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Facility Status Display (FSD) Installation and Operation Manual

EMERSON
Climate Technologies

EMERSON
Climate Technologies

1640 Airport Road NW, Suite 104
Kennesaw, GA 31044

Phone: **770-425-2724**
Fax: 770-425-9319

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CE/FCC COMPLIANCE NOTICE

Class A compliance for Facility Status Display under Part 15 of the FCC Rules and CE EN 55022. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

READ ALL INSTRUCTIONS CAREFULLY

If the equipment is not used in the manner specified by the manufacturer, the protection provided by the equipment may be impaired.

Table of Contents

1 Introduction

One of the most important features of the E2 facility management system is to put vital system information at the fingertips of the service technician or store manager. The FSD reports alarm information and more, (such as temperatures, occupancy, case status, and setpoints) and provides a centralized device for store personnel to review information by communicating with the E2 via Ethernet connectivity (minimum E2 firmware rev. 2.65F01).

The FSD has a touch screen color display for quick navigation and can be mounted in a separate, remote location from the E2 controller, which enables alarms and other relevant store information to be viewed from where it is most convenient for the user.

The FSD can be configured to filter out notices and/or return-to-normal alarms, and provides a quick review of all advisories and detailed advisory information. The FSD also receives alerts and provides annunciated alarms and alarm information directly to store and department managers. This compact unit can be installed virtually anywhere with a standard Ethernet connection and 120V power source. Features include:

- 6” LCD touch screen (with backlight).
- Mounting plate for recessed installation.
- Audible alarm buzzer (with silence setting) and red alarm LED (illuminates when there is an active advisory).
- Auxiliary relay provides a dry contact closure that follows the alarm relay output.
- Connectivity with E2 via TCP/IP Ethernet.
- Remote software upgrading of the FSD.
- Display of up to 200 alarms.
- Display of up to 32 customizable data points.

2 Installation

This section of the manual covers wiring and mounting for the FSD.

2.1. Wiring

1. Using the four screws on the front of the mounting plate, unscrew the cover of the FSD and remove, exposing the back of the enclosure. Once the top has been separated from the back of the enclosure, unplug the 8-pin connector and RS232 cable (**Step 1** of ***Figure 2-1***) from the circuit board (*P/N 537-1100*).
2. Mount the base enclosure and refer to **Section 2.3.,** *Mounting* for instructions.
3. Once the unit has been mounted, depending on the voltage input, wire either 120VAC, 208VAC, or 240VAC Hot leg to the corresponding terminal block label. Then wire the Neutral or L2 leg to the terminal block labeled Neutral. Wire Ground to Ground as indicated by the **Step 3** of ***Figure 2-1***.

NOTE: Provide either 120VAC, 208VAC, or 240VAC (40VA max) to the FSD terminal block through a store circuit breaker. The breaker size should be 20 amps or less.

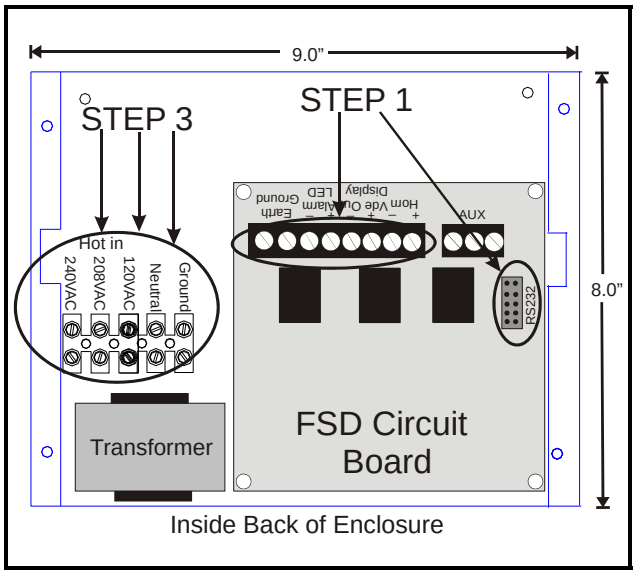

Figure 2-1 *- 8-Pin Connector and RS232 Cable Connections*

4. Open the ferrite (*P/N 090-0008*) and run the Ethernet cable through, wrapping the cable around the ferrite twice (two turns), near the Ethernet port (LAN) on the back of the display, and close the ferrite (***Figure 2-2***) around the Ethernet cable.

Figure 2-2 *- Ferrite Installation on Ethernet Cable*

5. Plug the Ethernet cable into the RJ45 connector (LAN) on the back of the FSD's display module (*P/N 750-5100*) as indicated by **Step 5** of ***Figure 2-3***.
6. Reconnect the 8-pin connector and RS232 cable to the circuit board in **Step 6** of ***Figure 2-3***.
7. Replace the mounting plate back onto the enclosure and attach using the four screws.

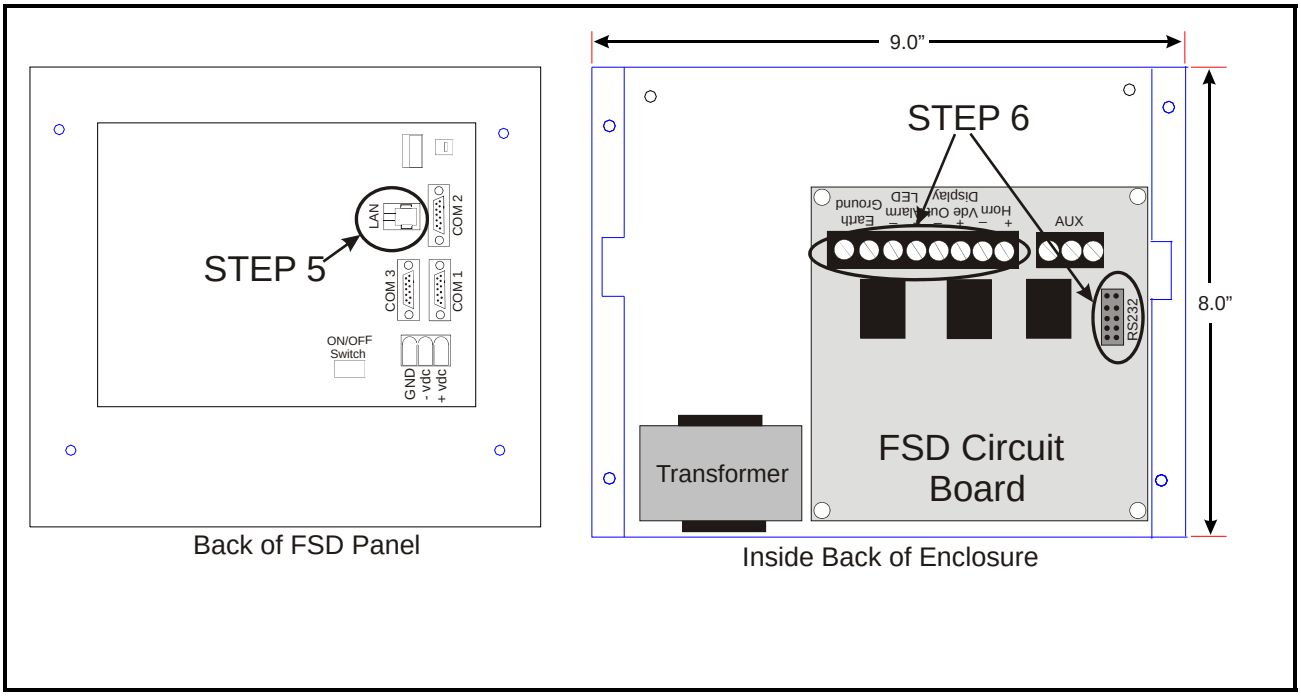

Figure 2-3 *- Wiring Layout of FSD Enclosure*

NOTE: Do not exceed the maximum Ethernet cable length of 328 feet (100 meters).

2.2. Alarm Relays

- An audible alarm will sound when a new advisory has been received (including snooze state) or there is an active alarm and the *Snooze Alarm* button has not been pressed.
- The red alarm LED on the front of the display module illuminates any time there is an active advisory.
- The auxiliary relay (dry contact closure) will activate any time there is an active advisory and the *Snooze Alarm* button has not been pressed. This output allows an external alarm indicator to be installed away from the board.

2.3. Mounting

The FSD is recess-mounted into a wall or other mounting surface. The face plate with the LCD display (front portion of the unit) will mount flush against the surface around the outside of the opening once the power supply box has been mounted inside the wall.

1. Cut a rectangular hole into the mounting surface 8.0” high by 9.0” wide, by at least 3.875” deep (20.32 cm high by 22.86 cm wide by at least 9.84 cm deep). When cutting the mounting hole, allow at least 1/2” (1.27 cm) clearance around the hole for face plate mounting (***Figure 2-5***).
2. Once this hole is cut, mount the unit as desired (***Figure 2-4***), and position the enclosure so that the four **support tabs** are flush against the outside lip of the opening in the wall.
3. Use a screwdriver to bend the four **push-out tabs** (two on each side) against the inside of the drywall so that they hold the power supply box in place.

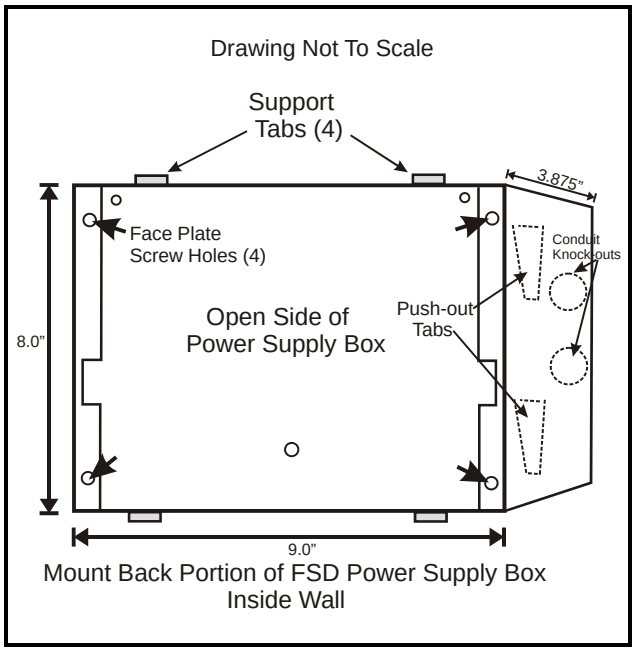

Figure 2-4 *- Mounting The Power Supply Box*

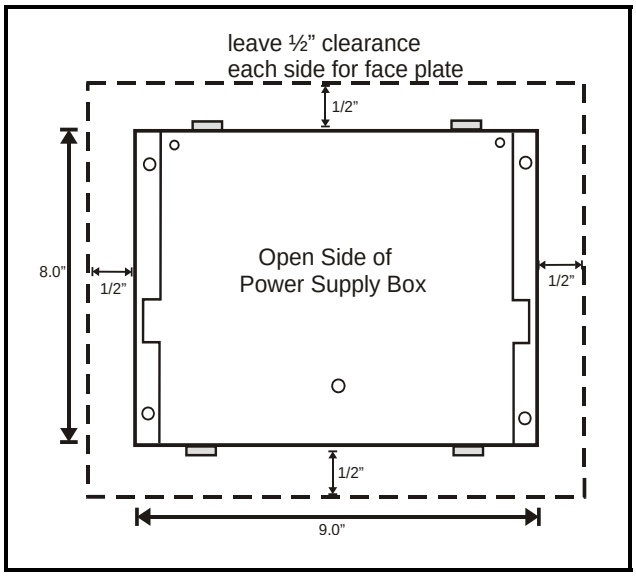

Figure 2-5 *- Leave 1/2" For Face Plate Mounting*

3 Set Up FSD and E2 Communication

Because the FSD device retrieves all software information from the E2 controller, communication must be established between the FSD and the E2 at start-up. To start, add the FSD application to the E2.

3.1. STEP 1: Add FSD to E2

1. Log into the E2 controller and press the Menu button.
2. Press &7 (System Configuration)
3. Press &7 (Network Setup)
4. Press @2 (Connected I/O Boards & Controllers)

Cursor down to **ECT Devices** and add the desired number of **Status Display** devices.

IT administrator and continue from **Step 9**.)

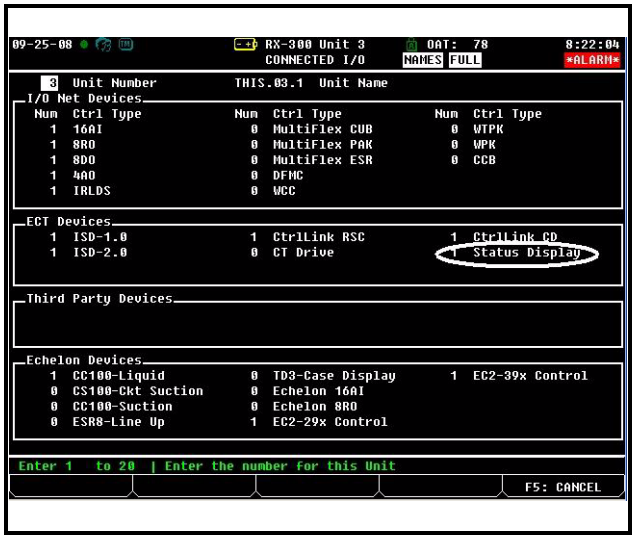

Figure 3-1 *- Add FSD Under ECT Devices*

3.2. STEP 2: Set Up IP Address for the FSD

DHCP is enabled by default. If you have a DHCP server, the FSD will retrieve an IP Address automatically. If you wish to set up a static IP Address, follow these steps:

1. Touch the tool icon  and enter the passcode on the security screen (default code is **400**) as shown in ***Figure 5-5***.
2. Select the General tab and the **Exit Application** button.
3. A loader screen will appear. Touch **Exit Loader** at the top right of the screen.
4. The desktop screen will appear. Select **Start>Settings>Network and Dial-up Connections**.
5. Double-click the icon labeled **SMSC91181**.
6. From the *IP Address* tab, (***Figure 3-2***) choose **Specify an IP address**. (If using a Hostname for E2 instead of an IP Address, contact your

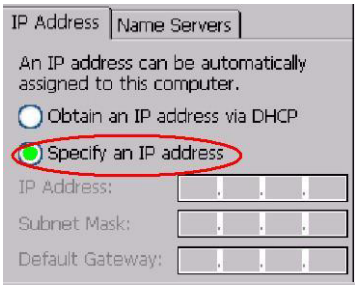

Figure 3-2 *- IP Address Tab*

7. Toggle the virtual keyboard by touching the keyboard/pen icon  on the lower right to toggle the virtual keyboard:

8. Enter the **IP Address**, **Subnet Mask**, and **Default Gateway** as specified by your IT administrator.
9. Click **OK** to save; close the next window.
10. Once at the desktop screen, click the reboot icon  at the bottom of the screen. Click **OK** on the *Do you want to reboot?* window:

Figure 3-3 *- Click* ***OK***

3.3. STEP 3: Set the E2 IP Address in FSD

To set up the FSD, the E2's IP address or Hostname that the FSD will communicate with must be entered.

When the FSD is powered up for the first time, the Start-up or Boot Loader screens will appear.

1. Log on by entering the passcode (default code is **400**) into the blank field on the first boot loader screen (***Figure 3-4***) and touch **Configure**. (Touching the inside of this field

will toggle the virtual keyboard.)

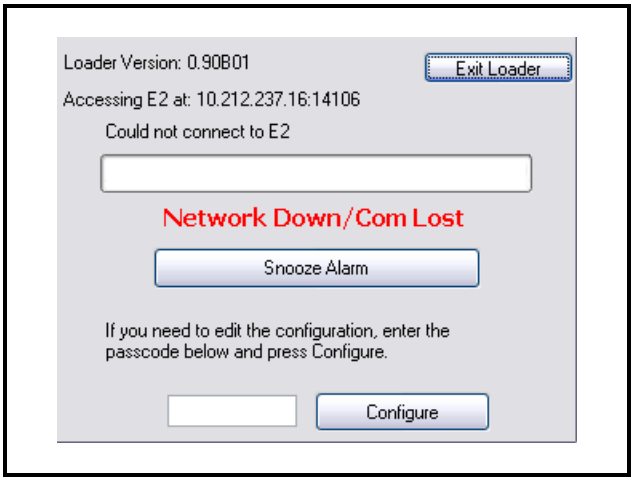

Figure 3-4 *- First Boot Loader/Startup Screen*

2. On the second boot loader screen, (***Figure 3-5***) enter the IP Address or Hostname of the E2 that the FSD will be communicating with. (If using a Hostname for E2 instead of an IP Address, contact your IT administrator for the Hostname.)

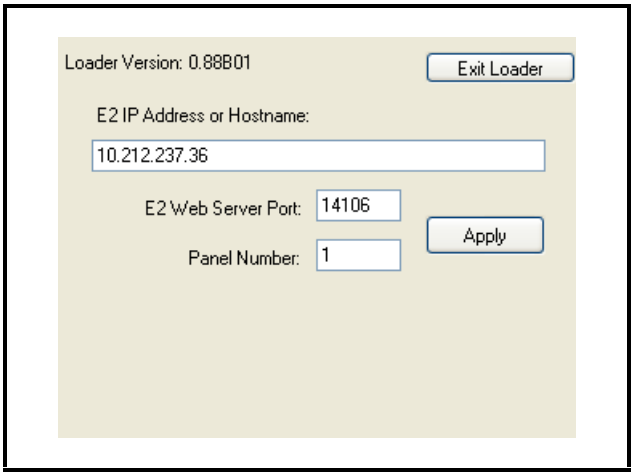

Figure 3-5 *- Second Boot Loader/Startup Screen*

3. Touch **Apply**.
4. Reboot the unit by cycling power.

4 Alarm Overview

The FSD contains an audible alarm that can be enabled or disabled by the installer or service technician and is passcode protected. See **Section 5.1.1.,** *Alarms Tab* for alarm parameter configuration details.

The FSD retrieves an alarm list from the controller approximately every 20 seconds, depending on your connection speed and other factors. The FSD will receive the alarm list from a single E2 or multiple E2s if one is configured as the alarm annunciator.

If a new alarm is detected while in snooze delay, the snooze will be cancelled and the audible alarm will be activated.

4.1. Alarm Filtering

Alarms can be filtered by:

- Setting the minimum alarm priority - specifies a minimum priority for alarms to be filtered. Alarms with a priority greater than the Minimum Alarm Priority will not be shown. Alarms with a priority equal to or lower than this value will be shown.
- Return to Normal flag
- Show Notices flag

Alarm parameters can also be set up in the E2 under General setup of the Facility Status Display application (***Figure 6-1***).

If an alarm is found active in the filtered list, the FSD will:

- Indicate the alarm by asserting a visual indication (the blinking word "alarm", and sounding a horn if internal/external horn is enabled).
- Enable the Snooze Alarm. If Snooze is active, the remaining snooze time will be displayed in place of the *Snooze Alarm* button.

The alarm light remains illuminated as long as any advisory is active (independent of audible alarm) with visible countdown timer (if Snooze is enabled) until audible alarms is reactivated.

The audible alarm will annunciate any time there is an active alarm displayed on the alarm. If alarming or Snoozing is active and the filtered alarm list indicates that no alarm is active, any active state (alarm or Snooze) will be canceled automatically.

Automatic color-coding allows for simple differentiation between those advisories that are urgent and those that have already been resolved.

TEXT COLOR	ADVISORY STATE
Red	Active advisory and/or failure
Yellow	Active Notice
Green	Return-To-Normal Advisories
Blue	Acknowledged Alarms, Reset alarms

Table 4-1 *- Advisory Text Color Key*

4.1.1. Alarm Snoozing

The Snooze Alarm allows the user to silence the audible alarm for a configurable amount of time. If the alarm is still active after the Snooze Delay, or if another advisory is generated, the audible alarm will re-activate. The maximum snooze time is 4 hours.

Snooze Delay and disable settings are part of passcode protected setup under Configuration Setup in the FSD. When an alarm is in snooze, the Home screen (see ***Figure 5-1***) will indicate the remaining snooze time.

An audible alarm is activated any time an advisory is active (in Alarm or Fail State). Snoozing does not change the state of advisories in E2.

Once an audible alarm has annunciated, the alarm may be "snoozed" by touching **Snooze Alarm** on the Home screen. The audible alarm can be disabled through the E2 or the FSD alarm configuration screen (see ***Figure 5-6***) under the **Audible Alarm** setting.

NOTE: If communications are lost between the E2 and the FSD, an alarm will generate. The delay for the alarm will be consistent with the offline delays used in the E2 for board offline alarming.

5 FSD Screen Navigation

The FSD provides users with real-time alarm and system information that is read-only.

ICON	ACTION
	Displays the Home screen of the FSD and the most active advisory in the alarm list
	Displays list of multiple advisories in the alarm log and places a selected advisory on the Home screen
	Displays expanded details of a selected advisory (including any advisory on the Home screen)
	Toggles display of data point information based on data points that have been set up in the E2
	Opens security screen to access FSD configuration settings
	UP arrow scrolls upward through items on each screen and through multiple alarms on the Home screen
	DOWN arrow scrolls downward through items on each screen and through multiple alarms on the Home screen

Table 5-1 *- Icon Descriptions*

Home Screen 

The Home screen is the single alarm screen or main screen. The FSD displays this screen when first powered up and displays the first (most recent) alarm entry screen. The Home screen is also displayed when the user touches the Home icon from any screen.

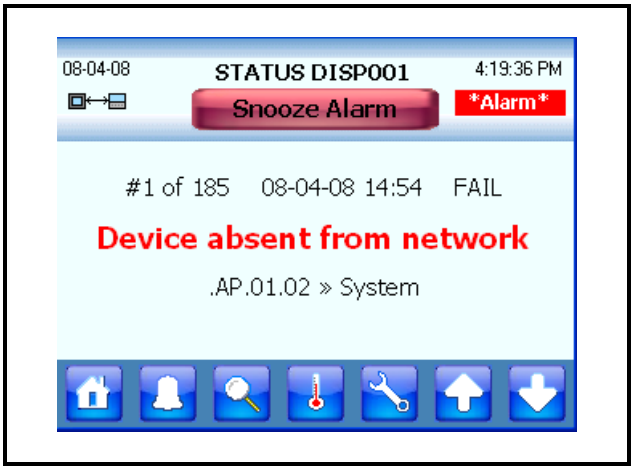

Figure 5-1 *- Home or Main Screen*

Touching the Home icon from any screen will take you to the most recent alarm in the list. The Home screen displays basic information about an E2 alarm along with information such as the FSD name, current time and date. The Home screen also displays whether the FSD is communicating with the E2 or if communication with the E2 has been interrupted or stopped.

If no alarms are being generated, the Home screen will display "No Alarms - System Normal" message in green.

If alarms have been generated, the UP arrow will scroll up to the previous alarm. Touching the DOWN arrow will scroll down to the next alarm in the list.

Alarm List Screen
The Alarm List screen shows all filtered alarms in a list called the alarm log. Multiple alarm entries are shown with a scroll bar to navigate through the alarm list. UP and DOWN arrows will page up and page down on this screen.

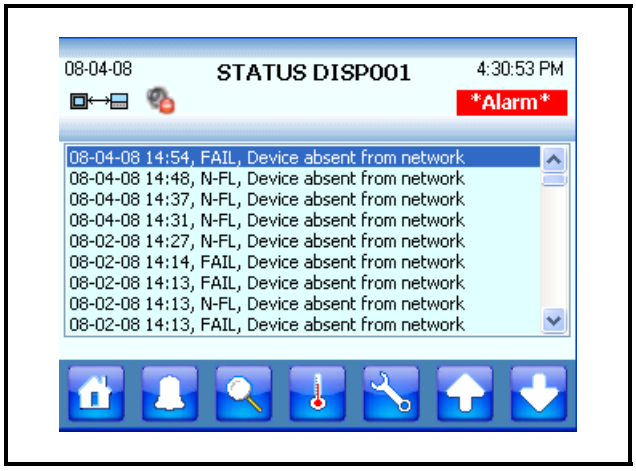

Figure 5-2 *- Alarm List Screen*

If the alarm list is empty, "System Normal - No Alarms" is displayed.

To see a detailed status of an advisory, select the advisory in the list and touch the magnifying glass and the Advisory Detail screen for that advisory will open. Touch the bell icon again to place that advisory on the Home screen.

Advisory Detail Screen
Advisory Details shows expanded information about the selected advisory:

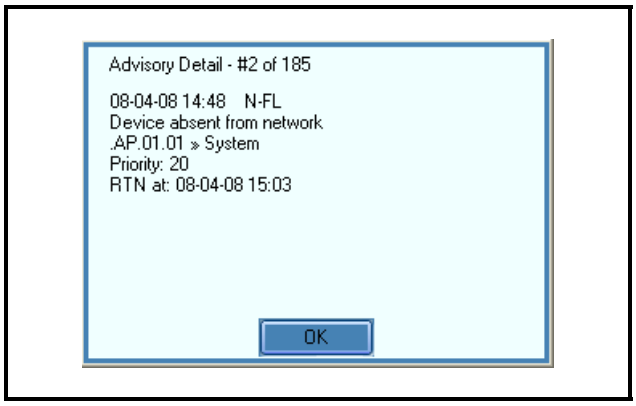

Figure 5-3 *- Advisory Detail Screen*

- Current alarm number with the total number of alarms in the alarm list
- Alarm summary for single alarm

Time stamp, alarm ID string, associated property, data point information, current status, why the alarm was triggered (for example, if a case temp limit was exceeded) the configured priority of the advisory, Return-To-Normal information, and if available, the limit that was exceeded.

Data Points Screen
The Data Points screen is a view-only screen that shows the list of all data points being monitored by the FSD.

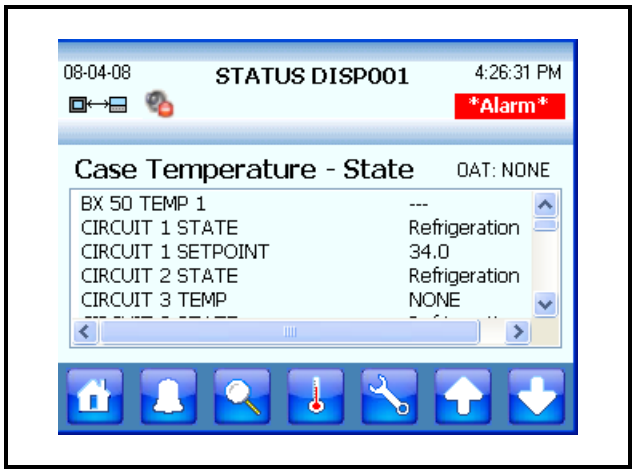

Figure 5-4 *- Data Points Screen*

In ***Figure 5-4***, the Data Points screen name is displayed across the top of the screen (in this example, it is called **Case Temperature - State**). This name is configured under the **Status Title** parameter under FSD General Setup in the E2 controller (***Figure 6-1***).

5.1. FSD Configuration

Configuration Screen
The Configuration screen has four tabs that are used to configure the FSD. When the tool icon is touched, the security login screen appears:

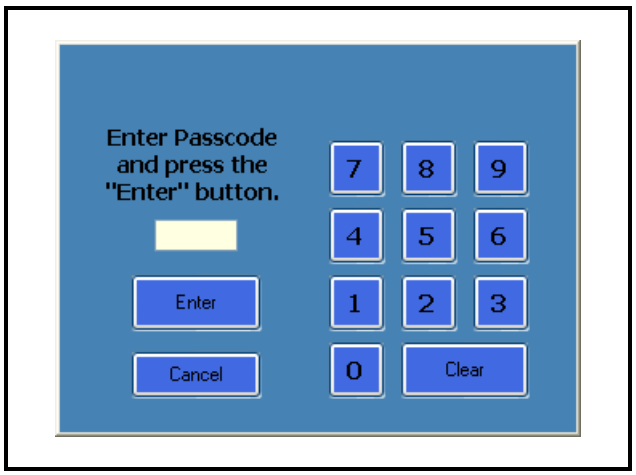

Figure 5-5 *- Security Screen Login - Enter Passcode*

Enter the passcode (the default code is **400** and can be configured in the E2 under Facility Status Display General Setup under the **Pass Code** parameter ***Figure 6-1***) and touch **Enter** to open the first Configuration screen (***Figure 5-6***).

- **Cancel** exits the log in screen and returns you to the Home screen.
- **Clear** erases the numbers entered in the login field and allows you to re-enter the passcode.

The FSD Configuration has four configuration tabs located across the top with three command keys that appear along the bottom of each configuration screen. Touch **Toggle Keyboard** to open an on-screen "qwerty" style keypad for configuring parameters. Touch **OK** to save and exit to the Home screen, **Cancel** to discard changes and exit to the Home screen.

5.1.1. Alarms Tab

Configure alarm information on the Alarms tab with the following parameters:

- Show RTN Alarms
- Audible Alarm settings
- Show Notices
- Set snooze delay in minutes
- Set minimum alarm priority

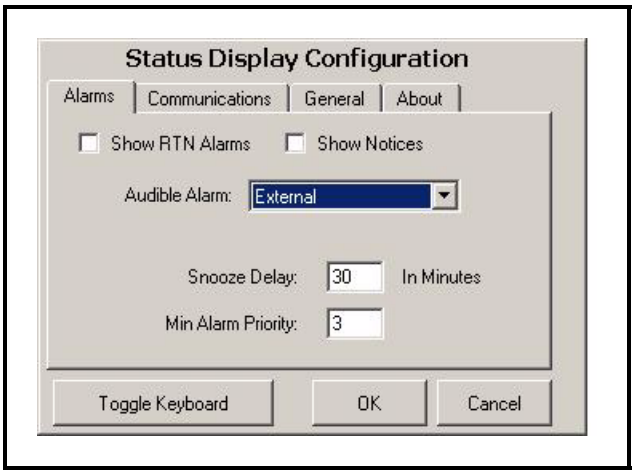

Figure 5-6 *- Alarm Configuration*

These alarm parameters can also be set up in the E2 under General setup of the Facility Status Display application (***Figure 6-1***).

Show RTN Alarms determines visibility of an alarm on the FSD that has been returned to normal (RTN). For example, if a case goes into alarm, the FSD will see the alarm; however, if the alarm returns to normal, the alarm will not be visible on the FSD, although it is seen in the individual controller's alarm log as Return-To-Normal. Enable the checkbox to show returned-to-normal alarms, uncheck to

filter out.

Audible Alarm will be active any time there is an active alarm or a fail advisory displayed. The Audible Alarm drop-down list allows you to configure the audible alarm buzzer on the FSD with three settings: **External**, **Internal**, and **None**.

- **External** is the default. This setting enables the audible external horn connected to the relay board as the alarm indicator.
- **Internal** enables the touch-screen beep as the alarm indicator.
- **None** disables all audible alarm indicators.

Show Notices checkbox determines whether the FSD will display notices along with other types of advisories, or whether these notices will be filtered out of the FSD. Enable this box to show Notices in the alarm list, uncheck to filter out.

Snooze Delay sets the number of minutes to silence the audible alarm buzzer when the snooze button on the FSD is touched.

Min Alarm Priority specifies a minimum priority for alarms to be filtered. Alarms with a priority greater than the Minimum Alarm Priority will not be shown. Alarms with a priority equal to or lower than this value will be shown. (1 to 99 range: 1=highest, 99=lowest)

5.1.2. Communications Tab

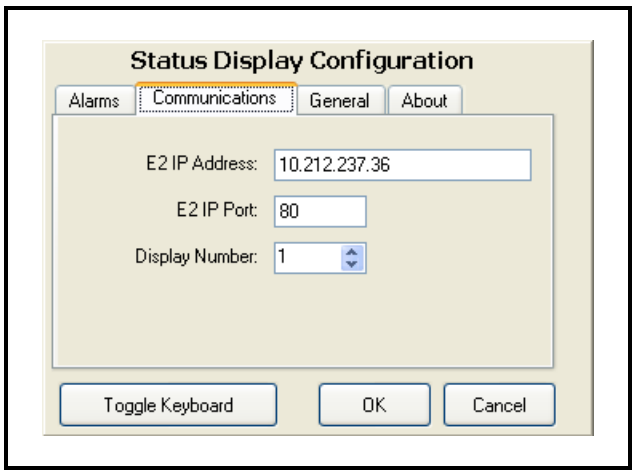

***Figure 5-7** - Communications Screen - Set E2 Parameters*

E2 IP Address
Enter the IP address or Hostname of the E2 from which the FSD will be receiving alarms. Note that if *more than one* E2 controller is at a site, one E2 must be set up as the alarm annunciator for that site. (See **Section 6,** *E2 Data Point Set-up for FSD*.) The FSD will receive alarms from that alarm-annunciator E2 for the entire site. The FSD will point only to a single E2 at a site (it will not poll multiple controllers for alarms).

For multiple E2s at a site, enter the IP address of the alarm-annunciator E2. If one E2 is located at a site, enter the IP address for that single E2.

E2 IP Port
The E2 IP Port is the port number used by the FSD to connect with the E2 unit. The port number in this field must match the **FSD Client Port** field in the E2 for the FSD and the E2 to communicate. The default port is **14106**.

Press **Alt** + **T** on the E2 to locate the **FSD Client Port** field. If a different port is desired, enter that port number in this field.

Display Number
The display number is the FSD device number in the E2. This number is the FSD's unique address and the application to which it corresponds.

5.1.3. General Tab

Under General configuration the FSD name is shown with **Reboot Unit** and **Exit Application** options. Touch **Reboot Unit** to restart the FSD. **Exit Application** will exit this General configuration screen and go to the Boot Loader or Start up screen.

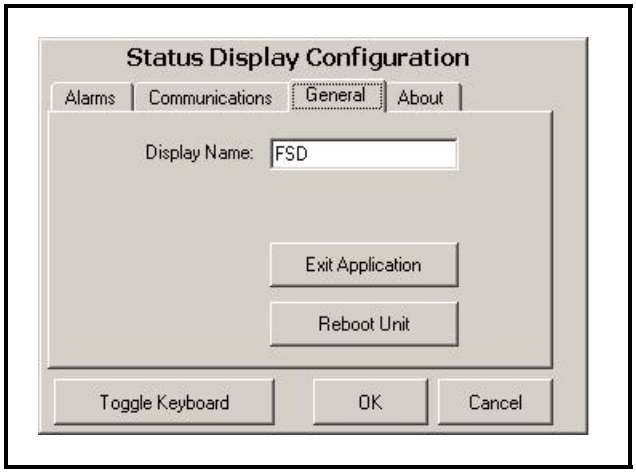

***Figure 5-8** - General FSD Information Screen*

5.1.4. About Tab

Read-only, general information about the FSD is displayed on this screen including copyright and revision information. Touch **OK** or **Cancel** to exit the About screen and return to the Home screen.

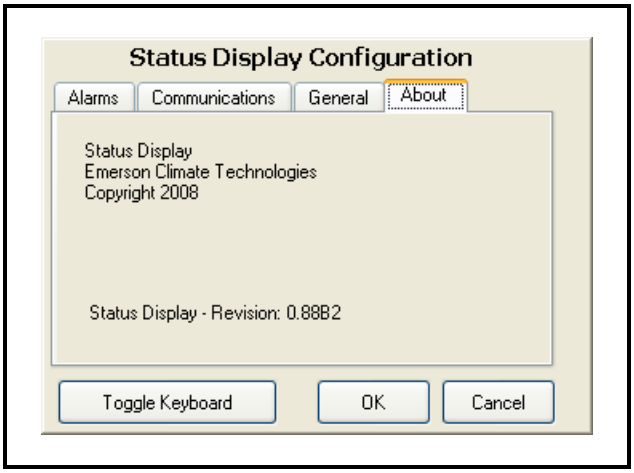

Figure 5-9 *- FSD About Tab*

5.1.5. Backlight Time-out Setting

To increase the life of the display, the FSD's backlight time-out setting is pre-configured to turn off the backlight automatically if the device is idle for more than 10 minutes. To change the backlight setting:

1. Touch the tool icon and enter the pass-code on the security screen as shown in ***Figure 5-5***.
2. Select the General tab and touch the **Exit Application** button (***Figure 5-10***).

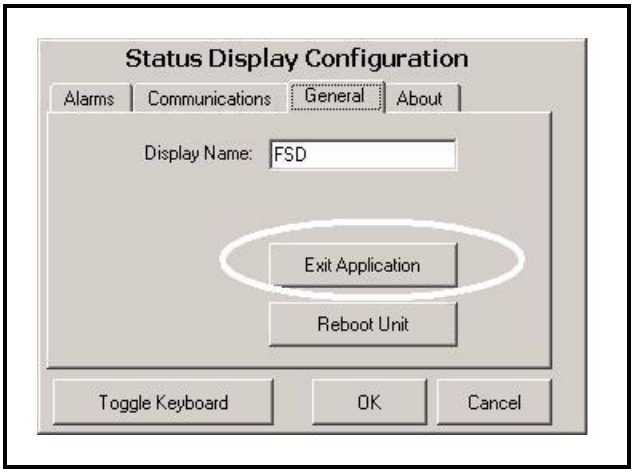

Figure 5-10 *- General FSD Information Screen*

3. A loader screen will appear (***Figure 5-11***). Touch **Exit Loader** at the top right of the screen.

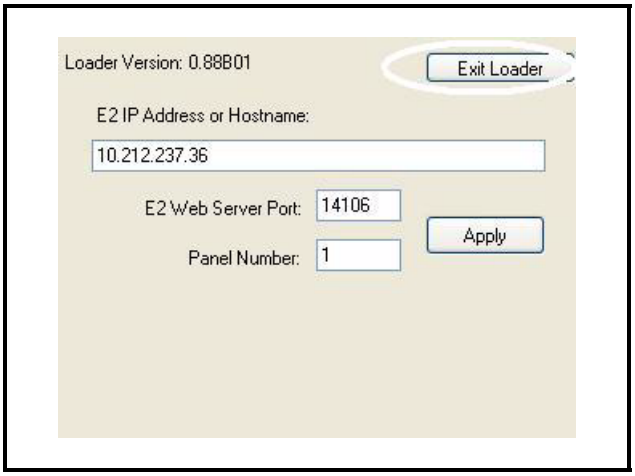

Figure 5-11 *- General FSD Information Screen*

4. The desktop screen will appear (***Figure 5-12***). Press and hold on the desktop screen to bring up the pop-up desktop menu and select **Properties**.

Figure 5-12 *- Desktop Screen*

The *Display Properties* window (***Figure 5-13***) opens:

Figure 5-13 *- Display Properties Window - Backlight Settings*

5. Select the *Backlight* tab to configure the **Automatically turn off backlight while on external power** setting, and from the drop-down list, choose when the backlight will automatically turn off.

6. To save your settings, touch and drag the *Display Properties* window to the left until you see **OK** in the upper right corner. Touch **OK** to save and return to the desktop screen.

6 E2 Data Point Setup for FSD

Set up data points that will be monitored.

1. Log into the E2 controller.

2. Go to the Facility Status Display application setup (**Menu**, **5**, **#107** on the **Configured Applications** menu).

3. Press **F5 Setup** and enter the number of data points to be set up in the **Num Data Points** field (a maximum of **32** data points can be entered).

Figure 6-1 *- Enter the Number of Data Points to Set Up*

4. Press **F2 Next Tab** to go the **Data Pts** setup and enter the desired data points to be monitored by pressing **F4: Look Up**.

Data Points are entered in ***Controller:Application:Output*** format (see ***Figure 6-2*** for an example). Using **F4: Look Up**, choose the name of the controller for ***Controller:*** **(THIS.03.1)**, the name of the application for ***Application:*** **(STANDARD CKT01)**, and which output of that application you wish to monitor for ***Output:*****(CONTROL TEMP)**.

NOTE: Colons ":" cannot be used in the text you enter when naming the data point, as colons are already used to separate each value.

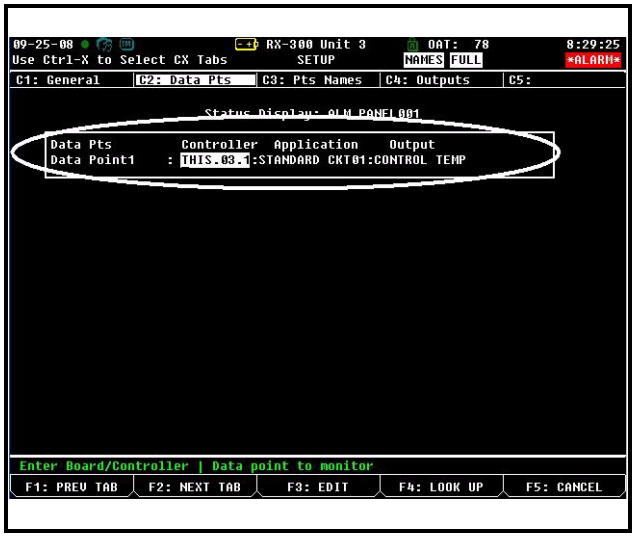

Figure 6-2 *- Example of Data Point(s) Setup in E2*

5. Go to the **Pts Names** tab and enter a name for the data point (***Figure 6-3***).

A point name is the unique name given to the data point (specified by the user) and will be displayed on the FSD screen.

Figure 6-3 *- Entering a Data Point Name*

6. After entering the data point, enter a unique name in the **Data Name** field on this screen. If no name is assigned, the data point will be displayed in the default ***Controller:Application:Output*** format.

7 E2 Alarm Annunciator Setup

If more than one E2 is at a site, set up one E2 as the alarm annunciator. The FSD will receive alarms from that alarm-annunciator E2 for the entire site.

Any E2 on the network that has a modem or Ethernet connection can be set up as an alarm annunciator, but only one alarm annunciator per network is allowed. To set up from the Main Menu:

1. Press &7 (System Configuration)
2. Press #3 (System Information)
3. Press !1 (General Controller Info)
4. Set **Alarm Annunc** field to **Yes.**.

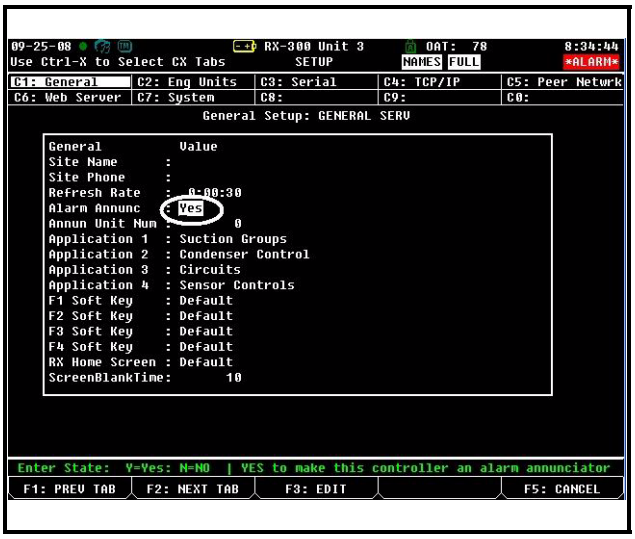

Figure 7-1 *- Alarm Annunciator Setup*

NOTE: When the E2 is set up as an Alarm Annunciator, the Home screen on the E2 becomes the Alarm Log.

8 Software Updates

Updates to FSD application functionality will automatically be synched with the update of E2's firmware. Any software the device runs will be retrieved from the configured E2.

9 Specifications

Voltage Input	120VAC, 208VAC, or 240VAC +10%, -15%
Transformer Output to Circuit Board	24VAC
Maximum Current	1.0 amp
Humidity	10 to 95% @ 104°F (40°C) (relative humidity, non-condensing)
Operating Temp	32 to 122°F (0 to 50°C)
Storage Temp	-4 to 140°F (-20 to 60°C)
Dimensions	Screen (diagonal): 3.5" / Flush mounting plate: 9" x 10" / Mounting hole: 9" x 8"

Table 9-1 *- Facility Status Display Specifications*