system installation guide
for elevator touchscreen systems

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touch to **go**
TECHNOLOGIES

e l e v a t o r
touchscreen
s y s t e m s

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Chapter 1:
Overview

Overview

An elevator touchscreen system takes the place of conventional pushbuttons inside an elevator.

In a typical installation, touchscreens are permanently mounted inside the elevator panels in the location where floor selection pushbuttons are usually placed. The touchscreens show graphics representing the floors served by the elevator, and passengers enter floor requests by touching the appropriate area of the touchscreen. The touchscreen graphics change state to indicate that the request was recognized, and the elevator takes the passenger to the requested floor. Upon arrival at the floor, the graphics return to their original state.

The elevator touchscreen system provides many benefits over traditional buttons, including:
- The ability to fully customize the touchscreen graphics to match the style, identity, and branding of the property in which the system is installed.
- The ability to provide additional information to passengers, such as map data, floor contents, or tenant names and logos
- The use of large print and familiar icons to make the property more accessible
- The ability to change the appearance and contents of the screen on demand or on a scheduled basis

Successful deployment of an elevator touchscreen system involves three steps:
- Elevator panel preparation and fabrication
- Preinstallation of selected components at the point of panel fabrication (optional)
- Final installation and testing (on-site)

This document covers the second and third of these steps - component installation. It will describe how to mount, connect, and test the components of an elevator touchscreen system.

If you have questions during the installation process, your Touch-To-Go project manager is available to assist you. Please contact us if you have any questions or concerns regarding component connection, mounting, or operation.

Note that this document relies upon prior fabrication of elevator panels that meet the specifications described in the panel preparation guide.

Component Identification

The following diagram shows a typical installation in an elevator with center-opening doors and dual swing-return car-operating panels.

➡️ Many system configurations are possible (1 or 2 panels, 1 or 2 touchscreens, keypad or regular buttons, center or side opening doors, swing return or applied panels, etc.). The diagram shows just one of many possible configurations, and it is intended only for component identification purposes.

Passenger Sensor (optional)

Passenger Sensor (optional)

Main Touchscreen

Auxiliary Touchscreen

Keypad

Door Open, Door Close, Alarm, etc.

Door Open, Door Close, Alarm, etc.

Service Cabinet
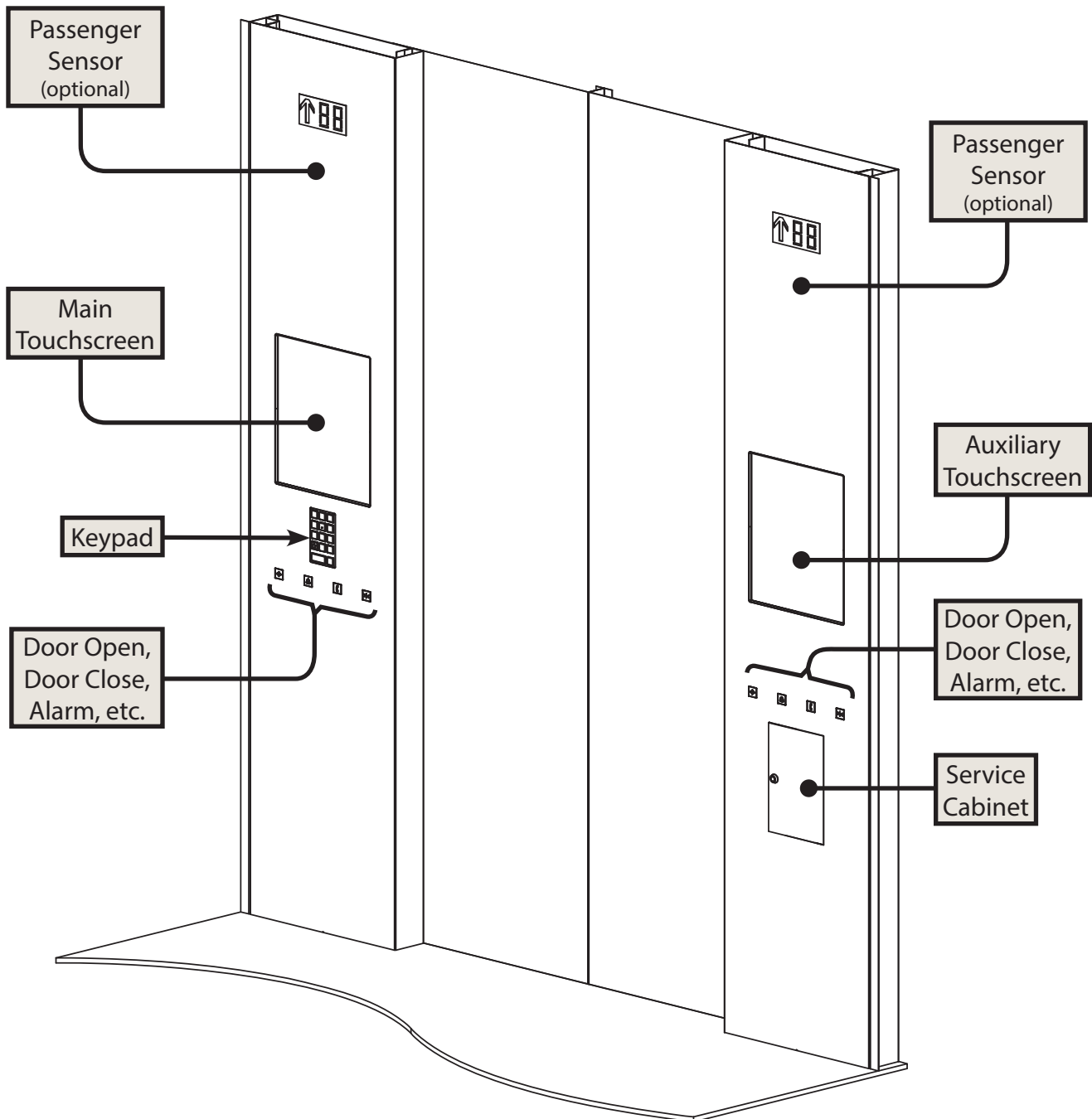
➔ **continued**

The following diagram shows the panels open, so that the components inside can be identified. In this diagram, only components provided by Touch-To-Go are indicated.

Main Touchscreen

Auxiliary Touchscreen

Passenger Sensor (optional)

Passenger Sensor (optional)

Elevator Interface Unit
(mounted to keypad in this example)

12V Power Supply

Keypad

Service Port Board
(located inside the elevator's service cabinet)
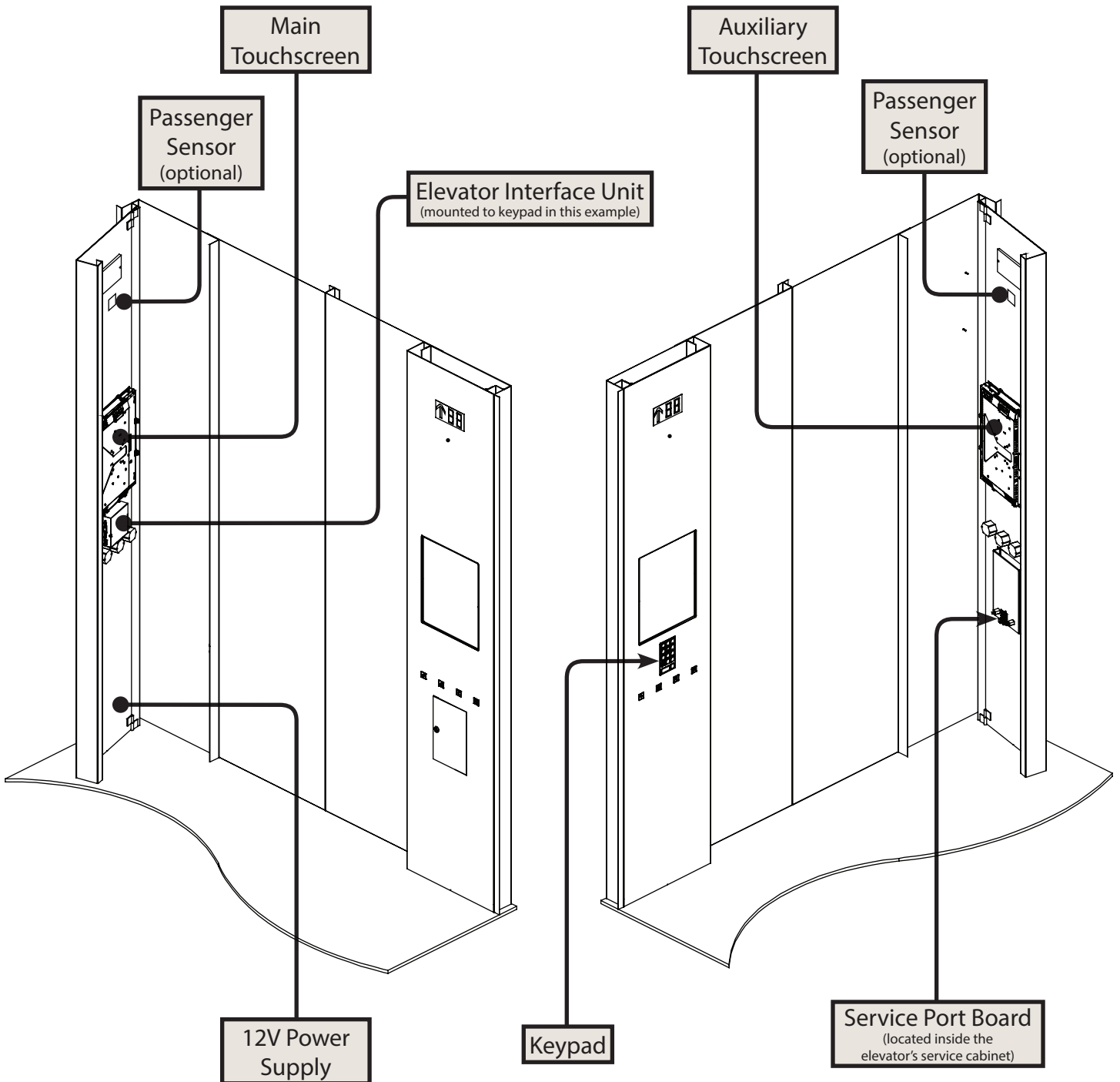
Chapter 2:
Pre-installation

Preinstallation

This section describes installation tasks that can be performed before the elevator panels are installed in the elevator. Often, these tasks are completed at the panel manufacturing facility, however these tasks can also be performed after the panels are installed in the elevator.

Keypad (if present)

1.   Locate the keypad cutout in the elevator panel. It is typically located below the touchscreen cutout, and there is usually one keypad per elevator even if an elevator contains two touchscreens.
2.   Insert the keypad into the cutout from the back side of the panel. Ensure that the keypad is oriented so that its connector is closest to the bottom of the panel.
3.   Inspect the keypad from the front of the panel. If the keypad is not flush with the face of the panel, remove the keypad. Insert washers on the studs to compensate and reinstall the keypad. Washers with an outside diameter of up to 0.5" may be fitted.
4.   Affix the keypad to the studs in the panel using four 8-32 locknuts (K-LOK type recommended).
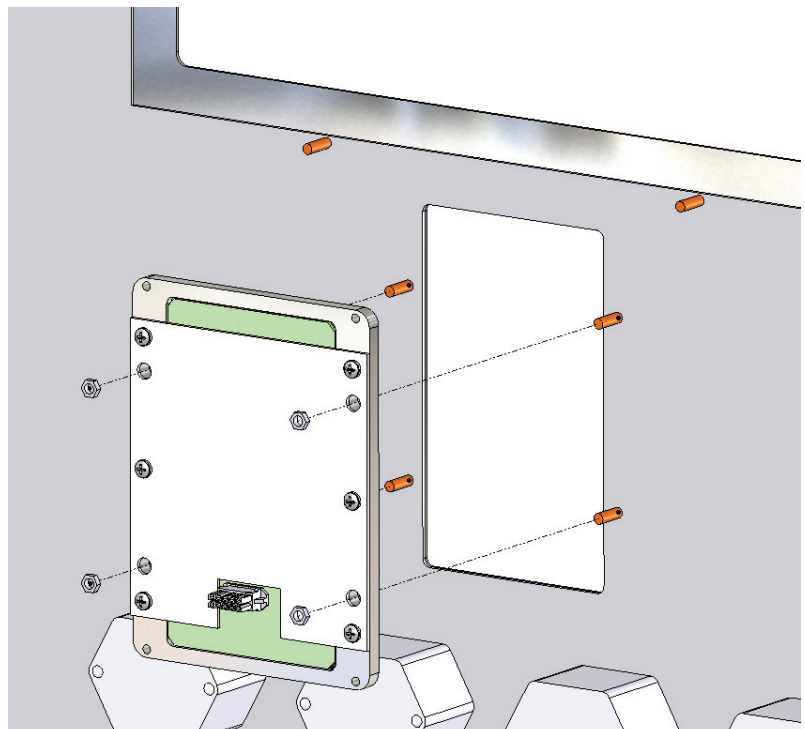
Service Port Board

The service port board is to be mounted inside the elevator's service cabinet. One service port board is installed in each elevator.
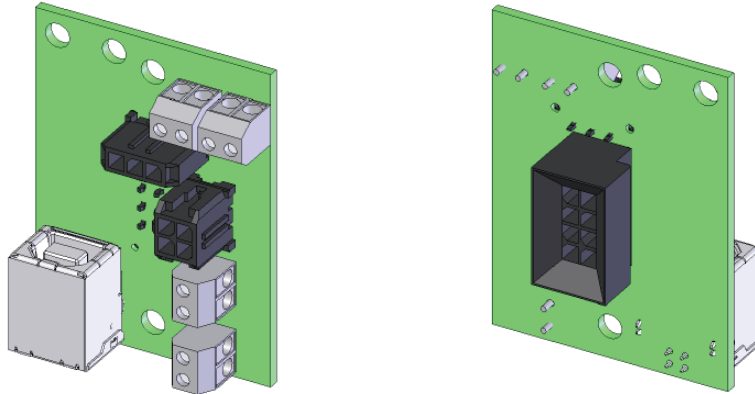
1. Locate the back of the main service cabinet in the elevator panel.
2. On the back of the service cabinet subplate, there should be a rectangular cutout with 0.75" long 4-40 threaded studs above and below it.
3. Insert a 0.375" #4 spacer (P/N K00077) on each of these two studs.
4. Insert the service port board on the studs. The black 8-position connector should face the panel, and the USB connector should be at the bottom.
5. Fasten the service port board in place using two 4-40 nuts (P/N K00066).
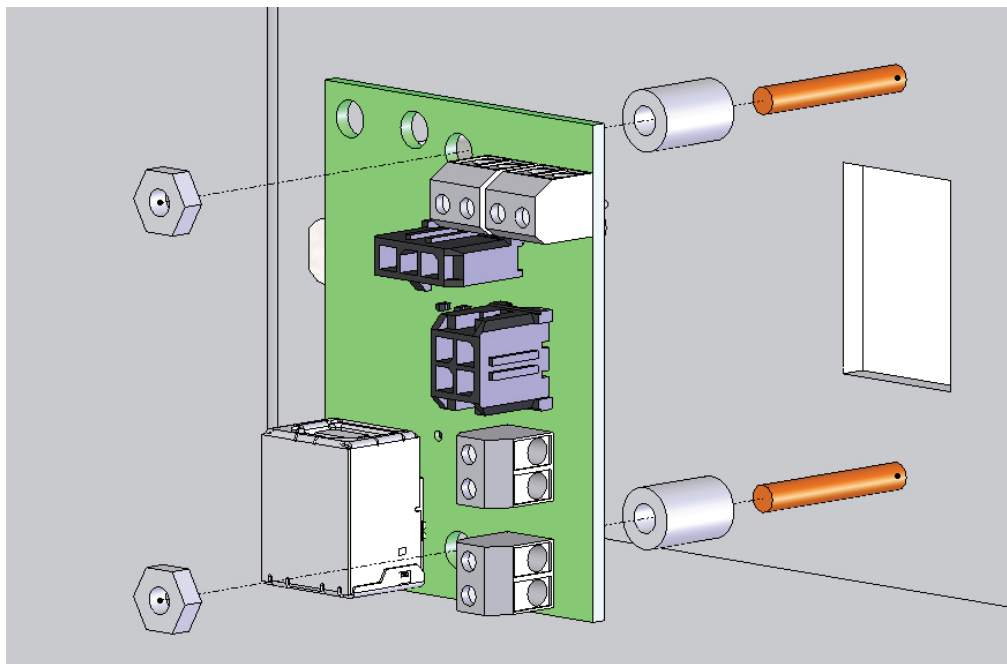
Service Port Board Wiring

The service port board must be wired to the keyed switches adjacent to it in the elevator's service cabinet. Keyed switches are customer-supplied items; they are not provided as a part of the touchscreen system.

Customer-supplied
3 position keyed switch
Two independent sets of N.O. contacts
Key removable in OFF position only
Key trapped in other positions
Spring-loaded in CPU RESET position only

Customer-supplied
3 position keyed switch
Two independent sets of N.O. contacts
Key removable in OFF position only
Key trapped in other positions
Spring-loaded in ADMIN MENU position
Spring-loaded in CALIBRATE position

Connect wires between the terminal blocks on service port board and the keyed switches, as shown in the diagram below. The exact attachment point of the wires to the keyed switches may vary depending on the model of keyed switch selected. Use 18-24 gauge insulated stranded wire.

Passenger Sensor (optional)
Connect to contacts of customer-provided relay that is controlled by a signal that indicates passenger presence (e.g. car lights, door operator, etc.). Contacts close to indicate occupancy; can be momentary or continuous. Contacts must reliably switch 5VDC 10mA.

Enable Svc Port
Normally open
Key trapped when contacts closed
NOT momentary

Reset
Normally open
Momentary close (spring-loaded)
Key trapped when contacts closed

Calibrate
Normally open
Momentary close (spring-loaded)
Key trapped when contacts closed

Admin Menu
Normally open
Momentary close (spring-loaded)
Key trapped when contacts closed

⚠ The above diagram shows wiring for a typical installation. Project-specific special requirements may result in changes to the above information. Please consult the system wiring diagram for your project for further details.

Passenger Sensor Connection for Power Saving Mode

Touch-To-Go Elevator Touchscreen Systems include a power-saving mode which can turn off the touchscreens after a configurable period of inactivity. Enabling this feature will prolong the life of the touchscreens in addition to conserving energy.

This mode can be configured on a fixed schedule (for elevators that are known to be unused at certain times of day) or it can be configured to operate automatically.

For automatic operation, the system requires a means of detecting when a passenger enters the elevator so that the power to the touchscreens can be restored.

The preferred option is to use any electrical signal that indicates that passengers are in the elevator, such as:
 - A signal from the elevator controller indicating elevator occupancy
 - Power to existing car lighting which is turned on/off by the elevator controller based on occupancy
 - Door operator signals or limit switches which are triggered upon opening the elevator doors
 - Door safety edges (IR) which are triggered when passengers walk through

Do not connect these signals directly to the touchscreen system or damage will occur. These external signals must be connected to the touchscreen system through a relay to provide electrical isolation. The relay coil should be powered by the device being used to indicate elevator occupancy (the car lighting, door operator, etc.). The relay should have a pair of normally-open, low-current, low-voltage, low-resistance contacts that close to indicate passenger presence. Contacts must reliably support 5VDC, 10mA.

Connections are made to the touchscreen system's service port board, which is mounted behind the elevator's service cabinet.

In the event that none of the signals described above can be made available, a Touch-To-Go thermal passenger sensor module is available. It detects the motion of passengers in the elevator, and must be mounted in the ceiling of the elevator. Depending on elevator configuration, ceiling-mounted installation may not always be practical or convenient, which is why it is not the preferred option.


Service Port Board
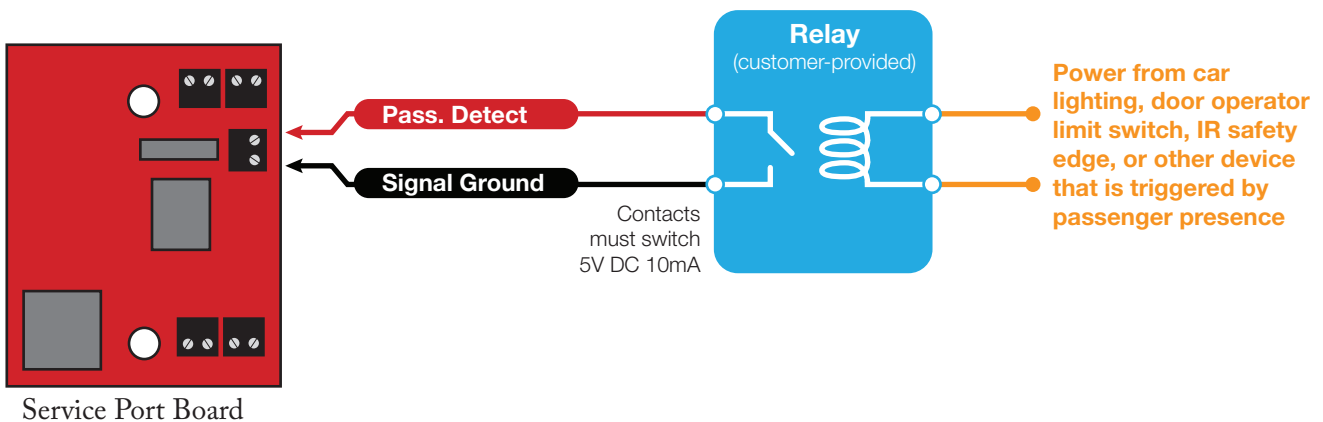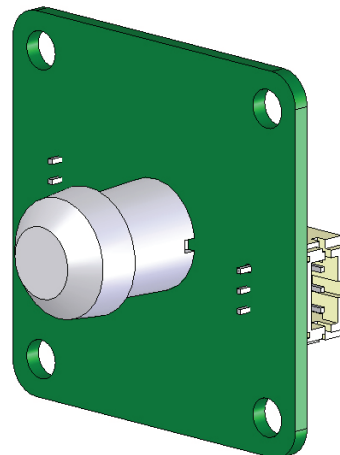
Thermal Passenger Sensor(s) (optional)

Thermal passenger sensors are available as an optional component. They allow the system to automatically turn off the LCD screens when the elevator is unoccupied, saving power and prolonging the life of the displays.

Various mounting location are possible for the thermal passenger sensor module, such as in the ceiling, in each car-operating panel, or above the elevator doors. Multiple passenger sensor modules can be installed if necessary.

For these instructions, it will be assumed that the location and number of sensors has already been established. For more information on this, please contact your Touch-To-Go project manager or refer to the Touch-To-Go Panel Preparation Guide.
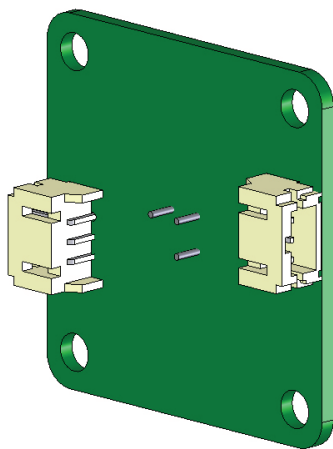
Back View - Electrical Connectors   Front View - Passenger Sensor

⚠ The sensor will not work if it is placed behind a glass or plastic lens. It must be directly exposed to the interior of the elevator cab in order to detect passenger presence.

The sensor is mounted on a set of four 4-40 studs spaced in a 1.2" square pattern. A mounting bracket containing the required studs (P/N M00052) is available by special order for retrofits or non-standard installations.

A 1/2" hole exposes the sensor to the elevator cab. 4-40 nuts on the studs must be used to properly position the sensor so that it extends through the hole by the correct amount.

Begin by placing a nut on each stud, roughly 3/8" from the back of the panel.
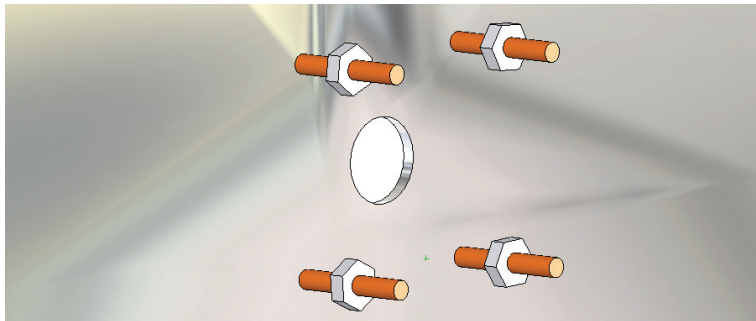
Slide the passenger sensor board onto the studs so that it contacts the nuts.
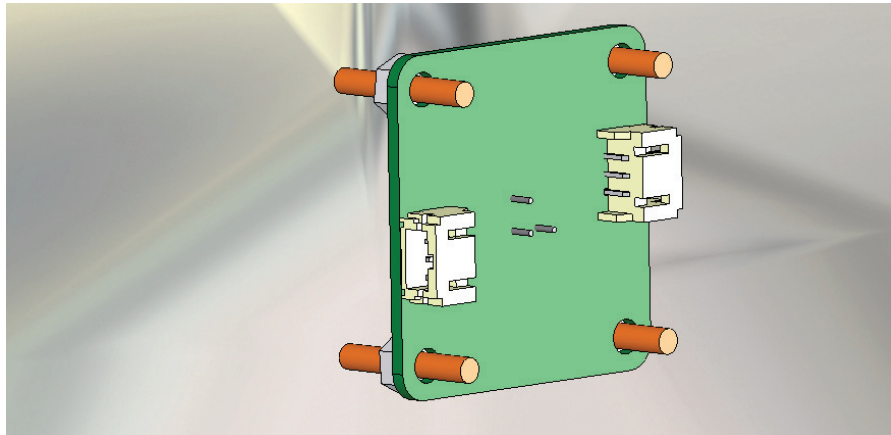
Adjust the nuts so that the sensor is properly positioned, as indicated in the following diagrams:
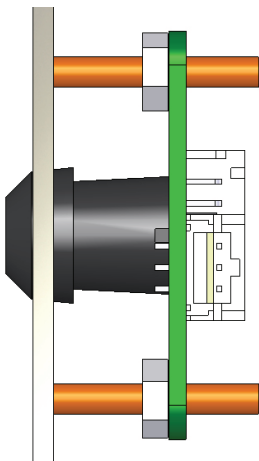
This is the correct position. The angled portion of the sensor extends into the elevator cab.
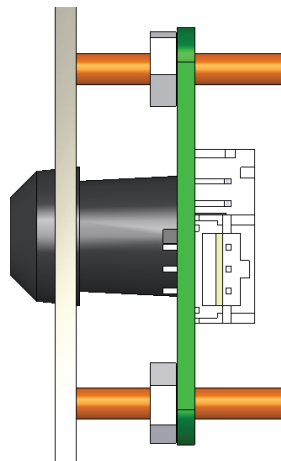
Sensor sticks out too far.
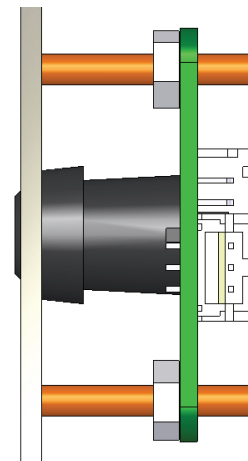
Sensor is recessed and will not work properly.

Install a second set of nuts to hold the board in place. Be sure the nuts are evenly positioned so that the board is not flexed, stressed, bent, or warped when the nuts are tightened.
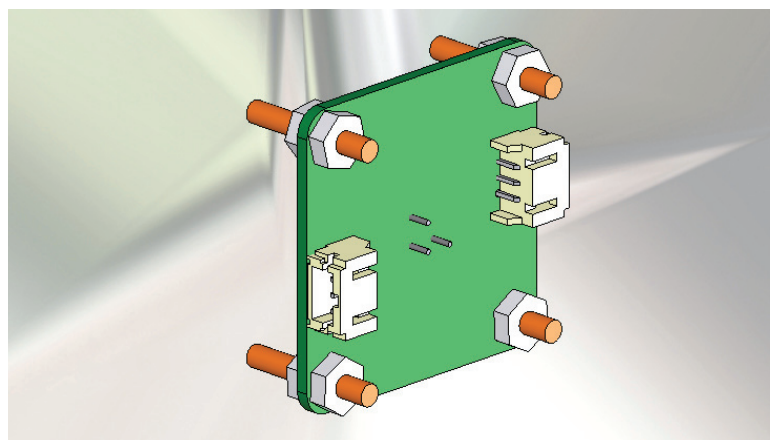
Installation

Mounting the Touchscreen(s)

⚠️ If sharp edges are present on the touchscreen opening in the panel, you must remove them before proceeding!

1. Remove the touchscreen from its packaging.
2. Locate the mounting brackets. Either two or four brackets will be included (depending on configuration).
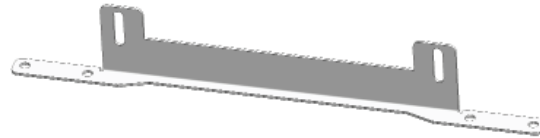
3. Use the supplied screws to fasten the brackets to the sides of the touchscreen. Orient the brackets so that the flat flange on each bracket faces the front of the touchscreen. Leave the screws slightly loose so that the brackets can slide in their slots.
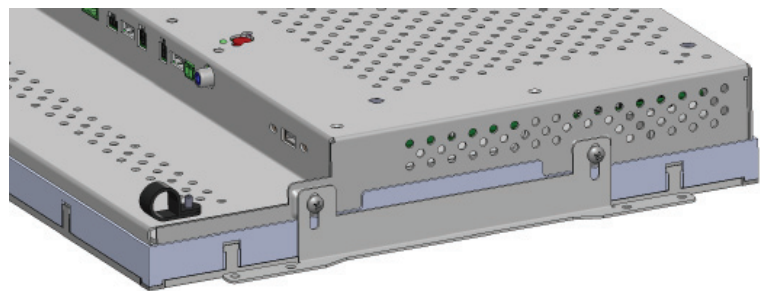
4. Slide the screen and brackets onto the studs found on the elevator panel. Note the orientation of the display - when looking at the back of the display, the connectors should be on the left.

5. Attach each of the brackets to the studs in the panel using two 8-32 locknuts (K-LOK type recommended). Hand tighten. Do not overtighten or use power tools or the studs may pull away from the panel.
6. Press the display against the panel and check the display from the front. The plastic bezel should sit cleanly and evenly in the opening in the panel, and it should fit tightly against the panel with no gaps. If it does not, check for and correct any obstructions before proceeding.
7. While pressing the display against the panel from behind, tighten each of the screws that hold the mounting brackets to the touchscreen. Use a wrench or screwdriver (as appropriate for the type of screws provided)
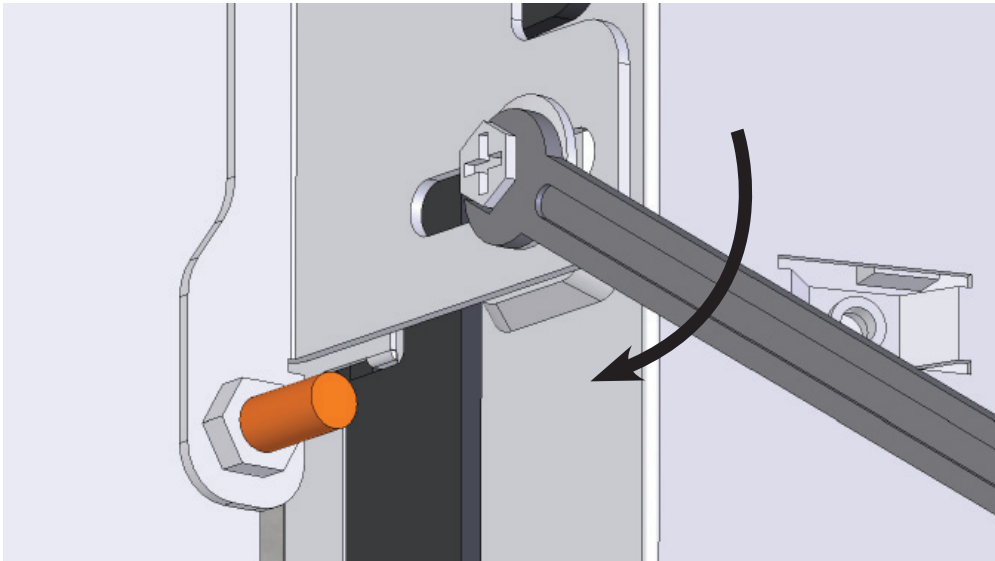
8. When all of the screws are tight, view the panel from the front and verify the fit of the touchscreen in the panel. Correct and adjust if necessary.
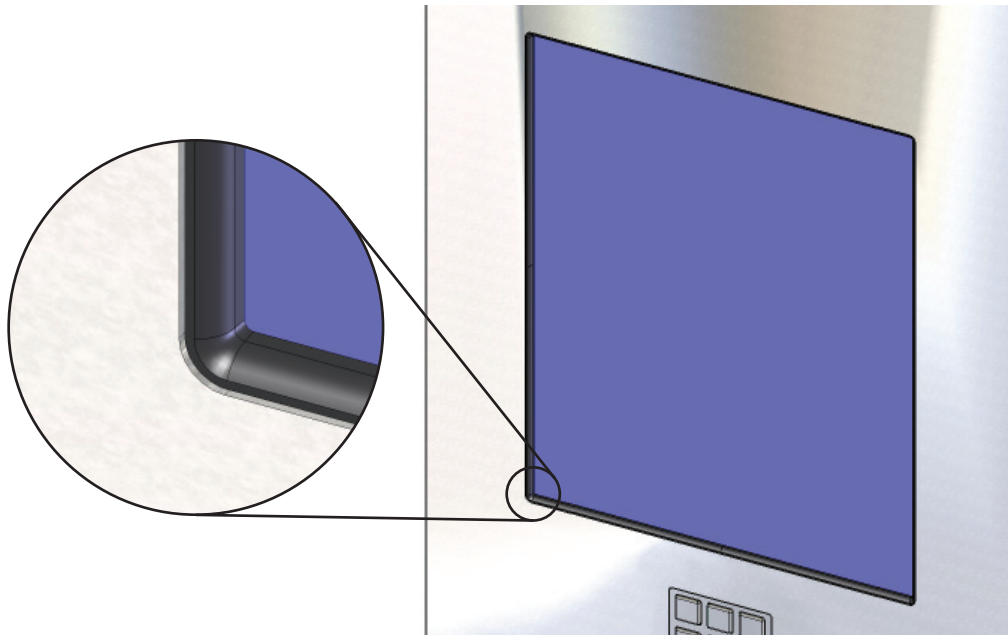
9. Repeat this procedure for the second touchscreen in the elevator (if applicable).

Mounting the Elevator Interface Unit (elevators with keypads)

⚠ Each Elevator Interface Unit is programmed to handle keypad input only for a specific set of floors. Elevator Interface Units must be installed in the elevator for which they have been programmed.

Connections to elevator button wiring

Status Indicators

Keypad Connector

Position Indicator Input

Reset Button

5V Power

USB

Service Port Cable
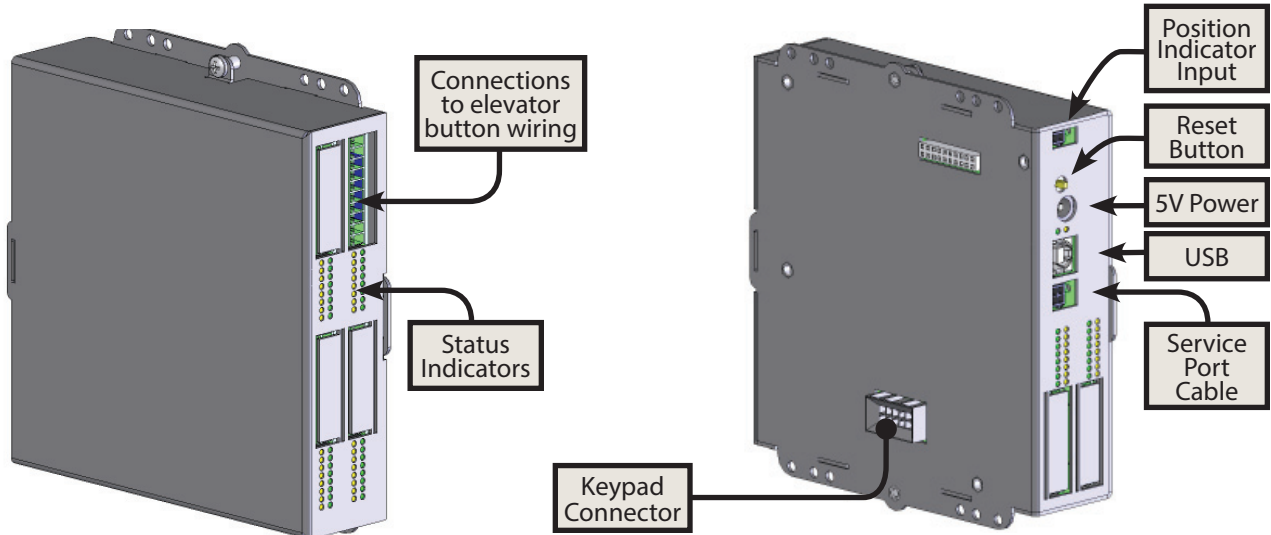
1. Locate the keypad in the elevator panel. It is typically found below the touchscreen cutout, and there is usually one keypad per elevator even if an elevator contains two touchscreens. The keypad must be installed before proceeding.
2. Ensure that the studs holding the keypad do not extend past the back surface of the keypad by more than 1/4". If they do, they will need to be trimmed before proceeding.
3. Note that there will be a 3/8" threaded standoff (P/N K00064) in *only the top two* 6-32 threaded holes located at the corners of the keypad. The bottom two holes will not have a standoff installed.

Keypad (back view)

Touchscreen cutout in panel
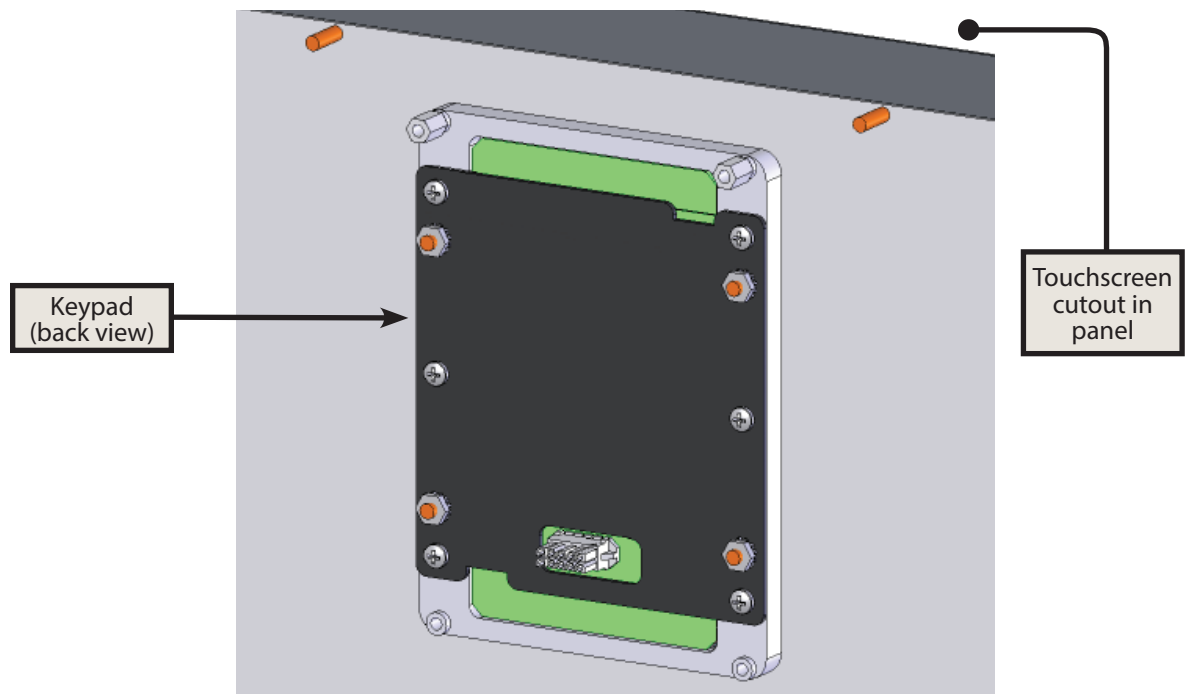
4. Locate the following items, supplied with the keypad:
   - Two 6-32 x 5/16" pan-head philips screws (P/N K00062)
   - Two 6-32 x 5/8" pan-head philips screws (P/N K00438)
   - Two #6 x 5/16" nylon spacers (P/N K00437)
5. Carefully position the Elevator Interface Unit on the back of the keypad, ensuring that the connector on the keypad securely mates with the connector on the Elevator Interface Unit. Gently rock the Elevator Interface Unit side to side to ensure that the connector seats. The connector should mate fairly easily; do not apply excessive force when connecting the two items or damage may occur.
6. **Without leaving components unsupported at any time**, fasten the Elevator Interface Unit to the top two standoffs on the keypad using the two short (5/16") screws. Do not let components hang by the electrical connector alone or damage may occur.
7. Fasten the keypad at the bottom by inserting one of the nylon spacers between the keypad and interface unit, and installing a long screw through it. Repeat for the remaining mounting hole.
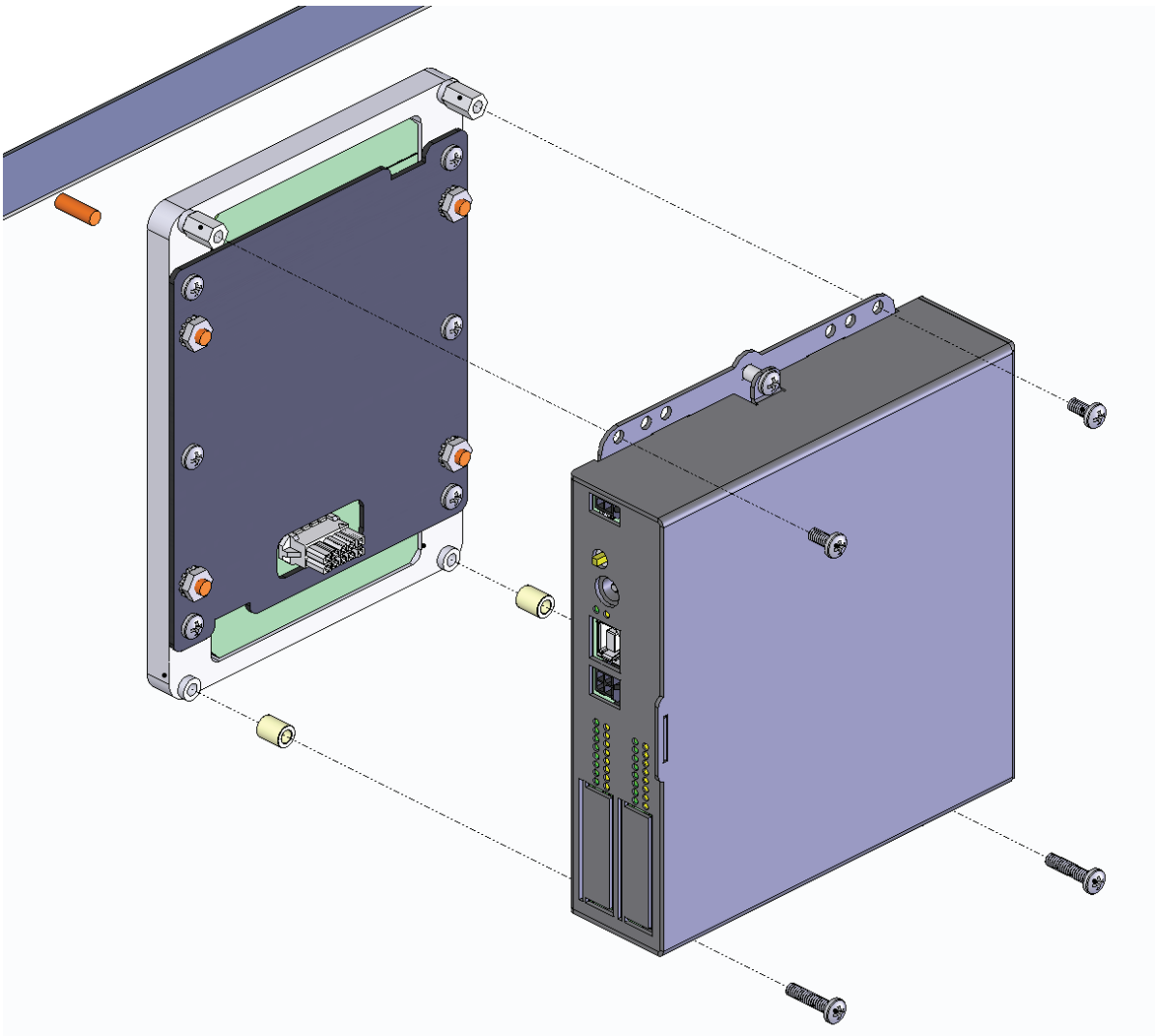
Mounting the Elevator Interface Unit (elevators without keypads)

(STOP) **In elevators with keypads, the Elevator Interface Unit must be mounted to the back of the keypad.** It may not be mounted separately. See chapter 2 for further details.

Some elevators may include a set of conventional elevator buttons instead of a keypad. If your elevator does not have a keypad, then the Elevator Interface Unit can be mounted to the back of the touchscreen as follows:

1. On the back of the touchscreen, locate the mounting holes shown in the diagram below. Either the upper pair or the lower pair may be used.
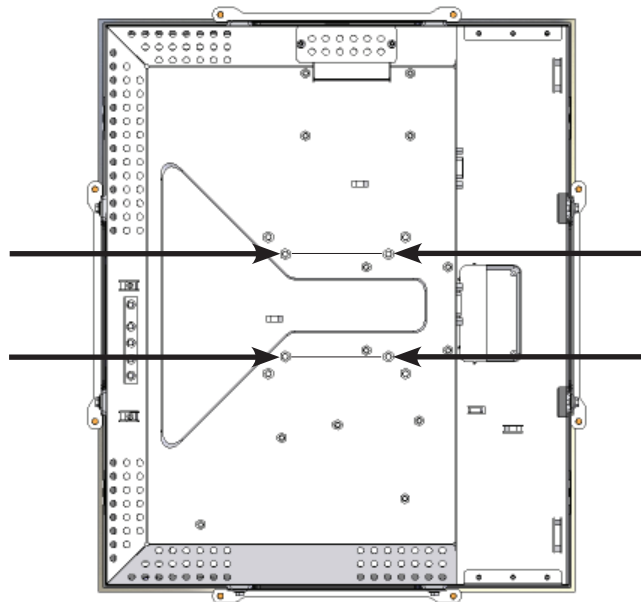
2. Mount the Elevator Interface Unit to the mounting holes in the touchscreen as shown below using two M4 threaded screws. Ensure that the screws do not extend more than 1/4" into the touchscreen or damage may occur. The lower pair of mounting holes may also be used.
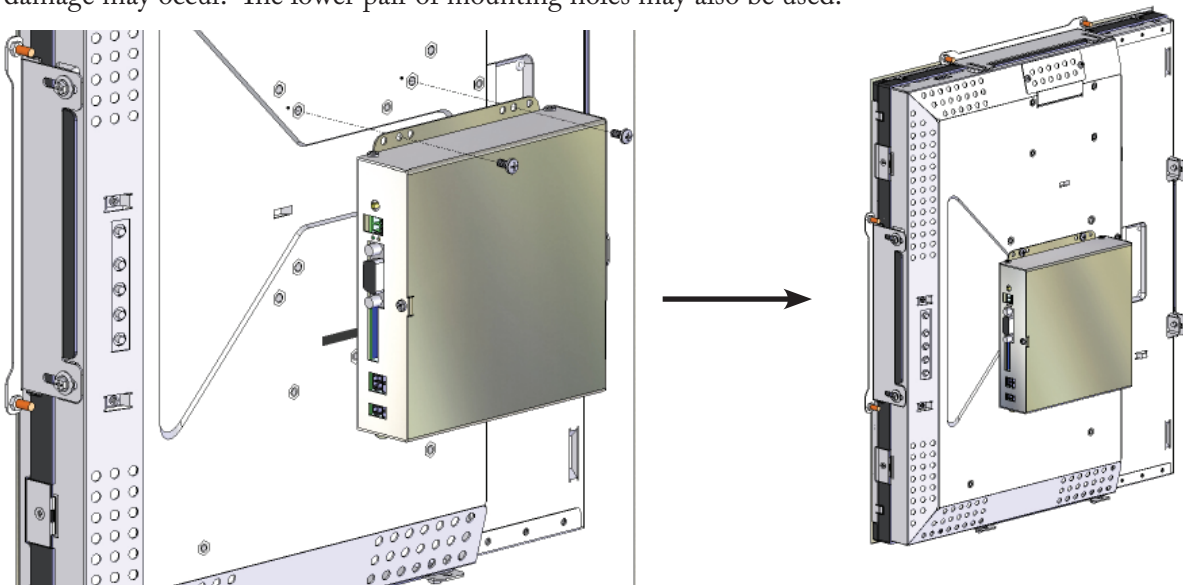
Routing Wiring Between Panels (dual-panel elevators only)

If your elevator contains two car-operating panels, it will be necessary to route a set of cables from the main touchscreen to the second car-operating panel. Your elevator should include a conduit or wire raceway linking the two panels, which is typically located **above the elevator doors**. Supplied cables are generally not long enough to permit routing via other paths.

Using the system wiring diagram for your project, locate the cables that need to be routed between the two panels.

Following applicable safe work procedures, carefully pull the cables from one panel to the other. This procedure usually involves two persons, one inside the elevator and one outside (above) the elevator. Be certain not to kink, twist, or tightly bend the cables. Do not apply excessive force to the connectors.

When the cables have been routed, check them to ensure that they will not catch or snag on anything, and be certain that they will not be pinched or cut by the motion of panels, doors, or machinery.

Other low-voltage wiring can usually be run in the same conduit without problems.

Connecting cables

⚠️ Specific connection details are provided in your system wiring diagram. Please inspect the system wiring diagram closely; anything it contains takes precedence over what is written in this manual.

Main Touchscreen
Many important connections are made at the main touchscreen. The connection points are shown below. Cables for the Elevator Interface Unit and Service Port Board come connected from the factory.

12VDC Power Input, Power Button. and Fuse

Auxiliary Touchscreen Connections (power, video, USB) and Fuse (optional)

Ground

Network

Service Port Board Connections

Elevator Interface Board connections and fuse

Speaker
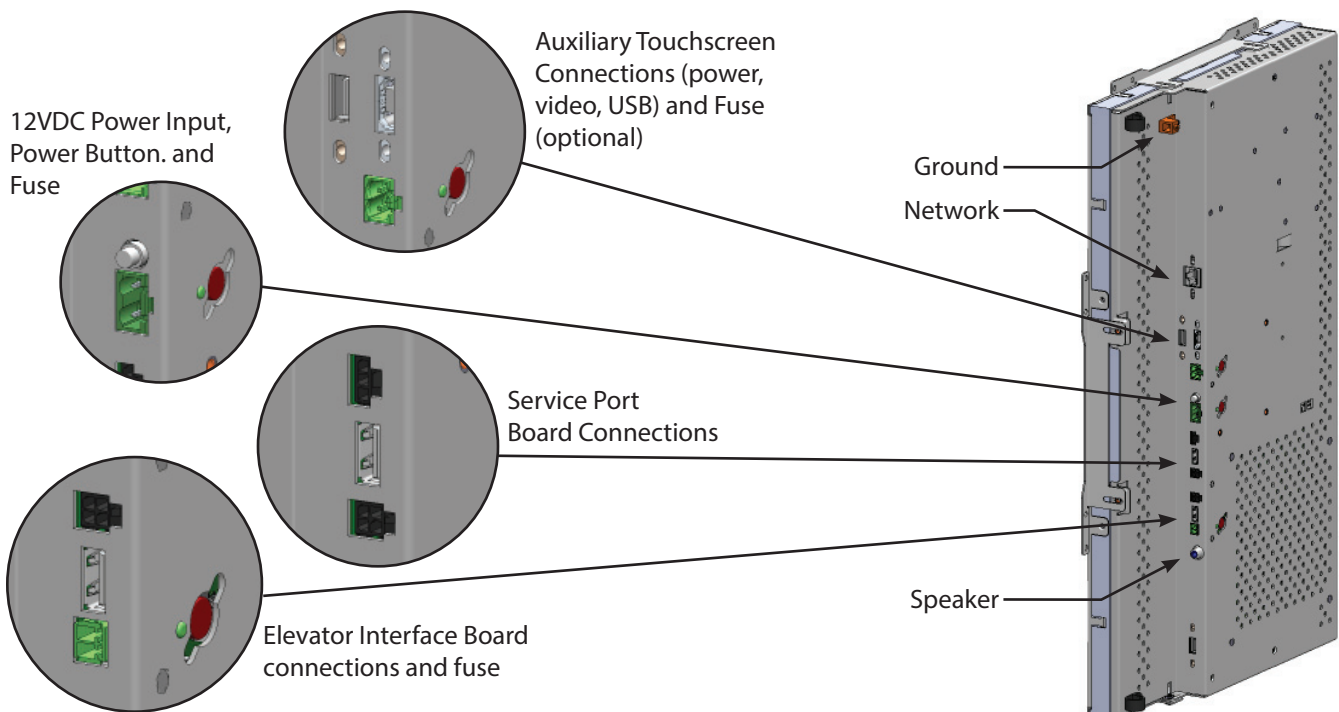
Main Touchscreen (continued)

Power connections are made to a removable terminal block plug. Be sure to confirm the polarity when making connections.
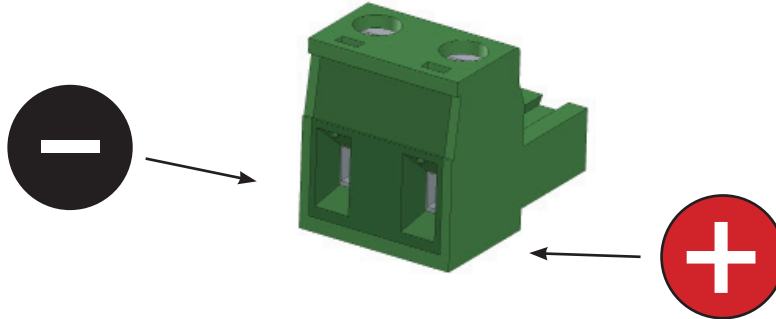
Fuses are user-replaceable. A green LED adjacent to each fuse indicates whether the fuse is good. Fuses are type TR5. To ensure continuted protection against electrical problems, please replace fuses only with ones of identical ratings and type. Ratings are marked on the device next to each fuse.

Affix all cables using the cable clamps located at the top and bottom of the touchscreen and ensure cables and connectors are not under strain or tension where they connect to the plugs on the main touchscreen.

Auxiliary Touchscreen

Three connection points are present at the auxiliary touchscreen: USB, power, and video.

Connect power first, then video and USB. If you connect USB prior to connecting power, the auxiliary touchscreen may malfunction.

If necessary, use the power button to turn on the touchscreen and the source button to select the correct input.

12V DC Power In

Video In

USB
(connect last)

Attach cables with
cable tie here.

Power button
Source button
Power LED

Attach cables with
cable tie here.
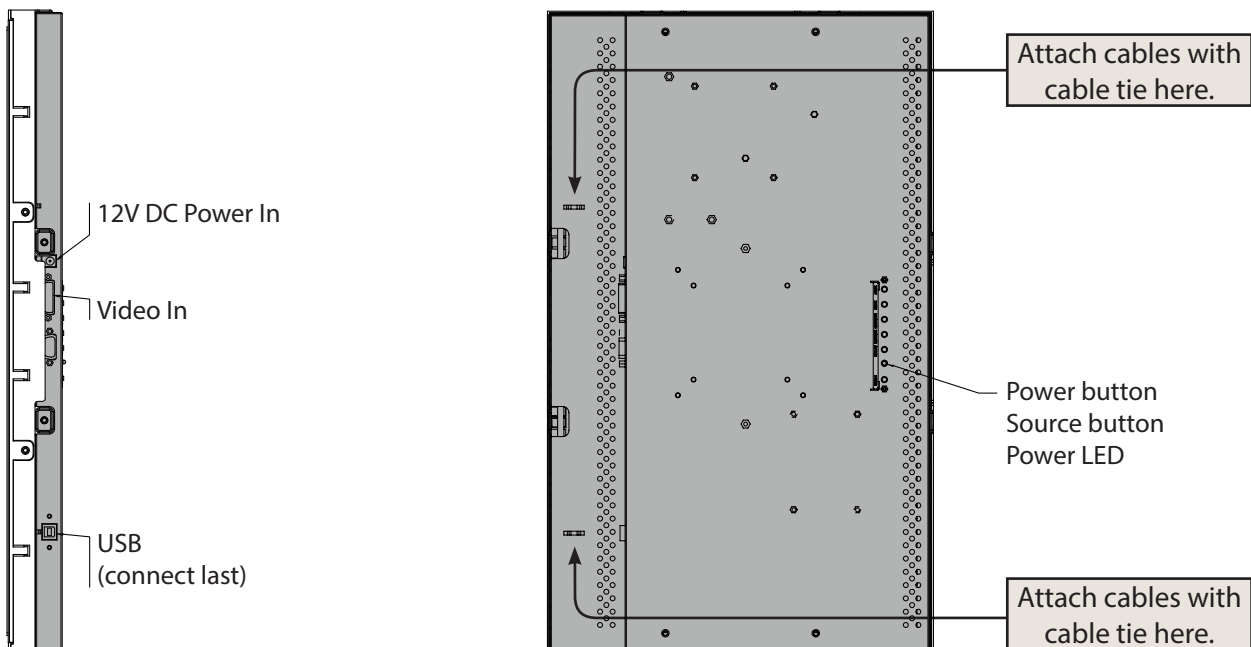
Elevator Interface Unit

Three connections are made between the Elevator Interface Unit and the main touchscreen (Power, USB, and Calibrate/Admin). Be certain to fasten the cables to the COP so that they do not fall out unintentionally.
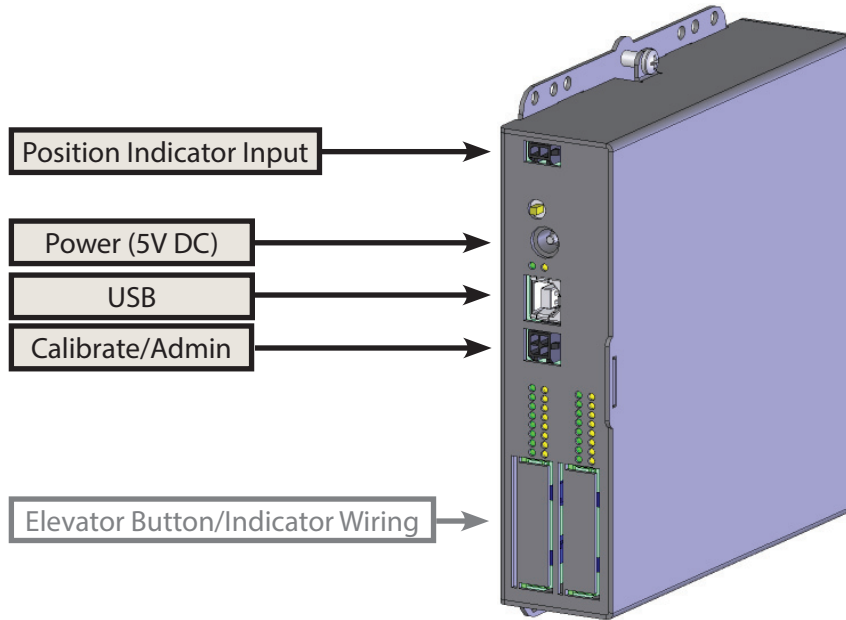
On the opposite side of the Elevator Interface Unit, connections are made to the elevator button/indicator wiring. These connections may have been prewired; please refer to the system wiring diagram for additional connection details.

Service Port Board

Three connections are made between the Service Port Board and the Main Touchscreen (USB, Calibrate/Admin, and CPU Reset). Attach the USB cable to the board using a cable tie.

Additional connections are made from the terminal blocks on the service port board; see chapter 2 for additional detils on these connections.
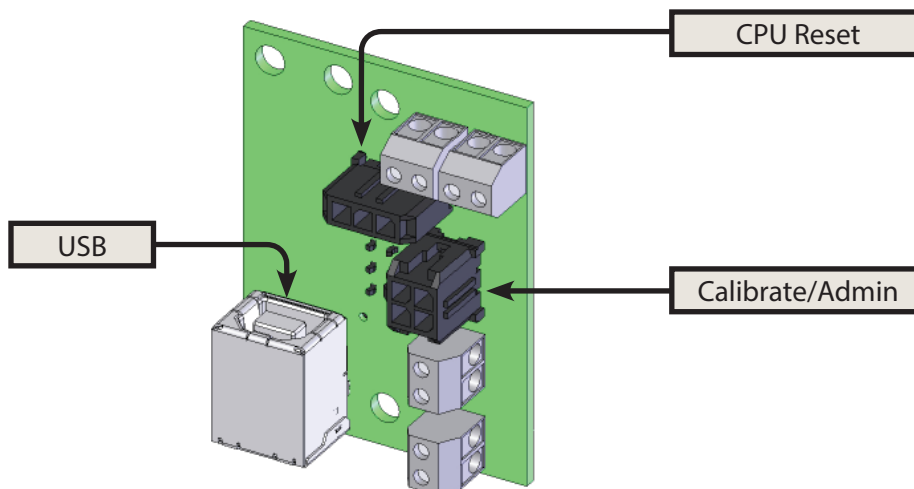
Cable Connections

The following diagram shows the cable connections for a typical system. This is shown for informational purposes only; the connections for your elevator may differ slightly and the system wiring diagram for your project takes precedence over what is shown here.

(STOP) **Do not connect the elevator button and indicator wires to the elevator interface unit until you have first used a multimeter to verify that high voltages (>36V) are not present on any of the wires (measured on one button/indicator wire relative to any other button/indicator wire).** The elevator interface unit is not rated for high voltage operation. See the following section for instructions on testing the elevator button/indicator wires prior to connecting them to the elevator interface unit.
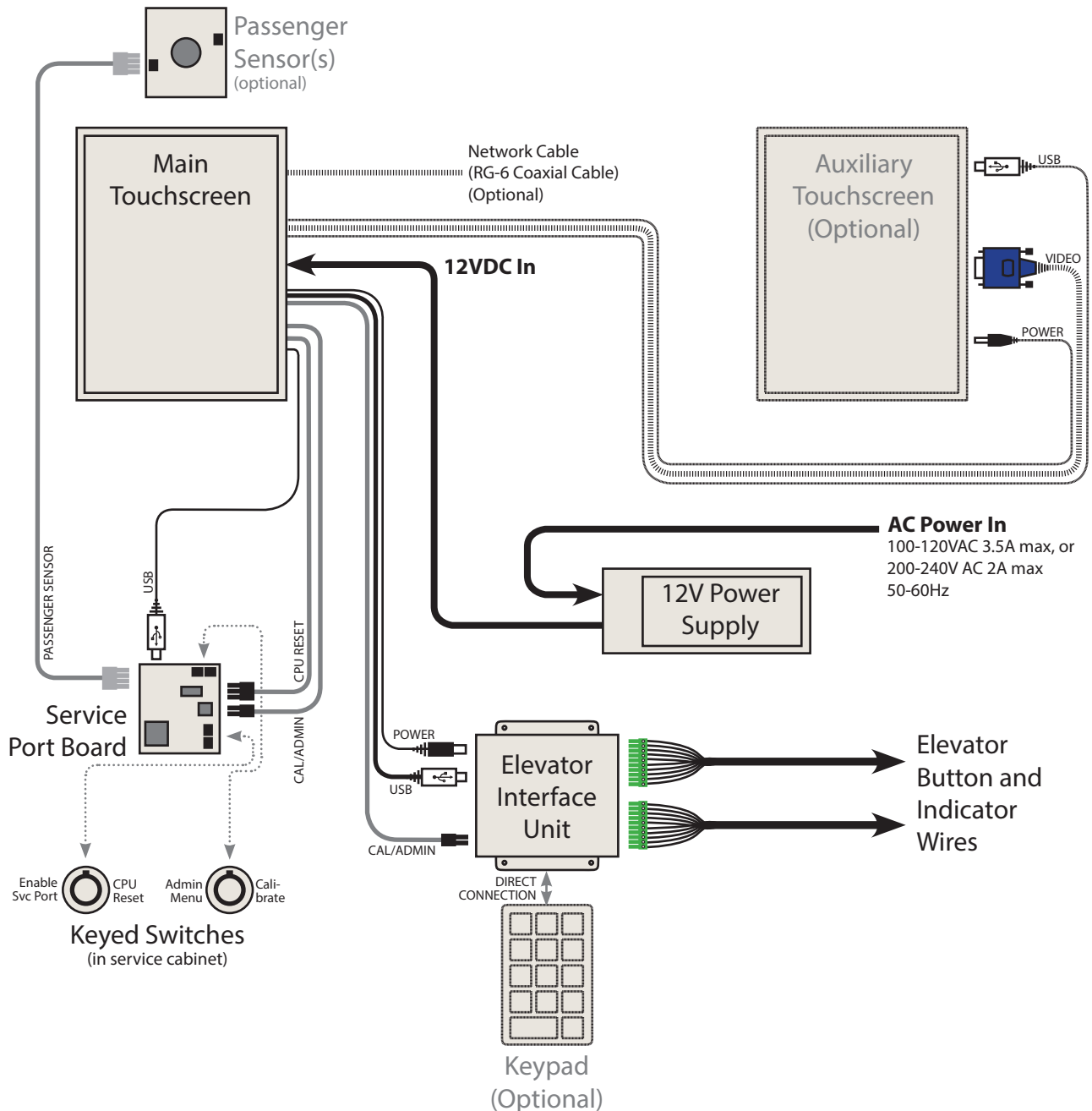
Elevator Interface Unit - Button/Indicator Wiring

Connections are specific to each project, so please consult the system wiring diagram for your project to determine the exact connections that are required.

If mechanical buttons are to be installed which will perform the same functions as buttons on the touchscreen, then they may be wired in parallel with the connections to the elevator interface unit.

Pre-Testing - Power

Prior to turning on the power to the system, confirm that the voltages are correct and that connections have been made to the proper terminals on the main touchscreen and at the 12V power supply. If an uninterruptible power supply unit (UPS) has been installed inside / on top of the elevator, then confirm that it has been turned on and that the system is connected to the appropriate outlet on the UPS.

AC Input (top 3 terminals)

12V DC Output

Output Voltage Adjustment Screw (very sensitive)

Status LED

Input Voltage Selector (IMPORTANT!)
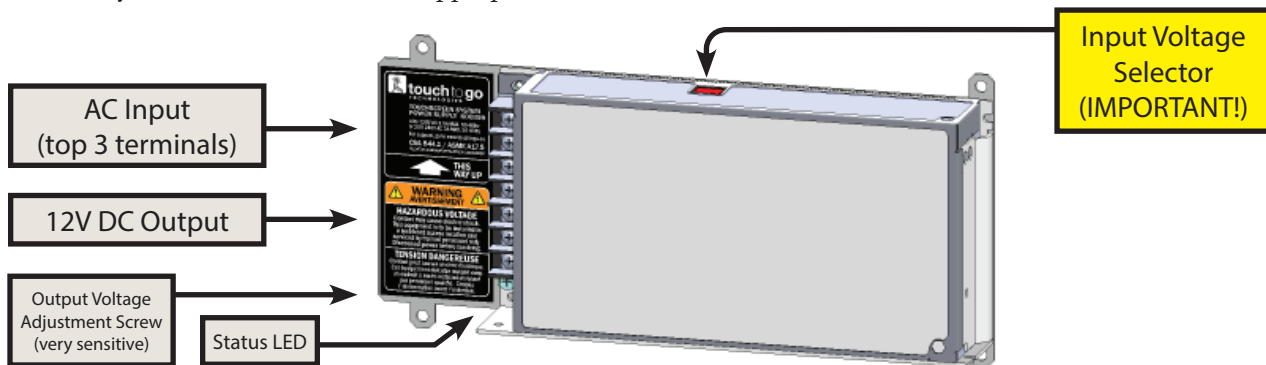
Pre-Testing - Elevator Button / Indicator Wiring

Prior to connecting the elevator button / indicator wiring to the elevator interface unit, the elevator button/indicator wiring should be tested for proper operation. This helps isolate any faults that may be present prior to introducing the touchscreen system.

All testing described in this section is to be performed at the green terminal block plugs where the elevator button / indicator wiring connects to the elevator interface unit.

First, use a multimeter to verify that none of the wires contain high voltages (>36V) relative to any of the other wires. The elevator interface unit is not rated for high voltage operation. It is important to test **all** wires on **all** plugs to ensure that they are at the expected voltage.
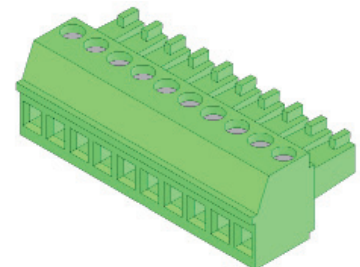
Next, obtain a short (3" to 8") piece of insulated wire with the ends stripped 1/4". Use this wire to short out the appropriate terminals on the terminal block plug to simulate a floor button press. Confirm that the request is acknowledged - the elevator should travel to the selected floor, and the voltage of the wire for that floor should change accordingly.

Once you are confident that the wiring is correct, you may connect the terminal block plugs to the elevator interface unit.

Chapter 4:

Operating Instructions

Starting up the system for the first time

To start the system from a power-off state, use the CPU reset keyed switch located in the service cabinet. Activate the switch for approximately 0.5 seconds.

The system will boot, first showing a 'please wait' screen, followed by a Windows logo, followed by the elevator touchscreen application.

If this is the first time you have powered up the system after installing it, the following steps may be needed on the auxiliary touchscreen:

•   You may also need to turn the power on to the auxiliary touchscreen. The power button is located on the back of the screen, marked with a ⏻ symbol.
•   Use the SOURCE button if needed, to select the appropriate input source.
•   Once the system has loaded, press the SEL or AUTO button once to auto-adjust the LCD. This ensures that the image is sized to fit the screen and is centered on the scrveen. Do not perform this step until after the software has loaded.

If the system has already been configured for the elevator in which it is installed, then it will display the touchscreen graphics for that elevator. If it has not been pre-configured, it will boot to a general purpose test screen which may be used to confirm operation of the system. The test screen allows you to activate & monitor all of the elevator interface unit's inputs and outputs. Each button is labeled with the terminal block number and address associated with each input/output.
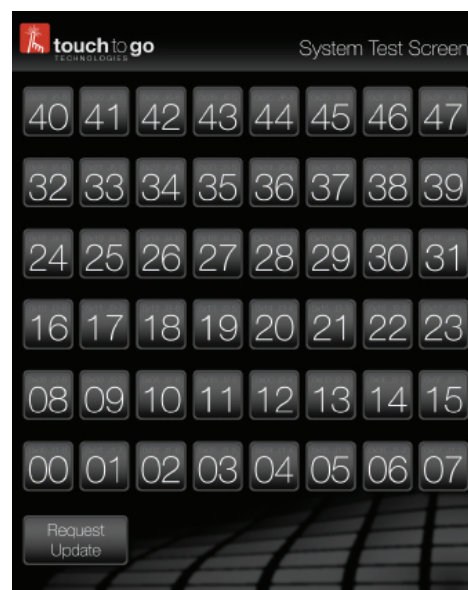
Shutting down the system

With the CPU Reset switch
To shut the system off, activate the CPU reset keyswitch (in the service cabinet) once for 0.5 seconds. The elevator touchscreen application will exit and the system will shut down normally.

With the CPU Reset switch - emergency/forced shutdown
If the above process cannot be completed due to a malfunction, then a forced shutdown can be performed. Activate the CPU reset switch once for 5 seconds. The system will shut down immediately. This process is not recommended unless other options are unsuccessful.

From the administration menu
Enter the administration menu by activating the Admin Menu keyswitch once for 0.5 seconds, or by pressing the [Home] key on an attached keyboard. Select the system administration tab, and choose one of the shutdown / restart options.

Resetting display resolution and rotation / calibrating touchscreens

The touchscreen and LCD panel are independent components, assembled so that they are overlaid upon each other. Each touchscreen is factory calibrated to properly recognize touch locations when it is installed with the correct side facing up. In conjunction with this, the image displayed by the CPU on the LCD must be oriented the same way as the touchscreen so that touch locations match the corresponding points on the image being displayed.

When a change to the display configuration is made, such as when adding or removing an auxiliary display, the system may reset the display resolution or rotation in a way that makes the display no longer match the touch locations.

If this happens, briefly activate the CALIBRATE keyed switch once (0.5 seconds). The system will re-adjust the display resolution and rotation. This should correct problems related to the touch location not matching the image.

If further calibration is necessary (only supported on some models of touchscreen), a calibration pattern will appear on the touchscreen(s). Note that if your elevator has two touchscreens, calibration will be initiated for both; it is not possible to calibrate just one of the two screens.

On one of the touchscreens, touch the targets as indicated; there will be three targets in different corners of the screen. Use your smallest finger and ensure that you very accurately touch the center of the targets. When the process completes for the first touchscreen, it will resume from the start for the second touchscreen (if present). Repeat the process on the second screen. The calibration process is timed; if you do not successfully complete the process in time, the calibration will be cancelled.

Touch the targets from a position of normal use
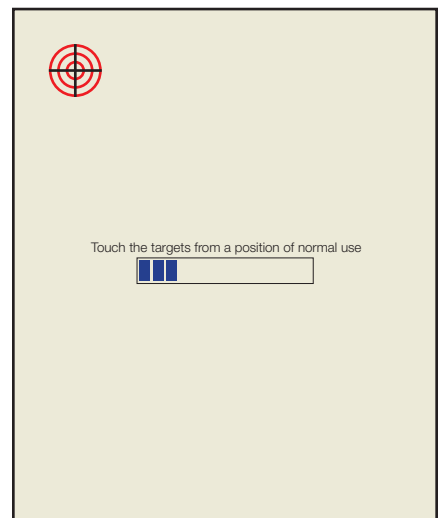
The Administration Menu

The administration menu can be accessed by briefly activating the Admin Menu keyswitch in the elevator's service cabinet. It can also be accessed by pressing the [Home] key on an attached keyboard.

The administration menu consists of functions divided into several groups that are accessible along the left side of the window. Select one of the items to view the associated controls.

Themes

The **Themes** menu contains items associated with changing the themes (graphics) of the touchscreen system.
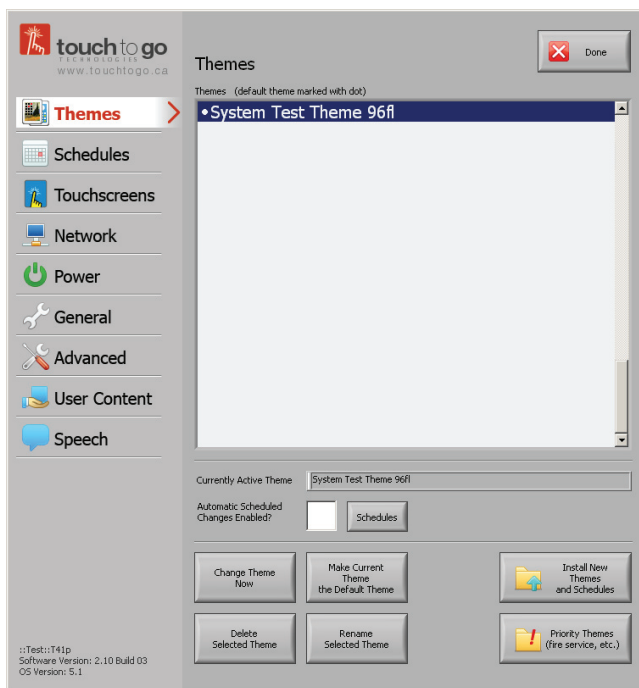
The items on the **Themes** menu allow you to:
- Change themes (graphics)
- Install new themes & schedules
- Delete or rename themes
- Set the default theme
- Configure priority themes

The list in the middle of the window shows the themes that are currently installed on this elevator.   Below the list, it indicates the theme that is currently in use.

To perform an action on a theme, select it from the list (so that it is highlighted) and then press the appropriate button; button functions are described in more detail below.

If an item has a dot next to it, this indicates that it is the default theme. This means that this theme will be displayed unless the system is instructed to do otherwise (e.g. via a scheduled event).

Changing Themes
Select a new theme from the list and press the **Change Theme Now** button. Note that if scheduled changes are enabled, the scheduler may override your change.

Deleting Themes
To delete a theme, select it from the list and press the **Delete Selected Theme** button. Note that you cannot delete the default theme and you cannot delete the theme that is currently in use.

Renaming Themes
To rename a theme, select it from the list and press the **Rename Selected Theme** button. Enter a new name for the theme; it cannot be a name that is used by any other theme already present. If you rename the default theme, it remains the default theme after renaming. However, schedules referencing the theme are not automatically updated - if you change the name of a theme that is used in a schedule, you should also edit the schedule and update the name there wherever it is present.

Installing New Themes and Schedules

Connect a USB flash drive to the service port in the elevator's service cabinet and enable the USB port using the keyswitch. Wait a moment for the system to recognize the flash drive.

Press the **Install New Themes and Schedules** button; a file browser window will appear. Browse to the location on the flash drive that contains the theme you would like to install.
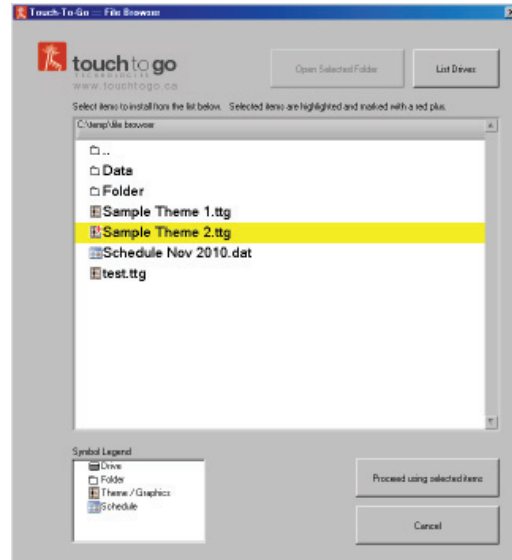
The **List Drives** button at the top of the window brings you back to a listing of drives on the system. If your USB flash drive isn't showing up, try pressing this button again to refresh the listing.

To browse within a folder, select a folder from the list and press the **Open Selected Folder** button. You may also double-click a folder to open it.

When you locate the folder containing your new themes and/or schedules, select the items you'd like to install. Items marked for installation will be highlighted in yellow and their icons will be marked with a red plus.

Press the **Proceed** button to install the themes and schedules you selected, or press the **Cancel** button to cancel.

Note that multiple items can be marked for installation as long as they reside in the same folder on the USB flash drive - if your items are split amongst several different folders you will need to repeat this process for each folder.

If you installed one or more schedules, you will be prompted to make the schedule active and to review schedule settings. The schedule settings are described later in this document.
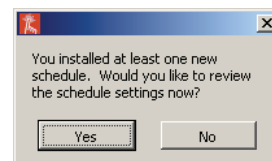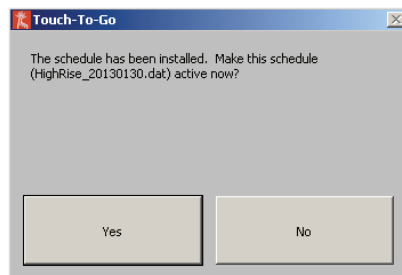
Setting the Default Theme

The default theme is the theme that is displayed automatically by the system in the absence of specific directions to do otherwise. For example, the default theme is shown when the system first starts, when no other themes are scheduled to appear, or when the system is directed to load a theme that is corrupted or does not exist. To set the default theme, select a theme from the list and press **Make Current Theme the Default Theme**. The default theme is shown in the list with a dot beside it.

Priority Themes

Priority Themes allow you to override the currently displayed graphics based on an external input to the system. Some examples include:

•   When the elevator is in fire service mode, an alternate theme can be displayed for firefighters and passengers.
•   If a security keycard is scanned by a card reader, additional floors can be shown on the screen
•   An emergency event at a hospital (e.g. code blue) can cause a special set of graphics to be displayed providing additional instructions to passengers.
•   Different graphics can be displayed when an elevator is in destination dispatch mode vs. conventional mode.
•   Swing cars can have a keyswitch that sets which floors are displayed (high rise vs. low rise).

You will need to make the necessary wiring connections to your elevator interface unit to trigger these types of theme changes. Priority Themes are activated by making a connection between the elevator interface unit's BC terminal and one of its inputs. Contact your elevator supplier or Touch-To-Go for more information.

To configure priority themes, press the **Priority Themes** button from the **Themes** tab of the adminstration menu. Up to three priority themes can be specified. These override any other scheduled or default themes. They also can override each other; if more than one priority theme is activated, only the highest priority one will be displayed.

To set up a priority theme, click on a button to edit the appropriate item.
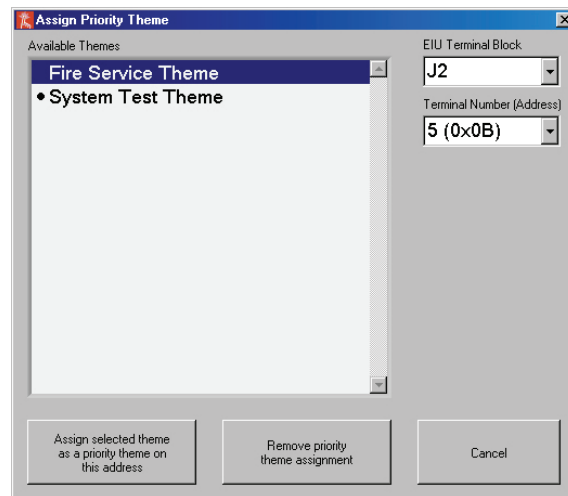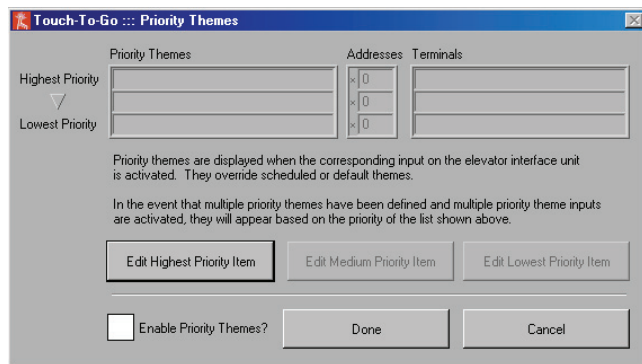
Select the theme to be displayed, and choose the elevator interface unit input terminal to be associated with this theme. Most elevator interface units produced after October 2010 have their terminals marked in accordance with the items in the drop-down menus on this screen. Note that you must install the themes on the system before you can assign them as a priority theme. Once your selection is complete, press the **Assign** button to assign the theme. If you want the priority themes to take effect, be sure that the **Enable Priority Themes** box is checked.

Schedules

The **Schedules** menu contains items which allow you to schedule changes to the elevator touchscreen graphics.

Schedules allow you to configure the system to change graphic themes at specified dates and times. This allows you to preload content for special events, or to have different themes for different times of the day or different days of the week. If you only require one theme, you do not need a schedule - you can simply set this theme as the defaut theme.

The system can contain multiple schedules, and you may install new schedules from a USB flash drive. While multiple schedules can exist in the system, only one schedule can be in effect at a time; this schedule is called the active schedule.
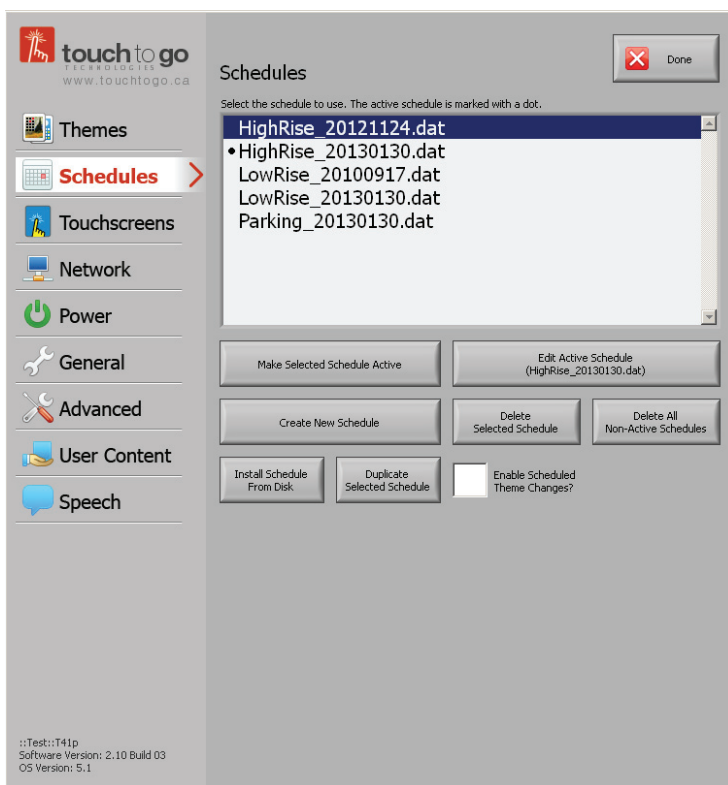
The items on the **Schedules** tab allow you to:
• Install schedules
• Edit schedules
• Delete schedules
• Activate schedules
• Enable/disable scheduling of theme changes

The list in the middle of the window shows the schedules that are currently installed on this elevator.

If an item has a dot next to it, this indicates that it is the schedule that is currently active. This means that this schedule will be used whenever scheduled theme changes are enabled.

To perform an action on a schedule, select it from the list (so that it is highlighted) and then press the appropriate button; button functions are described in more detail below.

Enabling / Disabling Scheduled Theme Changes
The checkbox marked **Enable Scheduled Theme Changes** controls whether the system performs any scheduled changes. Even if you have an active schedule selected, no changes will take place unless this checkbox is checked.

If this box is unchecked, then the system will not change graphics on its own. On startup, it will display the theme that you have selected as the default theme.

Installing Schedules
See the previous section on installing themes; the process is identical so it will not be repeated here.

Deleting Schedules

Either a single schedule can be deleted on its own, or all non-active schedules can be deleted. To delete a single schedule, select it and press the **Delete Selected Schedule** button.

Pressing **Delete All Non-Active Schedules** will delete all schedules except the active schedule. If there is no active schedule, then all schedules will be deleted.

Renaming Schedules

To rename a schedule, duplicate it (giving the duplicate the desired name), and then delete the old schedule.

Editing Schedules

To edit a schedule, it must be the active schedule. If necessary, activate the schedule you want to edit (by selecting it and pressing **Make Selected Schedule Active**), and then press the **Edit Active Schedule** button to bring up the schedule editor.

The Schedule Editor

To edit a schedule, it is important to first understand how the scheduler works. A schedule file contains a calendar, weekly schedules, daily schedules, and special events.

- *Daily schedules* specify which theme is used at a given time of day.
- *Weekly schedules* specify the daily schedule that is in effect for each day of the week.
- The calendar specifies the weekly schedule that is in effect beginning on a specified start date.
- *Special events* allow you to override these settings and apply a different daily schedule for a particular single day (e.g. Halloween, national holidays, etc.)
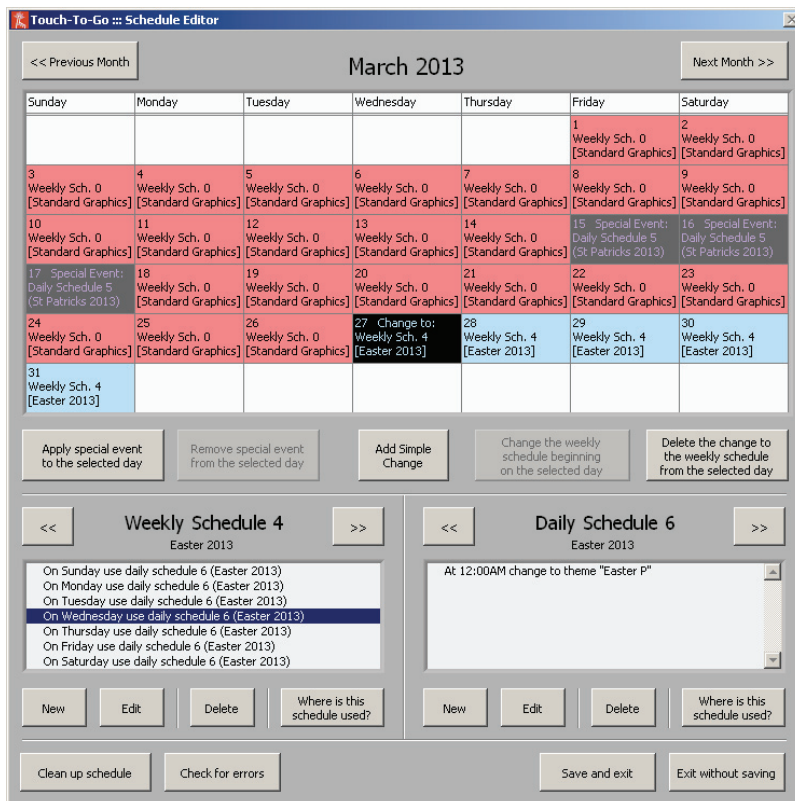
The schedule editor shows you the above set of schedule components and lets you edit each item individually.

At the top of the window is the calendar; the calendar indicates what schedule is in effect on any given day. This shows both weekly schedules and special events. Changes in the schedule show up in different colors.

At the bottom of the window are lists showing the weekly schedule and the daily schedule.

Selecting any day on the calendar automatically shows the weekly and daily schedules in effect on that day.

Simple Schedules

The easiest way to add items to a schedule is to first pick the day on which the change should apply (select the day directly on the calendar first), and then select **Add Simple Change** from the center of the window (below the calendar).

Here, you can add 3 types of basic scheduled events:

- A general change to the schedule. From the selected date onwards into the future (until the next scheduled event), it will display the theme you have chosen.
- A single-day special event. This is a change that affects a single day only.
- A recurring weekly schedule. This will show one theme during certain hours of specified days, and another theme otherwise.

For more elaborate schedules that don't fit these predefined patterns, you will need to create the specific scenario you need using daily and weekly schedule elements. This is outlined in the sections of the document that follow.

Daily Schedules

To create a new daily schedule from scratch, you would first need to know what themes you want to display at each time of day. For example, let us assume we want a schedule that shows three different themes as follows:

- Theme 'sunshine' from 8:15AM to 10:30AM
- Theme 'moon' from 8PM to 9PM
- Theme 'hotel' for all other times of the day

First, create a new daily schedule by selecting the *New* button underneath the daily schedule display. The daily schedule editor appears.
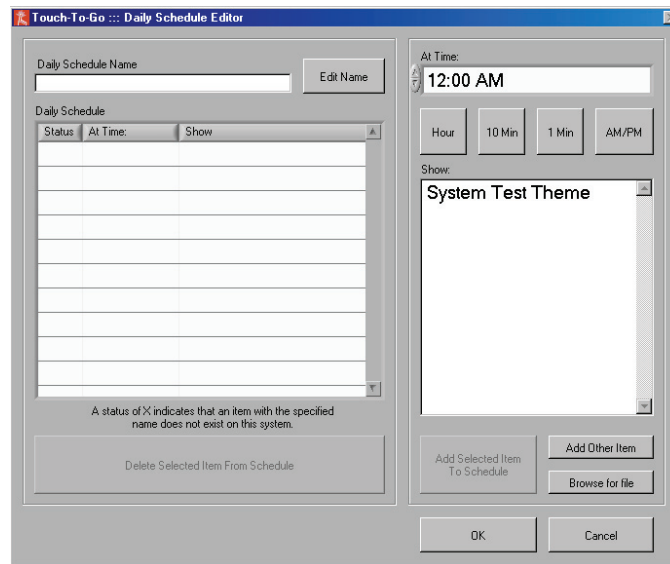
⚠️ Note that if you are editing the schedule from within an elevator, a list of available themes appears on the right side of the window. If you are editing from within the Theme Creator software, this list may not be available if the themes are not on your computer; you may need to manually specify the names of themes you would like to use through the *Add Other Item To Schedule* button.

Starting at 12:00AM, we want to display theme hotel. Set the time to 12:00AM using the hour / minute / AM / PM buttons, select *hotel* from the list, and choose *Add Selected Item to Schedule* (or choose the *Add Other Item* button and manually enter the name *hotel*). If you do not schedule a theme to start at 12:00AM, then when this day begins, the system will continue displaying the theme that was in effect at the end of the previous day.

Set the time to 8:15AM, select the theme named *sunshine*, and add it to the list as you did in the previous step.

Set the time to 10:30AM, select the theme named *hotel*, and add it to the list.

Set the time to 8:00PM, select the theme named *moon*, and add it to the list.

Set the time to 9:00PM, select the theme named *hotel*, and add it to the list.

The list is automatically sorted; while this example entered the items in chronological order, you could enter them in any order you like. If you make a mistake at any point and end up with an incorrect item in the schedule, just select it and choose *Delete Selected Item From Schedule*. It will be removed.

At this point, you should now have the following:
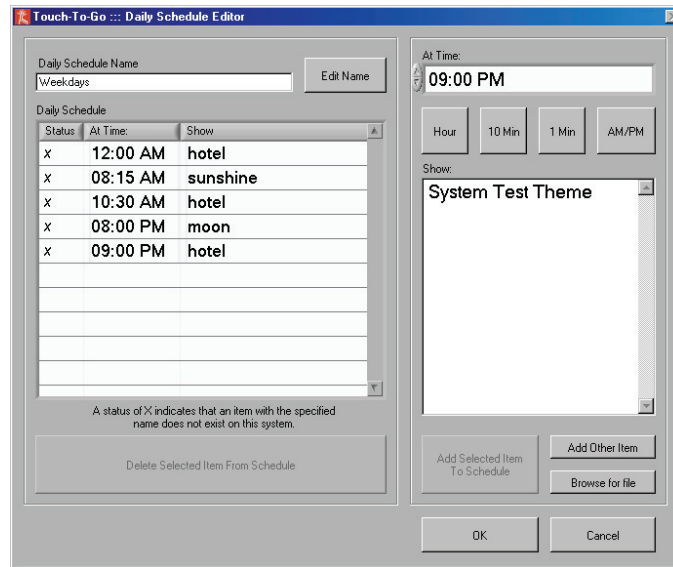
Use the **Edit Name** button to name the schedule (e.g. "Weekdays") and select **OK** to return to the schedule editor.

Additional daily schedules can be created in a similar fashion. Once created, daily schedules cannot be deleted, so if you want to create a new daily schedule and you have an old one you do not want, it is better to edit the unwanted one than to create a new one.

Once you have created your set of daily schedules, you can review them in the lower right corner of the schedule editor window. Each daily schedule is numbered and its name is also shown (if you gave it a name); you may scroll through the available schedules using the << and >> buttons.
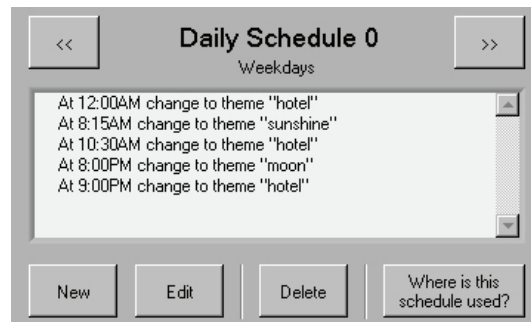
Daily schedules may be used in two ways:

- They can be assigned to single calendar days as a one-time-only special event.
- They can be assigned to individual days of the week in a recurring weekly schedule.

To apply a special event, pick a day on the calendar in the main schedule editor window, and choose the *Apply special event to the selected day* button. Enter the daily schedule number to apply. The calendar day now appears in a different color indicating that the special event has been applied. The *Remove special event from the selected day* button will delete the special event from that day.

To assign a daily schedule as part of a weekly schedule, use the weekly schedule editor.

Weekly Schedules

The weekly schedules can be edited, created, and viewed using controls at the bottom left of the schedule editor window.

For example, suppose we wanted our new daily schedule to be used for weekdays, and another daily schedule to be used on weekends.

We can create a new weekly schedule by selecting the *New* button (or we can *Edit* an existing weekly schedule).
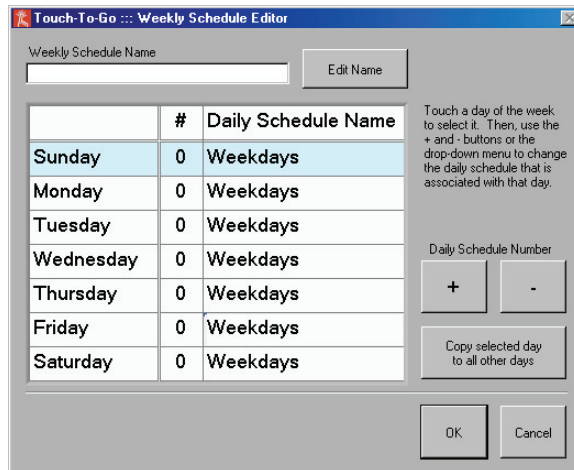
Select Sunday, and select the name of the schedule and change it accordingly - a menu will pop up listing available daily schedules that you have defined. Repeat this for Saturday.

If you want to change all days, just change one and then press **Copy selected day to all other days** to apply the change to each of the other days.

We have now configured the schedule as we had intended. Give the schedule a name (using the Edit Name button) and press OK to accept the changes.
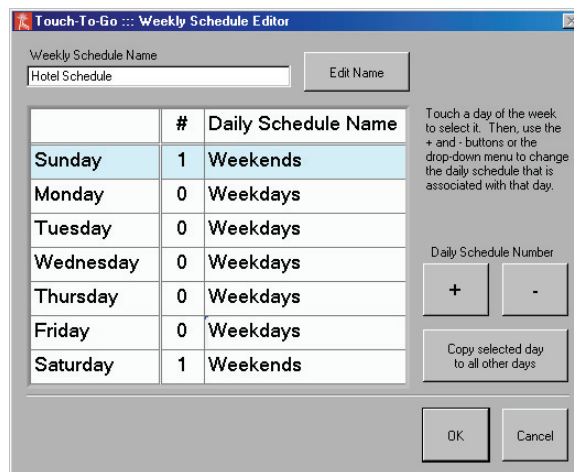
Applying the Weekly Schedule to the calendar
When weekly schedules are applied to the calendar, they take effect beginning on a specified day, and continue into the future indefinitely (until the next change to the weekly schedule occurs).

Suppose we would like our new weekly schedule (weekly schedule number 2), to take effect on October 21st. To make this change, select October 21st from the calendar.

Choose the button marked *Change the weekly schedule beginning on the specified day*. Select the weekly schedule and select *Enter*.

The calendar now shows the newly scheduled changes. Note that special events always override weekly schedules, hence the special event on October 31st remains even after changing the weekly schedule. If you use the *Next Month* button to view months in the future, you can see that weekly schedule 2 is in effect on all months into the future.

Notes on Scheduling
The following notes provide additional information on scheduling your touchscreen themes.

Finding where schedules are used
Before making changes to an existing schedule component (weekly or daily schedule), it is important to see where that component is used, to ensure that your changes do not have unintended consequences.

The *Where Is This Schedule Used* buttons beneath the weekly and daily schedule views will find all instances where the schedule components are referenced, so that you can see how any changes will affect the operation of the system.

Cleaning the schedule
You can eliminate old events from the schedule to make it simpler and easier to maintain. The *Clean Up Schedule* button will delete weekly schedule changes and special events that occur prior to today's date to help keep the schedule clean and uncomplicated. It will also delete daily or weekly schedules that are not referenced by the calendar.

Nothing is scheduled
In the event the system powers up and nothing has been scheduled for a given day or time, the system will display the default theme. The default theme is marked with a dot in the Themes tab of the touchscreen system's Administration Menu; the menu is accessible from within the elevator using the keyed switches in the elevator's service cabinet.

The scheduled theme does not exist
In the event that a schedule refers to a theme that does not exist (e.g. due to deleting a theme or due to a typographical error), the default theme will be used or the scheduled change will be ignored.

Schedule components do not exist
In the event that a schedule refers to a daily schedule or weekly schedule that does not exist (e.g. you specified daily schedule 9, but only 4 daily schedules exist) then the system will use schedule number 0.

Help! My schedule is a mess!
If you have made errors while creating or editing a schedule and it has become unmanageable, simply create a new schedule file containing only the elements you need, and stop using the old file. Once you have made the new file active in the system, the old one will be ignored (you can delete it if you don't need it anymore).

The schedule isn't working
Check that the time and date are set correctly on each elevator. Also confirm that scheduled theme changes are enabled; there is an *Enable Scheduled Theme Changes* checkbox on the Themes tab of the Administration Menu. The menu is accessible from within the elevator using the keyed switches in the elevator's service cabinet.

Touchscreens

The **Touchscreens** menu contains items associated with configuring the touchscreen displays.
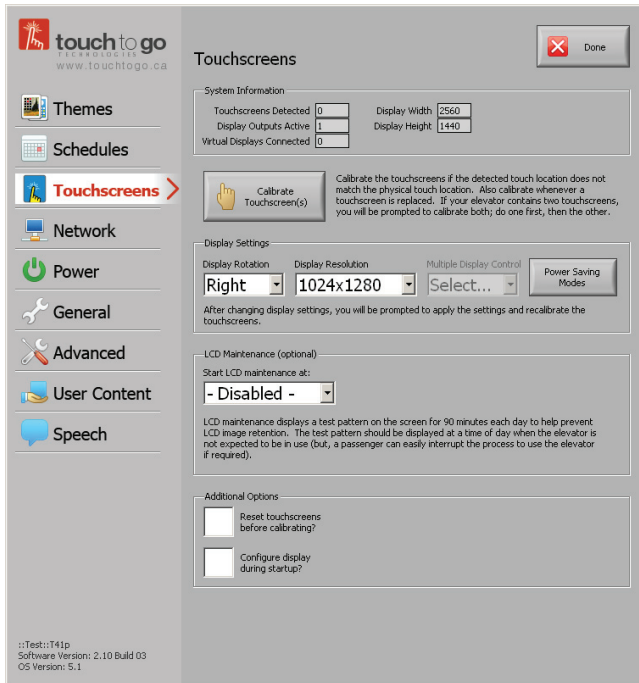
The **Touchscreens** menu allows you to:
- View diagnostic information about the touchscreens
- Calibrate the touchscreen(s)
- Change the display resolution and rotation
- Enable LCD maintenance mode
- Determine if the system should automatically reset the touchscreens or display settings

Diagnostics
At the top of the menu, diagnostic details are displayed. You can use this information to help troubleshoot problems with the touchscreens or display.

For example, if it shows 0 touchscreens detected, then you may want to check the connections to your touchscreen.

Calibrating the Touchscreen(s)
Touchscreen calibration can be done from the Touchscreens menu. The process is similar to what was described earlier in this chapter.

Display Settings
You can set the display resolution and rotation. In certain configurations with multiple displays, you can also set how the content is distributed to the displays.

For a crisp, clear image, the resolution should always be set to match the specific model of touchscreen in your elevator. After changing these settings, you may be prompted to recalibrate the touchscreens.

LCD Maintenance
It is possible to run an LCD maintenance mode for 90 minutes at a specified time of day. This feature can prevent or reverse image retention in the LCD panel by displaying a rapidly flashing pattern. Some passengers may find this alarming, so if you feel this function is necessary, it is best to set it for a time of day when the elevator will not be used (e.g. 2AM). Passengers can interrupt the process if they need to use the elevator.

Power saving modes (passenger sensor / timed power-off) are more effective at prolonging the life of the LCD than LCD maintenance mode, but it is available as an option in cases where power saving modes cannot be used.

Please note that an LCD maintenace theme needs to be installed for the LCD maintenance function to activate.

Additional Options
An option allows the touchscreens to be reset prior to being calibrated (only suggested if you are experiencing problems). The display can be configured (resolution/rotation) at startup; this is recommended if you find that the system occasionally deviates from the proper display settings or if you are replacing a touchscreen display.

Network

The **Network** menu contains items associated with networking your touchscreen systems.
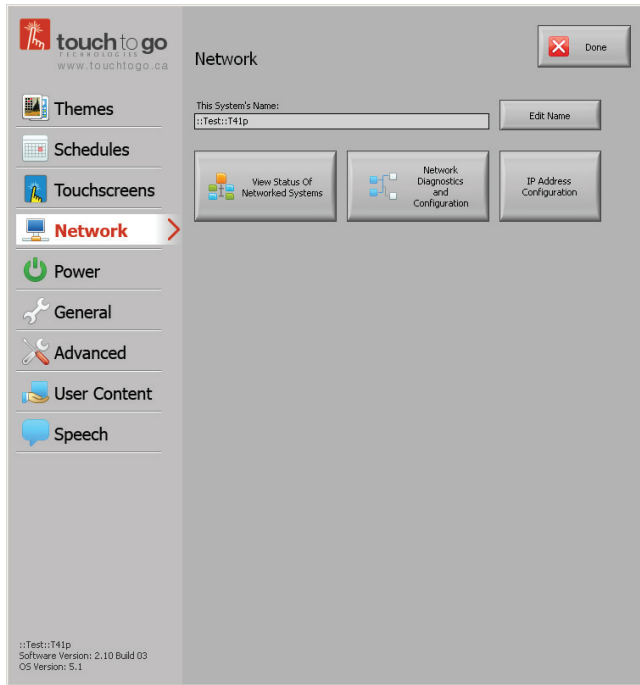
The **Network** menu allows you to:
- Set the name of the system
- Set the IP address and network parameters
- Diagnose network connectivity issues
- Administer other systems on the network (e.g. install graphics, change schedules, update software, etc.)

For networking to be available, your elevators must include networking hardware and wiring. Typically, networking is done using wires in the elevator's traveling cable and networking equipment in the COP and machine room.

A connection to the internet is possible but not a requirement; elevators may simply be networked to each other to facilitate updates and management.

Edit Name
This will let you edit the name of this system, as reported to other elevators on the network. It is important that each system has a unique name. Names can contain several elements, separated by :: (two colon symbols). The name elements are used to group elevators together so that they can be administered together in logical groups, such as high-rise or low-rise.

The suggested naming scheme is as follows: *::Building Name::Elevator Bank or Group::Elevator Number*
For example: *::Commerce Towers::Low Rise::4*

IP Address Configuration
This option sets the IP address of the touchscreen system, and the basic networking parameters. The most straightforward configuration is to give each elevator a static IP address.

Addresses must be unique to each elevator; it is suggested that you avoid modifying the address unless there is a specific reason to do so.

Network Diagnostics
This will show a list of all other systems expected to be on the network, and it will attempt to contact each of them to see if they are on the network and if they are running the elevator touchscreen software application. The results may be used for troubleshooting networking issues.

This window also lets you set up the list of systems that are on the network - this must be done before other networking features can be used. The IP address of each system must be entered.

View Status of Networked Systems

If multiple elevators are networked together, then it is possible to remotely monitor and configure the touchscreen systems in other elevators.

When you select this option, the network will be scanned for other touchscreen systems and you will be presented with a list of the systems that were detected. Systems are displayed according to the groups that were defined when the systems were named; you may select all elevators, just one group, or just one elevator.

Once you have selected the elevators you want to work with, press OK. The following window will appear:
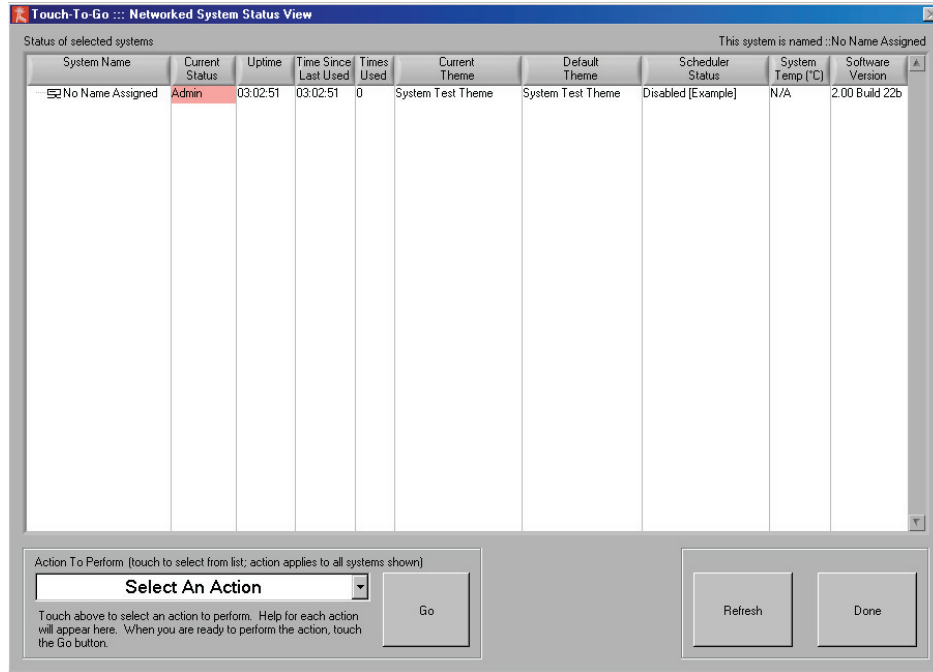
In this window, you can see the status of each elevator (theme, schedule, software version, run time, etc.). You can also perform actions on all of the elevators displayed in the list, including setting the time, installing themes and schedules, making changes to settings, and upgrading the software.

Note that if the system you are currently using is shown in the list, some actions cannot be performed on it. For example, you can't restart or upgrade the system you are using, since it is in control of performing this action on other systems. In these cases, the system will automatically skip performing the action on itself and only perform it on the remote systems listed.

Power

The **Power** menu contains items associated with power saving, turning the power off, restarting the system, and restarting the software.
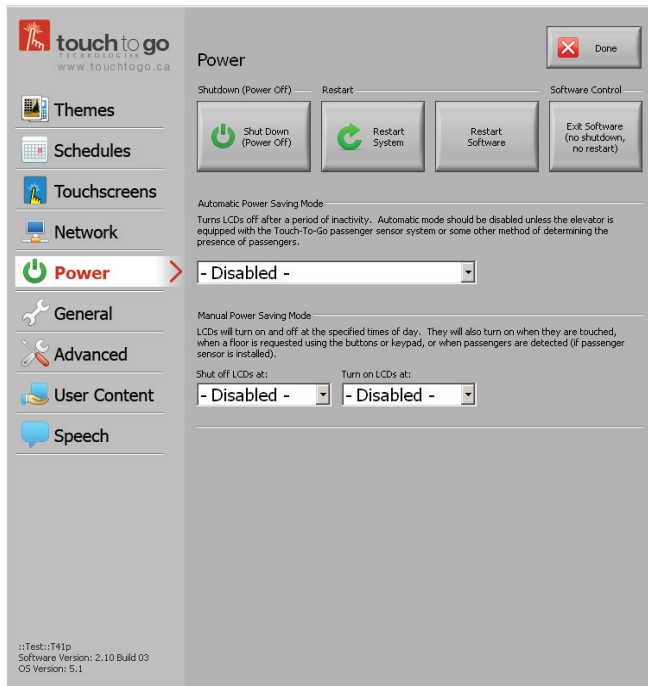
Shutdown/Restart
From this menu, it is possible to turn the system power off, restart the system, restart the software (without restarting the system), and exit the software.

Note that exiting the software is reserved for special troubleshooting cases only; it will leave the system in an unusable state and you will have to use the CPU reset keyswitch in the service cabinet to turn the power off and on again to restore the system to an operational state.

LCD Power Saving Modes
The system has two LCD power saving options, both of which can turn off the LCD backlight to save power and prolong the life of the display. Even a short period of power saving mode (1h/day) will help to prevent image retention in the LCD panel.

The first power saving mode, Automatic Power Saving Mode, uses passenger sensors to turn the LCDs off after a specified period of inactivity. Do not use this option unless your elevator has been equipped with a passenger sensor connection at the service port board in the service cabinet (you may be able to check for this in the **Advanced** menu).

The second option provides for a pre-scheduled period during which the screens are shut off. It is generally intended for situations where a passenger sensor connection is not present but you know the elevators will be unused during this period (e.g. the building is closed to the public or the elevator is out of service at certain times of day). If a passenger gets into an elevator while the system is in power saving mode, they may wake the system by touching the screen, however this situation should be avoided as it is not very intuitive.

General

The **General** menu contains basic functions for configuring the touchscreen system. These include setting the time and date, upgrading the software, statistics, and event logging.
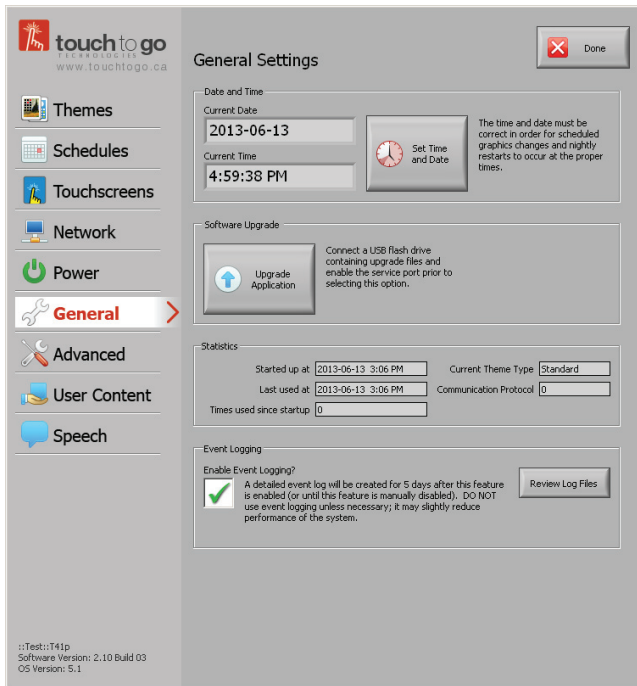
Time and Date

Having the system set to the correct time and date is important to ensure that scheduled theme changes take effect when planned. To set the time and date, press the **Set Time / Date** button.

The **Hour**, **10 Min**, and **1 Min** buttons increment the hour, tens of minutes, and minutes respectively. The **Calendar** button brings up a window in which you can set the date.
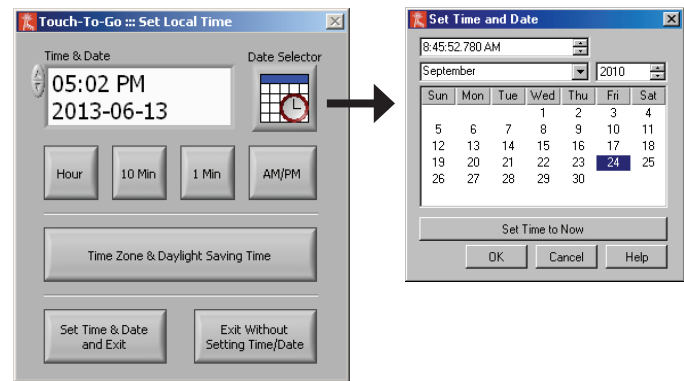
Software Upgrade

This allows you to install a software upgrade. Detailed instructions will be provided when the software upgrade is distributed to you.

Statistics

The time at which the system started, was last used, and the times it has been used since startup are shown. These may be helpful for troubleshooting purposes.

Event Logging

For troubleshooting purposes, the system can be configured to log events such as button presses, theme changes, system administration tasks, and errors. Once enabled, it will log events for up to 5 days, or until it is disabled.

Do not use event logging unless necessary; it may reduce performance of the system. Logs can be reviewed on the system or exported to a USB drive for off-site analysis.

Advanced

The **Advanced** menu contains advanced functions for configuring the touchscreen system. These are items that you should not need to change or adjust except in special circumstances.
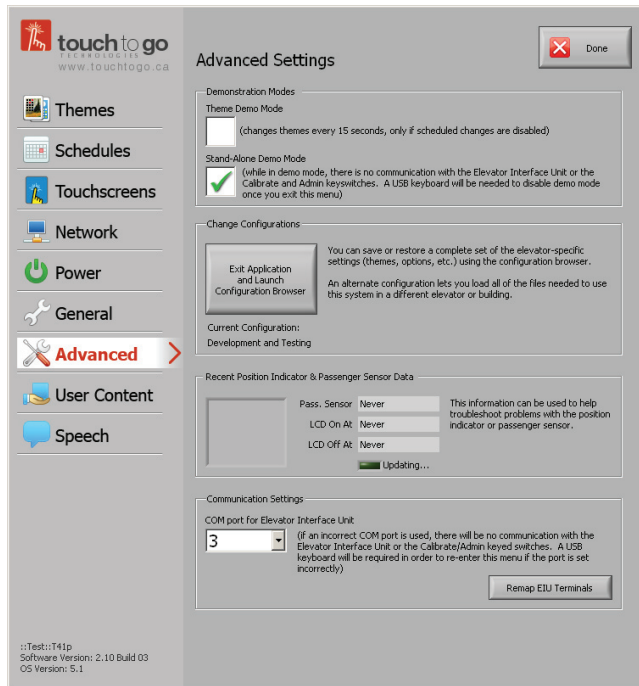
Demonstration Modes
Do not select these options unless instructed to do so by Touch-To-Go technical support personnel.

Configuration Browser
This lets you save and restore the complete configuration of this system (e.g. for replacing the system, duplicating all settings to another system, or making a backup of the current state).

Position Indicator and Passenger Sensor Data
This shows the last communication with the position indicator and passenger sensor, as well as the last times the LCD was turned on or off.

Note that LCD on/off times are not necessarily transitions in LCD state - they are just the times when the software set the LCD to a specific state. An LCD that is already on could be instructed by the software to be on.

Elevator Interface Unit COM port
This option sets the COM port used by the elevator interface unit. It is specific to the hardware installed in your elevator. If this item is set incorrectly, the software will not be able to communicate with the elevator interface unit. Contact Touch-To-Go for technical support if you need to change this setting.

Remap EIU Terminals
Terminals on your elevator interface unit may be remapped, allowing you to wire a floor to a different terminal than what was originally intended. This may be useful if a terminal on the EIU is damaged or fails, or if the floor definitions in your graphics are incorrect. For more information, please contact Touch-To-Go for specific instructions.

User Content

The **User Content** menu contains functions for managing simple user content such as messages, images, and banners. This allows you to update simple items on the screen without needing to revise your touchscreen theme or schedules.
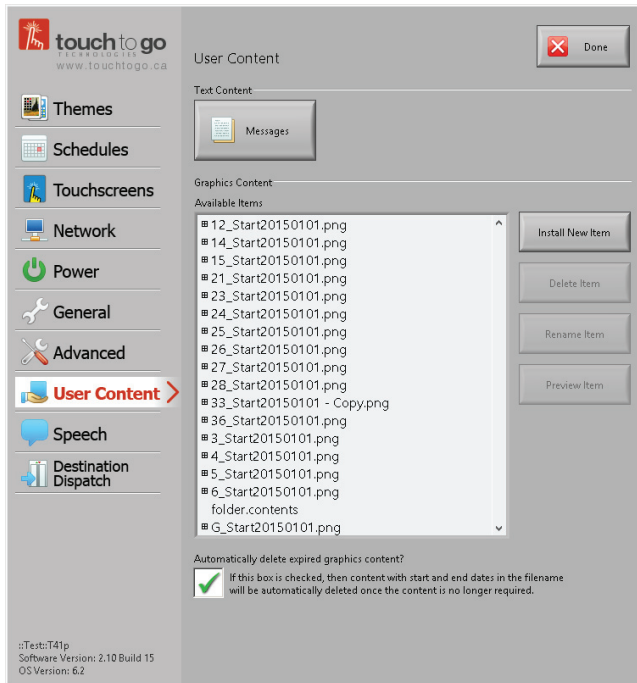
Messages

If your theme includes an area for user-defined messages, this option lets you load and schedule the messages.

For example, the message fields could be used to provide notifications to tenants about building events, condominium board meetings, etc. Messages are available for standard and animated themes.

Messages can be given start/stop dates, enabled/disabled, and basic editing functions can be performed.

To change formatting or create lengthy messages, it is suggested that you use the message composer utility on your PC.

Graphics Content

If you use an animated theme that includes an area for user-defined graphics, this option lets you install and delete the files. Either JPEG, PNG, or SWF graphics may be installed. Note that graphics content applies to animated themes only; standard themes do not support this type of content.

For example, a user-defined area may be present for display of maps, elevator inspection certificates, museum exhibit listings, announcements for building tenants and visitors, or advertising / promotional purposes.

The provision for user-defined graphics content must be provided as part of your theme; please contact the person who prepared your graphics for more information.

Press the *Install New Item* button to browse for a new file to install. Choose an item and press *Delete Selected Item* to remove it from the system. Note that if you wish to install a new file with the same name as an older file, you must first delete the old file before installing the new file.

If your touchscreen theme is programmed accordingly, user content can be scheduled by putting start and end dates in the filename. For example, a tenant logo to be displayed for floor 12 could be called *12_Start20150325.png*, indicating that it should be displayed beginning March 25, 2015. Similarly, a file for the 14th floor could be called *14_Start20150325_End20150420.png* if it is to not be displayed after April 20th. For more information on scheduled user content files, please contact the person responsible for developing your touchscreen theme.

Speech

The **Speech** menu contains functions for configuring speech output from the touchscreen system. The system can speak when an accessibility (wheelchair) key is pressed on the keypad, and when a floor is selected using the keypad.

The system uses text-to-speech technology; custom recordings are neither required nor supported. Because of the way in which text-to-speech works, it may be necessary to try several creative variations of a phrase in order to find the one that is clearest and easiest to understand. E.g. "Pea, 3" may sound better than "P3". Also try inserting spaces, commas, or periods to change the pauses between words or numbers.
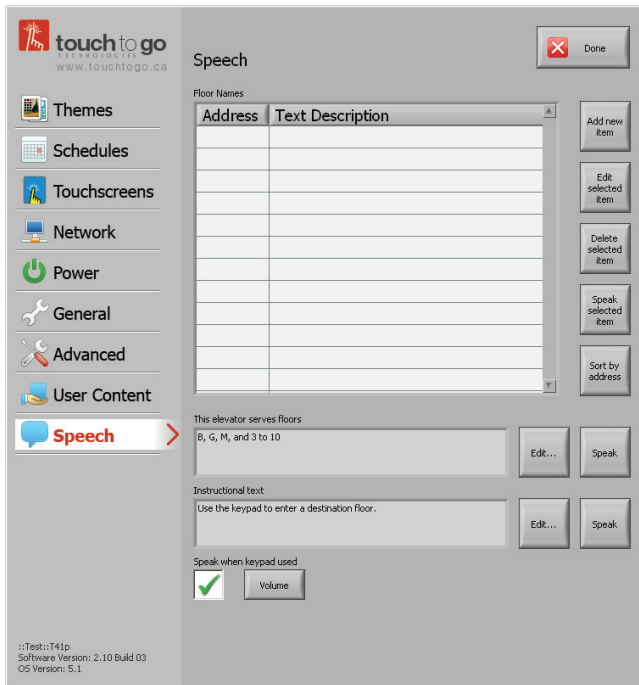
Floor Names
This lists the text to be spoken when each floor is selected. Note that the list is sorted by the address of the terminal on the elevator interface unit (not the numerical floor in the building). Generally, the lowest floor served by the elevator is 0, the next floor is 1, and so on. Addresses increment sequentially and are usually not skipped.

Press **Add new item**, and enter the address and then the phrase to speak.

Select the item in the list and press **Speak selected item** to hear the phrase.

Repeat until all required messages have been added. The list may be sorted and items may be edited or deleted as necessary.

Additional Messages
The two messages at the bottom of the screen are spoken when the accessibility key is pressed. Here, you should indicate the floors this elevaror serves, and any special instructional text (especially for non-obvious keypad key sequences, such as "For roof, press 23").

Enable / Volume
Speech will not occur unless it is enabled by checking the checkbox. Also, your keypad needs to be programmed appropriately to support the accessibility key functions.

Volume can be set by pressing the **Volume** button to bring up the system volume control.

Chapter 5:
Trouble-shooting

Introduction

An elevator touchscreen system contains several components. When a problem is encountered during operation, it is important to properly identify the source of the problem.

If you are called to investigate trouble with a system, be sure to get as much information as possible from the person reporting the problem. For example:

- Are the correct graphics displayed on the screens?
- Is anything at all displayed on the screens?
- Is the backlight of the screens illuminated?
- Is the power LED on the main touchscreen illuminated?
- Are the fuses on the main touchscreen OK?
- Do the screens respond to touch?
- If dual touchscreens are present, does the problem happen with both screens or just one?
- If a keypad or buttons are present, can they still be used to operate the elevator?
- Is the failure intermittent or constant?
- Is there any evidence of physical damage?
- Did any other event occur at the same time as the failure (e.g. building power outages/spikes, elevator service work, cleaning, etc.)

Also, other elevator-related issues may be incorrectly attributed to the touchscreen system; examples of this include floors locked off by security systems, or an elevator being disabled or placed in independent service mode.

These instructions contain advanced troubleshooting information for technicians who wish to perform detailed investigation of a problem, however it is not expected that all technicians will perform these steps.

⚠ **If you have a system that will not boot, or one that operates unreliably, it usually cannot be fixed on-site through simple settings changes. In the event of a problem with the main touchscreen, it is recommended that you swap the unit with a spare rather than attempting to resolve the problem on-site.**

Configuration of the main touchscreen'sCPU, its operating system, and its software requires detailed knowledge of the system and is best left to your Touch-To-Go service team.

Block Diagram - Typical Installation

Passenger Sensor(s) (optional)

Main Touchscreen

Network Cable (RG-6 Coaxial Cable) (Optional)

Auxiliary Touchscreen (Optional)

USB

VIDEO

POWER

12VDC In

PASSENGER SENSOR

USB

CPU RESET

CAL/ADMIN

Service Port Board

AC Power In
100-120VAC 3.5A max, or
200-240V AC 2A max
50-60Hz

12V Power Supply

POWER

USB

CAL/ADMIN

Elevator Interface Unit

Elevator Button and Indicator Wires

Enable Svc Port   CPU Reset   Admin Menu   Cali-brate

Keyed Switches
(in service cabinet)

DIRECT CONNECTION

Keypad (Optional)

Questions? We're here to help!
1-866-967-8500 or
CustomerService@madfixtures.com
8:30AM - 5:00PM EST

Operation using the touchscreen

1.   A passenger touches the screen to select their floor.
2.   The touchscreen sends the touch location to the CPU board (located inside main touchscreen housing).
3.   The CPU determines the floor associated with this touch location and sends a command to the elevator interface board over the control cable.
4.   The elevator interface board places a call for the floor by briefly (0.5 seconds) connecting the wire for the requested floor to BC (C-). This signals the elevator that the floor has been requested. An LED illuminates on the elevator interface board when a floor is being requested.
5.   The elevator holds the wire at BC (C-) when the call is acknowledged; an LED illuminates on the elevator interface board when the call is acknowledged.
6.   When the wire for a floor is connected to BC (C-) (either by the elevator or by the elevator interface board), this is detected by the elevator interface board. The elevator interface board sends a message to the CPU indicating that an indicator has changed.
7.   The CPU updates the associated touchscreen graphics to indicate that the button has been illuminated.
8.   The elevator travels to the requested floor and cancels the call. The wire associated with the floor returns to LC (C+).
9.   The elevator interface board sees this and sends a message to the CPU indicating that an indicator has changed.
10. The CPU updates the graphics to indicate that the button is no longer illuminated (the button turns off).

Operation using the keypad

1.   A passenger enters their floor on the keypad. Some examples include:
     a.   Pressing [1] [2] [ENTER] for the twelfth floor
     b.   Pressing [0] [3] [ENTER] or just [3] for the third floor
     c.   Pressing [★] for the ground floor (ending with [ENTER] is not required after pressing [★])
     d.   Pressing [1], then waiting 10 seconds, then pressing [4] [ENTER] will result in a request for the 4th floor, not the 14th floor. The keypad discards any incomplete entries after ~8 seconds.
     e.   Pressing the [X] key (if present) clears all previous keystrokes.

     Note that possible alternative key combinations are programmed for each elevator where applicable:
     •   [P][2], [2][P], [P][2][ENTER] and [2][P][ENTER] will all place a call for P2
     •   [1] , [1][ENTER], [0][1][ENTER] and [★] will all place a call for the ground floor

2.   The elevator interface board determines the floor associated with the key combination entered.
3.   The elevator interface board places a call for the floor by briefly (0.5 seconds) connecting the wire for the requested floor to BC (C-). This signals the elevator that the floor has been requested. An LED illuminates on the elevator interface board when a floor is being requested.
4.   The elevator holds the wire at BC (C-) when the call is acknowledged; an LED illuminates on the elevator interface board when the call is acknowledged.
5.   When the wire for a floor is connected to BC (C-) (either by the elevator or by the elevator interface board), this is detected by the elevator interface board. The elevator interface board sends a message to the CPU indicating that an indicator has changed.
6.   The CPU updates the associated touchscreen graphics to indicate that the button has been illuminated.
7.   The elevator travels to the requested floor and cancels the call. The wire associated with the floor returns to LC (C+).
8.   The elevator interface board sees this and sends a message to the CPU indicating that an indicator has changed. The graphics update to indicate that the button is no longer illuminated (the button turns off).

Note that neither the CPU nor the touchscreens are required in order to place a floor call using the keypad. However, power must be present at the main touchscreen at all times; the keypad and elevator interface unit are powered from the main touchscreen, and car calls cannot be made when power is off.

For independent service mode: Holding the final key in the a sequence will keep the contacts closed as long as the key is held. This is required for some elevators to close the doors during indepedent service operation.

The service port

The service port provides access to one of the CPU's USB ports. The purpose of the service plug is to provide access to the port without the need to open the elevator panels. A non-standard plug is used; contact Touch-To-Go Technologies for an adapter plug to convert the service plug to a standard USB type A jack (P/N P00005).

Touchscreens - Theory of Operation

The touchscreen operates using an innovative and patented optical position sensing technology that detects touch points by monitoring shadows cast by your finger.

Shadow-based touch sensing uses LEDs and electronic sensors embedded in the bezel of the touchscreen. Sensors monitor the light emitted by LEDs and the shadows thrown by your finger to calculate the size and location of each touch point on the screen. The touchscreen utilizes four shadow sensors on the long side of the bezel (one in each corner and two mid-span). For illumination, infrared LEDs are deployed on the top, bottom, and opposite long side of the bezel.

When a finger or an object touches the screen, multiple shadows are cast out at different angles. Each one of the shadow sensors calculates the angle of the shadow that falls upon it. The on-board processor calculates where these multiple shadows converge together and best describe the touch location. When the shadows converge, the intersection of the shadows also describe the size and shape of the object.

This technology relies upon touching the screen with an object capable of absorbing light and casting a shadow. Fingers, fingernails, credit cards, etc. are all suitable objects. The glass itself is not part of the touch sensing mechanism; it does not matter if the glass is scratched or dirty.

When servicing the touchscreen, take care not to damage the bezel. Also note that the touchscreen requires approximately 30 seconds after power-up in order to calibrate itself to ambient lighting conditions. Do not touch the screen during this time.

Touch locations are fixed and do not require manual calibration. If the system's video output is rotated relative to the touch screen, then the touch points will not align with what is shown on the screen. If this occurs, properly set the rotation of the video output (using the Calibrate keyswitch, or the touchscreens section of the administration menu).

For auxiliary touchscreens, three connection points are present: USB, power, and video. *Connect power first, then video and USB.* If you connect USB prior to connecting power, the auxiliary touchscreen may malfunction. If necessary, use the power button to turn on the touchscreen and the source button to select the correct input.

CPU - Theory of Operation

The CPU is a an embedded industrial computer, housed inside the main touchscreen enclosure. It uses the Microsoft Windows Embedded operating system. It should be noted that many familiar features found in other Windows versions (XP, Vista, etc.) are not included in the customized implementation of Windows Embedded used by the touchscreen system.

Normal Operation

When the CPU starts, it loads Windows and launches the elevator control application automatically. No user interaction is required. No other applications are run on the computer.

The CPU is configured to automatically reboot itself every 24 hours. The reboot takes approximately 2 minutes. This event is scheduled for an off-peak time (usually 3:00 AM) in order to minimize service disruptions. In buildings with multiple elevators, the restart times are staggered to ensure that an elevator is always in service.

The CPU Reset keyed switch in the elevator's service cabinet is connected to the CPU's power switch. If the system is on, activating the switch momentarily will shut down the touchscreen application. Activating the switch momentarily a second time will shut down the system normally. Holding the switch for >3 seconds will force an immediate shutdown (not recommended unless the system is malfunctioning and cannot be shutdown normally). If the system is off, activating the switch momentarily will turn the system on.

In the event of a power failure, the system is configured to return to its last known power state when power returns. This means that if the system was on prior to the power failure, it will automatically start up when power returns. If the system was off prior to the power failure, it will remain off when power returns.

A conventional USB computer keyboard or mouse may be connected to the CPU for servicing / troubleshooting purposes; this may be done via the service port in the elevator's service cabinet, or through a direct connection a spare USB port (marked *accessory*) on the main touchscreen. Generally, it is not necessary to connect a mouse as the touchscreens can be used for this purpose.

Pressing the [Home] key on the keyboard when the elevator touchscreen application is running allows you to enter the Adminstration Menu. This menu allows you to change touchscreen graphics, shut down/restart the system, and calibrate the touchscreen. This menu can also be accessed using controls on the elevator interface boards or in the elevator's service cabinet (described earlier in this document).

Maintenance

The CPU ventilation holes on the main touchscreen should be cleaned every 8 to 12 months using compressed air. When using compressed air in a spray can, be sure that the can is held upright; if the can is tilted, cold liquid propellant may be sprayed onto hot electronics and cause damage. The system should be shut down when performing this type of service work.

In extremely dusty environments (e.g. buildings under construction or buildings in which construction has recently been completed), a more frequent cleaning/inspection schedule is suggested.

Note that the systems are sealed units that should not be opened. If you open the enclosure, you risk damaging the electronics and introducing dust inside the LCD screen that will be hard to remove.

Troubleshooting

A standard USB computer keyboard may be connected to the CPU for servicing / troubleshooting purposes. This may be done via the service port in the elevator's service cabinet, or through a direct connection a spare USB port on the CPU. Generally, it is not necessary to connect a mouse as the touchscreens can be used for this purpose.

Immediately after the system boots, pressing the [Del] or [F2] key on the keyboard (depending on system type) will allow you to enter the BIOS menu. A submenu may let you view the system temperatures and other settings. DO NOT MAKE ANY CHANGES IN THE BIOS MENU; YOU MAY RENDER THE SYSTEM UNUSABLE. Press [Esc] to leave the menu and do not save any changes.

In general, serious malfunctions or no-boot conditions cannot be fixed in the field; if the system will not boot properly, swap it with a spare system and return the failed unit for repair.

System Replacement

Replacement of the main touchscreen is recommended if you observe any of the following problems:
- System will not boot
- System randomly shuts down / resets
- System locks up / freezes

To replace the main touchscreen: Shut down the system, disconnect all cables from the main touchscreen, and remove all nuts holding the touchscreen to the COP. Remove the touchscreen.

Mount the replacement touchscreen to the panel and reconnect all cables. Turn on the replacement unit using the CPU Reset keyswitch in the service cabinet. Once the system boots, it may be necessary to calibrate the touchscreen displays(s) using the Calibrate keyswitch. Once this is complete, bring up the administration menu (using the Admin Menu keyswitch) and select the System Administration tab. Use the configuration browser to select the configuration that is appropriate for the elevator you are working on. Test the system to confirm proper operation and load any themes or content needed for your particular jobsite.

Return the problematic system to Touch-To-Go Technologies for repair.

Elevator Interface Unit - Theory of Operation

The Elevator Interface Unit communicates with the elevator by emulating the functions performed by conventional buttons (contact closure and LED illumination). To request a floor, a set of normally-open contacts are closed (much like pressing a traditional button). When the elevator system indicates that a call has been placed, an LED illuminates and the Elevator Interface Unit senses this.

Call Request LEDs

The request LEDs illuminate when the touchscreen system is requesting a floor. Under normal operating conditions, when a floor is being requested the LEDs will momentarily illuminate (and the associated relay contacts will momentarily close). Request timing is fixed at approximately 0.5 seconds; holding down a button on the touchscreen will not extend the request beyond 0.5 seconds.
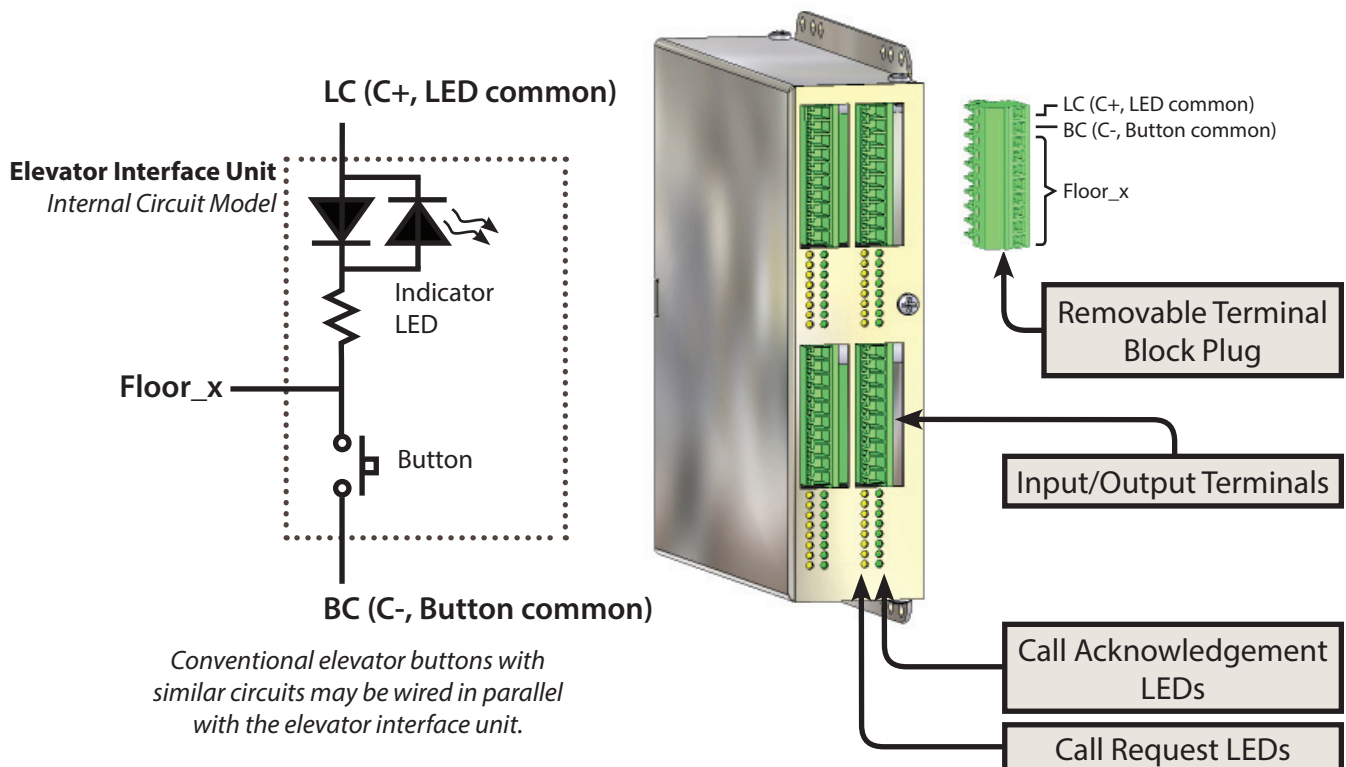
Call Acknowledgement LEDs

The acknowledgement LEDs illuminate when the elevator indicates that a call has been placed. They stay illuminated until the call is cancelled by the elevator (i.e. until the elevator arrives at the floor). This is the same as the way in which a traditional button illuminates when pressed. These indicators are controlled by the elevator system; the touchscreen system monitors their state and updates the touchscreen graphics accordingly.

Input/Output Terminals

The input/output terminals include one terminal per floor as well as LC (C+) and BC (C-).
*   While idle (no calls placed), terminals are held at LC (C+) by the elevator system.
*   When a call has been placed, terminals are held at BC (C-) by the elevator system.
*   The elevator interface board momentarily connects the terminal to BC (C-) to place a call.

Conventional elevator buttons with similar circuits may be wired in parallel with the elevator interface unit.

Testing the elevator wiring (for 24V DC signaling)

The following test procedures ensure that the elevator is operating properly, independently of the touchscreen system. If touchscreen troubleshooting does not resolve a problem, perform the following tests to make sure the elevator is operating as expected.

Disconnect the green 10-position terminal block from the elevator interface board. All of the following steps are to be performed on the terminal block (not on the elevator interface board).

Testing Voltages
•   Measure the voltage between LC (C+) and BC (C-). It should be 24VDC.
•   Measure the voltage between a terminal for any of the floors and BC (C-). It should be 24VDC (assuming that a call has not previously been placed for this floor).

Testing Floor Requests
•   Using a short piece of wire with stripped ends, briefly (0.5 seconds) connect the BC (C-) terminal to a terminal for one of the floors. A call should be placed and the elevator should go to that floor.

Testing Indicator Illumination
•   Measure the voltage between a terminal for any of the floors and BC (C-). It should be 24VDC (assuming that a call has not previously been placed for this floor).
•   Using a short piece of wire with stripped ends, briefly (0.5 seconds) connect the BC (C-) terminal to a terminal for one of the floors. Select a distant floor to give yourself extra time for the next step.
•   Measure the voltage between BC (C-) and the terminal for the selected floor. It should be 0 VDC. When the elevator arrives at the floor and the call is cancelled, it should become 24 VDC.

Alternate Wiring Requirements

Adapter boards are available for elevator controllers that are not directly compatible with the wiring used by the Elevator Interface Unit. Contact Touch-To-Go with your requirements so that the appropriate equipment can be provided to you.

Passenger Sensor / LCD Power Saving Modes

If the LCDs are in power-saving mode, they return to normal operation if any of the following conditions occur:
•   The passenger sensor detects the presence of a passenger
•   A passenger touches the touchscreen
•   A key is pressed on the keypad
•   A call is placed using a regular elevator button wired in parallel with the elevator interface unit

Troubleshooting

All touchscreens are off (black), or all touchscreens are on but displaying identical incorrect information.
- The system is turned off. Turn it on using the CPU Reset keyed switch.
- The power is out. Check the 12V DC power to the main touchscreen. Also check the input to the 12V power supply. Note that it may be powered by a Uninterruptible Power Supply (UPS) on the car top, and its power may be separate from car lighting.
- Cables are loose or unplugged at the main touchscreen.
- The touchscreen power cable is loose or unplugged, or a fuse has blown.
- The system has malfunctioned. Reset it using the CPU reset keyed switch.
- The touchscreens are turned off. Correct this using the power button on the rear of each touchscreen.

One touchscreen is off or displaying incorrect information; the other is working properly.
- The video cable is loose or unplugged at the touchscreen.
- The power cable is loose or unplugged at the touchscreen.

The keyed switches in the service cabinet do not work.
- The switch contacts may be dirty. Try rapidly and forcefully activating the switch 10 to 20 times to see if the problem will resolve itself.
- Manually short out the switch contacts with a piece of wire to determine if the problem is in the switch.

When floors are selected on the touchscreen, they briefly illuminate and then turn off.
- The touchscreen system is working, but the elevator is not accepting the request. The floor in question may be locked off, or a security system may be preventing access to that floor.
- The elevator may be out of service and may not be accepting calls (unrelated to the touchscreen system).

When a floor button is touched on the touchscreen, nothing happens at all.
- If two touchscreens are present, try both to see if the problem can be isolated to a single screen.
- Try using the keypad to place a call. The keypad operates independently of the touchscreens; if the keypad can place a call but the touchscreens cannot, this may narrow down the source of the problem.
- If one screen works and the other does not, check the USB cable between the auxiliary touchscreen and the main touchscreen.
- If no touchscreens work, check the USB cable between the elevator interface unit and the main touchscreen.
- If no touchscreens work, check the 5V DC power cable to the elevator interface unit.
- See if any of the call request LEDs illuminate on the elevator interface unit when floor buttons are touched on the touchscreen.
- Attempt to calibrate the touchscreens.
- Reset the elevator interface unit using their reset button.
- Shutdown and restart the system.

The touchscreen does not work, or must be pressed with excessive force.
- Attempt to calibrate the touchscreens.
- Dirt may have accumulated on the touchscreen bezel. Clean it with window/glass cleaner.

The graphics on the touchscreens are rotated 90° from the correct orientation, or part of the graphics are cut off.
- Calibrate the touchscreens. This will automatically adjust the rotation and resolution of the screen.
- Check the resolution and rotation settings in the *Touchscreens* section of the administration menu.

The auxiliary touchscreen cannot be calibrated or will not respond.
- Unplug the USB cable to the auxiliary touchscreen, wait 10 seconds, reconnect it, wait 20 seconds, and retry the calibration routine.
- Swap the touchscreen USB connection to a different USB port on the main touchscreen; this causes the CPU to recognize the touchscreen as a new device and reconnect to it. Wait 20 seconds and retry the calibration.
- There is a junction point approximately 15' down the cable from the main touchscreen to the auxiliary touchscreen. Check this to ensure it is still connected. There is an LED at this junction point; make sure it is still on.

The elevator goes to an incorrect floor.
- If a new set of graphics was recently loaded, there may be a programming problem with the graphics. If the keypad goes to the correct floor but the touchscreens do not, then the problem is likely with the way in which the graphics have been programmed.
- If the touchscreen and keypad both take the elevator to the wrong floor, then there may be a problem with the wiring. Confirm that wires have been connected to the correct terminals on the elevator interface unit.

Floors are illuminated on the touchscreen but not on the elevator interface board.
- The floors that are illuminated on the touchscreen should always match the acknowledgement indicators on the elevator interface board. If they do not, then:
  - Check that the USB cable linking the elevator interface unit to the main touchscreen is not loose.
  - Reset the elevator interface unit.
  - A wire may be loose at the elevator interface unit. Carefully wiggle the wires and see if the problem can be reproduced.
  - Shutdown and restart the system using the CPU Reset keyed switch in the service cabinet.

Floor buttons flash / change state rapidly.
- A wire may be loose at the elevator interface unit. Wiggle the wires to attempt to reproduce the problem.
- The elevator may not be providing a constant (DC) signal to the elevator interface unit.

The system repeatedly turns itself off. When restarted, it appears to operate properly. Or, the system will not boot, the system freezes or locks up randomly, or the system shuts down randomly and without warning.
- The system will shut down if its internal temperature is too high. IConfirm that ventilation holes on the main touchscreen are not blocked. Blow out the CPU area of the main touchscreen with compressed air. If using a spray can of compressed air, keep the can upright at all times; if the can is tilted, cold liquid propellant may spray out and contact hot electronics, causing damage.
- Carefully check for abnormalities such as loose wires or parts, or a loose or defective fuse. Check that the 12VDC power supply connection is solid.
- If the malfunction continues, replace the main touchscreen and send the defective unit for service.

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DMG

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