

# DIGITAL SYSTEMS ENGINEERING

# TOUCH SCREEN

# INSTALLATION

# USER GUIDE

FOR ALL SIZES OF LCD RUGGED MONITORS

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# TOUCH SCREEN INSTALLATION

Touch Screen Installation Instructions are provided by Digital Systems Engineering. Questions? Contact DSE's Service Center at 480.515.1110, e-mail [Service@digitalsys.com](mailto:Service@digitalsys.com), or visit [www.digitalsys.com](http://www.digitalsys.com).



## ALWAYS CALIBRATE!

**CALIBRATE!** Touch Screen Controller Drivers are stored on the System, not the Display. When adding a Display to a new or different System, always calibrate Display to the new System.

## Windows Operating Systems

Operating Systems that are compatible with TSHARC™ T/S Controller Driver are: Microsoft® Win 11/10/8/7/7e/XP/XPe (32 and 64-bit); RS232 and USB drivers. For other MS O/S, contact [Service@digitalsys.com](mailto:Service@digitalsys.com) for assistance.

## Touch Screen Installation in New Systems



### INSTALL O/S FIRST

**If installing a new operating system (O/S), do not install T/S Controller Driver until O/S is installed and Computer's video display settings have been verified. T/S Controller Driver uses Computer's O/S display driver settings to accurately configure T/S Controller Driver files.**

## Remove Previous Version of T/S Controller Driver in Established Systems

### Previous Versions of Other Manufacturers' T/S Controller Drivers

If a different T/S Controller Driver (not TSHARC™) is on the Computer, it must be removed before installing the TSHARC™ driver. Contact manufacturer of previously installed driver program to learn how to uninstall their product. Instructions should be available from manufacturer's web site. **Note: A typical generic driver uninstall program utility does not remove all traces of a T/S Driver installation.**



### REMOVE PREVIOUSLY INSTALLED TOUCH SCREEN DRIVERS

**Previous versions of ANY T/S Controller Driver must be removed before installing the latest version of the TSHARC™ T/S Controller Driver. A typical generic driver uninstall program utility does not remove all traces of a T/S Driver installation.**

## Uninstall TSHARC™ Driver Utility

### Uninstall a Previous Version of TSHARC™ Driver

The uninstall utility (TSUN.exe) is embedded in the TSHARC™ driver package. Go to Start Menu > Settings > Control Panel > Add/Remove Programs. Select "Touch Screen Controller Uninstall" from the list. This will run the TSHARC™ uninstall utility. Click "Remove Button". Read the Message Box then 'Accept'. Follow through and reboot the system when prompted.

## Touch Screen Controller Driver Installation



### FOR RS232, FIRST ENABLE COM PORT

**If installing using RS232, Before loading the T/S Controller Driver, verify COM ports are enabled (especially with laptops as these may not be enabled in the default set-up).**

### TSHARC™ Touch Screen Controller Driver

TSHARC™ T/S Controller Driver files are available at DSE's web site: [www.digitalsys.com](http://www.digitalsys.com).



### MULTI-DISPLAY TOUCH SCREENS

- For Multi-Display Touch Screen applications, all Monitors must be connected to Computer before installing the TSHARC™ driver
- If installing RS232 connectors, the drivers have to be installed for each T/S, or
- If installing USB connectors, the drivers install once for multiple T/S
- If the T/S connector is USB, the Window O/S loads a temporary USB driver; wait for the driver to load.

### Installation

**For Multi-Display Touch Screen applications, all Monitors must be connected to Computer before installing the TSHARC™ driver application.**

1. Verify the T/S Cable is connected to the Display
2. Attach the T/S Cable's RS232 connector to the Computer serial (COM) port where the T/S will be installed, or
3. If the Display was ordered with Touch Screen through a USB connector, insert the cable to the Computer USB port where the T/S will be installed, and
4. If the optional USB Pass-through was ordered, attach the T/S Cable's other split end connector, the USB, to a Computer USB port.

# TOUCH SCREEN INSTALLATION (CONTINUED)

5. Boot up the Computer; download the Driver zip file to the Desktop
6. On Desktop, left double mouse click to open
7. Follow instructions to unzip the file
8. Save installation files where User chooses, and
9. Left mouse double click to run "set-up.exe" program
10. Follow instructions.

## TSHARC™ Installation

### EULA Agreement

1. At Setup Welcome screen, select Next to go to End User's License Agreement (EULA)
2. After reading EULA, if in agreement, check box "I accept all of the terms..." and
3. Select Next
4. If not in agreement, follow instructions to Exit.

### Select Controller

**Note: A PS/2 Controller Interface is not available.**

1. The TSHARC™ Driver is a 12 or 10 Bit Controller; radio button is selected by default
2. Select Controller Interface for Serial RS232 or USB (HID compliant)
3. Select Autodetect button if installing through a Serial RS232 Interface
4. There are two options for RS232 installation: Autodetect and Manual.
5. If selecting USB (Figure 1), note that the O/S will load a generic driver; ignore, and continue to install the TSHARC driver to insure correct calibration of the system. It will also insure proper functionality and configuration of the touch controller.
6. Select Next when the Controller type has been selected.

### Autodetect RS232 Controller Set-up

1. Select Autodetect button; wait for the controller to be detected
2. When it appears, select OK to accept; close the window
3. Select Next to continue the installation process (Figure 2)
4. Following installation, select Finish, and
5. Reboot Computer when prompted.

### Manual RS232 Controller Set-up

1. Select Controller Interface RS232 button, and
2. Select Next
3. Enter COM port selection
4. The T/S Controller baud rate default is 9600
5. Select Next (Figure 3)
6. Following installation, select Finish, and
7. Reboot Computer when prompted.

### Complete Installation Process

1. Verify the selected controller attributes, listed in the bottom left of screen
3. Select "Back" if changes need to be made
4. Select 'Finish' to complete installation
5. If Touch Screen Tray Application to "System Tray" is desired, select the check box. The "Touch Screen Tray Application" will launch the TSHARC control panel from the system tray and provide display rotation support. More details on next page
6. Click "Finish" once the driver is configured. It may take a couple minutes to install the selected driver (Figure 4)
7. Click "Ok" once "Setup is now complete" appears, and
8. Reboot Computer if prompted.

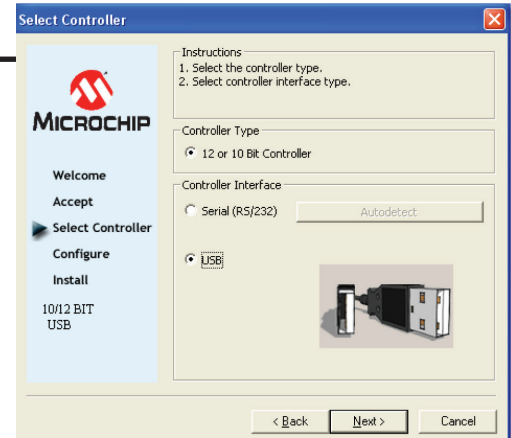


Figure 1

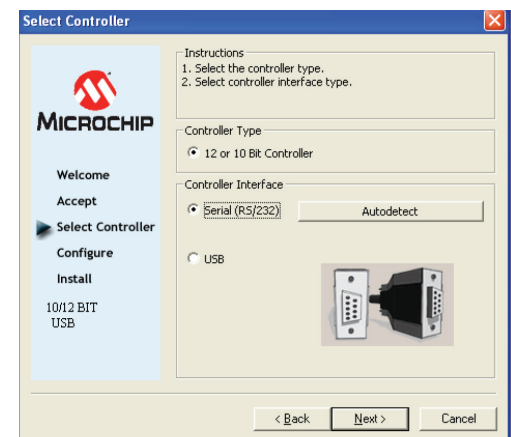


Figure 2

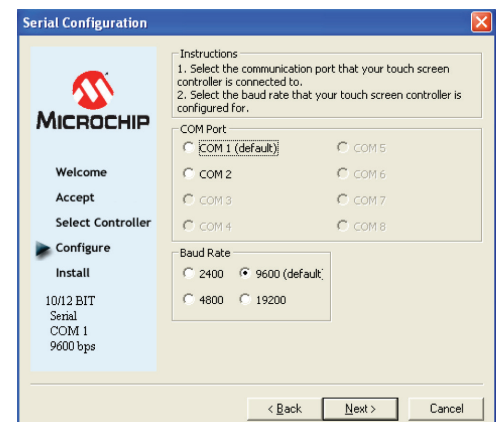


Figure 3



Figure 4

# TOUCH SCREEN INSTALLATION (CONTINUED)

## Touch Screen Bar Tray Icon

1. The T/S Controller Bar Tray icon (Figure 5) is installed by default. This is necessary on systems requiring
  - Multi-Display support
  - Display Rotational support
  - Control Panel Icon in Bar Tray
2. Right click Bar Tray icon to open menu and select
  - Start Tray Application on Startup
  - Do not start Tray Application on Startup

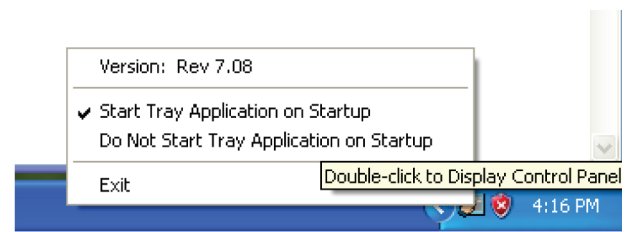


Figure 5

# TOUCH SCREEN CALIBRATION

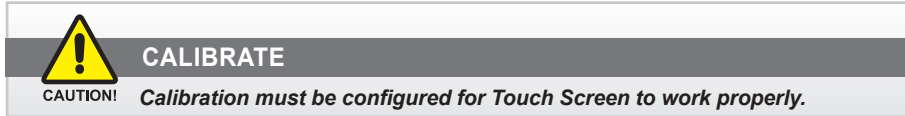
## TSHARC™ Calibration Program

Upon reboot, the T/S is functional, but not calibrated. **Calibration must be configured for the T/S to work properly.** The TSHARC™ Control Panel initiates the calibration process. Go to Start > Programs > Microchip TSHARC™ Control Panel. If Start the Tray Application was selected in the last step, Control Panel can be launched from its icon in the Bar Tray.

The Control Panel has several tabs. Each tab provides links to tools to modify the TSHARC™ Driver to meet specific needs:

- Screen Selection
- Calibration
- Click Settings
- Touch Settings
- Tools

## TSHARC™ Control Panel



## Screen Selection

**Note:** If not a Multi-Display installation, skip to Calibration.

## Configuring a Multi-Display Installation

1. The Controller installation program opens to the Screen Selection tab with a graphic representation of Displays installed (Figure 6)
2. Using keypad or mouse, in shown numbered sequence, select the Display icon to calibrate
3. Switch to Calibration tab, and
4. When calibrated, return to Screen Selection; in sequence select next Display. Repeat until all are calibrated.

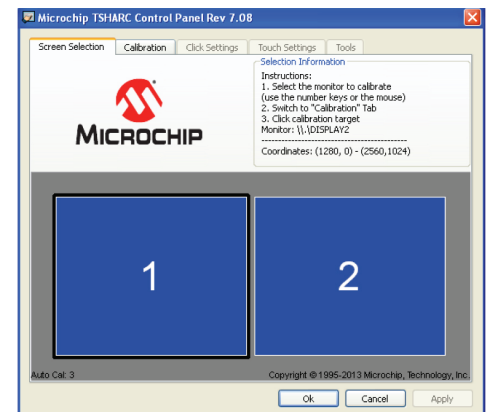


Figure 6

## General Calibration Instructions

Calibration aligns the T/S overlay to specific points on the Display screen. **Calibration is required when Display is plugged into any new system.**

1. By default the Calibration program launches within 10 seconds, or select Calibration tab
2. Default Calibration process is Four-Point, a widely applicable general calibration; it compensates for skew and some edge linearity anomalies (Figure 7),
3. To calibrate to Four-Point, select Begin Calibration button, and
4. Go to section Calibration Process, or
5. Using the left slide bar, select the number Calibration points to configure:
  - Four-Point: A quick calibration of a known good overlay with no correction applied
  - Five-Point: Compensates for skew and some edge linearity anomalies
  - Nine-Point: More accurate than Five-Point. No correction is applied
  - Twenty-Five Point: Provides a higher level of linearization and skew correction
  - Twenty-Eight Point: Provides the highest level of linearization

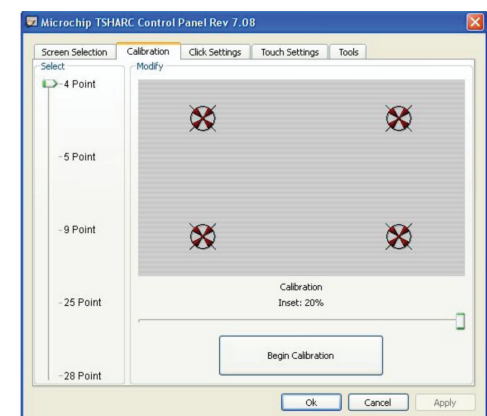



Figure 7

# TOUCH SCREEN CALIBRATION (CONTINUED)

## Calibration Inset Options

Use the Calibration Inset Option to bring targets away from edges of display (Figure 8). This is to eliminate physical limitations that might be created by the Display's bezel or installation.

1. Adjust the value of the inset by adjusting the slide bar; it may be necessary to fine-tune the inset percentage to get the best possible bow correction
2. Different calibrations have different defaults and allowed ranges for insets. It is recommended to use the smallest inset possible when performing calibration.
3. Default recommended calibration inset values depend on the number of points selected.
  - 4 or 5 point ~ 20% inset
  - 9, 25 or 28 point ~ 2% inset
4. Set parameters for calibration, then select the Begin Calibration button.

**CALIBRATE**

**CAUTION!** *CALIBRATE! Touch Screen Controller Drivers are stored on the system, not the Display. When adding a Display to a new or different system, always calibrate Display to the new system.*

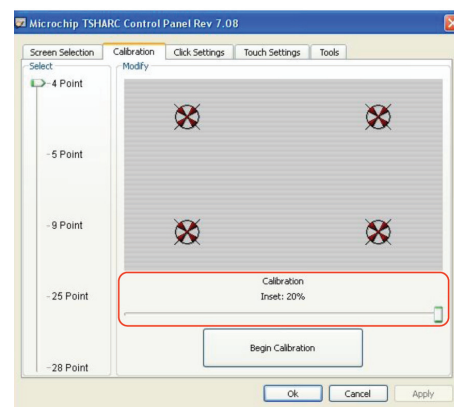


Figure 8

## Calibration Process

**It is important that all calibration routines be completed using a finger or a stylus.** If using a stylus during operation, calibrate with a stylus. Be sure to position in front of touch screen as it will normally be used, sitting or standing. This will reduce error when calibrating. (Figure 9)

1. TOUCH and HOLD the center of each target as directed by the displayed adjacent text. Hold the center of each calibration target until it shrinks and the "Hold" text changes to "Release". Touch the center of each target as accurately as possible. The specially designed calibration targets assist in calibrating the touch screen as accurately as possible.
2. The calibration screen will automatically time out and return to the control panel if the first target is not activated within 10 seconds. This time-out feature insures that the user can exit the calibration screen in the event that the user has incorrectly calibrated the touch screen or the touch screen has been damaged or disconnected from the host Computer.

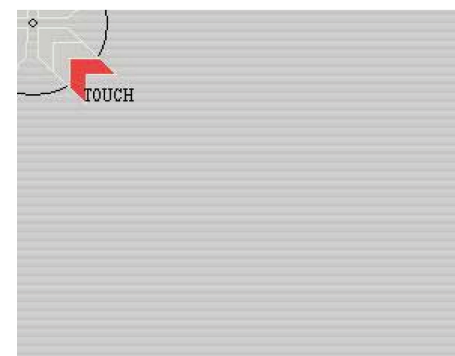


Figure 9

## In-Process Calibration Test

This is the last screen of the Calibration Process. (Figure 10)

1. Touch the screen and observe if the calibration target is displayed under your finger or stylus. Check many different points on the screen, as one inaccurately calibrated point may not be noticeable immediately. Also, check along all edges to insure accuracy.
2. Select "Accept" to apply and record the calibration data. Select "Cancel" to return to the calibration tab without recording calibration data. Either selection will return the user to the Calibration tab. (There is a timer displayed on the Cancel button. When this timer expires, the settings will not be saved, and you will return to the Calibration Tab screen.)
3. Once returned to the Calibration tab, select, "OK" or "Apply" to save settings. If using multiple touch-screen monitors return to the "Screen Selection" tab shown in Figure 7 and select another monitor to calibrate following this same Calibration Process for each monitor.

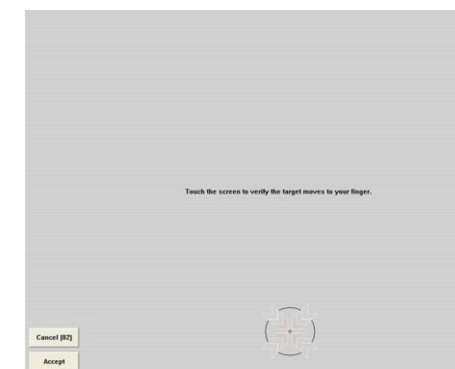


Figure 10

## Click Settings Tab

1. **Right Click.** There is a "timed hold" right-click mouse event. This allows the user to initiate a "right click" by holding down a touch point for a specified period. Check the "Enable Right-Click" box to enable the right click option. (Figure 11)
2. **Right Click Area.** The event area should be set to an area slightly larger than the activator tip. If activator is a fingertip, the right click area should be at least as large as your fingertip.
3. **Right Click Delay.** Set the "Right-Click Delay" value to the preferred time needed to produce a right click event.
4. **Double Click Area.** Set the area to allow for a double left-click event. This area should be set to an area where user can accurately touch twice. If area is too small, user may not be able to create a double left-click. If too large, user may activate double-clicks when not intended.
5. **Double Click Speed.** Set to allow a sufficient amount of time needed to perform a double touch in the specified area. If setting is too high, user may not be able to touch quickly enough to create a double left-click. If too low, user may issue double-clicks when not intended.
6. Click or touch "Apply" to apply selections. Click "OK" to apply and exit the control panel.

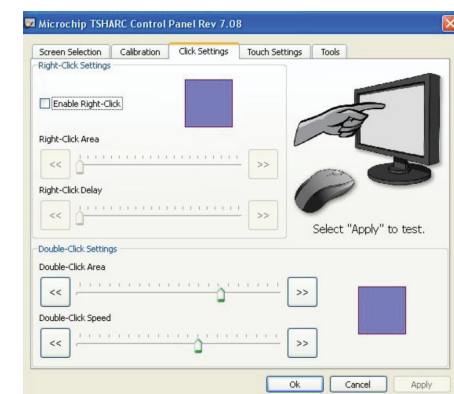


Figure 11



# TOUCH SCREEN CALIBRATION (CONTINUED)

## Touch Settings Tab

Add a sound to touch operation as well as customize touch settings (Figure 12).

**Touch Sound.** Check “Enable Touch Sound” to enable a sound when sending a touch point. To change the default .wav file played:

1. Go to the Start menu and select the Control Panel
2. Open “Sound and Audio Devices” and select the “Sounds” tab
3. Locate “Default beep”. This entry is selected by the driver to play on each touch event
4. Select “Apply” to apply the changes

**Normal.** This mode emulates a standard mouse. Selecting “Normal” will allow for single click, double click, drawing, dragging and right click option. This mode will allow the cursor to operate as a Computer mouse typically would.

**Touch-Down.** Touch-Down mode will allow for a click event to take place at “Touch-Down”. This allows the cursor to operate as a single button-press or a single left-click of the Computer mouse. **The user will not be able to draw or drag if selecting this option.**

**Touch-Up.** A touch is sent only at Touch-Up in this mode. Once lifted, the touch will register as a single left-click or button press. **It also disables right click.** Click or touch “Apply” to apply the selection. Click “OK” to apply and exit the control panel.

## Tools Tab

Several Tools are added to the software application. (Figure 13)

**Drawing Test.** The drawing test will display a full screen window to test calibration. Please refer to Figure 14 for clarification.

**Controller Information.** The control panel will identify the type of controller. This information will appear directly next to the button. This includes controller type and firmware version.

**Screen Cleaning.** This button will disable the touch screen for 15 seconds. During this time, clean the screen without touch input. A countdown timer is displayed below the description.

## Drawing Test Application

Run a “Drawing Test” to insure an accurate calibration.

1. Select the Tools Tab; Click or touch the “Drawing Test” button to begin the test. This is a simple drawing program used to determine if the touch screen is working properly.
2. Draw on the screen with a finger or stylus and notice if the screen is displaying the movement accurately. The green circles indicate a “pen down” while the red indicates a “pen up” on the touch screen. A “Clear” button is included so the user can start the drawing test over within the same trial run.
3. Click or touch “Exit” to exit the drawing test screen.

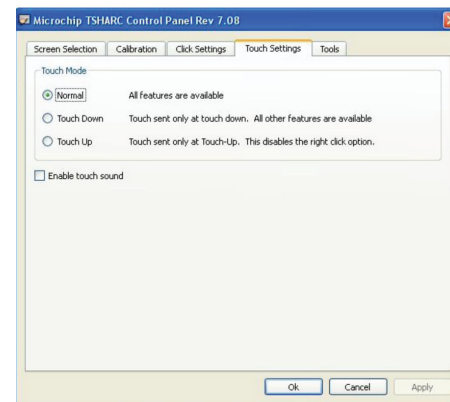


Figure 12

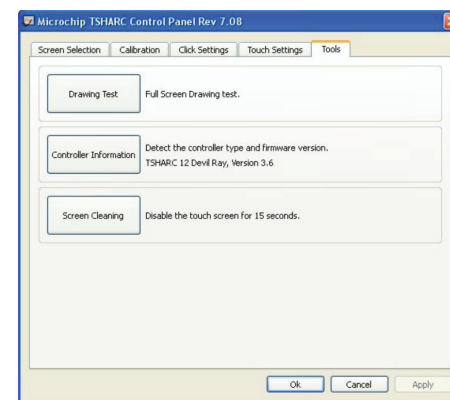


Figure 13

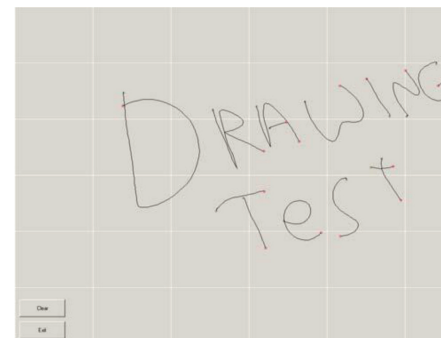


Figure 14

# PRODUCT CARE

## USB Touch Screen: Basic Power ON/OFF Instructions

When powering down the Display, it is recommended to leave off for a minimum of 15 seconds so USB Touch Screen Drivers can clear. If not followed, there will be a delayed response (up to 18 seconds) as USB Drivers reload and then recalibrate.

## Touch Screen Cleaning

The Touch Screen Display is a glass-based product.

- Use a special screen cleaning tissue or a solution specifically formulated for antistatic coatings. Follow manufacturer’s instructions, or
- Lightly dampen a soft clean cloth with water or a general purpose mild detergent solution
- Keep a fresh side of cleaning cloth towards Display screen surface to avoid scratching with accumulated grit, and
- To minimize risk of abrasion to Display screen, air drying is recommended.
- Long-term Storage: Cover Display with a protective covering that will not scratch or transfer dyes to the Screen.



**WARNING! POWER OFF DISPLAY BEFORE TOUCH SCREEN CLEANING**

**Before cleaning a Touch Screen, power OFF the Display.**

# APPENDIX A - TROUBLESHOOTING

**Symptom: Touch Screen indicates movement but does not follow a finger or stylus**

Possible Problem	Solution
Controller is not calibrated	Run calibration in TSHARC™ Control Panel software.
T/S Controller Driver is not installed	Install TSHARC™ Controller Driver.
T/S cable (video) is not installed correctly	Verify video cable is installed correctly.

**Symptom: Touch Screen does not respond**

Possible Problem	Solution
T/S cable is not plugged in	Verify connections between the T/S and Computer.
T/S cable is installed in a different COM port than installed by the software	Install T/S into another COM port. If using a laptop, verify COM port(s) is enabled.
T/S Controller driver has not been installed	Install TSHARC™ Controller driver.
Hardware failure	Contact a DSE Technical Support Technician (480.515.1110 x111).

**Symptom: “Error in Calibration” message appears**

Possible Problem	Solution
T/S Controller Driver is not installed correctly	Uninstall driver using “TSUN10.exe”. If a previous T/S Controller Driver was installed, all footprints must be removed. Go to T/S manufacturer’s web site or contact manufacturer for instructions to uninstall driver, then reinstall TSHARC™ Driver software.

**Symptom: ‘False Touch’ or Cursor pulls away from Touch Point**

Possible Problem	Solution
Touch Screen was depressed at Power ON.	Power OFF/ON the display (only). Touch Screen drivers need to initialize with the display before touch functions are available. Do not depress Touch Screen at Power ON.
Dirt or large particles have accumulated between bezel and touch screen	Use canned air or an air hose set not greater than 35 psi to blow out accumulated dirt from the seam where the bezel meets the touch screen. Take care not to use any more air pressure or the interior gasket can be moved out of position, negating the waterproof properties of the unit.

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