PowerStation RS Monitor

User Guide

Copyright and Trademark Notice

Product Warranty Information

CTC Parker Automation provides top quality products through rigid testing and the highest quality control standards. However, should a problem occur with your hardware or with the software protection key, CTC Parker's standard product warranty covers these items for 15 months from the date of shipment from CTC. Exceptions appear below:

- PowerStation RS backlight bulbs have a 90-day warranty.

- Third-party products, such as bus cards, carry the manufacturer's specified warranty.

- For all displays, image retention (burn-in) is not covered by warranty.

- Software revisions that occur within 60 days after purchase are available, under warranty, upon request. Please review the MachineShop License Agreement for additional software warranty information.

Should you have any questions about your application or need technical assistance, please call CTC Parker's Product Technical Support department at 513-248-1714, 8:00 a.m. to 5:00 p.m., Eastern Time. You may call this same number after hours for emergency assistance. See *Customer Support Services* on page 6 of this manual for more information about CTC Parker's support products and services.

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Manual Overview and Support Services

Thank you for purchasing a PowerStation RS (Remote System) Monitor.

The RS Monitor is a flat-panel monitor that can be mounted in a control enclosure or on an adjustable arm. It can be used with the PowerStation RS PC or with other computers that run MS-DOS® or Windows® 95, 98, or NT operating systems.

This manual describes the RS Monitor's features and technical specifications. It also explains procedures for installing, maintaining, and troubleshooting the monitor. Please take time to review the manual and all related documentation before operating the unit.

Chapter Contents

Using this Manual

This manual is designed to help you set up and use your PowerStation RS Monitor. The manual lists the monitor's specifications. It also explains how to install the monitor and connect it to a computer, how to maintain the monitor in good condition, and how to solve common problems that may occur in operation.

This manual is divided into the following chapters:

Chapter 1 — Manual Overview and Support Services: Presents an overview of this manual, the other documentation provided with the RS Monitor, and CTC Parker's customer support services.

Chapter 2 — Introducing the RS Monitor: Describes the monitor's specifications and the ports available to connect the monitor to a computer and a power source.

Chapter 3 — Installing the RS Monitor: Explains how to mount the monitor in an enclosure.

Chapter 4 — Connecting to a Computer: Explains how to connect the monitor to a computer and how to set up the monitor so that it will work properly with the computer.

Chapter 5 — Maintaining and Troubleshooting the RS Monitor: Explains how to maintain the monitor and how to solve problems that may occur in operation.

Appendix A — RS Monitor Dimensional Drawings: Displays dimensional drawings of the monitor that will be useful in mounting the unit.

Documentation Components

The RS Monitor documentation set contains all of the information you need to install, configure, and use the monitor. The documentation set includes:

Release Notes — This document is provided whenever there is important information about the RS Monitor that does not appear in this manual. Be sure to read the release notes before installing or operating the unit.

PowerStation RS Monitor User Guide **—** This is the document you are reading. It provides detailed information about the RS Monitor and describes how to install, configure, and maintain the unit. Please read this manual in its entirety before installing or operating the monitor.

Software Components

The PowerStation RS Monitor is shipped with the following disks, which you can use to reinstall or back up your RS Monitor software.

Touchscreen Software Disks: These disks are shipped only with PowerStation RS Monitors with touchscreen. If you have purchased an RS touchscreen monitor, and you are using it with a PowerStation RS PC, touchscreen drivers and utilities will be pre-installed by CTC Parker. In case you will use your RS touchscreen monitor with another computer, or in the event that you need to re-install the touchscreen software, a set of touchscreen software disks has been shipped with your monitor.

Getting Started

Now that you have opened the RS Monitor package, you are ready to unpack the monitor and install it in a permanent location. This section provides an overview of these activities. Additional information is available in the remaining chapters of this manual.

Before You Begin

Before you install or operate the RS Monitor, please complete the following steps:

1. Unpack the monitor and verify that you have received all the components that you ordered.

2. Fill out the product registration card and return it to CTC Parker. When you register your unit, you will receive a trial membership in CTC Parker's Product Support Program (PSP), which provides access to the PSP Web site, information on product updates, and service bulletins.

3. Back up the CTC Parker software that came with the monitor using Windows Explorer or the MS-DOS diskcopy command.

Install the RS Monitor

Once you have unpacked the monitor and completed the steps listed above, you are ready to install the RS Monitor. Detailed instructions on how to select a location for the monitor, create a cutout, and install the monitor in an enclosure are presented in Chapter 3, *Installing the RS Monitor*.

Connect the Monitor to a Computer

When you have installed the RS Monitor, you are ready to connect the monitor to a computer—either to the PowerStation RS PC or another computer. Then you will start up your system and set up the monitor (if you are using it with a non-PowerStation RS PC). Detailed instructions for completing these activities are included in Chapter 4, *Connecting to a Computer*.

Documentation Standards

As you read this manual, you will notice that it uses the following documentation standards:

1. Important terms are shown in **bold**.

2. Text to be entered from the keyboard is shown in `Courier` font.

3. Buttons, menu titles, and keyboard keys are shown in Initial Caps.

4. Indented paragraphs denote one of the following:

   • **Note** — Describes alternative approaches or issues you should be aware of when performing an activity.

   • **Important** — Contains information that you should pay particular attention to while reading. Follow this information to save time and/or minimize problems.

   • **Warning** — Contains information on safety issues. Follow this information to prevent equipment damage or personal injury.

ISO Symbols

This symbol is the International Standards Organization (ISO) symbol for **Caution** (ISO 3864 No. B.3.1). This symbol denotes information that could affect operation of the PowerStation RS Monitor if the information is not properly followed.

This symbol is the ISO symbol for **Caution - risk of electrical shock** (ISO 3864 No. B.3.6). This symbol denotes information about conditions that could cause personal injury from electrical shock or damage to equipment if the information is not properly followed.

Customer Support Services

CTC Parker welcomes your thoughts and suggestions on our products and services. You can contact CTC Parker by telephone, email, or fax. You can also visit CTC Parker on the World Wide Web to learn the latest about our hardware, software, and customer support services.

- Telephone: 513-831-2340
- Fax: 513-831-5042
- E-mail: sales@ctcusa.com or support@ctcusa.com
- World Wide Web: http://www.ctcusa.com

CTC Parker recognizes that every customer and every application have different support needs, so we offer a variety of support services designed to meet these needs. CTC Parker offers three types of customer support services: Product Technical Support, Technical Support Products, and the Product Support Program (PSP)

Product Technical Support

The Product Technical Support department welcomes any question that might arise as you develop or run your applications. We offer complimentary support for any customer, whether you are an end-user, original equipment manufacturer (OEM), system integrator, or distributor.

If you have a question about the PowerStation RS Monitor, be sure to complete the following steps:

1. Check any release notes shipped with the unit. These notes provide important information about the RS Monitor.

2. Consult the *PowerStation RS Monitor User Guide* and other printed materials included with the unit.

3. Review Chapter 5 of this manual, *Maintaining and Troubleshooting the RS Monitor.*

If you cannot find a solution by using one or more of the above sources, contact our Product Technical Support department at 513-248-1714, 8:00 a.m. to 5:00 p.m., Eastern Time. You may call this same number after hours for emergency assistance.

Technical Support Products

Our Technical Support Products department provides service in two areas: training and consulting. CTC Parker offers training on all our products, either at CTC Parker in our state-of-the-art training center or at your site. You can learn how to write custom interfaces, develop specialized applications, and implement your complete operator interface application. You can contact the Training Coordinator by phone at 1-800-233-3329 or by email at training@ctcusa.com.

CTC Parker offers consulting services through our Professional Consulting Services (PCS) group. Our PCS group can build your application from the ground up by writing custom communications drivers or by designing special modules to perform functions unique to your application. Our team of specialists is flexible, so they can create a project development schedule that meets your needs. You can contact the PCS Coordinator by phone at 1-800-233-3329 or by email at pcs@ctcusa.com.

Product Support Program

The Product Support Program is designed to keep you up-to-date with current versions of CTC Parker software. The PSP consists of a renewable, one-year membership that provides you with free upgrades, utilities, automatic notification of software updates and other valuable tools for MachineShop, Interact, and Machine-Logic. Single-user, site, and corporate licenses are available. The PSP is an easy, cost-effective way to receive the most recent CTC Parker software and associated utilities. You can contact the PSP Coordinator by phone at 1-800-233-3329 or by email at psp@ctcusa.com.

Chapter 2

Introducing the RS Monitor

The PowerStation RS Monitor is a flat-panel monitor that can be used with the PowerStation RS PC or with another computer running MS-DOS or Windows 95, 98, or NT. It comes in 12.1" (SVGA) and 15.1" (XGA) display sizes. This chapter outlines the monitor's specifications and describes its available connectors.

Chapter Contents

Specifications

This section describes important specifications for the PowerStation RS Monitor. Please familiarize yourself with these specifications before operating the monitor.

Physical Specifications

The RS Monitor's physical specifications are listed in the table below.

Category	Specifications
Dimensions (H x W x D)	• 12.1" Monitor — 12.1" x 15.1" x 3.6" (307.59mm x 382.52mm x 91.44mm) • 15.1" Monitor — 13.3" x 16.8" x 3.8" (337.82mm x 426.72mm x 96.14mm)
I/O Ports	• Video Input — Analog RGB through a standard 15-pin DSUB connector • Touchscreen input — Serial RS232 (DCE) through a standard 9-pin DSUB connector
Weight	• 12.1" Monitor — 14.6 lbs. (6.6Kg) • 15.1" Monitor — 17.2 lbs. (7.8Kg)

Display Specifications

Display specifications for the RS Monitor are shown in the table below.

Category	Specifications
12.1" Monitor	
Color depth	Up to 262,144 colors (18 bits/pixel, "High Color")
Brightness	270 cd/m^2 (nits)
Backlight lifetime	30,000 hours
Pixel format	SVGA 800 X 600
15.1" Monitor	
Color depth	Up to 262,144 colors (18 bits/pixel, "High Color")
Brightness	200 cd/m^2 (nits)
Backlight lifetime	50,000 hours
Pixel format	XGA 1024 X 768

Video Modes Supported

The RS Monitor supports the video modes shown in the table below.

Resolution	Vertical Sync Frequency (Refresh Rate)	Horizontal Sync Frequency
640 X 350	70 Hz	31.47 Khz
720 X 400	70 Hz	31.47 Khz
640 X 480	60 Hz	31.47 Khz
640 X 480	72 Hz	37.86 Khz
640 X 480	75 Hz	37.50 Khz
640 X 480	85 Hz	43.27 Khz
800 X 600	56 Hz	35.16 Khz
800 X 600	60 Hz	37.88 Khz
800 X 600	72 Hz	48.08 Khz
800 X 600	75 Hz	46.87 Khz
800 X 600	85 Hz	53.67 Khz
1024 X 768	60 Hz	48.36 Khz
1024 X 768	70 Hz	56.48 Khz
1024 X 768	75 Hz	60.02 Khz

Environmental Specifications

The RS Monitor conforms to the environmental specifications listed in the table below.

Category	Specifications
Operating temperature	32°–122^oF (0°–50^oC)
Storage temperature	-13°–140^oF (-25°–60^oC)
Relative humidity	95% @ Ta < or = 104^oF (40^oC) non-condensing
Altitude	N/A
Shock rating	• Operating — 10g 11ms pulse • Non-operating — 30g 11ms pulse
Operating vibration	5–500 Hz 1 grms
Monitor gasket	Designed for NEMA 4 environment

Important Limit the RS Monitor's exposure to adverse conditions such as dust, oil, moisture, and corrosive vapors in order to minimize maintenance and repair costs.

Remember that the temperature within a protective enclosure is generally higher than the external temperature. Thus, if the monitor is operating inside an enclosure at temperature levels above its rated ambient temperature, you must cool the enclosure.

Electrical Specifications

The RS Monitor's electrical specifications are shown in the table below.

Category	Specifications
Input voltage range	20–36 VDC
Power requirements	30 Watts maximum
Fuse rating	3.15A (IEC 127-2 sheet 1, fast-acting type)

Important The PowerStation RS Monitor's power supply automatically detects the input voltage level and adjusts accordingly. However, always use reliable sources of power and isolate all communication cables from power lines to enhance noise immunity.

If possible, locate the monitor away from machinery that produces intense electrical noise (for example, arc welders). Otherwise, isolate the input power to the monitor from the equipment generating the noise.

Testing Specifications

The RS Monitor conforms to the testing specifications listed below.

Testing Criteria	Classification
Showering arc	NEMA showering arc
Surge withstanding capacitance	IEEE 472-1974
ESD requirements	IEC 801-2
Operating temperature	IEC 68-2-1
Electrical fast transient	IEC 801-4
European Harmonized EAC Standards	EN50082-2, EN55011
Operating vibration	IEC 68-2-6
Mechanical shock	IEC 68-2-27
Random vibration	MIL-STD-810E

Faceplate Chemical Resistance

The RS Monitor's screen can resist the chemicals listed in the table below with no visible effect.

Screen Chemical Resistance		
Acetone	Sulfuric Acid 10%	Motor oil
MEK	Hydrochloric Acid 10%	Gasoline
Toluene	Acetic Acid	Machine oil
Methylene Chloride	Phosphoric Acid	Salad oil
Isopropyl Alcohol	Sodium Hydroxide 10%	Silicone
Xylene	Carbon Tetrachloride	Silicone grease G31
Hexane	Potassium Hydroxide	Kerosene
Butyl Cellosolve	Ammonia water 10%	Gas oil
Cyclohexanone	Sodium Chloride 26%	Silicone oil
Trichloroethylene	Zinc Chloride 81%	Engine oil
Ethanol	Cottonseed oil	Cleanser
Methanol	Glycerin	
Nitric Acid 10%	Grease	

All RS Monitor surfaces exposed to the outside are resistive to the following chemicals:

• Commercial glass cleaners

• Ammonia (10% dilute solution)

• Motor oil

• Hydraulic fluid

• Diesel fuel

• Gasoline (leaded and unleaded)

• Silicone-based lubricant

• Alcohol (ethyl, methyl)

• Automatic transmission fluid

Warning Sustained exposure to brake fluid or Gunk® brand degreaser can cause damage to monitor materials.

Available Connectors

The RS Monitor has three connectors, all located on its left side. They are as follows, moving from top to bottom:

•   +24VDC Power Input port

•   Touchscreen port (used only in touchscreen monitors)

•   Analog Video Input port

The following illustration shows a side view of the RS Monitor with its three connectors.

+24VDC Power Input port

Touchscreen port

Analog Video Input port
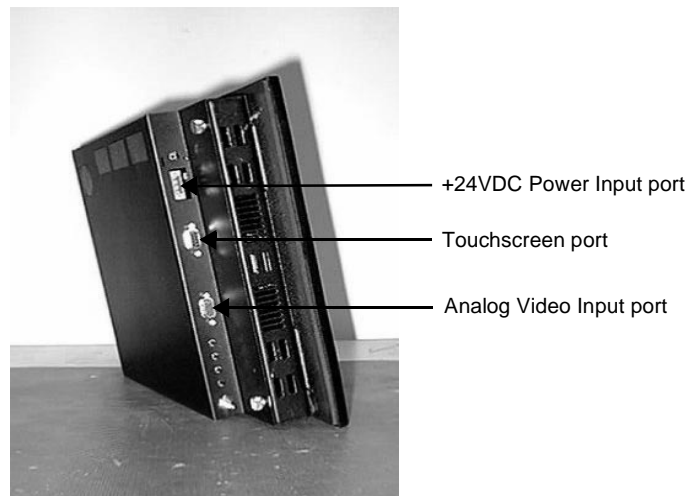
Touchscreen Cable Diagram

For RS Monitors with a touchscreen, the diagram below shows the connections between the monitor and a host computer.

Host Computer	RS Monitor
1 DCD	1
2 RXD	2
3 TXD	3
4 DTR	4
5 GND	5
6 DSR	6
7 RTS	7
8 CTS	8
9 RI	9
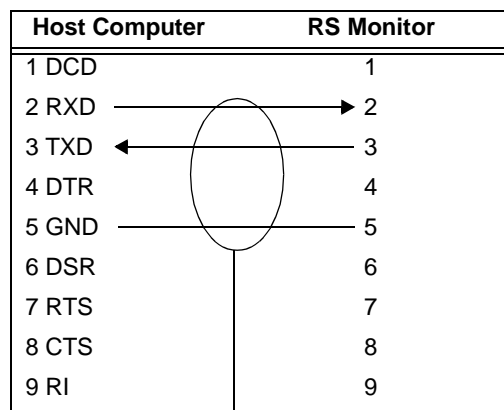
RS/232 Communication @ 2400 Baud

Video Input Signals   The table below shows the video inputs from a host computer to the RS Monitor.

Video Cable Signals		
1 Red	6 Green Shield	11 N/C
2 Green	7 Blue Shield	12 N/C
3 Blue	8 GND	13 HSYNC
4 N/C	9 N/C	14 VSYNC
5 Red Shield	10 GND	15 N/C

Installing the RS Monitor

You can install the PowerStation RS Monitor by mounting it in a control enclosure or on an adjustable arm.

This chapter explains how to select an appropriate location for the monitor, create a cutout for the monitor, and mount the monitor in an enclosure.

You will need to read the last two sections of this chapter, *Creating a Cutout* and *Mounting the Monitor in an Enclosure,* only if you intend to mount the RS Monitor in an enclosure. If you are mounting the monitor on an adjustable arm, see the documentation for the PowerStation RS Monitor Mounting Cover and the documentation that accompanies the arm for installation instructions.

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Selecting a Location

Whether you plan to install the RS Monitor in a control enclosure or on an adjustable arm, the first step is to select an appropriate location for the unit. This is the most important aspect of installation because the location you select can affect the monitor's performance, ease of use, and life-expectancy. This section provides some guidelines to follow when selecting a location for the monitor.

Underwriters Laboratories Approval

In order to obtain Underwriters Laboratories approval for your monitor installation, the installation must meet the following criteria:

1. The monitor must be mounted in a standard industrial enclosure that provides fire protection.

2. The monitor must be mounted in an enclosure that meets a NEMA 4 rating.

3. If you purchased an RS Monitor with mounting cover, the monitor must use a limited energy power source, such as CTC Parker's External AC Power Supply Adapter (P1X-PWRAC).

Class I, Division 2 Guidelines

If you purchased a Class I, Division 2-compliant monitor, you must always follow these guidelines to maintain a safe operating environment:

1. Suitable for use in Class I, Division 2, Groups A, B, C, and D hazardous locations only.

2. **Warning: Explosion Hazard —** Do not disconnect equipment or replace or insert cards unless power has been switched to off.

3. **Warning: Explosion Hazard —** Substitution of components may impair suitability for Class I, Division 2.

4. When performing field wiring, always use copper wire with 60C or 60/75C insulation and a tightening torque of 7.0 lb./in. (0.79 N-m).

Environmental Guidelines

The environment is the area where the monitor will be located. In general, select a place that limits the unit's exposure to adverse conditions such as dust, oil, moisture, condensation, and corrosive vapors.

Screen considerations

The monitor's screen is resistant to a variety of chemicals. See *Faceplate Chemical Resistance* on page 13 of this manual for a complete list of these chemicals.

Electrical Guidelines

To minimize unwanted electrical interference, select a location away from machinery that produces intense electrical noise. If this noise cannot be avoided, isolate input power to the unit and separate all data communication cables used with the unit from power lines.

See *Electrical Specifications* on page 12 of this manual for a list of the RS Monitor's electrical specifications. Make sure that your power source is completely compatible with the monitor before starting the unit.

Temperature/ Humidity Guidelines

You can safely operate the RS Monitor within the temperature range specified in *Environmental Specifications* on page 11 of this manual. However, if the monitor is mounted in an enclosure, remember that the temperature within the enclosure is generally higher than the external temperature. If the monitor is operating inside an enclosure at temperature levels above its rated ambient temperature, you must cool the enclosure.

Be sure to choose an area for the monitor that is free from moisture or condensing humidity.

Enclosure Guidelines

Select an enclosure that is large enough to allow free airflow around the monitor. You should allow a minimum of 2 inches between the inside of the enclosure and the top, bottom, sides, and back of the monitor.

Creating a Cutout

You will need to read this section of the manual only if you intend to mount the RS Monitor in an enclosure. If you plan to mount the monitor on an adjustable arm, see the documentation for the PowerStation RS Monitor Mounting Cover and the documentation that accompanies the arm for installation instructions.

If you are mounting the RS Monitor in an enclosure, you first will need to create a cutout for the unit and clean the area of any dirt or debris that might come in contact with the monitor.

To create a cutout for the monitor, complete the following steps:

1. Cut a space in which to mount the monitor. The dimensions of the cutout will depend upon the size of your monitor. Cutout dimensions for the RS 12.1" and 15.1" monitors are shown in the table below.

Monitor Size	Cutout Height	Cutout Width
12.1"	11.25" (285.75mm)	14.15" (359.41mm)
15.1"	12.40" (314.96mm)	15.90" (403.86mm)

   See *RS Monitor Dimensional Drawings* on page 67 of this manual for the depth and port dimensions of your monitor. Use these dimensions to customize the mounting of your unit.

Important An External AC Adapter for the RS Monitor is available from CTC Parker and can be mounted on the back of all RS Monitors that do not have a mounting cover. If you choose to mount the adapter on the back of the monitor, be sure to take the adapter's dimensions into account when planning the depth of the monitor enclosure. See *Mounting the External AC Adapter* on page 21 of this manual for instructions on how to mount the adapter on the monitor.

2. Debur the cutout area.

3. Make sure that the mounting surface has remained flat and that the area where the monitor will meet the panel is clean and free of foreign materials.

Mounting the Monitor in an Enclosure

You will need to read this section of the manual only if you intend to mount the RS Monitor in an enclosure. If you plan to mount the monitor on an adjustable arm, see the documentation for the PowerStation RS Monitor Mounting Cover and the documentation that accompanies the arm for installation instructions.

This section of the manual will tell you how to mount CTC Parker's External AC Power Supply Adapter on the monitor and how to install the monitor in an enclosure.

Mounting the External AC Adapter

Since the RS Monitor is a DC device, you will need to use an AC adapter if you intend to power the monitor with AC voltage. An External AC Power Supply Adapter (P1X-PWRAC) is available from CTC Parker, along with an installation kit that will enable you to mount the adapter either on the back of the monitor or near the monitor. The adapter can only be mounted on the back of RS Monitors that do not have a mounting cover.

Important If you intend to mount the External AC Adapter on the back of the RS Monitor, be sure to take the adapter's dimensions into account when planning the depth of the monitor enclosure.
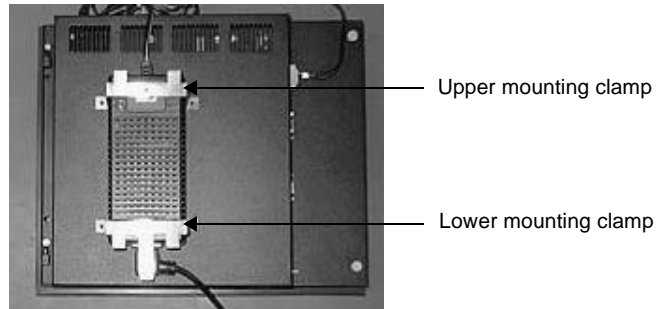
To mount the External AC Adapter on the back of the monitor, complete the following steps:

1. Place the monitor face-down on a static dissipative mat in a location free from dirt and moisture and protected against static discharge.

2. Place the External AC Adapter between the four mounting holes in the center of the monitor back, as shown below. Make sure that the Adapter's DC connection is toward the top of the monitor and that the AC connection is toward the bottom.
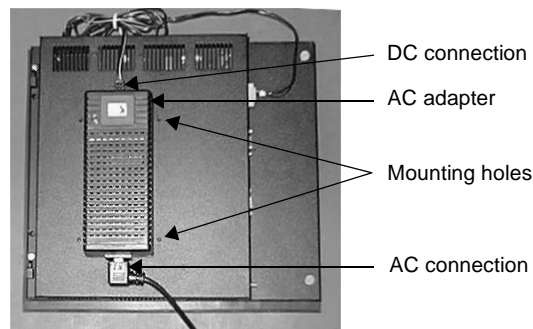
3. Place the two adapter mounting clamps over the top and bottom of the adapter, as shown below. Align the holes in the clamps with the mounting holes in the back of the monitor.

   Note Notice that the lower mounting clamp has a special extension that reaches down over the AC connection and holds it in place.

Upper mounting clamp

Lower mounting clamp

4. Fasten the adapter to the monitor with the four retaining screws included in the adapter installation kit. The completed installation should look like the illustration below.
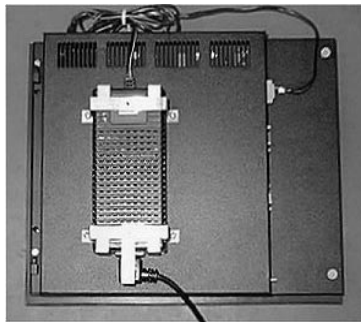
   Note For instructions on how to mount the External AC Adapter near the monitor, see the documentation that accompanies the adapter installation kit.

Mounting the Monitor The procedures for mounting the 12.1" and 15.1" RS Monitor are slightly different. This is because the 12.1" monitor uses six clamps to mount in its enclosure, while the 15.1" monitor uses eight clamps.

To mount the RS Monitor in an enclosure, complete the following steps:

1. Slide the monitor into the cutout from the front.

2. If you have a 12.1" RS monitor, attach six mounting clamps, with their screws, to the back of the monitor in the spaces provided for them, as shown in the illustration below. You will place two clamps at the top and bottom of the monitor and one on each side.

   Note The prongs at the bottom of each clamp should face backward and should hook into the slots in each space. The end of each screw should point toward the front of the enclosure.

Inside front surface of the enclosure

Mounting clamps fasten monitor to the front of the enclosure
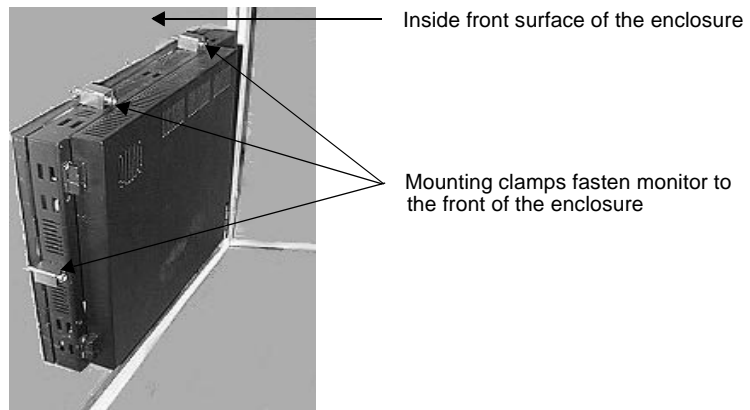
   If you have a 15.1" Monitor, attach eight mounting clamps, with their screws, to the back of the monitor in the spaces provided for them. You will place two clamps at the top and bottom of the monitor and two on each side.

3. Tighten each screw against the front of the enclosure to a torque of 0.5 lb./in.

After you have mounted the RS Monitor, you are ready to connect the monitor to a computer, start up your system, and, if necessary, set up the monitor. Instructions for these activities are described in Chapter 4 of this manual, *Connecting to a Computer*.

Connecting to a Computer

The PowerStation RS Monitor is designed to be used with a computer—either CTC Parker's PowerStation RS PC or another computer running MS-DOS or Windows 95, 98, or NT. If you purchase the RS PC with your monitor, your complete PowerStation Remote System will be set up and ready for you to use once you connect the components. However, if you connect your monitor to another computer, you will have to perform some monitor setup procedures.

This chapter will tell you how to connect the RS Monitor to your computer, how to prepare the monitor to work with your computer, and how to read and adjust the on-screen display (OSD).
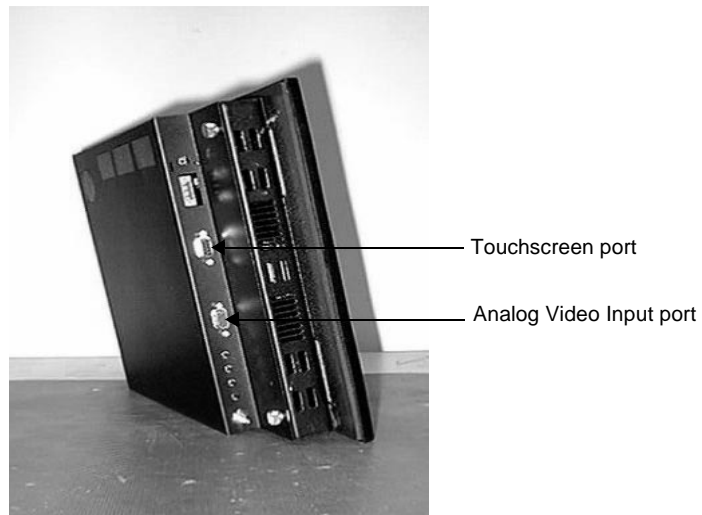
Chapter Contents

Connecting to the RS PC

To connect your RS Monitor to the PowerStation RS PC, complete the following steps:

• Connect the 15-pin video cable to the Analog Video Input port on both the monitor and the PC.

• If you have a touchscreen monitor, connect the 9-pin touch-screen cable to the Touchscreen port on the monitor and to the COM port on the PC that you will use for touchscreen communications.

> **Note** The COM2 port on the RS PC is configured, by default, for communication with the RS touchscreen monitor.

Touchscreen port

Analog Video Input port

Connecting to Other Computers

To connect your RS Monitor to a non-PowerStation RS PC running MS-DOS or Windows, complete the following steps:

- Connect the 15-pin video cable to the Analog Video Input port at the left side of the monitor and to the 15-pin video port on your computer.

- If you have a touchscreen monitor, connect the 9-pin touch-screen cable to the Touchscreen port on the monitor and to the 9-pin serial port on your computer that you will use for touchscreen communications.

Starting Up

Once you have connected your RS Monitor to the PowerStation RS PC or to another computer, you are ready to start up your system. The procedure for doing this is described below.

Before connecting power to your unit, make sure that you have read and understood *Electrical Specifications* on page 12 of this manual and *Testing Specifications* on page 12. Also, make sure that you follow the guidelines listed below:

• **For permanently connected equipment**, a readily accessible disconnect device must be incorporated in the fixed wiring.

• **For pluggable equipment**, the socket-outlet must be installed near the equipment and should be easily accessible.

Special Note concerning use in EU member countries

Proper installation of the RS Monitor for use in European Union countries requires the use of a harmonized power cord. (The power cord must be identified with the <HAR> symbol.) Make sure that the RS Monitor is only connected to the main supply with a harmonized power cord.

To start up your PowerStation RS system, complete the following steps:

1. Locate the Power On/Off switch at the upper left side of the monitor, as shown below.

Power On/Off switch
Power Input port
Ground stud
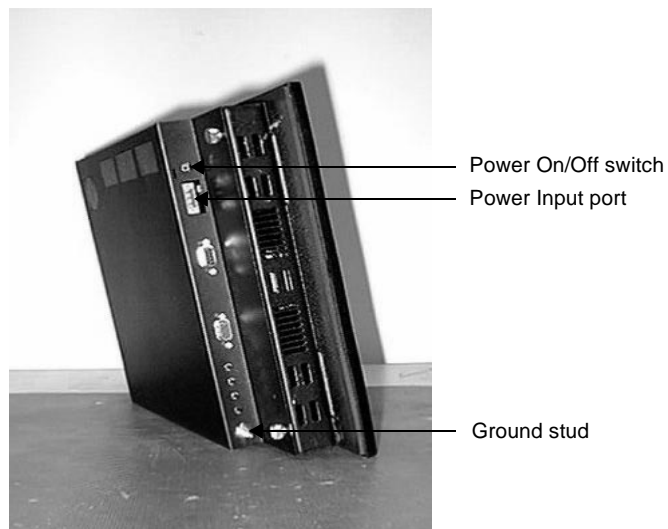
2. Make sure that the Power switch is off (in the "down" position).

3. Connect the power cord to the Power Input port at the left side of the monitor and to the voltage source (see the preceding illustration).

Warning Voltage input to the unit should be within the range specified in *Electrical Specifications* on page 12 of this manual.

4. Connect the ground stud at the lower left side of the monitor to an effective, known earth ground (see the preceding illustration).

5. Connect your computer to a power source.

6. Turn on the monitor (Power On/Off switch in the "up" position).

7. Turn on the computer.

Setting Up the RS Monitor

If you connect the RS Monitor to the PowerStation RS PC, CTC Parker will already have configured your monitor and PC with the proper settings. Your system should now be completely installed and functioning. You may skip this section of the manual. Refer to this section only if you need to make adjustments to your monitor in the future.

If you connect the RS Monitor to a non-PowerStation RS PC, you will have to perform some setup activities so that the monitor will work with your computer. These activities will depend upon the operating system your computer uses and whether your monitor has a touchscreen or not. The setup activities and the components for which you would perform them are shown in the table below. A discussion of each activity follows the table.

Setup Activity	Touch-screen Monitor	Non-touch-screen Monitor	Windows 95, 98, NT	DOS
Setting the monitor type	X	X	X	
Installing touchscreen drivers	X		X	X
Calibrating the touchscreen	X		X	X
Adjusting the video image	X	X	X	X

Setting the Monitor Type

You will only have to set the monitor type if your computer is running a Windows operating system.

Important Windows versions that will support the RS Monitor include versions 95, 98, and NT.

To set the monitor type, complete the following steps:

1. Right-click on the Windows desktop.

2. In the menu that appears, click the Properties option.

3. When the Display Properties dialog box opens, click the Settings tab. The Settings dialog box will appear as shown below.

   Note Depending upon the type of computer you are using (for example, a PowerStation RS PC or non-PowerStation RS PC), the screen displayed as you set the monitor type may differ slightly from the one shown below.
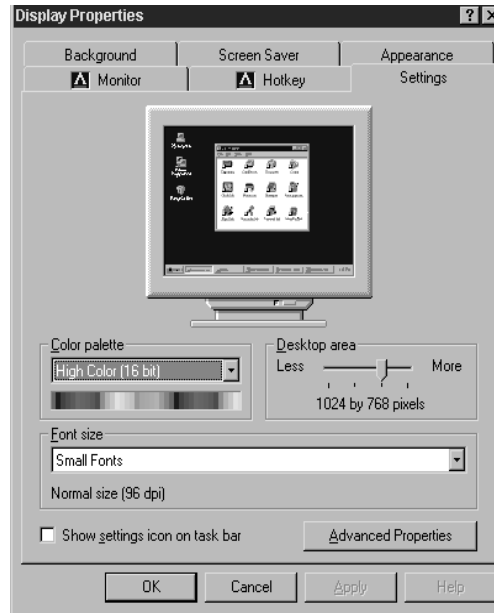

4. In the Settings dialog box, click the button at the lower right that says either Change Display Type or Advanced Properties. Either a Change Display Type or Advanced Display Properties dialog box will appear.

5. If a Change Display Type dialog box appears on your screen, click the Change button under the Monitor Type heading and go to step 8.

6. If an Advanced Display Properties dialog box appears, click the Monitor tab. The Monitor dialog box will appear.

7. In the Monitor dialog box, click the Change button at the upper right.

> **Note**   In the Monitor dialog box, you will see a box that says, "Monitor is Energy Star Compliant." If you check this box and select the energy-saving options (Low Standby and Shut Off Monitor) in the Screen Saver tab, you will take advantage of energy- and backlight-saving features built into the monitor.

8. When you click the Change button in either the Change Display Type or the Monitor dialog box, the Select Device dialog box will appear as shown below. Make sure that Show All Devices (at the lower left) is selected.
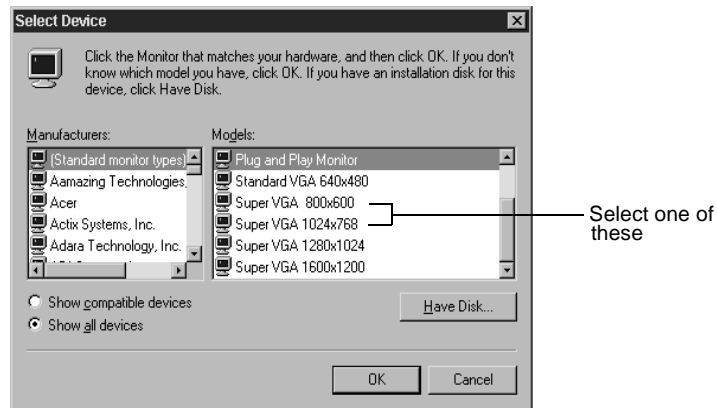
9. In the Manufacturers list box, select Standard Monitor Types.

10. In the Models list box, select the type of RS Monitor you are using, either:

    •   Super VGA 800 X 600 (12.1" monitor)

    •   Super VGA 1024 X 768 (15.1" monitor)

11. Click OK. A message will appear telling you that Windows will change the refresh rate of your monitor and that your monitor may blink when Windows does this.

12. Click OK. Your monitor may go blank for a second or two, then return to the display.

13. A message will appear that tells you that Windows has set your monitor. Click OK and close all dialog boxes.

Installing the Touchscreen Drivers and Utilities

You will only need to install touchscreen drivers and utilities if you have a touchscreen monitor. If you do not have a touchscreen monitor, you may skip this section of this manual and go to the section on *Adjusting the Video Image*, page 49.

If you purchased a PowerStation RS PC with your RS Monitor, CTC Parker will install a touchscreen driver and utilities in your RS PC before it is shipped. However, if you are using your RS Monitor with another computer, or if your system becomes damaged, you will need to install (or re-install) the touchscreen software. You can do this by using the touchscreen driver diskettes shipped with your RS Monitor.

This section describes how to install the touchscreen drivers and utilities in computers running MS-DOS or Windows 95, 98, or NT. If you are operating your monitor under MS-DOS, read the instructions beginning immediately below. If you are operating your monitor under Windows 95, 98, or NT, read the instructions that begin on page 36.

> **Important**   If you need additional instructions for installing or uninstalling any of the touchscreen software, see the README.TXT files on your touchscreen driver diskettes.

Installing the touchscreen driver and utilities under MS-DOS

This section describes how to install the touchscreen driver and utilities in systems running MS-DOS. It covers the following topics:

- Installing the touchscreen driver and utilities
- Operating a mouse and touchscreen concurrently

> **Important**   To install the touchscreen software in your computer, you must have MS-DOS running, and you must have a floppy disk drive connected.

Installing the touchscreen driver and utilities

To install the touchscreen driver and utilities in systems running MS-DOS, complete the following steps:

1. Insert the Dynapro SC3 Touchscreen Driver for DOS diskette (#KA-72876) into drive A.

2. At the DOS prompt, type `a:install`

3. Press Enter to execute this command.

4. The installation program screen will appear. It will contain a message telling you that you can exit the installation program at any time by pressing the ESC key on your keyboard or that you can press any other key to continue. If you wish to continue, press any other key.

5. Two questions will appear on your screen:

   a. "On which disk drive do you wish to install the DTF SC3 Touch Screen software?" Drive C is the default. Select the drive on which you wish to install the software and press Enter.

   b. "Please indicate which COM port your touch screen controller is connected to." The default is COM1. Select the port you wish the touchscreen controller to be connected to and press Enter.

   Note   The COM2 port on the PowerStation RS PC is configured, by default, for communication with the RS touchscreen monitor.

6. The installation process will begin. At the end of the process, the system will check three files, and it will ask if you want to continue to each procedure:

   a. The system will analyze your TOUCH.INI file to determine which changes must be made to it. You can press ESC to quit the installation or press any other key to continue. If you wish to continue, press any other key.

   b. The system will analyze your CONFIG.SYS file to determine if any changes must be made to it. You can press ESC to quit the installation or press any other key to continue. If you wish to continue, press any other key.

   c. The system will analyze your AUTOEXEC.BAT file to determine which changes must be made to it. You can press ESC to quit the installation or press any other key to continue. If you wish to continue, press any other key.

7. The installation is now complete.

    a. Remove the installation diskette from the floppy drive.
    b. Press Ctrl-Alt-Del to restart your computer.

The following files will be placed in the \TOUCH\DOX directory on your hard drive:

Directory	File
\TOUCH\DOX	sc3dox.exe
	touchcfg.exe
	touch.ini
	uninstal.exe
	disk.id
	install.dat
	readme.txt

Note   When the touchscreen software is installed, the configuration parameters will be set according to your desired configuration. You should not need to change them.

If you are installing the touchscreen drivers on a system running CTC Parker's Interact software, you will need to manually add the /NOBOUNDS option to the AUTOEXEC.BAT file. To do this, complete the following steps:

1. Use your DOS text editing program (for example, MS-DOS Edit) to access the AUTOEXEC.BAT file.

2. Find the entry that loads the touchscreen driver. The entry is:

    `C:\TOUCH\DOX\SC3DOX.EXE`

3. **At the end of this line,** add the NOBOUNDS option:

    `SC3DOX /NOBOUNDS`

4. Save the addition and exit the DOS editing program.

5. Press Ctrl-Alt-Del to restart your computer.

Operating a mouse and the touchscreen concurrently

You can use a mouse and the touchscreen concurrently in systems running MS-DOS as long as the mouse driver appears in the AUTOEXEC.BAT file **before** the line that loads the touchscreen driver. To determine if this is so, complete the following steps:

1. Use your DOS text editing program (for example, MS-DOS Edit) to access the AUTOEXEC.BAT file.

2. Find the entry that loads the touchscreen driver. The entry is:

   ```
   C:\TOUCH\DOX\SC3DOX.EXE
   ```

3. **Before** this line, look for the entry that will load your mouse driver. That entry should look like the one immediately below, with the name of the appropriate subdirectory appearing where the bracketed expression is:

   ```
   C:\[subdirectory]\mouse
   ```

   Note   If the mouse driver entry doesn't appear before the touchscreen driver, you will have to type the entry yourself. Do not use brackets when you type the entry. After you type the entry, save it, exit the DOS editing program, and restart your computer (Crtl+ Alt + Del).

Installing the touchscreen driver and utilities under Windows 95, 98, or NT

This section describes how to install the touchscreen driver and utilities in systems running Windows 95, 98, or NT 4.00. It covers the following topics:

• Installing the touchscreen driver and utilities

• Operating a mouse and touchscreen concurrently

   Note   If you are running Windows NT 3.51, consult the README.TXT files on your Windows NT touchscreen driver diskette for instructions on how to install the touchscreen driver and utilities.

Installing the touchscreen driver and utilities

To install the touchscreen driver and utilities in systems running Windows 95, 98, or NT 4.00, complete the following steps:

Important   To install the touchscreen software in your computer, you must have Windows 95, 98, or NT running, and you must have a floppy disk drive connected.

1. Click the Windows Start button; then click Settings and Control Panel. The Control Panel window will appear as shown below.
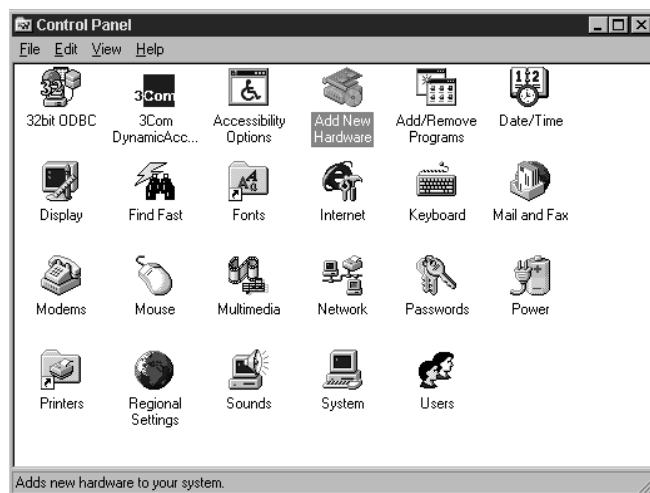
2. In the Control Panel window, click the Add New Hardware icon. The Add New Hardware Wizard dialog box will appear.

3. In the Add New Hardware Wizard dialog box, click Next.

4. In the next dialog box, you will be asked if you want Windows to search for your new hardware. Select No and click Next.

5. In the next dialog box, shown on the next page, you will be asked what new hardware you want to install. Select Mouse and click Next.

6. In the next dialog box, shown below, you will be asked to select the manufacturer and model of your new hardware. Do **not** select a manufacturer or model. Instead, select Have Disk in the lower right part of the dialog box.
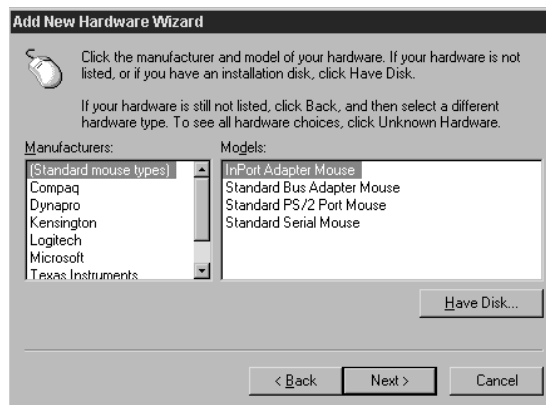
7. The Install from Disk dialog box will open, as shown on the next page. Insert your DynaPro SC3 Touchscreen Driver for Windows 95 diskette (#KA-72816) or your DynaPro SC3 Touchscreen Driver for Windows NT diskette (#KA-72817) into the floppy disk drive.

8. Select the drive from which the computer will copy the touchscreen driver and utilities files (drive A is the default drive).

9. Click OK.

10. The Add New Hardware Wizard will display the touch-screen driver file, as shown below. Make sure that DynaPro Thin Film SC3 Touch Screen Driver is selected and click Next.

11. In the next dialog box, you will be told that Windows can install your touchscreen software. Click Finish to complete the installation.

12. When the installation is complete, close all dialog boxes and windows on the desktop.

13. Click the Windows Start button; then click Shut Down and Restart the Computer.

If you are installing the touchscreen software under Windows 95 or 98, the following files will be placed on the hard drive where your Windows 95/98 directory resides:

Directory	File
\TOUCH\W9X	readme.txt
	default.ini
	touchcfg.exe
	touchcfg.help
	mbswap.exe
	mbswap.hlp
	touchini.exe
	touchwerr.exe
	touchosi.dll
	uninstal.exe
	uninstal.inf
	insx32.dll
	insx16.dll
	msvcrt40.dll
	xnmhn458.dll
	xnmba458.dll
	xnmte458.dll
\WINDOWS\SYSTEM	vsc3d.vxd

If you are installing touchscreen software under Windows NT 4.00, the following files will be placed on the hard drive where your Windows NT directory resides (\WINNT40):

Directory	File
\TOUCH\NT	default.ini
	readme.txt
	touchcfg.exe
	touchcfg.hlp
	touchini.exe
	mbswap.exe
	mbswap.hlp
	xnmba458.dll
	xnmhn458.dll
	msvcrt40.dll

Directory	File
	msvcrt40.dll
	uninstal.exe
	uninstal.inf
\WINN40\INF	esc3nt.inf (renamed as oem*.inf where * = 0-99)
\WINN40\PROFILES\	touchcfg.lnk (renamed as configuration.lnk)
	mbswap.lnk
\WINN40\SYSTEM32\ DRIVERS	esc3nt.sys

Operating a mouse and touchscreen concurrently

Follow the procedures described below in order to operate a mouse and touchscreen concurrently under Windows 95, 98, or NT 4.00.

Windows 95/98

You cannot use a mouse and touchscreen concurrently while running Interact runtime operations in Windows 95 or 98. To use a mouse and touchscreen concurrently at other times on systems running Windows 95 or 98, your mouse must be one that is detectable by Windows 95 or 98, such as a Microsoft or Logitech mouse. Also, an appropriate driver must be installed for your mouse.

To install an appropriate mouse driver, complete the following steps:

1. Connect your mouse to the computer.

2. Click the Windows Start button; then click Settings and Control Panel. The Control Panel window will open.

3. In the Control Panel Window, click the Add New Hardware icon. The Add New Hardware Wizard dialog box will open.

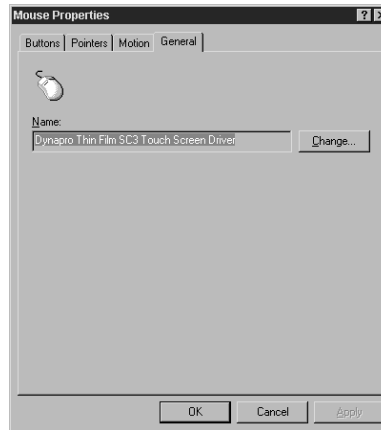4. Click Next. A new dialog box will appear as shown on the next page.

5. This dialog box will ask if you want Windows to search for your new hardware. Select Yes and click Next.

6. Click the Windows Start button; then click Shut Down and Restart the Computer.

After you restart the computer, your touchscreen and mouse should operate concurrently.

Windows NT 4.00

To operate a mouse and touchscreen concurrently under Windows 4.00, complete the following steps to install a mouse driver:

1. Connect your mouse to the computer.

2. Click the Windows Start button; then click Settings and Control Panel. The Control Panel window will open.

3. Click the Mouse icon in the Control Panel window. The Mouse Properties dialog box will open.

4. In the Mouse Properties dialog box, click the General tab.The General properties dialog box will appear as shown on the next page.

5. In the General properties dialog box, click the Change button at the right. The Select Device dialog box will appear as shown below. It will display a list of pointer devices compatible with any mouse you have connected to your computer.
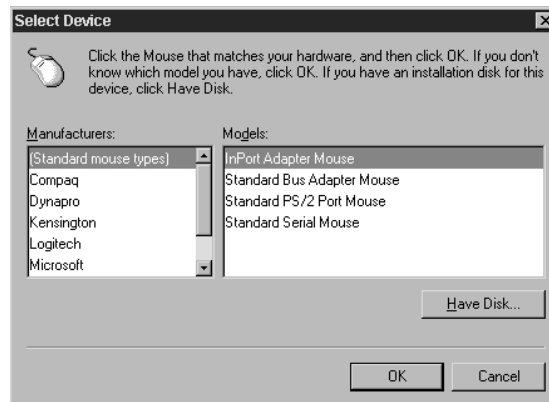
6. In the Select Device dialog box, select the type of mouse you are using.

7. Click OK.

8. Click the Windows Start button; then click Shut Down and Restart the Computer.

After you restart the computer, your touchscreen and mouse should operate concurrently.

Storing Touchscreen Calibration Data

After installation of the touchscreen drivers, touchscreen calibration data will be stored, by default, either in the RS Monitor if you are running under MS-DOS, or in the monitor's host computer if you are running under Windows 95, 98, or NT. You can change this setting by following the instructions below.

Changing calibration data storage under MS-DOS

If your RS Monitor is operating under MS-DOS, touchscreen calibration data will be stored in the monitor's touchscreen controller by default.

To change the storage setting so that calibration data will be saved on the host computer, complete the following steps:

1. At the DOS prompt (for example, A:\), type TOUCHCFG.EXE. You will be asked to choose from a list of activities you want to perform. Type I for Interface.

2. At the next menu, change the Calibration Data setting to read Host. Type N to do this.

3. Type O for OK.

4. Leave Connection set to UART.

5. Press ESC to return to the DOS prompt.

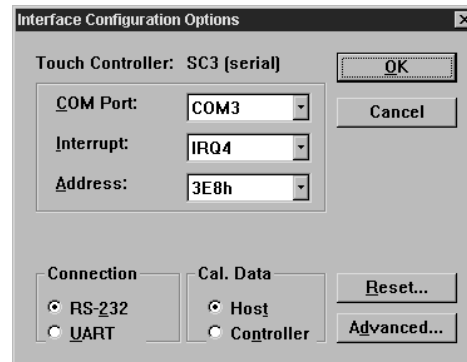## Changing calibration data storage under Windows 95, 98, or NT

If your RS Monitor is operating under Windows 95, 98, or NT, touchscreen calibration data will be stored in the monitor's host computer by default.

To change the storage setting so that the calibration data will be saved in the monitor's touchscreen controller, complete the following steps:

1. Click the Windows Start button; then click Programs, then Touchscreen Utilities, then Configuration. The Configuration Utilities dialog box will open as shown on the next page.

Configuration Utilities	☒
Touch Screen Configuration Release 2.2.3	Calibration...
	Display...
Configuration Utilities Version 1.6.1, 07-Jan-99	TouchSurround...
Copyright 1995-1999 Dynapro Thin Film. All rights reserved.	Buttons...
Exit	Interface...
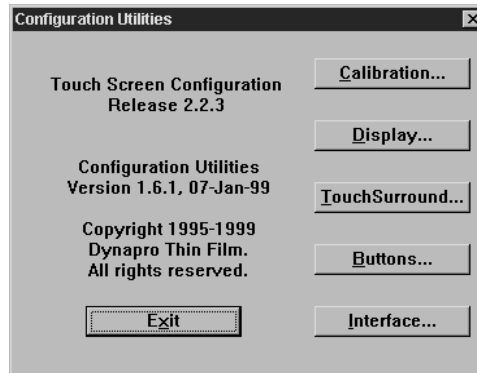
2. In the Configuration Utilities dialog box, click Interface. The Interface Configuration Options dialog box will appear as shown below.

Interface Configuration Options	☒
Touch Controller: SC3 (serial)	OK
COM Port: COM3	Cancel
Interrupt: IRQ4	
Address: 3E8h	
Connection · RS-232 · UART	Cal. Data · Host · Controller	Reset... Advanced...

3. In the Interface Configuration Options dialog box, under Connection, select UART.

4. Under Cal. Data, select Controller.

5. Click OK.

6. Close all open dialog boxes.

7. Click the Windows Start button; then click Shutdown and Restart the Computer.

Using advanced controller options settings

Whether you are operating your RS Monitor under DOS or Windows, the Advanced menu under Interface Options enables you to change settings that are pre-programmed into the touch-screen controller's non-volatile memory.

Important It is strongly recommended that you **not** change these settings because the configuration utility defaults may not match what is in the touchscreen controller.

For reference, the table below shows the settings that have been programmed into the controller at the factory.

Option	Setting
Averaging	32
Rejection Level	40
Settling Time	200
Screen Wires	8
Auto-Averaging	Selected (or on)
Low Power Mode	Deselected (or off)
Stabilization	Selected (or on)

Default settings in the configuration utility may be different from these. If you decide to download and test settings that are different from these, and touchscreen performance becomes erratic, change the settings to match those in the list above and download them.

To download new settings, you must first change the Connection setting under Interface to UART and restart the computer. If you attempt to download the new settings while Connection is set to RS232, the controller will cease communication until the computer is restarted.

Calibrating the Touchscreen

You will need to calibrate the touchscreen only if you have a touchscreen monitor. Calibrating the touchscreen ensures that the touchscreen is aligned with your display. If you do not have a touchscreen monitor, you may skip this section of the manual and go to the section on *Adjusting the Video Image*, page 49.

The RS Monitor's touchscreen is calibrated before leaving CTC Parker. However, you may need to recalibrate the touchscreen when you begin using the monitor for the first time or whenever the cursor location and the location on the screen where the user

touches not match. This section describes how to calibrate the touchscreen under MS-DOS and under Windows 95, 98, or NT.

Calibrating under MS-DOS

To calibrate the touchscreen on computers running MS-DOS, complete the following steps:

Important For computers running MS-DOS, the calibration utility requires a keyboard and involves calibrating the touchscreen for text and graphics.

1. Enter MS-DOS mode and change to the C:\TOUCH\DOX directory.

2. Start the touchscreen calibration program by typing TOUCHCFG.

3. Type C for Calibration. When the next screen appears, you will be calibrating video mode 80 X 25 Text (2, 3).

4. Type C again for Calibrate.

5. Place your finger on the square on the screen and hold until you hear a beep. Follow the instructions on the screen by touching each square as it appears — there will be three squares altogether.

6. Type V to select a new video mode.

7. Type 0 for the 640 X 480 16 color Graphics mode.

8. Press Enter.

9. Type C for Calibrate.

10. Follow the instructions on the screen by touching each square as it appears — there will be three squares altogether.

11. Type V for video mode.

12. Type 11 for 640 X 480 256 color Graphics mode.

13. Press Enter.

14. Type C for Calibrate.

15. Follow the instructions on the screen by touching each square as it appears — there will be three squares all together.

16. Type O for OK.

17. Press Escape or X to exit the calibration utility.

Calibrating under Windows 95, 98, or NT

To calibrate the touchscreen on computers running Windows 95, 98, or NT, complete the following steps:

1. Click the Windows Start button; then click Programs and Touchscreen Utilities.

   Note The Touchscreen Utilities will be pre-installed in the PowerStation RS PC. They can be installed on other systems by using the touchscreen driver installation diskettes shipped with your RS Monitor. See the instructions for *Installing the Touchscreen Drivers and Utilities,* beginning on page 33.

2. Click the Configuration icon in the Touchscreen Utilities folder. The Configuration Utilities dialog box will appear as shown below.
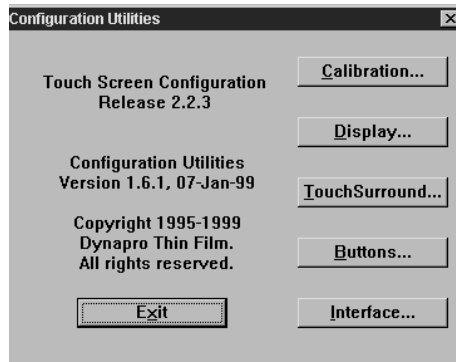
3. In the Configuration Utilities dialog box, click the Calibration button. The Calibration dialog box will appear as shown on the next page.
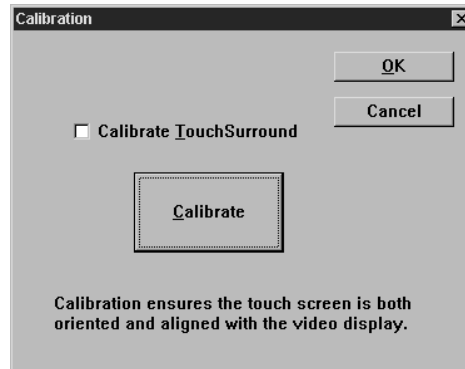
4. In the Calibration dialog box, click the Calibrate button. A target "X" will appear in the upper left corner of the screen.

5. Place your finger on the target and follow the instructions on the screen.

6. Click Exit when you are finished.

Adjusting the Video Image

The PowerStation RS Monitor is equipped with an on-screen display (OSD) that allows you to adjust the video image for the best possible picture. You can do this whether you have a touch-screen or non-touchscreen monitor. You can make these adjustments by using the four buttons at the lower left side of the monitor, as shown below.
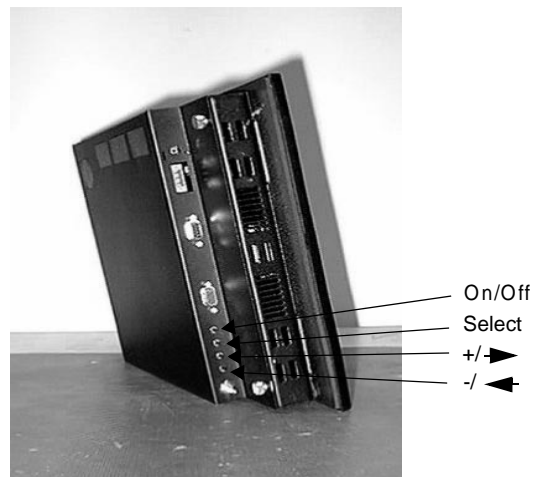
The buttons work as follows:

- **On/Off —** Switches the OSD on and off.

- **Select —** Selects the OSD setting you want to adjust and, in most cases, displays a control bar showing the increase or decrease in adjustment.

- **+/► —** Functions like an arrow key on a keyboard, enabling you to progress through the OSD icons in order to select the setting you want to adjust. Once you have selected a setting, this button enables you to increase the value of the adjustment you want to make.

- **-/◄ —** Functions like an arrow key on a keyboard, enabling you to reverse through the OSD icons in order to select the setting you want to adjust. Once you have selected a setting, this button enables you to decrease the value of the adjustment you want to make.

When you press the On/Off button, you will see the following icons in the on-screen display:

Brightness — Adjusts the backlight level in order to increase or decrease the brightness of the screen image.

Contrast — Adjusts contrast in the screen image.

Red (red palette) **—** Adjusts the red in the screen image.

Green (green palette) **—** Adjusts the green in the screen image.

Blue (blue palette) **—** Adjusts the blue in the screen image.

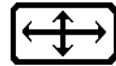**Phase —** Adjusts the focus of the screen image.

Vertical Position — Adjusts the vertical position of the screen image.

**Horizontal Position —** Adjusts the horizontal position of the screen image.
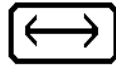
Horizontal Size — Adjusts the horizontal size of the screen image.

Expand Display — When you press the Select button, expands or decreases the image size for video modes with resolutions less than the monitor's pixel format.

OSD Background — Switches the OSD background on or off when you press the Select button.
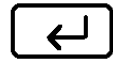
Default Settings — Loads the factory default video settings when you press the Select button.

To adjust the video image on your monitor, complete the following steps:

1. Press the On/Off button to display the OSD.

2. Use the +/- buttons to choose the icon for the adjustment you want to make.

3. Press the Select button to activate the adjustment you want to make.

   In the following settings, the monitor will display a control bar or arrows, and a range scale for making your adjustment:

   • Brightness

   • Contrast

   • Red

   • Green

   • Blue

   • Phase

   • Vertical Position

- Horizontal Position

- Horizontal Size

In the following settings, the Select button acts as a toggle switch, turning the settings on or off:

- Expand Display

- OSD Background

- Default Settings

4. In those settings that display the control bar, use the +/-buttons to make your adjustment.

The results of your changes will be immediately visible. Moreover, the monitor will "remember" all OSD adjustments so that you will not need to repeat them each time you turn on the monitor.

Note   If the OSD is turned on and then left unattended, it will automatically shut off in 25 seconds.

Some of the video adjustments you can make are global and affect all video modes, while others affect picture quality only for the video mode in use. You may need to make the latter adjustments whenever you change the video resolution or refresh rate.

The following table shows which adjustments are global and which are unique for the video mode in use.

Adjustment	Nature of Value
Brightness	Global for all video modes
Contrast	Global for all video modes
Red	Global for all video modes
Green	Global for all video modes
Blue	Global for all video modes
Phase	Unique for each video mode
Vertical position	Unique for each video mode
Horizontal position	Unique for each video mode
Horizontal size	Unique for each video mode
Expand display	Unique for each video resolution
OSD background	Global for all video modes
Default settings	Global values are all updated. Unique values are updated for the current video mode only.

Maintaining and Troubleshooting the RS Monitor

The PowerStation RS Monitor has been designed to provide years of trouble-free operation even in the harshest environments. However, occasionally you will need to perform routine maintenance on some of the monitor's components.

This chapter provides instructions on RS Monitor maintenance, as well as steps for troubleshooting problems that may occur in operation.

Chapter Contents

Cleaning the Screen

Occasionally, you may wish to clean the RS Monitor's screen. Clean the screen using warm, soapy water and a cloth. You may also use any non-abrasive cleaner. See *Faceplate Chemical Resistance* on page 13 of this manual for a list of substances the screen can resist with no visible effect.

Do not use any harsh material or powder, such as steel wool or abrasive cleansers, to clean the screen surface. The surface is sensitive to scraping, sharp blows, or punctures. Therefore, keep screwdrivers or other sharp objects away from the screen surface.

Warning   Do **not** clean the unit while it is running. Especially if you have an RS Monitor with touchscreen, turn off the monitor before cleaning in order to avoid inadvertently activating the touchscreen.

Recalibrating the Touchscreen

If you have an RS Monitor with touchscreen, your touchscreen was calibrated by CTC Parker before your monitor was shipped. However, you may need to recalibrate the touchscreen when you begin using the RS Monitor for the first time, when you connect the monitor to a new computer, or whenever the cursor location and the place on the screen where the user touches do not match. See *Calibrating the Touchscreen,* beginning on page 46 of this manual for instructions on how to recalibrate your touchscreen.

Performing Internal Maintenance

This section includes instructions for performing internal maintenance on the RS Monitor. To prevent injury to yourself and/or damage to the monitor, be sure to read and understand the procedures in this section before performing them. This section will show you how to perform the following operations:

- Opening and closing the back cover
- Replacing a fuse
- Replacing the backlight bulbs

First, however, this section describes electrostatic discharge (ESD) precautions that you should take whenever you work inside the RS Monitor.

Warning   For safety reasons, the PowerStation RS Monitor should be opened only by qualified service personnel.

Electrostatic Discharge (ESD) Precautions

Modern integrated electronic devices, including the RS Monitor, are extremely sensitive to electrostatic discharges (ESD) and fields. Before you work inside the RS Monitor, be sure to follow these simple precautions to protect you and the monitor from harm caused by ESD.

•   To avoid electric shock, always disconnect power from the monitor before you open or remove the back cover. Do not touch any internal components of the monitor while the monitor is on.

•   Disconnect power before performing any internal maintenance or troubleshooting.

•   Only handle internal components of the monitor in an ESD-safe location, using appropriate grounding methods:

•   Wear a grounding wrist strap for continuous protection.

•   Always ground yourself to remove any static charge before you touch the video controller board inside the monitor's back cover.

•   Be particularly careful not to touch the components on the video controller board.

•   Keep any monitor part in its anti-static packaging when it is not installed in the monitor and place it on a static dissipative mat when you are working on it.

Opening and Closing the Back Cover

In order to perform internal maintenance on the PowerStation RS Monitor, you will have to open and close the back cover of the unit. Those procedures are described here.

Opening the back cover

To open the back cover of the RS Monitor, complete the following steps:

1.   Turn off the computer to which the monitor is connected.

2.   Turn off the monitor.

3.   Unplug the monitor from its power source.

4. Disconnect the three cables attached to the upper left side of the monitor:

   a. Power Input cable
   b. Touchscreen cable (touchscreen monitors only)
   c. Analog Video Input cable.

5. Remove the monitor from its enclosure or arm.

6. Place the monitor face down on a static dissipative mat in a location free from dirt and moisture and protected against static discharge.

7. If your monitor has been mounted on an adjustable arm, remove the screws that attach the monitor mounting cover to the back cover of the monitor; remove the monitor mounting cover.

8. Remove the two retaining screws that secure the back cover, as shown below.

   Note The illustration below is of the 12.1" RS Monitor.

Retaining screws
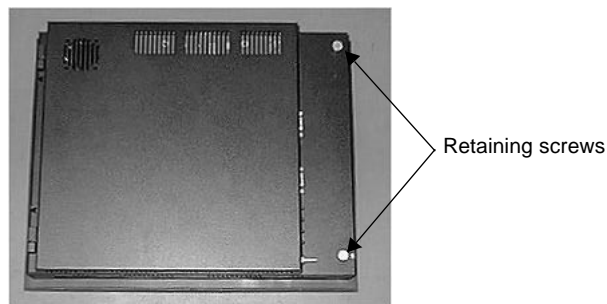
9. Open the back cover from the right side. It will swing from right to left on its hinges.

10. Proceed to the specific maintenance or troubleshooting procedures you need to perform.

Closing the back cover

To close the back cover of the RS Monitor, complete the following steps:

1. Close the back cover of the monitor and fasten its two retaining screws.

2. If your monitor is mounted on an adjustable arm, replace the monitor mounting cover on the back cover of the monitor and fasten the retaining screws that you removed in step 7 above.

3. Reinstall the unit in its enclosure or on its arm.

4. Re-attach the Power Input cable, Touchscreen cable (touch-screen monitors only), and Video Input cable at the left side of the monitor.

5. Reconnect the monitor to a power source.

6. Turn on the monitor and computer.

Replacing a Fuse

The RS Monitor uses a 3.15A fuse (IEC 127-2 sheet 1, fast-acting type), which may need to be replaced.

To replace the fuse, complete the following steps:

1. Open the back cover of the monitor (see the instructions for *Opening the back cover,* beginning on page 55 of this manual).

2. Locate the old fuse at the upper left of the video controller board on the inside of the back cover, as shown below.
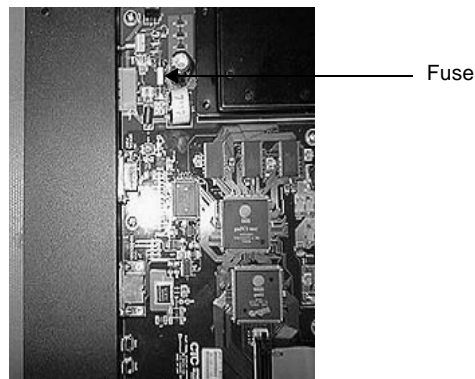
Fuse

3. Remove the old fuse and replace it with a new one.

4. Close the back cover of the monitor (see the instructions for *Closing the back cover,* beginning on page 56 of this manual).

Replacing the Backlight Bulbs

⚠️

The RS Monitor's two backlight bulbs should provide many hours of service. However, if they burn out, you can easily replace them.

> **Note** Backlight bulbs tend to have a consistent life span. For this reason, you may wish to replace both bulbs at the same time.

To replace the backlight bulbs, complete the following steps:

1. Open the back cover of the monitor (see the instructions for *Opening the back cover,* beginning on page 55 of this manual).

2. Disconnect the three internal cables as shown below:

   a. Lift up the locking clamps from either side of the monitor data cable connector at the right side of the monitor frame; disconnect the cable.

   b. Disconnect the backlight cable from its connection on the video controller board, inside the back cover.

   c. If the monitor has a touchscreen, disconnect the internal touchscreen cable from its connection on the video controller board, inside the back cover.

Disconnect the backlight cable

Disconnect the monitor cable

Disconnect the touchscreen cable
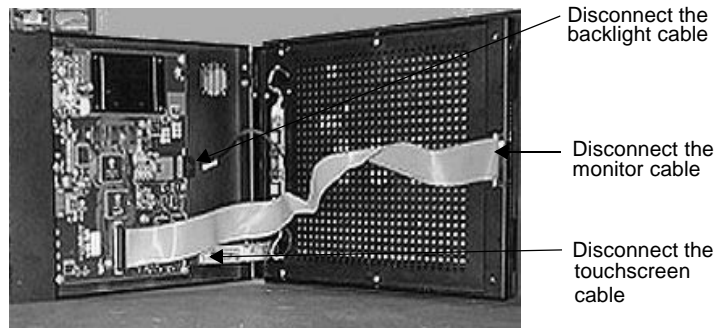
3. Slide the back cover up, off of its hinges and set it to one side of the monitor.

4. Unfasten the 10 screws around the monitor frame and lift the frame from the bezel.

5. On the left side of the monitor frame is a board, shown below, to which internal cables from the backlight bulbs are fastened at the top and bottom. Disconnect the cables leading from the bulbs.
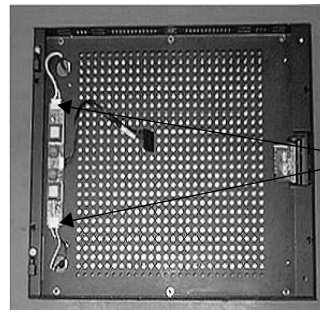

Disconnect the backlight
cables at these points

6. Tilt the frame up on its right side so that you can see the ends of the backlight bulbs facing up as shown below.

    Note   If you are right-handed, you may be able to perform this procedure more easily if you turn the frame as shown below, so that the bulbs are to your right.

7. Pull the ends of the cable leading from each bulb through the hole in the back of the frame near it so that the cables are on the same side of the frame as the bulbs. This step is illustrated at the top of the next page.

Backlight bulb cable

Holes for retracting
backlight bulb cables
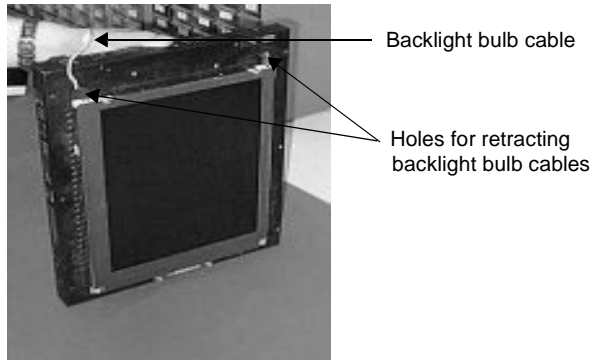
8. Using a small, flat-tipped screwdriver, gently pull back the white tab next to the top of each bulb and lift the bulb out of the frame, as shown in the next two illustrations. You can most easily remove a bulb by gently pulling up on its cable.

Pull back backlight bulb tab

Pull up backlight bulb
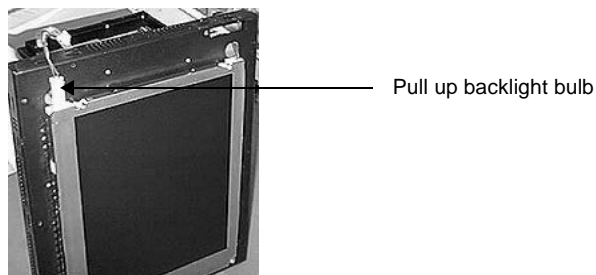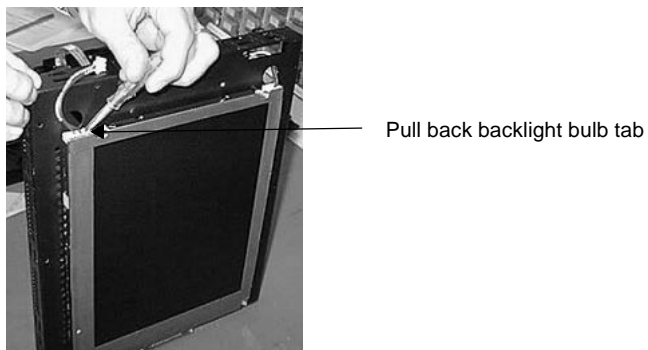
9. Insert the new bulbs.

10. Thread the cable for each new bulb through the hole in the back of the frame near it and refasten the cable to its place on the backlight bulb board.

11. Replace the monitor frame over the bezel. Carefully, feed the touchscreen cable through the space for it at the lower left side of the frame, outside in.

12. Fasten the frame in place with the 10 screws removed in step 4.

13. Replace the back cover of the monitor onto its hinges.

14. Re-attach the backlight cable and (if necessary) the internal touchscreen cable to their connections on the video controller board.

15. Re-attach the monitor cable to its connection at the right side of the frame. Gently, push down on the monitor cable's connector until the locking clamps at each side of the connector snap into place.

16. Close the back cover of the monitor (see the procedure for *Closing the back cover* beginning on page 56 of this manual.)

Resolving Common Problems

This section provides some basic troubleshooting procedures to help you identify and correct problems you may have with the RS Monitor. Each problem is described, followed by one or more possible solutions. Begin with the first solution and continue until you have solved the problem or tried all of the solutions.

If the problem persists, look through the other problems listed in this section to determine if additional symptoms exist that might require action. If you cannot solve the problem yourself, or if you encounter a problem that is not documented in this section, contact your CTC Parker equipment supplier or the CTC Parker Product Technical Support department at 513-248-1714.

Use the table below to find discussions of specific problems.

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The touchscreen does not work properly, or calibration seems incorrect (touchscreen monitors only)	63
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When video mode is changed, the image shifts up or down	66
Vertical bands appear in the image	66
Image appears faded or "washed out"	66
Top or bottom half of the screen looks dark	66

Problems with Display Operation

A number of circumstances can cause problems in display operation. Here are some common problems and their solutions.

Computer is on, the video cable is connected, but the screen is blank.

> **Note** If the video cable is not connected, the monitor will display the message: "The Video Cable is Disconnected."

1. The PC may be in screen saver mode or video "low power" mode. Touch the touchscreen (be careful not to activate an Interact tool), move the mouse, or press a keyboard key to restore the image.

2. The monitor fuse has blown. Replace the fuse (see the instructions for *Replacing a Fuse* on page 57 of this manual).

> **Important** If the monitor is exposed to a power supply voltage over 51VDC, its built-in protection will blow the fuse. In this case, you must correct the cause of the over-voltage.

"Unsupported video mode" message appears.

1. The currently chosen video mode is not in the monitor's list of supported modes. Consult the chart of *Video Modes Supported* on page 11 of this manual and set up your computer to use only those modes.

2. On computers running Windows 95, 98, or NT, reduce the color palette—for example, from "High Color" to 256-color mode.

The touchscreen does not work properly, or calibration seems incorrect (touchscreen monitors only).

1. The computer wasn't restarted after installing the touchscreen drivers or after adjusting the touchscreen settings. Restart the computer.

2. Touchscreen calibration might be in error. Recalibrate the touchscreen (see the instructions for *Calibrating the Touchscreen,* beginning on page 46 of this manual).

3. The touchscreen drivers may have been installed incorrectly.

   a. Look in the AUTOEXEC.BAT file for the following line, which verifies that the touchscreen driver is being loaded:

      `C:\TOUCH\DOX\SC3DOX`

   b. Make sure that the line that loads the mouse driver appears **before** the line that loads the touchscreen driver.

Important   To perform this check, you must know the path for installing your mouse driver.

After calibrating the touchscreen, it does not work or follow your finger (touchscreen monitors only).

1. The touchscreen cable may be loose or improperly connected. Make sure that the touchscreen cable is properly connected.

2. The touchscreen cable may be damaged. Replace the touchscreen cable.

3. The touchscreen may be damaged. Contact CTC Parker Product Technical Support at 513-248-1714 about having the touchscreen replaced.

4. Cables or wiring inside the monitor may be damaged. Open the back cover of the monitor (see the instructions for *Opening the back cover,* beginning on page 55 of this manual) and inspect for broken, loose, or frayed cables or wiring. Secure loose cables and replace damaged cables or wiring.

Problems with the Displayed Image

A combination of incorrect on-screen display (OSD) adjustments can cause problems with the displayed image. In this circumstance, a good first step toward a solution is to select the Default Settings icon in your OSD and reload the factory default settings. This will set up your monitor with standard video timings and provide a good starting place for fine-tuning adjustments.

Image does not fill the screen.

The current video mode has a resolution less than the monitor's pixel format. For example, the video mode is 640 X 480, and the monitor's pixel format is 800 X 600. Set the OSD Expand Display adjustment to On.

Image extends beyond the screen.

1. The horizontal and/or vertical position is not correct for the current video mode. Use the OSD Horizontal Position and/or Vertical Position adjustment to center the image on the screen.

2. The horizontal size is not correct for the current video mode. Use the OSD Horizontal Size adjustment to fit the image completely on the screen

Characters shimmer or appear fuzzy.

1. The clock phase for the current video mode is not correct. Use the OSD Phase adjustment to sharpen the image.

2. The horizontal size is not correct for the current video mode. Use the OSD Horizontal Size adjustment to fit the image completely on the screen.

Important   This problem may occur if the horizontal size is mis-adjusted by as little as one pixel too few or too many, so try to make as precise an adjustment as possible.

3. The current vertical refresh rate may not be optimal. If your computer's video card and driver will support it, change the vertical refresh rate until you find one that looks best with the monitor.

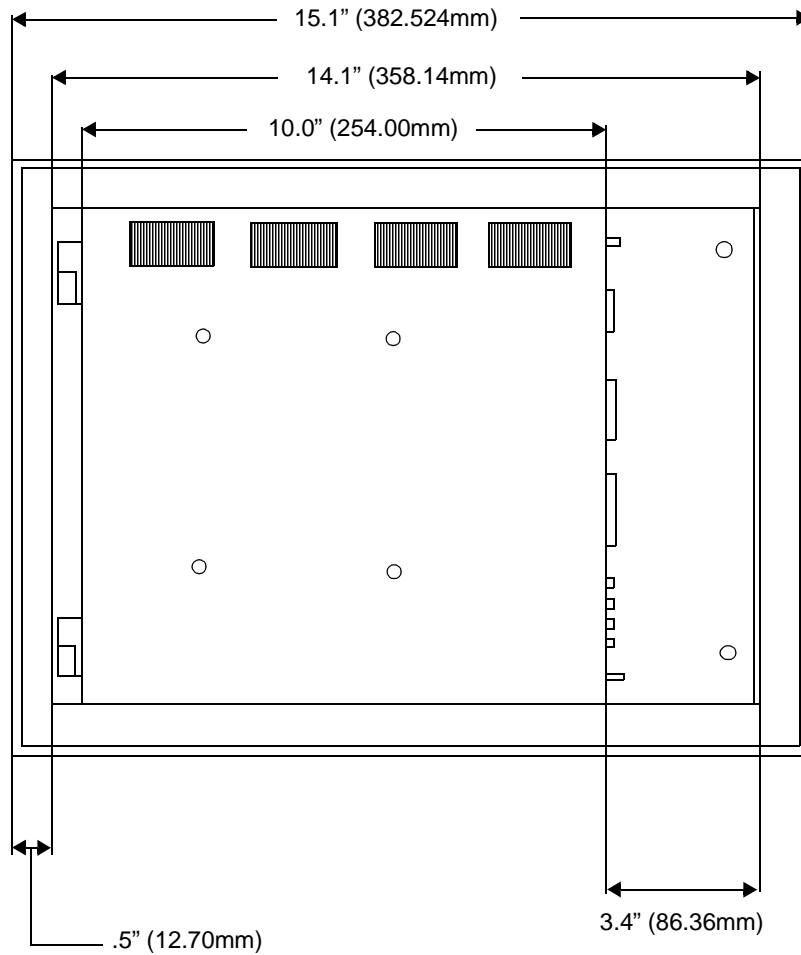**When video mode is changed, the screen image shifts left or right.**

The image's horizontal position has not been optimized for the new video mode. Use the OSD Horizontal Position adjustment to center the image horizontally on the screen.

Note   This adjustment is saved for each video mode individually, so you may have to make the adjustment for each video mode you use. However, you will only have to adjust once for each video mode since the adjustment will be saved permanently by the computer.

When video mode is changed, the screen image shifts up or down.

The image's vertical position has not been optimized for the new video mode. Use the OSD Vertical Position adjustment to center the image vertically on the screen.

> **Note**   This adjustment is saved for each video mode individually, so you may have to make the adjustment for each video mode you use. However, you will only have to adjust once for each video mode since the adjustment will be saved permanently by the computer.

Vertical bands appear in the image.

1. The clock phase for the current video mode is not correct. Use the OSD Phase Control adjustment to sharpen the image.

2. The horizontal size is not correct for the current video mode. Use the OSD Horizontal Size adjustment to fit the image completely on the screen.

> **Important**   This problem may occur if the horizontal size is mis-adjusted by as little as one pixel too few or too many, so try to make the adjustment as precise as possible.

3. The current vertical refresh rate may not be optimal. If your video card and driver will support it, change the vertical refresh rate until you find one that looks best with the monitor.

Image appears faded or "washed out."

The contrast is set too high. Use the OSD Contrast adjustment to lower the contrast setting.

Top or bottom half of the screen looks dark.

One of the backlight bulbs may be burned out. Replace both back-light bulbs (see the instructions for *Replacing the Backlight Bulbs,* beginning on page 58 of this manual).

RS Monitor Dimensional Drawings

12.1" Monitor Back View

12.1" Monitor Side View

2.9" (73.66mm)

1.6" (40.64mm)

2.50" (63.5mm)

4.7" (119.38mm)

12.1" (307.34mm)

7.2" (182.88mm)

9.2" (233.68mm)

11.1" (281.94mm)

.75" (19.05mm)

1.1" (27.94mm)

1.8" (45.72mm)
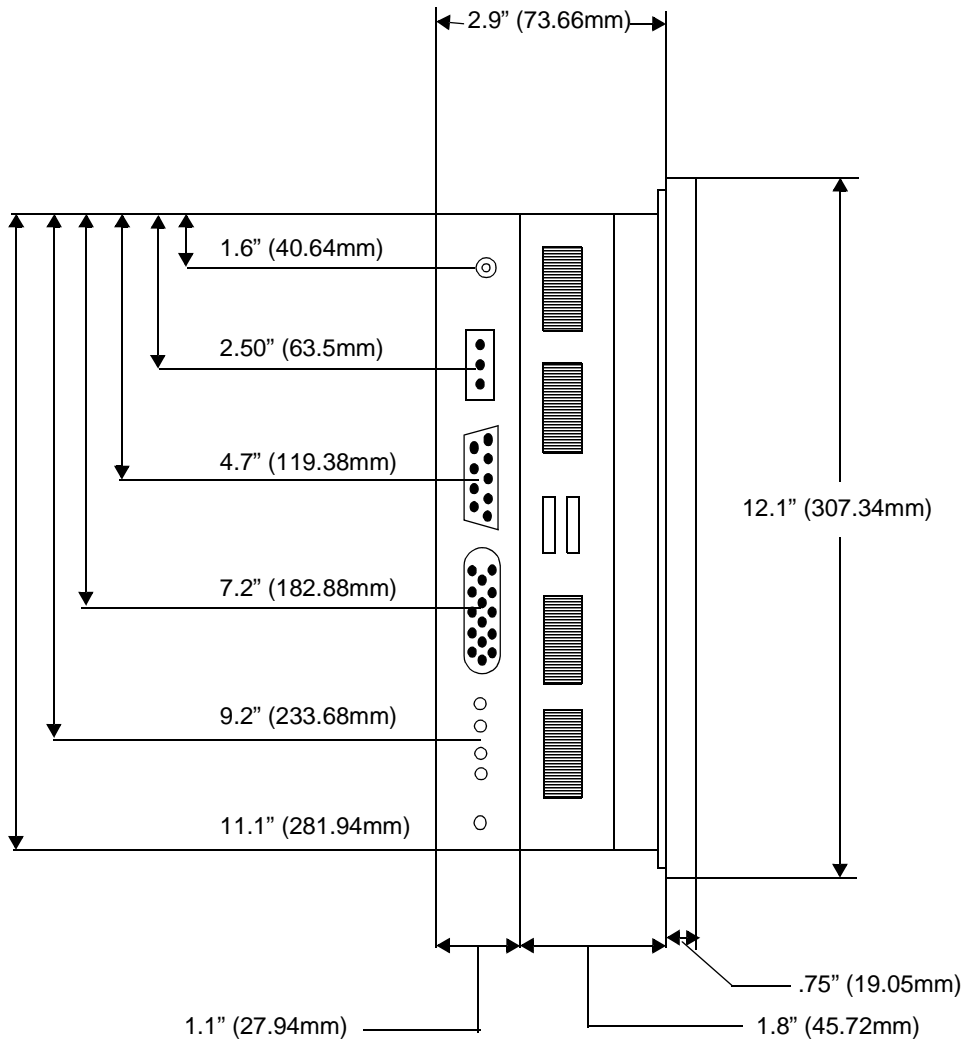
15.1" Monitor Back View

15.1" Monitor Side View

3.0" (26.7mm)

1.6" (40.64mm)

2.50" (63.5mm)

4.7" (119.38mm)

7.2" (182.88mm)

13.3" (337.82mm)

9.2" (233.68mm)

11.1" (281.94mm)

.75" (19.05mm)

1.0" (25.40mm)

2.0" (50.80mm)

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