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6 QuickPanel CE Hardware User’s Guide

Hardware User's Guide

6" QuickPanel CE

January 2003
GFK-2243

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The 6" QuickPanel CE has been tested and found to meet or exceed the requirements of U.S. (47 CFR 15), Canadian (ICES-003), Australian (AS/NZS 3548) and European (EN55022) regulations for Class A digital devices when installed in accordance with guidelines noted in this manual.

The FCC requires the following note to be published according to FCC guidelines:

> This equipment generates, uses and can radiate radio frequency energy and, if not installed in accordance with this instruction manual, may cause harmful interference to radio communications. It has been tested and found to comply with the limits of a Class A digital device pursuant to Part 15 of the FCC rules, which are designed to provide reasonable protection against harmful interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

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The following statements are required to appear for Class I Div 2 Hazardous Locations.

1. EQUIPMENT LABELED WITH REFERENCE TO CLASS I, GROUPS A, B, C, and D, DIV. 2 HAZARDOUS LOCATIONS IS SUITABLE FOR USE IN CLASS I, DIVISION 2, GROUPS A, B, C, D OR NON-HAZARDOUS LOCATIONS ONLY.

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

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

We want to hear from you. If you have any comments, questions, or suggestions about our documentation, send them to the following email address:
doc@gefanuc.com.

Contents

1

Welcome

Congratulations on your purchase of a QuickPanel CE, the most advanced compact control computer available. The QuickPanel CE is available in different configurations to suit your requirements, either as a full-featured HMI, or as a combination of HMI and controller for local and distributed control applications. Equally at home in a networked environment or as a stand-alone unit, the QuickPanel CE is the ideal solution for factory floor HMI and control.

Powered by Microsoft Windows CE, today's embedded control operating system of choice, the QuickPanel CE provides a fast track for application program development. The commonality with other versions of Windows simplifies porting your existing program code. Another benefit of Windows CE is the familiarity of the user interface, shortening the learning curve for operators and developers alike. The availability of third-party application software makes this operating system even more attractive.

The 6" QuickPanel CE is an all-in-one microcomputer designed for maximum flexibility. The design, based on an advanced Intel® microprocessor, brings together a high-resolution operator interface with a variety of I/O options. With many standard ports and expansion busses from which to choose, you can connect to most industrial equipment.

The QuickPanel CE is equipped with several memory types to satisfy even the most demanding applications. A 32 MB section of DRAM is split between the operating system, an object store, and application memory. A 32 MB section of non-volatile FLASH, functioning as a virtual hard drive, is divided between the operating system and persistent storage for application programs. The retentive memory consists of 512 KB of battery-backed SRAM for data storage, ensuring your valuable data will never be lost, even during a power failure.

The many features of the QuickPanel CE make it an obvious choice for a world of applications. Your smart choice will provide reliable operation for years to come.

GETTING STARTED

Basic Setup

Your 6" QuickPanel CE is shipped ready for use after a few configuration steps. To power up all you need to do is connect a DC power supply via the supplied quick-connect plug. Depending on your application, you may also want to connect and configure optional input devices (see page 25), communications ports (see page 29) and expansion adapters (see page 42).

Optional Ethernet Connection

Optional Expansion I/O

Power Supply

Optional USB Keyboard
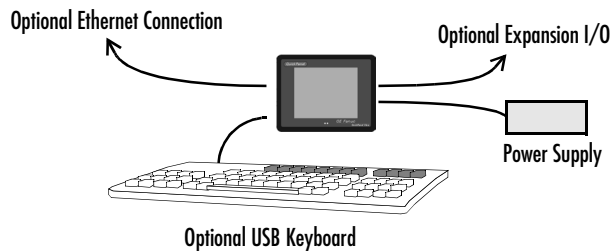
Caution: Disconnect the AC supply from your 24VDC power supply before connecting to your QuickPanel CE. Connecting a "live" power supply may result in damage to equipment and personnel.

To connect a DC power supply

1. Using the three screw terminals shown in the following diagram, attach a 24VDC, 25W power supply to the plug supplied with the QuickPanel CE.

2. Insert the plug into the power supply socket and securely tighten the attaching screws.

Bottom

Plug Top View

Power Supply Socket

Frame

Ground

+ 24 VDC
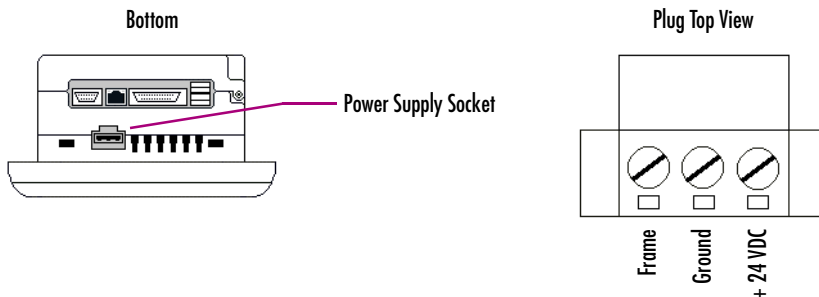
QuickPanel CE Unit Runtime Setup

To download an application to a QuickPanel CE unit, you must set up a data link between your development workstation and the QuickPanel CE unit. For more information, see "Communication Ports" (page 29) and look up "Downloading a Machine Edition Project" in the Machine Edition online help.
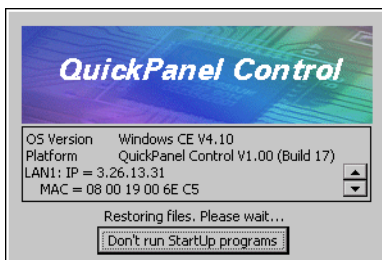
Startup

When you first start up the QuickPanel CE, a few configuration steps are necessary.

To start the QuickPanel CE

1. Apply AC power to the 24VDC supply.

   Once power is applied, the QuickPanel CE begins initializing. The first thing to appear on the display is the splash screen.

2. To skip running any programs included in the StartUp folder, tap **Don't run StartUp programs**.

   The splash screen disappears automatically after about 5 seconds. The Windows CE desktop then becomes visible.

3. Tap **Start**, point to **Settings**, then tap **Control Panel**.

4. In the Control Panel, double-tap **Display** to configure the LCD display (see page 20).

5. In the Control Panel, double-tap **Stylus** to configure the touch screen (see page 22).

6. In the Control Panel, double-tap **Date and Time** to configure the system clock (see page 49).

7. In the Control Panel, double-tap **Network and Dial-up Connections** to configure network settings (see page 39).

8. On the desktop, double-tap **Backup** to save any new settings through a power cycle (see page 13).

Shutdown

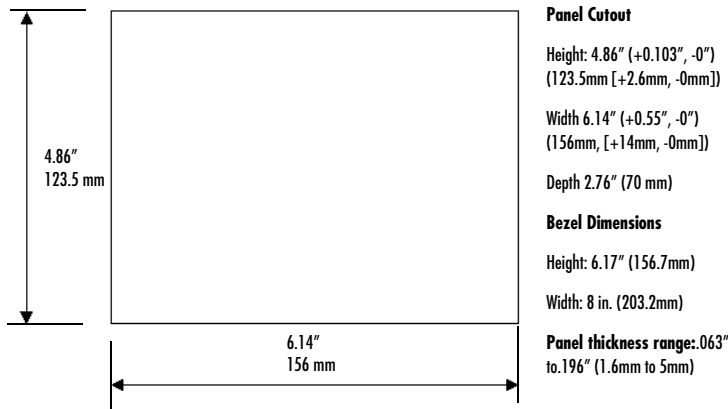There are no specific dangers associated with a power failure or other unplanned shutdown of the QuickPanel CE. In general, programs are retained in FLASH memory and user data can be retained in battery-backed SRAM. Some operating system settings are kept only with user intervention, so in order to carry out a graceful shutdown of the QuickPanel CE, we recommend you perform the following procedure.

To shut down the QuickPanel CE

1. Quit any programs that are running and wait for all file operations to complete.

2. On the desktop, double-tap ▣ **Backup** to save any operating system settings through a power cycle (see page 13) and wait for it to complete. Tap **OK**.

3. Remove AC power from the 24VDC supply.

Panel Cutout

For enclosure mounting, cut an opening in the panel according to the following specifications.

Panel Cutout

Height: 4.86" (+0.103", -0")
(123.5mm [+2.6mm, -0mm])

Width 6.14" (+0.55", -0")
(156mm, [+14mm, -0mm])

Depth 2.76" (70 mm)

Bezel Dimensions

Height: 6.17" (156.7mm)

Width: 8 in. (203.2mm)

Panel thickness range: .063"
to .196" (1.6mm to 5mm)

The unit will **not** fit through this cutout with a CF card inserted in the port, with any cables connected, or with the power supply plug inserted in the socket.

To secure the QuickPanel CE to a panel, use the four included mounting brackets. They hook into openings located on the top and bottom of the housing.

Bottom

Top
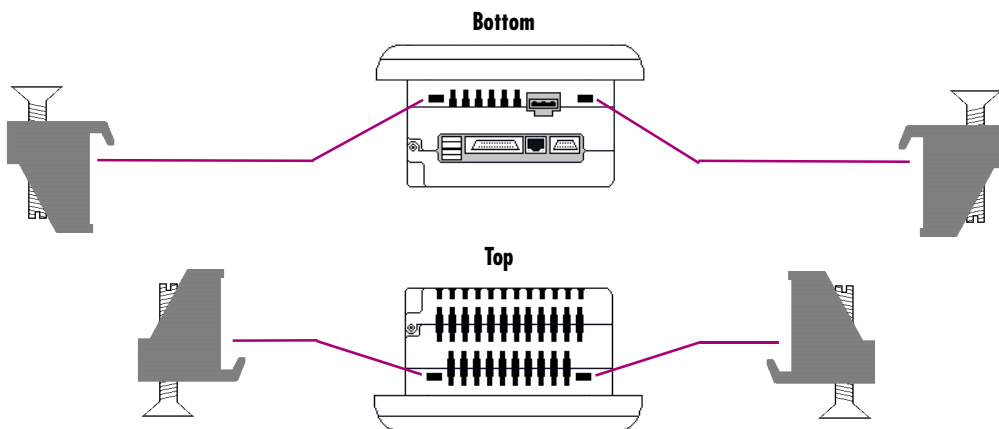
To mount the QuickPanel CE in a panel

1. Insert the unit into the panel cutout (without a CF card in the CF port).
2. Insert the hook of each mounting bracket in the housing openings as shown below.
3. Firmly tighten the screws.

    Note: The torque range for the mounting bracket screws is 2.6-4.4 inch/lbs (0.3-0.5 Nm)

    The mounting brackets hold the unit in place by tension alone. No drilling is required.
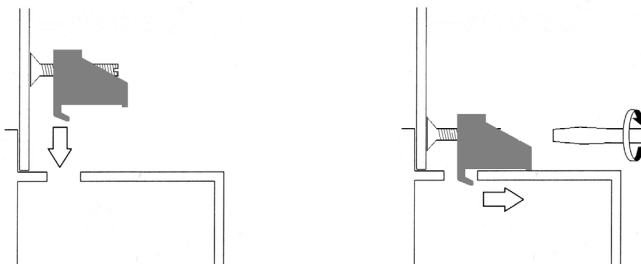
    Do not damage the gasket attached to the back of the QuickPanel CE's bezel. This gasket prevents shock hazards and damage caused by liquids accidentally entering the unit after installation.

TECHNICAL SUPPORT

If you have technical problems that cannot be resolved with the information in this guide, please contact us by telephone, fax, or email; or visit one of the links on our website:

Telephone: 1-800-GE-FANUC (1-800-433-2682)

Fax: (780) 420-2049

Email: support@gefanuc.com

Comments about our manuals or help: doc@gefanuc.com

Website: www.gefanuc.com

To access the GE Fanuc Technical Advisor page, as well as a listing of Supported Devices (USB devices, CF cards, etc.), visit: www.gefanuc.com/support/plc/bundled.asp

2

Overview

This chapter provides introductory information on the 6" QuickPanel CE hardware and software with descriptive procedures for completing some of the most common tasks you will encounter.

In this chapter:
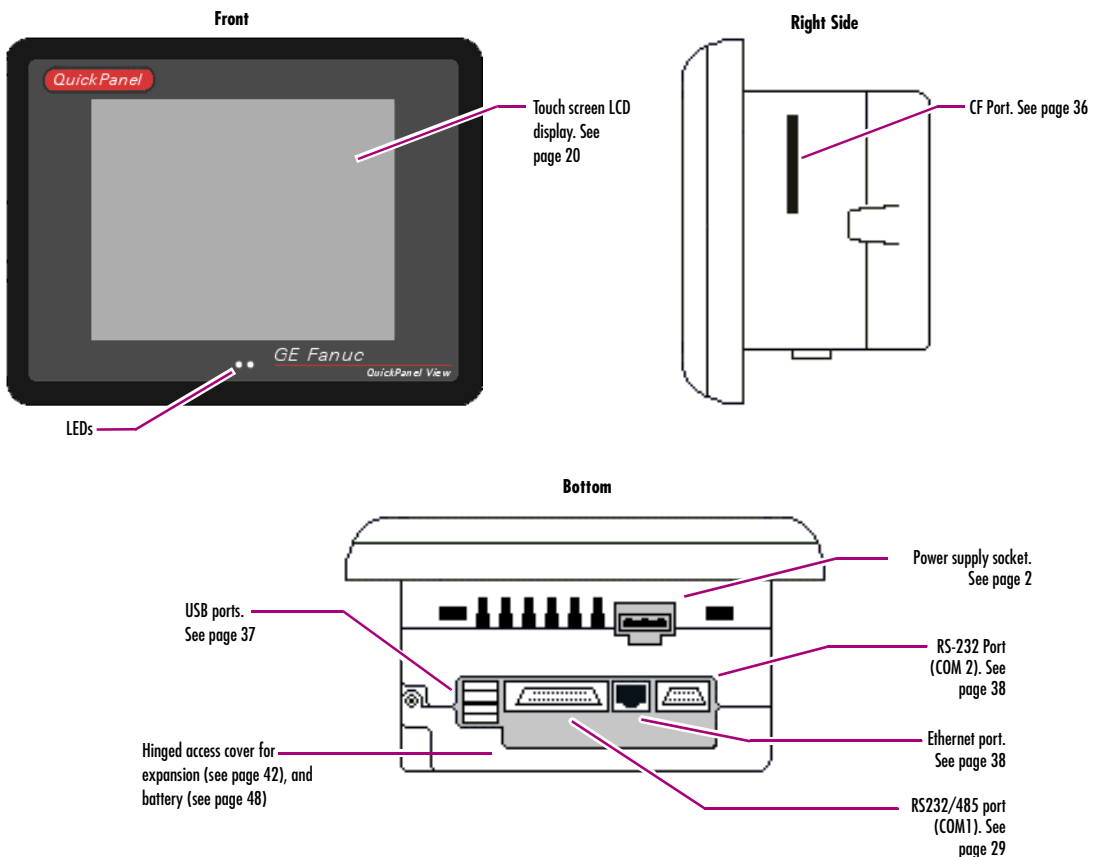
QUICKPANEL CE HARDWARE

Layout Diagram

In addition to the primary touch screen interface, the 6" QuickPanel CE supports a variety of communication ports including an expansion bus to allow great flexibility in application. The following diagram shows the physical layout of the QuickPanel CE and the locations of ports and connections

The left LED below the display glows green when power is applied and amber if the backlight fails; the right one is a tricolor (green, red, or amber), programmable LED.

Front

Right Side

Touch screen LCD display. See page 20

CF Port. See page 36

LEDs

Bottom

Power supply socket. See page 2

USB ports. See page 37

RS-232 Port (COM 2). See page 38

Ethernet port. See page 38

Hinged access cover for expansion (see page 42), and battery (see page 48)

RS232/485 port (COM1). See page 29

Not to scale

Block Diagram

The 6" QuickPanel CE is based on the Intel® XScale™ PXA250 microprocessor, and employs large-scale integration to provide high performance with a small footprint. The following block diagram illustrates the major functional areas of the QuickPanel CE and the interfaces between them.
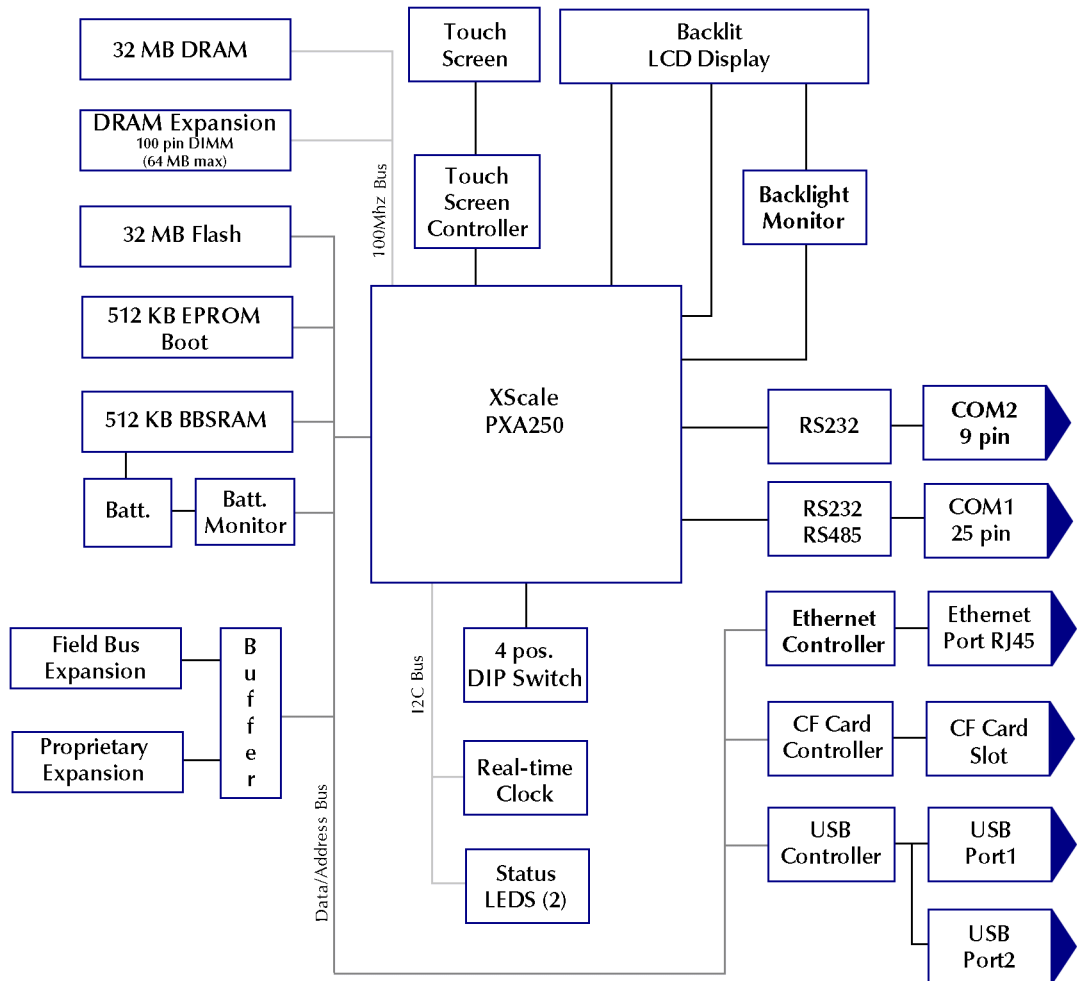
QUICKPANEL CE SOFTWARE

Windows CE.net™

Microsoft Windows CE is the operating system for the QuickPanel CE. It is a full 32-bit O/S with a graphical user interface. This operating system is finding widespread application in hand-held PCs and embedded controllers, such as the QuickPanel CE. From the user's point of view, the familiar look and feel of Windows CE shortens the learning curve for those having experience with Windows 95/98/NT/2000/ME/XP. From the software developer's perspective, the CE environment is a subset of the WIN32 application programming interface, simplifying the porting of existing software from other versions of Windows.

The QuickPanel CE operating system is stored in an 16 MB block of FLASH memory and copied to an 16 MB block of DRAM for execution. The operating system starts automatically following a power-up or reset of the QuickPanel CE.

For more on Windows CE visit **www.microsoft.com/windows/embedded/ce**.

Working with Windows CE

Although the main user input device when working with Windows CE is the touch screen, it can often be convenient to use keyboard shortcuts, such as those described in the following table.

Keyboard Shortcut	Action
CTRL+ESC or ⊞	Opens the Windows CE **Start** menu. Use arrow keys to select a program and ENTER to run it.
ALT+TAB	Starts the Task Manager. Use it to quit unresponsive programs.
CTRL+ALT+=	Starts the touch screen calibration.
SPACEBAR	Equivalent to single-tap.
ENTER	Equivalent to double-tap. In a dialog box, equivalent to **OK**.
TAB	In a dialog box, select next control.
SHIFT+TAB	In a dialog box, select previous control.
CTRL+TAB	In a tabbed dialog box, open the next tab.
ESC	Close dialog box, discarding changes.
ARROW KEYS	In a dialog box, select controls or items from a list box.

To place a program in the 🎯 Start menu

1. Start 🔍 Windows Explorer.

2. Navigate to the program you want to place in the 🎯 **Start** menu.

3. Tap the program's icon to select it.

4. From the **Edit** menu, choose **Copy**.

5. Navigate to the '\Windows\Programs\' folder.

6. From the **Edit** menu, choose **Paste Shortcut**.

7. Run the 🖥️ **Backup** program to retain the change through a power cycle (see page 13).

Pocket Internet Explorer

Microsoft's Pocket Internet Explorer is a full featured browser that is fully integrated with the Windows CE operating system. This browser allows you to connect with an internet service provider, view web pages and download from FTP sites.

Pocket Internet Explorer supports VBScript and JScript. Java support can be added from third-party sources.

A connection can be established over an Ethernet network (default) or a dial-up connection. The Ethernet or dial-up connection must be properly configured.

To configure a dial-up connection in Pocket Internet Explorer

1. Start 🌐 Pocket Internet Explorer.

2. From the **View** menu, choose **Options**.

   The **Options** dialog box appears.
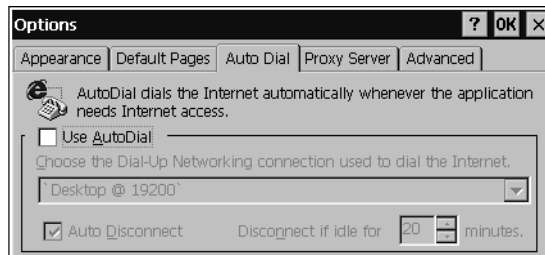
3. On the **Auto Dial** tab, select the **Use AutoDial** check box.

4. Choose either the default or a user-defined connection from the list.

5. Tap **OK**.

6. Run the 🖥️ **Backup** program to save the settings through a power cycle (see page 13).

To configure a Proxy server

1. Start Pocket Internet Explorer.

2. From the **View** menu, choose **Options**.

   The **Options** dialog box appears.
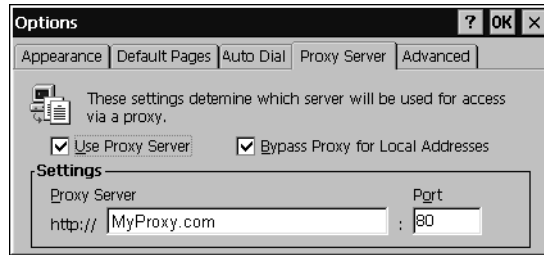
3. On the **Proxy Server** tab, select the **Use Proxy Server** check box.

4. In the **Proxy Server** box, type the URL of your proxy server (see your ISP or network administrator).

5. In the **Port** box, type the server's port number for HTTP access.

6. Select the **Bypass Proxy for Local Addresses** check box to connect directly to sites like your intranet.

7. Tap **OK**.

8. Run the **Backup** program to retain the new settings through a power cycle (see page 13).

Backup

Backup is a utility that saves any changes made to the Windows Registry or Desktop. This utility is required because, unlike typical handheld Windows CE platforms, the QuickPanel CE is not battery powered. Specifically, the Backup command does the following:

- The Windows CE registry (including any control panel settings) is stored in the Flash registry
- Any changes (additions) made to the 'Windows' subtree of the file system are stored in the user block of FLASH memory.

The **Backup** program should be run whenever configuration changes are made to the operating system or installed applications, and prior to shutting down the QuickPanel CE.

To run the Backup program

1. On the desktop, double-tap **Backup**.

   The **Backup** dialog box appears.
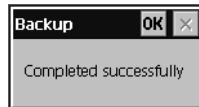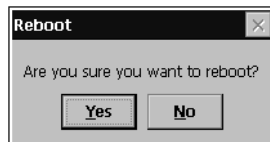

2. Tap **OK**.

To reboot the system

1. Run the **Backup** program to retain any changes.

2. Tap **Start**, point to **Programs**, then the **System** folder, and tap **Reboot** .

   A confirmation dialog box appears.

3. Tap "Yes"

   The operating system restarts.

Storage Manager

Use the Storage Manager to repair or format lost or corrupted data volumes. This is a Microsoft product for which on-line help is available. The Storage Manager is accessed from the Control Panels folder.

System Information

System Information is a custom utility that displays a splash screen with the following information:

- **Operating System version.** For example, 'Windows CE 4.10'.
- **Platform.** Identifies the host hardware, its version and build number.
- **NIC Information.** A scrollable box containing the network interface card (NIC) name, IP address, and MAC address of all active ports.
  - **NIC Name.** An identifier for the Ethernet port (e.g., 'LAN1').
  - **IP Address.** The unique address assigned to each node on a given TCP/IP network.
  - **MAC Address.** The unique address, factory assigned to each Ethernet port on the unit.

To run the System Information program

1. On the desktop, double-tap 🖽 **System Information**.

   The **System Information** splash screen appears.
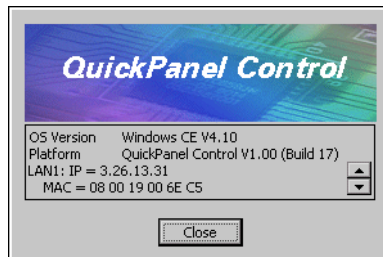
2. Tap **Close** to continue.

   Network information alone can be viewed by double-tapping the 🖧 **LAN** icon displayed on the taskbar for each connection.

Microsoft File Viewers

Included with Windows CE are applications that enable you to view files in three popular formats: Microsoft® Word, Excel, and Adobe® PDF. Each application provides online help for its use.

To access the Microsoft file viewers

1. Tap 🎯 **Start**, point to 📅 **Programs**, point to 📂 **Microsoft File Viewers**, then choose one of the following:

   - 📊 **Microsoft Excel Viewer**
   - 📄 **Microsoft PDF Viewer**
   - 📝 **Microsoft Word Viewer**

Some dialog boxes in these viewers extend beyond the edges of the screen on the 6″ model, hiding the cancel and OK buttons. Use either a connected USB keyboard or the Soft Input Panel from the taskbar to access Enter (Return) or Escape keys.

The following lists show features not supported by Microsoft File Viewers:

File Viewer Limitations

Microsoft Excel:

- Hyperlinks are not supported
- Data Tables in charts are not supported
- WordArt is not supported. Plain text will be substituted
- Surface charts. An image representing an unsupported chart will appear in the chart's location
- Certain types of 3D charts will be mapped to equivalent 2D charts
- Supported 3D charts are only shown at a fixed camera angle
- Vertical text in the worksheet is mapped to 90 degree rotated text

Microsoft Word:

- WordArt is not supported
- Hyperlinks are not supported
- Some types, styles, and groupings of AutoShapes will not appear
- Word forms for Text boxes are not supported. Elements from the form may be visible but will not be available for input

Microsoft PDF:

- Advanced features, such as PDF forms, annotations, and transitions are not supported

Copy Project to Flash Card

RestorePCCard is a custom utility for transferring CIMPLICITY™ Machine Edition™ Projects between compatible QuickPanel CE units via CF cards.

To copy a Machine Edition project from the QuickPanel CE onto a CF card

1. Ensure there is a blank CF card in the in the CF port.
2. Double tap the ✐ **Copy Project to Flash Card** icon on the desktop.
3. Tap **Yes** when the **Proceed with Copy to CF Card** confirmation dialog box appears.

The system copies the project onto the blank CF Card.

To update a Machine Edition project on the QuickPanel CE

You can update a Machine Edition project currently stored on the QuickPanel CE with a revision stored on a CF Card.

1. Insert the CF Card containing an upgraded version of the Machine Edition project in the CF port.
2. Reboot the machine (see page 13).

The QuickPanel CE automatically loads the new project from the CF Card, overwriting the old project on the machine.

3. Remove the CF Card from the slot.

HTTP File Transfer Utility

The HTTP File Transfer Utility (HFTU) is a small, standalone command line program that allows you to send and delete files to and from computers over a network. The HFTU uses the HTTP protocol, so you can even send files to computers over the Internet.

Run the HTTP utility from a command line prompt, from a batch file (.BAT) or as an application call in a script. The HTTP utility is an executable (.EXE) file included in the 6" QuickPanel CE's operating system.

The HTTP utility currently supports two file transfer commands: COPY and DELETE.

Note: In order to function, the HTTP File Transfer utility requires both computers to have web servers that support PUT functionality. (Most web servers support PUT, including the CIMPLICITY Machine Edition web server

installed with the runtimes for View and Logic Developer - PC.) If in doubt, check the documentation for your web server.
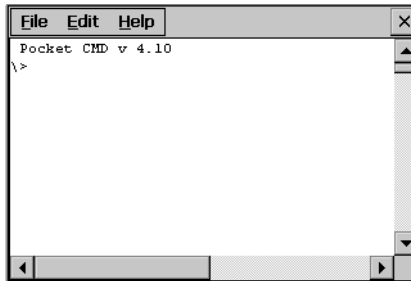
To use the HTTP utility

1. From Programs in the 🔳 **Start** menu, choose 🔲 Programs, then choose 🔳 **Command Prompt.**

   The **Command Line** editor appears.

```
File  Edit  Help                          ×
 Pocket CMD v 4.10                         ▲
\>

                                          ▼
◀                                         ▶
```

2. Type commands as required.

3. Use the following syntax:

   HTTPUTIL COPY source destination

   Where "source" is the URL of the source file, and "destination" is the URL of the destination file. For example:

   ```
   HTTPUTIL COPY \MyFile.txt http://MyServer/webfiles/MyFileBACKUP.txt
   ```

   Copies a file called MyFile.txt on drive C: of the local computer to the webfiles folder under the web server at //MyServer. Note that you can rename a file as you copy it.

   HTTPUTIL DELETE url

   Where "url" is the remote URL of the file you want to delete. This URL must use the "//" or "HTTP://" syntax. For example:

   ```
   HTTPUTIL DELETE http://MyServer/webfiles/MyFileBACKUP.txt
   ```

   Deletes a file called MyFileBACKUP.txt from the webfiles directory under the web server at HTTP://MyServer.

3

Detailed Operation

In this chapter:

TOUCH SCREEN DISPLAY

The QuickPanel CE has an integrated 18-bit flat panel display. The six inch
diagonal, back-lit panel employs TFT technology to provide a bright operator
interface. The display supports a resolution of 320 by 240 pixels (one-fourth of a
VGA display).
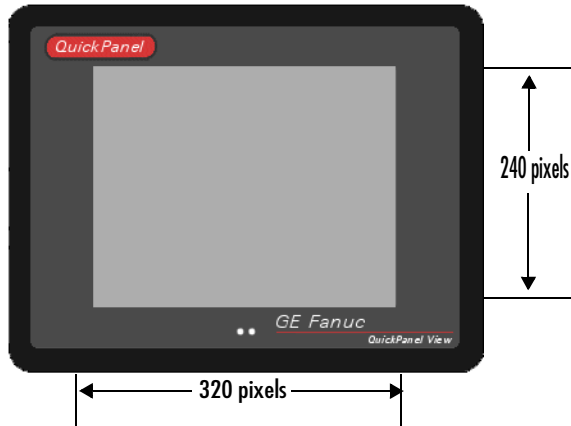
To adjust the display brightness

1. In the Control Panel, double-tap 🔧 **Display** and choose the **Brightness** tab.

   The **Brightness** dialog box appears.
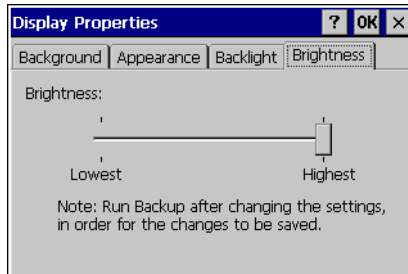
2. Drag the **Brightness** slider between Lowest and Highest.

3. Tap **OK** to exit the control panel.

4. Run the 🖥 **Backup** program to save settings through a power cycle (see page 13).

To set backlight for auto turn off

1. In the Control Panel, double-tap **Display** and choose the **Backlight** tab.

   The **Backlight** dialog box appears.
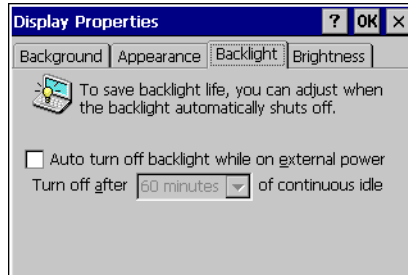
2. Select Auto turn off backlight while on external power.

3. Tap **OK** to exit the control panel.

4. Run the **Backup** program to save settings through a power cycle (see page 13).

Touch Screen

The QuickPanel CE display is coupled to a resistive touch panel with 12-bit resolution. When the QuickPanel CE is properly calibrated, this translates into a grid of touch cells on the face of the display. Although you can use your finger to actuate the touch screen, use of a blunt stylus is recommended.
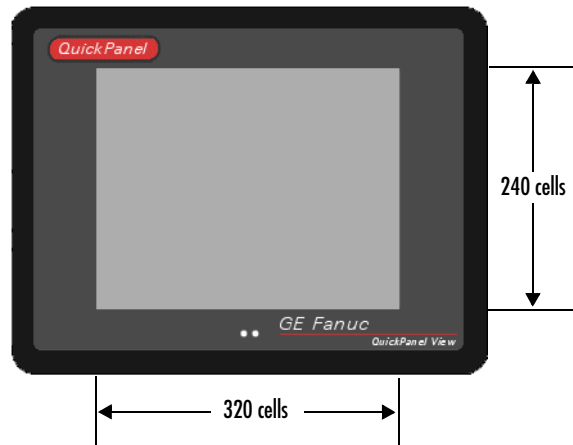
To calibrate the touch screen

1. In the Control Panel, double-tap **Stylus**.

   The **Stylus Properties** dialog box appears.
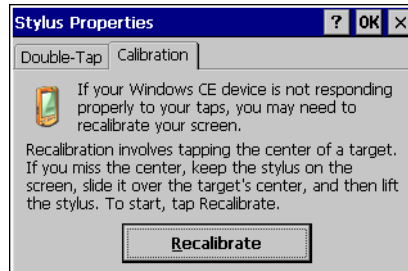
2. Choose the **Calibration** tab

3. Tap the **Recalibrate** button.

   A cross hair target is displayed.

Press and hold stylus on the center of the target.
Repeat as the target moves around the screen.
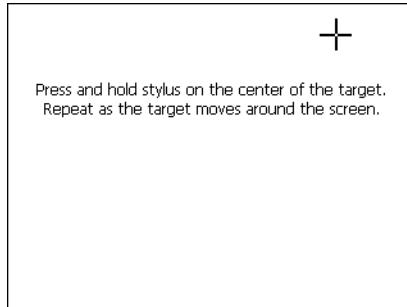
4. Follow the directions given to calibrate the touch screen.

5. Tap the screen to preserve the new setting or wait out the time limit to revert to previous settings.

New calibration settings have been measured.

Tap the screen to register saved data.
Wait to cancel and keep the current setting.

Time limit : 2 sec
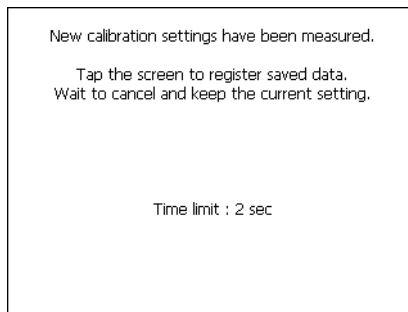
6. Run the [icon] **Backup** program to save the settings through a power cycle (see page 13).

To set the double-tap sensitivity

1. In the Control Panel, double-tap [icon] **Stylus**.

   The **Stylus Properties** dialog box appears.

Stylus Properties   ? OK ×

Double-Tap | Calibration

Double-tap this grid to set the double-tap
sensitivity for both the speed and physical
distance between taps.

Double-tap this icon to test your double-
tap settings. If this icon doesn't change,
adjust your settings using the grid above.

2. Choose the **Double-Tap** tab.

3. Double-tap the grid to enter a setting.

4. Double-tap the test icon to check the setting.

   If the test icon doesn't change when you double-tap it, double-tap the grid again.

5. Tap **OK** to finish.

6. Run the **Backup** program to save the settings through a power cycle (see page 13).

KEYBOARD

The QuickPanel CE can be configured to use either or both a hardware keyboard and a software emulation keyboard as a operator data input devices. Typically, an external hardware keyboard is used when in a development mode, while the included Soft Input Panel is more applicable in a operational environment.

External Keyboard (optional)

Any USB keyboard compatible with the QuickPanel CE can be used as an input device for the unit. The USB driver for the keyboard is included with the operating system and no setup is required. To use an external keyboard, simply plug and play.

A list of keyboards that have been tested and are compatible can be found at the following web site:

www.gefanuc.com/support/plc/bundled.asp

Soft Input Panel

The Soft Input Panel (SIP) is a touch screen version of a standard keyboard, which can be used in place of a standard hardware keyboard.

An icon in the system tray lets you view or hide the SIP.

Show Input Panel icon

🟦 Start   ⌨ ⌷ ⌸ 1:10 PM 🔵

To show/hide the Soft Input Panel

- On the system tray of the task bar, double-tap the ⌨ icon. The Soft Input Panel appears/disappears.

  Note: When the SIP is visible, it can be dragged around the screen by its title bar to reveal different parts of the screen that would be obstructed from view by the SIP.

To show/hide the ▦ Soft Input Panel icon in the system tray

1. In the Control Panel, double-tap 🖥️ **Input Panel**.
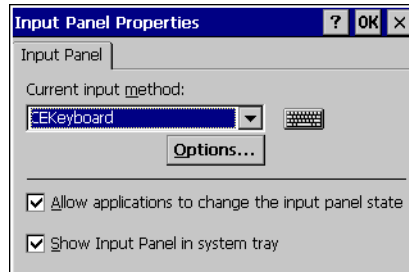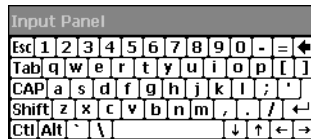
   The **Input Panel Properties** dialog box appears.

Input Panel Properties	?	OK	×

   Input Panel

   Current input method:

   CEKeyboard ▾ ▦

   Options...

   ☑ Allow applications to change the input panel state

   ☑ Show Input Panel in system tray

2. Select the **Allow applications to change the input panel state** check box.

3. Select or clear the **Show Input Panel in system tray** check box.

4. Tap **OK**.

5. Run the 🔒 **Backup** program to retain the new setting through a power cycle (see page 13).

   The Soft Input Panel has two basic configurations: **Small key** and **Large key**.

   Small Key configuration: Provides a standard QWERTY key layout with numeric keys at the top row as illustrated in the following picture.

   Input Panel

Esc	1	2	3	4	5	6	7	8	9	0	-	=	←
Tab	q	w	e	r	t	y	u	i	o	p	[	]	
CAP	a	s	d	f	g	h	j	k	l	;	'	
Shift	z	x	c	v	b	n	m	,	.	/	↵
Ctl	Alt	`	\							↓	↑	←	→

   Small key: lower case

   Uppercase characters are accessed by pressing the SHIFT key once. This is equivalent to holding down the SHIFT key on a conventional keyboard. The SHIFT key is active while the next key is pressed then reverts back to its unselected state. The CAP key does the same thing as SHIFT but does not revert to lower case after another key is pressed. Rather, the Soft Input Panel remains in the Uppercase mode until the CAP key is pressed again. The CTRL and ALT keys behave the same as the SHIFT key

Small key: upper case

Large Key configuration: Provides alphabetic or numeric keys alone. No numeric keys are displayed at the top of the alpha panel; alpha keys are not displayed on the numeric panel.

Large key: lower case

As with the small key configuration, upper or lower case alpha keys can be displayed by using the SHIFT key.

Large key: upper case

Pressing the **123** key once changes the keys to numeric. The numeric keys are displayed until another key is pressed then the Soft Input Panel reverts to the alpha mode.

Double-clicking the **123** key locks the panel in numeric mode, until the **123** key is pressed again.
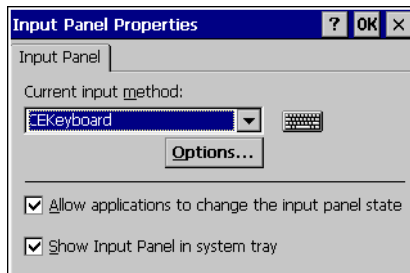

Large key: numeric

To change key configurations

1. In the Control Panel, double-tap 🖥 **Input Panel**.

The **Input Panel Properties** dialog box appears.

2. From the **Current input method** list, choose **CE Keyboard**.

3. Tap **Options**.

The **Soft Keyboard Options** dialog box appears.
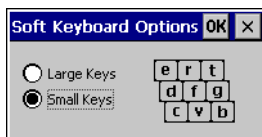
4. Select **Large Buttons** or **Small Keys**.

A preview of the key size is displayed on the dialog box.

5. Tap **OK** twice to finish.

6. Run the ⬚⬚ **Backup** program to save the settings through a power cycle (see page 13).

External Mouse (optional)

Any USB mouse compatible with the QuickPanel CE can be used as an input device for the unit. The USB driver for the mouse is included with the operating system and no setup is required. To use an external mouse, simply it into the appropriate port.

A list of mouses that have been tested and are compatible can be found at the following web site:

www.gefanuc.com/support/plc/bundled.asp

COMMUNICATION PORTS

The QuickPanel CE has two serial data communication ports, COM1 and COM2.

COM1- Serial

The COM1 port is a general purpose bidirectional serial data channel that supports the EIA232C and EIA485 electrical standards. The COM1 port can be accessed and configured:
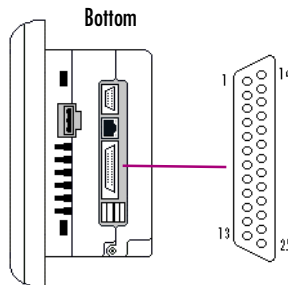
- as a direct or dial-up remote networking connection.
- as the port used by a terminal session (modem link only).
- from a user-created application program.

A connection can be configured to reside on a network supporting a TCP/IP protocol.

A DB25S connector, mounted on the side of the enclosure, provides standard signals as described in the following table.

Bottom

1	GND - Frame Ground	14	VCC - 5VDC, 1.0A
2	TX - (EIA232C)	15	TXB (EIA485)
3	RX - (EIA232C)	16	RXB (EIA485)
4	RTS - (EIA232C)	17	n/c
5	CTS - (EIA232C)	18	CSB (EIA485)
6	DSR - (EIA232C)	19	ERB (EIA485)
7	SG - Signal Ground	20	DTR (EIA232C)
8	DCD - (EIA232C)	21	CSA (EIA485)
9	TRMRXB (EIA485)	22	ERA (EIA485)
10	RXA (EIA485)	23	n/c
11	TXA (EIA485)	24	n/c
12	n/c	25	n/c
13	n/c		

COM2 - Serial

The COM2 port is a general purpose EIA232C.

Bottom

1	**n/c**
2	**RX**
3	**TX**
4	**n/c**
5	**SG - Signal Ground**
6	**n/c**
7	**RTS**
8	**CTS**
9	**n/c**
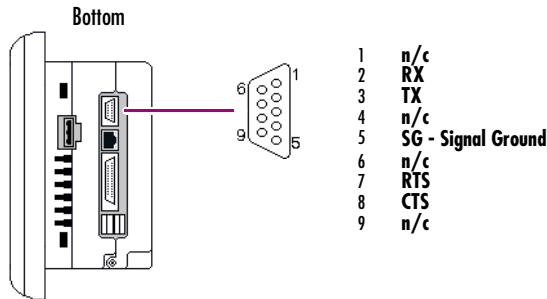
Working with COM ports

To add a new dial-up or direct remote networking connection
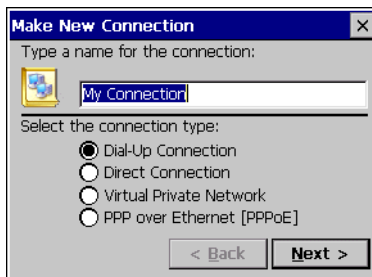
1. From the **Start** menu, tap **Settings**, then **Network and Dial-up Connections**.
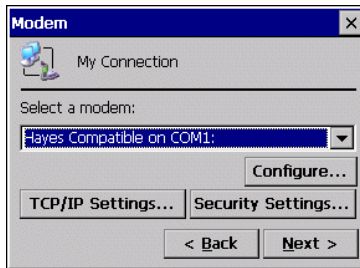
   The **Connection** window appears.

2. Double-tap **Make New Connection**.

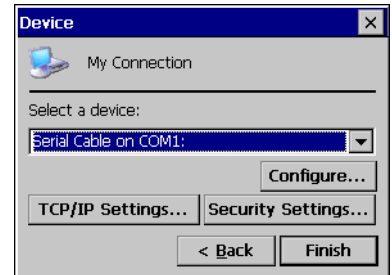   The **Make New Connection** wizard appears.

3. Type a name for the new connection.
4. Choose a connection type.
5. Tap **Next**.

The **Modem** or **Device** dialog box appears, depending on the connection type.
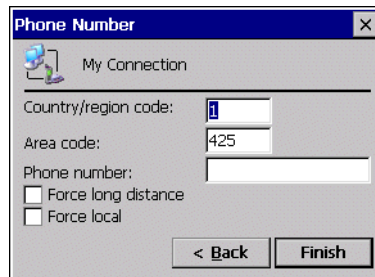
Modem ✕	**Device** ✕
My Connection	My Connection
Select a modem:	Select a device:
Hayes Compatible on COM1: ▼	Serial Cable on COM1: ▼
Configure...	Configure...
TCP/IP Settings... Security Settings...	TCP/IP Settings... Security Settings...
< Back Next >	< Back Finish

or

6. From the list, choose the device or modem you want to use. (If a CF card is inserted, it is available in the device list.)

   You can **Configure** your device or **TCP/IP Settings** at this time if you wish.

7. Tap **Finish** for direct connection (Device dialog box) or **Next** for dial-up (Modem dialog box).

   If you are adding a dial-up connection the following dialog box appears.

Phone Number ✕

My Connection

Country/region code: 1
Area code: 425
Phone number:
☐ Force long distance
☐ Force local

< Back   Finish

8. Type the destination **Country/region code**, **Area code**, and **Phone number** in the appropriate boxes.

9. Select or clear the **Force Long Distance** or **Force Local** check boxes.

10. Tap **Finish**.

To add a new virtual private network or PPP over Ethernet (PPPoE) remote networking connection

1. From the 🏁 **Start** menu, tap 📝 **Settings**, then 🌐 **Network and Dial-up Connections**.

   The **Connection** window appears.

2. Double-tap 🖥 **Make New Connection**.

The **Make New Connection** wizard appears.
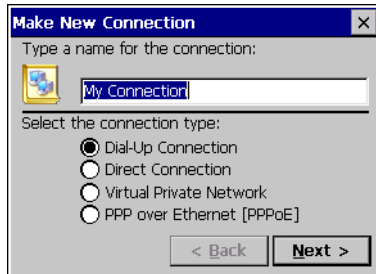
3. Type a name for the new connection.

4. Choose a connection type.

5. Tap **Next**.

The **VPN** or **PPPoE** Connection window appears, depending on the connection type.
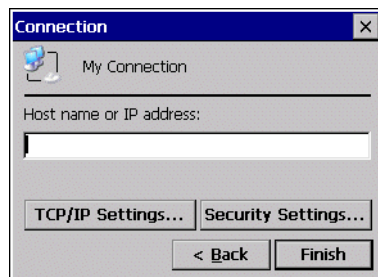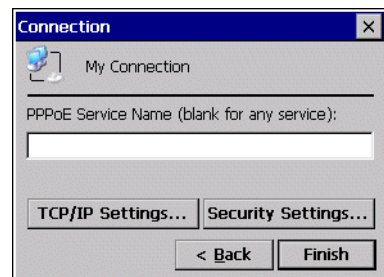
6. Enter the Host Name or IP address for a VPN connection, or a PPPoE Service Name for a PPPoE connection.

You can configure your **TCP/IP Settings** at this time if you wish.

7. Tap **Finish**.

To change the default device properties

1. From either the Device or Modem dialog box, tap **Configure**.

The **Device Properties** dialog box appears.
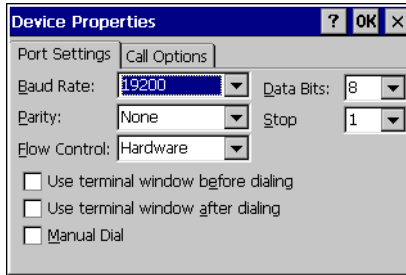
2. In the **Port Settings** tab, choose settings for all connection preferences.

3. If the connection is for terminal emulation, select or clear the terminal-related check boxes.

You can use the QuickPanel CE to emulate a terminal attached via a modem link (Hayes compatible) to COM1. A terminal emulation definition is added as a unique session.

To change the default TCP/IP settings

1. Obtain correct TCP/IP settings from your network administrator.

2. From either the **Device, Modem, PPPoE Connection, or VPN Connection** dialog box, tap **TCP/IP Settings**.

   The **TCP/IP Settings** dialog box appears.
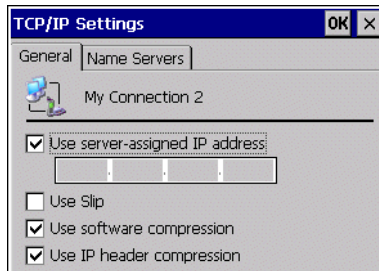
3. Use the TCP/IP settings from your internet provider.

To add a terminal session

1. From the ⚏ **Start** menu, tap 🖿 **Programs**, then **Communication**, and choose **Terminal.**

   The **Terminal** window appears.

2. Double tap 🖳 **Make a New Session**.

   The **Session Properties** dialog box (**Communications** tab) appears.

3. In the **Session Name** box, type a name for your session.

4. Enter the **Country Code**, **Area Code** and **Telephone** number of the remote modem you will connect to.
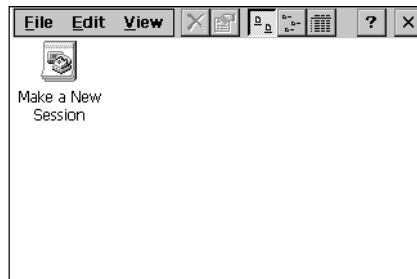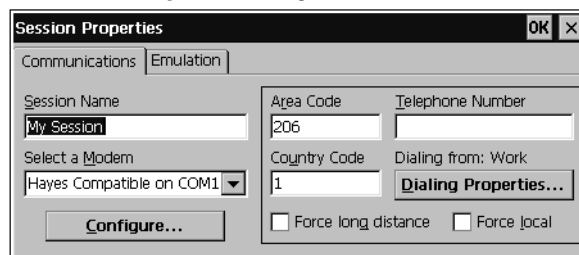
5. Tap the **Emulation** tab and choose an emulation type (DEC-VT-100 or TTY (Generic)).

6. From the **Code page selection** box, select the coding type to employ.

7. Select the **Inbound** and /or **Outbound** check boxes to add LF characters to each CR.

8. Select the **Vertical** and/or **Horizontal** check boxes to specify automatic scrolling.

9. Tap **OK**.

10. The new session is added to the **Session** window.

11. Run the [icon] **Backup** program to retain the new session definition through a power cycle.

To start a terminal session

1. From the [icon] **Start** menu, tap [icon] **Programs**, then **Communication**, and choose **Terminal.**
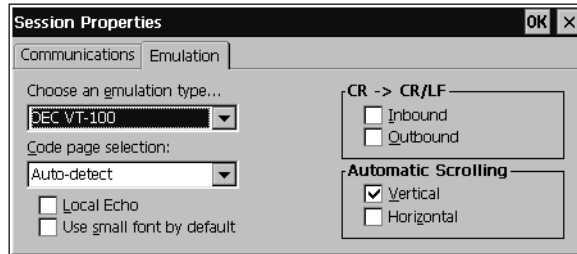
The **Terminal** window appears.

2. Double-tap the [icon] session you want to start.

CF PORT

To enhance the QuickPanel CE's capabilities with additional flash memory, the unit is equipped with a CF (Compact Flash) Type 2 port on its side.

Right Side

Compact Flash Port
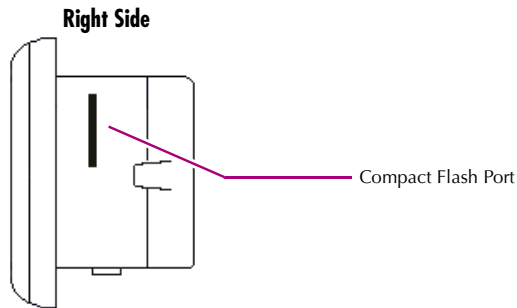
A CF card is inserted in this port with its front facing the front panel of the unit (the narrow side slot on the card should be toward the top). The card should slide in easily—to avoid damage, do not force it.

The Copy Project to Flash Card utility (see page 16) lets you transfer Machine Edition projects between QuickPanel CE units via CF Cards.

No Compact Flash cards are supplied with the QuickPanel CE. For a list of compatible cards, refer to the compatible device listing at the following web site:

www.gefanuc.com/support/plc/bundled.asp

UNIVERSAL SERIAL BUS (USB)

The QuickPanel CE has two full-speed USB v1.1 host ports. A variety of third-party USB peripheral devices are available.

Each connected USB device requires a specific driver. The driver supplied with the QuickPanel CE is for optional keyboard support—other devices require the installation of custom driver software.
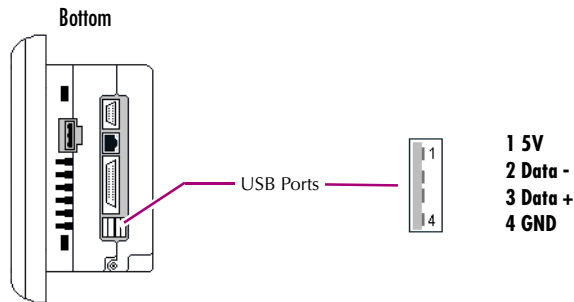
For a list of compatible keyboard types, mice, and other USB devices, refer to the compatible device listing at the following web site:

www.gefanuc.com/support/plc/bundled.asp

> **Note:** These USB ports are defined as maintenance ports and are intended to be temporary connections used for configuration and upload/download of software or data.

ETHERNET

The QuickPanel CE is equipped with a 10/100BaseT auto-negotiate Ethernet port (IEEE802.3), and you can connect an Ethernet network cable (unshielded, twisted pair, UTP CAT 5) to the unit via the RJ45 connector on the bottom of the enclosure. LED indicators on the port indicate channel status. Access to the port is possible either by Windows CE network communicat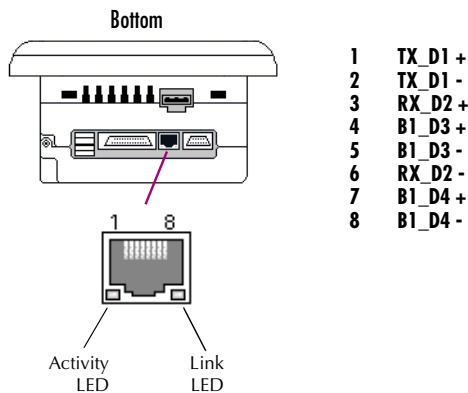ions, or by your custom application. The following diagram shows the location, orientation, and pin out of the Ethernet port.

Bottom

1	TX_D1 +
2	TX_D1 -
3	RX_D2 +
4	B1_D3 +
5	B1_D3 -
6	RX_D2 -
7	B1_D4 +
8	B1_D4 -

1   8

Activity   Link
LED   LED

There are two methods for setting an IP address on the QuickPanel CE:

- **DHCP (Dynamic Host Configuration Protocol).** This is the default method that is carried out automatically.

  Note: There must be a DHCP server on the connected network for a valid IP address to be assigned. Contact your network administrator to ensure correct DHCP server configuration.

- **Manual method.** The user uniquely specifies the numeric addresses for the QuickPanel CE, the Subnet Mask (if applicable), and the Default Gateway.

  Note: Use a crossover cable to connect the QuickPanel CE to a PC directly; when connecting to a LAN HUB, use a straight through cable. Contact your network administrator if you require further information.

To set an IP address

1. From the Control Panel, tap 🌐 **Network and Dial-up Connections**.

   The **Connection** window appears.

2. Select a 🖧 connection and choose 📠 Properties.

   The **Built-in Ethernet Port Settings** dialog box appears.

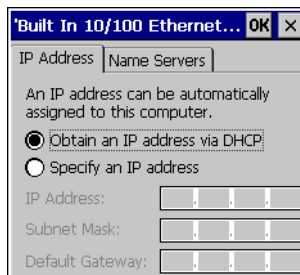3. Select a method:

   - **Obtain an IP address via DHCP** (automatic).
   - **Specify an IP address** (manual).

4. Enter the **IP Address**, **Subnet Mask** and **Default Gateway** numbers obtained from your network administrator (manual method only).

5. Tap **OK**.

6. Run the 🖥 **Backup** program to retain the new settings through a power cycle (see page 13).

7. Restart the QuickPanel CE.

   If the DHCP method was selected, the network server will assign an IP address while the QuickPanel CE is initializing. (You must be connected to the network).

   After setting an IP address for the QuickPanel CE, you can access any network drives or shared resources for which you have permission.

To set up access to a Windows network

1. In the Control Panel, double-tap ![System icon] **System**.

   The **System Properties** dialog box appears.

System Properties	? OK ×

   General | Memory | Device Name | Copyrights

   These settings are used to identify your
   Windows CE device to other computers.
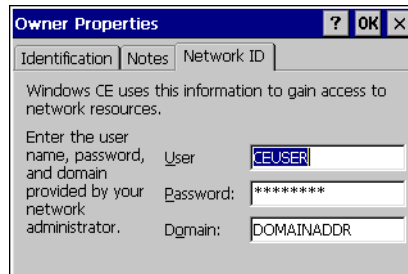   Please type a name (without any spaces) and
   a short description.

   Device name: CE III

   Device description: Windows CE III Device

2. On the **Device Name** tab, in the **Device name** box, type a unique name for your QuickPanel CE. In the Device description box, type a description.

3. Tap **OK**.

4. In the Control Panel, double-tap ![Owner icon] **Owner**.

   The **Owner Properties** dialog box appears.

Owner Properties	? OK ×

   Identification | Notes | Network ID

   Windows CE uses this information to gain access to
   network resources.

   Enter the user
   name, password,   User   CEUSER
   and domain
   provided by your   Password: ********
   network
   administrator.   Domain: DOMAINADDR

5. On the **Network ID** tab, type your assigned **User name, Password** and **Domain**.

6. Tap **OK**.

7. Run the ![Backup icon] **Backup** program to retain the settings through a power cycle (see page 13).

Using Windows CE Explorer, you can now access anything on your local network for which you have permission.

To access a remote resource on a Windows network

1. Start **Windows Explorer**.

   The **Explorer** window appears.
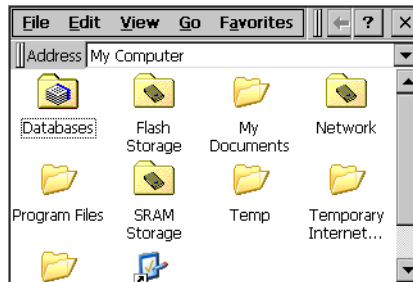
2. Type in the **Address** box, or choose from a list, the path to a remote resource.

   For example '\\MyRemoteComputer\MyFolder' specifies the folder named 'MyFolder' on a computer with the name 'MyRemoteComputer'.

3. Press ENTER.

   The resource specified is displayed as a collection of files and folders. It can take a few moments to retrieve the data from your local network.

   Note: You can use the NET command from the shell to map a network resource to the QuickPanel CE for frequent access. The resource then appears in the **Network** folder.

EXPANSION BUS

An expansion bus is included with the QuickPanel CE, and optional modules that mount directly to it are available. For more information on expansion modules, contact your distributor.

The expansion bus connectors are accessed by opening the back of the unit.
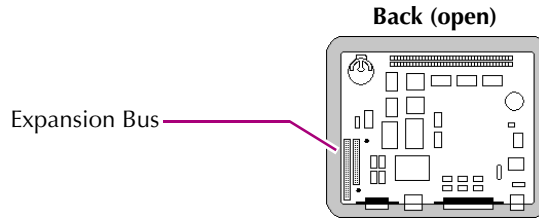
Back (open)

Expansion Bus

Caution: Disconnect the AC power from your 24 VDC power supply before opening the QuickPanel CE. Working on a "live" unit may result in damage to equipment and personnel. Always use anti-static precautions (i.e. grounded wrist strap) when accessing the interior of the unit.

Caution: Ensure all pins are properly aligned when inserting expansion cards. Misalignment could cause damage to the QuickPanel CE and/or the expansion card.

DIP SWITCHES

The QuickPanel CE is equipped with four DIP switches that each control separate functions.

DIP switches are set to "OFF" by default in the factory. DIP switch 2 is the Force Startup switch. Turning this switch on forces the startup applications to run when the operating system is started.

Back (open)
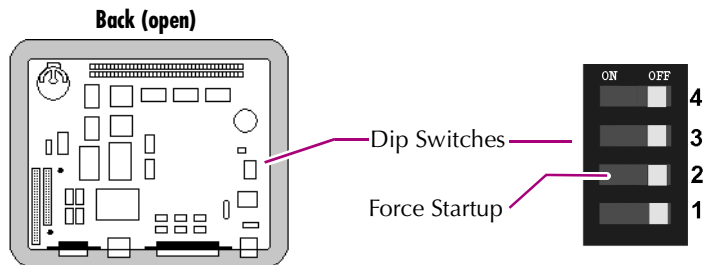
When the switch is set to "OFF", the QuickPanel CE operates normally, displaying the startup splash screen. You can skip running the startup applications by tapping the "Don't run StartUp Programs" button on the startup splash screen.

When the switch is set to "ON", the startup programs are forced to run and the "Don't run Startup Programs" button is not available on the startup splash screen.

Note: Do not adjust switches other than switch 2. They are reserved for factory functions. Also note that the "On" position of the switches is toward the inside of the unit, "Off" toward the outside edge, and that switch 1 is closest to the bottom.

To configure the startup behavior of the QuickPanel CE
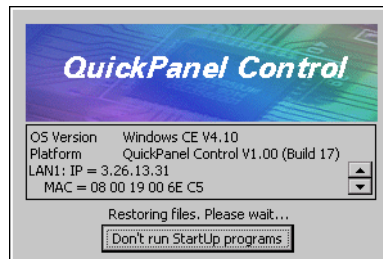
Caution: Disconnect the AC power from your 24VDC power supply before opening the QuickPanel CE. Working on a "live" unit may result in damage to equipment and personnel. Always use anti-static precautions (i.e. grounded wrist strap) when accessing the interior of the unit.

1. Open the back cover of the QuickPanel CE.

2. Locate the DIP switches and set DIP switch 2 to "ON".

The startup applications are now forced.

Note: Do not adjust the other switches. They are reserved for factory functions.

MEMORY

The QuickPanel CE supports a variety of memory subsystems to ensure the requirements of your application are met. All system memory is tied directly to the microprocessor's address and data busses for fastest access. To increase DRAM by up to 64 MB, a 100-pin DIMM memory expansion slot is also included.

Flash Memory

This 32 MB block of non-volatile memory is the main long-term program storage for the QuickPanel CE, operating like a virtual hard drive from the point of view of Windows CE. It is divided into two areas, of which only one is accessible from Windows CE Explorer. The 🔹 **Flash Storage** folder represents a 16 MB block available for long-term storage of user application programs. Another 16 MB block is used to store the Windows CE operating system, and is not directly accessible from Windows CE Explorer.

The operating system and all user application programs are transferred from Flash to DRAM for execution. Any user additions to the 📁 **Windows** folder are retained in 🔹 **Flash Storage** when the 🔳 **Backup** utility is run.

FLASH memory has a limited write-cycle lifetime. That is, the physical memory devices wear out after approximately 100,000 cycles (minimum), so it is advisable to limit file operations such as copy, delete, etc.

The write cycle is much slower for FLASH than it is for other portions of RAM, therefore FLASH is not recommended for the storage of program variables, or any data items whose values are dynamic.

Flash memory can optionally be added with a CF Card, which will appear as the 🔹 **PC Flash Storage** folder.

To add Flash memory with a CF Card

- Insert a Compact Flash card into CF Port (see page 36).

The unit immediately reads the new secondary storage. If the disk requires formatting, you will be prompted to do so.

New memory appears in Windows CE Explorer as 🔹 **PC Flash Storage**.

SRAM Memory

This 512 KB block of static RAM is battery-backed to provide data retention through a power cycle. This memory block is shared by the operating system and

user applications. A portion of the SRAM memory (around 373 KB) operates as a virtual hard drive and is accessible from the Windows CE Explorer. It is represented as the 📁 **SRAM Storage** folder. A typical application program would create a file in this folder and store any critical program data in that file.

DRAM Memory

The QuickPanel CE is equipped with 32 MB of dynamic RAM. Part of the DRAM (14 MB) is reserved for the Windows CE operating system and is not accessible by user applications. The other 18 MB is split between two functions: an object store for temporary file storage, and the main memory for running programs.

Typically, compressed programs stored in FLASH are expanded and moved to DRAM for execution. Temporary storage of program variables or data files is also provided by DRAM—any data stored in DRAM will not be retained through a power cycle.

The split between program memory and storage memory may be adjusted as necessary to make more room for one or the other, depending on your specific application needs. For example, if you find that an application is short of memory, use the System Properties dialog box to increase DRAM memory allocation. Note, however, that increasing program memory also decreases storage memory.

To change the DRAM memory allocation

1. In the Control Panel, double-tap 🖥️ **System**.

   The **System Properties** dialog box appears.
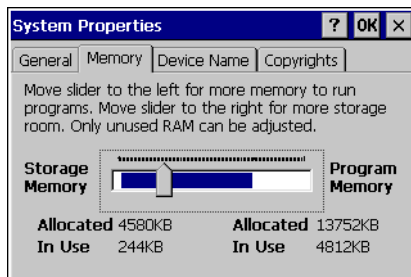
2. On the **Memory** tab, drag the slider to divide the DRAM into Storage and Program memory.

   The amount of memory allocated to and used by each area is shown on the dialog box.

3. Tap **OK** to apply the new setting.

4. Run the 🗄️ **Backup** program to retain the new setting through a power cycle (see page 13).

Boot Loader ROM

The Boot Loader ROM provides 512 KB of non-volatile storage for the QuickPanel CE's initialization program. This program configures the QuickPanel CE hardware then starts the operating system's execution. This memory is not accessible from Windows CE Explorer, nor should any attempts be made to modify the contents of this ROM.

Memory Expansion Slot

The QuickPanel CE is equipped with a 100-pin DIMM memory expansion slot which lets you increase DRAM to a total of 96 MB.

Rear (open)

Memory Expansion Slot

Caution: Disconnect the AC power from your 24VDC power supply before opening the QuickPanel CE. Working on a "live" unit may result in damage to equipment and personnel. Always use anti-static precautions when accessing the interior of the QuickPanel CE.

To install additional DRAM

1. Disconnect AC power from the 24VDC supply.
2. Open the rear access panel.
3. Insert the new DIMM carefully into the expansion slot, noting the orientation of the pin locators. When the DIMM is fully seated, lift each side clip until it clicks into place.

OTHER SUBSYSTEMS

Power Management

The QuickPanel CE's Power Properties control panel displays the status of the backup battery. The ![icon] Battery Very Low Or Missing icon displays in the taskbar when the battery is either missing or very low.

### To access the Power Properties control panel

1. In the Control Panel, double-tap ![icon] Power.

The Power Properties dialog box appears.

Battery Backup

Auxiliary backup power for the real-time clock and SRAM is provided by a ***non-rechargeable***, internal lithium battery (+3VDC, CR2032), ensuring that no loss of data occurs when the main 24VDC supply is removed. Backup power is enabled or disabled by installing or removing the battery, accessed via the rear panel as shown in the following illustration.
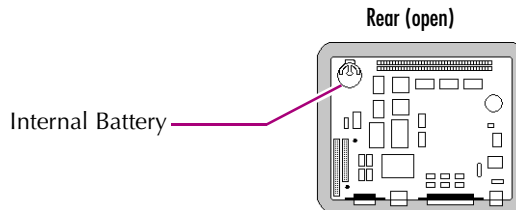
Rear (open)

Internal Battery

Caution: Disconnect the AC power from your 24VDC power supply before opening the QuickPanel CE. Working on a "live" unit may result in damage to equipment and personnel. Always use anti-static precautions when accessing the interior of the QuickPanel CE.

To remove the internal battery

1. Disconnect AC power from the 24VDC supply.

2. Open the rear access panel.

3. Release the battery by *gently* lifting it from the completely exposed side, past the small protrusions. To avoid breaking the battery retainer clips, do not apply excessive upward pressure.

4. Slide the battery out of its carrier, noting the arrow on the carrier indicating the direction of removal.

Real-time Clock

The QuickPanel CE has a programmable real-time clock capable of reporting the current time in Year/Month/Day/Hour/Minute/Second. The time is set from the Windows CE interface and retained through a power cycle if battery backup is available. Daylight saving time is enabled by a check box within the dialog box.

To set the real-time clock

1. In the 🗔 Control Panel, double-tap 🕑 **Date/Time**.

   The **Date/Time Properties** dialog box appears.
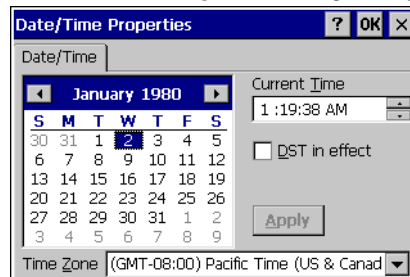
   **Note:** Tap apply after making changes in any box.

2. Tap the year to choose a new year; tap the month to choose a new month.

3. Tap a date to specify the day of month.

4. From the **Time Zone** box, choose your zone.

5. Select **Daylight savings time currently in effect** if it is true.

6. In the **Current Time** box, adjust the hours, minutes and seconds.

7. Tap **OK** to finish.

   The time can be displayed in the system tray on the task bar.

To display the time on the taskbar

1. From the 🎯 **Start** menu, choose ⚙ **Settings,** then 📊 **Taskbar** and Start Menu....

    The **Taskbar Properties** dialog box appears.

Taskbar and Start Menu Proper...	OK	×

    General | Advanced |

    ☑ Always on top

    ☐ Auto hide
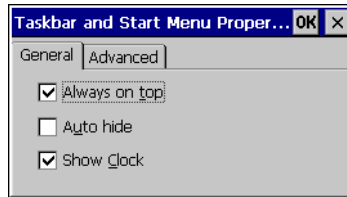
    ☑ Show Clock

2. On the **Taskbar Options** tab, select **Show Clock**.

3. Tap **OK**.

    An hours and minutes display now appears in the taskbar.

    🎯 Start   ⌨ 🔧 1:10 PM 📷 ——— Clock Display

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Design Specifications

The specifications listed in this appendix are the design goals for the QuickPanel CE. In most cases the "as built" or tested specifications are identical. Various agency approvals for environmental service and safety are in the process of application.

Physical

Item	Specification
Enclosure dimensions (use for panel cutout)	Height: 4.86 in (126 mm) Width: 6.14 in (158 mm) Depth: 2.76 in (70 mm)
Bezel dimensions	Height: 6.17 in (156.7 mm) Width: 8 in. (203.2mm) Depth: 0.85 in (21.5 mm)
Weight	2.5lb (1.16 kg)

Environmental

Item	Specification
Operating Temperature	32 to 126°F 0 to 50°C
Operating Humidity	5% to 95%, non-condensing
Storage Temperature	-4 to 158°F -20 to 70 °C
Storage Humidity	5% to 95%, non-condensing
NEMA Rating	4, 4x, and 12 when mounted in a panel (IP65 equivalent)

Item	Specification
Operational Vibration	IEC 68-2-6 10 - 57Hz, 0.012″ peak to peak displacement 57 - 500Hz, 1.0g acceleration
Operational Shock	IEC 68-2-27 15g, 11ms (sine wave)

DC Power

Item	Specification
Input Voltage	10.8 to 30 VDC (12 VDC +/- 10% regulated power supply; 24 VDC +/- 20% power supply)
Real Power	24 W

Display

Item	Specification
Size	5.75″ 14.6 cm
Colors	65,536
Resolution	320 X 240
Fabrication	TFT

Touch Screen

Item	Specification
Type	Resistive, 12 bit
Resolution	X axis- 320 cells Y axis - 240 cells (after calibration)

CPU

Item	Specification
Processor	Intel XScale PXA250
Clock speed	300 Mhz

Memory

Item	Specification
FLASH	32 MB
SRAM	512KB (Battery Backed)
DRAM	32 MB
ROM	512 KB (Boot loader)

Memory Expansion Slot

Item	Specification
Form Factor	100 pin DIMM
Maximum DRAM	64 MB
Bus Width	32 bits
Bus Speed	100 MHz
Voltage	3.3 VDC
CAS Latency	CL=3
Refresh Cycle Time	64 ms maximum

Ports

Expansion

Item	Specification
Compact Flash Memory	One slot (type 2)
FieldBus	One slot

Item	Specification
Universal Serial Bus (USB) (2)	V1.1 compatible

Communication

Item	Specification
Ethernet	IEEE 802.3 10/100BaseT RJ45 connector Two status LEDs
Serial COM1	EIA232C/EIA485 300 bps - 115200 bps
Serial COM2	EIA232C 300 bps - 115200 bps

Calendar/Clock

Item	Specification
Resolution	1 second
Retention	Life of battery

LEDs (Front Panel)

Item	Specification
Left	Power status indicator (green with power applied, amber if backlight fails)
Right	Programmable tri-color (green, red, amber)

Battery

Item	Specification
Type	CR2032 (3V, 190mAh, lithium)
Life (Approximate)	5 years

Agency Qualifications

UL Model # ES0622

Description	Agency Standard or Marking	Comments
North American Safety for Industrial Control Equipment	UL 508/C-UL	Certification by Underwriter's Laboratories to UL standard and equivalent CSA standard
North American Safety for Hazardous Locations Class I, Div. 2, Groups A, B, C, D	UL 1604/C-UL	Certification by Underwriter's Laboratories to UL standard and equivalent CSA standard
North American Safety for Hazardous Locations Class I, Zone 2, Groups IIA, IIB, IIC	UL 2279	Certification by Underwriter's Laboratories to UL standard
Explosive Atmospheres Directive European Safety for Hazardous Locations Equipment Group II, Category 3	ATEX (pending)	Certification in accordance with European directives; refer to Declaration of Conformity and Independent 3rd Party Assessment Certificate
Low Voltage Directive European Safety for Industrial Control Equipment	CE	Self-declaration in accordance with European directives; refer to Declaration of Conformity
Electromagnetic Compatibility Directive European EMC for Industrial Control Equipment	CE	Certification by competent body in accordance with European directives; refer to Declaration of Conformity

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Troubleshooting

The tables contained in this appendix can be used to identify and remedy problems that can occur with the 6" QuickPanel CE.

Power up

Problem	Suggested remedy
Blank screen.	Check all power connections to the QuickPanel CE.

Pocket Internet Explorer

Problem	Suggested remedy
Cannot access any URLs when using a dial-up connection to an ISP.	If you have previously set up an IP address on a local Ethernet Network, it must be cleared. Disconnect your Ethernet cable and reboot.
	Your ISP will reassign an IP address when you reconnect the cable.

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