USER MANUAL

Facility Status Display

Installation and Operation Guide





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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 revision 2.65F01).



Figure 1-1 - Facility Status Display (P/N 850-5100)

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 150 customizable data points.

NOTE

Programming through UltraSite[™] is not supported.

2 Installation

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

2.1 Wiring

- 1. Step 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. Step 2: Mount the base enclosure and refer to Section 2.3, Mounting for instructions.
- 3. Step 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 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. Step 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. Step 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. Step 6: Reconnect the 8-pin connector and RS232 cable to the circuit board in Step 6 of Figure 2-3.
- 7. Step 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.
- 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. 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 ²/₇ (System Configuration)
- 3. Press ²/₇ (Network Setup)
- 4. Press 2 (Connected I/O Boards & Controllers).
- 5. Enter the desired number of Status Display devices.
 - If using an E2 controller with firmware version 2.80 or below, cursor down to ECT Devices section and then add the desired number of Status Display devices (Figure 3-1).

		<u> </u>	CONNECTED I/O	NAMES FU	LL *ALARM
3	Unit Number	THIS	.03.1 Unit Name		
1/0 N	let Devices				
Num	Ctrl Type	Num	Ctrl Type	Num	Ctrl Type
1	16AI	5	MultiFlex CUB	5	WTPK
1	8R0	6	MultiFlex PAK	5	WPK
1	8D0	6	MultiFlex ESR	6	CCB
1	460	5	DFMC		
1	IRLDS	0	WCC		
ECT D	evices				
1	ISD-1.0	1	CtrlLink RSC	1	CtrlLink CD
1	ISD-2.0	Ø	CT Drive		Status Display
Third	Partu Deuices				
_Third	l Party Devices				
_Third _Echel	l Party Devices on Devices CC180-1 inuid	8	TD3-Case Disolau	1	FC2-39x Control
_Third _Echel 1	I Party Devices on Devices CC100-Liquid CS100-Ekt Suction	8	TD3-Case Display Fcbelon 1601	1	EC2-39x Control
Third Echel 1 0	l Party Devices on Devices CC100-Liquid CS100-Ckt Suction CC100-Suction	6 9 5	TD3-Case Display Echelon 16AI Echelon 8R0	1	EC2-39x Control
Third Echel 1 0 0	I Party Devices on Devices CC100-Liquid CS100-Ckt Suction CC100-Suction ESR8-Line Up	6 6 9 1	TD3-Case Display Echelon 16AI Echelon 8R0 EC2-29x Control	1	EC2-39x Control
_Third _Echel 1 9 9 9	on Devices cC100-Liquid CS100-Liquid CS100-EK Suction CG109-Suction ESR8-Line Up 1 to 20 Enter t	0 9 9 1 1	TD3-Case Display Echelon 16A1 Echelon 8R0 EC2-29x Control ber for this Unit	1	EC2-39x Control

Figure 3-1 - Connected I/O Screen (E2 firmware versions 2.80 and below)

 If using an E2 controller with firmware version 2.81 or above, press the F2: NEXT TAB to go to the ECT tab, cursor down to Status Display, and then enter the desired number of devices (Figure 3-2).

C1: This Unit	C2: IO Network	C3: ECT	C4:		C5: Echelon
C6:	67:	C8:	69:		C0:
	Num N	etwork Ctrls: Net	Setup		
	ECT Bo	ard Type	Quantity	Max	1
	#1 : CT	Drive		16	
	#2 : Ct	rlLink ACC	6	63	
	#3 : Ct	rlLink CD	5	99	
	#4 : Ct	rlLink RSC	6	99	
	#5 : IS	D-1.0	0	64	
	#6 : IS	0-2.0	6	63	
	#7 : Pe	rf_Alert	5	63	
	#8 : Sta	atus Display		7	
	#9 : XJ	SCPOIL UNIT	6	16	
Enter 0 to 7	Enter desired i	number of these bo	pards		

Figure 3-2 - Connected I/O Screen Setup (E2 firmware versions 2.81 and above)

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 icon icon icon icon icon the passcode on the security screen (default code is **400**) as shown in **Figure 5-10**.
- 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**.

5

 From the IP Address tab, (Figure 3-3) choose Specify an IP address. (If using a Hostname for E2 instead of an IP Address, contact your IT administrator and continue from Step 9.)

IP Address Name S	ervers	
An IP address can b assigned to this cor	ie automa nputer.	tically
🔵 Obtain an IP add	dress via D	HCP
O Specify an IP ad	dress	
IP Address:		
Subnet Mask:		
		-

Figure 3-3 - IP Address Tab

7. Toggle the virtual keyboard by touching the keyboard/

pen icon son 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 date the bottom of the screen. Click **OK** on the **Do you want** to reboot? window:



Figure 3-4 - 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.

 Log on by entering the passcode (default code is 400) into the blank field on the first boot loader screen (Figure 3-5) and touch Configure. (Touching the inside of this field will toggle the virtual keyboard.)

l		
	Loader Version: 0.90B01 Exit Loader	
	Accessing E2 at: 10.212.237.16:14106	
	Could not connect to E2	
	Network Down/Com Lost	
	Snooze Alarm	
	If you need to edit the configuration, enter the passcode below and press Configure.	
	Configure	
Ĩ		

Figure 3-5 - First Boot Loader/Startup Screen

2. On the second boot loader screen, (**Figure 3-6**) 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.)

E2 IP Address or Hostname: 10.212.237.36 E2 Web Server Port: 14106	Loader Version: 0.88801	Exit Loader
E2 Web Server Port: 14106	E2 IP Address or Hostname: 10.212.237.36	
Panel Number: 1	E2 Web Server Port: 14106 Panel Number: 1	Apply

Figure 3-6 - 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 pass-code protected. See **Section 5.4.1, 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 (Section 8, E2 Alarm Annunciator Setup).

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.

Table 4-1 - Advisory Text Color Key

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

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 5-11**) 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.

Table 5-1 - Icon Descriptions





DOWN arrow scrolls downward through items on each screen and through multiple alarms on the Home screen.

5.1 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 5.2



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.

■↔■ % 08-04-08 14:54, FAIL, Device absent from network 08-04-08 14:48, N-FL, Device absent from network 08-04-08 14:37, N-FL, Device absent from network 08-04-08 14:31, N-FL, Device absent from network 08-02-08 14:32, N-FL, Device absent from network	larm*
08-04-08 14:54, FAIL, Device absent from network 08-04-08 14:48, N-FL, Device absent from network 08-04-08 14:37, N-FL, Device absent from network 08-04-08 14:31, N-FL, Device absent from network 08-02-08 14:27, N-FL, Device absent from network	
08-04-08 14:54, FAIL, Device absent from network 08-04-08 14:48, N-FL, Device absent from network 08-04-08 14:37, N-FL, Device absent from network 08-04-08 14:31, N-FL, Device absent from network 08-02-08 14:27, N-FL, Device absent from network	
08-04-08 14:48, N-FL, Device absent from network 08-04-08 14:37, N-FL, Device absent from network 08-04-08 14:31, N-FL, Device absent from network 08-02-08 14:27, N-FL, Device absent from network	
08-04-08 14:37, N-FL, Device absent from network 08-04-08 14:31, N-FL, Device absent from network 08-02-08 14:27, N-FL, Device absent from network	
08-04-08 14:31, N-FL, Device absent from network 08-02-08 14:27, N-FL, Device absent from network	
08-02-08 14:27, N-FL. Device absent from network	
i i i i i i i i i i i i i i i i i i i	
08-02-08 14:14, FAIL, Device absent from network	
08-02-08 14:13, FAIL, Device absent from network	
08-02-08 14:13, N-FL, Device absent from network	
08-02-08 14:13, FAIL, Device absent from network	•

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 🔍 (details icon) and the Advisory Detail screen for that advisory will open. Touch

the bell (advisory) 🛃 icon again to place that advisory on the Home screen

5.2.1 Advisory Detail Screen



Advisory Details shows expanded information about the selected advisory:

Advisory Det 08-04-08 14: Device abse .AP.01.01 » Priority: 20 RTN at: 08-0	ail - #2 of 185 48 N-FL nt from network System 14-08 15:03	
	ОК	

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.

5.3 **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.

Data P	oints Screen Name	
Alarm Panel		
03-22-11	STATUS DSP_002 Snooze Alarm	8:57:46 AM
Departm E2 Unit11 » E2 Unit11 » E2 Unit11 » E2 Unit11 »	ent Status AHOODI » AHU STATUS AHUODI » ACT CTRL TE SC1 » CIRCUIT STATE SC1 » ACTIVE SETPT SC1 » CONTROL TEMP	Season: WINT No Ct/I NONE Refrigerat 32.0 60.0

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 **Department** Status). This name is configured under the Status Title parameter under FSD General Setup in the E2 controller (Figure 6-1).

The Title Data Point string name and pointer display to the right of the Data Points screen name. In Figure 5-4, Season is the Title Data Point string name followed by the pointer value, WINT. The Title Data Point string and pointer can be configured also in the FSD General Setup tab in the E2 controller (Figure 6-1).

See Section 6, E2 Data Point Setup for FSD to configure these parameters for the FSD Data Point screen.

5.3.1 Data Points Detail Screen



When a data point is selected on the Data Points screen (**Figure 5-4**) and the details

icon 🔀 is touched, all details about the

pointer will be displayed such as notice, alarm (**Figure 5-6**), and override (**Figure 5-7**) status information when these values are active:

Data Point - #1	or 7
Name: SEAFOC Pointer: THIS.0 Value: Refrigera	DD 1 2.1 » SC1 » CIRCUIT STATE ation
	OK

Figure 5-5 - Detailed Data Point Information



Figure 5-6 - Detailed Information if the Data Point Failed



Figure 5-7 - Detailed Information if Data Point is in Override

If no data point is selected when the details icon is touched, a reminder will appear:

Select a data po	oint first.	

Figure 5-8 - Select A Data Point Reminder Screen

If a pointer has not been defined in the E2 application, a threedash result will appear. If this three-dash (---) value is selected

and the details icon 🤽 is touched, the following message will appear:

Data Point - #4 of 7	
No pointer is defined.	
OK	

Figure 5-9 - No Pointer Is Defined Message

5.4 FSD 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:

Enter Passcode and press the "Enter" button. Enter	7 8 9 4 5 6 1 2 3 0 Clear

Figure 5-10 - 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 5-11**).

- **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.

5.4.1 Alarms Tab

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

- Show RTN Alarms
- Show Reset Advisories
- Display Asset/Alarm
- Show Notices
- Filter Advisories
- Sort Data Points
- Audible Alarm settings
- Set snooze delay in minutes
- Set minimum alarm priority



Figure 5-11 - 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**).

5.4.1.1 Show RTN Alarms

This alarm setting 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.

5.4.1.2 Show Reset Advisories

This alarm setting enables you to display or hide reset alarms on the FSD. Reset alarms are alarms that have been forced to normal condition or "Reset-to-Normal." Enable the checkbox to show reset alarms or uncheck to filter out.

5.4.1.3 Display Asset/Alarm

This setting determines how advisory information will display on the FSD main alarm screen (whether alarm is displayed over asset or vice versa). *Alarm* describes the type of alarm that was generated, while *asset* details the source where the alarm occurred. If the **Display Asset/Alarm** checkbox is unchecked, the main alarm screen will display advisory information in the normal order, that is, *alarm over asset*. In **Figure 5-12**, the alarm name (**"Failed Sensor or Bad Wiring**") is displayed over the asset detail ("E3.1 >> EC2 391 CC_001 >> TERM TEMP").



Figure 5-12 - Normal Setting - Alarm over Asset

If the checkbox is enabled, alarm information will display in the reverse order (i.e., *asset over alarm*). Refer to **Figure 5-13** for a sample illustration.

Alarm Panel					
10-22-10	E3 AP2 Snooze Alarm	3:55:15 PM			
#5 of 13 08-23-10 12:22A FAIL E3.1 » EC2 391 CC_001 » TERM TEMP Failed Sensor or Bad Wiring					
1		🛨 🛃			

Figure 5-13 - Reversed Setting -Asset over Alarm

5.4.1.4 Show Notices

This notice setting 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.

5.4.1.5 Filter Advisories

This setting causes the FSD to display only advisory information of points that are included in the monitored data point list. Advisories that are outside the monitored data point list will be excluded from the display list. Enable the checkbox to filter advisories, or uncheck to filter out.

5.4.1.6 Sort Data Points

If this setting is enabled, it will cause points with active advisory to display on top of the list of monitored data points on the FSD.

5.4.1.7 Audible Alarm

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.

5.4.1.8 Snooze Delay

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

5.4.1.9 Min Alarm Priority

This alarm priority setting 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)

5.4.2 Communications Tab

Status Disp	lay Configuration
Alarms Communication	s General About
E2 IP Address:	10.212.237.36
E2 IP Port:	80
Diselau Number	
Display Number.	
Toggle Keyboard	OK Cancel

Figure 5-14 - Communications Screen - Set E2 Parameters

5.4.2.1 E2 IP Address

Enter the IP address or Hostname of the E2 from which the FSD will be receiving alarms. Note that if <u>more than one</u> 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 Setup 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 alarmannunciator E2. If one E2 is located at a site, enter the IP address for that single E2.

5.4.2.2 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.

5.4.2.3 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.

5.4.3 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 5-15 - General FSD Information Screen

5.4.4 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.

Status Display Configuration				
Alarms	Communications	General	About	
Status Copyri <u>c</u>	Display ht 2008			
Status	Display - Revision: 0).88B2		
Togg	gle Keyboard	Oł		Cancel

Figure 5-16 - FSD About Tab

5.4.5 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 passcode on the security screen as shown in **Figure 5-10**.
- 2. Select the General tab and touch the **Exit Application** button (**Figure 5-17**).



Figure 5-17 - General FSD Information Screen

3. A loader screen will appear (Figure 5-18). Touch Exit Loader at the top right of the screen.

			Enk Eddor
E21	P Address or Hostnam	ie:	
10.2	212.237.36		
	E2 Web Server Por	t 14106	
	Panel Number	: 1	

Figure 5-18 - General FSD Information Screen

4. The desktop screen will appear (**Figure 5-19**). Press and hold on the desktop screen to bring up the pop-up desktop menu and select **Properties**.



Figure 5-19 - Desktop Screen

The Display Properties window (Figure 5-20) opens:

Background	Appearance	e Backligh	t	
Æ	To save ba automatical	ttery life, yo ly shuts off.	u can a	djust when the
Auto Tum	matically turn off after	off backligh	nt while	on <u>b</u> attery po f continuous id
Auto	matically turn off <u>a</u> fter 1) off backligh) minutes	nt while	on external po f continuous in

Figure 5-20 - 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.
- 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 **150** data points can be entered).

The number of data points entered will automatically update under Data Points (**Data Pts**) and Point Names (**Pts Names**) setup.

3-22-11 🔶 🦪 se Ctrl-X to	🕅 Select CX Tabs	CX-300 Unit 1 SETUP	11 🖻	8:55:4 *ALARI
1: General	C2: Options	C3: Data Pts	C4: Pts Names	C5: Outputs
6 :	C7:	C8:	C9:	CO:
	Status	Display: STATUS	5 DSP_002	
General	Area Ctr	1 Application	Property	
Name	: STATUS D	SP 002		
Displau	iumber: 2			
Status T	tle : Departme	nt Status		
Sum Data	Points: 5		>	
Snooze De				
Min Adv F	rior : 36			
Title Dat	a Pt : E2 Unit1	CLOBAL DATA	SUMMER WINTER	
Title Dat	a Str · Seacon			
i i i i i i i i i i i i i i i i i i i	a oei i oeason			
Enter Control	ler Title Data	Pointer		
FI: PREV THE	L FZ: NEAL THB	L FOLLEDIT	L F4: LUUK UP	L F5: CHNCEL

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

- 4. In the **Status Title** field, enter the name you wish to appear as the Data Points screen name on the FSD Data Points screen (**Figure 5-4**).
- 5. Enter the pointer and string values for the Title Data Point in the **Title Data Pt** and **Title Data Str** fields, respectively. This will change the default Title Data Point details on the FSD Data Point screen (**Figure 5-4**).

03-22-11 🔹 🧲 Use Ctrl-X t	9 🕅 D Select CX Tabs	CX-300 Unit 11 SETUP	ß	8:55:45 *ALARM*
C1: General	C2: Options	C3: Data Pts	C4: Pts Names	C5: Outputs
C6:	C7:	C8:	C9:	C0:
	Status	Display: STATUS	DSP_002	
General Name Display Status Num Dat Snooze Uia-MO Title Da Fitle Da	Area Ctrl : STATUS DS Number : 2 fitle : Departmen a Points: 5 belay : 9:30 "Prior : 38 ata Pt : 2 Uniti ata Str : Season	Application P_002 It Status 	Property SUMMER WINTER	
Fatan Aratu		Reference		
F1: PREV T	B F2: NEXT TAB	F3: EDIT	F4: LOOK UP	F5: CANCEL

Figure 6-2 - Enter the Title Data Point Pointer and String Values

If the Title Data Point parameters are not changed, the FSD Data Points screen will use the default values set for these parameters (i.e., the Global Data's OAT).

 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:Property** format (see **Figure 6-3** 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 input or output of that application you wish to monitor for Property:(CONTROL TEMP).

General	C2: Opti	ons C3: Da	ta Pts 04: H	ts Names C5	: Outputs
System	C7:	C8:	C9:	CC):
	S	tatus Display	STATUS DSP_00	1	
Data Pts	Are	a Ctrl Appl:	ication Prop	erty	
Data Point	: E2	Unit11:AHU001	:AHU ST	ATUS	$\supset 1$
<u>Data</u> Point2	: E2	Unit11:CASECT	L CKT001:CIRCUI	T STATE	
Data Poinca		<u> </u>			
Data Point4		:			
Data Points	:				
Data Pointé	5 :				
Data Point7					
Data Point8	3 :				
Data Points) :				
Data Point1	0 :				
Data Point	11 :				
Data Point	12 :				
Data Point	3 :	:	:		
Data Point	4 :	:	:		
Data Point	5 :		-		
Data Point	6 :	-	-		L
∥vata Point	/ :				l i

Figure 6-3 - Example of Data Point(s) Setup in E2

When setting up data points for multiple E2s at a site, note that **F4: Lookup** will not allow you to select data points from another (remote) E2 unless you are running E2 firmware revision 2.69F01 or higher.

For E2 firmware prior to revision 2.69F01, data points can be selected from a remote E2 by connecting the data points to Global Data.

Ethernet peer communications is required for box-to-box hookup. For more information, refer to **Section 7, E2 Ethernet Peer Communications**.

NOTE

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

NOTE

If a pointer is undefined in the E2 application, it will display as three dashes (- - -) on the Facility Status Display screen.

8. Go to the Pts Names tab and enter a name for the data point (Figure 6-4).

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

03-1 Use	6-11 🔹 🥝 Ctrl-X to Se	lect CX Tabs	CX-300 Unit 11 SETUP	D FULL	14:14:35 *ALARM*
C1:	General	C2: Options	C3: Data Pts	C4: Pts Names	C5: Outputs
C6:	System	C7:	C8:	C9:	C0:
		Status	Display: STATUS	DSP_001	
\langle	Pts Names Data Name1 Data Name2	Value : AIR HAND	DLER CUBES	$\overline{)}$	
	Data Namez Data Name3				
	Data Name4 Data Name5				
	Data Nameó	-			
	Data Name7				
	Data Name8				
	Data Name9				
	Data Name10) :			
	Data Name11				
	Data Name12				
	Data Name13				
	Data Name14				
	Data Name15				
	Data Name16				
	Data Name17				Ť
Ent	er desired t	ext Name of	Data Point		
E1	: PREV TAB	F2: NEXT TAB	F3: EDIT	F4: STATUS	F5: CANCEL

Figure 6-4 - Entering a Data Point Name

9. 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:Property** format.

7 E2 Ethernet Peer Communications

Communication between E2 controller version 2.10 or greater may now be implemented through an Ethernet network using TCP/IP protocol. To utilize peer connections over Ethernet, the following tasks must be performed:

- Upgrade the E2 controller firmware to version 2.10 or greater.
- Install an industry-standard Ethernet switch(es) or hub(s) in an area or areas nearby the E2 controllers.
- Install Ethernet straight-through cabling at the site from each E2 to the switch or hub. Installation of RJ-45 connectors may be necessary to achieve this goal. The recommended cabling is CAT 5.

7.1 Ethernet IP Configurations

If using an open network configuration (see **Section 7.4.2, Open Network Layout**), contact your IT Network Administrator for all IP configuration information (IP Address, Subnet Mask, Primary and Default Gateway settings).

7.2 Hardware Specifications

Standard industry-accepted practices for wiring of Ethernet networks are expected. E2 controllers use a star topology, identical to PC deployment. This includes a unique "point-to-point" run from a switch or hub to the controller (see **Table 7-1** for hub part numbers for ordering). This is done with Category5 (or better) cable. Maximum distance for a run of 10BaseT is 328 feet (100 meters) (11.5 dB loss max).

- The maximum number of controllers allowed on an IP subnet is 20. All E2 controllers that must communicate with each other must be on the same subnet.
- Recommended Ethernet cabling is CAT 5 (straight-through cable).
- 328 feet (100 meters) is the maximum distance allowed between devices before a switch or hub must be added.

7.2.1 Components

Table 7-1 - Equipment fo	r E2 Ethernet Peer	Communications
--------------------------	--------------------	----------------

Equipment Type	Specifications
Ethernet Five- or Nine-port Switch (may require an additional power supply)	 Industrial grade Operating/storage temp range: -40°F to 185°F Vibration: IEC68-2-6 RH: 5 to 95% UL 508A, CE approved Supports 10Base-T crossover cable Supports all IEEE 802.3 protocol Supports Auto Crossover MDI/MDI-X Screw-terminal power connectors
Ethernet Surge and Lightning Protector (recommended)	 Industrial grade Surge capacity: 1 kA / line Operating temp range: -40°F to 185°F Max frequency: 155 MHz Clamp and rated: 10V and 5V
10-Base-T/100-Base-TX Hub	Room Temperature (0 to 50 C) P/N 570-0100
10-Base-T/100-Base-TX Hub	Extended Temperature (-40 to 65 C) <i>P/N 570-0200</i>

NOTE

An external power supply may be needed.

7.3 Software Specifications

TCP/IP

E2 controller versions 2.10 and later communicate between controllers using the TCP/IP protocol. TCP Port 7238 is the default for connections established between the controllers. All peer communications occur over this port.

7.4 Ethernet Network Layouts

The two types of network options for E2 controllers using Ethernet communications are:

- 1. "Closed Network" E2 devices are *not connected* to a store's LAN. (The only devices on the network are the E2 controllers themselves.) This network type is used if there is no need to integrate the network into the company's intranet.
- 2. "Open Network" E2 devices are connected to the store's LAN. (Devices on the network include E2s and other Ethernet-TCP/IP devices.) This network type is used if the network will be connected to the store's LAN.

NOTE

Contact your IT Network Administrator for setup parameters for both closed and open networks.

The E2 peer Ethernet network facilitates communications between E2 controllers. These include at least the following:

- Routing of messages between external entities such as UltraSite and non-gateway E2 controllers.
- Distribution of global data and other network variables such as system time, controller identification, etc.
- Communication between E2 controller applications such as Remote Login and Remote File Services.

NOTE

The gateway E2 is the E2 controller at a remote site to which UltraSite directly connects. It is through this E2 that UltraSite communicates with the other controllers (defined as the "non-gateway" E2s and external entities such as UltraSite).



7.4.2 Open Network Layout



Figure 7-2 - Open Network Layout

7.5 Software Setup

NOTE

Programming through UltraSite[™] is not supported.

- 1. Log on to the E2 controller
- 2. Navigate to the TCP/IP setup screen (Alt + T).

NOTE

DHCP does not have to be enabled if you have the IP Address, Subnet Mask, and Primary Gateway settings. (Contact your IT Network Administrator for all IP configuration information.) If you do not have the IP configuration settings, and there is a DHCP server on the network, set DHCP Enabled to Yes and it will retrieve the information from the server and populate those fields. E2 controllers must all have the same Ethernet Subnet in order to communicate box-to-box.

-0	9-05		BX-300 Unit 1	CAPS	16:53
	Ctrl-X to Se	lect CX Tabs	SETUP	80	
:	General	C2: Eng Units	C3: Modem	C4: TCP/IP	C5:
:		C7:	C8: Peer Netwrk	C9: System	CO:
		General	Setup: GENERAL	SERV	
	TCP/IP	Value			
	DHCP Enable	d : No			
	IP Address	: 10.10.64.1	7		
	Subnet Mask	: 255.255.24	8.0		
	DNS Server	1 :			
	DNS Server	2 :			
	DNS Server	3 :			
	Default Gate	eway: 10.10.64.1			
	Domain Name				
	MAC Address	: : 00-0a-f6-0	0-04-0a		
nti	er State: Y=	-Yes: N=N0 DH	CP Enabled	35	

Figure 7-3 - TCPIP Setup Screen

3. Tab over to the Peer Netwrk tab:

se Ctrl-X to S	elect CX Tabs	BX-300 Unit 1 SETUP	CAPS	16:54:28
1: General	C2: Eng Units	C3: Modem	C4: TCP/IP	C5:
6:	C7:	C8: Peer Netwr	k C9: System	C0:
	Genera	1 Setup: GENERAI	. SERV	
Peer Netur	k Walue			
Network Ty	me : Ethernet	(ETH)		
Enable Enc	rypt : No			
AutoDscTim	eout : 300			
ReconectTi	meout: 120			
Group Name	: NAME OF S	ITE		
croll using N	ext/Prev keys 1	Default network	x for peer comm	unications

Figure 7-4 - Peer Network Tab - Set Network Type

4. Change Network Type to: Ethernet (ETH) and press Enter. The Group Name field is now visible.

NOTE If unsure of any tab settings, it is recommended that the default settings be used.

5. Once the Ethernet network type is enabled, enter a unique site name in the **Group Name** field.



The site name is the unique identifier for the site that will allow the controllers within the same group to share data.

05-0 Use	9-05 Ctrl-X to Se	elect CX Tabs	BX-300 Unit 1 SETUP	CAPS	16:54:59
C1:	General	C2: Eng Units	C3: Modem	C4: TCP/IP	C5:
C6:		C7:	C8: Peer Netwr	k C9: System	CO:
		Genera	1 Setup: GENERAL	L SERV	
	Peer Netwrl Network Tyj Enable Ency AutoDscTim ReconcotTim Group Name	k Value ge : Ethernet rypt : No eout : 300 neout : 120 : NAME OF S	(ETH) ITE		
Ent	er desired	text Site IP	Group Name		
F1	: PREV TAB	F2: NEXT TAB	F3: EDIT	F4: STATUS	F5: CANCEL
		.			

Figure 7-5 - Peer Network Tab - Set Group Name

All controllers that you would like to appear in this group must all have the same group name and must be using the same network type.

7.6 Troubleshooting

Network troubleshooting is outside the scope of this section (**Section 7, E2 Ethernet Peer Communications**). Consult your IT Network Administrator for any additional information needed.

8 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 ² (System Configuration)
- 2. Press $3^{\#}$ (System Information)
- 3. Press (General Controller Info)
- 4. Set Alarm Annunc field to Yes.

· Conoral	C2. Eng Unit	c C3. Serial	CH. TCP/TP	C5. Peer Note
: Web Server	C7: Sustem	C8:	C9:	Co:
	Gen	eral Setup: GENERAL	SERU	
General	Value			
Site Name				
Site Phone				
Refresh Ra	te : 0-00:	30		
Alarm Annu	nc (: Yes			
Annun Unit	Num	0		
Applicatio	n 1 : Suction	n Groups		
Applicatio	n 2 : Conden:	ser Control		
Applicatio	n 3 : Circui	ts		
Applicatio	n 4 : Sensor	Controls		
F1 Soft Ke	; : Defaul	t		
F2 Soft Ke	; : Defaul	t		
F3 Soft Ke	; : Defaul	t		
F4 Soft Ke	; : Defaul	t		
RX Home Sc	reen : Defaul	t		
ScreenBlan	<time:< td=""><td>10</td><td></td><td></td></time:<>	10		

Figure 8-1 - Alarm Annunciator Setup

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

9 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.

10 Specifications

Table 10-1 - Facility Status Display 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"

11 FSD Ribbon Cable Installation

This chapter describes the steps for the correct installation of the Facility Status Display (FSD) ribbon cable. In the event of incorrect positioning of the ribbon cable, the FSD may exhibit some communication problems such as rebooting or displaying a Relay Board Missing message. Should the FSD demonstrate this behavior, verify that the ribbon cable has been properly installed:



Figure 11-1 - FSD Ribbon Cable Position

The ribbon cable should be positioned straight across the board and always have the red stripe along the top.

Should the ribbon cable need to be reinstalled, follow this procedure:

INSTALLATION STEPS

- 1. Power down the FSD.
- 2. 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.
- 3. Once the top has been separated from the back of the enclosure, check the ribbon cable for proper installation and reposition if necessary.
- 4. Replace the mounting plate onto the enclosure and reattach using the four screws.
- 5. Cycle power to the unit.

Visit our website at copeland.com/en-us/products/controls-monitoring-systems for the latest technical documentation and updates. For Technical Support call 833-409-7505 or email ColdChain.TechnicalServices@Copeland.com

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