70
 Menu Worksheet, A-1
 Menus, 12
 message, 35
 control type, 12
 Edit, 31, 70
 Length, 71
 Number, 34, 71
 Text, 68, 71
 Types, 33
 Worksheet, A-1
 Message Error Messages:, C-17
 Message Text, 68
 Messages, 11, 67
 Microsoft Word® document
 (POWERTEXT_INSERTS.doc), 16
 minus, 36
 Miscellaneous Error Messages, C-18
 Mitsubishi FX Series 25-pin RS-422, B-4
 Mitsubishi FX Series 8-pin MINI-DIN RS-422, B-5
 Model 2X20L Outline and Cutout Dimensions, 19
 Models, 7
 Models 2X20N and 4X20N Outline & Cutout Dimensions, 18

INDEX

Modicon ModBus RS-232, B-6
Modicon ModBus with RJ45, B-5
Momentary, 66
momentary switch, 4
Mounting, 20
mouse, 5
multi-panel applications, 24

N

New System, 61
New System button, 61
NO DATA SET, C-14
NO embedded data, 33
numeric value, 11, 35

O

octal, 29
Omron PLC Wiring Diagram, B-6, B-7
Onscreen HELP, 5
onscreen prompts, 41
Operating Humidity, v
operating range, 13
Operating Temperature, v, 13
Operator Controls and Indicators, 10
operator interface, v, 7, 10
 requirement, 40
Optional Equipment, 9
OUT OF RANGE, C-14
Out of Warranty Repairs, 86

P

P/N CBL-PTEXT-001, 47
Panel
 Acknowledge, 43
 Acknowledge of PLC Release Bits, 66
 Functions, 65
 Hardware Revision, 40
 PLC Address Database button, 73
 PLC Connections, 24
 Programming (Configuration) Problems, 83
 set and PLC release, 4
 Status, 75
 System PLC Address Setup, 64
Panel Set and PLC Release, 29, 66
Panel System PLC Address Setup, 64
Panel to PLC Communications Problems, 84
parity, 63
Password Protection, 32, 69
PC requirements, 5
personal computer, 40

Plan the Project, 43
PLC, 10
 Address, 64, 69
 Attributes, 63
 automation system, 4
 Button Release Bits, 66
 Cable, 5, 9, 22, 25
 Communication, 85
 CONFIGURATION, A-2
 control, 69
 control program, 28
 Controlled Decimal Point, 31, 69
 data register, 11
 Data Registers, 28
 driver, 84
 Errors, 84
 HELP, 5
 ladder logic, 69
 ladder logic program, 10, 12
 logic program, 34
 Message
 Data Items, 73
 Message LED, 10, 67, 70
 Messages, 32, 67, 70
 (Line Address) Setup, 64
 Port, 13
 port settings, 63
 register, 68, 70
 type, 63
 Word, 43

PLC Address Error Messages:, C-16
PLC and Programming Cable Part Numbers, 9
PLC Cable Part Numbers
 CBL-UTICW-001, B-3
 CBL-UTICW-006, B-4
 CBL-UTICW-007, B-5
 CBL-UTICW-008, B-6
 CBL-UTICW-010, B-5
 CBL-UTICW-011, B-6
 CBL-UTICW-012, B-7
 CBL-UTICW-013, B-7
 CBL-UTICW-014, B-4
PLC Driver Error Messages, C-2
PLC Message LED, 35, 67
PLC MESSAGES, A-5, A-6
PLC Messages, 66, 67
 (Line Address) Setup, 64
PLC Registers, 68
 Embedded Data, 30
 LEDs, 29
 Message Registers, 30
 Pushbuttons, 29
PLC to PowerText Panel Interface, 5

- PLCs Supported, 13
 - by PowerText Panels, 8
- plus, 36
- polycarbonate, 80
- polyfuse, 13
- pop-up HELP, 5
- port, 63
- port communications, 63
- Port Selected, 77
- Power
 - Receptacle, 23
- Power Cable Core, 17
- Power Connector, 23
- Power Consumption, 13
- Power Receptacle, 22, 24
- power source, 24
- Power Supply Connections, 24
- PowerText Panel Application
 - Example of, 21
- PowerText Panel Error Messages, C-14
- PowerText Programming Software Error Messages, C-15
- PowerText Programming Software Icon, 42
- Precautions, 80
- Preparing for Configuration, 40
- Press
 - to Accept Message Edit, 68
- preventative maintenance, v
- Print, 73
- problems, 83
- Programmable Logic Controller (PLC), 5
- programmable operator interface devices, 2
- Programming Cable, 5, 24
- Programming Software, 24
- Project, 43
- Project Name, 73
- project tutorial, 43
- prompt, 41
- purchase a new panel, 86
- pushbutton
 - labels, 16
- Pushbutton LEDs, 11
- pushbutton type, 11
- Pushbuttons, 4, 10

Q

- questions, 85

R

- ramp tool, 16
- Range, 32, 69

MAN-PTEXT-HDW

- ratings, 80
- READ ONLY VALUE, C-14
- READ/WRITE Access, 69
- Rear Panel CONNECTIONS and WIRING, 23
 - 2X20L, 23
- Rear Panel Connections and Wiring
 - 2X20N and 4X20N, 22
- Rear Panel Indicators, 12
- Rear View, 23
- register
 - bits, 28
- registers, 28
- REL, 29
- repair, 86
- Requirements, 5
- revision, iv
- Root, 37
- root level, 35
- RS-232C, 4
- RS-422A/485A, 4
- Run, 41
- RUN Mode, 24, 40, 70
- RxD LED, 12

S

- Safety Extra Low Voltage (SELV), v
- Save, 61
- Screen Overlay, 80
 - Cleaning, 82
- screw terminals, 24
- scroll, 35
- sealed membrane pushbuttons, 4, 10
- SELF TESTING, 77
- SELV, v
- serial communication, 4, 13
- serial port, 5, 22, 23, 24
- Serial Port Communication LEDs, 22, 23, 83
- Service Power, 13
- set with release, 11
 - switch, 11
- Setpoint, 33
 - ranges, 34
 - value, 34
- SETUP, 40
- SETUP Mode, 24, 40, 83
- Setup.exe, 41
- Shock, 13
- Siemens S7 MPI Adaptor
 - Wiring Diagram, B-7
- skipped messages, 72
- Software, 5, 7
- Software Installation, 41

INDEX

- Special characters, 32
- Standard reply error messages, C-16
- Standard reply error messages:, C-16
- Static, 33
- Static Display, 34
- Static Message Operation, 34
- Static Messages, 33
- static text, 4, 12
- status bit, 35
- Step 1, 67
 - Project Information, 48
- Step 2, 68
- Step 3, 64
- Storage Temperature, v, 13
- subfolder, 35
- supply operating voltage, 24
- switch types, 4, 11

T

- Technical Support, 6, 83
- timeout, 63
- Total Number of messages, 73
- Total Number of Messages (of 256) programmed, 71
- triggered a message, 10, 67
- Troubleshooting, 83
- Tutorial, 43
 - bit addresses, 44
 - Button PLC Word, 44
 - Configure a PLC, 56
 - Create a Project, 43
 - Create the Project, 47
 - ladder logic, 56
 - LED PLC Word, 44
 - Local Message Worksheet, 45
 - PLC Message Worksheet, 46
 - Setup Mode, 55
 - Step 1, Select Panel, 48
 - Step 2, Select PLC, 48, 63
 - Step 3
 - configure a dynamic message, 51
 - configure Buttons/LEDs, 49
 - configure Local Messages, 51
 - configure the panel system PLC addresses, 53
 - create PLC Messages, 53
 - test project, 58
 - Writing to Panel, 55
- TXD (transmitter) LED, 83
- TXD and RXD LEDs, 84
- TxD LED, 12
- TXD/RXD LEDs, 83

U

- UL, 13
 - File, v
- unused bit address, 44
- UP arrow, 11
- update, iv
- Upgrade Firmware, 76
- Upper Limit, 32
- UPT2X20KYd, 77
- UPT2X20LYd, 77
- UPT2X20NYd, 77
- UPT4X20NYd, 77
- UPTSP000Yd, 77
- user-defined interaction, 12
- user-defined pushbuttons, 11

V

- value, 68
- values, 32
- variable point, 34
- VDC, 13
- VGA display, 5
- Vibration, 13

W

- Warranty Repairs, 86
- website, 85
- Weight, 13
- Windows 98/NT4.0/2000/ME, 5
- wiring diagram, 24
- Worksheet, 41, 43, A-2