FLASH™ TECHNOLOGY

SN

FTM 181 Monitor

Reference Manual

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Front Matter

Abstract

This manual describes the *Operation, Installation,* and *Maintenance,* of the FTM 181 Monitor.

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Trademark Acknowledgments

Disclaimer

Warranty

All components are fully warranted, under normal operating conditions, for two years.

Replacement Parts

The use of parts not manufactured or supplied by FTCA or unauthorized modification of this equipment voids the warranty.

Pub. No. 0594-181-0000

PERSONNEL HAZARD WARNING

Dangerous Voltages

Dangerous line voltages reside in certain locations in this equipment. Although FTCA has incorporated every practical safety precaution, exercise extreme caution at all times when you expose circuits and components, and when you operate, maintain, or service this equipment. There are no voltages significantly above the line voltage.

Avoid Touching Live Circuits

Avoid touching any component or any part of the circuitry while the equipment is operating. Do not change components or make adjustments inside the equipment with power on.

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Section 1 — Introduction

Simplified Short Approach Lighting Systems (SSALR) with Runway Alignment Indicator Lights (RAIL) are lighting systems that flash in linear sequence toward the runway threshold from a point up to 3000 feet away. The lights are separated by 200 feet. The total distance for SSALR lights is 1400 feet. The remaining distance is comprised of steady-burning white airport lighting units. The runway threshold is indicated by steady-burning green lights.

Dual Mode High Intensity Approach Lighting Systems (ALSF-2) lights are lighting systems that flash in sequence toward the runway threshold from a point up to 3000 feet away. the lights are separated by 100 feet. The total distance for ALSF-2 lights is 2000 feet. The remaining distance is comprised of steady-burning white airport lighting units. The runway threshold is indicated by steady-burning green lights.

The FTM 181 Monitor is a flash monitoring unit that communicates with lighting units and shows their flashing status. It is programmed to show SSALR and ALSF-2 operation of the sequential lights.

The FTM 181 provides a set of isolated relay contacts representing each light to be used for telemetry. The contacts open to indicate a failed light.

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Section 2 — Outline, Mounting, and Installation

Unpacking

Inspect shipping cartons for signs of damage before opening. Check package contents against the packing list and inspect each item for visible damage. Damage claims should be reported promptly to the freight handler.

Tools

The following hand tools are suggested for installation:

- Phillips-head screwdriver, #2
- Medium (# 2 - 3/16"), flat-blade screwdriver
- Medium (# 3 - 5/16"), flat-blade screwdriver
- Medium, slip joint pliers
- 8-in. adjustable wrench
- A professional-quality terminal crimper
- Hand tools for electrical wiring

Access

WARNING

STOP: Before proceeding, disconnect the primary power before removing the monitor cover.

FTM 181R Monitor

For the rack-mounted monitor, four screws fasten the front face plate of the monitor to the mounting rack. To remove the monitor, you must first disconnect the wires connected to the rear terminals. These wires may have enough slack to allow you to slide the monitor out from the rack without disconnecting them first. However, the best procedure is to disconnect them first to avoid breakage.

Six screws secure the flat top cover that is fastened over the monitor chassis. Remove these screws to access the interior of the monitor.

FTM 181W Monitor

The wall-mounted monitor is packaged inside a stainless steel case. Latches secure the cover of the case. Open the cover for access to the screws that mount the monitor to the inside of the case. You may need to loosen the cable clamps that secure the cables at their entry into the underside of the case.

Mounting

Each runway lighting system uses one FTM 181 Monitor. Ground the equipment to the site grounding system. Verify that adequate space surrounds the equipment for access during installation, maintenance, and servicing. Do not block air flow around the monitor. Ground the monitor chassis to the site grounding system.

FTM 181R Monitor

Mounting and outline dimensions for the monitor are shown in Figure 2-1 *FTM 181R Monitor Mounting and Outline* .

FTM 181W Monitor

Mounting and outline dimensions for the monitor are shown in Figure 2-2 *FTM 181W Monitor Mounting and Outline* .

Wiring

FTCA wiring diagrams define minimum requirements recommended for satisfactory equipment operation. Minimum requirements may not be enough, by themselves, to comply with local electrical codes. ***It is the responsibility of the installer to comply with all applicable electrical codes.***

All installation wiring should have an insulation rating of 600 volts or higher.

External Connections

Refer to Figures *2-3* and *2-4*. The connections on the panel have the following functions:

- TB2-5 to TB2-6: Connections for the monitor shielded cable or twisted pair to a light at TB1-17, -18. Each light is then connected to the next at the same terminals, TB1-17 and TB1-18. In this way, all the TB1-17 connections are in parallel and all the TB1-18 connections are in parallel (daisy chained).
- TB2-8 to TB2-10: Alarm relay contacts. TB2-8 to TB2-9 close on alarm. TB2-9 to TB2-10 open on alarm. These contacts are not connected to any internal circuits; they serve as transfer contacts for your external alarm circuitry. These contacts are rated at 120VAC, 1A.
- TB3-19 to TB3-20 CCR: Connected to relay contacts in the Constant Current Regulator indicating whether the CCR is on (contacts open) or off (contacts closed). CCR relay de-energized connects TB3-19 and TB3-20 and indicates the system is shut down.
- TB3-21 to TB3-22 MGL: Connected to externally supplied MGL control contacts for SSALR mode or ALSF-2 mode.

  MGL relay energized opens TB3-21 and TB3-22 for ALSF-2 operation (all lights on).

  MGL relay de-energized connects TB3-21 and TB3-22 for SSALR mode.
- Individual Beacon Alarm Contacts: TB4-1 to TB4-12 and TB5-13 to TB5-30 are individual contacts that open upon failure of each individually indicated flash head. That is, for example, if flash head #3 (FH#3) fails, the contacts between TB4-5 and TB4-6 open.

Installation Checklist

Complete the following steps before applying power:

1. Inspect all equipment for damage.
2. Check the equipment that you received against the packing list to ensure completeness.
3. Be sure that the voltage and frequency marked on the rear panel of the monitor agrees with the service power provided.
4. Consult site installation drawings for placement, mounting, wiring details, and power phasing.
5. Position and mount the monitor correctly, allowing adequate clearance for air circulation, for sliding out the monitor from the rack, for access to the rear panel wiring, and for opening the monitor cover.
6. Ground the monitor chassis.

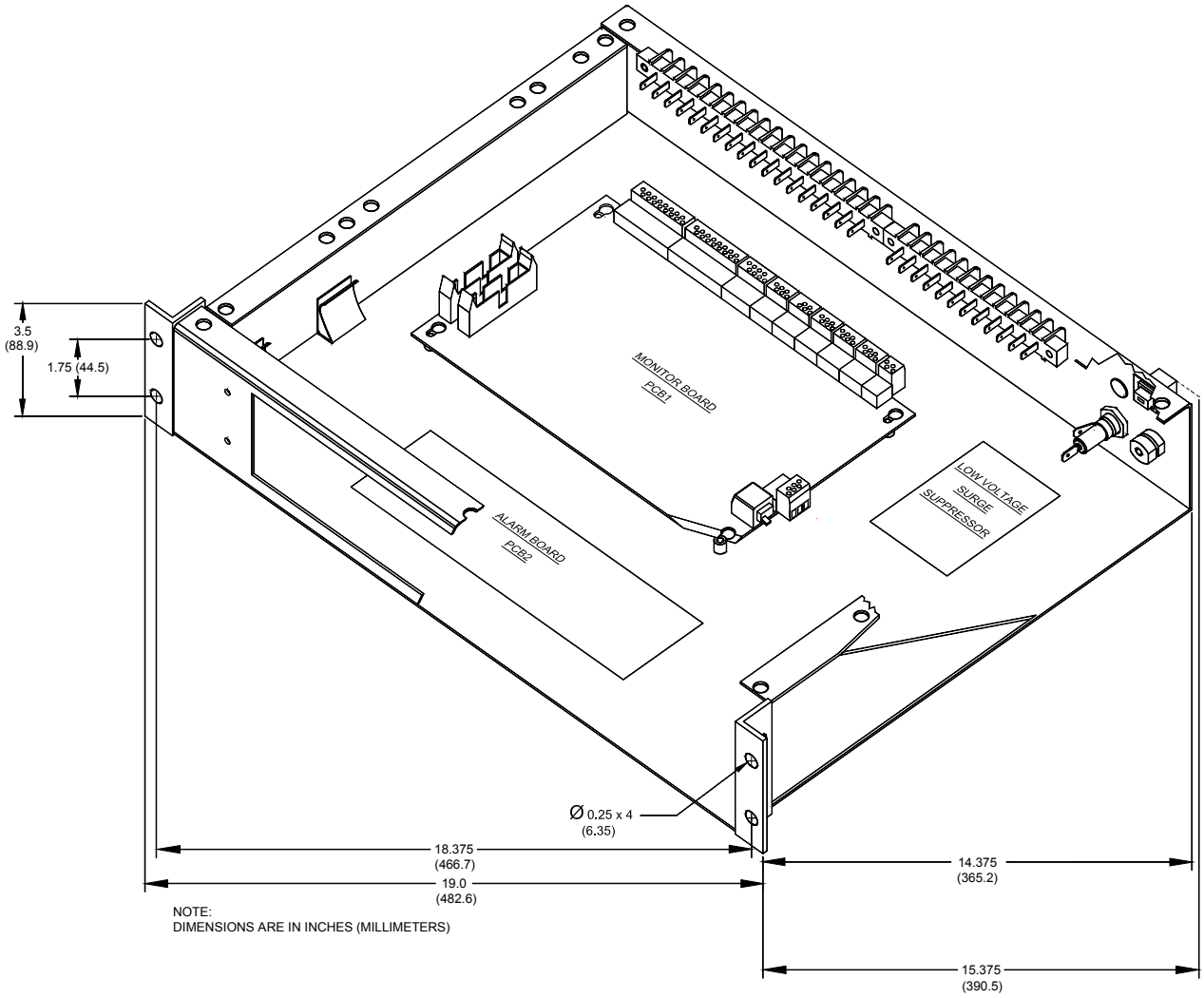

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Figure 2-1 FTM 181R Monitor Mounting and Outline

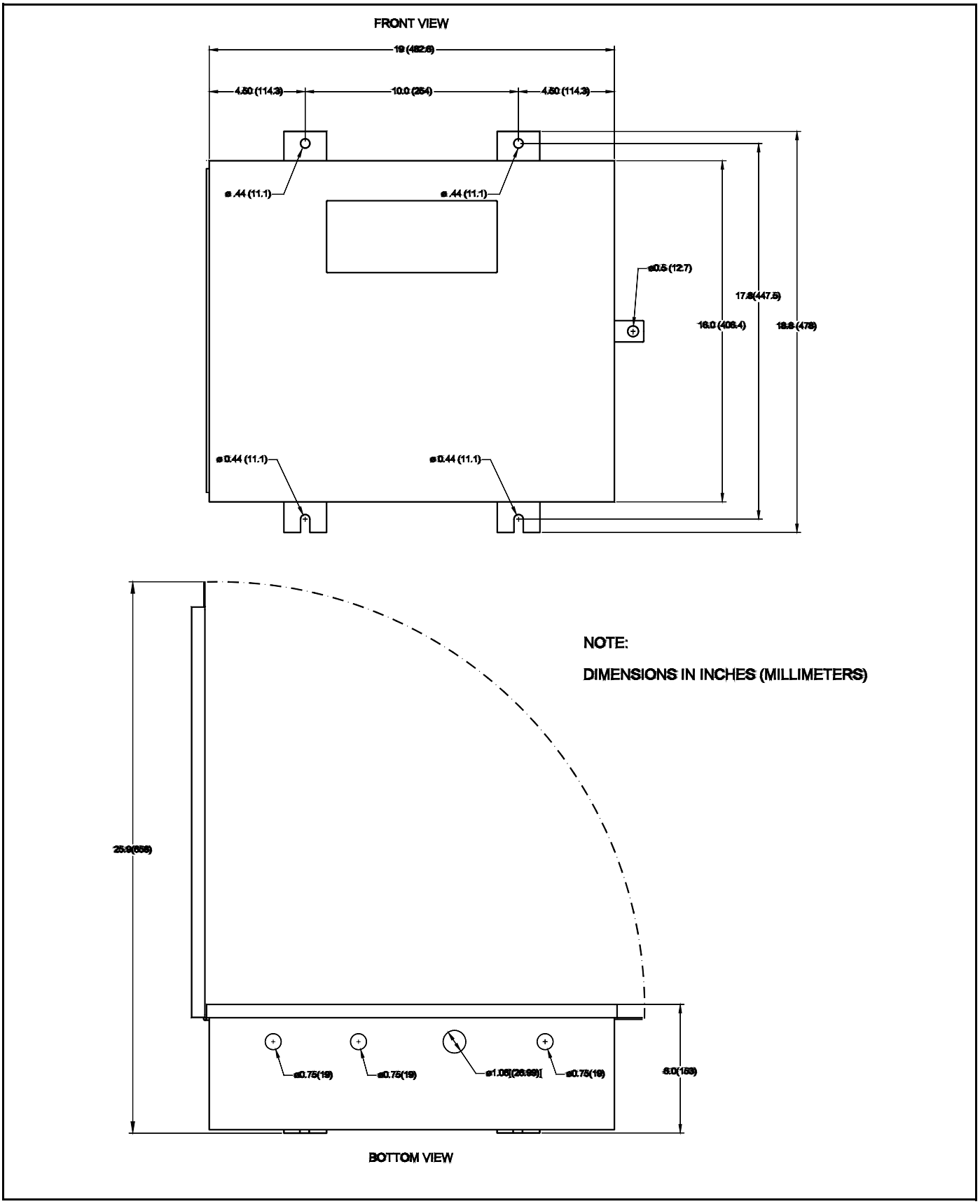

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Figure 2-2 FTM 181W Monitor Mounting and Outline

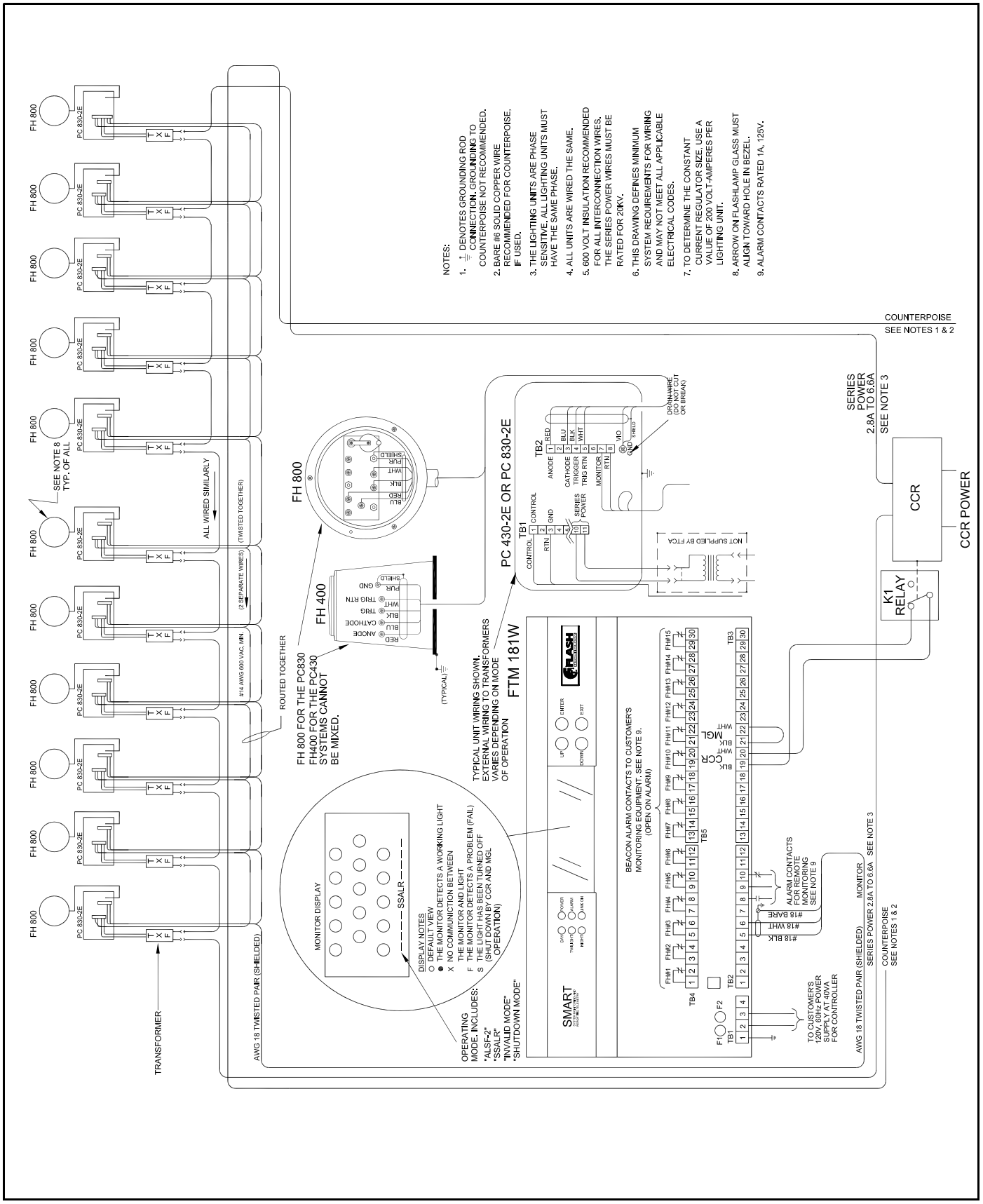

Figure 2-3 FTS 830-2E System Installation Wiring

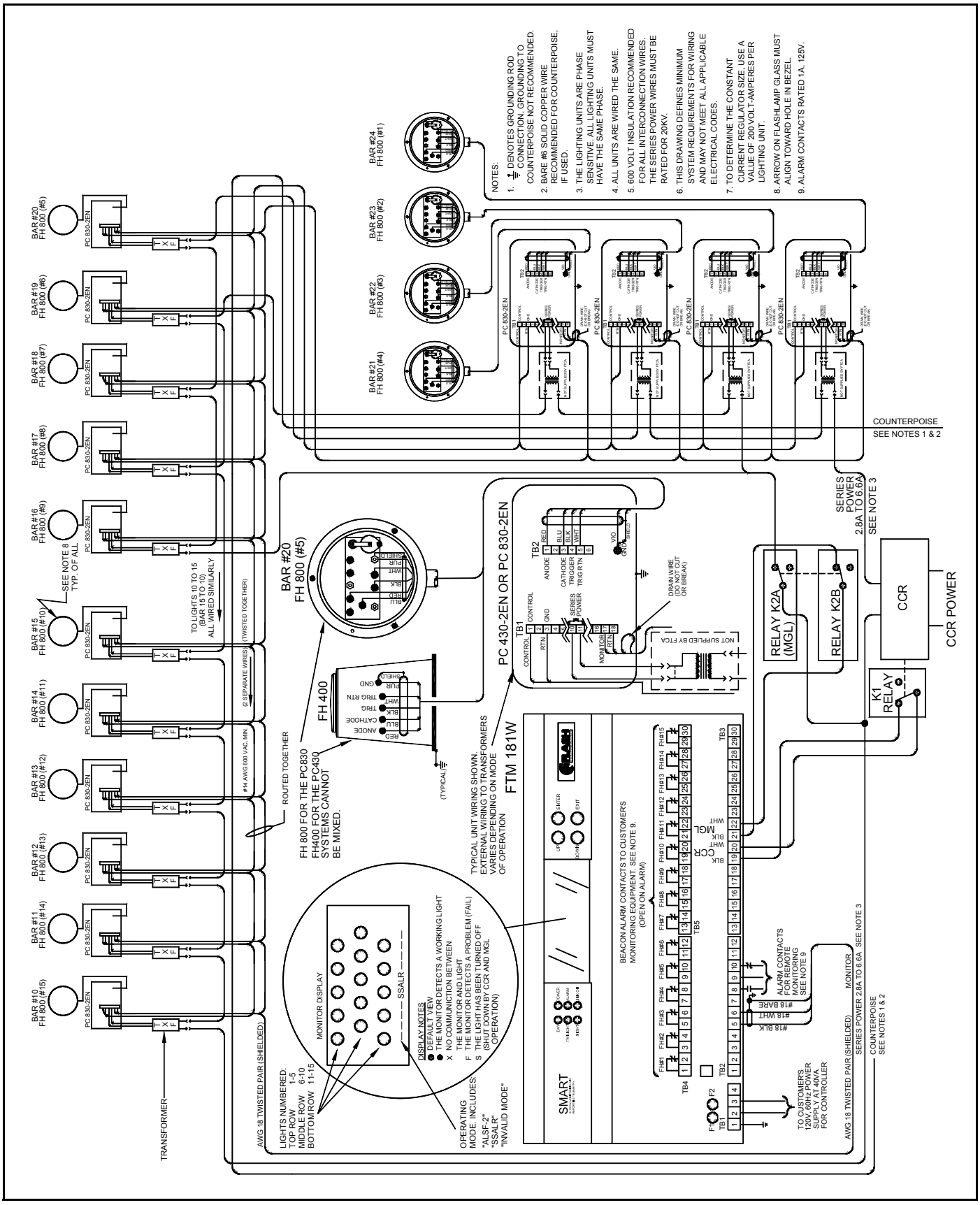

Figure 2-4 FTS 830-2EN System Installation Wiring

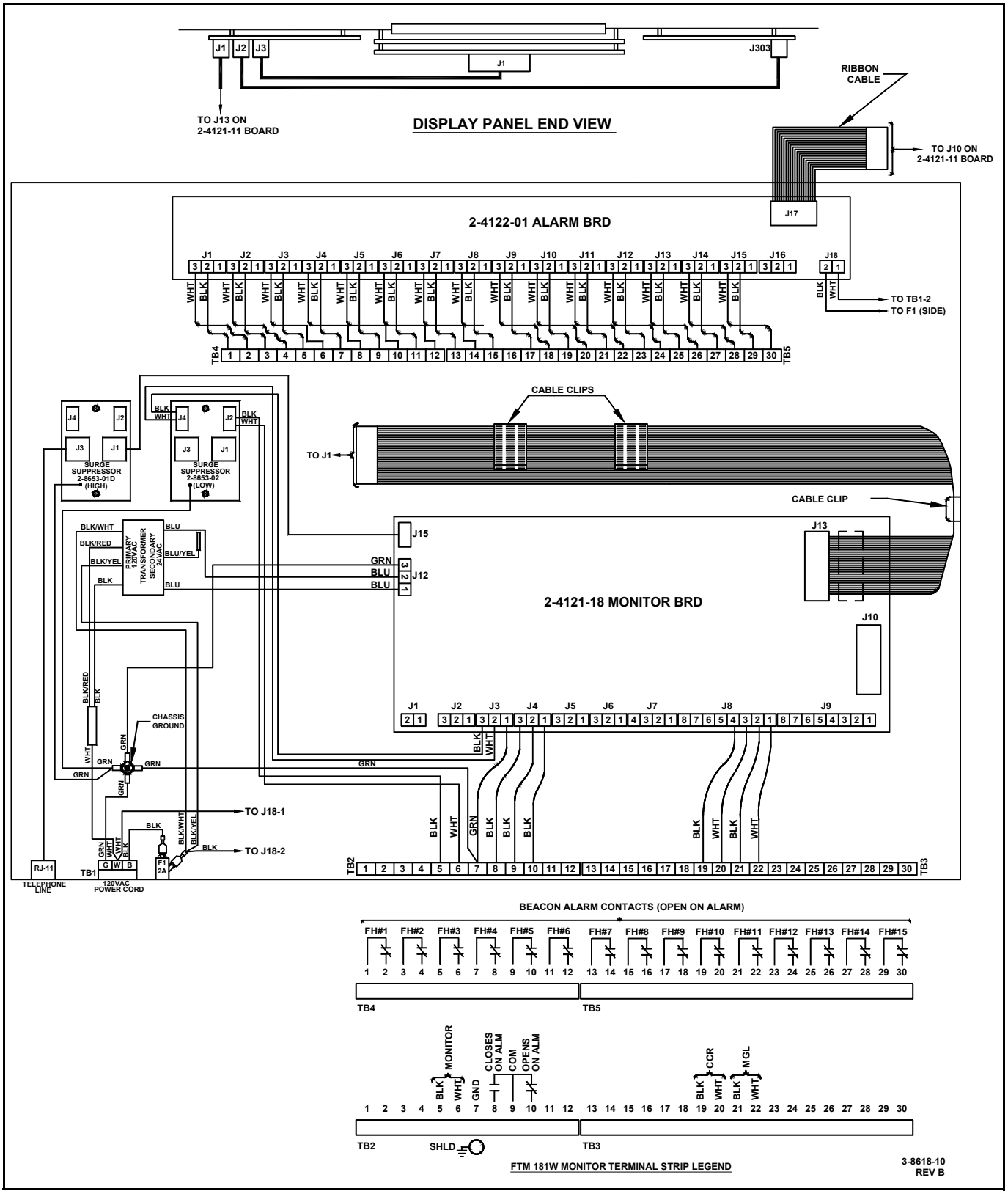

Figure 2-5 FTM 181R or FTM 181W Monitor Internal Wiring

Section 3 — Operation

This section of the manual provides general information about the operation of the front panel of the FTM 181 Monitor. The monitor provides a screen on which it displays a series of menus. From the menus, you select a screen that is either a *display screen* or a *function-setting screen*. A display screen shows information. A function-setting screen allows changing a setting.

This section presents the initial screens and functions of the monitor. Sections 4 and 5 provide the screens and menus in the order of their appearance on the front panel of the monitor.

Thus:

- Section 4 provides the screens and functions of the View Menu, which is available to any user.
- Section 5 provides the screens and functions of the User Menu, which is available to an authorized user by entering a password at the last selection on the View Menu (...more...).

Menu Functions

The FTM 181 allows you to view and change some operations of the system. Details of menu and screen selection and operation follow in Sections 4 and 5. However, the following list briefly explains these functions:

View Menu

- Alarm displays — Show alarms for specific lights. You first acknowledge the presence of the alarm, then you reset the alarm after fixing the problem.
- Graphic display — Shows the lights as arranged in a string numerically from left to right and top to bottom. Failing lights are indicated.
- Date/Time Display — Shows and allows changing the date and time of the monitor's screen display and current operation.
- ...more... — Allows entering the user password to view the User Menu.
- Install Strobe and Set SSALR Mode — Informs the monitor of a strobe at a specific location and turns SSALR mode on or off for that light position.
- Set Construction Mode — Informs the monitor that lighting system construction is in progress. This setting prevents alarms and status codes while the system is under construction.
- Display Brightness — Sets the brightness of the display screen on the monitor.
- Change Password — Changes the password required to access the User Menu.
- Logoff — Allows logging off all menu systems and returns the monitor to displaying the View Menu only.

Directory of Available Screens

A directory of available screens and subscreens in Table 3-1 *Sequential Directory of View and User Screens* helps you to locate the menus and screens available to you. The table shows only those screens available through the View and User Menus.

Table 3-1 Sequential Directory of View and User Screens

Menu	Main Screen or Menu Line	Screen Reference	Sub-Screen
View	*New Starting Screen*	Figure 3-2 Page 3-4	Figure 3-3 *No Alarms Present Screen* on Page *3-4*
	ALARM Display Selection Screen	Figure 4-2 Page 4-3	Figure 4-3 *Alarms Present Screen* on Page *4-3*
			Figure 4-4 *Alarm to be Acknowledged Screen* on Page *4-4*
			Figure 4-5 *Alarm Reset Screen* on Page *4-4*
			Figure 4-6 *Ensure Alarm Reset Screen* on Page *4-4*
			Figure 4-7 *Alarm to be Reset Screen* on Page *4-5*
			Figure 4-8 *Alarm is Reset Screen* on Page *4-5*
	Graphic Display Selection	Figure 4-1 Page 4-1	Figure 4-9 *Graphic Display Screen; SSALR Mode* on Page *4-6*
	Date/Time Display	Figure 4-1 Page 4-1	Figure 4-11 *Date/Time Display Screen* on Page *4-6*
	...more...		Figure 4-1 *View Menu Selections* on Page 4-1
User	*User Menu Selections*	Figure 5-3 Page 5-2	Figure 5-3 *User Menu Selections* on Page *5-2*
	Set Construction Mode Selection	Figure 5-3 Page 5-2	Figure 5-6 *Set Construction Mode Screen* on Page *5-4*
	Display Brightness Selection	Figure 4-1 Page 4-1	Figure 5-7 *Display Brightness Screen* on Page *5-4*
	Password Selection	Figure 4-1 Page 4-1	Figure 5-1 *Enter Password Screen* on Page *5-1*
			Figure 5-2 *Incorrect Password Screen* on Page *5-2*
	...logoff...		Figure 5-9 *Logoff Screen* on Page *5-5*

Operation Panel

The operation panel, located on the front of the FTM 181 Monitor, consists of six LED indicators on the left, four buttons on the right, and an LCD display between them. See Figure 3-1 *Operation Panel*.

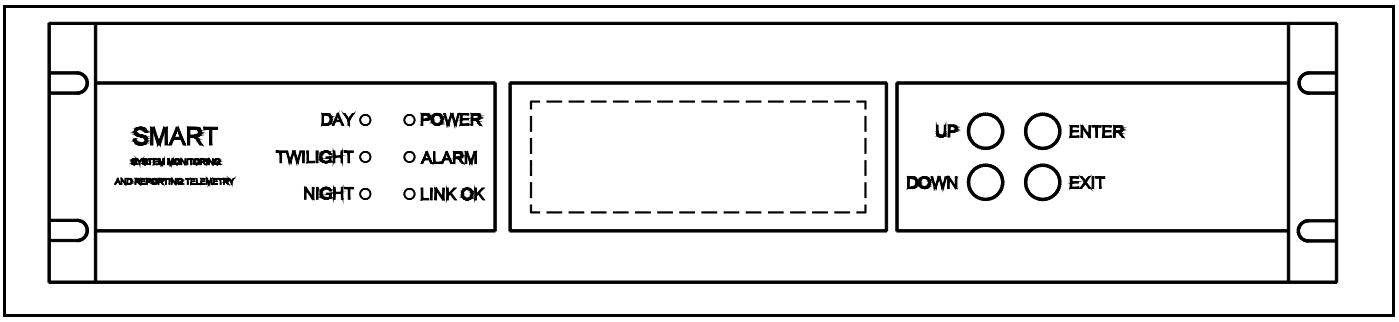

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Figure 3-1 Operation Panel

LED Indicators and Front Panel Buttons

The Operation Panel LEDs are described next in Table 3-2 *LED Indicators*. The functions of the front panel UP, DOWN, ENTER, and EXIT Buttons are described next in Table 3-3 *Front Panel Button Functions*.

Table 3-2 LED Indicators

LED	Color	Purpose
POWER	Steady green	Indicates that power is on.
ALARM	Blinking red	Indicates an alarm condition is present.
LINK OK	Steady green	Indicates that the communications link between the monitor and the light units is operating correctly. If this LED is *off*, an alarm or status code is generated.
DAY	Steady or blinking yellow	Not used in the FTM 181.
TWILIGHT	Steady or blinking yellow	Not used in the FTM 181.
NIGHT	Steady or blinking yellow	Not used in the FTM 181.

Table 3-3 Front Panel Button Functions

Button	General Function	Specific Function
UP	These buttons select menu choices from a *menu* screen, or modify the value of a setting in a *function-setting* screen.	• Selects the previous menu choice or function, or adjusts the value of a setting upward in a *function-setting screen*.
DOWN		• Selects the next menu choice or function, or adjusts the value of a setting downward in a *function-setting screen*.
ENTER	This button functions differently in different situations. Typically, from a *menu* screen, the ENTER Button accesses the selected menu choice, which is a *display* screen or a *function-setting* screen, as described in the next column. The use of the ENTER Button is described in detail with the specific instances where you use it.	• From within a *display* screen, the ENTER Button may access a function-setting screen if one is available. If there is no *function-setting* screen, the ENTER Button returns the screen to the menu. • From within a *function-setting* screen, the ENTER Button accepts the current setting and advances to the next function, or accepts the current setting of the last function and (in most cases) exits the screen, confirming all changes.
EXIT	This button functions differently in different situations, as described in the next column.	• From within a *display* screen, Exit returns the screen to the menu from which that screen was accessed. • From within a *function-setting* screen, Exit usually returns the screen to the *display* screen from which you entered the *function-setting* screen, *canceling any changes* made while in the function-setting screen. Press Enter to accept the changes, or Enter to accept the changes and then Exit to return to the menu screen.

Menus and Screens

Three types of screens are possible: *menus*, from which a given display or function-setting screen may be selected; *display screens,* which present information; and *function-setting screens*, in which settings of various system parameters may be changed.

Two menus concern the user: the View Menu and User Menu. The View Menu gives access to functions largely concerned with viewing and responding to system information rather than changing a system setting. Entering a password in the View Menu accesses the User Menu, and then access is allowed to all the functions of the View Menu and the various additional functions of the User Menu. The User Menu allows you to change a number of system settings.

Cursor

In menus and function-setting screens, the cursor is a blinking square light, usually in the left-most column. It denotes the menu choice currently selected, or the parameter that may currently be changed. The cursor (or the blinking light) moves directly on top of the value to be changed.

Screen Default

If left unattended, the screen defaults to the Graphic Display Screen shown in Figure 4-9 *Graphic Display Screen; SSALR Mode* or Figure 4-10 *Graphic Display Screen; ALSF-2 Mode*.

Opening Screens

Before you access the View Menu or User Menu, the monitor displays the opening screen shown in Figure 3-2 *New Starting Screen*.

New Starting Screen

The first screen to appear when power is applied is shown in Figure 3-2 *New Starting Screen*.

Alarms

Alarms are important to know about. Thus, the first screen after the New Starting Screen, when you press a button, shows you whether alarms are present in the system.

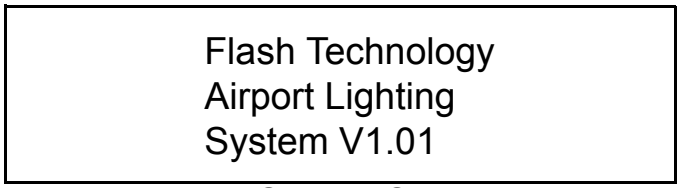

Figure 3-2 New Starting Screen

Button Functions:

- Any button displays the next screen, which is shown in either Figure 3-3 *No Alarms Present Screen* or Figure 4-3 *Alarms Present Screen*.

No Unacknowledged Alarms or Status Codes are Present

If no unacknowledged alarms or status codes are present, pressing any button displays the screen shown in Figure 3-3 *No Alarms Present Screen*.

No Alarms Present Screen

Pressing any button from the New Starting Screen or from the ALARM Display Selection Screen, if no unacknowledged alarms or status codes are present, causes the display of the screen shown in Figure 3-3 *No Alarms Present Screen*.

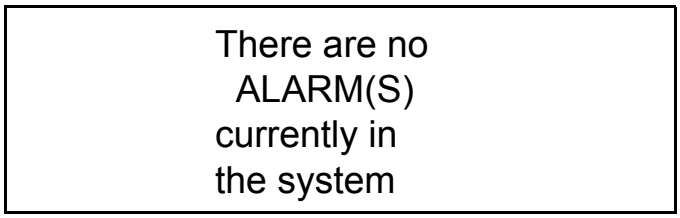

Figure 3-3 No Alarms Present Screen

Button Functions:

- Any button returns the display to the View Menu at the ALARM Display line.

View and User Menus

See Section *View Menu* for a discussion of the remaining lines in the View Menu. See also Figure 5-3 *User Menu Selections* for a discussion of the selections in the User Menu.

Section 4 Operation — View Menu

View Menu

You use the *View Menu* shown in Figure 4-1 *View Menu Selections* to perform certain system housekeeping functions, such as:

- Acknowledge and reset alarms.
- View a graphic display of the lights.
- Display or set the correct date and time for the monitor.
- Enter a password to view the User menu.
- Set monitor to install strobe mode.
- Set monitor to construction mode.
- Select a display brightness for the screen.
- Change the password for the User menu.

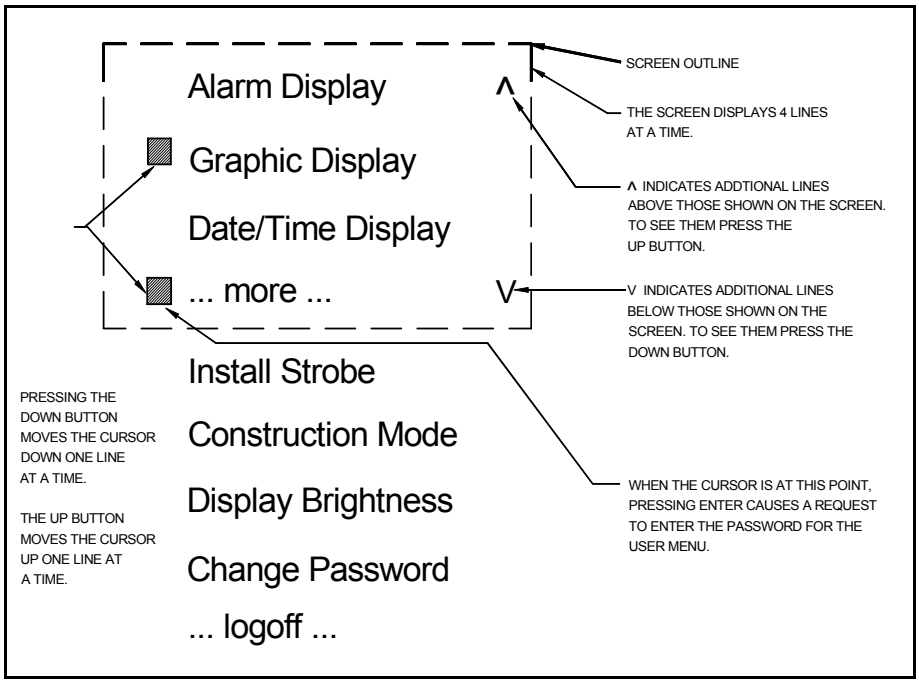

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Figure 4-1 View Menu Selections

Front Panel Button Functions

For most menu and screen selections, the front panel buttons have the functions discussed in the following list. Each screen explanation in this manual discusses the function of the buttons for that screen. The functions are as follows:

1. The **UP** or **DOWN** Button moves the blinking cursor, which is in the left-most column, to the desired line or item choice.
2. The **ENTER** Button accesses that menu choice.
3. The **EXIT** Button returns the screen to the menu from the screen previously selected from the menu choice.
4. A "**V**" in the lower right corner indicates that scrolling with the **DOWN** Button reveals additional items.
5. A "**^**" in the upper right corner indicates that scrolling with the **UP** Button reveals additional items.

You enter the *User Menu* from the *View Menu* by selecting ...more... then entering a password. The ...more... selection is discussed in Subsection *Accessing the User Menu (...more...).*

After the initial screen discussed in *New Starting Screen*, the first available selection in the View Menu is the ALARM Display. If you press a key, the monitor displays unacknowledged alarms. Otherwise, it tells you that no alarms are present. Alarms are discussed next.

Handling Alarms

Handle alarms in a three-step process, as follows:

1. Acknowledge the alarm when you first note the condition. Doing this informs the system that you have seen the alarm and are aware that the condition exists.
2. Correct the condition that caused the alarm.
3. Reset the alarm only after correcting it.

To acknowledge and reset an alarm, or both, press the **ENTER** Button at the ALARM Display line in the View Menu twice and follow the directions in *Alarm Displays*. The opening screen after the ALARM Display line in the View Menu continues to be that shown in Figure 4-3 *Alarms Present Screen* until you *reset* the alarm. If no unacknowledged alarms are present, but one or more unreset alarms are present, the opening screen remains that shown in Figure 4-3 *Alarms Present Screen*.

Remote Notification of Alarms

Alarms transfer a set of isolated relay contacts in the monitor. The connections to these contacts are available at the terminal strip connections on the back of the FTM 181 Monitor for application at your discretion. The connections are TB2-8, TB2-9, and TB2-10. They are labelled respectively CLOSES ON ALM, COM, and OPENS ON ALM.

Additionally, one set of alarm contacts is available for each light connected to the monitor. These contact connections are locations on TB4 and TB5 on the front panel and they indicate alarms for lights 1 to 15. The connections are labeled FH#1 to FH#15.

Alarm Displays

Alarm Messages report system conditions that are either failures or may indicate approaching failures. It may take up to 15 seconds for a monitor to process and indicate an alarm. When an alarm is active, the *alarm* LED on the operation panel is blinking red. No corresponding LED is present for status codes.

Alarm Screens

Alarm screens (Figures *4-2* to *4-8*) provide a convenient method of viewing, acknowledging and resetting alarms. For alarms, you have three stages of response: *viewing*, *acknowledging* and *resetting*. At each stage, you have a choice of whether to go further. If several alarm messages are present, you can *view* all of them and decide when and in what order to acknowledge or reset them.

Alarms that have been previously acknowledged but not reset can be accessed through the *View Menu*

Unacknowledged System Alarm Screen

To see if any alarms are unacknowledged, do the following:

Press the **ENTER** Button at the ALARM Display line in the View Menu as shown in Figure 4-2 *ALARM Display Selection Screen*.

From the Alarms Present Screen, you can enter the View Menu by pressing the **EXIT** Button once. If you press the **ENTER** Button at this screen, you display a screen that asks if you want to acknowledge the alarm as shown in Figure 4-4 *Alarm to be Acknowledged Screen*. If you acknowledge the alarm, the monitor then prompts you to determine if you want to reset the alarm as shown in Figure 4-5 *Alarm Reset Screen*. If all alarms are acknowledged, an unreset alarm causes the dis-

play of the screen in Figure 4-3 *Alarms Present Screen*.

Alarm Conditions

Alarm conditions close or open the alarm contacts available as connections at TB2-8, TB2-9, and TB2-10 on the panel of the monitor. Conditions causing *alarms* include:

- Power Restored — The strobe lost power.
- Strobe COMM Failure — Communication between FTM 181 Monitor and a light repeatedly failed.
- Strobe Failure — A strobe has stopped flashing.

Specific Light Alarm

When a faulty condition involves a particular light (as opposed to the system as a whole), the screen shown in Figure 4-4 *Alarm to be Acknowledged Screen* specifies the light and the time of occurrence of the condition. Lights are numbered sequentially.

Alarm Display Selection Screen

If you press the **ENTER** Button at the initial screen shown in Figure 3-2 *New Starting Screen, and system alarms are present,* the monitor displays the screen shown in Figure 4-3 *Alarms Present Screen*. Or, if alarms are present and you press the **ENTER** Button with the cursor at the ALARM Display line in the View Menu as shown in Figure 4-1 *View Menu Selections*, the monitor displays the Figure 4-3 *Alarms Present Screen*.

Otherwise, if you press the **ENTER** Button without alarms present, the monitor displays Figure 3-3 *No Alarms Present Screen*.

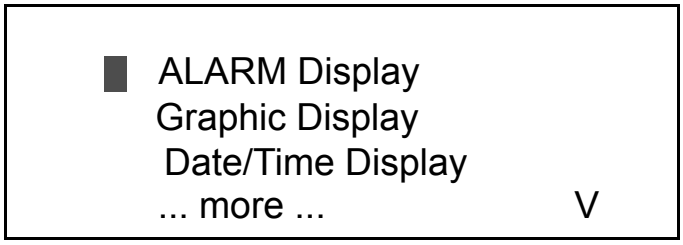

Figure 4-2 ALARM Display Selection Screen

Button Functions:

- If no alarms are present, the **ENTER** Button displays Figure 3-3 *No Alarms Present Screen*.
- If alarms are present, the **ENTER** Button displays Figure 4-3 *Alarms Present Screen*.
- If alarms are present, but unacknowledged, the **ENTER** Button causes the display of Figure 4-4 *Alarm to be Acknowledged Screen*.
- If alarms are present, acknowledged, but unreset, the **ENTER** Button causes the display of Figure 4-5 *Alarm Reset Screen*.

Unacknowledged System Alarms Present Screen

If alarms are present (unacknowledged or unreset), and you press the **ENTER** Button with the cursor at the ALARM Display line on the screen, the screen displays Figure 4-3 *Alarms Present Screen*.

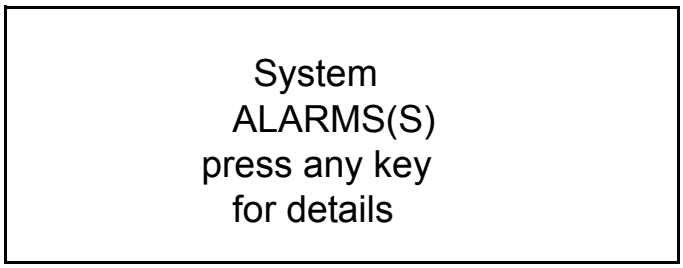

Figure 4-3 Alarms Present Screen

Button Functions:

- Any button displays an alarm acknowledgment screen similar to the one shown in Figure 4-4 *Alarm to be Acknowledged Screen* or Figure 4-7 *Alarm to be Reset Screen*.
- Pressing the **EXIT** Button at the screen shown in *Figure 4-4* returns the screen to the View Menu with the cursor at the ALARM Display line.
- Pressing the **EXIT** Button at the screen shown in *Figure 4-7* returns the screen to the View Menu with the cursor at the ALARM Display line.

Alarm to be Acknowledged Screen

The Alarm to be Acknowledged screen displays the strobe location as S#n, where S is strobe and #n is the number of the strobe in the string of strobes. The screen displays a brief description of

the alarm; the one in *Figure 4-4* shows Strobe COMM Failure indicating that the monitor is failing to communicate with the strobe. The problem may be the strobe, the monitor, or the connecting cable.

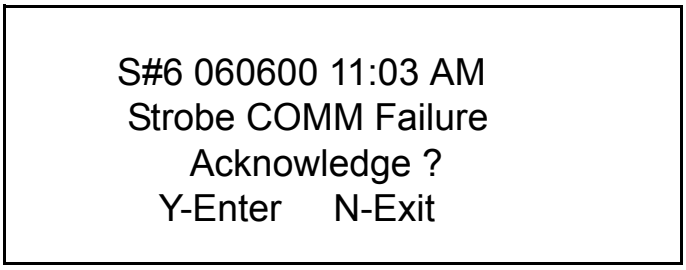

Figure 4-4 Alarm to be Acknowledged Screen

Button Functions:

- The **ENTER** Button acknowledges the alarm and shows the Alarm Reset Screen in Figure 4-5 *Alarm Reset Screen*.
- The **EXIT** Button does not acknowledge the alarm and returns the screen to the View Menu at the ALARM Display line.

Alarm Reset Screen

The Alarm Reset Screen shows that the alarm has been acknowledged and allows you to reset the alarm by pressing the **ENTER** Button. The service number shown is that of Flash Technology. Generally, you should not reset the alarm unless the alarm condition has been corrected.

Figure 4-5 Alarm Reset Screen

Button Functions;

- The **ENTER** Button prompts you again to make sure that you really want to reset this alarm as shown in Figure 4-6 *Ensure Alarm Reset Screen*.
- The **EXIT** Button displays the screen similar to the one shown in Figure 4-7 *Alarm to be Reset Screen* where the alarm is again displayed and you are asked whether you want to now reset it.

Ensure Alarm Reset Screen

The Ensure Alarm Reset Screen is an additional prompt to make certain that you really want to reset this alarm. Additionally, it informs you that you should reset the alarm only after repairs are performed.

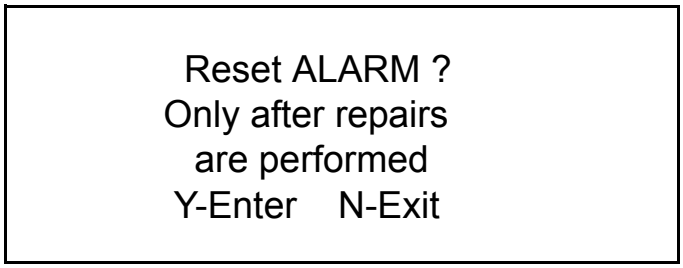

Figure 4-6 Ensure Alarm Reset Screen

Button Functions:

- The **ENTER** Button displays the Alarm is Reset Screen as shown in Figure 4-8 *Alarm is Reset Screen*.
- Pressing the **ENTER** Button resets the alarm, if the condition has been corrected. If the condition is not corrected, the alarm is reinstated and must be re-acknowledged.
- Pressing the **EXIT** Button twice does *not* reset the alarm but returns the screen to the View Menu with the cursor at the ALARM Display line.

Alarm to be Reset Screen

The monitor displays this screen after you have acknowledged a specific alarm and pressed the **ENTER** Button at the screen shown in Figure 4-5 *Alarm Reset Screen*.

Or, it displays this screen for acknowledged but unreset alarms if you press the **ENTER** Button twice at the ALARM Display line in the View Menu.

S#6 060600 11:03 AM
Strobe COMM Failure
Reset ?
Y-Enter N-Exit

Figure 4-7 Alarm to be Reset Screen

Button Functions:

- The **EXIT** Button returns the screen to the View Menu with the cursor at the ALARM Display line. At this point the alarm is still to be reset, but it has been acknowledged.
- The **ENTER** Button displays the screen shown in Figure 4-6 *Ensure Alarm Reset Screen* to make certain that you really want to now reset the alarm. After pressing the **ENTER** Button, the screen shown in Figure 4-8 *Alarm is Reset Screen* appears. Press the **ENTER** Button twice to return to the ALARM Display line in the View Menu. If you really did not correct the problem, you must press the Reset Button twice to return to the View Menu with the cursor at the ALARM Display line. A solid alarm returns in 15 seconds.

Alarm is Reset Screen

This is an information screen that informs you that you have reset the alarm.

ALARM
has been reset
press Enter
to continue

Figure 4-8 Alarm is Reset Screen

Button Functions:

- Pressing the **ENTER** Button twice returns the screen to the View Menu with the cursor at the ALARM Display line, if the alarm condition has been corrected. If it has not been corrected, the alarm is redisplayed as shown in Figure 4-4 *Alarm to be Acknowledged Screen*.

Graphic Display

The *Graphic Display* screen in Figure 4-9 *Graphic Display Screen; SSALR Mode* shows the current status of all installed strobes. The screen depicts the lights in three rows, strobe #1 being the topmost left position. The numerically last light is in the bottommost right position. Each symbol in a column represents one light. The strobes are indicated by one of three blinking symbols (**O**, **X, F**, or **S**).

O	Default view
●	A circle that "flashes" (fills solid) at a regular flash rate indicates a *properly working light* (no alarms).
X	The light is *not communicating*. The problem could be in the monitor, the light, or the communication cable.
F	An "F" indicates a *failed strobe*. It has reported an alarm.
S	The light is *shutdown*by the CCR or MGL relay. An individual lamp that is turned off shows as a failed lamp (X),

Graphic Display Screen

The drawing in Figure 4-9 *Graphic Display Screen; SSALR Mode* shows 15 installed strobes. Strobe #7 is not communicating. Strobe #2, #4, #6, #8, and #10 to #15 are shut down. All other strobes are functioning correctly.

Graphic Display Selection

Pressing the **ENTER** Button with the cursor at the Graphic Display line shown in Figure 4-1 *View Menu Selections* displays a graphic screen that shows the strobes in your system as described in Figure 4-9 *Graphic Display Screen; SSALR Mode*.

Graphic Display Screen

The Graphic Display Screen shows the system configuration of lights as a string of strobes from left to right and top to bottom. Thus, strobe #1 is at the top left of the display and the numerically

last strobe (S#15 in Figure 4-9) is at the bottom right of the display.
NOTE: The mode of system operation is shown at the bottom of the screen. Should an "INVALID MODE" message appear on the bottom line of the screen, the monitor is still trying to communicate with strobes that should be shut down. If this occurs, check the operation of the CCR or MGL relays. Also, check the individual light for correct setup or other problem.

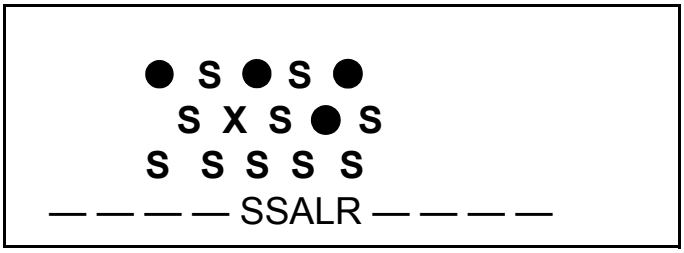

Figure 4-9 Graphic Display Screen; SSALR Mode
X: 7 is not communicating
S: strobe is off for SSALR mode

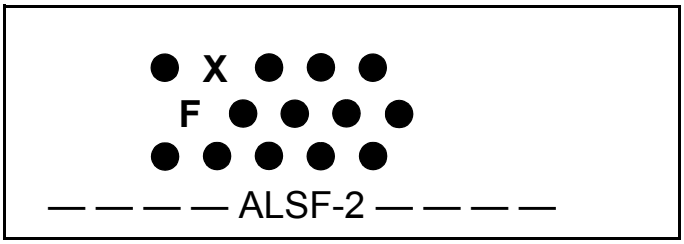

Figure 4-10 Graphic Display Screen; ALSF-2 Mode
X: 2 is not communicating
F: 6 shows failure

Button Functions:

- Any button returns the screen to the View Menu.

Date/Time Display

The screen shown in Figure 4-11 *Date/Time Display Screen* allows you to display the date and time, or change them.

To view or change the date and time, move the cursor to the Date/Time Display line shown in Figure 4-1 *View Menu Selections* and press the **ENTER** Button. The monitor displays the screen in Figure 4-11 *Date/Time Display Screen* with the cursor blinking on the second digit of the month.

Date/Time Display Screen

This screen shows the system calendar date and clock time at the time that you select the screen. When you select the screen, the cursor is blinking on the second digit of the month.

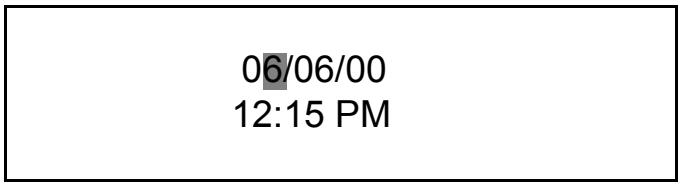

Figure 4-11 Date/Time Display Screen

Button Functions:

- To *leave* this menu option without making any changes and return to the *View Menu*, press the **EXIT** Button.
- To *cycle forward through the date and time digits* in the display press the **ENTER** Button. After cycling through the entire display, the last pressing of the **ENTER** Button accepts the values and returns the screen to the View Menu.
- To *change any digit* in the display, use the **UP** or **DOWN** Button when the cursor is covering that digit.
- The change the time from AM to PM, or PM to AM, place the cursor on the hour digit, and press and hold the **UP** or **DOWN** Button until the AM or PM changes appropriately. Continue to hold the **UP** or **DOWN** Button until the hour is set correctly.
- To *cycle backward through each position of the date and time digits* in the display press the **EXIT** Button repeatedly until the cursor is at the position you want.

Once you press the **ENTER** Button on the Date/Time Display line in the View Menu, the cursor is displayed on the date.

- Press the **UP** or **DOWN** Buttons to modify the value and press the **ENTER** Button to cycle through the other digits on the screen
- Again, press the **UP** or **DOWN** Buttons to modify the selected value.
- To save changes, cycle through the entire field with the **ENTER** Button until the screen returns to the View Menu.

NOTE

Pressing the EXIT Button before changing anything or pressing any other Button, returns the screen to the View Menu.

User Menu

See Section 5 — *Operation; User Menu* for a discussion of the items in the User Menu after you enter the correct password to display the User Menu.

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Section 5 — Operation; User Menu

User Menu

The User Menu adds functions available to you from the screen and retains all functions available from the View Menu. You access the User Menu from the *View Menu* by selecting ...more... then entering a password, as explained in Subsection *Accessing the User Menu (...more...)*. Figure 5-3 *User Menu Selections* shows only the additional functions not present in the *View Menu*.

You use the User Menu shown in Figure 5-3 *User Menu Selections* to perform certain system functions, such as:

- Install strobe to make a strobe position known to the FTM 181 Monitor.
- Set construction mode to modify the lights, or add or remove lights from the system. Alarms are not generated in construction mode.
- Change the password used to access the menus.
- Set Display Brightness to change the display screen brightness.
- Logoff the additional monitor menus and reinstate the View Menu only.

Accessing the User Menu (...more...)

You access the User Menu, which allows more extensive information and changes to system settings, by selecting ...more... in the View Menu then entering a password. Note that while you use the *User Menu* you can access all the functions of the *View* Menu.

To enter a password, see Subsection *Password Selection* and Subsection *Enter Password Screen*.

Password Selection

To change the password, move the cursor in the View Menu to the ...more... line in the screen shown in Figure 4-1 *View Menu Selections* and press the **ENTER** Button. The screen then displays the screen shown in Figure 5-1 *Enter Password Screen*.

Enter Password Screen

The Enter Password Screen allows you to enter the password required to display the User Menu. The initial password with a new system is ABCDE. To change the password, enter the User Menu with ABCDE and see Subsection *Change Password*.

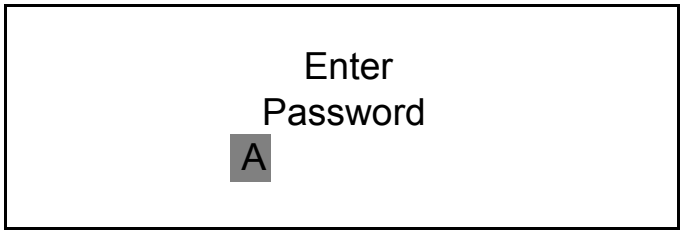


Figure 5-1 Enter Password Screen

Button Functions:

- Enter the password character by character. You may use either letters or numbers. The recognized characters are: A through Z, and 0 through 9. You enter a special character "**<**" as the last character of your password (added to the end of the password character string). This last character allows the monitor to accept the password.
- In the *Password* screen in Figure 5-1 *Enter Password Screen*, use the **UP** or **DOWN** Buttons to select the character you want, then press the **ENTER** Button to enter it. The character is replaced by an asterisk (*****) as a security measure to help assure that your password is not being viewed by unauthorized personnel as you enter it. The cursor moves to the second position.
- Use the **EXIT** Button to backspace over an incorrect character and erase it. The **EXIT** Button can erase the entire line in this way if you hold it down. After it erases all the charac-

ters back to the first one, its last action is to return the screen to the View Menu.

- Upon entering each character in the password, the screen presents you with that same character as the first candidate for the next letter. For example, if you select **E** as the third letter, the screen immediately shows an E in the forth place also. Then use the **UP** or **DOWN** Button from that point in the alphabet until you reach the letter you want. Scroll in either direction for any letter, because the list of characters is circular without an ending point.
- Upon entering all the characters in the password, scroll to the "**<**" character and press the **ENTER** Button. A correct password expands the menu structure to allow access to both the View and User Menus by continuous scrolling with the **UP** and **DOWN** Buttons.
- An incorrect password displays the screen in Figure 5-2 *Incorrect Password Screen*.

Incorrect Password Screen

The screen in Figure 5-2 *Incorrect Password Screen* appears if you enter the incorrect password.

You can change the password by using the information described in Subsection *Change Password*. If you have changed the password, you must enter the one to which you have changed. *If you cannot remember the new password, and therefore cannot enter the User Menu, you must* ***call FTCA Customer Service.***

Incorrect entry or
format. Please refer
to user's manual and
try again.

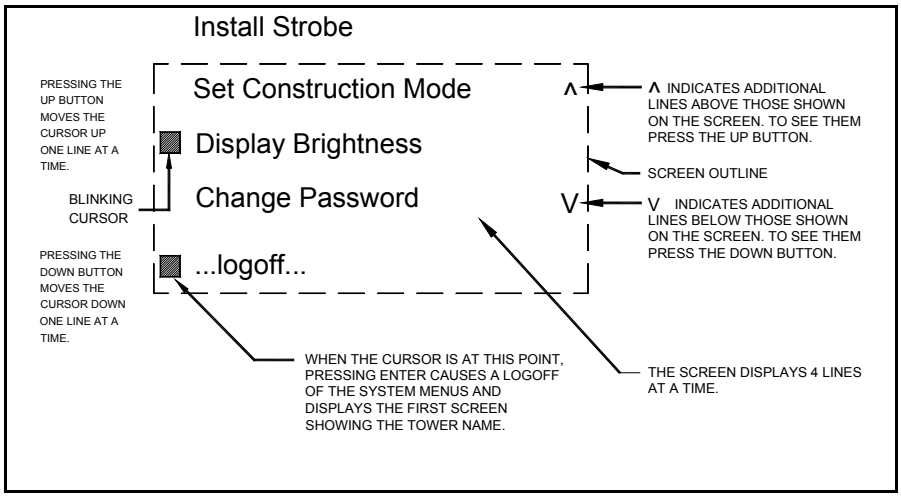
Figure 5-2 Incorrect Password Screen

Button Functions:

- The **ENTER** Button or the **EXIT** Button return the screen to the ...more... line in the View Menu.

User Menu Selections

The User Menu has five selections but the screen displays only four lines at a time. Thus, you must use the **UP** and **DOWN** Buttons to move the screen over the selections. Figure 5-3 *User Menu Selections* shows you these selections.



50001

Figure 5-3 User Menu Selections

Install Strobe and Set SSALR Mode

Use Install Strobe to make a strobe at a particular location in a lighting system *known to the monitor*. If the strobe is not installed, the monitor displays the screen in Figure 5-4 *Install Strobe Screen - Not Yet Installed*, which allows you to install the strobe at the required location. If the strobe is installed, the monitor displays the screen shown in Figure 5-5 *Install Strobe Unit Screen — Strobe Installed*, which allows you to uninstall the strobe.

To install or remove a strobe, press the ENTER Button with the cursor at the Install Strobe selection line shown in Figure 5-3 *User Menu Selections*.

If the strobe is not installed, the ENTER Button displays the screen shown in Figure 5-4 *Install Strobe Screen - Not Yet Installed*. If the strobe is installed, the screen shown in Figure 5-5 *Install Strobe Unit Screen — Strobe Installed* is displayed.

Install Strobe Unit Screen — Not Yet Installed

If the strobe is not installed and you press the ENTER Button with the cursor at the Install Strobe line in Figure 5-3 *User Menu Selections*, the monitor displays the screen shown in Figure 5-4 *Install Strobe Screen - Not Yet Installed* to allow you to install the strobe.

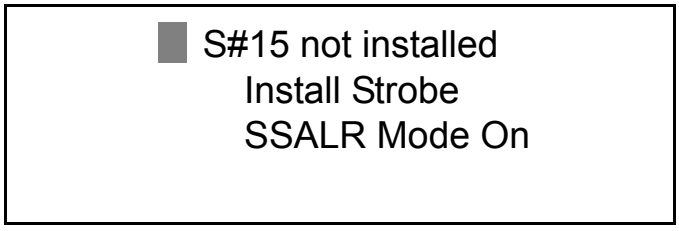


Figure 5-4 Install Strobe Screen - Not Yet Installed

Button Functions in the Install Strobe Unit — Not Yet Installed Screen: The buttons have the following functions:

1. With the cursor on the first line as shown in Figure 5-4 *Install Strobe Screen - Not Yet Installed*, the UP and DOWN Buttons cycle the system light positions sequentially through the locations. For example, starting at S#1, pressing the UP Button once moves the address to S#2 (the DOWN Button moves it back to S#1).
2. After you select the address, the ENTER Button moves the cursor to the Install Strobe line. Press the ENTER Button again here to install the strobe. The DOWN button moves the cursor to the SSALR Mode line, where you can turn on or off SSALR Mode by pressing the ENTER button.
3. After you install the strobe, the monitor displays the screen shown in Figure 5-5 *Install Strobe Unit Screen — Strobe Installed*. Note that the option is now to remove the strobe.
4. If you now press the EXIT Button twice with the cursor as shown in Figure 5-5 *Install Strobe Unit Screen — Strobe Installed*, the cursor moves to the top line and then the monitor displays the User Menu screen shown in Figure 5-3 *User Menu Selections*.

Install Strobe Unit Screen — Strobe Installed

Once the strobe is installed, as shown in Figure 5-5 *Install Strobe Unit Screen — Strobe Installed*, you can remove the strobe from installation making it unknown to the monitor.

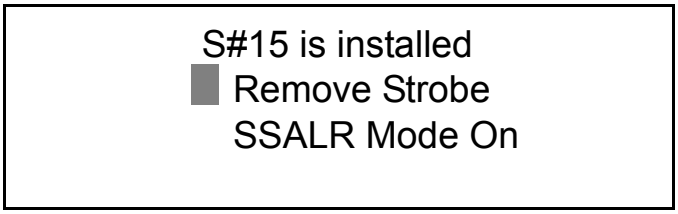


Figure 5-5 Install Strobe Unit Screen — Strobe Installed

Button Functions in the Install Strobe — Strobe Installed Screen: The UP or DOWN Button moves the cursor.

Construction Mode

You use Set Construction Mode to change the installation units or when the lights are being installed and the lights are connected one at a time. Changes to the lighting systems could occur during construction. These could be, for example: the strobes, power converters, or light configuration. Construction Mode prevents alarms.

In construction mode, when actually changing strobes, the Graphic Display (see Subsection *Graphic Display Screen*) shows new lights appearing on the screen as they are connected, or disappearing as they are disconnected.

The monitor recognizes the new light and adds the light to its list of installed lights. After construction mode is completed, the monitor has automatically installed all the lights.

Set Construction Mode Selection

To set Construction Mode, move the cursor in the User Menu to the Set Construction Mode line shown in Figure 5-3 *User Menu Selections*. Press the **ENTER** Button. The **ENTER** Button causes the display of the screen shown in Figure 5-6 *Set Construction Mode Screen*.

Construction Mode Screen

The Set Construction Mode screen allows you to turn construction mode on or off for the lighting system. You use this screen while the system is being constructed.

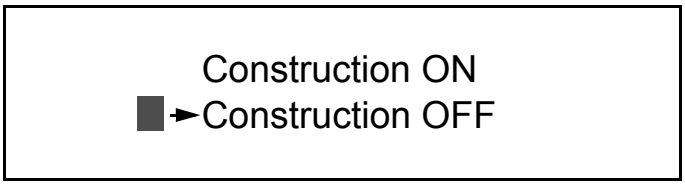


Figure 5-6 Set Construction Mode Screen

Button Functions:

- The **UP** or **DOWN** Buttons move the cursor to either Construction ON or Construction OFF.
- The **ENTER** Button moves the small arrow shown next to the currently operative selection to the one you select with the **UP** or **DOWN** Button.
- The **EXIT** Button makes the selection operative and returns the display to the User Menu with the cursor next to the Set Construction Mode line.

Display Brightness

The screen in Figure 5-7 *Display Brightness Screen* allows you to adjust the brightness of the display on the monitor to your preference from BRIGHTEST, through BRIGHT and MEDIUM, to DIM DISPLAY.

Display Brightness Selection

To adjust display brightness on the monitor screen, first move the cursor to the Display Brightness line in Figure 4-1 *View Menu Selections*. Press the **ENTER** Button.

Display Brightness Screen

This screen allows you to change the brightness of the display on the monitor screen. After entering this screen, move the cursor to the brightness you want and press the **ENTER** Button. The screen immediately changes to that brightness.

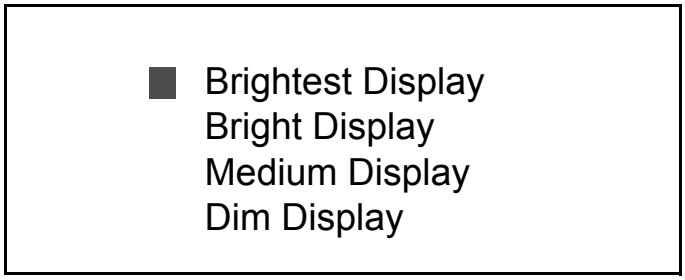


Figure 5-7 Display Brightness Screen

Button Functions:

- To change the brightness, select the desired brightness by moving the cursor with the **UP** or **DOWN** Button, then press the **ENTER** Button. You remain in this screen, and pressing the **ENTER** Button again has no effect (unless you first select a different brightness).

- The **EXIT** Button returns the screen to the *View Menu*.

Change Password

The *User Menu* is password-protected. To change the password, you must be in the *User Menu* and you must *know* the password. In fact, it is the password you enter that determines which menu you access. Access to the *User Menu* includes the *View Menu*.

Note

If you forget your password, a service person must work on your unit to select a new password for you. To save yourself from this costly embarrassment, be careful when you change your password. If you're suddenly interrupted, you could lose it in a second.

Change Password Selection

Move the cursor with the **UP** or **DOWN** Buttons to the Change Password line shown in Figure 5-3 *User Menu Selections*. Press the **ENTER** Button.

Change Password Screen

The Change Password Screen displays the current password as ten asterisks. You may enter a new password of ten characters: digits or upper-case letters.

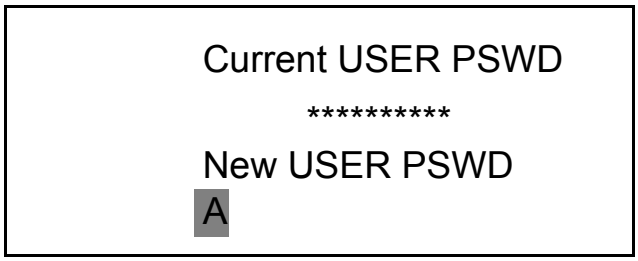


Figure 5-8 Change Password Screen

Button Functions:

- The **UP** or **DOWN** Button changes the letter at the position indicated at the cursor.
- Press the **ENTER** Button to enter the letter and move the cursor to the next position. The letter displayed at the next position is a copy of the one previously entered.
- Press the **EXIT** Button to delete a character and return to the previous character position. If you hold down the **EXIT** Button, the cursor moves backward deleting all the characters.
- At one character past the end of the password, select the "<" character, then press the **ENTER** Button. Doing this enters the new password into the monitor. The new password is now active, but you must log off the system for the new password to be saved for future use. Be certain to record the new password in a safe place.

Logoff

The Logoff selection in the User Menu removes all menus from the display except the View Menu, and returns the screen to the initial screen shown in Figure 3-2 *New Starting Screen*.

Logoff Screen

The Logoff Screen shown in Figure 5-9 *Logoff Screen* is the last selection in the User Menu. Move the cursor to the ...logoff... selection line and press the **ENTER** Button to logoff the monitor from all menus except the View Menu.

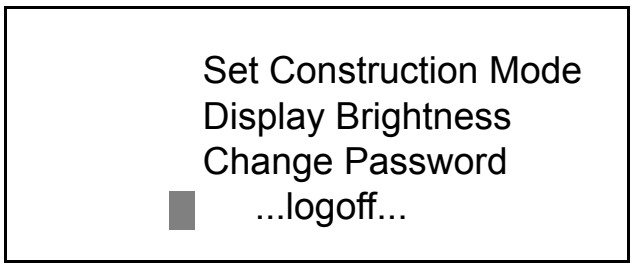


Figure 5-9 Logoff Screen

Button Functions:

- Press the **ENTER** Button to log off.
- Press the **UP** Button to return to the previous menu selections and screens.

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Section 6 — Replaceable and Spare Parts

Customer Service

Customer Service: 1-800-821-5825
Telephone: (615)-261-2000
Facsimile: (615)-261-2600

Shipping Address:
Flash Technology Corporation of America
322 Nichol Mill Lane
Franklin, TN 37067

Ordering Parts

To order spare or replacement parts, call FTCA Customer Service.

Monitor Parts

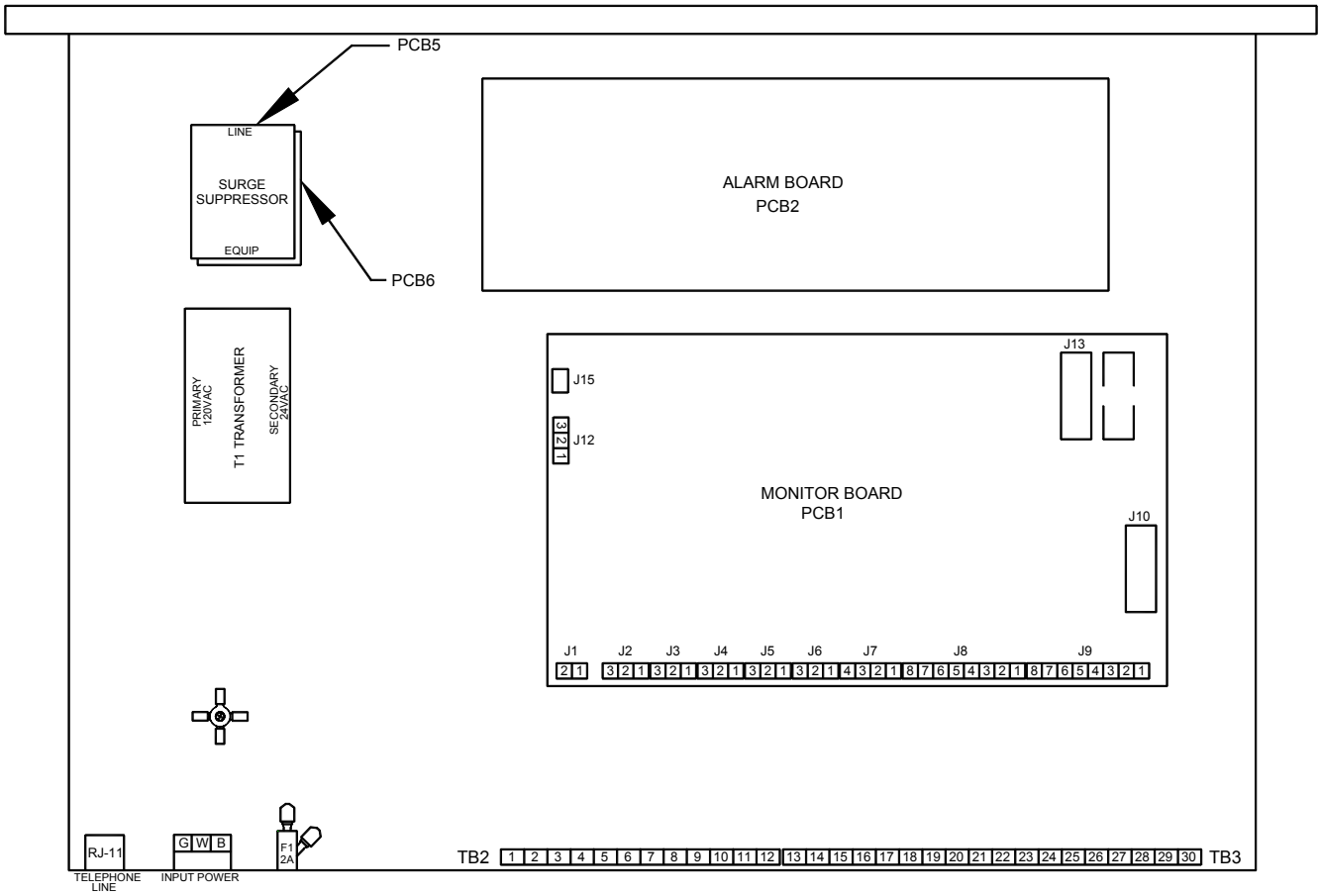
Monitor parts are listed in Table 6-1 *Monitor Replaceable Parts*.

Table 6-1 Monitor Replaceable Parts

Item	Description	Part Number Reference
F1	Fuse	*4900342
TB3	Terminal Block, 18-position	4901930
TB2	Terminal Block, 12-position	4902074
T1	Power Transformer	*4902971
PCB1	4121 monitor PCB	**2412118
PCB2	Alarm Board	2412201
PCB3	Switch Board	2737301
PCB4	Board, LED	2742901
PCB5	Surge Suppressor Board	2865302
PCB6	Surge Suppressor Board	2865301
Phone Connector	Connector, Phone	5902017

* This part number may vary according to the specific equipment voltage configuration.

** The part number for the monitor PCB may vary with the specific installation. When you order this part, call Customer Service. The part number varies with types of internal board programming for lighting configuration and scheme. Be prepared to answer questions about the type, number, lighting sequence, and arrangement of lights.



60001

Figure 6-1 FTM 181 Monitor Component Locations

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