NCR RealPOS 50 (7611)

Release 1.1

User Guide

B005-0000-2017

Issue C

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To maintain the quality of our publications, we need your comments on the accuracy, clarity, organization, and value of this book.

Address correspondence to:

Manager, Information Solutions Group
NCR Corporation
Discovery Centre, 3 Fulton Road
Dundee, DD2 4SW
Scotland

Internet Address:
http://www.info.ncr.com/eFeedback.cfm

Preface

Audience

This book is written for hardware installer/service personnel, system integrators, and field engineers.

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Safety Requirements

The *NCR RealPOS 50* conforms to all applicable legal requirements. To view the compliance statements see the *NCR RealPOS Terminals Safety and Regulatory Statements* (B005-0000-1589).

Caution: The on/off switch is a logic switch only. The AC line voltage primaries are live at all times when the power cord is connected. Therefore, disconnect the AC power cord before opening the unit to install features or service this terminal.

Caution: This product does not contain user serviceable parts. Servicing should only be performed by a qualified service technician.

Fuse Replacement

Warning: For continued protection against risk of fire, replace only with the same type and ratings of fuse.

Attention: Pour prévenir et vous protéger contre un risque de feu, remplacer la fusible avec une autre fusible de même type, seulement.

Lithium Battery Warning

Warning: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type as recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Attention: Il y a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type recommandé par le constructeur. Mettre au rébut les batteries usagées conformément aux instructions du fabricant.

Battery Disposal (Switzerland)

Refer to Annex 4.10 of SR814.013 for battery disposal.

IT Power System

This product is suitable for connection to an IT power system with a phase-to-phase voltage not exceeding 240 V.

Peripheral Usage

This terminal should only be used with peripheral devices that are certified by the appropriate safety agency for the country of installation (UL, CSA, TUV, VDE) or those which are recommended by NCR Corporation.

Warning: DO NOT connect or disconnect the transaction printer while the terminal is connected to AC power. This can result in system or printer damage.

Warning: DO NOT connect or disconnect any serial peripherals while the terminal is connected to AC power. This can result in system or printer damage.

Grounding Instructions

In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This product is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances. Do not modify the plug provided – if it will not fit the outlet, have the proper outlet installed by a qualified electrician. Improper connection of the equipment-grounding conductor can result in a risk of electric shock.

The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor.

If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal. Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if you are in doubt as to whether the product is properly grounded.

Use only 3-wire extension cords that have 3-prong grounding plugs and 3-pole receptacles that accept the product's plug. **Repair or replace damaged or worn cords immediately.**

References

- *NCR RealPOS 50 Site Preparation Guide* (B005-0000-2035)
- *NCR RealPOS 50 Hardware Service Manual* (B005-0000-2036)
- *NCR RealPOS 50 Parts Identification Manual* (B005-0000-2037)

Revision Record

Issue	Date	Remarks
A	Oct 2010	First Issue
B	July 2012	Updated Solid State Optimization chapter
C	Dec 2012	Release 1.1

Table of Contents

Chapter 1: Product Overview

Introduction

The NCR RealPOS 50 (also known as NCR 7611) is a compact POS solution that combines the reliability and security of a retail-hardened POS terminal with the performance and flexibility of industry-standard PC technology. With an open architecture and Intel® processor, the NCR RealPOS 50 supports the latest POS applications for Windows® to help you service your customers quickly and efficiently. And, it all fits in a small footprint that helps conserve valuable space at the Checkstand.

To complete your POS solution, choose from NCR's extensive line of peripherals, including printers, displays, keyboards and scanners. The NCR RealPOS 50 enables you to protect your investment in legacy serial devices or choose from the growing list of USB peripherals. The powered peripheral ports and 24V printer interface simplify cable management and reduce potential points of failure.

Product IDs

Major Model	CPU
7611-3001	Resistive, Intel Celeron 900, 1 GB DDR3 1066 MHz, 2.5" 250GB HDD
7611-4001	Capacitive, Intel Dual-Core T3100, 2 GB DDR3 1066 MHz, 2.5" 250GB HDD
7611-4010	Capacitive, Intel Dual-Core T3100, 2 GB DDR3 1066 MHz, 2.5" 40GB SSD

Features

7611 Processor Board

- Intel GL40 Chipset
- Processors
  - Intel Celeron Processor 900
  - Intel Dual-Core T3100
- Up to 2GB DDR2 Memory
- Serial ATA (SATA) Hard Drive Interface
- Option for single 2.5" Hard Drive
- Memory; two slots (1GB Std, 8GB Max.)
- High-speed 10/100/1000Mb Ethernet
- Four USB Ports:
  - 2 USB (5V)
  - 1 Powered USB (24V printer)
  - 1 Powered USB (12V)
- Four Serial ports (DB9)
  - 3 Powered RS-232 (selectable 0/5/12V)
  - 1 (Optional, available if there is no 2x20 present
- DVI-D connector
- VGA connector
- PS/2 Connector (Optional)
- Dual cash drawer support from one connector using Y-cable
- Audio Line Out
- Three 12V USB+Power ports on a USB Daughter Card (Optional)
- DC Power Jack for Power Brick
- VESA Mount (75 mm or 100 mm)

Integrated Options

- Table Top Stand
- Integrated Customer Display Base
- 2x20 VFD Customer Display
- 6.5", 12", 15" LCD Customer Displays
- Color Bezels
- MSR
- MSR with Biometric Fingerprint Reader

Storage Media

- Primary 2.5" SATA Hard Drive
- Solid State Drive - SATA interface

Power Supply

- 150W Output power
- Switching Power Supply, External 24V Adapter
- MEPS Level V mark (efficiency 87% minimum), Energy Star 5.0 capable
- Supports 24V retail printers at 55W maximum when connected to 7611

Operating Systems

- Windows 7 Professional
- Windows XP Professional, SP3
- SLEPOS11/SLEPOS11 SP1
- POSReady 2009
- POSReady 7

Energy Star

ENERGY STAR® qualified products and practices help you save money and reduce greenhouse gas emissions by meeting strict energy efficiency guidelines set by the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy. You can help reduce electricity usage and its environmental impact by power managing your POS product when it is not in use for extended periods of time.

What are the potential benefits of the new Energy Star® Specification?

Desktops (including POS terminals), Notebooks, and Workstations manufactured after July 1, 2009 that display the ENERGY STAR® label meet the more stringent 5.0 requirements. Because of these requirements, your computer has a highly efficient power supply and other hardware specific features that, based on EPA estimates, could annually:

- Save you up to 115 kWh of electricity per unit
- Prevent up to 200 lbs of green house gas emissions per unit

Moreover, ENERGY STAR® compliant computers can save even more energy by using ENERGY STAR® power management features, which allow the computer to enter a very low power mode when not in use for a specified period of time. The EPA estimates that these power management features, when enabled on ENERGY STAR® qualified computers, could save you up to 115 kWh of electricity annually (per unit). This is equivalent to:

- Saving greenhouse gas emissions by taking your car off the road for 5 days
- Planting a grove of trees 46 ft. by 46 ft

Power Management Settings

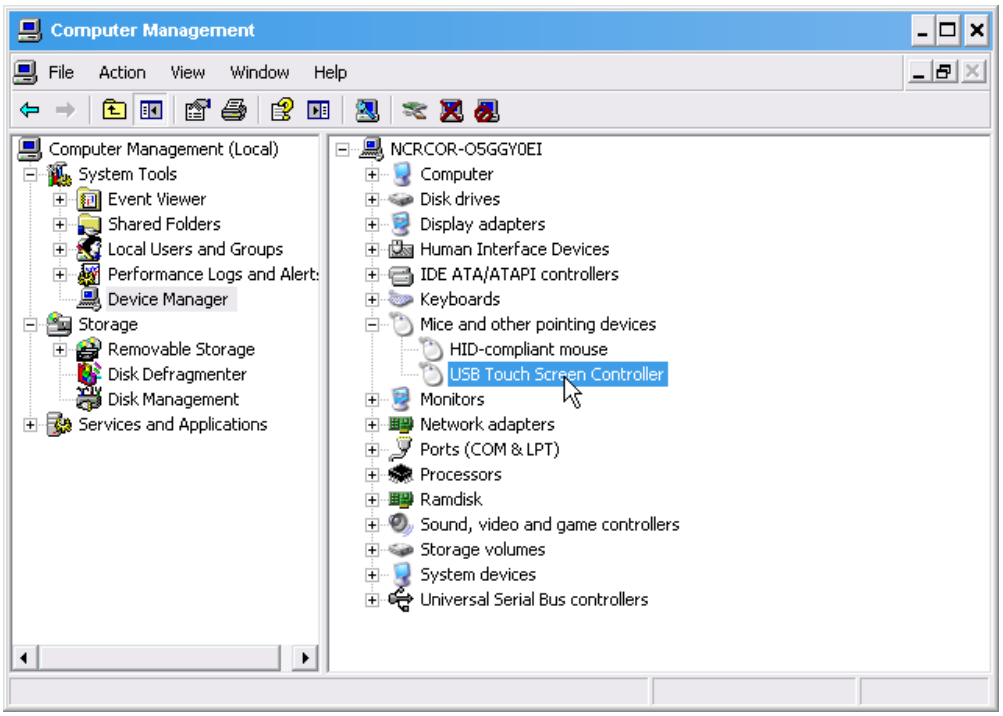
- This POS terminal has been shipped enabled for power management. The default settings for the terminal comply with the ENERGY STAR requirements of less than 15 minutes of user inactivity for the display and less than 30 minutes of inactivity for the terminal.
- he terminal can be awakened from sleep mode by any keyboard activity or by Wake on LAN if enabled.

Touch Screen Considerations

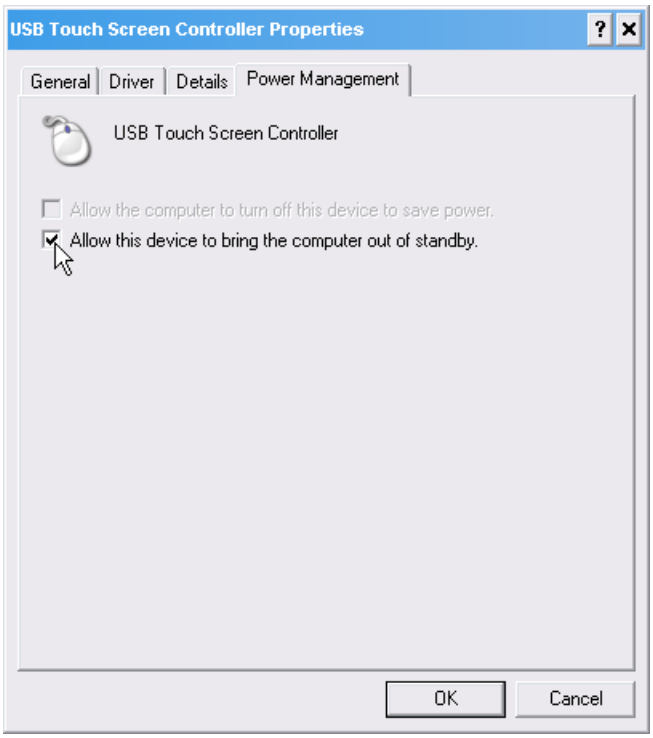
1. The POS will not go into standby mode with a touch display connected to a USB +12V port on the terminal unless the action noted below is implemented.
   a. **Start** → **Control Panel** → **Administrative Tools** → **Computer Management**

b. Select **Device Manager** in the System Tools section.

c. Expand **Mice and other pointing devices** and then right-mouse click on *USB Touch Screen Controller*.



d. Select the **Power Management** tab. The *Allow this device to bring the computer out of standby* option is active by default. Un-check the check box.



2. The POS cannot be awakened from Standby Mode via Touch if the Touch device is connected to a +12V USB port. Power is removed from the +12V USB and without power Touch events cannot be detected.
3. After waking from Standby (via keyboard, mouse, or power switch), touch will not respond for approximately 30 seconds. This delay can be reduced significantly by changing disabling the *Allow this device to bring the computer out of standby* option as discussed in Step #1 above.
4. If wake from standby via Touch is required, the Touch Display must be powered from an independent source such as a power brick. If the Touch Display is powered by power brick, issues noted in 1), 2), and 3) no longer apply.

More Information about Energy Star

ENERGY STAR® compliant systems combined with power management settings can provide NCR customers the greatest TCO (total cost of ownership) savings2!

Go to *www.energystar.gov/powermanagement* to learn more about power management.

For more information on ENERGY STAR go to *www.energystar.gov*

Configurations

The NCR RealPOS 50 is an affordable, retail-ready POS solution that provides outstanding value for any size retailer. It supports a broad range of certified NCR peripherals and applications.

The RealPOS 50 features the smallest form factor in its class and offers versatile configuration and mounting options.

Choose from NCR's extensive line of peripherals, including printers, displays, keyboards and scanners. The RealPOS 50 provides flexible connectivity options to power peripherals as well as dual display support for customer-facing advertising and messaging. The system can be configured as a standalone unit or stacked on an NCR 2181 Cash Drawer in an integrated fashion. Below are a couple of examples.

Table Top Stand Configuration

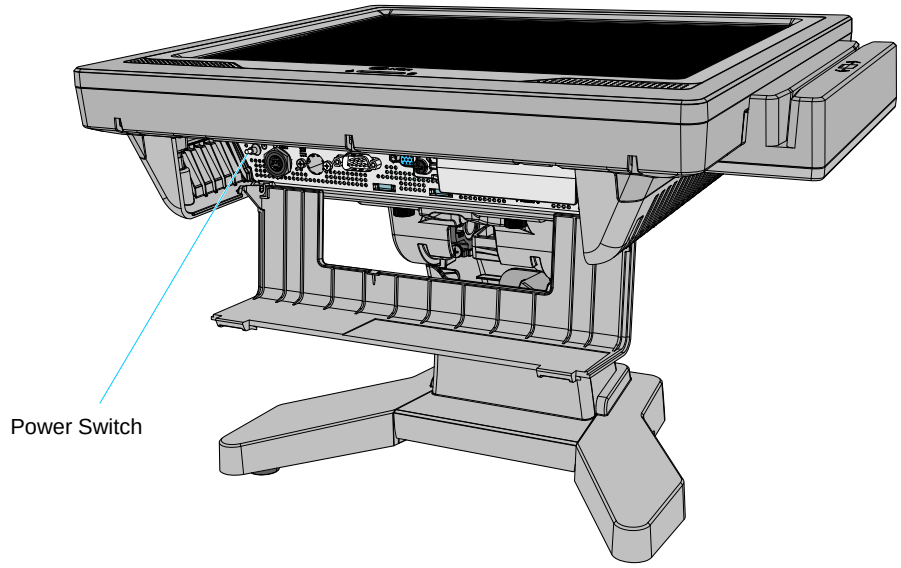
Table Top Stand w/Power Supply Enclosure

Integrated Configuration

Operator Controls

Power Switch

The power switch is located behind the Cable Cover.



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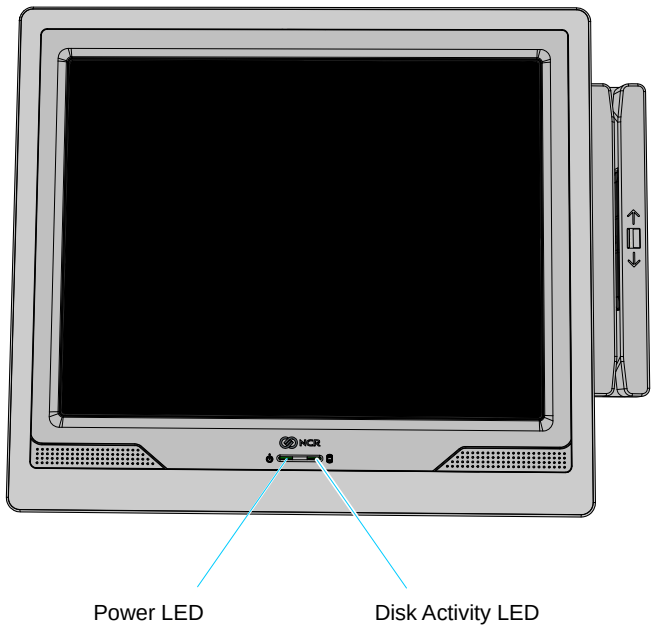
Power and Disk Activity LEDs

The Power and Disk Activity LEDs are located on the front of the unit.



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LED Diagnostic Indicators

The two front panel LEDs also function as diagnostic indicators, defined as follows.

Note: The cell colors indicate the color of the LED at that particular time.

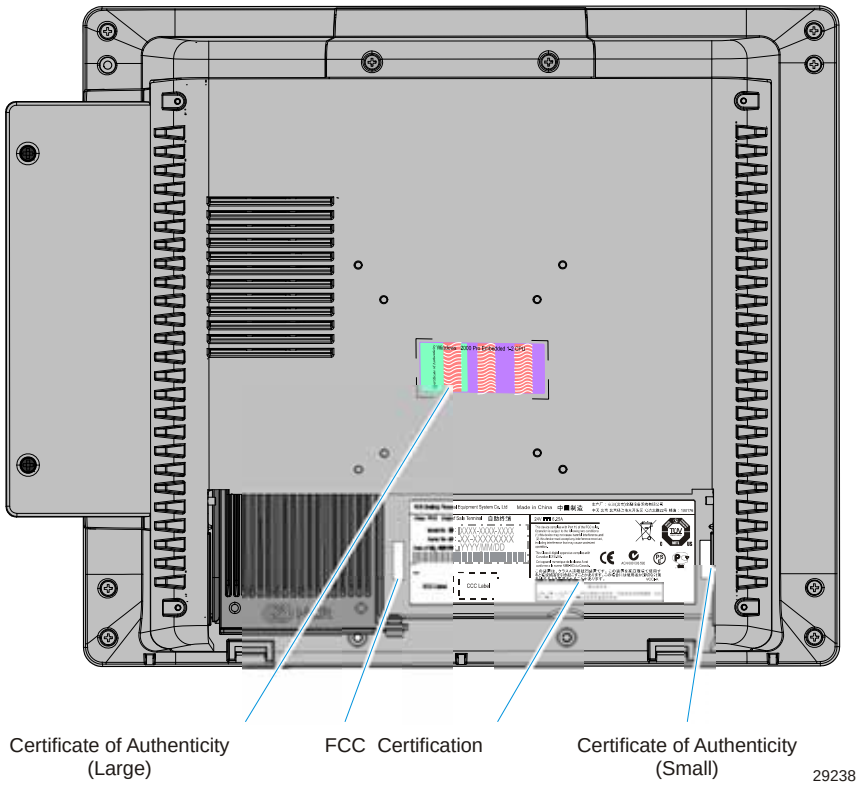
Current System Operation	Suspect Component	System State	Power LED	Disk Activity LED	Corrective Action
Normal Operation	N/A	System ON	ON	OFF	N/A
Normal Operation	N/A	System ON with HDD Activity	ON	Flashing (HDD Access)	N/A
Normal Operation	N/A	Unit in Suspend (S3)	Blinking (1/Sec)	ON	N/A
- OFF - AC Present	N/A	• OFF • Not in Standby • External P/S ON	OFF	ON	N/A
• OFF • AC Present	Power System	• OFF • Not in Standby • External P/S ON	OFF	OFF	1. Check AC power to P/S 2. Check P/S 3. Check connection between unit and P/S 4. Check power connection from Back Panel to Motherboard and Motherboard to Front Panel 5. Replace P/S 6. Replace Motherboard 7. Replace Front Panel Board

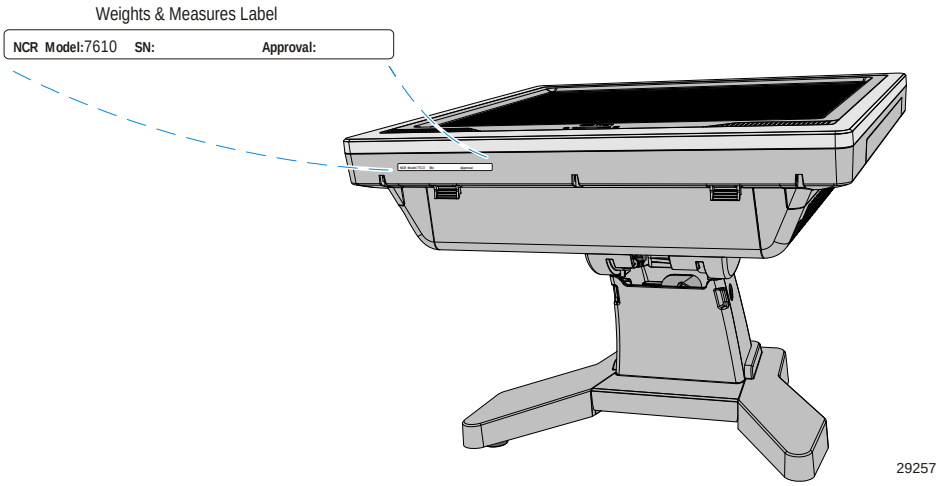
Current System Operation	Suspect Component	System State	Power LED	Disk Activity LED	Corrective Action
Runtime	Cooling Component/CPU	Over Temperature	Flashes red/green, then solid red as temperature increases	N/A	1. Check for blocked cooling vents 2. Check for excessive ambient temperature 3. Check cooling components
POST	CPU	CPU not Operating	ON	ON	1. Check for correctly installed CPU 2. Replace Motherboar
POST	BIOS Chip	BIOS Checksum Failure	ON	Flashing (4/Sec)	1. Perform BIOS crisis recover 2. Replace BIOS chip 3. Replace Motherboard
POST	Memory	Memory Issue	ON	Flashing (1/Sec)	4. Check for properly installed memory 5. Replace memory 6. Replace Motherboard
POST	Motherboard	No Display	ON	Flashing 1/4 Sec)	Replace Motherboard
POST	• Display • Motherboard • Peripheral	Stopped Prior to Boot	ON	Flashing (1/Sec)	No Display: 1. Check for power to display if no display 2. Check cable connection between Motherboard and display 3. Check for properly functioning display 4. Replace Motherboard Display Working: 1. Use display to determine failure point via onscreen message and BIOS Setup

Current System Operation	Suspect Component	System State	Power LED	Disk Activity LED	Corrective Action
Boot Time	Boot Media (HDD, LAN)		ON	OFF	HDD is Boot Device: 1. Check HDD status in BIOS Setup 2. Check connections between HDD and Motherboard 3. Replace or re-image HDD 4. Replace Motherboard LAN is Boot Device: 1. Check for LAN link and activity LEDs on the Back Panel 2. Check LAN cable 3. Replace Motherboard

Label Locations

The serial number and model number are included on the Certification Label located under the Cable Cover of the terminal. A Microsoft Certificate of Authenticity (COA) label is included if the terminal is ordered and shipped with a pre-installed Microsoft Operating System. There are two types of Microsoft COA stickers. Depending on the Microsoft Operating System ordered the label is located on either the Back Cover for XP Professional and Windows 7 OR next to the Certification Label under the Cable Cover for XP Embedded, WEPOS, POSReady 2009, and POSReady 7.





Power Management

The BIOS supports the Advanced Configuration and Power Management Interface (ACPI) 2.0 specification. A key feature of ACPI is that the operating system, not the BIOS, configures and implements power management. The 7611 terminal supports the Global system power states defined by ACPI:

G3 Mechanical Off

A computer state that is entered and left by a mechanical means

Example: Turning off the system's power through the movement of a large red switch.

Various government agencies and countries require this operating mode. It is implied by the entry of this off state through a mechanical means that no electrical current is running through the circuitry and that it can be worked on without damaging the hardware or endangering service personnel. The OS must be restarted to return to the Working state. No hardware context is retained. Except for the real-time clock, power consumption is zero.

G2/S5 Soft Off

A computer state where the computer consumes a minimal amount of power. No user mode or system mode code is run. This state requires a large latency in order to return to the Working state. The system's context will not be preserved by the hardware. The system must be restarted to return to the Working state. It is not safe to disassemble the machine in this state.

G1 Sleeping

A computer state where the computer consumes a small amount of power, user mode threads are not being executed, and the system appears to be off (from an end user's perspective, the display is off, and so on). Latency for returning to the Working state varies on the wake environment selected prior to entry of this state (for example, whether the system should answer phone calls). Work can be resumed without rebooting the OS because large elements of system context are saved by the hardware and the rest by system software. It is not safe to disassemble the machine in this state.

G0 Working

A computer state where the system dispatches user mode (application) threads and they execute. In this state, peripheral devices (peripherals) are having their power state changed dynamically. The user can select, through some UI, various performance/ power characteristics of the system to have the software optimize for performance or battery life. The system responds to external events in real time. It is not safe to disassemble the machine in this state.

ACPI Sleep States (S0 - S5)

Under the G1 sleeping state ACPI defines levels of system sleep state support. The 7611 supports the following sleeping states:

- S0: Normal Powered-On state
- S1 (Standby): The S1 sleeping state is a low wake latency sleeping state. In this state, no system context is lost (CPU or chip set) and hardware maintains all system contexts.

  Note: The 7611 does not support S1 state. Turning off the backlight and hard drives provides the equivalent power savings (due to Intel's processor C-states feature) at nearly zero latency.
- S2: Not supported
- S3 (Suspend to Ram): The S3 sleeping state is a low wake latency sleeping state. This state is similar to the S1 sleeping state except that the CPU and system cache context is lost (the OS is responsible for maintaining the caches and CPU context). Control starts from the processor's reset vector after the wake event. In NCR systems, during S3, power is only provided to the on-board USB ports.

  Note: When the terminal resumes from an S3 state, all the USB devices re-enumerate. This causes speaker tones as if they were disconnected and then reconnected. This does not present a problem and the USB devices will continue to operate correctly.

  Requirements for S3 support:

  - O/S must be built on a system with S3 enabled in the BIOS
  - Some peripherals may not be S3 capable, which can prevent the system from entering S3 state.
- "S4 (Suspend to Disk): The S4 state is the lowest power, longest wake latency sleeping state supported by ACPI. In order to reduce power to a minimum, it is assumed that the hardware platform has powered off all devices. Platform context is maintained.

  Requirements for S4 support:

  - O/S must be built on a system with S3 enabled in the BIOS
  - Some peripherals may not be S4 capable, which can prevent the system from entering S4 state.

  Reference the *ACPI Specification* for details.

  Peripherals: ACPI defines power states for peripherals which are separate from the system power state. The device power states range from D0 (fully-on) to D3 (off) It is the responsibility of the driver developer for each peripheral to define and support the available power states.

Power State	S0 Working	S1 Standby	S2	**S3 Suspend to RAM	S4 Hibernate	**S5 Soft Off
Supported: Y / N	Y	Y	**N**	Y	Y	Y
Description	Fully Functional	Video Off / HDD Off		Off, Memory in Slow Refresh	Off, Memory Image Written to HDD	OFF
Power Supply Status	On	On		Powered Down**	Powered Down**	Powered Down**
Power Consumption*	TBD	TBD		TBD	BD	TBD
Wake Options:						
Power Switch	N/A	Y		Y	Y	Y
PS/2 Keyboard	N/A	Y		Y	Y	N
PS/2 Mouse	N/A	Y		Y	Y	N
USB Keyboard	N/A	Y		Y	Y	N
USB Mouse	N/A	Y		Y	Y	N
LAN (magic packet)	N/A	Y		Y	Y	Y
RTC Alarm	N/A	Y		Y	Y	Y
Serial Port (RI)	N/A	Y		Y	N	N

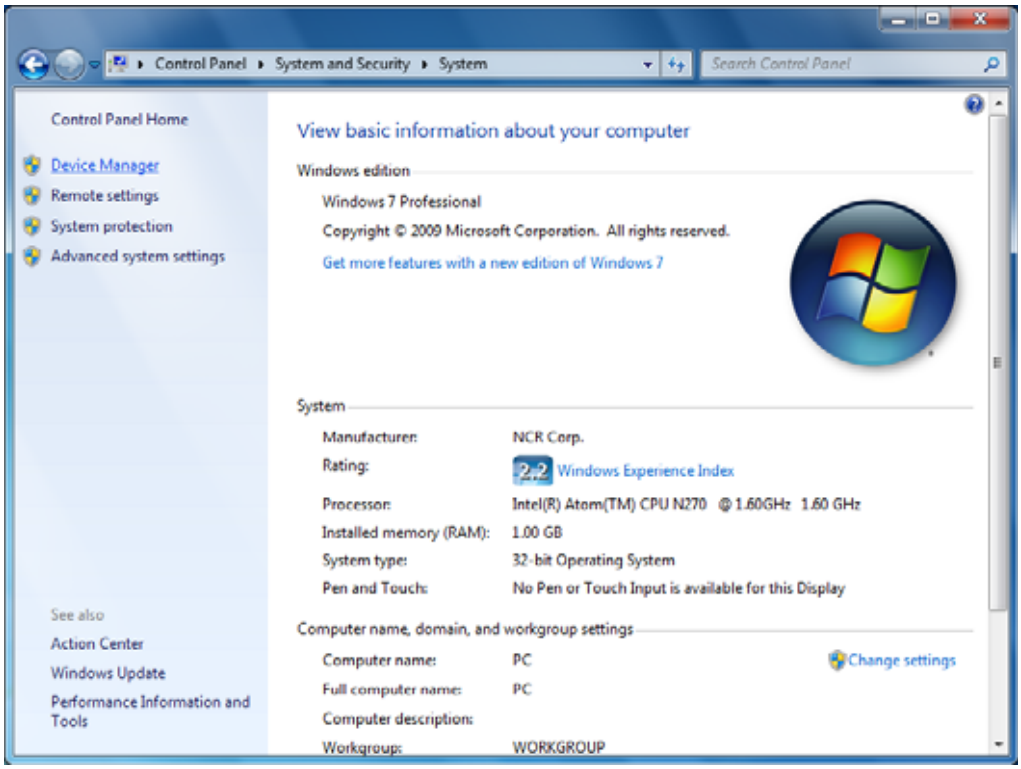
Note: Power consumption based on the following configuration with no peripherals Intel Atom 270 ,512MB DIMM, HDD
*Maintains small voltage to support wake circuits)
**The external power supply is ON while in S3-S5. The motherboard shuts down all power circuits except for a small voltage to support wake circuits. Power to the 24V USB printer port and the Cash drawer is also disconnected while in S3-S5

Enabling Wake on LAN

In order for Wake on LAN to function the Network driver must be enabled (factory default). The procedure for enabling the driver depends on which operating system you are using.

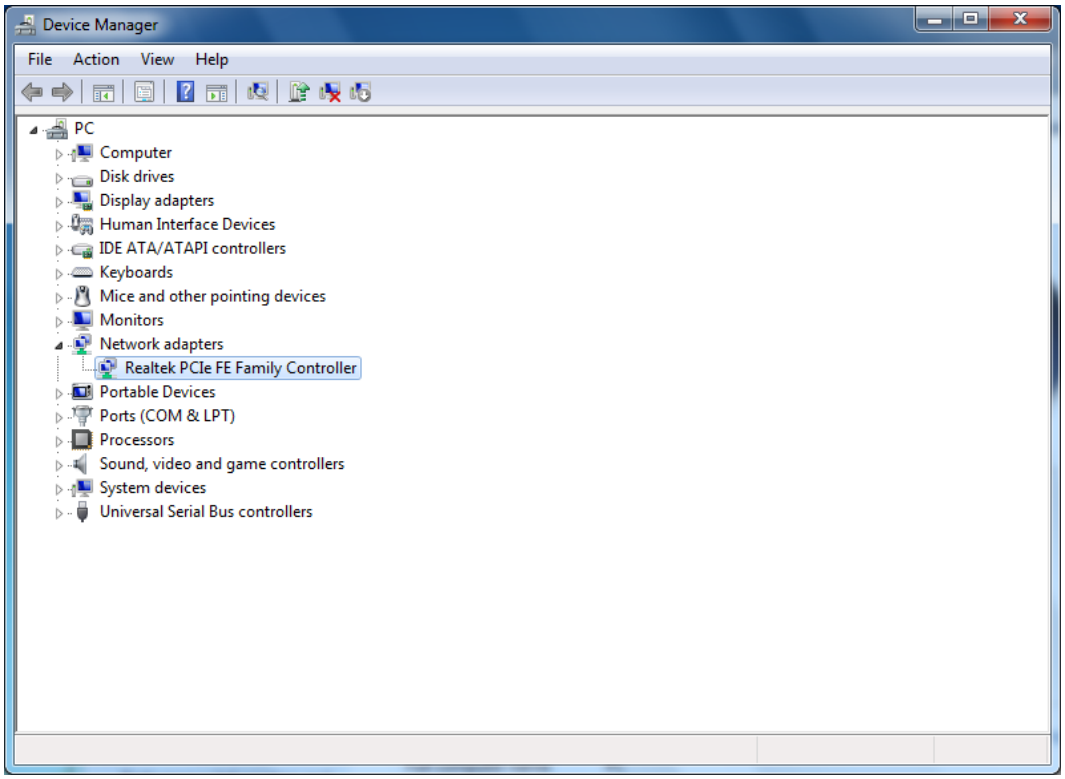
Windows 7

1. Select **Start** → **Computer** → **System Properties** Tab → **Device Manager**

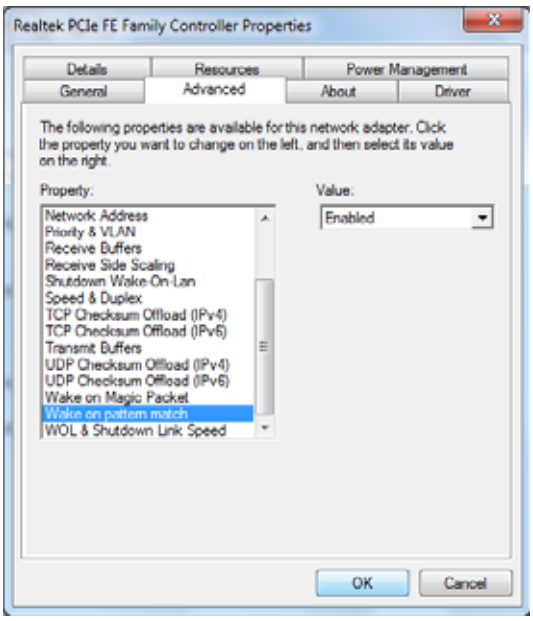


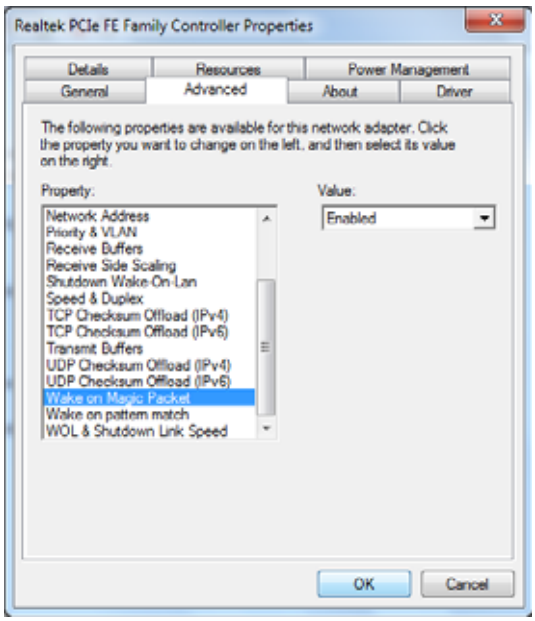
2. Select **Network adapters** and then

3. Right-mouse click the *Realtek* PCIe FE Family Controller driver and then select **Properties**.

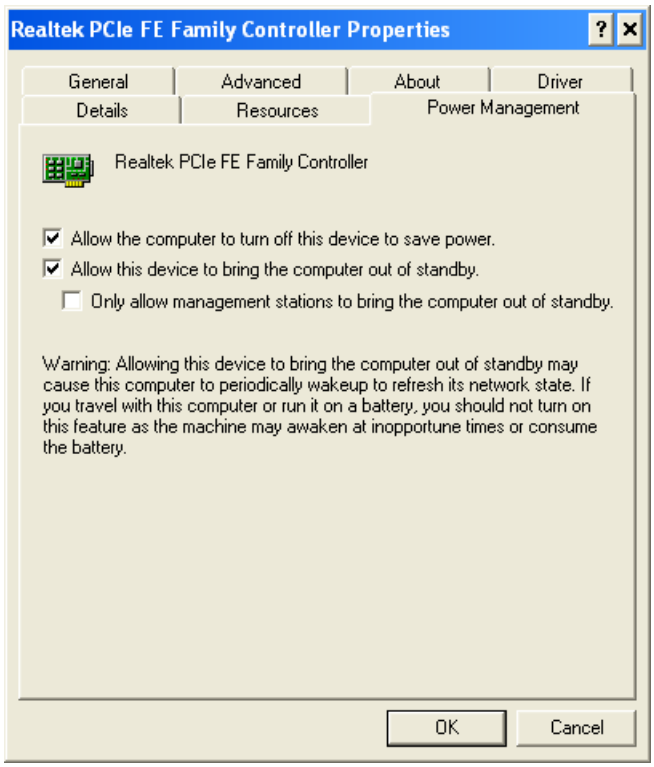


4. Under the *Advanced* tab both *Wake on Magic Packet* and *Wake on Pattern Match* should be **Enabled**. Select **OK** after making any changes.



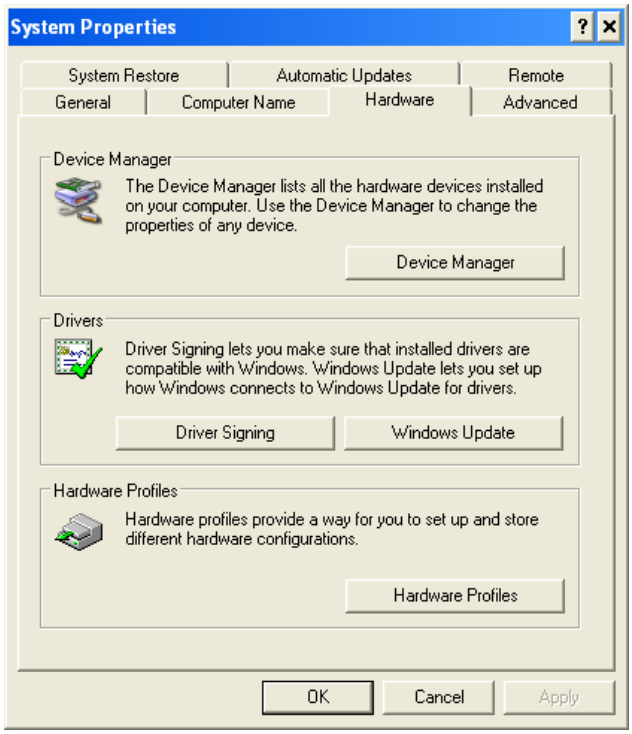


5. Under the Power Management tab all option boxes should be checked. Select OK after making any changes.

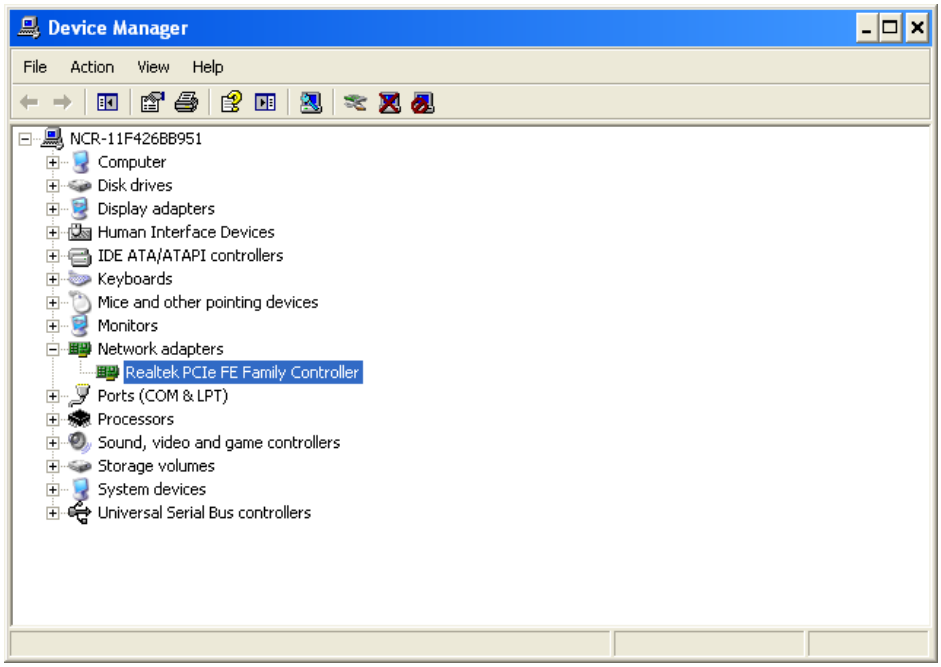


Windows XP

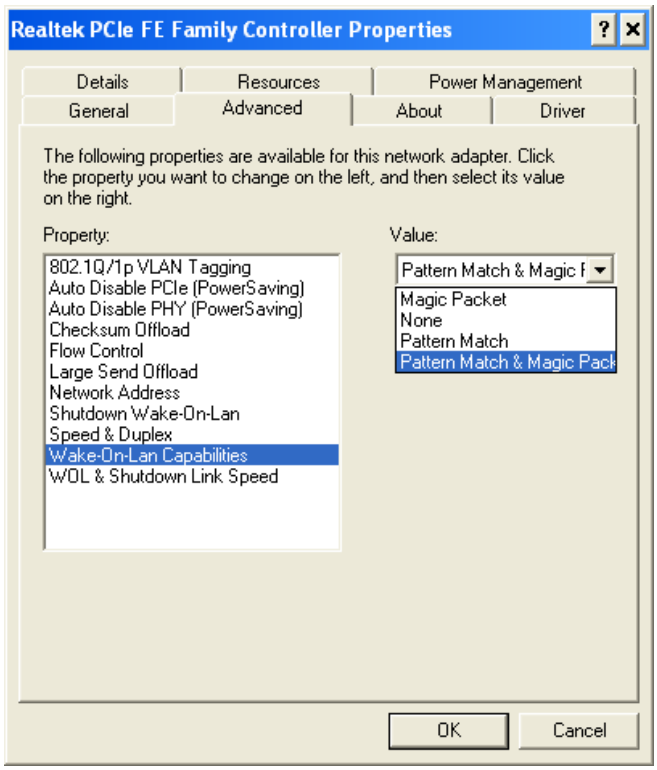
1. **Select Start** → **Control Panel** → **Hardware** Tab → **Device Manager** button.



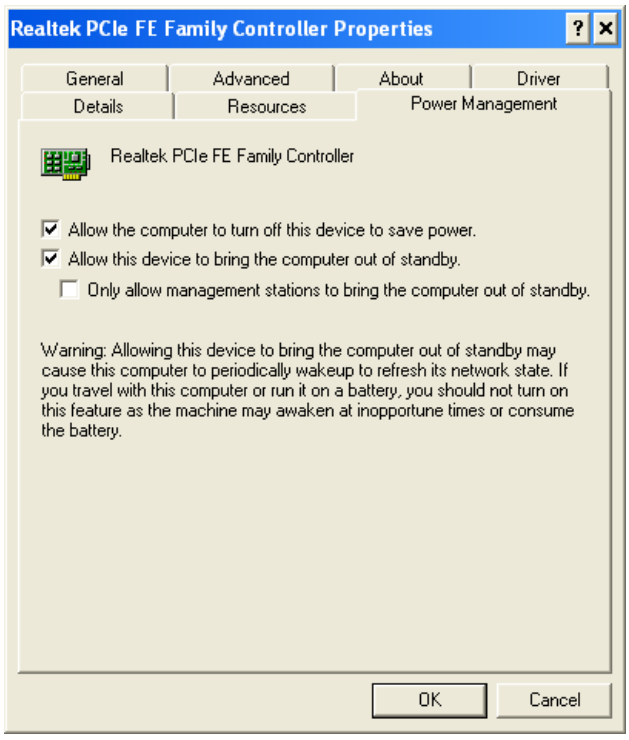
2. Select **Network adapters** and then
3. Right-mouse click the *Realtek PCIe FE Family Controller* driver and the select **Properties**.



4. Under the Advanced tab the Wake on Magic Packet should be Enabled. Select OK after making any changes.



5. Under the Power Management tab the option boxes as shown below should be checked. Select OK after making any changes.



ACPI Processor C-States

ACPI defines the power state of system processors while in the G0 working state as being either active (executing) or sleeping (not executing). Processor power states are designated C0, C1, C2, C3, …Cn.

The C0 power state is an active power state where the CPU executes instructions. The C1 through Cn power states are processor sleeping states where the processor consumes less power and dissipates less heat than leaving the processor in the C0 state.

While in a sleeping state, the processor does not execute any instructions. Each processor sleeping state has a latency associated with entering and exiting that corresponds to the power savings. In general, the longer the entry/exit latency, the greater the power savings when in the state.

To conserve power, OSPM places the processor into one of its supported sleeping states when idle. While in the C0 state, ACPI allows the performance of the processor to be altered through a defined "throttling" process and through transitions into multiple performance states (P-states).

Note: The 7611 Atom N270 Processor supports C0 and C1 states. Support of deeper sleep states is not required due to its inherently low power consumption.

Customer Displays

The NCR RealPOS 50 can be configured with a 6.5-inch, 12.1-inch, or 15-inch NCR LCD or an NCR 2x20 Customer Display. The displays can be integrated with the terminal or connected remotely.

Below are examples of how the customer displays can be integrated with the terminal.

Table Top Stand (7610-K320) and Integrated 2x20 Customer Display (7610-K451)

Table Top Stand (7610-K320) and Integrated 2x20 Customer Display Base (7610-K452), 2x20 Customer Display w/Pole (5975-K834/K836)

Table Top Stand (7610-K320) and LCD Customer Display; LCD Customer Display Base (7610-K452) and LCD Customer Display Tilt Mount (7610-K453)

Note: Touch Customer Displays are NOT supported via 7610-K452 and 7610-K453.

2189 Cash Drawer, Integration Tray (7610-K304), 5964-K027 Inhanced Integration Tray Display Mount, 5975 Customer Display w/2x20 Customer Display Pole (5975-K834/K836), Printer

5942 12.1-Inch Color LCD

The 5942 12.1-Inch LCD is designed for customers who desire a color display and prefer the small footprint and ergonomic packaging of LCD technology versus traditional CRT's. Depending on the customer's requirements, this LCD display can be used either as an operator display or a customer information display (CID). The 5942 Display features a 12.1-Inch Active Matrix Color LCD with support for SVGA and XGA resolution.

5942 15-Inch Color LCD

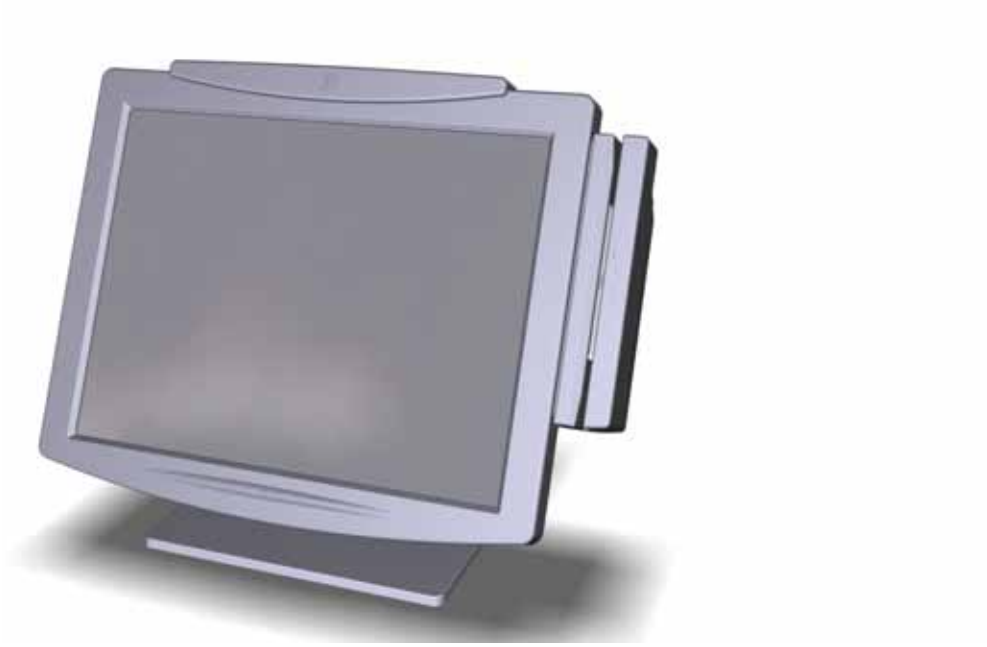
The 5942 15-Inch LCD features a high brightness dual-backlight active matrix LCD with analog interface which plugs directly into the standard VGA (CRT) port on the RealPOS 80c terminal. It includes a 1.5 meter VGA cable and built-in power supply with standard IEC connector. Mount and power cable must be ordered separately.

5965 15-Inch Touch Screen

The NCR 5965 is a 15-inch TFT Liquid Crystal Display with a capacitive Touch Screen. The display accepts industry-standard RGB video images from a PC motherboard and dynamically resizes VGA (640 480), SVGA (800 600), XGA (1024 768) & SXGA (1280 x 1024) @ 60Hz images to fill the entire viewable area.

- Display size - 15" (diagonal)
- LCD Technology - TFT
- Native Format - XGA (1024 768) resolution
- Pixel Configuration - RGB vertical stripe
- Supported Colors - 16.2 Million (6 bits + FRC)
- Display text modes supported - SVGA (800 600 pixel), XGA (1024 768 pixel), VGA (640 480 pixel) & SXGA (1280 x 1024) images to full screen size.
- Moisture & dust sealed display (between touchscreen & display)
- OSD controls to allow display adjustments
- Auto selection DC voltage input to allow connection of 12V or 24v option.
- VGA Interface
- DVI Interface
- Three standard USB-A ports (downstream)
- USB PlusPower +12 VDC port
- Magnetic Stripe Reader- field installable, USB interface
- Integrated and remote mount options
- Integrated Stereo Speakers

5966 15-Inch Touch Screen



The NCR 5966 is a 15-inch low cost XGA (1024x768) Liquid Crystal Display with a 5-wire resistive touch screen for operator input. It is available in Beige (G11) and Charcoal (CG1).

Features

- 15' LCD XGA (1024x768) Native Resolution, 160 nit Brightness
- Dual Bulb TFT LCD (also supports VGA, SVGA Resolutions)
- 5-Wire Resistive Touch, USB Interface
- Video - VGA, Standard 15-Pin Female
- Integrated Stereo Speakers
- Power Supplied via AC Line Input or 12 DC Power Brick
- VGA, Touch, Speaker and Power Cables
- Remote Table Top Mount
- Optional MSR- Field Installable, USB Interface
- VESA standard 75mm mounting pattern on the back of the enclosure
- Uses NCR's industry standard OPOS and JavaPOS drivers, supporting most applications and standard NCR supported retail Windows and Linux operating systems.

NCR 5982 6.5-Inch LCD Display

The 5982 LCD Display is a terminal-powered color 6.5 Inch VGA LCD.

Keyboards

5932 Keyboards

The NCR 5932 Keyboards are intended for harsh retail environments and contain an internal membrane to protect against objects such as paper clips, staple wires, pins, and so forth, from falling between the keys and damaging the electronics. This technology improves overall reliability not typically found in standard PC keyboards or many retail keyboards.

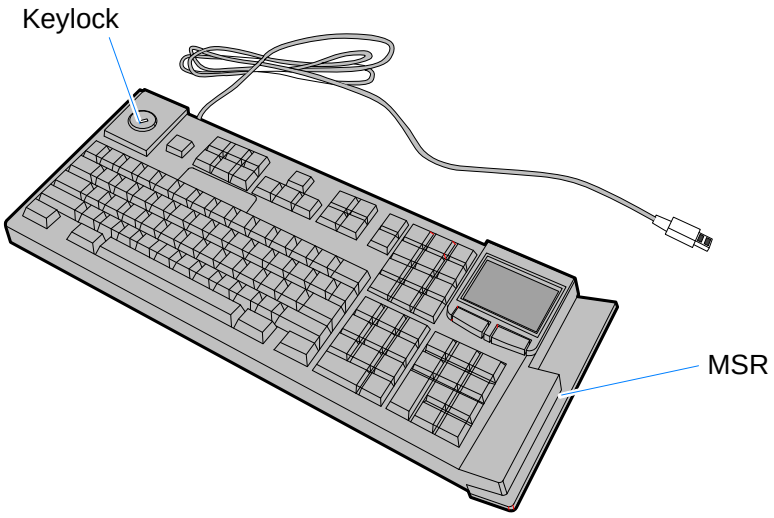
The RealPOS 50 supports the following NCR 5932 Keyboards:

- NCR 5932-5xxx USB Alphanumeric Big Ticket Keyboard
- NCR 5932-65xx PS/2 Compact Keyboard
- NCR 5932-66xx 104-Key Programmable POS Keyboard

Keyboard Power

The RealPOS 80 supplies power to the PS/2 keyboard even when in the OFF state. This is for configurations that require the terminal to turn on when a key is pressed. Most NCR PS/2 keyboards have a Power ON LED which stays illuminated, indicating power is present in the keyboard. Pressing a key may also cause tones to be sounded, but unless the terminal is configured to power up when a key is press, nothing happens.

NCR 5932-5xxx USB Alphanumeric Big Ticket Keyboard



The *NCR USB Alphanumeric Big Ticket Keyboard* is a multifunction keyboard that is two keyboards built into one.

The keyboard consists of two major sections:

- 38-key POS keyboard
- Industry-standard alphanumeric PC keyboard

The keyboard contains the key matrix and other POS-specific functions such as keylock, speaker, system status indicator, and magnetic stripe reader (MSR). This 5932 keyboard also has a USB port to connect a Scanner or other USB device.

Features

The NCR 5932 USB Keyboard supports the following features:

- Integrated Touch Pad, Keylock, Speaker, 3-Track Magnetic Stripe Reader (MSR)
- Keyboard Status LEDs
- USB cable
- Additional external USB ports
- No language characteristics

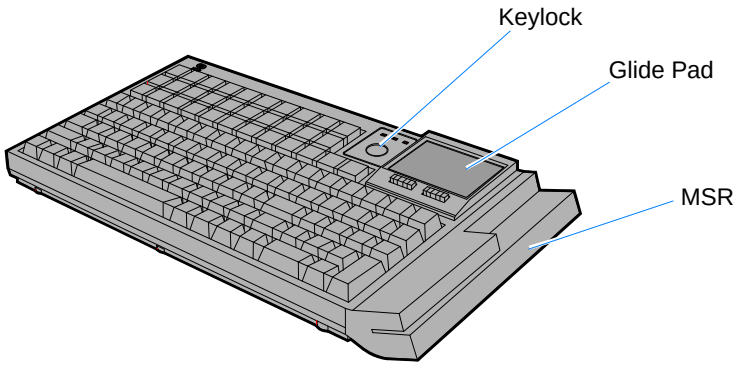
Note: Refer to NCR 5932 USB Keyboard User's Guide (B005-0000-1395) for further detailed information.

NCR 5932-65xx PS/2 Programmable POS Keyboard

The *NCR 5932 PS/2 Programmable POS Keyboard* is a multifunctional keyboard that is two keyboards built into one.

The keyboard consists of two major sections:

- 32-key Point-Of-Sale Keyboard
- PC type Alphanumeric Keyboard



29168

The keyboard includes the following features:

- Keylock
- Tone Indicator
- Keyboard Status Indicator
- Magnetic Stripe Card Reader (MSR)
- Glide Pad

NCR 5932-66xx USB Programmable POS Keyboard

The *NCR 5932 PS/2 Programmable POS Keyboard* is a multifunctional keyboard that is two keyboards built into one.

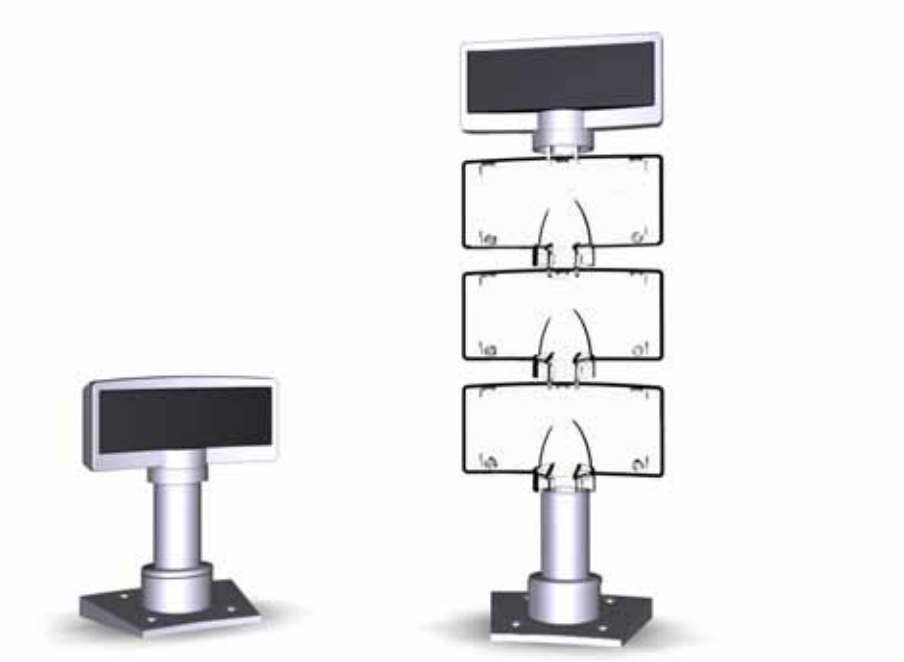
The keyboard consists of two major sections:

- 32-key Point-Of-Sale Keyboard
- PC type Alphanumeric Keyboard

The keyboard includes the following features:

- Keylock
- Tone Indicator
- Keyboard Status Indicator
- Magnetic Stripe Card Reader (MSR)
- Glide Pad

NCR 5975 2x20 VFD Customer Display



The NCR 5975 Customer Display is designed to be an optional display device for the NCR retail terminals. It can also serve as a display for any industry-standard PC. It is a Vacuum Fluorescent Display (VFD).

- 5975-1000 2x20 VFD (G11)
- 5975-1001 2X20 VFD (CG1)

There are four post options, available in 4 inch increments.

Features

Display

- 2X20 Character Vacuum Fluorescent Display (VFD)
- 7X9 pixel characters
- Character height
- Minimum - 9mm
- Maximum - 11mm

PCB

- Microcontroller
- EIA 232 Interface support
- USB 2.0 Interface support

Cabinet

- UV Stable Material
- Available in NCR Light Gray (G-11) and NCR Charcoal Gray (CG1)

Connectors

- 9 pin D sub
- Powered USB

Cables

- Powered EIA-232
- Powered USB Cable
- Unpowered EIA-232 Cable with Y-Connection for Power Brick
- Unpowered USB Cable with Y-Connection for Power Brick
- 1m and 4m Lengths

Power Supply

- Universal Power Supply (12V, 12W output)
- 8 pin Molex Connector

EIA-232 or USB 2.0 I/F support

- The components for both interfaces are populated on a single printed circuit board. Both interfaces are active, though only one interface can be physically connected at a time. The display communicates via the interface connected to it.

Mounting Options

- Table Mount, 4-in. Post
- Table Mount, 8-in. Post
- Table Mount, 12-in. Post
- Table Mount, 16-in. Post
- Integrated Mount for NCR 7456, 7457, 7458

Character Sets

- Support for 19 character sets
- 3 Character sets in base unit
- Code Page 858 (International)
- Katakana
- Code Page 866 (Cyrillic)
- 32 KB Flash Memory for support of up to 16 additional character sets

Integrated 2x20 Customer Display

The 7610-K452 Integrated 2x20 Customer Display is an optional display device for the 7611 terminal.

Features

- Vacuum Fluorescent Display (VFD)
- 2 Rows x 20 Characters
- 5X8 Characters
- RS-232 Interface
- Character Height - 8.86 mm
- Character Width - 3.90 mm
- Character Pitch - 5.15 mm
- Line Pitch - 9.64 mm
- Peak Wavelength of Illumination - 505 nm
- Luminance - 350 cd/m2 (102 fL) min., 700 cd/m2 (204 fL) typ.

Character Sets

- Code Page 437
- Code Page 858 (International)
- Katakana
- Code Page 866 (Cyrillic)
- Code Page 932

NCR 7167 Printer

The NCR 7167 Printer is a fast, quiet, relatively small and very reliable multi function printer. It prints receipts, validates and prints checks, and prints on a variety of single or multiple part forms. There is not journal as it is kept electronically by the host terminal. The printer can connect through a USB port or a serial port. It can receive power from a power supply or through a USB+ power cable.

7168 Printer

The 7168 printer is a fast, quiet, relatively small and very reliable multiple-function printer with front and back printing on the receipt paper capability. It prints receipts, validates and prints checks, and prints on a variety of single- or multiple-part forms. There is no journal as it is kept electronically by the host computer.

The industry-standard RS-232C communication interface allows the 7168 to be connected to any host computer that uses RS-232C or USB communication interface.

The receipt station uses thermal printing technology. Therefore, there is no ribbon cassette to change and paper loading is extremely simple. Printing on single- or multiple-part forms, validating checks, and printing checks is also easy in the accommodating slip station.

Another feature is the Magnetic Ink Character Recognition (MICR) check reader with parsing, which reads account numbers on checks for easy verification. An extended slip table is available for handling large forms and is standard with the MICR option.

7197 Printer

The NCR 7197 Printer is a fast, quiet, relatively small and very reliable printer with front and back printing capability. The printer can connect through a USB port or a serial port. It receives power from the 24V connector on the terminal or from an external power supply.

NCR 7198 Printer

The NCR 7198 printer is a fast, quiet, relatively small and very reliable printer with front and back printing on the receipt paper capability. The printer can connect through a USB port or a serial port. It can receive power from a power supply or through a USB+ power cable.

Chapter 2: Hardware Installation

This chapter explains how to install the RealPOS 50 hardware, including out-of-box installation and how to install the optional peripheral devices.

Installation Restrictions

- Before installing the RealPOS 50, read and follow the guidelines in the *RealPOS 50 Site Preparation Guide* (B005-0000-2035) and the *NCR Workstation and Peripheral AC Wiring Guide* (BST0-2115-53).
- Install the RealPOS 50 near an electrical outlet that is easily accessible. Use the power cord as a power disconnect device.
- Do not permit any object to rest on the power cord. Do not locate the RealPOS 50 where the power cord can be walked on.
- Use a grounding strap or touch a grounded metal object to discharge any static electricity from your body before servicing the RealPOS 50.

Caution: This unit contains hazardous voltages and should only be serviced by qualified service personnel.

Caution: Do not connect or disconnect the transaction printer while the terminal is on. This can result in system or printer damage.

Installing the Terminal

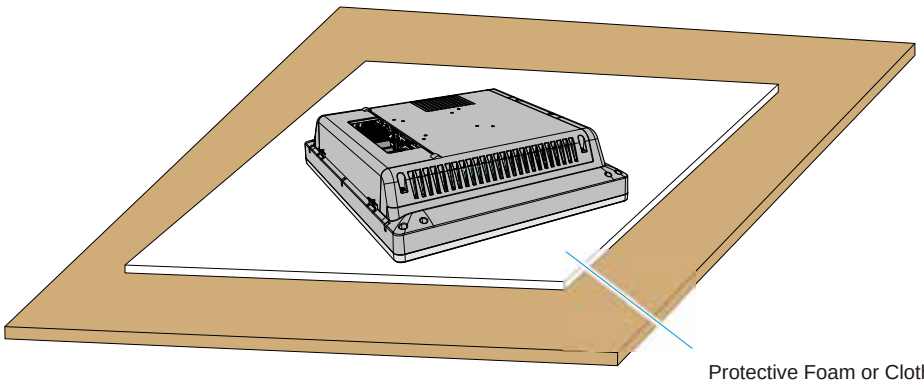
The terminal can be mounted using a variety of mounts.

- Table Top Stand (7610-K320)
- Checkstand Mount (5964-K039
- Wall Mount (7409-K502)
- Integrated with peripherals using the Integration Tray Kit (7610-K304).

This document describes how to install the terminal on the Table Top Stand. For the other mounting options see the associated kit instructions.

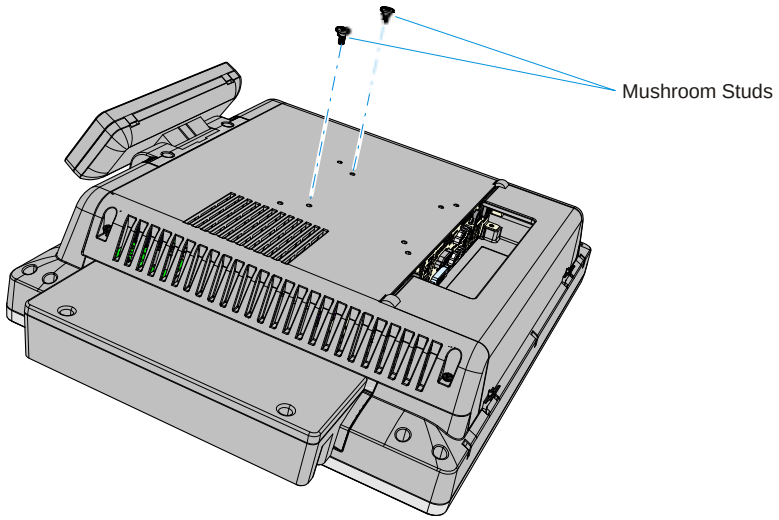
1. Unpack the terminal in the desired location.
2. Lay the terminal face down on a flat surface.

   Caution: The front bezel is a painted component and the weight of the terminal can cause abrasions when moved around on a surface. **Always** use a soft material (cloth, foam) to protect the bezel when placing the terminal face down.

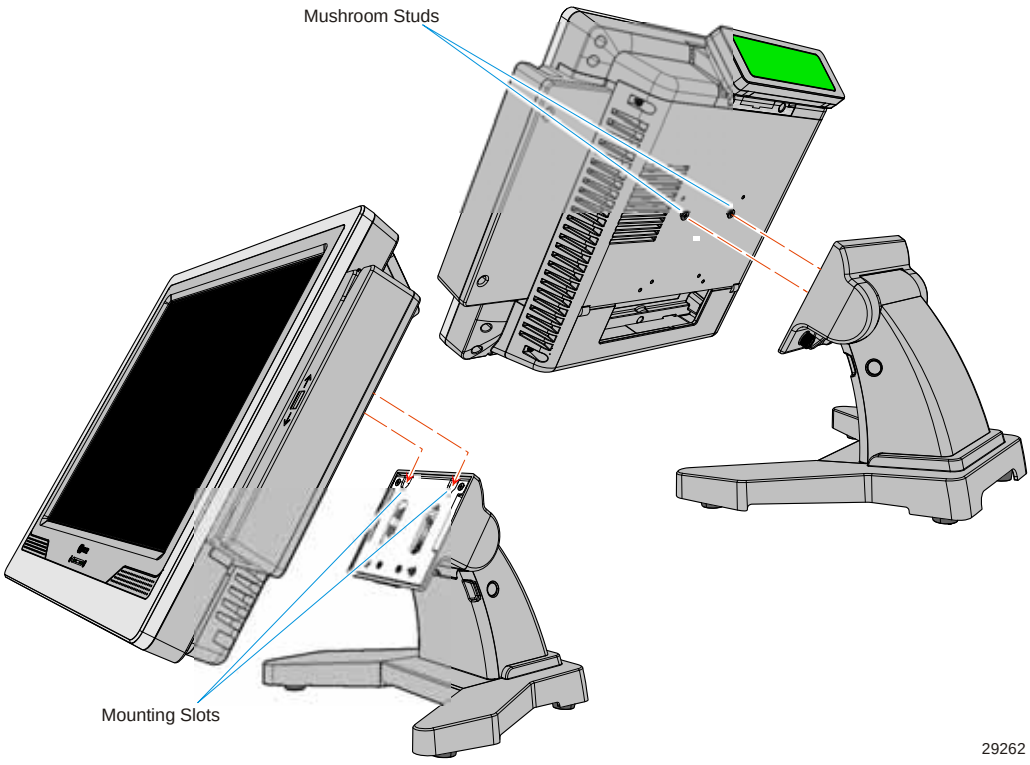


Installing the Table Stand

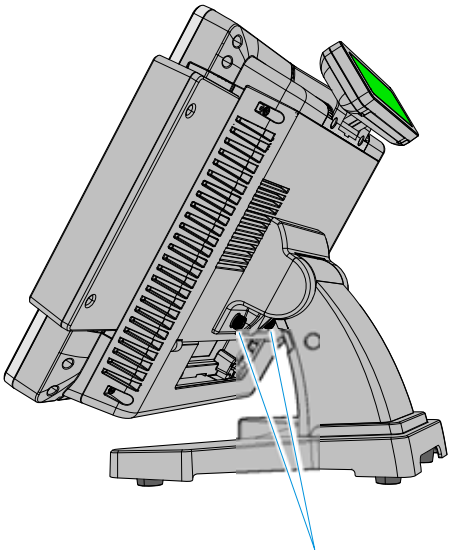
1. Install terminal on the Table Top Stand.
   a. Install the mushroom studs (2) on the back of the terminal.



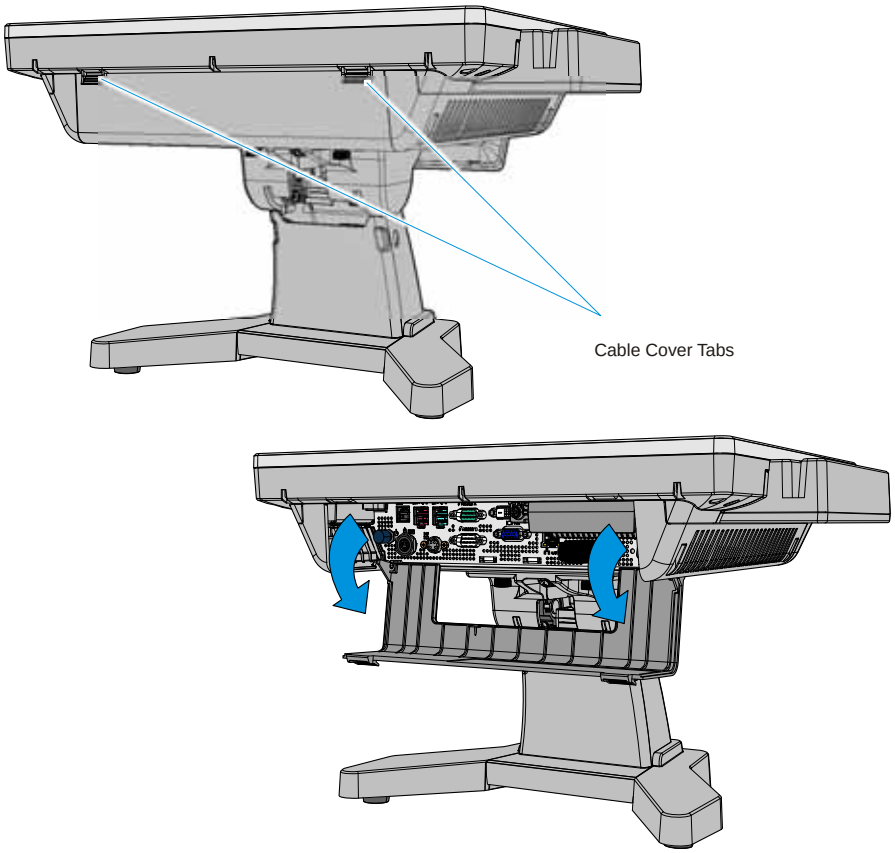
   b. Align the Mounting Studs on back of the terminal with the Mounting Slots in the Table Top Stand.
   c. Insert the studs into the slots and slide terminal down slightly.



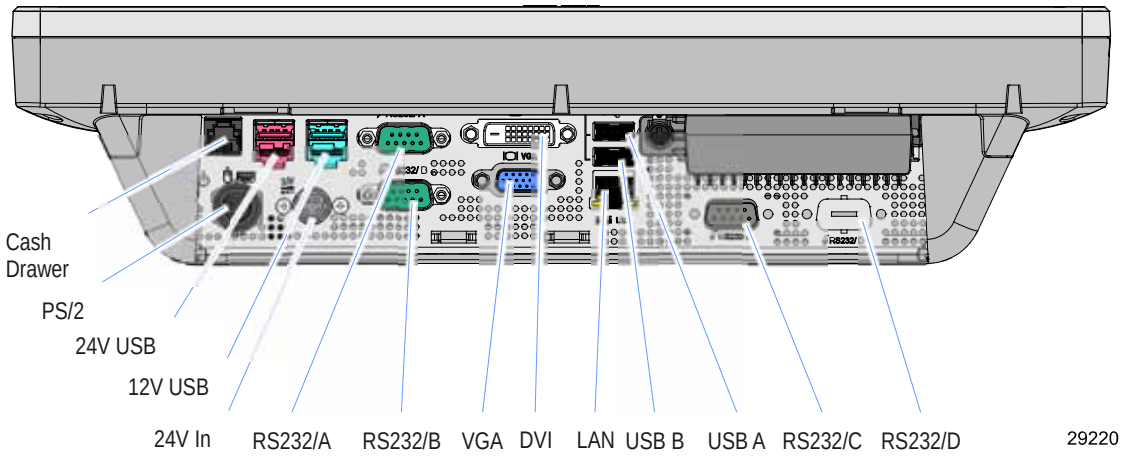
d. Secure the stand with the captive thumbscrews (2).



2. Open the Terminal Cable Cover. Press the tabs (2) that latch the cover closed and pivot the cover open.



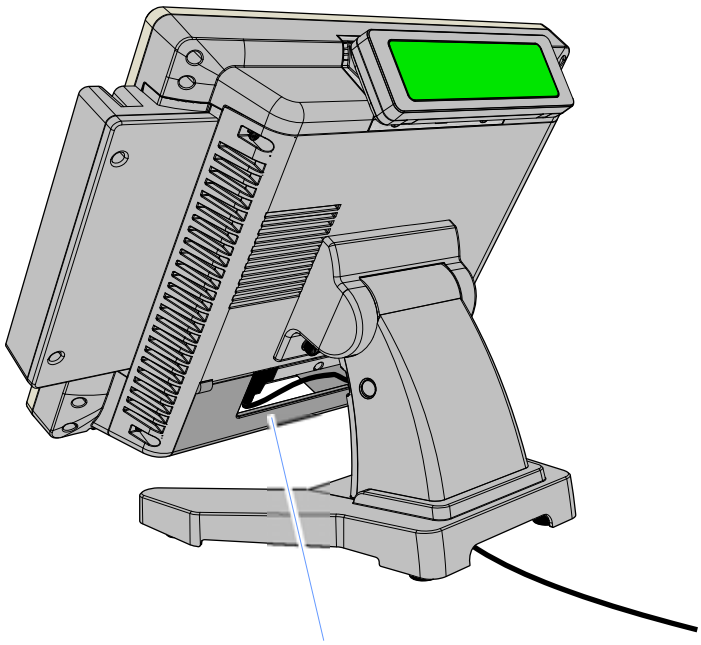
3. Connect the peripheral cables to Connector Panel located under the Terminal Cable Cover on the bottom of the unit.



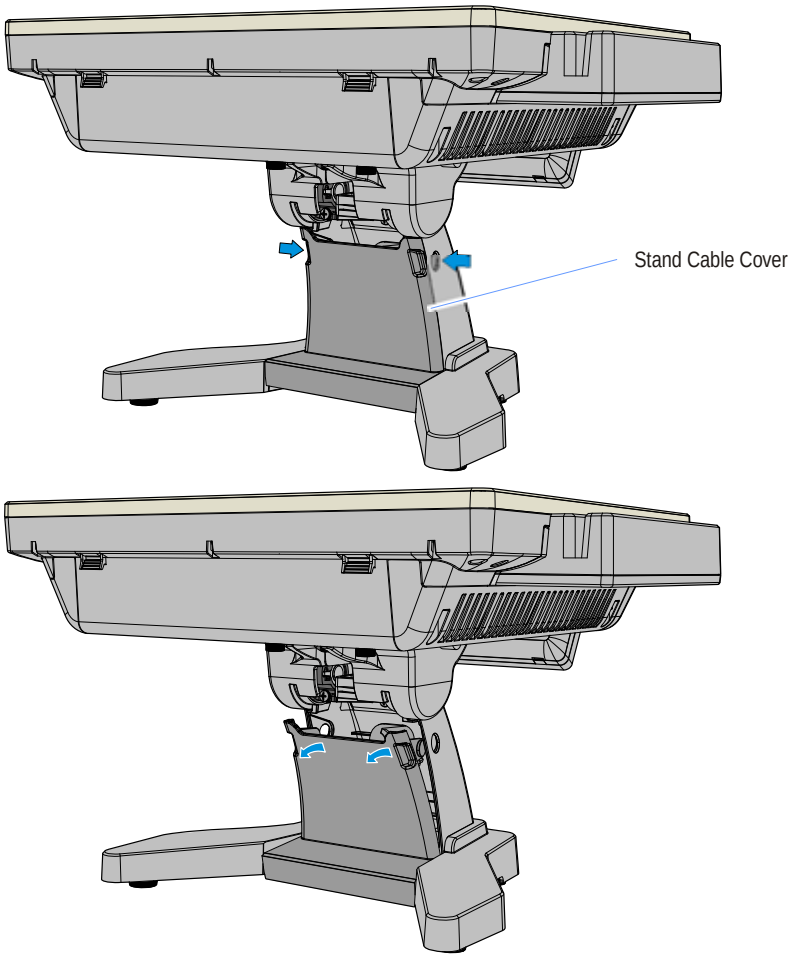
Note: The RS232/D port is used by the Integrated 2x20 Customer Display if present. Otherwise, this port can be added to the I/O Panel with the 7610-K412 Port kit.

Cable Routing

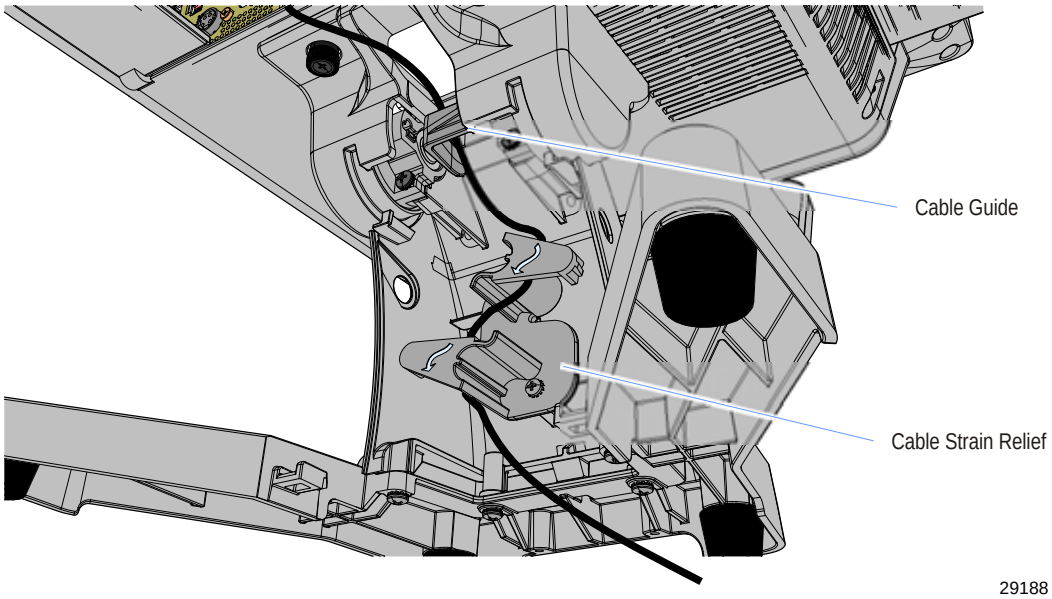
Cables are routed out the opening in the Terminal Cable Cover and down through the Terminal Stand.



1. Remove the Stand Cable Cover by pressing the button detents on the sides of the cover and then pivoting the top away from the stand.



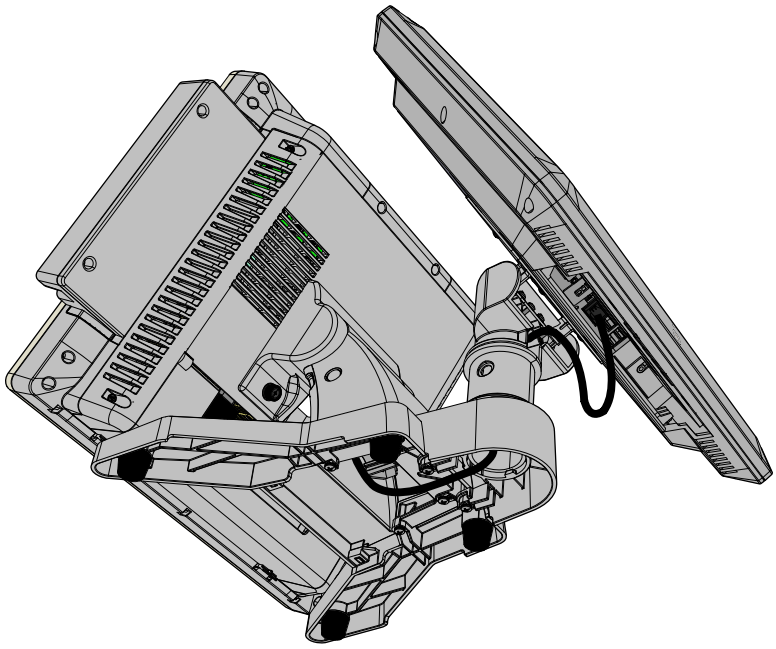
2. Route the cables through the Cable Strain Relief and over the Cable Guide as shown below.



3. Replace the Stand Cable Cover.

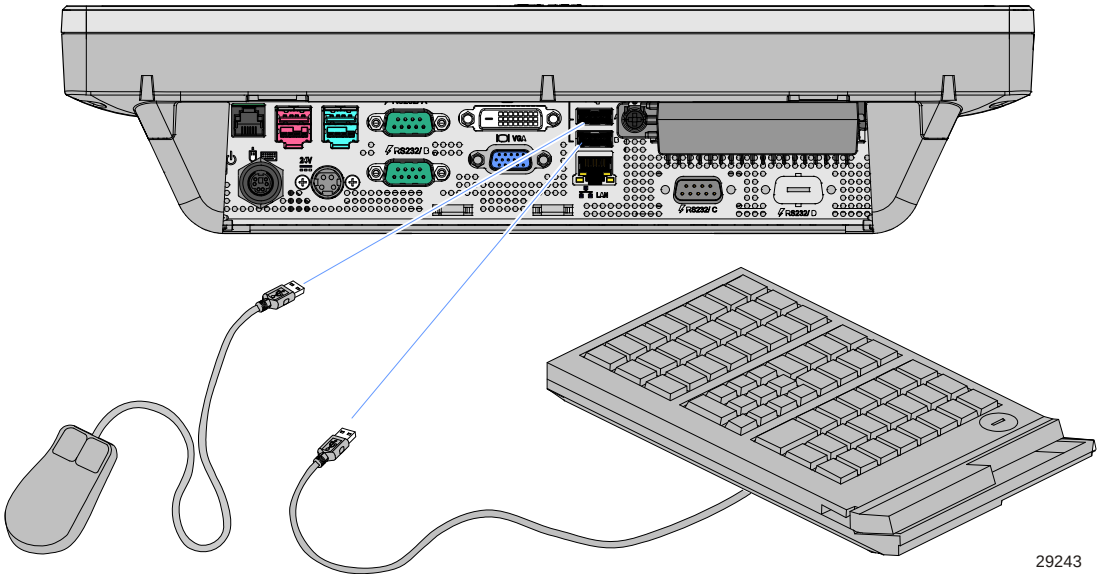
Customer Display Configuration

If configured with a Customer Display the cables are routed from the bottom of the Stand up through the Customer Display Pole.

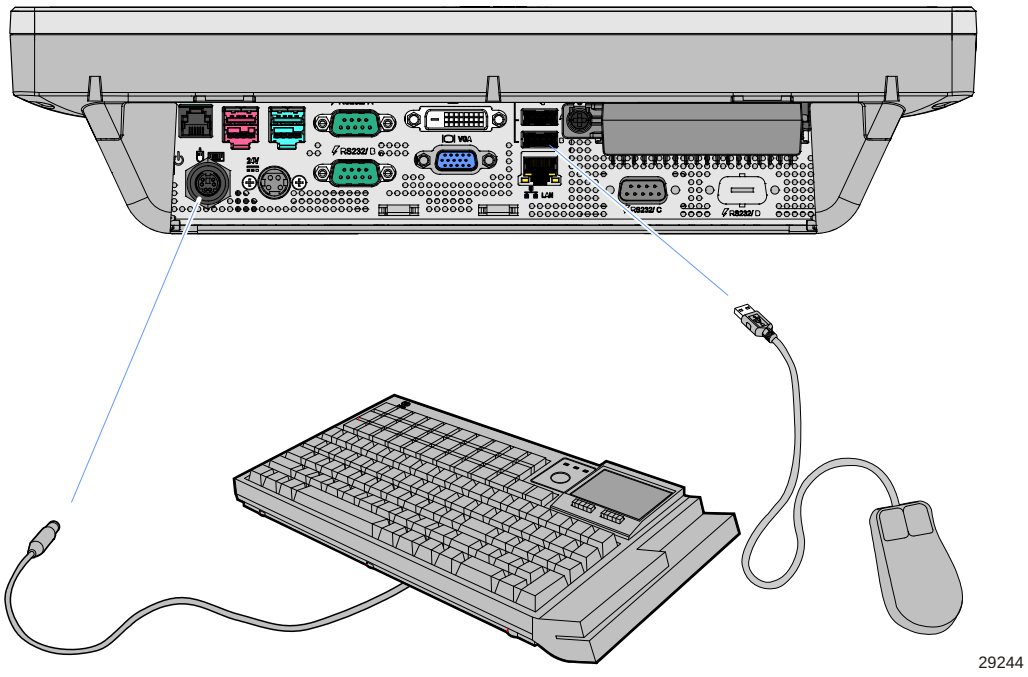


Installing a Keyboard and Mouse

The 7611 supports USB and PS/2 type keyboards. Only USB mice are supported. See the following examples of supported configurations.

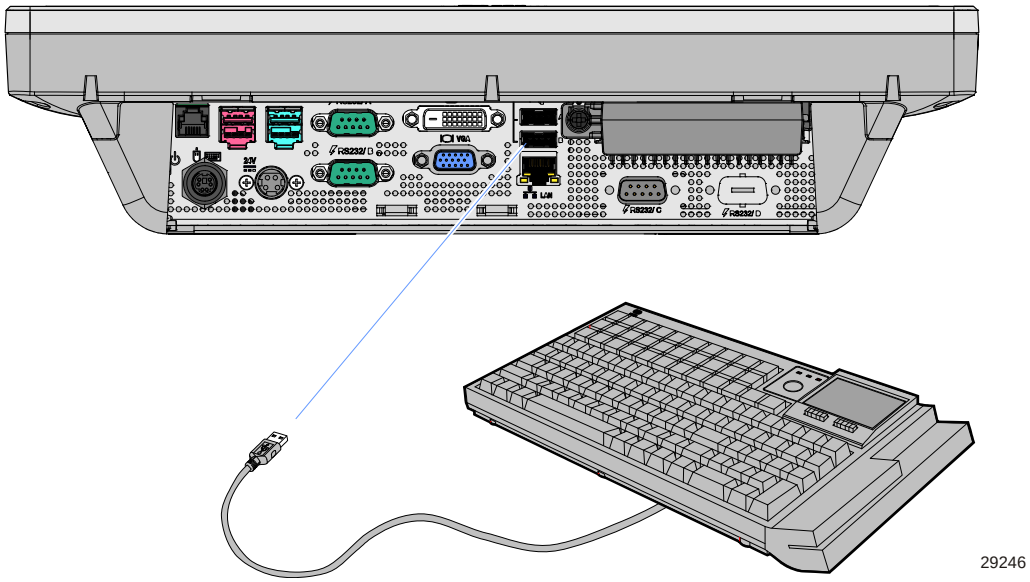


USB Mouse and USB Keyboard



PS/2 Keyboard w/Glide Pad and USB Mouse

Note: PS/2 Extension Cables cannot be used with a PS/2 Keyboard that has a Glide Pad.



USB Keyboard w/Glide Pad

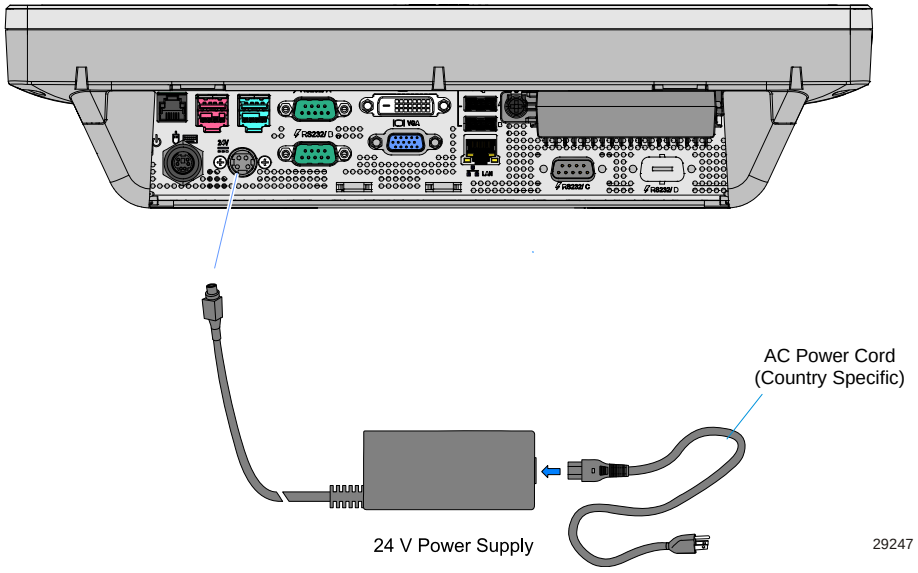
Connecting AC Power

The 7611 receives power from an external 24 V power brick.

Caution: The 7611 requires the NCR 24 V power supply that is shipped with the terminal. Use of other power bricks may cause damage to the unit.

1. Connect the Power Supply cable to the DC Power connector on the terminal.
2. Connect the AC Power Cord to the Power Supply and to an AC outlet.

   Caution: Do not connect or disconnect the 24V Power Cable from the terminal with the AC Power Cord connected to an AC outlet.



Power Supply Bracket

An optional power supply bracket is available to mount the power supply on a vertical surface or under a table top (see the Wall Mount Power Supply Bracket Kit Instructions (7600-K310).

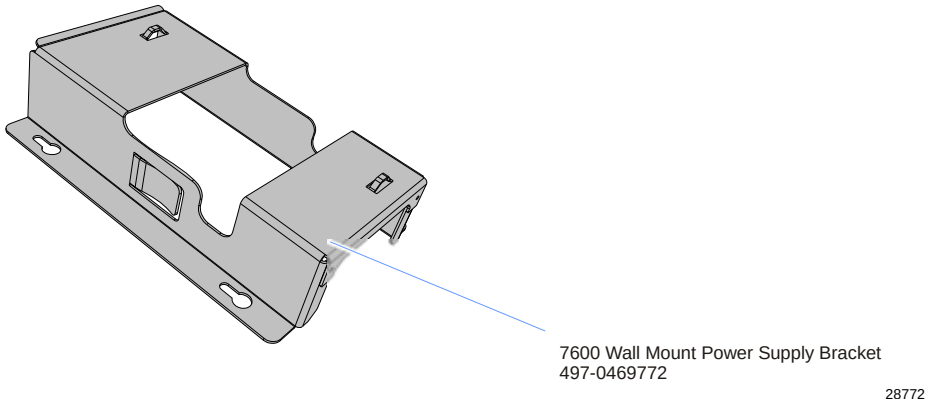
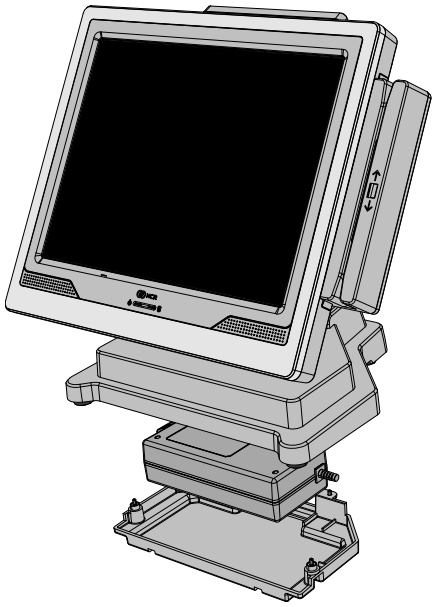


Table-Top Stand w/Power Supply Enclosure

An optional stand is available that has an enclosure for the Power Supply. See the Table-Top Stand Assembly w/Power Supply Enclosure Kit Instructions (7610-K321).



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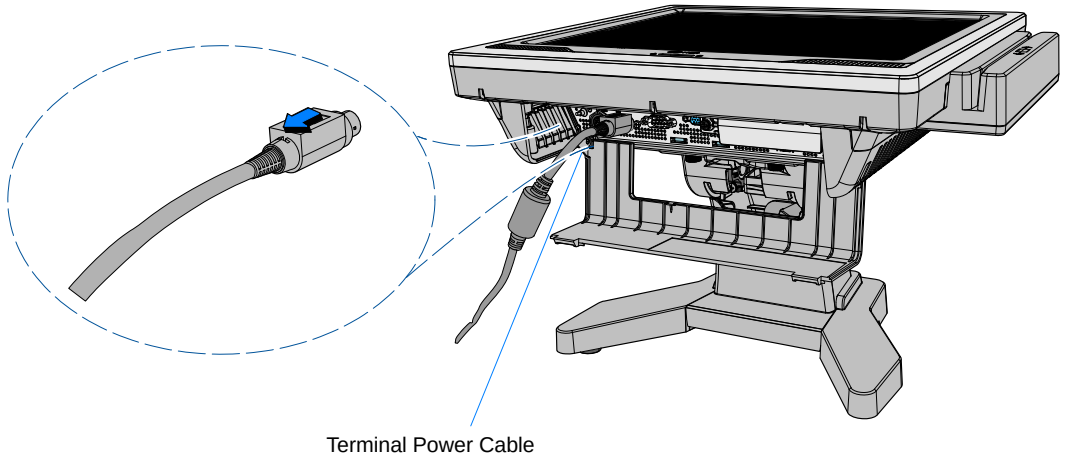
Disconnecting the Power Cable

The Power Cable connector locks into position when connected to the terminal and cannot be removed by simply pulling on the cable. You must grasp the connector and slide the outside housing out from the terminal to unlock it from the terminal connector to remove it.



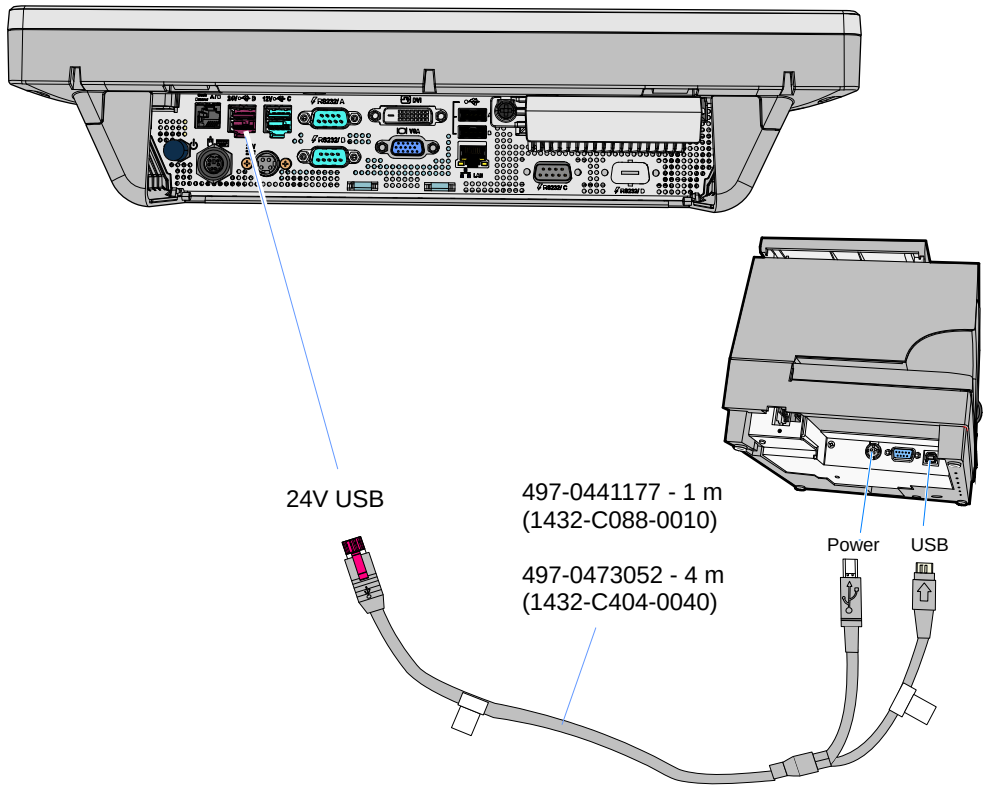
29249

Installing a Transaction Printer

The printers can connect to a USB connector or an RS-232 connector.

USB Installation

Connect the Powered USB Printer Interface Cable to the USB Connector and Power Connector on the printer and to the 24 V Powered USB Connector on the terminal.

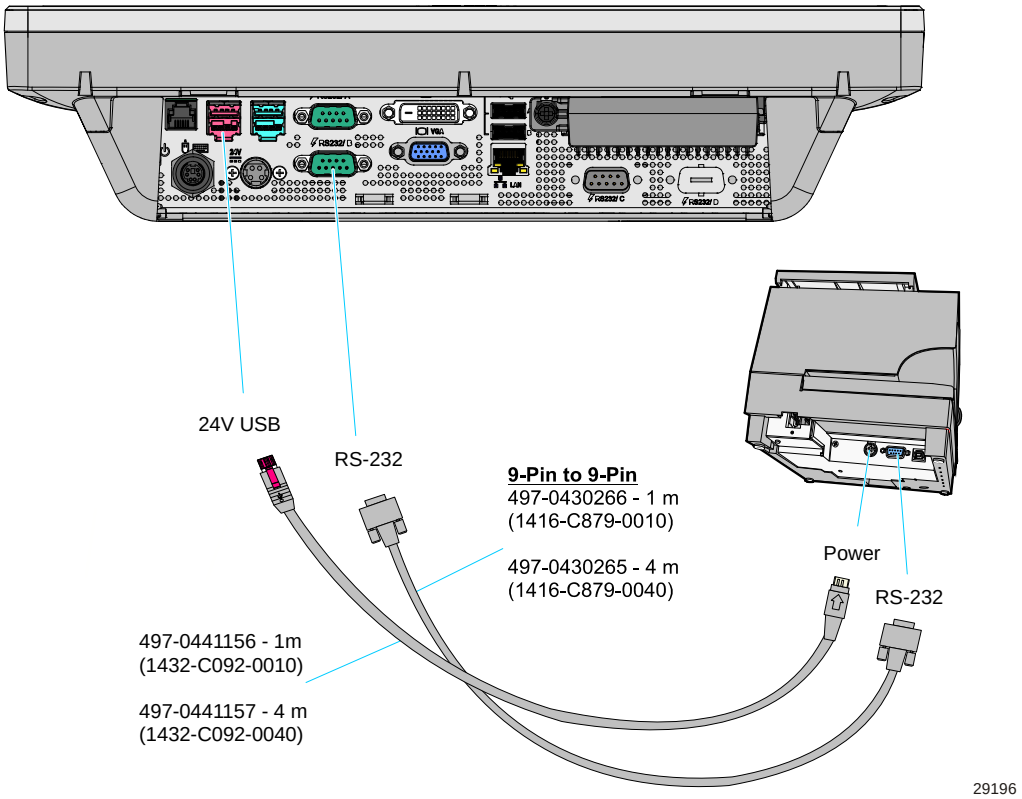


RS-232 Installation

1. Connect the RS-232 Printer Interface Cable to the RS-232 connector on the printer and to a non-powered RS-232 connector on the terminal.

   Note: The factory default setting for the RS-232 ports is powered. See the Appendix: Powered Serial Port Settings.

2. Connect the Powered USB Printer Interface Cable to the Power Connector on the printer and to the 24V Powered USB Connector on the terminal.



Installing a Customer Display

The customer displays can be either integrated with the terminal or installed remotely. This document describes how to install the displays remotely.

The displays can be integrated using the Peripheral Integration Tray or on the bottom of the Table Top Stand using the Customer Display Base. Illustrations of these configurations are shown in the Customer Displays section in Chapter 1.

For installation information about integrating the displays see the associated kit instructions for the configuration being installed.

Using the Peripheral Integration Tray

- Peripheral Integration Tray (7610-K304)

Using the Table Top Stand

Additional kits are required to install the display on the Table Top Stand, depending on the type of display. If installing an LCD display the following are required.

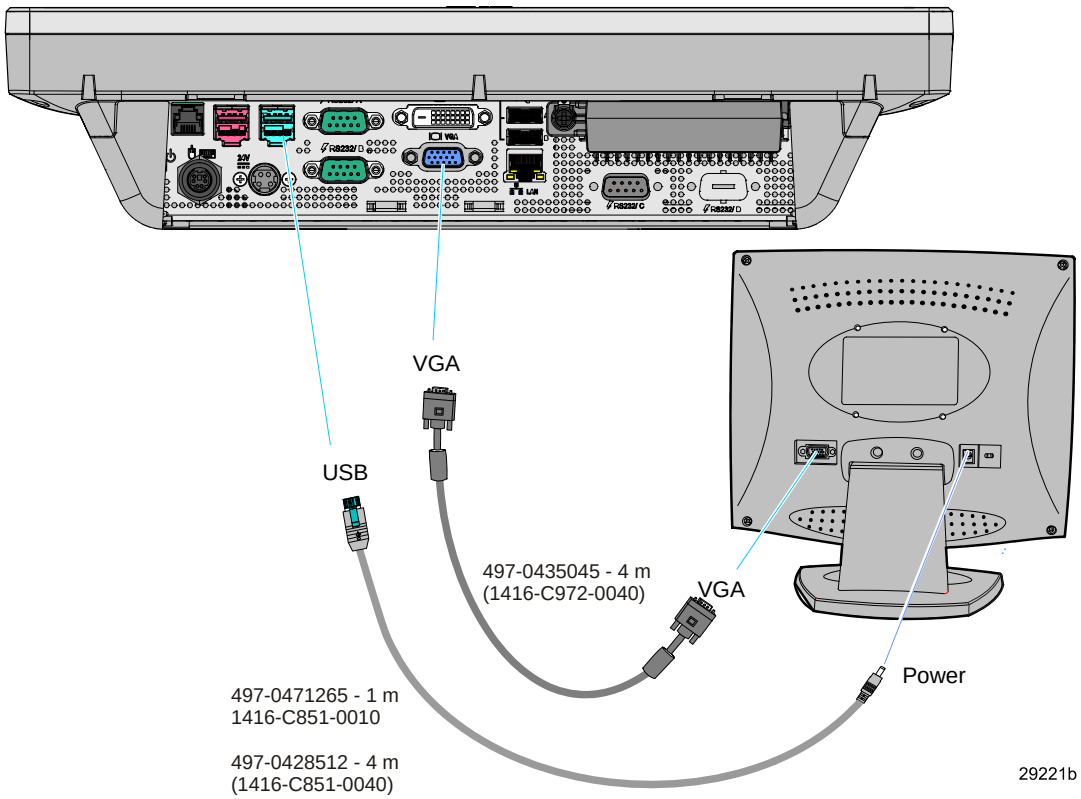
- Customer Display Base (7610-K304)
- D Customer Display Tilt Mount (7610-K453)

If installing a 5975 2x20 display the following are required.

- Customer Display Base (7610-K304)
- Display 4/8" Pole (5975-K834) or Display 12/16" Pole (5975-K836)

NCR 5942 12.1-Inch LCD Monitor Cable Connections

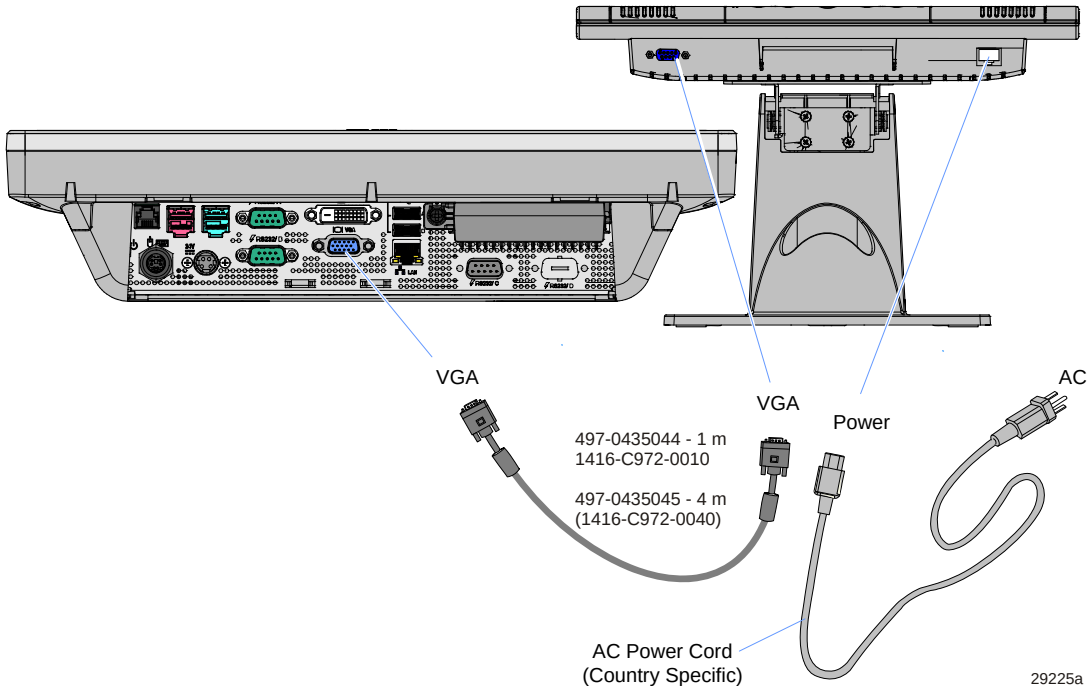
The 5942 LCD Monitors receive video through the VGA interface. Power is received from the terminal using a powered USB cable.



1. Connect the Video Cable to the VGA connectors on the 5942 monitor and RealPOS 50 terminal.
2. Connect the Powered USB Cable to the 5942 and to the Powered 12V USB connector on the terminal.

NCR 5942 15-Inch LCD Monitor Cable Connections

The 15-Inch 5942 LCD receives video through the VGA interface. It receives power from an AC power source.



1.Connect the Video Cable from the 5942 to the VGA connector on the host terminal.

2.Connect the AC Power Cord to the 5942.

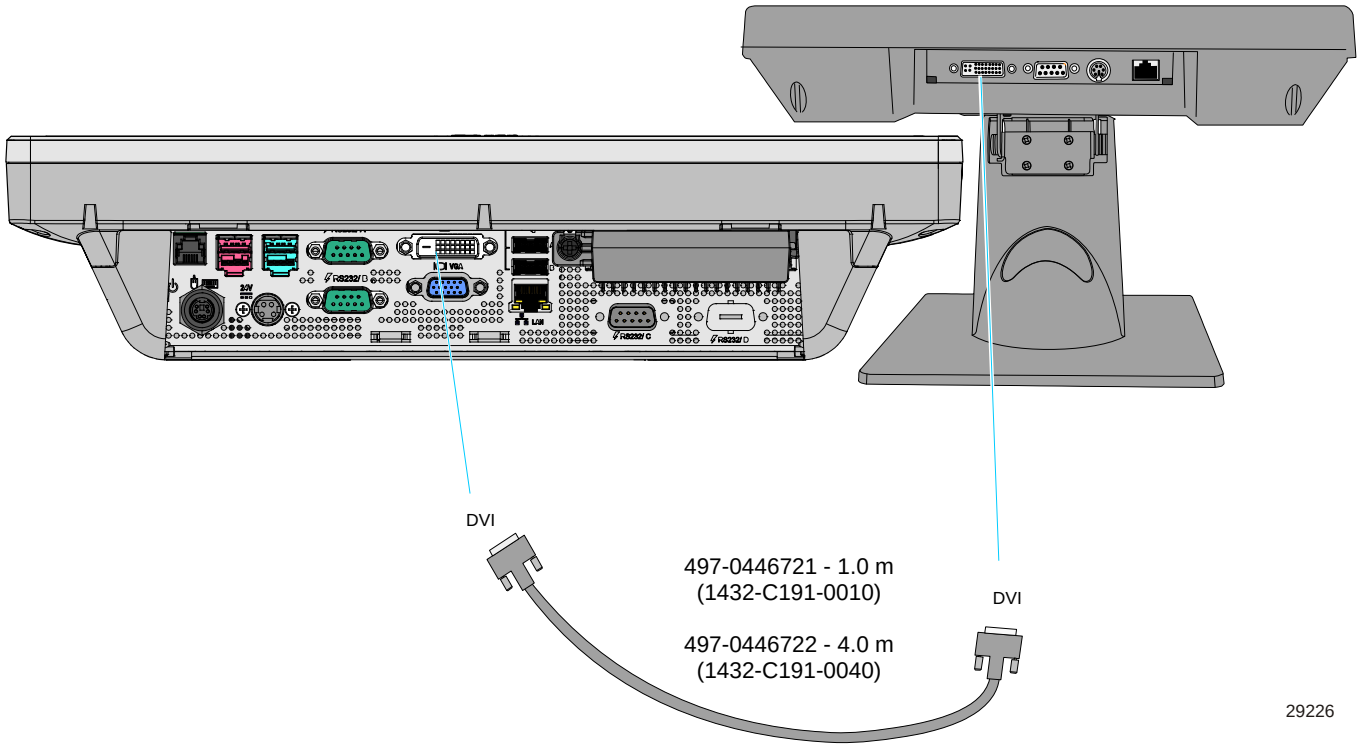
NCR 5964 12.1-Inch LCD Touch Monitor Cable Connections

There are two cables required to configure a 5964 12.1-Inch Touch LCD.

- DVI Cable - provides the video interface to the 5964 LCD
- RS-232 Y-Cable - provides a serial interface and power to the 5964 LCD. It also connects the 5964 PS/2 keyboard connector to the host terminal, which provides an interface for the wedge controller (MSR, PS/2 Keyboard, Scanner, and Tone Speaker).

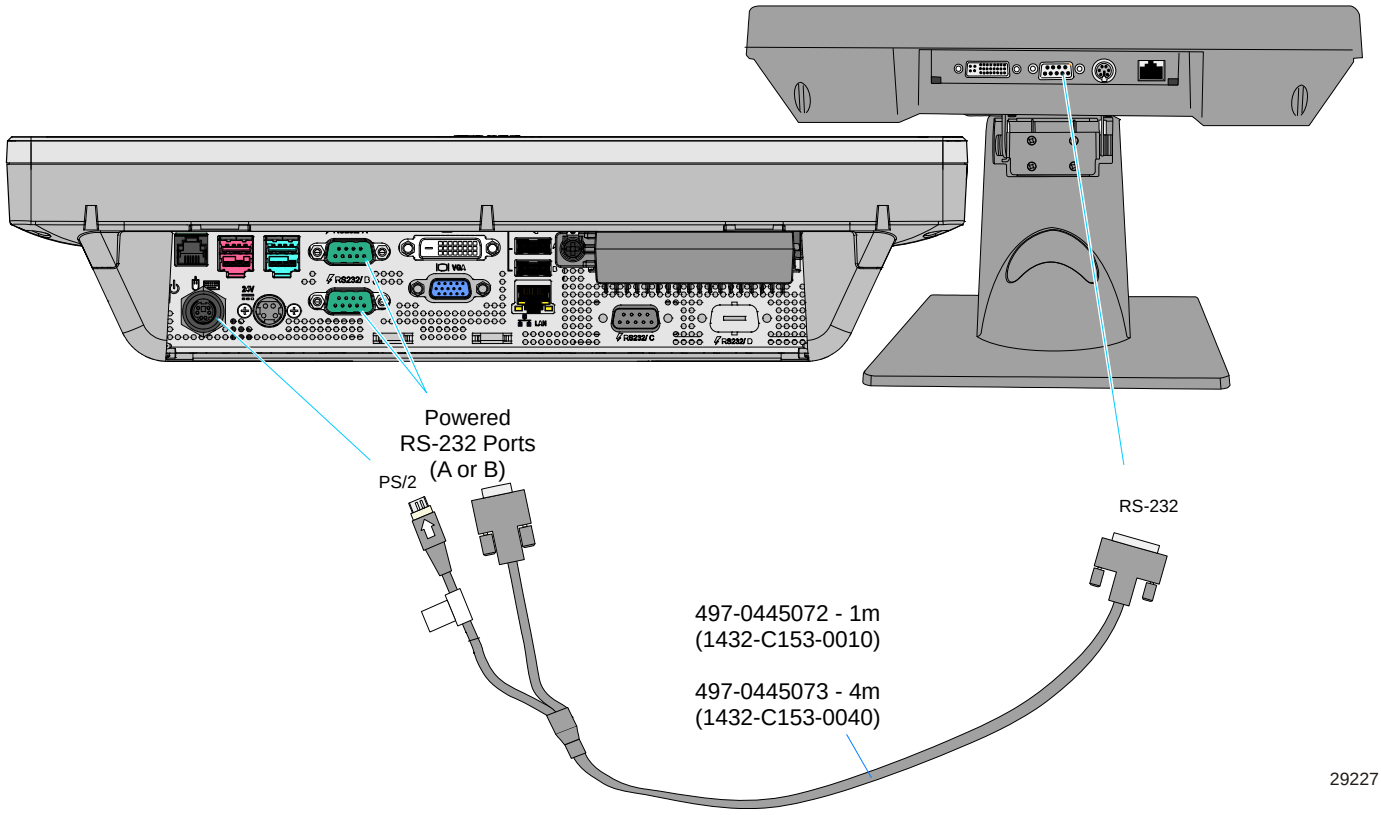
DVI Cable Connections

Connect the cable to the DVI Connectors on the 5964 LCD and host terminal.



RS-232 Cable Connections

1. Connect the Y-cable to one of the Powered RS-232 ports and to the PS/2 connector on the host terminal.
2. Connect the other end of the Y-Cable to the RS-232 connector on the 5964 LCD.



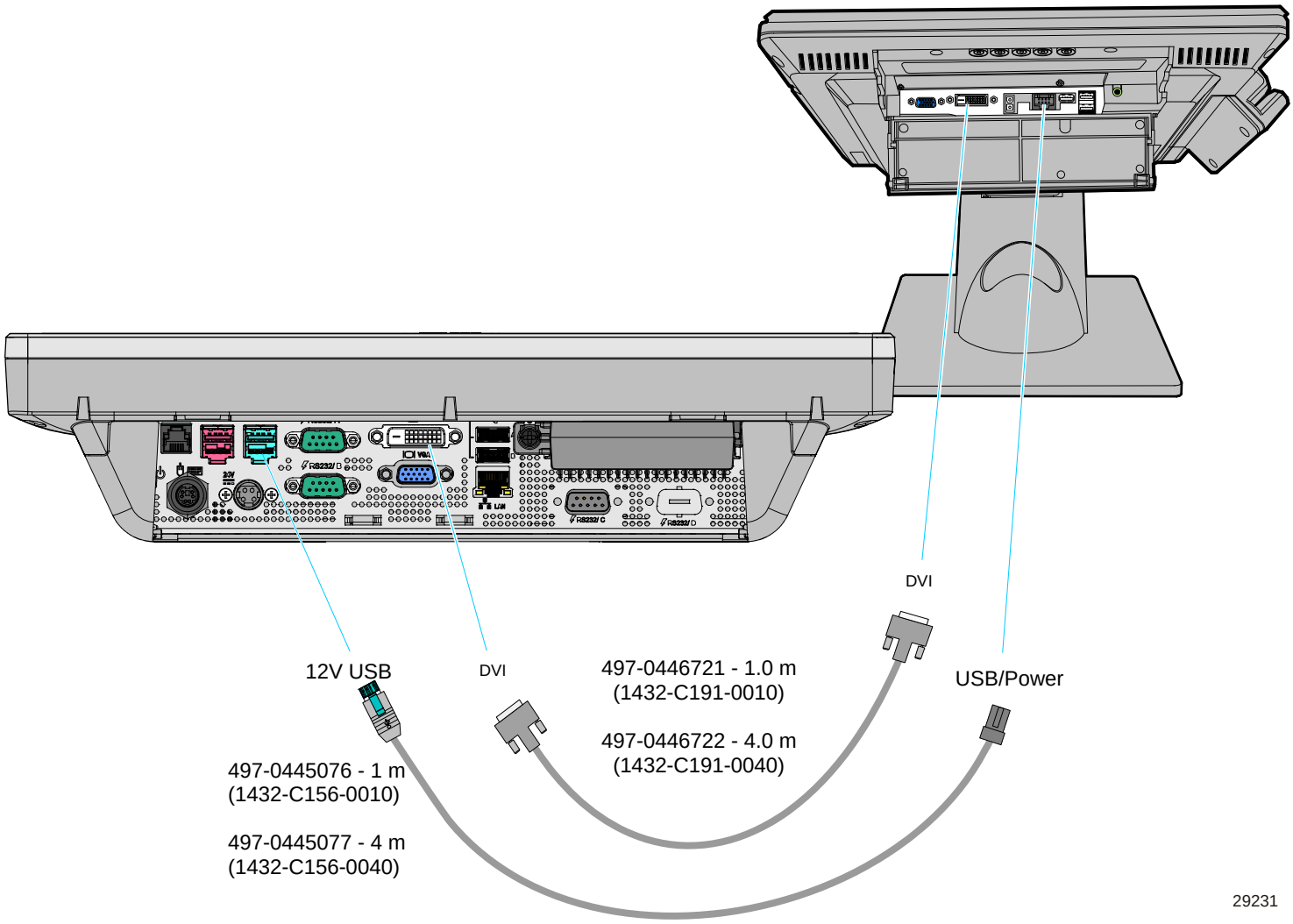
NCR 5965 15-Inch LCD Cable Connections

There are two cables required:

- VGA or DVI for video
- Powered 12V USB for data and power.

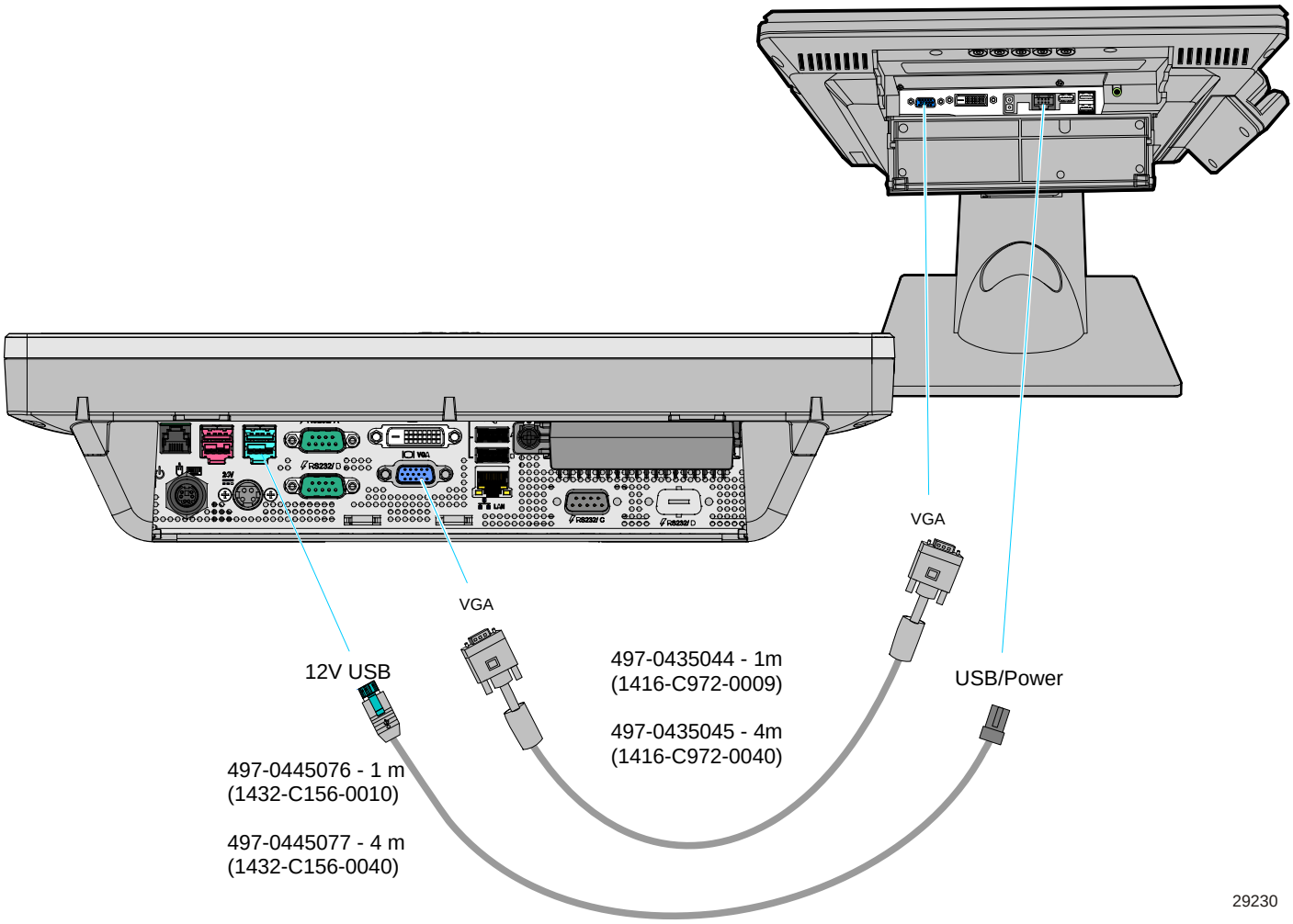
DVI/USB Connections

1. Connect the DVI Cable to the DVI connectors on both the 5965 LCD and host terminal.
2. Connect the Powered USB Cable to the 5965 LCD and to the Powered 12V USB connector on the host terminal.



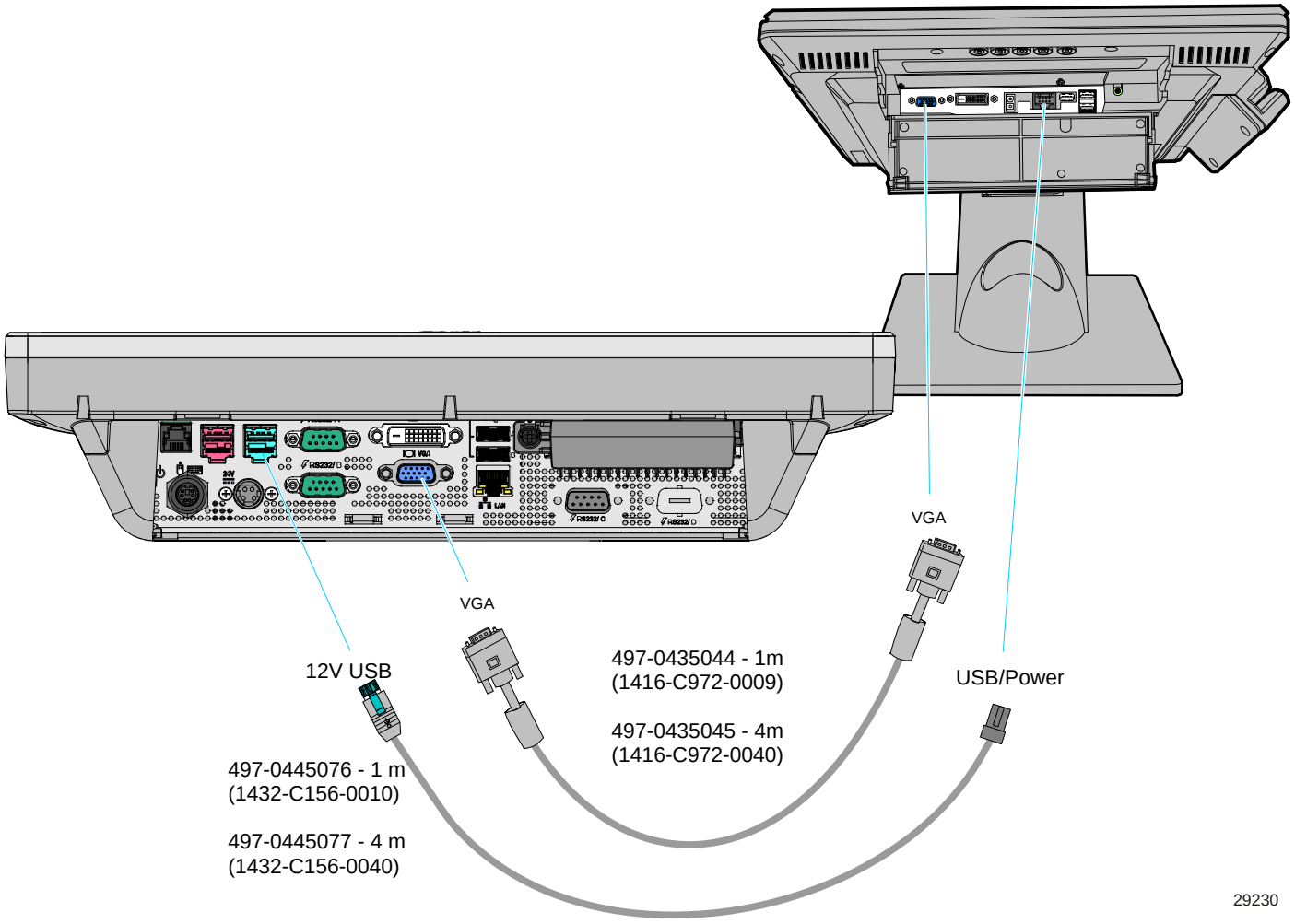
VGA/USB Connections

1. Connect the VGA Cable to the VGA connectors on both the 5965 LCD and host terminal.
2. Connect the Powered USB Cable to the 5965 LCD and to the Powered 12V USB connector on the host terminal.



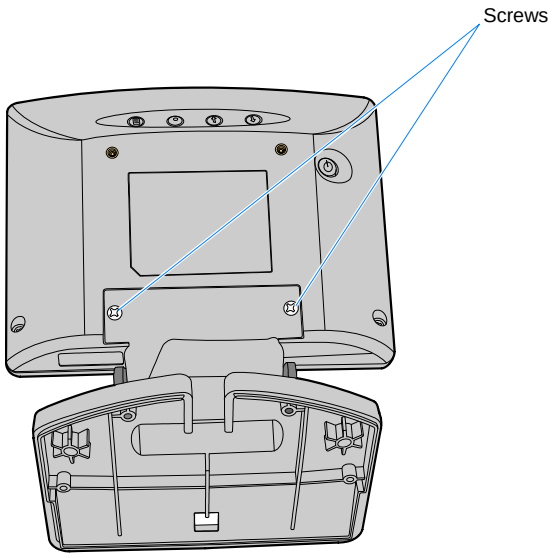
NCR 5966 15-Inch LCD Cable Connections

1. Connect the VGA Cable to the *VGA* connectors on both the 5966 Touch LCD and host terminal.
2. Connect the Powered USB Cable to the 5966 and to the *Powered 12V USB* connector on the host terminal.



Installing a 5982 6.5-Inch LCD

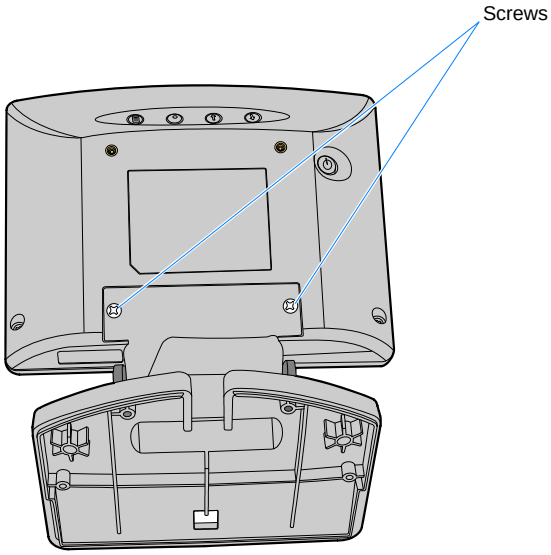
1. Remove the Base from the Display (2 screws).



23162

2. Route the VGA and Power cables up through the bottom of the Base and connect them to the Display.

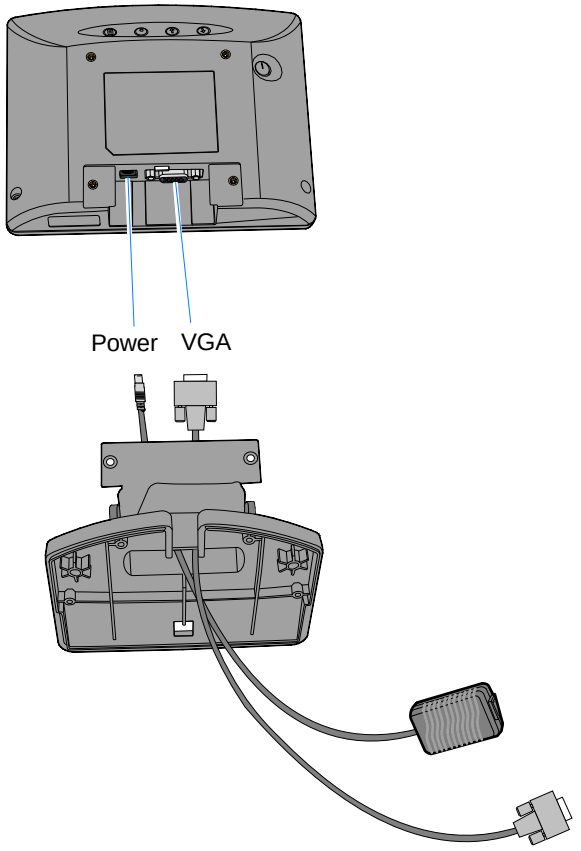
   Note: The power cable can be either an External Power Supply or a Powered USB cable.



I

23162

3. Install the Base to the Display (2 screws).
4. Route the cables out the rear of the Base.
5. Connect the Power Cable:



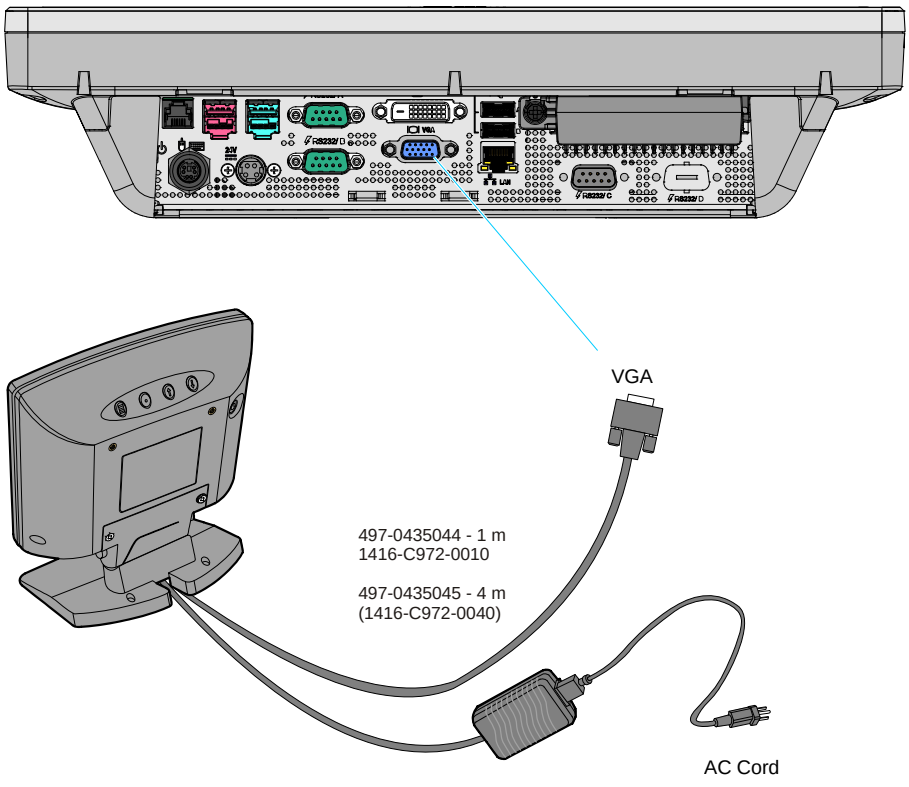
23435

External Power Supply

a. Connect the VGA cable to the *VGA* port on the host terminal.

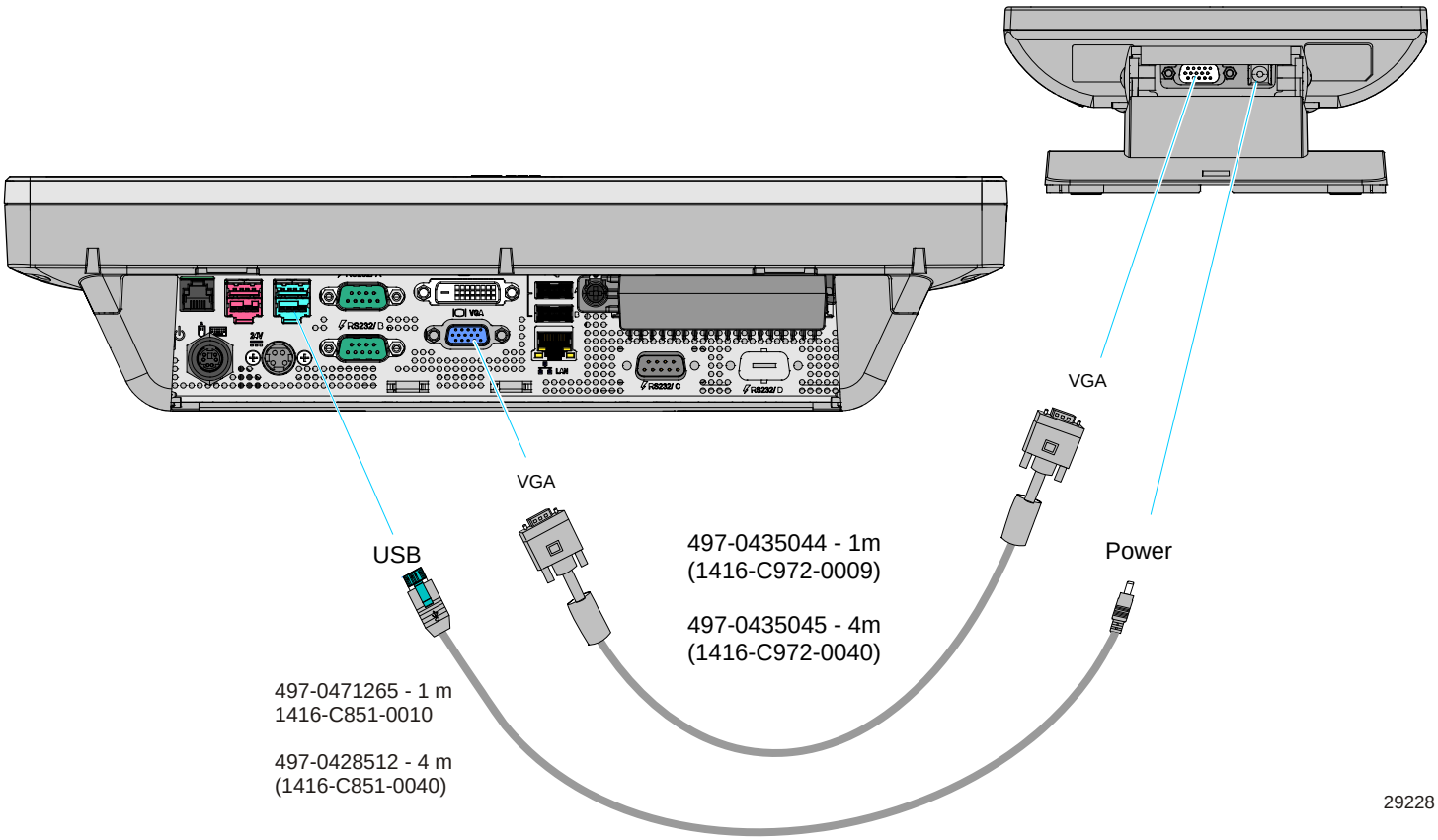
b. Connect the AC Cord to the Power Supply.

c. Connect the power cable to an AC source.



Terminal Powered

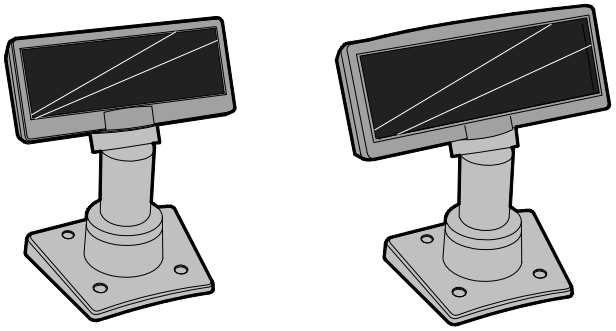
a. Connect the Power Cable to the Powered 12V USB port on the host terminal.



Installing an NCR 5975 Customer Display

There are two models of the NCR 5975 Remote Customer Display:

- 5975-1xxx - 2x20 VFD
- 5975-2xxx - Graphical Remote Customer Display

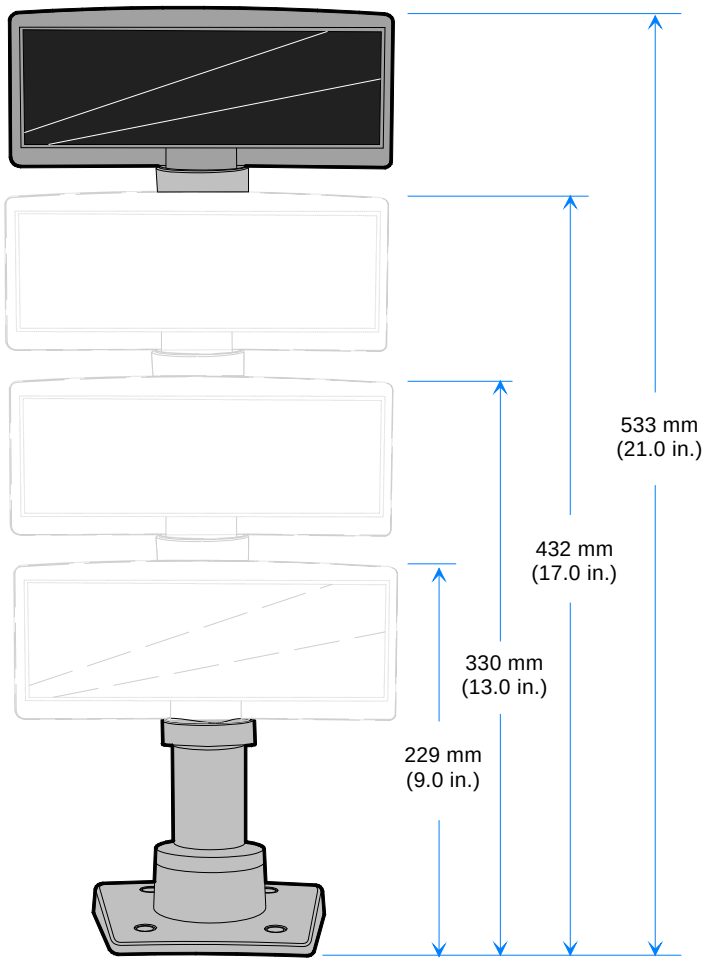


5975-1xxx 2x20 VFD

5975-2xxx Graphical Display

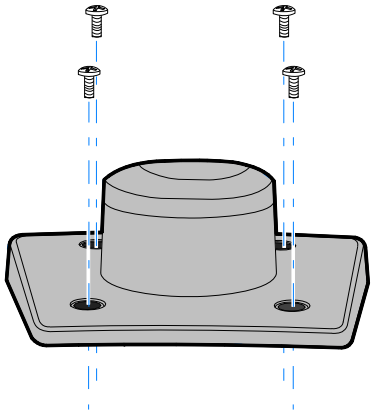
22926

There are four different length posts available, in four inch increments.



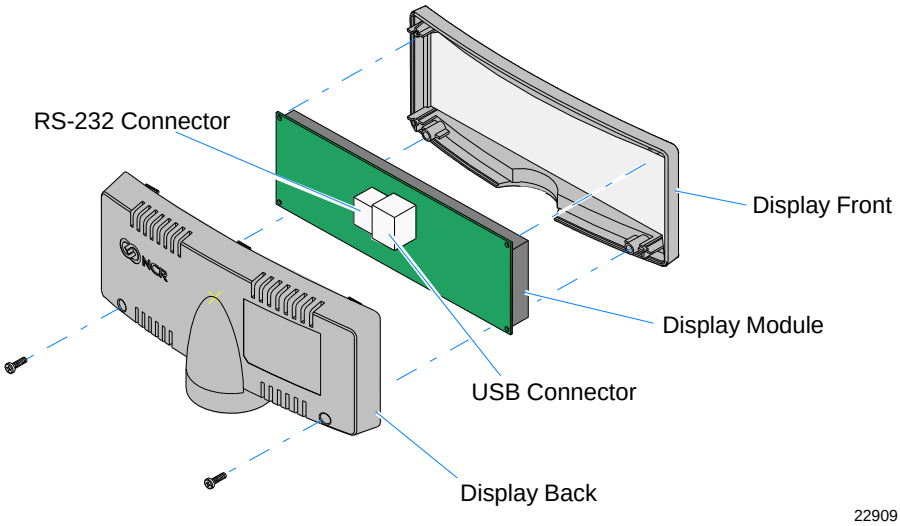
22918

1. Locate the Display Mount within 4 meters (13 ft.) of the host terminal.
2. Determine if the cable should be routed down through the mounting surface or if it should be run on top of the surface. Drill a hole if necessary.
3. If you are installing with a post greater than 215 mm (8.5 in.) secure the Base Plate with screws (4) that are provided.



22930

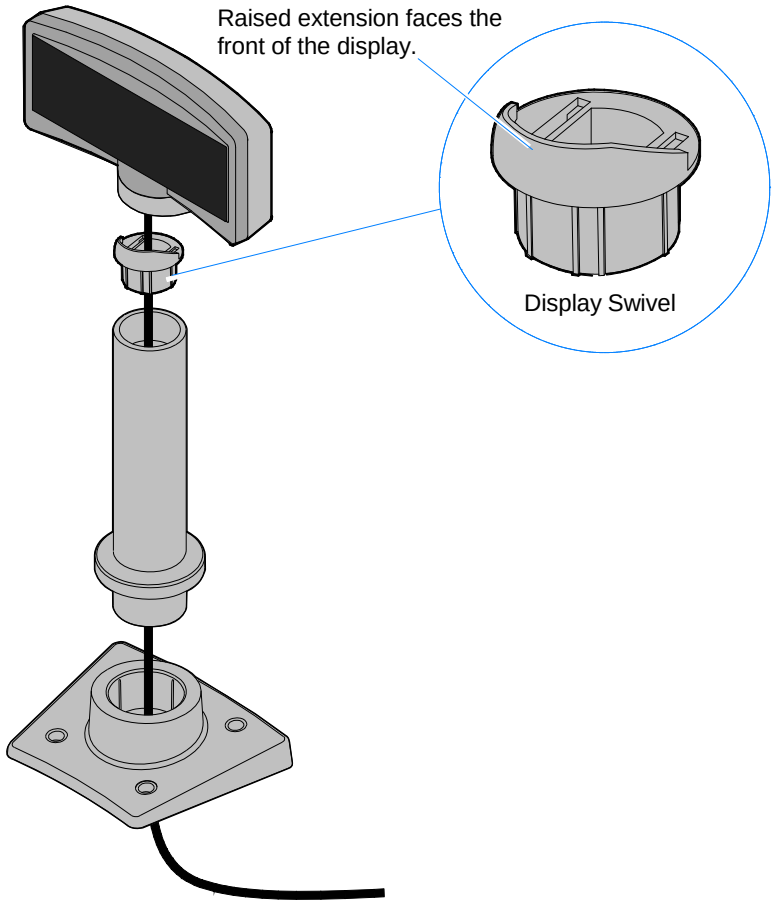
4. Connect the Interface Cable to the Display Module.
   a. Remove the screws (2) from the Display Back.
   b. Remove the Display Back.
   c. Route the Interface Cable though the opening in the Display Back.
   d. Connect the cable to the proper connector on the Display Module.



22909

   e. Reassemble the Display Assembly.

5. Route the Interface Cable through the Post
6. Assemble the Post components.



7. Connect the Display Cable to the terminal.

RS-232 Interface (Powered)

Connect the I/F cable to a powered RS-232 connector on the terminal.

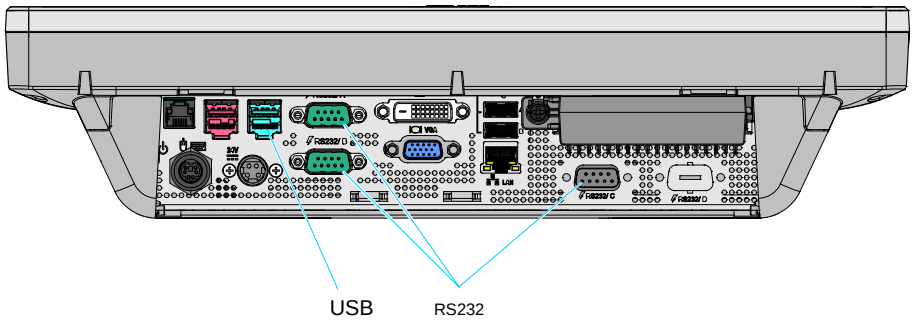
Note: The factory default settings for the COM1 and COM2 ports are *powered* by default. To change a port to non-powered see the *Powered Serial Port* appendix.

Configure the terminal serial port as follows:

```
9600 baud, 8 data bits, 1 start bit, 1 stop bit, No parity
```

USB Interface (Powered)

Connect the I/F cable to a powered 12V Powered USB connector on the terminal.



29232

Installing a Secondary Display (Dual Display)

The 7611 Motherboard uses an integrated video controller with the Intel 945GSE GMCH chipset. This controller provides a Monitor port (VGA) and a Digital Display port (DVI) on the motherboard connector row for the second display (DVI or VGA). The 7611 display uses the LVDS port and is always the primary display. The driver recognizes this port as *Notebook*. The Dual display mode can be a *clone* (same video data displayed on both displays) or an *extended desktop* (the desktop spans across both displays).

The dual mode is configured using the *Intel® Graphics Media Accelerator* control panel.

1. Power down the system.
2. Connect the secondary display.

   Note: Both displays must be connected to the 7611 before powering up the system.
3. Apply power to the system.

   Note: POST Diagnostics do not display on the secondary display if connected to the DVI port. Both displays function properly after Windows is booted.
4. Right click the Desktop and then select **Graphics Properties** from the menu to start the control panel. Both displays should be recognized.

Dual Display Clone

1. From the *Operating Mode* drop-down menu select **Intel(R) Dual Display Clone**.
2. Select the Primary Device: **Notebook**.
3. Select the Secondary Device: **Digital Display** or **Monitor**.
4. Select **Apply**.

5. Select **OK** within 15 seconds to accept the new settings.

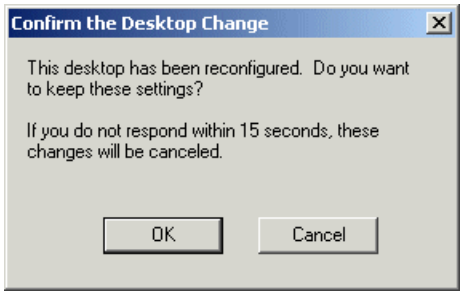
6. Select **OK** to close the Control Panel.

Extended Desktop Dual Display

1. Select Extended Desktop
2. Select the Primary Device: **Notebook**. (This display has the Start button and Taskbar)
3. Select the Secondary Device: **Digital Display** *or* **Monitor.** (This display is the desktop extension)

   You can re-position the displays as desired by dragging the 1 or 2 icons in the Position box.
4. Select **Apply**.

5. Select **OK** within 15 seconds to accept the new settings.

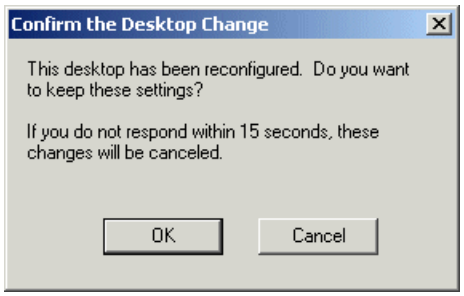


6. Select **OK** to close the Control Panel.

Single Display Mode

1. Select **Notebook**.
2. Select **Apply**.

3. Select **OK** within 15 seconds to accept the new settings.



4. Select **OK** to close the Control Panel.

Intel Graphics Controller Hot Keys

Hot Keys provide the same functionality as the Intel Graphics Control Panel with specific keystrokes on the keyboard. These hotkeys are listed in the Intel Control Panel under the Hot Keys tab. The most useful Hot Keys are:

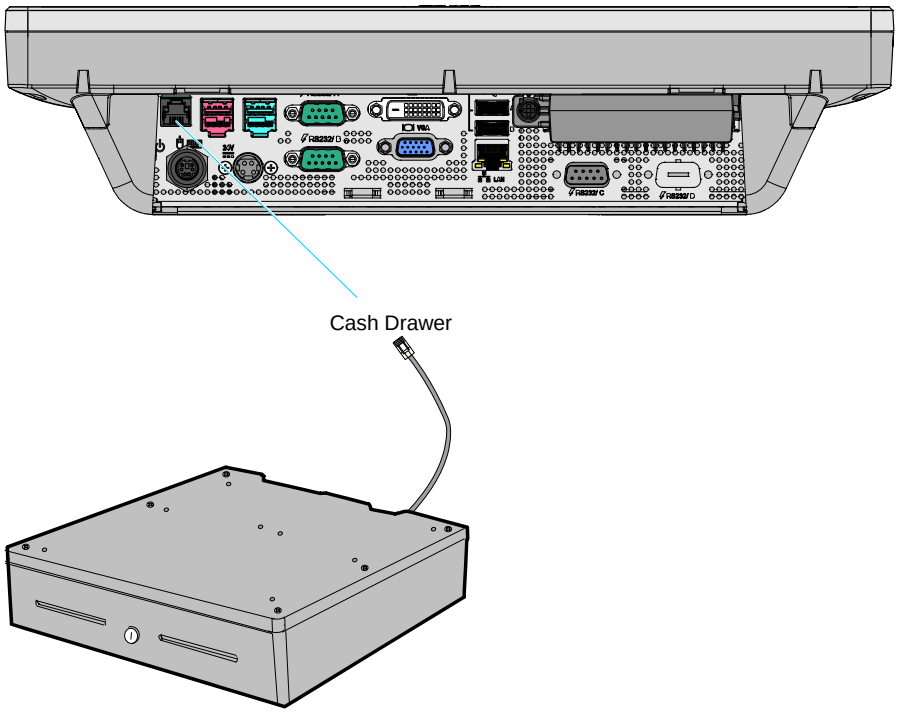
`[CTRL][ALT][F3]` - Monitor in single display mode

`[CTRL][ALT][F4]` - Digital Display in single display mode

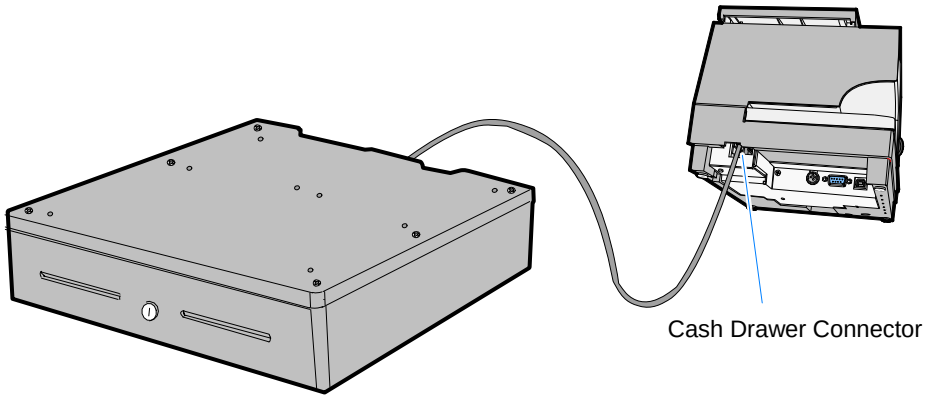
Note: The Hot Keys can be used to recover from a blank display in Windows. This is true only if Windows Desktop loads completely; meaning, if Windows is waiting for a login/password entry or if Plug and Play is waiting for operator input, the Hotkeys are not yet active.

Installing a Cash Drawer

The Cash Drawer can be connected to the Cash Drawer connector or to the transaction printer.



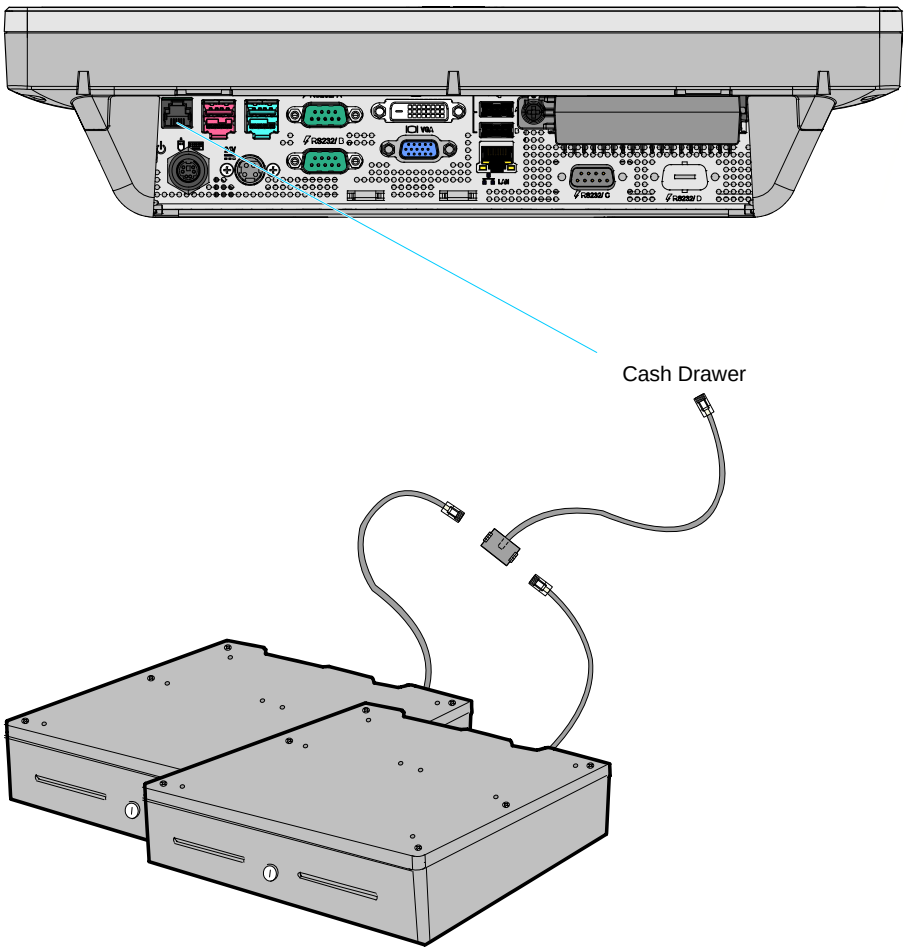
29233



20440

Second Cash Drawer Cable Connection

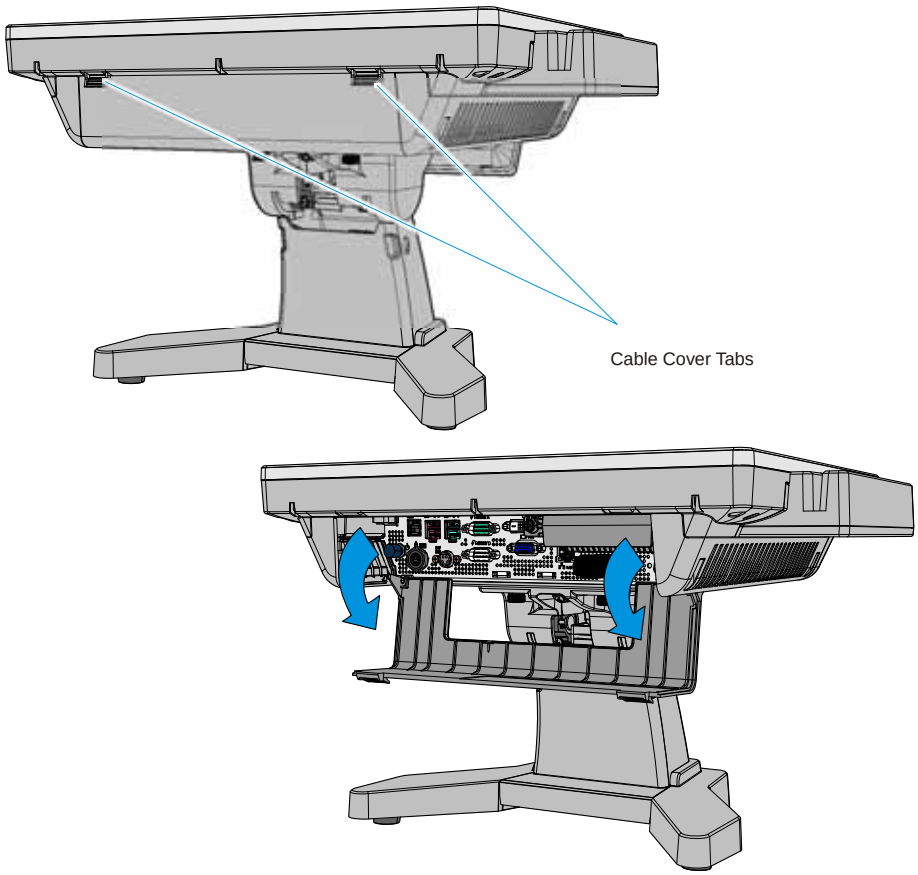
The terminal supports a 2-drawer configuration with a Y-cable (1416-C372-0006). Connect the Y-cable to the terminal or transaction printer cash drawer connector.



Replacing the Hard Disk Drive

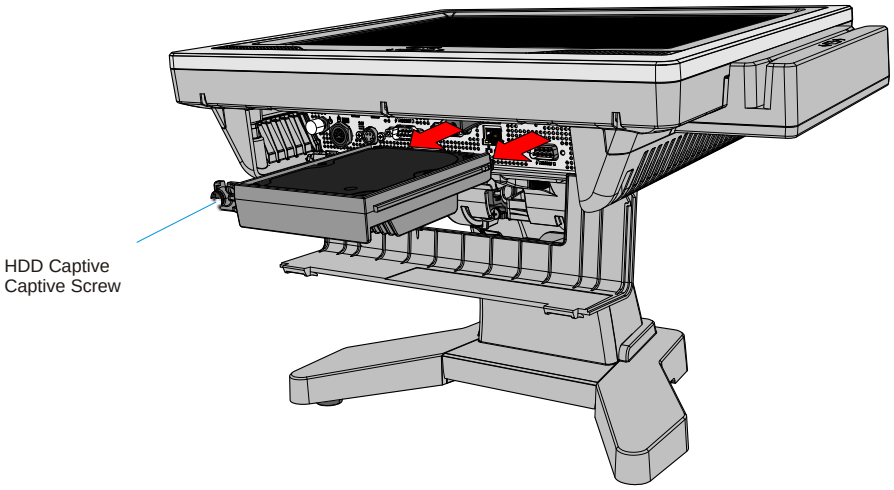
The Hard Disk Drive (HDD) is mounted on the inside of the Cable Cover and is easily accessed.

1. Tilt the terminal to 90 degrees.
2. Open the Cable Cover. Press the tabs (2) that latch the cover closed and pivot the cover open.



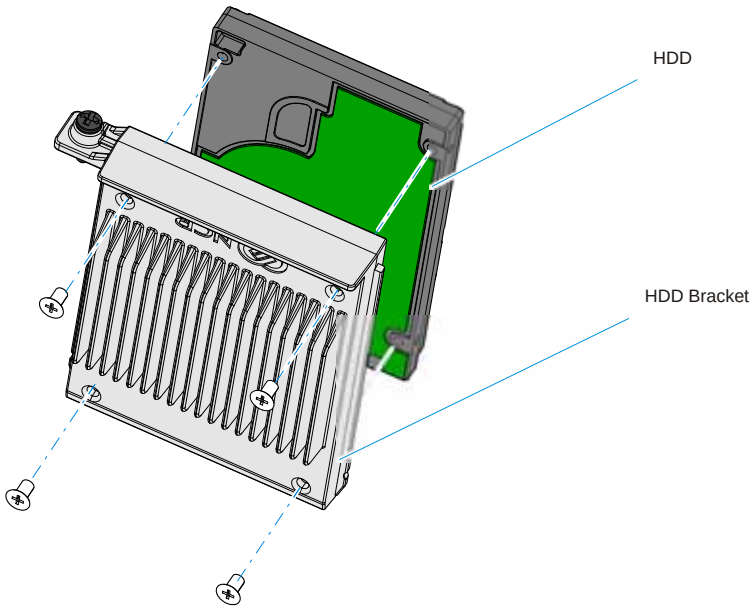
3. Loosen the captive screw in the HDD Bracket.
4. Remove the HDD from the Terminal.

   Caution: Exercise care in handling the HDD. Do not drop or stack it.



29252

5. Remove the HDD from the HDD Bracket (4 screws).



29253

6. Install the new HDD in the HDD Bracket.

   Caution: Do not over tighten the screws.

7. Insert the HDD in the terminal and secure it with the Captive Screw.

Chapter 3: Touch Screen Calibration

Installing and Calibrating the Touch Screen

Be sure to observe for the following Touch Screen calibration guidelines:

- If necessary, calibrate the touch screen as part of the installation process.
- If necessary, recalibrate the touch screen when the system is installed at its final location.
- If necessary, recalibrate whenever the terminal is moved to a new location.
- Recalibrate the touch screen anytime the system has been disassembled for servicing.
- If necessary, recalibrate if the hard drive is re-imaged or replaced. Calibration parameters are stored in the Windows registry and are unique for each touch screen, therefore calibrate whenever an image or OS load occurs.
- A keyboard may be required to start the calibration if the screen is too much out of calibration. However, most of the time you can reach the Start button or Touch icon with your fingertip/stylus.
- The latest calibration software can be downloaded from the NCR website.

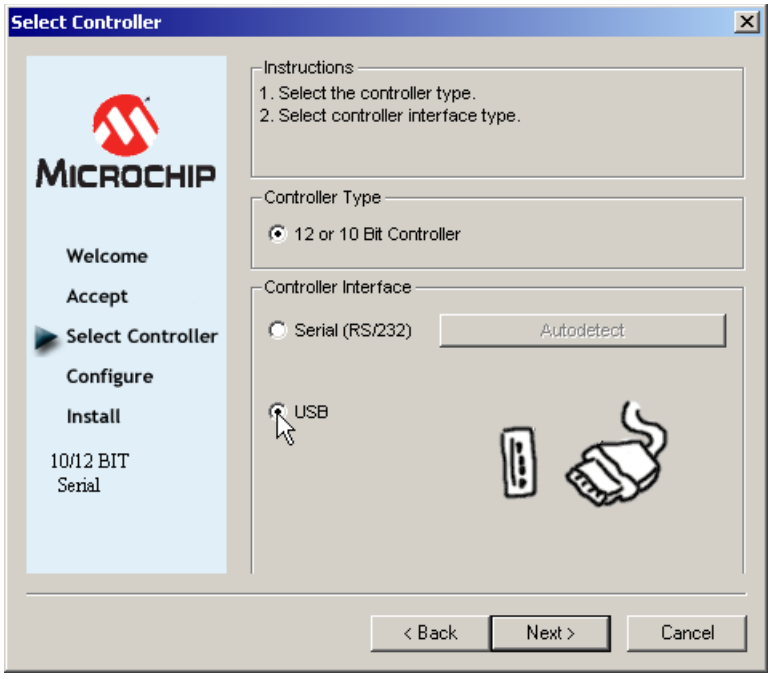
1. At this site, select the Support tab.
2. Select **Drivers and Patches** → **Retail Support Files** → **NCR RealPOS and SelfServ Terminal and Operating Systems** → **NCR RealPOS 50 (7611)** → **Windows** → **Windows XP Pro, Windows EP Embedded, and WEPOS**
3. Download the Microchip Touch Driver (version 6.43d or later).

Installing the Driver

Note: If you have a previous version of another touch screen driver loaded on your system you must completely remove it using the Control Panel *Add/Remove* program before continuing with this installation process.

1. Extract the driver installation files into to a working directory on the POS terminal.
2. Run the **Setup.exe** program from this directory.
3. Welcome screen. Select **Next**
4. License Agreement screen. Select **Accept** → **Next**

5. Use the USB Controller Interface. Select **Next**.



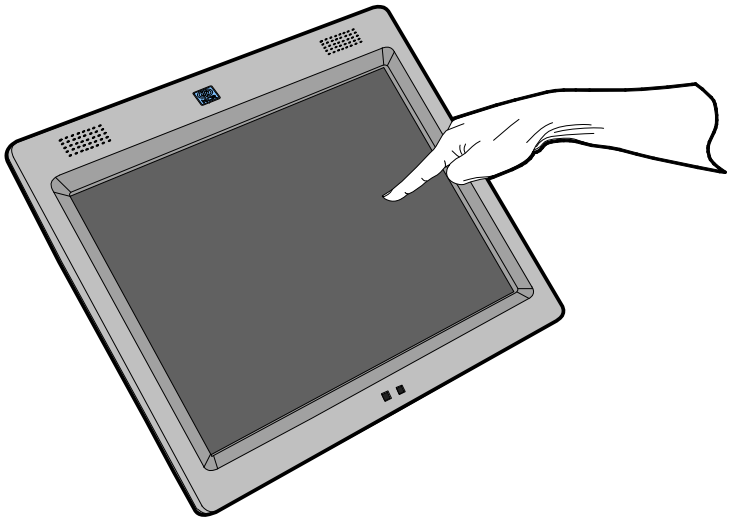
6. Setup is ready to install. Select **Next** → **Finish**

At the completion of the install program the driver is loaded and functioning. You do not have to restart your system.

Calibrating the Touch Screen

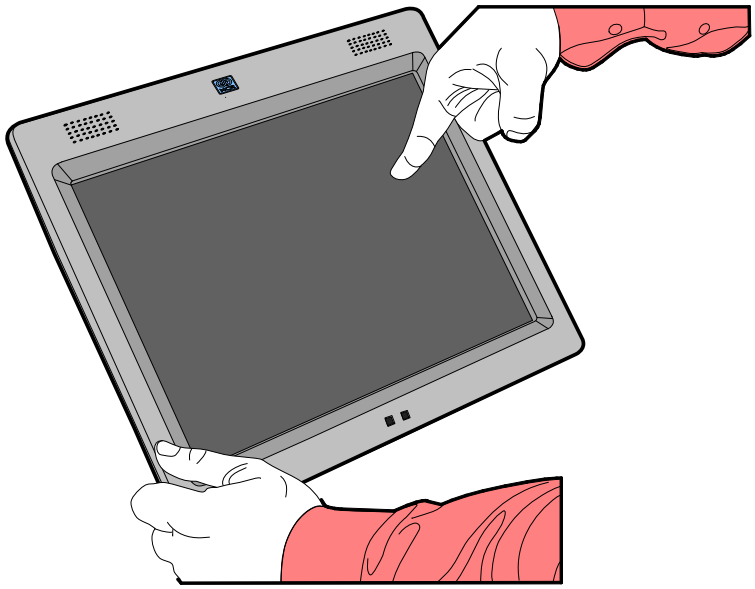
Before performing the calibration procedure please observe the following guidelines for proper/improper methods of touching the screen.

- Face the monitor directly.
- Perform the calibration in the position (sitting or standing) that you normally expect to use the touch screen.
- Touch the calibration target firmly and precisely with your fingertip. During calibration, be careful to keep your fingernails and other fingers away from the touch screen as you touch each target.
- The hand and calibration finger should be perpendicular (straight up) from the touch-screen during touch down and removal of the calibration finger. Keep the other fingers closed and away from the touch-screen.



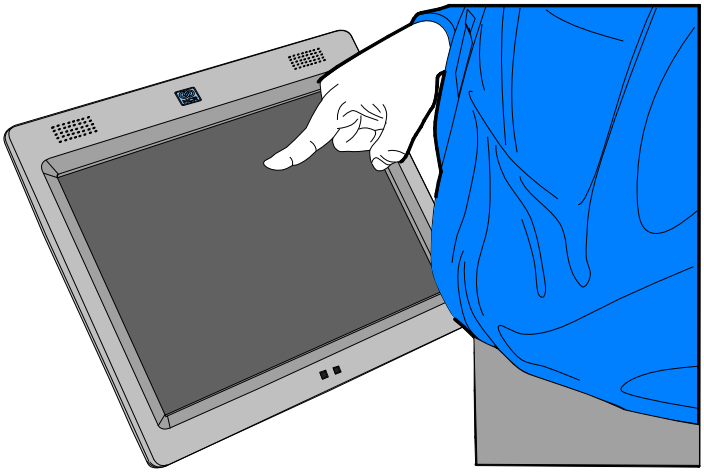
27732

- Do NOT touch the display or bezel with your other hand.



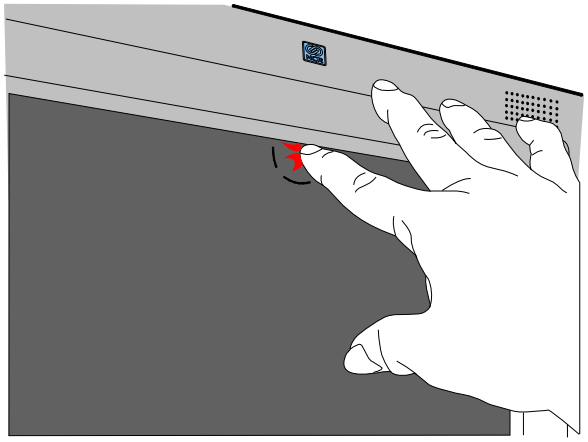
27733

- Do NOT get your body too close to the display.



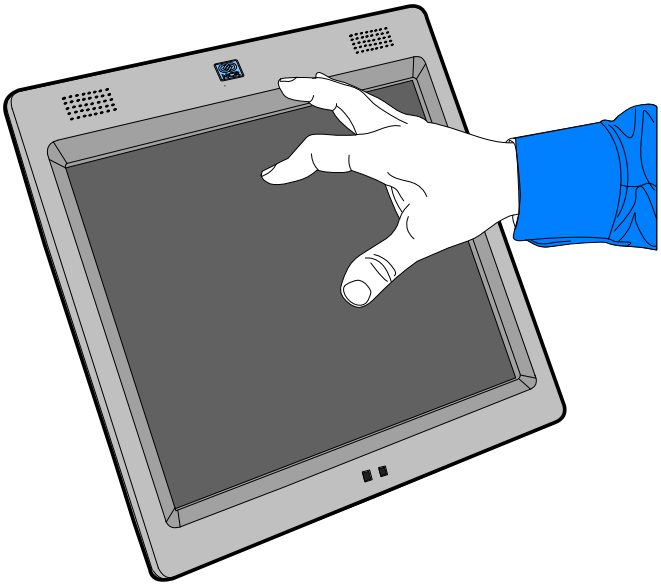
27734

- Do NOT touch the bezel with your other fingers.



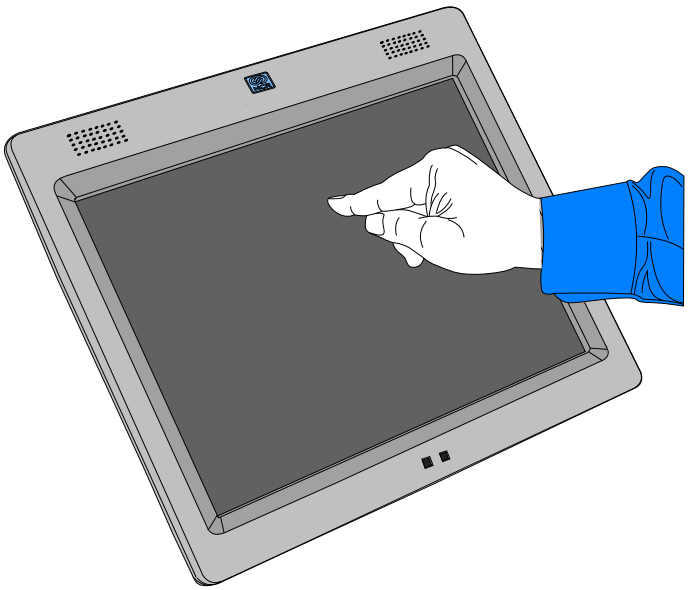
27735

- Do NOT spread your other fingers near the touch-screen surface.



27736

- Do NOT get your hand and other fingers too close to the bezel.

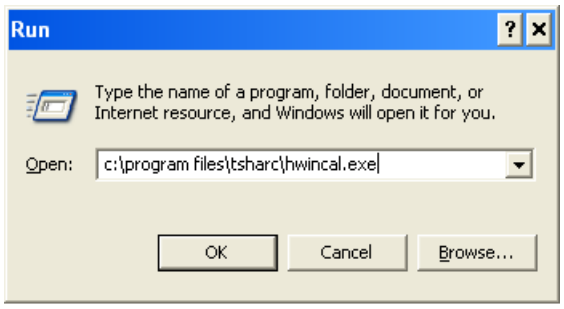


27737

Calibration Procedures

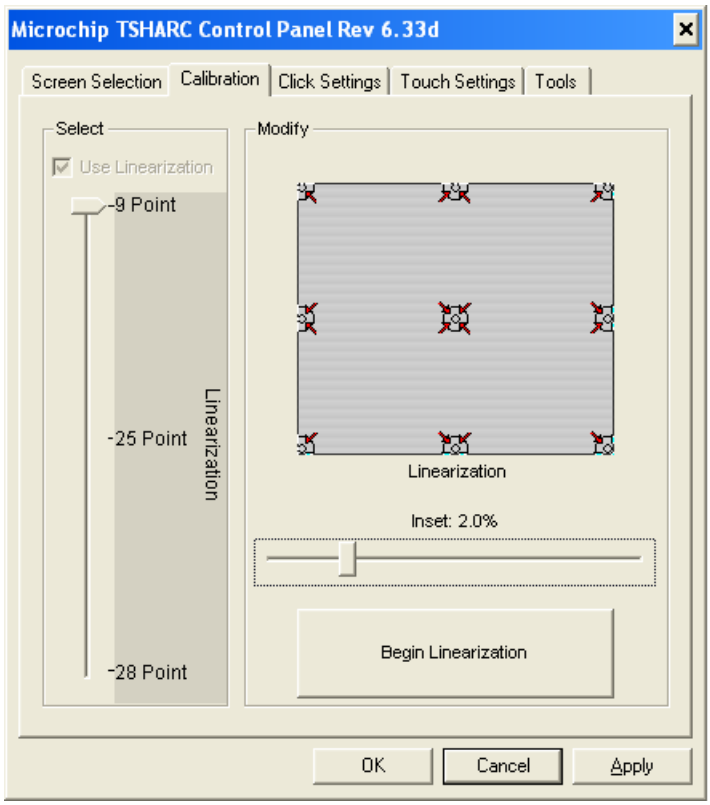
Note: In order to achieve an accurate calibration the touch display must in the normal operating position when AC power is applied to the terminal (45 degrees can be assumed if this not known). If this was NOT done properly then begin with Step 1. Otherwise skip to Step 2.

1. Select **Start** → **Programs** → **Microchip TSHARC Control Panel**.



Note: The Calibration program can also be started with the Touch icon at the bottom of the screen.

2. Select the *Calibration* Tab.
3. Select *9-Point w/Linearization*.
4. Select the *Begin Linearization* button.

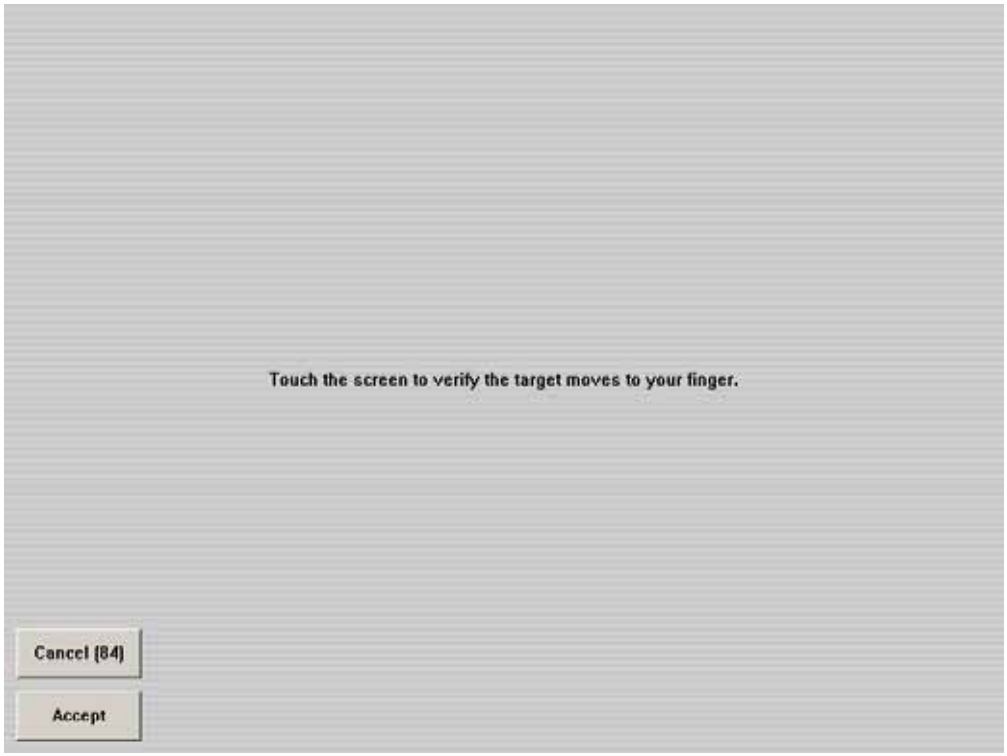


5. Touch the center of the target. Pull your finger a few inches away from the screen when you see the *Release* message.

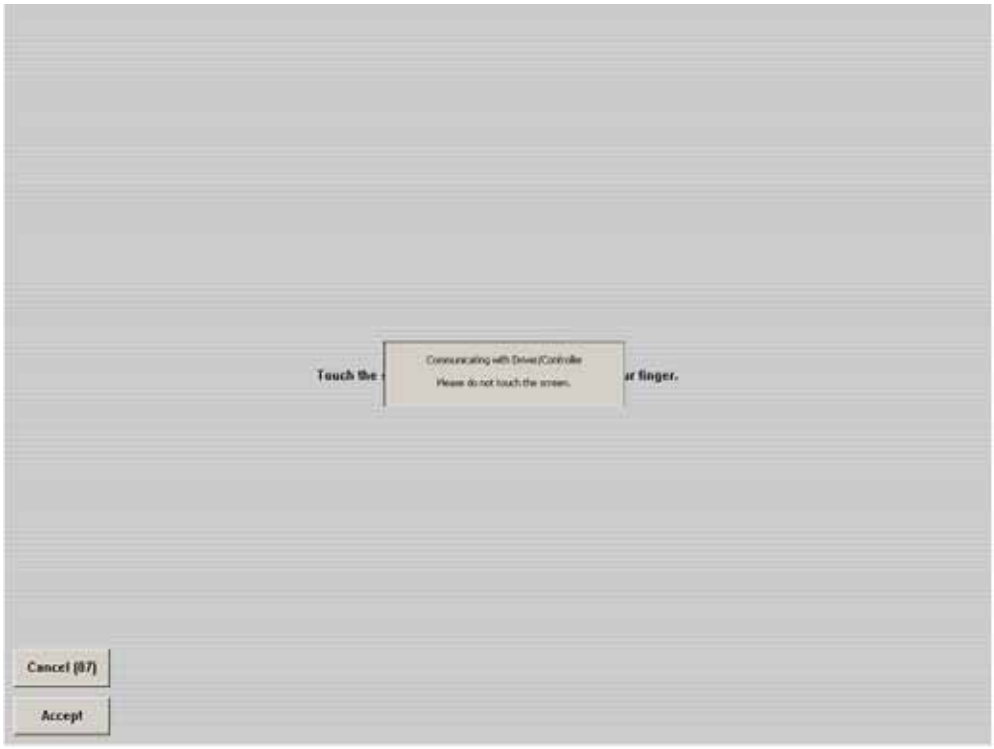
6. Repeat the process for each target location as they appear.

7. After all targets have been touched a test screen displays. Touch the screen in various locations to verify the calibration results. Select **Accept** if you are satisfied with the results. If not, select **Cancel** and repeat the process.

   Note: Do not touch **ESC** to exit from this screen.



8. After touching Accept you are warned to not touch the screen.

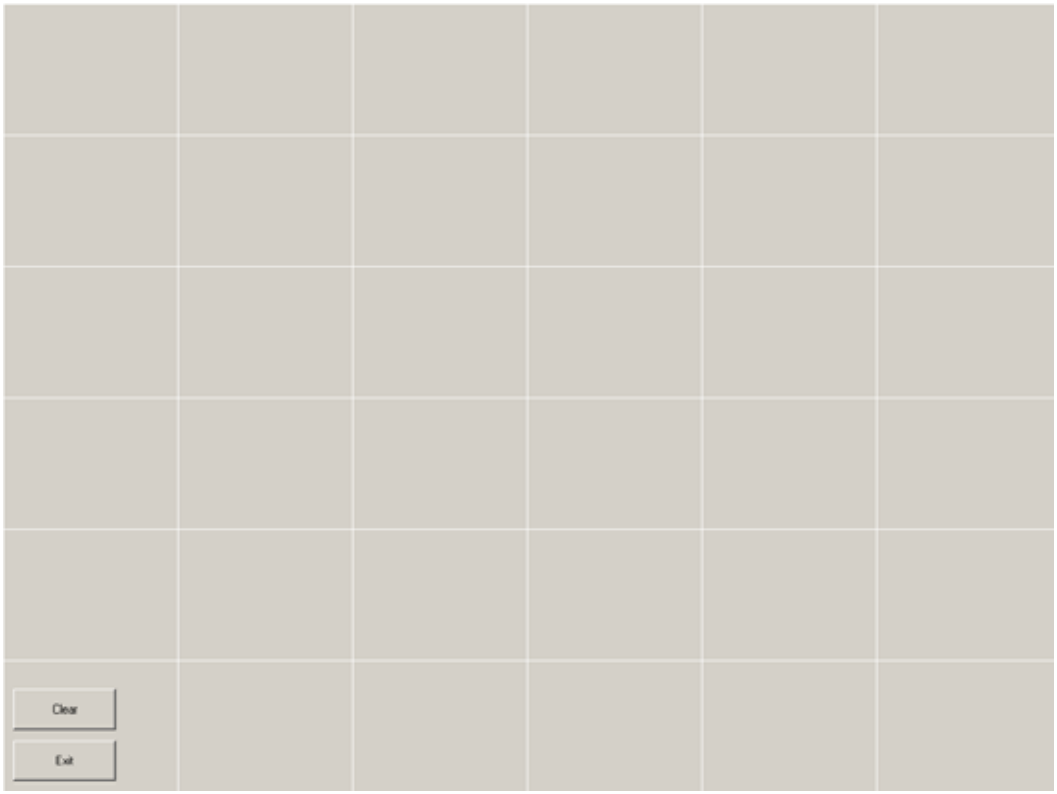


Caution: Touching the screen during this time can cause the application to hang. This screen automatically closes after the touch controller has completed communicating. When complete, the system returns to the desktop with the TSHARC Control Panel displayed.

Verifying the Calibration

1. Select the **Tools** tab.
2. Select the **Drawing Test** button.
3. Test the calibration on the draw screen.

   Touch the screen in various spots and trace each of the horizontal and vertical lines, including the border around the screen.



   In this test, all touches are persistent, including touch downs (green dots) and touch ups (red dots).

   After tracing the lines, review the drawn lines to make sure they closely follow the underlying pattern. Pay close attention to the edges of the display and the corners since this is where an incorrect calibration is most noticeable. If a line or point appears to be outside the pattern, try pressing the area to see how far the cursor is from the touch point. If the registered touch is greater than 7 mm away from where the touch occurred, repeat the calibration.

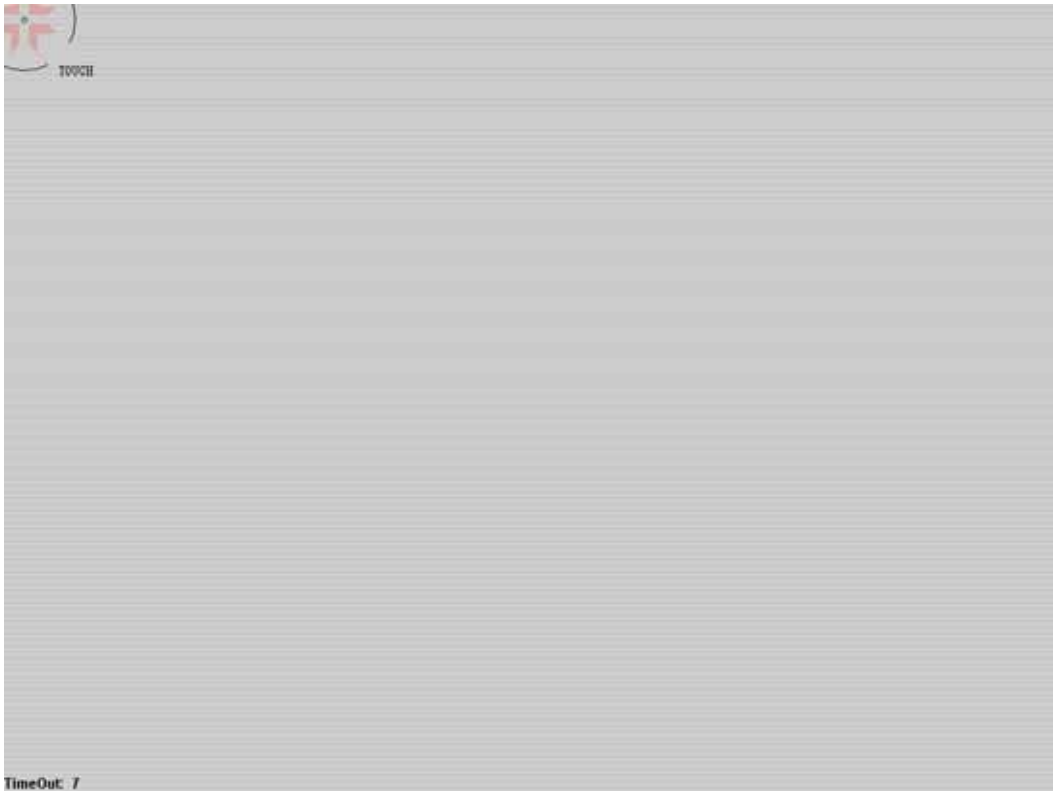
4. Select **Exit** to close this screen and to return to the Microchip TSHARC Control Panel.
5. Select the **Calibration** tab to repeat the calibration procedure or select **Apply** and then **OK** if you are satisfied with the results and want to close the application.

Optional Settings

After the touch screen is calibrated, adjust the other features to meet your personal preferences.

- Double-Click Option
- Right-Mouse Click
- Touch Modes
- Touch Sounds

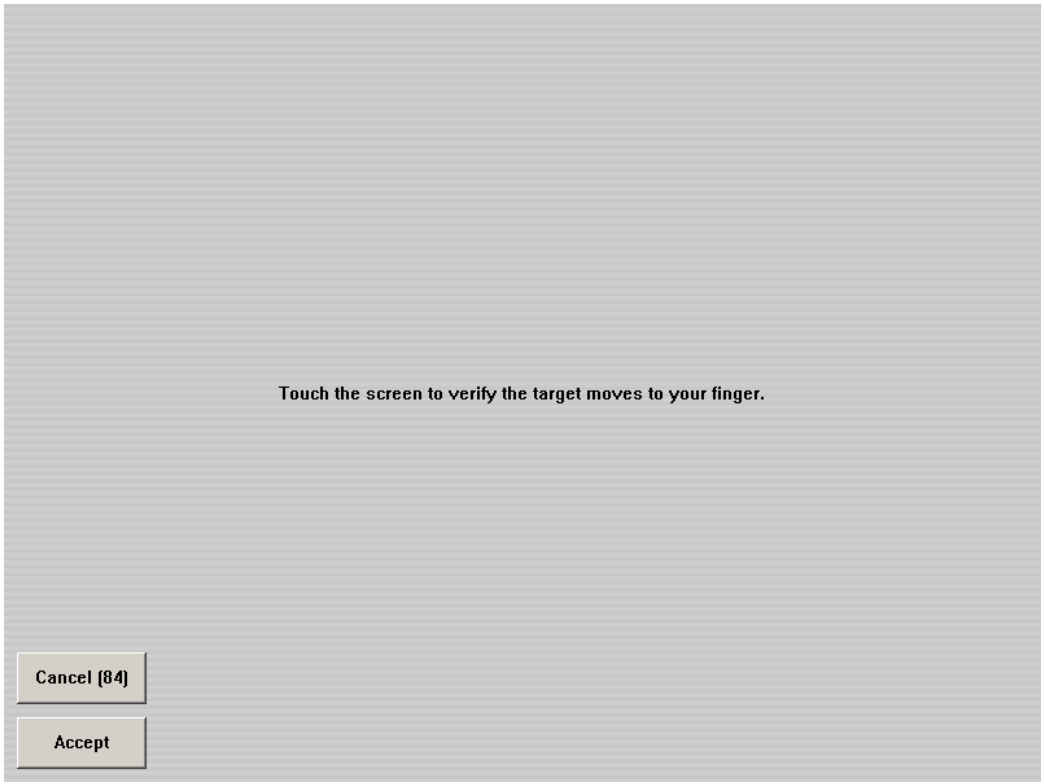
1. Touch the center of the target. Pull your finger a few inches away from the screen when you see the Release message.



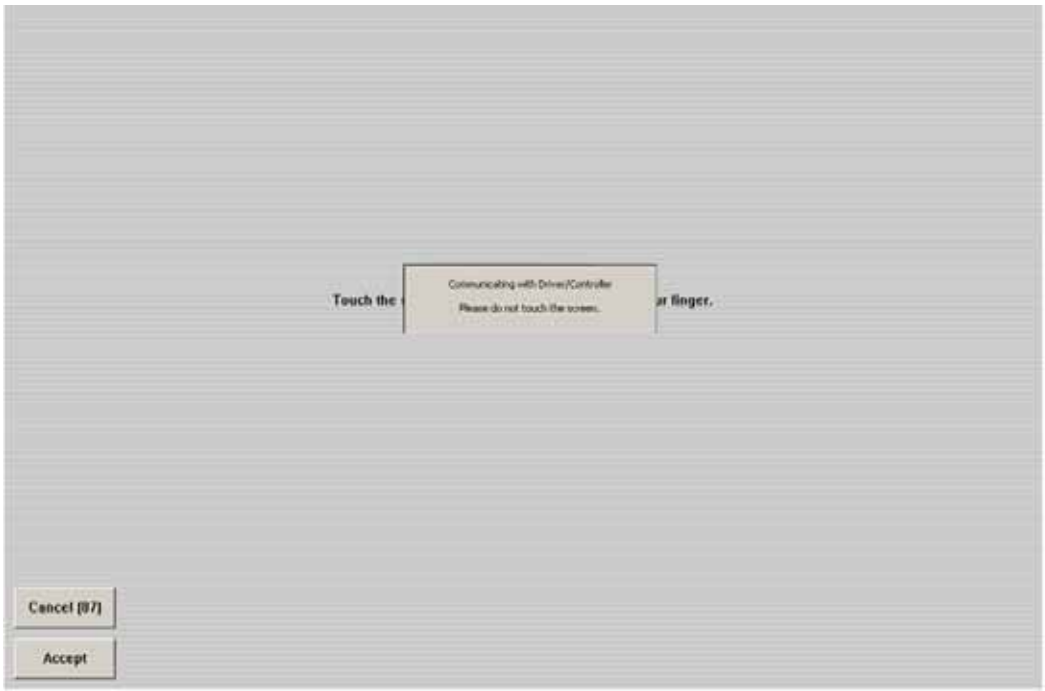
2. Repeat the process for each target location as they appear.

3. After all targets have been touched a test screen displays. Touch the screen in various locations to verify the calibration results. Select Accept if you are satisfied with the results. If not, select Cancel and repeat the process.

   Note: Do not touch ESC to exit from this screen.



4. After touching Accept you are warned to not touch the screen.

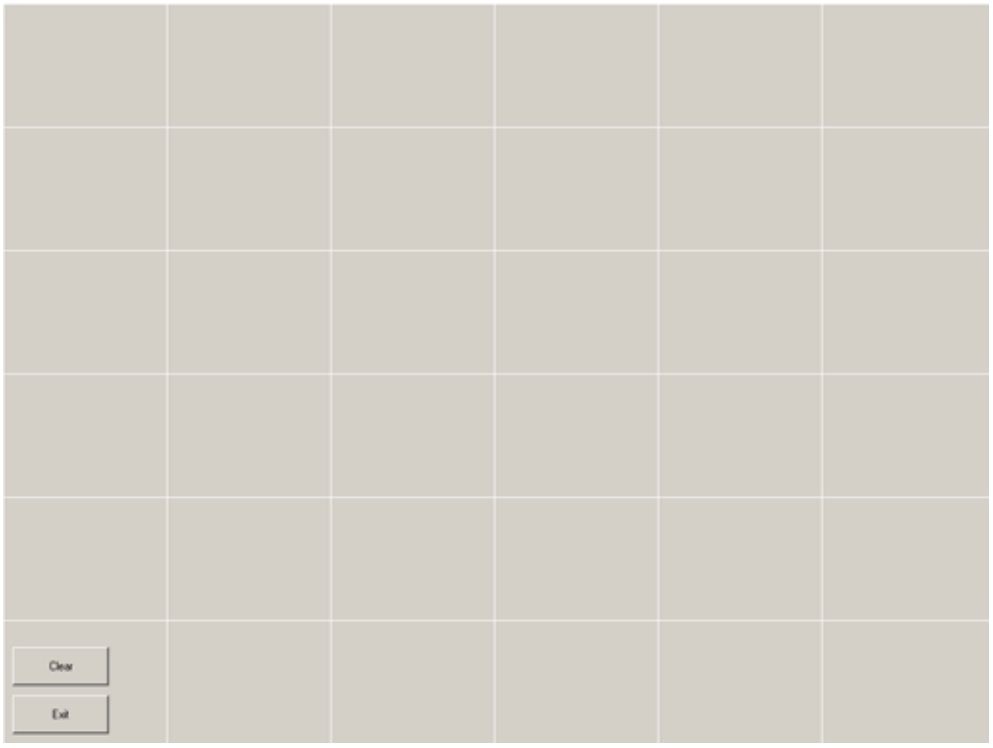


Caution: Touching the screen during this time can cause the application to hang. This screen automatically closes after the touch controller has completed communicating. When complete, the system returns to the desktop with the TSHARC Control Panel displayed.

Verifying the Calibration

1. Select the Tools tab.
2. Select the Drawing Test button.
3. Test the calibration on the draw screen.

   Touch the screen in various spots and trace each of the horizontal and vertical lines, including the border around the screen.



   In this test, all touches are persistent, including touch downs (green dots) and touch ups (red dots).

   After tracing the lines, review the drawn lines to make sure they closely follow the underlying pattern. Pay close attention to the edges of the display and the corners since this is where an incorrect calibration is most noticeable. If a line or point appears to be outside the pattern, try pressing the area to see how far the cursor is from the touch point. If the registered touch is greater than 7 mm away from where the touch occurred, repeat the calibration.

4. Select Exit to close this screen and to return to the Microchip TSHARC Control Panel.
5. Select the Calibration tab to repeat the calibration procedure or select Apply and then OK if you are satisfied with the results and want to close the application.

Optional Settings

After the touch screen is calibrated, adjust the other features to meet your personal preferences.

- Double-Click Option
- Right-Mouse Click
- Touch Modes
- Touch Sounds

Chapter 4: BIOS Setup

Entering Setup

1. Connect an alphanumeric USB keyboard to the terminal.
2. Apply power to the terminal.
3. When you see the NCR logo displayed press [**Del**].

How to Select Menu Options

The following keyboard controls are used to select the various menu options and to make changes to their values.

- Use the arrow keys to select (highlight) options and menu screens.
- Use the [**Enter**] key to select a submenu.
- Use the [**+**] and [**-**] keys to change field values.
- To view help information on the possible selections for the highlighted item, press [**F1**].
- To save the changes, move the cursor to the *Exit Menu*, select either **Save Changes & Exit** *or* **Save Changes**, and press [**Enter**].

Restoring Factory Settings

To reset all values to their default settings for the **current screen**, press [**F9**] and then [**Enter**] when the confirmation message is displayed. The terminal automatically loads the BIOS default values. To reset all BIOS settings to their default settings go to the Exit menu, press F9, select either **Save Changes & Exit** *or* **Save Changes**, and press [**Enter**].

Note: The 7611 Motherboard is used on other products and has a jumper that is used to select the proper BIOS defaults. If the Motherboard is replaced be sure this jumper is set to the RSD setting.

See the *BIOS Default Settings* sections later in this chapter for the pre-installed Setup defaults.

BIOS Default Values

NCR BIOS Version: 1.1.8.0

Main Menu

System Time	(variable)
System Date	(variable)

Advanced Menu

CPU Configuration	
Max CPUID Value Limit	[Disabled]
Execute-Disable Bit Compatibility	[Enabled]
Intel (R) SpeedStep(tm) tech	[Enabled]
Intel (R) C-STATE tech	[Enabled]
Enhanced C-States	[Enabled]
IDE Configuration	
ATA/IDE Configuration	[Enhanced]
Configure SATA#1 as	[AHCI]
AHCI Settings	
AHCI BIOS Support	[Enabled]
AHCI Port0	[Not Detected]
SATA Port0	[Auto]
S.M.A.R.T.	[Enabled]
AHCI Port1	[Hard Disk]
SATA Port0	[Auto]
S.M.A.R.T.	[Enabled]

AHCI Port0	
SATA Port0	[Auto]
S.M.A.R.T.	[Enabled]
SuperIO Configuration	
Serial Port A/1 Address	[3F8]
Serial Port A/1 IRQ	[4]
Serial Port B/2 Address	[2F8]
Serial Port B/2 IRQ	[3]
Serial Port C/3 Address	[3E8]
Serial Port C/3 IRQ	[11]
Serial Port D/4 Address	[2E8]
Serial Port D/4 IRQ	[10]
System Hardware Health Monitoring	Typical *(Acceptable Range)*
CPU Temperature	:43°C/109°F (less than 60°C)
GMCH Temperature	:36°C/96°F (less than 60°C)
VRM Temperature	:47°C/116°F (less than 60°C)
DIMM Temperature	:39°C/102°F (less than 55°C)
Fan1 Speed	:4398 RPM (2500 min.)
Fan1 Speed	:N/A
CPU Vcore	:1.024 V (0.90 - 1.3)
+1.05V	:1.024 V (0.90 - 1.2)
+3.30V	:3.328 V (3.05 - 3.55)
+5.00V	:4.999 V (4.60 - 5.40)
+12.0V	:11.968 V (11.20 - 12.80)
5.00Vsb	:4.999 V (4.60 - 5.40)
VBAT	:3.280 V (3.00 - 3.50)

ACPI/APM Configuration	
ACPI Aware O/S	[Yes]
ACPI Version Features	[ACPI v3.0]
Suspend mode	[S3 (STR)]
USB Device Wakeup From S4	[Enabled]
Power Button Mode	[On/Off]
Restore on AC Power Loss	[Last State]
Advanced Resume Event Controls	
LAN Wake Up From S5	[Enabled]
Resume On Ring	[Disabled]
Resume On RTC Alarm	[Disabled]
Configure ASF Parameters	
ASF Support	[Enabled]
USB Configuration	
Legacy USB Support	[Enabled]
USB 2.0 Controller Mode	[HiSpeed]
BIOSEHCI Hand-Off	[Enabled]

Boot Menu

Boot Settings Configuration	
Quick Boot	[Disabled]
Display POST Logo	[Enabled]
LAN Boot ROM	[Enabled]
Bootup Num=Lock	[On]
PS/2 Mouse Support	[Auto]
Interrupt 19 Capture	[Disabled]
BBS Menu	[Enabled]
Boot Order Defaults	[LAN First]
Boot Device Priority	
1st Boot Device	[Network:IBA GE Slo]
2nd Boot Device	[HDD:P0-INTEL SSDSA]
Hard Disk Drives	
1st Drive	[HDD:P0-INTEL SSDSA]

Security Menu

Supervisor Password:	:Not Installed
User Password:	:Not Installed
Change Supervisor Password	[Enter]
Change User Password	[Enter]
Boot Sector Virus Protection	[Disabled]

Chipset Menu

NorthBridge Configuration	
Boots Graphic Adapter Priority	[PEG/PCI]
Internal Graphics Mode Select	[Enabled, 32MB]
Video Function Configuration	
DUMT Mode Select	[DUMT Mode]
DUMT/FIXED Memory	[128MB]
PAVP Mode	[Disabled]
Boot Display Device	[Auto-Detect]
South Bridge Configuration	
USB Functions	[12 USB Ports]
GbE Controller	[Enabled]
HDA Controller	[Enabled]

Chapter 5: Operating System Recovery

Introduction

This chapter discusses procedures on how to recover the Operating System by using the CD ROM drive. The software is distributed on bootable CD ROM media.

- Bootable USB DVD Drive
- Bootable USB Memory Drive
- Network - Refer to the *NCR Retail Systems Manager (RSM) Software User's Guide*, (B005-0000-1518) for information about this procedure.

Prerequisites

The following are required in order to perform an OS recovery from a CD.

- Bootable CD-ROM drive (internal or external)
- Keyboard

OS Recovery Procedures for Windows XP

1. Insert the *NCR Partition Image Application* CD (D370-0605-0100) into the CD/DVD drive.
2. Connect a keyboard to the terminal.
3. Apply power to the terminal.
4. Press **[F8]** during boot (when you see the NCR logo) to enter the Boot Select menu.
5. Select **USB:[name of device]**.
6. You should see a message during boot, indicating that the device has been recognized.
7. At the menu, enter 1 to select the image restore function and press [Enter].

```
####################################
   NCR Partition Image Application
####################################

Select an option
1 - Process Image/Script CD
2 - View Partition Image Documentation on CD
3 - Interactive Create/Restore Via Network/USB
4 - Exit and reboot
```

8. At the prompt, insert the CD containing the operating system image (disk 1 if OS occupies more than one disk). Press **[Enter]**.
9. Press **[A]** at the following prompt to accept the arguments and to begin the restore process. Press **[Enter]**.

```
Confirm Pending Operation

      Mode is: restore

   2) Drive is: USB/SATA Storage A  Size: 80GB
   3) Directory path is: /Images/
   4) Filename is: nnnnnaaa
   5) Reboot after operation complete: yes
   6) Resize last data partition if possible: no
   7) Resize last data partition to: Full Disk
A) Accept these arguments
V) View OS Documentation
Q) Quit and reboot
```

10. At the following prompt replace the CD with the next CD. Press **[Enter]** to continue.

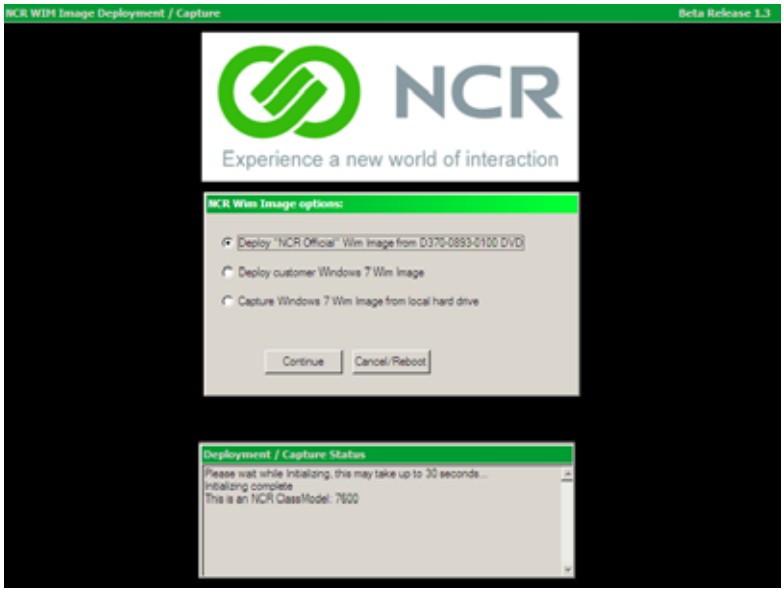
```
+------+ Automatic mount +------+
|                               |
|  Please, press “ok” to mount  |
|  [/dev/cdrom] on [mnt/cdrom]  |
|                               |
|                               |
|           +----+              |
|           | Ok |              |
|           +----+              |
|                               |
+-------------------------------+
```

11. Repeat the previous step for each CD as required.
12. Remove the last CD before the system reboots.
13. Complete the OS installation as required per OS.

OS Recovery Procedures for Windows 7 Professional

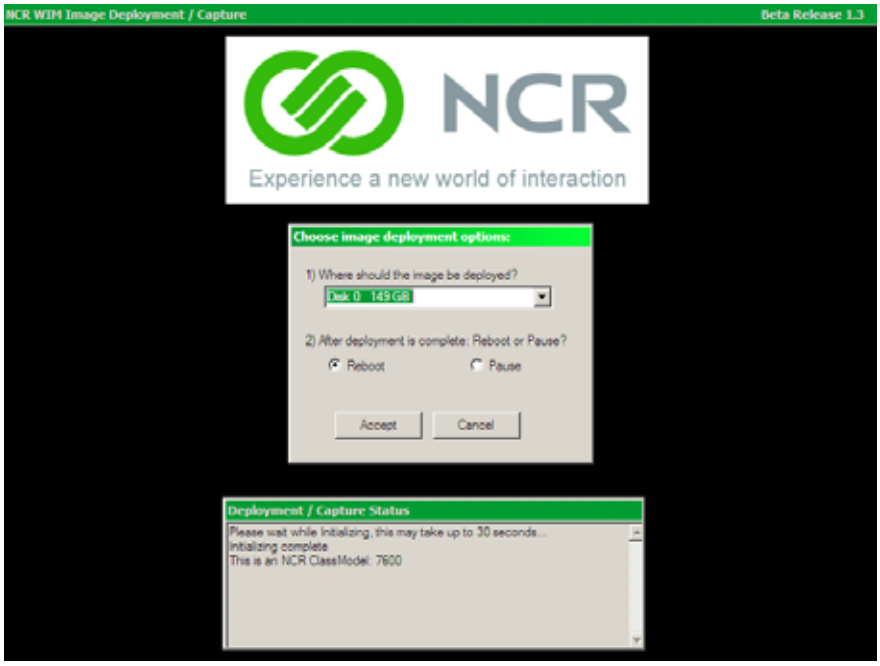
The NCR Windows Imaging Format (WIM) application is used to deploy and capture Windows 7 images. It is available on a bootable DVD along with the operating system image for the 7611.

1. Insert the *NCR WIM Image Deployment/Capture* DVD (D370-0893-0100) into the DVD drive.
2. Connect a keyboard to the terminal.
3. Apply power to the terminal.
4. Press **[F8]** during boot (when you see the NCR logo) to enter the Boot Select menu.
5. Select **USB:[name of device]**.
6. You should see a message during boot, indicating that the device has been recognized.
7. At the options menu, select **Deploy "NCR Official" WIM Image from D370-0*nnn*-0100 DVD** and then select **Continue**.

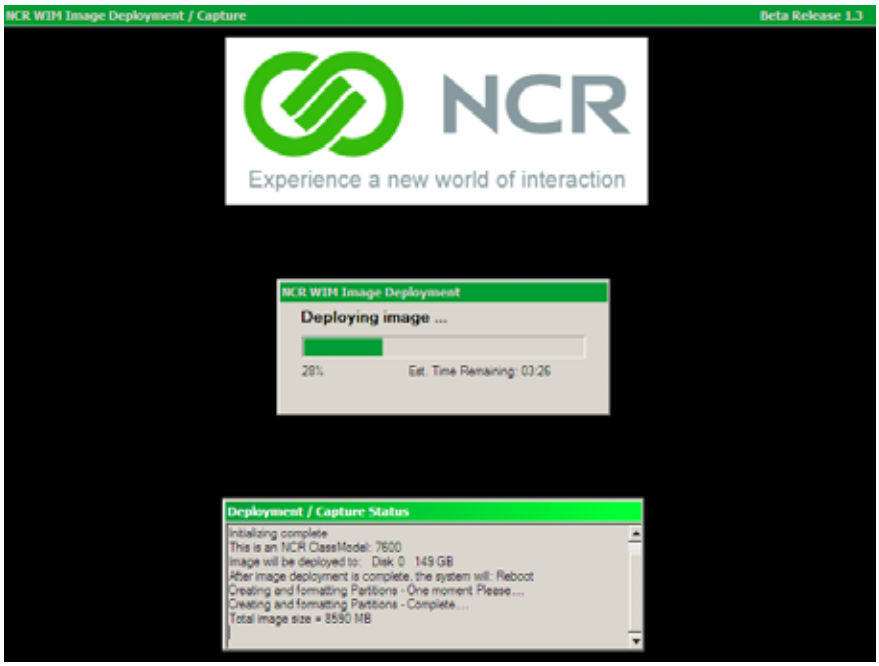


8. Next, you need to select the location where the image should be deployed. Select the drop down box and then the location for the image

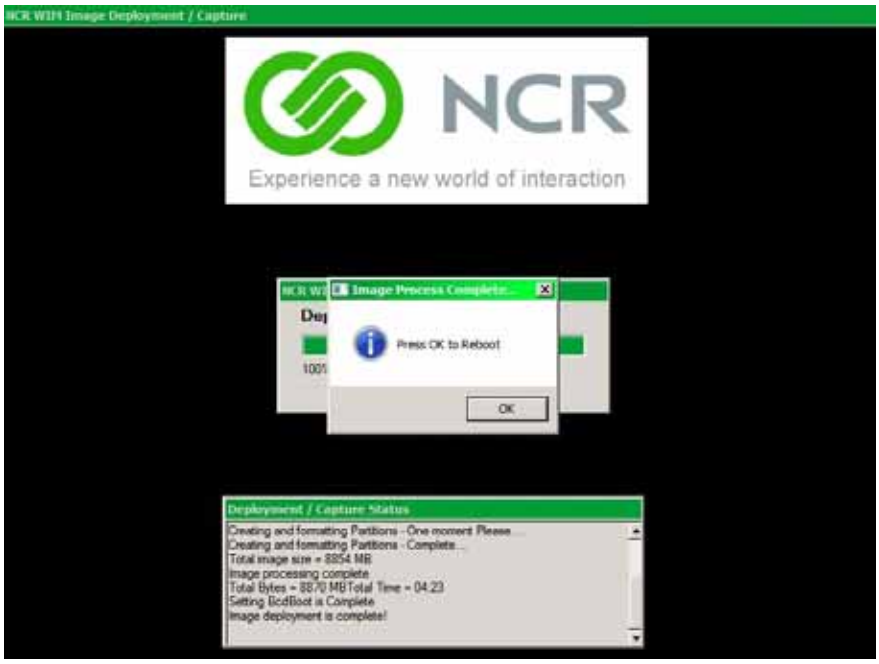
   Also select either the radio button to reboot the terminal after the image has been installed or you can select **Pause** to view the statistics at the end of the image load. When you have made your choices, select **Accept**.



9. The WIM application then deploys the NCR Official image on to the terminal. The following displays while the terminal is loading.



10. After the image has been put on to your terminal, you are given the message `"Press OK to Reboot"`. Select **OK**.



11. Remove the DVD before the system reboots.

12. Complete the Windows 7 setup; enter the time zone, computer name, accept the license, etc. Uncheck all the Security Warning messages about *Always ask before opening this file* as they appear and click **Run** for each of them.

Chapter 6: BIOS Updating Procedure

Introduction

This chapter discusses procedures on how to update the terminal BIOS. The software is distributed via the NCR Website.

The BIOS update can be performed using the following methods:

- Bootable USB CD Drive
- Bootable USB Memory Device
- Network - Refer to the *NCR Retail Systems Manager (RSM) Software User's Guide*, (B005-0000-1518) for information about this procedure.

Prerequisites

The following are required to perform a SPI/BIOS update.

- USB Keyboard
- BIOS Software. Download from the NCR website:

  http://www.ncr.com

  1. At this site, select the Support tab.
  2. Select **Drivers and Patches → Retail Support Files → NCR RealPOS and SelfServ Terminal and Operating Systems → NCR RealPOS 50 (7611) → BIOS.**
  3. Select the desired BIOS File.
     - ISO Image - Used with CD ROM boot device
     - Disk Image - Used with Floppy Disk boot device
     - Network Image - Used with Network boot
     - USB Memory Key Image - Used with USB boot device
  4. Save the software to your local hard drive.

Creating the Bootable Media

Creating a Bootable CD

The downloaded file is a CD image file (ISO) containing the files necessary to create a bootable CD. A system with a CD/DVD burner is required to perform this function.

1. Insert a writable CD in the CD/DVD burner drive.
2. Record the downloaded image file onto the CD using a utility that is capable of burning ISO files.

Note: You cannot simply drop the file on the CD and burn it. You must use software capable of recording ISO images onto CDs.

Creating a Bootable USB Memory Drive

The downloaded file contains the files necessary to create a bootable USB Memory Drive.

1. Insert a USB drive that is formatted as FAT (or FAT32).
2. Unzip the downloaded files.
3. Copy the files to the root directory of the USB drive.
4. Open a DOS command window.
5. Change directory to the USB Memory Drive.
6. Execute the following command:

   `Syslinux -fma <USB drive letter>`

   Example: `Syslinux -fma f:`

   This command erases any bootable methods that may be present on the USB drive and replaces it with the SPI/BIOS update process.

   If the resulting USB memory drive is not bootable, try the following command. This runs slower but is more effective.

   `Syslinux -sfma <USB drive letter>`

   Important: Do not run syslinux by double-clicking on it because it may affect the boot drive of the terminal being used to create the drive.

   Windows 7 Note: The above commands must be executed as administrator. Failure to run as administrator results in an MBR write failure. To open a command shell with administrator privileges perform the following:

   Start → **All Programs** → **Accessories** → **Command Prompt** → [right-click] **"Run as"** → **Administrator**

BIOS Updating Procedures

1. Insert the media containing the BIOS update software into the terminal.
2. Connect a USB keyboard.
3. Apply power.
   - If you are using an external USB CD Drive select **USB:***[name of device]*.
   - If you are using a USB Memory Drive select **USB:***[name of device]*.
4. The terminal boots and displays the BIOS Update main menu.

   There are six options from the main menu to run the update program. Three run automatically and two are interactive. *Option 1, the Automatic BIOS Update* executes automatically in 10 seconds unless the up/down arrow is pressed.

   Automatic Method
   With the Automatic Method you may see a prompt to enter the DMI (Desktop Management Interface), which is the terminal Class/Model/Serial information. This happens if the program detects invalid DMI information in the current BIOS, or if you are replacing the processor board, which has no Class/Model/Serial information in the BIOS. DMI information is mandatory.

   Interactive Method
   This method permits you to input/replace the Class/Model/Serial information that is stored in the BIOS.

   Note: DMI information that is currently stored in the BIOS is displayed during power up. Press **[Tab]** at the NCR Logo to remove the logo. Press **[Pause]** to freeze the screen. Press **[Esc]** to continue.
5. Make a menu selection and follow the screen prompts (Option 1 is recommended).

```
1 Update BIOS - No prompt for Serial/Model/Class unless invalid

***** Forced Update of Serial/Model/Class Information *****

2 Update DMI only - Serial/Model/Class update ONLY (no BIOS Update)

3 Update BIOS - Always prompts for Serial/Model/Class

***** For Service Personnel Only *****

4 Update BIOS - Reset to Default Serial/Model/Class
```

Option 1 - Update BIOS - No prompt for Serial/Model/Class unless invalid

1. Highlight Option 1 and press **[ENTER]**. (Executes automatically in 10 seconds unless the up/down arrow is pressed.)
2. The Flash Program updates the BIOS and automatically reboots the terminal.

Option 2 - Update DMI only - Serial/Model/Class update ONLY (no BIOS Update)

This option lets you enter the DMI information only. The BIOS is not updated.

1. Highlight Option 2 and press **[ENTER]**.
2. At the prompt press **[ENTER]** to enter the Class/Model/Serial Number information (DMI). Follow the onscreen format instructions.

   Example: `7611-1000-8801` **[ENTER]**
   `54-19378230` **[ENTER]**

3. Press **[1]** to confirm the data and to continue.
4. Remove the USB device before the system boots.
5. System is ready for operation.

Option 3 - Update of BIOS - Always prompts for Serial/Model/Class

This option prompts for Class/Model/Serial information at the beginning of the program and then updates the BIOS only.

1. Highlight Option 5 and press **[ENTER]**.
2. At the prompt press **[ENTER]** to enter the Class/Model/Serial Number information (DMI). Follow the onscreen format instructions.

   Example: `7611-1000-8801` **[ENTER]**
   `54-19378230` **[ENTER]**

3. Press **[1]** to confirm the data and to continue.
4. The Flash Program updates the BIOS and automatically reboots the terminal.

Option 4 - Update BIOS - Default Serial/Model/Class information

This option is for Service Personnel only. It updates the BIOS but leaves the *Class/Model/Serial* fields empty (erased). The DMI information is then entered when the board is installed in a terminal.

1. Highlight Option 4 and press [**ENTER**].
2. The BIOS are updated and the system reboots.
3. Remove the BIOS Update media before the system boots.
4. System is ready for operation.

Manually Updating the MAC Address

The BIOS Updating Utility can be used to replace a lost or corrupted Motherboard MAC address.

1. Boot the terminal with the SPI/BIOS Update device as described earlier in this chapter.
2. Select Option 2 to perform a manual BIOS update.

```
1 Update BIOS - No prompt for Serial/Model/Class unless invalid

***** Forced Update of Serial/Model/Class Information *****

2 Update DMI only - Serial/Model/Class update ONLY (no BIOS or SPI
Update)

3 Update BIOS - Always prompts for Serial/Model/Class

***** For Service Personnel Only *****

4 Update of BIOS - Reset to Default Serial/Model/Class information
```

3. When prompted for the DMI information enter Ctrl-c to exit the utility.
4. At the DOS prompt enter the following command:

   `fpt -u -n:HostMacAdd -v:0x123456789012`

   where: the number at the end is the terminal MAC address (Hex).

   Note: The MAC address is located on a printed label on the front of the Motherboard.

   When prompted to overwrite the existing file, answer **y**.

Verifying the Terminal MAC and AMT MAC Addresses

The results can be verified by performing using the following commands.

```
Fpt -q -d:gm45_gbe.bin -gbe
Get_1mac gm45_gbe.bin macs.bat
```

The updated address is displayed:

```
HOST_MAC_ADDR is 00-1f-e2-40-01-3c
```

Chapter 7: Solid State Drive Optimization

About the Intel® SSD Optimizer

The Intel SSD Optimizer helps an Intel SSD retain its out-of-box performance by removing deleted data files from NAND flash management blocks on the SSD using Trim functionality (a command that allows an operating system to inform an SSD which blocks of data are no longer considered in use and can be deleted).

Example: When you delete a file on your system, the operating system marks the file for deletion but does not physically erase the file. Because an SSD does not know which files are deleted, the SSD continues to think all files contain valid data. This situation causes the SSD to continue managing deleted files in addition to valid data in the SSD.

By running the Intel SSD Optimizer, the tool identifies which files you have deleted and communicates that information to the SSD. This notification allows the SSD to clean up internal management space, thus eliminating the need to manage the deleted files.

You can schedule the Intel SSD Optimizer to run automatically on a weekly, daily, or monthly basis or you can manually run it at any time.

Intel® SSD Optimizer Requirements

The Intel SSD Optimizer runs on Intel SSDs only. All Intel SSDs are supported except first-generation (G1 50nm) Intel SSDs. To identify your Intel SSD, see Identifying NAND Lithography of an Intel SSD. The X-25V and Series 320 SSDs released on NCR products are also supported.

Before running the Intel SSD Optimizer, make sure the Intel SSD has the latest firmware installed. See Checking for Firmware Updates.

Note the following before running or scheduling the Intel SSD Optimizer:

- Do not run the Intel SSD Optimizer when a backup is in session.
- Do not run the Intel SSD Optimizer if the Intel SSDs are in a RAID configuration.
- Make sure Intel SSD Optimizer sessions are scheduled to run when the computer is on. The Intel SSD Optimizer does not wake up or turn on the computer to run a scheduled session.

Notes:

Microsoft Windows 7 and the Standard Microsoft AHCI Driver*

If your computer uses this configuration (the default setup for normal configurations without RAID), you do not need to run the Intel SSD Optimizer because Windows 7 natively implements Trim functionality.

Windows 7 and Intel® Matrix Storage Manager Version 8.x or Intel® Rapid Storage Technology (Intel® RST) Driver Version 9.5 or Earlier

If your computer uses this configuration (which can be used in place of the Microsoft AHCI driver), Trim functionality is not implemented. You must use Intel SSD Optimizer to run Trim.

Windows 7 and Intel® Rapid Storage Technology (Intel® RST) 9.6 or Later

If your computer uses Intel® Rapid Storage Technology (Intel® RST) driver version 9.6 or later, Intel SSD Optimizer is not required to run Trim. Intel® RST supports the Windows 7 Trim command, but for non-RAID configurations only.

Installation and Startup

This section describes how to install the Intel® Solid-State Drive Toolbox.

Requirements

- Supported operating system:
  - Microsoft Windows 7 (all service packs)
  - Windows XP (all service packs)
  - Windows Vista
- Microsoft .NET Framework version 3.0

  Note: Microsoft .NET Framework version 3.0 is included with Windows 7 and Windows Vista. If your system is running Windows XP or does not have version 3.0 of .NET Framework installed, Intel SSD Toolbox directs you to the appropriate place to obtain it during the installation.
- At least 20 megabytes (MB) of available space if Java version 1.4 or later is installed. If Java 1.3 or earlier is installed, at least 110 MB of available space is required.

Installation

1. Go to the Intel support website located at *www.intel.com/go/ssdtoolbox*.
2. Save the Intel SSD Toolbox application (.exe file) to your computer.
3. Double-click the downloaded .exe file to start the Intel SSD Toolbox setup wizard.
4. Select a language from the drop-down menu. This language will be used for the installation and the Intel SSD Toolbox application.
5. Review the text on the Introduction screen > click **Next**.
6. Review the Intel Software License Agreement. If you agree with the term of the license, click **Accept** > **Next**.
7. Choose the installation location. Accept the default location (Program Files\Intel\Intel Solid-State Drive Toolbox\) or click **Browse** to identify where you want to store the installation folder > click **Next**.

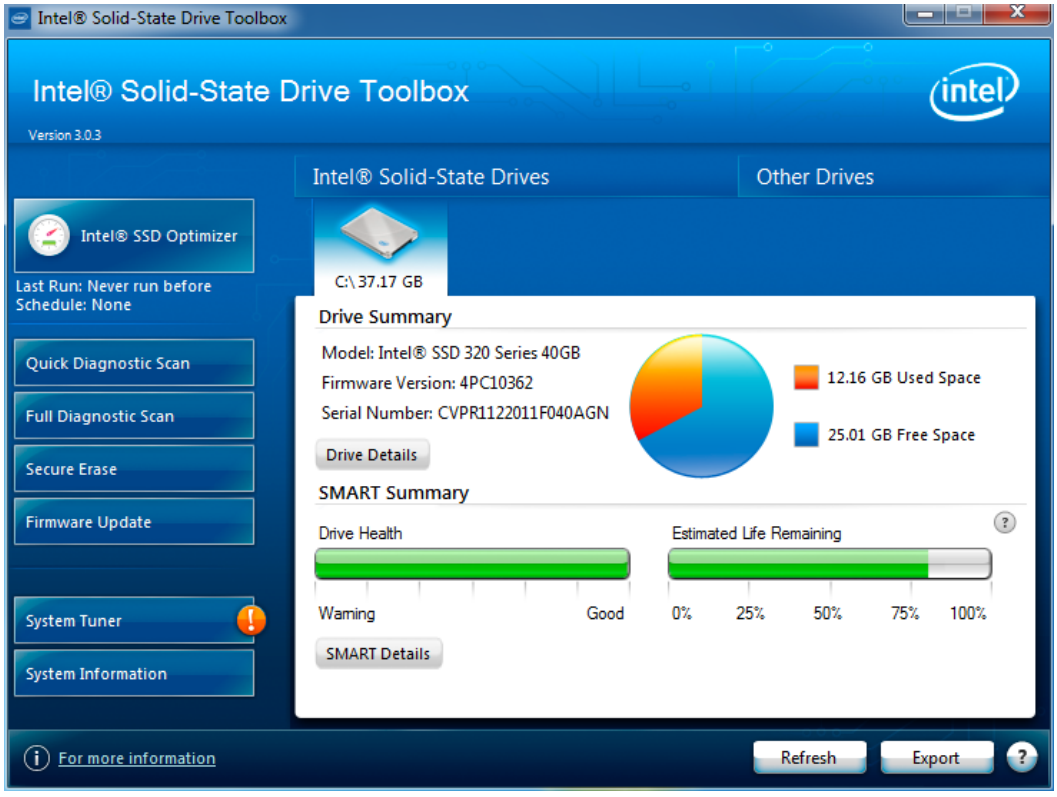
   Note: Installing this version of the Intel SSD Toolbox overwrites any previous version of Intel SSD Toolbox installed in your system.
8. Click Install to begin the installation.
9. When prompted, choose if you want to launch Intel SSD Toolbox immediately after installation > click **Next**.
10. Click **Done** when the installation completes.

Start Intel SSD Toolbox

If Intel SSD Toolbox does not start immediately after installation, start the application one of two ways:

1. Double-click the Intel SSD Toolbox icon on your desktop.
2. Open the Windows **Start** menu and click > **All Programs** > **Intel** > **Intel Solid-State Drive Toolbox**.

   The toolbox main screen is displayed.



The Intel SSD Toolbox home screen shows all Intel Solid-State Drives and hard disk drives installed in your system.

Click on the drive you want to manage. If your system contains multiple drives, use the arrows to the left and right of the drives to scroll through and select a drive.

Note: If a drive contains a partition or is installed as a cache, it appears as a separate drive on the home screen. See Identifying a Drive for more details.

Drive Summary information appears for the selected drive. (Information varies depending on the drive you select.)

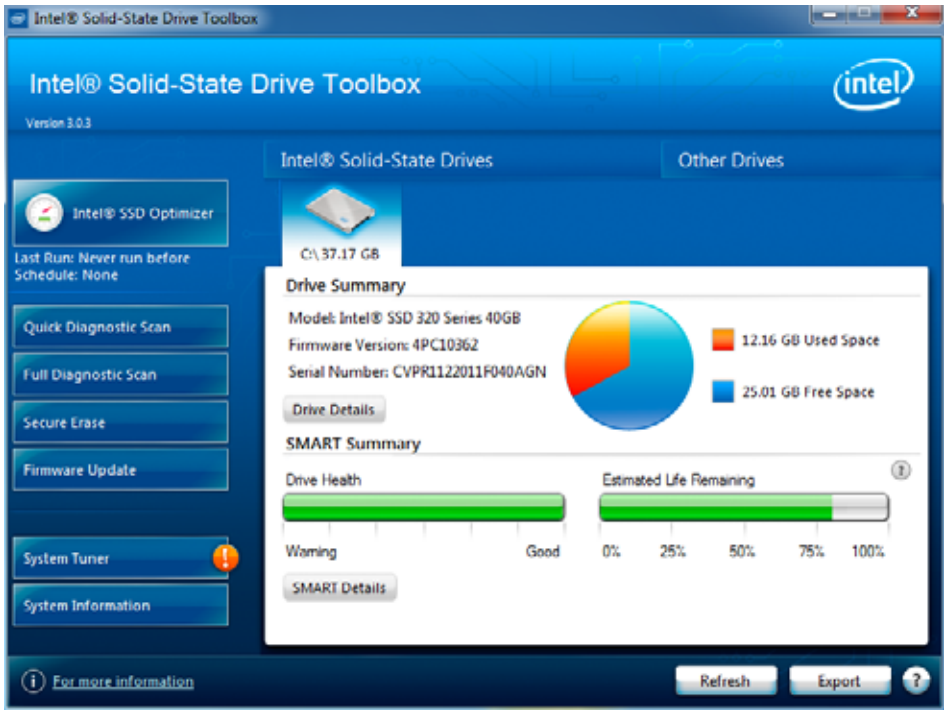
Manually Running the Intel® SSD Optimizer

Note the following before manually running the Intel SSD Optimizer:

- Do not run the Intel SSD Optimizer when a backup is in progress.
- Do not run the Intel SSD Optimizer if the Intel SSDs are in a RAID configuration.

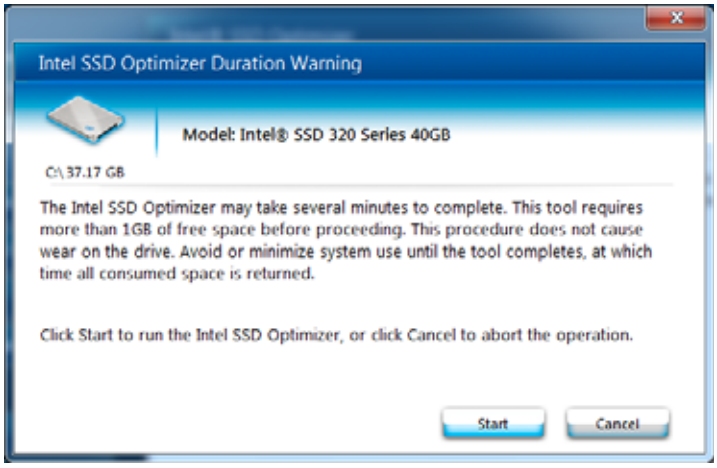
To run the Intel SSD Optimizer:

3. Click **Intel SSD Optimizer**.



4. Click **Run**.

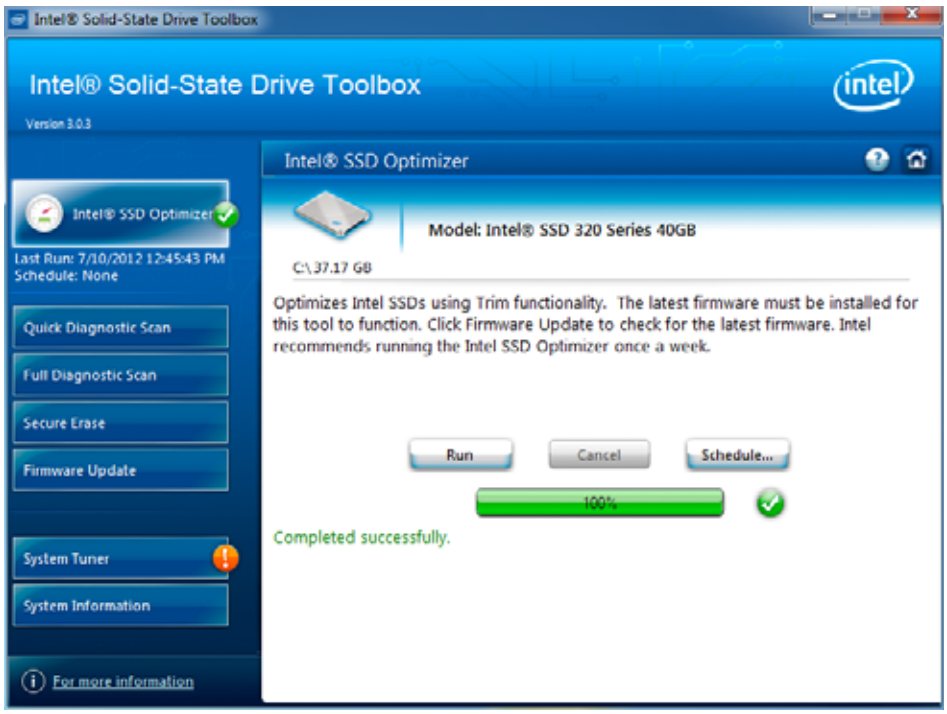
5. Review the text describing the Intel SSD Optimizer requirements, and then click **Start**.



If you receive a warning message stating the Intel SSD Optimizer has detected the presence of either RAID or encryption on the selected Intel SSD, review the following:

- If the Intel SSD is not in a RAID configuration but is encrypted, click **Accept** to continue running the Intel SSD Optimizer on the selected SSD.
- If the Intel SSD is in a RAID configuration, click **Decline** to stop running the Intel SSD Optimizer. The Intel SSD Optimizer cannot run on Intel SSDs in a RAID configuration.

The Intel SSD Optimizer starts and a progress bar shows the status of the tool. When complete a successful completion screen is displayed.



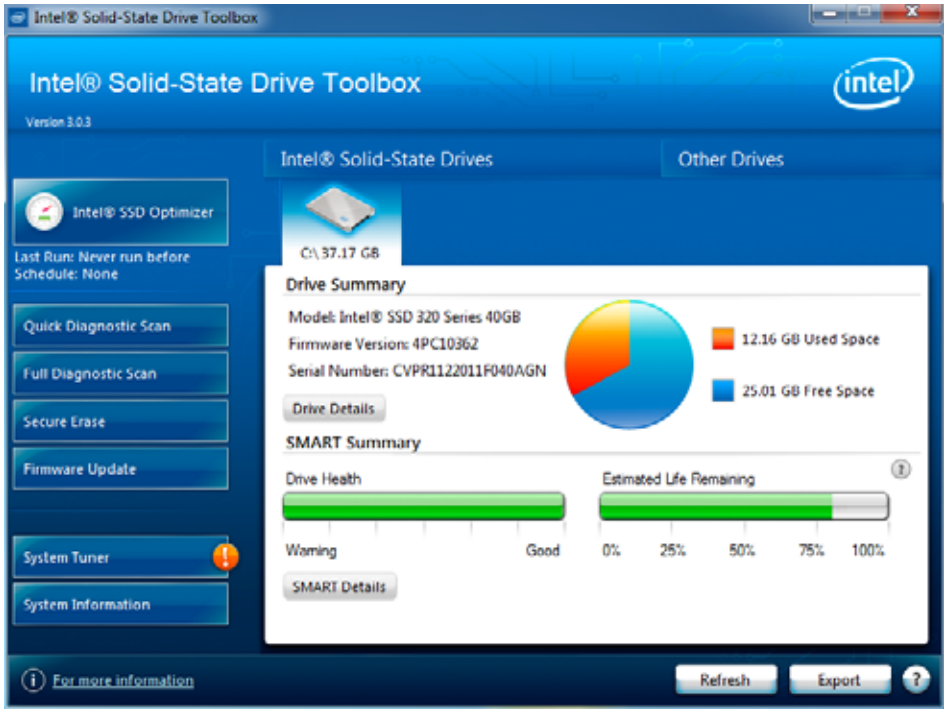
Scheduling the Intel® SSD Optimizer

Note the following before setting a schedule:

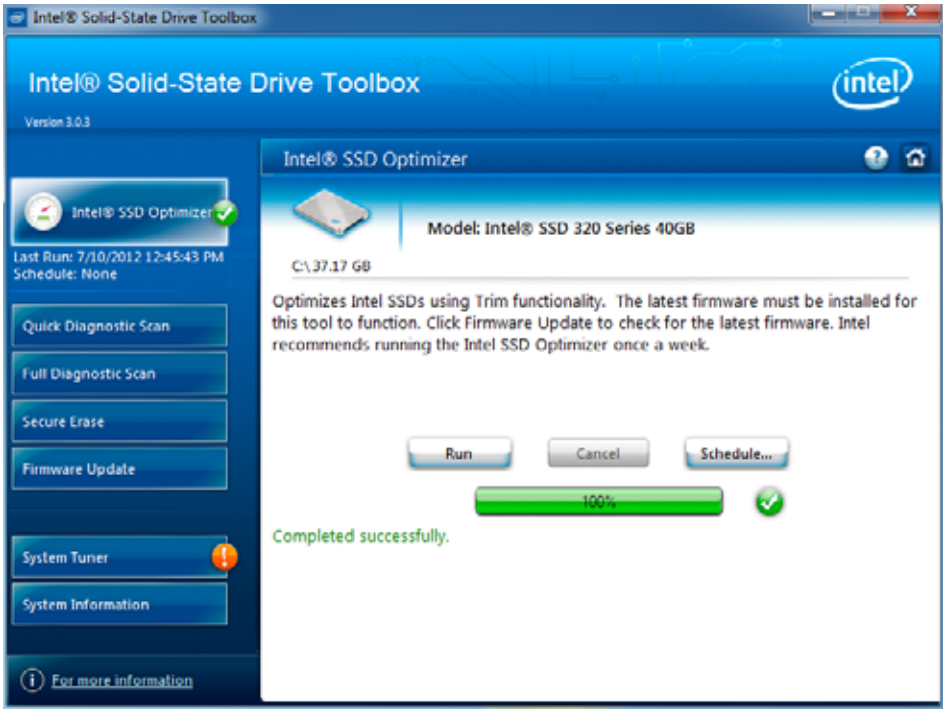
- Make sure Intel SSD Optimizer sessions are scheduled to run when the computer is on. The Intel SSD Optimizer does not wake up or turn on the computer to run a scheduled session.
- Do not schedule the Intel SSD Optimizer to run when a backup is in session.
- Do not run the Intel SSD Optimizer if the Intel SSDs are in a RAID configuration.

To schedule the Intel SSD Optimizer:

1. Manually run the Intel SSD Optimizer one time to verify it runs successfully. Once the manual run is successful, you can set an automated scheduled operation.
2. On the home screen, select the Intel SSD you want to schedule.
3. Click Intel **SSD Optimizer**.

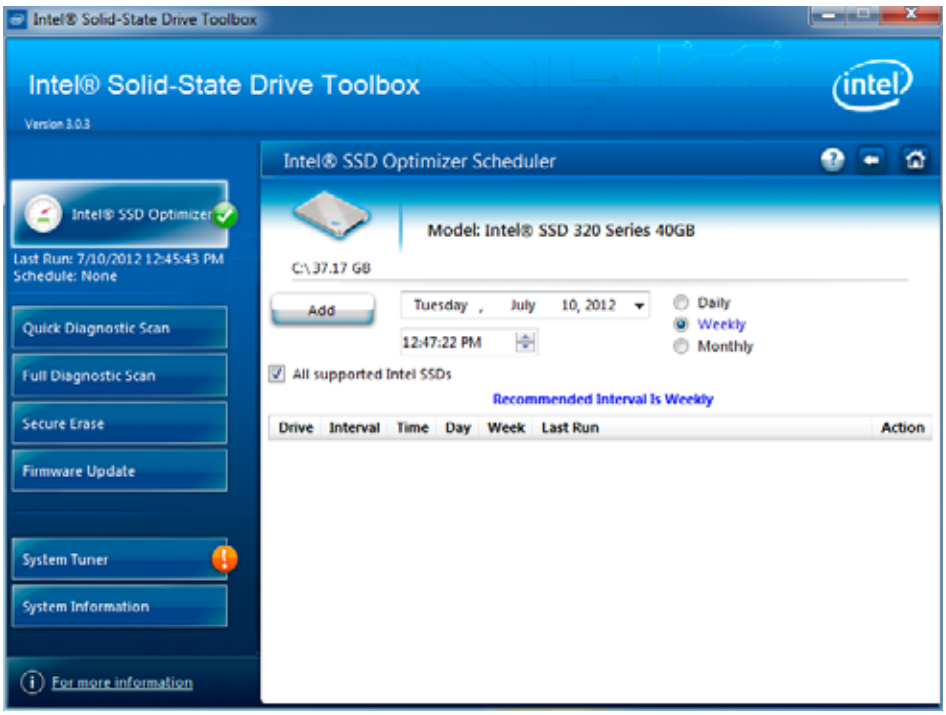


4. Click **Schedule**.

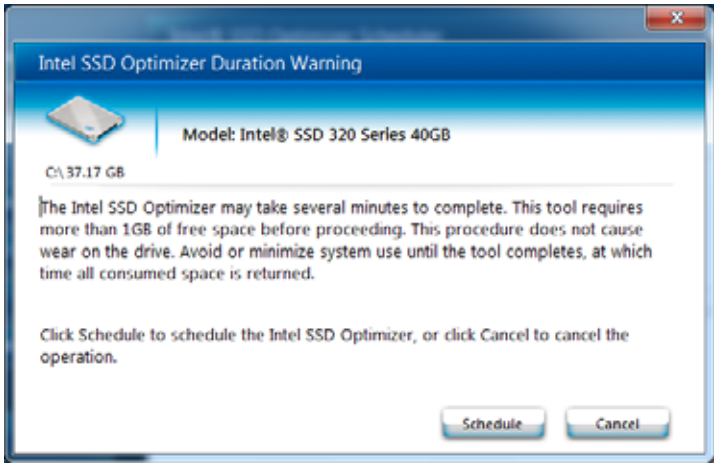


If your computer contains more than one Intel SSD, you can apply the schedule to all supported Intel SSDs by clicking **All Supported Intel SSDs**.

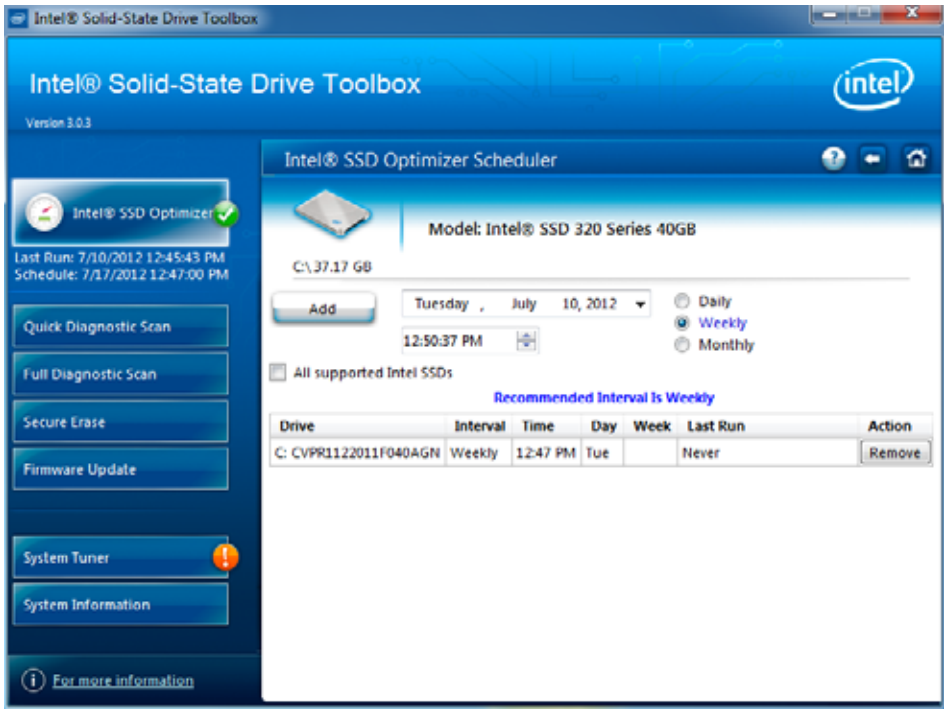
5. Set the schedule (including day, time, and frequency).
6. Click **Add**.



7. Review the requirement text and click **Schedule**.



The schedule appears on the screen.



If you receive a warning message stating the Intel SSD Optimizer has detected the presence of either RAID or encryption on the selected Intel SSD:

- If the Intel SSD is not in a RAID configuration but is encrypted, click **Accept** to continue running the Intel SSD Optimizer on the selected SSD.
- If the Intel SSD is in a RAID configuration, click **Decline** to stop running the Intel SSD Optimizer. The Intel SSD Optimizer cannot run on Intel SSDs in a RAID configuration.

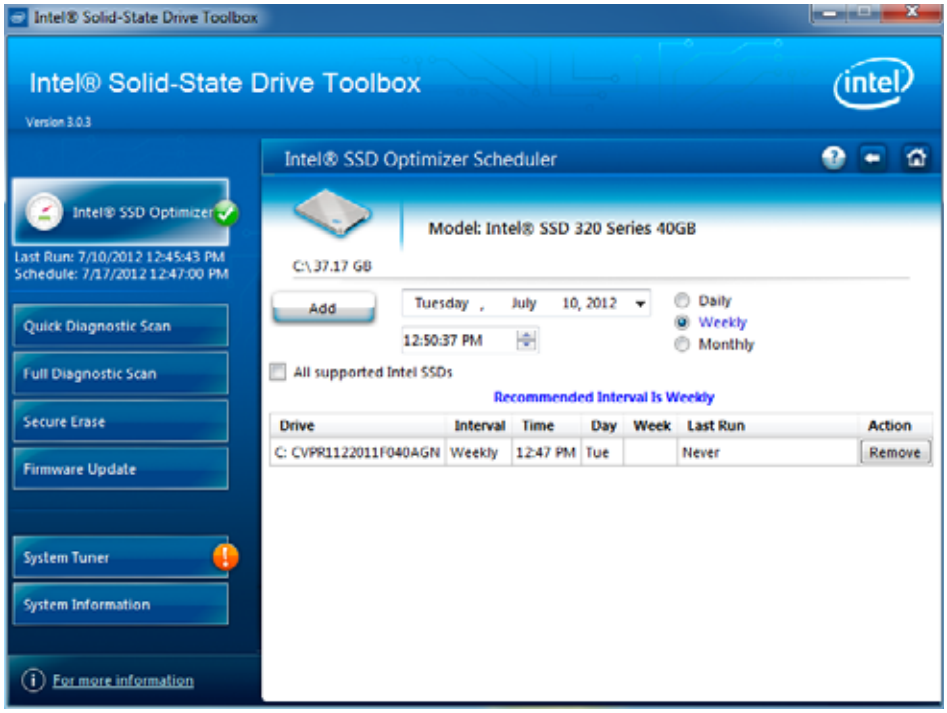
7. Exit the Intel SSD Optimizer or return to the home screen.

The Intel SSD Optimizer runs at the scheduled time. When the session starts, an icon appears in the Windows task tray notifying you the Intel SSD Optimizer is running. Upon completion, the icon disappears.

Removing a Scheduled Intel® SSD Optimizer Session

To remove a scheduled Intel SSD Optimizer session:

1. Click **Intel SSD Optimizer**.
2. Click **Schedule**.
3. Click **Remove** next to the schedule you want to delete



Additional Information

For additional information about SSDs go to *www.intel.com/go/ssd*. The *Intel SSD Toolbox User Guide* can be downloaded from this site (search on SSD User Guide), which provides a complete description of the toolbox functionality.

Known Limitations

RAID or Dynamic Disk Configurations

Intel SSD Toolbox works with single solid-state drives (SSDs), SSDs in a simple Dynamic Disk configuration, and SSDs that are part of Intel® Matrix Storage Manager or Intel® Rapid Storage Technology (Intel® RST) RAID configurations.

For SSDs that are part of RAID or Dynamic Disk configurations with multiple partitions, Intel SSD Toolbox provides limited functionality.

Example: Intel® SSD Optimizer and Secure Erase are not supported).

Systems with Virtualization

Intel SSD Toolbox 3.0 does not work on systems running in a virtualized environment as it cannot detect the SSDs.

SSDs formatted with FAT32 file system

Intel SSD Optimizer does not work on SSDs formatted with the FAT32 file system. New Technology File System (NTFS) is required to run Intel SSD Optimizer. NTFS allocation sizes of 32K and 64K are not supported.

Systems in IDE mode

Intel SSD Toolbox 3.0 cannot update firmware on certain Intel SSDs in IDE mode. These include:

- Intel® Solid-State Drive 311 Series
- Intel® Solid-State Drive 310 Series
- Intel® X25-M/X18-M Solid-State Drives
- Intel® X25-V Solid-State Drive

Firmware updates on Intel SSDs

Intel SSD Toolbox 3.0 supports firmware updates on all Intel SSDs except for the following:

- Intel® Solid-State Drive 510 Series
- Intel® X25-E Solid-State Drive and Intel® X25-M/X18-M Solid-State Drives (50nm)

Use the *Intel® SATA Solid-State Drive Firmware Update Tool* to update firmware on these SSDs.

To identify your Intel SSD, view the model number on the Intel SSD Toolbox home screen. To identify if the Intel SSD is 50nm:

1. Select the Intel SSD on the Intel SSD Toolbox home screen.
2. Click Drive Details.

3. View the Model Number (Word 27-46). If the number contains G1, the Intel SSD is 50nm.

Running System Tuner with specific drivers

Intel SSD Toolbox System Tuner can configure Device Initiated Power Management (DIPM) settings for the following configurations only:

- Intel® Rapid Storage Technology (Intel® RST) driver
- Microsoft AHCI driver in Windows 7

Known Issues

Error message: Cannot run Intel SSD Optimizer on RAID configurations

Some systems without a RAID configuration display the following error message when running Intel SSD Optimizer: *Cannot run the Intel SSD Optimizer on RAID Configurations.* There is no workaround for this issue.

Not all drives in a RAID configuration are recognized by Intel SSD Toolbox

Not all drives in a RAID configuration are recognized by Intel SSD Toolbox. Drive details and SMART information may be obtained with another program.

Intel SSD Toolbox does not communicate with drives on some systems

On some systems, Intel SSD Toolbox does communicate with drives and all functionality is disabled. There is no workaround for this issue.

RAID volume may display extended serial number

When a RAID volume is selected on the home screen, the serial number may contain an extended number of characters. There is no workaround for this issue.

SSD may report *BAD_CONTEXT* if Secure Erase operation is interrupted

During a Secure Erase operation, if the SSD loses power or if the SSD is removed from the system once the Secure Erase operation is 40% or more complete, the SSD may report *BAD_CONTEXT* in the Serial Number field. There is no workaround for this issue.

Intel SSD Optimizer fails to complete and temporary files remain on system

On New Technology File System (NTFS) partitions with allocation sizes of 32K or 64K, the Intel SSD Optimizer fails to complete and leaves temporary files on the target SSD. There is no workaround for this issue; however, if this occurs, consider removing the partition and recreating it with a smaller allocation size.

Known drives affected: Drives with NTFS partitions with 32K or 64K allocation sizes

Chapter 8: Maintenance

Cabinet Cleaning Procedures

1. Disconnect the unit from the power outlet before cleaning.
2. Use a cloth lightly dampened with a mild detergent.
3. Do not use alcohol (methyl, ethyl, or isopropyl) or any strong dissolvent. Do not use thinner or benzene, abrasive cleaners, or compressed air.

   Warning: Do not use any other types of cleaners such as vinegar, solvents, degreasers, or ammonia-based cleaners. These can damage the unit.
4. Avoid getting liquids inside the unit. If liquid does get inside, have a qualified service technician check it before you power it on again.
5. Remove external dust around the cooling vents.

Touch Screen Cleaning Procedures

1. Using a soft cloth dampened with isopropyl alcohol or a mild non-abrasive soap & water solution, gently wipe the touch screen clean.
2. Wipe the screen and edges dry.
3. Make sure the glass and screen edges dry completely before using the unit.
4. Do not use sharp objects to clean around the edges of the touch screen

MSR Cleaning Procedures

MSR Cleaning Cards and MSR Treatment Cards may be purchased from NCR or KIC Products. For details, see *http://www.ncr-direct.com* or *http://www.kicproducts.com*.

MSR Cleaning and Treatment Cards

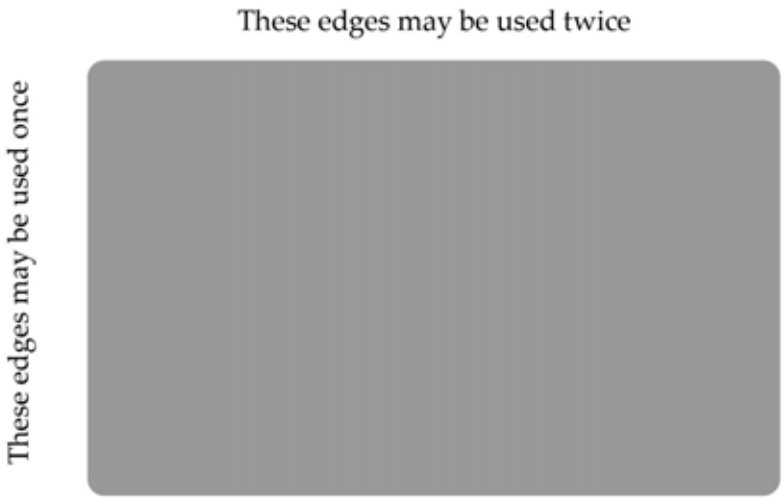
Part	Part Number	NCR Part Number
MSR Cleaning Card, Dry		998-0052929
MSR Cleaning Card, Wet	520522 (box of 50)	603-9014730
MSR Treatment Card	9436-2446 (box of 20)	497-0453056

MSR Treatment Card

The MSR Treatment Card is used to assist in protecting Magnetic Stripe Readers from Electrostatic Discharge (ESD), which can cause failures when swiping cards that have metallic hologram stripes.

Swipe the card through the MSR in a smooth motion. Only swipe it down ONCE and up ONCE. Allow the device to dry for 5 minutes before swiping any other cards.

Note: Each long side of the card may be used twice. Each short side of the card may be used only once. Thus, a single card can treat 6 MSR devices with one UP and one DOWN swipe per MSR device. These limits should not be exceeded due to the possibility of spreading contaminants from machine to machine and/or reducing ESD protection.



Note:If all six up/down swipes are not used on a fresh card it should be placed in a sealed (Ziploc) bag for future use.

Cleaning/Treatment Frequency

New MSR:

Prior to placing in operation, the MSR device should be swiped with the MSR Treatment Card.

Existing MSR:

An existing MSR should be cleaned using an MSR Cleaning Card before treating it with a MSR Treatment Card. For low use retail establishments, the cleaning and treatment procedures should be followed at least once per month. In areas of extremely high traffic (in excess of 500 swipes per day) or an operating environment that is high in contaminants, such as found in the food service industry, a weekly cleaning and treatment should be performed.

Chapter 9: 2x20 Customer Display Interface

Introduction

The 7610-K451 Integrated 2x20 Customer Display consists of a Vacuum Florescent Display (VFD) with two rows of twenty 5x8 dot matrix characters, an RS-232 serial interface, driver circuitry, DC to DC/AC converter, and a character generator.

General Specifications

Item	Value
Number of characters	2 Rows x 20 Characters
Character Configuration	5x8
Character Height	8.86 mm
Character Width	3.90 mm
Character Pitch	5.15 mm
Line Pitch	9.64 mm
Peak Wavelength of Illumination	505 mm
Luminance	350 Cd/m2 (102 fL) (Minimum), 700 Cd/m2 (204 fL) (Typical)

Serial Communication Interface

The display receives commands and data from the host using an RS 232 serial interface, framed at 9600 baud, 8 data bits, no parity, and one stop bit.

Command Codes

User Defined Character Definition (08h, CODE, Byte1…Byte5)

This command defines a user defined character (UDC). The UDC character code is set by the CODE byte and must be 00H to 07H. All other values for CODE will be ignored by this command. The five bytes following a valid CODE byte define the character. D1 through D40 represent the character dots. A (1) indicates the dot is on and (0) indicates the dot is off in the following format:

D1	D2	D3	D4	D5
D6	D7	D8	D9	D10
D11	D12	D13	D14	D15
D16	D17	D18	D19	D20
D21	D22	D23	D24	D25
D26	D27	D28	D29	D30
D31	D32	D33	D34	D35
D36	D37	D38	D39	D40

5 x 8 Dot Matrix Character

BYTE#	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
1	D1	D2	D3	D4	D5	D6	D7	D8
2	D9	D10	D11	D12	D13	D14	D15	D16
3	D17	D18	D19	D20	D21	D22	D23	D24
4	D25	D26	D27	D28	D29	D30	D31	D32
5	D33	D34	D35	D36	D37	D38	D39	D40

Character Table Select (09h, TABLE CODE)

This command selects which character table to display. The TABLE CODE byte determines the character set as defined in the table below. If bits 0 to 3 are all zero then this command is ignored. When a new character table is selected all characters on the display will be updated to display the character of the new table. After a reset the character table is set to Table 1

Table Code	Character Table
01h	Table 1
02h	Table 2
03h	Table 3
04h	Table 4

Clear Display (12h)

This command sets all 40 characters to 20h (space) and moves the cursor to the first position of the top line.

Luminance Control (11h, LUMINANCE)

This command selects the display luminance. The LUMINANCE byte sets the display luminance level as defined in the table below. This command is ignored if the LUMINANCE byte is 00h.

LUMINANCE	Display Luminance
01h	25%
02h	50%
03h	75%
04h	100%

Cursor Position (10h, POSITION)

This command sets the cursor position. The POSITION byte moves the cursor position according to the table below. The next character byte writes to the new position and the cursor auto-increments to the next position. This command is ignored if the POSITION byte value is greater than 27h.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	00h	01h	02h	03h	04h	05h	06h	07h	08h	09h	0Ah	0Bh	0Ch	0Dh	0Eh	0Fh	10h	11h	12h	13h
2	14h	15h	16h	17h	18h	19h	1Ah	1Bh	1Ch	1Dh	1Eh	1Fh	20h	21h	22h	23h	24h	25h	26h	27h

Reset (13h)

This command resets the module to the following conditions:

- 100% luminance
- All 5x8 dot matrix characters set to 20h (space)
- Cursor position set to 00h
- Character table set to Table 1
- All user defined characters cleared

Character Tables and Codes

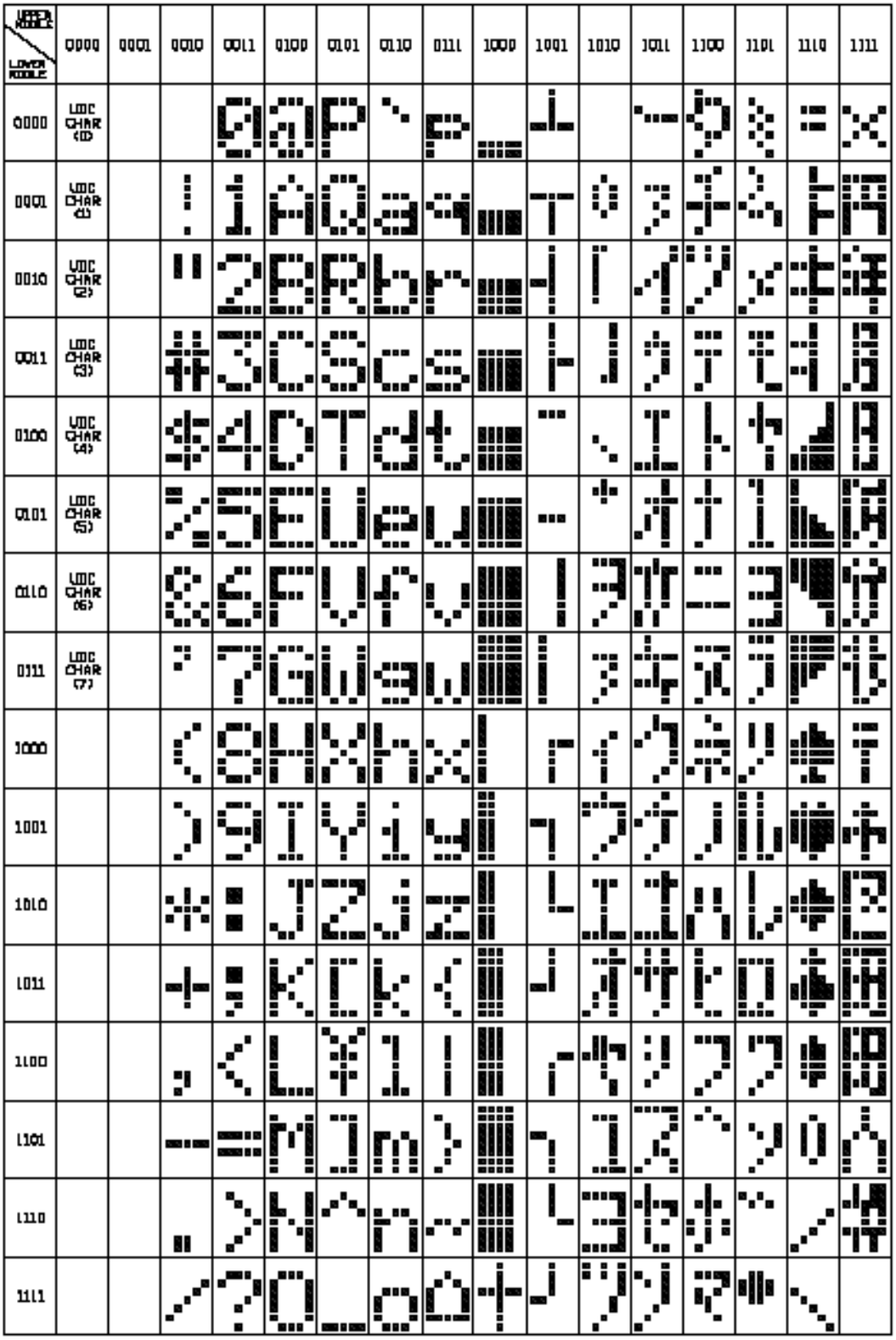
Data is written to the display one byte at a time. If the byte received is greater than 1Fh it is considered as 5x8 dot matrix character data. This character is written to the current cursor position and the cursor position is then incremented by one. When data is written to the last character position of the top line the cursor position moves to the first position of the bottom line. When data is written to the last character position of the bottom line the cursor position moves to the first position of the top line.

CP437

CP858

CP866

CP932



Chapter 10: Touch Screen Operation

Introduction

This chapter contains considerations for touch operations. Topics include:

- Touch Mode of operation
- Turning off the mouse pointer
- Terminal placement when there are multiple terminals in close proximity

Touch Mode of Operation

There are three modes of touch operation available. The desired mode is dependent on the type of application being used.

Normal Mode: This mode compares to normal mouse operation. The selection is made when the item on the screen is touched and activated when double-touched. Multiple items can be selected by touching and *dragging* your finger to another location, forming a rectangular box to encompass the items.

Touch Down Mode: The selection activates immediately when the screen is touched. This mode is popular in Convenience Store environments, where quick operation is demanding.

Touch Lift Off Mode: The selection activates when the finger is removed from the screen. This mode is preferred in environments where the operator prefers to *slide* their finger around on the screen until the item is located and then remove their finger to make the selection.

Changing the Touch Mode

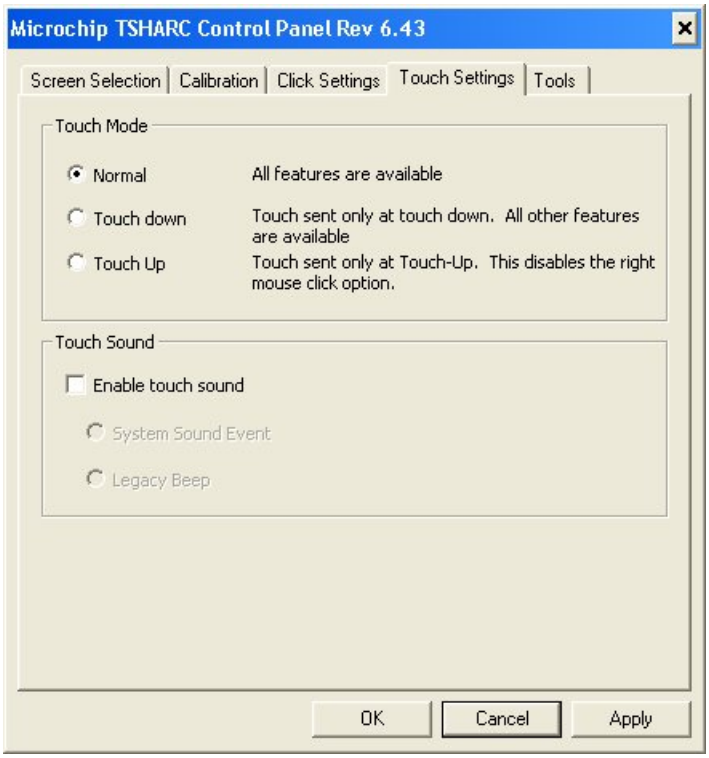
The default touch mode setting is Normal. You can switch modes in the Windows Control Panel.

1.Select S**tart → Programs → Microchip TSHARC Control Panel**.

2.Select the *Touch Settings* tab.

3.Select the preferred *Touch Mode*.

4.Select **Apply**.



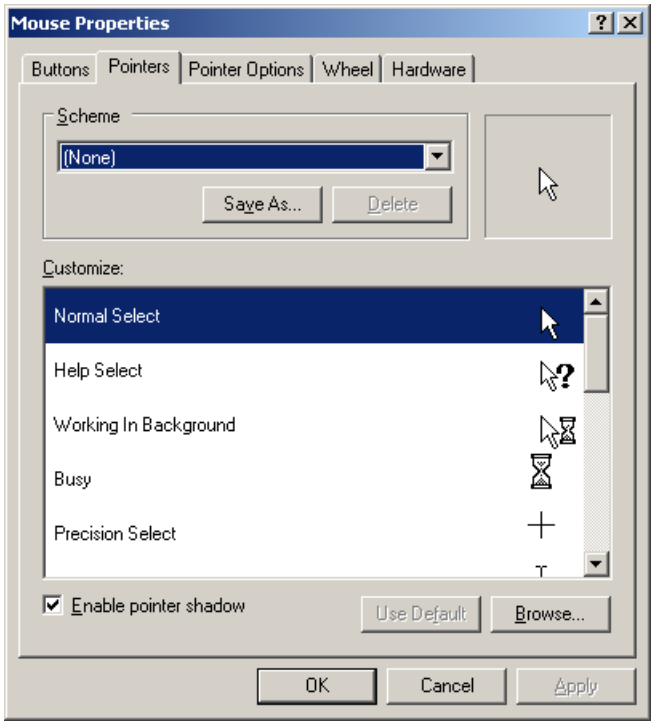
Turning Off the Mouse Pointer

Certain applications prefer NOT to display a pointer during operations. Use the following procedure to turn the pointer off.

1. Download the file containing the mouse pointers from the NCR website at *http://www.ncr.com*.
2. At this site, select the Support tab.
3. Select **Drivers and Patches** → **Retail Support Files** → **NCR RealPOS and SelfServ Terminal and Operating Systems** → **NCR RealPOS 70xrt (7403)** → **Windows** → **Windows XP Pro, Windows EP Embedded, and WEPOS**
4. Download *pointers.zip*.
5. Copy the ZIP file to the system.
6. Open the ZIP file and extract the *empty.cur* file to the folder that Windows uses to store all its cursor files:

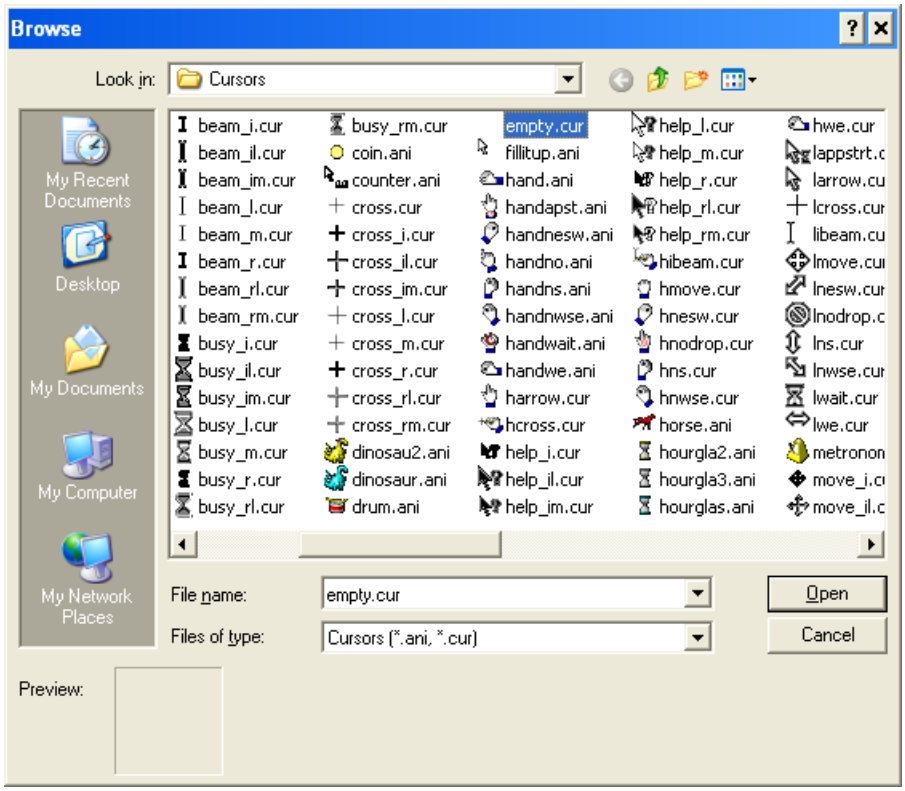
C:\Windows\cursors.

7. Select **Start** → **Control Panel** → **Hardware and Sound** → **Mouse** → **Pointers** tab.



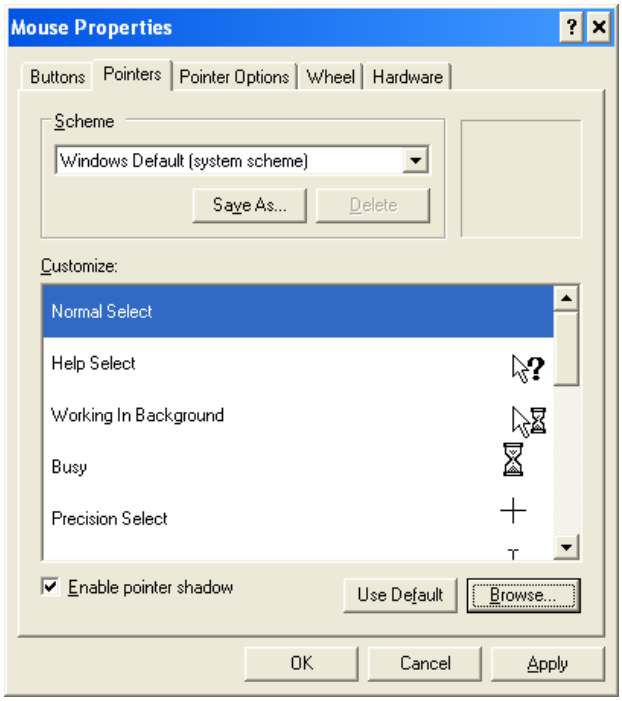
8. **Select** Normal Select from the Customize list.
9. Select **Browse**.

10. Navigate to the *empty.cur* file.



11. Select **Open** → **Apply**.

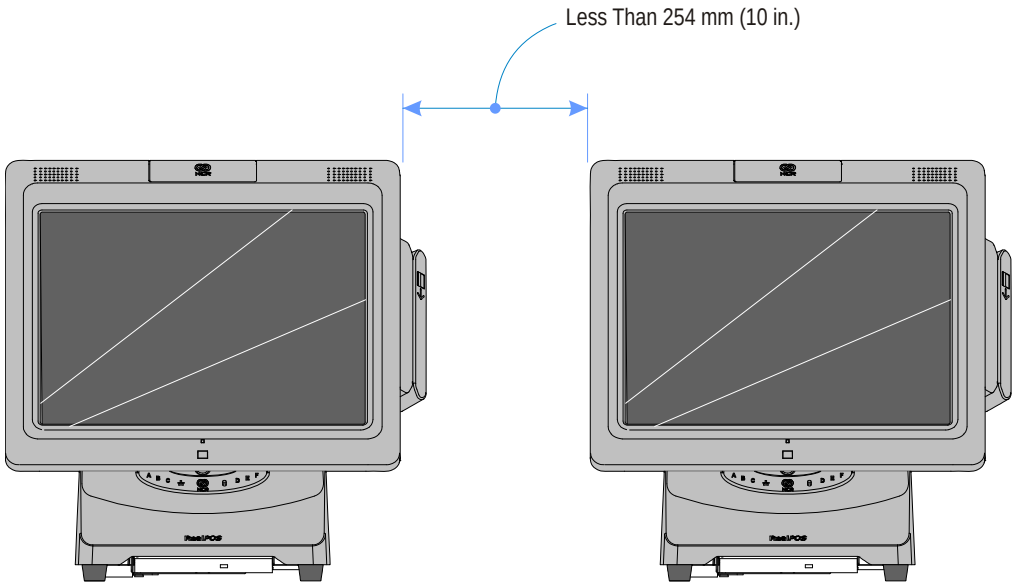
The pointer should now be changed to **None** in the *Mouse Properties*.



Note: To change back to the original settings select **Use Default** → **Apply** → **OK**.

Terminal Placement

If multiple touch terminals are installed within 254 mm (10 in.) of each other it may be necessary to change the touch operating frequency on one or more of the units to prevent interference when they are operated simultaneously.



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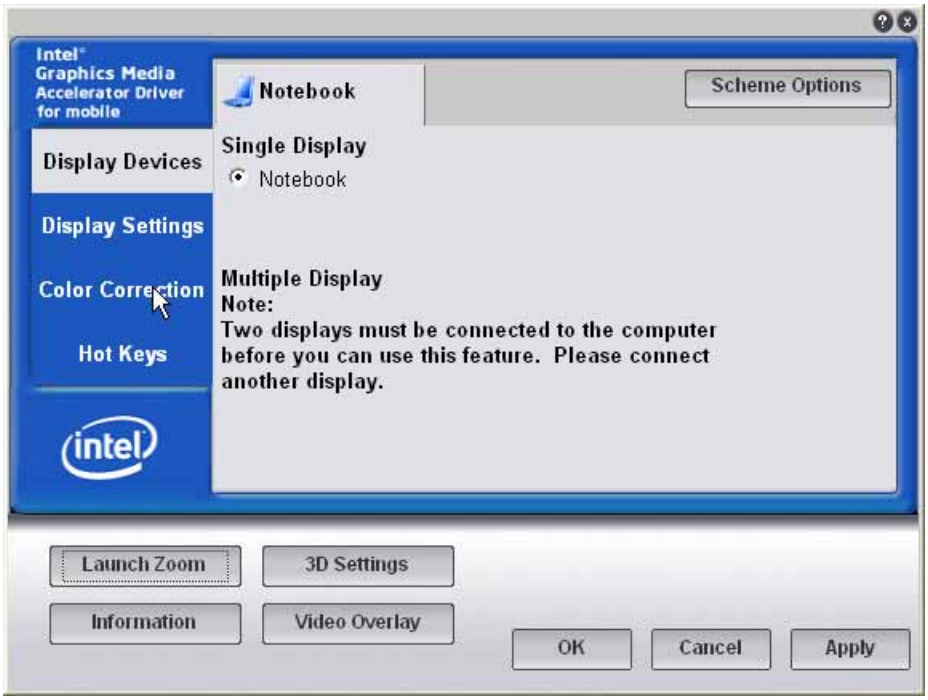
Please contact *NCR Services* for software tools to accomplish this change.

Appendix A: Display Color Adjustment

If you are migrating from legacy terminals you may find it necessary to adjust the colors on the display to match the colors on the older terminals. This is due to the changes in display hardware and driver technology. Use the following procedure to change the colors. The procedures are the same for Windows XP and Windows 7 except for the screens. Both screens are shown.

1. Apply power to the system.
2. Right click the Desktop and then select Graphics Properties from the menu to start the control panel. Both displays should be recognized.
3. Select Color Correction on a Windows XP system or Color Enhancement on a Windows 7 system.

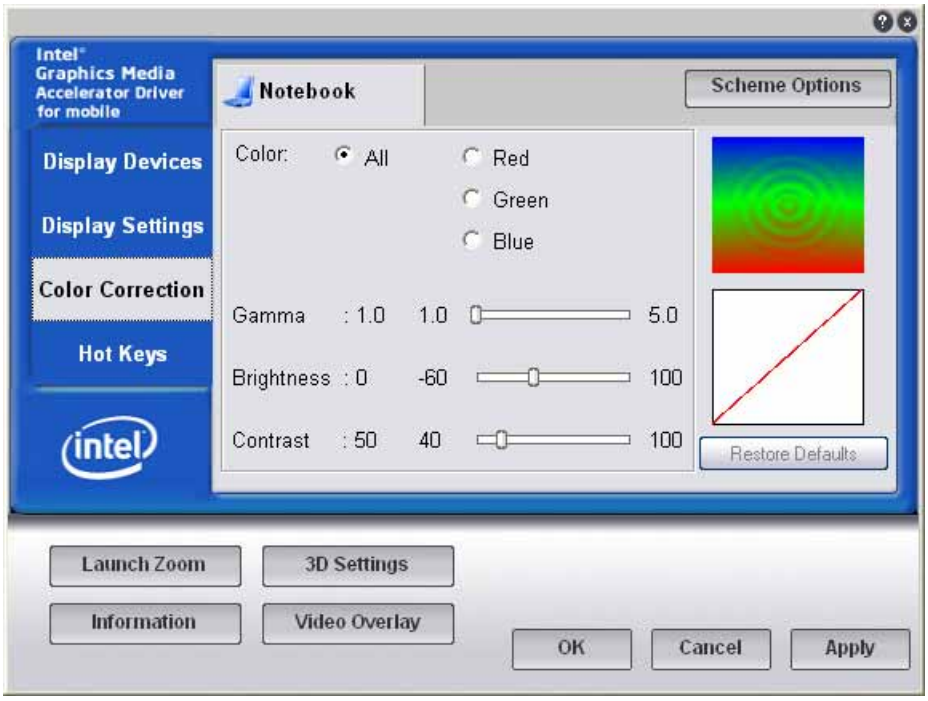
   Windows XP



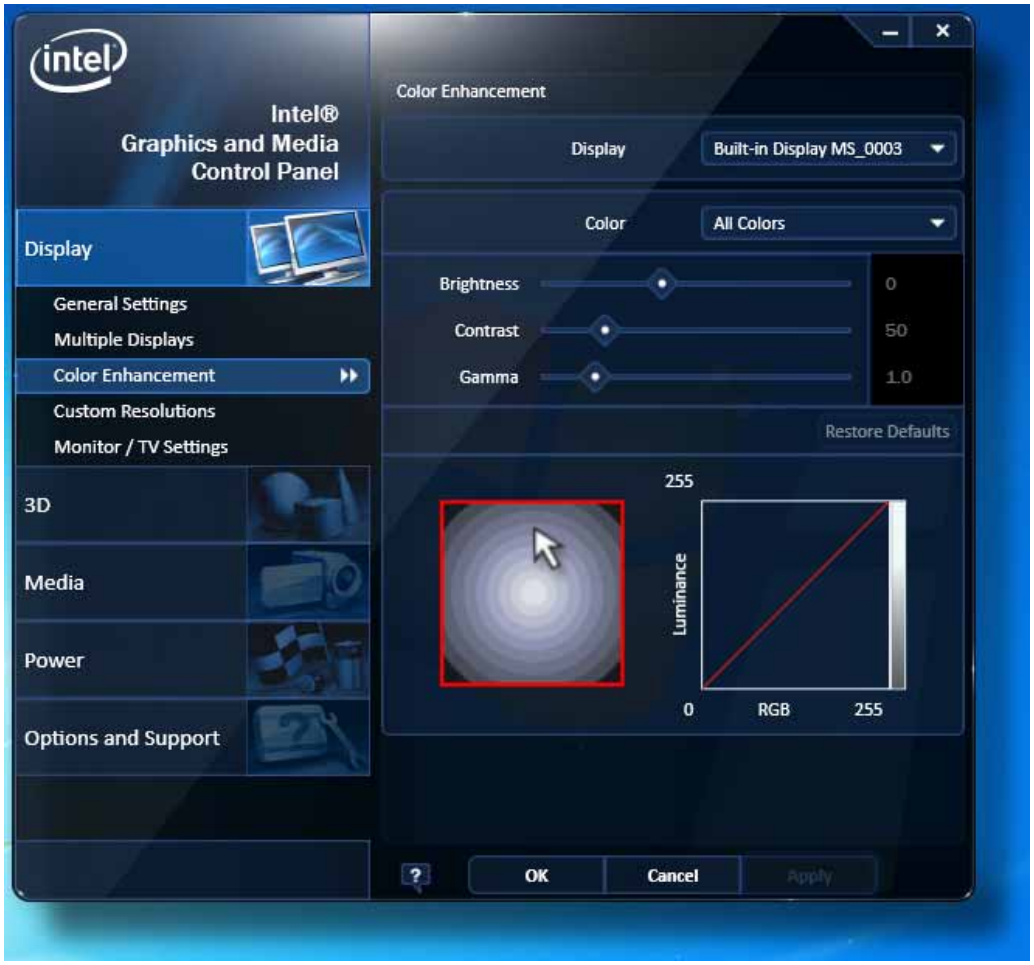
Windows 7

4. Adjust the Gamma, Brightness, and Contrast controls according to your preferences. The colors can be adjusted together or individually.

   Windows XP



Windows 7



5. Select **Apply** (Windows XP) or **OK** (Windows 7) to accept the new settings.

Note: The default settings can be restored by clicking the **Restore Defaults** button.