4820 SurePoint Solution

System Reference

SA27-4249-05

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System Reference

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Note

Before using this information and the product it supports, be sure to read the general information under Appendix D, “Notices,” on page D-1 and “Electronic emission notices” on page D-2.

Sixth Edition (October 2003)

This edition applies to the 4820 SurePoint Solution and to all subsequent releases and modifications until otherwise indicated in new editions.

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About this book

This guide provides software and hardware information on the IBM 4820 SurePoint Solution and is organized as follows:

Part 1, “Introduction” contains Chapter 1, “Introducing the IBM 4820 SurePoint Solution,” which describes all models and available options for the 4820 SurePoint Solution.

Part 2, “IBM 4820 SurePoint Solution Models 42D, 42T, 4FD, 4FT” provides information about models 42D, 42T, 4FT, and 4FD.

Part 3, “IBM 4820 SurePoint Solution Models 46D, 46R, 46T” provides information about models 46D, 46T.

Part 4, “IBM 4820 SurePoint Solution Models 48D, 48T” provides information about models 48D, 48T.

Part 5, “IBM 4820 SurePoint Solution Models 4WT, 4GT” provides information about models 4WT, 4GT.

The appendixes provide information for all models and are organized as follows:

- Appendix B, “Troubleshooting common problems” provides information on resolving common problems.
- Appendix C, “Mounting surface templates” provides drilling measurements for installing the distributed pedestal and the free-standing pedestal to a counter.

Throughout this guide, the following numeric terms refer to the following:

4800 IBM SurePOS 700

4810 IBM SurePOS 300

4820 4820 SurePoint Solution

4694 4694 Point of Sale Terminal

4840 4840 Point of Sale Terminal

Who should read this book

This guide is intended for system planners, system programmers, and technical personnel trained in the use of point-of-sale equipment.

Related publications

The following IBM publications are also available from the IBM Retail Store Solutions web site at www.ibm.com/solutions/retail/store/. From the store page, click on Support.

- *IBM SurePOS 700 Series System Reference*, SA27-4224
- *IBM 4820 SurePoint Solution: Installation and Service Guide*, GA27-4231

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- *IBM 4694 Point-of-Sale Terminals: Installation and Operation Manual*, SA27-4005
- *IBM 4694 Point-of-Sale Terminals: Hardware Service Manual*, SY27-0364
- *IBM SurePOS 500 Series Point-of-Sale Terminals: System Reference*, SA27-4225
- *IBM SurePOS 720, 740, and 780 Planning, Installation and Operation Guide*, GA27-4328
- *IBM SurePOS 720, 740, and 780 Hardware Service Guide*, SA27-4329
- *IBM SurePOS 700 Series: Options and I/O Devices Service Guide*, SY27-0392

Driver and Service Diskette Information

- Terminal hardware folder
  - 4820 downloads
    - 4694/4695/ISA Service Diskette, Version 5.33 or later
    - RS232 Service Diskette
- Peripheral Drivers folder
  - POSS for Windows download
  - MicroTouch™ TouchWare™
  - POSS for DOS download
  - OPOS drivers download
  - Java POS drivers download

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If applicable, include a reference to the specific location of the text on which you are commenting. For instance, include the page or table number.

Between major revisions of this guide we may make minor technical updates. The latest softcopy version of this guide is available on the Publications Web page www.ibm.com/solutions/retail/store/. Click on Support, then on Publications.

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Figures

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Tables

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Accessibility

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use the 4800 SurePOS terminals successfully. The following is a high-level list of the accessibility features:

- All controls are located on the front of the machine, in easy reach.
- Industry-standard serial and USB ports allow alternative I/O devices.
- Manuals are available in .PDF format and can be downloaded from the Web. See “Related publications” on page ix for the URL.
- To assist users with color-vision deficiencies, the power LED blinks as well as changes color when in low-power mode.
- Displays are driven at 60 Hz to eliminate problems caused by screen flicker.

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Summary of Changes

October 2003

This edition adds information about the 4820 SurePoint Solution models 4WT and 4GT.

July 2002

This edition contains information about Models 10D and 1FR of the 4820 SurePoint Solution and information.

March 2002

This edition contains information about the integrated touch pedestal available for the 4694 Point of Sale terminal.

September 2000

This edition contains information about the 4820 SurePoint Solution models 42D, 42T, 4FD, and 4FT.

February 2000

This edition contains information about the features of models 48D and 48T of the 4820 SurePoint Solution:

- Universal Serial Bus (USB) connectivity
- Audio capability
- TMDS (Transition Minimized Differential Signaling) digital video interface
- DVI (Digital Visual Interface).

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Part 1. Introduction

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Chapter 1. Introducing the IBM 4820 SurePoint Solution

The IBM 4820 SurePoint Solution (see Figure 1-1 on page 1-2) is the next generation of displays, offering full-screen and touch display performance in a single reliable solution. Table 1-1 describes the available models.

Table 1-1. Available 4820 SurePoint Solution models

Screen Size	Model	Color	Touch	Touch Connection Type	Video type, Active matrix technology LCD
12 in	4820-42D	Pearl white	Non-touch, display only		Analog, SVGA, color
	4820-42T	Pearl white	Capacitive	RS-232	
	4820-4FD	Iron gray	Non-touch, display only		
	4820-4FT	Iron gray	Resistive	RS-232	
	4820-46D	Pearl white	Non-touch		
	4820-46R	Pearl white	Resistive	RS485	
	4820-46T	Pearl white	Capacitive		
	4820-48D	Pearl white	Non-touch		Digital Video Interactive (DVI), color
	4820-48T	Pearl white	Capacitive	USB	
	4820-4WT	Pearl white	Capacitive	USB	Analog, SVGA, color
	4820-4GT	Iron gray			
10 in	4820-10D	Pearl white	Non-touch, display only		
	4820-1FR	Iron gray			

- *Display only* indicates that the magnetic stripe reader (MSR), keypad, and keylock are not supported.
- IBM 4820 SurePoint Solution Models 42T and 4FT connect to products that require an RS-232 connection.
- IBM 4820 SurePoint Solution Models 46D, 46T, and 46R connect to the IBM 4694 system unit.
- IBM 4820 SurePoint Solution Models 48D and 48T connect to the IBM SurePOS 700 Series and to products with DVI-D and USB connectivity.
- IBM 4820 SurePoint Solution Models 4WT and 4GT connect to the IBM SurePOS 720, 740, and 780 and to products with analog video and USB connectivity.
- IBM 4820 SurePoint Solution Models 10D and 1FR connect to any standard analog VGA or DVI-I subsystem. Specifically, these models can connect to the IBM 4694 system unit, to the IBM SurePOS 700 Series, the IBM SurePOS 500/600 series, and to the IBM 4810 SurePOS 300.

Note: Touch, MSR, keypad, keylock, and point device options are not available for 10-inch models.

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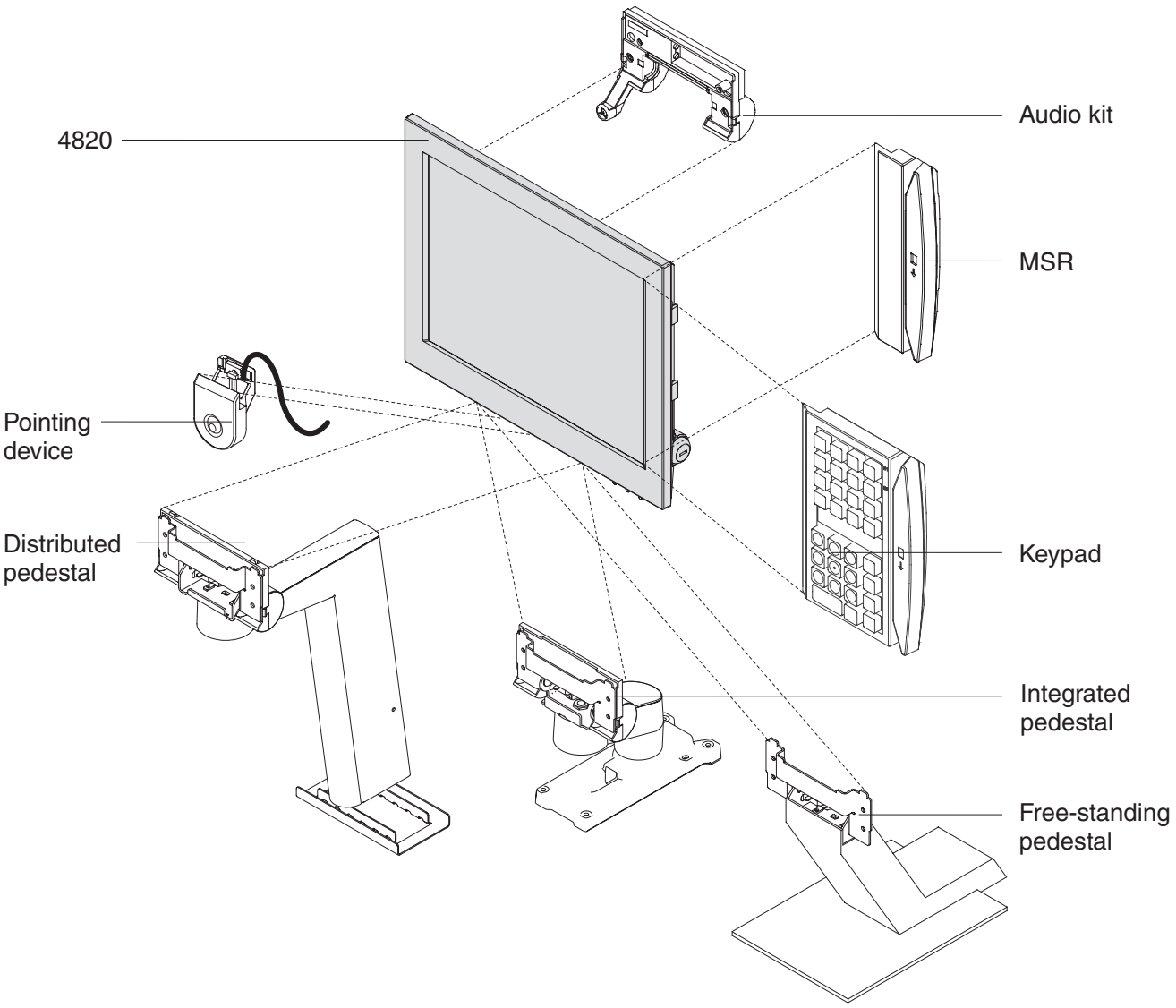

Figure 1-1. 4820 SurePoint Solution with features and available pedestals

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Summary of models and features

Table 1-2 summarizes the models and features of the 4820 SurePoint Solution:

Table 1-2. 4820 SurePoint Solution models and features

Model	MSR	Keypad	Pointing Device[1]	Video[2]	Keylock	Touch / Driver	Touch Technology	Host System
4820-42D	None		PS/2	Analog	No	None		Supports all
4820-42T	RS-232	PS/2				RS-232 / MicroTouch	Capacitive	PC
4820-4FD[3]	RS232	None	None	Analog	No	None		4840 4810
4820-4FT[3]						RS-232 / MicroTouch	Resistive Sensor	
4820-46D	None		PS/2	Analog	Yes	None		4694
4820-46T	RS485	PS/2				RS-485 / POS suite	Capacitive	
4820-46R	RS-485		PS/2				Resistive	
4820-48D	USB			DVI	Yes	MicroTouch	None	4800 4694-206 [4]
4820-48T							Capacitive	
4820-10D	None			Analog	No	None		Supports all
4820-1FR[3]								
4820-4WT Touch Only	None			Analog	No	MicroTouch	Capacitive	Supports all
4820-4WT Touch+I/O	USB				Yes			
4820-4GT Touch Only[3]	None				No			
4820-4GT Touch+I/O[3]	USB				Yes			

[1]Pointer uses native Windows® mouse driver.

[2]Video uses native Windows video driver.

[3]Iron gray covers.

[4]4690 V2R3 support available.

Product advantages

The 4820 SurePoint Solution offers these advantages:

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- Models 4xx have a compact design with a 12.1-in. viewing area comparable to a larger CRT
- Models 10D and 1FR provide a larger viewing area than a 10-in. color CRT
- Lower power consumption and less heat dissipation compared to a standard CRT
- High brightness, active matrix, SVGA (800 x 600) resolution display for full-motion video in multimedia applications
- Direct attachment to 4694 SVGA or SurePOS 730/750 DVI port, no adapter required
- Integrated and distributed mounting configurations with the IBM SurePOS 700 Series and 4694 POS Terminals
- VESA-compliant mounting option for custom configurations (for example, wall hanging)
- Hardware brightness controls
- Available in display-only or touch models (touch offered in 12-inch screen size only)
- Spill resistant
- Up to 16.7 million colors
- Pearl white casing (models 46D, 48D, 42D, 46T, 48T, 42T, 4WT, and 10D)
- Iron gray casing (models 4FD, 4FT, 4GT, and 1FR)
- For all models, except 10D and 1FR, optional equipment includes keypad, International Standards Organization (ISO) 3-track and 2-head MSR, manager's keylock, pointing device, and audio kit

Product summary—12-inch models

Table 1-3 summarizes the 4820 SurePoint Solution hardware options. Table 1-6 on page 1-8 describes the supported system software, and Table 1-4 on page 1-5 describes the supported operating systems.

Hardware options

Table 1-3. 4820 SurePoint Solution hardware options

Optional Hardware	Description
Keypad	• 32-key with ISO 3 track MSR, **or** • 32-key with JUCC MSR, or • PS/2 keyboard connection • USB keyboard
MSR	ISO 3 track or JUCC
Pointing Device	• PS/2 mouse type • USB model (models 48D, 48T, 4WT, 4GT)

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Table 1-3. 4820 SurePoint Solution hardware options (continued)

Optional Hardware	Description
Mounting	• Integrated pedestal • Integrated touch pedestal – Short:10 in. (255 mm) – Tall:15 in.(380 mm) • Distributed pedestal – Short: 9.38 in. (240 mm) – Tall: 13.80 in. (352 mm) • Free-standing pedestal • VESA bracket
Security	Manager's keylock (469X)
Sound **Note:** Requires sound card with amplified output (speaker out). For example, Sound Blaster sound card PCI 16 or Yamaha sound card WF192XG	Audio kit available

Supported operating systems

Table 1-4. 4820 SurePoint Solution supported operating systems

	Models			
Operating System	**42D, 42T, 4FD, 4FT**	**46D, 46T, 46R**	**48D, 48T**	**4WT, 4GT**
DOS	✓	✓	✓	✓
Windows 95	✓	Not supported		
Windows NT 4.0	✓	✓	✓	✓
Windows 98	✓	✓	✓	✓
Windows 2000	✓	✓	✓	✓
Windows XP	✓	✓	✓	✓
Windows Java™ Virtual Machine (JVM)	✓	✓ (JavaPOS)	✓ (JavaPOS)	✓ (JavaPOS)
4690	✓	Version 2, Release 2	Version 2, Release 3	Version 2, Release 3

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Touch drivers and diagnostics

Table 1-5. Summary by model of touch drivers, calibration/test, and diagnostic diskette

4820 Model	Touch Driver	Calibration/Test	Service/Diagnostic
4FD	N/A		4820 42T/4FD POS Terminal Service diskette
4FT	MicroTouch TouchWare		
42D	N/A		
42T	MicroTouch TouchWare		
46D	N/A		4694 Service/Diagnostics diskette
46R, 46T	IBM POS	4694 Service/Diagnostics diskette	
48D	N/A		IBM POS Device Diagnostics (POS Suite)
48T	MicroTouch TouchWare		
4WT	N/A		IBM POS Device Diagnostics (POS Suite)
4GT	MicroTouch TouchWare		

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Front view of 4820 SurePoint Solution

Figure 1-2 is a front view of the 12-inch (models 4xx) 4820 SurePoint Solution, which shows the location of the control buttons.

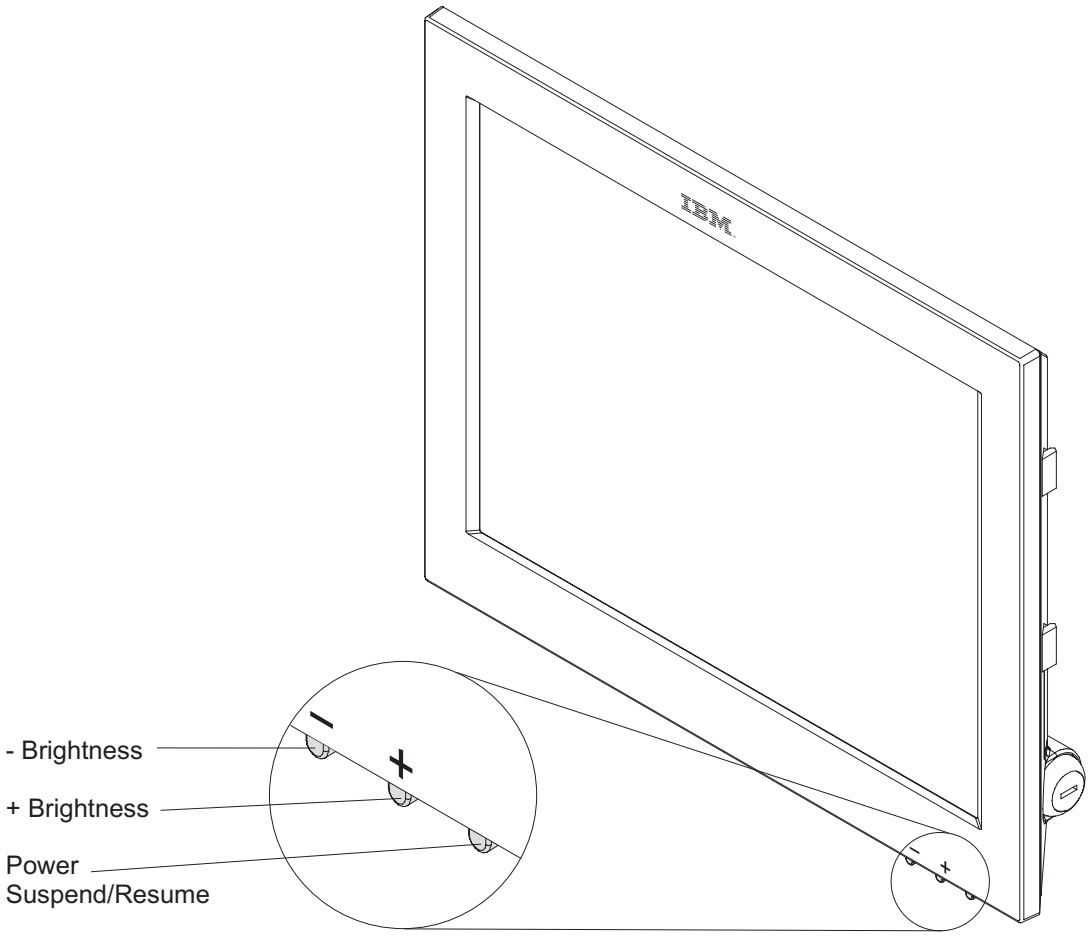

Figure 1-2. Front view of 4820

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Rear view of 4820 SurePoint Solution

Figure 1-3 is a rear view of the 12-inch (models 4xx) 4820 SurePoint Solution. This view shows the keypad, the locating tabs for the MSR, and the audio kit, connector, and connector cover. Note the location of the manager's keylock.

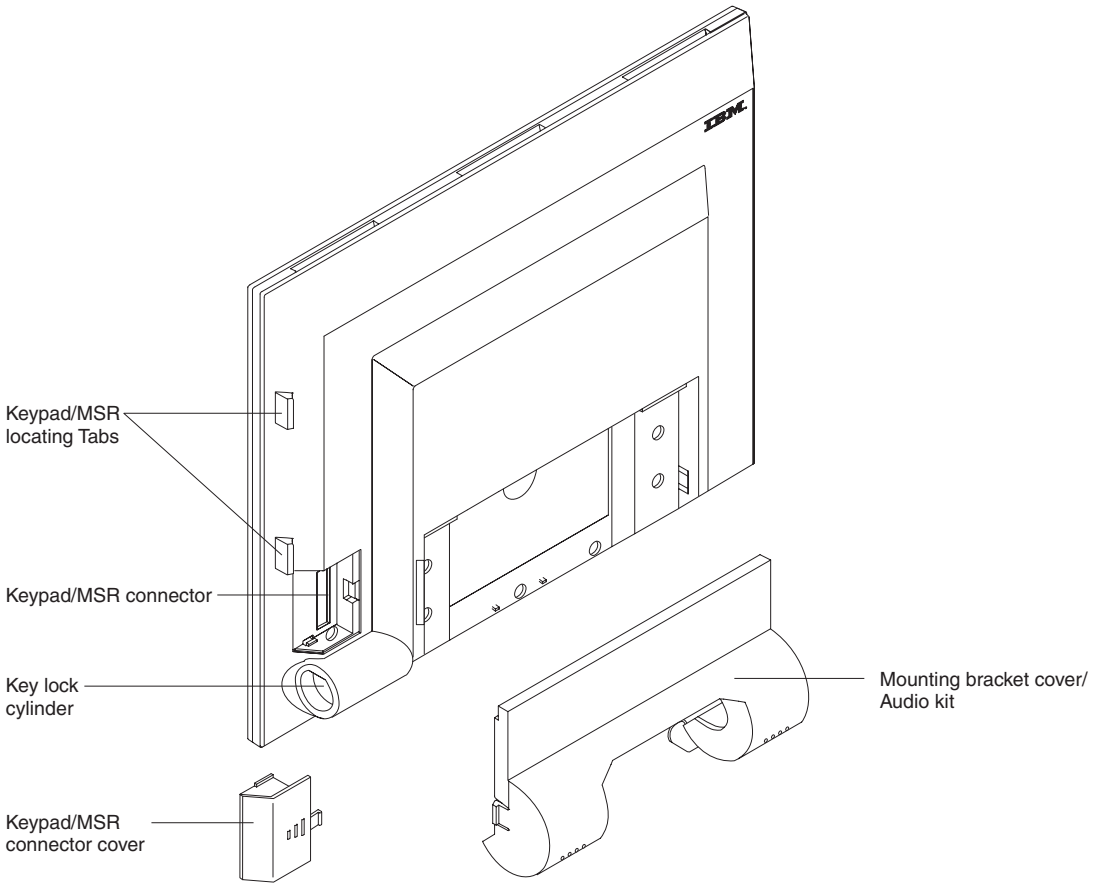

Figure 1-3. Rear view of 4820. Options shown may not be available on all models.

System software

Table 1-6. 4820 SurePoint Solution system software

	System Software
POSS Drivers, MicroTouch TouchWare	You can obtain the appropriate software for your 4820 SurePoint Solution from the IBM Retail Store Solutions Web site:http://www..ibm.com/solutions/retail/store/ (from the store page, click on **Support**).
Maintenance package: service diskette, publications	

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Product summary—10-inch models

IBM offers the 10-inch screen size 4820 SurePoint Solution Models 10D and 1FR as lower-cost, more compact alternatives for customers who require display-only function and have limited space available (see Figure 1-4). Compared to CRTs, these models have the following advantages:

- Less bulky
- Requires significantly less power
- Extremely low emissions
- Larger image size than 10-inch color CRT

Front and rear views

Figure 1-4 shows the front and rear views of Models 10D and 1FR:

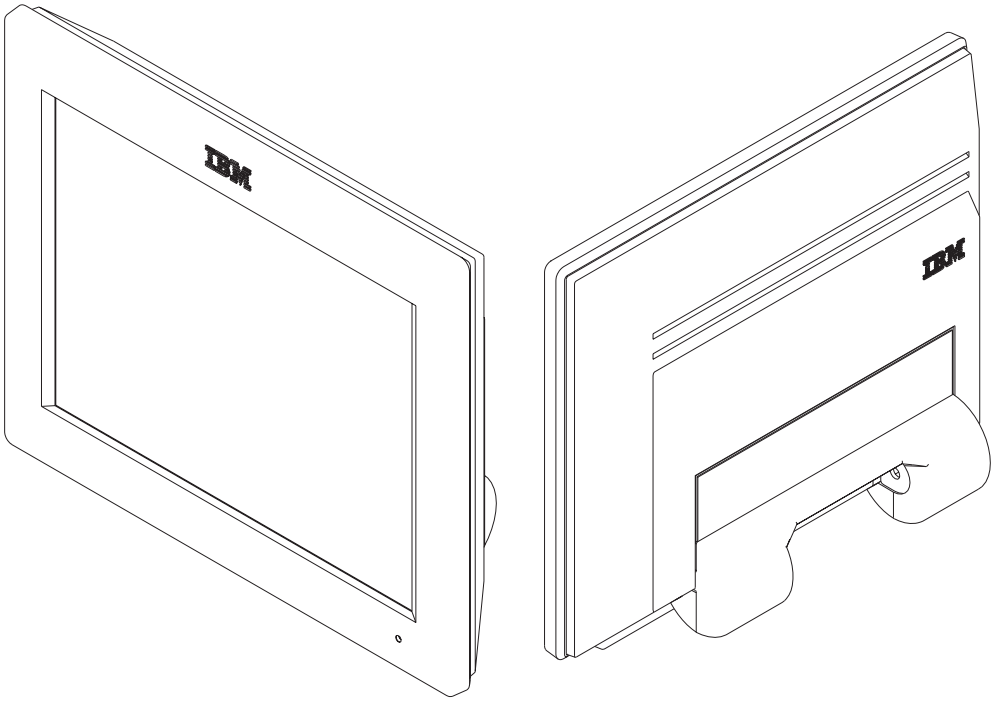

Figure 1-4. Views of Models 10D and 1FR

Supported operating systems

The 4820 SurePoint Solution Models 10D and 1FR support the following operations systems:

- DOS
- Windows 95, 98, 2000, and NT 4.0
- Windows Java Virtual Machine (JVM) and JavaPOS
- 4690 system, Version 2 Release 2, and Version 2 Release 3

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Environmental requirements

Table 1-7 shows the humidity and temperature limits for the 4820 SurePoint Solution.

Table 1-7. Environmental requirements

	Temperature (dry bulb)	**Maximum temperature (wet bulb)**	**Relative humidity**
Operating	0 to 40°C (32° to 104° F)	27° C (81° F)	8 to 80%
Storage	-20 to 60°C (-4° to 140° F)	29° C (84° F)	5 to 90 %

Ensure that the cooling vents are not blocked by papers, signs, or other items.

Power usage

Table 1-8 lists the power consumption and input voltage values for the 4820 SurePoint Solution.

Table 1-8. Power usage values

	Power consumption (on and operating)	**Input voltage**
Models 10F, 1FD	20 watts	100 to 240 V AC nominal
All other models	35 watts	

Spill resistance

The 4820 SurePoint Solution is designed to meet the following standards:

- National Electrical Manufacturers Association (NEMA) Type 5 rating per NEMA Standards Publication number 250–1991 Enclosures for Electrical Equipment
- IP 52 rating per IEC 529

Calling for service

When you call IBM for warranty information or service, be sure to have the following information available:

- Machine type/model
- Serial number

Locate this information on the lower right edge at the rear of the machine.

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Part 2. IBM 4820 SurePoint Solution Models 42D, 42T, 4FD, 4FT

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Models 42D, 42T, 4FD, 4FT

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Chapter 2. System specifications and planning information

This section summarizes the specifications of the 4820 SurePoint Solution, and provides details on the optional hardware and software features.

Product summary

This section summarizes the specifications of 4820 SurePoint Solution.

Table 2-1. 4820 SurePoint Solution Hardware Features

Hardware Features	Description
Keypad (Models 42D, 42T)	A 32-key with ISO 3 track MSR or a 32-key with JUCC MSR
MSR	ISO 3 track or JUCC
Pointing Device	PS/2 mouse type
Mounting	• Integrated, distributed, or free-standing pedestal • VESA bracket
Cables	• Multi-connector cable with RS232, MSR, and optional keyboard connections, 0.7m, 1.8m or 3.8m • Analog , 1.8m, 3.8m
Power	External power brick

Table 2-2. 4820 SurePoint Solution System Software

	System Software
Maintenance package: service diskette, publications	You can obtain the appropriate software for your 4820 SurePoint Solution from the IBM Retail Store Solutions Web site: www.ibm.com/solutions/retail/store/ (from the store page, click on Support).

Hardware features

This section describes the physical features of the 4820 SurePoint Solution.

Display

The 4820 SurePoint Solution provides a 12.1 inch TFT SVGA display with 800 x 600 resolution. The display can provide up to 16.7 million colors, subject to host pc limitations. Autoscaling is standard with VGA support.

Video interface

The 4820 SurePoint Solution, models 42D, 42T, 4FT, and 4FD have an analog interface.

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Input/output (I/O)

The 4820 SurePoint Solution allows the following I/O devices:

- Touch screen, MSR, and keypad (Model 42T only)
- RS232 I/O
- Pointing device (Model 42T only), mouse

Indicators and user controls

The 4820 SurePoint Solution provides the following indicators and user controls:

- Dual color LED:green power-on indicator; orange backlight dim
- Power on and off
- Brightness

External ports

The 4820 SurePoint Solution provides the following external ports:

- RS232 touch, keypad, MSR input: 4-pin
- Video: MDR 20-pin
- DC power input

Power management

Power management is through DPMS and complies with the VESA standard. The table below describes the power management states.

Table 2-3. Power Management States

Operation Mode	RS485 / Analog
Off	5W
DPMS Off	5W
DPMS Suspend	5W
DPMS Standby	5W
On	20W

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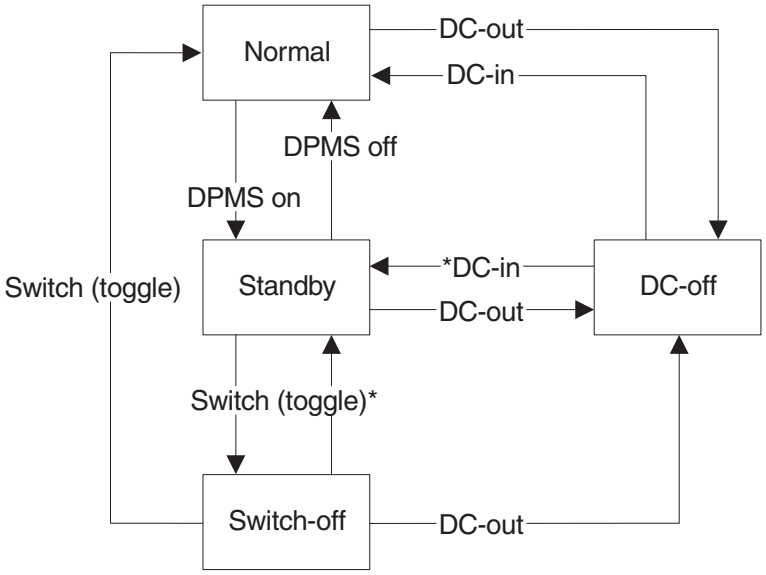
Transition diagram

The diagram below shows the transition between standby and normal operation.

Figure 2-1. Power Management Transition Diagram



*No Video/DPMS by OSD

Optional features

This section describes the optional features available on the 4820 SurePoint Solution.

Magnetic stripe reader (model 42T)

The supported MSRs available are the International Organization for Standardization (ISO) 3- track and the Japanese Unified Cash Card (JUCC) 2-head.

Note: Model 4820-42T does not support JUCC.

Pointing device (models 42D, 42T)

You can connect an IBM PS/2 compatible pointing device to the 6–pin mini DIN connector plug.

External keyboard (models 42T and 4FT)

The 4820 SurePoint Solution models 42T and 4FT support one PS/2 compatible keyboard for maintenance purposes. The following conditions apply:

Scan codes

See Figure 4-1 on page 4-3,

Host PC dependency

Host pc must support keyboard hot plugging

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The 4820 supports an external keyboard when you attach it at system power-on. Support is independent of attached keypad. If you attach the keyboard after powering on, the keyboard is activated until you power off. The keypad is disabled during this time. To activate the keypad after you activate the external keyboard, you must cold start the system with the external keyboard detached. The transition of activating the keyboard occurs only one time per power on/off cycle.

System software

You can obtain the appropriate software for the 4820 SurePoint Solution from the IBM Retail Sore Solutions Web site: http://www.ibm.com/solutions/retail/store (from the store page, click on Support).

Supported modes

Table 2-4 lists the supported modes and frequencies.

Table 2-4. Supported Modes

Modes	Supported Frequencies
SVGA	56, 60, 72, 75 Hz
Graphics adapter (VGA)	60, 70, 72, 75 Hz

Windows setting requirement

When you install the 4820 SurePoint Solution with the Windows operating system, ensure that the display setting is 800 x 600. The 4820 operates at a VGA setting of 640 x 480, but the image is not optimized.

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Chapter 3. Installation and operating information

This section summarizes the installation and operation methods of the 4820 SurePoint Solution. IBM recommends that you refer to the *IBM 4820 SurePoint Solution Installation and Service Guide* for complete instructions.

Option installation

IBM recommends that you install the options for the 4820 SurePoint Solution in the following order:

1. MSR
2. Keypad (Model 42T only)
3. Pointing device (Model 42T only)

Cable connections and routing

Table 3-1 summarizes the cable connections for the 4820 SurePoint Solution.

Table 3-1. Cable types and icons

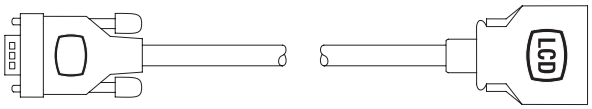
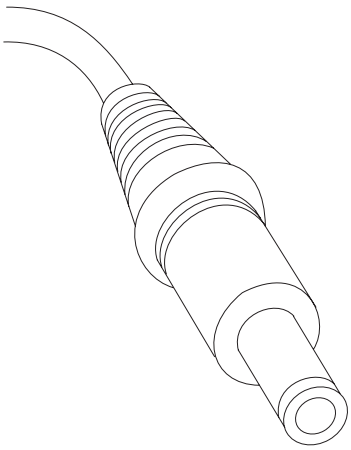
Type	Identifying Icon	Cable
Analog		
Power		

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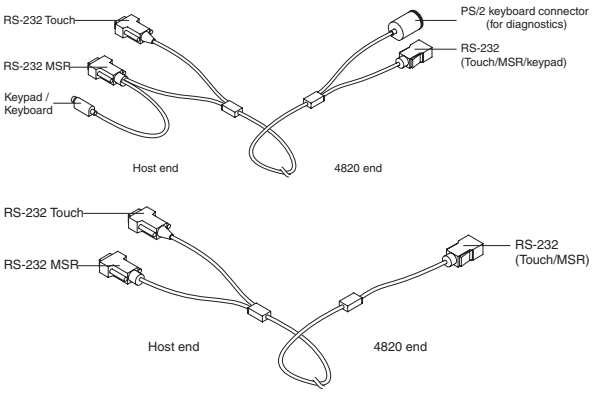
Table 3-1. Cable types and icons (continued)

Type	Identifying Icon	Cable
Multi-connector cable for model 42T Multi-connector cable for model 4FT	4	

The following is a list of cables that require routing through the free-standing pedestal of the 4820 SurePoint Solution:

- Video
- Power
- Pointing device

Pedestal mounting

The 4820 SurePoint Solution models 42D, 42T, 4FT, and 4FD can be attached to a free-standing pedestal. Optionally, you can mount the pedestal to the counter. A mounting template is provided for installation of the pedestal (refer to Figure C-2 on page C-2.) See “Mounting the distributed pedestal” on page A-1 for instructions.

Adjusting the display

This section summarizes the methods of adjusting the 4820 SurePoint Solution.

Brightness menu
Available when you press the minus or plus buttons.

OSD menu
The on-screen display menu appears when you press the minus and plus buttons simultaneously. For additional information, see “Using the OSD menu” on page 7-1.

4820 Video Quality Test Pattern
This file is available from the Web support site. Use this file when the Auto Adjust menu item fails to produce satisfactory results.

4820 42T/4FD POS Terminal Service diskette
This diskette is available from the Web support site and allows you to calibrate the touch and test the MSR.

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Chapter 4. System diagnostics and scan codes

This section describes the diagnostics.

Using the 4820 42T/4FD POS Terminal Service diskette

The service diskette is available from the support Web site. Before you begin diagnostics, ensure your connections are as following:

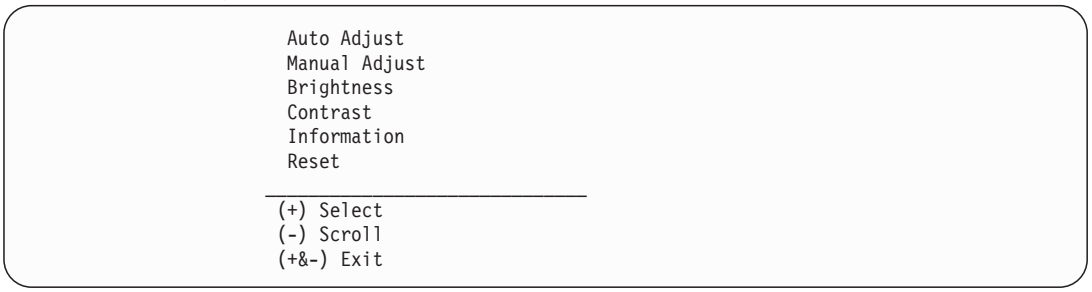
- RS-232 touch connects to COM 1
- RS-232 MSR connects to COM 2

After you boot your system with the diskette, a menu appears that allows you to calibrate the touch and test the MSR.

Using the OSD menu

The OSD menu allows you to adjust the display settings such as contrast, brightness, clock phase, and image position.

To open the OSD menu, press and hold the minus (–) and plus (+) buttons at the same time. The following menu appears:



Auto Adjust
Automatically adjusts the settings. Use this option when you install the display and at other times when image quality degrades.

Manual Adjust
Allows you to regulate the clock, phase, and image position. See “Using Manual Adjust” on page 4-2.

Brightness
Allows you to regulate the display’s brightness setting.

Contrast
Allows you to regulate the display’s contrast settings.

Information
Provides the current screen resolution, the horizontal, and the vertical sync signal frequencies.

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Reset Presents Yes or No dialogue box that allows you to reset the menu settings to the default values.

Exiting the OSD Menu

To exit the OSD menu, press the minus (–) and plus (+) buttons at the same time. The system saves your values.

Exiting through time-out

The OSD menu times-out after approximately 20 seconds of inaction. The system does not save the settings.

Using Manual Adjust

Normally, you do not need to use **Manual Adjust** since **Auto Adjust** sets the parameters at the optimum default value. However, **Manual Adjust** allows you to:

- Decrease the screen noise
- Adjust the screen display position and size

To reduce the noise, adjust the Phase and Clock parameters.

Keypad and scan code arrangement

Figure 4-1 on page 4-3 shows the key arrangement of the keypad and the scan code definitions.

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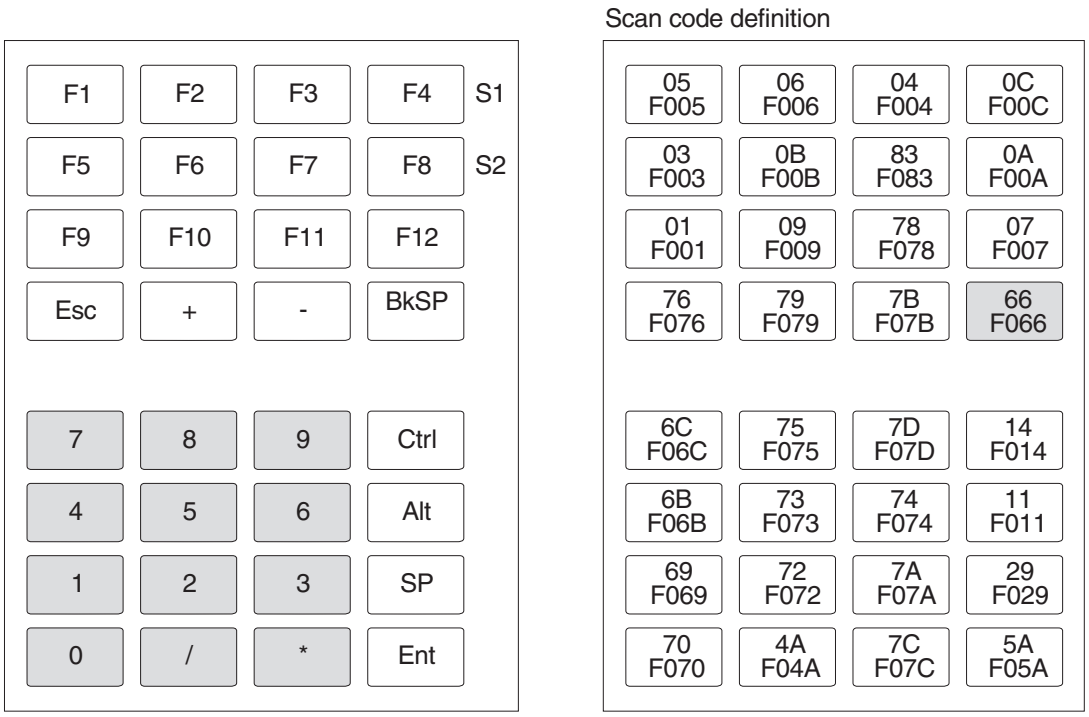

Figure 4-1. Keypad and scan code arrangement. Upper code denotes “make” and lower denotes “break” code

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Part 3. IBM 4820 SurePoint Solution Models 46D, 46R, 46T

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Models 46D, 46R, 46T

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Chapter 5. System specifications and planning information

This section summarizes the specifications of the 4820 SurePoint Solution, and provides details on the optional hardware and software features.

Product summary

This section summarizes the specifications of 4820 SurePoint Solution.

Table 5-1. 4820 SurePoint Solution Hardware Features

Hardware Features	Description
Keypad	• A 32-key with ISO 3 track MSR or a 32-key with JUCC MSR
MSR	ISO 3 track or JUCC
Pointing Device	• PS/2 mouse type
Mounting	Integrated, integrated touch, distributed; free-standing, or VESA bracket
Security	Manager's keylock
Cables	• RS485 , 0.8m, 1.8m or 3.8m • Analog , 0.8m, 1.8m or 3.8m
Power	• External power brick

Table 5-2. 4820 SurePoint Solution System Software

System Software	
POSS Drivers	You can obtain the appropriate software for your 4820 SurePoint Solution from the IBM Retail Store Solutions Web site: www.ibm.com/solutions/retail/store (from the store page, click on Support).
Maintenance package: service diskette, publications	

Hardware features

This section describes the physical features of the 4820 SurePoint Solution.

Display

The 4820 SurePoint Solution provides a 12.1 inch TFT SVGA display with 800 x 600 resolution. The display can provide up to 16.7 million colors, subject to host PC limitations. Autoscaling is standard with VGA support.

Video interface

The 4820 SurePoint Solution, models 46D and, 46T, have an analog interface.

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POS input/output (I/O)

The 4820 SurePoint Solution provides the following Point-of-Sale I/O devices:

- Touch screen, key pad, and MSR
- RS485 I/O
- Pointing device; mouse

Indicators and user controls

The 4820 SurePoint Solution provides the following indicators:

- Dual color LED:green power-on indicator; orange backlight dim or off

The 4820 SurePoint Solution provides the following user controls:

- Power on/Resume
- Brightness

External ports

The 4820 SurePoint Solution provides the following external ports:

- RS485 touch, keypad, MSR input: 4-pin SDL
- Video: MDR 20-pin
- DC power input
- Keypad/MSR (custom)

Power management

Power management is through DPMS and complies with the VESA standard. The table below describes the power management states.

Table 5-3. Power Management States

Operation Mode	Analog
Off	5W
DPMS Off	5W
DPMS Suspend	5W
DPMS Standby	5W
On	20W

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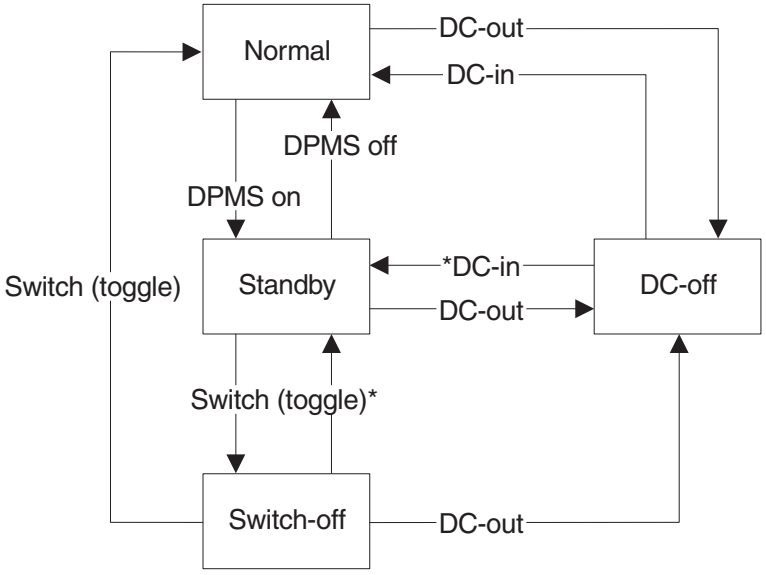
Transition diagram

The diagram below shows the transition between standby and normal operation.

Figure 5-1. Power Management Transition Diagram



*No Video/DPMS by OSD

Optional features

This section describes the optional features available on the 4820 SurePoint Solution.

Keypads

An optional 32-key keypad is available with either an ISO 3 track MSR or JUCC MSR.

Manager's keylock

As an option, the 4820 SurePoint Solution allow for a two-position manager's keylock.

Magnetic stripe reader (MSR)

The two MSRs available are the International Organization for Standardization (ISO) 3-track and the Japanese Unified Cash Card (JUCC) 2-head.

Audio kit

The audio kit option is available for all models of the 4820 SurePoint Solution. This kit provides an integrated microphone, and stereo speakers molded into a single unit. This unit replaces the mounting cover.

Note: The audio kit requires a sound card with amplified output (speaker out). Sound cards with these characteristics are Sound Blaster sound card PCI128 or Yamaha sound card WF192XG.

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System software

You can obtain the appropriate software for the 4820 SurePoint Solution from the IBM Retail Sore Solutions Web site: www.ibm.com/solutions/retail/store/ (from the store page, click on Support).

- Terminal hardware folder
  - 4820 downloads
    - 4694/4695/ISA Service Diskette, version 5.33 or later
  - Peripheral drivers folder
    - POSS for DOS download
    - OPOS drivers download
    - Java POS drivers download

Supported modes

Table 5-4 lists the supported modes and frequencies.

Table 5-4. Supported Modes

Modes	Supported Frequencies
SVGA	56, 60, 72, 75 Hz
Graphics adapter (VGA)	60, 70, 72, 75 Hz

Windows setting requirement

When you install the 4820 SurePoint Solution with the Windows operating system, ensure that the display setting is 800 x 600. The 4820 operates at a VGA setting of 640 x 480, but the image is not optimized.

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Chapter 6. Installation and operating information

This section summarizes the installation and operation methods of the 4820 SurePoint Solution. IBM recommends that you refer to the *IBM 4820 SurePoint Solution Installation and Service Guide* for complete instructions.

Option installation

IBM recommends that you install the options for the 4820 SurePoint Solution in the following order:

1. Manager's keylock
2. Keypad and MSR
3. Pointing device
4. Audio kit

Note: You can attach *either* the MSR *or* the keypad with MSR to the 4820 SurePoint Solution.

Cable connections and routing

Figure 6-1 shows the view of the cable connections for the 4820 SurePoint Solution.

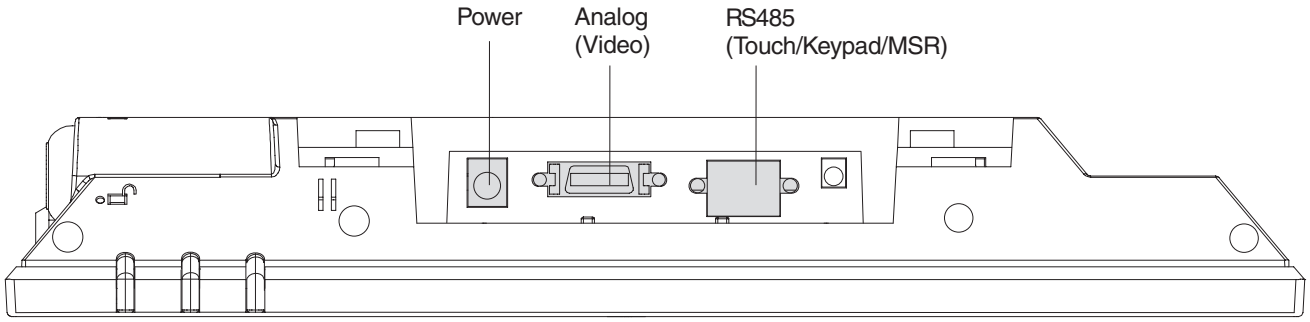


Figure 6-1. View of Model 46D, 46T Cable Connections

Table 6-1. Summary of Cable Types, Identifying Icons, and Examples

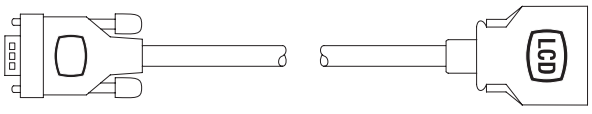
Type	Identifying Icon	Cable
Analog		

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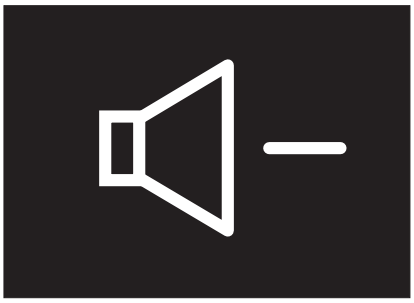
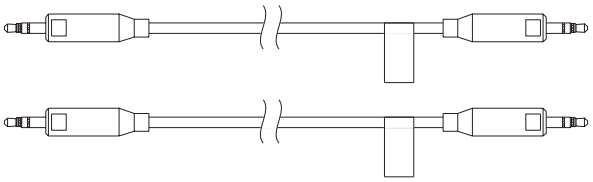
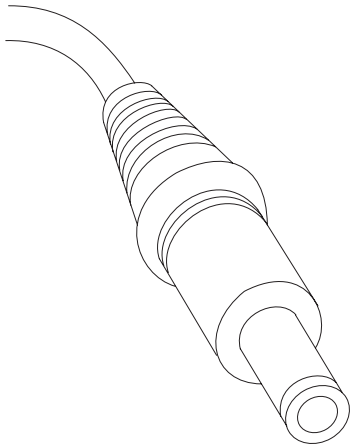
Table 6-1. Summary of Cable Types, Identifying Icons, and Examples (continued)

Type	Identifying Icon	Cable
Audio (icon located on audio kit)		
RS485		Cable not shown.
Power		 .

The following is a list of cables that require routing through the distributed and integrated pedestal of the 4820 SurePoint Solution:

- Video
- Power
- RS485 (Touch/Keypad/MSR)
- Pointing device
- Audio cables (when applicable)

Pedestal mounting

The 4820 SurePoint Solution can be attached to either a distributed, integrated, free-standing, or VESA mounting. However, you must prepare the mounting surface for the installation of the distributed pedestal. See “Mounting the distributed pedestal” on page A-1 for instructions.

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Adjusting the display

This section summarizes the methods of adjusting the 4820 SurePoint Solution, models 46D, 46T.

Brightness menu

Available when you press the minus or plus buttons.

OSD menu

The on-screen display menu appears when you press the minus and plus buttons simultaneously. For additional information, see “Using the OSD menu” on page 7-1.

Auto Adjust Assistance file

This file is available from the Web support site. Use this file when the Auto Adjust menu item fails to produce satisfactory results.

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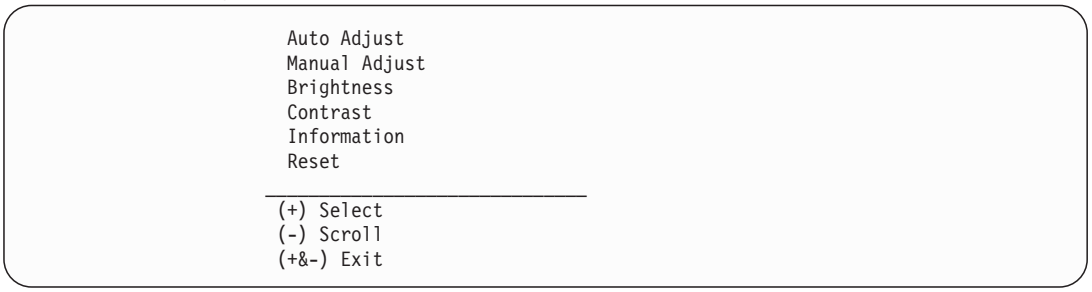
Chapter 7. System diagnostics

This section describes the diagnostics.

Using the OSD menu

The OSD menu allows you to adjust the display settings such as contrast, brightness, clock phase, and image position.

To open the OSD menu, press and hold the minus (–) and plus (+) buttons at the same time. The following menu appears:



Auto Adjust
Automatically adjusts the settings. Use this option when you install the display and at other times when image quality degrades.

Manual Adjust
Allows you to regulate the clock, phase, and image position. See “Using Manual Adjust” on page 7-2.

Brightness
Allows you to regulate the display’s brightness setting.

Contrast
Allows you to regulate the display’s contrast settings.

Information
Provides the current screen resolution, the horizontal, and the vertical sync signal frequencies.

Reset Presents Yes or No dialogue box that allows you to reset the menu settings to the default values.

Exiting the OSD Menu

To exit the OSD menu, press the minus (–) and plus (+) buttons at the same time. The system saves your values.

Exiting through time-out

The OSD menu times-out after approximately 20 seconds of inaction. The system does not save the settings.

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Using Manual Adjust

Normally, you do not need to use **Manual Adjust** since **Auto Adjust** sets the parameters at the optimum default value. However, **Manual Adjust** allows you to:

- Decrease the screen noise
- Adjust the screen display position and size

To reduce the noise, adjust the Phase and Clock parameters.

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Chapter 8. Connector pinouts

This section describes the connector pinouts.

Video connector assignments

Table 8-1. Cable Connector Pinouts

4694 system connector	Description	4820 connector
1	Red (coaxial)	2
6	Coaxial (shield)	1
2	Green (coaxial)	4
7	Coaxial (shield)	3
3	Blue (coaxial)	6
8	Coaxial (shield)	5
13	White	7
10	Black	8
14	Green	9
5	Red	10
15	Yellow	11
12	Brown	12
11	Green	13
4	Orange	14
9	Purple	15

RS485 pin connector assignments

Pin	Description
1	Reserved
2	Serial I/O A
3	Serial I/O B
4	Reserved

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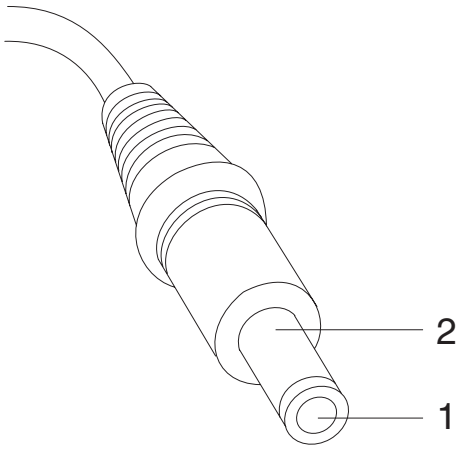
Power supply pin voltages

Table 8-2 describes the power supply pin voltages and provides an example of the connector.

Table 8-2. Power Supply Pin Voltages

Pin	Voltage	Example
1	+14.5 to +17.0	
2	Ground	

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Part 4. IBM 4820 SurePoint Solution Models 48D, 48T

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Models 48D, 48T

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Chapter 9. System specifications and planning information

This section summarizes the specifications of the 4820 SurePoint Solution, and provides details on the optional hardware and software features.

Product summary

This section summarizes the specifications of 4820 SurePoint Solution.

Table 9-1. 4820 SurePoint Solution Hardware Features

Hardware Features	Description
Keypad	One of the following: • 32-key with ISO 3 track MSR • 32-key with JUCC MSR
MSR	ISO 3 track or JUCC
Pointing Device	USB pointing device
Mounting	Integrated or distributed; VESA bracket
Multi-media	Audio kit with 1.8m or 3.8m attachment cables
Security	Manager's keylock
Cables	• DVI, 0.8m, 1.8m, 3.8m • USB, 0.7m, 1.8m, 3.8m
Power	Powered USB connector

Table 9-2. 4820 SurePoint Solution System Software

System Software	
POSS Drivers, MicroTouch TouchWare	You can obtain the appropriate software for your 4820 SurePoint Solution from the IBM Retail Store Solutions Web site: www.ibm.com/solutions/retail/store (from the store page, click on Support).
Maintenance package: service diskette, publications	

Hardware features

This section describes the physical features of the 4820 SurePoint Solution.

Display

The 4820 SurePoint Solution provides a 12.1 inch TFT SVGA display with 800 x 600 resolution. Although limited by the host PC, the display can provide up to 257k colors. Autoscaling is dependent on the host pc.

Video interface

The 4820 SurePoint Solution model 48D, 48T provides a digital interface.

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POS input/output (I/O)

The 4820 SurePoint Solution provides the following Point-of-Sale I/O devices:

- Touch screen, key pad, and MSR
- USB I/O
- Pointing device; mouse

USB devices and hot swapping

Universal Serial Bus (USB) is an open industry standard (IEEE and EIA) for a 12 Mbps serial bus. This standard makes system functionality easy to expand.

Systems that are USB-compliant detect when you add or remove a USB peripheral device. This process is known as enumeration. Enumeration identifies and manages the necessary device state changes during the attachment and removal. The USB system automatically configures each added USB device as soon as the device is physically attached to the system. You no longer need to install drivers or configure dip switches, jumpers, IRQ settings, and I/O addresses. This feature of USB is referred to as hot swapping, plug and play, hot plugging, or hot insertion.

Indicators and user controls

The 4820 SurePoint Solution provides the following indicators and user controls:

- Dual color LED:green power-on/resume indicator; orange backlight dim (system off)
- Power on/Resume
- Brightness

External ports

The 4820 SurePoint Solution provides the following external ports:

- USB touch, keypad, MSR input: 2 standard (non-powered) USB output
- Video 26-pin miscellaneous data record (MDR) input
- DC input on
- Keypad/MSR (custom)

Power management

Power management is through DPMS and complies with the VESA standard. The table below describes the power management states.

Table 9-3. Power Management States

Operation Mode	RS485/Analog	USB/Digital
Off	5W	3W
DPMS Off	5W	3W
DPMS Suspend	5W	3W
DPMS Standby	5W	3W
On	20W	15W

The events for power management are as follows:

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Suspend/Resume switch
This switch toggles the power management state.

Touchscreen/Keypad sleep timer
This timer is activated when the time set elapses after the last keypad or touch panel access.

Touchscreen/Keypad touch
The wake signal is activated by touching the touchscreen or keypad when in standby operation mode.

DPMS DPMS controls the power management state according to the sync status.

Managing the screen savers

To ensure that your operating system screen saver works with the screen saver of the 4820 SurePoint Solution, IBM recommends the following changes:

Note: These change will ensure that **PosNtouchScreenSaverTime** operates properly.

The control panel of your operating system contains the following programs that affect the screen saver function:

Display
An icon that resides in Control Panel represent display. Ensure that the screen saver of the Display is set to **None**.

Power management (if applicable)
An icon that resides in Control Panel represent power management. Ensure that the **Turn Off Monitor** timer is set to **Never**.

Optional features

This section describes the optional features available on the 4820 SurePoint Solution.

Keypads

An optional 32-key keypad is available with either an ISO 3 track MSR or JUCC MSR.

Manager's keylock

As an option, the 4820 SurePoint Solution allows for a two-position manager's keylock.

Magnetic stripe reader (MSR)

The two MSRs available are the International Organization for Standardization (ISO) 3-track and the Japanese Unified Cash Card (JUCC) 2-head.

Audio kit

The audio kit option is available for all models of the 4820 SurePoint Solution. This kit provides an integrated microphone, and stereo speakers molded into a single unit. This unit replaces the mounting cover.

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Note: The audio kit requires a sound card with amplified output (speaker out). Sound cards with these characteristics are Sound Blaster sound card PCI128 or Yamaha sound card WF192XG.

System software

You can obtain the appropriate software for the 4820 SurePoint Solution from the IBM Retail Store Solutions Web site: www.ibm.com/solutions/retail/store/ (from the store page, click on Support).

- Peripheral drivers folder
  - POSS for Windows download, which includes the IBM POS Device Diagnostics
  - POSS for DOS download
  - OPOS drivers download
  - Java POS drivers download
  - MicroTouch Touchware

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Chapter 10. Installation and operating information

This section summarizes the installation and operation methods of the 4820 SurePoint Solution. IBM recommends that you refer to the *IBM 4820 SurePoint Solution Installation and Service Guide* for complete instructions.

Option installation

IBM recommends that you install the options for the 4820 SurePoint Solution in the following order:

1. Manager's keylock
2. Keypad and MSR
3. Pointing device
4. Audio kit

Note: You can attach *either* the MSR *or* the keypad with MSR to the 4820 SurePoint Solution.

Cable connections and routing

Figure 10-1 shows the view of the cable connections for the 4820 SurePoint Solution.

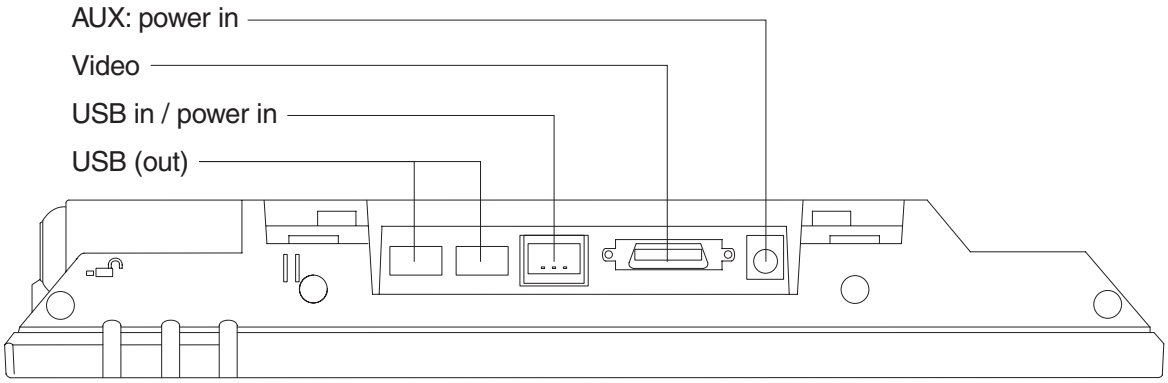


Figure 10-1. View of Model 48D, 48T Cable Connections

Table 10-1. Summary of Cable Types, Identifying Icons, and Examples

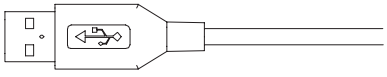
Type	Identifying Icon	Cable
USB out		

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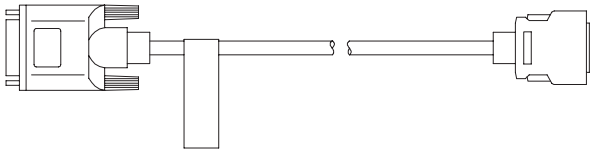
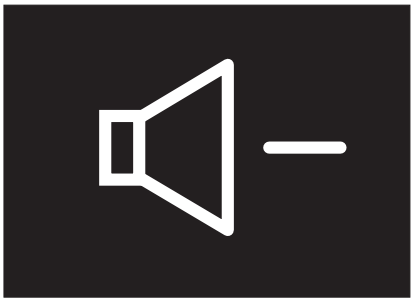
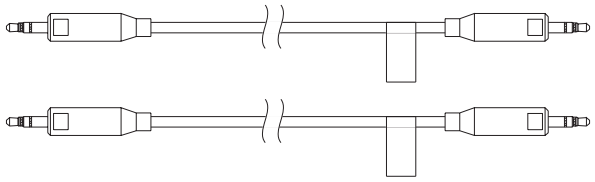
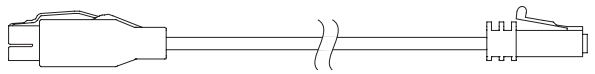
Table 10-1. Summary of Cable Types, Identifying Icons, and Examples (continued)

Type	Identifying Icon	Cable
DVI		
Audio (icon located on audio kit)		
USB power input		
Auxiliary power input		**Note:** Power is not necessary when connecting to the SurePOS 700 Series.

The following is a list of cables that require routing through the distributed and integrated pedestal of the 4820 SurePoint Solution:

- Power
- USB (Touch/Keypad/MSR)
- Pointing device
- Audio cables (when applicable)

Adjusting the display

This section summarizes the methods of adjusting the 4820 SurePoint Solution, models 48D and 48T.

Brightness controls

Pressing the plus or the minus keys adjusts the screen brightness.

MicroTouch TouchWare

The MicroTouch Touchware software driver allows you to calibrate the touch screen, select modes, and configure the touch sound and cursor positions.

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Chapter 11. System diagnostics and pinout connections

The 4820 SurePoint Solution models 48D and 48T connect through USB and to the IBM SurePOS 700 Series system unit. This section describes diagnostic information and pinout connections for models 48D and 48T.

Diagnostics for model 48D (non-touch)

The IBM POS Device Diagnostics provides diagnostic information and problem solutions for the 4820 SurePoint Solution, model 48D. This program installs with the POSS for Windows software. The IBM POS Device Diagnostics contains an extensive help program, which enables you to diagnose and resolve problems with the MSR, keypad, and pointing device.

Using the MicroTouch TouchWare

This section describes how to calibrate the touchscreen and customize the touch response.

Locating the touchscreen controller information

The touchscreen controller information window provides information about the type, firmware version, and status of your touchscreen. Locate the controller by selecting the Hardware tab from the TouchWare.

Controller type

The Controller Type field displays the model name of your touchscreen controller.

Firmware version

The Firmware Version field displays the revision number of the firmware in your TouchWare controller.

Touchscreen status

The Touchscreen Status field provides valuable information about whether the touchscreen hardware is operating properly. Table 11-1 lists the possible messages that are displayed in the Status field:

Table 11-1. Touchscreen Status Messages

Message	Definition	Recommended Action
OK	Touchscreen found and operational	None

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Table 11-1. Touchscreen Status Messages (continued)

Message	Definition	Recommended Action
A/D Error	Touchscreen hardware error	Replace unit
ASIC Error		
Hardware Error		
PWM		
NOVRAM Error	Checksum error in NOVRAM, using defaults	
Random access memory (RAM) Error	Checksum error in read-only memory (ROM)	
Touchscreen Not Found	TouchWare was unable to communicate with the touchscreen	Check that all cables for correctly connected.

Touchscreen properties dialog box

Problem	Recommended Action
You have touch, but cannot open the Touchscreen Properties dialog box.	Only the touchscreen USB driver was installed and the TouchWare was not completely installed. Unplug your touchscreen from the USB port and reinstall the TouchWare.
The Touchscreen Properties dialog box always opens to the Hardware tab	The TouchWare is unable to find or communicate with the touchscreen controller. • Check the Controller Information box on the Hardware tab. If the OK message displays, contact technical support. • If the message NOT FOUND displays, review the cable connections

Calibrating the touchscreen

Calibration defines the dimensions and center of the active area of the touchscreen. Calibration also aligns the touchscreen-active area to the underlying . Calibrate your touchscreen when:

- You initially install the TouchWare
- The cursor does not accurately follow your finger movement
- You change the resolution or mode
- You adjust the touchscreen controller frequency using the Stabilize Cursor function
- You enable or disable the Filtering option

Note: During calibration, the lift-off position of your touch, and not the touchdown position, determines the calibration point. If your finger is not correctly positioned on the screen, you can slide your finger to the center of the target. Hold your finger as still as possible after you reach the calibration point. Do not use any swinging motion during lift-off.

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1. Allow the 4820 SurePoint Solution to warm-up at least one-half hour before you begin calibration.
2. Open the **Touchscreen Properties** dialog box. Select the **Calibrate** tab.
3. Click **Calibrate**. A calibration target appears in the lower left corner of the screen.
4. Touch the touchscreen and position your fingertip to completely cover the target. Hold your touch for at least three seconds.
5. Lift your finger off of the screen when you are satisfied that you accurately touched the target.
6. Touch the touchscreen and position your fingertip to completely cover the next target. Hold your touch for at least three seconds.
7. Lift your finger off of the screen. The program saves the new calibration values and displays the following dialog box:
8. Test the calibration as follows:
   a. Touch random points on the screen and check that the system locates the cursor underneath your finger.
   b. Drag your finger across the screen. Check that the cursor accurately follows your movements.
   c. Touch each corner and along each edge of the screen. Check that the cursor reaches the full image area and that you can touch and activate all icons and menus across the entire screen
9. If any part of the test fails, calibrate the touchscreen again.

Customizing the touch response mode

The touch response mode defines how your touch emulates the functions of a mouse. For example, you can define a touch to produce a button down (pressing a mouse button) or button up (releasing the mouse button). Touch modes also define how your touch produces a mouse click and double click. TouchWare allows the following touch modes:

Desktop (default)
The system moves the cursor to the touch point, but does not generate a button down as long as you continue to slide your finger around the screen. When you pause and hold your finger steady, the system generates a mouse button down. You can now slide your finger around the screen with this position. When you lift your finger, the system generates a button up.

Drawing
The system moves the cursor to the touch point and immediately generates a button down. You can slide your finger around the screen with the button held down. When you lift your finger, the system generates a button up.

Button The system moves the cursor to the touch point and immediately generates a button down and up (a click). To drag, slide your finger around the screen (button down). When your lift your finger, the system generates a button up.

Click The system moves the cursor to the touch point and then immediately generates a button down and up (a click). Click mode does not generate a second button down, does not support drag and does not generate a mouse event on finger lift-off.

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Lift-off The system moves the cursor to the touch point, but does not generate a mouse button down. You can slide your finger around the screen and your movements are followed; however, the system generates mouse move events only. Lifting your finger off of the screen generates a mouse button down. The system then waits for a system-defined time delay, and generates a button up. Drag is not supported; however lift-off mode is useful for applications that requires greater accuracy.

Touchdown
The system moves the cursor to the touch point, generates a button down, waits for a system-defined time delay, and generates a button up. The system does not generate a mouse event on finger lift-off. Drag is not supported in this mode.

Table 11-2 describes how to click, double click, and drag, using the different touch modes.

Table 11-2. Summary of Touch Modes

Touch Mode	How to Click	How to Double-Click	How to Drag
Desktop	Touch the object and lift your finger.	Touch twice in quick succession in the same place.	Touch the object, pause briefly, and slide your finger.
Drawing			
Button	Touch the object		
Click			
Lift-off			
Touchdown	Touch the object. Provides a pause for user to receive visual feedback that a button was pressed and released.		Not supported

Selecting a touch mode

Use the Touch Settings tab or the Special tab to select a touch mode. Some touch modes require you to select options on both tabs.

Configuring the touch sound

You can configure your touchscreen so that a beep is produced when you touch the screen, or when you remove your touch. To enable or disable the touch sound:

- Select the Touch Settings tab to access the Touch Sound option.
- Click Beep to cycle through the choices:
  - Beep on touchdown produces a beep when you touch the screen
  - Beep on lift-off produces a beep when you lift your finger off the screen.
  - Beep off produces no sound when you touch the screen. This is the default setting.

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Customizing the touch sound

If you enable the touch sound, you can customize the frequency, or pitch, and duration of the touch sound. To customize the touch sound:

- Select the Special tab to access the Custom Touch Sound options.
- Click the right and left arrows to change the frequency, or pitch, and duration of the touch sound. The range of settings are as follows:
  - Frequency: 200 to 5000 Hz in 10 Hz increments; the default is 1500 Hz
  - Duration: 50 to 600 mx in 10 mx increments; the default is 200 mx

Connector pinouts

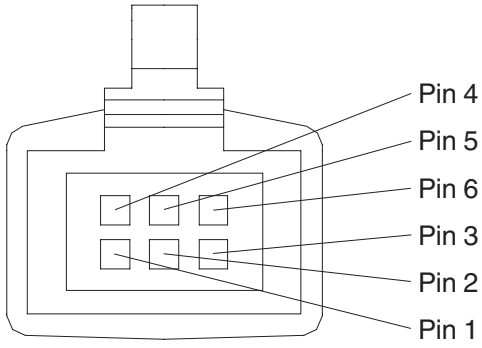
This section describes the connector pinouts.

USB power voltage

The powered USB cable should provide approximately 12 volts DC to the 4820 SurePoint Solution. Table 11-3 describes the pins and provides an example of the USB cable.

Table 11-3. USB Power and Voltage

Pin	DC Voltage	Example
1	4.75 to 5.25 V	
2, 3	Data	
4, 5	Ground	
6	10.8 to 12.6 V	



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Part 5. IBM 4820 SurePoint Solution Models 4WT, 4GT

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Models 4WT, 4GT

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Chapter 12. System specifications and planning information

This section summarizes the specifications of the 4820 SurePoint Solution, and provides details on the optional hardware and software features.

Product summary

This section summarizes the specifications of 4820 SurePoint Solution.

Table 12-1. 4820 SurePoint Solution Hardware Features

Hardware Features	Description
Keypad	Either of the following: • 32-key with ISO 3 track MSR • 32-key with JUCC MSR
MSR	ISO 3 track or JUCC
Pointing device	USB pointing device
Mounting	Integrated or distributed; VESA bracket
Multimedia	Audio kit with 1.8m or 3.8m attachment cables
Security	Manager's keylock
Cables	• Analog video, 0.8m, 1.8m, 3.8m • USB, 0.7m, 1.8m, 3.8m
Power	Either of the following: • Powered USB connector • External power brick

Table 12-2. 4820 SurePoint Solution System Software

System Software	
POSS Drivers, MicroTouch TouchWare	You can obtain the appropriate software for your 4820 SurePoint Solution from the IBM Retail Store Solutions Web site: www.ibm.com/solutions/retail/store/ (from the store page, click on Support).
Maintenance package: service diskette, publications	

Hardware features

This section describes the physical features of the 4820 SurePoint Solution.

Display

The 4820 SurePoint Solution provides a 12.1 inch TFT SVGA display with 800 x 600 resolution. Although limited by the host PC, the display can provide up to 257k colors. Autoscaling is dependent on the host pc.

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Video interface

The 4820 SurePoint Solution model 4WT, 4GT provides an analog interface.

POS input/output (I/O)

The 4820 SurePoint Solution provides the following Point-of-Sale I/O devices:

- Touch screen, key pad, and MSR
- USB I/O
- Pointing device; mouse

USB devices and hot swapping

Universal Serial Bus (USB) is an open industry standard (IEEE and EIA) for a 12 Mbps serial bus. This standard makes system functionality easy to expand.

Systems that are USB-compliant detect when you add or remove a USB peripheral device. This process is known as enumeration. Enumeration identifies and manages the necessary device state changes during the attachment and removal. The USB system automatically configures each added USB device as soon as the device is physically attached to the system. You no longer need to install drivers or configure dip switches, jumpers, IRQ settings, and I/O addresses. This feature of USB is referred to as hot swapping, plug and play, hot plugging, or hot insertion.

Indicators and user controls

The 4820 SurePoint Solution provides the following indicators and user controls:

- Dual color LED:green power-on/resume indicator; orange backlight dim (system off)
- Power on/Resume
- Brightness

External ports

The 4820 SurePoint Solution provides the following external ports:

- USB touch, keypad, MSR input (Touch + I/O models only)
- Two standard (non-powered) USB output
- Video 26-pin analog video input
- DC input

Power management

Power management is through DPMS and complies with the VESA standard. The table below describes the power management states.

Table 12-3. Power management states

Operating mode	USB/analog
Off	3W
DPMS Off	3W
DPMS Suspend	3W

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Table 12-3. Power management states (continued)

Operating mode	USB/analog
DPMS Standby	3W
On	15W

The events for power management are as follows:

Suspend/Resume switch
This switch toggles the power management state.

Touchscreen/Keypad sleep timer
This timer is activated when the time set elapses after the last keypad or touch panel access.

Touchscreen/Keypad touch
The wake signal is activated by touching the touchscreen or keypad when in standby operation mode.

DPMS DPMS controls the power management state according to the sync status.

Managing the screen savers

To ensure that your operating system screen saver works with the screen saver of the 4820 SurePoint Solution, IBM recommends the following changes:

Note: These change will ensure that **PosNtouchScreenSaverTime** operates properly.

The control panel of your operating system contains the following programs that affect the screen saver function:

Display
An icon that resides in Control Panel represent display. Ensure that the screen saver of the Display is set to **None**.

Power management (if applicable)
An icon that resides in Control Panel represent power management. Ensure that the **Turn Off Monitor** timer is set to **Never**.

Optional features

This section describes the optional features available on the 4820 SurePoint Solution.

Keypads

For Touch + I/O models only, an optional 32-key keypad is available with either an ISO 3 track MSR or JUCC MSR.

Manager's keylock

For Touch + I/O models only, the 4820 SurePoint Solution allows for an optional two-position manager's keylock.

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Magnetic stripe reader (MSR)

For Touch + I/O models only, Two MSRs are available:

- International Organization for Standardization (ISO) 3- track
- Japanese Unified Cash Card (JUCC) 2-head

Audio kit

The audio kit option is available for all models of the 4820 SurePoint Solution. This kit provides an integrated microphone, and stereo speakers molded into a single unit. This unit replaces the mounting cover.

Note: The audio kit requires a sound card with amplified output (speaker out). Sound cards with these characteristics are Sound Blaster sound card PCI128 or Yamaha sound card WF192XG.

System software

You can obtain the appropriate software for the 4820 SurePoint Solution from the IBM Retail Store Solutions Web site: www.ibm.com/solutions/retail/store/ (from the store page, click on Support).

- Peripheral drivers folder
  - POSS for Windows download, which includes the IBM POS Device Diagnostics
  - POSS for DOS download
  - OPOS drivers download
  - Java POS drivers download
  - MicroTouch Touchware

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Chapter 13. Installation and operating information

This section summarizes the installation and operation methods of the 4820 SurePoint Solution. IBM recommends that you refer to the *IBM 4820 SurePoint Solution Installation and Service Guide* for complete instructions.

Option installation

IBM recommends that you install the options for the 4820 SurePoint Solution in the following order:

1. Manager's keylock
2. Keypad and MSR
3. Pointing device
4. Audio kit

Note: You can attach *either* the MSR *or* the keypad with MSR to the 4820 SurePoint Solution.

Cable connections and routing

Figure 13-1 shows the view of the cable connections for the 4820 SurePoint Solution.

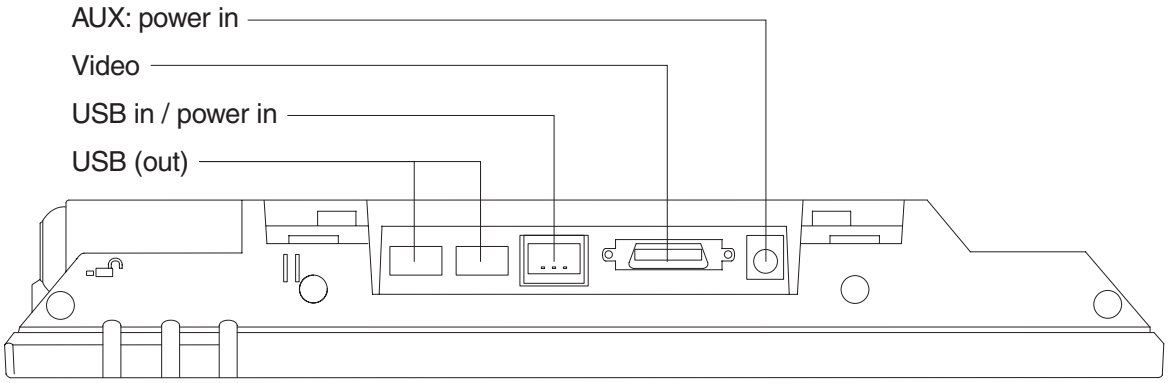

Figure 13-1. Model 4WT, 4GT cable connections

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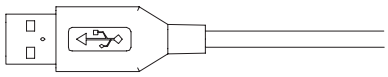
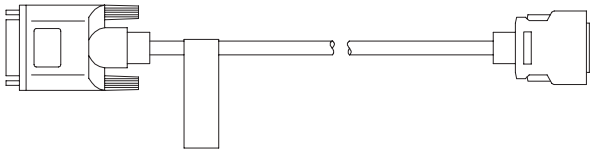
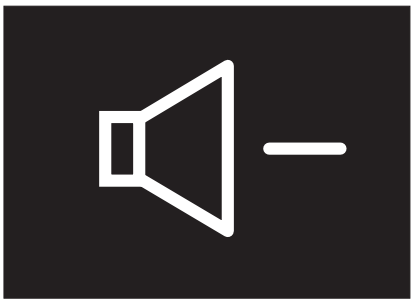
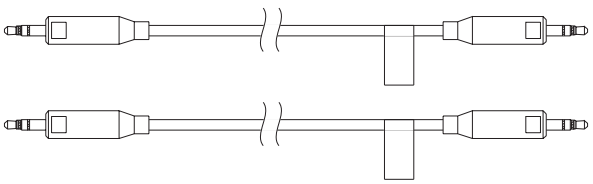
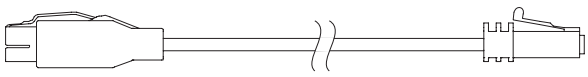
Table 13-1. Cable types

Type	Identifying Icon	Cable
USB out		
Analog video		
Audio (icon located on audio kit)		
USB power input		
Auxiliary Power input		**Note:** Power is not necessary when connecting to the SurePOS 700 Series.

The following cables require routing through the distributed and integrated pedestal of the 4820 SurePoint Solution:

- Power (models 4WT, 4GT)
- USB (Touch/Keypad/MSR)
- Pointing device
- Audio cables (when applicable)

Adjusting the display

This section summarizes the methods of adjusting the 4820 SurePoint Solution, models 4WT, 4GT.

Brightness controls

Pressing the plus or the minus keys adjusts the screen brightness.

MicroTouch TouchWare

The MicroTouch Touchware software driver allows you to calibrate the touch screen, select modes, and configure the touch sound and cursor positions.

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Chapter 14. System diagnostics and pinout connections

The 4820 SurePoint Solution models 4WT and 4GT connect through USB to the IBM Point of Sale system unit. This section describes diagnostic information and pinout connections for models 4WT and 4GT.

Using the MicroTouch TouchWare

This section describes how to calibrate the touchscreen and customize the touch response.

Locating the touchscreen controller information

The touchscreen controller information window provides information about the type, firmware version, and status of your touchscreen. Locate the controller by selecting the Hardware tab from the TouchWare.

Controller type

The Controller Type field displays the model name of your touchscreen controller.

Firmware version

The Firmware Version field displays the revision number of the firmware in your TouchWare controller.

Touchscreen status

The Touchscreen Status field provides valuable information about whether the touchscreen hardware is operating properly. Table 14-1 lists the possible messages that are displayed in the Status field:

Table 14-1. Touchscreen status messages

Message	Definition	Recommended Action
OK	Touchscreen found and operational	None
A/D Error	Touchscreen hardware error	Replace unit
ASIC Error		
Hardware Error		
PWM		
NOVRAM Error	Checksum error in NOVRAM, using defaults	
random access memory (RAM) Error	Checksum error in read-only memory (ROM)	
Touchscreen Not Found	TouchWare was unable to communicate with the touchscreen	Check that all cables for correctly connected.

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Touchscreen properties dialog box

Problem	Recommended Action
You have touch, but cannot open the Touchscreen Properties dialog box.	Only the touchscreen USB driver was installed and the TouchWare was not completely installed. Unplug your touchscreen from the USB port and reinstall the TouchWare.
The Touchscreen Properties dialog box always opens to the Hardware tab	The TouchWare is unable to find or communicate with the touchscreen controller. • Check the Controller Information box on the Hardware tab. If the OK message displays, contact technical support. • If the message NOT FOUND displays, review the cable connections

Calibrating the touchscreen

Calibration defines the dimensions and center of the active area of the touchscreen. Calibration also aligns the touchscreen-active area to the underlying . Calibrate your touchscreen when:

- You initially install the TouchWare
- The cursor does not accurately follow your finger movement
- You change the resolution or mode
- You adjust the touchscreen controller frequency using the Stabilize Cursor function
- You enable or disable the Filtering option

Note: During calibration, the lift-off position of your touch, and not the touchdown position, determines the calibration point. If your finger is not correctly positioned on the screen, you can slide your finger to the center of the target. Hold your finger as still as possible after you reach the calibration point. Do not use any lateral motion during lift-off.

1. Allow the 4820 SurePoint Solution to warm-up at least one-half hour before you begin calibration.
2. Open the **Touchscreen Properties** dialog box. Select the **Calibrate** tab.
3. Click **Calibrate**. A calibration target appears in the lower left corner of the screen.
4. Touch the touchscreen and position your fingertip to completely cover the target. Hold your touch for at least three seconds.
5. Lift your finger off of the screen when you are satisfied that you accurately touched the target.
6. Touch the touchscreen and position your fingertip to completely cover the next target. Hold your touch for at least three seconds.
7. Lift your finger off of the screen. The program saves the new calibration values and displays the following dialog box:
8. Test the calibration as follows:
   a. Touch random points on the screen and check that the system locates the cursor underneath your finger.

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b. Drag your finger across the screen. Check that the cursor accurately follows your movements.

c. Touch each corner and along each edge of the screen. Check that the cursor reaches the full image area and that you can touch and activate all icons and menus across the entire screen

9. If any part of the test fails, calibrate the touchscreen again.

Customizing the touch response mode

The touch response mode defines how your touch emulates the functions of a mouse. For example, you can define a touch to produce a button down (pressing a mouse button) or button up (releasing the mouse button). Touch modes also define how your touch produces a mouse click and double click. TouchWare allows the following touch modes:

Desktop (default)
The system moves the cursor to the touch point, but does not generate a button down as long as you continue to slide your finger around the screen. When you pause and hold your finger steady, the system generates a mouse button down. You can now slide your finger around the screen with this position. When you lift your finger, the system generates a button up.

Drawing
The system moves the cursor to the touch point and immediately generates a button down. You can slide your finger around the screen with the button held down. When you lift your finger, the system generates a button up.

Button The system moves the cursor to the touch point and immediately generates a button down and up (a click). To drag, slide your finger around the screen (button down). When your lift your finger, the system generates a button up.

Click The system moves the cursor to the touch point and then immediately generates a button down and up (a click). Click mode does not generate a second button down, does not support drag and does not generate a mouse event on finger lift-off.

Lift-off The system moves the cursor to the touch point, but does not generate a mouse button down. You can slide your finger around the screen and your movements are followed; however, the system generates mouse move events only. Lifting your finger off of the screen generates a mouse button down. The system then waits for a system-defined time delay, and generates a button up. Drag is not supported; however lift-off mode is useful for applications that requires greater accuracy.

Touchdown
The system moves the cursor to the touch point, generates a button down, waits for a system-defined time delay, and generates a button up. The system does not generate a mouse event on finger lift-off. Drag is not supported in this mode.

Table 14-2 on page 14-4 describes how to click, double click, and drag, using the different touch modes.

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Table 14-2. Summary of touch todes

Touch mode	How to click	How to double-click	How to drag
Desktop	Touch the object and lift your finger.	Touch twice in quick succession in the same place.	Touch the object, pause briefly, and slide your finger.
Drawing			
Button	Touch the object		
Click			Not supported
Lift-off			
Touchdown	Touch the object. Provides a pause for user to receive visual feedback that a button was pressed and released.		

Selecting a touch mode

Use the Touch Settings tab or the Special tab to select a touch mode. Some touch modes require you to select options on both tabs.

Configuring the touch sound

You can configure your touchscreen so that a beep is produced when you touch the screen, or when you remove your touch. To enable or disable the touch sound:

- Select the Touch Settings tab to access the Touch Sound option.
- Click Beep to cycle through the choices:
  - Beep on touchdown produces a beep when you touch the screen
  - Beep on lift-off produces a beep when you lift your finger off the screen.
  - Beep off produces no sound when you touch the screen. This is the default setting.

Customizing the touch sound

If you enable the touch sound, you can customize the frequency, or pitch, and duration of the touch sound. To customize the touch sound:

- Select the Special tab to access the Custom Touch Sound options.
- Click the right and left arrows to change the frequency, or pitch, and duration of the touch sound. The range of settings are as follows:
  - Frequency: 200 to 5000 Hz in 10 Hz increments; the default is 1500 Hz
  - Duration: 50 to 600 mx in 10 mx increments; the default is 200 mx

Connector pinouts

This section describes the connector pinouts.

USB power voltage

The powered USB cable should provide approximately 12 volts DC to the 4820 SurePoint Solution. Table 14-3 on page 14-5 describes the pins and provides an

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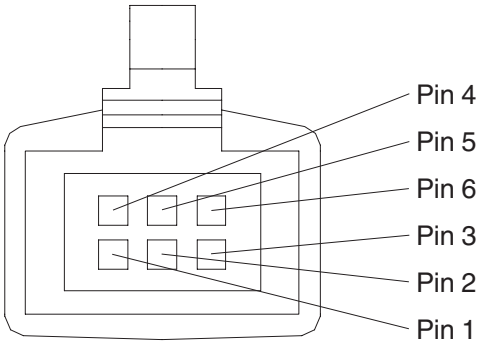
example of the USB cable.

Table 14-3. USB power and voltage

Pin	DC Voltage	Example
1	4.75 to 5.25 V	
2, 3	Data	
4, 5	Ground	
6	10.8 to 12.6 V	

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Part 6. IBM 4820 SurePoint Solution Models 10D, 1FR

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Models 10D, 1FR

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Chapter 15. System specifications and planning information

This section summarizes the specifications of the 4820 SurePoint Solution, and provides details on the hardware and software features. For installation information, see the *Installation and Service Guide*, GA27–4231.

Product summary

This section summarizes the specifications of 4820 SurePoint Solution.

Table 15-1. 4820 SurePoint Solution Hardware Features

Hardware Features	Description
Mounting	Integrated, distributed, free-standing, or VESA bracket
Cables	• Analog , 1.0m or 2.6m (15-pin VGA connector) • Analog, 1.0m or 3.8m (DVI-I connector)
Power	External power brick

You can obtain the 4820 SurePoint Solution publications from the IBM Retail Store Solutions Web site: www.ibm.com/solutions/retail/store/(from the store page, click on **Support**).

Hardware features

This section describes the physical features of the 4820 SurePoint Solution.

Display

The 4820 SurePoint Solution provides a 10.1 inch TFT SVGA display with 800 x 600 resolution. The display can provide up to 16.7 million colors, subject to host PC limitations. Autoscaling is standard with VGA support.

Video interface

The 4820 SurePoint Solution Models 10D and 1FR provide an analog interface with cables that will attach to either a 15-pin D-shell style connector or a DVI-I connector.

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Supported video modes

Table 15-2 lists the supported video modes:

Table 15-2. Supported video modes

Mode	Resolution	fV (Hz)	fH (kHz)	Pixel Rate (MHz)
VGA	640x350	70	31.47	25.18
	640x400			
	720x350			28.32
	720x400			
	640x480	60		25.18
		72	37.86	31.5
		75	37.5	
SVGA	800x600	56	37.88	40
		72	48.08	50
		75	46.88	49.5
		60	37 to 88	40

Indicators and user controls

The 4820 SurePoint Solution provides the following user controls:

- Power on/Resume
- Brightness

External ports

The 4820 SurePoint Solution provides the following external ports:

- Video: 15-pin D-shell style connector
- Power

Power management

The table below describes the power management states.

Table 15-3. Power Management States

Operation Mode	Analog
Off	5W
Active Off	5W
On	20W

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Chapter 16. Installation and operating information

This section summarizes the installation and operation methods of the 4820 SurePoint Solution. IBM recommends that you refer to the *IBM 4820 SurePoint Solution Installation and Service Guide* for complete instructions.

Pedestal mounting

The 4820 SurePoint Solution can be attached to either a distributed, integrated, free-standing, or VESA mounting. However, you must prepare the mounting surface for the installation of the distributed pedestal. See Appendix A, “Mounting the pedestal,” on page A-1 for instructions.

Adjusting the display image

Figure 16-1 on page 16-2 shows how to automatically adjust your display for Models 10D and 1FR of the 4820 SurePoint Solution. If you do not obtain the desired results with these procedures, use the manual adjustments.

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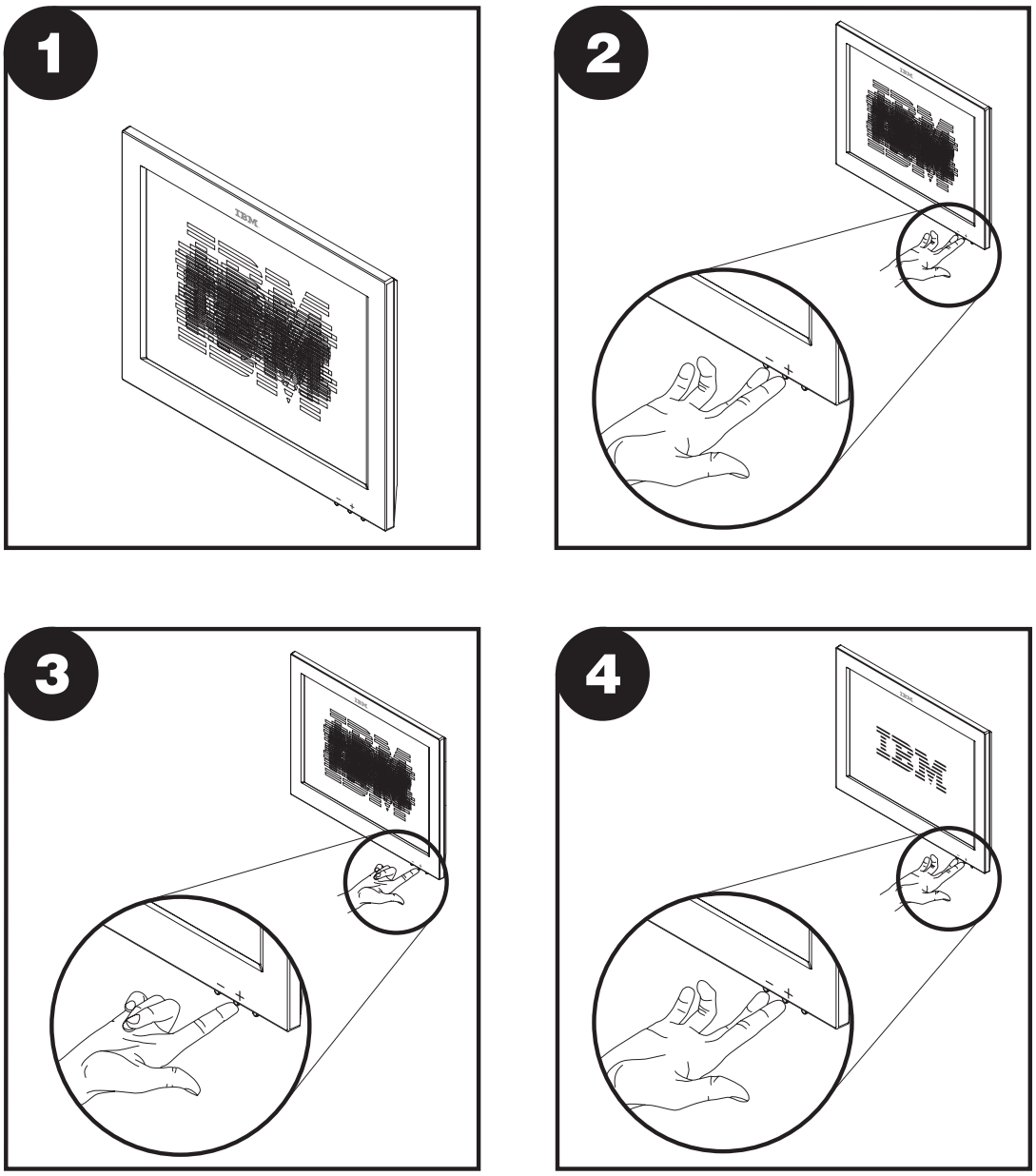

Figure 16-1. Pictorial view display adjustments

Other methods to adjust the display

Other methods to adjust the 4820 SurePoint Solution display are as follows:

Brightness menu

Available when you press the minus or plus buttons.

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OSD menu

The on-screen display (OSD) menu appears when you press the minus and plus buttons simultaneously. For additional information, see “Using the OSD menu” on page 7-1.

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Part 7. Appendixes

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Appendix A. Mounting the pedestal

Mounting the distributed pedestal

The distributed pedestal is available in short and long versions. Both pedestals bolt to your counter; therefore, installation is the same. Figure A-1 shows the mounting order.

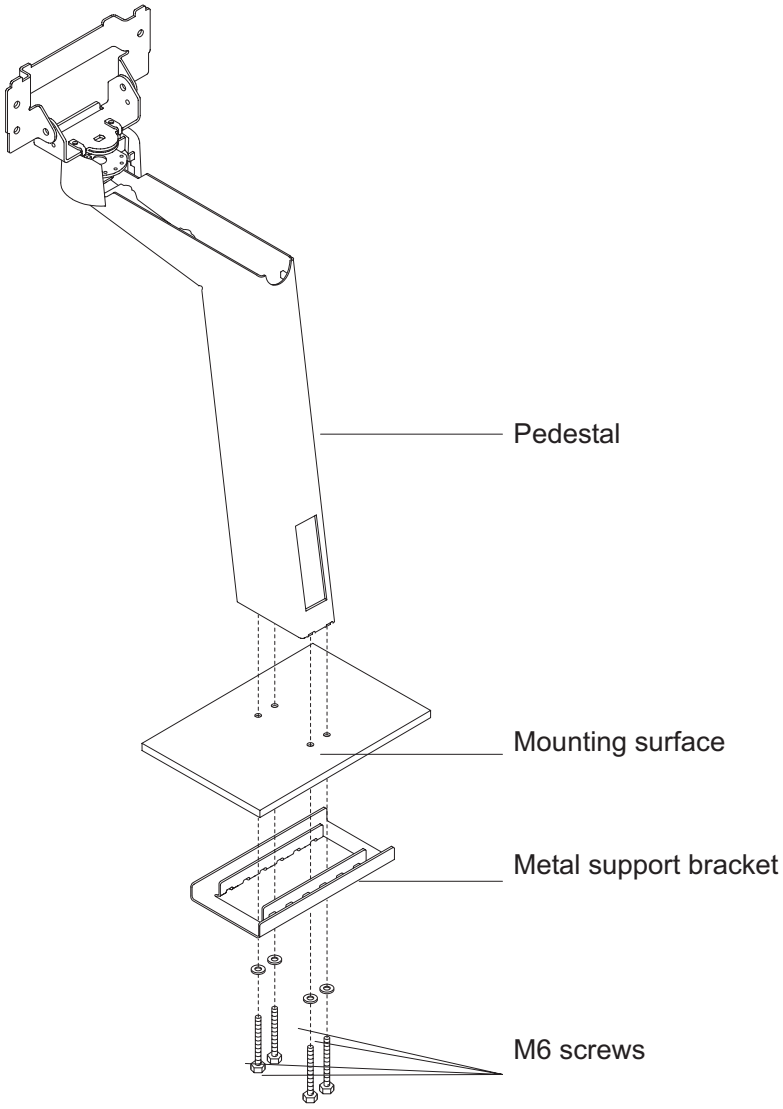

Figure A-1. Distributed pedestal mounting

Follow these steps to attach the distributed pedestal to the counter:

1. Using the template provided on Appendix C, “Mounting surface templates,” on page C-1 mark the screw hole locations for drilling through the counter. Use a 8 mm or 5/16 inch bit to drill the four screw holes.

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Note: To route cables through the counter, drill two 7/8 inch holes through the counter. Trim the remaining material between the holes with a small saw or chisel.

2. Place the pedestal so that the receiving bolts align with the counter screw holes.
3. Use the enclosed M6 screws to secure the pedestal to the counter as shown in Figure A-1 on page A-1. The slots located in the metal support bracket allow you to position the pedestal for maximum stability.

Attaching the free-standing pedestal to the counter

Follow these steps to mount the 4820 SurePoint Solution to your counter.

1. Using the template (see Figure C-2 on page C-2) as a guide, mark the screw hole locations for drilling through the counter. Use 8 mm bit, or 5/16 inch bit to drill the four screw holes.
2. Place the pedestal so that the mounting bolts align with the counter screw holes.
3. Use the enclosed M6 screws to secure the pedestal to the counter. The slots located in the metal support bracket allow you to position the pedestal for maximum stability.
4. Continue with your installation.

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Appendix B. Troubleshooting common problems

This section describes several common problems and explains what to do.

Note: Image problems can be 4694 system unit or SurePOS 700 Series system unit problems, also.

Condition description	Resolution
The power indicator on the display is off	Models 42x, 4Fx, and 46x, • Check the voltage of the power supply output (refer to the installation and Service manual). If the voltage is correct, go to the next item. If the DC voltage is not correct, verify that the power cord is plugged into a working AC outlet. Then, verify that the power cord is properly plugged into the power brick. If the voltage remains incorrect, replace the power supply. • Check that the power brick is properly plugged into the power port of the display. • Replace unit. Models 48D, 48T • Check the voltage output of the powered USB cable (see Table 11-3 on page 11-5). If the voltages are correct, replace the unit. If the voltages are incorrect, remove the cable from the system unit, and verify that the voltage are correct at the system port. The system unit requires servicing if the voltage at the port is not correct. • If the voltages are correct at the system unit port and wrong at the cable, replace the cable. • Check that the powered USB cable is properly connected to the 4820 SurePoint Solution. • Replace unit.
Power LED orange (amber)	• Standby mode. Communication is not yet established between host and 4820 • Check the cable connections and replace the cables, if necessary. • Verify that the unit is powered on. • Check the standby or suspend mode of power management. • Replace the unit, if necessary.
Power LED green	Operating mode.

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Troubleshooting common problems

Condition description	Resolution
Touch display not responding to touch	• Make sure that only a finger is used to touch the screen. **Note:** The sensor can only detect fingers. Do not use pens or pencils on the touch display. • Check to ensure that the keypad/MSR/touch cable is correctly attached to the 4820 display and to the 4694 system. • Run the service diagnostic diskette. • For model 48T, refer to “Locating the touchscreen controller information” on page 11-1 • Check the cable connections and replace the cables, if necessary. • Replace the 4820 display.
Totally blank display	• Check that the power indicator for the display is ON. If not, go to the first condition listed in this table. • Check that the system unit is ON. • Check the brightness controls. • If LED is orange (amber), go to the second condition listed in this table. • For models 46x, 42x, and 4Fx, run the service diskette. • Check the cable connections, and replace the cables, if necessary. • Replace the 4820 display, if necessary.
Incorrectly displayed data	• Check to ensure that the cables are securely connected. • Run the 4820 Video Quality Test Pattern. • If necessary, replace the cables. • For models 46x, 42x, and 4Fx, use the service diskette and run the display test for your host system. If the test is successful, the application software can be failing. • For models 48D, 48T, run the IBM POS Device Diagnostics, which came with the POSS for Windows installation. • Replace the 4820 display, if necessary.

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Condition description	Resolution
Blurred display data	• Ensure that the video mode is set to 800 x 600. • For models 46D, 46T, run the 4820 Video Quality Test Pattern. • Check if touchscreen or protective screen is dirty. • Check the cable connections, and replace the cables, if necessary. • Replace the 4820 display, if necessary.
Noisy display	Run the 4820 Video Quality Test Pattern.
Unsteady, unfocused, or misaligned display image	For Models 46x, 10D, 1FD: 1. Display a screen image with a bright background. 2. Press the (+) and (-) buttons on the bottom of the display simultaneously. 3. Activate the **Auto-Adjust** option by pressing the (+) button. 4. If the display image is still unsatisfactory, continue with these steps: a. Display the menu again (repeat step 2 above) and select **Manual Adjust** by pressing the (-) button and then the (+) button. b. Activate the **Phase** option by pressing the (+) button and adjust the phase by pressing the (+) button and (-) buttons.
Vertical bars appearing across top or bottom half of display	• Check that the LCD cable is securely connected. • Check that the controller cable of the host system is securely connected. • Run the 4820 Video Quality Test Pattern. • For Models 46x, 10D, 1FR: 1. Press the (+) and (-) buttons on the bottom of the display simultaneously to display a menu. 2. Select **Manual Adjust** 3. Select **Horizontal** and **Vertical** by pressing the (-) button and then activate your selection by pressing the (+) button. 4. Obtain the best image by pressing the (+) and (-) buttons. • If necessary, replace the cables. • Replace the 4820 display, if necessary.

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Troubleshooting common problems

Condition description	Resolution
Blocks of missing data on display	• Check that the LCD cable is securely connected. • Check that the controller cable of the host system is securely connected. • Run the 4820 Video Quality Test Pattern. • If necessary, replace the cables. • Replace the 4820 display, if necessary.
Magnetic stripe reader (MSR) malfunctioning	• Check that the cable is securely connected. • Make sure the MSR is securely attached to the display. • Run the MSR test using the service diskette. • Replace the MSR. • For models 48D, 48T, refer to the IBM POS Device Diagnostics, which came with the POSS for Windows installation.
Keypad malfunctioning	• Check that the cable is securely connected. • Make sure the keypad is securely attached to the display. • Run the keypad test using the service diskette. • Replace the keypad. • For models 48D, 48T, refer to the IBM POS Device Diagnostics, which came with the POSS for Windows installation.
Pointing device malfunctioning	• Make sure the pointing device is securely attached to the display. • Run the pointing device test using the service diskette. • Replace the pointing device. • For models 48D, 48T, refer to the IBM POS Device Diagnostics, which came with the POSS for Windows installation.

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Condition description	Resolution
Display Messages for Models 46x, 42x, 4Fx	
Unsupported video mode	Change to a supported model.
No Video/DPMS	Communication is not yet established between the host unit and the 4820. Ensure that the 4694 system unit is powered on. Check the video cabling between the 4820 display and the 4694 system unit.

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Appendix C. Mounting surface templates

Use the template in Figure C-1 as a guide for mounting the distributed pedestal assembly.

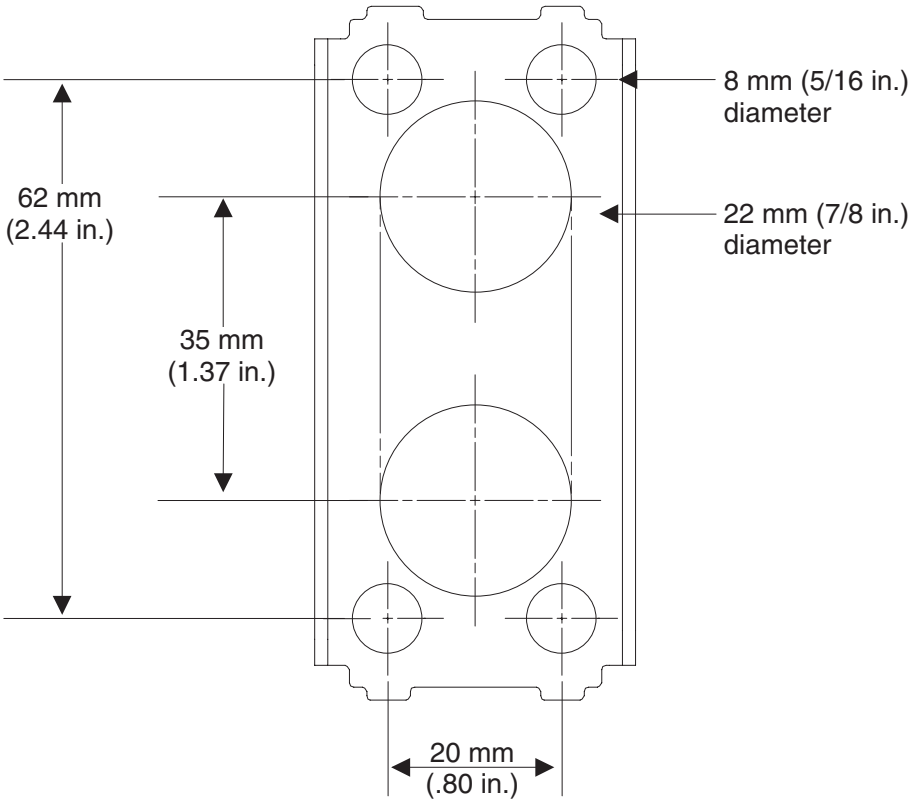

Figure C-1. Distributed pedestal mounting template

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Use the template in Figure C-2 as a guide for mounting the free-standing pedestal.

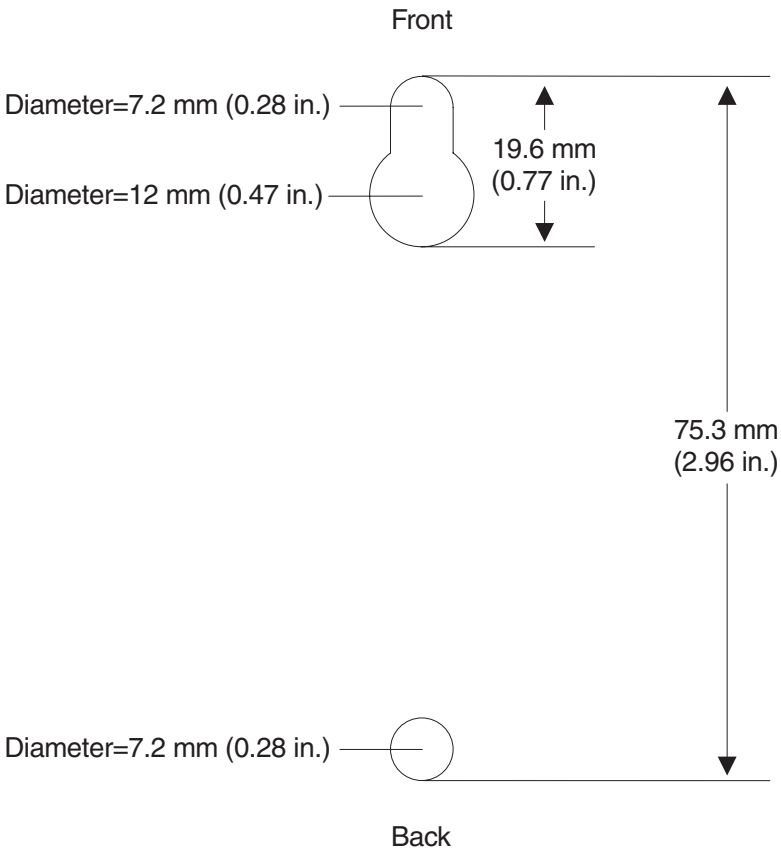

Figure C-2. Free-standing pedestal mounting template

Mounting dimensions—Models 10D, 1FR

Figure C-3 on page C-3 is provided for mounting Models 10D and 1FR.

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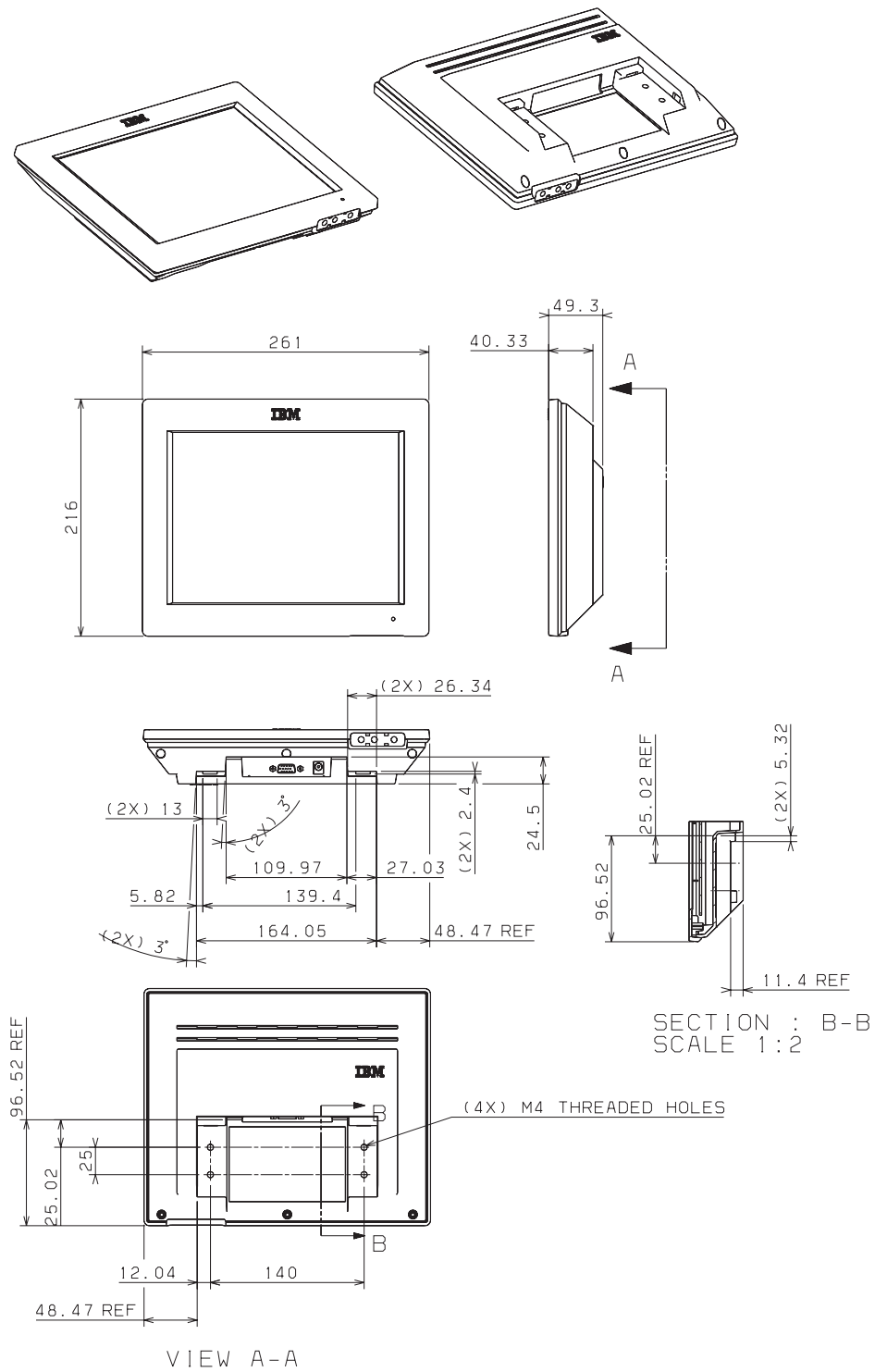

Figure C-3. Mounting dimensions

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ESD Damage Prevention

Anytime a service action involves physical contact with logic cards, modules, back-panel pins, or other ESD sensitive (ESDS) parts, the service person must be connected to an ESD common ground point on the product through the ESD wrist strap and cord.

The ESD ground clip can be attached to any frame ground, ground braid, green wire ground, or the round ground prong on the AC power plug. Coax or connector outside shells can also be used.

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4820 SurePoint Solution
System Reference

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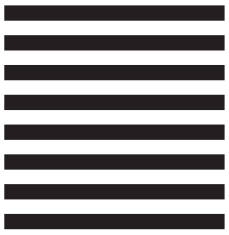

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