CP451-008 shown with optional docking cradle.

MANUAL PART NUMBER: 400-0518-001

# CP451-008

# MULTITOUCH WIRELESS
# TOUCH SCREEN CONTROLLER
# USER'S GUIDE

## TABLE OF CONTENTS

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## PRECAUTIONS / SAFETY WARNINGS          1

Please read this manual carefully before using your **CP451-008** and keep it handy for future reference. These safety instructions are to ensure the long life of your **CP451-008** and to prevent fire and shock hazards. Please read them carefully and heed all warnings.

### 1.1  GENERAL

- Do not open the unit or power supply case, there are high-voltage components inside.

- There are no user serviceable parts inside. Qualified ALTINEX service personnel must perform all service on the **CP451-008**.

- Handle the **CP451-008** carefully.

### 1.2  HANDLING

- For best results, place the **CP451-008** in a dry area away from dust and moisture.

- To prevent fire or shock, do not expose this unit to water or moisture. Do not place the **CP451-008** in direct sunlight, near heaters, or heat-radiating appliances, or near any liquid. Exposure to direct sunlight, smoke, or steam can harm internal components.

- Handle the **CP451-008** carefully. Dropping or jarring can damage the unit.

- Do not pull any cables that are attached to the **CP451-008.**

- Do not place heavy objects on top of the **CP451-008**.

- If the **CP451-008** is not used for an extended period, disconnect the adapter from the wall to avoid fire, shock, and loss of power.

### 1.3  CLEANING

- Unplug the **CP451-008** adapter before cleaning.

- Clean only with a dry cloth. Never use strong detergents or solvents such as alcohol or thinner. Do not use a wet cloth or water to clean the unit. Do not open the unit to clean.

### 1.4  FCC NOTICE

- This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

- This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with instructions found herein, may cause harmful interference to radio communications. 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.

- Any changes or modifications to the unit not expressly approved by ALTINEX, Inc. could void the user's authority to operate the equipment.

## CP451-008 SERIES
## Wireless Touchscreen Controller

The **CP451-008** touch screen controller is ideal for a great many applications including multimedia control systems, general computing, real-time data terminals, etc. Each controller runs Windows XP Embedded and includes these key features:

- Battery Powered
- Wireless Local Area Network (WLAN)
- Bluetooth Personal Area Network (PAN)
- Enhanced Write Filter (EWF) Protection
- AVSnap™ Professional AV System Integration Tool

The **CP451-008** senses "touch" from a finger, stylus, pen, pencil, gloved finger, or other tool. The touch screen is very accurate and responsive to the touch. The **CP451-008** incorporates effortlessly into PC based control systems.

Since the **CP451-008** can run on battery power, most setups use the WLAN feature. For added flexibility, consider the ALTINEX AC301-201 TCP/IP to RS-232 Adapter. This adapter allows RS-232 communication through a standard LAN connection. Place the AC301-201 on an RS-232 controlled device and then connect it to a wireless router for an instant wireless network.

The AC301-201 has both serial (DB9) and network (RJ-45) connections. The AC301-201 connects to a serial device using its DB9 connection, and to the LAN using standard network cable. AVSnap, HyperTerminal, or other RS-232 communication software can then be used to control the serial device using the IP address of the adapter in place of the COM port. In this way, a single controller can be used to control any number of serial devices using their unique IP address.

The Bluetooth module inside each **CP451-008** is compatible with most peripheral devices like headsets, barcode readers, printers, cell phones, and more.

The **CP451-008** is small, lightweight, and powerful. It can easily be carried from room to room and used to control several devices on one or more wireless networks.

AVSnap is preinstalled on each **CP451-008** making it easy to integrate into any control environment. AVSnap provides a complete environment for designing simple to sophisticated graphical user interfaces (GUIs). Design high-quality GUIs with minimum effort by way of user-friendly toolbars for buttons, volume controls, progress bars, and much more. AVSnap incorporates a simple programming language with an organized interface that makes even complex programming code easy to read and maintain.

Everything needed to start is included in a sample application. Use the predefined procedures and functions to communicate with devices over the WLAN, or create your own custom subroutines. If you can program Crestron or AMX, you can program AVSnap.

The EWF prevents changes to the internal drive without specific intent and access. This protects the BIOS and operating system files from becoming corrupt due to power outages or other power interruptions.

The **AC404-101** is an optional docking cradle available for the **CP451-008** that includes 2 USB ports, an Ethernet/LAN (RJ-45) port, and an input for DC power. Power is provided to the cradle using the power adapter supplied with the unit. The USB and LAN ports make the cradle an ideal base station that allows for a permanent LAN connection as well as inputs for a USB keyboard and mouse. When not in use, the **CP451-008** can be placed back on the cradle for charging.

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## TECHNICAL SPECIFICATIONS     3

Specifications are subject to change.
See www.altinex.com for up-to-date information.

| FEATURES/ DESCRIPTION | CP451-008 |
|---|---|
| **Details** | |
| LCD Size | 8.4" |
| Resolution | 800 x 600  max. |
| Colors | 32 bit |
| CPU | AMD Geode™ LX 800 500 MHz |
| RAM | 512 MB |
| WLAN | 802.11 b/g |
| PAN | Bluetooth |
| Solid State Drive (SSD) | CF Type II, 1GB |
| **External Connections** | |
| External Battery | 7-pin (1) |
| Docking Bay | 9-pin (1) |
| USB | Type A F (1) |
| 12VDC | DC Jack (1) |
| Microphone | 3.5 mm F (1) |
| Headphones | 3.5 mm F (1) |
| **Agency Approval** | |
| EMC | FCC Class B |
| Safety | UL, CE |
| **Accessories Included** | |
| Internal Battery | Li-Ion 14 W |
| Power Adapter+ AC Power Cord | +12VDC |
| Stylus | Non-electronic |
| **Optional Accessories** | |
| Docking Cradle with USBx2, 12 VDC In, LAN | AC404-101 |
| Desktop Stand | AC404-102 |

Table 1. **CP451-008** General

| MECHANICAL | CP451-008 |
|---|---|
| Enclosure | Magnesium-Aluminum Alloy |
| Color | Black |
| Height | 7.9 in (200 mm) |
| Width | 9.6 in (240 mm) |
| Depth | 0.9 in (23 mm) |
| Weight | 2.0 lb (0.9 kg) |
| Shipping Weight (approx.) | 3.1 lb (1.4 kg) |
| T° Operating | 0-40°C |
| T° Maximum | 60°C |
| Humidity | 90% non-condensing |
| MTBF (calculations) | 40,000 hrs (min.) |

Table 2. **CP451-008** Mechanical

| ELECTRICAL | CP451-008 |
|---|---|
| **External Connections** | |
| USB 2.0 Voltage | 5V |
| USB 2.0 Current | 100 mA max. |
| LAN Speed | 10/100 Mbps |
| **Power Consumption** | *(from adapter)* |
| +12VDC | 42 W max. |

Table 3. **CP451-008** Electrical

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**PRODUCT DESCRIPTION          4**

Power/Charging LED

Network LED

Microphone

Stylus

Headphones

Microphone In

Power
Switch

Brightness
Control

USB Port

+12VDC In

Speaker

Docking Port Connector
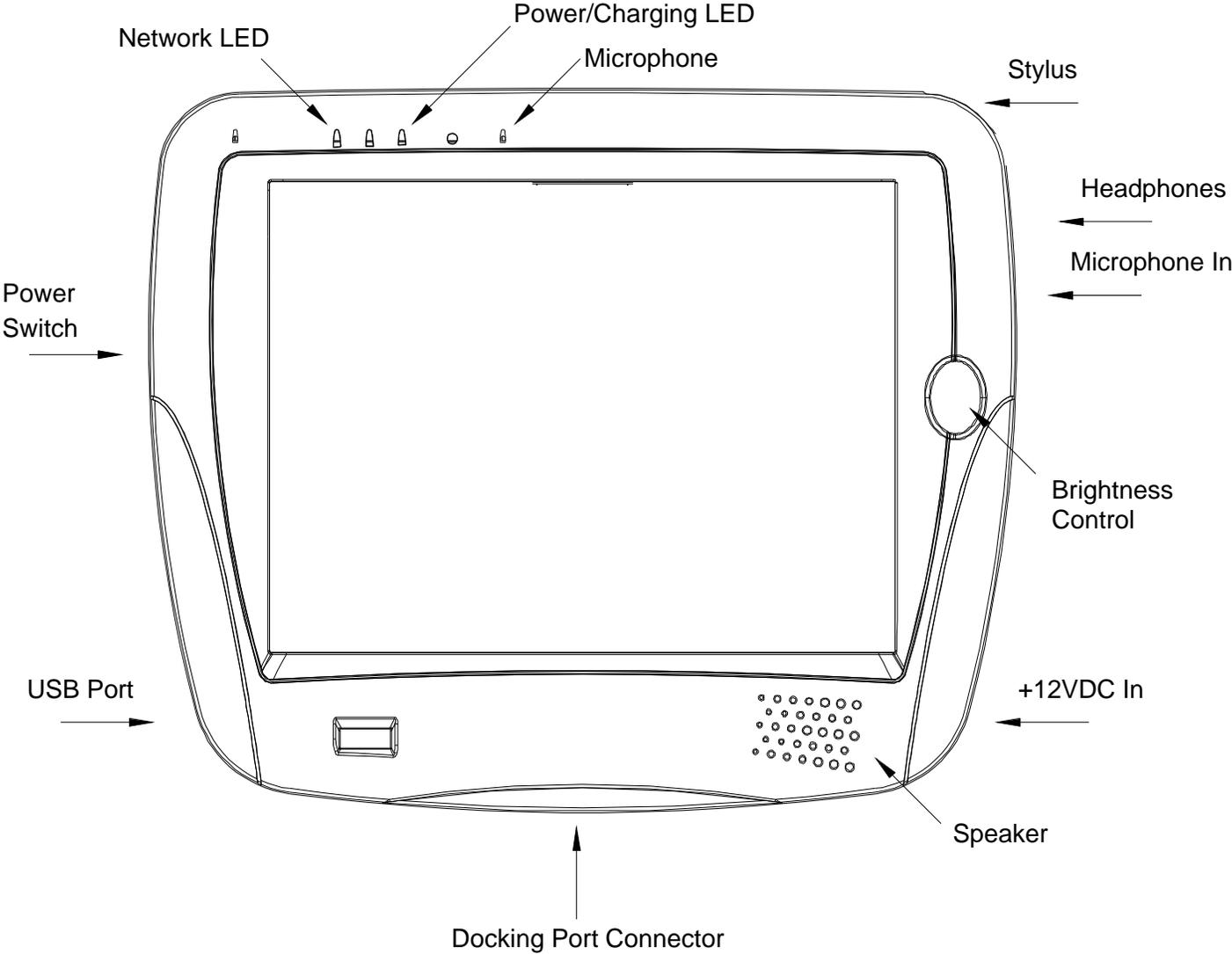
## APPLICATION DIAGRAMS 5

### DIAGRAM 1: TYPICAL SETUP
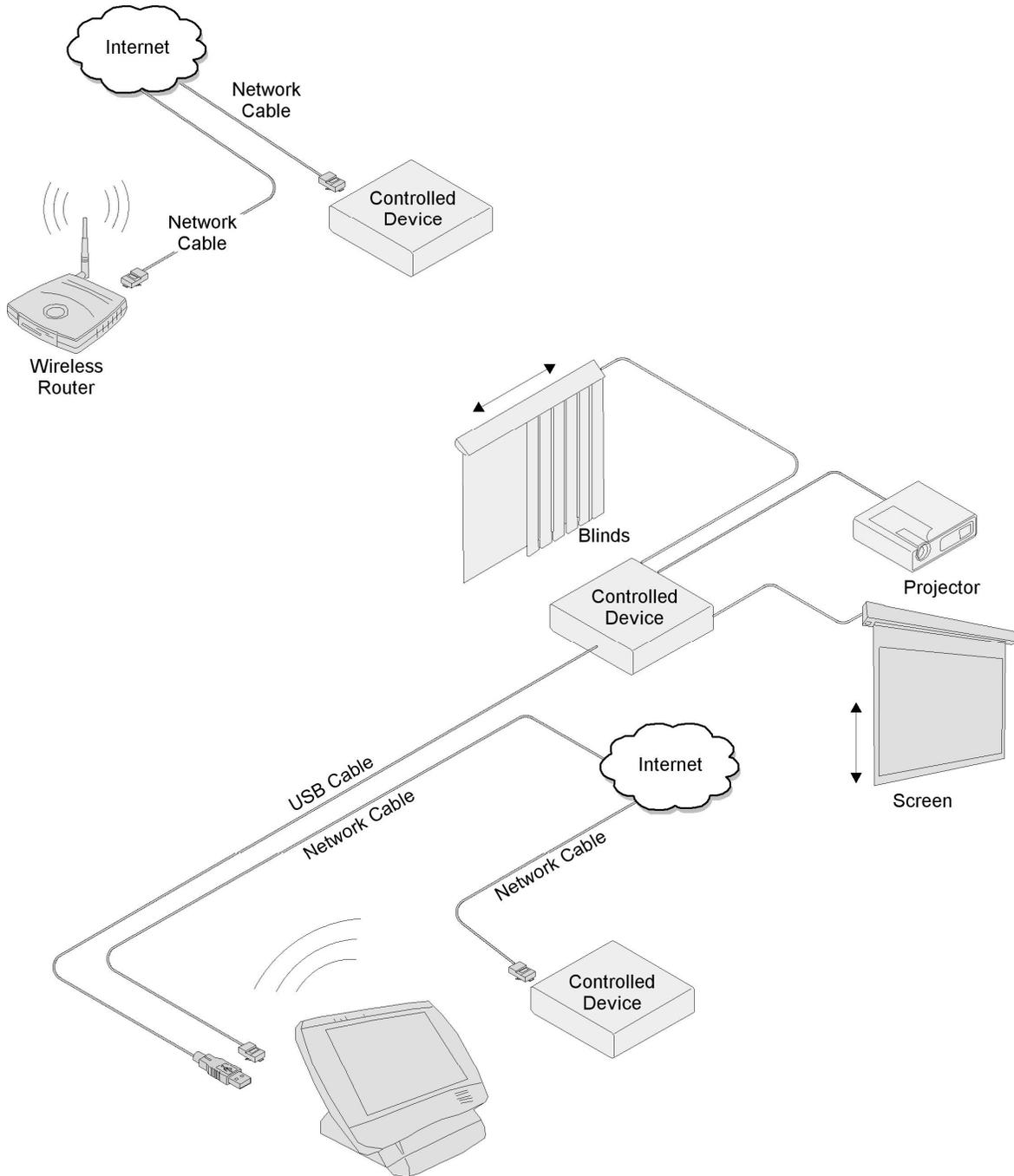


**CP451-008**
IP-Wireless, Touch Screen Controller
*(Shown with optional docking cradle.)*

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**DIAGRAM 2: DIMENSIONS**

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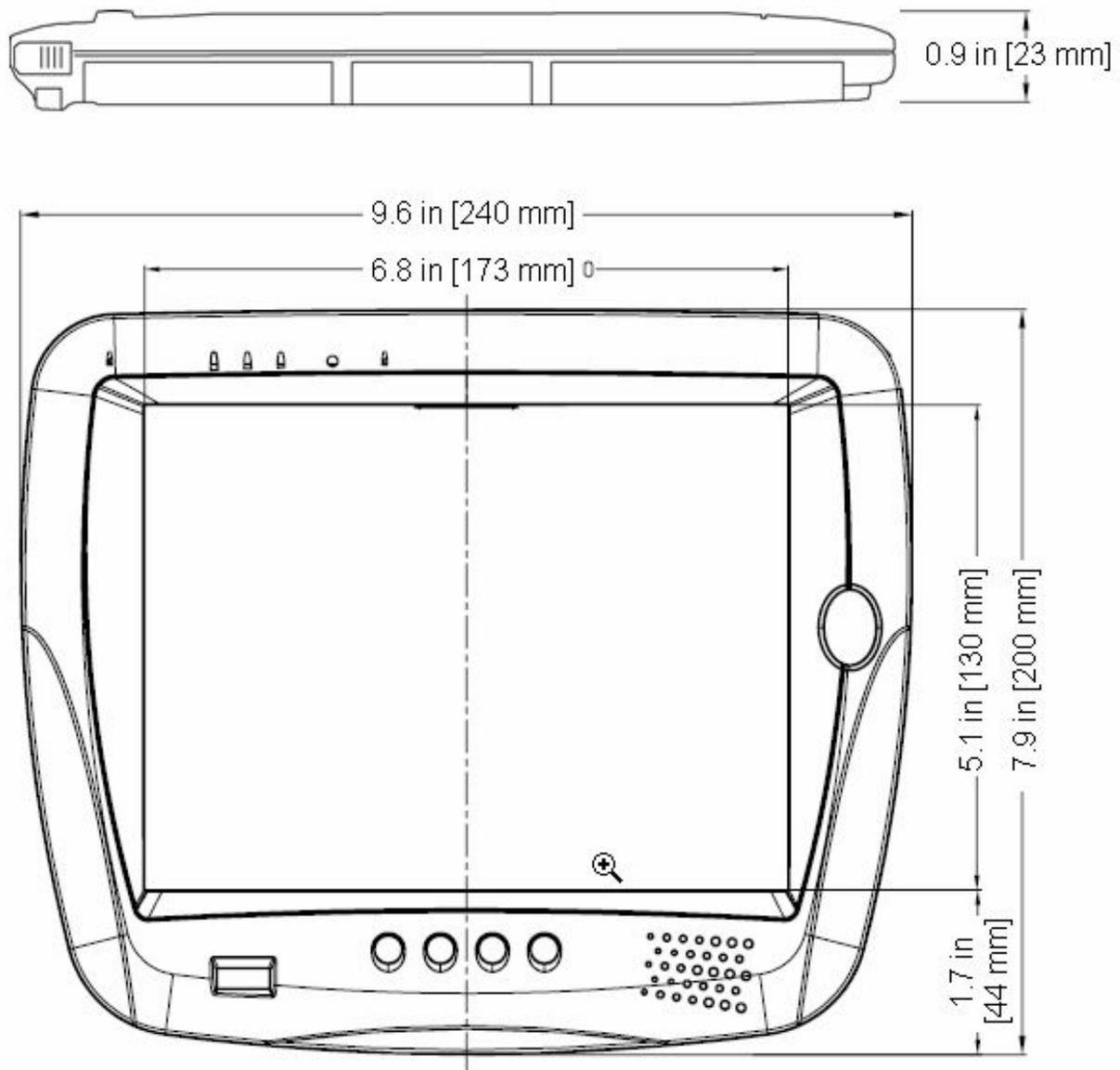
## DIAGRAM 3: AC404-101 (OPTIONAL)

The docking cradle uses the **CP451-008**'s power supply as its input power source. The cradle makes an excellent charging station as well as providing an Ethernet port and 2 additional USB ports. A network connection, USB keyboard, and USB mouse can be permanently attached to the cradle making it a central base and charging station.

Height............ 3.0 in (76 mm)

Width............. 6.5 in (165 mm)

Depth............. 7.7 in (196 mm)

Weight........... 1.3 lb (0.6 kg)

## INSTALLING YOUR CP451-008      6

**Step 1.** The **CP451-008** only requires power to be operational. If using the docking cradle, determine the best location for installation. The docking cradle should be centrally located to the **CP451-008**'s operational area so users will remember to return the unit to the cradle for charging. One power adapter is shipped with the **CP451-008**. This power adapter can power either the cradle or the **CP451-008**.

Additional power adapters can be purchased if the **CP451-008** is continually used for long periods away from the docking cradle. In this case, a second power adapter can be used at remote locations while not disturbing the docking station setup.

ADDITIONAL CONSIDERATIONS
- If the **CP451-008** connects to the network through the docking cradle, LAN access and a network cable are required.

- Make sure there is access to the USB ports. One USB port is accessible from the side of the **CP451-008** and there are 2 USB ports accessible from the back of the docking cradle.

**Step 2.** Route all cables required for the **CP451-008** to the installation location. Make sure the cables are long enough to allow for service loops and to be routed neatly to their destinations.

**Step 3.** Press the power switch on the side of the unit to turn power on. The unit will start Windows and then automatically launch the AVSnap demo application.

## CONTROL SOFTWARE SET UP

**Step 1.** Prepare the control software using your normal software development station. The **CP451-008** is not required. We recommend using AVSnap as the control software. It is free, easy to use, and has many features designed for use with the **CP451-008**.

**Step 2.** Debug the control software using the device for which it was written. The **CP451-008** is a normal computer and its LAN/WLAN ports work the same as a desktop computer.

**Step 3.** When the control software is complete, copy all necessary files to a USB drive.

**Step 4.** Start the **CP451-008** and then escape out of the AVSnap demo application and return to the desktop.

**Step 5.** Install the USB drive into the **CP451-008** and copy the files over to the "C" drive. If any application software is required, install it at this time. Once all the software has been installed, close all open applications and run the COMMIT batch file located on the desktop. This will commit the changes made to the internal drive.

**NOTE:** If an installation wizard requests a restart to complete the installation, answer NO. The COMMIT batch file must be run first.

**Step 6.** Restart the **CP451-008** and verify all the changes are present. Place a shortcut to the new control software into the startup folder and remove the AVSnap demo. Run the COMMIT batch file again and restart the **CP451-008**.

**Step 7.** The unit is now operational. Verify the **CP451-008** boots up and automatically launches the new control software.

# SPECIAL APPLICATION

The **CP451-008** is designed for use in a fixed application where the system boots up directly into the user application and does not allow access to the operating system. The application and GUI interface are normally created using a standard desktop computer and then installed onto the **CP451-008** using a USB drive or network connection.

Once set up, the **CP451-008** will work trouble-free without user intervention.

## 7.1 POWER UP and SHUTDOWN

In most installations, the system boots directly into the end-user application the same as the default demo application.

The **CP451-008** can be powered down using the shutdown/power off option from the START menu, or directly from an AVSnap application using the "App.Shutdown" function.

## 7.2 PREPARING CONTROL SOFTWARE

It is not recommended to design and create control software directly on the **CP451-008**. In most situations, it is easier and faster to write and debug control software on a standard desktop computer and then transfer the completed file when ready. However, if the **CP451-008** needs to be programmed "in place", use an external USB keyboard and mouse. Simply plug in the devices and wait for the system to recognize the new hardware and load the drivers.

Remember, the **CP451-008** employs the Enhanced Write Filter (EWF) to protect the contents of the internal drive. Read the next section carefully before attempting to install, create, or edit any data files or applications on the **CP451-008**. If not executed properly, changes will be lost.

The best way to create and edit on the **CP451-008** is to use a USB drive plugged into the bottom of the unit and make changes directly to the USB drive then copy the final files to the **CP451**'s "C" drive.

## 7.3 INSTALLING FILES AND APPLICATIONS

The **CP451** utilizes the Windows XP Embedded EWF to protect its internal drive from accidental or unauthorized changes. The EWF appears to read and write from the internal drive, but executes everything in RAM. All changes WILL be lost after reset or shutdown unless the changes are committed to memory. Three batch files are provided for direct control over the EWF and should be used cautiously.

1. COMMIT.BAT – Write to hard drive

This batch file resides on the desktop and writes the RAM data onto the hard drive for permanent storage while EWF is enabled. Close open applications before running this batch file or the changes may not be committed to memory.

2. ENABLE.BAT – Turn on EWF

This batch file resides in the root directory and turns on the EWF. In this mode, no changes made to the system are saved unless the COMMIT batch file is executed. This is the default condition for all **CP450**s.

3. DISABLE.BAT – Turn off EWF

This batch file resides in the root directory and turns off the EWF. In this mode, the system operates like a normal computer reading and writing data directly to the hard drive.

### WARNING
When the EWF is turned off, the user MUST shutdown the computer properly. If power is turned off or lost without executing the normal shutdown procedure, data can be lost, or corrupted, including the BIOS and operating system (OS). If the BIOS or OS are damaged, the entire system can become unusable.

## 7.3.1 INSTALLING LARGE FILES

If the application or file is too large for the available RAM, the operation will be aborted. Use the disable batch file before installing the software. Make sure to reset the EWF when done.

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## 7.4 AVSNAP

AVSnap provides a complete environment for designing simple to sophisticated graphical user interfaces (GUIs). AVSnap is preinstalled on each **CP451-008** making it easy to integrate into any control environment.

Everything needed to start is included in a sample application. Use the predefined procedures and functions to communicate with devices over LAN or WLAN, or create your own custom functions. In addition to standard communication and control, the functions below are useful for typical touch screen applications and can be assigned to buttons or placed in startup and shutdown routines. The samples shown here require an application object named "App" to be part of the application.

App.Shutdown ................. Close the application and turn off the computer.

App.SleepMonitor ........... Turn off monitor power.

App.Quit ......................... Quit the runtime environment and return to edit mode if running an AMT file. If running an EXE file, quit the EXE and close the application.

App.Stop ........................ Stop the executable application.
Use with EXE files only!!!

App.Powersave .............. Hibernate (standby) the computer per display property settings.

App.RunScreensaver ..... Launch the screensaver. If no screensaver is installed this command has no effect.

## TROUBLESHOOTING GUIDE 8

We have carefully tested and found no problems in the supplied **CP451-008**; however, we would like to offer suggestions for the following:

### 8.1 POWER IS NOT ON

**Cause 1:** **No AC power.**

*Solution:* Verify the adapter is plugged into a working AC outlet and that the outlet has power. Use only the AC adapter shipped with the unit.

**Cause 2:** **Adapter is not plugged into CP451-008.**

*Solution:* Verify the DC power plug coming from the AC adapter is plugged all the way into the **CP451-008**.

**Cause 3:** **The CP450 has a problem.**

*Solution:* If there is AC power to the adapter and the LED still does not turn on, the **CP451-008** or the power adapter may require service, call ALTINEX at (714) 990-2300.

### 8.2 SOFTWARE/FILES ARE MISSING

**Cause 1:** **Changes were not committed to memory.**

*Solution:* Make changes to the **CP451-008** then run the COMMIT batch file on the desktop before shutting down or restarting the **CP451-008**.

**Cause 2:** **File/application was open when COMMIT was executed.**

*Solution:* Any files that are open for editing must be closed before executing the COMMIT batch file. For best results, close all applications and files before running the COMMIT batch file.

## ALTINEX POLICIES 9

### 9.1 LIMITED WARRANTY/RETURN POLICIES

Please see the ALTINEX website at
www.altinex.com for details on warranty and
return policies.

### 9.2 CONTACT INFORMATION

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