MCI Touch

MCI Touch
User's Guide

MCI 15

MCI 15T

![preh KeyTec logo]

Preh-Keytec MCI Touch
Product Manual

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Introduction

Congratulations on your purchase of a Preh MCI Touch Monitor. This manual covers all models of the Preh MCI Touch Monitor 15" series of touch monitor products. Preh-Keytec has brought together a team of experienced developers from the touch industry to create what we believe to be the finest Touch Monitors available in the industry today.

Your Preh MCI Touch Monitor combines outstanding flat panel display design, the most needed features for typical touch, POS and medical applications, and the best touchscreen components to deliver a product of superior performance and value. We welcome your comments on our products and our company. For the latest product information, see our web site at http://www.preh-keytec.com or www.prehusa.com (Americas)

As you read this manual, you may encounter words or terms associated with display, touchscreen or touch applications that you are not familiar with. Many of the words unique to this industry have been italicized on first use in this manual. Definitions of these words have been included in the Glossary.

Product features of the Preh MCI Touch Monitor include:

- 5" AMTFT LCD panel
- Auto-Sensing Brightness Adjustment for the best performance in changing light conditions
- High resolution resistive touchscreen with Dual Interface Serial and USB connections
- o/oo1024 x 768 native resolution
- On Screen Display (OSD) for display setup, with vandal-resistant lockable controls
- One-click access to Brightness, Audio Mute, and Video Auto-Adjust functions
- Universal internal DC power supply allows world-wide operation without user configuration
- State-sensing, lockable power switch prevents display from being turned off by vandals, and restores operation after AC power is interrupted
- Power-on indicator built-in to power ON/OFF switch
- Variety of VESA-compatible mounting options
- Top or bottom access stand lockdown for stable counter top mounting
- Kensington® lock connection on touchmonitor chassis for best public access security
- Cable management access through display base and bottom
- Touchscreen has high performance wedge seal for best contamination rejection in harsh environments
- Two high performance baffled loudspeakers with 1W+1W audio amplifiers and electronic volume controls
- Optional MSR and customer display for the ultimate POS package

Connections and Installation

Data Connection
Begin your installation by selecting a data connection. For most models, you may use either a serial or USB data connection. MCI 15M and MCI 15MD models use USB only. Choose the appropriate data cable from the accessory kit included with your monitor.

Please note that all Preh MCI Touch Monitors that include an MSR or MSR/Customer Display also have an internal USB hub to interface with the peripheral devices. As a result, the display will have only one USB cable which supports both touch data and the MSR/Customer Display data.

Also, two additional User USB ports are available on the display, and these ports may be used to connect additional USB devices to your system such as a mouse, bar code reader, etc.

Power, Video and Audio
Connect the power, video and (if desired) audio cables to the monitor, using the Quick Set-up Guide for assistance,

Mounting
You may simply place the monitor upright on the base of the desk stand. However, if you wish to use your monitor in any other way than resting it on its stand on a flat surface, you will need to either:
- Attach the stand to a countertop or wall
- Dismount the display chassis from the stand and use the VESA mounting holes on the chassis to attach the display to an arm or other mount.

Note: Connect the cables to the monitor before attaching the stand to a countertop or a wall if access to cable connections will be restricted when the stand mounting is complete.

To attach the stand to a countertop or wall (MCI 15):

- VESA; The four holes near the middle of the base plate are VESA-compatible with spacing of 75 mm center to center. Use these holes to bolt the stand from the back side.
- Keyhole Slots The three large "keyhole" slots may be used to secure bolts, inserted from the front side, with nuts, threaded on from the back side of the mounting surface. Insert bolts in mounting holes, loosely thread nuts on from back side, slip stand keyholes over bolt heads and position bolt shaft in the narrow portion of keyhole slot. Tighten nuts from back side to finish the installation.
- Top-down Anchors; To attach the stand to the mounting surface from the front, use the two round holes adjacent to the cable access cutout, and the hole in the center of the smaller keyhole slot near the front of the base plate. The back holes are accessible through the stand when the rear cover is removed, and the front hole is accessed through the small cover in the top surface of the plastic base. To remove the cover, rotate it 1/4 turn clockwise by inserting a flat blade screwdriver in the cover slot. To attach the display to an arm or other mount, use the VESA-compatible holes after dismounting the display mounting chassis from its stand. The VESA holes are designed to allow for easy attachment of the display to standard swing arms and mounts.

Display Setup and On Screen Display

Connect and secure cables to the display and the computer, except for the USB cable. The AC cord set provided with your display should be appropriate for your region. If the proper cord set has not been provided, you may use any cord set with an IEC320 connector at the appliance end to connect to your touch display.

Notice: Unless your Preh MCI Touch Monitor has a serial data interface, or you are connecting this MCI Touch Monitor to a computer that already has Preh touchscreen MSR and Customer Display drivers installed, please leave the USB cable disconnected until the appropriate drivers for your computer's operating system have been installed.

On Screen Display Controls

The following table shows the OSD and Power control buttons, located on the right side of the display, and both the Normal and Direct Access functions of these buttons.

The Direct Access features can be used by pushing the corresponding button without entering the OSD Menu first. For example, you may access the Display Brightness feature through Direct Access by simply pushing the UP button.

Button	Symbol	Button Name	Function/Normal	Direct Access
1	(E)	Menu	Displays/Exits OSD Menu	
2	(▲)	Up	Increases selected item value	Display brightness
3	(▼)	Down	Decreases selected item value	Audio ON/OFF
4	(↵)	Enter	Selects highlighted menu item	Video auto adjust
5	(⏻)	Power	Turns all display power ON/OFF	

Display Setup

Use the OSD buttons to set up the display:
1. Turn on the display with the POWER button.
2. The display will initially be set to properly display the native resolution for the LCD panel, which is 1024 x 768 pixels. If your computer outputs a video signal at another resolution, further adjustment than described in this section may be required. Contact Preh Technical Support at techsupport@preh.com if assistance is required.
3. Press the ENTER button on the OSD controls. A pop-up window on the display should appear with the message "Auto Adjusting Please Wait."
4. Inspect the top, bottom, left and right edges of a typical application to make sure you can see the entire image on the display without scrolling. If so, you are finished with the basic setup of the display.

Display Resolution

If your application requires use of the display at another resolution than 1024 x 768, such as 800 x 600, you may achieve satisfactory operation by using the Auto Adjust procedure described above, or you may need to use the individual controls in the OSD to properly adjust the display. Access the OSD main menu and use the Video Adjustment functions (see table on next page) to resize, move, or adjust the quality of the displayed image.

OSD Menu and Function

The complete OSD Menu is shown in the table below. The Main Menu icon for each menu group is shaded, and the individual functions within the group follow. To access the OSD Menu, push the MENU button.
Use the ENTER button to select a highlighted menu, and to move between individual items within a menu. Use the UP/DOWN buttons to select/deselect an item, or to increase/decrease the value of an item.

Contrast & Brightness

	Contrast	Controls the display contrast.
	Brightness	Controls the display brightness.

Video Adjustment

	Auto Adjust	Automatically sets display image size, position, and fine adjustment. Contrast and brightness are not adjusted.
	Left/Right	Controls horizontal position.
	Up/Down	Controls vertical position.
	Horizontal Size	Increases or decreases the horizontal size of the image.
	Fine	Controls the vertical fine adjustment. May improve picture detail in emulation modes.

OSD Tool

	OSD Left/Right	Adjusts the default horizontal position of the OSD on the display.
	OSD Up/Down	Adjusts the default vertical position of the OSD on the display.
	OSD Timeout	Determines time (in seconds) that OSD waits before closing automatically after no action has been performed.
	Factory Reset	Recalls original factory settings of image parameters.
	OSD Language	Selects the OSD menu language: English, French, German, Italian, Spanish, Japanese, Traditional Chinese, or Simplified Chinese.
	Color Adjustment	Adjusts preset color temperature of the image. Available choices are 9300, 7500, 6500, and 5500° Kelvin (K). A User mode allows custom setup of each color component of the image-Red, Green and Blue. Default setup for this parameter is 6500° K. Do not adjust color temperature unless you have a specific need to do so.

Audio Adjustment

	Volume	Adjusts the loudspeaker volume.
	Mute ON/OFF	Mute ON turns off the audio function. Mute OFF restores the audio.

Auto Dim

	Auto DIM	Turns the Auto-Sensing Brightness Adjustment circuit ON or OFF.
	Dimming Range	Menu shows sensed light level, and brightness setting as a percentage of full scale (same setting as Brightness in Contrast and Brightness menu when Auto DIM is OFF). With Auto DIM ON, brightness is now controlled by the light sensor located at top center of the front bezel. See additional discussion of the Auto-Sensing Brightness Adjustment.

Power/OSD Lock/Unlock Note:

There is no menu graphic for this feature. The Power/OSD lockout menu is separate from the main OSD.

1. Access this feature by first pressing the MENU button to access the main OSD.
2. While the main OSD is displayed, press and hold the MENU button. The main OSD will disappear.
3. While continuing to hold the MENU button down, momentarily press the POWER button. The POWER/OSD lockout menu will appear.
4. Press the ENTER button to alternately select OSD or POWER, and use the UP and DOWN buttons to toggle your selection between UNLOCK (the default) and LOCK.

OSD LOCK defeats all normal access to the OSD, including the Direct Access shortcuts to Brightness, Audio, and Video Auto Adjust. To access the OSD when in OSD LOCK, press and hold MENU, and while holding MENU down, momentarily press POWER.

POWER LOCK defeats the operation of the POWER button. This feature, in addition to preventing casual vandalism of the system, allows the MCI Touch Monitor to power up properly when the system or MCI Touch Monitor is powered from an outlet strip or remote master switch, or when the monitor is installed in a kiosk or other location where the power button is inaccessible.

OSD buttons
UP, DOWN and ENTER will scroll through available choices when held down continuously.

The Auto-Sensing Brightness Adjustment feature is intended to be used in situations where the ambient lighting can change significantly over time.

The brightness of the image tracks ambient brightness and dims the display as the ambient light decreases, making the image less obtrusive under reduced lighting conditions where high image brightness is not necessary for good viewability.

To use Auto-Sensing Brightness Adjustment:
1. Turn AutoDIM OFF with the Auto DIM OSD menu.
2. Set Brightness to desired value in brightest expected ambient light.
3. Turn AutoDIM ON.
4. Set the Dimming Range to desired value. (See discussion below.)
5. Close AutoDIM menu.

If the brightest ambient light is 150 or above as reported by the Auto DIM OSD menu (units are approximately in Lux, a common measure of illuminance, or lighting of surfaces by light sources), the brightness will not change when the Auto Dim feature is turned ON.

However, when the ambient lighting is less than 150, the display will immediately dim in response to the setting of the Auto Dim range and the ambient light:
- Dimming Range is a measure of how much the display will dim when ambient light is reduced.
- Dimming only occurs in the ambient light range of 0-150 (Lux) as measured by the automatic light sensor. If the ambient light is brighter than 150, no dimming will occur until the light level drops below 150, and then will drop proportionally to the measured light level.

- A Dimming Range setting of 100 means that the image brightness will be reduced to its minimum in total darkness conditions.
- A Dimming Range setting of 0 means that the image brightness will not be reduced at all under total darkness conditions.

Touchscreen and Touchscreen Drivers

Touchscreen Features and Use
Your Preh MCI Touch series touch display is equipped with a resistive touchscreen. Features of a resistive touchscreen that are important for your use are:

- Composition: The touchscreen is made of a thin (about 1/8") sheet of glass overlaid with a layer of plastic. The resulting composite is placed in front of the LCD panel in your Preh MCI Touch Monitor.

- Activation: The touchscreen can be activated by anything that applies a force of about 1 ounce over a normal fingertip-sized area. Objects with smaller contact areas such as a credit card, pen, pencil tip or pencil eraser will activate the touchscreen with even less force. So, in normal circumstances, a very light touch is all that is required to navigate your application with the touchscreen.

- Use and Abuse: The touchscreen plastic layer has a hard front surface coating on it, and will withstand years of use with fingers, fingernails and other relatively large radius styli. However, hard objects with sharp edges can easily damage the touchscreen. Avoid the use of ball-point pen barrels with the tip retracted, microball pens, keys, rings, coins and metal tableware.

- Cleaning: The touchscreen may be cleaned with common glass cleaners, but do not use cleaners with abrasives-Comet, BonAmi, etc. The best procedure for cleaning the screen is to apply your cleaner to a soft cloth or paper towel, and wipe the touchscreen until contamination is removed. Applying cleaner to the cloth rather than spraying it directly on the screen will minimize the amount of overspray that may collect at the bottom of the screen.

- Application Use: One characteristic of the resistive touchscreen technology is that it averages multiple touches. So, If you touch the screen with two fingers at the same time, on opposite sides of the display, the reported location to the application will be in the middle of the screen! Consider this in navigation of your application.

Touchscreen and Peripheral Drivers
Drivers for different operating systems have been supplied on a CDROM that accompanied your MCI Touch Monitor. If you cannot find the disk or need additional copies of the software, contact Preh at techsupport@prehusa.com (Americas only) or support@preh-keytec.de

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Note: Drivers for the MCI 15T' MSR and Line Display modules

Drivers for the MCI 15T' MSR and Line Display modules might not be included in your installation CD
Please download latest drivers from our support area at
www.preh-keytec.com

Touchscreen and Peripherals Driver Installation

Drivers for all supported operating systems are contained on the Preh Install Disk. To install drivers, follow the procedures below as appropriate.

Touchscreen support is provided for Windows 98/Me/NT/2000/XP, DOS and Linux (kernels 4.2.18 and above).

The MSR and Customer Display, which are USB devices, are currently supported under Windows platforms only. Support for Linux will be provided in the future. Contact Preh TechSupport for further information.

Windows 98/Me/NT/2000/XP Installation:

- If you are using a USB data interface, disconnect it from the computer before proceeding. Connect the touchscreen cable if using a serial interface (MCI 15 only). Insert the disk in your drive. If AutoRun does not start the installation, double click the "Setup" program in the CDROM folder.
- Follow the instructions pertaining to your particular product configuration, and check the appropriate boxes in the "Select Features" page to install drivers for the peripherals you have. The POS demo program may be installed now or at any time in the future.
- If the installation program does not restart your computer, shut down, connect the USB cable, if used, and restart.
- After restart, the touchscreen controller and other USB devices, if present (the MSR and Customer Display), will be found by Windows and the drivers automatically installed for them.
- Find the Preh MCI Touch Monitor Settings icon on the desktop or in Control Panel and use the features under the appropriate tabs to configure the operation of the touchscreen for your application, and if necessary, to calibrate the touchscreen to the display image.
- The MSR, if present, is configured for keyboard emulation by default. It should work identically to keyboard wedge readers in all applications. Contact Preh TechSupport at techsupport@prehusa.com (Americas only) or support@preh-keytec.de if this format is not suitable for your application.
- The Customer Display, while hardware interfaced as a USB device, is equivalent to a serial display for programming purposes. Contact Preh Technical Support for programming information on this device.

DOS Installation:

- See specific procedures in DOS section of disk.

Linux Installation:
- See specific procedures in Linux section of disk.
- Kernels 2.4.18 and above (corresponding to RedHat Linux versions 8 and 9) are supported.
- Source code is available on request.
- For additional information contact Preh at techsupport@prehusa.com (Americas only) or support@preh-keytec.de

MCI 15 Specifications

Monitor Part Numbers		MCI 15	
		MCI 15M	
		MCI 15MD	
Display		15" Color AMTFT LCD	
Color		Black	
Touchscreen Technology		5-wire resistive	
Active Screen Dimensions		Horizontal	11.9" (304 mm)
		Vertical	8.9" (228 mm)
Monitor Dimensions	With Stand	Height	13.9" (35.22 cm)
		Width	15.5" (39.37 cm)
		Depth	8.25" (20.95 cm)
	Without Stand	Height	12.9" (32.68 cm)
		Width	15.5" (39.37 cm)
		Depth	2.5" (6.36 cm)
Weight	MCI 15M	Actual	15 lb / 6.8 kg
		Shipping	21 lb / 9.5 kg
Brightness	LCD	250 nit	
	With touchscreen	200 nit	
Resolution	Native	1024 x 768 at 60, 70, or 75 Hz	
	Supported	800 x 600 at 56, 60,72, and 75 Hz	
		720 x 400 at 70 Hz; 720 x 350 at 70 Hz	
		640 x 480 at 60, 72, and 75 Hz	
Viewing Angle	Horizontal	120° Total (60° left/right)	
	Vertical	105° Total (60° up/45° down)	
Contrast Ratio		400 to 1	
Scanning Frequency	Horizontal	31.5 - 60 kHz	
	Vertical	56 - 75 Hz	
Video Input		Analog RGB (VGA)	
		Analog RGB with sync on green	
Video Bandwidth		80 MHz	
Input Video Format		VGA/SVGA/XGA analog	
Power Supply Voltages	Internal DC supply	AC input 100-240VAC/50-60 Hz	
Power Dissipation		30 W max	
Temperature	Operating	0°C to 40°C	
	Storage	-30°C to 60°C	
Humidity	Operating	20% to 80% non-condensing	
	Storage	5% to 90% non-condensing	

External Connections	Power	IEC320 Standard AC inlet
	Audio	Standard 3mm Stereo Jack
	Video	HD15 (VGA)
	Touch Interface	Standard USB series "B" receptacle
		Standard DB9 F Serial (MCI 15 only)
Connectivity		Two USB Type "A" input ports (MCI 15M &
POS Options	Magstripe Reader	3 Track Reader with Power and Error
	Customer Display	2 x 20 VFD Display with Dual Axis (tilt &
Additional features	Power indicator for display, built in to power switch	
	Digital on-screen display (OSD) Hidden, software lockable	
	Direct access to brightness, audio mute, and video auto adjust	
	Auto-Sensing Brightness Adjustment	
	Rubber Wedge Sealed touchscreen	
	Removable base	
	Two 75mm VESA mounts (On base and display chassis)	
	Top or bottom access to countertop mounting holes	
	Kensington lock connection on chassis	
	Broad range of vertical tilt (-5º to +90º)	
	Two built-in 1W baffled speakers	
	Two Port USB Hub (MCI 15M & MCI 15MD models only)	
	Product Agency Approvals: UL, cUL, TUV(GS), FCC Class B	
	Warranty 3 years, 24-hour advance replacement (In the US)	

MCI 15T Specifications

Monitor Part Numbers		MCI 15T C2TR2	
		MCI 15T C2TR4	
		MCI 15T C1TR4	
Display		15" Color AMTFT LCD	
Color	MCI 15T C2RT2	Black	
	MCI 15T C2RT4	Black	
	MCI 15T C1TR4	Beige	
Touchscreen Technology		5-wire resistive	
Active Screen Dimensions		Horizontal	11.9" (304mm)
		Vertical	8.9" (228mm)
Monitor Dimensions	With Stand	Height	13.89" (35.28 cm)
		Width	15.75" (40 cm)
		Depth	10.89" (27.66 cm)
	Without Stand	Height	12.32" (31.30 cm)
		Width	15.75" (40 cm)
		Depth	2.68" (6.80 cm)
Weight		Actual	15 lb/6.8 kg
		Shipping	21 lb/9.5 kg
Brightness	MCI 15T C2RT2	LCD	250 nit
		With Touch	200 nit
	MCI 15T C1RT4 &	LCD	400 nit
	MCI 15T C2RT4	With Touch	320 nit
Resolution	Native	1024 x 768 at 60, 70, or 75 Hz	
	Supported	800 x 600 at 60,72, and 75 Hz	
		720 x 400 at 70 Hz	
		640 x 480 at 60, 72, and 75 Hz	
		640 x 400 at 70 Hz	
Viewing Angle	Horizontal	140° Total (70° left/right)	
	Vertical	125° Total (60° up/65down)	
Contrast Ratio		500 to 1	
Scanning Frequency	Horizontal	31.5 - 60 kHz	
	Vertical	60 - 75 Hz	
Video Input		Analog RGB (VGA)	
		Analog RGB with sync on green	
Video Bandwidth		78.75 MHz	
Input Video Format		VGA/SVGA/XGA analog	
Power Supply Voltages		DC 12V	

Power Dissipation	MCI 15T C2RT2	21 W max.
	MCI 15T C1RT4 & MCI 15T C2RT4	40 W max.
Temperature	Operating	0°C to 40°C
	Storage	-30°C to 60°C
Humidity	Operating	20% to 80% non-condensing
	Storage	5% to 90% non-condensing
External Connections	Power	External +12VDC power pack, 5.5mm miniature jack
	Audio	Standard 3mm Stereo Jack
	Video	HD15 (VGA)
	Touch Interface	Dual Interface USB/Serial Controller; DB9F 9-pin connector (serial interface); Standard USB series "B" receptable (detachable USB cable)
Connectivity	MCI 15T C2RT4	2 x Standard USB series "A" receptacle (detachable USB cable)
	MCI 15T C1RT4	
POS Options	Magstripe Reader	3 Track Reader with Power and Error Indicator Light (Only MCI 15T C2RT4 and MCI 15T C1RT4).
	Customer Display	2 x 20 VFD Display with Dual Axis (tilt & swivel) Movement (Only MCI 15T C2RT4 and MCI 15T C1RT4)
Additional features	Power switch state memory	
	Digital on-screen display (OSD)	
	Rubber Wedge Sealed touchscreen	
	Hidden, software lockable controls	
	Direct access to brightness, audio mute, and video auto adjust functions (bypass OSD)	
	Auto-Sensing Brightness Adjustment	
	Removable base	
	75mm VESA mounts on display chassis	
	Top or bottom access to countertop mounting holes	
	Kensington lock connection on chassis	
	Broad range of vertical tilt (-5º to +90º)	
	Two built-in 1W baffled speakers	
Product Agency	Approvals: UL, cUL, TUV(GS), FCC Class B	
Warranty	3 Years warranty (In the US)	

Glossary

AMTFT: Acronym for Active Matrix Thin Film Transistor. This is the type of liquid crystal display panel used in essentially all computer flat panel displays today.

Calibrate: For touchscreens, "calibrate" is the common term for the process that is really "video alignment." A touchscreen and its controller have a coordinate system that are usually not identical to the coordinate system of the video display of the host computer. By displaying reference points on the MCI Touch Monitor (through the calibration program) and touching those reference points, the MCI Touch Monitor coordinate system is scaled to that of the computer.

Color temperature: Color temperature is a simplified way to characterize the spectral properties of a light source, and is the temperature you would heat a theoretical "black body" source to radiate light of the same visual color. For example, "low" color temperature, like 3200°K, implies warmer (more yellow/red) light, while "high" color temperature, like 9300°K, implies a cooler (more blue) light. Daylight has the 3200°K temperature mentioned near dawn and evening, and a higher one during the day. The standard unit for color temperature is the Kelvin (K).

Contrast Ratio: The ratio of the luminance of the display of a full white image to a full black image. This parameter is useful in determining the relative sharpness of two displays-a higher contrast ratio usually implies a sharper image, especially when text is displayed.

Controller or Touchscreen controller: The electronics that actually process the touch on the touchscreen and sends out a digital representation of that touch to the host computer.

Emulation: As used in display technology, emulation mode means an image displayed at a non-native resolution. For your Preh MCI Touch Monitor and other 15" monitors, the common emulation modes are 800 x 600 and 640 x 480. In emulation modes, a monitor cannot perfectly display the image sent from the computer when the monitor pixel to image pixel ratio is not an integral multiple.

Hub or USB hub: An electronic circuit that combines several USB signals into one.

Illuminance: The measure of how much luminous flux per unit area that impinges on a particular surface, or how bright a point source of light appears to the eye. It is measured in footcandles or in lux.

Kelvin: The scale of temperature measurement that begins at absolute zero. The increment of temperature that one Kelvin represents is the same as that of the Celsius scale, but the scale starts at -273.16°C. Thus 293°K is about 20°C or 68°F.

Keyboard emulation: Produces the same output as a keyboard, or a "keyboard wedge" magnetic stripe reader.

Keyboard wedge: An MSR unit that connects to a computer keyboard port with a cable that also connects the standard keyboard, thus a keyboard wedge.

LCD: Acronym for Liquid Crystal Display. The most common technology used in flat computer displays today. "Liquid crystal" molecules (a very complex chemical engineered for this function) sandwiched between a combination of flat glass color filters and polarizers, pass or block light in response to electrical signals applied by the display electronics. The result is a very sharp,

bright display that is very thin, and uses little power, compared with a CRT, or tube-type monitor.

Lux: The standard unit for illuminance is lux (lx) which is lumens per square meter (lm/m2). 1 lux=10.764 footcandle. Common room lighting is 100-1000 lux.

MSR: Acronym for Magnetic Stripe Reader. A device that reads information encoded in the magnetic stripes on the back of a credit card, etc. The process is essentially identical to the operation of a cassette tape player.

Native resolution: The resolution of a digital flat panel display that actually describes how many pixels are in each row and column of the display, and which is the resolution that the display is optimized for. Your 15" Preh MCI Touch Monitor has a native resolution of 1024 x 768, which means that the LCD panel has 1024 pixels on each row, and has 768 rows. Each element of video information received from the computer/display electronics is assigned to and displayed by a specific location on the display panel-a pixel. At resolutions other than native (see emulation) there is not a one-to-one correspondence between the video information elements and the available pixels on the display. The display electronics must compensate for this and cannot do a perfect conversion, thus emulation modes never look as good as images displayed at the native resolution.

Nit: The standard unit of luminance is the candela per square meter (cd/m2), or Nit.

Pixel: Abbreviation for "picture element." In an electronic display, the smallest complete element of the picture that contains all possible colors and proper brightness. In your Preh MCI Touch Monitor, one pixel of the LCD panel is a square "window," with an area of about 0.3 x 0.3mm, containing three smaller windows that pass red, green or blue light at the appropriate brightness in response to the video signal from the computer.

Polarizer: A thin glass or plastic sheet that filters out light rays of all but a specific orientation. Light passing through such a sheet is thus polarized.

POS: Acronym for Point Of Sale.

Serial: A data transmission method where each bit (a "1" or "0") of data is passed sequentially (or serially) over a single data path (a wire…). The most common standard for this method is called RS232. This is a very common method of interfacing peripheral equipment to older computers. Today this method is increasingly replaced by another method called USB (see below).

USB: Acronym for Universal Serial Bus. A common method for interfacing peripheral equipment to computers. It has the advantages over other serial data transmission standards of higher speeds and the ability to connect many devices to the same port on a computer.

VESA: Acronym for Video Electronics Standards Association. An industry trade group that promotes interoperability standards within the video and computer industry. The VESA mounting pattern (75mm) for displays is used by your Preh MCI Touch Monitor on the base and chassis, allowing the monitor to be quickly attached to standard swing arms and mounting plates.

Preh-Keytec Product Warranty

Preh-Keytec warrants that the Products will conform to the Specifications and be free from defects in material and workmanship for three (3) years from date of shipment. 3 years warranty applies only for US, customers. For Europe and other countries, please contact marketing@ preh-keytec.de for more information. Customer shall contact Preh-Keytec immediately upon discovery of any defects within the warranty period. Products must be returned to Preh-Keytec within thirty (30) days of Preh-Keytec's receipt of warranty claim notice and only after receiving Preh-Keytec's authorization to return products in accordance with Preh-Keytec's Product Return Policy. In the case Customer needs fast turnaround for product replacement, Preh-Keytec will issue advance replacements with 24 hours (US Only) after an Preh-Keytec Return Material Authorization (RMA) number has been issued for Product to be returned. Warranty repairs shall be warranted for the remainder of the original warranty period for the Product. This warranty is void if the Products have been repaired, altered or modified in any manner by persons other than Preh-Keytec, without Preh-Keytec's prior written approval. This warranty excludes prototypes and conditions in Products resulting from normal wear and tear. Defects caused in whole or in part by failure to properly store, install, operate or maintain Products in accordance with good industry practices and Preh-Keytec's recommendations are excluded from warranty coverage. Damage caused by use of the Product other than that which it is intended is excluded from warranty coverage. Repair or replacement is Customer's exclusive remedy under this warranty, except if such remedy is adjudicated inadequate, Preh-Keytec shall refund the paid price of the Products. Preh-Keytec will pay to return the Products to Customer. The turnaround time on repairs will usually be thirty (30) working days or less. Preh-Keytec accepts no added liability for additional days required for repair. This warranty shall not be enlarged or modified, and no obligation or liability of Preh-Keytec shall be created, by Preh-Keytec offering technical advice, assistance, or services relating to the Products. Before returning Products to Preh-Keytec on warranty claim, Customer shall remove from the Products any hardware, data, software or programs or keep backups. Preh-Keytec disclaims any liability for loss of such data in returned Products. PREH-KEYTEC MAKES NO OTHER WARRANTY OF ANY KIND WITH RESPECT TO THE PRODUCTS, except as specified herein. ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, IMPLIED WARRANTIES OF