Notice

The information in this guide is subject to change without notice.

User's Guide

Compaq TFT450 Flat Panel Monitor

Compaq Computer Corporation

$\underline{book}$ *1*

ENGLISH

Introduction

The Compaq TFT450 Flat Panel Monitor has a 14.5-inch (36.83 cm) flat panel screen with an active matrix, thin-film transistor (TFT) liquid crystal display (LCD). It supports resolutions up to 1024×768, and has typical viewing angles of 120 degrees horizontally and 100 degrees vertically.

The overall size of the monitor is designed for use in small working areas or for those who need more working space on the desk.

Product Features

The monitor features include the following:

- 14.5-inch (36.83 cm) viewable area display
- On-Screen Display (OSD) adjustments in five different languages: English, Dutch, French, German, and Spanish
- Universal Serial Bus (USB) pass-through interface—plug and play connectors for use with USB peripherals (mouse, etc.)
- Plug and play capability if supported by your system
- Fault Management and AssetControl
- Automatic scanning with screen expansion
- 1024×768 (XGA) resolution
- Wide viewing angle to allow viewing from a sitting or standing position, or moving side-to-side
- Removable base for flexible mounting solutions
- Energy Saver feature
- Programmable sleep mode timer
- Compliant with the following regulated specifications:
    - Swedish MPR II 1990
    - EPA Energy Star
    - European Union CE Directives
    - Swedish TCO 1992

Graphics Driver

This monitor may require a graphics driver (and/or .INF file) that is compatible with your computer's graphics adapter. Compaq has created a Universal Driver Manager (UDM) release that supports all Compaq QVision, S3, Cirrus Logic, and Matrox graphics adapters found on Compaq Deskpro and Compaq Workstation products. The UDM eases graphics driver deployment across Compaq platforms ensuring cross-compatibility and backward-compatibility. The resulting solution enables customers to manage and control ongoing software maintenance costs. The UDM is available on the Support Software CD for Compaq Desktop, Portable, and Workstation Products and the Compaq World Wide Web site (www.compaq.com).

■ You can order the Support Software CD for Compaq Desktop, Portable, and Workstation Products. This compact disc contains the latest device drivers, utilities, and flashable ROM images needed to run MS-DOS, Microsoft Windows 3.1, Windows 95, Windows NT workstation, and IBM OS/2 on your Compaq commercial desktop product.

■ You can download the software from the Compaq World Wide Web site (www.compaq.com).

■ You can purchase backup diskettes.

If you choose to purchase the Support Software CD, you have two options:

■ You can purchase a single CD-ROM that gives you one-time access to the latest support software (North America only, Compaq part number 272505-001).

■ You can purchase a yearly subscription that delivers up to 12 monthly CD-ROMs (Compaq part number 183426-xxx).

The annual subscription ensures your continuous access to the latest developments.

For help and service outside of the U.S. and Canada or to order the CD or backup diskettes, contact your Compaq authorized reseller, dealer, or service provider.

✎ If you call Compaq to place an order, be sure to have the serial number of your monitor available. The serial number is located on the back of your monitor. This number is necessary for all purchases.

Setting Up the Monitor

To set up the monitor, ensure that the power is turned off to the monitor, computer system, and other attached devices, then follow these steps:

1. Place the monitor in a convenient, well-ventilated location near your computer.

2. Connect one end of the monitor signal cable ❶ to the rear panel of the monitor; connect the other end to the 15-pin connector on the rear panel of the computer and tighten the screws.

✎ Be sure the signal cable aligns with the 15-pin connector. Do not force the cable onto the connector or you may damage the signal cable.
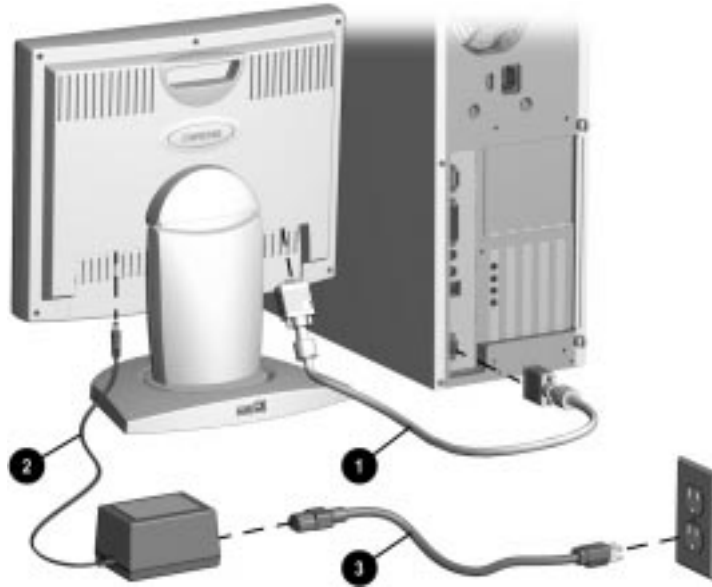
3. Connect the monitor power cord that extends from the AC adapter ❷ into the back of the monitor.

4. Connect one end of the AC power cord ❸ to the AC adapter and the other end to an electrical outlet that is easily accessible and close to the monitor.

⚠ **CAUTION:** When connecting the monitor, be sure to use the AC adapter supplied with the monitor. Failure to use this AC adapter may result in damage to the monitor.

⚠ **WARNING:** To reduce the risk of electric shock or damage to your equipment, do not disable the power cord grounding feature. This equipment is designed to be connected to a grounded (earthed) power outlet that is easily accessible to the operator. The grounding plug is an important safety feature.

⚠ **CAUTION:** Be sure that the power outlet you plug your power cord into is easily accessible and located as close to the equipment operator as possible. When you need to disconnect power to the equipment, be sure to unplug the power cord from the power outlet.

USB Connectors

The base of the monitor also has two Universal Serial Bus (USB) connectors. Use USB connector ❶ to connect USB compatible plug and play devices such as a keyboard, mouse, or joystick if supported by your computer. Use USB connector ❷ to connect the USB signal cable to the computer. This feature provides USB pass-through and does not support USB host requirements.

⚠ **CAUTION:** This USB connector is not designed for use with high speed USB devices such as a video camera, scanner, etc. Compaq recommends connecting high speed devices directly to the computer.


✎ These USB connectors operate as a pass-through system. Your computer must have a USB host controller installed for any USB-connected devices to operate.

⚠ **CAUTION:** To prevent deterioration of signal transfer or malfunction of USB devices, USB cables should not exceed a combined length of 9.75 feet (3.0 meters). This length includes both the USB signal cable and the USB peripheral cable.

Operating the Monitor
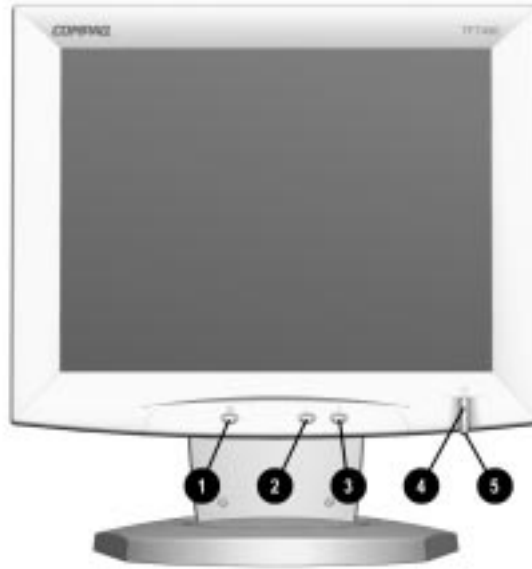
Front Control Panel

No./Icon	Control	Function
❶ 📋	Menu button	1. Launches first and second level on-screen menus. 2. Exits menus and on-screen display.
❷ −	Minus button	Selects and adjusts the functions.
❸ +	Plus button	Selects and adjusts the functions.
❹ ⏻	Power switch	Turns the monitor on and off.
❺	Power LED	1. Green indicates monitor is turned on. 2. Yellow indicates suspend mode. 3. Amber indicates sleep mode. 4. Blinking Green/Amber indicates programmable sleep mode.

✎ Programmable sleep mode enables you to set a time for the monitor to power on and power off at the same time every day. It eliminates the need to turn off the monitor at the end of the day and conserves energy. To set this mode, refer to Timer Functions in the on-screen display.

On-Screen Display Settings

The adjustments for screen settings are located in the on-screen display (OSD) and can be viewed in one of five available languages. The following menu shows the functions at each level:

Menu Level 1	Menu Level 2	Menu Level 3
Brightness	Adjusts the brightness of the screen's backlights.	
Contrast	Adjusts screen contrast.	
Position	Horizontal Position Vertical Position Cancel Save and Return	Adjustment scale Adjustment scale
Digital Conversion	Clock Clock Phase Clock Phase File Cancel Save and Return	Adjustment scale Adjustment scale Adjustment scale
Language	English Nederlands Francais Deutsch Espanol Cancel Save and Return	
Management	Full Screen Power Saver Mode Display Serial Number Timer Functions	ON OFF ON OFF ON OFF Displays Serial No. Clk & Timer Adj Menu (Programmable sleep mode)
Factory Reset	Resets the screen to its factory settings. Cancel/Reset	
Exit	Turns off the on-screen menu.	

How to Adjust Settings

To launch the on-screen display Main Menu:

1.   Press the Menu button ❶ on the monitor front panel. The Main Menu will display on the monitor screen.

2.   To select an item from the Main Menu, scroll down by pressing the Minus (-) button ❷ located on the monitor front panel. To reverse or back up, press the Plus (+) button ❸.

3.   Highlight your choice and press the Menu button ❶ again.

     For example, to select the Position menu, press the Minus button ❷ until Position is highlighted, then press the Menu button ❶ to display the submenu for Position.

Monitor with On-Screen Display

4.   A second level menu displays with expanded menu items. Again, to make a selection, press the Minus (−) button ❷ to scroll down or press the Plus (+) button ❸ to reverse or back up.

5.   Highlight your choice, then select *Save and Return*. To void any changes made, select *Cancel* instead of *Save and Return.*

✎ The second level menu for Brightness and Contrast displays an adjustment screen. Use the Minus button to decrease and the Plus button to increase the screen brightness and contrast.

6. Access the third level menu by selecting a function and pressing the Menu button. Adjust the third level menu displays using the same procedures as the second level.

7. To exit from the on-screen menu, select *Exit* from the Main Menu. If the display is a second or third level menu, select *Save and Return* or *Cancel,* then select *Exit* from the Main Menu.

The on-screen display is easy to use, just follow the instructions on the screen.

Programmable Sleep Mode

Programmable sleep mode is an energy-saving feature that enables you to set a time for the monitor to power on and off at the same time every day. To set the timer:

1. Press the Menu button on the monitor front panel to display the Main Menu.

2. Scroll down and highlight *Management.*

3. Press the Menu button to select *Management.*

4. In Menu Level 2, scroll down and highlight *Timer Functions*.

5. Press the Menu button to select *Timer Functions*.

6. In Menu Level 3, use the Minus or Plus buttons to select *Set Current Time*.

✎ You must set the current local time before you reset the time for Display Sleep Time or Display ON Time.

7. Press the Menu button to enter the adjustment mode.

8. Press the Minus or Plus buttons to adjust the time.

9. Press the Menu button to lock in the time chosen.

10. Repeat steps 6, 7, 8, and 9 to reset *Display Sleep Time* and *Display ON Time*.

11. When you are finished, select *Save and Return* to exit the menu.

Adjusting Picture Quality

Allow the monitor to warm up for 30 minutes before performing the following procedures. The picture image stabilizes after a warm-up period.

Optimizing Contrast

For best results, set your screen to a light background (such as the Windows Desktop) before adjusting the following settings:

1. Set the brightness control to its maximum setting.

2. Adjust the contrast setting until all colors are set to your preference.

Optimizing Digital Conversion

The Compaq TFT450 Monitor contains advanced circuitry that allows the flat panel screen to function like a standard monitor. Two controls in the on-screen display can be adjusted to improve image performance or digital conversion: Clock and Clock Phase. Increasing the Clock value will increase the horizontal size of the image, and adjusting Clock Phase will focus the display.

✎ Selecting some values of Clock and Clock Phase may cause the monitor to lose sync with the computer. If this occurs, continue adjusting the values until sync is regained. To restore the factory settings, select *Reset* from the *Factory Reset* menu in the on-screen display.

Display Resolutions

The display resolutions listed below are the most commonly used modes and are set as factory defaults. This monitor automatically recognizes these preset modes when they are requested by a software program and will provide the user with a properly sized and centered display.

Display Resolutions	
Preset Modes	**Resolutions**
1. Industry Standard	640 × 350 at 31.5 kHz/70 Hz
2. Industry Standard	640 × 480 at 31.5 kHz/60 Hz
3. VESA	640 × 480 at 37.5 kHz/75 Hz
4. VESA	640 × 480 at 43.3 kHz/85 Hz
5. Industry Standard	720 × 400 at 31.5 kHz/70 Hz
6. VESA	800 × 600 at 37.8 kHz/60 Hz
7. VESA	800 × 600 at 46.9 kHz/75 Hz
8. VESA	800 × 600 at 53.7 kHz/85 Hz
9. Macintosh	832 × 624 at 49.7 kHz/75 Hz
10. VESA	1024 × 768 at 48.4 kHz/60 Hz
11. VESA	1024 × 768 at 56.5 kHz/70 Hz
12. VESA	1024 × 768 at 60 kHz/75 Hz

User Modes

The video controller signal may occasionally call for a mode that is not preset if:

■ You are not using a Compaq standard graphics adapter.

■ You are not using a preset mode.

If this occurs, you may need to readjust the parameters of the monitor screen by using the on-screen display. User changes can be made to any or all of these modes and saved in memory. The monitor automatically stores the new setting, then automatically recognizes the new mode just as it does a preset mode. In addition to the 12 preset modes that can be changed and stored, there are 4 user modes that can be entered and stored.

To revert back to the factory default settings, select *Reset* from the *Factory Reset* menu in the on-screen display, and the factory default resolutions will replace the user changes made for the operating original display mode.

Energy Saver Feature

The energy saver feature has three different modes of operation:

■ Full power mode

■ Suspend mode

■ Sleep mode

By selecting settings in the computer's Energy Saver utility, you are able to determine the length of the inactivity period before the monitor goes into suspend or sleep mode.

The following table describes the monitor energy saver levels available during the different modes of operation.

Energy Saver Levels*		
Mode	**Power Usage**	**Description**
Full Power	Less than 35 watts	ON = Normal operation Power LED is green.
Suspend	Less than 10 watts	Monitor screen is blanked. Backlights are turned off. Power LED turns yellow. Full power mode returns quickly.
Sleep	Less than 8 watts	Monitor screen is blanked. Backlights are turned off. Power LED turns amber. There is a brief warm-up period before returning to full power mode.
Programmable Sleep	Less than 8 watts	Monitor screen is blanked. Backlights are turned off. Power LED blinks green and amber. There is a brief warm-up period before returning to full power mode.

*The energy saver levels listed are for the monitor only and do not include any USB devices connected to the USB ports. For information on specific USB power levels, refer to the reference manual that comes with the USB device.

Refer to your computer manual for instructions on setting energy saver features (sometimes referred to as power management features).

✎ The energy saver features for monitors only work when connected to computers that have energy saver features.

Care and Maintenance

This section explains how to care for and maintain your Compaq monitor during normal everyday use.

Protecting the Monitor

To protect your monitor from overheating and other types of damage, follow these suggestions:

■ Use only a power source and connection appropriate for this monitor, as indicated on the marking label/back plate.

■ If an extension cord or power strip is used, make sure that the cord or strip is rated for the product and that the total ampere ratings of all products plugged into the extension cord or power strip do not exceed 80% of the extension cord or strip ampere ratings limit.

■ Do not overload an electrical outlet, power strip, or convenience receptacle. The overall system load must not exceed 80% of the branch circuit rating. If power strips are used, the load should not exceed 80% of the power strip input rating.

■ Install the monitor near an outlet that you can easily reach. Disconnect the product by grasping the plug firmly and pulling it from the outlet. Never disconnect it by pulling the cord.

■ Unplug the monitor from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners.

■ Slots and openings in the cabinet are provided for ventilation. These openings must not be blocked or covered. Never push objects of any kind into cabinet slots or other openings.

■ Do not place plants on top of the monitor. Water or dirt from the plant may fall into the vents.

■ Do not drop the monitor or place it on an unstable surface.

■ Do not allow anything to rest on the power cord. Do not walk on the cord.

■ Keep the monitor in a well-ventilated area, away from excessive light, heat, and moisture. Keep the monitor away from high capacity transformers, electric motors, and other strong magnetic fields.

■ Do not open the monitor cabinet or attempt to service this product yourself. Adjust only those controls that are covered
by the operating instructions. If the monitor is not operating properly or has been dropped or damaged, contact your Compaq authorized dealer, reseller, or service provider.

Cleaning the Monitor

To clean the monitor, follow these steps:

1. Turn off the monitor and the computer.

2. Dust the monitor by wiping the screen and the cabinet with a soft, clean cloth.

If the screen requires additional cleaning, use any antistatic CRT screen cleaner.

> △ **CAUTION:** Do not use benzene, thinner, ammonia, or any volatile substance to clean the monitor screen or cabinet. These chemicals may damage the monitor. Never use water to clean an LCD screen.

Shipping the Monitor

Keep the original packing box in a storage area. You may need it later if you move or ship your monitor.

appendix

AGENCY REGULATORY NOTICES

Federal Communications Commission Notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

■ Reorient or relocate the receiving antenna.

■ Increase the separation between the equipment and the receiver.

■ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

■ Consult the dealer or an experienced radio or television technician for help.

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Compaq Computer Corporation may void the user's authority to operate the equipment.

Cables

Connections to this device must be made with shielded cables with metallic RFI/EMI connector hoods to maintain compliance with FCC Rules and Regulations.

Declaration of Conformity for Products Marked with FCC Logo, United States Only

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.

For questions regarding this declaration, contact:

Compaq Computer Corporation
P.O. Box 692000, Mail Stop 510101
Houston, Texas 77269-2000

Or call: (281) 514-3333

To identify this product, refer to the Series/model number found on the product.

Canadian Notice

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Avis Canadien

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

German Ergonomics Notice

Compaq Computers, when tested with the Compaq 643 Series monitors, were evaluated and found compliant to the requirements of ZH 1/618 (German Safety Regulations for Display Work Places in the Office Sector) in the Text Mode (720×400) using MS-DOS Version 3.31 (or higher) and BASICA as published by Compaq Computer Corporation.

EPA Energy Star Compliance

Monitors that are marked with the Energy Star Logo meet the requirements of the EPA Energy Star program. As an Energy Star Partner, Compaq Computer Corporation has determined that this product meets the Energy Star guidelines for energy efficiency. Specific details on using the Energy Saving features can be found in the energy saver or power management section of the computer manual.

European Notice

Products with the CE Marking comply with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European norms:

■ EN55022 (CISPR 22) - Radio Frequency Interference

■ EN50082-1 (IEC801-2, IEC801-3, IEC801-4) - Electromagnetic Immunity

■ EN60950 (IEC950) - Product Safety

Japanese Notice

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　取扱説明書に従って正しい取り扱いをして下さい。

SPECIFICATIONS

Compaq TFT450 Flat Panel Monitor

Display	14.5-in	36.83 cm
Type	Flat panel, Active matrix-TFT LCD	
Viewable Image Size	14.5-in diagonal	36.83 cm
Face Treatment	Transparent protector with antiglare coating	
Maximum Weight (Unpacked)	13.2 lb	6.0 kg
Maximum Dimensions		
Height	15.60 in	39.6 cm
Depth	8.58 in	21.8 cm
Width	14.42 in	36.6 cm
Maximum Graphics Resolution	1024 X 768 at 75 Hz Refresh Rate	
Text Mode	720 X 400	
Dot Pitch	0.28 mm	
Horizontal Frequency	31.5 to 60 kHz	
Vertical Frequency	56.3 to 85 Hz	
Environmental Requirements Temperature		
Operating Temperature	41 to 95°F	5 to 35°C
Storage Temperature	-43 to 140°F	-20 to 60°C
Humidity (Non-Condensing)		
Operating	20 to 80%	
Non-Operating	5 to 95%	
Power Source	100-240 VAC, 50-60 Hz	
Power Consumption	< 35 watts	
Input Terminal	15-pin D-type connector with cable	

Connector Pin Assignments

Signal Cable		
Connector	**Pin**	**Signal**
	1	Red Video
	2	Green Video/Sync on green
	3	Blue Video
	4	Open
	5	Return
	6	Red Gnd
	7	Green Gnd
	8	Blue Gnd
	9	Reserved (No Pin)
	10	Sync Return
	11	Open
	12*	Bidirectional Data (SDA)
	13	H-Sync/Composite Sync
	14	V-Sync
	15*	Data Clock (SCL)

* DDC Signals

Color Display Values

CIE* Chromaticity Coordinates	
x (+/- 0.030)	**y (+/- 0.030)**
Red	0.57	0.35
Blue	0.13	0.12
Green	0.28	0.59
White Point (6500 K)	0.31	0.35
Gamma: 2.2		

*Commission International d'Eclairage, 1931 Standard.

Power Cord Set Requirements

The monitor power supply is provided with Automatic Line Switching (ALS). This feature allows the monitor to operate on input voltages between 100-120V or 220-240V.

The power cord set (flexible cord or wall plug) received with the monitor meets the requirements for use in the country where you purchased the equipment.

Power cord sets must meet the requirements of the country where you use the monitor. For more information on power cord set requirements, contact your Compaq authorized dealer, reseller or service provider.

General Requirements

The requirements listed below are applicable to all countries:

1. The length of the power cord set must be at least 5.00 feet (1.5 m) and a maximum of 9.75 feet (3.0 m).

2. All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country where the power cord set will be used.

3. The power cord set must have a minimum current capacity of 10A and a nominal voltage rating of 125 VAC or 5 Amps at 250 volts AC, as required by each country's power system.

4. The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector, for mating with appliance inlet on the rear of the unit.

Country-Specific Requirements

Power Cord Set Requirements: By Country

Country	Accredited Agency	Applicable Note Numbers
Australia	EANSW	1
Austria	OVE	1
Belgium	CEBC	1
Canada	CSA	2
Denmark	DEMKO	1
Finland	FIMKO	1
France	UTE	1
Germany	VDE	1
Italy	IMQ	1
Japan	MITI	3
The Netherlands	KEMA	1
Norway	NEMKO	1
Sweden	SEMKO	1
Switzerland	SEV	1
United Kingdom	BSI	1
United States	UL	2

Notes:

1. The flexible cord must be <HAR> Type HO5VV-F, 3-conductor, 1.0 mm2 conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.

2. The flexible cord must be Type SJT or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15A, 125V) or NEMA 6-15P (15A 250V) configuration.

3. The appliance coupler, flexible cord, and wall plug must bear a "T" mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 0.75mm^2 conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (15A, 125V) configuration.