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## Network and Dial-up Connections

The Network and Dial-up Connections application lets you configure:

- ActiveSync connection between your PanelView Plus CE terminal and another computer.
- Ethernet network connection.

### *ActiveSync Connection*

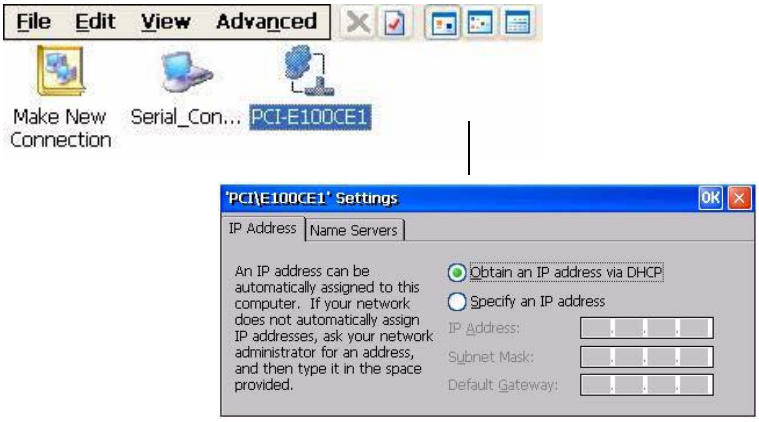
For details on establishing an ActiveSync connection between your PanelView Plus CE terminal and a computer, see Chapter 8.

Serial Connect is the default, pre-configured ActiveSync connection.

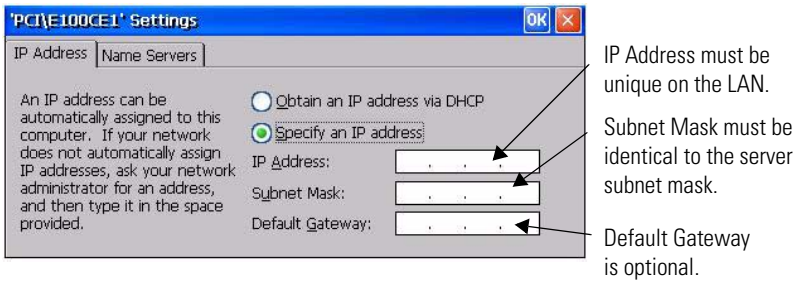
### *Configure Ethernet Connection*

Follow these steps to configure an Ethernet network connection.

1. Select the Network and Dial-up Connections application.
2. Click the PCI-E100CE1 icon to configure Ethernet settings.




3. On the IP address tab, select Obtain an IP address via DHCP or Specify an IP Address
   - IP addresses may be automatically assigned if DHCP is enabled for the Ethernet adapter.
   - If you select Specify an IP Address, complete the three text boxes with information from your network administrator.






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4. Click OK in the title bar.

   A dialog will prompt you to either remove and reinstall your card or restart the device for the new settings to take effect. Click OK in the notification dialog.

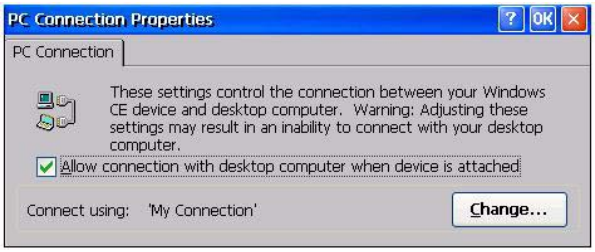
5. For the built-in Ethernet Controller, you must restart the terminal.

6. Click OK to close the Network Configuration dialog.

**TIP** If DHCP is enabled for the adapter, Name Server addresses may be automatically assigned. You can specify additional WINS or DNS addresses on the Name Servers tab.

## PC Connection

The PC Connection dialog lets you select and enable a configured connection between your PanelView Plus CE terminal and another computer. The current connection is listed at the bottom of the tab. To change the connection to another computer, click Change. A dialog will open letting you select another configured computer. Click OK when done to activate change.




**WARNING** Adjusting the PC connection named Serial_Connect may result in an inability to connect with your desktop computer via ActiveSync software.



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## Touch

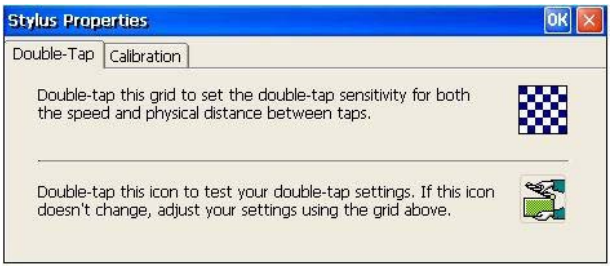
The Touch Properties dialog lets you perform the following operations for PanelView Plus CE touch screen terminals:

- Set double-tap sensitivity
- Calibrate the touch screen

When done performing operations, remember to click OK in the title bar to activate settings.

### *Double-tap Sensitivity*

The Double-tap tab sets the sensitivity for both the speed and physical distance between screen taps. Double-tap the top grid to set the sensitivity. Double-tap the bottom grid to test the setting.




### *Calibration*

The Calibration tab provides instructions on how to calibrate the touch screen. You may have to do this if the terminal is not responding to your taps. Click Recalibrate. Touch the center of the target as it moves around the screen. When the target returns to its initial position, the calibration is complete.






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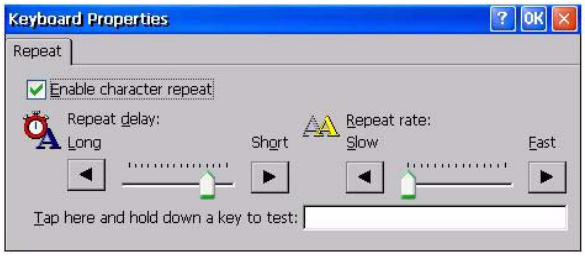
## Keyboard

The Keyboard dialog configures key settings for a keyboard that is attached to the USB port of the PanelView Plus CE terminal. You can adjust the:

- rate for repeating a key press.
- delay from the first key press to when repeating begins.

To adjust key repeat settings, check the Enable character repeat checkbox. Adjust how often a key repeats by moving the slider between Slow and Fast. To adjust the delay between key repeats, move the slider between Long and Short. Tap the field at the bottom of the dialog and then hold down a key to test the new settings.

When done performing operations, remember to click OK in the title bar to activate settings.






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## Keypad

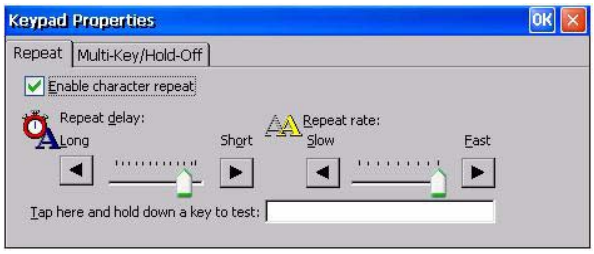
Use the Keypad dialog to:

- configure key settings for keys on the PanelView Plus CE terminal.
- adjust the rate for repeating a key press and the delay from the first key press to when repeating begins
- enable/disable multi-key lockout.

When done performing operations, remember to click OK in the title bar to activate settings.

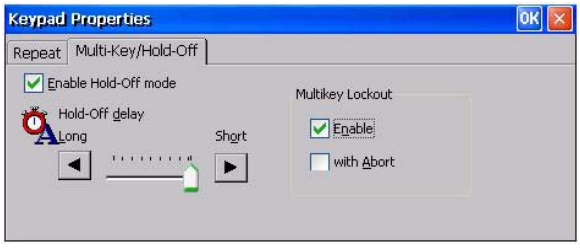
### *Key Repeat*

To adjust repeat settings for keys on an attached keyboard, check the Enable character repeat checkbox. Then adjust how often a key repeats by moving the slider between Slow and Fast. To adjust the delay between key repeats, move the slider between Long and Short. Tap the field at the bottom of the dialog and then hold down a key to test the new settings.




### *Multi-Key/Hold-Off Lockout*

The Multi-Key/Hold-Off tab restricts multiple or simultaneous key presses on the PanelView Plus CE terminal and specifies a hold-off delay between presses of the same key.






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### Multi-Key Lockout

Under Multi-Key Lockout, select one of the following options:

- Enabled - any programmable key that is pressed inhibits all keys until the programmable key is pressed again. This includes the Alt, Ctrl, and Shift keys.
- Enabled with Abort - any secondary key press will terminate the initial key press immediately.
- Disable - places no restrictions on key presses. Clear both checkboxes.

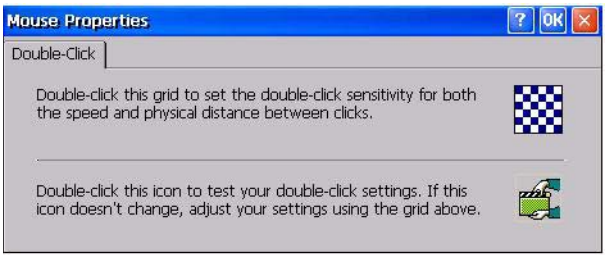
**IMPORTANT** The keypad cannot produce Home, End, Page Up, or Page Down when Multi-Key Lockout is enabled.

### Hold-Off Delay

If enabled, this option will ignore multiple presses of the same key for a specified length of time. To enable this option, select the Enable Hold-Off mode checkbox. Then adjust the delay time by moving the slider to the left or right to increase or decrease the hold off time.

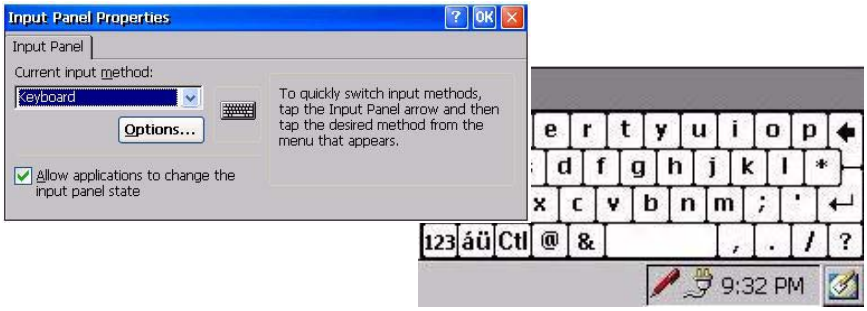
## Mouse

If a mouse is attached to one of the USB ports of the PanelView Plus CE terminal, you can set the sensitivity for both the speed and physical distance between mouse taps. Double-tap the top grid to set the sensitivity. Double-tap the bottom grid to test the setting. Click OK.




## Input Panel

The Input Panel dialog sets properties for the soft Keyboard input panel. Use the Options button to select Large or Small keys, and other soft key options. Click OK after making any changes.






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## Display

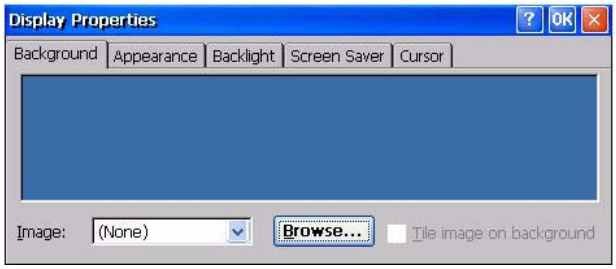
The Display dialog set the following display properties for the PanelView Plus CE terminal.

- Background
- Appearance
- Backlight
- Screen saver
- Cursor

When done performing operations, remember to click OK in the title bar to activate settings.

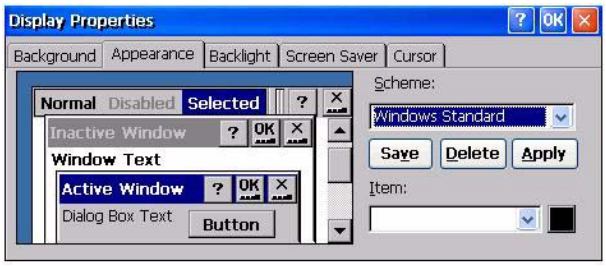
### *Background*

The Background tab lets you select an image to use for the PanelView Plus CE desktop and whether the image should be tiled.




### *Appearance*

The Appearance tab let you change the color scheme of your desktop.

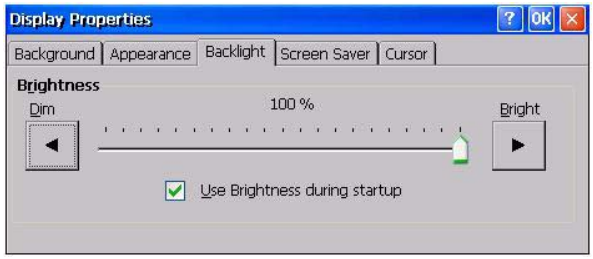





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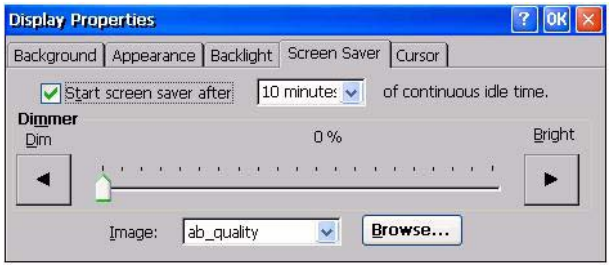
### *Backlight*

The Backlight tab adjusts the brightness of the terminal's backlight. To adjust the brightness of the terminal's backlight, move the slider to the left or right. To use the adjusted brightness when the terminal starts up, select the Use Brightness during startup checkbox.




### *Screen Saver*

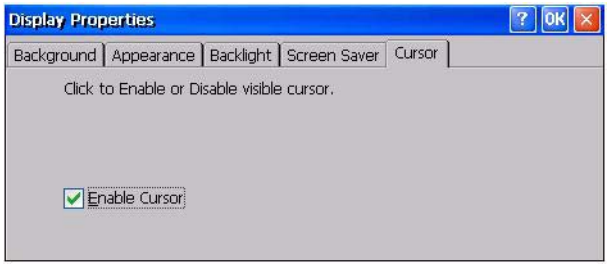
The Screen Saver tab enables and disables the screen saver. To enable the screen saver, check the checkbox and then select an idle time. This will activate the screen saver after the terminal has been idle for the specified time. You can also select a screen saver image. To adjust the brightness of the screen saver, move the slider to the left or right.




To add a custom image for the screen saver, copy the bitmap (.bmp file) to the \Storage Card folder and then use the Browse button to select the image. You can disable the screen saver bitmap by selecting (None) from the Image pull-down list.

### *Cursor*

Use the Cursor tab to enable or disable the visible screen cursor.






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## Extended Diagnostics

From the Extended Diagnostics dialog, you can:

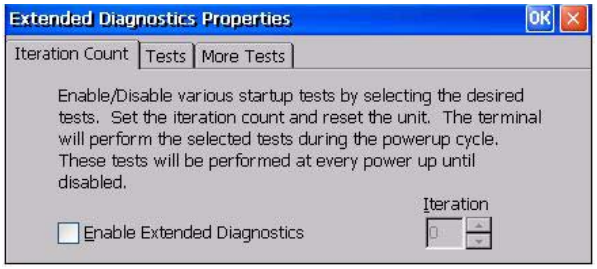
- enable/disable extended diagnostics to run on the PanelView Plus CE terminal at each reset or power cycle.
- select specific tests to run.
- specify the number of times to repeat each test.

When done performing operations, remember to select OK in the title bar to activate settings.

### *Iteration Count*

From the Iteration tab, check the Enable Extended Diagnostic checkbox to run selected tests on the PanelView Plus CE terminal at each reset or startup. You can also specify how many times to run each test. The tests are selected from the Tests and More Tests tab.

The selected tests will run each time the PanelView Plus CE terminal is reset until disabled (by unchecking the Enable Extended Diagnostics checkbox).




**TIP**

Enabling Extended Diagnostics and setting a high Iteration count will increase the time it takes for the terminal to start up.

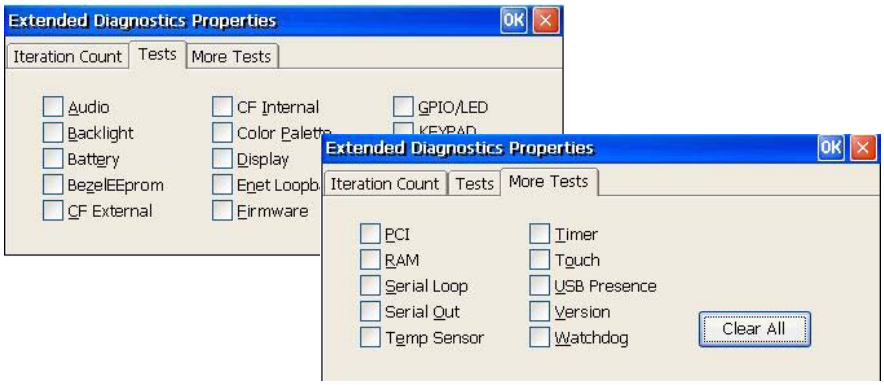
The tests will run each time you reset or cycle power to the terminal until you disable Extended Diagnostics. Setting a low iteration count will also decrease the start up time.



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### *Tests*

The Tests and More Tests tabs show a list of tests that can be performed on the PanelView Plus CE terminal at startup and the on/off status of each test. The terminal will run only the test with checked boxes. To enable a test, check the checkbox; to disable a test, uncheck the checkbox. Click Clear All if you want to clear all checkboxes.






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## Hardware Monitor

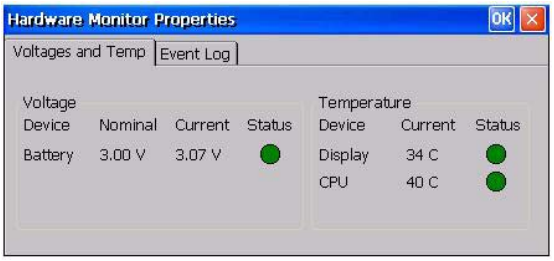
Use the Hardware Monitor dialog to:

- view the current battery voltage state and temperature of the display and processor.
- view and clear all recorded events.

When done performing operations, remember to click OK in the title bar to activate settings.

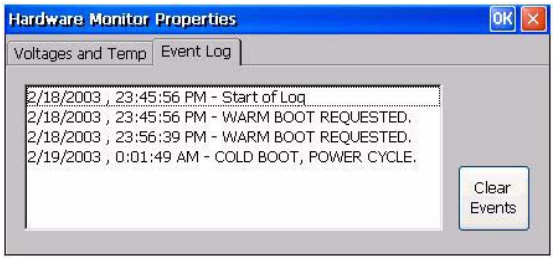
### *Voltages and Temperature*

The Voltages and Temp tab shows both the nominal and actual voltage of the battery in the PanelView Plus CE terminal and its current status. The current temperature of the display and the processor is also shown along with its status.



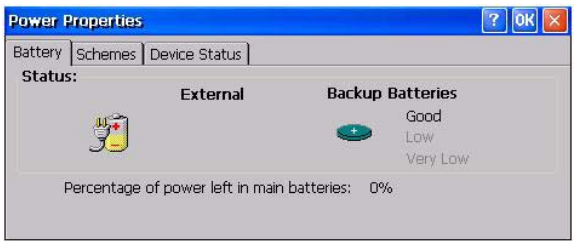

### *Event Log*

The Event Log shows a list of all events that have occurred in the system. Select the Clear Events button to clear all events from the list.




## Power

The Battery tab on the Power dialog shows the status of the internal battery in the terminal. Replace the battery in the terminal, when the Battery State is Low or Very Low. For the PanelView Plus CE terminal, you can ignore the other tabs.





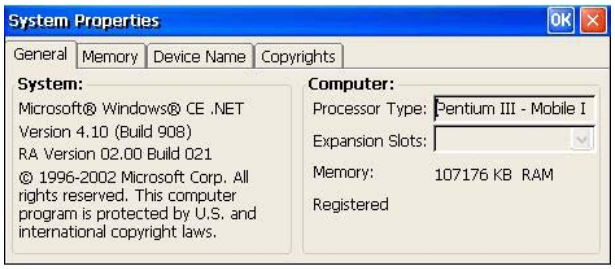

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## System

The System dialog provides system, device, and copyright information for the PanelView Plus CE terminals. It also provides memory allocations for storage and programs. If you make memory adjustments, remember to click OK to activate settings.

### *General*

The General tab displays system operating and computer information.




### *Memory*

The Memory tab displays the amount of memory allocated and in use for storage and programs. These settings are controlled by the system at startup and can be adjusted by an application program. Normally, it is not necessary to the change the setting unless a program reports a need for more memory. Move the slider to the left to increase the allocation for program memory. The memory allocations are automatically adjusted as you move the slider.






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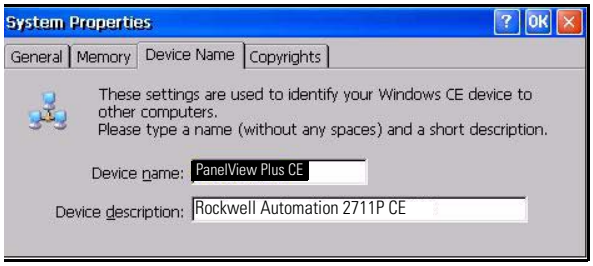
### *Device Name*

The Device Name tab defines a name and description for your PanelView Plus CE terminal. This information identifies your CE terminal to other computers on the Ethernet network. The name must be unique on the network. You must change the name from the initial default the terminal was shipped if more than one PanelView Plus CE terminal is present on your Ethernet network.

The device name must include:

- 1…15 characters.
- a leading alpha character in the range a through z or A through Z.
- remaining characters in the range a through z, A through Z, 0 …9 or - (hyphen).

The device description is optional but useful if you want to further describe a specific terminal.




### *Copyrights*

The Copyright tab provides copyright information for your PanelView Plus CE terminal.






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## Date/Time

The Date/Time dialog sets the current date and time for the selected time zone. Changing the time zone will adjust the date and time accordingly. Check the checkbox if Daylight Savings is in effect for the current time zone.

The time appears according to the format set in the Regional Settings dialog. After making adjustments, click Apply and then OK.




## Regional Settings

Use the tabs on the Regional Settings dialog to select a language and then set the format for how the time, date, and numbers appear for the selected language.

When done performing operations, remember to click OK in the title bar to activate settings.

### *Language*

The Language tab selects a language that is installed on the PanelView Plus CE terminal. Languages are installed as a part of the operating system.

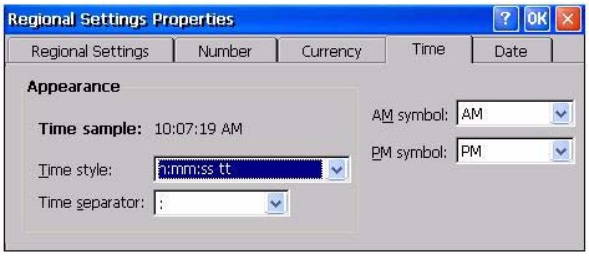





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### *Time*

The Time tab configures the time format for the selected language. A sample of the current time format is shown. This sample changes as you make adjustments. You can adjust the time format, the separator between the time fields, and the AM/PM symbol.



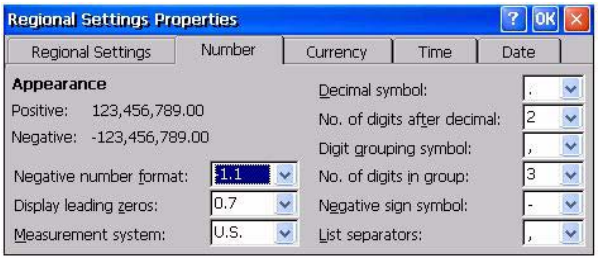

### *Date*

The Date tab configures the style of the short date format and the long date format for the selected language. A sample of the current formats is shown. These samples are updated as you make changes.




### *Number*

The Number tab configures how negative and positive numbers will appear for the selected language. The appearance of the current formats is shown for both positive and negative numbers. These samples are updated as you make changes.

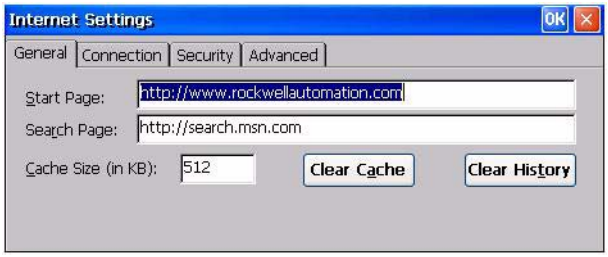





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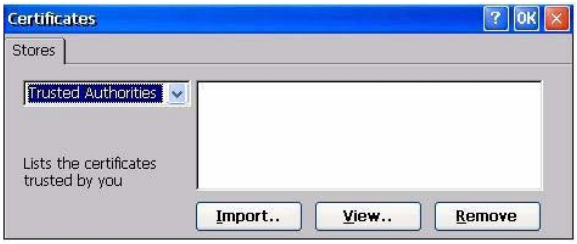
## Internet Options

The Internet Setting dialog provides tabs to configure parameters for accessing and using the Internet on your PanelView Plus CE device.




## Certificates

The Certificates dialog manages digital certificates used by some applications for establishing trust and secure communications. Certificates are signed and issued by certificate authorities and are valid for a prescribed period of time.

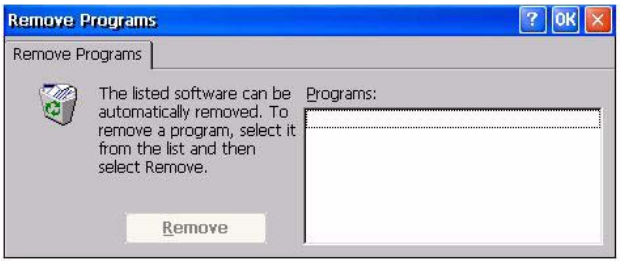





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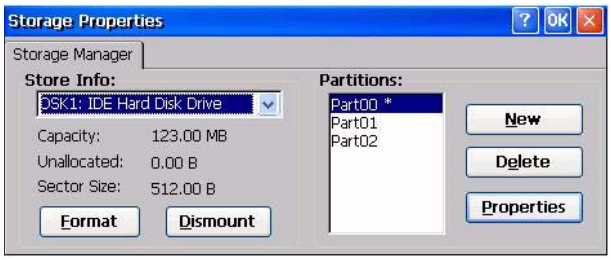
## Remove Programs

Use the Remove Programs dialog to remove installed programs from your terminal. The dialog shows a list of programs that can be removed. Select a program from the list, click Remove, and then OK.




## Storage Manager

Use the Storage Properties dialog to display information about the internal CompactFlash card and other storage devices such as the external CompactFlash card and USB Mass Storage Devices. From this dialog, you can also configure partitions and reformat the device.




**WARNING**



Do not try to alter the internal CompactFlash storage device that is displayed under Storage Info as DSK1: IDE Hard Disk Drive. You may not be able to reboot the terminal if modifying the internal CompactFlash partitions.



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# Install and Replace Components

## Chapter Objectives

This chapter shows how to install, replace, or upgrade various components of the PanelView Plus terminals.

- Logic module
- RAM and internal CompactFlash
- Communication module
- Display module
- Battery
- Display module bezel
- Backlight
- Product ID label
- Keypad legend inserts
- External CompactFlash card

## Required Tools

These tools are required to install and replace components:

- #00, #1, and #2 Phillips screwdriver
- Electrostatic Discharge (ESD) wristband

## Precautions

Before installing or replacing any components, disconnect power from the terminal. During installation, take care not to touch any of the exposed electronic components.

**WARNING**



Disconnect all power from the terminal before installing or replacing any components. Failure to disconnect power may result in electrical shock or damage to the terminal.

**ATTENTION**



Be careful when touching any of the exposed electronic components to prevent damage from electrostatic discharge (ESD).

Work in a static free environment and wear a properly grounded ESD wristband.



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## Component Compatibility for PanelView Plus CE Terminals

It is important to match the series of the internal CompactFlash card with the correct series of the logic module and software version. The series of the CompactFlash determines the version of FactoryTalk View ME software and version of the operating system. The logic module is available with or without memory installed.

| **Logic Module 6189-RP*x*, 6189-RPRHx, 6189-RPEH*x*, 2711P-RP*x*, 2711P-RP*x*, 2711P-RP6*x*, 2711P-RP7x** | **Internal CompactFlash 6189-RW2, -RW3, -RW4 2711P-RW6, -RW7, -RW8** | **FactoryTalk View ME & OS Software Version** |
|---|---|---|
| **Series A**: 6189-RP*x*H/A[1] | **Series B**: 6189-RW*x*/B | FactoryTalk View ME 3.0 Windows CE 3.0 |
| **Series B**: 6189-RP*x*H/B | **Series C**: 6189-RW*x*/C | FactoryTalk View ME 3.10 Windows CE 4.1 |
| **Series B**: 6189-RP*x*H/B<br>**Series C**: 6189-RP*x*H/C<br>**Series D**: 6189-RP*x*H/D<br>**Series E**: 6189-RP*x*H*x*/E<br>**Series F**: 2711P-RP*xx*/F[2]<br>**Series G**: 2711P-RP*xxx*/G[2]<br>**Series H**: 2711P-RP*xxx*/H[2] | **Series D**: 6189-RW*x*/D<br>**Series E**: 6189-RW*x*/E | FactoryTalk View ME 3.20 Windows CE 4.1 |
| | **Series F**: 6189-RW*x*/F<br>**Series G**: 6189-RW*x*/G<br>**Series H:** 2711P-RW*x*/H | FactoryTalk View ME 4.0 Windows CE 4.1 |
| | **Series J:** 2711P-RW*x*/J | FactoryTalk View ME 5.0 or 5.1 Windows CE 4.1 |

(1) When upgrading from FactoryTalk View ME software, version 3.0 to 3.10 or later, the Firmware Upgrade Kit is recommended.

(2) Series F and later logic modules work with PanelView Plus and PanelView Plus CE CompactFlash cards.

## Component Compatibility for PanelView Plus Terminals

It is important that you match the series of the internal CompactFlash card with the correct series of the logic module and software revision. The series of the CompactFlash determines the version of FactoryTalk View ME software. The logic module is available with or without memory installed.

| **Logic Module 2711P-RP*x*, 2711P-RP1*x*, 2711P-RP2*x*, 2711P-RP3*x*** | **Internal CompactFlash 2711P-RW1, -RW2, -RW3** | **FactoryTalk View ME Software Version** |
|---|---|---|
| **Series A**: 2711P-RP*x*/A[1] | **Series B**: 2711P-RW*x*/B | FactoryTalk View ME 3.0 |
| **Series B**: 2711P-RP*x*/B | **Series C**: 2711P-RW*x*/C | FactoryTalk View ME 3.10 |
| **Series B**: 2711P-RP*x*/B<br>**Series C**: 2711P-RP*x*/C<br>**Series D**: 2711P-RP*x*/D<br>**Series E**: 2711P-RP*xx*/E<br>**Series F**: 2711P-RP*xx*/F[2]<br>**Series G**: 2711P-RP*xxx*/G[2]<br>**Series H**: 2711P-RP*xxx*/H[2] | **Series D**: 2711P-RW*x*/D<br>**Series E**: 2711P-RW*x*/E | FactoryTalk View ME 3.20 |
| | **Series F**: 2711P-RW*x*/F<br>**Series G**: 2711P-RW*x*/G<br>**Series H**: 2711P-RW*x*/H | FactoryTalk View ME 4.0 |
| | **Series J**: 2711P-RW*x*/J | FactoryTalk View ME 5.0 or 5.1 |

(1) Series A logic modules are compatible with series B Compact Flash cards. When upgrading from FactoryTalk View ME software, version 3.0 to 3.10 or later, the Firmware Upgrade Kit is required.

(2) Series F and later logic modules work with PanelView Plus and PanelView Plus CE CompactFlash cards.



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### Compatibility After Upgrade

FactoryTalk View ME terminals are compatible with .MER applications that are the same or a previous version. For example, FactoryTalk View ME 3.20 terminals can run .MER applications for FactoryTalk View ME software, versions 3.0, 3.10, and 3.20.

For PanelView Plus CE devices, the appropriate changes are made to the OS, from Windows CE software, version 3.0 to 4.1, when upgrading from FactoryTalk View ME software, version 3.0 to 3.10 or later.

## Install RAM or Internal CompactFlash

The logic module of the 700 to 1500 terminals is available with or without RAM and internal CompactFlash installed. If ordered as separate components, you must install the memory before attaching the logic module to the display module. The internal CompactFlash contains flash memory, FactoryTalk View ME software, and the operating system for CE devices.

Follow these steps to install or replace RAM or internal CompactFlash.

1. Remove power from the terminal.
2. Place the terminal, display side down, on a flat stable surface.
3. Loosen the six captive screws that secure the logic module.
4. Carefully lift the logic module away from the terminal and turn over to expose the circuit board.

**ATTENTION**



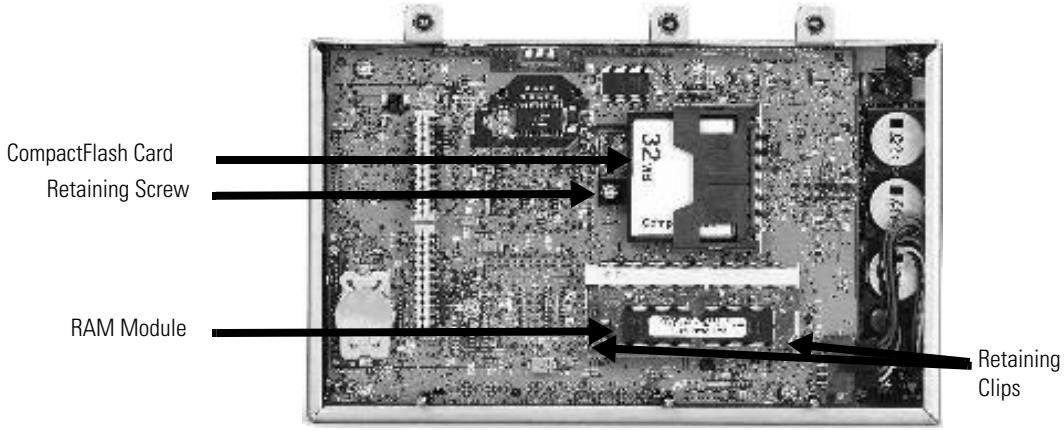
Wear a properly grounded ESD wristband before touching any of the electronic components in the logic module.

Skip steps 5 and 6 if not replacing RAM.



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5. Locate the RAM module on the circuit board, pull the metal retaining clips away from the module, and slide out the module.




6. Insert the new RAM module at a 45° angle and snap down.

   Skip steps 7…11 if not replacing the internal CompactFlash.

7. Unscrew and remove the retaining clip that secures the internal CompactFlash card.
8. Pull out the internal CompactFlash card.
9. Insert the new internal CompactFlash card.
10. Reattach the retaining clip.
11. Attach the logic module by aligning the two connectors on the bottom of module with the connectors on the display module.
12. Push down on the logic module until firmly seated.
13. Tighten the six captive screws that secure the logic module to a torque of 0.58 Nm (5…7 lb•in).

## Install or Replace the Logic Module

This section shows how to install and replace the logic module for 700 to 1500 terminals. If the display module and logic module are ordered as separate components, attach the logic module to the display module before panel installation.

The logic module is available with or without RAM and internal CompactFlash installed. If ordered as separate components, you must install the memory before attaching the logic module to the display module.

Follow these steps to install a logic module.

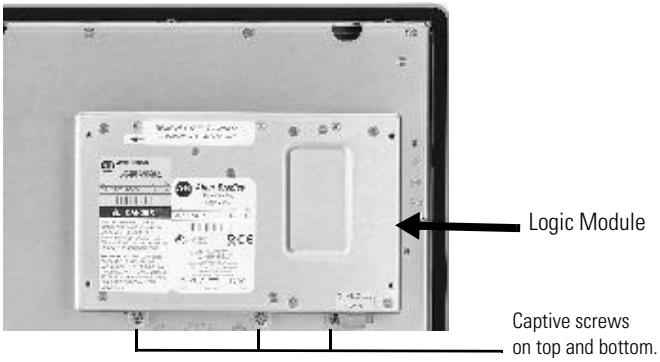
1. Disconnect power from the terminal.
2. Set the terminal, display side down, on a clean, flat, stable surface to prevent scratches, if the terminal is removed from panel.
3. Position the logic module over the back of the display module until the two connectors on the bottom of the logic module align with the connectors on the display module.



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4. Push down on the logic module until firmly seated.
5. Tighten the six captive screws that secure the logic module to the display module to a torque of 0.58 Nm (5…7 lb•in).



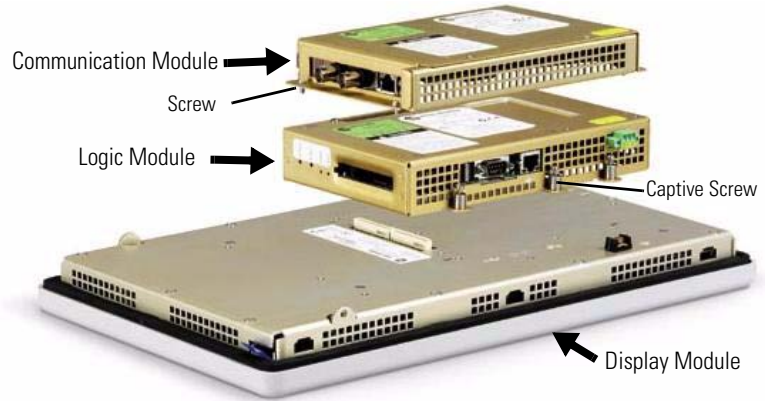



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Before replacing the logic module, you must remove the communication module, if attached. You will also need to remove the Internal RAM and CompactFlash from the logic module to reuse in the new logic module.

Follow these steps to replace a logic module.

1. Disconnect power from the terminal.
2. Disconnect all power and communication cables.
3. Set the terminal, display side down, on a clean, flat, stable surface to prevent scratches, if the terminal is removed from panel.
4. Remove the four screws that attach the communication module, if attached, to the logic module and carefully lift the communication module away from the logic module.




5. Loosen the six captive screws that secure the logic module to the display module.
6. Carefully lift the logic module away from the back of the display module.

**ATTENTION**



Wear a properly grounded ESD wristband before touching any of the electronic components in the logic module.

7. If reusing the memory in the new logic module:
   - remove the RAM and internal CompactFlash from the logic module.
   - insert the RAM and internal CompactFlash in the new logic module.
8. Install the new logic module.
9. Attach the communication module, if necessary.



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# Install or Replace a Communication Module

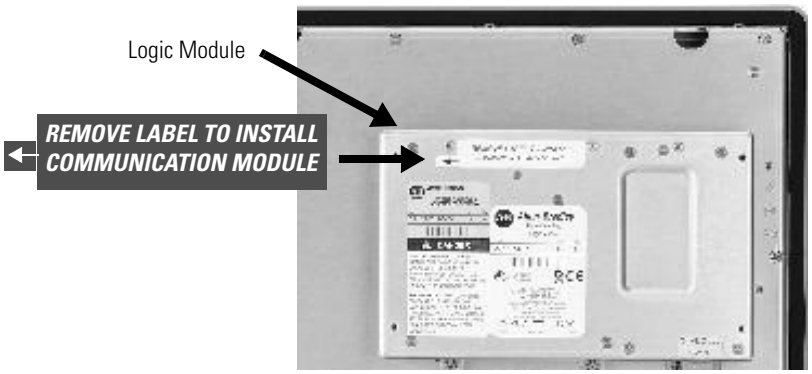
This section shows how to install and replace a communication module. The communication module installs over the logic module. The communication modules are available as separate catalog numbers for specific communication protocols.

## PanelView Plus 700 to 1500 Terminals

**TIP** The logic module must be attached to the display module before you attach the communication module.

Follow these steps to install a communication module.

1. Disconnect power from the terminal.
2. Set the terminal, display side down, on a clean, flat, stable surface to prevent scratches if the terminal is removed from panel.
3. Remove the label covering the communication module connector on the logic module.

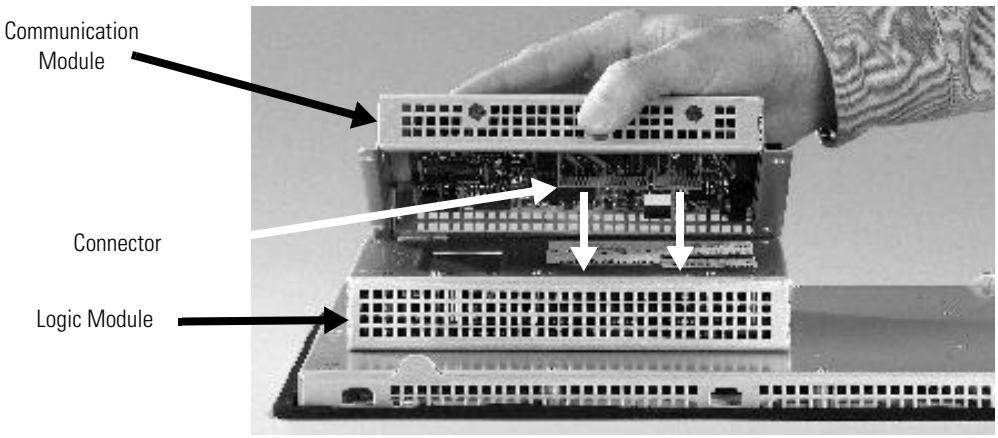



4. Position the communication module over the logic module so that the connectors on bottom of module align with connectors on the logic module.



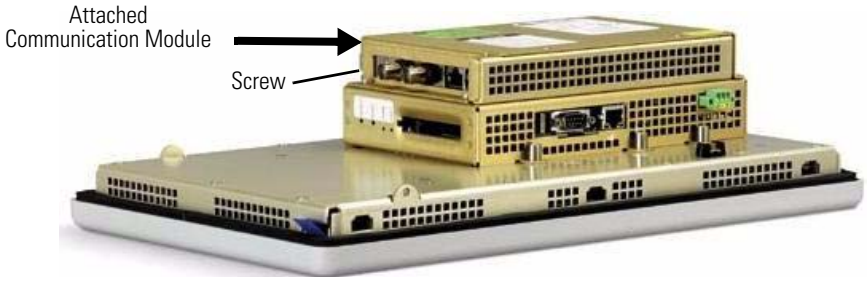
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To prevent ESD between the modules, allow the communication module to touch the logic module before making connection.




5. Push down on the communication module until the connectors are firmly seated.

6. Tighten the four screws that secure the communication module to the logic module to a torque of 0.58 Nm (5…7 lb•in).




Follow these steps to replace a communication module:

1. Disconnect power from the terminal.
2. Disconnect the communication cables from the module.

**WARNING**



Do not connect or disconnect any communication cable with power applied to this device or any device on the network. An electrical arc could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.

3. Remove the four screws that secure the communication module to the logic module.
4. Carefully lift the communication module away from the logic module and set aside.
5. Install the new communication module.

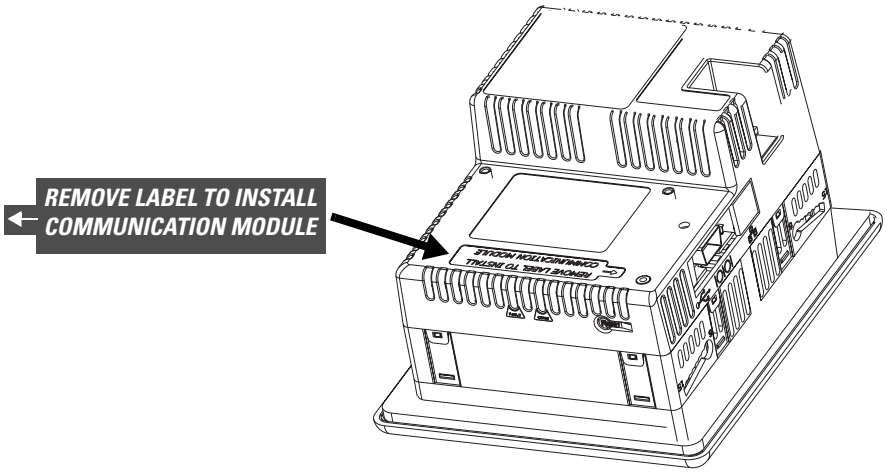


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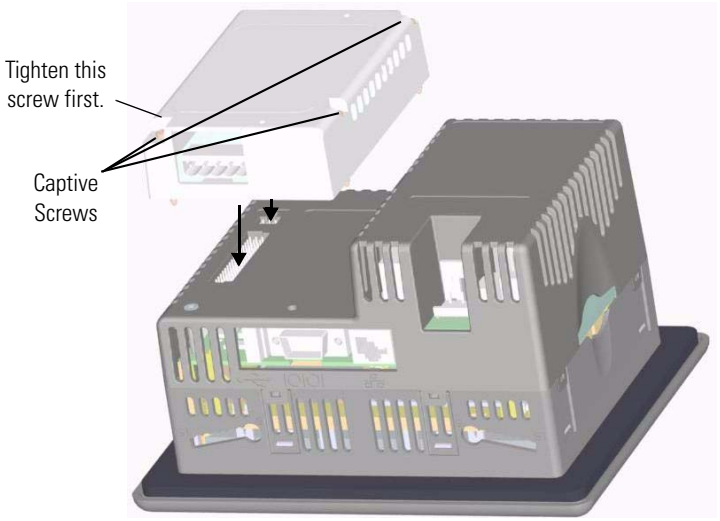
## PanelView Plus 400 and 600 Terminals

Follow these steps to install a communication module.

1. Disconnect power from the terminal.
2. Set the terminal, display side down, on a clean, flat, stable surface.
3. Remove the label covering the connectors on the base unit of the terminal.




4. Position the communication module over back of the terminal so that the connector on bottom of communication module align with the connector on the base unit.






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5. Push down on the communication module until the connector is firmly seated.

6. Tighten the three captive screws that secure the module to the terminal, starting with the bottom, left screw on the module. Tighten screws to a torque of 0.34…0.45 Nm (3…4 lb•in).

Follow these steps to replace a communication module.

1. Disconnect power from the terminal.

2. Disconnect the communication cables from the module.

3. Loosen the three screws that secure the communication module to the terminal.

4. Carefully lift the communication module away from the terminal and set aside.

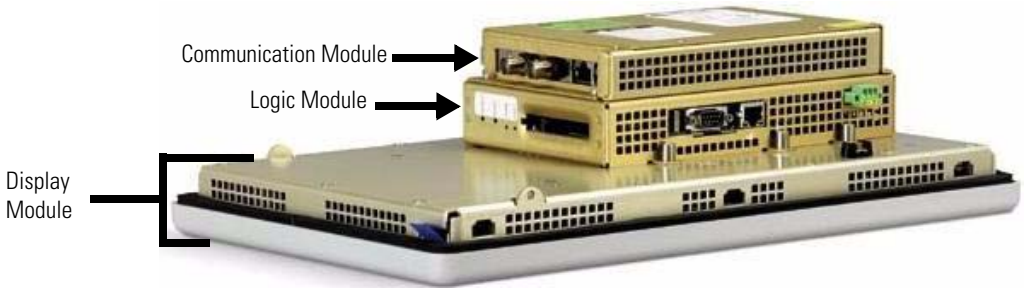
5. Install the new communication module.



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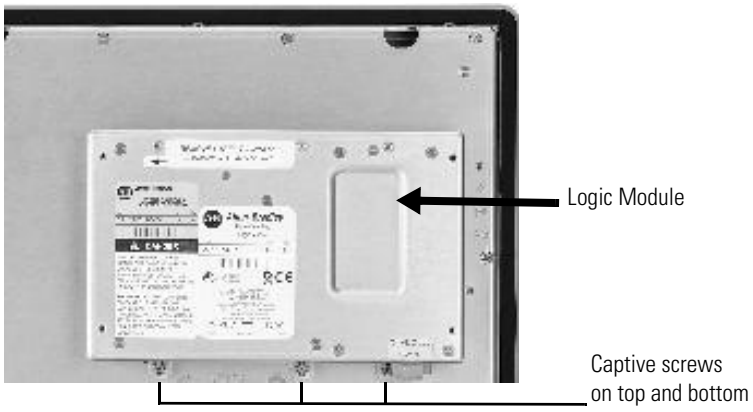
## Replace the Display Module

This section shows how to replace the display module on 700 to 1500 terminals. It is necessary to remove the communication module from the logic module to perform this operation.




Follow these steps to replace the display module.

1. Disconnect power from the terminal.
2. Remove the terminal from the panel.
3. Detach the communication module, if attached, from the logic module by removing the four screws.
4. Loosen the six captive screws that attach the logic module to the display module.

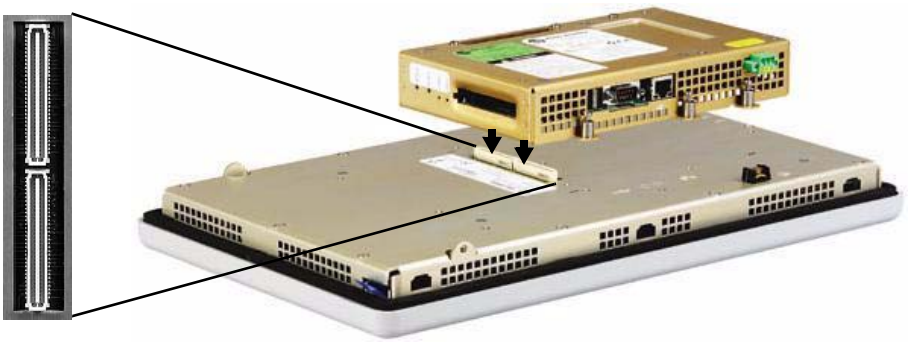



5. Carefully lift the logic module from the terminal.
6. Set the display module aside.



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7. Position the new logic module over the new display module so that the connectors align.



8. Push down on the logic module until firmly seated.

9. Tighten the six captive screws that secure the logic module to the display module to a torque of 0.58 Nm (5…7 lb•in).

10. Attach the communication module (if necessary) and tighten the four screws to a torque of 0.58 Nm (5…7 lb•in).



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## Replace the Battery

The terminals have a lithium battery that is used by the real-time clock and static RAM. It is not used for application backup or retention.

- For the 700 to 1500 terminals, the lithium battery is intended to be replaced during the life of the product.
- For the 400 and 600 terminals, the lithium battery is permanently connected and should be removed only by trained professionals at the end of product life.

  For information on battery removal for 400 and 600 terminals, see Disposal Information on page 223.



The 700 to 1500 terminals contain a hermetically sealed lithium battery which may need to be replaced during the life of the product.

At the end of its life, the battery contained in this product should be collected separately from any unsorted municipal waste.

The collection and recycling of batteries helps protect the environment and contributes to the conservation of natural resources as valuable materials are recovered.

**ATTENTION**



To avoid voiding your product warranty, use only the Rockwell Automation Allen-Bradley approved battery. Use of another battery may present a risk of fire or explosion.

**SHOCK HAZARD**



Failure to follow proper safety precautions could result in severe electrical shock or damage to the computer.

**WARNING**



There is a danger of explosion if the lithium battery is incorrectly replaced. Replace the battery only with the indicated type. Do not replace the battery unless the area is known to be nonhazardous.

For Safety information on the handling of lithium batteries, including handling and disposal of leaking batteries, see Guidelines for Handling Lithium Batteries, publication AG-5.4. Replace the battery only with the indicated catalog number.

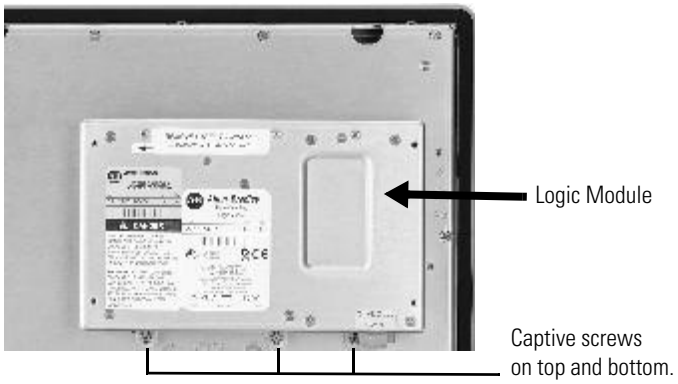
Do not dispose of battery in a fire or incinerator. Dispose of used batteries in accordance with local regulations.



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Follow these steps to replace the battery.

1. Disconnect power from the terminal.
2. Place the terminal, display side down, on a flat stable surface.
3. Detach the communication module, if attached, from the logic module by removing the four screws.
4. Loosen the six captive screws that attach the logic module to the display module.



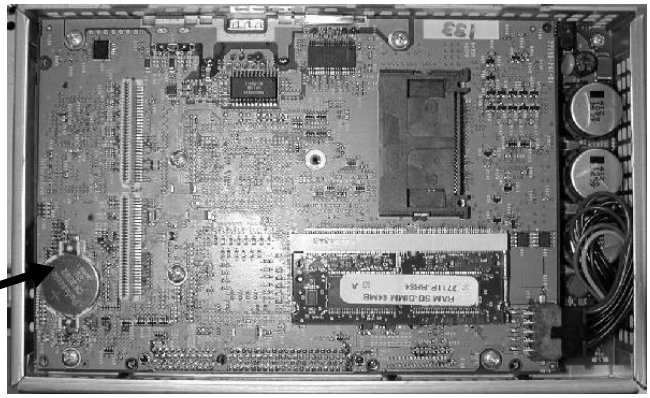

5. Carefully lift the logic module away from the terminal and flip over to expose the circuit board.

**ATTENTION**



Wear a properly grounded ESD wristband before touching any of the electronic components in the logic module.

6. Locate the battery on the circuit board.




7. Remove the battery by lifting up the side of the battery.



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8. Insert the new battery.

**IMPORTANT** Use only replacement battery 2711P-RY2032.

9. Attach the logic module by aligning the two connectors on the bottom of the module with the connectors on the terminal.



10 . Push down on the logic module until firmly seated.

11 . Tighten the six captive screws that secure the logic module to a torque of 0.58 Nm (5…7 lb•in).

12 . Attach the communication module (if necessary) and tighten the four screws to a torque of 0.58 Nm (5…7 lb•in).

## Replace the Bezel

It is not necessary to remove the logic module or communication module before removing the bezel, except on the PanelView Plus 700 terminal.

### Remove the Display Module Bezel

Follow these steps to remove the display module bezel on a 700 to 1500 terminal.

1. Disconnect power from the terminal.

2. Set the terminal, display side down, on a flat stable surface.

**ATTENTION** Wear a properly grounded ESD wristband before touching any of the electronic components in the logic module.

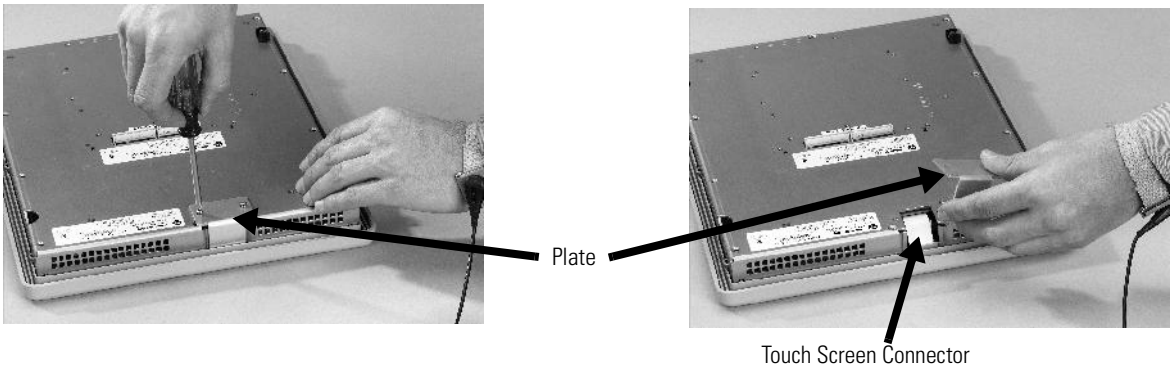




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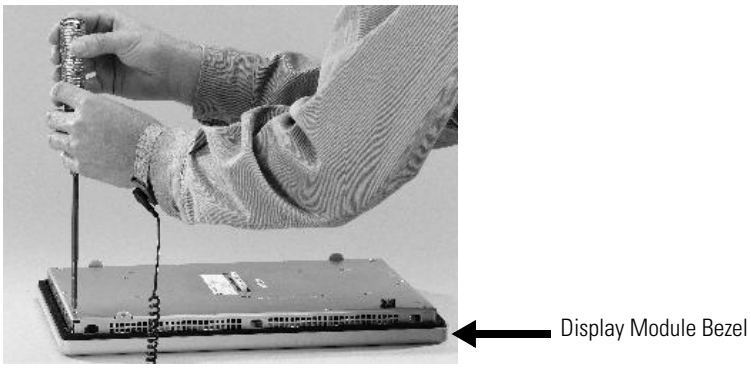
3. On touch-screen only terminals, remove the two screws that secure the small metal plate to the back of the display module.

4. Disconnect the touch screen connector.

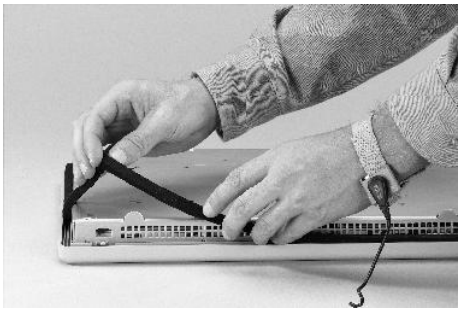



5. Remove the screws from the back of the display module.

   The number of screws varies for each terminal type.




6. Remove the sealing gasket.

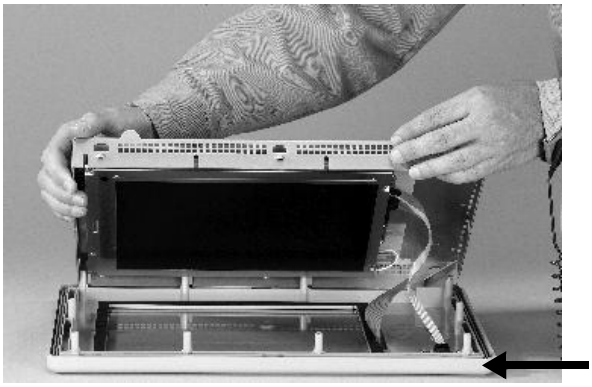




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7. Lift the back of the display module away from the bezel.

   Work on a clean, flat, stable surface to protect the display from debris, scratches and damage.




8. Detach all connectors, maximum of three.

   The number of connectors varies by model.
   - IrDa connector, if present
   - Function key connector
   - Touch screen connector

9. Set the bezel aside.

## Replace the Display Module Bezel

Follow these steps to replace the display module bezel.

1. Make sure the bezel is free of lint and marks before attaching.
2. Attach the connectors.

   The number of connectors varies by model.
   - IrDa connector, if present
   - Function key connector
   - Touch screen connector

3. Place the back of the display module over the bezel.

   Be careful not to pinch any of the cables. Allow the touch screen connector to extend out of the access opening.



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4. Attach the touch screen connector.

5. Replace the sealing gasket.

6. Attach the screws that secure the display module to the bezel and tighten to a torque of 1.35…1.58 Nm (12…14 lb•in).

7. On touch screen terminals, reattach the small metal plate to the back of the display module using two screws and torque to 0.58 Nm (5…7 lb•in).

## Replace the Backlight

This section shows how to replace the backlight for the 700, 1000, 1250, and 1500 terminals. The 1250 high-bright terminals do not have a replaceable backlight.

**Backlights for PanelView Plus 700 to 1500 Displays**

| Use Cat. No. | For Display | Series | # of Backlights |
|---|---|---|---|
| 2711P-RL7C | 700 | A and B | 1 |
| 2711P-RL7C2 | | C | 1 |
| 2711P-RL10C | 1000 | A | 1 |
| 2711P-RL10C2 | | B and C | 1 |
| 2711P-RL12C | 1250 | A and B | 2 |
| 2711P-RL12C2 | | C | 1 |
| 2711P-RL15C | 1500 | B | 2 |

**IMPORTANT** Disposal: The backlights for these products contain mercury. Dispose of per applicable laws.

Follow these steps to replace the backlight.

1. Disconnect power from the terminal.

2. Remove the display module bezel.

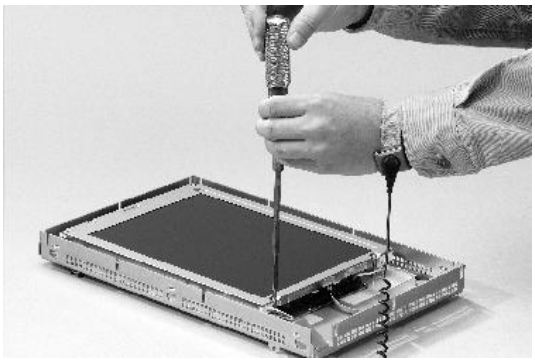
**IMPORTANT** The 700 series C display is not secured by screws and is only retained by a bracket. Use care not to drop the display once the bezel is removed.

3. Remove the four screws that secure the display bracket for the 700 series C display.



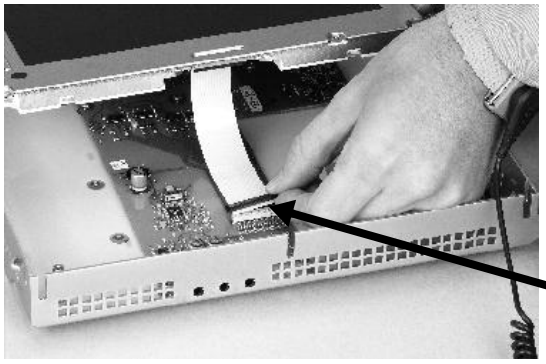
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4. Remove the four screws that secure the LCD display for all other displays.



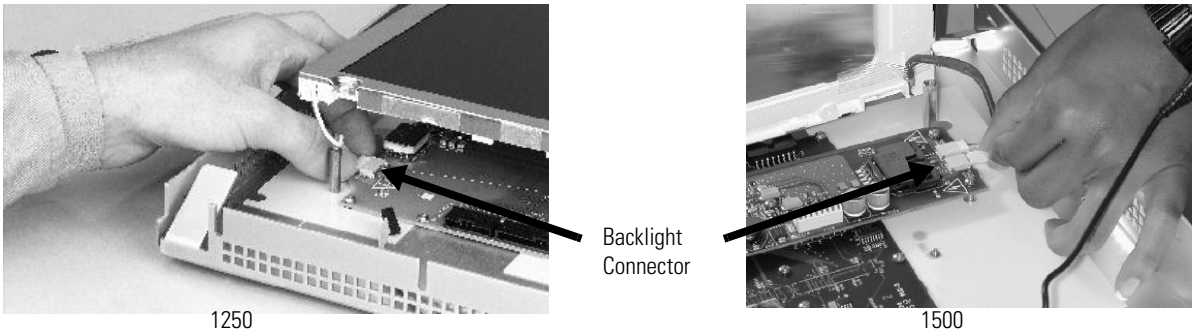
5. Lift the LCD display and detach the display connector from the circuit board.

   The circuit board layout may vary for each terminal model. The location of the connector varies by model.




6. Detach the backlight connectors from the circuit board.

   The 1250 has one or two backlight connectors depending on the series of the display. The 1500 has four backlight connectors.

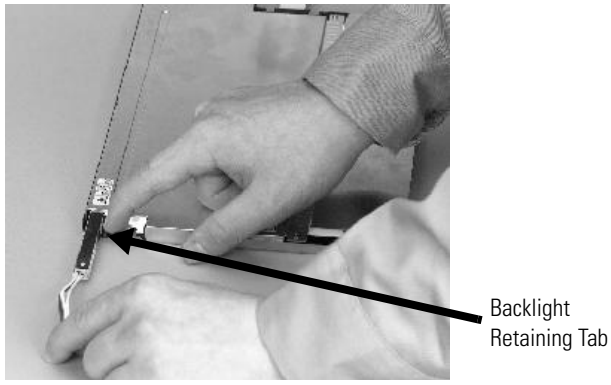



1250 1500

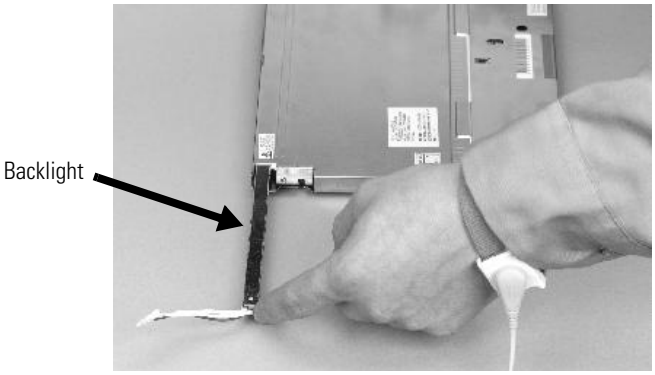


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7. Follow these steps for the PanelView Plus 700 and 1000 displays.
   a. Press the retaining tab that secures the backlight and then pull out the backlight.




   b. Insert the new backlight.

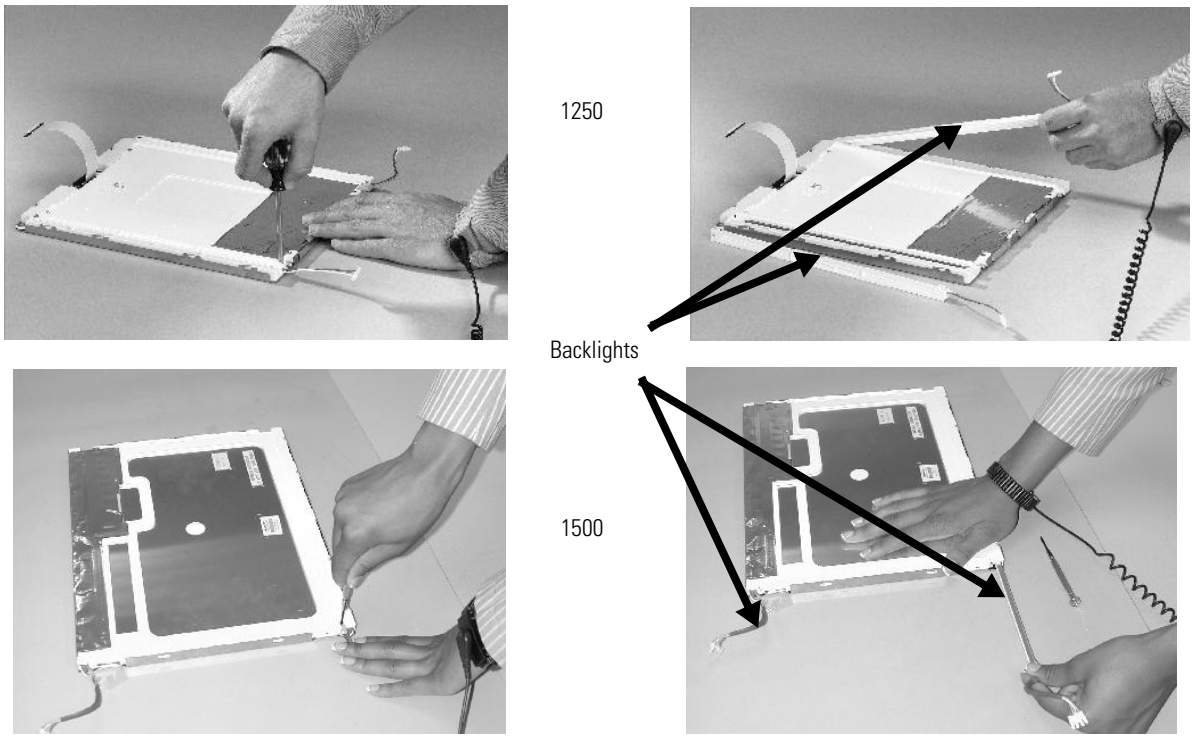



8. Follow these steps for the PanelView Plus 1250 and 1500 displays.
   a. Remove the screws that secure the backlights and remove the backlights.
   – The two backlights for the 1250 series A and B displays are each secured with two screws. The single backlight for the 1250 series C displays is secured with one screw.



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– For the 1500 series B displays, remove the tape and then remove the backlights.




b. Insert the new backlights and then secure each with the same screws from the previous step and torque to 0.117 Nm (1.04 lb•in).

**9.** Attach the LCD display connector to the circuit board.

Refer to step 5.

**10 .** Attach the backlight connector to the circuit board.

Refer to step 6.

**11 .** Secure the LCD display.

a. Attach the display bracket then secure the display in the bracket for the 700 series C display.

b. Attach the four screws for all othe displays.

Tighten the screws and torque to 0.58 Nm (5…7 lb•in).

**12 .** Replace the display module bezel.

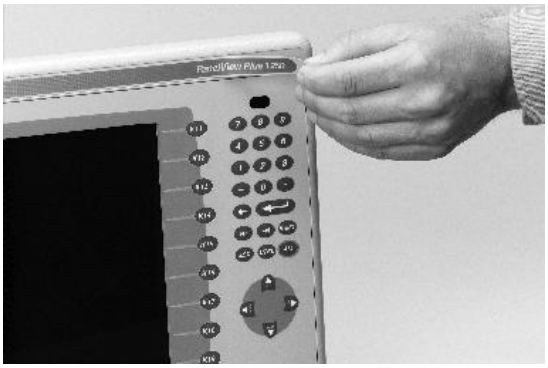


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## Remove the Product ID Label

You can remove the label on your terminal and attach your own label.

1. Remove the Allen-Bradley label using your fingers or a tweezers.



2. Clean area with damp cloth and isopropyl alcohol.

3. Remove adhesive backing of OEM label and affix over area where label was located.

## Replace the Keypad Legend Inserts

This section shows how to replace the legend inserts in the keypad terminals. The legend strips are available as separate catalog numbers for each keypad terminal, except for the PanelView Plus 400 terminal, which does not support replaceable legend strips. One side of the legend strips have the default key legends and the other side is blank for creating custom legends.

### PanelView Plus 600 Terminal

The legend inserts for function keys F1 through F10 are accessible from the back on the unit and can be replaced with the terminal mounted in the enclosure.

Follow these steps to replace the F1 through F10 function key legends.

1. From the rear of the unit, pull the legend strips out from the slots on the lower side of the terminal.

2. Slide the new insert into the same slot until only the end tab is visible.



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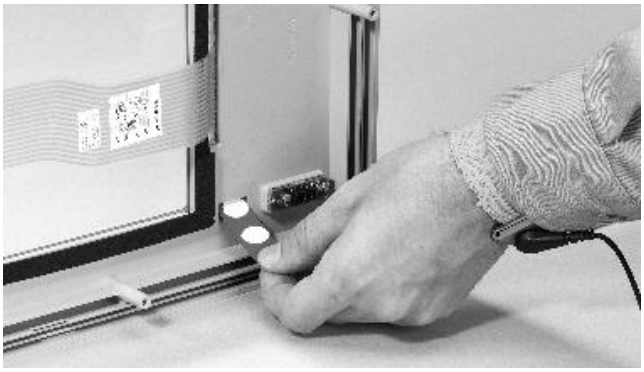
600 Terminal



## PanelView Plus 700 to 1500 Terminals

The F1-F*xx* and K1-K*xx* legend inserts on the PanelView Plus 700 to 1500 terminals are accessible when the display module bezel is removed.

1. Remove power from the terminal.
2. Remove the display module bezel.
3. Pull the legend inserts out from the slots on the bezel.



4. Slide the new legend strips into the same slots until only the end tab is visible.
5. Replace the display module bezel.

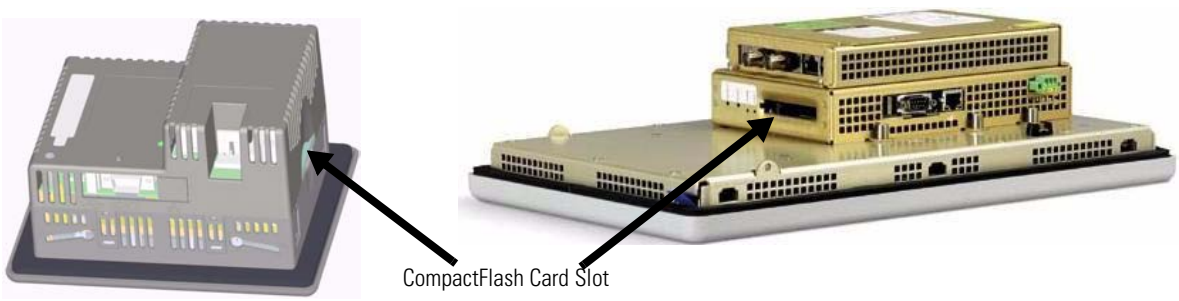


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## Use an External CompactFlash Card

All of the terminals have a CompactFlash card slot that supports Type 1 CompactFlash cards that come in different memory sizes.

The orientation of the card slot on the 700 to 1500 terminals varies depending on the series of the logic module.



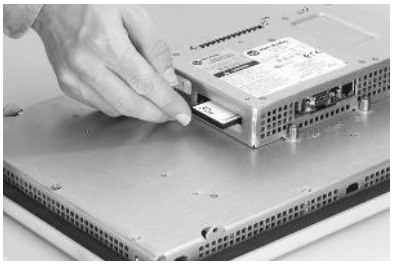

### Insert a CompactFlash Card

Insert the card in the CompactFlash card slot until firmly seated.

400 and 600 Terminals



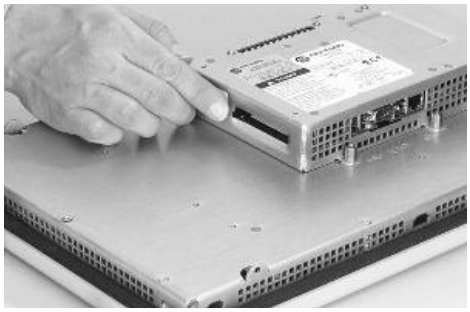
700 to 1500 Terminals



### Remove a CompactFlash Card

Press the Eject button on the logic module. When the button pops out, press it again to release the card. The location of the button varies depending on the series of the logic module.

The PanelView Plus 400 and 600 terminals do not have an eject button. Secure edge of card with fingers and pull card away from slot.





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# Terminal Connections

## Chapter Objectives

This chapter provides network and device connections for the terminals.

- Wiring and safety guidelines
- Logic controller cable charts
- Communication port isolation
- USB ports
- Serial connections on base unit
- Ethernet (onboard communication)
- DH-485/DH+/RIO communication module
- ControlNet communication module
- DeviceNet communication module

## Wiring and Safety Guidelines

Use publication NFPA 70E, Electrical Safety Requirements for Employee Workplaces, IEC 60364 Electrical Installations in Buildings or other applicable wiring safety requirements for the country of installation when wiring the devices. In addition to the NFPA guidelines.

- Route communication cables to terminal by a separate path from incoming power.

**IMPORTANT** Do not run signal wiring and power wiring in the same conduit.

- Cross power and communication lines at right angles if they must cross.

  Communication lines can be installed in the same conduit as low-level DC I/O lines (less than 10V).

- Shield and ground cables appropriately to avoid electromagnetic interference (EMI).

  Grounding minimizes noise from EMI and is a safety measure in electrical installations.

For more information on grounding recommendations, refer to the National Electrical Code published by the National Fire Protection.



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# Logic Controller Cable Charts

The charts provide a summary of terminal connections to controllers and network interface modules.

## Runtime Communication Cables - To Controller

### PanelView Plus and PanelView Plus CE Terminals to SLC Controllers

| | | Cables: PanelView Plus and PanelView Plus CE to SLC Controllers | | | | |
|---|---|---|---|---|---|---|
| **Protocol** | **PanelView Plus Comm Port** | **SLC-500, 5/01, 5/02 CH1 RJ45 (DH-485)** | **SLC-5/03, 5/04, 5/05 CH0 (9-pin RS-232) (DF1 or DH-485)** | **SLC 5/03 CH1 (RJ45) (DH-485)** | **SLC 5/04 CH1 (DH+)** | **SLC 5/05 CH1 (ENET)** |
| DF1 (any) | RS-232 (DF1) Port (9-pin)<br>PanelView Plus 400 to 1500<br>2711P-RN22C | N/A | 2711-NC13 (5 m/16 ft)<br>2711-NC14 (10 m/32 ft)<br>2706-NC13 (3 m/10 ft) | N/A | N/A | N/A |
| DH-485 (any) | RS-232 (DH-485) Port (9-pin)<br>PanelView Plus 400 to 1500<br>2711P-RN22C | Use AIC+ Module<br>(1761-NET-AIC)<br>Connect to Port 1 or 2 | 2711-NC13 (5 m/16 ft)<br>2711-NC14 (10 m/32 ft)<br>2706-NC13 (3 m/10 ft) | Use AIC+ Module<br>(1761-NET-AIC)<br>Connect to Port 1 or 2 | N/A | N/A |
| | DH-485 Port<br>PanelView Plus 400 and 600<br>2711P-RN3[2] | 1747-C10 (2 m/6 ft)<br>1747-C11 (0.3 m/1 ft)<br>1747-C20 (6 m/20 ft) | Use AIC+ Module<br>(1761-NET-AIC)<br>Connect to Port 3 | 1747-C10 (2 m/6 ft)<br>1747-C11 (0.3 m/1 ft)<br>1747-C20 (6 m/20 ft) | N/A | N/A |
| | DH-485 Port<br>PanelView Plus 700 to 1500<br>2711P-RN6, -RN6K | 1761-CBL-AS03<br>(3 m/10 ft)<br>1761-CBL-AS09<br>(9 m/30 ft) | Use AIC+ Module<br>(1761-NET-AIC)<br>Connect to Port 3 | 1761-CBL-AS03<br>(3 m/10 ft)<br>1761-CBL-AS09<br>(9 m/30 ft) | N/A | N/A |
| ControlNet | ControlNet Port<br>PanelView Plus 400 and 600<br>2711P-RN15C<br>PanelView Plus 700 to 1500<br>2711P-RN15S, -RN15SK | N/A | 1747-KFC15A or<br>1747-SCRNR/A Module with ControlNet Cable | | | |
| DeviceNet[1] | DeviceNet Port<br>PanelView Plus 400 and 600<br>2711P-RN10C<br>PanelView Plus 700 to 1500<br>2711P-RN10H | N/A | Use 1747-SDN Module<br>with DeviceNet Cable | | | |
| EtherNet/IP | EtherNet/IP Port<br>PanelView Plus 400 to 1500<br>All except 2711P-xxx5xx | N/A | Use 1761-NET-ENI Module<br>with Ethernet Cable | N/A | N/A | 1585J-M Type Cable or<br>2711P-CBL-EX04<br>(4 m/14 ft) [3] |
| Remote I/O[1] | Remote I/O Port<br>PanelView Plus 400 to 1500<br>2711P-RN1, 2711P-RN6 | SLC 5/02 only<br>Use 1747-SN with<br>Shielded Twinaxial Cable<br>(1770-CD) | Use 1747-SN Module with Shielded Twinaxial Cable (1770-CD) | | | |
| DH+ | DH+ Port<br>PanelView Plus 400 and 600<br>2711P-RN8<br>PanelView Plus 700 to 1500<br>2711P-RN6, -RN6K | N/A | N/A | N/A | Shielded<br>Twinaxial<br>Cable<br>(1770-CD) | N/A |

(1) DeviceNet and Remote I/O communication modules are no longer available. Cable information is provided for reference only.

(2) For CE compliance, use the 1761-NET-AIC or 1747-AIC module for cable lengths longer than 30 m (98 ft).

(3) EtherNet/IP direct connection from the terminal to an SLC 5/05 controller requires an Ethernet switch or the 2711P-CBL-EX04 crossover cable.



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### PanelView Plus and PanelView Plus CE Terminals to PLC-5 and MicroLogix Controllers

| | | Cables: PanelView Plus and PanelView Plus CE to PLC-5 and MicroLogix Controllers | | | |
|---|---|---|---|---|---|
| **Protocol** | **PanelView Plus Comm Port** | **PLC-5, PLC-5C, PLC-5E CH0 (25-pin RS-232) (DF1)** | **MicroLogix 1400, 1500LRP CH1/CH2 (9-pin RS-232) (DF1 or DH-485)** | **MicroLogix 1000, 1100, 1200, 1400, 1500LSP CH0 (8-pin Mini DIN) (DF1 or DH-485)** | **MicroLogix 1100, 1400 Ethernet** |
| DF1 (any) | RS-232 (DF1) Port (9-pin)<br>PanelView Plus 400 to 1500<br>2711P-RN22C | 2711-NC13 (5 m/16 ft)<br>2711-NC14 (10 m/32 ft)<br>2706-NC13 (3 m/10 ft)<br>(9-to-25 pin adapter required) | 2711-NC13 (5 m/16 ft)<br>2711-NC14 (10 m/32 ft)<br>2706-NC13 (3 m/10 ft) | 2711-NC21 (5 m/16 ft)<br>2711-NC22 (15 m/49 ft)<br>(null modem not required) (4) | N/A |
| DH-485 (any) | RS-232 (DH-485) Port (9-pin)<br>PanelView Plus 400 to 1500<br>2711P-RN22C | N/A | 2711-NC13 (5 m/16 ft)<br>2711-NC14 (10 m/32 ft)<br>2706-NC13 (3 m/10 ft) | 2711-NC21 (5 m/16 ft)<br>2711-NC22 (15 m/49 ft)<br>(null modem not required) (4) | N/A |
| | DH-485 Port<br>PanelView Plus 400 and 600<br>2711P-RN3(2)<br>PanelView Plus 700 to 1500<br>2711P-RN6, -RN6K | N/A | N/A | Use AIC+ Module<br>(1761-NET-AIC)<br>Connect to Port 3 | N/A |
| ControlNet | ControlNet Port<br>PanelView Plus 400 and 600<br>2711P-RN15C<br>PanelView Plus 400 to 1500<br>2711P-RN15S, -RN15SK | To PLC-5C with ControlNet Cable | N/A | N/A | N/A |
| DeviceNet(1) | DeviceNet Port<br>PanelView Plus 400 and 600<br>2711P-RN10C<br>PanelView Plus 700 to 1500<br>2711P-RN10H | Use 1771-SDN Module with DeviceNet Cable | N/A | N/A | N/A |
| EtherNet/IP | EtherNet/IP Port<br>PanelView Plus 400 to 1500<br>All except 2711P-xxx5xx | To PLC-5E with 1585J-M Type Cable or 2711P- CBL-EX04 (4 m/14 ft) (3) | Use 1761-NET-ENI Module with Ethernet Cable | | 1585J-M Type Cable or 2711P- CBL-EX04 (4 m/14 ft) (3) |
| Remote I/O(1) | Remote I/O Port<br>PanelView Plus 400 to 1500<br>2711P-RN1, 2711P-RN6 | Shielded Twinaxial Cable (1770-CD) | N/A | N/A | N/A |
| DH+ | DH+ Port<br>PanelView Plus 400 and 600<br>2711P-RN8<br>PanelView Plus 700 to 1500<br>2711P-RN6, -RN6K | Shielded Twinaxial Cable (1770-CD) | N/A | N/A | N/A |

(1) DeviceNet and Remote I/O communication modules are no longer available. Cable information is provided for reference only.

(2) For CE compliance, use the 1761-NET-AIC or 1747-AIC module for cable lengths longer than 30 m (98 ft).

(3) For a direct connection between the terminal and the controller use the 2711P-CBL-EX04 crossover cable.

(4) The AIC+ module is recommended for isolation purposes when the terminal and controller are not on same power supply.



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### PanelView Plus and PanelView Plus CE Terminals to Logix Controllers

| | | Cables: PanelView Plus and PanelView Plus CE to Logix Controllers | |
|---|---|---|---|
| **Protocol** | **PanelView Plus Comm Port** | **ControlLogix CH0 (9-pin RS-232) (DF1)** | **CompactLogix CH0 (9-pin RS-232) (DF1 or DH-485)** |
| DF1 (any) | RS-232 (DF1) Port (9-pin) PanelView Plus 400 to 1500 2711P-RN22C | 2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft) 2706-NC13 (3 m/10 ft) | |
| DH-485 (any) | RS-232 (DH-485) Port (9-pin) PanelView Plus 400 to 1500 2711P-RN22C | N/A | 2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft) 2706-NC13 (3 m/10 ft) |
| | DH-485 Port PanelView Plus 400 and 600 2711P-RN3[2], PanelView Plus 700 to 1500 2711P-RN6, -RN6K | N/A | Use AIC+ Module (1761-NET-AIC) Connect to Port 3 |
| ControlNet | ControlNet Port PanelView Plus 400 and 600 2711P-RN15C PanelView Plus 700 to 1500 2711P-RN15S, -RN15SK | Use 1756-CNB Module with ControlNet Cable | 1769-L35CR, -L32C, -1768-CNB, or 1768-CNBR with ControlNet Cable |
| DeviceNet[1] | DeviceNet Port PanelView Plus 400 and 600 2711P-RN10C PanelView Plus 700 to 1500 2711P-RN10H | Use 1756-DNB Module with DeviceNet Cable | Use 1769-SDN Module with DeviceNet Cable |
| EtherNet/IP | EtherNet/IP Port PanelView Plus 400 to 1500 All except 2711P-xxx5xx | Use 1756-EN2T or 1756-ENBT Module with 1585J-M Type Cable or 2711P- CBL-EX04 (4 m/14 ft)[3] | To 1769-L35E, L23E, L32E, or 1768-ENBT Module with 1585J-M Type Cable or 2711P- CBL-EX04 (4 m/14 ft)[3] |
| Remote I/O[1] | Remote I/O Port PanelView Plus 400 to 1500 2711P-RN1, 2711P-RN6 | Use 1756-DHRIO Module with Shielded Twinaxial Cable (1770-CD) | N/A |
| DH+ | DH+ Port PanelView Plus 400 and 600 2711P-RN8 PanelView Plus 700 to 1500 2711P-RN6, -RN6K | Use 1756-DHRIO Module with Shielded Twinaxial Cable (1770-CD) | N/A |

(1) DeviceNet and Remote I/O communication modules are no longer available. Cable information is provided for reference only.

(2) For CE compliance, use the 1761-NET-AIC or 1747-AIC module for cable lengths longer than 30 m (98 ft).

(3) For a direct connection between the terminal and controller, use the 2711P-CBL-EX04 crossover cable.

### PanelView Plus Terminals to Communication Adapters

| | | Cables: PanelView Plus to Communication Adapters | | | | |
|---|---|---|---|---|---|---|
| | | | 1761-NET-AIC | | | |
| **Protocol** | **PanelView Plus Comm Port** | **1747-AIC** | **Port 1 (9-pin)** | **Port 2 8-pin Mini DIN()** | **Port 3 (DH-485)** | **1761-NETDNI or 1771-NET-ENI** |
| DF1 (any) | RS-232 Port (9-pin) PanelView Plus 400 to 1500 2711P-RN22C (for 400 and 600) | N/A | 2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft) 2706-NC13 (3 m/10 ft) | 2711-NC21 (5 m/16 ft) 2711-NC22 (15 m/49 ft) | N/A | 1761-CBL-AP00 (5 m) 1761-CBL-PM02 (2 m) 2711-CBL-PM05 (5 m) 2711-CBL-PM10 (10 m) |
| DH-485 (any) | RS-232 Port (9-pin) PanelView Plus 400 to 1500 2711P-RN22C (for 400 and 600) | N/A | 2711-NC13 (5 m/16 ft) 2711-NC14 (10 m/32 ft) 2706-NC13 (3 m/10 ft) | 2711-NC21 (5 m/16 ft) 2711-NC22 (15 m/49 ft) | N/A | |
| | DH-485 Port PanelView Plus 400 and 600 2711P-RN3[1] | 1747-C10 (2 m/6ft) 1747-C11 (0.3 m/1 ft) 1747-C20 (6 m/20 ft) | N/A | | 1761-CBL-AS03 (3 m/10 ft) 1761-CBL-AS09 (9 m/30 ft) to single AIC+ | N/A |
| | DH-485 Port PanelView Plus 700 to 1500 2711P-RN6, -RN6K | Direct Connection to Single AIC with Belden 9842 Cable[2] | N/A | | Direct Connection to Single AIC+ with Belden 9842 Cable[2] | N/A |

(1) For CE compliance, use the 1761-NET-AIC or 1747-AIC module for cable lengths longer than 30 m (98 ft).

(2) Use serial port on the PanelView Plus terminal with an AIC+ module for a DH-485 network solution.



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## Communication Port Isolation

The PanelView Plus and PanelView Plus CE terminals contain integral and modular (externally attached) communication ports. Some of these ports contain electrical isolation depending on the catalog number of the terminal or communication module.

**Integral Communication Port Isolation**

| Communication Port | 400 and 600 Terminal | 700 to 1500 Terminal |
|---|---|---|
| RS-232 | Nonisolated | Isolated |
| USB | Nonisolated | Nonisolated |
| Ethernet | Isolated | Isolated |

**400 and 600 Modular Communication Port Isolation**

| Communication Port | Module | Isolation |
|---|---|---|
| RS-232 | 2711P-RN22C | Isolated |
| DH-485 | 2711P-RN3 | Nonisolated |
| DH+ | 2711P-RN8 | Isolated |
| Remote I/O | 2711P-RN1 | Isolated |
| DeviceNet | 2711P-RN10C | Isolated |
| ControlNet | 2711P-RN15C | Isolated (1) |

(1) NAP port is nonisolated.

**700 to 1500 Modular Communication Port Isolation**

| Communication Port | Module | Isolation |
|---|---|---|
| DH-485 | 2711P-RN6 | Isolated |
| DH+ | 2711P-RN6 | Isolated |
| Remote I/O | 2711P-RN6 | Isolated |
| DeviceNet | 2711P-RN10H | Isolated |
| ControlNet | 2711P-RN15S | Isolated |



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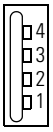
## USB Ports

The 700 to 1500 terminals have two USB ports. The 400 and 600 terminals have one USB port. The terminals support standard USB keyboard and mouse devices (HID devices) with native device drivers. They also support some USB printers that have Printer Control Language (PCL) capabilities. A vendor specific Windows CE driver is required for all other USB devices.

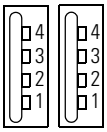
See Appendix B for a list of compatible USB devices.

Plug the USB device into either one of the two USB ports on the 700 to 1500 terminals.

400 and 600 USB Port




700 to 1500 USB Ports




**USB Connector Pinout**

| Pin | Signal |
|---|---|
| 1 | USBVCC |
| 2 | USBD- |
| 3 | USBD+ |
| 4 | USB-GND |

**WARNING**



Do not connect or disconnect the communication cable with power applied to the terminal, or the serial device on the other end of the cable. An electrical arc could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.

**WARNING**



USB devices not powered by the USB port must be within the same enclosure and connected to a ground system common with the terminal, or the USB devices must be used with a USB hub that provides galvanic isolation.

If a USB hub is connected to the terminal, an externally powered USB hub is recommended. Before attaching devices to a USB hub, check that the power adapter is connected and powered on.



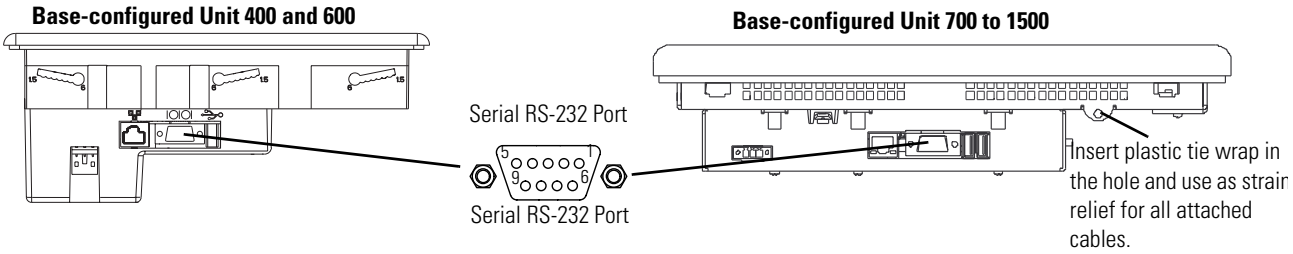
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## Serial Connections

The base-configured unit of all terminals has a multi-purpose serial RS-232 port that supports:

- DH-485 communication through a serial connection.
- DF1 full duplex communication with controllers using direct connections or modem connections.
- third-party point-to-point communication.
- application uploads/downloads.
- printing.

The serial port on the base-configured unit of the terminal is a 9-pin, male, RS-232 connector. The table shows the pinout descriptions for this port and how these pins map to the serial ports on the controllers.




**Serial Port Connector Pinout**

| PanelView Plus RS-232 Port 9-pin DCE | | SLC 9-pin | PLC 25-pin | MicroLogix/ DNI 8-pin DIN |
|---|---|---|---|---|
| 1 | | | | |
| 2 | RXD → | 2 | 3 | 4 |
| 3 | ← TXD | 3 | 2 | 7 |
| 4 | ← DTR | 4 | 20 | |
| 5 | ↔ COM | 5 | 7 | 2 |
| 6 | DSR → | 6 | 6 | |
| 7 | ← RTS | 7 | 4 | |
| 8 | CTS → | 8 | 5 | |
| 9 | | | | |
| Connector Shell | Chassis Gnd | | | |

The maximum cable length for serial communication is 15.24 m (50 ft).

**WARNING**



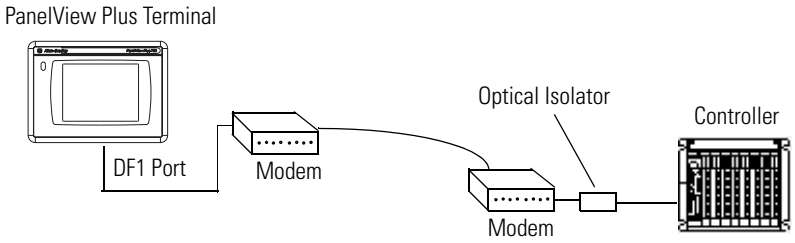
Do not connect or disconnect the communication cable with power applied to the terminal, or the serial device on the other end of the cable. An electrical arc could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.



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## Modem Connection

Wire or radio modem communication is possible between the terminal and controller. Each modem must support full duplex communication. Refer to your modem user manual for details on settings and configuration.




## Construct a Null Modem Cable

To construct a null modem cable, refer to this pinout.

**Null Modem Pinout**

| | PanelView Plus 9-pin | 9-pin Modem | PanelView Plus 9-pin | 25-pin Modem | |
|---|---|---|---|---|---|
| FG (Frame Ground) | - | - | - | 1 | FG |
| TD (Transmit Data) | 3 | 2 | 3 | 3 | RD |
| RD (Receive Data) | 2 | 3 | 2 | 2 | TD |
| RTS (Request to Send) | 7 | 8 | 7 | 5 | CTS |
| CTS (Clear to Send) | 8 | 7 | 8 | 4 | RTS |
| SG (Signal Ground) | 5 | 5 | 5 | 7 | SG |
| DSR (Data Set Ready) | 6 | 4 | 6 | 20 | DTR |
| DTR (Data Terminal Ready) | 4 | 6 | 4 | 6 | DSR |

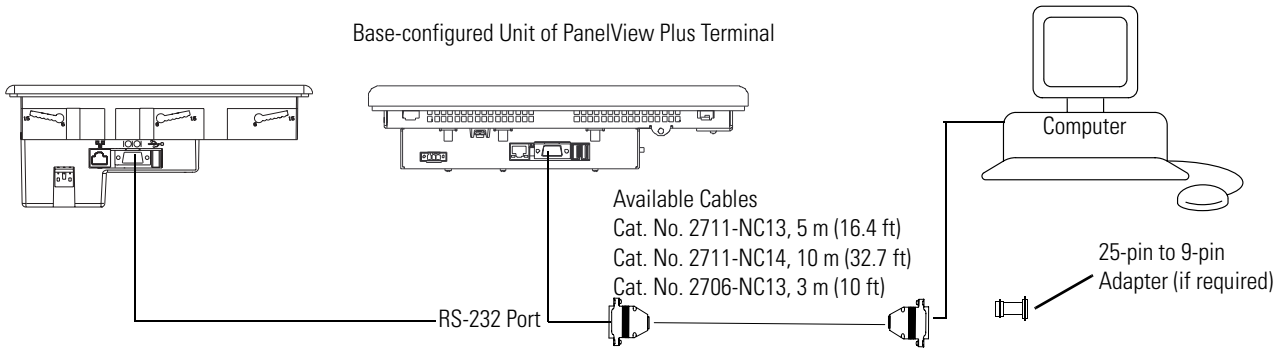


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## Computer Connections

The RS-232 serial port on the base-configured unit of the terminals supports:

- application uploads/downloads using a direct connection.
- printing.




| PanelView Plus Port (DCE) 9-pin male | | Computer Port (DTE) with Handshaking 9-pin male |
|---|---|---|
| 1 NC | | 1 DCD |
| 2 | RXD → | 2 RXD (Data Receive) |
| 3 | ← TXD | 3 TXD (Data Transmit) |
| 4 NC | | 4 |
| 5 | ↔ COM | 5 COM |
| 6 (pulled high to +12V) | DSR → | 6 DSR |
| 7 | ← RTS | 7 RTS |
| 8 | CTS → | 8 CTS |
| 9 NC | | 9 NC |

### Upload/Download Cable without Hardware Handshaking

| PanelView Plus Printer Port (DCE) 9-pin male | | Computer Port (DTE) 9-pin | 25-pin |
|---|---|---|---|
| 2 | RXD → | 2 | 3 |
| 3 | ← TXD | 3 | 2 |
| 5 | ↔ COM | 5 | 7 |



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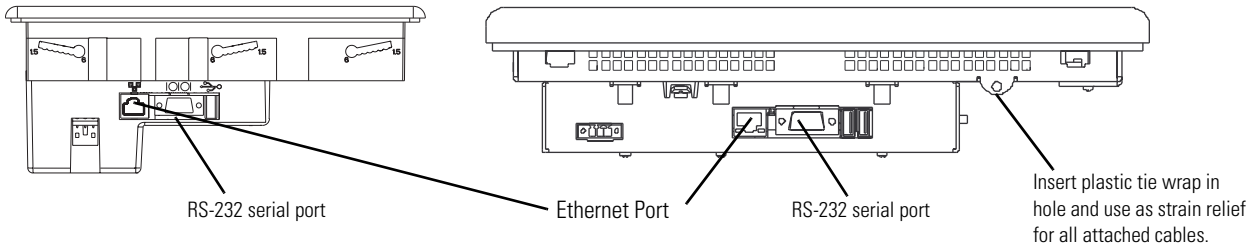
# Ethernet Connections

The base-configured unit of the 700 to 1500 terminals and the network based unit of the 400 and 600 terminals have an Ethernet port that supports:

- EtherNet/IP communication.
- third-party Ethernet communication.
- network connections.
- application uploads/downloads.
- printing.

## Ethernet Connector

The base-configured unit of the terminals has an RJ45, 10/100 Base-T connector for EtherNet/IP or Ethernet TCP/IP network communication.




The table shows the connector pinouts.

**Ethernet Connector Pinout**

| Pin | Pin | Pin Name |
|---|---|---|
| Looking into RJ45 Connector<br>1 8 | 1 | TD+ |
| | 2 | TD- |
| | 3 | RD+ |
| | 4 | NC |
| | 5 | NC |
| | 6 | RD- |
| | 7 | NC |
| | 8 | NC |
| | Shield Connection | No direct connection<br>(AC coupled to chassis GND) |

Use point-to-point, 10/100 Base-T cables with cross over pin-outs, such as 2711P-CBL-EX04, when connecting the Ethernet port on the terminal directly to a logic controller's Ethernet port or a computer 10/100 Base-T port.



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## Ethernet Cable

For PanelView Plus 700 to 1500 terminals, use Belden 7921A shielded Ethernet Category 5e cable according to TIA 568-B.1 and RJ45 connector according to IEC 60603-7 for compliance with Marine emissions limits and the European Union 89/336/EEC EMC Directive.

The maximum cable length between the terminal's Ethernet port and a 10/100 Base-T port on an Ethernet hub (without repeaters or fiber) is 100 m (328 ft).

**WARNING**



Do not connect or disconnect any communication cable with power applied to this device or any device on the network. An electrical arc could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.

## Security Considerations

IGMP (Internet Group Management Protocol) is used for IPv4 multicast. A multicast is communication between a single sender and multiple receivers on a network. IGMP is used to exchange membership status data between IPv4 routers that support multicasting and members of multicast groups. A router is an intermediary device on a communication network that expedites message delivery by finding the most efficient route for a message packet within a network, or by routing packets from one subnetwork to another. A sub-network is a separate part of an organization's network identified through IP addressing.

PanelView Plus terminals provide level 2 (full) support for IPv4 multicasting (IGMP version 2) as described in RFC 1112 and RFC 2236.

SNMP (Simple Network Management Protocol) is used for internal network management and is not supported.

Ports 137 and 138 are normally open to support the NetBIOS protocol used by Windows CE.NET similar to other Microsoft and IBM network operating systems.



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## DH-485/DH+/Remote I/O Module

Terminals with a DH-485/DH+/Remote I/O communication module support communication with these networks.

- DH+ networks
- DH-485 networks
- Remote I/O networks

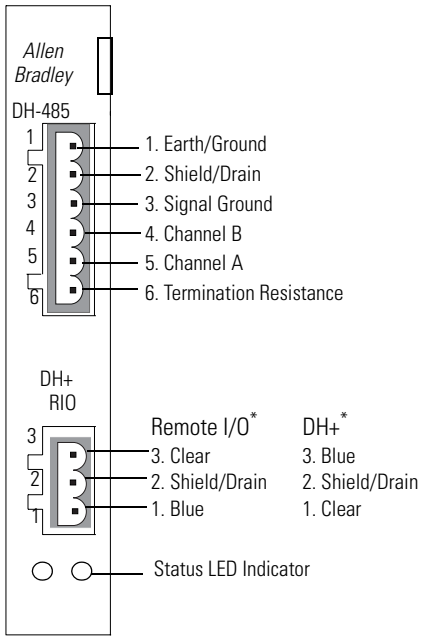
You can communicate with only one network at one time.

The 700 to 1500 terminals support all protocols on one module. The 400 and 600 terminals require a separate module for each protocol. The DH+, DH-485, and Remote I/O connections are different between the modules for the 400 and 600 and 700 to 1500 terminals.

### Module Connections

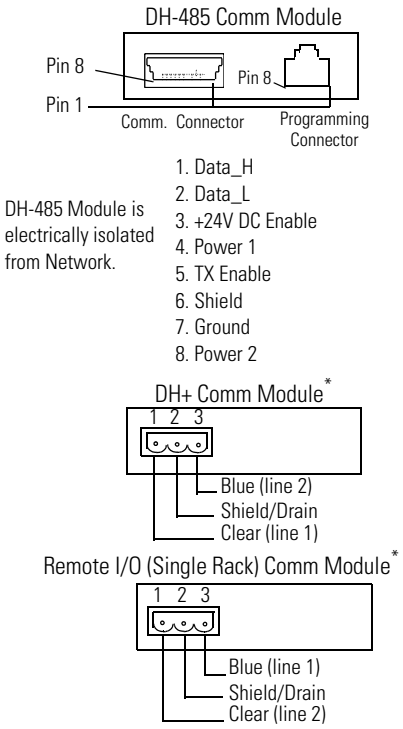
**IMPORTANT** See your controller documentation for appropriate controller connections.

**700 to 1500 Terminals**




***** Use a Belden 9463 twin axial or equivalent cable, cat. no. 1770-CD.

**400 and 600 Terminals**




**IMPORTANT** When using the DH-485 module, catalog number 2711P-RN3, with PanelView Plus 400 and 600 terminals, the cable length must not exceed 30 m (98 ft) to comply with CE requirements. For longer cable lengths, use the 1761-NET-AIC or 1747-AIC module.



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**DH+ Status Indicator**

| Condition | Indication |
|---|---|
| Off | Channel is not online. |
| Blinking green | Device is only node on the network. |
| Solid green | Device is online and receiving token. |
| Blinking red | Duplicate node. |
| Solid red | Failed selftest. |

**DH-485 Status Indicator**

| Condition | Indication |
|---|---|
| Off | Channel is not online. |
| Blinking green | Device is only node on the network. |
| Solid green | Device is online and receiving token. |
| Blinking red | Parity error. |
| Solid red | Failed selftest. |

**Remote I/O Scanner Mode Status Indicator**

| Condition | Indication |
|---|---|
| Off | Channel is not online. |
| Blinking green | At least one but not all adapters in the scanlist are not responding. |
| Solid green | All adapters in the scanlist are responding. |
| Blinking red | None of the adapters in the scanlist are responding. |
| Solid red | Failed selftest. |



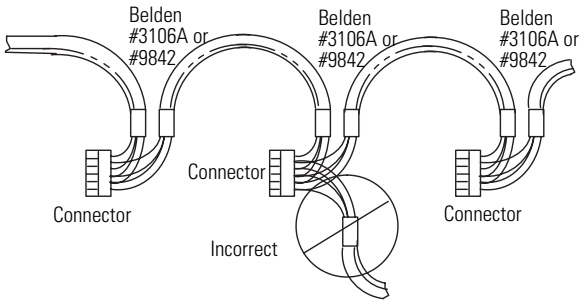
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## DH-485 Network Port Wiring for 700 to 1500 Terminals

Use these instructions for wiring Belden cable. If you are using standard Allen-Bradley cables, see the Logic Controller Cable Charts .

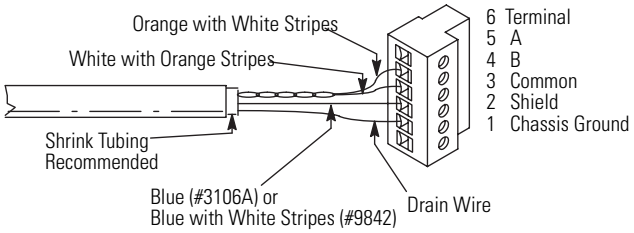
**IMPORTANT** A daisy-chained network is recommended. We do not recommend hybrid star/daisy chain networks as shown.

### RS-485 Connector to the Communication Cable

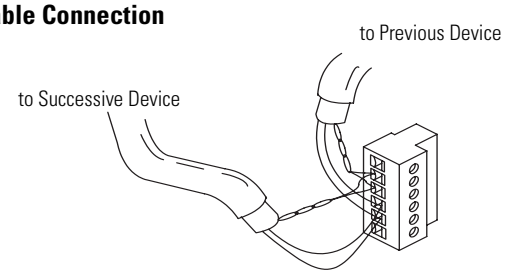



Attach the connector to the Belden #3106A or #9842 Cable as shown.

### Single Cable Connection




### Multiple Cable Connection




The table shows connections for Belden #3106A.

**Belden 3106A Wire Connections**

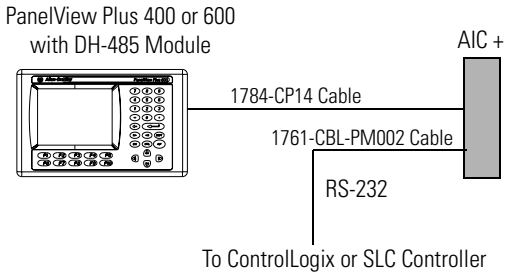
| For this Wire/Pair | Connect this Wire | To this Terminal |
|---|---|---|
| Shield/Drain | Non-jacketed | Terminal 2 - Shield |
| Blue | Blue | Terminal 3 - (Common) |
| White/Orange | White with Orange Stripe | Terminal 4 - (Data B) |
| | Orange with White Stripe | Terminal 5 - (Data A) |



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## DH-485 Connections for 400 and 600 Terminals

This section shows connections between a 400 and 600 terminal with a DH-485 communication module and an SLC or ControlLogix controller through the AIC+ module.






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## DH+ Network Connections

Use the Belden 9463 twin axial or equivalent cable (cat. no. 1770-CD), to connect a terminal to a DH+ link.

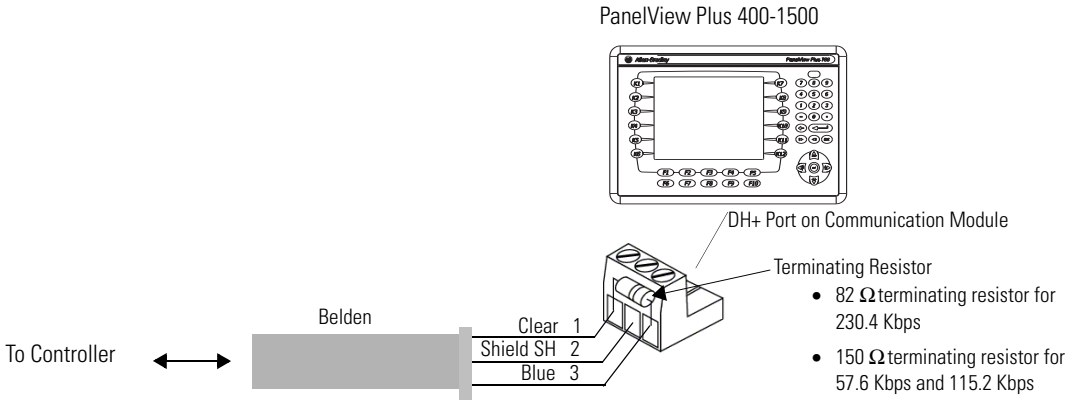
You can connect a DH+ link in two ways.

- Trunk line/drop line - from the drop line to the connector screw terminals on the DH+ connectors of the processor
- Daisy chain - to the connector screw terminals on the DH+ connectors on the processor

Follow these guidelines when installing DH+ communication links.

- do not exceed these cable lengths:
  - Trunk line-cable length: 3,048 m (10,000 ft).
  - Drop-cable length: 30.4 m (100 ft).

  The maximum cable length is determined by baud rate.
- Do not connect more than 64 stations on a single DH+ link.





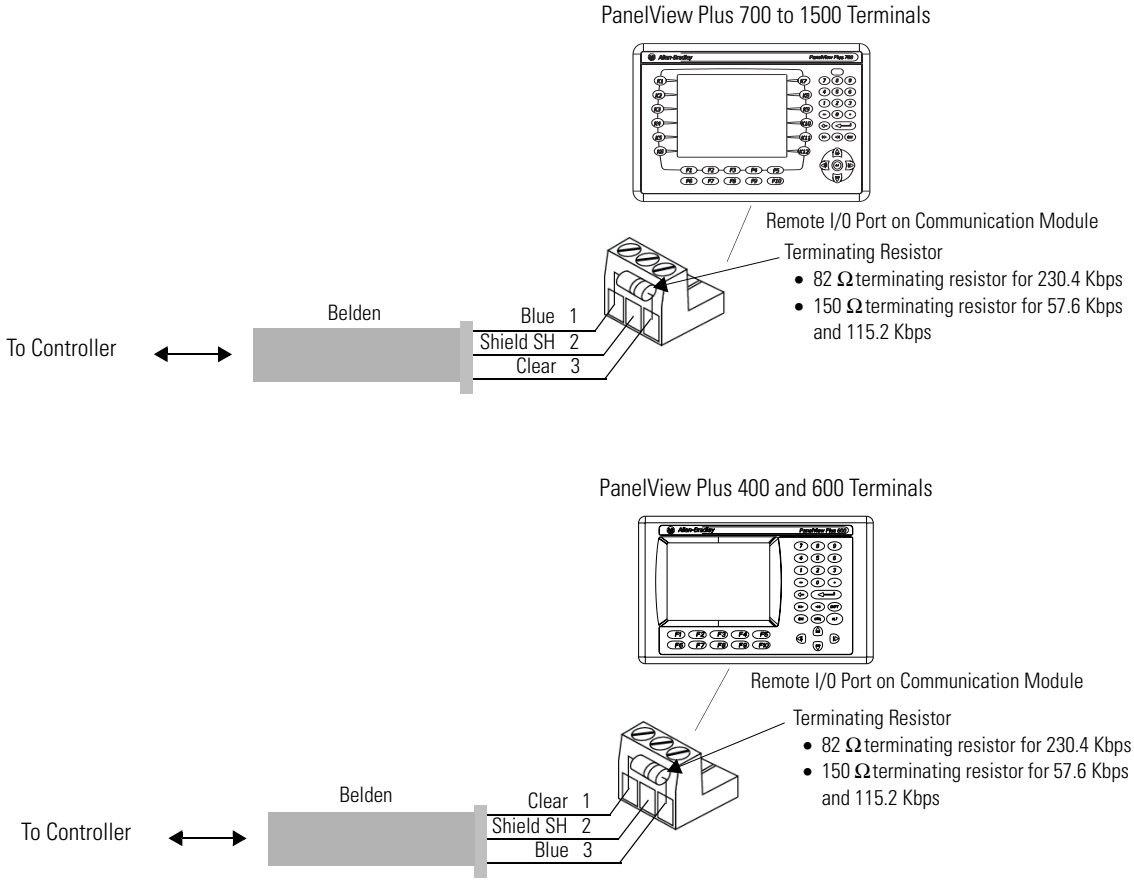

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## Remote I/O Connections

Use the Belden 9463 twin axial or equivalent cable (cat. no. 1770-CD), to connect a terminal to a Remote I/O scanner. The maximum cable length (link distance) is determined by the baud rate.

- 2800 m (10,000 ft) for 57.6 Kbps
- 1400 m (5,000 ft) for 115.2 Kbps
- 700 m (2,500 ft) for 230.4 Kbps

See Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1. The user manual for the I/O scanner module also provides cabling information.






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# ControlNet Module

Terminals with a ControlNet communication module support communication and the transfer of applications between devices on a ControlNet network.

## Related Information

For more information on ControlNet products, refer to these publications:

- NetLinx Selection Guide, publication NETS-SG001
- ControlNet Coax Media Planning and Installation Guide, publication CNET-IN002
- ControlNet Communication for PanelView Plus and PanelView Plus CE Terminals User Manual, publication 2711P-UM003

The Rockwell Automation website http://rockwellautomation.com provides information and product descriptions of ControlNet products. Under the Products and Services heading, select Communication.

## ControlNet Protocol

The terminals support Unscheduled and Scheduled messaging, Scheduled I/O, and redundant cabling with PLC-5C and ControlLogix controllers.

The ControlNet architecture supports multiple processors and up to 99 nodes (via taps) anywhere along the trunk cable of the network. There is no minimum tap separation and you can access the ControlNet network from every node (including adapters).

## Compatible ControlNet Controllers

A terminal with a ControlNet Module communicates with a PLC-5C (PCCC commands) or a ControlLogix processor (CIP protocol) using Unscheduled messaging. The following controllers are supported:

- ControlLogix using 1756-CNB module
- PLC-5/20C, PLC-5/40C, PLC-5/60C, PLC-5/80C



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## Minimum Requirements

The software and firmware must be installed on the development computer and the PanelView Plus terminal to configure and communicate with an Allen-Bradley controller on a ControlNet network.

**ControlNet Unscheduled Communication**

| Software/Firmware | PanelView Plus 700 to 1500 | PanelView Plus 400 or 600 |
|---|---|---|
| FactoryTalk View Studio | Version 3.10 or later | Version 4.0 or later |
| FactoryTalk View Machine Edition Runtime | Version 3.10 or later | Version 4.0 or later |
| ControlNet Module Firmware | 2711P-RN15S, Series A, Rev A (firmware version 2.07 or later) (1) | 2711P-RN15C, Series B, Rev A or later |

(1) This applies to terminals that are ordered as pre-configured units with the ControlNet module.

**ControlNet Scheduled Communications**

| Requirements | PanelView Plus 700 to 1500 | PanelView Plus 400 or 600 |
|---|---|---|
| FactoryTalk View Studio | Version 3.20 or later | Version 4.0 or later |
| FactoryTalk View Machine Edition Runtime | Version 3.20.04 or later | Version 4.0 or later |
| RSNetWorx for ControlNet | Version 5.11 or later | Version 6.0 or later |
| RSLogix 5000 | Version 13.0 or later | Version 15.0 or later |
| ControlNet Module Firmware | 2711P-RN15S, Series A, Rev C (firmware version 3.08 or later) (1) | 2711P-RN15C, Series B, Rev A or later |

(1) This applies to terminals that are ordered as preconfigured units with the ControlNet module.

**WARNING**



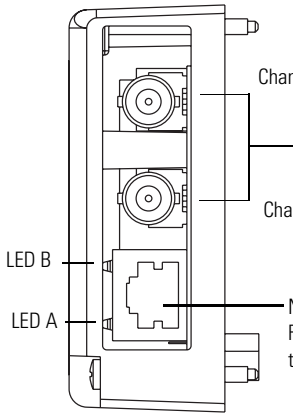
The ControlNet Communications Module, cat. no. 2711P-RN15S, will not run with FactoryTalk View ME firmware version 3.20.04 or earlier. All ControlNet Modules with version 3.07 firmware must be upgraded to version 3.08 or later; otherwise, outputs may turn on an indeterminate state.



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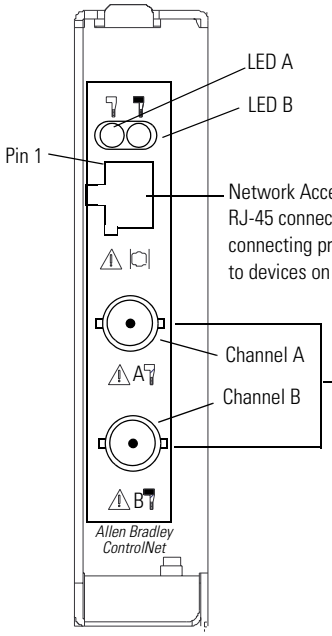
## ControlNet Connections

### 2711P-RN15C ControlNet Module for 400 and 600 Terminals




| Pin | NAP Signal |
|---|---|
| 1 | Signal Common |
| 2 | No Connection |
| 3 | TX_H |
| 4 | TX_L |
| 5 | RX_L |
| 6 | RX_H |
| 7 | No Connection |
| 8 | Signal Common |
| Shell | Earth/Ground |

### 2711P-RN15S ControlNet Module for 700 to 1500 Terminals




| Pin | NAP Signal |
|---|---|
| 1 | Signal Common |
| 2 | No Connection |
| 3 | TX_H |
| 4 | TX_L |
| 5 | RX_L |
| 6 | RX_H |
| 7 | No Connection |
| 8 | Signal Common |
| Shell | Earth/Ground |

**ATTENTION**



Do not connect more than one ControlNet network to the Communications Module. If you attempt to connect a second network to the module, your communication system will operate erratically.



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### NAP and Redundant Cables

Refer to the ControlNet Coax Media Planning and Installation Guide, publication CNET-IN002, for descriptions of ControlNet components.

| Item | Cat. No. |
|---|---|
| RG-6 quad-shield | 1786-RG6 |
| Coax repeater | 1786-RPT, -RPTD |
| Coax taps | 1786-TPR, -TPS, -TPYR, -TPYS |
| Network access cable | 1786-CP |
| Coax tool kit | 1786-CTK |
| Segment terminators | 1786-XT |
| BNC connectors | 1786-BNC, -BNCJ, -BNCP, -BNCJ1 |

**IMPORTANT** Do not connect to a network using both the redundant cable BNC connector and the Network Access Port (NAP).

### Connect the Module to the Network

You can connect the ControlNet Module:

- directly to a ControlNet network, which requires a tap.
- to a device already connected to the ControlNet network.

**WARNING**



When used in a Class I, Division 2, hazardous location, this equipment must be mounted in a suitable enclosure with proper wiring that complies with the governing electrical codes.

Do not connect or disconnect any communication cable with power applied to this device or any device on the network. An electrical arc could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.

## DeviceNet Module

Terminals with a DeviceNet communication module support communication and the transfer of applications between devices on a DeviceNet network.



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## Related Information

For more information on DeviceNet products, refer to these publications:

- NetLinx Selection Guide, publication NETS-SG001B
- DeviceNet Media Design Installation Guide, publication DNET-UM072

The Rockwell Automation website http://rockwellautomation.com provides information and product descriptions of DeviceNet products. Under the Products and Services heading, select Communications.

## DeviceNet Protocol

The terminals support DeviceNet Scheduled I/O only. This protocol allows direct connection of field devices such as lights, drives, and valves. It also provides a control architecture that supports multiple processors. The DeviceNet network is a trunk/drop or bus-based network that supports up to 64 nodes and operates at 125, 250, or 500 Kbps.

## Compatible DeviceNet Controllers

A terminal with a DeviceNet module communicates with an SLC-500 and PLC-5 (PCCC commands), or a ControlLogix processor (CIP protocol) using Unscheduled messaging. Supported controllers include:

- ControlLogix using 1756-DNB module.
- PLC-5 with a 1771-SDN module.
- SLC 5/03 - SLC 5/05 with a 1747-SDN module.

## Minimum Requirements

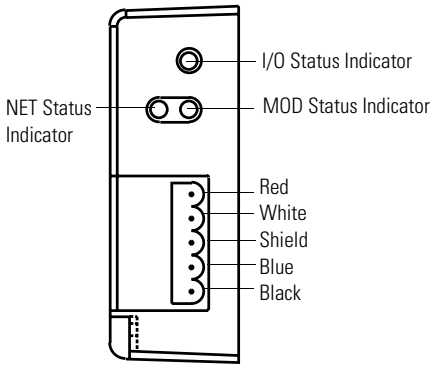
| Software/Firmware | PanelView Plus 700 to 1500 | PanelView Plus 400 and 600 |
|---|---|---|
| FactoryTalk View Studio | Version 4.0 or later | Version 4.0 or later |
| FactoryTalk View Machine Edition Runtime | Version 4.0 or later | Version 4.0 or later |
| DeviceNet Module | 2711P-RN10H | 2711P-RN10C |



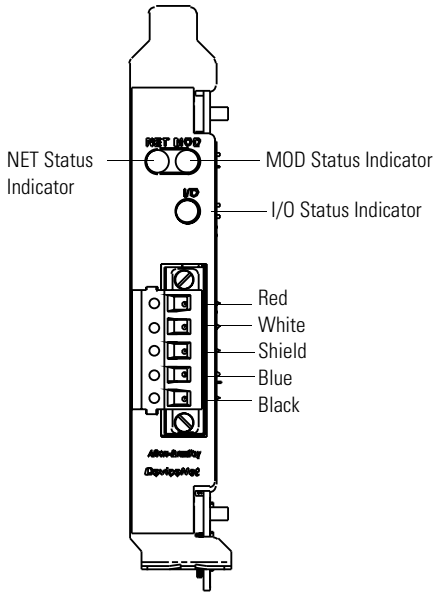
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## DeviceNet Connections

### 2711P-RN10C DeviceNet Module for 400 and 600 Terminals




### 2711P-RN10H DeviceNet Module for 700 to 1500 Terminals




**WARNING**



Do not connect or disconnect any communication cable with power applied to this device or any device on the network. An electrical arc could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.



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## DeviceNet I/O Status Indicator

This bicolor (green/red) LED provides information on the states of inputs and/or outputs.

| Condition | Status | Indication |
|---|---|---|
| Off | Outputs active | All outputs are active. |
| | Inputs active | All inputs are active. |
| Green | Outputs active | One or more outputs are active and under control, and no outputs are faulted. |
| | Inputs active | One or more inputs are active and producing data, and no inputs are faulted. |
| Flashing green[1] | Outputs idle | One or more outputs are idle, and no outputs are active or faulted. |
| Flashing red [1] | Outputs faulted | One or more outputs are faulted, and may be in the fault state. |
| | Inputs faulted | One or more inputs are faulted, and may be in the fault state. |
| Red | Outputs forced off | One or more outputs are forced off (may be an unrecoverable fault). |
| | Input unrecoverable fault | One or more inputs has an unrecoverable fault. |

(1) The flash rate of the LED is approximately 1 flash per second. The LED should be on for approximately 0.5 seconds and off for approximately 0.5 seconds.



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## DeviceNet Module (MOD) Status Indicator

This bicolor (green/red) LED provides device status. It indicates whether or not the device has power and is operating properly.

| Condition | Status | Indication |
|---|---|---|
| Off | No power | No power applied to device. |
| Green | Device operational | Device is operating in a normal condition. |
| Flashing green(1) | Device in standby (device needs commissioning) | Device needs commissioning due to configuration missing, incomplete, or incorrect. |
| Flashing red (1) | Recoverable fault | For example, the device's scan list configuration does match the actual network configuration. |
| Red | Unrecoverable fault | Device has an unrecoverable fault. Cycle power to your computer. If the problem persists, the device may need to be replaced. |
| | Device self testing | Device is in self test. Refer to the DeviceNet Specification, Volume II, Identity Object. |

(1) The flash rate of the LED is approximately 1 flash per second. The LED should be on for approximately 0.5 seconds and off for approximately 0.5 seconds.



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## DeviceNet Network (NET) Status Indicator

This bicolor (green/red) LED indicates the status of the communication link.

| Condition | Status | Indication |
|---|---|---|
| Off | Not powered | Device is not online. |
| | Not online | The device has not completed the Dup_MAC_ID test yet. |
| | | The device may not be powered; look at the Module Status LED. |
| Flashing green[1] | Online | Device is online, but has no connections in the established state. |
| | Not connected | The device has passed the Dup_MAC_ID test, is online, but has no established connections to other nodes. |
| Green | Link okay, online, connected | The device is online and has connections in the established state. |
| Flashing red [1] | Connection timeout | One or more I/O connections are in the timed-out state. |
| Red | Critical link failure | Failed communication device. The device has detected an error that has rendered it incapable of communicating on the network (Duplicate MAC ID or Bus-off).<br><br>Check network integrity and baud rate of all devices. Then cycle power to the card by shutting down and cycling power to your computer. |

[1] The flash rate of the LED is approximately 1 flash per second. The LED should be on for approximately 0.5 seconds and off for approximately 0.5 seconds.

**ATTENTION**



Extensive use of Change-of-State connections, particularly with rapidly changing data, can adversely impact the available DeviceNet network bandwidth. If the network bandwith becomes consumed, some devices may only be able to communicate intermittently. This can result in timeout errors and possible loss of data. If timeouts occur, consider changing the connection type for some of the Change-of-State connections to Cyclic or Polled.



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# Upgrade Firmware

## Chapter Objectives

This chapter covers these topics:

- Transfer applications
- Create an ActiveSync connection
- Upgrade terminal firmware
- Upgrade operating system for CE terminals

## Transfer Applications

You can transfer applications using a CompactFlash card or a computer.

PanelView Plus terminals let you copy or load applications in configuration mode using a CompactFlash card, see page 79.

The PanelView Plus CE terminals let you copy or load applications using a CompactFlash card from Windows Explorer or FactoryTalk View ME configuration mode.

- To copy files in terminal configuration mode, see page 79.
- To copy files in Windows Explorer, see page 118.

For details on transferring .MER applications from a computer to the PanelView Plus or PanelView Plus CE terminals, refer to FactoryTalk View Studio help or documentation.

## Create an ActiveSync Connection

This section shows how to create an ActiveSync connection between a computer and a PanelView Plus CE terminal.

Creating an ActiveSync connection is a two-step process.

1. Create a partnership between the devices using a Serial connection.
2. When the partnership is created, you can then connect the devices using an Ethernet network.

### What You Need

- Computer and a PanelView Plus CE terminal that are connected to an Ethernet network supporting DHCP.
- ActiveSync software, version 3.7 or later, installed on computer. You can download ActiveSync from the http://www.microsoft.com web site.
- 2711-NC13 or 2706-NC13 serial cable for connecting the PanelView Plus CE terminal to the computer with ActiveSync installed.



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## Create a Partnership with a Serial Connection

**IMPORTANT** To complete the ActiveSync installation, you must select the Serial Connection initially. After that you can switch between serial and Ethernet connections.

You must also make a valid ActiveSync connection at least once with the computer.

### *Install ActiveSync on a Computer*

1. Install ActiveSync, version 3.7 or later, on your computer.
2. Connect the PanelView Plus CE terminal to the computer with ActiveSync installed.
   Use a 9-pin straight through cable (2711-NC13 or 2706-NC13) for a serial connection or an Ethernet cable.
3. Start ActiveSync.
   You will see the Get Connected screen.

### *Initiate Serial Connection on PanelView Plus CE Terminals*

Select Start>Menu>Programs>Microsoft ActiveSync>Serial.
The Connecting to Async Connection dialog box appears.

### *Find ActiveSync Connection and Create a Partnership on a Computer*

1. When the Connecting to Async Connection dialog box appears on the PanelView Plus CE terminal, select the Next button on the Getting Connected screen of your computer.

   If the Connecting to Async Connection dialog box closes before a connection is established, return to Initiating Connection from the PanelView Plus CE terminal.
2. Select Yes to create the new partnership.
   When the ActiveSync connection is created, a window opens allowing you to create a new partnership.
3. Enter the name and press Next.
   ActiveSync will prompt you for a device name.
4. Press the Next button.
   Select any options you want to synchronize.
5. Press the Next button and then the Finish button.



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*Terminate Connection on PanelView Plus CE Terminals*

1. Click the ActiveSync connection utility on the taskbar.

   The Connection Status dialog box should appear.

2. Press the Disconnect button to terminate the connection, may take 30 seconds.

### Connect via an Ethernet Connection

Now that a partnership is created using a serial connection, you can connect to the PanelView Plus CE using an Ethernet connection.

*ActiveSync Setup on a Computer*

Verify that ActiveSync is configured to accept an Ethernet connection. By default, the Ethernet connection is enabled. (It is only necessary to enable the Ethernet connection if it is disabled).

*Connect with the Partnership on PanelView Plus CE Terminals*

1. Select Start>Programs>Microsoft Active Sync>Ethernet.

   The ActiveSync dialog box opens. The name of the computer you connected to via the serial connection will appear.

2. Select Connect.

   The Connection Status dialog box opens. It remains open as long as the ActiveSync connection is active.

   Closing the dialog box will terminate the connection.

## Firmware Upgrade Wizard

The Firmware Upgrade Wizard (FUW) lets you upgrade firmware in a PanelView Plus terminal. Using the FUW, you can:

- create a firmware upgrade card (CompactFlash card) that you then load in the card slot of the terminal to upgrade firmware.
- upgrade firmware in a terminal that is connected to your desktop computer using a Serial, Ethernet, or Network connection via RSLinx Enterprise software (for supported protocols).

The FUW is available in FactoryTalk View Studio software or with the Firmware Upgrade Kit.



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Before starting the Firmware Upgrade Wizard (FUW), follow these steps to prepare the terminal for a successful upgrade.

1. Backup all .MER files on the terminal to an external storage card or network.
2. Delete all applications on the terminal.
3. Record any Ethernet communication settings, such as IP address, subnet masks, and gateways by selecting Terminal Settings>Networks and Communications>Network Connections>Network Adapters>IP Address.
4. Disable the Auto-start feature on the terminal by selecting Startup Options>FactoryTalk View ME Station Startup and select Go to Configuration Mode.
5. Reset the terminal.

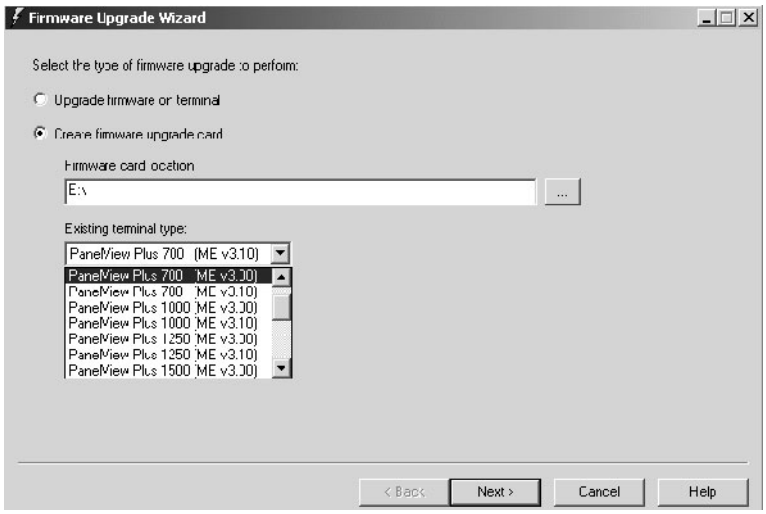
## Upgrade Firmware with a CompactFlash Card

This section shows how to upgrade the firmware in the terminal using a CompactFlash card. This is a two step-process. First, you create a firmware upgrade card with the necessary firmware files. Second, you load this card in the target terminal to upgrade the firmware.

### Create Firmware Upgrade Card

1. Start the Firmware Upgrade Wizard by selecting Start>Rockwell Software>RSView Enterprise>Firmware Upgrade Wizard.

2. Select Create firmware upgrade card.
   - In the Firmware card location text box, select the destination for the CompactFlash files (folder on the hard drive or physical location of the CompactFlash card, for example, E:\).
   - From the Existing terminal list, select the type of terminal you are upgrading, then press Next.



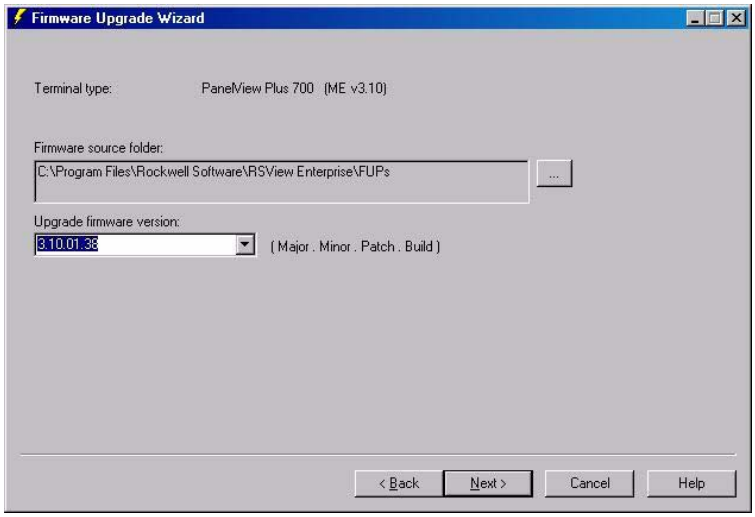



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3. From the Firmware source folder list, select the location of the firmware files.

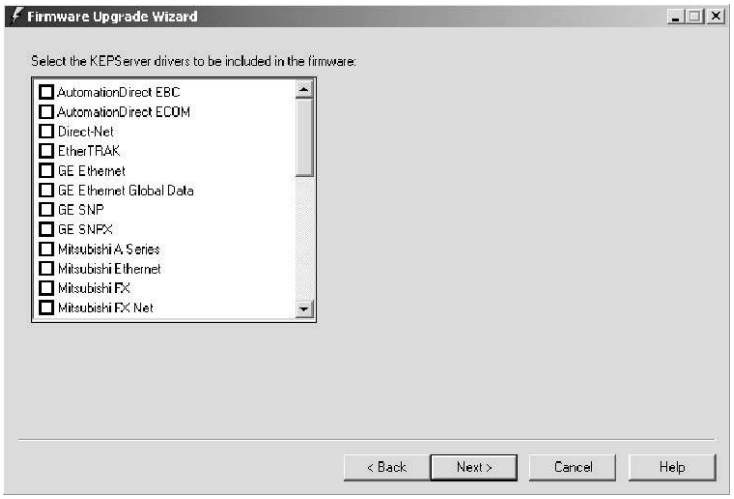
   The default location is C:\Program Files\Rockwell Software\RSView Enterprise\FUPs.

4. From the Upgrade firmware version list, select the version of the firmware you want to upgrade to, then press Next.




5. Select the appropriate KEPServer drivers and press Next.

   If no KEPServer drivers are needed, just press Next.



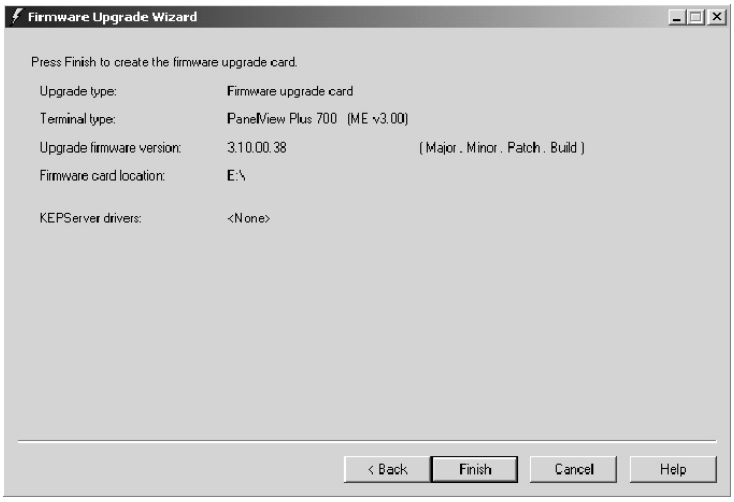

**TIP** If the selected FUP file does not support the KEPServer drivers, this dialog box will not appear.



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6. Select Finish to copy the firmware source files to the location specified in step 2.

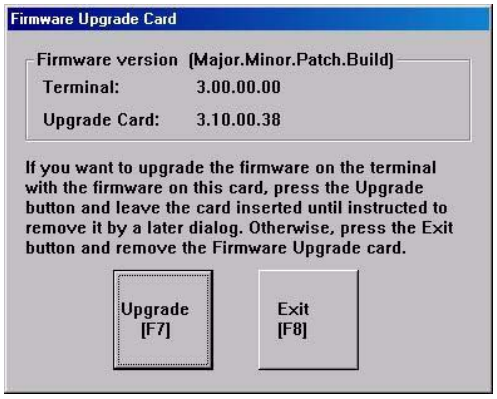
**TIP** If the files were created in a separate folder on a local hard drive, copy the files to the root directory of the CompactFlash card.




## Upgrade Firmware in Terminal with Firmware Upgrade Card

1. Insert the CompactFlash card into the card slot of a powered terminal.

   A dialog box indicates the firmware upgrade is about to occur.




2. Press Upgrade to begin the firmware upgrade.

**IMPORTANT** Do not remove the CompactFlash card while the upgrade is in process.



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If other terminals exist on the same Ethernet network, the following error may display:

Error registering name on network (may be duplicate). Change in system Control Panel and try again.

Ignore this error. It will be corrected during the upgrade. Press **OK** to acknowledge error and wait for terminal to reset.

**TIP** If a USB mouse is available, you can acknowledge this error by selecting OK.

3. On touch or touch-screen terminals, you must calibrate the touch screen by selecting pointers in all four corners of the screen and pressing the middle of the screen when prompted.

   Ignore the following message if it appears. It means FactoryTalk View ME is being installed. Do not touch the two buttons that appear with this message.
   Machine edition may be corrupted. Do you want to download firmware?

4. Remove the card and press F8 or Exit to reset the terminal.

   When the upgrade is complete, a dialog box appears requesting you to remove the CompactFlash card from the card slot.




   Communication settings are cleared when the terminal is upgraded. If Ethernet communications is used, reconfigure the Ethernet communication settings using the values recorded when preparing the terminal.

5. Replace the .MER files that you backed up before starting the upgrade or download a new .MER file to the terminal.

6. Load the .MER file and run the project.

**TIP** You can configure your application to start automatically on power cycle under Startup Options.



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## Upgrade Firmware with a Network (Ethernet) Connection

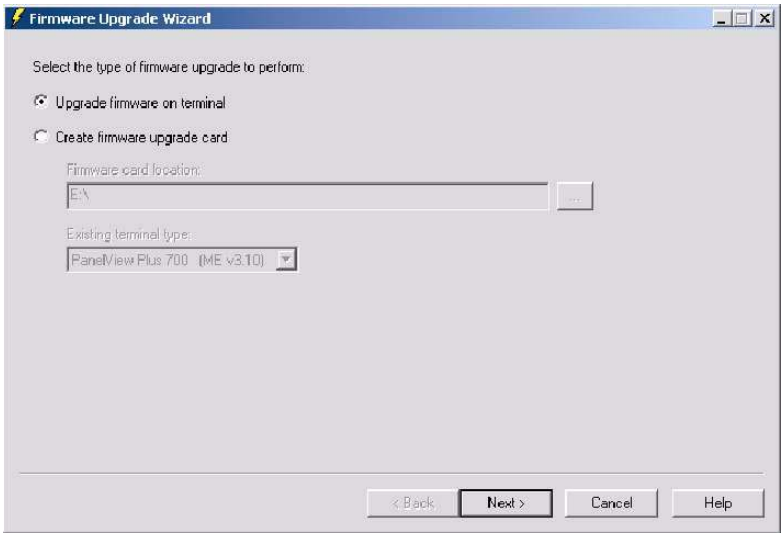
You can upgrade the firmware in a terminal that is connected to a desktop computer using a Serial, Ethernet, or Network with RSLinx Enterprise software connection.

- **Serial connection** requires a RAS connection to be set up on computer. During the RAS setup, you select the COM port.
- **Ethernet connection** requires that you enter the terminal's IP Address.
- **Network connection** requires RSLinx Enterprise software where you select the terminal on an existing network.

Both the Serial and Ethernet connection requires the File Transfer Utility running on the terminal.

This section shows how to upgrade firmware in a terminal using a Network connection via Ethernet communications.

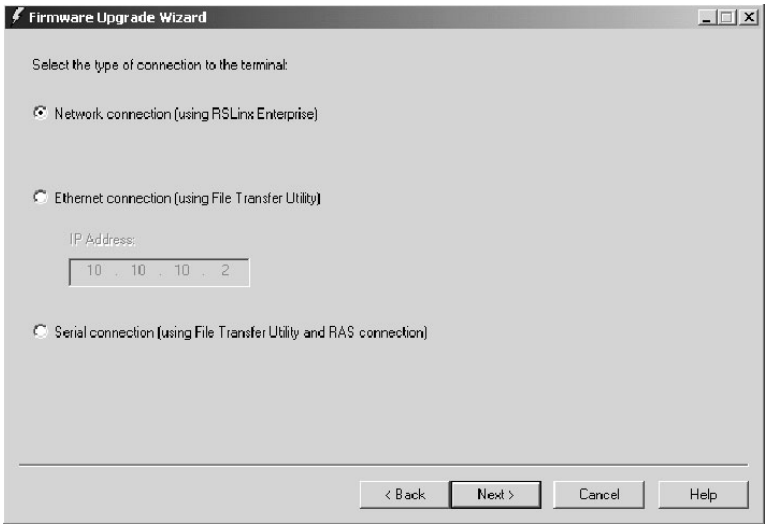
1. Start the Firmware Upgrade Wizard by selecting Start>Rockwell Software>FactoryTalk View Enterprise>Firmware Upgrade Wizard.






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2. Select Upgrade firmware on terminal and click OK.

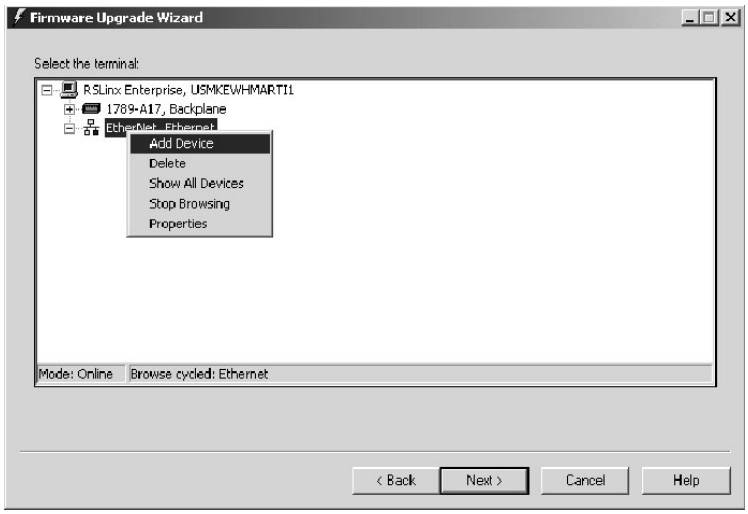



3. Select Network connection and click Next.

   Use the Ethernet and Serial connections only if the firmware upgrade is unsuccessful.

4. Locate the terminal on your Ethernet network via its IP address.

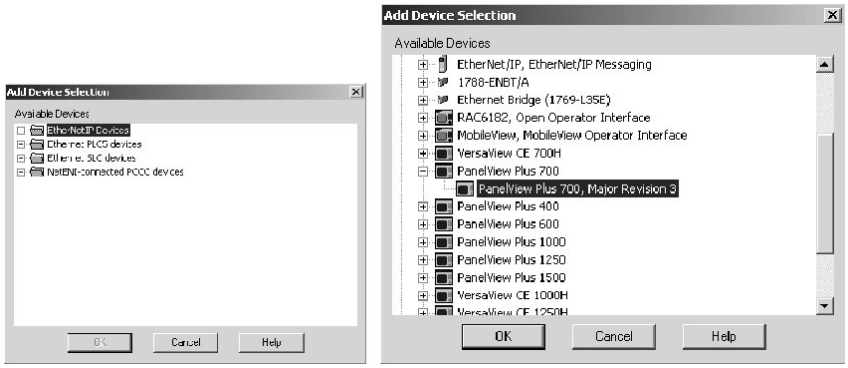
   Skip to step 6 if you found the terminal. If you do not see the terminal, right-click the Ethernet driver and add the device to the browse tree.



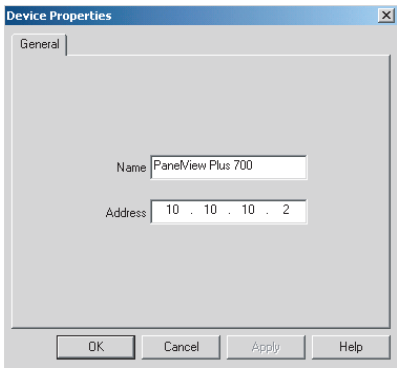



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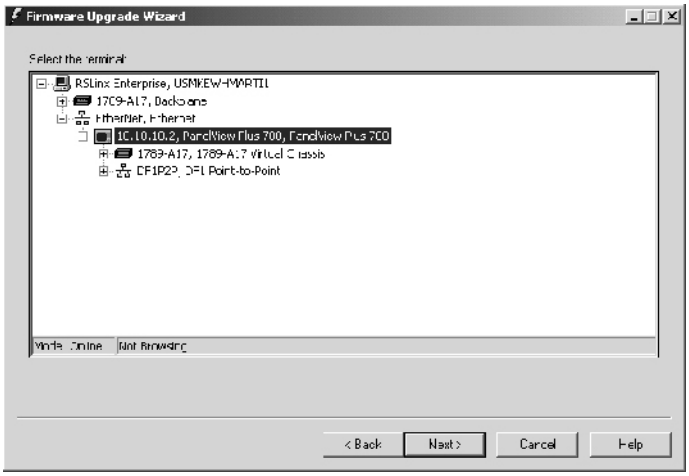
5. Double-click EthernetIP Devices and select the appropriate terminal and click OK.




6. Enter the IP address for the terminal and click OK.




7. Select the terminal to be upgraded and click OK.



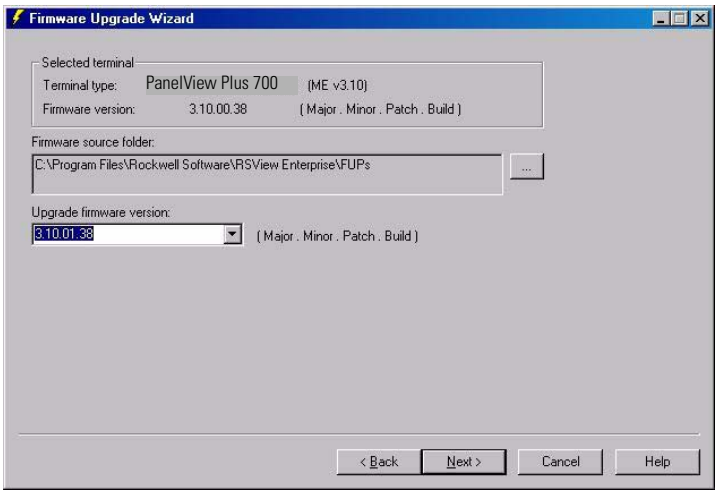



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8. From the Firmware source folder text box, select the location of the firmware files.

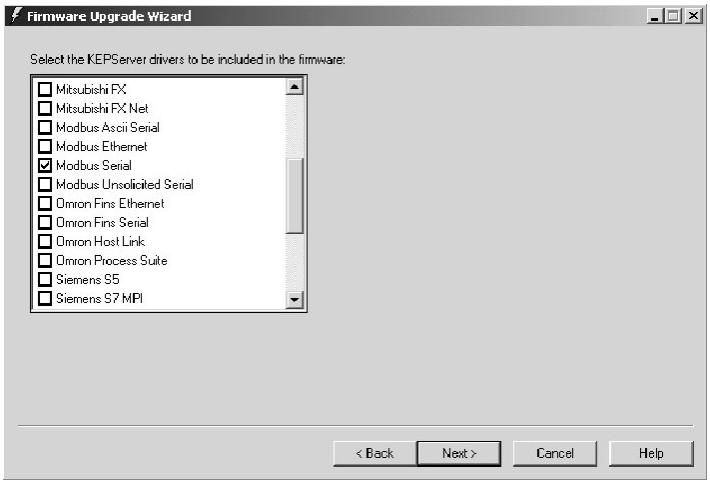
   The default location is C:\Program Files\Rockwell Software\FactoryTalk View Enterprise\FUPs.

9. From the Upgrade firmware version list, select the version of the firmware you want to upgrade to, then click Next.




10. Select the appropriate KEPServer drivers and click Next.

    If no KEPServer drivers are needed, just click Next.

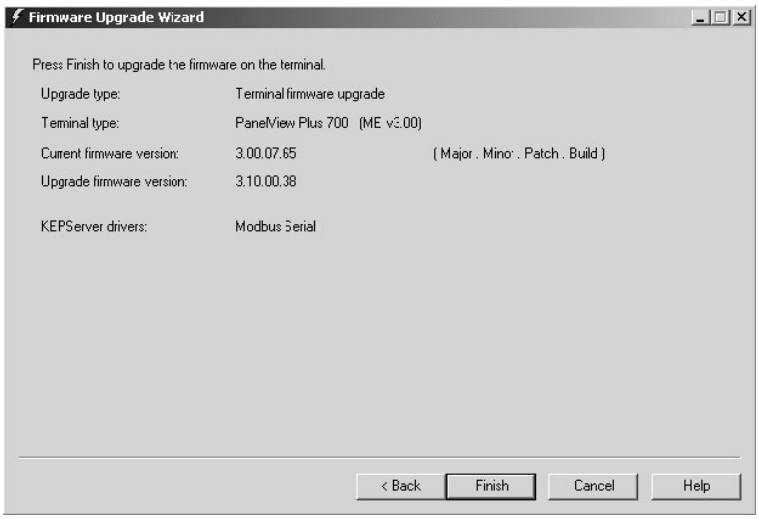



**TIP** If the selected FUP file does not support the KEPServer drivers, this dialog box will not appear.



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**11.** Click Finish to start the upgrade.



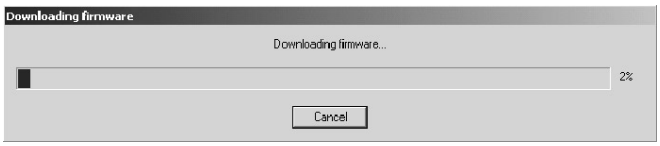

**12.** Click Yes to continue the upgrade process.

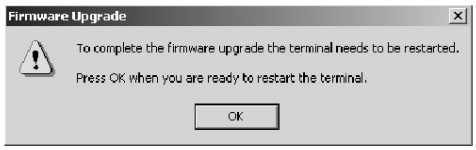
If the terminal was properly prepared for the upgrade, no applications should be running.




Firmware files are downloaded to the terminal. This may take several minutes to 15 minutes.

**13.** When the download is complete, click OK to reset the terminal.




If other terminals exist on the same Ethernet network, the following error may display:

Error registering name on network (may be duplicate). Change in system Control Panel and try again.



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Ignore this error. It will be corrected during the upgrade. Press OK to acknowledge error and wait for terminal to reset.

**TIP** If a USB mouse is available, you can acknowledge the error by selecting OK.

**14 .** On touch or touch-screen terminals, you must calibrate the touch screen by selecting pointers in all four corners of the screen and pressing the middle of the screen when prompted.

Ignore the following message if it appears. It means FactoryTalk View ME is being installed. Do not touch the two buttons that appear with the message.

Machine edition may be corrupted. Do you want to download firmware?

Communication settings are cleared when the terminal is upgraded. If Ethernet communications is used, reconfigure the Ethernet communication settings using the values recorded when preparing the terminal.

**15 .** Replace the .MER files that you backed up before starting the upgrade or download the new .MER files to the terminal.

**16 .** Load the .MER file and run the project.

**TIP** You can configure your application to start automatically on power cycle under Startup Options.



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# Upgrade the Operating System (OS)

The Operating System (OS) compressed binary image resides in a binary partition of the Internal (IDE) CompactFlash in the logic module for PanelView Plus CE terminals. There are two ways to upgrade the OS:.

- External CompactFlash card during a reboot
- LocalOSUpdate (LocalOSUpdate.exe)

## External CompactFlash Card

Follow these steps to upgrade the OS using an external CompactFlash card.

1. Copy the operating system binary file, SYSTEM.BIN, to a CompactFlash card.
   The file must be named SYSTEM.BIN.
2. Remove power from the PanelView Plus CE terminal.
3. Insert the CompactFlash card into the external card slot on the terminal.
4. Cycle power to the PanelView Plus CE terminal.
   The terminal automatically reboots with the new operating system.

## Local OS Update

1. Copy the operating system binary file to a CompactFlash card.
2. Insert the CompactFlash card into the external card slot of the PanelView Plus CE terminal.
3. At a CMD prompt on the PanelView Plus CE terminal, run:
   LocalOSUpdate <Pathname and Filename>

   **Example:** LocalOSUpdate "\Storage card2\NewOS.BIN"

   The terminal automatically reboots with the new operating system.
4. Verify the new operating system is loaded using the system application in the control panel.



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## Load PanelView Plus CE Components

You can load PanelView Plus CE Components by using an:

- ActiveSync connection.
- external CompactFlash card.

### *ActiveSync Connection*

When the new operating system is running, load the PanelView Plus CE components as follows.

1. Establish an ActiveSync connection between your computer and the PanelView Plus CE terminal, using either a serial or Ethernet connection (Ethernet is recommended).
   Refer to page 191.

2. Open the PanelView Plus CE Install Utility folder on the PanelView Plus CE Accessory CD and run the InstallFromActiveSync.exe program.

   This program lets you select which features to install and automatically copies the files from the CD to the PanelView Plus CE terminal. You must run the program from its directory to make sure the program locates all the files correctly.

3. Select the desired components from the list of available components.

   Use the **>>** button to install everything.
   Once installed, components can be optionally removed to free space in the \Storage Card folder.

4. When satisfied with the selections, click Install/Remove.

   Depending on the options selected and the speed of your ActiveSync connection, the download process may take several minutes.
   For a serial ActiveSync connection at 19.2 Kbps, the download time can be 30 minutes. When the download is complete, you will see the number of files copied or deleted.

5. Restart the PanelView Plus CE terminal.



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### *External CompactFlash Card*

When the new operating system is running, load the PanelView Plus CE components as follows.

1. Open the PanelView Plus CE Install Utility folder on the PanelView Plus CE Accessory CD and copy the following to an FAT formatted CompactFlash card:
   - InstallFromStorageCard.exe
   - pvplusceinstall.ini
   - Storage Card File folder
2. Insert the CompactFlash card into the external card slot on the terminal.
3. Using Windows Explorer, browse the \Storage Card folder and run InstallFromStorageCard.exe.
4. Select the desired components from the list of available components.

   Use the **>>** button to install everything.
   Once installed, components can be optionally removed to free space in the \Storage Card folder.
5. When satisfied with the selections, click Install/Remove.

   When the operation is complete, you will see a message box reporting the number of files installed (or removed).
6. Restart the PanelView Plus CE terminal.



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# Troubleshoot the System

## Chapter Objectives

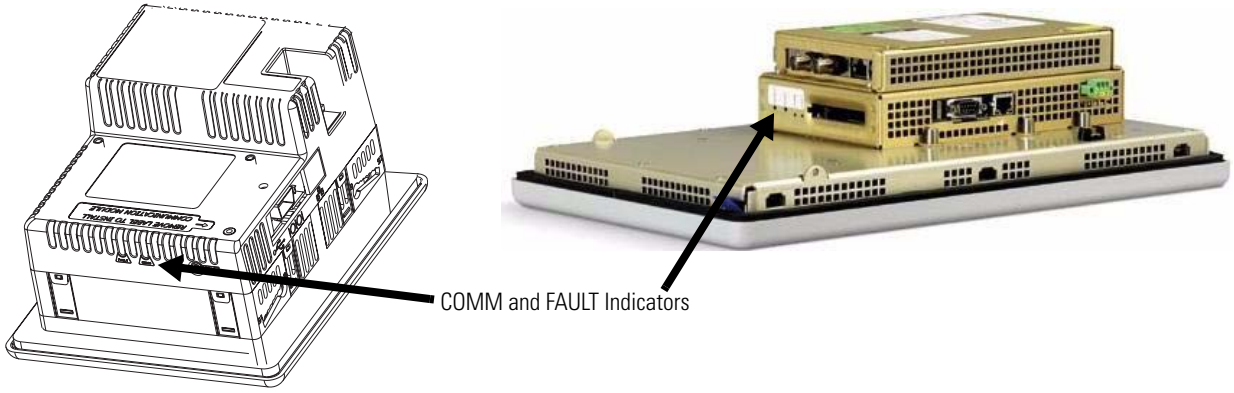
This chapter provides information on how to isolate and correct common operating problems with system components.

- Status indicators
- Isolate the problem
- Startup error messages
- Startup information messages
- Startup sequence
- Check terminal components
- Ethernet connection
- Application does not run
- File system errors
- System identification errors
- Configuration mode access
- Restart in safe mode

## Status Indicators

The terminals have two status indicators to isolate operating problems.

- COMM indicator (green) for communication
- FAULT indicator (red) for hardware faults






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# Isolate the Problem

This section provides general troubleshooting information to assist you when trying to isolate problems.

## Check for Adequate Power

A terminal that does not receive adequate power could result in unpredictable behavior. Refer to Appendix A, Specifications, for power requirements.

## Check Indicators at Startup

After a successful startup, both status indicators on the terminal are off and controlled by the application running on the terminal.

When the terminal starts, the fault (red) indicator should be off except for a few brief flashes, and the comm (green) indicator on.

- If the indicators on the 700 to 1500 terminals remain off, the power supply or logic module has failed. Check the power cable. If the power is not within range, replace the power supply. If the power is within range, replace the logic module.
- If the indicators on the 400 and 600 terminals remain off, check the power cable.

**Indicator States If Terminal Stops During Startup**

| Fault (Red) Indicator | Comm (Green) Indicator | Description |
|---|---|---|
| Blinking (1) | Off | Last firmware download failed.<br>Reload firmware using Firmware Upgrade Wizard (FUW) utility. |
| | Blinking | EBC boot loader firmware failed or is missing.<br>Reload firmware using Firmware Upgrade Wizard (FUW) utility. |
| | On | Windows CE OS firmware failed or is missing.<br>Reload firmware using Firmware Upgrade Wizard (FUW) utility. |
| On (2) | Off | Fatal hardware error occurred.<br>For the 700 to 1500 terminals, replace the logic module.<br>For the 400 or 600 terminals, replace the terminal. |
| | Blinking | Fatal hardware error in display.<br>For the 700 to 1500 terminals, replace the display module.<br>For the 400 or 600 terminals, replace the terminal. |

(1) Blinking red indicates a recoverable error.

(2) Solid red indicates a nonrecoverable or fatal error.



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## Check the Startup Messages for Errors

Record any error message that displays during startup. Refer to Startup Error Messages on page 211.

## Check Voltages and Temperatures

On the 700 to 1500 terminals, check the battery voltage and the display temperature.

- Enter Configuration mode and select Terminal Settings>System Information>Terminal Information.
- For PanelView Plus CE terminals, you can also open the Hardware Monitor control panel application.

The battery voltage must be at least 2.75V DC. Replace the battery if the voltage is less than 2.75V DC.

The display temperatures should be less than 55 °C (131 °F). The CPU temperature should be less than 95 °C. If the temperatures are higher, check for obstructed airflow in the chassis and attempt to moderate the ambient temperatures within the enclosure and surroundings.

## Check the System Event Log

Check the system event log for errors or unexpected reboots.

- Enter Configuration mode and select Terminal Settings>System Event Log.
- For PanelView Plus CE terminals, you can also open the Hardware Monitor control application and select the Event Log tab.



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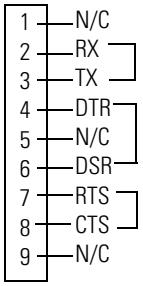
## Perform Extended Diagnostics

Use extended diagnostics on the 700 to 1500 terminals to perform more extensive hardware testing at startup.

- Enter Configuration mode and select Terminal Settings>Startup Tests>Select Tests.
- For PanelView Plus CE terminals, you can also open the Extended Diagnostics control panel application.

Select one or more of the tests you want to run. Enable extended diagnostics and set the iteration or repeat count. Restart the terminal. The serial port test requires a loopback connector with these connections.

**DB9 Connector (female)**




Extended diagnostics are performed at every startup until disabled. A failure will momentarily halt startup and display an error message.



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## Startup Information Messages

Startup messages display in a specific sequence on the terminal during startup and typically display for a few seconds. These messages indicate the startup sequence of the terminal, but do not require that you perform any action.

| Message # | Displayed Message | Description |
|---|---|---|
| 37 (1) | Video Initialized | Configures and initializes the graphics video system. |
| 30 | Watchdog Test | Tests the watchdog circuitry to verify system integrity. |
| 1 | RAM Test | Tests the RAM memory. |
| 31 (1) | Stuck Key | Checks the integrity of the function key hardware. |
| 31.5 (1) | Stuck Touch | Checks the integrity of the touch screen hardware. |
| 32 (1) | Battery Test | Checks the integrity of the battery hardware. |
| 2.5 (1) | Registry Search | Locates and loads the most recent, valid registry. Multiple copies of the registry are maintained. If power is lost during a registry update, a valid registry is available the next time power is applied to the terminal. |
| 2 | Image Search | Checks for new OS firmware upgrade on the external CompactFlash card and the serial port. |
| 11 (2) | Downloading Image | Downloads a new OS firmware upgrade to internal RAM. Message may remain on screen for several minutes. |
| 50 (1) | External CF | Transfers a new OS firmware upgrade from the external CompactFlash card to the terminal. Message may display for several minutes. |
| 20 (2) | Transfer Image | Programs the OS firmware just downloaded into RAM. Message may remain on screen for several minutes. |
| 23 (1) | Internal CF | Programs the OS firmware just downloaded into the internal flash memory. Message may display for several minutes. |
| 24 | CRC Check | Checks the integrity of the OS firmware. |
| 27 (2) | Decompress System | Decompresses the compressed OS firmware into RAM. |
| 28 | Starting System | Launches the operating system (OS). |
| 29 | System Check ### | Checks internal file system integrity (### is percent progress indicator). |
| 29.1 | System Check | Disables internal file system integrity check. Contact technical support. |

(1) The status number and message displays only on the 700 to 1500 terminals.

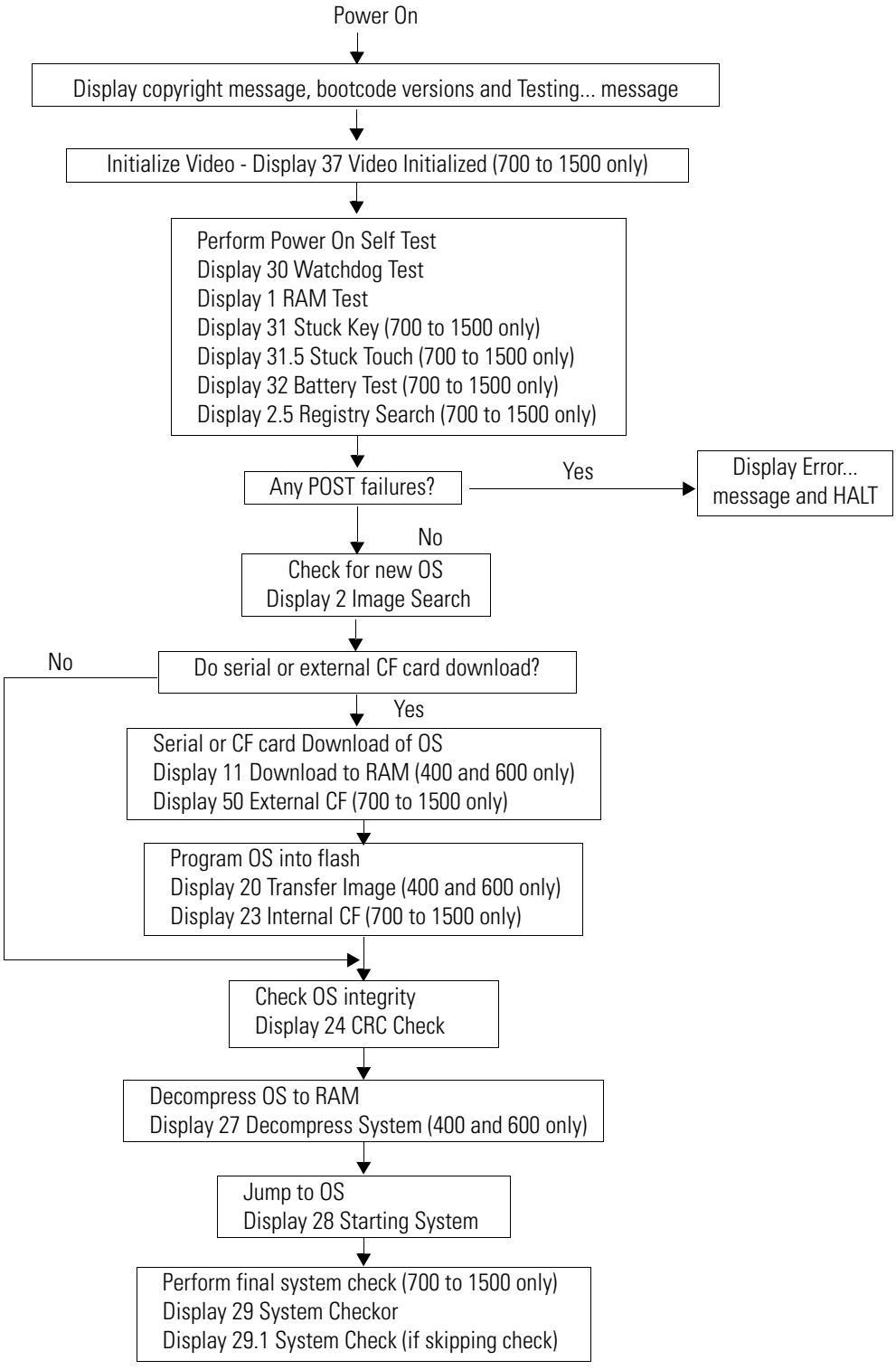
(2) The status number and message displays only on the 400 and 600 terminals.



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## Startup Sequence

This flow chart provides a sequence of startup operations for the terminal and shows system information messages that are displayed on the terminal.






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## Startup Error Messages

When an error occurs, the terminal displays the error number with a text message. The word ERROR! appears under this line in different languages.

| # | Displayed Message |
|---|---|
| | ERROR! FEHLER! ERREUR! ERRORE! |

| Error # | Displayed Message | Description | Recommended Corrective Action |
|---|---|---|---|
| 1 | RAM Test | RAM Test failure | Reset the terminal.<br>400 and 600: If error persists, replace the terminal.<br>700 to 1500: If error persists, reseat the SO-DIMM RAM module. If error still persists, replace the logic module. |
| 14 (1) | RAM Header Check | OS firmware that is downloading is not compatible with hardware. | Check that you are using the correct version and type of firmware upgrade. Reset the terminal and upgrade with the correct firmware version. |
| 20 (1) | Transfer Image | Programming the downloaded OS firmware into flash failed. | Reset the terminal and attempt the firmware upgrade again. If error persists, replace the terminal. |
| 23 | Download Task (1) | OS firmware that is downloading to the terminal is too large. | Check that you are using the correct version and type of firmware upgrade. Reset the terminal and upgrade with the correct firmware version. |
| | Internal CF (2) | Error programming the new OS firmware to internal CompactFlash. | Reload the firmware. If error persists, replace the internal CompactFlash. If error still persists, replace the logic module. |
| 24 | CRC Check | Checksum of the OS firmware failed. | Reload the firmware.<br>400 and 600: If error persists, replace the terminal.<br>700 to 1500: If error persists, replace the internal CompactFlash card. If error still persists, replace the logic module. |
| 25 (1) | Invalid Prod Family | OS firmware that is downloading is not compatible with terminal. | Check that you are using the correct version and type of firmware upgrade. Reset the terminal and upgrade with the correct firmware version. |
| 27 (1) | Decompress System | Error decompressing the OS firmware from flash to RAM. | Reload the firmware. If error persists, replace the terminal. |
| 30 | Watchdog Test | Watchdog test failure | Reload the firmware.<br>400 and 600: If error persists, replace the terminal.<br>700 to 1500: If error persists, replace the logic module. |
| 31 | Stuck Key | Function key failure | Check that nothing is pressed against a key. Reset the terminal without key presses. If error persists, replace display module. |
| 31.5 (2) | Stuck Touch | Touch screen failure | Check that nothing is pressed against the touch screen. Reset the terminal without touch screen presses. If error persists, replace the display module. |
| 32 (2) | Battery Test | Battery failure | Replace the battery. If error persists, replace the logic module. |
| 33.5 (2) | NVRAM Access | Nonvolatile memory failure | Upgrade the system firmware to revision 3.10.03 or later. |
| 3a (1) | Stuck Touch | Touch screen failure | Check that nothing is pressed against the touch screen. Reset the terminal without touch screen presses. If error persists, replace the terminal. |
| 40 | EXE Check | System OS firmware is missing or corrupt. | Reload the firmware.<br>400 and 600: If error persists, replace the terminal.<br>700 to 1500: If error persists, replace the internal CompactFlash card. If error still persists, replace the logic module. |
| 50 (2) | External CF | Error loading the OS firmware from the external CompactFlash card. | Reload the firmware. If error persists, replace the external CompactFlash card and attempt the firmware upgrade again. |

(1) The error number and message displays only on the 400 and 600 terminals.

(2) The error number and message displays only on the 700 to 1500 terminals.



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## Check Terminal Components

This section provides tips on how to isolate problems with the display, touch screen, keypad, attached keyboard, or mouse. If you are unable to resolve the problem, replace the display.

### Resolve Problems with Display

| Symptom | Recommended Action [1] | Page |
|---|---|---|
| The display is dim or unreadable. | Check the brightness setting on 700 to 1500 displays.<br>• Enter Configuration mode and select Terminal Settings>Display>Display Intensity.<br>• On PanelView Plus CE devices, you can also open the Display control panel application and select the Backlight tab. | 82<br>131 |
| | Check the contrast setting on 400 or 600 grayscale terminals.<br>• Enter Configuration mode, and select Terminal Settings>Display>Display Contrast. | 82 |
| The backlight is turning off or dimming the display unexpectedly. | Check the screen saver settings.<br>• Enter Configuration mode and select Terminal Settings>Display>Screen Saver.<br>• On PanelView Plus CE devices, you can also open the Display control panel application and select the Screen Saver tab. | 83<br>131 |
| A startup error appears during startup. | Record the message and check the startup error messages table. | 213 |

[1] If you are unable to resolve the problem, replace the display.

### Resolve Problems with Touch Screen

| Problem | Recommended Action [1] | Page |
|---|---|---|
| The touch screen is not operating correctly. | Calibrate the touch screen.<br>• Enter Configuration mode and select Terminal Settings>Input Devices>Touch Screen>Calibration.<br>• On PanelView Plus CE devices, you can also open the Touch control panel application and select the Calibration tab.<br>The calibration requires four user screen touches. When the touches do not converge to a satisfactory calibration, you are asked repeatedly for additional screen touches; the calibration process never terminates.<br><br>A touch screen that does not calibrate is not present or not functioning properly. Replace the 700 to 1500 display module or the 400 to 600 terminal. | 88<br>126 |
| The display may not have a touch screen. | Check the catalog number of the unit. Verify that your terminal has a touch screen by looking at the label on the terminal. | |



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| Problem | Recommended Action [1] | Page |
|---|---|---|
| The screen cursor is not visible. | Verify that the cursor is enabled.<br>• Enter Configuration mode and select Terminal Settings>Input Devices>Touch Screen>Cursor.<br>• In PanelView Plus CE, open the Display control panel application and select the Cursor tab. | 89<br>131 |
| The touch screen does not accept touch input. | Attach a USB mouse to check whether the problem is with the touch screen or the application.<br>• If the mouse works, but the touch screen does not, then the touch driver or touch screen is not functioning properly.<br>• If both the mouse and the touch screen are not working, then it is an application problem. | |
| Touch input and dragging is inaccurate. The touch screen is present and working but requires calibration. | Calibrate the touch screen.<br>• Enter Configuration mode and select Terminal Settings>Input Devices>Touch Screen>Calibration.<br>• On PanelView Plus CE devices, you can also open the Touch control panel application and select the Calibration tab. | 88<br>126 |

[1] If you are unable to resolve the problem, replace the 700 to 1500 display module or bezel.

### Resolve Problems with Keypad

| Problem | Recommended Action [1] | Page |
|---|---|---|
| The hold-off delay may be longer than expected or multiple key presses might be inhibited by multi-key lockout.<br><br>Home, End, Page Up or Page Down are not supported when single key or multi-key lockout is enabled. | Check keypad settings.<br>• Enter Configuration mode and select Terminal Settings>Input Devices>Keypad.<br>• On PanelView Plus CE devices, you can also open the Keypad control panel application. | 87<br>129 |
| The keypad is not accepting key input. | Check the key input by attaching a USB keyboard.<br>• If the keyboard works, but the keypad does not, then the keypad driver or keypad is not working.<br>• If both the keypad and keyboard are not working, then the problem may be the application. | |
| Keys on the keypad of a PanelView Plus CE terminal are not mapped correctly. | Check the keypad mapping.<br>• You can remap or disable the keys on the PanelView Plus CE terminal can using the Keypad Configuration Utility (KCU). Use the KCU to check the current keypad configuration.<br>• Restart in Safe mode to use the default keypad mappings. | |
| On PanelView Plus CE terminals, problems with keypad input may be the fault of the application. | On PanelView Plus CE terminals only:<br>• Press a key outside the application such as an edit box in the shell. If the keypad works outside the application, then the application is at fault.<br>• Press Ctrl+Esc simultaneously to open the Start menu, cursor to run, type numbers and viewable characters into the Run dialog. | |

[1] If you are unable to resolve the problem, replace the 700 to 1500 display module.



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### Resolve Problems with Mouse

| Problem | Recommended Action | Page |
|---|---|---|
| The mouse is not operating correctly. | Check the USB cable and connection. Detach and then reattach the mouse. Cycle power to the terminal. | |
| The screen cursor may not be visible or the mouse settings may need adjusting. | Check if the screen cursor is disabled:<br>• Enter Configuration mode and select Terminal Settings>Input Devices>Touch Screen>Cursor.<br>• For a PanelView Plus CE terminal, you can also open the Display control panel application.<br>Check the mouse settings.<br>• Enter Configuration mode and select Terminal Settings>Input Devices>Mouse.<br>• For a PanelView Plus CE terminal, you can also open the Mouse control panel application. | 89<br>130<br>87<br>129 |
| The mouse is a keyboard/mouse USB composite device. | Attach a standalone USB mouse. | |
| The USB mouse may not be working or noncompliant. | Replace the USB mouse. Try a different model or manufacturer. If attaching a new mouse resolves the problem, then the old mouse was not working or noncompliant.<br>Refer to Appendix B for a list of valid USB devices that are compatible with the terminal. You can also check the Knowledgebase at http://support.rockwellautomation.com for a list of USB compatible devices. | 229 |

### Resolve Problems with Keyboard

| Problem | Recommended Action | Page |
|---|---|---|
| The keyboard does not work. | Check the USB cable and connector. Detach and reattach the keyboard. Verify a good connection. Cycle power to the terminal. | |
| Keyboard keys may not be enabled as expected. | Check for enabled Alt-Ctrl keys.<br>• Enter Configuration mode and select Terminal Settings>Input Devices>Keyboard. | 86 |
| The keyboard is not accepting key input. | Check the key input using the keypad.<br>• If the keypad works, but the keyboard does not, then the keyboard driver or keyboard is not working.<br>• If both the keypad and keyboard are not working, then the problem is probably with the application. | |
| On PanelView Plus CE terminals, problems with keyboard input may be the fault of the application. | On PanelView Plus CE terminals only:<br>• Press a key outside the application such as an edit box in the shell. If the keypad works outside the application, then the application is at fault.<br>• Press Ctrl+Esc simultaneously to open the Start menu, cursor to run, type numbers and viewable characters into the Run dialog. | |
| The keyboard is a keyboard/mouse USB composite device. | Attach a standalone USB keyboard. | |
| The USB keyboard may not be a compliant device. | Replace the USB keyboard. Try a different model or manufacturer. If a new keyboard resolves the problem, then the old keyboard was probably noncompliant.<br>Refer to Appendix B for a list of valid USB devices that are compatible with the terminal. You can also check the Knowledgebase at http://support.rockwellautomation.com for a list of compatible USB devices. | 229 |



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## Ethernet Connnection

This section provides tips on how to isolate Ethernet problems.

- **Check the status indicators at the Ethernet connector.** Green indicates a communication link and should be ON. Amber indicates data activity and should be flashing. Verify that there is a connection to the hub.
- **Check the cable connections and quality of cable.** Check for good connections and things such as quality, crimping, hub connection, and uplink ports.
- **Check the IP Address of the Built-in Ethernet Controller.** Enter Configuration mode and select Terminal Settings>Networks and Communications>Network Connections>Network Adapters. In PanelView Plus CE, open the Network and Dial-up Connections control panel application

  If DHCP is enabled, the device expects a valid IP address to be acquired within a several seconds after startup. The TCP/IP protocol automatically assigns 169.254.nnn.nnn when it fails to acquire an IP address from the server. In general, an IP address that begins with 169 will not support a network connection.

  A bad Ethernet connection and the absence of a valid IP address are typically reported in a Communication error message box with the Winsock critical error 10065 - No route to host.

- **Check for conflicting IP addresses**. If DHCP is not enabled, make sure the IP address you specify is not in conflict with the address of another device on the network.
- **Check the device name of the terminal**. Do not allow devices on the network with same host name. Enter Configuration mode and select Terminal Settings>Communications and Networks>Network Connections>Device Name. In PanelView Plus CE, open the System control panel application
- **Contact your Network Administrator to check peer or server settings**. The other side of the Ethernet connection may also be a problem.
- **Use the network utilities Ping.exe and Ipconfig.exe (CE Terminals only)**
- **Check the requirements of network applications (CE Terminals only).** Network applications may have specific requirements such as Proxy Settings for Internet Explorer and Ethernet Configuration for ActiveSync. In PanelView Plus CE, open the Communications control panel application.
- **Check the multi-homed devices (CE terminals only).** Multi-homed (more than one Ethernet node) devices have the same issues as those above but with more potential for confusion and ambiguity. Keep the Network connections as simple as possible.



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## Application Does Not Run

If the PanelView Plus application does not start, there may be a problem with the .MER FactoryTalk View ME file. Check for a startup screen and compatible version.

If a PanelView Plus application does not run on the terminal, there may be a problem with the FactoryTalk View ME application. Verify that a startup screen was configured and that the runtime file is a compatible version.

If a PanelView Plus CE application does not run at startup, try to run the application manually. If the application runs manually, then the operating system may be starting up with an invalid shortcut path. Check the shortcuts in the folder:

\Storage Card\Windows\StartUp

Check the syntax of each shortcut path in the Startup folder and verify that a valid target application exists.

Check that the application is not missing components or required DLLs. Remove and reload the application.

## Configuration Mode Access

To access Configuration mode while an application is running, your FactoryTalk View ME application must contain a screen with a Goto Configure Mode button. When the application is running, you can press this button to access Configuration mode.

If a running application does not contain a Goto Configure Mode button, you can access configuration mode during startup.

1. Restart the terminal.
   The terminal goes through its startup sequence and will display a white box in the lower left corner of the display.
2. On touch screen terminals, press the white box.
   On keypad terminals, press the F1 key.

   The terminal enters Configuration Mode.

**TIP** If the terminal is configured to enter Configuration mode at startup and does not, then reload the firmware.



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## File System Errors

The file system on PanelView Plus CE terminals is checked at startup and errors are reported in a message box. Record the error information and always elect to correct the problem. Typically, the message box will reappear until the error is corrected.

File system errors are rare and can usually be corrected. The most common cause of lost clusters and file/directory size mismatches within a FAT file system is an unexpected power outage while writing to the file system. Always stop applications before removing power so that data is cleanly flushed out to the file system and the file system is brought to an orderly stop.

Although the FactoryTalk View ME application runs from RAM, applications such as data and event logging, and historical trending, write to flash memory and should be stopped before removing power.

## Advanced Diagnostics for CE Terminals

Ping and ipconfig are invaluable for network debugging along with some knowledge of IP and the Winsock error codes.

- Try to ping the destination host.
- Check the destination address.
- Check whether you have a router configured in your network system (your WinSock implementation).
- Use the tracert command at the command prompt on the desktop to try and determine where the failure occurs along the route between your host and the destination host.
- Some utility programs are distributed on the Accessories CD. Others can be developed using the software development kit (SDK).
- Take advantage of alternate connectivity - mouse versus touch screen, keyboard versus keypad, serial communication, and alternate Ethernet connections.
- Enable the crash logger and examine the EXCEPTIONS.LOG file from the PanelView Plus CE terminal when suspecting an operating system or application crash.
- Store the current operating system on an external CompactFlash card. You can then use this card to update the terminal in case the operating system is out-of-date or corrupted.
- Store Autorun.exe utilities on an external CompactFlash card that can be easily run by inserting the card in the external CompactFlash card slot of the terminal.
- Know useful keyboard shortcuts so that you can navigate around the system without a mouse or touch screen.



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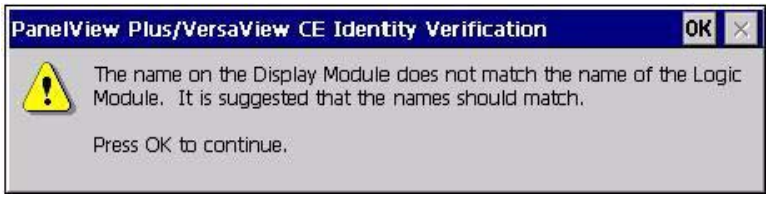
- Check the event log in the Hardware Monitor control panel application or under Terminal Settings>System Event Log in Configuration mode. Look for error conditions or reasons for unexpected reboots.
- Check the configuration settings in the PanelView Plus CE control panel applications or terminal Configuration mode.

## System Identification Errors

The error messages in this section appear on startup if incorrect or invalid components are used with the 700 to 1500 terminals.

**TIP** Terminals manufactured after January 2007 switch displays without displaying the following error messages.

- This dialog appears if a PanelView Plus CE logic module is attached to a PanelView display module. We recommend that you use a PanelView Plus CE display module with a PanelView Plus CE logic module. This is a warning letting you continue to operate.




- This dialog appears if the PanelView Plus logic module contains a 2711P-RW*x* internal CompactFlash card for the PanelView Plus CE terminal.




After pressing OK, you will be asked to power off the terminal and insert a valid 2711P-RW*x* internal CompactFlash card for the PanelView Plus terminal.

- This dialog appears if the PanelView Plus CE logic module contains a 2711P-RW*x* internal CompactFlash card for the PanelView Plus terminal.

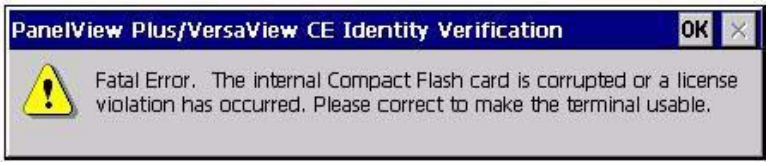





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After clicking OK, you will be asked to power off the terminal and insert a valid 2711P-RW*x* internal CompactFlash card for the PanelView Plus CE terminal.

- This dialog appears if the internal CompactFlash in the PanelView Plus logic module is corrupt. This is a fatal error.




After clicking OK, you will be asked to power off the terminal and insert a valid 2711P-RW*x* internal CompactFlash card.

## Restart in Safe Mode

On PanelView Plus CE terminals, use the default switch with the reset switch to start the terminal in Safe mode. This diagnostic mode reduces the system to a known state that permits recovery from a software problem. Safe mode ignores all user changes to the system and avoids any problems that are due to interactions with end-user software or changes. Once the system is running in Safe mode, you can repair the offending applications or changes that caused the problem.

When the PanelView Plus CE terminal is restarted in Safe mode, the following occurs:

- The Persistent Registry is ignored and the Default Registry is used. The Persistent Registry is restored at the next reboot unless the Default Registry is saved (flushed), in which case it becomes the new Persistent Registry.
- The \Windows\Startup folder is ignored, inhibiting most startup actions. All user applications that launch automatically at startup are shortcuts in the \Startup folder.
- Depending on the state of the system, the touch screen may be calibrated at startup.
- All custom key configurations (mappings) generated by the Keypad Configuration Utility (KCU) are ignored.



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The switches that control safe mode are on the right side of the logic module above the CompactFlash card slot.

Follow these steps to restart in Safe mode.

1. Insert a thin probe into the hole marked default and press the switch.
2. Insert the probe into the hole marked reset and press the switch.

   The system will restart immediately into the Safe mode.

If you restart the PanelView Plus terminal in safe mode:

1. The default operating system registry is loaded.
2. The operating system boots but FactoryTalk View ME software is not started.
3. The operating system displays the ME may be corrupt diagnostic screen.

   Disregard this message. FactoryTalk View ME software is not corrupt; it has not been loaded on this boot cycle.
4. The next time you reset or power up the terminal, the system will start normally and run FactoryTalk View ME software.

**TIP** Safe mode indicates that the terminal passes all startup self tests and can successfully launch the operating system. Safe mode is not a diagnostic function for the FactoryTalk View ME application.



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# Maintenance

## Chapter Objectives

This chapter provides information on the following topics:

- Clean the display
- Disposal information

## Clean the Display Window

Use a protective antiglare overlay for easier cleaning of the display window.

**ATTENTION**



Use of abrasive cleaners or solvents may damage the display. Do not scrub or use brushes.

Follow these steps to clean the display window.

1. Disconnect power from the terminal at the power source.
2. Use a clean sponge or soft cloth with a mild soap or detergent to clean the display.
3. Dry the display with a chamois or moist cellulose sponge to avoid water spots.

Remove fresh paint splashes and grease before drying by rubbing lightly with isopropyl alcohol (70% concentration). Afterward, wash using a mild soap or detergent. Rinse with clean water.

## Disposal Information

This section contains disposal information for the backlight assembly and the lithium battery in the 400 and 600 terminals.

### Backlight Assembly Disposal

**ATTENTION**



The backlight assembly of 600 to 1500 terminals contains mercury. At the end of its life, this equipment should be collected separately from any unsorted municipal waste.



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## Battery Removal

The lithium battery in the 400 and 600 is non-replaceable and should be removed only at the end of product life.



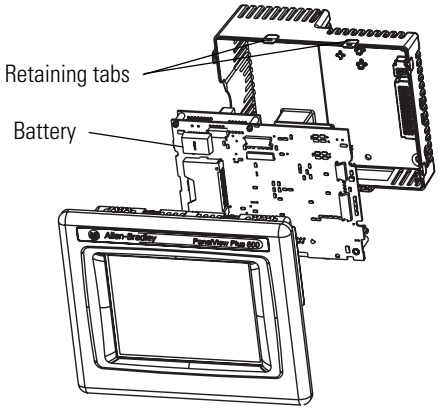
This product contains a hermetically sealed lithium battery which is permanently connected and should be removed only by trained professionals.

At the end of its life, the battery contained in this product should be collected separately from any unsorted municipal waste.

The collection and recycling of batteries helps protect the environment and contributes to the conservation of natural resources as valuable materials are recovered.

Follow these steps to remove the battery on the 400 and 600 terminals.

1. Disconnect power from the terminal.
2. Place the terminal, display side down, on a flat stable surface.
3. Detach the communication module, if attached, from the logic module by removing the three screws.
4. Unlatch the eight retaining tabs (two on each side) on the back cover and remove cover.
5. Locate the yellow battery on the logic board.
6. Remove the battery.




For information on battery replacement or removal for 700 to 1500 terminals, see Replace the Battery on page 153.



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# Specifications

## Electrical

| Attribute | Value |
|---|---|
| 400 and 600<br>Input voltage, DC<br>Power consumption, DC<br>700 to 1500<br>Input voltage, DC<br>Power consumption, DC | <br>24V DC nom (18…30V DC)<br>25 W max (1.0 A at 24V DC)<br><br>24V DC nom (18…32V DC)<br>70 W max (2.9 A at 24V DC)<br>39 W typical (1.6A @ 24V DC) |
| 400 and 600<br>Input voltage, AC<br>Line frequency<br>Power consumption, AC<br>700 to 1500<br>Input voltage, AC<br>Line frequency<br>Power consumption, AC<br>Remote power 700 to 1500 (2711P-RSAC)<br>Input voltage, AC<br>Line frequency<br>Power consumption, AC | <br>85…264V AC<br>47…63 Hz<br>60V A max<br><br>85…264V AC<br>47…63 Hz<br>160V A max, 65 VA typical<br><br>85…264V AC<br>47…63 Hz<br>120V A max |
| PCI slot max available power<br>Supply, DC<br>Supply, AC | <br>11 W<br>5 W |

## Environmental

| Attribute | Value |
|---|---|
| Temperature, operating | 0…55 °C (32…131 °F) |
| Temperature, non-operating | -25…70 °C (-13…158 °F) |
| Heat dissipation<br>400 and 600<br>700 to 1500 | <br>85 BTU/hr<br>240 BTU/hr |
| Relative humidity | 5…95% without condensation |
| Altitude, operating | 2000 m (6561 ft) |
| Shock, operating | 15 g at 11 ms |
| Shock, nonoperating | 30 g at 11 ms |



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| | |
|---|---|
| Vibration | 10…57 Hz, 0.012 pk-pk displacement<br>57…500 Hz, 2 g pk acceleration |
| Enclosure Ratings | NEMA Type 12, 13, 4X (Indoor use only), IP54, IP65 |
| Airborne Contaminants | For PVP/PVP-CE conformal-coated PCBA level products:<br>ANSI/ISA S71.04 - 1985 Severity Level G3<br>EN60654-4:1998 Class 3 |

# Display

| Attribute | Value |
|---|---|
| Display type<br>400 and 600 grayscale<br><br>400…1500 color | <br>Grayscale passive matrix, film compensated super-twist nematic (FSTN)<br>Color active matrix, thin-film transistor (TFT) with liquid crystal display (LCD) |
| Display size, diagonal<br>400 grayscale<br>400 color<br>600<br>700<br>1000<br>1250 and 1250 high-bright<br>1500 | <br>3.8 in.<br>3.5 in.<br>5.5 in.<br>6.5 in.<br>10.4 in.<br>12.1 in.<br>15.0 in. |
| Display area (WxH)<br>400 grayscale<br>400 color<br>600 grayscale and color<br>700<br>1000<br>1250 and 1250 high-bright<br>1500 | <br>77 x 58 mm (3.0 x 2.3 in.)<br>71 x 53 mm (2.8 x 2.1 in.)<br>112 x 84 mm (4.4 x 3.3 in.)<br>132 x 99 mm (5.2 x 3.9 in.)<br>211 x 158 mm (8.3 x 6.2 in.)<br>246 x 184 mm (9.7 x 7.2 in.)<br>304 x 228 mm (12.0 x 9.0 in.) |
| Resolution<br>400 grayscale and 400 color<br>600<br>700<br>1000<br>1250 and 1250 high-bright<br>1500 | <br>320 x 240<br>320 x 240<br>640 x 480<br>640 x 480<br>800 x 600<br>1024 x 768 |
| Luminance (typical)<br>400 grayscale<br>400 color<br>600<br>700 to 1500<br>1250 high-bright | <br>120 cd/$m^2$ Nits<br>200 cd/$m^2$ Nits<br>300 cd/$m^2$ Nits<br>300 cd/$m^2$ Nits<br>1000 cd/$m^2$ Nits |



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| | |
|---|---|
| Backlight<br>400<br>600…1500<br>1250 High-bright | <br>LED<br>CCFL 50,000 hours life, min.<br>Backlight not replaceable |
| Touch screen<br>Actuation rating<br>Operating force | Analog resistive<br>1 million presses<br>10…110 g |
| Keypad function keys(1)<br>Actuation rating<br>Operating force | Function keys, numeric and navigation<br>1 million presses<br>340 g |

(1) Number of function keys varies by terminal size.

## Mechanical

| Attribute | Value |
|---|---|
| Weight, approx., HxWxD (for base unit without modules) | |
| 400 keypad(1) or keypad and touch | 562 g (1.24 lb) |
| 600 keypad or keypad and touch(1) | 930 g (2.05 lb) |
| 600 touch(1) | 789 g (1.74 lb) |
| 700 keypad or keypad and touch | 1.9 kg (4.2 lb) |
| 700 Touch | 1.7 kg (3.8 lb) |
| 1000 keypad or keypad and touch | 2.9 kg (6.3 lb) |
| 1000 touch | 2.6 kg (5.7 lb) |
| 1250 keypad or keypad and touch | 3.4 kg (7.6 lb) |
| 1250 touch and 1250 high-bright touch | 3.2 kg (7.1 lb) |
| 1500 keypad or keypad and touch | 4.6 kg (10.0 lb) |
| 1500 touch | 4.2 kg (9.3 lb) |
| Dimensions, approx. HxWxD (for base unit without communication module) | |
| 400 keypad or keypad and touch | 152 x 185 x 90 mm (6.0 x 7.28 x 3.54 in.) |
| 600 keypad or keypad and touch | 167 x 266 x 98 mm (6.58 x 10.47 x 3.86 in.) |
| 600 touch | 152 x 185 x 98 mm (6.0 x 7.28 x 3.86 in.) |
| 700 keypad or keypad and touch | 193 x 290 x 55 mm (7.58 x 11.40 x 2.18 in.) |
| 700 touch | 179 x 246 x 55 mm (7.04 x 9.68 x 2.18 in.) |
| 1000 keypad or keypad and touch | 248 x 399 x 55 mm (9.77 x 15.72 x 2.18 in.) |
| 1000 touch | 248 x 329 x 55 mm (9.77 x 12.97 x 2.18 in.) |
| 1250 keypad or keypad and touch | 282 x 416 x 55 mm (11.12 x 16.36 x 2.18 in.) |
| 1250 touch | 282 x 363 x 55 mm (11.12 x 14.30 x 2.18 in.) |
| 1250 touch High-bright | 282 x 363 x 74 mm (11.12 x 14.30 x 2.90 in.) |
| 1500 keypad or keypad and touch | 330 x 469 x 65 mm (12.97 x 18.46 x 2.55 in.) |
| 1500 touch | 330 x 416 x 65 mm (12.97 x 16.37 x 2.55 in.) |

(1) Add approximately 95 g (0.21 lb) for communication module.



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# General

| Attribute | Value |
|---|---|
| Battery life<br>400 and 600<br>700 to 1500 | <br>5 years min. at 25 °C (77 °F)<br>4 years min. at 25 °C (77 °F) |
| Clock | Battery-backed, +/-2 minutes per month |
| LED indicators | COMM (Green), Fault (Red) |
| Application flash memory<br>400 and 600, series A<br>400 and 600, series B or later<br>700 to 1500 logic modules, series A to D<br>700 to 1500 logic modules, series E or later<br>2711P-RW1<br>2711P-RW2<br>2711P-RW3<br><br>700-1500 CE logic modules, series E or later<br>2711P-RW6<br>2711P-RW7<br>2711P-RW8 | <br>5 MB<br>10 MB<br>20 MB<br><br>26 MB<br>72 MB<br>195 MB<br><br><br>80 MB<br>203 MB<br>446 MB |
| External CompactFlash storage | 512 MB max |

# Agency Certifications

| Certifications [1] | Value |
|---|---|
| c-UL-us | UL Listed Industrial Control Equipment, certified for use in US and Canada. See File E10314.<br>UL Listed Industrial Control Equipment for use in:<br>• Class I, Div 2, Group A, B, C, D<br>• Class I, Zone 2, Group IIC [2]<br>• Class II, Div 2 Groups F, G<br>• Class III Hazardous Locations |
| CE (EMC) | European Union 2004/108/EC Directive, compliant with:<br>EN 61000-6-2; Industrial Immunity<br>EN 61000-6-4; Industrial Emissions |
| CE (LVD) | European Union 2006/95/EC Low Voltage Directive, compliant with:<br>EN 61131-2; Programmable Controllers |
| C-Tick | Australian Radiocommunications Act, compliant with:<br>AS/NZS CISPR 11; Industrial Emissions |
| Marine [1] | Products identified with the suffix M in the catalog number, are certified to the requirements of one or more marine societies. |

[1] See the Product Certification link on http://ab.com for declarations of conformity, certificates, and other certification details.

[2] Applies only to the 1250 high-bright display module.



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# Compatible USB Devices

The following table provides a list of compatible USB devices that can be used on the USB ports of the terminals.

| Device | Vendor | Model | PanelView Plus 700 to 1500 | PanelView Plus 400 and 600 |
|---|---|---|---|---|
| USB Keyboard | Rockwell Automation | Cat. No. 6189-KBDEPU1U | Yes | Yes |
| | Ortek | MCK-600USB | Yes | Yes |
| | Dell | RT7D10 | Yes | Yes |
| USB Keyboard/Mouse | Rockwell Automation | Cat. No. 6189-KBDEPC1U | Yes | No |
| USB Mouse | Logitec | Optical Mouse - M-BJ58 | Yes | Yes |
| | Microsoft | Intellimouse D58-00026 | Yes | Yes |
| | Atek | USB Mouse | Yes | No |
| | VersaView (Rockwell Automation) | USB Mouse | Yes | Yes |
| USB Hub | Belkin | USB 4-Port Hub - ESU021 | Yes | Yes |



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# Available Fonts for Terminal Applications

The following fonts are pre-installed on PanelViewPlus terminals:

- True Type fonts (scalable)
  - Tahoma.ttf (proportional)
  - Courier.ttf (fixed width)
  - Arial.ttf (proportional)
- 23 fonts of various sizes migrated from PanelView Standard and PanelView e terminals (various sizes)

To simplify the creation and downloading of .mer application files on these devices, use the above list of fonts when developing screens in FactoryTalk View Studio software.

Additional fonts are available in FactoryTalk View Studio software when developing application screens.

- If the font used to develop screens is not available on the target device, the closest font is selected.
- If bold or italics is used, and a separate bold or italics font is unavailable, then the target operating system will use an algorithm to produce these affects.

In either case, the device screens will look different than they do in FactoryTalk View Studio software.

## Download Fonts to Terminal

To use additional fonts on a PanelView Plus device, copy any of the font files on the PanelView Plus CE Accessories CD or the Machine Editions Fonts CD to this directory on the computer where FactoryTalk View Studio software is installed:

c:\Documents and Settings\All Users\Documents\RSView Enterprise\ME\Runtime

You can now use the File Transfer Utility in FactoryTalk View Studio software to download the font files to the target device.

1. Select Tools>Transfer Utility.
2. Select Source File>True Type Fonts.
3. Select a font file to download to the device and press the Download button.

## PanelView Plus CE Accessories CD

The following True Type fonts are included on the PanelView Plus CE Accessories CD:

- Times New Roman.ttf
- Symbol.ttf
- Wingdings.ttf

This CD is not supplied with PanelView Plus terminals.



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## Machine Edition Fonts CD

Additional fonts are available on the Machine Edition Fonts CD. This CD is available from your local distributor by requesting View-SP006.

For additional information, refer to the Rockwell Automation Knowledgebase at http://support.rockwellautomation.com.

**Available Fonts**

| Fonts | File Name | Size (Bytes) |
|---|---|---|
| Arial | | |
| Arial (Subset 1_30) | arial_1_30.ttf | 153,720 |
| Arial Black | arialk.ttf | 117,028 |
| Arial Bold | arialbd.ttf | 288,496 |
| Arial Bold Italic | arialbi.ttf | 226,748 |
| Arial Italic | ariali.ttf | 207,808 |
| Comic Sans MS | | |
| Comic Sans MS | comic.ttf | 126,364 |
| Comic Sans MS Bold | comicbd.ttf | 111,476 |
| Courier New | | |
| Courier New (Subset 1_30) | cour_1_30.ttf | 162,460 |
| Courier New Bold | courbd.ttf | 312,920 |
| Courier New Bold Italic | courbi.ttf | 236,148 |
| Courier New Italic | couri.ttf | 245,032 |
| Georgia | | |
| Georgia | georgia.ttf | 149,628 |
| Georgia Bold | georgiab.ttf | 141,032 |
| Georgia Bold Italic | georgiaz.ttf | 159,736 |
| Georgia Italic | georgiai.ttf | 157,388 |
| Impact | impact.ttf | 136,076 |
| Kino | kino.ttf | 28,872 |
| MSLogo | mslogo.ttf | 2,500 |
| Symbol | symbol.ttf | 69,464 |
| Tahoma | | |
| Tahoma (Subset 1_07) | tahoma_1_07.ttf | 123,980 |
| Tahoma Bold | tahomabd.ttf | 295,432 |
| Times New Roman | | |
| Times New Roman (Subset 1_30) | times_1_30.ttf | 184,976 |
| Times New Roman Bold | timesbd.ttf | 334,944 |
| Times New Roman Bold Italic | timesbi.ttf | 239,692 |
| Times New Roman Italic | timesi.ttf | 248,368 |



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| Fonts | File Name | Size (Bytes) |
|---|---|---|
| Trebuchet MS | | |
| Trebuchet MS | trebuc.ttf | 69,688 |
| Trebuchet MS Bold | trebucbd.ttf | 66,444 |
| Trebuchet MS Bold Italic | trebucbi.ttf | 66,348 |
| Trebuchet MS Italic | trebucit.ttf | 72,560 |
| Verdana | | |
| Verdana | verdana.ttf | 149,752 |
| Verdana Bold | verdanab.ttf | 137,616 |
| Verdana Bold Italic | verdanaz.ttf | 154,800 |
| Verdana Italic | verdanai.ttf | 155,076 |
| Webdings | webdings.ttf | 118,752 |
| Wingding | wingding.ttf | 81,000 |
| Chinese (Simplified) Locale Specific Support | | |
| Simsun & NSimSun | | |
| Simsun & NSimSun | simsun.ttc | 10,500,400 |
| Simsun & NSimSun (Subset 2_50) | simsun_2_50.ttc | 3,051,024 |
| Simsun & NSimSun (Subset 2_60) | simsun_2_60.ttc | 3,578,692 |
| Simsun & NSimSun (Subset 2_70) | simsun_2_70.ttc | 6,975,948 |
| Simsun & NSimSun (Subset 2_80) | simsun_2_80.ttc | 8,116,188 |
| Simsun & NSimSun (Subset 2_90) | simsun_2_90.ttc | 9,066,640 |
| SC_Song | sunfon.ttf | 4,686,044 |
| Chinese (Traditional) Locale Specific Support | | |
| *MingLiU & PMingLiU (Choose 1)* | | |
| MingLiU & PMingLiU | mingliu.ttc | 8,822,400 |
| MingLiU & PMingLiU (Subset 2_70) | mingliu_2_70.ttc | 4,786,488 |
| MingLiU & PMingLiU (Subset 2_80) | mingliu_2_80.ttc | 5,772,700 |
| MingLiU & PMingLiU (Subset 2_90) | mingliu_2_90.ttc | 7,354,808 |
| MSMing | msming.ttf | 3,172,552 |
| Japanese Locale Specific Support | | |
| MS Gothic | | |
| MS Gothic & P Gothic & UI Gothic | msgothic.ttc | 8,272,028 |
| MS Gothic & P Gothic & UI Gothic (Subset 1_50) | msgothic_1_50.ttc | 4,456,536 |
| MS Gothic & P Gothic & UI Gothic (Subset 1_60) | msgothic_1_60.ttc | 6,057,400 |
| MS Gothic & P Gothic & UI Gothic (Subset 1_70) | msgothic_1_70.ttc | 3,795,500 |
| MS Gothic & P Gothic & UI Gothic (Subset 1_80) | msgothic_1_80.ttc | 5,438,776 |
| MS Gothic & P Gothic & UI Gothic (Subset 1_90) | msgothic_1_90.ttc | 6,408,352 |
| MS Gothic & P Gothic (Subset 30) | msgothic30.ttc | 4,197,524 |
| MS Gothic & P Gothic (Subset 30_1_19) | msgothic30_1_19.ttc | 3,304,056 |



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| Fonts | File Name | Size (Bytes) |
|---|---|---|
| Korean Locale Specific Support | | |
| GL_CE | gl_ce.ttf | 4,130,084 |
| Gulim & GulimChe (Choose 1) | | |
| Gulim & GulimChe (Subset 1_30) | gulim_1_30.ttc | 3,010,268 |
| Gulim & GulimChe (Subset 1_40) | gulim_1_40.ttc | 4,683,896 |
| Gulim & GulimChe (Subset 1_50) | gulim_1_50.ttc | 7,128,756 |
| Gulim & GulimChe (Subset 1_60) | gulim_1_60.ttc | 9,360,100 |



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# Programmable Key Definitions

The tables in this appendix shows the Windows virtual key code mapping of each programmable function key on the PanelView Plus CE terminal.

| Function Key | Virtual Key Mapping | Function Key | Virtual Key Mapping |
|---|---|---|---|
| F1 | VK_F1 | K1 | RA + VK_F1 |
| F2 | VK_F2 | K2 | RA + VK_F2 |
| F3 | VK_F3 | K3 | RA + VK_F3 |
| F4 | VK_F4 | K4 | RA + VK_F4 |
| F5 | VK_F5 | K5 | RA + VK_F5 |
| F6 | VK_F6 | K6 | RA + VK_F6 |
| F7 | VK_F7 | K7 | RA + VK_F7 |
| F8 | VK_F8 | K8 | RA + VK_F8 |
| F9 | VK_F9 | K9 | RA + VK_F9 |
| F10 | VK_F10 | K10 | RA + VK_F10 |
| F11 | VK_F11 | K11 | RA + VK_F11 |
| F12 | VK_F12 | K12 | RA + VK_F12 |
| F13 | LS + VK_F1 | K13 | RS + VK_F1 |
| F14 | LS + VK_F2 | K14 | RS + VK_F2 |
| F15 | LS + VK_F3 | K15 | RS + VK_F3 |
| F16 | LS + VK_F4 | K16 | RS + VK_F4 |
| F17 | LS + VK_F5 | K17 | RS + VK_F5 |
| F18 | LS + VK_F6 | K18 | RS + VK_F6 |
| F19 | LS + VK_F7 | K19 | RS + VK_F7 |
| F20 | LS + VK_F8 | K20 | RS + VK_F8 |
| F21 | LS + VK_F9 | K21 | RS + VK_F9 |
| F22 | LS + VK_F10 | K22 | RS + VK_F10 |



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The following table provides the Windows virtual-key code mapping for the Alt, Control, and Shift keys on the PanelView Plus CE terminal.

**Alt, Control, and Shift Key Mapping**

| Keyboard Equivalent | Virtual Key Mapping |
|---|---|
| Control | VK_LCONTROL |
| Shift | VK_LSHIFT |
| Alt | VK_LMENU |



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# Security Considerations

Ports 137 and 138 are normally open to support the NetBIOS protocol used by Windows CE.NET similar to other Microsoft and IBM network operating systems.

Port 80 is open when the Web server is optionally installed from the PanelView Plus extensions. Otherwise, Port 80 is normally closed.

The FTP server permits a remote computer to run arbitrary commands and read/write files. The FTP server is optionally installed from the VersaView extensions. Otherwise, there is no FTP server on the system.

Simple Network Management Protocol (SNMP) is not supported.

Internet Group Management Protocol (IGMP) is used for IPv4 multicast. A multicast is communication between a single sender and multiple receivers on a network. IGMP is used to exchange membership status data between IPv4 routers that support multicasting and members of multicast groups. A router is an intermediary device on a communication network that expedites message delivery by finding the most efficient route for a message packet within a network, or by routing packets from one subnetwork to another. A subnetwork is a separate part of an organization's network identified through IP addressing.

PanelView Plus CE terminals provide level 2 (full) support for IPv4 multicasting (IGMP version 2) as described in RFC 1112 and RFC 2236.

Security requires a comprehensive application of policies and technology, and an awareness of security needs and potential vulnerabilities. You may also want to consult with Rockwell GMS Network Services for additional assistance.



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# Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its products. At http://www.rockwellautomation.com/support/, you can find technical manuals, a knowledge base of FAQs, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools.

For an additional level of technical phone support for installation, configuration, and troubleshooting, we offer TechConnect support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit http://www.rockwellautomation.com/support/.

## Installation Assistance

If you experience an anomoly within the first 24 hours of installation, review the information that's contained in this manual. You can contact Customer Support for initial help in getting your product up and running.

| | |
|---|---|
| United States or Canada | 1.440.646.3434 |
| Outside United States or Canada | Use the Worldwide Locator at http://www.rockwellautomation.com/support/americas/phone_en.html, or contact your local Rockwell Automation representative. |

## New Product Satisfaction Return

Rockwell Automation tests all of its products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs to be returned, follow these procedures.

| | |
|---|---|
| United States | Contact your distributor. You must provide a Customer Support case number (call the phone number above to obtain one) to your distributor to complete the return process. |
| Outside United States | Please contact your local Rockwell Automation representative for the return procedure. |

# Documentation Feedback

Your comments will help us serve your documentation needs better. If you have any suggestions on how to improve this document, complete this form, publication RA-DU002, available at http://www.rockwellautomation.com/literature/.

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Allen-Bradley

# PanelView Plus Terminals

# User Manual

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