



Touchscreen User Manual

Revision B

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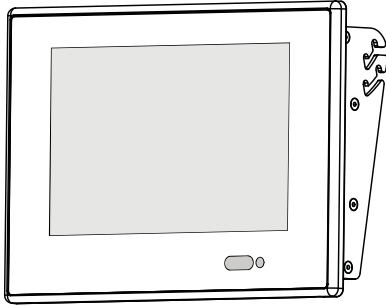
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Introduction

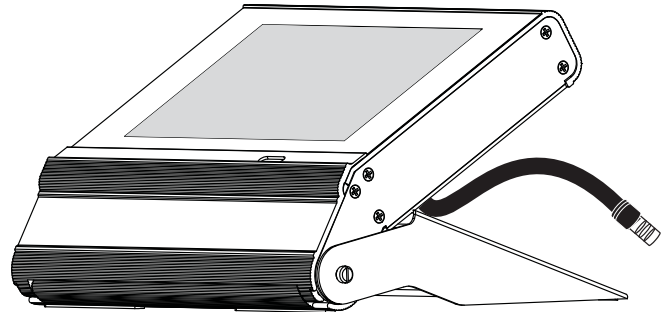
Welcome to the Paradigm Touchscreen user's guide. This manual contains the procedures for setup of the Paradigm Touchscreens including theme file loading, menu navigation, touchscreen calibration, timed events editing, and cleaning instructions.

Reference the related Paradigm Touchscreen *Installation* or *Setup Guide* for information on installation and hardware setup.

Unison Paradigm Wall Mount Touchscreen



Unison Paradigm Portable Touchscreen



The wall mount Touchscreen is also available with a locking cover or in a rack mount panel.

Touchscreen Specifications

The Paradigm Touchscreen is a high resolution color Touchscreen for use with the Paradigm Architectural Control Processor (P-ACP). The Touchscreen features a 7" (17.8cm) WVGA display with 800x480 pixel resolution utilizing 24-bit color depth and a 10:6 aspect ratio.

Warnings and Notice Conventions

These symbols are used in ETC documentation to alert you to danger or important information:



Note: *Notes are helpful hints and information that is supplemental to the main text.*



CAUTION: *A Caution statement indicates situations where there may be undefined or unwanted consequences of an action, potential for data loss or an equipment problem.*



WARNING: *A Warning statement indicates situations where damage may occur, people may be harmed, or there are serious or dangerous consequences of an action.*



WARNING: *RISK OF ELECTRIC SHOCK! This warning statement indicates situations where there is a risk of electric shock.*

Contacting ETC

If you are having difficulties with your Paradigm Touchscreen, your most convenient resources are the references given in this user guide. To search more widely, try the ETC website at www.etcconnect.com. If none of these resources is sufficient, contact ETC Technical Services directly at one of the offices identified below. Emergency service is available from all ETC offices outside of normal business hours. When calling for help, please have the following information handy:

- Your location and job name.
- A complete list of ETC product including model and serial numbers if available.
- A list of other installed components in your system (Unison[®], other consoles, etc.).

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Overview

Power and Data Connections

Paradigm Wall Mount and Rack Mount Touchscreen stations are designed to connect to the Paradigm Control system using either LinkConnect or NetConnect for power and data.



Note:

The ground connection to the Wall Mount and Rack Mount Touchscreen is provided through the RJ11 connection, regardless of the data connection type, LinkConnect or NetConnect.

A Paradigm Portable Touchscreen is designed to connect to the Paradigm Control system using only Portable LinkConnect; a Unison Heritage Portable Connector (UH1RS) station wired using LinkConnect is required.

LinkConnect

LinkConnect uses Echelon® LonTalk® with LinkPower to connect between the Paradigm Touchscreen and the Paradigm Architectural Control Processor.

The Paradigm Wall Mount Touchscreen, when connected over LinkConnect, utilizes three watts of power at 24 Vdc.

Reference the related Touchscreen installation guide for details of installation and setup.

NetConnect

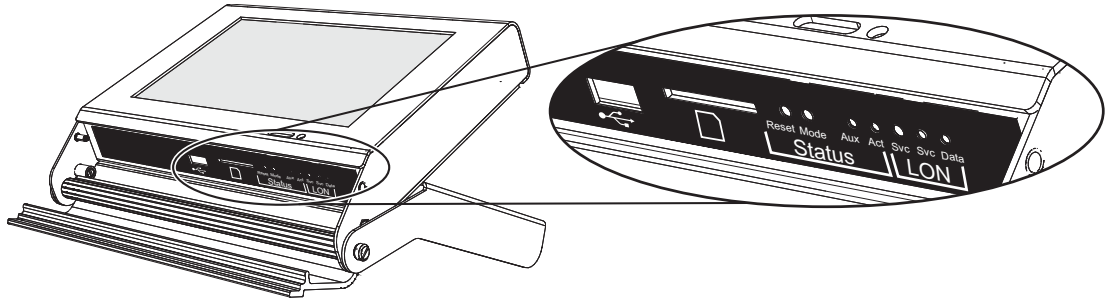
NetConnect uses Power over Ethernet (PoE 802.3af) communications to connect between the Paradigm Touchscreen and the host Paradigm rack enclosure.

Reference the related Touchscreen installation guide for details of installation, wiring requirements and setup.

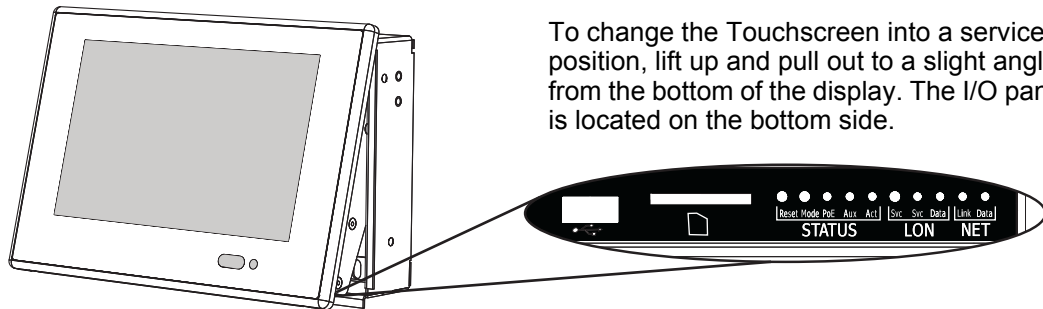
Touchscreen Inputs, Outputs and Indicators

Each model of the Touchscreen has an I/O panel that includes an USB port, SD card slot, and a selection of indicators and service pins. The indicator and service pin selections vary depending on the model of Touchscreen.

The Portable Touchscreen I/O panel is revealed behind a door on the bottom of the unit.



The Wall Mount and Rack Mount Touchscreen I/O panel is located on the bottom side of the unit, viewable only when the LCD is in the Service position.



To change the Touchscreen into a service position, lift up and pull out to a slight angle from the bottom of the display. The I/O panel is located on the bottom side.

Ports

- **USB port** - This connection is used for local upload or download of configuration and theme files. The USB connection supports all USB keys that require 250mA of power or less.
- **Secure Digital (SD) card slot** - This connection is used for local upload and download of configuration and theme files. The SD card slot supports standard SD cards up to 2GB. High capacity (SDHC) cards are not supported.

Buttons and Indicator LEDs

Each of the buttons and indicators on the Touchscreen I/O panel are labeled and grouped according to its relationship and function.

For example, the section labeled with “Status” include all buttons and indicators that relate specifically to the Touchscreens function and features including software reset, setup menu access, and power source.

Buttons and indicators that relate specifically to [LinkConnect](#) data use are labeled in the “LON” section and others that relate specifically to [NetConnect](#) data use are labeled in the “NET” section.



Note:

Availability of buttons and indicators varies according to the Touchscreen model. For example, a Paradigm Portable Touchscreen will not have a “NET” related items as it does not support NetConnect.

Status

- **“Reset” button** - when pressed, resets the LCD software causing a reboot and service pin message to the connected processor.
- **“Mode” button** - press once for “Setup menu”. Press and hold four seconds to calibrate the Touchscreen.
- **“PoE” LED**- illuminates solid when Power over Ethernet is present (NetConnect only).
- **“Aux” LED** - illuminates solid when the Touchscreen is powered (LinkConnect only).
- **“Act” LED** - reserved for future development.

LON

- **“Svc” pin button** - sends a “service pin” message when pressed, which sends the station Neuron ID to the connected processor. This provides the same function as the on screen **[Service Pin]** button found in the [Setup Menu](#).
- **“Svc” LED** - illuminates when a service pin command has been sent to the processor.
- **“Data” LED** - illuminates (flashing) to indicate transmission of data packets when the Touchscreen is connected to a processor using LinkConnect.

NET

- **“Link” LED** - indicates a valid network connection is present to the Touchscreen using NetConnect. This indicates connection to any Ethernet device (such as a switch).
- **“Data” LED** - indicates by flashing LED when data is transmitted over NetConnect. This indicates connection to any network device (such as a switch).

ControlDesigner Software

Paradigm ControlDesigner software is used to create graphical layouts and page navigation for Unison Paradigm Touchscreen stations. These graphical layouts and page navigations are also known as the Touchscreen configuration file.

Among the many other tools provided in ControlDesigner software, a user is provided the ability to add custom images to Touchscreen controls such as page backgrounds and button states.

The Paradigm Touchscreen supports configuration files that are uploaded from the connected Paradigm Architectural Control Processor (P-ACP) or loaded directly to the Touchscreen using removable media, such as a USB key or Secure Digital (SD) card.

Image Resources

Multiple unique page background images can be used in a single Paradigm Touchscreen configuration. To reduce the configuration file size and amount of data the Touchscreen must process, all background images should be resized to the native resolution of the Touchscreen, 800 x 480 pixels, or smaller.

Other control object states may also have unique images. Image resources should be sized as small as possible for the application they are to be used.



Note:

For best results, an image that is used more than one time in a Touchscreen configuration should be added to the theme using Paradigm ThemeDesigner software. Adding the image to the theme reduces the configuration file size, thereby reducing the file transfer time and storage space required on the Touchscreen. Contact ETC Technical Services for assistance.

Image Format

ControlDesigner software supports the following image formats for use on page backgrounds and button states:

- Portable Network Graphic (.png).
- Graphical Interchange Format (.gif).
- JPEG Image File (.jpg). Excluding compressed .jpg files as they will not display on the Paradigm Touchscreen.
- X11 Pixmap Graphic (.xpm)



Note:

ETC recommends that all images used in a configuration file for the Paradigm Touchscreen be a .png file format as it supports transparency, reduces the file size, and maintains the best performance of the Touchscreen.

Configuration files and even specific image resources that are too large will not load onto the Touchscreen.

Sound Resources

Paradigm Portable Touchscreen stations are equipped with an integrated speaker; a standard hardware feature. In ControlDesigner software, sounds (audio) can be associated to a control's skin as to provide audible feedback, as indication of a control's state change.

Sound File Format

The Paradigm Touchscreen station uses Waveform Audio File Format (.wav) for audio playback. Support is provided for either 8-bit or 16-bit stereo formatted .wav files with a sample rate of 8 kHz, 11 kHz, 22kHz, or 44kHz.

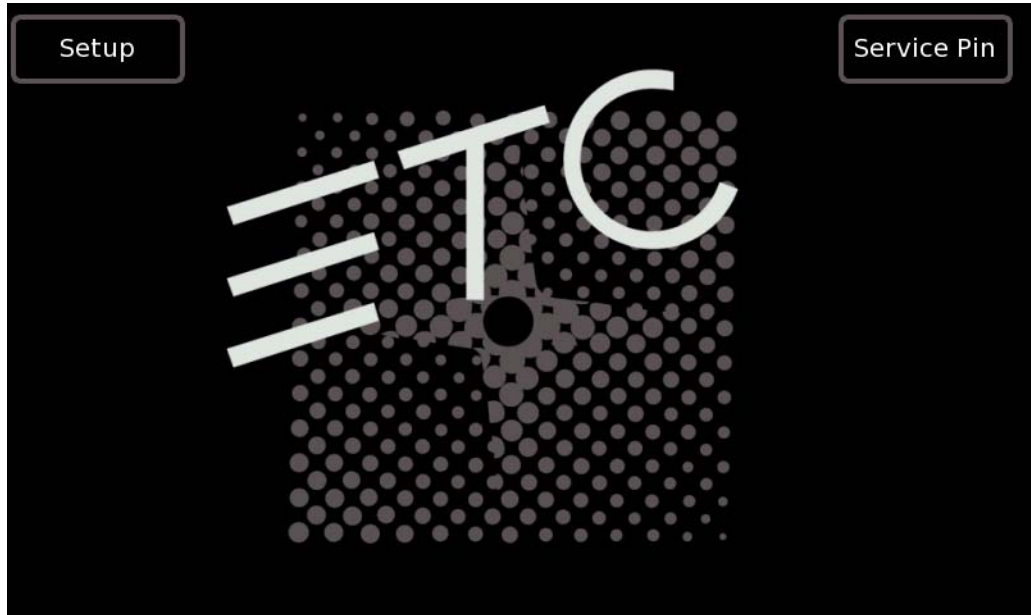
Touchscreen Setup Menu

How a Touchscreen behaves when it is powered depends on two things:

- 1 **Is a ControlDesigner configuration file loaded onto the Touchscreen?**
- 2 **Is the Touchscreen bound/connected with the P-ACP?**

When both of these are true, and the Touchscreen is powered, the configuration will load to the home page of the selected configuration.

On initial power-up, with no ControlDesigner configuration installed or when the Touchscreen is not bound/connected to a processor, the Touchscreen displays the default splash page; which includes the ETC logo and two buttons; **[Setup]** and **[Service Pin]**.



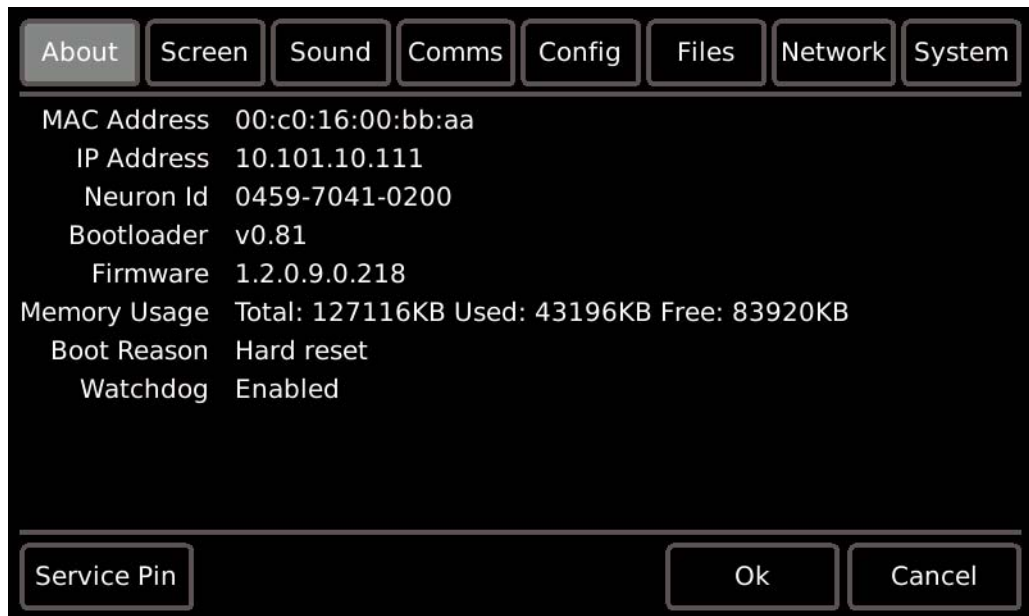
Pressing the **[Setup]** button accesses the [Setup Menu](#) where setup options and technical information are displayed. Pressing the **[Service Pin]** button issues a binding request to the Paradigm Architectural Control Processor over the control network. When the Touchscreen is bound/connected to a processor, a configuration file will begin to load.

Setup Menu

Pressing the **[Setup]** button on the default page displays the [About tab](#) of the Touchscreen setup menu. Alternatively, you can access the setup menu by pressing the “Mode” pin on the Touchscreen I/O panel. See [“Touchscreen Inputs, Outputs and Indicators” on page 4](#).

Each tab of the setup menu displays a footer of buttons including [Service Pin], [Ok] and [Cancel].

About tab



The About tab displays read-only information pertaining to the Touchscreen including;

- **MAC Address:** a unique identifier assigned to the Touchscreen by ETC for identification over the Paradigm network.
- **IP Address:** the current network IP address assigned to the Touchscreen. This number can be modified from the [Network tab](#).
- **Neuron Id:** a station specific unique hardware address that is permanent to the Touchscreen. This ID is used by the Paradigm Architectural Control Processor to bind/associate (bind) stations within the LightDesigner configuration.
- **Bootloader:** the bootloader software version.
- **Firmware:** the firmware version loaded onto the Touchscreen. Firmware can be updated, reference [System tab, page 19](#) for instructions.



Note:

The firmware version in the Touchscreen must be compatible with the firmware version in the Paradigm Architectural Control Processor (P-ACP) for the two devices to communicate.

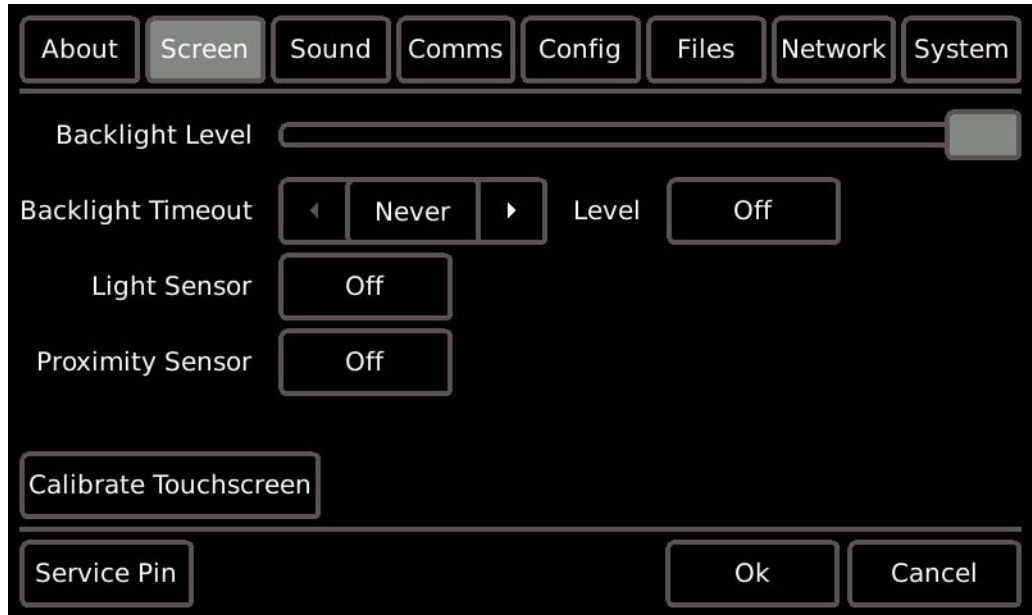
- **Memory Usage:** a Paradigm Touchscreen has 128 megabytes (Mb) of memory available for configuration storage. The “Memory Usage” section displays the “Total” memory available, the memory “Used” and the available memory that is “Free” for use.
- **Boot Reason:** the last action that caused the Touchscreen to boot. Reasons for reboot could be due to a [Reset] button press on the Touchscreen I/O panel, power loss, etc.

- **Watchdog:** displays the status of the Watchdog tool.



Note: *Watchdog is a service that monitors Touchscreen activity and will automatically reboot the device in the event it would suffer a crash or lockup. Watchdog should be “enabled” unless instructed otherwise by ETC Technical Services.*

Screen tab



The “Screen” tab provides user settings for the Touchscreen including:

- **Backlight Level:** a level bar is provided to set the relative brightness of the Touchscreen backlight. By default, the level is set to full.



Note: *When the light sensor is “On”, the backlight level sets the maximum level of brightness.*

- **Backlight Timeout:** sets the length of inactivity time before the backlight fades to its backlight timeout level. This is separate from any configuration related Inactivity Timeout settings.
- **Backlight Timeout “Level”:** the intensity level the backlight will fade to when its “Backlight Timeout” has been reached. This level can be set to either “Off” or “Dim”.
- **Light Sensor:** allows the Touchscreen to determine an appropriate Backlight Level based on ambient light in the space. The internal light sensor measures the ambient light and adjusts the backlight proportionally based on the established backlight level settings. By default, the light sensor is “Off”.
- **Proximity Sensor:** when enabled (“On” which is default), proximity allows the Touchscreen to detect a user’s presence as he/she approaches the Touchscreen for use. When proximity is detected, the Touchscreen automatically turns on the backlight and displays the inactivity page that was configured in ControlDesigner. Proximity is only supported on the Paradigm Wallmount Touchscreen.
 - The proximity sensor uses active IR to determine proximity to the Touchscreen. The sensor has a sensing distance of approximately one foot with a field angle of 15 degrees.

- If the sensor registers any moving or stationary objects within this range, it will “wake” the station from its sleeping state and reset the backlight timeout and the station inactivity timer as set in ControlDesigner.



Note:

Be aware of stationary objects (such as rack doors) that remain within the sensing range as it may interfere with the function of the sensor. In these applications, it is best practice to disable the Proximity Sensor.

The proximity sensor is looking for reflected IR; therefore any IR devices (such as alarms or listening assistance systems) within a range of the proximity sensor may prevent the system from sleeping or displaying an inactivity page.

Calibrate Touchscreen

The “Screen” tab provides a **[Calibrate Touchscreen]** button that will launch the calibration display. This display is provided as a tool for recalibration of the Touchscreen.

Calibration may be required if presses on the Touchscreen are recognized in an area other than where the screen was pressed.



Note:

*Alternatively, press and hold the **[Mode]** button (located on the I/O panel of the Touchscreen) for four seconds to launch the calibration display.*

To calibrate the Touchscreen, simply touch as close to the center of the “+” symbol as it is displayed. The “+” symbol will move to five separate coordinates on the touchscreen to complete the calibration.



When all five coordinates have been calibrated, press **[Close]** to return to the previously displayed page. If you are unsatisfied with the calibration results, press **[Recalibrate]** to start the calibration again or press **[Clear]** to clear your settings.

Sound tab

The “Sound” tab provides a volume control for the master volume level of the Touchscreen’s built-in speaker.



Comms tab



The “Comms” tab provides read-only information pertaining to which Paradigm Architectural Control Processor (P-ACP) the Touchscreen is connected over the Paradigm control network.

- **Server Name:** this is the name of the P-ACP

- **Connection Type:** this is the type of connection that is made to the P-ACP. Options include “Ethernet” which is NetConnect, or “Lon” which is LinkConnect.



Note:

This is a very useful tool when troubleshooting your communication connection between the Paradigm Touchscreen and your Paradigm control system.

When a Paradigm Touchscreen is connected by NetConnect, the IP address of the P-ACP will display as the “Server Address”.

A Paradigm Portable Touchscreen will indicate the Connector ID of the Portable Connector Station (UH1RS) it is connected to.

Config tab



The “Config” tab displays the project information that was provided in ControlDesigner. Project information can only be modified in ControlDesigner.

Protected Features and Tabs

The “Files”, “Network” and “System” tabs as well as the “Timed Events” feature on the “Config” tab are protected by passcode and should be used only by trained personnel. Typically these displays are accessed only during system commissioning. Pressing any of the tab names will display a keypad for passcode entry.



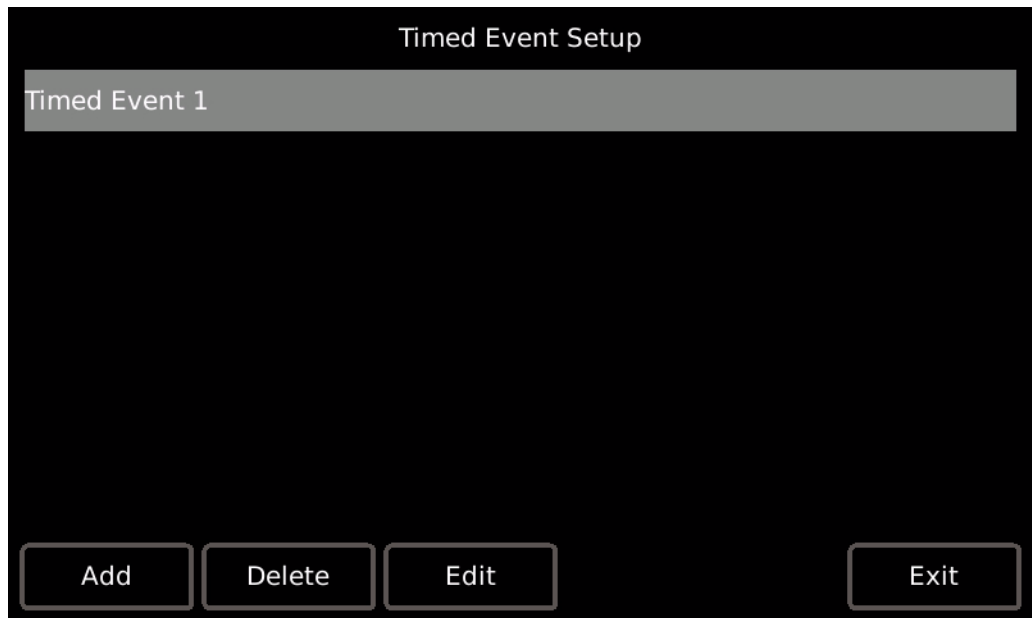
Note: Enter your four digit passcode to access these menus. These protected tabs should be accessed only by trained personnel.

Timed Events

The “Timed Events” button on the [Config tab](#) is a passcode protected feature that allows users to add and edit Timed Events. Press the [Timed Events] button on the [Config tab](#), and enter the passcode to begin. All created timed events will display in the “Timed Event Setup” menu. From this menu you can add new events, or delete or edit existing events in the list.



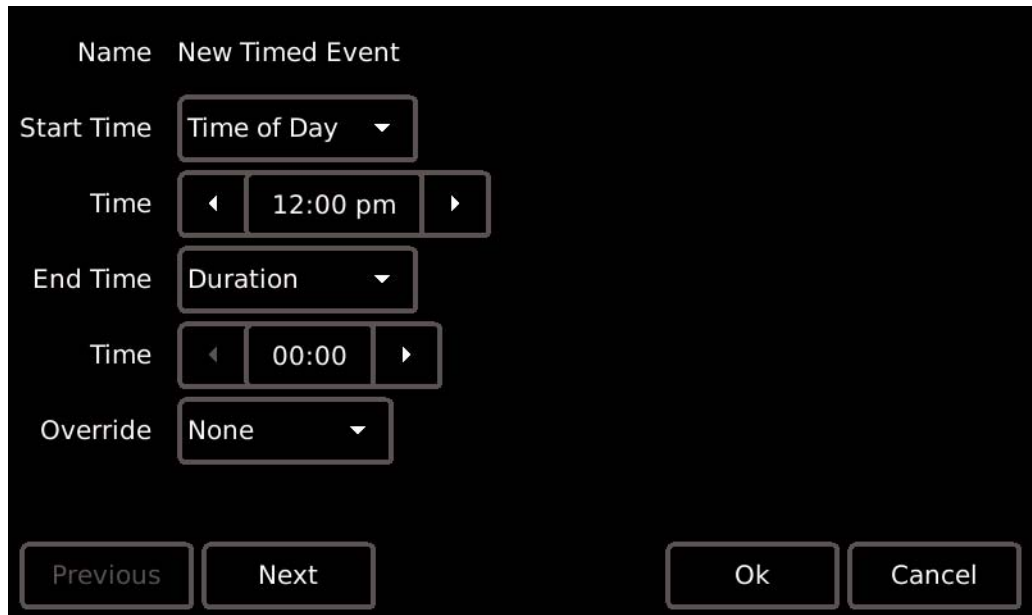
Note: ControlDesigner provides a page navigation action to reach a Timed Event configuration directly. Use this feature to provide access for end users who wish to edit Timed Events.



Adding a new event and editing an event are similar in process.

Add Event

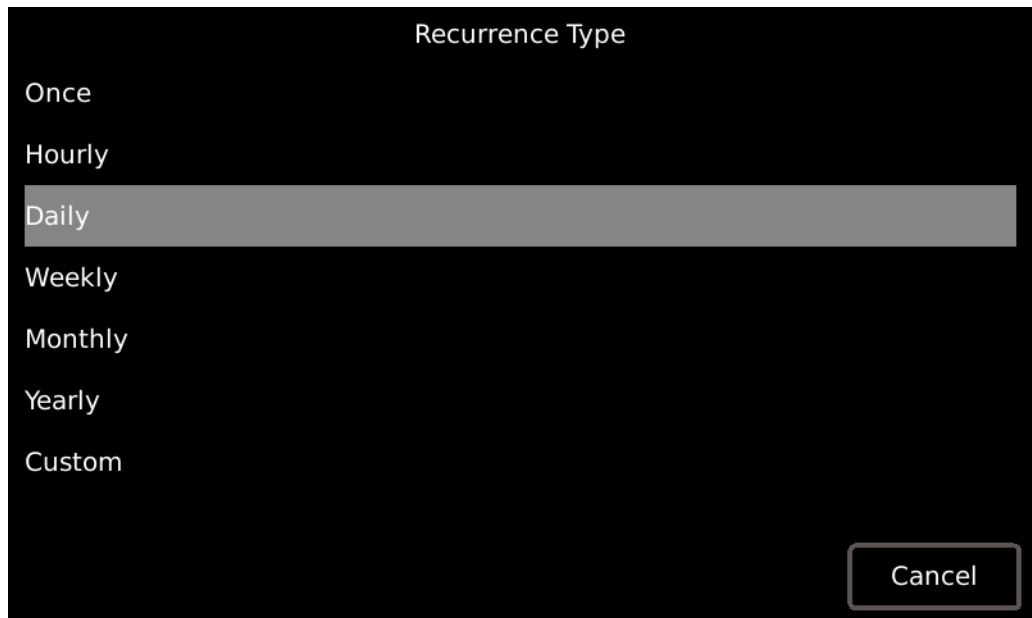
Step 1: Press the **[Add]** button, a “New Timed Event” configurator will display.



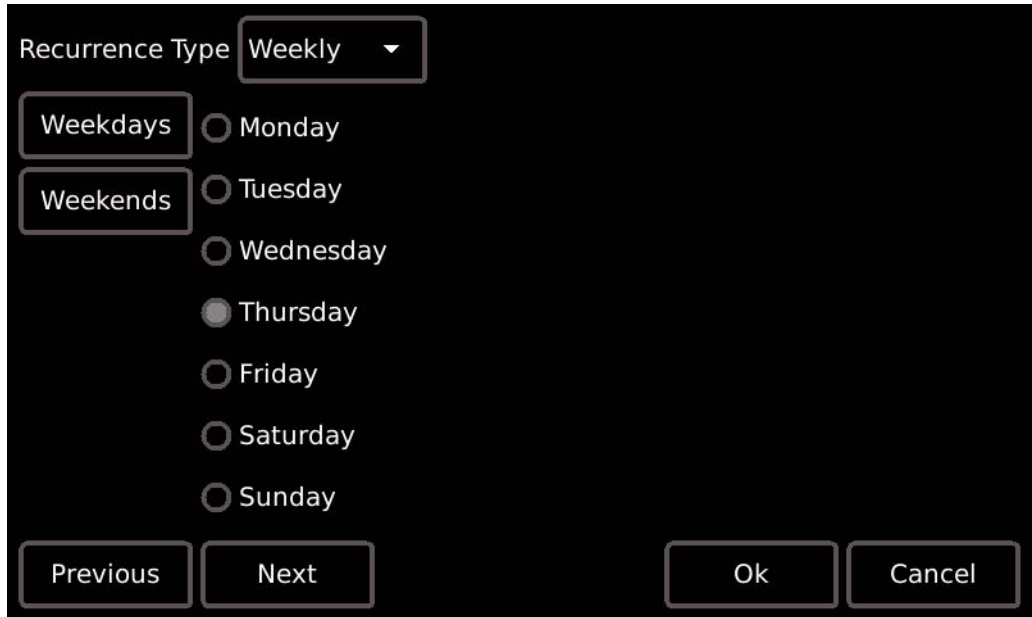
Step 2: Specify the “Start Time”. Pressing the default **[Time of Day]** button displays a list of available start times including; “Time of Day”, “Sunrise”, and “Sunset”. Press to select the option. Depending on the selection, additional options may display:

- If “Time of Day” is selected, additional selection for a “Start Time” is required.
- If “Sunrise” or “Sunset” are selected, additional selection for an “Offset” is required. An offset is specified as an additive (press the **[+]** button) or negative (press the **[-]** button) hour and minutes setting from the astronomical time.

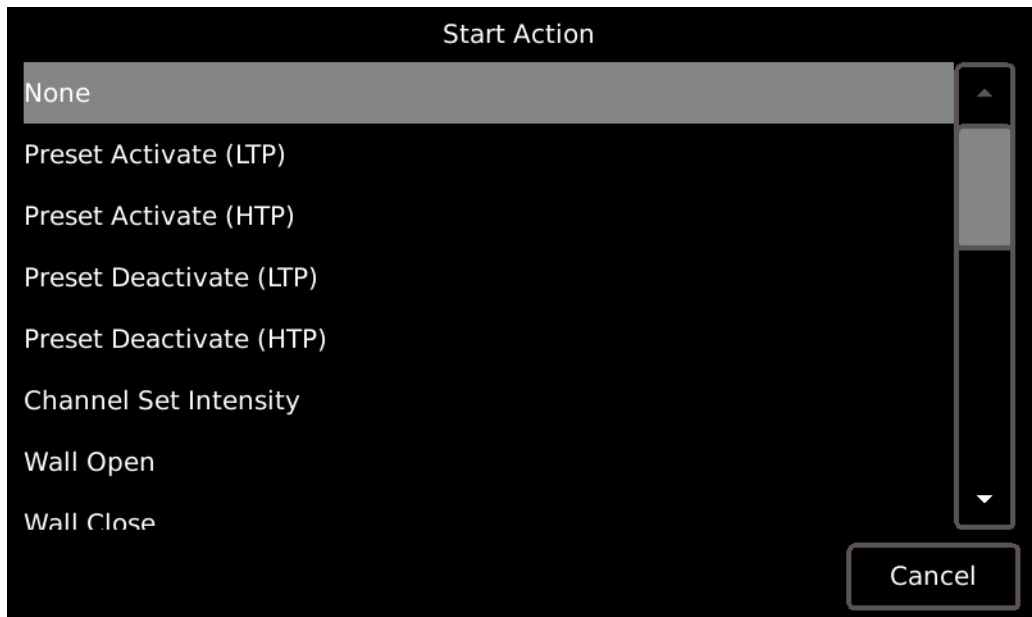
- Step 3: Specify the “End Time”. The options for “End Time” are similar to the “Start Time” except “Duration” is now an option. When “Duration” is the selected “End Time”, you will also be required to specify the hours and minutes the event should run from its start time.
- Step 4: If an override has been created for the Timed Event, select the override from the options. For more information regarding overrides, please reference the Paradigm LightDesigner online help system or contact ETC Technical Services.
- Step 5: Press **[Next]** to specify the Recurrence settings of the Timed Event.
- Step 6: Select the “Recurrence Type” from the options available.



- Additional settings are provided depending on the “Recurrence Type” selected. For example, if “Weekly” is selected, the following options display -



Step 7: Press **[Next]** then select the drop down selection located next to “Start Action” to display available options.



Step 8: Press to select the option from the list. Notice the ability to scroll to more options using the scroll bar on the right. Depending on the selection, more options may display for setting on the “Start Action” page. Complete the options as required.

Step 9: Press **[Next]** then select the drop down selection located next to “End Action” to display available options.

Step 10: Press to select the option from the list. Notice the ability to scroll to more options using the scroll bar on the right. Depending on the selection, more options may display for setting on the “End Action” page. Complete the options as required.

Files tab

The “Files” tab allows you to view, modify, and delete the configuration and theme files that are currently loaded on the Touchscreen. As well, you are provided access for uploading and downloading the configuration and theme files from/to removable media such as an SD card or USB key. [See “Ports” on page 4.](#)



Note:

If the Paradigm Touchscreen is already associated with a Paradigm Architectural Control Processor (P-ACP), it will automatically begin retrieving its LCD configuration file when powered.

Standard ETC provided themes are loaded for you at ETC and will display beneath the “Themes” directory.



Saving and Loading Configuration Files

Saving and loading configuration and theme files is simple.

- Step 1: To begin, you must have an USB key or SD card (your choice) inserted into the port receptacle of the Touchscreen.
- Step 2: Select either **[Config]** or **[Theme]** (whichever file type you want to transfer).
- Step 3: If saving a file to removable media select the file from the list and press **[Save to]**. If loading a file from removable media, press **[Load From]**.
- Step 4: Choose the removable media (SD or USB) you are transferring to/from.
- Step 5: Navigate the file structure of the removable media to select the location you are saving to/loading from. To return to a previous directory in the removable media, press the **[Up]** button. Press **[Ok]** to set the directory location.



Note:

*Multiple files can be selected for upload or download by simply touching to select each file. When a file with the same name exists at the save to location or if it already exists on the Touchscreen when loading from removable media, you will be prompted to either **[Cancel]** the action or **[Overwrite]** the existing conflicting file.*

Network tab

A screenshot of a software interface with a dark background. At the top, there is a horizontal row of eight buttons: 'About', 'Screen', 'Sound', 'Comms', 'Config', 'Files', 'Network', and 'System'. The 'Network' button is highlighted with a lighter background. Below this row, the 'IP Addressing' section is visible, with a dropdown menu set to 'Manual'. Underneath, there are four input fields: 'IP Address' containing '10.101.15.101', 'Subnet' containing '255.255.0.0', and 'Gateway' containing '10.101.1.1'. At the bottom of the interface, there are three buttons: 'Service Pin', 'Ok', and 'Cancel'.

The “Network” tab provides access to view and edit the network address settings for the Touchscreen. The Touchscreen ships with the defaults displayed in the image above.

IP Addressing

Two "IP Addressing" modes are available for use with the Touchscreen; Manual and Automatic.

- **Manual Mode** - in manual address mode the IP address and settings are user configured. To change any portion of the address, simply touch inside the field you wish to modify. A numeric keypad will display for edit of the selected field. Make the modifications to the selected field then select another field for edit as necessary. Pressing **[Ok]** saves your changes, exits the [Setup Menu](#) and returns the display to your default page (or inactivity page as defined in your configuration).

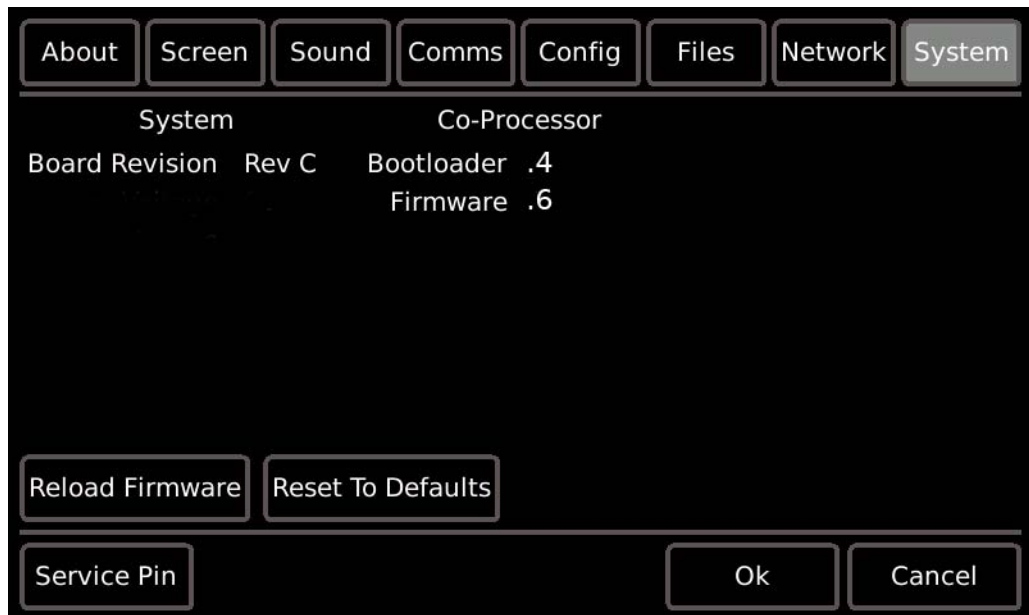


Note:

When multiple Touchscreens are installed into your system, they must each have a unique IP address. For example, 10.101.15.101, 10.101.15.102, etc. Duplicate IP addresses will cause system communication problems.

- **Automatic Mode** - in automatic mode, the Touchscreen is configured to obtain an IP address and other network settings automatically from a connected DHCP server. The Touchscreen will display the current settings provided from the connected DHCP server but the settings are not user editable. If no DHCP server is present, the Touchscreen will assign itself a link-local address in the default 169.254.x.x range. Pressing **[Ok]** saves your "Setup menu" changes, exits the [Setup Menu](#) and returns the display to your default page (or inactivity page as defined in your configuration), automatic mode is not recommended for most applications.

System tab



The read only-information displayed on this tab is of interest only to ETC Technical Services for troubleshooting and has minimal use to an end user.

- **System** - the system information relates specifically to the Touchscreen hardware.
 - Board Revision - the Touchscreen hardware revision level.
- **Co-Processor** - the co-processor provides portable specific functionality. These will appear as "N/A" for wall mount Touchscreens.
 - Bootloader: the Touchscreen co-processor bootloader version.

- Firmware: the Touchscreen co-processor firmware version.

Reload Firmware

The **[Reload Firmware]** button is provided as a tool to load new firmware. Firmware is loaded to the Touchscreen from removable media.



Note: *The Touchscreen firmware file is stored in the LightDesigner installation directory firmware folder (the file is titled “firmware.pts”). Save the file to the root directory of a USB or SD card for loading onto the Paradigm Touchscreen.*

- Step 1: Insert the USB key or SD card, with the firmware files saved, into the port on the Touchscreen.
- Step 2: Press the **[Reload Firmware]** button.
- Step 3: Select the removable media (USB or SD) from the recognized installed media.



Note: *A message may display when the firmware file is not recognized on the selected removable media. Check that the firmware file was saved to the root directory of the selected media, then try the reload process again.*

- Step 4: Select the “firmware.pts” file from the list. As the firmware file completes loading, the Touchscreen will reboot.



Note: *When updating your Touchscreen firmware, you may also need to update your Paradigm Architectural Control Processor firmware to remain compatible.*

Reset to Defaults

Restores factory defaults to the settings on the “Screen”, “Sound”, and “Network” pages.

Cleaning the Display

Use a dry micro fibre or lint-free cloth to clean any finger prints and oils from the LCD. Do not use any chemical or water-base solution as they will damage the display.



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