PanelMate® ePro PS Family
Users Guide
Preface

Information in this manual is subject to change without notice and does not represent a commitment on the part of Advanced Technology Services. Permission is granted to duplicate this material without modification only for your use or the internal use of other members of your company or your agents to assist you in the use and servicing of products purchased from ATS. No permission is granted to modify this material or include this material in a compilation.

RESTRICTED RIGHTS LEGEND

Use, duplication, or disclosure by the Government is subject to restrictions set forth in paragraph (b)(3)(B) of the Rights in Technical Data and Computer Software clause of DAR 7-104.9(a). Contractor/Manufacturer is Advanced Technology Services.

TRADEMARKS

PanelMate, Advanced Technology Services and ePro Canvas are either federally registered trademarks or trademarks of Advanced Technology Services.

Commercial brand names (trademarks) of products of manufacturers or developers, other than ATS or its affiliates, that appear in this manual may be registered or unregistered trademarks of those respective manufacturers or developers, which have expressed neither approval nor disapproval of Advanced Technology Services® products and services.

Printed in the United States of America.

P/N 01-00526-00
Support Services

The goal of ATS is to ensure your greatest possible satisfaction with the operation of our products. We are dedicated to providing fast, friendly and accurate assistance. That is why we offer you so many ways to get the support you need.

You should contact your local distributor for product pricing, availability, ordering, expediting and repairs.

Website

| Website Address | www.buypanelmate.com | 800.328.7287 |
# Table of Contents

**Preface** ................................................................................................................. 2

**Support Services** .................................................................................................. 3

- Website .................................................................................................................. 3
- e-COM Support Center ......................................................................................... 3
- e-TRC Technical Resource Center ...................................................................... 3
- European PanelMate Support Center ................................................................. 4
- Repair and Upgrade Service .................................................................................. 4

**Chapter 1: Getting Started with the PanelMate ePro PS** ........................................ 8

- Introduction .......................................................................................................... 9
- Unpacking .............................................................................................................. 10
- PanelMate ePro PS Models .................................................................................. 11
- PanelMate ePro PS Classic Documentation References ........................................ 11
- Protect Mode ........................................................................................................ 12
- Windows XP Embedded (XPE)............................................................................. 12
- Image Loads .......................................................................................................... 12
- Preloaded Software .............................................................................................. 13
- Connectors & Ports .............................................................................................. 14

**Chapter 2: Preparing the ePro PS for Online Use** .................................................. 17

- Powering Up Your ePro PS Unit ........................................................................... 18
- Power and Ground Instructions .......................................................................... 18
- Steps to Preparing Your ePro PS Unit for Online Use ........................................ 20
  - Communicating to a PLC or Controller .............................................................. 20
- Preparing Your ePro PS for File Transfers ........................................................... 22
  - Connecting to Your ePro PS Via the Ethernet ................................................... 22
  - Connecting Windows 98 PCs to an ePro PS ....................................................... 25
  - C/D Partitions .................................................................................................. 27
- Installing Software ............................................................................................... 27
  - Types of Software That Can Be Installed ......................................................... 28
  - Installing New OPC Server and Drivers ............................................................. 29
  - Installing OPC Drivers .................................................................................... 29
  - Downloading and Running a Canvas Configuration (.ucf File) ....................... 30
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>PanelMate ePro PS 8” Display Models Unit Dimensions</td>
<td>56</td>
</tr>
<tr>
<td>PanelMate ePro PS 10” Display Models Unit Dimensions</td>
<td>57</td>
</tr>
<tr>
<td>PanelMate ePro PS 12” Display Models Unit Dimensions</td>
<td>58</td>
</tr>
<tr>
<td>PanelMate ePro PS 15” Display Models Unit Dimensions</td>
<td>59</td>
</tr>
<tr>
<td>PanelMate ePro PS Blind Node Models Unit Dimensions</td>
<td>60</td>
</tr>
<tr>
<td>Appendix B: Specifications</td>
<td>61</td>
</tr>
<tr>
<td>PanelMate ePro PS Specifications</td>
<td>62</td>
</tr>
<tr>
<td>Index</td>
<td>65</td>
</tr>
</tbody>
</table>
Chapter 1: Getting Started with the PanelMate ePro PS

This chapter provides getting started information. The following topics are discussed:

- Introduction
- Unpacking
- ePro PS models
- Windows XP Embedded (XPE)
- Protect Mode
- Connectors and Ports
Introduction

The PanelMate ePro PS family is made up of high performance yet cost-effective operator interface (OI) products. The ePro PS family carries on the PanelMate tradition of performance in balance with ease of use. The ePro PS family sets the standard for hybrid OI systems by combining the flexibility of Microsoft’s® Windows® XP Embedded operating with the stability and reliability achieved through the solid-state hardware design and exclusive Protect Mode™ that provides protection for the operating system and software.

The ePro PS family provides the performance and flexibility of PC based operator interfaces without the associated complexity of a PC on the plant floor. With integrated high-speed Ethernet, serial ports, USB ports, removable CompactFlash®, PCMCIA and an optional PCI expansion adapter, the ePro PS models can be adapted for a wide variety of user requirements.

The ePro PS family of products are configured with the ePro Canvas® or ePro Canvas Professional editing software. The ePro Canvas editor supports a modern suite of graphical templates, called controls, for replacing hardwired panel devices such as pushbuttons, indicator lights, bars, readouts, message displays, etc.

Whether replacing hard-wired pilot devices and pushbuttons or providing machine control and even SCADA functions, the ePro PS family of products will fit from both a form and functional standpoint.

The PanelMate ePro PS family of products includes:

- PanelMate ePro PS
- PanelMate ePro PS OD (Outdoor Series)
- PanelMate ePro PS EE (Enterprise Edition)
- PanelMate ePro PS Classic

A brief description of the OD, EE and Classic models is given below.

Throughout this manual, information provided about the PanelMate ePro PS family will apply to all four PS models.

ePro PS OD

The PanelMate ePro PS OD (Outdoor Series) operator interface is designed for use in outdoor applications. The OD models offer increased visibility in high ambient light, increased temperature and shock specifications and UV resistance.

ePro PS EE

The PanelMate ePro PS EE (Enterprise Editions) operator interface is designed for end-users that need more memory, faster processing or additional Windows XP Embedded components and services to support large ePro Canvas applications or third-party software.
ePro PS Classic

The PanelMate ePro PS Classic operator interface is designed for use by end-users that are currently using the PanelMate Power Pro software and are ready for the new PanelMate ePro PS hardware but are not quite ready to convert their PanelMate Power Pro configurations to ePro Canvas applications. Since the PanelMate ePro PS Classic OI supports the PanelMate Power Pro and PanelMate ePro PS Runtime software, the user can utilize the PanelMate ePro PS Runtime software if and when they are ready.

The ePro PS Classic OI is based on the PanelMate ePro PS hardware models with the addition of software and licenses that allow users to run the PanelMate Power Pro Runtime software in addition to the three application kits (Document Viewer, Headline Manager and Recipe Manager). The ePro PS Classic OI can be thought of as a combination of the PanelMate ePro PS and the PanelMate ePro with the XE (without Trending) and the OPC options. One difference is in the area of drivers: the ePro PS Classic OI running PanelMate Power Pro configurations does not support native (non-OPC) communication drivers but does support up to three OPC drivers simultaneously.

Unpacking

Carefully remove all equipment from the packing cartons and inspect all parts for damage in shipment. Check packing cartons for all items shown on the packing list. Keep the cartons and packing materials for future shipment.

If there is equipment damage due to shipment, report the damage to the carrier who delivered the equipment.

Note: The Interstate Commerce Commission has a time limit on reporting concealed damage.

Packing List

The PanelMate ePro PS units includes the following:

1. Qty 1 – PanelMate ePro PS unit
2. Qty 1 – Accessory kit which includes:
   a) Qty 1 – Panel mounting hardware kit (Display models only)
   b) Qty 1 – 3-pin power connector
   c) Qty 1 – PanelMate ePro PS support CD
   d) Qty 3 – Spare jumpers used to configure serial ports
   e) Qty 1 – KEPServer_ePro CD-ROM (Classic models only)
PanelMate ePro PS Models

PanelMate ePro PS display models include an integrated color display. A Blind Node (no display) model is available for applications that use external displays. All display models feature a resistive touchscreen for operator input.

The PanelMate ePro PS models include:
- 7685T-8 8" TFT display
- 7685T-12 12" TFT display
- 7685ST-12 12" TFT display, stainless steel
- 7685T-15 15" TFT display
- 7685ST-15 15" TFT display, stainless steel
- 7600 Blind Node

The PanelMate ePro PS OD (Outdoor Series) models include:
- 7685T-8OD 8" TFT display
- 7685T-12OD 12" TFT display
- 7685ST-12OD 12" TFT display, stainless steel
- 7685T-15OD 15" TFT display
- 7685ST-15OD 15" TFT display, stainless steel

The PanelMate ePro PS EE (Enterprise Edition) models include:
- 7685T-12E 12" TFT display
- 7685T-15E 15" TFT display
- 7600E Blind Node

The PanelMate ePro PS Classic models include:
- 7685T-8C 8" TFT display
- 7685T-10C 10" TFT display
- 7685ST-10C 10" TFT display, stainless steel
- 7600C Blind Node

PanelMate ePro PS Classic Documentation References

The following manuals provide additional information regarding the use of PanelMate Power Pro Runtime software:

PanelMate PC Runtime Operation User’s Guide
- Describes how to use the PanelMate PC Pro Runtime software.
- Provided on the PMPROSW CD-ROM

PanelMate Document Viewer Users Guide
- Describes the Document Viewer and the Application Kit Selector. Important information about the PMStart.cmd command file is included.
- Provided on the PMPROSW CD-ROM

PanelMate Headline Manager Users Guide
- Describes the Headline Manager and the Application Kit Selector. Important information about the PMStart.cmd command file is included.
- Provided on the PMPROSW CD-ROM
PanelMate Recipe Manager Users Guide

- Describes the Recipe Manager and the Application Kit Selector. Important information about the PMStart.cmd command file is included.
- Provided on the PMPROSW CD-ROM

Protect Mode

The PanelMate ePro PS family of products has a unique and exclusive Protect Mode feature that safeguards the integrity of files stored on the C:\ partition of your operating system. This feature ensures that data and operating system files cannot be modified by anyone or corrupted by unexpected power disruptions. As a result, you can be confident that the ePro PS meets your rigorous industrial environmental requirements and can be protected against all unauthorized alterations.

The Protect Mode is always active on your ePro PS unit. As changes are made to data and files they appear to be saved but in reality they are saved in volatile memory. This means that when the ePro PS is restarted, all of the changes will be deleted from memory and the last information saved in the C:\ partition will be used. With this in mind, all changes made that are to be stored in the C:\ partition must be saved or committed so that the next time the ePro PS is restarted the new data will be available. Types of data stored on the C:\ partition include the ePro PS Runtime software, communications drivers, OPC server, time/date data and touchscreen calibration data.

Notes:

- The D:\ partition is reserved for user data and is not protected by the Protect Mode featured. Data and program files can be easily added, modified and deleted in this storage area.
- If extensive changes are made to the C:\ partition without a subsequent reset or execution of the Protect Mode Save, volatile memory may become full resulting in system errors.

Refer to the Protect Mode Save section for additional information about saving files to the C:\ partition.

Windows XP Embedded (XPE)

PanelMate ePro PS uses Windows XPE, which is a subset of Windows XP Professional. XPE enables PanelMate ePro PS unit’s operating system (OS) to be customized. As a result, unneeded OS components have been eliminated resulting in a smaller, streamlined, and efficient system. Because XPE allows us to protect the OS from unwanted software changes, we can make your ePro PS unit reliable for industrial applications, whereas an open XP operating system is susceptible to lockups from OS file corruption.

Image Loads

Each PanelMate ePro PS model has an image load that is installed prior to shipment. The image load contains the OS and other files dependent on the model type. If desired, the image load can be restored to the current factory image load by using a Restore Kit accessory. The image load for display models is different from the Blind Node models due to a difference in touchscreen drivers and the ePro PS EE image load includes
additional Windows XP components such as .NET Framework and IIS Server. When restoring an image load it is important that the correct load is installed to maintain the integrity of the hardware.

Restore Kits include the following:

- 76MLPSD Image Load for PanelMate ePro PS and ePro PS OD display models
- 76MLPSB Image Load for PanelMate ePro PS Blind Node models
- 76MLEED Image Load for PanelMate ePro PS EE display models
- 76MLEEB Image Load for PanelMate ePro PS EE Blind Node models
- 76MLPSCD Image Load for PanelMate ePro PS Classic display models
- 76MLPSCB Image Load for PanelMate ePro PS Classic Blind Node models

Preloaded Software

The ePro PS models all come with preloaded software.

All ePro PS models comes with the following:

- **eProStart.cmd** command file Pre-loaded No licensing required
- PanelMate ePro PS Runtime software Pre-licensed
- KEPServer_ePro OPC Server Pre-loaded Pre-licensed
- KEPServer_ePro OPC Drivers Pre-licensed

PanelMate ePro PS Classic

The ePro PS Classic includes additional files that support PanelMate Power Pro applications. The ePro PS Classic models include the following:

- PanelMate Power Pro Runtime software Pre-loaded Pre-licensed
- Document Viewer Pre-loaded Pre-licensed
- Headline Manager Pre-loaded Pre-licensed
- Recipe Manager Pre-loaded Pre-licensed
- **PMStart.cmd** command file Pre-loaded No licensing required

Notes:

- The unit is shipped so that when powering up for the first time the PanelMate Power Pro Document Viewer demo configuration ([DVDemo.pps](#)) will be launched via the **PMStart.cmd** command file.
- The ePro PS Classic has been pre-configured so that the PanelMate Power Pro Runtime software runs in 256 colors compatibility mode so that regardless of the native color resolution of the unit, the PanelMate’s 256 color palette will still function properly. If you decide to use the PanelMate ePro PS Classic hardware for PanelMate ePro PS Runtime applications you will not have to change the color resolution of the unit.
Connectors & Ports

The location of the connectors and ports is shown in Figures 1 and 2. The Ethernet port supports 10/100 communications. Two of the USB ports are V1.1 compliant while the other two ports are V2.0 compliant. Slow data rate devices such as keyboards and mice should use the USB 1.1 ports.

**Note:** All installed peripherals (i.e. PCI Adapter, USB devices, PCMCIA devices, etc.) on the ePro PS unit should not consume more than 5 additional watts on the 8” and 10 additional watts on the 10”, 12”, 15” and Blind Node. Consuming more than the this will change the specified operating temperature of the ePro PS unit.

**Caution:** The USB ports are to be used for corrective maintenance only and not for permanent use in Class I, Div 2 Groups A, B, C, D locations. If permanent use is required in Class I, Div 2 Groups A, B, C, D hazardous locations then UL approval must be obtained.
Chapter 1: Getting Started with the PanelMate ePro PS 15

Figure 2: Slot Locations

**CompactFlash Slot**

The CompactFlash slot is located on the side of the unit as shown above.

When installing the CompactFlash memory card into the PanelMate ePro PS unit ensure that the guides are lined up carefully and the “lip” on the memory card is toward the back of the unit.

**Caution:** Make sure to turn off and/or disconnect power to the PanelMate ePro PS unit before removing or inserting the CompactFlash memory card, as the CompactFlash memory card should not be hot-swapped. Failure to remove power before installing or removing the CompactFlash memory card, can result in damage to the CompactFlash and/or unit.

**Note:** SanDisk CompactFlash memory cards are recommended for use with the PS unit. Contact technical support to obtain a complete list of authorized SanDisk memory cards.

**PCMCIA Slots**

The PCMCIA slots are located on the side of the unit as shown above.

The PCMCIA interface supports up to 2 Type II cards or 1 Type III card. When installing the PCMCIA card into the PanelMate ePro PS unit ensure that the guides are lined up carefully and the top on the card is toward the back of the unit.

**Caution:** Before hot-swapping PCMCIA cards, verify the card being used is specified to support hot-swapping.

**Note:** Although most base functionality has been included in the ePro PS operating system and many devices have been tested and authorized, not all device drivers have been included. Contact technical support to obtain a complete list of authorized devices.
**PCI Adapter**

All models except the 8” displays also provide a slot on the back of the unit for use with the optional PCI adapter (Cutler-Hammer Catalog Number 76PCI). Reference the documentation included with the adapter for complete installation instructions.

**Note:** Although most base functionality has been included in the ePro PS operating system and many devices have been tested and authorized, not all device drivers have been included. Contact technical support to obtain a complete list of authorized devices.
Chapter 2: Preparing the ePro PS for Online Use

This chapter describes how to get started with your ePro PS unit. The following topics are discussed:

- Powering up your ePro PS unit
- Steps to preparing your ePro PS unit for online use
- Preparing your ePro PS for file transfers
- Installing software and downloading configurations
- Managing accounts and changing passwords
Powering Up Your ePro PS Unit

In order to power up your PanelMate ePro PS unit, you need to provide a 4.0 amp 24-volt power source/supply. Your PanelMate ePro PS unit is designed to operate at 24VDC. A removable three-position DC power connector attaches to the unit's connector receptacle. (Refer to the PanelMate ePro PS Specifications section for additional information).

Notes:

- Use #18 AWG (0.82mm²) copper wire for power and ground lead connections.
- Power conditioning may be required when the PanelMate ePro PS unit is installed in areas of poor power quality.
- The ePro PS unit is designed to operate with a peak inrush current of 8 A, a maximum current of 2.0 A, and a maximum power of 50 watts.

Power and Ground Instructions

The PanelMate ePro PS operator interface has been designed to withstand severe environmental conditions typical in industrial installations. However, certain extreme conditions, such as serious ground faults, have the potential to damage the PanelMate ePro PS operator interface or cause other damage. In all cases, the end user must ensure that the installation is protected from these extreme conditions and follows local codes and electrical standards and regulations.

The following recommendations are intended to help protect the PanelMate ePro PS unit from damage due to current swells, ground faults, or ground potential differentials that can occur in electrical system installations.

- Use an isolated power supply
- Use single point grounding
- Install a power supply solely for the PanelMate ePro PS
- Use a current-limiting power supply
- Add circuit breakers
Use an Isolated Power Supply

AC to DC power supplies are typically isolated while DC to DC power supplies are often non-isolated. Check the power supply specifications to ensure that the power supply is fully isolated. If used in a Class I, Div 2 environment, then the external power supply must be appropriately rated.

Use Single Point Grounding

The external power supply and the PanelMate ePro PS unit should be grounded to the same point. Single point grounding should be practiced even when the devices are located in separate enclosures to help prevent ground loop issues.

Install a Power Supply Solely for the PanelMate ePro PS

If the current external power supply is used for multiple devices, add an external power supply specifically for the PanelMate ePro PS unit. A separate external power supply will better protect against system transients and ground potential issues. If used in a Class I, Div 2 environment, the external power supply must be appropriately rated.

Use a Current-Limiting Power Supply

The external power supply should not be able to source more than five amps. If used in a Class I, Div 2 environment, the external power supply must be appropriately rated.

Add Circuit Breakers

Install circuit breakers (Cutler-Hammer Catalog Number WMS2C04) on both the supply and return paths between the PanelMate and the external power supply to protect against current swells on the return path. The circuit breakers should be rated for ten amps.
Steps to Preparing Your ePro PS Unit for Online Use

You may find it useful during the initial preparation of the ePro PS unit, to connect both a USB keyboard and mouse to the unit. After powering up the ePro PS user interface, you can connect to the ePro PS unit in order to do one or more of the following:

- Install the latest PanelMate ePro PS Runtime software (included on the ePro Software Suite CD-ROM)
- Install an OPC driver (included on the KEPServer_ePro CD-ROM)
- Download an ePro Canvas configuration (created using ePro Canvas or ePro Canvas Professional software). If your configuration uses the Data Archiving (76DA) or Recipe Management (76RM) options, make sure these options have been registered on your unit.
- Download a PanelMate Power Pro configuration (PanelMate ePro PS Classic users only)

Refer to the Preparing Your ePro PS for File Transfers and Installing Software sections for additional information.

Note: PanelMate ePro PS models are pre-licensed to run with the Kepware OPC server and drivers. The Kepware OPC server is preinstalled and configured for optimum performance. For ePro Canvas applications to run correctly online, it is necessary that the OPC server and drivers installed on the PS unit are the same as the server and drivers installed on the ePro Canvas development PC. Refer to the Installing New OPC Server and Drivers section for additional information.

Communicating to a PLC or Controller

Your PanelMate ePro PS unit can communicate to a PLC or controller via:

- A serial connection
- An Ethernet connection (Refer to the Connecting to Your ePro PS for Data Transfer/Software Downloads section for more information about setting up an Ethernet connection)
- An optional interface card
Connecting to the Serial Ports

The external serial ports may be used for communications with a PLC or controller. Serial port 1 (COM1) support RS232 (default), RS422, RS485, and RS485+ communications while serial port 2 (COM2) supports RS232 only. Serial port 2 (COM2) is used for the touchscreen on the Blind Node models.

<table>
<thead>
<tr>
<th>Pin</th>
<th>RS232</th>
<th>RS422</th>
<th>RS485</th>
<th>RS485+</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DCD, Data carrier detect</td>
<td>TX-</td>
<td>DATA-</td>
<td>DATA-</td>
</tr>
<tr>
<td>2</td>
<td>RXD, Receive data</td>
<td>TX+</td>
<td>DATA+</td>
<td>DATA+</td>
</tr>
<tr>
<td>3</td>
<td>TXD, Transmit data</td>
<td>RX+</td>
<td>Do not connect</td>
<td>Do not connect</td>
</tr>
<tr>
<td>4</td>
<td>DTR, Data terminal ready</td>
<td>RX-</td>
<td>Do not connect</td>
<td>Do not connect</td>
</tr>
<tr>
<td>5</td>
<td>Signal Ground</td>
<td>Signal Ground</td>
<td>Signal Ground</td>
<td>Signal Ground</td>
</tr>
<tr>
<td>6</td>
<td>DSR, Data set ready</td>
<td>Do not connect</td>
<td>Do not connect</td>
<td>Do not connect</td>
</tr>
<tr>
<td>7</td>
<td>RTS, Request to send</td>
<td>Do not connect</td>
<td>Do not connect</td>
<td>Do not connect</td>
</tr>
<tr>
<td>8</td>
<td>CTS, Clear to send</td>
<td>Do not connect</td>
<td>Do not connect</td>
<td>Do not connect</td>
</tr>
<tr>
<td>9</td>
<td>RI, Ring Indicator</td>
<td>Do not connect</td>
<td>Do not connect</td>
<td>Do not connect</td>
</tr>
</tbody>
</table>

Caution: Your PanelMate ePro PS unit is equipped with port isolation on serial port 1 (COM1) only. Check for any ground potential difference between your communication equipment and your PanelMate ePro PS unit. If there is a ground potential difference, your communication equipment will need to be isolated.

Setting COM1 Jumpers for RS232 or RS422-485

Serial port 1, COM1, can be configured to support RS232 (default), RS422, RS485, or RS485+ communications by configuring the jumper settings on the board. The board can be accessed by removing the back cover of the unit. The location of the jumpers and their proper settings are shown below.

Caution: The CompactFlash card must be removed before removing the back cover of the unit.

Note: Jumpers are included in the Accessory Kit that is provided with each ePro PS unit.
Preparing Your ePro PS for File Transfers

You can transfer files to the PanelMate ePro PS and download software using the following methods:

- An Ethernet connection using static IP addressing, using either
  - A point-to-point connection (direct) using a shielded Cat 5 Ethernet crossover cable
  - A network connection using a local Ethernet hub/switch and a pair of shielded Cat 5 Ethernet patch cables
- An Ethernet workgroup or domain on a plant/local network connection with a DHCP server assigning the ePro PS’s IP address
- An external drive connected via USB, CompactFlash, or PCMCIA slot

Note: Ethernet file transfers can be done using Windows Explorer. ePro Canvas Professional users also have the option of transferring files using the Send to File feature.

PanelMate ePro PS factory settings are:

- TCP/IP protocol
- Computer name: EATONxxxxxx (Name is unique for each unit but will begin with EATON)
- Workgroup name: WORKGROUP
- IP Address: DHCP
- Subnet Mask: DHCP

Other items to consider when communicating using Ethernet include

- All static IP addresses must be unique
- All computer names must be unique
- All subnet masks must match
- We recommend that all workgroup names match
- We recommend using a shielded Cat 5 cable for industrial applications

Connecting to Your ePro PS Via the Ethernet

When connecting your ePro PS through any of the following methods, the unit you are connecting to should appear in the network neighborhood of a Microsoft operating system. If it does not appear in the network neighborhood, use the Find computer or Search computer utility to find the desired unit. When searching, you can search by computer name or by the unit’s IP address.
Setting Up a Point-to-Point (Direct) Ethernet Connection

To connect to your PanelMate ePro PS unit using this method, complete the following steps:

1. Use a crossover cable.

2. Connect one end of the cable to the Ethernet port on your computer and the other end of the cable to the Ethernet port of your PanelMate ePro PS unit.

3. Power up your computer and your PanelMate ePro PS unit.

**Result:** A green LAN Present LED indicator should appear next to the Ethernet port.

Once you have established the physical connections, the next step is to establish the correct logical connections between your computer and your PanelMate ePro PS unit. If you are using a static IP address, the computer IP address should be assigned a unique value where the first three fields match that of the ePro PS. For example, if the IP address of the ePro PS is 192.168.0.001, then the computer IP address would be 192.168.0.xxx where xxx is between 0 and 255 and is not equal to 001.

---

Setting Up an Ethernet Connection Using a Hub/Switch

This method can be used to set up a local workgroup using only static IP address. To set a local workgroup with dynamic only or static and dynamic combined see **Setting Up a Local Ethernet Workgroup Using DHCP Server**. To connect to your PanelMate ePro PS unit using this method, complete the following steps:

1. Use patch cables.

2. Power up the hub/switch and connect a patch cable from both your computer’s and your PanelMate ePro PS unit’s Ethernet port to the hub or switch. Other units can be added.

   **Note:** Do not use the port labeled Uplink on the hub or switch.

   **Result:** A green LAN Present LED indicator should appear next to the Ethernet port on each machine.

3. Once you have established the physical connections, the next step is to establish the correct logical connections. If you are using a static IP address, the computer IP address should be assigned a unique value where the first three fields match that of the ePro PS (for example, 192.168.0.xxx where xxx is between 0 and 255 and is not equal to any other assigned value).
Notes:

- If there are multiple ePro PS units on the network, you will need to make sure the Computer Name and IP address on each workgroup unit is unique.

- You can build user accounts and passwords locally on all Windows XP systems when managing a local workgroup. Refer to the Managing Accounts and Changing Passwords section for more information.

**Setting Up a Local Ethernet Workgroup Using DHCP Server**

Use a DHCP server to set up a local Ethernet workgroup if you are setting up a local network using a hub or switch that will **not** be connected to a larger plant network.

To connect to your PanelMate ePro PS unit using this method, complete the following steps:

1. Use **patch** cables.

2. A DHCP router must be used to provide IP addresses to any units that are set up for automatic IP addressing. If any units on the local workgroup are set up for static addressing the DHCP router must support this as well. In most cases the router must be powered up first, before any of the units, so the router can provide any addressing needs. Powering the router up after any units are powered on may result in a unit not receiving an IP address. Connect the patch cables from the units to the router.

**Result:** A green **LAN Present** LED indicator should appear next to the Ethernet port on each machine.

3. Once you have established the physical connections, the next step is to establish the correct logical connections. If you are using a static IP address, all other IP addresses should be assigned a unique value where the first three fields match that of the ePro PS (for example, 192.168.0.xxx where xxx is between 0 and 255 and is not equal to any other assigned value).

Notes:

- If there are multiple ePro PS units on the network, you will need to make sure the computer name and IP address on each workgroup unit is unique.

- You can build user accounts and passwords locally on all Windows XP when managing a local workgroup. Refer to the Managing Accounts and Changing Passwords section for more information.
Chapter 2: Preparing the ePro PS for Online Use

Setting Up PanelMate ePro PS on a Domain Network Using DHCP Server

Working on domain networks is the same as working in a local workgroup. You can use static or dynamic addressing (DHCP) to establish a connection to the network. PanelMate ePro PS can share information with other units of the same workgroup or other workgroups as long as none of the units are logged on to a domain.

PanelMate ePro PS can connect to resources logged on to a domain by the user supplying a valid “domain name”, “user id”, and “password” (these are provided by the network administrator). This procedure will create a connection to the domain resource that will last as long as it is not manually removed or a loss of power to any of the connected devices does not occur.

Connecting Windows 98 PCs to an ePro PS

Due to differences in network login and security functionality, there are different rules for connecting Windows 98 or Windows ME PCs to ePro PSs than the rules for connecting PCs based on the Windows NT based operating system to ePro PSs. Windows NT based operating systems include Windows NT 4.0, Windows 2000, and Windows XP.

NT based PCs can log on to shared PC resources and provide a specific account and password unrelated to the currently running user account, whereas Windows 98 based PCs can only log on to a network PC resource using the same account name as the one used when booting up the Windows 98 PC.

This means that the ePro PS must have a local user account with the same name and identical password as the user account on the Windows 98 PC. New user accounts can be created on the ePro PS using Start>Control Panel>Administrative Tools. Launch Computer Management.
To create a new user account from the Computer Manager Window, select **Local Users and Groups** then right click on **Users** and select **New User**.... The following dialog box must be completed.

The **Username** field must match the user login account from the Windows 98 PC. The information entered in the **Full Name** and **Description** fields will appear in the **User Manager** window for descriptive purposes. The **Password** and **Confirm Password** fields must have identical entries and should match (case sensitive) the Windows 98
login password. The User Must Change Password at Next Logon and other checkbox settings may vary by location. Check with your network administrator for the proper settings.

Unless the ePro PS administrator has modified the share attributes of the shared ePro PS folders, the default Users group has sufficient privileges to copy files to and from the ePro PS. Once the new user has been created, the user will be able to connect both PCs to the same Ethernet network, and from the Windows 98 PC you will be able to browse or “find” the ePro PS on the network and copy files to and from it’s shared directories.

C/D Partitions

Your ePro PS unit comes with two drive partitions:

- **C:.partition**
- **D:.partition**

ATS recommends that you use these drives as follows:

<table>
<thead>
<tr>
<th>Drive Partition</th>
<th>Recommended Use</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>C:</strong></td>
<td>Use the C:\ partition for software installations, to store all of your programs and purchased software. This partition is protected (locked down), so you should use it to store all data on the ePro PS that needs to be protected. <strong>Note:</strong> All changes made to the C:\ partition must be saved or committed so that the next time the ePro PS is restarted the new data will be available. Refer to the Protect Mode Save section for additional information about saving files to the C:\ partition.</td>
</tr>
<tr>
<td><strong>D:</strong></td>
<td>Use the D:\ partition to store data that changes on a regular basis, such as configuration files.</td>
</tr>
</tbody>
</table>

Installing Software

Typical data transfers and software downloads may include the following:

- Configuration data files (.ucf files) (.pps files for Classic models only)
- PanelMate ePro PS Runtime software installation
- OPC drivers installation

There are two methods for installing authorized software on your PanelMate ePro PS unit:

- Ethernet connection.
  - ePro Canvas Professional users have the option of using the Send to File feature that manages the transfer and installation of files.

- An external drive connected via USB, CompactFlash, or PCMCIA slot

**Note:** All changes made to the C:\ partition must be saved or committed so that the next...
time the ePro PS is restarted the new data will be available. Refer to the Protect Mode
Save section for additional information about saving files to the C:\ partition.

Types of Software That Can Be Installed

You can install PanelMate ePro PS Runtime software and Kepware OPC servers/drivers
on your PanelMate ePro PS unit.

The PanelMate ePro PS EE models have a unique image load and hardware
configuration designed to support the following Cutler-Hammer software packages:

- CH Studio
- IProx Development Software
- SVX Drives Software
- ELC Programming Software

Other third-party software packages or OPC servers that have not been authorized may
not install or run properly for the following reasons:

- Windows XP Embedded is different from the commercial open Windows XP
  operating system. Therefore, some drivers, services and support components that
  other software programs require may not be present in the PanelMate ePro PS XP
  Embedded operating system.
- There may not be enough disk space (non-volatile flash memory) to install or
  configure unauthorized software.
- The ePro PS unit does not support runtime writes to the operating system, C:
  partition. Therefore, if a third-party package routinely tried to write log files or
diagnostics to that partition, it would be redirected to a RAM buffer that could take up
all available RAM and result in unstable system operation.

The ePro PS flash and RAM memory have been sized for those software packages that
have been qualified for the unit and have validated their runtime integrity. Based on the
reasons stated above, ATS recommends that you do not install any other software. If
you choose to install unauthorized software, you will be assuming responsibility for
overall system integrity and reliability.

Installing Software Using an Ethernet Connection

Using Ethernet, you can connect your ePro PS unit directly to a PC using either a
standard Patch 5 crossover cable or through a standalone Ethernet hub or switch. You
can also connect your ePro PS unit to your company’s Ethernet network (you may need
the assistance of company IT personnel to establish your ePro PS unit’s IP address if
you are not using DHCP). See the earlier sections in this chapter that address Ethernet
connections.

In either case, to install software using Ethernet, you need to:

- Share a network drive for which your ePro PS unit has access rights.
- Browse to that shared drive from the ePro PS unit using Explorer.
- Run the appropriate software installation setup executable.
ePro Canvas Professional users also have the following option for installing application files (.ucf), ePro PS Runtime software and Kepware OPC drivers:

- Configure file transfer options using the **Destination** tab of the **Units Properties** dialog box.
- Select **Send to File**.

**Installing Software Using an External Drive**

To install software using an external drive

1. Copy any installation files from the installation CD to external drive using a desktop PC that has both CD and the external drive support.
2. Power down the ePro PS unit when installing or removing a CompactFlash card.
3. Connect the external drive to your ePro PS unit.
4. Power up your ePro PS unit if necessary.
5. You should see the external drive listed as a **Removable Disk** in Explorer.
6. Browse to the drive from your ePro PS unit using Explorer, and run the appropriate installation setup executable.

**Installing New OPC Server and Drivers**

All units come with the current KEPServer_ePro OPC server installed and preset for optimum use. The only time you will need to install a new OPC server is if you need to upgrade the software. Once you are connected to the PanelMate ePro PS unit using an Ethernet connection or external drive, you can install the OPC server by navigating to the **setup.exe** file on the KEPServer_ePro CD-ROM. Follow the InstallShield Wizard prompts. Select the **Modify** option so that the preset server settings are maintained. You should also install the necessary OPC drivers at this time by selecting and expanding the Drivers folder in the component selection dialog box and checking off only the drivers desired.

**Note:** For ePro Canvas applications to run correctly online, it is necessary that the OPC server and drivers installed on the PS unit are the same as the server and drivers installed on the ePro Canvas development PC.

**Installing OPC Drivers**

Once you are connected to the PanelMate ePro PS unit using an Ethernet connection or external drive, you can install the OPC drivers of your choice by navigating to the **setup.exe** file on the KEPServer_ePro CD-ROM included with the ePro Software Suite or with the PanelMate ePro PS Classic unit. Follow the InstallShield Wizard prompts. It is recommended that you keep the number of files installed to a minimum by selecting the Modify option, then expanding the Drivers folder in the component selection dialog and checking off only the drivers desired.

If you are an ePro Canvas Professional user then you have the option of transferring driver files to the PanelMate ePro PS unit using the **Send to File** feature.
Downloading and Running a Canvas Configuration (.ucf File)

Once you are connected to the PanelMate ePro PS unit using an Ethernet connection or external drive, you can set up the unit to run your Canvas application by using the following steps:

1. Copy your Canvas configuration file (.ucf file) to the shared application directory (D:\cfg) of the ePro PS using Explorer. If you are using an Ethernet connection, you may initiate the copy from your development PC or from the ePro PS unit, assuming the configuration is located in a shared network drive or directory. You will also need to copy the eProStart.cmd file from the ePro Software Suite Program folder on your development system. Copy C:\Program Files\Cutler-Hammer\ePro Software Suite\eProStart.cmd to the root directly of D: on the PS unit.

   OR

   ePro Canvas Professional users have the option of transferring files over an Ethernet connection using the Send to File feature. When using Send to File, a modified eProStart.cmd file is automatically transferred to the D: folder.

2. If the Copy method was used in Step 1 above you will need to modify the eProStart.cmd file located under the root directory of D: by changing the line set MY_CFG=d:\cfg\Myconfig.ucf to match the location and name of your Canvas configuration filename.

3. Your Canvas application will automatically launch each time your ePro PS reboots.

To launch your Canvas application manually, use the eProStart shortcut off the Windows Start menu.

Note: If you decide to use your PanelMate ePro PS Classic hardware to run PanelMate ePro PS applications it is recommended that you edit the C:\Windows\System32\Initial.cmd file to launch the eProStart.cmd command file instead of the PMStart.cmd file. You will also want to change the shortcut in the Windows Start menu to point to the eProStart.cmd command file instead of PMStart.cmd. The eProStart shortcut is located at C:\Documents and Settings\Administrator\Start Menu. Open the properties of the shortcut and change the Target to: D:\eProStart.cmd.

Downloading and Running a PanelMate Power Pro Configuration (.pps File)

PanelMate Power Pro Configurations can be used with the Classic models only.

Once you are connected to the PanelMate ePro PS Classic unit using an Ethernet connection or external drive, you can set up the unit to run your PanelMate Power Pro configuration by following these steps:

1. If you are copying a pre-existing PanelMate Power Pro configuration that used the KEPServer_EX OPC server to the ePro PS Classic then you will need to modify the PanelMate Power Pro configuration PLC Name and Port Table. The ePro PS Classic uses the KEPServer_ePro OPC server so, as a result, you will need to change the Server Name property to EatonElectrical.KEPServer_ePro.
2. Copy the PanelMate Power Pro configuration file (.pps file) to the D:\cfg of the ePro PS Classic using Windows Explorer. If you are using an Ethernet connection, you may initiate the copy from your development PC or from the ePro PS Classic unit, assuming the configuration is located in a shared network drive or directory.

3. Modify the PMStart.cmd file located under the root directory of D:\ by changing the line set MY_CFG=d:\cfg\Myconfig.ucf to match the location and name of your PanelMate Power Pro configuration file.

4. Your PanelMate Power Pro configuration will automatically launch each time your ePro PS Classic reboots.

To launch your PanelMate Power Pro configuration manually, use the eProStart shortcut off the Windows Start menu.

Uninstalling Software

All software should be removed using the Add or Remove Programs utility located in the Control Panel.

Note: All changes made to the C:\ partition must be saved or committed so that the next time the ePro PS is restarted the new data will be available. Refer to the Protect Mode Save section for additional information about saving files to the C:\ partition.

Uninstalling Touchscreen Drivers

PanelMate ePro PS Blind Nodes include an Elo touchscreen driver, assigned to COM2 by default, that loads automatically at startup. If your attached monitor uses something other than an Elo touchscreen driver, you will need to uninstall the touchscreen driver using the Add or Remove Programs utility located in the Control Panel.

Managing Accounts and Changing Passwords

There is an account set up on your PanelMate ePro PS unit when it was shipped from the factory; the Administrator account. The password for the Administrator account is Administrator.

Notes:
- ePro PS passwords are case sensitive.
- ePro PS account names are not case sensitive.

The ePro PS is set up to automatically log in to the Administrator account, which is why the normal Windows XP Security dialog box does not appear upon bootup.

If you are connecting your PanelMate ePro PS unit to a larger network, you might want to modify the Administrator account name and password to protect the ePro PS unit from unauthorized access.
Modifying an Account Name and Password

You can modify the Administrator and any other account name password from the User Accounts utility in the Control Panel.

Once the Administrator password has been successfully modified you must follow the How to Disable/Change the Auto Logon Feature section in order to continue to automatically log in to the Administrator account at bootup.

Note: All changes made to the C:\ partition must be saved or committed so that the next time the ePro PS is restarted the new data will be available. Refer to the Protect Mode Save section for additional information about saving files to the C:\ partition.

Using the Auto Logon Feature

The ePro PS Auto Logon feature is used to automatically log into a specified account name and password. By default, the Auto Logon feature is enabled and logs into the Administrator account, using Administrator as the account name and password.

If you want to change the Auto Logon features, refer to the descriptions below.

Note: You must have administration privileges in order to disable/change the Auto Logon feature.

How to Disable/Change the Auto Logon Feature

To disable or change the Windows XP Auto Logon feature you will need to know how to edit the Windows XP registry using Regedit. Extreme care should be exercised when making changes to the Windows XP registry. If you are not familiar or comfortable making changes to the registry, contact your local system or network administrator.

The following entries in the Windows XP registry can be modified to change the account, password, and domain used by the Auto Logon Feature:

\HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon\DefaultUserName
\HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon\DefaultPassword
\HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon\DefaultDomain

To enable/disable the Auto Logon Feature, set the following registry entry to 1 or 0:

\HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon\AutoAdminLogin

How to Bypass the Auto Logon Feature

If you need to switch the logon user back to the Administrator account, you may bypass the Auto Logon feature by connecting a keyboard to your ePro PS and pressing the right Shift key while booting up. The Windows XP Security login dialog box appears, which allows you to enter a different account name and password.
Chapter 3: Software Tools, Utilities and Programs

This chapter describes how to use a variety of system software tools, utilities and programs that make the hardware perform as desired.

The following topics are discussed:

- Screen Brightness and Backlight Auto-Dimming
- Protect Mode Save Program
- Calibrating the Touchscreen
- Changing the Screen Resolution
Introduction

The PanelMate ePro PS operator interface has several software tools, utilities and programs to help keep the system running smoothly.

Note: The default is that the Task Bar and Start Menu is in Auto Hide mode. To access the Task Bar simply tap anywhere along the bottom of the screen.

![Figure 3: ePro PS Boot-up Desktop](image)

Status Bar Icons

There are several icons that show up in the status bar:

- Tap this icon to change the Screen Brightness and Backlight Auto-Dimming.
- Tap this icon to bring up a menu which will allow you to recalibrate the touchscreen.
- Double-tap the time/date values to access the Time-Date program.
Screen Brightness and Backlight Auto-Dimming

PanelMate ePro PS units with 8", 10, 12" or 15" display have a screen brightness utility that allows you to set the screen brightness and to configure the backlight auto-dimming feature. The backlight auto-dimming feature allows you to reduce the brightness of the backlight when the unit is not being used which in turn will extend the life of the display backlight.

**Notes:**

- The PanelMate ePro PS backlight life is calculated with the Screen Brightness setting at the midpoint level.
- The PanelMate ePro PS Blind Node does not support the Screen Brightness nor the Backlight Auto-dimming features. Screen brightness will be controlled using tools provided with the display.

The screen brightness utility loads automatically at startup and an icon is placed in the system tray in the lower-right corner (by the clock) of the display. To set the screen brightness or to configure the auto-dimming feature, select the icon in the system tray.

You will be presented with a Screen Lightness control. Move the selector to the desired lightness level.

**Note:** When adjusting the Screen Lightness, you may come across a setting which makes a high pitch noise or makes the screen flicker. These are normal characteristics of fluorescent lighting and will not harm the unit itself. Adjusting the setting up or down slightly will eliminate the flicker or noise.

To configure the backlight auto-dimming feature select the **Configure** button. You will see the LCD Dimming Configuration dialog box as shown on the following figure. Slide the selector box to the desired screen lightness level to be used after the idle time has been reached. It is recommended that the lightness be reduced to a level that allows the operator to see at least a faint image of the information on the screen.

Configure the idle time wait period (specified in seconds) as desired. When the idle time wait period is set to 0 the backlight auto-dimming feature will not be activated and the display will stay at a constant brightness. Otherwise, when the unit has been idle (no
mouse, keyboard or touchscreen input) the designated amount of time, the screen brightness will change to the configured setting. Once there is input from a mouse, keyboard or the touchscreen, the display brightness will be immediately reset to the default setting.

**Note**: When adjusting the screen lightness for the backlight auto-dimming feature, you may come across a setting which makes a high pitch noise or makes the screen flicker. These are normal characteristics of fluorescent lighting and will not harm the unit itself. Adjusting the setting up or down slightly will get rid of the flicker or noise.

![PanelMate ePro PS](image)

**Note**: All changes made to the C:\ partition must be saved or committed so that the next time the ePro PS is restarted the new data will be available. Refer to the Protect Mode Save section for additional information about saving files to the C:\ partition.

### Protect Mode Save Program

The PanelMate ePro PS unit is always in Protect Mode which means that the unit is protected against unwanted changes to data stored on the C:\ partition. In order to save desired data changes to the C:\ partition the Protect Mode Save program must be utilized.

It is good practice to shutdown and restart the ePro PS in preparation to making permanent changes to the C:\ partition. This step will ensure that all data stored in volatile memory is cleared so that no unexpected corruption or changes will take place on your C:\ partition. Once the ePro PS has been restarted, make your changes and then save the changes by selecting **Start>Programs>Protect Mode Save**.

Once the Protect Mode Save program has been launched, the changes that affect the C:\ partition will be saved and then the ePro PS unit will automatically shutdown and restart in Protect Mode.

Refer to the Protect Mode section for additional information about Protect Mode.
Calibrating the Touchscreen

The PanelMate ePro PS units are always in Protect Mode. This means that new calibration values will NOT be saved but will be in effect only until the unit is restarted. In order to save new calibration values you must run the Protect Mode Save program. If you do not perform this step, the ePro PS will revert back to the last saved calibration settings when restarted.

Refer to the Protect Mode section for additional information.

Calibrating Display Models

PanelMate ePro PS units with 8", 10", 12" or 15" displays include a PenMount touchscreen driver that loads automatically at startup. A Calibrate Touchscreen icon is placed in the system tray in the lower-right corner (by the clock) of the display.

If for some reason you find it necessary to re-calibrate the touchscreen, you can do so by selecting the icon. You can also select Start>Programs>PenMount USB Utilities>Touchscreen Control Panel to launch the calibration program. Once the calibration program is launched you will see the following PenMount Control Panel dialog box.

While in your normal operating position, select the Standard Calibration button on the Calibrate tab and then proceed to touch the red squares as directed. The squares will appear at the top, right, bottom, left and central-area of the screen.

Note: The red square at the bottom of the screen will not be visible but the arrow will be partially drawn, this is normal operation. Select a point closest to the end of the arrow.
If the calibration is acceptable, select the OK button or the exit shortcut button (X) at the top of the window to temporarily save the new calibration. If the calibration is not correct, reselect Standard Calibration and repeat the operation until satisfied.

If desired, you can select the Advanced Calibration button. This feature will let you select the number of calibration points and a display of the calibration data for increased accuracy.

Calibrating Blind Node Models

PanelMate ePro PS Blind Nodes include an Elo touchscreen driver that loads automatically at startup. If for some reason you find it necessary to re-calibrate the touchscreen, you can do so by selecting Start>Settings>Control Panel and then selecting the Elo Touchscreen program. Doing so launches the Elo Touchscreen Properties dialog box. Select Calibrate in the General tab to start the calibration process.

**Note:** On the General tab, the Touchscreen Port will have a default value of COM2. If you need to reserve COM2 for communications, change the value to COM1.

Once you start the calibration process, a crosshair on a red and white target appears in the upper-left corner of the display. While in your normal operating position, touch the crosshairs in the middle of the target. The crosshairs will move to the lower-right corner of the display. Touch the crosshairs again, and the crosshairs will move to the upper-right corner of the display. After touching the upper-right crosshairs, a Check Calibration dialog box will appear, informing you that you have 30 seconds to confirm the calibration. Touch points on the screen to confirm the arrow cursor is tracking as desired and then select YES (if the calibration does not look correct then select NO and re-calibrate the screen until you are satisfied). Once you select YES, you are returned to the Elo Touchscreen Properties dialog box. Close the Elo Touchscreen Properties dialog box by selecting the OK button. The calibration settings will be temporarily saved at this time.

Close the Control Panel window by selecting the exit shortcut button (X) at the top of the window.
Changing Screen Resolution

PanelMate ePro PS Blind Nodes models are preset for 640x480 (VGA) screen resolution. The screen resolution can be changed using the standard Windows Display utility from the Control Panel.

Caution: If the Blind Node screen resolution is changed to a resolution higher than 640x480 (VGA) and saved, you will not be able to set it back to VGA resolution in the future.

Notes:

- Changing the screen resolutions for the 8", 10", 12" and 15" display models is not supported (Control Panel>Display program is not available).

- The PanelMate Power Pro Runtime software requires 640x480 resolution. It is recommended that for as long as you plan to use the PanelMate ePro PS Classic models for PanelMate Power Pro configurations that you do not change the resolution from 640x480.

- If you set your Classic Blind Node model to a higher resolution and you go back to running the PanelMate Power Pro Runtime, the software will scale the data so that the 640x480 configuration fills the full screen but the data will may not appear as desired. In addition, if you have calibrated the touchscreen while the screen resolution was set to a higher value, the calibration may appear slightly off as a result of the scaling.

Once you have changed the screen resolution you will need to permanently save the information to the C:\ partition. Refer to the Protect Mode and Protect Mode Save program sections for additional information about saving settings.
This chapter describes how to install your PanelMate ePro PS unit. The following topics are discussed:

- Safety Considerations
- Installation best practices
- Enclosure selection
- Serial communication cable selection, shielding, grounding and termination
- Serial cable segregation and placement
Safety Considerations
This equipment is suitable for Class I, Division 2, Groups A,B,C,D or non-hazardous locations only.

CAUTION
EXPLOSION HAZARD. SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.

ADVERTISSMENT
RISQUE D'EXPLOSION. LA SUBSTITUTION DE COMPOSANTS PUET RENDRE CE MATERIAL INACCEPTABLE POUR LES EMPLACEMENTS DE CLASSE I, DIVISION 2.

WARNING
EXPLOSION HAZARD. DO NOT REPLACE COMPONENTS UNLESS POWER HAS BEEN SWITCHED OFF OR AREA IS KNOWN TO BE NON-HAZARDOUS.

ADVERTISSMENT
RISQUE D'EXPLOSION. COUPER LE COURANT OU S'ASSURER QUE L'EMPLACEMENT ES DESIGNE NON DANGEREUX AVANT DE REPLACER LE COMPOSANTS.

Installation Best Practices

1. Never use foreign objects to activate the touchscreen. Use a hand, gloved hand or stylus. Foreign objects (such as a screwdriver) may cause damage to the touchscreen or scratch the front panel reducing the transmissivity.

2. Use a light touch to activate the touchscreen. Touchscreen activation does not require the same force necessary to activate a mechanical switch.

3. Disconnect this equipment from the power outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.

4. Do not remove or insert the CompactFlash memory card while the PanelMate ePro PS unit is powered up. Doing so may cause damage to the CompactFlash memory and/or processor board.

5. Keep this equipment away from condensing humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.

7. The openings on the enclosure are for air convection cooling. Protect the equipment from overheating. **DO NOT COVER THE OPENINGS.**

8. Always install the unit in a vertical orientation for proper cooling.

9. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.

10. Position the power cord so that people cannot step on it. Do not place anything over the power cord.

11. All cautions and warnings on the equipment should be noted.

12. Never pour any liquid into an opening. This may cause fire or electrical shock.

13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.

14. If one of the following situations arises, get the equipment checked by service personnel:
   a. The power cord or plug is damaged.
   b. Liquid has penetrated into the equipment.
   c. The equipment has been exposed to moisture.
   d. The equipment does not work well, or you cannot get it to work according to the user's manual.
   e. The equipment has been dropped and damaged.
   f. The equipment has obvious signs of breakage.

**Enclosure Selection**

**Enclosure Rating**

The front panels of PanelMate ePro PS units provide a Type 4, 4X, 12 and IP65 installation rating when mounted in a correspondingly rated enclosure. Make sure the enclosure that you choose meets or exceeds your application's rating requirement.

**Enclosure Construction**

It is recommended that the enclosure is constructed of cold rolled steel. This type of enclosure helps guard your unit against electromagnetic interference, and provides proper structural support and good heat dissipation.
Enclosure Sizing and Unit Positioning

Careful enclosure sizing is important for proper heat dissipation and easy installation and maintenance. For efficient convection cooling, clearance space is needed around the ePro PS unit and the unit should be mounted in a **vertical** position. Convection cooling draws a vertical column of air upward over internal circuitry through the vents in the unit. In all installations, the cooling air must not exceed the maximum specified ambient temperature. This determination must be made for the maximum expected plant temperature (maximum temperature of the air surrounding the enclosure).

- Maintain recommended clearance space above and below the ePro PS unit (refer to the following table for details)

- Avoid mounting other heat-generating equipment near the ePro PS unit. If no other location is available, mount the equipment beside or behind the ePro PS unit. If side/rear space is not available, it is preferable to mount the other equipment above rather than below the ePro PS unit. Be sure to maintain the recommended clearance space area between the ePro PS unit and the other equipment.

- Leave room for easy access to circuit boards, wiring and cable connections, and for regular maintenance.

![Figure 4: Unit Mounted in Cabinet with Clearance Space](image)
Recommended Clearance and Maximum Operating Temperature Table

The table below provides the recommended clearance and maximum operating temperature figures for your ePro PS unit.

**Note:** The clearance is the space between the ePro PS unit’s electronics and the top or bottom of the enclosure.

<table>
<thead>
<tr>
<th>Models</th>
<th>Maximum Operating Ambient Temperature</th>
<th>Maximum Unit Heat Output</th>
<th>Recommended Clearance</th>
</tr>
</thead>
<tbody>
<tr>
<td>All PS Models All EE Models All PS Classic Models 7685T-8OD</td>
<td>55°C (50°C with optional PCI adapter attached)</td>
<td>32W – 8” Display Model 34W – 10” Display Model 37W – 12” Display Model 50W – 15” Display Model 24W – Blind Node Model</td>
<td>4” minimum</td>
</tr>
<tr>
<td>12” and 15” OD Models 7600E</td>
<td>60°C (50°C with optional PCI adapter attached)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If the inside temperature of the enclosure is above the PanelMate ePro PS unit’s recommended range, you must use filtered fans, heat exchangers, or air conditioners to lower the temperature. Because hot air rises to the top of an enclosure, the temperature inside can vary greatly from bottom to top. A fan can be used to circulate air within the enclosure to maintain a more uniform temperature.

**Note:** If an air-purged enclosure is used, it is recommended that the inside/outside pressure differential not exceed 0.5 PSI.

The following sizing table is offered as an aid in the selection of enclosures to be used with the PanelMate ePro PS unit. ATS offers no guarantee or warranty to the specific applicability of this table as actual conditions may vary and methods of the use of our products are beyond our control. For specific information about enclosure selection and cooling methods, contact your enclosure vendor.

Refer to Appendix A for details about the unit and cutout dimensions.

**8” Display Models**

<table>
<thead>
<tr>
<th>Enclosure Size</th>
<th>Average Internal Temperature Rise at Rated Heat Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 x 20 x 6</td>
<td>11.5°C</td>
</tr>
<tr>
<td>20 x 20 x 6</td>
<td>9°C</td>
</tr>
<tr>
<td>20 x 24 x 6</td>
<td>8°C</td>
</tr>
<tr>
<td>20 x 24 x 8</td>
<td>6.5°C</td>
</tr>
</tbody>
</table>
### 10” Display Models

<table>
<thead>
<tr>
<th>Enclosure Size</th>
<th>Average Internal Temperature Rise at Rated Heat Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 x 20 x 6</td>
<td>9.5°C</td>
</tr>
<tr>
<td>20 x 24 x 6</td>
<td>8.5°C</td>
</tr>
<tr>
<td>20 x 20 x 8</td>
<td>8°C</td>
</tr>
<tr>
<td>20 x 24 x 8</td>
<td>7°C</td>
</tr>
</tbody>
</table>

### 12” Display Models

<table>
<thead>
<tr>
<th>Enclosure Size</th>
<th>Average Internal Temperature Rise at Rated Heat Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 x 20 x 6</td>
<td>10.5°C</td>
</tr>
<tr>
<td>20 x 24 x 6</td>
<td>9.5°C</td>
</tr>
<tr>
<td>20 x 20 x 8</td>
<td>9.5°C</td>
</tr>
<tr>
<td>20 x 24 x 8</td>
<td>8°C</td>
</tr>
</tbody>
</table>

### 15” Display Models

<table>
<thead>
<tr>
<th>Enclosure Size</th>
<th>Average Internal Temperature Rise at Rated Heat Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 x 24 x 6</td>
<td>12.5°C</td>
</tr>
<tr>
<td>20 x 20 x 8</td>
<td>12°C</td>
</tr>
<tr>
<td>20 x 24 x 8</td>
<td>10°C</td>
</tr>
<tr>
<td>24 x 24 x 8</td>
<td>9.5°C</td>
</tr>
</tbody>
</table>

### Blind Node Models

<table>
<thead>
<tr>
<th>Enclosure Size</th>
<th>Average Internal Temperature Rise at Rated Heat Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 x 20 x 4</td>
<td>9.5°C</td>
</tr>
<tr>
<td>16 x 20 x 6</td>
<td>9°C</td>
</tr>
<tr>
<td>20 x 20 x 6</td>
<td>6.5°C</td>
</tr>
<tr>
<td>20 x 24 x 6</td>
<td>6°C</td>
</tr>
</tbody>
</table>

**Notes:**
- These tables are based on the following assumptions:
− No additional peripherals are installed
− Enclosure is fabricated from cold rolled steel
− All sides of the enclosure are non-insulated (free standing)
− Recommended minimum clearance between the PanelMate ePro PS unit and the top and bottom of the enclosure
− No other heat-generating equipment is installed in the enclosure
− Maximum CPU usage

• The temperature rise shown represents the temperature rise in the enclosure above the outside temperature. For example: if the temperature outside the enclosure is 35° C and the temperature rise in the enclosure is 10° C, then the average temperature inside the enclosure will be 45° C. Keep in mind that there will be areas warmer than the average inside the enclosure.

Serial and Ethernet Communication Cable Selection, Shielding, Grounding, and Termination

A variety of communication interface options are available for the ePro PS unit. These options include:

• RS232 communications (COM1, COM2)
• RS422/485/485+ (COM1)
• Ethernet communications

No specific communications option is recommended. Your choice should be based on the requirements of your total control system. The communications option that you choose determines the precautions that you need to take when installing and connecting your PanelMate ePro PS unit.

For easy reference, this section contains a summary of several popular communication interface options. Each summary provides specific recommendations, guidelines and installation tips.

Note: Low signal level conductors (Category 2) have a low tolerance for induced electrical noise. Electrical noise can cause a wide range of communications problems resulting in slow or error-prone PanelMate ePro PS operation. Follow all of the installation recommendations for the communication option that you choose. Also, follow good wiring placement practices as outlined in the Serial and Ethernet Cable Segregation and Placement section.

RS232 Communications (COM1, COM2)

<table>
<thead>
<tr>
<th>Recommended Distance</th>
<th>Recommended Cable Type/Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 50 feet</td>
<td>24 gauge, shielded pair</td>
</tr>
</tbody>
</table>

RS232 Grounding Recommendations

Grounding of the communication cable shield at both ends provides the most immunity to high frequency electrical interference. However, the introduction of low frequency
interference by high ground currents in the shield may require grounding only one end. Should this approach result in unacceptable high-frequency interference, then an RS422 interface should be considered.

**RS232 Shielding Recommendations**

**Application: Short or Long Runs in LOW or HIGH Noise Environment with INSIGNIFICANT Levels of Low Frequency Ground Differential Voltage Between Connected Units**

A good quality shielded cable consisting of twisted pairs for the required communication wires and logic common is recommended. An unshielded line is not recommended because the unshielded connectors may act as an antenna resulting in radiated emissions that may exceed the CE specification limit. Additionally, shielded cable provides greater ESD protection. The shield should be connected directly to the chassis of the interconnected units at both ends. The connector housing should contact the cable shield uniformly around the entire 360-degree periphery of the housing cable entry opening. Never connect the shield by way of a drain wire pigtail unless absolutely necessary. If a pigtail is required, the shield should be terminated as closely as possible to the connector to minimize the pigtail length.

**Application: Short or Long Runs in LOW Noise Environment with HIGH Levels of Low Frequency Ground Differential Voltage Between Connected Units**

A good quality shielded cable consisting of twisted pairs for the required communication wires and logic common is recommended. The shield should be connected directly to the chassis of one of the interconnected units (one end only). Never connect the shield by way of a drain wire pigtail unless absolutely necessary. If a pigtail is required, the shield should be terminated as closely as possible to the connector to minimize the pigtail length.

**Application: Short or Long Runs in HIGH Noise Environment with HIGH Levels of Low Frequency Ground Differential Voltage Between Connected Units**

A good quality shielded cable consisting of twisted pairs for the required communication wires and logic common is recommended. The shield should be connected directly to the chassis of one of the interconnected units and ac-coupled through a 0.01 microfarad capacitor at the other end to the chassis of the second unit. The connector housing should contact the cable shield uniformly around the entire 360-degree periphery of the housing cable entry opening. Attaching the capacitor at the ac-coupled end requires some ingenuity to achieve a secure connection at both the shield and chassis while keeping the capacitor lead length as short as possible.

**RS422 Communications (COM1)**

<table>
<thead>
<tr>
<th>Recommended Distance</th>
<th>Recommended Cable Type /Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Up to 4000 feet</td>
<td>22 gauge, shielded pair</td>
</tr>
<tr>
<td>• Up to 2000 feet for RS422 connected to A-B Channel 0</td>
<td></td>
</tr>
</tbody>
</table>
RS422 Grounding Recommendations

This balanced interface operates with common mode DC or peak AC voltages differentials of –7 to +7 volts between grounds at each end of the cable. In cases where the common mode voltage approaches either extreme, the system may operate properly when the shield is grounded at only one end of the cable. However, this arrangement makes the system susceptible to high frequency interference. If the systems do not operate properly due to high frequency interference and grounding the cable shield at both ends is ineffective, then total isolation must be considered or ground potentials in your plant eliminated.

RS422 Shielding Recommendations

Application: Short or Long Runs in LOW or HIGH Noise Environment with INSIGNIFICANT Levels of Low Frequency Ground Differential Voltage Between Connected Units

A good quality shielded cable consisting of twisted pairs for the required communication wires and logic common is recommended. An unshielded line is not recommended because the unshielded connectors may act as an antenna resulting in radiated emissions that may exceed the CE specification limit. Additionally, shielded cable provides greater ESD protection. The shield should be connected directly to the chassis of the interconnected units at both ends. The connector housing should contact the cable shield uniformly around the entire 360-degree periphery of the housing cable entry opening. Never connect the shield by way of a drain wire pigtail unless absolutely necessary. If a pigtail is required, the shield should be terminated as closely as possible to the connector to minimize the pigtail length.

Application: Short or Long Runs in LOW Noise Environment with HIGH Levels of Low Frequency Ground Differential Voltage Between Connected Units

A good quality shielded cable consisting of twisted pairs for the required communication wires and logic common is recommended. The shield should be connected directly to the chassis of one of the interconnected units (one end only). Never connect the shield by way of a drain wire pigtail unless absolutely necessary. If a pigtail is required, the shield should be terminated as closely as possible to the connector to minimize the pigtail length.

Application: Short or Long Runs in HIGH Noise Environment with HIGH Levels of Low Frequency Ground Differential Voltage Between Connected Units

A good quality shielded cable consisting of twisted pairs for the required communication wires and logic common is recommended. The shield should be connected directly to the chassis of one of the interconnected units and ac-coupled through a 0.01 microfarad capacitor at the other end to the chassis of the second unit. The connector housing should contact the cable shield uniformly around the entire 360-degree periphery of the housing cable entry opening. Attaching the capacitor at the ac-coupled end will require some ingenuity to achieve a secure connection at both the shield and chassis while keeping the capacitor lead length as short as possible.
RS485 Multi-Drop Communications (COM1)

<table>
<thead>
<tr>
<th>Recommended Distance</th>
<th>Recommended Cable Type /Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Up to 4000 feet</td>
<td>22 gauge, shielded pair</td>
</tr>
<tr>
<td>• Up to 2000 feet for RS485 connected to A-B Channel 0</td>
<td></td>
</tr>
</tbody>
</table>

This network is an extension of RS422 and is used for the distribution of data between multiple system components and peripherals over distances up to 4000 feet. This system will tolerate common mode voltage differentials from –7 to +12 volts. For more information refer to the EIA RS485 Standard.

**RS485 Shielding Recommendations**

**Application: Short or Long Runs in LOW or HIGH Noise Environment with INSIGNIFICANT Levels of Low Frequency Ground Differential Voltage Between Connected Units**

A good quality shielded cable consisting of twisted pairs for the required communication wires and logic common is recommended. An unshielded line is not recommended because the unshielded connectors may act as an antenna resulting in radiated emissions that may exceed the CE specification limit. Additionally, shielded cable provides greater ESD protection. The shield should be connected directly to the chassis of the interconnected units at both ends. The connector housing should contact the cable shield uniformly around the entire 360-degree periphery of the housing cable entry opening. Never connect the shield by way of a drain wire pigtail unless absolutely necessary. If a pigtail is required, the shield should be terminated as closely as possible to the connector to minimize the pigtail length.

**Application: Short or Long Runs in LOW Noise Environment with HIGH Levels of Low Frequency Ground Differential Voltage Between Connected Units**

A good quality shielded cable consisting of twisted pairs for the required communication wires and logic common is recommended. The shield should be connected directly to the chassis of one of the interconnected units (one end only). Never connect the shield by way of a drain wire pigtail unless absolutely necessary. If a pigtail is required, the shield should be terminated as closely as possible to the connector to minimize the pigtail length.

**Application: Short or Long Runs in HIGH Noise Environment with HIGH Levels of Low Frequency Ground Differential Voltage Between Connected Units**

A good quality shielded cable consisting of twisted pairs for the required communication wires and logic common is recommended. The shield should be connected directly to the chassis of one of the interconnected units and ac-coupled through a 0.01 microfarad capacitor at the other end to the chassis of the second unit. The connector housing should contact the cable shield uniformly around the entire 360-degree periphery of the housing cable entry opening. Attaching the capacitor at the ac-coupled end will require some ingenuity to achieve a secure connection at both the shield and chassis while keeping the capacitor lead length as short as possible.
Ethernet Communications

<table>
<thead>
<tr>
<th>Recommended Distance</th>
<th>Recommended Cable Type/Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Install in compliance with IEEE 802 Standards</td>
<td>CAT 5, STP (Shielded Twisted Pair)</td>
</tr>
</tbody>
</table>

Ethernet Shielding Recommendations

**Application: Short or Long Runs in LOW or HIGH Noise Environment with INSIGNIFICANT Levels of Low Frequency Ground Differential Voltage Between Connected Units**

A good quality CAT 5 STP cable is recommended. A CAT 5 UTP cable is not recommended because the unshielded cable and connectors may act as an antenna resulting in radiated emissions that may exceed CE specification limit. Additionally, STP cable provides greater ESD protection. The shield should be connected directly to the chassis of the interconnected units at **both ends**. The connector housing should contact the cable shield uniformly around the entire 360-degree periphery of the housing cable entry opening. Never connect the shield by way of a drain wire pigtail unless absolutely necessary. If a pigtail is required, the shield should be terminated as closely as possible to the connector to minimize the pigtail length.

**Application: Short or Long Runs in LOW Noise Environment with HIGH Levels of Low Frequency Ground Differential Voltage Between Connected Units**

A good quality CAT 5 STP cable is recommended. The shield should be connected directly to the chassis of one of the interconnected units (one end only). Never connect the shield by way of a drain wire pigtail unless absolutely necessary. If a pigtail is required, the shield should be terminated as closely as possible to the connector to minimize the pigtail length.

**Application: Short or Long Runs in HIGH Noise Environment with HIGH Levels of Low Frequency Ground Differential Voltage Between Connected Units**

A good quality CAT 5 STP cable is recommended. The shield should be connected directly to the chassis of one of the interconnected units and ac-coupled through a 0.01 microfarad capacitor at the other end to the chassis of the second unit. The connector housing should contact the cable shield uniformly around the entire 360-degree periphery of the housing cable entry opening. Attaching the capacitor at the ac-coupled end will require some ingenuity to achieve a secure connection at both the shield and chassis while keeping the capacitor lead length as short as possible.
Serial and Ethernet Cable Segregation and Placement

Serial and Ethernet Cable Segregation

The low power cabling used for PLC and PC-based control systems is very susceptible to electrical noise generated by high power conductors. Even when protected by conduit, noise can interfere with your communication lines and networks. Therefore it is important to segregate conductors according to their type.

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 1</td>
<td>High Power Conductors</td>
<td>• AC power lines&lt;br&gt;• High power digital AC and DC lines&lt;br&gt;• Typically these conductors are used to connect hard-contact switches, relays, solenoids, motors, generators and arc welders.</td>
</tr>
<tr>
<td></td>
<td>These conductors can cause electrical noise in Category 2 conductors when in close proximity. Are more tolerant of electrical noise than Category 2.</td>
<td>Reference: NEC article 725 class 1&lt;br&gt;Reference: IEEE level 3 and 4</td>
</tr>
<tr>
<td></td>
<td>Reference: NEC article 725 class 2, class 3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reference: IEEE level 1 and level 2</td>
<td></td>
</tr>
<tr>
<td>Category 2</td>
<td>Low Signal Level Conductors</td>
<td>• Communication cables—Ethernet, PLC networks, etc.&lt;br&gt;• Low power digital AC and DC I/O lines&lt;br&gt;• Typically these conductors are used to connect PLCs and related modules with PanelMate ePro PSs</td>
</tr>
<tr>
<td></td>
<td>These conductors are less tolerant of electrical noise; however, they cause less noise in adjacent conductors.</td>
<td>Reference: NEC article 725 class 2, class 3&lt;br&gt;Reference: IEEE level 1 and level 2</td>
</tr>
</tbody>
</table>

Cable Placement

The following guidelines should be used when installing your communication cables:

- All Category 2 cables should be shielded and routed in a separate conduit or raceway from Category 1 cables.
- Route Category 2 cables at least one foot from 120 VAC power lines.
- Route Category 2 cables at least two feet from 240 VAC power lines.
- Route Category 2 cables at least three feet from 480 VAC power lines.
- Route Category 2 cables at least five feet from high voltage enclosures.
- If a Category 2 cable must cross Category 1 cables, it should cross at a right angle (No parallel runs).
- If Category 2 cable is enclosed in metal conduit or a metal raceway, electrical continuity must be maintained along the entire length of the conduit/raceway installation, including entry into the enclosure.
• Best Practice: When products that require a supply voltage of 220 VAC or Higher are mounted within the ePro PS enclosure, the use of a grounded metal divider for isolation is recommended.

Potential Problem Areas

The following are potential problem areas that might be encountered when installing your communication cables:

• High and low power conductors routed in the same conduit or raceway.
• Conduit with low power conductors routed in close parallel proximity to conduit containing high power conductors.
• Cable or PanelMate ePro PS unit located too close to devices generating high levels of magnetic or electrical interference.
• Lack of continuous electrical continuity along the length of the conduit installation.
Chapter 5: Troubleshooting

This chapter describes PanelMate ePro PS troubleshooting. The following topics are discussed:

- System errors
- Checking user configuration compatibility
- Saving your PanelMate ePro PS system changes
**ePro PS Troubleshooting**

The following table provides issues, possible causes and corrective actions for ePro PS troubleshooting.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Possible Cause</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changes made were lost after reboot.</td>
<td><strong>Protect Mode Save</strong> was not run after system changes were made.</td>
<td>Make sure that <strong>Protect Mode Save</strong> is run after system changes are made.</td>
</tr>
<tr>
<td>The mouse does not work.</td>
<td>The mouse:</td>
<td>• Make sure that the mouse is plugged in.</td>
</tr>
<tr>
<td></td>
<td>• Is not plugged in.</td>
<td>• Remove or isolate noise source.</td>
</tr>
<tr>
<td></td>
<td>• Is disabled.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Conducted and radiated electrical noise is causing the mouse to malfunction when online.</td>
<td></td>
</tr>
<tr>
<td>The ePro PS displays a &quot;DISK BOOT FAILURE, INSERT SYSTEM DISK AND PRESS ENTER&quot; message.</td>
<td></td>
<td>Call technical support.</td>
</tr>
<tr>
<td>During bootup (and subsequent bootups), a blue screen displays.</td>
<td></td>
<td>Call technical support.</td>
</tr>
<tr>
<td>A domain error is received when powering up PanelMate ePro PS.</td>
<td>Domain configured incorrectly.</td>
<td>Check Domain and Network settings.</td>
</tr>
<tr>
<td>Screen is flickering</td>
<td></td>
<td>Readjust the Screen Brightness or Backlight Auto Dimming</td>
</tr>
<tr>
<td>Unit is making a high pitch noise</td>
<td></td>
<td>Readjust the Screen Brightness or Backlight Auto Dimming</td>
</tr>
<tr>
<td>Recommended Sandisk CompactFlash configured as a bootable device, does not boot.</td>
<td></td>
<td>Call technical support.</td>
</tr>
</tbody>
</table>
Appendix A: Unit Dimensions

This chapter describes the unit dimensions
PanelMate ePro PS 8” Display Models Unit Dimensions

Torque Requirements: 5 inch lbs. for #6-32 nuts

This drawing is available in .dwg format on the Eaton Electrical Internet site (www.EatonElectrical.com).
PanelMate ePro PS 10” Display Models Unit Dimensions

Torque Requirements: 6 inch lbs. for #8-32 nuts
This drawing is available in .dwg format on the Eaton Electrical Internet site (www.EatonElectrical.com).
PanelMate ePro PS 12” Display Models Unit Dimensions

Torque Requirements: 15 inch lbs. for #10-32 nuts

This drawing is available in .dwg format on the Eaton Electrical Internet site (www.EatonElectrical.com).
PanelMate ePro PS 15” Display Models Unit Dimensions

Torque Requirements: 17 inch lbs. for #10-32 nuts

This drawing is available in .dwg format on the Eaton Electrical Internet site (www.EatonElectrical.com).
PanelMate ePro PS Blind Node Models Unit Dimensions

This drawing is available in .dwg format on the Eaton Electrical Internet site (www.EatonElectrical.com).
Appendix B: Specifications

This chapter describes the product specifications
PanelMate ePro PS Specifications

8” Display Models
- 8.4 inch (213 mm), color TFT display, 16 Million colors
- Resolution: VGA (640 x 480)
- Brightness: 300 nits
- Backlight: Field replaceable, 50,000 hours typical life
- Auto dimming

10” Display Models
- 10.4 inch (260 mm), color TFT display, 16 Million colors
- Resolution: VGA (640 x 480)
- Brightness: 350 nits
- Backlight: Field replaceable, 50,000 hours typical life
- Auto dimming

12” Display Models
- 12.1 inch (307 mm), color TFT display, 16 Million colors
- Resolution: SVGA (800 x 600)
- Brightness: 370 nits, 450 nits 12” OD
- Backlight: Field replaceable, 50,000 hours typical life
- Auto dimming

15” Display Models
- 15.0 inch (381 mm), color TFT display, 16 Million colors
- Resolution: XGA (1024 x 768)
- Brightness: 250 nits, 600 nits 15” OD
- Backlight: Field replaceable, 50,000 hours typical life
- Auto dimming

Blind Node Models
- Resolution: VGA (640 x 480), SVGA (800 x 600), XGA (1024 x 768), SXGA (1280 x 1024), UXGA (1600 x 1200)
- Colors: 16 Million colors (SXGA & UXGA – 65K colors)

Operator Entry
- Touchscreen interface with resistive technology for gloved hand operation
- Pop-up, on-screen window for alphanumeric keypad support
Appendix B: Specifications

Hardware

- Single piece design for easy panel mounting (except blind node)

<table>
<thead>
<tr>
<th>Model #</th>
<th>Overall Dimensions H x W x D</th>
<th>Cutout Dimensions H x W</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>8” Models</td>
<td>7.63 x 10.51 x 3.90 in (194 x 267 x 99 mm)</td>
<td>6.50 x 9.38 in (165 x 238 mm)</td>
<td>7.0 lbs (3.18 Kg)</td>
</tr>
<tr>
<td>10” Models *</td>
<td>12.00 x 12.30 x 3.90 in (305 x 312 x 99 mm)</td>
<td>11.02 x 11.40 in (280 x 289 mm)</td>
<td>12.0 lbs (5.44 Kg)</td>
</tr>
<tr>
<td>12” Models *</td>
<td>11.60 x 15.90 x 3.90 in (295 x 404 x 99 mm)</td>
<td>10.12 x 14.34 in (257 x 364 mm)</td>
<td>14.0 lbs (6.35 Kg)</td>
</tr>
<tr>
<td>15” Models *</td>
<td>13.50 x 18.60 x 4.00 in (343 x 472 x 102 mm)</td>
<td>12.05 x 17.01 in (306 x 432 mm)</td>
<td>18.0 lbs (8.16 Kg)</td>
</tr>
<tr>
<td>Blind Node Models *</td>
<td>9.30 x 12.00 x 3.60 in (236 x 305 x 91 mm)</td>
<td>Designed for mounting in a cabinet</td>
<td>5.0 lbs (2.27 Kg)</td>
</tr>
</tbody>
</table>

* Add 1.30 in (33 mm) to depth for optional PCI adapter

Voltage

- 24 VDC

Power Consumption

- 8” Models 32 Watts
- 10” Models 34 Watts
- 12” Models 37 Watts
- 15” Models 50 Watts
- Blind Node Models 24 Watts

Heat Output

- 8” Models 32 Watts (109 BTU/Hour)
- 10” Models 34 Watts (116 BTU/Hour)
- 12” Models 37 Watts (126 BTU/Hour)
- 15” Models 50 Watts (171 BTU/Hour)
- Blind Node Models 24 Watts (82 BTU/Hour)

Current

- 8” Models 1.3 A
- 10” Models 1.35 A
- 12” Models 1.5 A
- 15” Models 2.0 A
- Blind Node Models 1.0 A

Peak Inrush Current

- 8” Models 7.0 A
- 10” Models 7.0 A
- 12” Models 7.0 A
- 15” Models 8.0 A
- Blind Node Models 7.0 A
Installation Rating
- All ePro PS display models are approved for use in Type 4, 4X, 12 installations and is designed to meet IP65 when properly mounted in a correspondingly rated enclosure

System Ambient Temperature
- **PS, EE, PS Classic, 8” OD Models**
  - Operating: 0 - 55° C (32 - 131° F), 0 - 50° C (32 - 122° F) with optional PCI adapter
  - Non-operating: -25 - 70° C (-13 - 158° F)
- **12” and 15” OD Models**
  - Operating: 0 - 60° C (32 - 140° F), 0 - 50° C (32 - 122° F) with optional PCI adapter
  - Non-operating: -25 - 70° C (-13 - 158° F)

System Vibration
- Operating: 1G from 5-500 Hz
- Non-operating: 1G from 5-500 Hz

System Shock
- **PS, EE, PS Classic Models**
  - Operating: 30 G
  - Non-operating: 30 G
- **OD Models**
  - Operating: 100 G
  - Non-operating: 100 G

Relative Humidity
- Operating: 20 - 95% non-condensing
- Non-operating: 20 - 95% non-condensing

Altitude
- Operating: 10,000 ft Above Sea Level (3,048 m)
- Non-operating: 40,000 ft Above Sea Level (12,192 m)

Emissions
- CISPR 22 Class A-Radiated and Conducted

Noise Immunity
- IEC 801-2,3,4,6,8
- IEC 6100-4-2,3,4,5,6,8

Agency Certifications
- CE Mark
- UL/cUL and CSA Class I, Div 2, Groups A,B,C,D
Index

24 VDC, 14
Accounts and Passwords, 31
Auto Logon Feature, 32
  How to Bypass, 32
  How to Disable/Change, 32
Auto-dimming, 35
  Icon, 34
Backlight, 35
C/D Partitions, 27
Canvas Configuration (.ucf File)
  Downloading and Running, 30
Catalog Numbers, 11
Classic Models, 10
  Documentation, 11
  Preloaded Software, 13
COM1, 14
  Jumpers for RS232 or RS422-485, 21
COM2, 14
Communicating to a PLC or Controller, 20
CompactFlash, 15
Connecting to the Serial Ports, 21
Connectors & Ports, 14
Documentation
  ePro PS Classic, 11
EE Models, 9
Enclosure
  Construction, 42
  Rating, 42
  Selection, 42
  Sizing, 43
  Unit Positioning, 43
Enclosure Size
  10" Display Models, 45
  12" Display Models, 45
  15" Display Models, 45
  8" Display Models, 44
  Blind Node Models, 45
ePro PS Classic, 10
Ethernet
  Connecting using a Hub/Switch, 23
  Connecting Via the Ethernet, 22
Domain Networks Using DHCP Server, 25
Local Workgroups Using DHCP Server, 24
Point-to-Point (Direct) Connection, 23
Port Location, 14
Shielding, 50

Ethernet Cables
  Grounding, 46
  Placement, 51
  Problem Areas, 52
  Segregation, 51
  Selection, 46
  Shielding, 46
  Termination, 46
Hardware Installation Best Practices, 41
Icons, 34
Image Loads, 12
  Restoring, 12
Installation Best Practices, 41
Installing Software, 27
  .pps Files, 30
  .ucf Files, 30
  OPC Drivers, 29
  OPC Server, 29
  Types of Software, 28
  Using an External Drive, 29
  Via an Ethernet Connection, 28
Maximum Operating Temperature, 44
OD Models, 9
OPC Drivers, Installing, 29
OPC Server, Installing, 29
Operating Temperature, Maximum, 44
Packing List, 10
PanelMate Power Pro Configuration (.pps File)
  Downloading and Running, 30
Partitions, 27
PCI Adapter, 16
PCMCIA, 15
Ports & Connectors, 14
Power and Ground Instructions, 18
Power Supply, 18
Powering Up Your ePro PS Unit, 18
Preloaded Software, 13
Preparing Your ePro PS for Data Transfer/Software Downloads, 22
Protect Mode, 12, 36
Recommended Clearance, 44
Repair Services, 4
Resolution, Changing, 39
RS232
  Grounding, 46
  Shielding, 47