3M™ MicroTouch™ Display C1700SS Installation Guide

Read and understand all safety information
contained in this document before using this product.

MicroTouch™

3M

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CHAPTER 1

Overview

Congratulations on the purchase of your touch display, and welcome to the world of 3M Touch Systems — a world where using a computer is as simple as touching the sensor. This guide describes how to set up your 3M^{TM} MicroTouch^{TM} Display C1700SS.

This document assumes you have basic computer skills. You should know how to use the mouse and keyboard, choose commands from menus, open and run application programs, and save files.

Important Safety Information

Read and understand all safety information before using this product. Follow all instructions marked on the product and described in this document. Pay close attention to the following installation warnings and safety precautions.

Intended Use
The C1700SS Display has been designed and tested to replace an existing display and convert it into a flat-panel touch sensor. This model is intended for indoor use only and is not designed for use in hazardous locations.

Explanation of Signal Word Consequences
⚠ **DANGER:** Indicates a potentially hazardous situation, which, if not avoided, will result in death or serious injury and/or property damage. ⚠ **WARNING**: Indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury and/or property damage. ⚠ **CAUTION**: Indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury and/or property damage. **CAUTION:** Indicates a potentially hazardous situation, which, if not avoided, may result in property damage.

⚠ DANGER
To avoid the risk of fire and/or explosion which will result in serious injury or death: Do not install or use this product in a hazardous location.

⚠ **WARNING**
To avoid the risk of fire which could result in serious injury or death:
• Do not remove the cover or back of the display.
To avoid the risk of electric shock which could result in serious injury or death:
• Do not use a damaged power supply.
• Do not use a power cord that is frayed or otherwise damaged.

⚠ **CAUTION**
To avoid the risk of electric shock which may result in minor or moderate injury:
• Do not service the Flat Panel Display.
• There are no user serviceable parts inside.
• Refer all servicing to qualified service personnel.
• The backlight inverter output is at high voltage.
• Do not use non-conforming replacement parts.
• Do not place wet or damp objects on the display.
• Do not expose the display to rain or other sources of water, steam, or moisture.
• Do not place foreign objects on the display or its cables.
• Do not remove the cover or back of the display.
• Ensure that connecting the unit to the power source will not overload the power source.
To avoid the risk of glass breakage which may result in minor or moderate injury:
• Handle the display with care to avoid breaking the touch sensor. The display contains glass parts. Dropping the display may cause the glass parts to break.
• Ensure mounting screws are tightened fully to prevent instability.
• Ensure that mounting the unit will not adversely affect the stability of the end equipment when installing in free standing equipment or using the VESA mount.
To avoid the potentially hazardous situations associated with the use of isopropyl alcohol which may result in minor or moderate injury or property damage:
Follow all instructions and recommendations in the manufacturer's Material Safety Data Sheet and product label.
To avoid possible environmental contamination which may result in minor or moderate injury:
• The lamp(s) inside this product contain mercury (Hg) and must be recycled or disposed of in accordance with local, state, or federal laws. Check your individual state's requirements to see if specific recycling requirements exist for mercury-containing products or other electronic products. Refer to http://www.nema.org/lamprecycle/ or call 3M Touch Systems 1-866-407-6666 for further information.
• Dispose of the flat panel display according to applicable governmental regulations.

Important Notes

- Plug power cord into appropriate power source.
- Plug power cord into a grounded receptacle.
- When unplugging power supply cord, pull on plug not cord.
- Do not connect or disconnect this product during an electrical storm.
- Install the display in a well-ventilated area. Always maintain adequate ventilation to protect the display from overheating and to ensure reliable and continued operation.
- Remember to take into account that the operating temperature of the installation may be greater than the room ambient, and consideration should be given to installing the unit in an environment compatible with the maximum rated ambient temperature.
- When installing the unit, ensure that it does not restrict the flow of air to any other equipment within the installation required for safe operation.
- Do not expose this display to direct sunlight or heat. Passive heat may cause damage to the metal case and other parts.
- Do not install this display in areas where extreme vibrations may be generated. For example, nearby manufacturing equipment may produce strong vibrations. The vibrations may cause the display to exhibit picture discoloration or poor video quality.
- Ensure the metal enclosure does not contact the touch sensor.
- Be sure to gasket display to enclosure properly.
- To avoid ergonomic concerns:
  Do not install the display in a manner or location with awkward accessibility. Extended use may result in muscle, tendon, or fixed posture strains. It is recommended you take periodic breaks from continuous use.

Service and Repair Indicators

Do not attempt to service this unit yourself. Removing the display cover may expose you to dangerous voltage or other risks. Unplug the display from the power outlet and refer servicing to qualified service personnel in the event that:

- Liquid is spilled into the product or the product is exposed to rain or water.
- The product does not operate properly when the operating instructions are followed.
- The product has been dropped or the metal case has been damaged.
- The product exhibits a distinct change in performance, indicating a need for service.
- The power cable or plug is damaged or frayed.

3M Touch Systems Support Services

3M Touch Systems, Inc. provides extensive support services through our website and technical support organization. Visit the 3M Touch Systems website at http://www.3Mtouch.com/, where you can download touch sensor software and drivers, obtain regularly updated technical documentation on 3M Touch Systems products, and learn more about our company.

Whenever you contact Technical Support, please provide the following information:

- Touch display size, part number and serial number
- Current driver version
- Operating system used
- Information on additional peripherals

Technical Support is available Monday through Friday 8:30 a.m. to 5:30 p.m. with limited call back service after 5:30 p.m. until 8:00 p.m. US Eastern Standard Time – 9 a.m. to 5 p.m. throughout Europe.

You can contact 3M Touch Systems, Inc. Technical Support (US only -- Eastern Standard Time) by calling the hot line, sending email or a fax.
- Technical Support Hot Line: 978-659-9200
- Technical Support Fax: 978-659-9400
- Toll Free: 1-866-407-6666 (Option 3)
- Email: US-TS-techsupport@mmm.com

Contact 3M Touch Systems

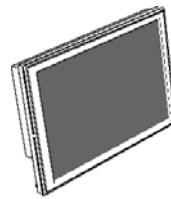Contact information for all offices can be found on our website at: http://www.3Mtouch.com/

CHAPTER 2

Introduction to Flat-Panel Displays

Overview

The 3M Touch Systems product line of Flat-Panel Displays offers the C1700SS Display for kiosk, ATM, and industrial enclosures.

All CS1700SS Displays are encased in rugged metal instead of plastic. The C1700SS Display features a touch sensor interface, several mounting options, and sturdy construction.

The C1700SS Display is available in a 17" diagonal screen size. The flat-panel display uses active-matrix thin-film transistor (AM-TFT) liquid crystal display technology. The C1700SS Display supports a full-screen resolution of 1280 x 1024.

Note: The C1700SS Display has five buttons for using the on-screen menu and adjusting the video display. Refer to Chapter 4 for more information on these controls.

The display is available with 3M Touch System's surface capacitive touch sensors. Surface capacitive is the touch sensor of choice for public access applications requiring high levels of durability and reliable performance 24 hours a day, 7 days a week.

The display also features space saving designs, high resolution, low radiation, and low power consumption. These qualities make these touch displays ideal for applications that require superior color, resolution, and clarity.

Video Resolution on a Flat-Panel Display

Flat-panel displays, unlike CRTs, are optimized to run at one resolution. A flat-panel display has discrete points on the display that determine the exact location of a pixel. Each flat-panel display has an exact number of pixels associated with it. There is a one-to-one mapping between the number of pixels and the video addressability, sometimes called resolution.

Native Video Resolution

A flat-panel display should be used only at the resolution dictated by the number of pixels on the panel. The C1700SS Display has 1280 pixels across the screen and 1024 lines of pixels down the screen and can accurately display one resolution (1280 x 1024) at full screen.

Options for Using Other Video Resolutions

The 3M™ MicroTouch™ C1700SS Display supports all standard resolutions up to their respective native resolution for display setup. Many video cards initially display a screen image at the SVGA or VGA resolution. By supporting these resolutions, the display can display the desktop controls that let you change to the optimal resolution of 1280 x 1024.

CHAPTER 3

Setting Up Your C1700SS Display

This chapter describes how to set up and integrate your 3M™ MicroTouch™ C1700SS Display into a touch application. You need to complete the following tasks:

- Unpack the components
- Connect the video, touch sensor, and power cables
- Power on the display and test your setup
- Install the touch software
- Calibrate the touch sensor

System Requirements

The C1700SS Display requires a personal computer (PC). These touch displays are not supported on Macintosh computers.

The requirements for your PC are as follows:

- Your PC must have an available RS-232 serial communication (COM) or USB port. You connect the touch sensor to this port.
- Your PC must have a unique interrupt request (IRQ) available to the COM port that the touch sensor will use. The touch sensor cannot share an IRQ with another device.
- Your PC must have a video card and video driver already installed for the display. If you need to install a video card or a video driver, refer to your computer documentation for instructions.

When choosing your workspace, select a sturdy, level surface. Also, make sure you can easily access the back of the touch display and the computer. Easy access helps ensure a smooth setup of the touch display.

Note: Before setting up your C1700SS Display, refer to the "**Error! Reference source not found.**" section at the beginning of this document.

Unpacking Your Touch Display

Carefully unpack the carton and inspect the contents. Your C1700SS Display includes the following cables and accessories:

- SVGA video cable
- RS-232 serial communication cable (or USB cable if applicable)
- Optional AC/DC power supply (12V DC output)
- AC power cable
- CD with touch software, documentation, and utilities
- Hardware kit (includes mounting brackets, screws, washers)
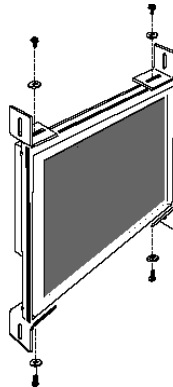
Mounting the C1700SS Display

The C1700SS Display is designed to fit any type of enclosure. All C1700SS Displays are encased in rugged metal instead of plastic, making them easy to integrate.

The display does not have a bezel to act as an interface with a front mounting surface. If you need a bezel as a mounting interface, it may be purchased from 3M Touch Systems. Please contact your sales representative.

The C1700SS Display includes a hardware accessory kit for mounting the unit into an enclosure. The C1700SS hardware accessory kit includes four brackets, washers, and screws. The mounting holes are located on the sides of the display and are threaded to an M4 thread.

You can attach the brackets to the edges of the chassis. The brackets are slotted, allowing the chassis to slide in and out. You can also rotate the brackets to various positions.

This unit has the 100mm VESA mounting pattern on the back case to allow for arm mount capability.

Suggested Mounting for the C1700SS Display

Note: Do not mount the chassis unit directly from the rear of the cover. Always use the holes and brackets provided. Do not drill additional holes in the unit to mount brackets in other locations.

Access to the Video Controls

The controls for adjusting the video display are located on the back of the C1700SS Display. These buttons let you display the on-screen menu and adjust the phase, image position, contrast, and brightness. Make sure you will be able to access the video controls once the C1700SS Display is installed.

Clearance and Ventilation

Leave at least two inches of clearance space behind the C1700SS Display for proper ventilation. Units have vent holes at the top and bottom on the back of the chassis -- ensure these holes are not blocked during installation. Always maintain adequate ventilation to protect the display from overheating and to ensure reliable and continued operation. Refer to the published specifications for the maximum and minimum operating temperature and humidity conditions.

Securing and Routing System Cables

You must be sure to secure all cable connections. Shaking and vibration, especially during shipment, may dislodge components that are improperly connected.
- Be sure to tighten all cable screws.
- Route all wiring and cabling away from heat sources and sharp metal edges to avoid damage. Also, keep the touch sensor cable away from sources of electromagnetic and radio frequency interference.

Installing the Video Card and Video Driver

Before you can connect your touch display, make sure your computer has a video card already installed for the display. After you connect the display, you need to install the video software driver. The video driver is supplied by the video card manufacturer and may be found on the diskettes that came with your computer. If you need information on installing a video card or video driver, refer to the manual that came with your video card.

Supported Video Display Modes and Refresh Rates

Your video card must support one of the display modes specified in Table 1. If you select an unsupported video mode, the display will stop working or display an unsatisfactory picture quality.

Table 1. Applicable Display Mode and Refresh Rate

Display Mode	Refresh Rate (Hz)
VGA (640 x 480)	60
	75
	85
SVGA (800 x 600)	56
	60
	75
	85
XGA (1024 x 768)	60
	75
	85
SXGA (1280 x 1024)	60
	75

Table 2. Frequency Range

Size	Mode	Frequency Range
17 inch	Normal	Horizontal 30-80 kHz
		Vertical 55-75 Hz

Configuring the Display Settings

After you connect your C1700SS Display and turn on your computer, you may need to configure one or more of these display settings. The ideal settings for these displays are as follows:

- Display mode (also called desktop area or video resolution) 1280 x 1024
- Refresh rate (also called vertical scan rate or vertical sync) 60 Hz
- Color depth (also called color palette or number of colors) at least 16-bit (high color)

Using the Standard Controls for the Video Card

In addition to the standard controls on the display, each video card has several controls that let you adjust the display settings. The software and driver for each video card is unique. In most cases, you adjust these settings by using a program or utility provided by the manufacturer of the video card.

For example, you can use the Windows® Display Properties control panel to adjust the desktop area (resolution), color depth, and refresh rate. Whenever you change these settings, the image size, position, or shape may change. This behavior is normal. You can readjust the image using the display controls described in this chapter.

For more information on adjusting the desktop area (resolution), color depth, or refresh rate, refer to the user manual that came with your video card.

Connecting the Touch Display

To connect the C1700SS Display

1. Turn off your computer. You should always turn off the computer before connecting or disconnecting a device.

2. Connect one end of the video cable to the video connector on the display. Connect the other end to the video card in your computer.

3. Connect one end of the touch sensor cable (either serial or USB) to the display. Connect the other end to an available port on your computer. If you are using a USB connection, make sure you have installed the Touch Software drivers prior to connecting the touch sensor cable.

4. Connect one end of the RS-232 serial touch sensor cable to the display. Connect the other end to an available serial communication (COM) port on your computer.
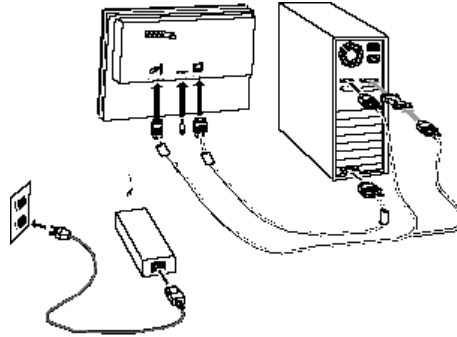
5. Plug the AC/DC power supply into the display. Be sure to use the power supply included (LSE9901B1260) with the display.

6. Connect the power cable.

Testing the C1700SS Display

After connection, the display will switch on automatically. Before you test your touch display, make sure all cables are connected properly. Be sure to tighten all cable screws.

To test that the display is working properly:

1. Turn on your computer.

2. Make sure the video image is displayed. If it is not, check the LED to ensure that the display is not in power save mode (flashing orange/red). If the LED is not on, turn on your display.

3. Make sure the video image is centered within the screen area. Use the display controls to adjust the image, if necessary.

You can adjust the horizontal and vertical position, contrast, and brightness to better suit your video card and your personal preference. Refer to Chapter 4 for more information on using the on-screen menu to adjust the video display.

Installing MicroTouch Software

Two versions of touch software are included on the CD packaged with your display. We strongly recommend you read the README.TXT before you begin any software installation.

	Windows® Vista	Windows® 2000	Windows® XP	Windows® 9x	Windows® NT	Controllers
MT 7	X	X	X			All current controllers (serial and USB)
TouchWare (Legacy)		X	X	X	X	EX II series Serial resistive series

MicroTouch software includes the touch sensor driver and control panel that enables your touch sensor to work with your computer. Once the software is installed, restart your computer to load and activate the touch sensor driver. To complete the setup of your touch display, make sure you calibrate the touch sensor.

Calibrating the Touch Sensor

After you connect your touch display and install MicroTouch software, you must calibrate the touch sensor. Calibration serves two purposes:

- Sets the active area of the touch sensor
- Aligns the touch sensor's active area to the underlying video

To calibrate the touch sensor, open the touch control panel and select Calibrate. Follow the directions displayed on the screen. For more information on calibration, refer to the online help or the user documentation.

CHAPTER 4

Adjusting the Video Display

Your C1700SS Display has several control buttons and an on-screen menu for adjusting the video display. For example:
- You can adjust the pixel clock and phase to eliminate noise.
- You can adjust the image contrast and brightness to your lighting conditions.
- You can adjust the horizontal and vertical position of the image.

This chapter presents guidelines for adjusting the video display and describes how to use the available display controls to adjust the image to your liking. Before you make any adjustments:
- Be sure to set the controls under your normal lighting conditions.
- Display a test image or pattern whenever you adjust the video.

Controls for Adjusting the Video Display

Your C1700SS Display has five controls for adjusting the video display.

●　　●　　●　　●　　　　●　　●　　●
MENU EXIT   UP   DOWN   LED   POWER AUTO

- MENU – The first press of the menu button will call up the On Screen Display (OSD). A second press will enter the current sub-menu of the OSD. Further presses will allow you to cycle through the available sub-menu options.

- EXIT -- Return to the previous OSD menu level. If you are at the top level this will close the OSD display.

- UP -- Increases the value of the selected menu option.

- DOWN -- Decreases the value of the selected menu option.

- LED – Indicates whether the display is on.

- POWER – Turns the display on or off.

- AUTO -- Auto-adjust to bring video settings to their optimal level.

If you do not press any buttons for approximately 20 seconds, the OSD times out and hides the menu options. You can press the Menu button at any time to display the OSD again.

There is also a STANDBY button next to the LED that can be used to put the display into standby mode.

OSD Controls

Pressing MENU will pull up the On Screen Display menu, as shown below.

On Screen Display

Auto-Adjust

When an auto adjustment is performed, the display will attempt to set the video settings to their optimum level. If necessary, you can fine tune the parameters to suit your application as detailed below.

Brightness

Selecting the Brightness option will allow you to adjust the brightness of the display. Adjust the brightness using the UP and DOWN buttons, and press EXIT to confirm the new setting.

Contrast

When the Contrast option is chosen, you can choose to adjust the overall contrast. Use the UP and DOWN buttons to alter the setting. Once you are satisfied with the contrast settings, press EXIT to return to the main menu.

Phase Setting

If the phase of your display is not fine-tuned, you may observe unstable horizontal noise lines and cross-talking, stretching from the edge of small windows on your display. This noise can be eliminated by adjusting the Fine Phase setting.

If you change your display to Windows® shut down mode, this noise will be more visible, and easier to eliminate. Click on the "Start" button, then click Shut Down. This will bring you to the Windows® shutdown mode. After finishing phase adjustment, click on "Cancel" to return to your original Windows® display.

If you do an Auto Adjust, the display will try to find the best Clock Phase setting. If you are not satisfied with the auto adjust, please fine-tune the phase manually as described above.

Frequency Setting

If the Frequency setting of your image is not fine-tuned, you may observe periodic vertical bars of video noise. These bars of noise are usually adjusted out when an Auto Adjust is performed. If the bars of noise are still present, this setting can be adjusted manually.

Adjust this setting so that the vertical bars of noise are replaced by either an even amount of noise across the whole screen, or the noise disappears completely. Any remaining noise can be eliminated by adjusting the Fine Phase Setting.
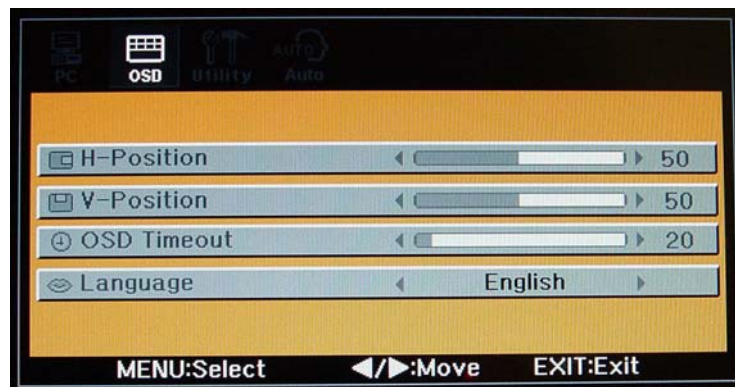
Horizontal And Vertical Position

The position of the displayed image can be adjusted if necessary by altering these two settings.
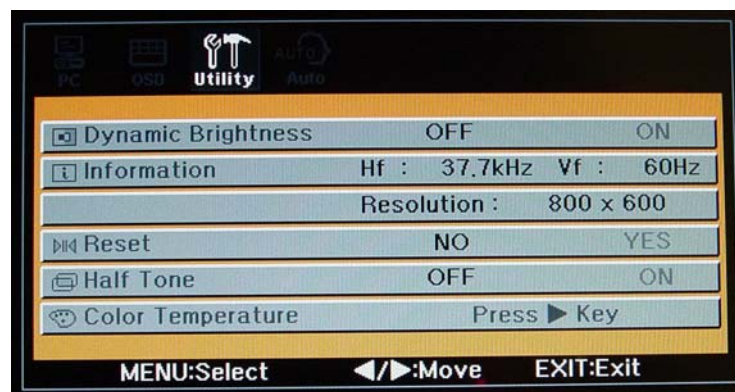
Sharpness

The Sharpness option can be used to adjust the sharpness of the picture when lower resolutions are being displayed.

OSD Sub-Menu

Selecting the OSD sub-menu allows you to alter the OSD menu position on the display, which language the OSD will appear in, and how long the menu should stay on the screen when no buttons are pressed.

Utility Sub-Menu

The utility sub-menu will supply information on the current video signal being received. It will also allow you to reset the display to the factory default video settings. If you wish to do this, select the reset option. There is an option to disable the Display Power Management System (DPMS) power saving of the display. However, this is not recommended.

Color Temperature

This option will activate a sub-menu, allowing the operator to adjust the color balance and level for the display. There are 3 color presets C1, C2 and C3, plus an option for user customized settings.

By adjusting a single color, you can make the picture look warmer (biased towards red) or cooler (biased towards blue). Adjusting all three levels will make colors appear more or less striking.

CHAPTER 5

Maintenance and Troubleshooting

If you have a problem setting up or using your display, you may be able to solve it yourself. Before calling 3M Touch Systems, try the suggested actions that are appropriate to the problems you are experiencing with the display. You may also want to consult your video card user's manual for additional troubleshooting advice.

Maintaining Your Touch Display

To maintain your display and keep your display operating at peak performance:
* Keep your display and sensor clean
* Adjust the display video controls. Refer to Chapter 4 for more information.
* Do not install the display in a place where ventilation may be hindered. Always maintain adequate ventilation to protect the display from overheating and to ensure reliable and continued operation.

Touch Sensor Care and Cleaning

The touch sensor requires very little maintenance. 3M Touch Systems recommends that you periodically clean the glass touch sensor surface.

Typically, isopropyl alcohol and water solution ratio of 50:50 is the best cleaning agent for your touch sensor. You can also use straight isopropyl alcohol. Be sure to follow solvent manufacturer's precautions and directions for use when using any solvents.
* It is important to avoid using any caustic chemicals on the touch sensor. Do not use any vinegar-based solutions.
* Apply the cleaner with a soft, lint-free cloth. Avoid using gritty cloths.
* Always dampen the cloth and then clean the sensor. Be sure to spray the cleaning liquid onto the cloth, not the sensor, so that drips do not seep inside the display or stain the bezel.
* Always handle the touch sensor with care. Do not pull on or stress cables.

Display Installation Problems

No image displayed (blank screen)	**Is the display receiving power?** • Check that the computer's power cable is connected properly and securely into a grounded electrical outlet. • Check that the AC/DC power supply is firmly plugged into the display. Check that the LED is showing green on the AC/DC power supply. • Check that the display's power cable is connected properly and securely to an electrical outlet. • Try using another power cable. • Try using another electrical outlet. **Is the display receiving a valid video signal from the PC?** • Check that the computer is powered on. • Check that the video cable is connected properly and securely to the display and the computer. • Check that the LED on the rear of the unit is green. • Check that no pins are bent in the video cable connector. • Check that the video card is firmly seated in the card slot in your computer. • Check that the video input from the video card falls within the refresh rate of the display. Refer to **Table 1** for details. • Check that your computer is using a supported display mode. Refer to **Table 1** for details. **Is the display in Power Management mode?** • If the LED on the rear of the display is flashing orange/red, touch the sensor, press any key on the keyboard, or move the mouse to restore operation. **Are the brightness and contrast settings too low?** • Use the display controls to adjust these values.
Abnormal image	• Check that the video input from the video card falls within the refresh rate of the display. Refer to **Table 1** for details. • Check that the video cable is connected properly and securely to the display and the computer.
Colors of image are abnormal	• Check that the video cable is connected properly and securely to the display and the computer. • Check that no pins are bent in the video cable connector.
Disturbances on the screen	• The video display adjustments are incorrect. Refer to Chapter 4 for adjusting procedures.

Troubleshooting the Touch Sensor

If you are experiencing problems with the touch sensor, check the following list of common installation errors.

Table 3. Common Touch Sensor Installation Issues

Common Installation Issues	Possible Solutions
Touch sensor does not respond to touch	• Review the installation procedures. Are all cables connected properly? • After you installed Touch Software, did you restart your PC to activate the touch sensor driver? • Are the communication settings correct? Is the touch sensor trying to use the same COM port or IRQ as another device (for example, a mouse)? If so, a hardware device conflict will result and the touch sensor will not work.
Touch sensor is not accurate	Calibrate the touch sensor for the current video resolution and operating system.
Cursor does not follow finger movement or does not reach the edges of the screen	Calibrate the touch sensor for the current video resolution and operating system.
Cursor is not located directly underneath your finger	• Open the touch sensor control panel and make sure all cursor offsets (vertical, edge/horizontal) are turned off. • Calibrate the touch sensor for the current video resolution and operating system.
Cursor is extremely jittery or erratic	Stabilize the cursor by adjusting the operating frequency of the touch sensor controller.
Cursor lags finger	Lower the baud rate of the touch sensor controller and the touch sensor driver.

Power Management

The C1700SS Display conforms to the Video Electronics Standards Association (VESA) Display Power Management Signaling (DPMS) standard. To benefit from power management, the display must be used in conjunction with a computer and video card that implements the VESA DPMS standard.

The PC automatically invokes the power management feature if you do not use the touch sensor, mouse, or keyboard for a user-defined period of time. To restore the video image, simply touch the screen, press a key, or move the mouse. To set the period of time after which the PC will invoke the power management feature, refer to the user manual that came with your video card or PC.

Regulatory Agency Approvals

The C1700SS Display complies with the following regulatory standards:
• FCC-B
• CE
• UL/cUL

- Ctick

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

- Reorient or relocate the receiving antenna.
- Move the equipment away from the receiver.

Consult the dealer or an experienced radio/television technician for additional suggestions.

You are cautioned that any change or modification to the equipment not expressly approved by the party responsible for compliance could void your authority to operate such equipment.

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

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

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

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. 3M Touch Systems is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.