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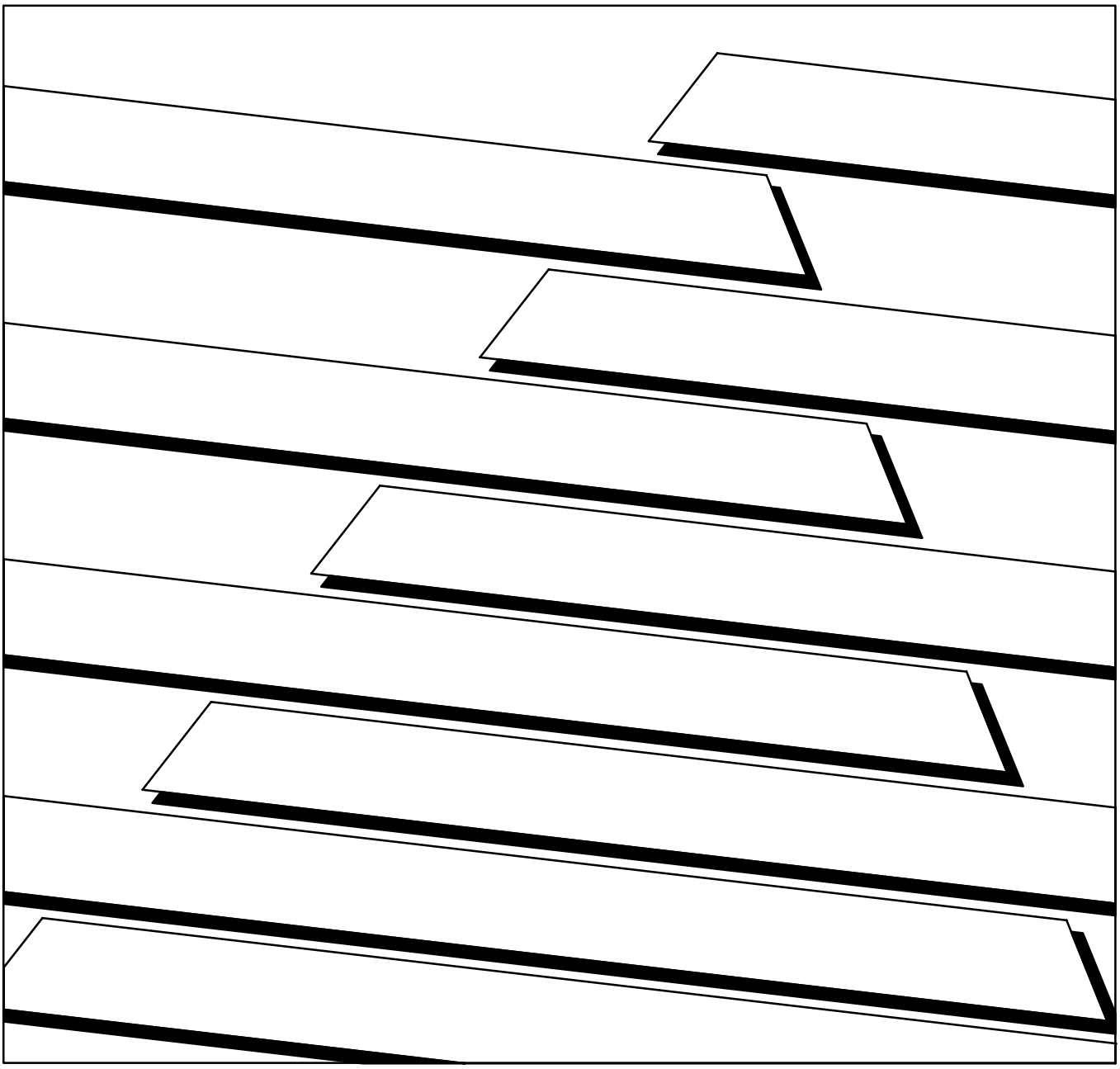
Find the *Rockwell / Allen-Bradley 2711-KC1* at our website: *Click HERE*

ALLEN-BRADLEY

PanelView™ 1200 Operator Terminals

(Catalog Numbers 2711-KA1, KC1, TA1, TC1, TA4, TC4)

User Manual



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Important User Information

Solid-state equipment has operational characteristics differing from those of electromechanical equipment. “Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls” (Publication SGI–1.1) describes some important differences between solid-state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid-state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.

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Throughout this manual we use notes to make you aware of safety considerations.



Attention Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss.

Attentions help you:

- identify a hazard
- avoid the hazard
- recognize the consequences

Important Identifies information that is especially important for successful application and understanding of the product.

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Table of Contents

Preface P-1

Manual Overview P-1
Intended Audience P-1
Glossary of Terms P-1
Related Publications P-3
After-Sales Support P-4

Introduction to PanelView 1200 Operator Terminals 1-1

The PanelView 1200 Terminal Family 1-1
Wide Range of Applications 1-3
PanelView 1200 Features 1-3
Cost Optimized for OEM Applications 1-3
Rugged, High Quality Design 1-3
Panel or 19” Rack Mounting 1-3
12” Monochrome or Color Display 1-4
Direct Connection to any Allen-Bradley PLC Remote I/O Link . . . 1-4
Direct or Data Highway Plus and Remote I/O Downloading 1-4
Factory Installed Battery Provides Extended Back-up 1-4
User-Definable Keys 1-5
Custom Keypad Legend Inserts 1-5
Touch Screen Terminal for Simplicity and Space Saving 1-5
Message and Alarm Handling Utilities 1-5
Built-in Clock 1-6
Audio and Visual Feedback 1-6
Alarm Relay 1-6
RS-232 Port 1-6
PanelView 1200 Terminal Diagnostics 1-7
Options and Accessories 1-7
Upload/Download Cable 1-7
Optional Remote Keyswitch & RS-232 Port Assembly 1-7
Optional EEPROM or EPROM for Back-up or Additional Application Memory 1-7
Functional Variations Among Terminal Types 1-8
Keypad Terminals 1-8
Function Keys 1-9
Numeric Keypad 1-9
Special Keys 1-10
Touch Screen Terminals 1-10
Objects, Windows, and PLC Control Options 1-11
Objects Common to All PanelView 1200 Terminals 1-13
Objects for the Keypad Terminal 1-15
Objects for the Touch Screen Terminal 1-16

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Information and Alarm Windows 1-16
Summary of PLC Controlled Options 1-17
Applicable Programmable Controllers and Connections 1-17
PLC-5/11, 5/15, 5/20, 5/25, 5/30, 5/40, 5/60 and 5/250 Processors 1-18
PLC-5/10 Processor 1-18
PLC-3 and PLC-3/10 Processors 1-18
PLC-2 Family Processors via 1771-SN or 1772-SD2 1-18
SLC-5/02 via 1747-SN 1-19
1771-SN I/O Subscanner Module 1-19
6008-SI IBM PC I/O Scanner 1-19
6008-SV VME I/O Scanner 1-19
6008-SQ DEC Q-BUS I/O Scanner 1-19

PanelView 1200 Terminal Functions 2-1

Contrast, Brightness and the Mode Select Keyswitch 2-1
Fault Conditions 2-2
Major Faults 2-2
Minor Faults 2-2
Power-Up Functions 2-3
Checksum and Read/Write Memory Tests 2-3
Battery Failure Test 2-4
Communication Test 2-5
Watchdog Test 2-5
Starting Up the Terminal in Configuration Mode 2-5
The Configuration Mode Menu 2-6
Upload/Download 2-6
Serial Port 2-7
Rack Assignments 2-8
Access Codes 2-9
Audio Response 2-10
Alarm Relay 2-10
Preset Operations 2-10
Time and Date 2-12
Screen Saver 2-12
Screen Alignment 2-13
Stuck Button/Cell Timeout 2-14
False Depression Test (Touch Screen Only) 2-14
User EPROM/EEPROM Power-Up Test 2-15
Pass-Through Download Options 2-17
Unit Tests 2-21
Run Mode Functions 2-23
On-line Diagnostic Testing 2-24
PLC Communication Timeout 2-24
Invalid Screen Request 2-24
Application Data Checksum 2-24

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Battery Failure 2-24
PanelView 1200 Terminal Printing 2-24
Print Priorities 2-25
Page Formatting 2-25
Non-Printable Characters 2-26
Printer Errors 2-26

Installing Your PanelView 1200 Terminal 3-1

The PanelView 1200 Terminal 3-2
The RS-232 Port 3-2
The Alarm Relay Connector 3-3
The Remote I/O Connector 3-4
The AC Power Connector 3-4
Installing a User PROM 3-5
PanelView 1200 Terminal Dimensions 3-9
Installation Notes 3-11
PanelView 1200 Terminal Cutouts 3-11
Keypad Terminals (2711-KA1, 2711-KC1) 3-12
Touch Screen Terminals (2711-TA1, TC1) 3-13
Touch Screen Terminals (2711-TA4, TC4) 3-14
Optional Clip or Stud Rack Mount Kits 3-15
Remote Keyswitch Assembly Dimensions 3-16
Upload/Download Cable 3-16

Verifying the PanelView 1200 Terminal Operation 4-1

Testing the PanelView 1200 Terminal 4-1
Downloading the Application File 4-2
Matching Communications Settings 4-2
Downloading the Application 4-2
Running the Application File 4-3
Connecting the PLC Controller 4-3
Testing Retentive Objects 4-4
Testing the Whole System 4-4

Maintaining Your PanelView 1200 Terminal 5-1

Cleaning 5-1
Changing the Filter on Color Units 5-2
Screen Saver 5-2
Degauss 5-2
Strong Magnetic Fields 5-3

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Specifications A-1

Design Certifications, Standards and Compliances A-1
Design Standards Complied With A-1
Terminal Weights A-2
Keypad Terminals A-2
Front Panel Design A-2
Touch Screen Terminals A-2
CRT Display A-3
Color Unit Display Attributes A-3
Monochrome Unit Display Attributes A-4
PLC Remote I/O Communications A-4
Serial Communications Port A-5
AC Power A-5
Fuses A-6
Character Set A-6
User Memory A-6
Alarm Relay A-6
Batteries A-7
Time and Date Clock A-7
Ambient Operating Temperature Limits A-8
Temperature, Humidity, and High Altitude A-8
Storage Temperature Limits A-8
Humidity A-8
Maximum Altitude A-8
Monochrome Terminals A-8
Heat Generation A-8
Color Terminals A-8
Shock Amplitudes A-9
Shock and Vibration A-9
Vibration Amplitudes for Operating Units A-9
Vibration Amplitudes for Non-Operating Units A-9

Troubleshooting B-1

Verifying Configuration Settings B-1
PanelView 1200 Major Fault Error Messages B-1
PanelView 1200 Minor Fault Error Messages B-2
PLC Communication Problems B-3
Pass-Through Upload/Download Problems B-4
PLC Controllers Required for Pass-Through B-5
Common Error Messages for Manual Address Source Configuration B-6
Common Pass-Through Error Codes B-6
PanelBuilder Problems B-7

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Preface

Manual Overview

This manual describes the features and specifications of PanelView™1200 terminals. PanelView 1200 terminals are available as keypad or touch screen terminals, with color or monochrome display.

Note The term “PanelView 1200” is the new name for PanelView terminals. It refers to all 12-inch CRT PanelView terminals, from Series A upwards.

The manual provides information and examples for:

- installing and maintaining a PanelView 1200 terminal
- operating a PanelView 1200 terminal
- connecting a PanelView 1200 terminal to an Allen-Bradley Programmable Logic Controller (PLC®)
- troubleshooting a PanelView 1200 terminal

Intended Audience

This manual is written to help you install and maintain PanelView 1200 terminals.

Glossary of Terms

The following terms are used throughout this manual.

Application File: A PanelView 1200 terminal application file contains a series of screens and configurations which, when interpreted and executed by PanelView 1200, replace the functions of a control panel of buttons, switches and indicators. The screens are created on a development computer running PanelBuilder™ Development Software or PanelBuilder™ 1200 Configuration Software for Windows, and then saved in an application file on the development computer’s disk. The application file is then downloaded to a PanelView 1200 terminal where it stays in battery-backed RAM.

Battery-Backed RAM: Application files are stored in the PanelView 1200 terminal’s random access memory (RAM). The RAM is backed by an internal battery so that the application file and the status of the retentive objects are maintained even when AC power is switched off.

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Hex Files: Application files which have been converted into Intel™ Hex format for transfer to user PROMs.

Object: An object is an individual component of a PanelView 1200 screen. Each object takes the function of a button, switch or indicator on a control panel. The objects can be dynamic—they can change color or value and can display information. Each object is defined by the developer of the PanelView 1200 screen. Examples of objects include Push Buttons, Selectors, Bar Graphs, Numeric Displays, etc.

PanelBuilder Software: The program runs on the development computer to develop application files for PanelView 1200 terminals. There are two types of PanelBuilder software: PanelBuilder 1200 Configuration Software for Windows and PanelBuilder Development Software for DOS.

PanelView 1200 Terminal: A type of Allen-Bradley terminal with a touch screen or rugged keypad, designed for easy operator interaction with a PLC system over the Remote I/O link.

Retentive: An object is described as retentive when it "retains" its PLC value in the PanelView 1200 terminal after a screen change, an operator's object action, and even after the terminal's power cycle. For example, when a maintained push button is pressed, the corresponding PLC input is set to 1 and will not change until the button is pressed a second time. Retentive objects always display their current states or values.

Screen: A display containing objects (such as push buttons or bar graphs) which can monitor and control a PLC system. Screens are created with either type of the PanelBuilder software.

SRAM: Static Random Access Memory. A type of memory that can maintain its contents through the use of a battery. It does not require continuous refreshing to maintain its contents.

System Memory: The read-only memory that contains the operating firmware for the PanelView 1200 terminal.

Upload/Download: Downloading is the process of transferring an application file from a development computer running either type of the PanelBuilder software, to a PanelView 1200 terminal. Uploading is the process of transferring an application file from the terminal back to the development computer.

User PROM: The read-only memory chip that can be used to contain a back-up copy of an application file, or to increase the memory available for the application file from 64K to 128K. The chip can be either an EPROM or an EEPROM.

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There are two types of user PROM chips that can be used in PanelView 1200 terminal: EPROMs and EEPROMs. EPROMs are Electrically Programmable Read Only Memory chips. EEPROMs are Electrically Erasable Programmable Read Only Memory chips.

The user PROMs store application files in memory that is protected from power failure and failure of the internal battery. A PROM burner is required to copy application files into a user EPROM.

If your system includes a user EEPROM, application files downloaded through the Upload/Download cable will be stored in both battery-backed RAM and in the EEPROM. No PROM burner is required.

Window: An area on the screen containing information. These windows are triggered by the PLC controller and overlay any screen that is displayed.

Related Publications

The following related publications provide additional information on programmable controllers and I/O scanners.

Publication	Pub. No.
1772-SD/SD2 Remote I/O Scanner/Distribution Panel	1772-2.18
1775-S4A I/O Scanner–Programmer Interface Module User's Manual	1775-6.5.1
1775-S5, 1775-SR5 I/O Scanner-Communication Adapter Module User's Manual	1775-6.5.5
5150-RS PI Start-up and Integration Manual	5000-6.5.1
6008-SI IBM™ PC™ I/O Scanner User's Manual	6008-6.5.3
6008-SV VME I/O Scanner User's Manual	6008-6.5.2
6008-SQ Q-Bus I/O Scanner Utility Software User's Manual	6008-6.4.1
1771-SN Sub I/O Scanner Module Data Sheet	1771-2.91
1747-SN RIO Scanner User's Manual	1747-NM005

Publication	Pub. No.
1772-LP2 PLC-2/20 Programming and Operations Manual	1772-6.8.1
1772-LP3 PLC-2/30 Controller Programming and Operations Manual	1772-6.8.3
PLC-3 Family Controller Programming Reference Manual	1775-6.4.1
PLC-5 Family Programmable Controllers Hardware Installation Manual	1785-6.6.1
PLC-5 Programming Software	6200-6.4.7
5250-LP1, LP2 PLC-5/250 Programming Manual	5000-6.4.8
SLC™ 500 Family of Programmable Controllers Advanced Programming Software User's Manual	1747-NM002

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To identify the manuals referring to these programmable controllers, consult the Publications Index, Publication SD499, available from Allen-Bradley.

After-Sales Support

If you need help with your PanelView 1200 terminal, contact:

Allen-Bradley
Global Technical Support
6680 Beta Drive
Mayfield Village, Ohio 44143

Inside USA and Canada: 1-800-289-2279

Outside USA and Canada, contact your local Allen-Bradley office or call USA (216) 646-6800.

Your terminal's catalog number, series, revision letter and firmware revision are shown on the label on the back of the terminal. Please have this information ready when you call for technical support.

Please register your PanelView 1200 terminal by mailing the registration card to the address above, or by FAXing the card to (216) 646-6770.

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Chapter 1

Introduction to PanelView 1200 Operator Terminals

This chapter provides an overview of the PanelView 1200 terminals. It describes:

- the types and features of PanelView 1200 terminals
- the available options and accessories
- the supported Allen-Bradley programmable controllers and remote I/O scanners

The PanelView 1200 Terminal Family

PanelView 1200 terminals provide a fast, easy, flexible and low cost operator interface for a PLC system. They are ideal replacements for traditional control panels.

PanelView 1200 terminals are pre-assembled and ready to install in a control panel cut-out or 19” rack. They connect directly to any Allen-Bradley remote I/O link.

An Allen-Bradley, IBM or compatible computer (the development computer) is used to create PanelView 1200 terminal screens and functions. See the *PanelBuilder Development Software User Manual* for information on PanelBuilder Development Software for DOS. See the *PanelBuilder 1200 Configuration Software for Windows User Manual* for more information on PanelBuilder 1200 Configuration Software for Windows.

The PanelView 1200 terminal family includes the following products and corresponding catalog numbers:

Table 1.A
PanelView 1200 Products and Catalog Numbers

Product	Description	Catalog Number
Keypad Terminal	Amber display	2711-KA1
Keypad Terminal	Color display	2711-KC1
Touch Screen Terminal	Amber display, clip mount, NEMA 12	2711-TA1
Touch Screen Terminal	Color display, clip mount, NEMA 12	2711-TC1
Touch Screen Terminal	Amber display, stud mount, NEMA 4X (indoor use only)	2711-TA4

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Product	Description	Catalog Number
Touch Screen Terminal	Color display, stud mount, NEMA 4x (indoor use only)	2711-TC4
PanelView 1200 Terminal Development Kit	Includes PanelBuilder Development Software (for DOS), Upload/Download cable and manuals	2711-ND1
PanelBuilder 1200 Configuration Software for Windows Development Kit	Includes PanelBuilder 1200 Configuration Software for Windows, PanelView 1200 Transfer Utility Software, and manuals	2711-ND1W
Upload/Download Cable	Upload/Download cable for transferring applications serially	2711-NC1
Remote Keyswitch & RS–232 Port Assembly	Allows remote mode selection and serial port access	2711-NC2
EPROM Chip Set	For application file back-up – Series C and earlier logic boards	2711-NM1
EEPROM Chip Set – Series C and earlier	For application file back-up or extra application RAM – Series C and earlier logic boards	2711-NM2
Rack Mount Kit for Touch Screen Terminals	To rack mount TA1 and TC1 terminals	2711-NR1
Rack Mount Kit for Touch Screen Terminals	To rack mount TC4 and TA4 terminals	2711-NR2
V5 Touch Screen Firmware Upgrade Kit	To upgrade Series C and earlier Touch Screen logic boards to V5 firmware	2711-TUV5C
V5 Keypad Firmware Upgrade Kit	To upgrade Series C and earlier Keypad logic boards to V5 firmware	2711-KUV5C
V5 Touch Screen Firmware Upgrade Kit	To upgrade Series D and E Touch Screen logic boards to V5 firmware	2711-TUV5D
V5 Keypad Firmware Upgrade Kit	To upgrade Series D and E Keypad logic boards to V5 firmware	2711-KUV5D
EEPROM Chip	For application file back-up and extra application RAM – Series D and E logic boards	2711-NM3
Lens Overlay	Anti-glare protective overlay	2711-NV1

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Table 1.B
PanelView 1200 Terminal Replacement Parts and Numbers

Replacement Part	Part Number	Catalog Number
Spare Mode Select Keys	46715-414-01	
Series D and E Logic Board	46715-448-01	
Touch Screen Mounting Hardware for NEMA 12 mounting	46715-416-01	
Touch Screen – Series C or earlier	46715-460-01	
Touch Screen – Series D and E		2711–NT1
Keyswitch Assembly	46715-418-01	
Blank Keypad Legend Inserts	46715-419-01	
Remote I/O Connector	22112-046-03	
Keypad Faceplate – Series D and E		2711–NK1

PanelView 1200 Features

Wide Range of Applications

PanelView 1200 terminals provide many pre-configured functions allowing for a wide range of applications across many industries. This enables you to standardize on PanelView 1200 terminals, thereby simplifying service stock and reducing the cost and time required to train your personnel on many different products.

Cost Optimized for OEM Applications

Since PanelBuilder software resides outside the PanelView 1200 terminal, the terminal is not burdened with this overhead.

Rugged, High Quality Design

PanelView 1200 terminals are designed to strict Allen-Bradley specifications, with high grade components and rugged construction for long trouble-free operation in harsh industrial environments.

Panel or 19” Rack Mounting

All PanelView 1200 terminals can be panel or 19” rack-mounted. Keypad and stud-mounted touch screen terminals are rated NEMA 4X (Indoor use only). Clip-mounted touch screen terminals are rated NEMA 12.

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12” Monochrome or Color Display

All PanelView 1200 terminals have a 12” display in monochrome (amber) or color. Color terminals can display 8 colors at a time from a choice of 16.

Direct Connection to any Allen-Bradley PLC Remote I/O Link

You can integrate a PanelView 1200 terminal quickly and easily into any PLC system capable of supporting the Allen-Bradley 1771 Remote I/O Link.

A PanelView 1200 terminal appears as one or more PLC I/O racks on an Allen-Bradley PLC Remote I/O link; it can be configured as up to 8 different racks—or fractional racks—with any valid PLC rack numbers.

Communications between the PLC controller and the PanelView 1200 terminal are provided through the discrete I/O image table area, and up to 5 block transfers (up to 32 words per block). Block transfers allow you to transfer more information at a time than does discrete I/O. The PanelView 1200 terminals can also communicate to the SLC-5/02 controller through the use of the 1747-SN module.

Direct or Data Highway Plus and Remote I/O Downloading

Application files can be downloaded from the development computer to the terminal via the Upload/Download cable (an RS-232 connection), or via a Data Highway Plus, using the PLC-5 Pass-Through feature.

By using the Data Highway Plus for downloading, you can download to several terminals from a single development computer without having to go from terminal to terminal, connecting the Upload/Download cable for each one.

Factory Installed Battery Provides Extended Back-up

The built-in battery maintains power to the terminal’s memory so the application file is not lost when the terminal is switched off. PanelView 1200 terminals come equipped with a RAM memory chip that requires minimal power from the lithium battery. Also, the battery is not burdened when AC power is applied to the terminal. This provides exceptional life for the battery, which is expected to last for the life of the terminal.

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User-Definable Keys

The keypad terminal has 21 user-definable keys on its front panel. Each one can perform a variety of operations—from turning on PLC input bits to changing screens. PanelView 1200 terminals are extremely flexible: each key can be assigned a different function for each screen.

Custom Keypad Legend Inserts

The function keys on keypad terminals are pre-labeled at the factory, but you can create key labels to suit your application. The included Legend Kit provides blank card material that can be written on with most types of markers or paste-on labels. Replacing the labels on the terminals is a quick and easy task.

Touch Screen Terminal for Simplicity and Space Saving

A touch-sensitive surface overlays the monitor on the touch screen terminal. Selections are made by touching the display directly. Since a keypad is not required, these terminals require less panel space.

Message and Alarm Handling Utilities

A PanelView 1200 terminal application can be set up with stored messages that can be triggered by the PLC controller. There are three kinds of message displays:

- Local Message Displays can appear in any free location on a specific screen (875 messages maximum)
- Information Windows can pop up regardless of the screen currently displayed (496 messages maximum)
- Alarm Windows can pop up regardless of the screen currently displayed (496 messages maximum)

For each type of message displayed—local, information or alarm—there is a message list. Using PanelBuilder software, you can add or edit messages. Messages are numbered and listed in numerical order in the message list.

See your *PanelBuilder 1200 Configuration Software for Windows User Manual* for more information on PanelBuilder 1200 Configuration Software for Windows. See your *PanelBuilder Development Software User Manual* for more information on PanelBuilder Development Software for DOS.

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Built-in Clock

The battery-backed clock runs even when the terminal is powered down. PanelView 1200 can display the current time and date and can send it to the PLC controller. The clock may also be set by the PLC controller.

Audio and Visual Feedback

A PanelView 1200 terminal can be configured to:

- activate a beeper each time a function button or touch cell is pressed
- light up a screen button (if it has a border) when its function key or touch cell is pressed.
- allow the PLC controller to activate the beeper at the terminal
- allow Alarm Messages to activate the beeper at the terminal

Alarm Relay

You can attach a horn or a warning light to the PanelView 1200 terminal's alarm relay. Relay connections are made via the terminal block labeled "Alarm Contacts" at the rear of the terminal. Specific alarm messages, or a PLC program, can then trigger the relay.



Attention The Alarm Relay must be used only as a warning system, not for control purposes.

RS-232 Port

All PanelView 1200 terminals include one RS-232 port for printing on-line alarm messages, uploading and downloading application files, and printing screens.

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PanelView 1200 Terminal Diagnostics

When a PanelView 1200 terminal starts up, it performs a number of fault detection tests. The PanelView 1200 terminal also performs continuous tests for fault conditions when it is communicating online with the PLC controller. In the event of a fault, a message appears, pinpointing the exact nature of the fault.

An operator can also initiate diagnostic tests from the terminal.

For a description of the diagnostic tests, and the various fault conditions, refer to Chapter 2, *PanelView 1200 Terminal Functions*, in this manual.

Options and Accessories

Optional hardware is available that you may find convenient to use with either type of the PanelBuilder software and the PanelView 1200 terminal. For catalog numbers see tables 1.A and 1.B.

Upload/Download Cable

The Upload/Download cable connects the development computer's RS-232 Port to the PanelView 1200 terminal's RS-232 Port. You use it to transfer applications serially between the development computer and the PanelView 1200 terminal If you have a number of terminals, you may want to order more than one Upload/Download cable.

Optional Remote Keyswitch & RS-232 Port Assembly

On the back of all PanelView 1200 terminals is a Mode Select Keyswitch and RS-232 Port. The Remote Keyswitch and RS-232 Port Assembly allows you to mount the port and keyswitch to the front of your control panel while maintaining a NEMA 4X seal. This is convenient if you don't have easy access to the rear of the PanelView 1200 terminal. See Chapter 3, *Installing Your PanelView 1200 Terminal*, for details on mounting and dimensions.

Optional EEPROM or EPROM for Back-up or Additional Application Memory

Earlier PanelView 1200 terminals contained two sockets for optional EPROM or EEPROM chips. Series D and E PanelView 1200 terminals have one socket for an optional EPROM/EEPROM, called the user PROM.

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- an EPROM can be used for application file back-up. The application file is programmed into the EPROM with a PROM burner. Once programmed, it cannot be erased or overwritten.
- an EEPROM can be used for application file back-up or for extra application memory
  - when the EEPROM is used for application back-up, the downloaded application file is automatically copied to the EEPROM during the download operation
  - an EEPROM can also be used to increase the memory available for application file storage from 64K to 128K. If the EEPROM is used in this way, it cannot be used as back-up for the application file.

Functional Variations Among Terminal Types

The terminals are configured almost identically with these exceptions:

- buttons are set up differently on keypad terminals and touch screen terminals
- certain screen objects are specific to keypad terminals, others to touch screen terminals. For more information on objects see your *PanelBuilder 1200 Configuration Software for Windows User Manual*, or your *PanelBuilder Development Software User Manual.*
- foreground and background colors can be assigned only for color PanelView 1200 terminals. Inverse video and intensity settings are assigned for monochrome terminals

Keypad Terminals

The keypad terminal has:

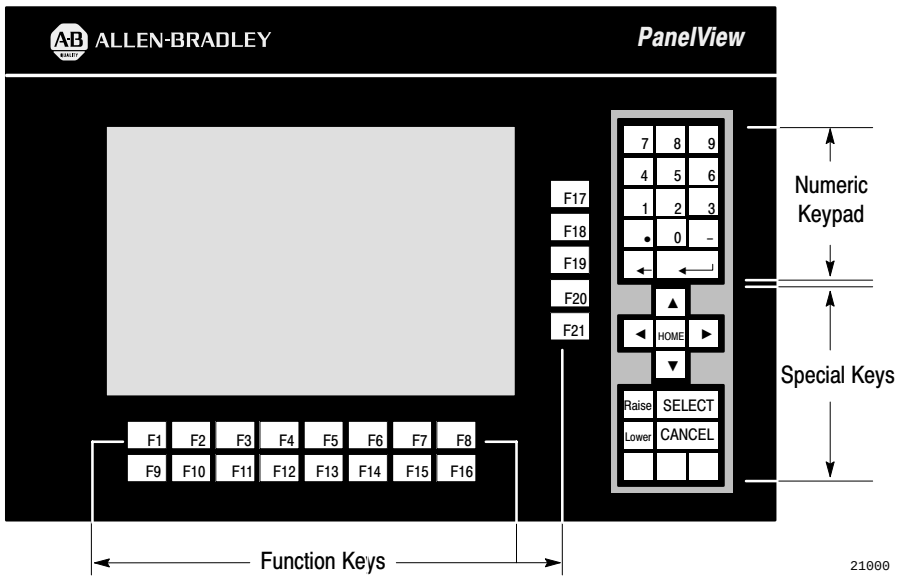
- 21 user-definable function keys
- a keypad for entering numeric values
- up, down, left and right arrow keys
- **Home**, **Enter**, **Select**, **Cancel**, **Raise**, **Lower** and **Backspace** keys

The user-definable function keys on keypad terminals are pre-labeled at the factory, but you can create key labels (legends) to suit your application. The replacement key legends slide in from the rear of the faceplate. The included Legend Kit provides blank card material that can be written on with most types of markers or paste-on labels.

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You can also configure the terminal to beep when a key is pressed.

Figure 1.1
Keypad Terminal



Function Keys

When creating screens, you can assign any of the 21 function keys to objects so that they can perform a wide variety of functions, ranging from turning on PLC input bits to changing screens. Keys can have different functions for each screen created.

Numeric Keypad

The keypad terminal has a numeric input keypad that includes number keys, **Enter**, **Backspace**, **–** (negative), and **.** (decimal) keys. When you need to make a numeric entry, you call up a pop-up Numeric Entry Scratchpad that displays the numbers as you type.

The Numeric Entry Scratchpad is displayed on the screen any time the operator is required to enter numeric data and send it to a PLC controller.

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Special Keys

There are a series of special keys on the keypad terminal:

- the arrow keys are used with the Set Bit and Numeric Cursor Points and the ASCII Input object
- **Home**, **Select** work with the Set Bit and Numeric Input Cursor Points
- **Cancel** is designed to be used with all numeric keypads, Numeric Input and Set Bit Cursor Points.
- **Raise** and **Lower** are used with Numeric Input Cursor Points only.

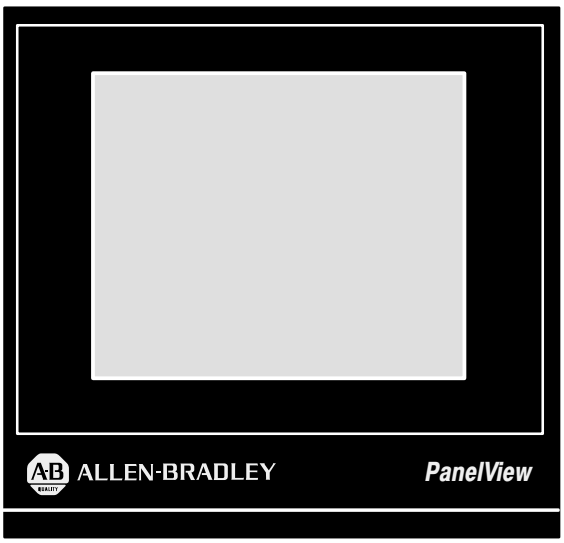
The three blank keys at the bottom right are reserved for future development, and are not configurable.

For more details, see your *PanelBuilder Development Software User Manual*, or your *PanelBuilder 1200 Configuration Software for Windows User Manual.*

Touch Screen Terminals

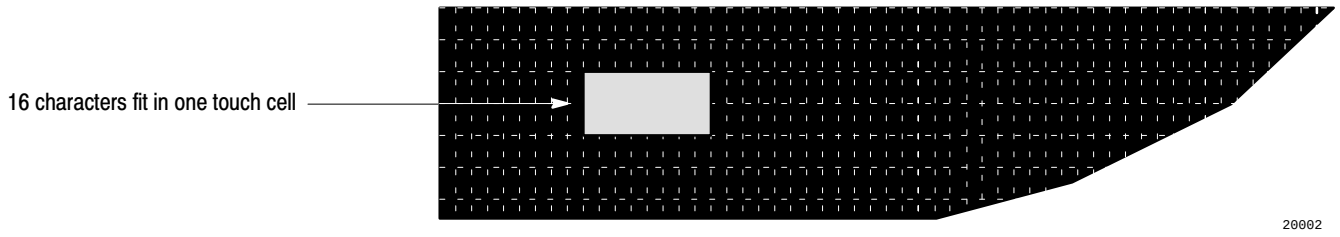
Touch screen terminals are simple to use: an operator presses a selection directly on the screen to carry out the desired task.

Figure 1.2
Touch Screen Terminal

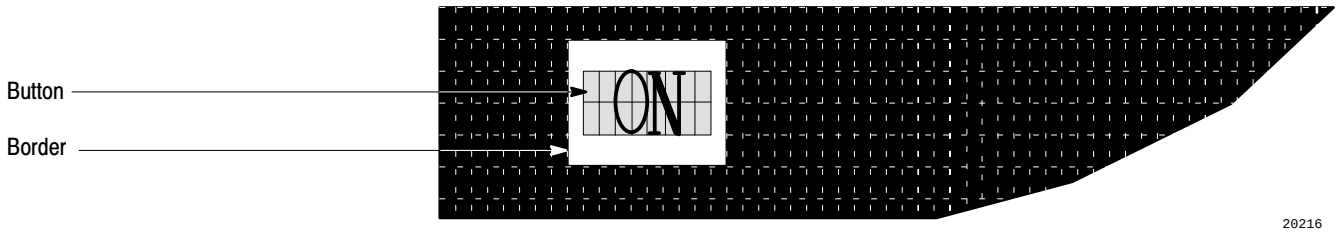


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The touch screen terminal contains 120 touch cells. Each touch cell is 2 characters high by 8 characters wide. You can configure the terminal to beep when a touch cell is pressed.



Touch cells are grouped to create different types and sizes of buttons. The following figure illustrates a single touch cell ON button with double height and double width characters, and a solid border. You can activate input functions by touching the appropriate object on the touch screen.



Objects, Windows, and PLC Control Options

The objects, windows and PLC control options are listed in three groups: those used on both keypad and touch screen terminals, those used for keypad terminals only, and those used for touch screen terminals only.

You will note that the objects are identified as either dynamic or static. Dynamic objects interact with the PLC controller; static objects do not.

For complete details on all objects, windows and options that can be controlled from the PLC controller, refer to your *PanelBuilder Development Software User Manual*, or your *PanelBuilder 1200 Configuration Software for Windows User Manual*.

The following table lists the objects, and indicates which terminal types they are suited for. It also shows whether the object is dynamic or static.

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Table 1.C
Objects for PanelView 1200 Terminals

Object	Type	Keypad or Touch Screen terminal
Momentary Push Button (Normally Open)	Dynamic	Both
Momentary Push Button (Normally Closed)	Dynamic	Both
Latched Input Push Button	Dynamic	Both
Maintained Push Button	Dynamic	Both
Interlocked Push Button	Dynamic	Both
Control List Selector with Enter	Dynamic	Both
Control List Selector without Enter	Dynamic	Both
Set Bit Cursor Point	Dynamic	Keypad
Goto Screen Button	Static	Both
Return to Previous Screen Button	Static	Both
Screen List Selector	Static	Both
Screen Keypad-Enable Button	Static	Keypad
Keypad Screen Selector	Static	Touch Screen
Multistate Indicator	Dynamic	Both
List Indicator	Dynamic	Both
Set Value Button	Dynamic	Both
Increment Value Button	Dynamic	Both
Decrement Value Button	Dynamic	Both
Numeric Data Display	Dynamic	Both
Numeric Keypad-Enable Button	Dynamic	Keypad
Numeric Input Cursor Point	Dynamic	Keypad
Numeric Keypad (small and large)	Dynamic	Touch Screen
ISA Symbol	Dynamic	Both
Bar Graphs (vertical or horizontal)	Dynamic	Both
Time Display	Dynamic	Both
Date Display	Dynamic	Both
ASCII Input	Dynamic	Both
Scrolling List Object	Dynamic	Both
Screen Print Button	Static	Both
Local Message Display	Dynamic	Both
ASCII Display	Dynamic	Both
Text	Static	Both
Line, Line Arrows, Line Connect Characters	Static	Both
Box	Static	Both
Arc	Static	Both
Circle	Static	Both

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Objects Common to All PanelView 1200 Terminals

The following objects can be displayed on both the keypad terminal and the touch screen terminal:

- **Momentary Push Button (Normally Open)** turns on (sets to 1) a PLC input control bit, as long as the button is held.
- **Momentary Push Button (Normally Closed)** resets a PLC input control bit that is normally set to 1. This bit stays off as long as the button is pressed.
- **Latched Input Push Button** turns on a PLC input control bit and holds the bit on until the PanelView 1200 terminal sees a PLC output bit (handshake bit) turn on.
- **Maintained Push Button** turns on a specific PLC input control bit until the button is pressed a second time.
- **Interlocked Push Buttons** are several push buttons functioning as a group. When you press one of the buttons, it cancels the other buttons and makes the selection. The PLC controller is informed—via a common PLC input address—which button in the group is the currently selected option.
- **Control List Selector with Enter** contains a vertical list of operator choices. An operator can use the object's Up Cursor and Down Cursor buttons to move an arrow through the available selections. The selection is sent to the PLC controller only when the **Enter** button is pressed.
- **Control List Selector without Enter** contains a vertical list of choices. The operator uses the object's Up Cursor and Down Cursor buttons to move through the available selections. The current selection is automatically sent to the PLC controller via the object's PLC input control address.
- **"Goto Screen" Button** allows the operator to switch to an assigned screen.
- **"Return To Previous Screen" Button** switches back to the previous screen.
- **Screen List Selector** allows an operator to choose a screen from a list.
- **Multistate Indicator** is a display area with up to sixteen different display states, each with a unique combination of text, colors and attributes. The value in the PLC address determines which state is displayed.

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- **List Indicator** displays a list of PLC states and highlights the current state. The value of the PLC address determines the item that will be highlighted in the list.
- **Set Value Button** transfers a pre-defined value to the PLC controller via the assigned PLC input address.
- **Increment Value Button** increases the value stored at a PLC input address each time the button is pushed. If the button is held down, the PLC controller input value continues to increase to a pre-assigned upper limit.
- **Decrement Value Button** decreases the value stored at a PLC input address each time the button is pushed. If the button is held down, the PLC controller value continues to decrease to a pre-assigned bottom limit.
- **Numeric Data Display** displays the current value of an assigned PLC controller address (binary, BCD, or integer). Scaling (Y=Mx+b) and other options can be used to display the number in appropriate units.
- **ISA Symbols** (32 in total) allow you to assign display attributes to four possible states for each symbol object. The symbols have two sizes: large and small.
- **Bar Graphs** can be used to monitor changing conditions, such as temperature or fluid levels. Each graph can be up to 80 characters wide and 24 characters high.
- **Time Display** can be located anywhere on the screen.
- **Date Display** can be located anywhere on the screen.
- **ASCII Input** allows the PanelView 1200 terminal operator to send ASCII strings of up to 64 characters to the assigned PLC input address.
- **Scrolling List** object is an extended and enhanced control list selector/list indicator that is not limited by the number of lines on the screen. The Scrolling List can consist of any combination of local message display, multistate indicator, and numeric display lists with up to 999 items in each list. The Scrolling List object reduces PLC ladder logic and addressing typically needed to display and edit large amounts of data.

  This object can be used to control and monitor sequential operations in both auto and manual modes or to provide operators with a selection list.

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- **Screen Print Button** allows an operator to print any screen currently displayed on the PanelView 1200 terminal.
- **Local Message Display** can be defined as a rectangular area of any size, and placed in any location on the PanelView 1200 terminal screen. A PLC control address is assigned to the object, allowing the PLC controller to trigger any one of up to 875 messages to appear in this area.
- **ASCII Display** is used to display a character string, sent from the PLC controller, directly on the PanelView 1200 terminal. The display is updated whenever the string changes.
- **Text** is used for screen titles, to provide instructions, or for any text that is not bound to an object.
- **Lines** (Horizontal, vertical and diagonal) are used to illustrate, and to separate sections of screens.
- **Line Arrows** are used to illustrate.
- **Line Connect Characters** are used to connect lines and lines and objects.
- **Boxes** are graphic objects like lines, which can surround other objects or simply illustrate.
- **Arcs** are used to illustrate quarter, semi, and three quarter circles, as well as circles. They can also be used to connect line objects to form rounded corners.
- **Circles** are composed of four arcs. They are used to illustrate.

Objects for the Keypad Terminal

The following objects can be displayed only on a keypad terminal:

- **Numeric Input Cursor Point** consists of a numeric display and a cursor character. This object can be used to enter numbers into an array of numeric fields similar to an array of thumb-wheel switches on a control panel. This object has an associated PLC input address in which the value is communicated to the PLC controller.
- **Numeric Keypad-Enable Button** pops up the Numeric Entry Scratchpad in which the operator can enter a number. The number is then stored in the specified PLC input address.
- **Screen Keypad-Enable Button** pops up the Numeric Entry Scratchpad in which the operator can enter a screen number. The screen with that number is displayed.

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- **Set Bit Cursor Point** consists of a bit and a cursor character. This object is used to “point” to a screen character. Several set bit cursor points can be in the same screen. Each one can have a different (user-defined) pointer; only the current pointer is visible and blinking. The current cursor point’s input bit is always on, so the PLC controller always “knows” the current selection.

  Both the set bit and numeric input cursor points can be used on the same screen.

Objects for the Touch Screen Terminal

The following objects can be displayed only on a touch screen terminal:

- **Keypad Screen Selector** allows an operator to display a screen by entering the screen number. The selector is available in large and small sizes.
- **Numeric Keypad** is used to send a value to the PLC controller. A PLC input address is assigned to each Numeric Keypad; the value that the operator enters is stored at this address. The keypad is available in large and small sizes.

Information and Alarm Windows

The Information and Alarm Windows can pop up on the screen at any time to display important information:

- **Information Window** displays a message when triggered by the PLC controller. The window remains until the operator presses the Clear button, or until the PLC controller clears it. There can be as many as 496 different messages for the Information Window.
- **Alarm Window** is similar to the Information Window but with many additional features. Each message can be configured to sound the audio indicator (beeper), trip the alarm relay or print a message on a printer.

Alarms are time and date stamped and listed in the order they occur. The operator can acknowledge the alarm, clear the display, silence the alarm, view the Alarm History Screen, or view the Alarm Status Screen. There can be as many as 496 different messages for the Alarm Window.

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Summary of PLC Controlled Options

The following options can be controlled by the PLC controller:

- **PLC Controlled Audio** allows the PLC controller to control the PanelView 1200 terminal's audio beeper. A PLC bit address is assigned. When the PLC controller sets this bit, the terminal's beeper is activated. This does not interfere with the Alarm Window's use of the beeper.
- **PLC Controlled Alarm Relay** allows the PLC controller to control the PanelView 1200 terminal's alarm relay. A PLC bit address is assigned, and when the PLC controller sets this bit, the terminal's alarm relay is energized. This does not interfere with the Alarm Window's use of the relay.
- **PLC Controlled Alarm Quantity/Accum Time Reset** allows the PLC controller to reset the alarm count and the accumulated time-in-alarm total. These totals are shown in the Alarm Status screen.
- **PLC Controlled Screen Number** allows the PLC controller to control which screen is displayed. When the PLC controller puts a screen number in an assigned address, the PanelView 1200 terminal displays the screen. This PLC controlled screen change always has precedence over operator-controlled screen changes, and operator-generated screen changes are allowed only if the PLC address contains 0.
- **PLC Controlled Screen Print** allows the PLC controller to trigger a printout of the screen displayed on the PanelView 1200 terminal.
- **PLC Controlled Time and Date** allows the PanelView 1200 terminal to read the time and date from the PLC controller and set its internal clock.
- **PLC Controlled Clear Window** clears the alarm window, the alarm beeper and the alarm relay when a 0 to 1 transition is detected in the assigned PLC address bit.
- **PLC Controlled Silence Alarms** silences the beeper and deactivates the alarm relay when a 0 to 1 transition is detected on this bit.

Applicable Programmable Controllers and Connections

PanelView 1200 terminals can be connected to any Allen-Bradley 1771 Remote I/O Link. Applicable host controllers include almost all Allen-Bradley Programmable Logic Controllers as well as certain IBM computers, VME Controllers, and the DEC™ Q-Bus™ interface.

Newly released Allen-Bradley programmable controllers that are not yet listed will support PanelView 1200 terminals, as long as they support the 1771 remote I/O.

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The PanelView 1200 terminal appears as one or more I/O rack(s) to a PLC controller. It has the same configurability—and more—as a standard I/O rack. Refer to your applicable Allen-Bradley Programmable Controller and Remote I/O Scanner user's manuals for various connection and remote I/O configuration limitations.

PLC-5/11, 5/15, 5/20, 5/25, 5/30, 5/40, 5/60 and 5/250 Processors

You can connect one or more PanelView 1200 terminals directly to a PLC-5 Remote I/O Port (in Scanner Mode) along with other I/O racks. If the PLC-5 Remote I/O Port is used in the adapter mode, one or more PanelView 1200 terminals can be connected to that PLC-5 along with other I/O racks via a 1771-SN I/O Subscanner Module.

All Series C Rev A and later terminals can communicate at 230.4K baud with any PLC-5 capable of supporting that baud rate.

If you are using a PLC-5/15 with partial rack addressing and block transfers, you must use PLC-5/15 series B, revision J or later.

PLC-5/10 Processor

One or more PanelView 1200 terminals can be connected to this processor along with other I/O racks via the 1771-SN I/O Subscanner Module.

PLC-3 and PLC-3/10 Processors

One or more PanelView 1200 terminals can be connected directly to a PLC-3 or PLC-3/10 remote I/O Scanner along with other I/O racks.

If you are using a 1775-S4A Remote Scanner/Distribution panel, you must use Series B or higher.

PLC-2 Family Processors via 1771-SN or 1772-SD2

This includes the PLC-2/05, 2/15, 2/30, etc. One or more PanelView 1200 terminals can be connected to these processors along with other I/O racks via the 1771-SN I/O Subscanner Module.

If you are using a 1772-SD2 Scanner/Distribution panel, you must use revision 3 or later.

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SLC-5/02 via 1747-SN

One or more PanelView 1200 terminals can be connected to the 1747-SN I/O Subscanner Module (SLC–5/02 RIO connection) for the SLC–5/02 processor. Each module provides an additional remote I/O link for the host programmable controller. The rack range of the 1747-SN is 0 to 3.

Important No block transfers are possible with the SLC-5/02 and 1747-SN Series A module.

1771-SN I/O Subscanner Module

One or more 1771-SN I/O Subscanner Modules can be installed in any standard Allen-Bradley 1771 I/O rack. Each module provides an additional remote I/O link for the host programmable controller. One or more PanelView 1200 terminals can be connected to any of the previously mentioned processors along with other I/O racks via a 1771-SN I/O Subscanner Module. Refer to the *1771-SN Sub I/O Scanner Module Data Sheet* for specific details.

6008-SI IBM PC I/O Scanner

This module can be installed in an IBM PC® or compatible computer to provide the computer with an Allen-Bradley 1771 Remote I/O Link. You can then connect Allen-Bradley Remote I/O racks and devices such as the PanelView 1200 terminal to this computer.

6008-SV VME I/O Scanner

This module can be installed in a VME backplane, providing the VME controller with an Allen-Bradley 1771 Remote I/O Link. Allen-Bradley Remote I/O racks and devices such as the PanelView 1200 terminal can then be connected to this VME controller.

6008-SQ DEC Q-BUS I/O Scanner

This module can be installed into a DEC Q-Bus controller to provide it with an Allen-Bradley 1771 Remote I/O Link. Allen-Bradley Remote I/O racks and devices such as the PanelView 1200 terminal can then be connected to this controller.

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Chapter 2

PanelView 1200 Terminal Functions

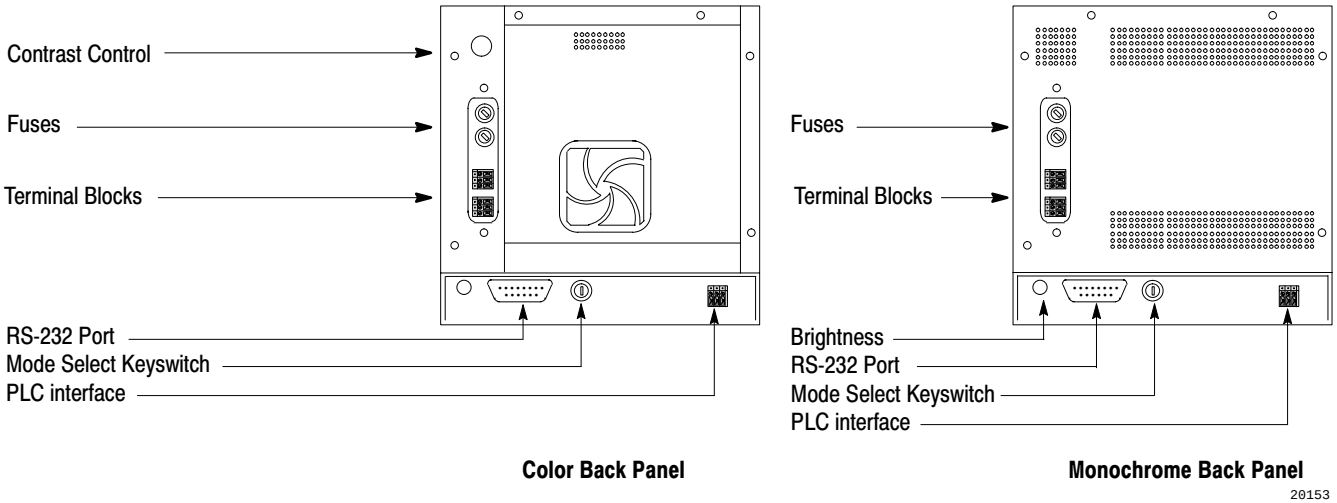
This chapter describes how to use the PanelView 1200 terminal's two operating modes and discusses the power-up and on-line tests that the terminal performs.

The PanelView 1200 terminal has two modes of operation: Configure mode and Run mode. Configure mode allows you to set up the terminal, and Run mode executes the application file. The PanelView 1200 terminal communicates with your PLC controller only when it's in Run mode, so set it to this mode to monitor and control your PLC application.

Contrast, Brightness and the Mode Select Keyswitch

The following illustration shows the rear panel of a PanelView 1200 terminal. Note the location of the Mode Select Keyswitch, the brightness control, (Monochrome terminals), and the contrast control (Color terminals).

Figure 1.1
PanelView 1200 Terminal Rear Panels



The Brightness and the Contrast Controls adjust the terminal display intensity. The Mode Select Keyswitch switches between Configuration and Run modes.

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With the optional Remote Keyswitch Assembly, you can access the Mode Select Keyswitch and RS-232 port from the front of the rack where the PanelView 1200 terminal is mounted.

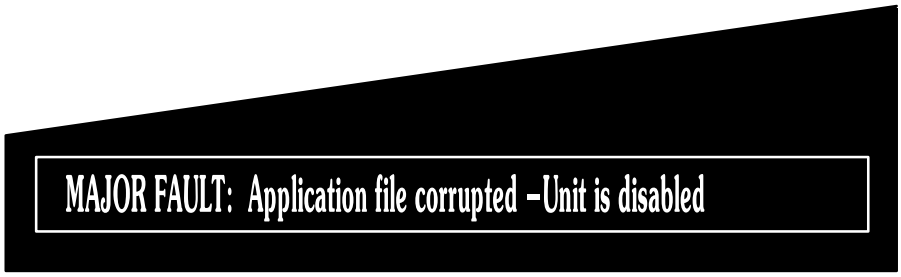
For more information on the Remote Keyswitch Assembly, see the instruction sheet supplied with that option.

Fault Conditions

There are two types of faults: major faults and minor faults.

Major Faults

If the PanelView 1200 terminal detects a major fault, it enters Major Fault mode, and displays a message in the Major Fault Window, like this:



20201

While in Major Fault mode, the PanelView 1200 terminal cannot control or monitor PLC controller functions. The operator must correct the problem and restart the terminal, or switch modes.

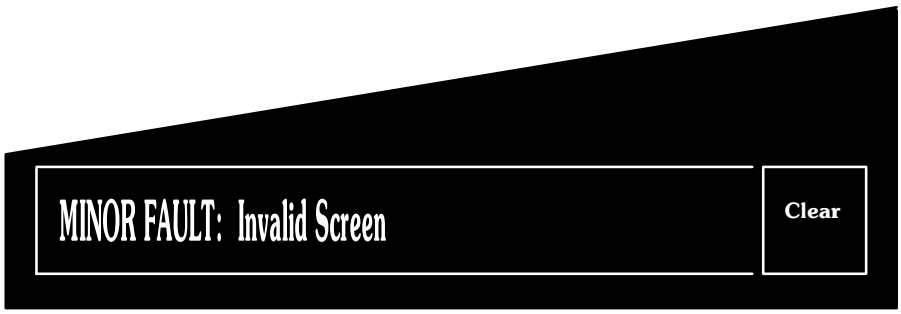
In Run mode, the faults logged to the Major Fault Window cannot be cleared. If the terminal is set to Configuration mode, the Major Faults detected on power-up will be logged to the Minor Fault Window and can be cleared from there.

While the PanelView 1200 terminal is in Major Fault mode, it appears as a faulted rack to the host PLC controller. You can design your PLC program to monitor the rack fault bits that correspond to the PanelView 1200 terminal's rack assignments, and to respond whenever these bits indicate that the terminal isn't operating or communicating properly. See your PLC controller and I/O scanner user's documentation for details on how to use the rack fault bits.

Minor Faults

If the PanelView 1200 terminal detects any minor faults, it disables normal input entry and displays a message in the Minor Fault Window, like this:

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The operator must press the **Clear** button to resume normal operation. The Clear button temporarily overrides the function that was previously assigned to the associated function key or touch cells. Minor faults do not affect PLC communications.

Power-Up Functions

When you power up the PanelView 1200 terminal, it performs a number of tests for major or minor faults to determine if any problems will affect its operation. If a major fault is detected, the system will enter Fault mode.

Once all the tests are successfully completed, the PanelView 1200 terminal will go into Configuration or Run mode, depending on the Mode Select Keyswitch setting.

Important If an application file is in battery-backed RAM and a user memory PROM containing a different application file has been installed, the application file in RAM will be overwritten with the application file in user PROM at power up.

Checksum and Read/Write Memory Tests

At powerup, the Checksum tests verify the firmware memory, the application file stored in the battery-backed RAM, and the user PROM. There is also a read-write memory test which verifies the battery-backed RAM.

- if the firmware memory fails, it is a major fault
- if the application file fails, it is a major fault
- if the user PROM fails, it is a minor fault
- if the battery-backed RAM fails, it is a major fault.

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Important If the optional user EPROM or EEPROM is corrupted or not installed, the terminal will display this fault message each time it is powered up:



You can safely clear this message and continue. You can also disable this message altogether, through the Configuration Mode Menu item `User EPROM/EEPROM Power-up Test`, explained later in this chapter.

In the case of a corrupted application file, download the file again. If the problem persists, your PanelView 1200 terminal requires servicing; contact your Allen-Bradley representative.

Battery Failure Test

The battery should last the life of the PanelView 1200 terminal. However, the battery is constantly monitored when the PanelView 1200 terminal is in Run mode because the battery-backed RAM is so important to PanelView 1200 terminal operation.

If the battery should fail, a Minor Fault message will appear to inform the operator. As long as the terminal's power is not turned off, there is no problem. If power is lost and restored to the terminal, the results depend on whether there is a user PROM installed.

The following table lists the results of terminal power loss after battery failure.

If the battery fails and terminal power is lost:	This happens:	Fault level:	What to do when terminal power is returned:
And no user PROM is installed	The application file in battery-backed RAM is lost.	MAJOR FAULT:	For temporary use of the terminal, download the file again and do not cycle power. Call your A-B representative to replace the board.
And the user EPROM/EEPROM contains a back-up application file	The application file will be reloaded into RAM from the user EPROM/EEPROM, but any retained values will be lost.	MINOR FAULT:	Press CLEAR to clear the message and proceed. Call your A-B representative to replace the board the battery is on.

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Communication Test

The PLC Communication test verifies that the communication card is installed and functioning. If the test fails, the following message is displayed in the status window at the top of the screen:



When this occurs, the status window will continue to flash on and off until the problem with the PLC controller is corrected.

Watchdog Test

The Watchdog test verifies that the watchdog circuit is able to reset the terminal. If the PanelView 1200 terminal fails this test, it is a major fault, and the terminal will require servicing by Allen-Bradley.

Starting Up the Terminal in Configuration Mode

To start up your PanelView 1200 terminal in Configuration mode, set the Mode Select Keyswitch to *Configure* and connect the power.

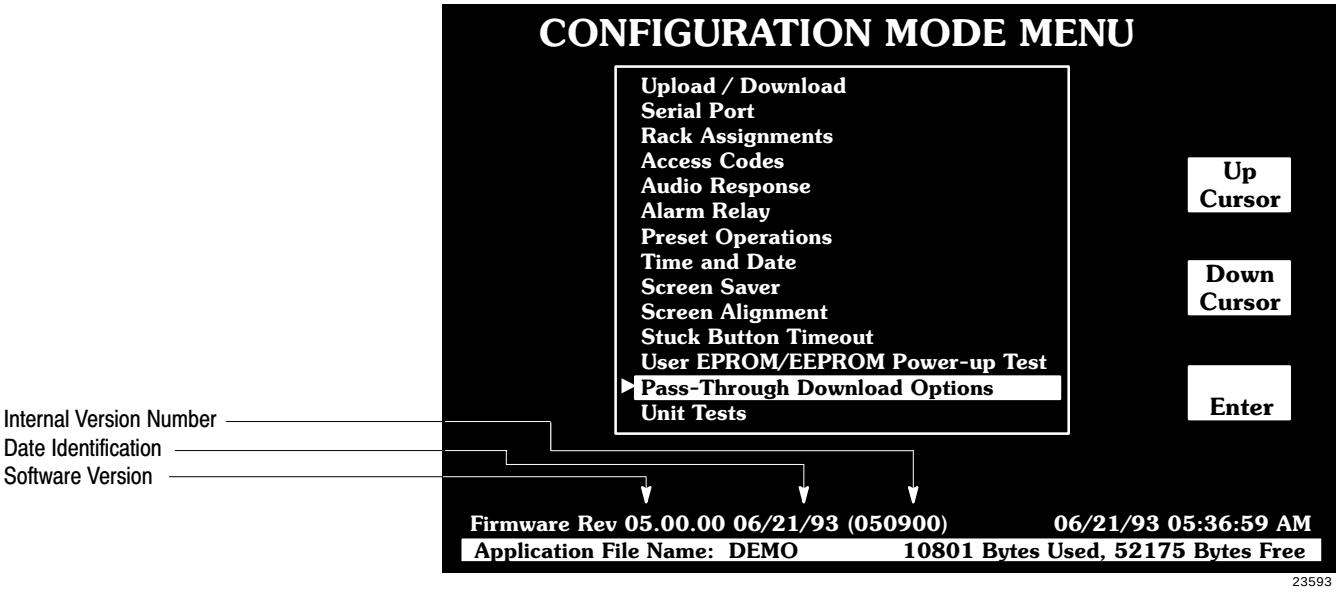
You'll want to start up in Configuration mode until you've configured the terminal and downloaded your application file. When in Configuration mode, your PanelView 1200 terminal will appear as a faulted rack to your PLC controller.

All major faults detected in Configuration mode will be displayed in the Minor Terminal Fault Window and can be cleared by pressing the fault window's Clear button.

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The Configuration Mode Menu

With the Mode Select Keyswitch set to Configure mode, the terminal displays the Configuration Mode Menu.



Important The Configuration Mode Menu for a touch screen terminal also contains a False Depression Test which is discussed later in this chapter.

Upload/Download

There are two methods of uploading and downloading application files:

- using the Upload/Download cable connected to the computer and the terminal's RS-232 port
- via a Data Highway Plus using the PLC-5's Pass-Through feature

Uploading and Downloading instructions for application files are provided in the *PanelBuilder Development Software User Manual*, the *PanelBuilder 1200 Configuration Software for Windows User Manual*, and the *PanelView 1200 Transfer Utility User Manual.*

If you are using an older version of PanelView 1200 firmware, see your PanelBuilder software user manual for details on version compatibility.

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Important Downloading via the Pass-Through feature requires configuration in PanelBuilder software or "Manual" configuration in the terminal's Pass-Through Download Options menu, so that the network information and the PanelView 1200 terminal's location on the network is correct. Refer to the instructions in your *PanelView 1200 Transfer Utility User Manual*, the *PanelBuilder Development Software User Manual* or see the *Pass-Through Download Options* section later in this chapter.

Serial Port

Use this menu item to set the serial communication port for downloading or uploading application files, or for printing alarm messages or screens.

1 Choose *Serial Port* from the PanelView 1200 terminal's Configuration Mode menu by cursoring to Serial Port and pressing **ENTER**.

2 Press the **Choose List** button. The list of parameters in the window on the left will toggle between these headings:

- *Upload/Download* to configure the port for uploading or downloading your application file
- *Printer* to configure the port for printing alarm messages or screens on a serial printer.

The default settings for Upload/Download and Printer can be displayed in the Serial Port screen as follows:

Port Parameters	Upload/Download	Printer
Baud Rate	9600	9600
Parity	None	None
Data Bits	8	8
Stop Bits	1	1
Handshake Type	Hardware	Software
Auto-Line Feed	Off (not configurable)	On
Auto-Form Feed	Off (not configurable)	On

3 Using the **Change Data** button, set the desired baud rate, number of bits, parity, etc.

4 When the desired values have been configured, press the **Save & Exit** button to save them permanently to RAM.

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Important The Auto Line Feed and Auto Form Feed parameters are not used for uploading/downloading, and cannot be changed. Although you can choose 7 or 8 for the “Data Bits” option, always use 8 (the default), or you won’t be able to transfer. The 7 data bits option applies only to printer settings.

You should not have to change the default settings for Upload/Download; the PanelBuilder software expects these settings. If you do change the settings, be sure you set the PanelBuilder development computer’s serial port to match. See instructions for configuring the computer’s serial port in your PanelBuilder software user manual, along with instructions for uploading and downloading.

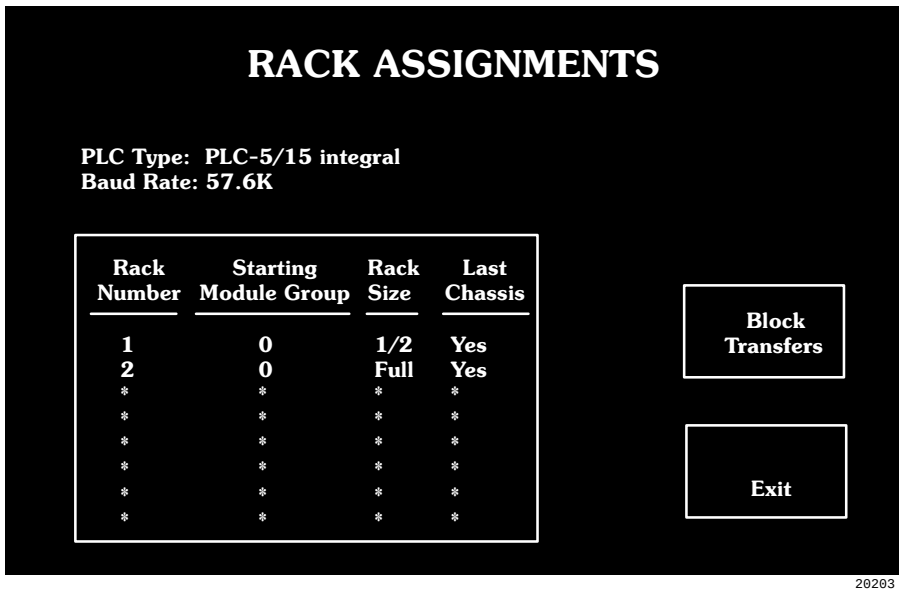
For printer settings, refer to your printer’s manual.

Rack Assignments

Choose *Rack Assignments* to view the rack assignments and block transfer file definitions of the current application file. These settings can be changed only in the development computer using PanelBuilder software.

Important You must first download an application file for this function to work.

The Rack Assignments screen shows the rack assignments, the PLC type, and the baud rate. A button allows you to view the block transfer file definitions. The following illustration shows the Rack Assignments screen for a touch screen terminal.



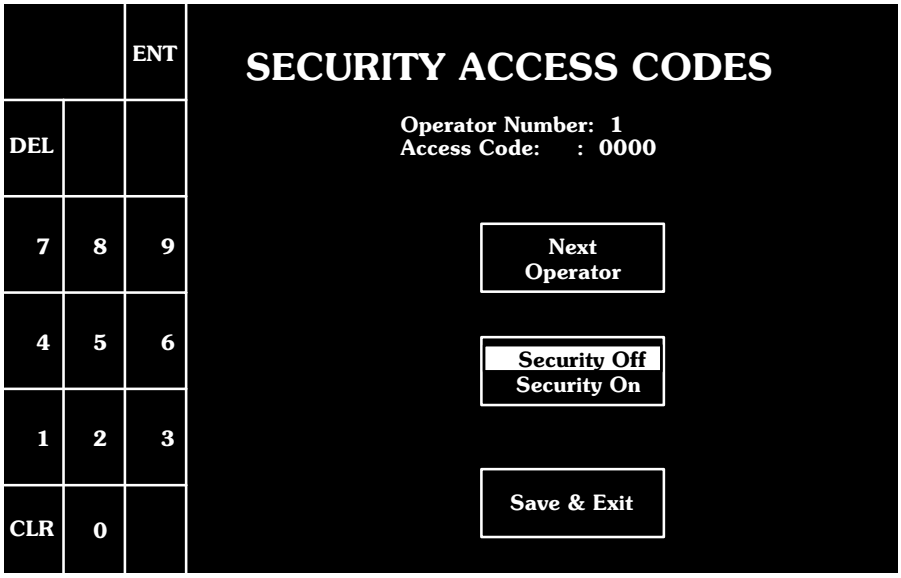
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Access Codes

Choose *Access Codes* to assign up to eight security code settings. Once security codes are set, an operator will have to sign on using the appropriate code, in order to view screens that have assigned security. Screen security is assigned using PanelBuilder software.

Important If a screen is triggered by the PLC Controlled Screen option, or if it is the Power-up screen, that screen will be displayed and no access code will be requested.

The Operator Number display shows which operator's code you are setting. Press **Next Operator** to step through the eight available operator access codes. The following illustration shows the Security Access Codes screen on a touch screen terminal.



To set an operator's code on a touch screen terminal, enter a numeric sequence in the keypad and press **ENT** (Enter). On keypad terminals, press the **Change Access Code** button to enable the Access Code keypad window, and use the function keypad to enter the access code.

You can also globally enable or disable all security by pressing **Security On**/**Security Off**.

Once security codes are set, and security is enabled, operators can access a restricted PanelView 1200 screen only by entering the appropriate access code. If the code is invalid, the requested screen will not be displayed and the operator will be informed which operator(s) have access to that screen.

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Audio Response

The PanelView 1200 terminal can sound a beep whenever you press an active touch cell or keypad. The PLC controller can also trigger this audio indicator either directly with the PLC Controlled Audio, or through an alarm message. The button, alarm and volume parameters can be configured from the Audio Response screen. For more information, see your *PanelBuilder Development Software User Manual*, or your *PanelBuilder 1200 Configuration Software for Windows User Manual*.

Choose *Audio Response* to set:

- the Touch Audio (for touch screen terminals) or Button Audio (for keypad terminals) On or Off. The default setting is On. With the setting On, the PanelView 1200 terminal beeps each time you press a button.
- the Alarm Audio On or Off. The default setting is On. With the setting On, both the PLC Controlled Audio bit and alarm messages can cause the PanelView 1200 terminal's built-in audio indicator to beep. Setting this to Off will disable both the alarm messages and the PLC Controlled Audio operation.
- the Audio Volume level to High or Low. The default setting is High.

Alarm Relay

The alarm relay can be wired to an external alarm or warning light. This relay is controlled by configuring an alarm message to activate the alarm relay, or by defining a PLC Controlled Relay output bit (see your *PanelBuilder Development Software User Manual*, or your *PanelBuilder 1200 Configuration Software for Windows User Manual*).

Use *Alarm Relay* to enable or disable the relay, and to test the alarm relay by manually activating or deactivating it. The alarm relay test stops when you exit the Alarm Relay screen or toggle relay test to Off.

Preset Operations

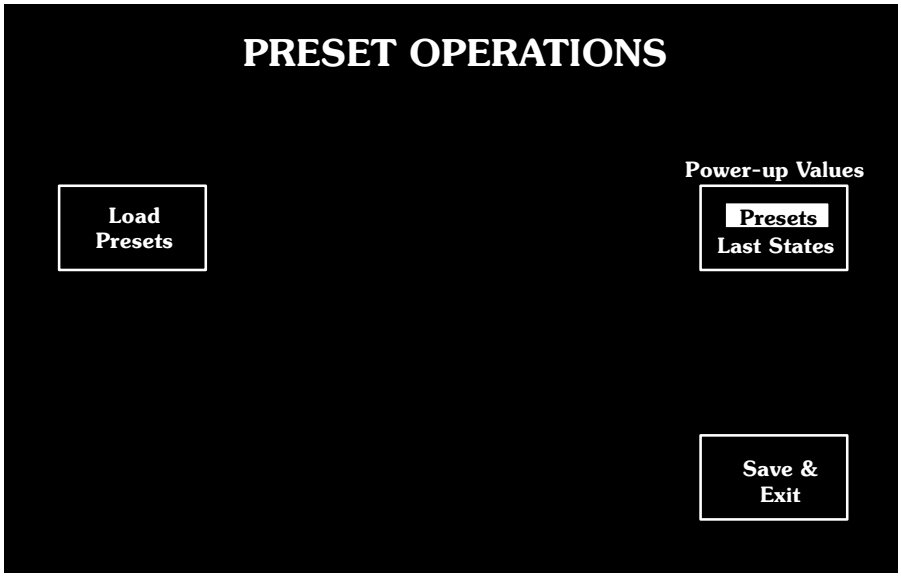
In the PanelBuilder software, you can preset the initial states or values of certain retentive objects including Control Selectors, Interlocked Push Buttons, Numeric Input objects, and other multi-state objects. These values are PLC input states that are initially transferred to the PLC controller and remain unchanged until altered by an operator.

Choose *Preset Operations* to set the operation of retentive objects.

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Attention If you upload an application file from a PanelView 1200 terminal, the file will contain input states or values based on the last use of the terminal—not necessarily the terminal's original preset values. If you want the file to contain the presets, press the Load Presets button before uploading. This resets the terminal's retentive input functions as well.

The following illustration shows the Preset Operations screen for a touch screen terminal.



For more information on retentive objects see your *PanelBuilder Development Software User Manual*, or your *PanelBuilder 1200 Configuration Software for Windows User Manual*.

- **Power-up Values** can be set to Presets or Last States. Presets—the default setting—loads the initial presets, configured in PanelBuilder software, when the terminal is powered up. Last States causes the retentive objects to retain the state they had when the terminal was powered down.

  Important To save your selection, press **Save & Exit** before powering down or changing to Run mode.

- **Load Presets**—Pressing the Load Presets button loads the initial presets, configured in PanelBuilder software, into all retentive objects.

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Time and Date

Choose *Time and Date* to set the PanelView 1200 terminal's battery-operated clock.

Enter the time in 24 hour (Military) format:
hh-mm-ss for keypad terminals
hh:mm:ss for touch screen terminals

Enter the date in the format:
mm-dd-yy for keypad terminals
mm/dd/yy for touch screen terminals

Screen Saver

The screen saver preserves the life of the PanelView 1200 terminal screen by blanking the screen when no buttons have been pressed for a period of time.

Choose *Screen Saver* from the Configuration Mode menu to display the screen and set the amount of time which should pass before the screen blanks. Elapsed time can range from 1 to 999 minutes. A setting of 0 (zero) disables the screen saver.

When the screen blanks, this message appears on a touch screen terminal:



20316

This message appears on a keypad terminal:



20315

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Touching the screen or keypad causes the current screen to reappear.

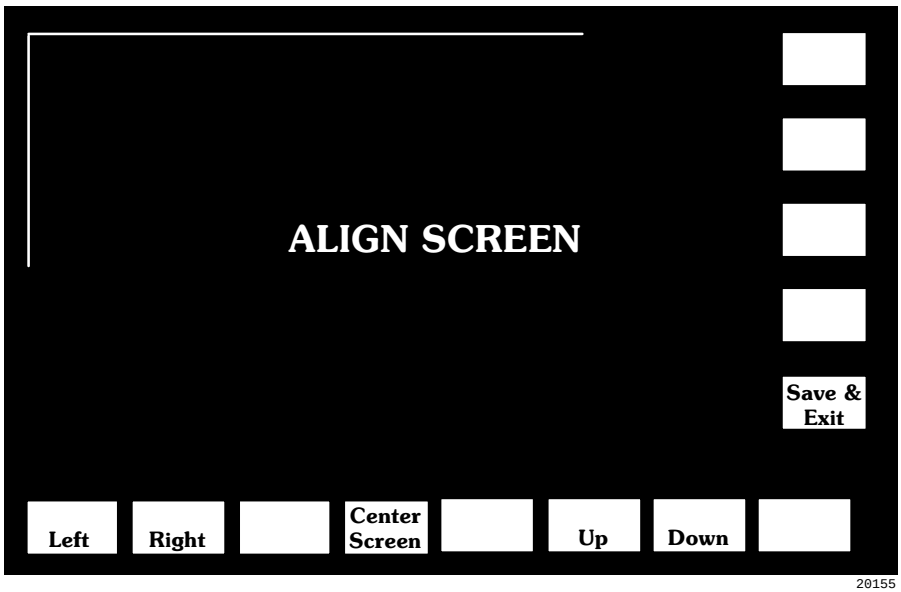
Mode changes, PLC generated Alarm Messages, Information Messages, PLC generated screen requests, or terminal fault messages also turn off the screen saver.

Screen Alignment

Choose *Screen Alignment* to set the position of the image on the terminal display.

On a keypad terminal, use the function keys to change the alignment of a screen. The function key nearest the **Center Screen** button sets the screen alignment to its default position. The function keys nearest the **Up**, **Down**, **Left** and **Right** buttons move the screen. The function key nearest the **Save & Exit** button saves the current screen alignment and returns you to the Configuration Mode Menu.

The following illustration shows the Screen Alignment screen for a keypad terminal.

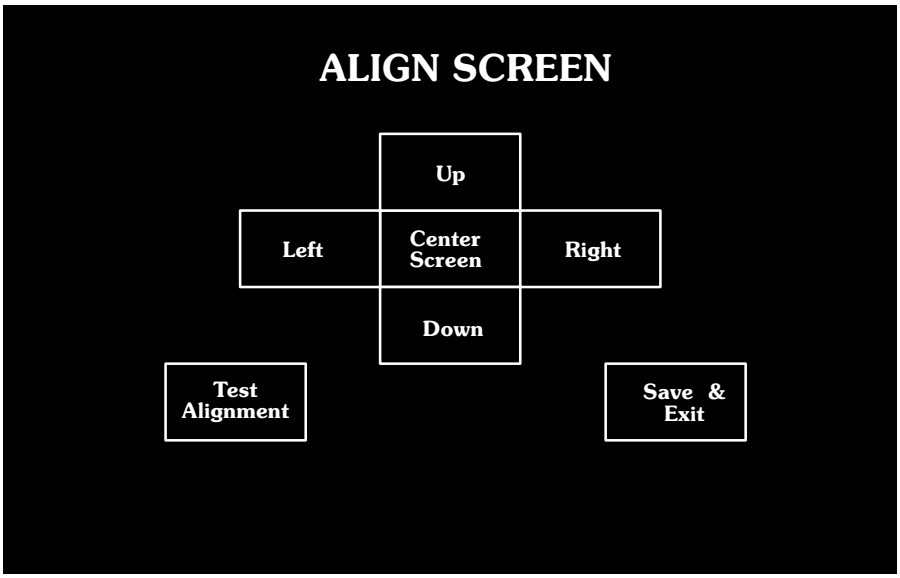


On a touch screen terminal, use the **Test Alignment** button to line up the on-screen buttons with the touch cell borders. Press the four corners of the Test Alignment button to see if it is properly aligned. If the button does not light up when you press the corners, use the **Up**, **Down**, **Left** and **Right** buttons to move the screen so that it does. Alignment is particularly important with touch screen displays, especially if the terminal display will be viewed at an angle.

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Pressing the **Center Screen** button sets the screen alignment to its default position. Pressing the **Save & Exit** button saves the current alignment and returns you to the Configuration Mode Menu.

The following figure shows the Screen Alignment screen for a touch screen terminal.



Stuck Button/Cell Timeout

Choose *Stuck Button Timeout* or *Stuck Cell Timeout* from the Configuration Mode menu to set the length of time a touch cell or function key may be pressed before the terminal determines that it (the key or cell) is stuck and enters fault mode.

Use the keypad to set the amount of time from 0 to 99 seconds. A setting of 0 disables the function.

False Depression Test (Touch Screen Only)

Choose *False Depression Test* on touch screen terminals to check for any “false depressions” of touch cells caused by hardware problems or by excessive vibration or noise in the terminal’s environment. The test identifies the number of false depressions detected and the number of the last cell that was detected as pressed. Up to 100 false depressions can be registered on any one test. The test should run for several hours while vibration and/or noise are present.

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The test starts running as soon as the screen is displayed; the number of false depressions and the last cell detected are reset to zero.

The following illustration shows the False Depression Test screen.



User EPROM/EEPROM Power-Up Test

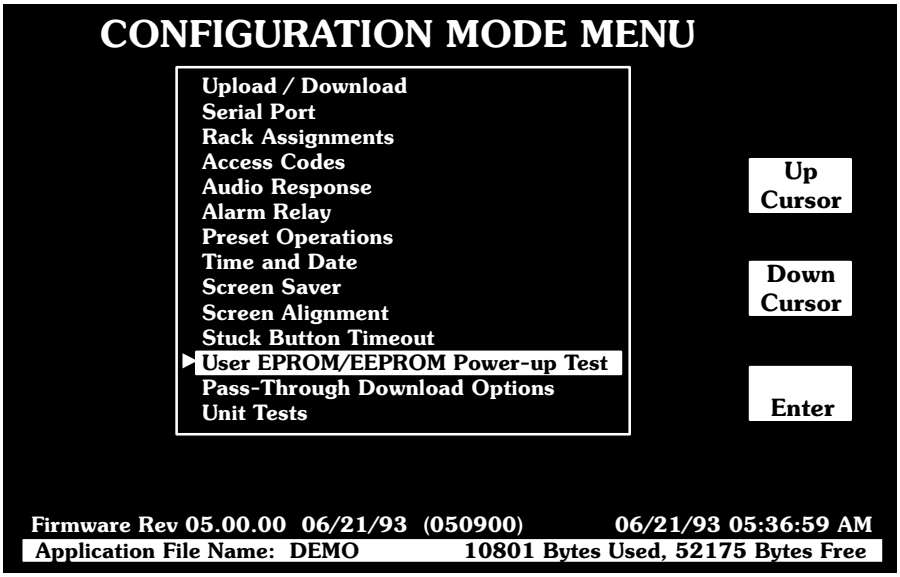
PanelView 1200 terminals include a socket for an optional user PROM.

If your terminal does not have the optional user PROM installed or the PROM is corrupted, the terminal will, by default, show this minor fault message at power-up:



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If you will not be installing the optional user PROM, this message serves no purpose. Disable it by choosing *User EPROM/EEPROM Power-up Test* from the Configuration menu, shown in the following illustration.



23647

The User EPROM/EEPROM Power-up Test window will open:



23646

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Choose *No* to tell the terminal to bypass the User EPROM/EEPROM test at power-up. The following message will appear:



23627

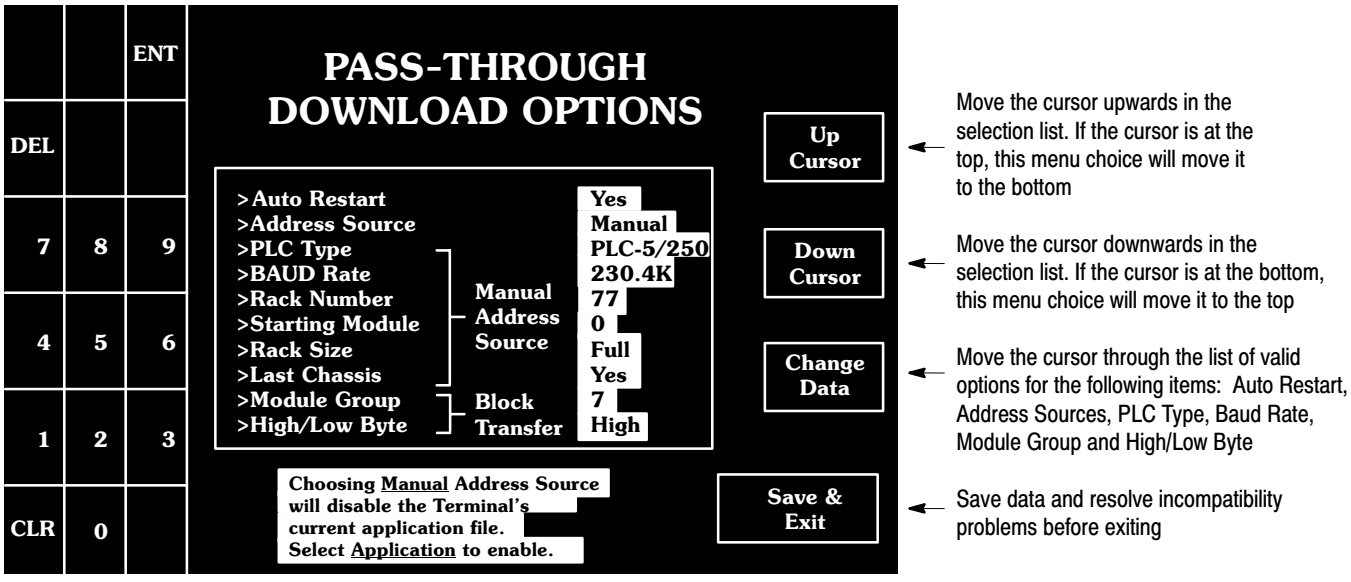
If you install a user PROM later, be sure to reset the power-up test to *Yes*.

Pass-Through Download Options

The terminal Pass-Through Download Options allow you to configure the pass-through address manually from the terminal. These options also let you instruct the terminal to restart automatically after a successful download or to wait for operator confirmation before running a new application.

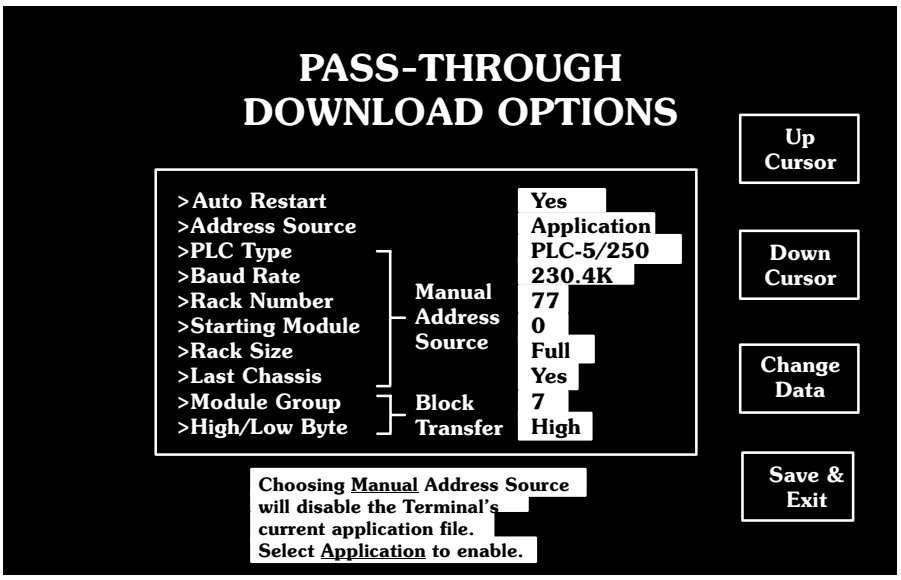
The pass-through download is retentive.

The following two illustrations shows the Pass-Through Download Options screen for both touch screen and keypad terminals.



23662

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On the keypad terminal, you can use the function keys to move the cursor.

- **F18** for Up Cursor
- **F19** for Down Cursor
- **F20** for Change Data
- **F21** for Save & Exit

Important On the keypad terminal, when Rack Number is selected and you press the Change Data button, a keypad window opens. This window disappears when you enter a valid rack number. On the touch screen terminal, you can enter the Rack Number directly from the keypad when Rack Number is selected. For both terminal types, the number must be in Octal, and correspond to the PLC type selected.

Auto Restart

You can choose between *Yes* and *No* for the Auto Restart option. The default is No.

- If you choose *Yes*, PanelView 1200 will start executing the new application file as soon as the download is completed.
- If you choose *No*, PanelView 1200 will wait for operator confirmation before it starts executing the new application.

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Address Source

You can choose between *Application* and *Manual* for the Address Source. The first time that you enter this screen, the default is *Application.* When you re-enter the screen, the values that were previously saved appear.

When you set the Address Source to Manual, you invalidate the application file. When you set the Address Source back to Application, you revalidate the application file. It will execute normally.

Important After a successful download of an application file, via Pass-Through or serial port, the terminal automatically resets the Address Source to *Application*, uses the application file parameters, and discards the Manual Address parameters.

- **Application**—When you choose *Application*, the terminal uses the application file Pass-Through Address Source.

  If the application file contains a pass-through configuration, its values are displayed in the Manual Address Source area. If the application file does not contain a pass-through configuration or there is no application file present in the terminal, you will see asterisks displayed in the Manual Address Source area. Without valid parameters in the Address Source, the Pass-Through upload or download fails.

  When you choose *Application* and then choose *Save & Exit*, the terminal saves the Auto-Restart setting only.

- **Manual**—You must toggle the Address Source to *Manual* before you can change any of the Manual Address Source entries.

  When you choose *Manual*, the following message pops up:

  > Choosing Manual Address Source will disable the Terminal's current application file. Select Application to enable

  This message remains on your screen until you toggle the Address Source to *Application*.

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If you toggle the Address Source to *Manual* but the current application file has no Pass-Through configuration and a manual address has not been configured and saved previously, the asterisks will be replaced by the following defaults:

- **PLC Type:** PLC-5/25
- **Baud Rate:** 57.6K
- **Rack Number:** 1
- **Starting Module** 0
- **Rack Size** 1/4
- **Last Chassis** Yes
- **Module Group:** 0
- **High/Low Byte:** Low

You must set the Module Group and High/Low Byte parameters to match the Pass-Through Block Transfer assignment in the file you intend to download using Pass-Through.

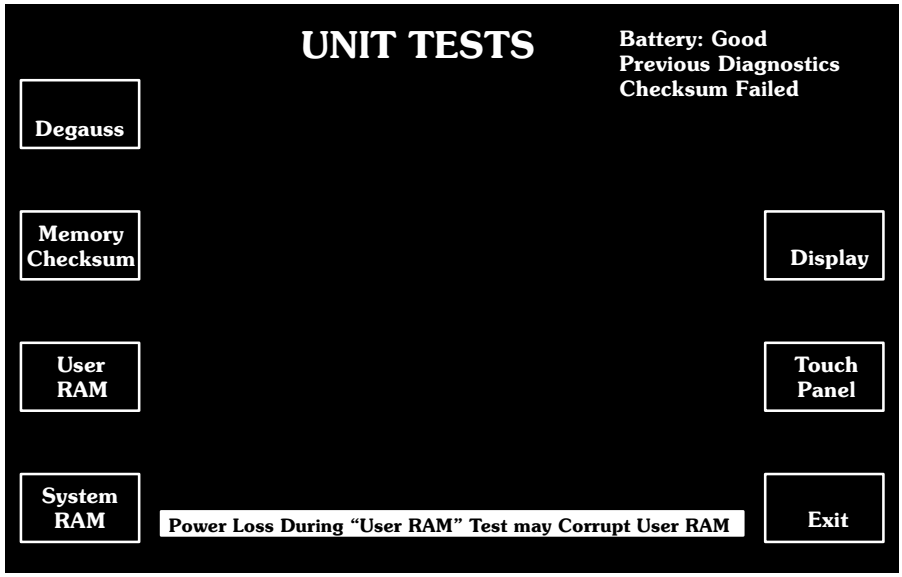
The Starting Module, Rack Size, and Last Chassis parameters enable you to assign the terminal as one of the racks already configured in the PLC scan list. When replacing an existing PanelView terminal with a new one, you don’t need to reconfigure the PLC before or after Pass-Through Download.

When you set the Address Source to *Manual* and choose *Save & Exit*, the terminal validates the Manual Address Source and saves the Pass-Through rack assignment setting and that of Auto-Restart. The terminal also invalidates the existing application file to ensure that the new manual Pass-Through rack assignment does not conflict with existing application file rack assignments.

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Unit Tests

Choose *Unit Test* to check the operation of various components of a PanelView 1200 terminal. The following illustration shows the Unit Tests screen for a touch screen terminal.



- **User RAM** performs a read/write test on Random Access Memory (RAM) to determine its ability to store data. The results are displayed on the terminal’s display panel.

Attention Loss of power during this test could result in loss of the application data stored in battery-backed memory. If this occurs, you will have to repeat the downloading process.

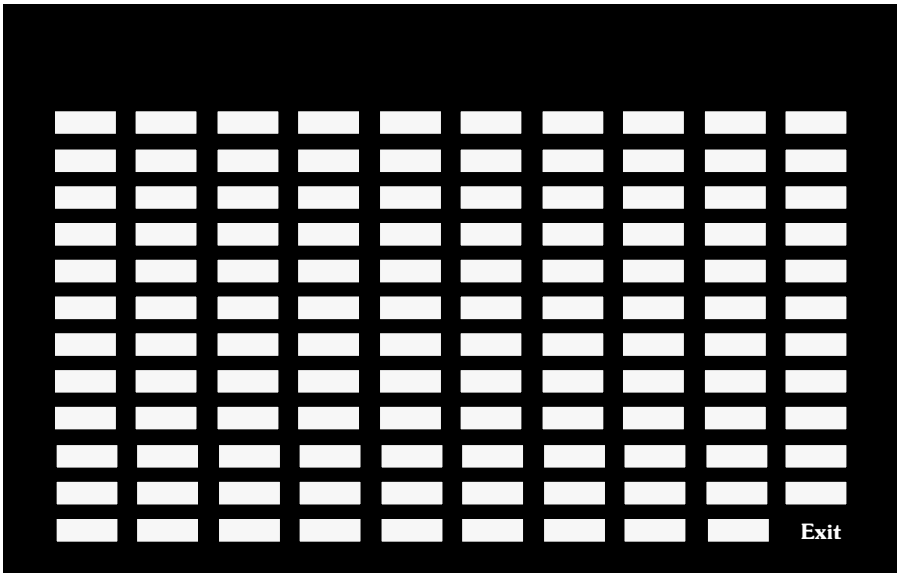
- **Degauss** (color terminals only) demagnetizes the terminal screen.
- **System RAM Test** performs a read/write test to a portion of the Random Access Memory (RAM). This test is similar to the User RAM Memory option, but does NOT test the battery-backed RAM, where the application file is stored. This keeps your application file from being corrupted even if the power is accidentally cut midway through this test.
- **Memory Checksum** performs a checksum test of all memory and displays the results.

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Important If the User PROM is not installed, the test will indicate a failure at memory location 5000:0000 for Series C and earlier terminals, or at 4000:0000 for Series D and E terminals. This is normal.

- **Touch Panel** (touch screen only) identifies touch cells that are difficult to activate or inoperable. During this test, the display shows 119 touch cells, in reverse video each with a distinct border on the inside of the cell. The 120th cell is occupied by the **Exit** button. Each cell is tested by pressing it. If the cell is working it changes to normal, then back to reverse video when pressed a second time.

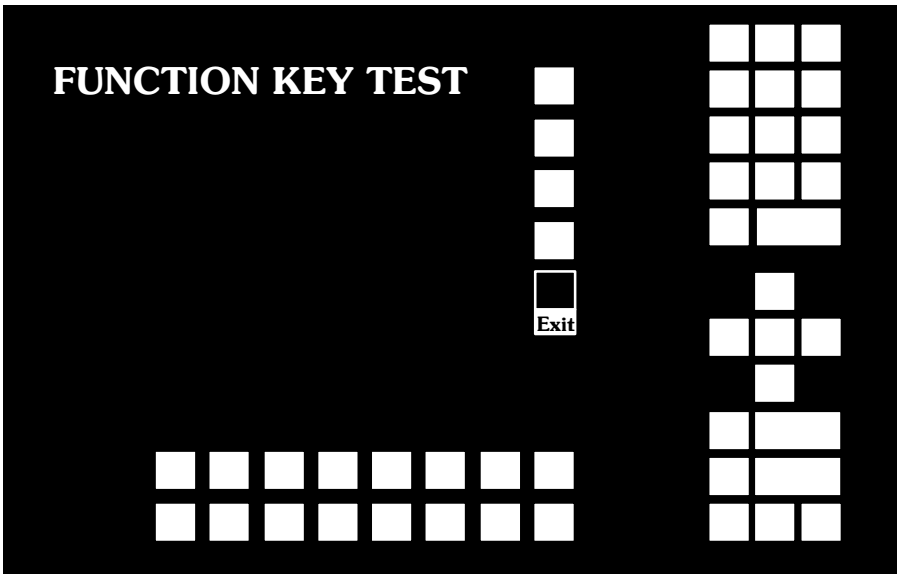
  The following illustration shows the Touch Panel Test screen.



- **Function Keys** identifies keypad terminal function keys that are difficult to activate or inoperable. During this test, you'll see a display of all the function keys. Test each function key by pressing it. If the function key is working, the corresponding picture of the key will change to reverse video. Press the key a second time to turn off the reverse video.

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The following illustration shows a Function Key Test screen.



- **Display** tests the terminal's display functions. The terminal shows samples of the different character sizes and attributes, as well as the terminal's character set.

Run Mode Functions

Before switching to Run mode, make sure you've downloaded an application file, installed a user PROM containing one, or set the Pass-Through Download address source to Manual. Without an application file the PanelView 1200 terminal will show a major fault when it is switched to Run mode and the Address Source is Application. When the Address Source is Manual, the PanelView 1200 terminal will show the Download in Progress screen when it is switched to Run mode.

To switch from Configure to Run mode, use the Mode Select Keyswitch on the back of the terminal (see the rear panel illustration on page 2-1). If your terminal is equipped with the Remote Keyswitch Assembly, you can change modes from the front of the terminal.

Set the terminal to Run mode for everyday use. After downloading an application file, the Powerup screen will be the first screen displayed the first time the terminal is set to Run mode.

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On-line Diagnostic Testing

The PanelView 1200 terminal performs periodic fault detection tests while on-line with the PLC controller.

PLC Communication Timeout

If communication between the PLC controller and PanelView 1200 terminal is interrupted, a special, flashing *PLC Communication Lost* status window appears on the top line of the display.

The terminal will continue to operate, and operator-selected screens can be displayed. Displayed PLC data will show the last values received before PLC communications were lost.

Invalid Screen Request

If the operator or PLC controller requests a non-existent screen, a minor fault message will appear pointing out the error. You will then have to debug your application file and/or PLC program.

Application Data Checksum

The Application Data Checksum test periodically checks the application file in battery-backed RAM. If the PanelView 1200 terminal fails this test, the terminal enters Major Fault mode. You will need to download the file again to correct this problem.

Battery Failure

The terminal's battery is monitored once every minute. When the test indicates battery failure, the PanelView 1200 terminal logs a minor fault. Refer to the battery failure table on page 2-4 for more information.

PanelView 1200 Terminal Printing

The PanelView 1200 terminal can print:

- application screens
- alarms displayed in both the Alarm Status and Alarm History Screens
- a log of alarm messages

The terminal can print on any serial IBM (or compatible) text printer. To set the communications parameters for the printer, choose *Serial Port*, then *Choose List* to bring up the list of printer parameters.

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Important Not all graphic characters will appear in screen prints. See Non-Printable Characters, on page 2-26, for more details.

For details, see your *PanelBuilder Development Software User Manual*, or your *PanelBuilder1200 Configuration Software for Windows User Manual.*

Print Priorities

If you try to print more than one report, screen, or alarm message at a time, the terminal will print in order of priority, saving the other print jobs in a queue. See the following table for the print priority and the size of queue allotted for each type of print job.

Print Priority	Print Job	Number of Print Jobs That can be Queued
1	Screen Print	none
2	Alarm Status Report	1
3	Alarm History Report	1
4	Alarm Messages	21

Note that screen print requests are ignored if the printer is already printing a screen. In the case of PLC controlled screen prints, the PLC can be informed that the printer is busy when the PLC sends the print message: in PanelBuilder software, enable *Screen Print Active to PLC Controller.* For details, refer to your *PanelBuilder Development Software User Manual*, or your *PanelBuilder 1200 Configuration Software for Windows User Manual*.

Page Formatting

Each report starts on a new page. Each report (except the Alarm Message printout) starts with a title, including the time and date of printing. The form feeds can be disabled by turning *Auto Form Feed* Off in the Serial Port configuration screen.

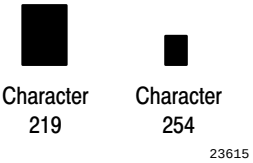
Alarm Messages are printed as the alarms are reported. The first alarm message that occurs after switching to Run Mode begins the Alarm Message report. The Alarm Message report is preceded by a form feed, but following that the alarm messages print one to a line, without page breaks or form feeds.

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Non-Printable Characters

If you are printing screens, some graphic characters will not be printed. Instead they will be replaced as follows:

- ISA symbols, bar graphs, outer borders, arcs, diagonals and line connectors will be replaced by ASCII character 219 decimal illustrated below



- the first 32 characters, used for printer control, will be replaced by ASCII character 254 decimal illustrated above
- double width/height characters will be replaced by a single normal sized character and the appropriate number of blanks

  Example: the letter A, displayed with double height and width, occupies an area 2 characters high and 2 characters wide. Once printed, the A will occupy the top left position leaving the other three characters blank.

Printer Errors

Printer errors can't be indicated to the terminal directly. The terminal can detect a print error only if the hardware or software handshaking is enabled and the appropriate serial lines are connected from the printer to the terminal. So, if the printer is out of paper or offline, and handshaking is enabled, the printer will signal the terminal to stop sending characters.

If the error persists for more than 30 seconds, a minor error will be reported asking the operator to ensure the printer is online. Once the error is corrected, the terminal will continue sending characters to the printer.

Important If you intend to use a serial printer, you will have to construct your own cable. Use the pinout shown in Figure 3-2 to construct the PanelView 1200 end of the cable. (Pin 20 detects the signal indicating whether the printer is on or offline when using hardware handshaking.) Consult your printer's manual for the pinout at the printer end of the cable.

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Chapter 3

Installing Your PanelView 1200 Terminal

This chapter describes how to install a PanelView 1200 terminal in your plant. Specifically, it shows you:

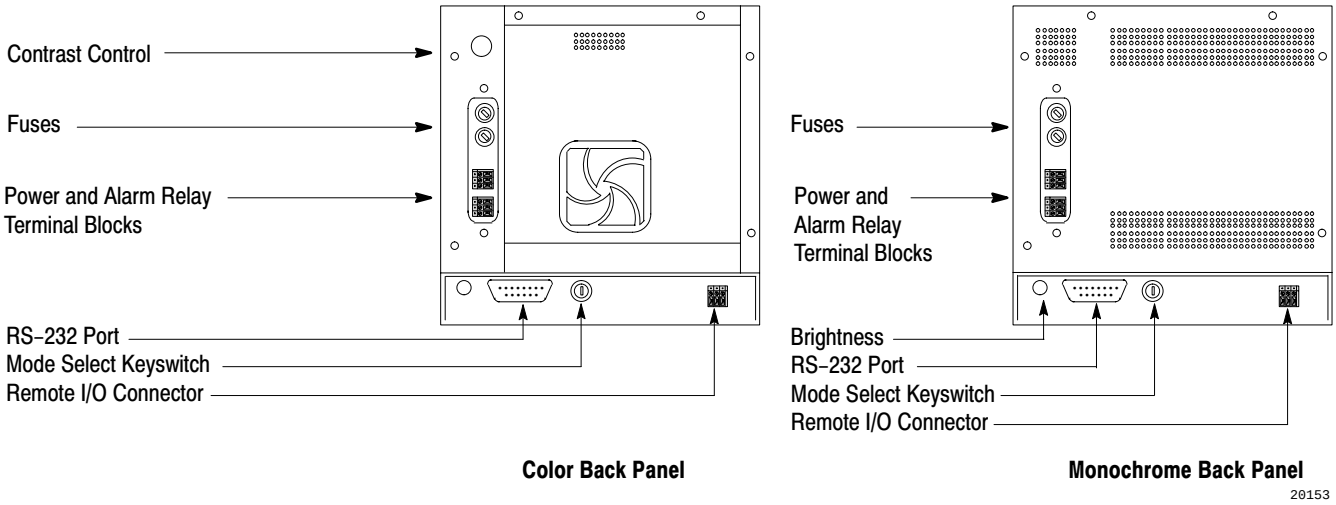
- how to connect power to the PanelView 1200 terminal
- the RS-232 pinout for a serial printer
- how to connect an external alarm relay
- how to connect your PanelView 1200 terminal to your PLC system
- how to install the optional user PROM
- the PanelView 1200 terminal dimensions
- the cutout dimension for panel mounting
- the dimensions for the optional Remote Keyswitch Assembly
- the dimensions of the optional Rack Mount Kit
- the Upload/Download cable pinouts

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The PanelView 1200 Terminal

The following figure shows the rear panels of the PanelView 1200 terminals. Note the location of the RS-232 port, the Alarm Relay connector, the Remote I/O connector, and the power connector.

Figure 1.1
PanelView 1200 Terminal Rear Panels



The RS-232 Port

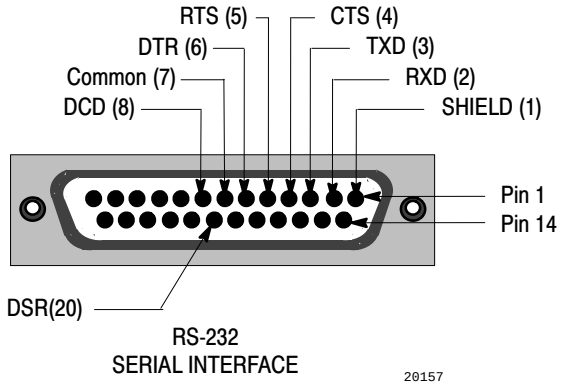
The RS-232 port connects the PanelView 1200 terminal to the development computer for uploading and downloading application files, and connects the PanelView 1200 terminal to a serial printer.

You can also connect the optional Remote Keyswitch and RS-232 Port Assembly to the RS-232 port. This can be mounted at the front of your rack or panel for easy access to the port and Mode Select Keyswitch.

The Upload/Download Cable connects the terminal to the development computer. If you want to connect a serial printer, you'll have to construct your own cable. Use the pinout in the following figure to construct the PanelView 1200 terminal end of this cable. To construct the printer end of the cable, consult your printer's user manual.

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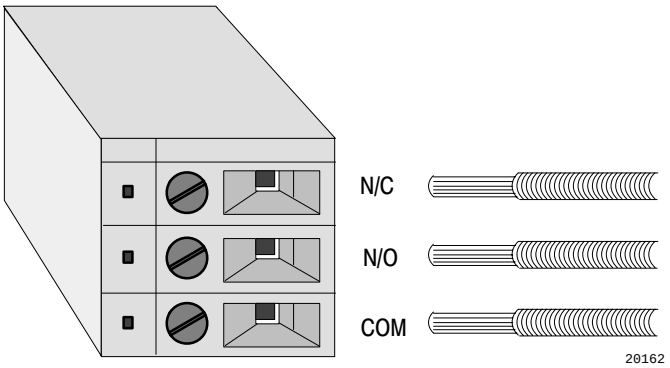
Figure 1.2
RS-232 Port



The Alarm Relay Connector

The PanelView 1200 terminal can be used to trigger a remote alarm or warning light under specific conditions. You would attach this remote alarm or light to the Alarm Relay (as shown in the following figure).

Figure 1.3
Connecting a Remote Alarm to the Alarm Relay



Attention Do not use this relay for control functions of any kind.

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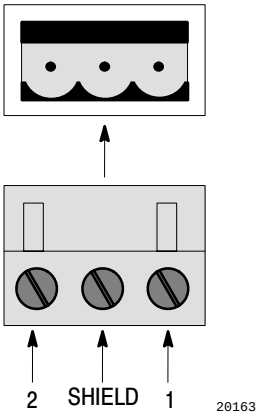
The Remote I/O Connector

The Remote I/O connector at the back of the PanelView 1200 terminal connects the terminal to the host PLC controller via the Remote I/O link, as shown in the following figure.

If the PanelView 1200 terminal is the last device on the link, connect a 1/2 watt terminating resistor across pins 1 and 2. The value of the resistor depends on the Remote I/O baud rate:

- for 57.6 kilobaud and 115.2 kilobaud, use a 150Ω resistor (A-B part #740018-29)
- for 230 kilobaud, use an 82Ω resistor (A-B part #740018-23)

Figure 1.4
Remote I/O Connector



The AC Power Connector

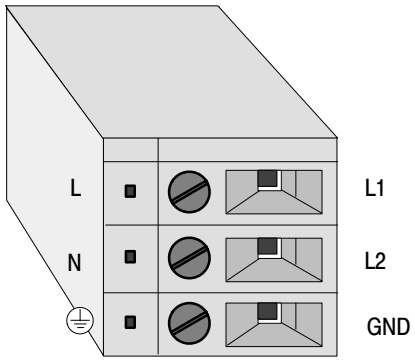
The PanelView 1200 terminal requires 115/230 VAC, 50/60 Hz.

Before connecting the power cable to the terminal, make sure the cable is not carrying power. Since the PanelView 1200 terminal has no power switch, connecting the AC power will start the terminal if power is present in the cable.

Attention Incorrect power wire connection can cause personal injury or damage to equipment.

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Figure 1.5
AC Power Connector



Installing a User PROM

The PanelView 1200 terminal is designed so that you can install an optional user PROM. With an EPROM chip, you must download your application file through a PROM burner. With an EEPROM used for application backup (not as extra application memory), the application file is automatically copied to the EEPROM when it is downloaded into the terminal.

An EEPROM can be used as backup for the application file or as 64K of additional application memory, depending on its configuration in the PanelBuilder software. For details, see the *PanelBuilder Development Software User Manual* or the *PanelBuilder 1200 Configuration Software for Windows User Manual.*

Attention Make sure the power cable is disconnected before you open a PanelView 1200 terminal. You risk personal injury or damage to equipment if you leave the power cable connected.

To install a user PROM:

1. Ensure the User EPROM/EEPROM Power-up test is enabled in the Configuration Mode menu.
2. Disconnect the power cable, Remote I/O cable, and RS-232 cable.
3. Take the necessary precautions against electrostatic discharge. Ideally, you should use an anti-static mat or wear a grounding wrist strap whenever you work with any electronic components sensitive to electrostatic discharges.

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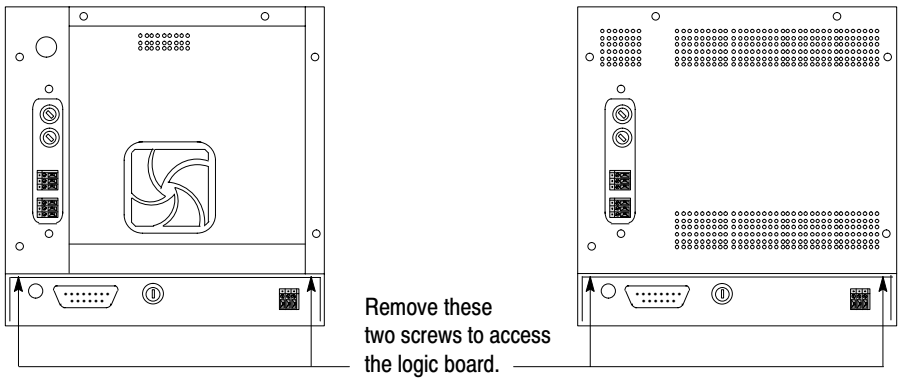
Attention The electronic components in the PanelView 1200 terminal are extremely sensitive to static electricity and may be permanently damaged by electrostatic discharges.

If you're not using an anti-static mat or wrist strap, follow these precautions before you touch any components inside a PanelView 1200 terminal:

- assume your body is always carrying an electrostatic charge
- frequently touch any grounded metal surface to discharge yourself
- wear cotton clothes, not wool or synthetic fabrics
- don't move too much or scuff your feet when walking on carpets
- be extra careful in low-humidity environments

4 Open up the PanelView 1200 terminal logic drawer. Remove the two screws located near the bottom back of the unit to drop the tray containing the board, as shown in the following figure.

Figure 1.6
Opening the Series E PanelView 1200 Terminal



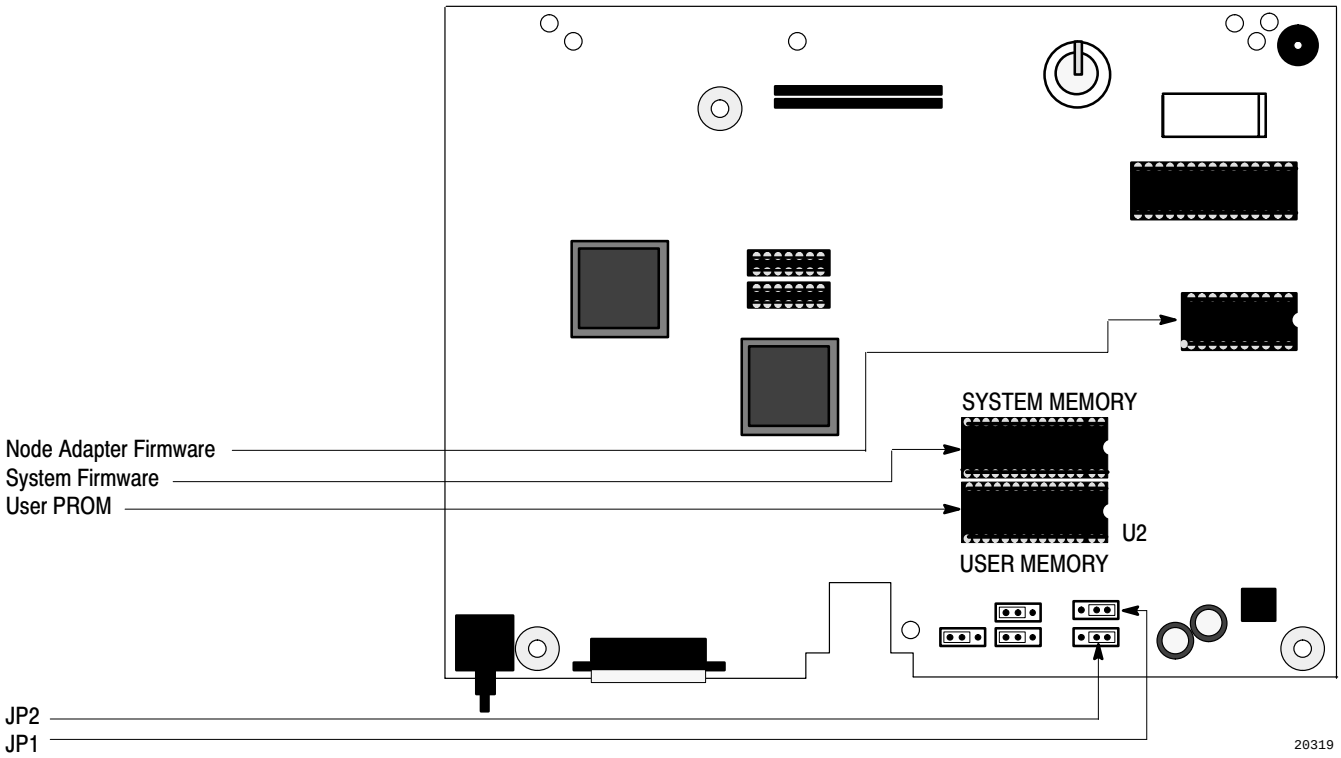
5 Socket **U2** is labeled User Memory as shown in the following figure.

This figure shows the jumpers JP1 and JP2 in the EPROM/EEPROM position.

6 Set the jumpers JP1 and JP2 to the right-most pins, labeled EPROM/EEPROM (as shown in the following diagram).

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Figure 1.7
Series E Logic Board with Jumpers JP1 and JP2 in the EPROM/EEPROM Position



7 Gently ease the chip's pins into the socket.

Attention The notch on the chip MUST be on the same end as the notch on the socket.

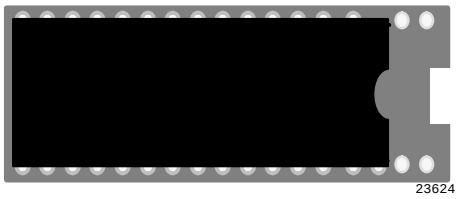
Important Series C and earlier PanelView 1200 terminals use two PROMs as user memory. Series D and E terminals require one PROM to achieve the same functionality. PanelView 1200 terminals prior to Series D that have had the logic board replaced may also require only one PROM depending on the revision of the logic board.

The PanelView 1200 terminal accepts either a 28-pin EPROM or a 32-pin EEPROM. The 32-pin socket in the terminal is large enough to accommodate an EEPROM, as the following figure shows. If you find it necessary to put a 28-pin EPROM into the 32-pin socket, be sure to position the EPROM position the EPROM as far away from the notched end of the socket as possible.

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There should be four unused holes visible to the right. The notch on the chip must still be on the right end, the same as the notch on the socket, as shown in the following figure.

Figure 1.8
28-pin EPROM correctly positioned in a 32-pin Socket



8 When all the pins are properly positioned in their holes, and the notch is on the correct side, gently press the chip into the socket. It will go in easily if the pins are properly positioned.

Attention If you break or severely bend a pin, the chip will be unusable.

---

9 Close the PanelView 1200 terminal and fasten the screws, then reconnect the Remote I/O cable, RS-232 cable and power cable.

10 Verify that the PanelView 1200 terminal is working properly:

Connect power to the terminal. If the following message appears, the PROM has not been installed properly, is corrupted, or has not been programmed:



If this message appears, consider the following points and repeat the installation procedure if necessary:

- make sure that the chip is seated properly in its socket and that no pins are bent

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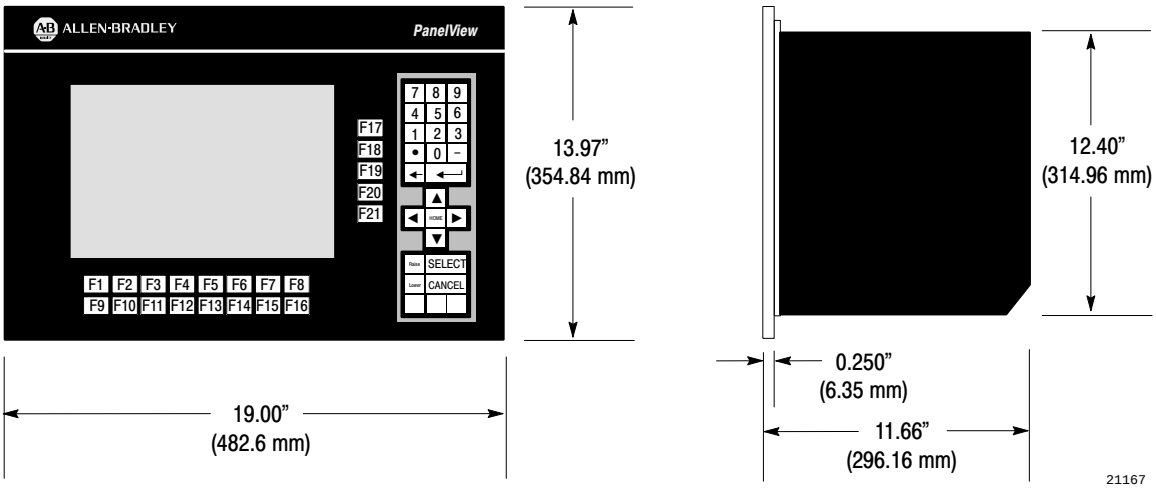
- make sure that the notch on the chip is on the same end as the notch on its socket
- if a PROM burner was used, make sure that the instructions were correctly followed
- if an EEPROM was used, try downloading an application file to the terminal

PanelView 1200 Terminal Dimensions

The following diagrams show the dimensions of the keypad and touch screen terminals. Refer to these diagrams when mounting your terminal.

Figure 1.9
Monochrome Keypad Terminal Dimensions

Monochrome Keypad



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Figure 1.10
Color Keypad Terminal Dimensions

Color Keypad

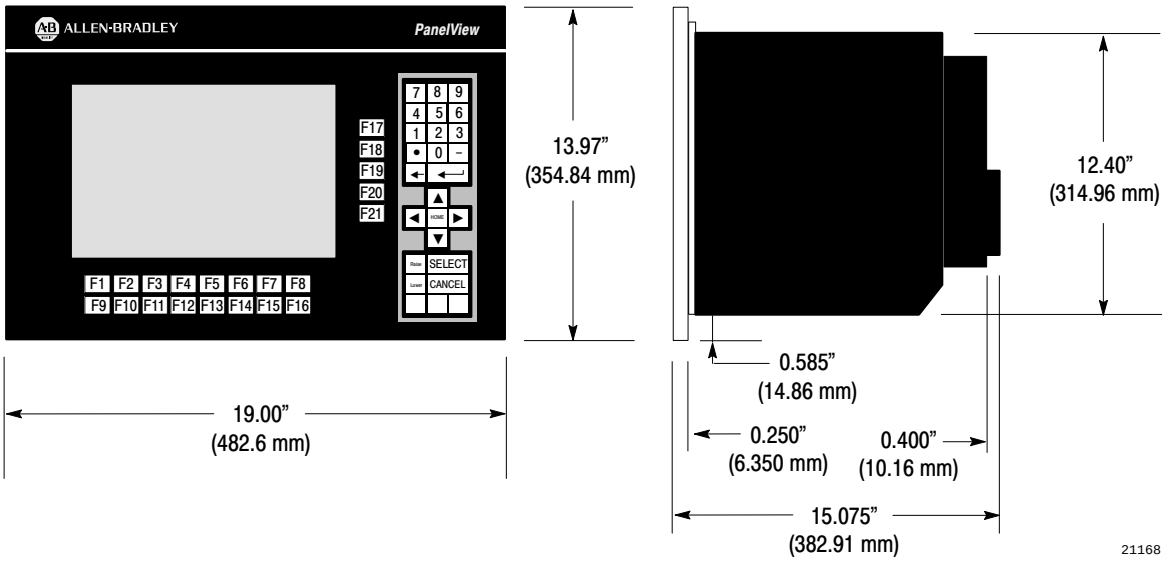
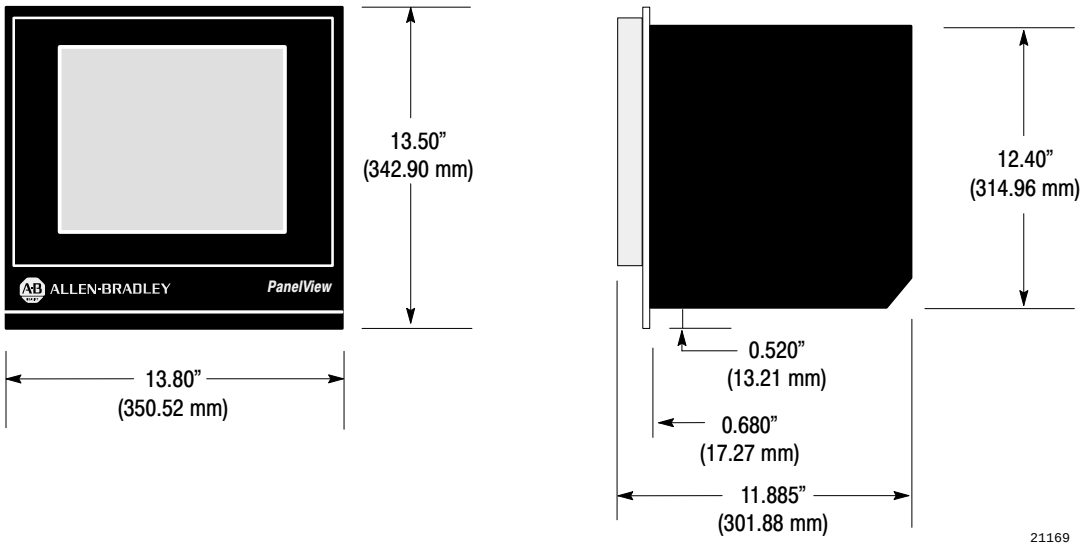


Figure 1.11
Monochrome Touch Screen Terminal Dimensions

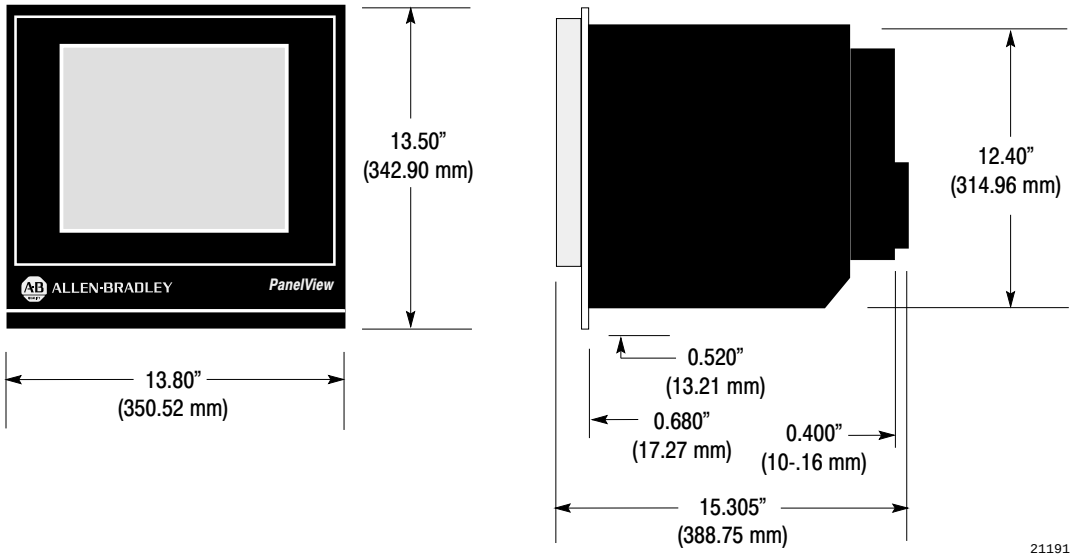
Monochrome Touch Screen



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Figure 1.12
Color Touch Screen Terminal Dimensions

Color Touch Screen



PanelView 1200 Terminal Cutouts

Installation Notes

PanelView 1200 terminals are installed in a rectangular cut-out in a panel. Depending on the model, the terminals mount with mounting studs or mounting clips.

With the stud-mount models (TA4, TC4, KA1, KC1) nuts are provided with the terminal. A gasket is fixed on the faceplate. Tighten the terminal down onto the enclosure to compress this gasket. The gasket has built-in spacers that will not allow it to be over-compressed. You will notice that the tightening torque increases significantly when you reach the correct compression. At this point the tightening torque should not exceed 10 inch-pounds.

With the clip-mount touch screen terminals (TA1, TC1), four mounting clips are provided. Assemble the mounting clips before installing the terminal.

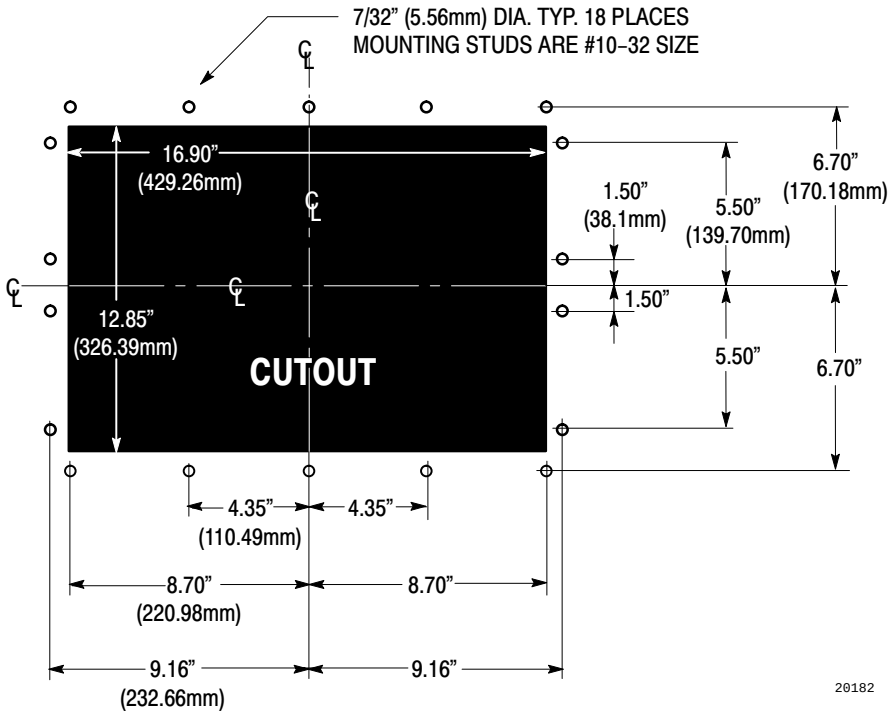
Use a screwdriver to install two clips on each side. (See Figure 1.16.) Tighten the screws until the chassis is held snugly in place against the panel. A torque of 10 inch-pounds provides a good seal. Do not over-tighten the screws.

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Keypad Terminals (2711-KA1, 2711-KC1)

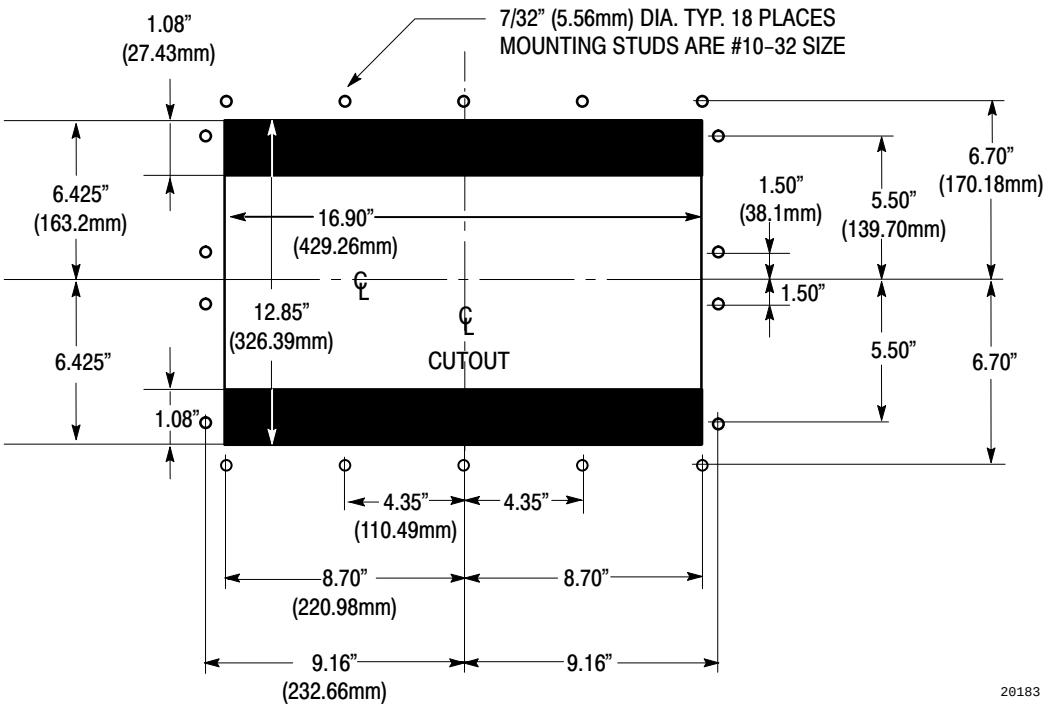
The first diagram shows the keypad terminal panel cutout. The second diagram shows the modification to T30 panel cutout for keypad terminals.

Figure 1.13
Keypad Terminal Panel Cutout



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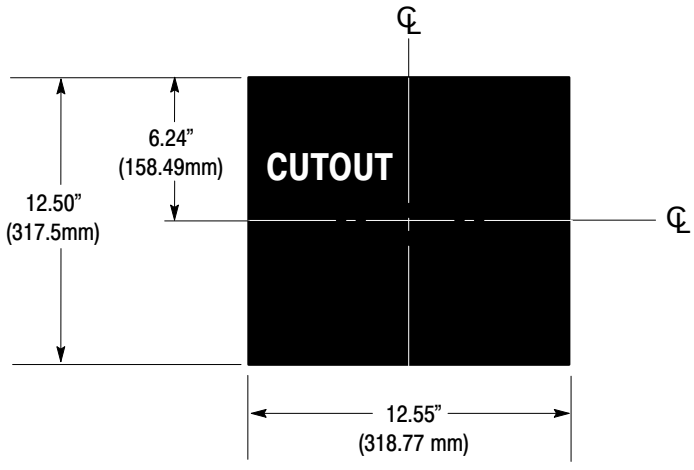
Figure 1.14
Modification to T30 Panel Cutout for Keypad Terminals



Touch Screen Terminals (2711-TA1, TC1)

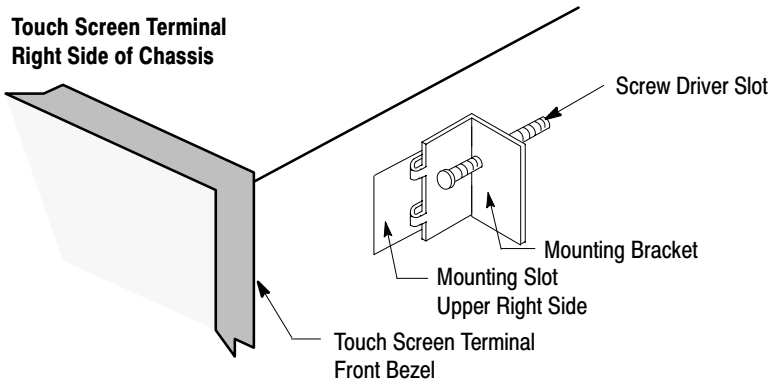
The following diagram shows the clip-mount touch screen terminal panel cutout and the touch screen terminal clip-mount.

Figure 1.15
Clip Mount Touch Screen Terminal Panel Cutout



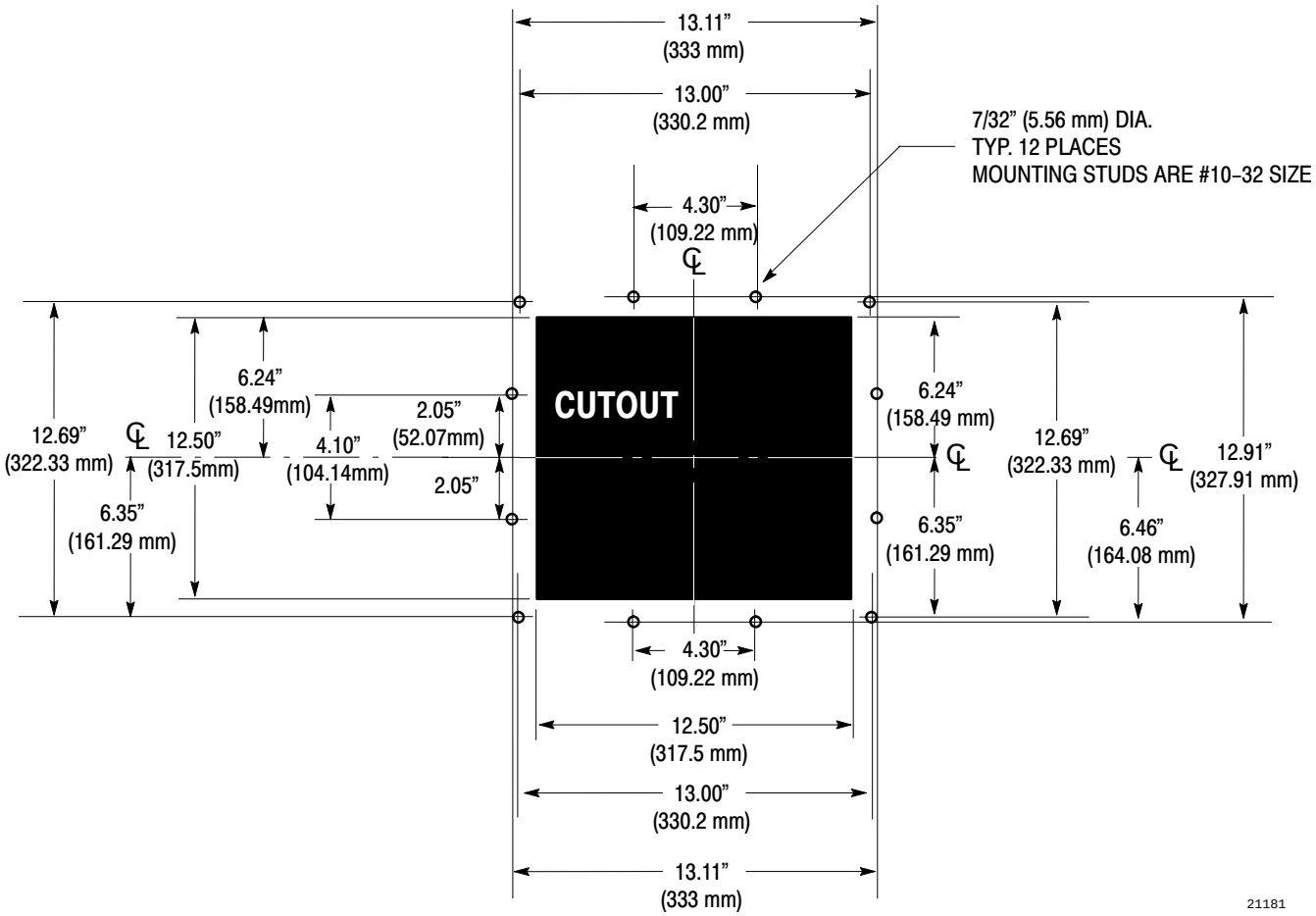
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Figure 1.16
Touch Screen Clip Mount



Touch Screen Terminals (2711-TA4, TC4)

Figure 1.17
Stud Mount Touch Screen Terminal Panel Cutout



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Optional Clip or Stud Rack Mount Kits

You can mount your PanelView 1200 touch screen terminal in a standard 19” rack. For TC1 and TA1 (clip-mount) terminals, use the optional NR1 Rack Mount Kit, and for TC4 and TA4 (stud-mount) terminals, use the optional NR2 Rack Mount Kit.

Figure 1.18
NR1 19” Rack Mount Assembly for TC1 and TA1 Terminals

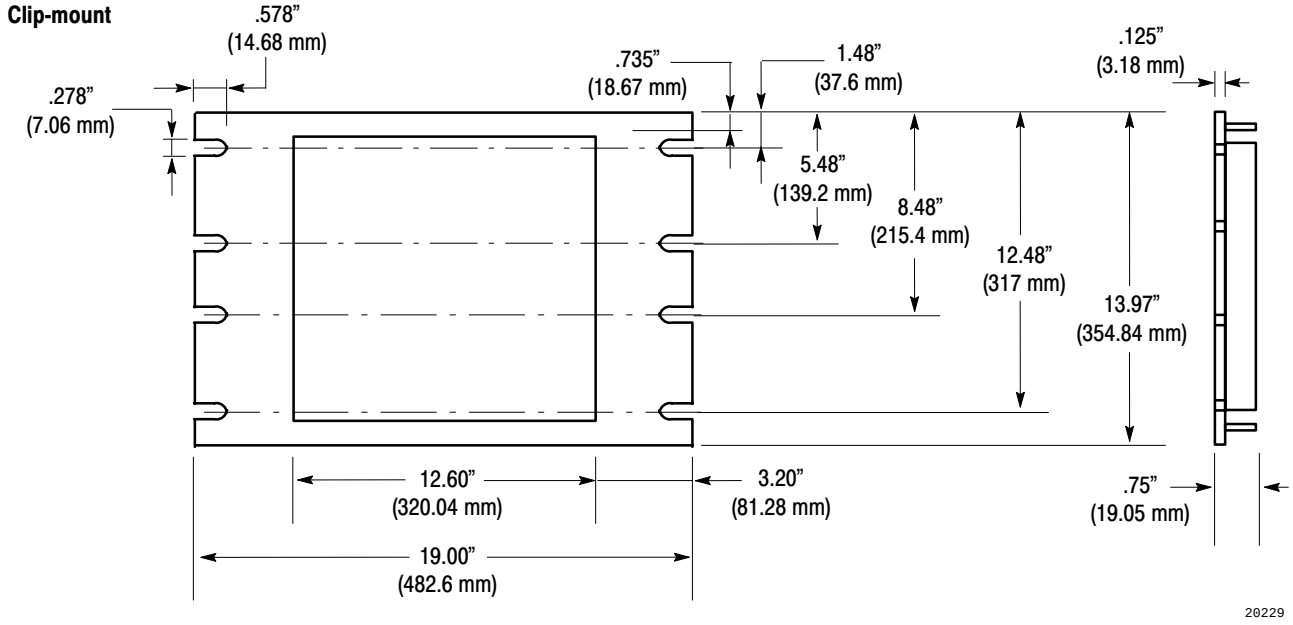
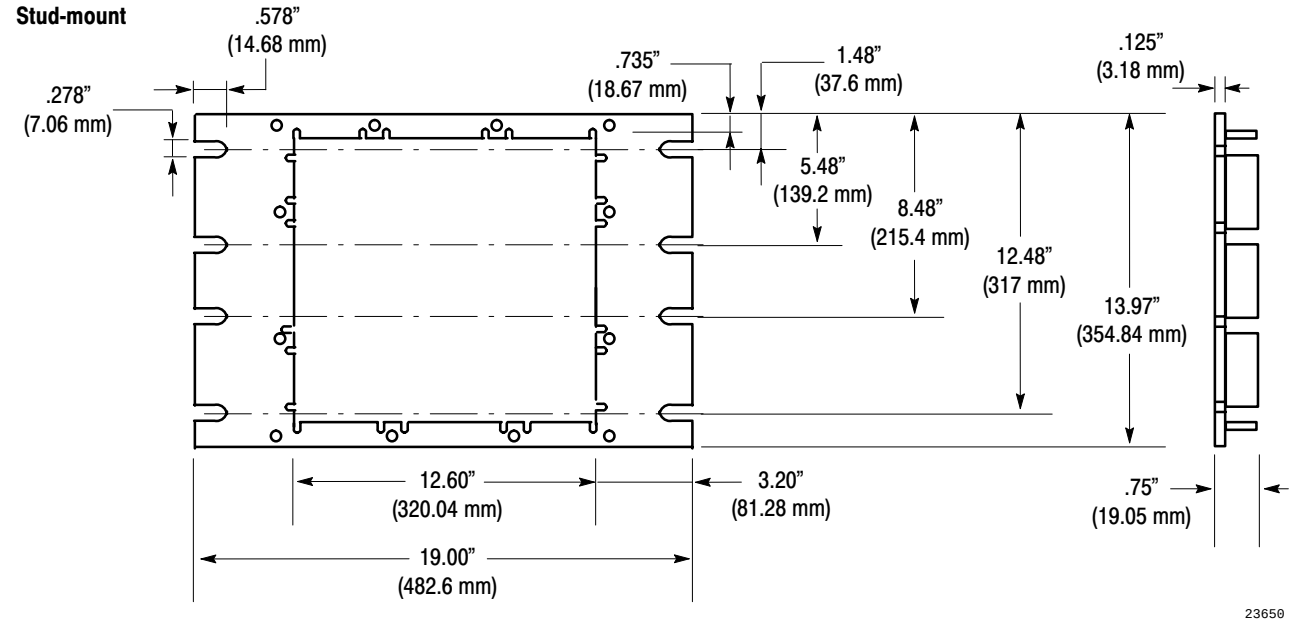


Figure 1.19
NR2 19” Rack Mount Assembly for TC4 and TA4 Terminals



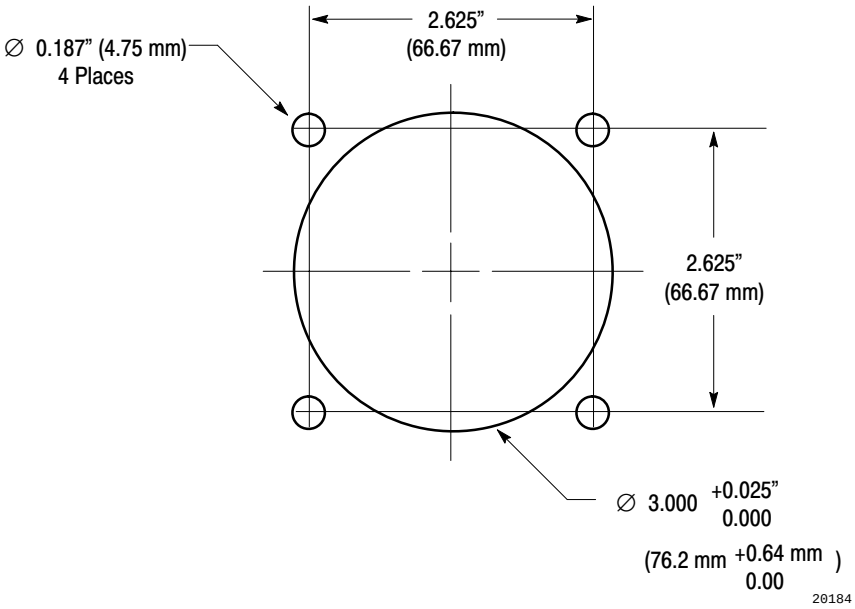
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Remote Keyswitch Assembly Dimensions

The optional Remote Keyswitch Assembly is a mode select keyswitch and an RS-232 port that can be mounted on the front of an equipment panel for easier access. For complete mounting instructions, refer to Publication 2711-5.2, *Remote Keyswitch and RS-232 Port Assembly for PanelView Terminals*.

The following diagram shows the Remote Keyswitch Assembly cutout.

Figure 1.20
Remote Keyswitch Assembly Cutout



Upload/Download Cable

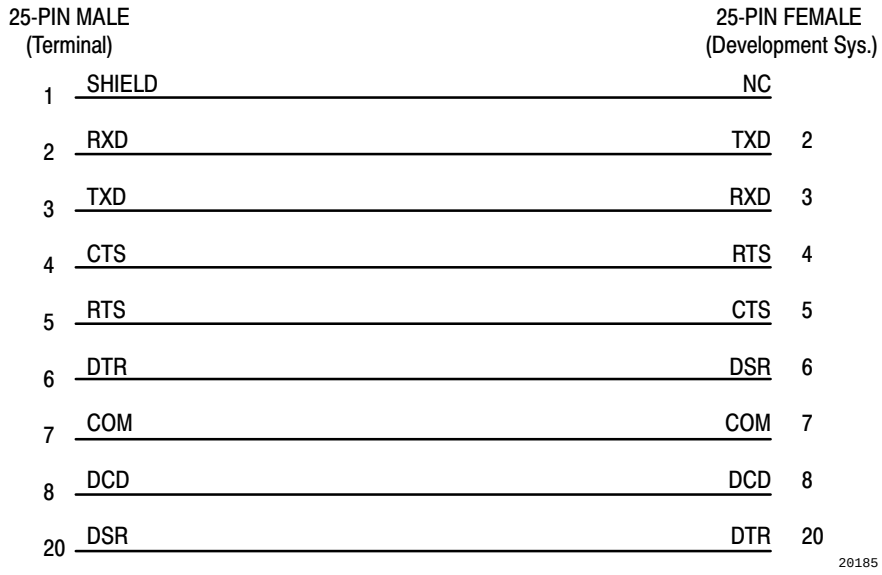
The Upload/Download Cable is used to transfer an application file to or from a PanelView 1200 terminal. As marked, one end of the cable connects to your development system computer's RS-232 port. The other end connects to the PanelView 1200 terminal's RS-232 port.

The Upload/Download cable by itself can be connected to a computer with a 25-pin, RS-232 port (most XT™ computers). Both a 25- to 9-pin adapter and a specially marked short cable are provided with each upload/download cable. You will need these adapters only for the following cases:

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- If you have a computer that has a 9-pin RS-232 Port (most AT™ computers), connect the 25- to 9-pin adapter to the computer end of the upload/download cable.
- If you are using an **Allen-Bradley 6121-CBB Combo Adapter 2 option card,** connect the specially marked short cable to the computer end of the upload/download cable. This adapter will accommodate the slightly different pinout configuration found on this card.

Figure 1.21
Upload/Download Cable (for most XT computers)



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Figure 1.22
25-Pin to 9-Pin Adapter (for most AT computers)

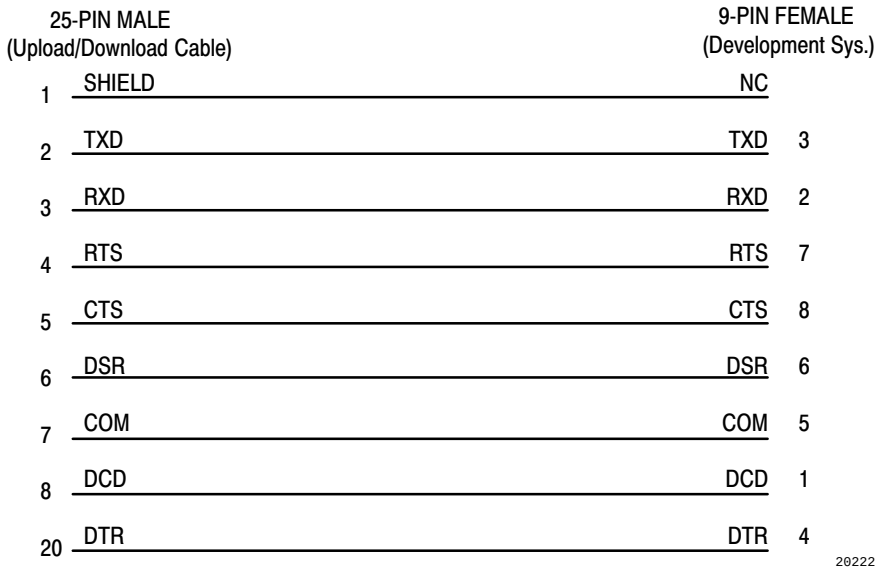
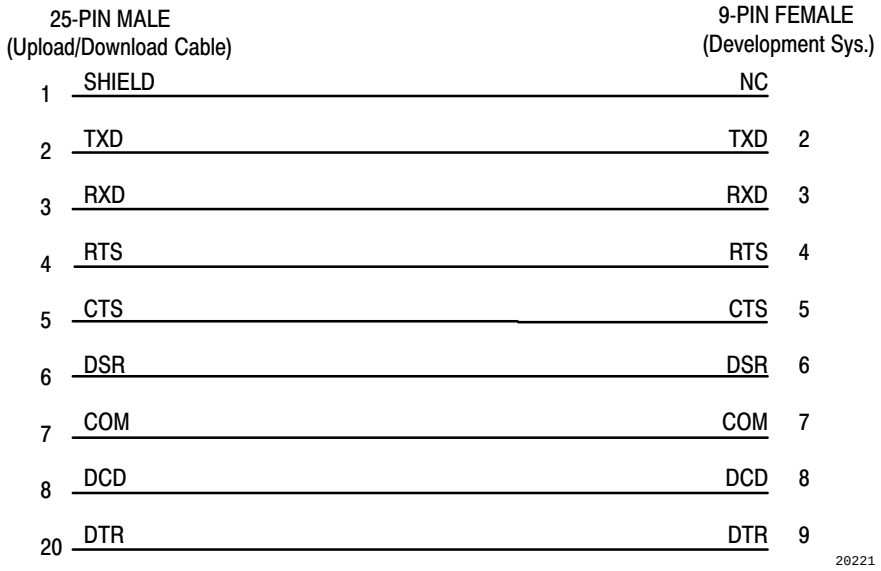


Figure 1.23
Adapter Cable (for 6121 Combo Adapter 2 option card)



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Chapter 4

Verifying the PanelView 1200 Terminal Operation

This chapter describes how to verify that your PanelView 1200 terminal is functioning and communicating correctly. Information is also provided on how to connect a PLC controller to the terminal.

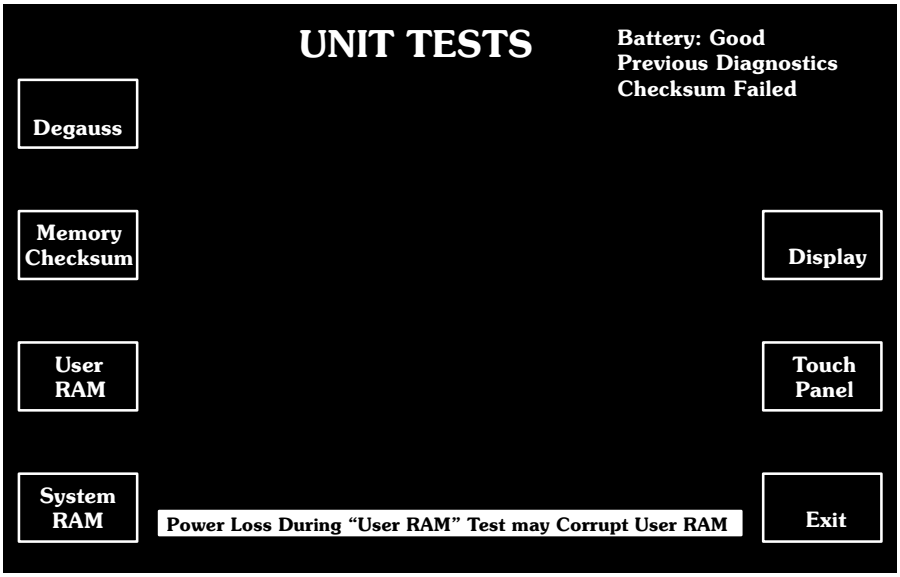
Testing the PanelView 1200 Terminal

To test your PanelView 1200 terminal:

1 Set your Mode Select Keyswitch to Configure mode.

2 Choose *Unit Tests* from the Configuration Mode Menu. The Unit Tests screen appears.

The following figure shows the Unit Tests screen on a touch screen terminal. The keypad screen is slightly different.



3 Run the tests. Details of the Unit Tests are in Chapter 2, *PanelView 1200 Terminal Functions*.

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The remainder of this chapter discusses testing your PanelView 1200 terminal with an application file. If you or your developer have already created an application with PanelBuilder software, use that file. If you are installing a new terminal and are new to PanelBuilder software as well, you may not have an application file ready to run on the PanelView 1200 terminal. If so, use the appropriate DEMO file.

Downloading the Application File

Your PanelBuilder software includes demonstration files for both the touch screen terminal (TC-DEMO) and the keypad terminal (KC-DEMO). If your system does not yet include an application file of your own to download and test, use the appropriate DEMO file for your terminal.

Matching Communications Settings

Before you can download or upload, the communication settings on the PanelView 1200 terminal and in the PanelBuilder software must be the same. The factory settings of the PanelView 1200 terminal and the PanelBuilder software are matched. If you have not changed them, you can download the DEMO or your other application file now.

To reset the terminal to its default settings:

1. Choose *Serial Port* from the Configuration Mode Menu.
2. Choose *Factory Defaults*.

If you need to reset the parameters in your PanelBuilder development computer, see your *PanelBuilder Development Software User Manual* or the *PanelBuilder 1200 Configuration Software for Windows User Manual*.

Downloading the Application

Once you have matched the communication settings, you are ready to begin downloading.

To download the application file:

1. Connect the PanelView 1200 terminal to the development computer with the Upload/Download cable.
2. Set the PanelView 1200 terminal's keyswitch to Configure Mode.
3. Choose *Upload/Download* from the terminal's Configuration Mode Menu.

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4 In the development computer, choose an application file for downloading, and start the Download. Choose your own application file if you have one. If not, choose KC-DEMO if you are testing a keypad terminal, TC-DEMO if you are testing a touch screen terminal.

For details on downloading an application file, see your *PanelBuilder Development Software User Manual*, your *PanelBuilder 1200 Configuration Software for Windows User Manual*, or your *PanelView 1200 Transfer Utility User Manual*.

Running the Application File

Attention Do not connect a PLC controller to the terminal. You do not have a functional application file, and you are not ready to monitor a PLC controller.

Set the terminal's keyswitch to Run.

Important When the PLC controller is not connected, the terminal will display a flashing message `PLC communication lost`. You can safely ignore this message at this stage.

If the power-up screen for your application file appears on your terminal, your file has been successfully downloaded. (If you are downloading a DEMO file, the Main Menu will appear on the terminal.)

Try some or all of the items in your application to ensure that the various screens and buttons are working.

Connecting the PLC Controller

Once the screens and buttons are behaving as expected, connect a programming terminal to the PLC controller and monitor the PLC controller's I/O Data Table.

Attention Disable all the other I/O racks or modules that could be affected by the PanelView 1200 terminal.

The PanelBuilder for DOS software installation includes file \PDS\2711.ACH. Download this PLC application file to your PLC controller if:

- you are using one of the DEMO files as your application file, and
- your PLC controller is a PLC-5

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If you are using another PanelBuilder application file, you will have to use your own PLC application program for whatever PLC controller you are using.

At this stage, connect the PanelView 1200 terminal to the PLC controller, but don't have the PLC controller control any machines or processes.

Refer to your scanner and PLC controller manuals for information on how to create scan lists that include all rack assignments for the PanelView 1200 terminal.

Once all PLC controlled machines and processes have been disabled, you can put both the PLC controller and PanelView 1200 terminal into Run mode, if you haven't already done so.

Run through each screen in the application file, just as you would test a new control panel's inputs and outputs before starting up a new control system. Use the programming terminal to monitor what happens inside the PLC controller as you use each object, and then change the values within the PLC controller to see how the PanelView 1200 terminal responds.

Switch the PanelView 1200 terminal to Configure mode and back to Run mode. You should also remove and re-apply power to the PLC controller separately, and to the entire control system to ensure that the system re-initializes as expected.

Testing Retentive Objects

Observe each object carefully if you are using any retentive input objects. Switch the terminal off and on again, and switch it to Configuration mode and back to Run mode. Watch the input addresses for each retentive object to ensure that the values are initialized so that the the program will respond safely.

Testing the Whole System

Once you've checked all PLC values and determined that all objects, windows, and PLC controlled functions communicate properly with the PLC, you're ready to set both the PLC and the terminal into Run mode and test your application file in action.

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Attention If the PLC program can control any specific machine action or process that could result in unsafe or critical operation, temporarily disable these specific operations. Keep people at a safe distance from any PLC controlled machine. Finally, make sure emergency stop buttons are easily accessible during control system testing.

Step through each screen to make sure that valid states and values are displayed. Test each object one at a time to ensure that the PLC system responds as expected.

Power down, then power up the PanelView 1200 terminal, and switch the terminal to Configure mode and back to Run mode. You should also remove and re-apply power to the PLC separately, and to the entire control system to ensure that the system re-initializes as expected.

Your PanelView 1200 terminal is now ready for use.

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Chapter 5

Maintaining Your PanelView 1200 Terminal

Maintaining Your PanelView 1200 Terminal

Follow the instructions below to keep your PanelView 1200 terminal functioning at top efficiency.

Cleaning

Cleaning the Touch Screen

To clean the touch screen, use ethyl alcohol (ethanol) on a cotton gauze pad. This is more efficient than isopropyl alcohol, (which leaves a slight residue upon first application), and safer than MEK (methyl ethyl ketone). MEK is harmless to the touch screen, but repeated applications will discolor the bezel if the paint surface is broken or scratched.

Cleaning the Keypad

To clean the front of the keypad terminal, use a 50% solution of alcohol (ethanol or isopropyl) in water on a cotton gauze pad or soft cotton cloth. Mild soap or detergent and warm water is also permissible, but avoid abrasive cleaners.

Cleaning the Enclosure

Use a 50% solution of alcohol (ethanol or isopropyl) in water on a cotton gauze pad or soft cotton cloth to clean the enclosure.

Important The solvent should be applied only to the cloth, not directly to the enclosure.

Important The introduction of fluid into the enclosure could damage internal components.

CRT Intensity

The lower the intensity at which the CRT operates, the longer its life. You can control the intensity of your screen with the brightness control on the back of a monochrome unit, and with the color contrast control on the back of a color unit.

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Changing the Filter on Color Units

Clean the filter on your color terminal whenever it appears to be in danger of clogging up. Remove the filter cover from the back of the terminal by popping it free of its plastic side clips. Remove the filter and clean it by:

- removing the dust with a vacuum cleaner
- washing with warm water and soap. Be sure the filter is dry before you replace it.

The filter itself is made of flame-retardant urethane foam 0.13” (3.3mm) thick, and measures 3.64” by 3.54” (92.5mm by 89.9mm). If your filter should become unusable, replace it with part number 09362-M/45 from Hitachi or Qualtek Electronics.

Screen Saver

The screen saver preserves the life of the PanelView 1200 terminal screen by blanking the screen when no buttons have been pressed for a user-definable period of time.

Choose *Screen Saver* from the Configuration Mode menu to display the Screen Saver Timeout screen. Here you set the amount of time that should pass without screen activity before the screen blanks. Elapsed time can range from 1 to 999 minutes. A setting of 0 (zero) disables the screen saver.

Mode changes, PLC generated Alarm Messages, Information Messages, screen requests, or terminal fault messages also turn off the screen saver.

Degauss

If an external magnetic field (such as an electric motor starting up) occurs near a color terminal, the CRT may retain some residual magnetic effect, which in turn may affect the clarity of the display. Degaussing removes any such residual magnetism by totally demagnetizing the CRT. Automatic degauss occurs each time AC power is re-applied to the terminal and at midnight (according to the PanelView 1200 terminal system clock) daily.

You can also degauss the color terminal manually by choosing *Unit Tests* from the Configuration Menu. Then choose *Degauss* from the Unit Tests screen. See Chapter 2, *PanelView 1200 Terminal Functions*, for more information.

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When the color terminal degausses, there is a 6.5 amp surge. The surge lasts less than 400 milliseconds. If your PanelView 1200 terminal is powered by an isolated power source, be sure the line transformer can handle this surge.

Strong Magnetic Fields

Since the PanelView 1200 terminal display contains a CRT (cathode ray tube), the presence of strong magnetic fields near the terminal will distort the image on the screen. Magnetic fields stronger than 80 milligauss at the front surface of the terminal should be avoided.

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Appendix A

Specifications

Specifications

Specifications in this section apply to all of the following products unless indicated otherwise:

- 2711-KA1 Series E Keypad Terminals w/Amber CRT
- 2711-KC1 Series E Keypad Terminals w/Color CRT
- 2711-TA1 Series E Touch Screen Terminals w/Amber CRT, clip mount
- 2711-TC1 Series E Touch Screen Terminals w/Color CRT, clip mount
- 2711-TA4 Series E Touch Screen Terminals w/Amber CRT, stud mount
- 2711-TC4 Series E Touch Screen Terminals w/Color CRT, stud mount

Design Certifications, Standards and Compliances

Standards Organizations Approvals

- UL listed, Industrial Control Equipment (UL 508)
- CSA certified, standard 22.2 No. 142

Design Standards Complied With

- IP65
- IEC 348, IEC 435
- VDE-0871 Class A, VDE-0805, VDE-0110
- FCC Part 15, subpart J, Class A

PanelView 1200 terminals are designed to meet the following NEMA Standards when mounted in like enclosures.

Keypad Terminals

NEMA 4X (Indoor Use Only), NEMA 12, and NEMA 13

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Touch Screen Terminals

Stud-mount: NEMA 4X (Indoor Use Only), NEMA 12, and NEMA 13
Clip-mount: NEMA 12

Terminal Weights

- Keypad Terminal w/Amber CRT 25.0 lbs (11.34 kg)
- Keypad Terminal w/Color CRT 35.75 lbs (16.26 kg)
- Touch Screen Terminal w/Amber CRT 23.25 lbs (10.55 kg)
- Touch Screen Terminal w/Color CRT 32.5 lbs (14.74 kg)

These weights do not include any shipping materials used to package PanelView 1200 terminals.

Front Panel Design

Keypad Terminals

Key Panel: black anodized sheet aluminum with continuous hard-coated scratch-resistant polyester surface

Keys: sealed stainless steel dome membrane switches with tactile feedback and an actuation force of 16 oz.(0.455 kg), mounted on the key panel's anodized aluminum backer plate. Keys are rated for 2,000,000 presses.

Window: Continuous water-clear polyester over chemically strengthened glass

Custom legends can be inserted in the 21 user–configurable function keys and the **Select**, **Cancel**, **Raise** and **Lower** keys.

Touch Screen Terminals

Membrane: Water-clear, hardcoated, scratch-resistant polyester, over chemically strengthened glass

Bezel: Cast aluminum with a black powder coating

Touch cell actuation force: From 2.5 to 3 oz (71 to 85 grams)

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Touch Cell Format

- matrix of 120 touch cells (10 across by 12 high)
- each touch cell is 2 characters high by 8 characters wide
- user can configure/group cells to any size buttons

Touch cells are rated for 1,000,000 presses.

CRT Display

The following tables provide details of the display specifications.

Display Format	24 Rows x 80 Columns (normal size characters)
Character Cell Pixel Format	8 wide x 10 high
Display Alignment	User-configurable, stored in non-volatile memory, 12 character horizontal range, 2.4 character vertical range
Display Intensity	Low to high range adjustment on back of unit
Screen Saver	User-configurable, 1-999 minute timeout
Display Size	12” Diagonal

Color Unit Display Attributes

You select 8 from a palette of 16 colors.

Black	Grey
White	Bright White
Red	Bright Red
Blue	Bright Blue
Green	Bright Green
Magenta	Bright Magenta
Cyan	Bright Cyan
Yellow	Bright Yellow

Foreground/background color for individual screen objects and functions can be assigned any of the above. However, some colors do not appear exactly the same on a PanelView 1200 terminal as they do on the development computer. You may find, as well, that white appears to be light grey and grey appears to be black if they are contrasted with certain other colors. For these reasons, you may find that you achieve the best results if you reserve the colors in the right hand column for foreground colors only.

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Other attributes include blink and underline. Character sizes include 1x1 (standard), 1x2 (double width), 2x1 (double height) and 2x2 (double height, double width).

Automatic degauss occurs each time AC power is re-applied to the unit and at midnight (according to the PanelView 1200 terminal system clock) daily.

Monochrome Unit Display Attributes

- Foreground Color: Amber
- Background Color: Black

Other attributes include reverse video, high intensity, blink and underline. Character sizes include 1x1 (standard), 1x2 (double width), 2x1 (double height) and 2x2 (double height, double width).

PLC Remote I/O Communications

These are the parameters of the PLC Remote I/O Communications:

- Allen-Bradley PLC via Allen-Bradley 1771 Remote I/O Link
- Remote I/O baud rate: 57.6/115.2/230.4 kilobaud
- max I/O cable distance:

10,000 ft.	(57.6 kilobaud)
5,000 ft.	(115.2 kilobaud)
2,500 ft.	(230.4 kilobaud)

- terminal can emulate: from 1/4 to 8 full Remote I/O Racks
- rack sizes:1/4, 1/2, 3/4, or Full (any starting module group)
- total discrete I/O possible: 1024 Input and 1024 Output bits, or 64 PLC Input Words and 64 PLC Output Words
- up to 5 block transfer read and 5 block transfer write files can be configured, with up to 32 words for each file
- total Block Transfer possible: 2560 Inputs and 2560 Outputs or 160 PLC Input Words and 160 PLC Output Words
- application files can be uploaded and downloaded via the PLC-5 Pass-Through feature

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Serial Communications Port

This RS-232 port can either be connected to the development system and used to upload/download application files, or it can connected to a printer and used to print screen images, reports, or alarm messages. You can assign separate port settings for each of these purposes. The applicable port settings are used automatically.

The following table lists the port settings.

Baud Rates	300, 600, 1200, 2400, 4800, 9600, 19.2 kilobaud
Parity Types	Odd, Even, None
Stop Bits	1, 2
Data Bits	7, 8
Handshake	Hardware, Software (X-ON, X-OFF), None
Auto Line Feed*	Off, On
Auto Form Feed*	Off, On

*Printer only—these two parameters cannot be turned On for the serial port.

The factory defaults are the same as the default settings that the development software will apply to the selected RS-232 port on your development system, so you normally shouldn't need to change them. The factory defaults are as follows:

Port Parameters	Upload/Download	Printer
Baud Rates	9600	9600
Parity Types	None	None
Stop Bits	1	1
Data Bits	8	8
Handshake	Hardware	Software
Auto Line Feed	Off (not configurable)	On
Auto Form Feed	Off (not configurable)	On

AC Power

Refer to the following table for information on AC power.

Power Supply Type	Switching	
Range	90–132, 180–264 VAC automatic setting by the PanelView 1200 terminal to match available power supply	
Frequency Range	47–63 Hz	
Power Consumption	Color Terminal	80 W
	Monochrome terminal	50 W

While the color terminal degausses, there is a 6.5 amp surge. The surge lasts less than 400 milliseconds.

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Fuses

- one for each AC line
- accepts either US or European fuse types
- user-accessible at rear of terminal
- US fuse: BUSS AGC-3, 3 amps, 250 VAC, 1/4” X 1-1/4”
- European fuse: BUSS GDB-3, 3 AMPS, 250 VAC, 5 mm x 20 mm

Character Set

PanelView 1200 terminals support two character sets:

- the IBM character set for the keyboard characters, lines, boxes, etc.
- another set containing additional characters that allow the terminal to display objects such as pixel resolution bar graphs and ISA symbols. To view the extended character set, refer to the appropriate appendix in your *PanelBuilder Development Software User Manual*, or *PanelBuilder 1200 Configuration Software for Windows User Manual.*

User Memory

The terminal supports 64K of standard user memory in battery-backed RAM.

You can install an additional EPROM for application file back-up. You can install an additional EEPROM for either application file back-up or for 64K of additional application RAM, (bringing the total available RAM to 128K). When the EEPROM is used as additional application RAM, it cannot be used as application file back-up.

RAM tests can be initiated in the terminal’s Unit Tests screen in Configuration mode.

Memory Checksum tests can be initiated in the terminal’s Unit Tests screen in Configuration mode, and are automatically executed during terminal power-up as well.

Alarm Relay

- Form-C Contact
- 250 VAC Max, 8 Amp Continuous
- 30 VDC Max, 8 Amp Continuous
- Minimum Voltage: 1 VDC
- Minimum Current: 1 milliamp DC

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Batteries

Permanent factory installed lithium batteries have a total lithium weight of 0.6 gram. Batteries are not burdened when AC Power is applied to the terminal. The following chart indicates battery life, with continuous exposure to the specified temperatures, without power applied to the terminal:

+86° F (+30° C)	Greater than 10 Years
+104° F (+40° C)	Greater than 10 Years
+113° F (+45° C)	Greater than 10 Years
+122° F (+50° C)	7 Years
+158° F (+70° C)	16 Months

Battery fail indications are displayed automatically. These calculations are based on battery life specifications provided by the battery manufacturer and does not take battery shelf life into account.

Time and Date Clock

- display modes: AM/PM or Military (Hours, minutes, seconds)
- date display includes month, day and year
- time and date plus “day of week” can be transferred to the host PLC controller
- time and date can be transferred from the host PLC controller
- battery-backed
- automatic leap year correction
- The clock’s accuracy depends on age and temperature:

Age	25° C ±3° C	0° C – 50° C
New	±0.9 min/mo.	±2.4 min/mo.
1 yr	±1.1 min/mo.	±2.4 min/mo.
2 yrs	±1.3 min/mo.	±2.6 min/mo.
3 yrs	±1.6 min/mo.	±2.9 min/mo.

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Temperature, Humidity, and High Altitude

Ambient Operating Temperature Limits

- Maximum: +50° C (+122° F).
- Minimum : 0° C (+32° F).

Storage Temperature Limits

- Minimum: -40° C (-40° F)
- Maximum: +70° C (+158° F)

Humidity

- Relative operating humidity (non-condensing)
  - 0°to +30° C (+32°to +86° F) 95% humidity
  - +30°to +40° C (+86° to +104° F) 75% humidity
  - +40° to +50° C (+104° to +122° F) 40% humidity
- Relative non-operating humidity (non-condensing):
  - -40° to +70° C (-40° to +158° F) 95% humidity

Maximum Altitude

- non-operating: 40,000 ft
- operating: 10,000 ft

Heat Generation

Monochrome Terminals

154 BTU/hour maximum

95 BTU/hour typical

Color Terminals

246 BTU/hour maximum

184 BTU/hour typical

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Shock and Vibration

Shock Amplitudes

- operating 15 G (Peak Acceleration)
- non-operating 30 G (Peak Acceleration)

Vibration Amplitudes for Operating Units

Frequency range: 5 to 2000 Hz

- 5 to 57 Hz: .006” peak-to-peak displacement
- 58 to 2000 Hz: 1.0 G peak acceleration

Vibration Amplitudes for Non-Operating Units

Frequency range: 5 to 2000 Hz

- 5 to 57 Hz: .015” peak-to-peak displacement
- 58 to 2000 Hz: 2.5 G peak acceleration

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Appendix **B**

Troubleshooting

This appendix describes how to diagnose and solve problems regarding the operation of a PanelView 1200 terminal.

Verifying Configuration Settings

To view the I/O racks and block transfer settings as defined in PanelBuilder software, select *Rack Assignments* from the PanelView 1200 terminal's Configuration Mode Menu.

PanelView 1200 Major Fault Error Messages

The following table lists the most common major fault messages that can appear on a PanelView 1200 terminal.

Major Fault Message	Cause	What to do
Stuck Cell detected or Stuck Button detected.	A touch cell or Keypad button has been depressed for longer than the Stuck Button Timeout setting allows.	Restart the terminal. If this problem occurs repeatedly due to an operator holding the button down for too long, increase the Stuck Button Timeout setting in the Configuration menu. If a button or cell is permanently stuck, call your A-B representative.
Watchdog Test Failed. Unit is disabled.	Watchdog circuit is unable to reset the machine.	Servicing by Allen-Bradley is required.
System ROM corrupted. Unit is disabled.	The ROM containing the system firmware is defective.	Servicing by Allen-Bradley is required.
RAM TEST failed. Unit is disabled.	The non-backed-up RAM used by the terminal firmware is defective.	Servicing by Allen-Bradley is required.
Video hardware initialization failed. Unit is disabled.	There is a video hardware problem.	Servicing by Allen-Bradley is required.
Mismatched application file. Unit is disabled.	1.) The application file is for the wrong type, i.e., a Keypad file on a Touch Screen terminal. 2.) The jumper settings are wrong.	1.) Download an application file of the appropriate type. 2.) Check the setting of JP5: FB = Keypad TS = Touch Screen
Failed to configure the Comm card. Unit is disabled.	The Communication circuitry is faulty.	Servicing by Allen-Bradley is required.
Failed to stop PLC communication. Unit is disabled.	The Communication circuitry is faulty.	Servicing by Allen-Bradley is required.
Application file corrupted.	The system has not stored the file correctly.	Download the file again or install new EEPROM.

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PanelView 1200 Minor Fault Error Messages

The following table lists the most common minor fault messages that can appear on a PanelView 1200 terminal.

Minor Fault Message	Cause	What to do
Retentive data initialization failed.	There is no valid application file.	Go off-line and download the file again.
Audio hardware initialization failed.	There is an audio hardware problem.	Servicing by Allen-Bradley is required.
Terminal can't keep up with activity.	Too much incoming data.	The operator should stop all input until the PanelView 1200 terminal can process data.
Invalid Powerup Screen.	Powerup screen does not exist or is faulty.	Reassign the Powerup Screen or check the configuration data in the PanelBuilder application file.
User EPROM/EEPROM is not installed or is corrupted.	Optional EPROM or EEPROM was not found or is faulty.	If no user EPROM or EEPROM is installed, ignore this message. You can disable the test and the message in the Configuration Mode Menu. If a user EPROM or EEPROM is installed, check PROM jumpers, look for bent pins, check for proper PROM notch alignment, and verify that there is a valid program in the PROM. If the PROM is an EEPROM, try downloading the application file again.
Battery test failed. User RAM will be lost on power down.	The battery for application file memory is dead.	Upload the application file and save it on disk. Servicing by Allen-Bradley is required.
Communication Self Test failed.	The communication card is defective or not installed.	Servicing by Allen-Bradley is required.
Invalid Screen.	The PLC has selected a non-existent screen number.	Reprogram the PLC or the application file.
Unable to write downloaded data to the EEPROM.	The EEPROM is faulty or user memory configuration jumpers are set incorrectly.	Check the EEPROM, and verify user memory configuration jumper settings.
Value Out Of Range.	Address not sufficient for data transfer. Current screen number transferred to PLC is not sufficient. Numeric entry or display address length is insufficient for data.	Increase bit length of address so it's large enough for screen transfer, including Alarm History and Alarm Status screens. Increase address length for data.
PLC currently controls screen change	PLC controller has control of screen change.	Disable PLC Controlled Screen Change. Set PLC Controlled Screen Change value to 0.
No screen change—Hold Time in effect or no PLC Handshake	Operator is trying to change screens while a button's hold time is still in effect or before an activated Latched Push Button has received a handshake.	Wait until hold time is finished or Latched handshake is received before trying to change screens.

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PLC Communication Problems

Consult the following table to identify PLC communication problems.

Problem	Cause	What to do
"PLC Communication Lost" message on the PanelView 1200 terminal.	PLC controller is in Program or Remote Program mode.	Change PLC controller to Run mode.
	Cable problem.	Check termination and cable pinout.
	Incorrectly defined terminal as Last Chassis.	Set Last Chassis to No for that rack assignment.
	Rack assignments in the PanelView 1200 terminal and the PLC do not match.	Make sure rack assignments in the PLC controller match those in the PanelView 1200 terminal.
	Terminating resistor not installed properly.	The terminating resistor must be installed at the PLC and at the end of the link: 150Ω 1/2 watt resistor for 57.6 or 115.2 kbaud 82Ω 1/2 watt resistor for 230 kbaud
	The PanelView 1200 terminal and Scanners Remote I/O baud rate do not match.	Change the Remote I/O baud rate in the PanelView 1200 terminal or the scanner so they match.
"PLC Communication Lost" message when using the PanelView 1200 terminal with PLC-5.	The PanelView 1200 terminal has been assigned to multiple or partial racks when firmware revision of PLC-5 does not support partial rack addressing.	Configure the PanelView 1200 terminal as a single full rack. Upgrade PLC-5/15 to Series B Revision H or later. Upgrade PLC-5/25 to Series A Revision D or later.
	PLC controller is not configured to recognize the PanelView 1200 terminal's rack assignments.	Refer to your PLC-5 User's Manual regarding Auto Configuration.
Periodic "PLC Communication Lost" when using 1772-SD2 scanner with PLC-2s.		Must use 1772-SD2 scanner Rev. 3 or later.
Rapid blinking of "PLC Communication Lost" when using 1775-S4A scanner with a PLC-3.		Must use 1775-S4A scanner series B or later.
"PLC Communication Lost" when using SLC 500 1747-SN Scanner Module.	The 1747-SN Scanner Module is not properly configured.	Refer to 1747-RIO Scanner User's Manual regarding Specialty I/O Configuration and how to configure Mfiles and Gfiles. Verify that the PanelView 1200 terminal and the 1747-SN Scanner Module Remote I/O baud rates are set the same.
Discrete I/O works but block transfer does not. No "PLC Communication Lost" message. Using PLC-5/15, partial rack addressing.		Must use PLC-5/15 series B Rev. J or later.
Discrete I/O works but block transfer does not. No "PLC Communication Lost" message.	Block transfer assignments in the PanelView 1200 terminal do not match block transfer instructions in PLC.	Make sure PLC block transfer instruction parameters match the PanelView 1200 parameters.
PLC Controller rack fault on rack assigned to the PanelView 1200 terminal.	Specified No for Last Chassis when the PanelView 1200 terminal is the last chassis in that rack.	Set Last chassis to Yes for that rack assignment.
"PLC Communication Lost" message and rack fault on rack assigned to the PanelView 1200 terminal.	Mis-matched baud rate on the PanelView 1200 terminal and PLC controller.	Specify same baud rate for the PanelView 1200 terminal and PLC controller.
	Multiple devices configured for the same rack assignment.	Multiple remote I/O devices must have unique rack assignments.

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Pass-Through Upload/Download Problems

The following table identifies some problems in uploading/downloading files via the PLC-5 Pass-Through feature.

Problem	Cause	What to do
While attempting a Pass-Through Download, an error window appears with the message "The Pass-Through utility was not found in the specified Pass-Through Directory".	The Pass-Through utility was not installed in the specified directory.	Verify that the Pass-Through utility is installed in the directory indicated in the Programming Terminal Configuration menu. If the Pass-Through utility is not installed. you must install it.
While trying to download an application file, PanelBuilder software appears to lock up, with the message "Getting Terminal Data" flashing on the screen.	"Programming Terminal Configuration" is not set up properly.	Wait a minute or two for the computer to display a PROBLEM window with an Error code number. (See below for what to do about the most common Error Codes, 180 and 208.) Then check that the Programming Terminal Configuration is correct (see your *PanelBuilder Development Software User Manual*, or the *PanelView 1200 Transfer Utility User Manual*), and try the download again. If no PROBLEM window appears, reboot the computer, then make sure your Programming Terminal Configuration is correct, and try the download again.
While trying to download an application file, a PROBLEM window appears, stating: "Error Code 180 was returned by the Pass-Through Utility".	The PLC-5 is not communicating with the PanelView 1200 terminal: the message "PLC communication lost" appears at the top of the PanelView 1200 terminal screen.	Make sure the PLC-5 is in RUN mode and is configured to recognize the PanelView 1200 terminal on the remote I/O link. (See "Auto Config" in the PLC-5 6200 Series software documentation.)
	The Pass-Through Block Transfer assignment at the target PanelView 1200 terminal has not been assigned or is different than the assignment in the application file selected.	Configure the Pass-Through Block Transfer assignment from the terminal to match the assignment from the application file selected. If the target PanelView 1200 terminal has no Pass-Through Block Transfer assignment, you must download the selected application file via an RS–232 Upload/Download cable connected directly between the computer and the PanelView 1200 terminal, or set terminal Pass-Through Download Options address source to Manual. If the Pass-Through Block Transfer assignment at the target PanelView 1200 terminal is different, change the assignment in the selected application file to match the assignment in the PanelView 1200 terminal.
	The model or revision of PLC does not support Pass-Through Block Transfer.	Use a compatible model or revision of PLC.
	Data Highway Plus cable is disconnected.	Ensure the cable is securely connected at both ends; try the download again.
While trying to upload or download with rack numbers 10 or greater, a PROBLEM window appears, stating "Error Code 163 was returned by the Pass-Through Utility".	The PLC is unable to find rack because of wrong Pass-Through Utility.	Ensure you are using Pass-Through Utility 3.01.

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Problem	Cause	What to do
While trying to download an application file, a PROBLEM window appears stating: “Error code 208 was returned by the Pass-Through Utility”.	The Pass-Through Utility has been unable to establish DH+ communications with the PLC-5.	Make sure the “Programming Terminal DH+ Address” and the “PLC DH+ Address” are properly assigned. Make sure that you have selected the proper “DH+ Hardware Driver” for your system, and that the “DH+ Driver Card Location” code is correct.
Immediately after completing a PLC-5 Pass-Through Download, a Minor Fault Status bit is set in the PLC-5.	The rack assignment configuration of the application file downloaded to the PanelView 1200 terminal did not exactly match the application file that was overwritten.	Use the PLC-5 6200 Series software to clear the Minor Fault; then reconfigure the PLC-5 to recognize the new rack assignment.

PLC Controllers Required for Pass-Through

Important Only specific models and revisions of PLC controllers are capable of the Pass-Through download/upload. Refer to the following table for compatible models and revisions.

Processor	Series	Revision	Valid PLC Racks	Baud Rates
PLC-5/11	All	All	3 octal	57.6 kbps 115.2 kbps 230.4 kbps
PLC-5/15	B	N or later	1–3 octal	57.6 kbps
PLC-5/20	All	All	1-3 octal	57.6 kbps 115.2 kbps 230.4 kbps
PLC-5/25	A	J or later	1–7 octal	57.6 kbps
PLC-5/30	A	B or later	1–7 octal	57.6 kbps 115.2 kbps 230.4 kbps
PLC-5/40	A B	E or later B or later	1–17 octal	57.6 kbps 115.2 kbps 230.4 kbps
PLC-5/60	A B	E or later B or later	1–27 octal	57.6 kbps 115.2 kbps 230.4 kbps
PLC-5/250	All	All	1–37 octal	57.6 kbps 115.2 kbps 230.4 kbps

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Common Error Messages for Manual Address Source Configuration

The following table shows a list of common error messages for Manual Address Source Configurations

Message	Cause	What to do
Baud Rate falls outside of this PLC baud rate range	The selected PLC type does not support the selected Pass-Through baud rate.	Ensure that the Manual Address Source Baud Rate and the Manual Address Source PLC Type are compatible. To check compatibility, refer to the previous table.
Rack Assignment falls outside of this PLC address range	The selected PLC type does not support the selected Pass-Through rack number.	Ensure that the Manual Address Source Rack Number and the Manual Address Source PLC Type are compatible. To check compatibility, refer to the previous table.
Invalid Rack Number	The selected PLC type does not support the selected Pass-Through rack number.	Ensure that the Manual Address Source Rack Number and the Manual Address Source PLC Type are compatible. To check compatibility, refer to the previous table.
Rack Number must be octal	The rack number must be entered in octal.	Calculate the rack number in octal, and enter that number.

Common Pass-Through Error Codes

The following table lists some common error codes that can appear when you're using Pass-Through.

Error code	Probable causes	What to do
145 **"Remote station host is not there, is disconnected, or is shutdown"**	PLC controller is faulted, or PLC program is corrupted. The cable is disconnected from the PLC controller. The wrong PLC station address was specified. Using PCMK card, and the KL*.BIN files were not copied from the PASSTHRU\PCMK directory to the PASSTHRU directory.	Clear PLC faults or reload the PLC program. Ensure that the cable is connected to the PLC controller. Specify the correct PLC station address. Copy the KL*.BIN files from the PASSTHRU\PCMK directory to the PASSTHRU directory
163 **"Illegal address—address does not exist, or does not point to something usable by this command"**	Trying to download through a PLC-5/40 using PanelBuilder software Version 4.0, where the PanelView 1200 terminal is assigned a rack number greater than 7. Using a PLC controller that has 2 remote I/O channels, with the PanelView 1200 terminal on both channels as partial racks.	Use PanelBuilder software Version 5.01, or higher. Ensure that all rack numbers are on the same channel. Ensure that you're using Pass-Through Version 3.01.
164 **"Illegal size; file is wrong size; address is past end of file"**	PLC programming problems such as indirect addressing or I/O indirection in the PLC controller. The PLC controller doesn't catch all illegal indirection.	Try downloading without ladder logic to see if it works without it. If it works, rewrite the ladder logic.
171 **"Command cannot be executed"**	PLC controller doesn't support Pass-Through.	See the previous table listing PLC controllers that support Pass-Through.

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Error code	Probable causes	What to do
180 **"Timed out, 1771 backplane module not responding"**	PLC controller in program mode, or PanelView 1200 terminal in configuration mode.	Put the PLC controller and the PanelView 1200 terminal in run mode.
	The Pass-Through block transfer assignment in the PanelView 1200 terminal doesn't match the Pass-Through block transfer assignment in the application file being downloaded.	Match the address assignments.
186 **"ACK timeout"**	Remote I/O cables are disconnected.	Ensure that both ends of the Remote I/O cables are connected and terminated according to the baud rate used.
	Noisy line.	
	The computer's address is the same as the PLC station address, when using a KT or KT2 device.	Reassign the KT or KT2 address.
190 **"All others"**	Programming terminal is not connected to Data Highway Plus network.	Connect programming terminal to Data Highway Plus network.
208 **"Error Opening Network"**	Wrong KT2 driver card location. The switch settings on the KT2 card don't match the settings entered in the Pass-Through download configuration.	Ensure that the settings on the KT2 card match those entered in the Pass-Through download configuration.
211 **"Bad configuration file format"**	Trying to download through a PLC-5/40 where the PanelView 1200 terminal is assigned a rack number greater than 7.	Use PanelBuilder software 4.00.02 or higher.
	The switch settings on the KT card don't match the settings entered in the Pass-Through download configuration.	Ensure that the settings on the KT card match those entered in the Pass-Through download configuration. See the following table for information on selecting a memory location for the KT card.
218 **"FID mismatch detected"**	A rack was configured in the PanelBuilder application that is not an actual PanelView terminal rack.	Reassign the correct terminal rack using PanelBuilder software.
221 **"Unknown external error received from 6200 library"**	Screen objects have addresses assigned to the Pass-Through block transfer file.	Assign a different address to the Pass-Through block transfer file, or assign different addresses to the screen objects.
	The PLC controller or the PanelView 1200 terminal don't have an 82-ohm resistor when running at 230K baud on Remote I/O.	Install 82-ohm resistor.
	The Pass-Through block transfer file in the PanelBuilder application is also being used on a BTR or BTW instruction in the PLC controller.	Assign a unique address to the Pass-Through block transfer file.
224 **"Communications board address incorrect"**	PanelView 1200 rack assignment is greater than 7.	Use PanelBuilder software 4.00.02 or higher.
	The KT card bit pattern doesn't match the jumper setting on the KT card.	Ensure that the settings on the KT card match those entered in the Pass-Through download configuration. See the following table for information on selecting a memory location for the KT card.

PanelBuilder Problems

For help on solving PanelBuilder software problems, see your *PanelBuilder Development Software User Manual* or your *PanelBuilder 1200 Configuration Software for Windows User Manual.*

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Symbols

Empty, 1-1

Numbers

1747–SN I/O Subscanner Module, 1-19
1771–SN I/O Subscanner Modules, 1-19
1772–SD2 Scanner /Distribution panel, 1-18
1775–S4A Remote Scanner /Distribution panel, 1-18
25 to 9 pin adapter, 3-17
6008–SI IBM PC I/O Scanner, 1-19
6008–SQ DEC Q–BUS I/O Scanner, 1-19
6008–SV VME I/O Scanner, 1-19

A

AC Power Connector, 3-4
AC Power VoltageRange, A-5
Access Code keypad window, 2-9
Access Codes, 2-9
Adapter Cable, 3-18
Alarm Audio, 2-10
Alarm Quantity/Accum Time Reset, PLC Controlled, 1-17
Alarm Relay, 1-6, A-6
  option, 2-10
  PLC Controlled, 1-17
  screen, 2-10
Alarm Relay connector, 3-3
Alarm Window, 1-16
Allen–Bradley 6121–CBB Combo Adapter, 3-17
Altitude, A-8
Ambient Operating Temperature limits, A-8
Anti–static precautions, 3-6
Application Data Checksum, 2-24
Application File, P-1
Arcs, 1-15
ASCII Display, 1-15
Audio, PLC Controlled, 1-17
Audio Response Screen, 2-10
Audio Volume, 2-10
Auto Line Feed parameter, 2-8

B

Bar Graphs, 1-14
Battery, 1-4, A-7
  Failure, 2-24
  Failure indications, A-7
  Failure test, 2-4
Battery-backed RAM, P-1, A-6
Block Transfer File, 2-8
Boxes, 1-15
Brightness control (Monochrome terminals), 2-1
Button
  Center Screen, 2-13
  Change Access Code, 2-9
  Change Data, 2-7
  Choose List, 2-7
  Clear, 2-3
  Decrement Value, 1-14
  Emergency stop, 4-5
  Go To Screen, 1-13
  Increment Value, 1-14
  Interlocked Push, 1-13
  Latched Input Push, 1-13
  Load Presets, 2-11
  Maintained Push, 1-13
  Momentary Push
    (Normally Closed), 1-13
    (Normally Open), 1-13
  Numeric Keypad-Enable, 1-15
  Return To Previous Screen, 1-13
  Save & Exit, 2-7
  Screen Keypad-Enable, 1-15
  Screen Print, 1-15
  Set Value, 1-14
  Test Alignment, 2-13
Button Audio, 2-10

C

Center Screen button, 2-13
Change Access Code button, 2-9
Change Data button, 2-7
Character sets, A-6
Checksum Memory Tests, 2-3
Choose List button, 2-7

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Circles, 1-15
Cleaning, 5-1
  enclosure, 5-1
  Keypad, 5-1
Clear button, 2-3
Clear Window, PLC Controlled, 1-17
Clock, 2-12
Color Keypad Terminal Dimensions, 3-10
Color Terminals heat generation, A-8
Color Touch Screen Terminal Dimensions, 3-11
Communication Problems, B-3
Communication Test, 2-5
Configuration mode, 2-1
Configuration Mode Menu , 2-6
Configure
  Screen Saver, 5-2
  Serial Port, 2-7
Connecting a Remote Alarm to the Alarm Relay, 3-3
Connecting the Programmable Controller, 4-3
Contrast control (Color terminals), 2-1
Control List Selector with Enter, 1-13
Control List Selector without Enter, 1-13
Custom legends, A-2

D

Date Display, 1-14
Decrement Value Button, 1-14
Default settings for Upload/Download, 2-8
Degauss, 2-21
Degauss automatic, 5-2, A-4
Diagnostic Testing, on–line, 2-24
Diagnostics, 1-7
Display
  ASCII, 1-15
  Date, 1-14
  Local Message, 1-15
  Numeric Data, 1-14
  Time, 1-14
Display test, 2-23
Downloading, 1-4, 4-2
Dynamic objects, 1-11

E

EEPROM, P-3
Emergency stop buttons, 4-5
EPROM, P-3
EPROM or EEPROM chip installation, 1-7
EPROM/EEPROM and faults, 2-4
EPROMs or EEPROMs, A-6

F

False Depression Test, 2-14
Fault detection tests, 2-24
Filter, 5-2
Firmware EPROM, P-2
Fuse
  Europe, A-6
  U.S.A., A-6

G

Go To Screen Button, 1-13

H

Hex Files, P-2
Humidity, A-8

I

Increment Value Button, 1-14
Indicator
  List, 1-14
  Multistate, 1-13
Information Window, 1-16
Install user PROM, 3-5
Installing a User PROM, 3-5
Installing Keypad Terminals, 3-12
Installing PanelView Terminals, 3-11
Installing Touch Screen Terminals, 3-13, 3-14
Interlocked Push Buttons, 1-13
Invalid Screen Request, 2-24
ISA Symbols, 1-14

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K

Keypad Screen Selector, 1-16

L

Last States, 2-11
Latched Input Push Button, 1-13
Legend Kit, 1-8
Line Arrows, 1-15
Line Connect Characters, 1-15
Lines, 1-15
List Indicator, 1-14
Load Presets, 2-11
Load Presets button, 2-11
Local Message Display, 1-15
Logic drawer, 3-6

M

Maintained Push Button, 1-13
Major Fault mode, 2-2
Major Terminal Fault Window, 2-2
Maximum Altitude, A-8
Memory Checksum, 2-21
Memory Checksum tests, A-6
Memory test, 2-3
Minor Fault Window, 2-2
Minor Terminal Fault Window, 2-2
Mode Select Keyswitch, 2-1, 2-23
Modes
  Configure, 2-1
  Run, 2-1
Momentary Push Button
  (Normally Closed), 1-13
  (Normally Open), 1-13
Monochrome Keypad Terminal Dimensions, 3-9
Monochrome Terminals heat generation, A-8
Monochrome Touch Screen Terminal Dimensions, 3-10
Multistate Indicator, 1-13

N

NEMA Rating
  Keypad terminals, A-1
  Touch Screen terminals, A-2
NEMA Standards, A-1
Next Operator, 2-9
Non Printable Characters, 2-26
Numeric Data Display, 1-14
Numeric Input Cursor Point, 1-15
Numeric Keypad, 1-16
Numeric Keypad–Enable Button, 1-15

O

Object, P-2
Objects
  Dynamic, 1-11
  Static, 1-11
Operating modes, 2-1

P

Page formatting, 2-25
PanelBuilder, P-2
PanelView Products and Catalog Numbers, 1-1
PanelView Terminal, P-2
PanelView Terminal Upgrades, 1-3
Pass-Through Download Options, 2-17
Pass–Through Upload/Download Problems, B-3
PLC communication problems, B-3
PLC Communication Timeout, 2-24
PLC Controlled
  Alarm Quantity/Accum Time Reset, 1-17
  Alarm Relay, 1-17, 2-10
  Audio, 1-17, 2-10
  Clear Window, 1-17
  Screen Number, 1-17
  Screen Print, 1-17
  Silence Alarms, 1-17
PLC Remote I/O Communications, A-4
PLC–2/05, 1-18
PLC–2/15, 1-18
PLC–3, 1-18
PLC–3/10, 1-18
PLC–5 family, rack address ranges, 1-18
Power–up Values, 2-11
Powerup screen, 2-23

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Preset Operations screen, 2-10
Presets, 2-11
Print priorities, 2-25
Printer settings, 2-8
Printing screens, 2-26
Problems, B-1
PROM, user, 3-5
Publications, P-3

R

Rack Assignments, 2-8
Rack Mount Kit, 3-15
RAM, P-2, 1-4
RAM tests, A-6
Remote I/O connector, 3-4
Remote Keyswitch and RS–232 Port Assembly, 3-2
Remote Keyswitch Assembly, 2-2, 3-16
Replacement Parts and Numbers, 1-3
Retentive, P-2
Return to Previous Screen button, 1-13
RS–232 port, 3-2, A-5
Run mode, 2-1

S

Save & Exit button, 2-7
Screen, P-2
Screen Alignment, 2-13
Screen Keypad–Enable Button, 1-15
Screen List Selector, 1-13
Screen Number, PLC Controlled, 1-17
Screen Print, PLC Controlled, 1-17
Screen Print Button, 1-15
Screen Saver, 2-12, 5-2
Screen Saver Timeout screen, 5-2
Security Codes, 2-9
Security On/Security Off, 2-9
Selector
  Control List, with Enter, 1-13
  Control List, without Enter, 1-13
  Keypad Screen, 1-16
  Screen List, 1-13
Serial Communications Port, A-5
Serial Port, 2-7
Serial printer, 3-2
Set Bit Cursor Point, 1-16
Set Value Button, 1-14
Shock Amplitudes, A-9
Silence Alarms, PLC Controlled, 1-17
SLC 500 RIO connection, 1-19
SLC 500 via 1747–SN, 1-19
Specifications, A-1
Starting up the Terminal, 2-5
Static objects, 1-11
Storage temperature limits, A-8
System RAM Test , 2-21

T

Temperature, A-8
Terminal Weights, A-2
Test Alignment button, 2-13
Testing
  Retentive Objects, 4-4
  Whole system, 4-4
Text, 1-15
Time and Date, 2-12
Time and Date Clock, A-7
Time Display, 1-14
Touch Audio, 2-10
Touch Cells, 1-11
Touch Panel (Touch Screen only) test, 2-22
Touch Screen terminals, 1-10
Troubleshooting, B-1

U

Upload/Download, P-2, 2-6
Upload/Download Cable, 3-2, 3-16
User EPROM/EEPROM Power-Up Test, 2-15
User Mem High Byte, 3-6
User PROM, P-2, 3-5
User RAM, 2-21

V

Version compatibility, 2-6
View configuration settings, B-1

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W

Watchdog
Circuit, 2-5
Test, 2-5
Window, P-3
Alarm, 1-16
Information, 1-16

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