FLASH
T E C H N O L O G Y
A Dielectric Company

SN

FTC 121-2 System Controller

User Manual

Front Matter

Abstract

This manual describes the *Operation, Installation,* and *Maintenance,* of the FTC 121-2 System Controller.

Copyright

Trademark Acknowledgments

Flash Technology Corporation of America® is a registered trademark name. ElectroFlash™ is a trademark of Flash Technology Corporation of America.

All trademarks and product names mentioned are properties of their respective companies, and are recognized and acknowledged as such by Flash Technology Corporation of America.

Applicable Specification

This equipment meets or exceeds requirements for controlling FAA Type L-856 high intensity white obstruction lights, L-865 medium intensity obstruction lights, and L-864 red obstruction lights described in Advisory Circular 150/5345-43E.

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 and could invalidate the assurance of complying with FAA requirements for controlling high and medium intensity lights as published in Advisory Circular 150/5345-43.

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.

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.

Table of Contents

Table of Contents (cont'd)

Table of Contents (cont'd)

Table of Contents (cont'd)

List of Tables

List of Figures

List of Figures (cont'd)

This page is intentionally left blank.

Section 1 — Introduction

The FTC 121-2 SMART (System Monitoring And Reporting Telemetry) Controller is a comprehensive technical solution for monitoring and controlling your obstruction lighting system.

System

The FTC 121-2 can control either a standard or a dual system. A *standard* system consists of multiple white flashing lights located on one or more structures. All of the strobe lights interact with a system controller.

A *dual* system consists of a standard system that has been expanded to include a system of red obstruction lights. The red lights are operated at night and includes incandescent red marker lights (side lights).

Features include:

- Monitoring, diagnosing, storing and communicating system events with no human intervention.

- Polling continually each light for adequate daytime intensity; and checking the photocell for daily operation.

- Issuing commands to the lighting units and routinely polling them for status information on vital functions.

- Restarting the system and resuming normal operation in the event of an operational disruption (for example, power line surges).

Remote Monitoring and Control Option: Eagle Software

The FTC 121-2 allows the EAGLE software to operate it by computer from a remote location over a telephone line. This software runs on Microsoft Windows and interfaces with one or more FTC 121-2 systems by using a modem and a telephone line, allowing you to monitor and control your lighting systems *from any distance.* EAGLE allows you to permanently store, analyze and print any of the information collected by the FTC 121-2 Controller about your beacons.

This page is intentionally left blank.

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 controller cover.

FTC 121-2R Controller

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

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

FTC 121-2W Controller

The wall-mounted controller 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 controller 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 structure lighting system uses one FTC 121-2 System Controller and one PEC 510 Photocell. 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 controller. Ground the controller chassis to the site grounding system.

FTC 121-2R Controller

Mounting and outline dimensions for the controller are shown in *Figure 2-1 FTC 121-2R Controller Mounting and Outline* on Page *2-3*.

FTC 121-2W Controller

Mounting and outline dimensions for the controller are shown in *Figure 2-2 FTC 121-2W Controller Mounting and Outline* on Page *2-4*.

PEC 510 Photocell

Mounting dimensions for the PEC 510 Photocell are shown in *Figure 2-3 PEC 510 Photocell Mounting and Outline* on Page *2-5*. Mount the photocell vertically at the top end of a vertical length of conduit to prevent water from entering and damaging the unit. Point the photocell toward the polar sky and ensure that the cell is not struck by artificial light.

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.

External Connections

Refer to Figures *2-4* and *2-5*. The connections on the rear panel have the following functions:

- TB2-1 to TB2-2: Connection for the PEC 510 Photo-cell

- TB2-5 to TB2-6: Connections for the Communications Link shielded cable or twisted pair to the beacons.

- 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 merely serve as transfer contacts for your external alarm circuitry. These contacts are rated at 120VAC, 1A.

- TB2-11 to TB2-12: Connection for an FTW-170 Wireless sync unit.

- TB3-15 to TB3-16: Red System Start — Provides contacts that open or close to control the coil on a start relay of an external red system controller.

- TB3-29 to TB3-30: Provides 24 VAC power for the FTW-170 Wireless Sync unit.

- TB3-17 to TB3-18: Red system fail input. Shorting these contacts indicates normal operation of the exter-

nal red system. Opening the contacts indicates failure and forces the system into white backup operation. Typically, this input would be connected to the normally closed alarm contacts of the external red system.

- TB4, TB5: Beacon alarm contacts (15) that open if a failure is detected on the designated beacon. These can be configured through the user interface to alarm either by individual beacon or by tier.

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 controller agrees with the service power provided.
4. Consult site installation drawings for placement, mounting, wiring details, and power phasing.
5. Position and mount the controller correctly, allowing adequate clearance for air circulation, for sliding out the controller from the rack, for access to the rear panel wiring, and for opening the controller cover.
6. Ground the controller chassis.
7. Ensure that the photocell is mounted vertically at the top end of a vertical length of conduit to prevent water from entering and damaging the unit. Point the photocell toward the horizon of the polar sky and ensure that the cell is not struck by artificial light.

NOTE:
DIMENSIONS ARE IN INCHES (MILLIMETERS)

20001
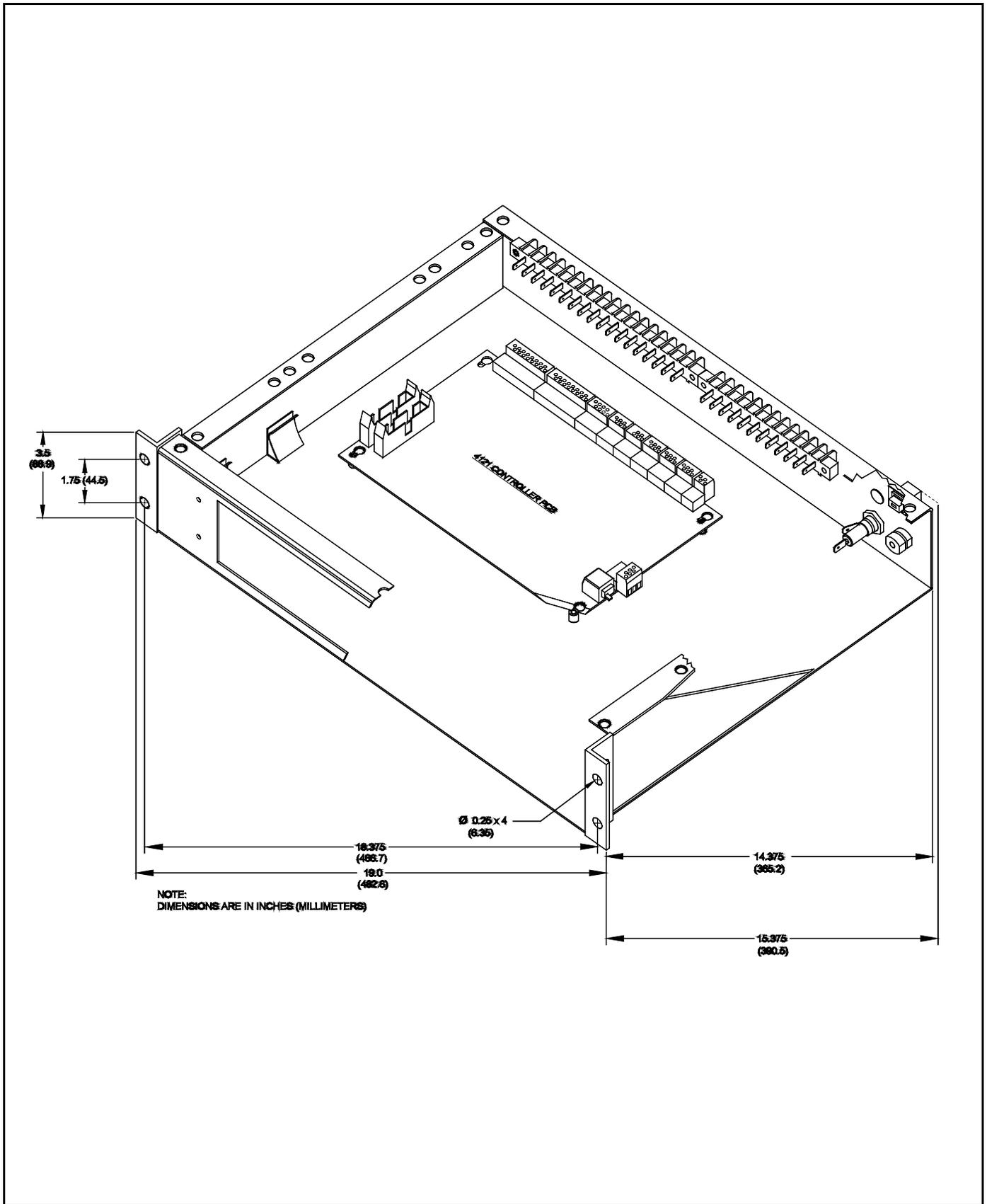
Figure 2-1 FTC 121-2R Controller Mounting and Outline

Figure 2-2 FTC 121-2W Controller Mounting and Outline

2.58 (65.5)

2.275 (57.8)

1.02 (25.9)

0.10 (2.54)

0.375 (9.53)

1.92 (48.76)

0.33 (8.38)

3.06 (77.7)

0.125 (3.175)

HEX 1.0 (25.4)

1/2" NPT

NOTE: ALL DIMENSIONS ARE IN INCHES (MILLIMETERS)

20003

Figure 2-3 PEC 510 Photocell Mounting and Outline

Figure 2-4 Installation Wiring
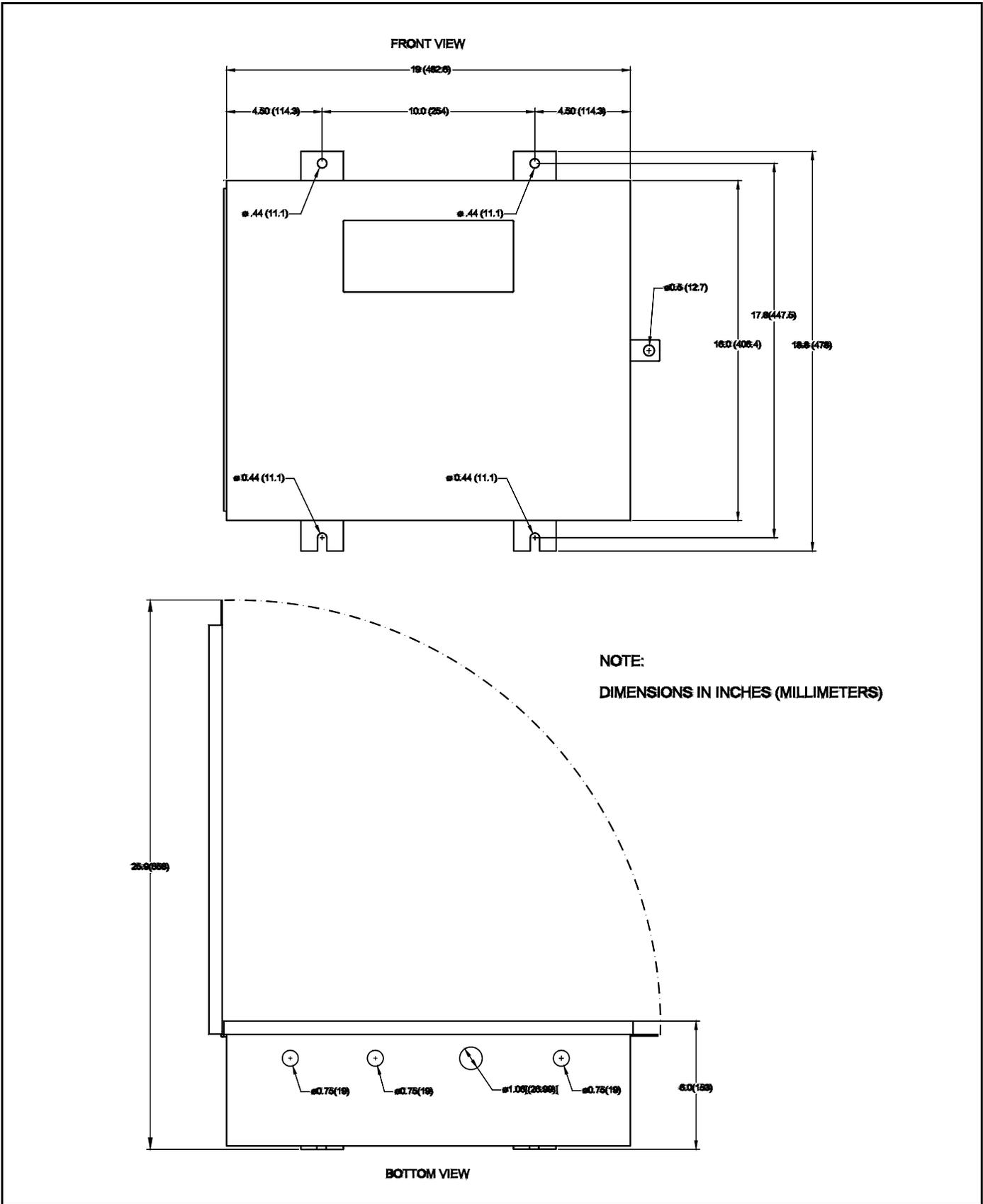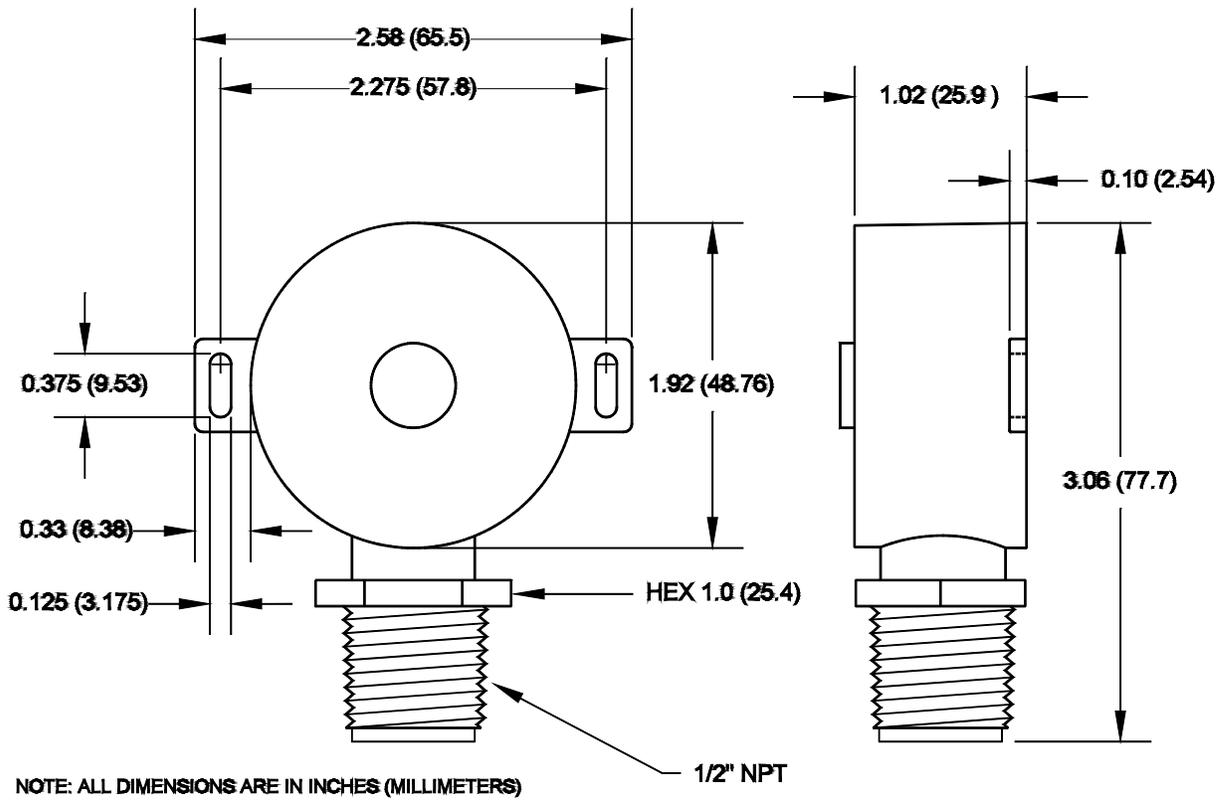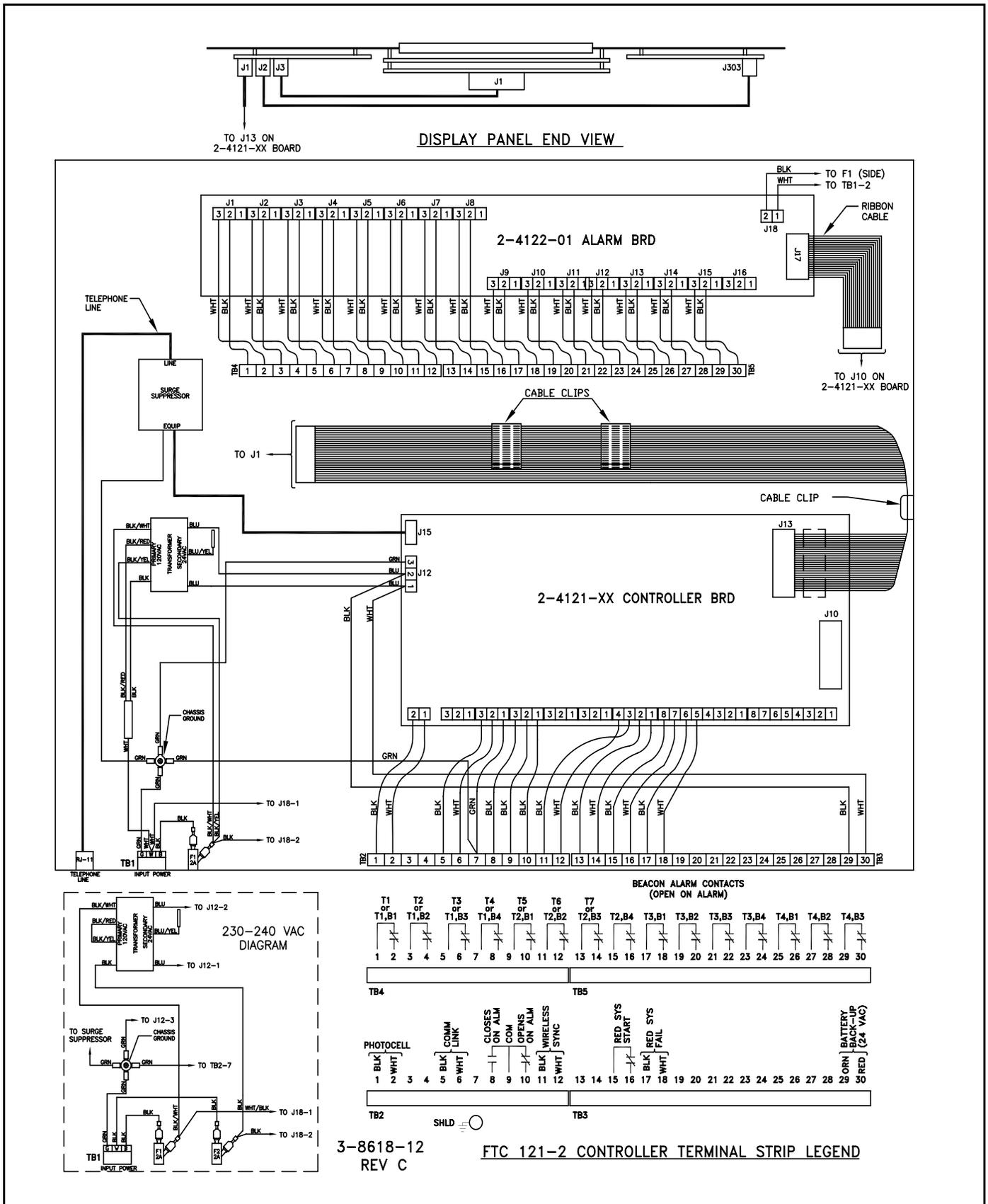
Figure 2-5 FTC 121-2R/W Internal Wiring

This page is intentionally left blank.

Section 3 — Operation

This section of the manual provides general information about the operation of the front panel of the FTC 121-1 System Controller. The controller 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 controller. Sections 4 and 5 provide the screens and menus in the order of their appearance on the front panel of the controller.

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 FTC 121-1 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 beacons. You first acknowledge the presence of the alarm, then you reset the alarm after fixing the problem.

- Graphic display — Shows the beacon arrangement in a tower structure. Failing beacons are indicated.

- Manual Intensity Select — Sets the intensity of the operation to one of three modes regardless of photocell control: night, twilight, or day.

- Display Brightness — Sets the brightness of the display screen on the controller.

- Date/Time Display — Shows and allows changing the date and time of the controller's screen display and current operation.

- Intensity Change Times — Shows the times at which the controller changes intensity from day to twilight, twilight to night, and night to day, if operating without a PEC. These can be changed in the User Menu.

- Communications Status — Checks whether the communications between the controller and the connected beacons is functioning properly.

- ...more... — Allows entering the user password to view the User Menu.

User Menu

- Diagnostics — Screens that show various operating parameters of the beacons on the tower. These are indicated for each beacon.

- Set Intensity Change Times — Changes the times at which the controller changes intensity of operation if the PEC is disconnected.

- Alarm Call Out Phone Numbers — Enters the phone numbers of the remote location to which alarms are reported. The remote location must have EAGLE Software installed on a PC-compatible computer.

- Status Call Out Phone Numbers — Enters the phone numbers of the remote location to which status codes are reported. The remote location must have EAGLE Software installed on a PC-compatible computer.

- Install PEC — Informs the controller that the PEC is installed or not installed. If not installed, the controller uses the default intensity change times previously set.

- Set Tower Name — Names the tower for unique identification of the installation for service and remote control.

- Change Password — Changes the password required to access the User Menu.

- Set Number of Rings — Sets the number of rings accepted before the internal modem answers a call from the remote computer location.

- Set Construction Mode — Informs the controller that tower construction is in progress. This setting prevents alarms and status codes while the tower is under construction.

- Logoff — Allows logging off all menu systems and returns the controller to displaying the View Menu only.

- Backup Mode — Switch the system between primary and backup flashheads, if equipped.

- Alarm Relay Mode — Alarm relay can be configured to alarm either by beacon or by tier.

Directory of Available Screens

A directory of available screens and subscreens in *Table 3-1 Sequential Directory of View and User Screens* on Page 3-2 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 3-6	Figure 3-3 *No Alarms Present Screen* on Page *3-6*
	ALARM Display Selection Screen	Figure 4-2 Page 4-3	Figure 4-3 *Alarms Present Screen* on Page *4-4*
			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 *4-5*
			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 4-9 Page 4-6	Figure 4-9 *Graphic Display Screen* on Page *4-6*
	Manual Intensity Selection	Figure 4-10 Page 4-7	Figure 4-10 *Intensity Select Screen* on Page *4-7*
	Display Brightness Selection	Figure 4-11 Page 4-7	Figure 4-11 *Display Brightness Screen* on Page *4-7*
	Date/Time Display Selection	Figure 4-12 Page 4-8	Figure 4-12 *Date/Time Display Screen* on Page *4-8*
	Intensity Change Times Selection	Figure 4-13 Page 4-9	Figure 4-13 *Intensity Change Times Display Screen* on Page *4-9*
	General Information Selection	Figure 4-14 Page 4-9	Figure 4-14 *General Information Screen* on Page *4-9*
	Communications Status	Figure 4-15 Page 4-10	Figure 4-15 *Communication Status Screen - No Problems* on Page *4-10*
			Figure 4-16 *Communication Status Screen - Problems* on Page *4-10*

Table 3-1 Sequential Directory of View and User Screens (Continued)

Menu	Main Screen or Menu Line	Screen Reference	Sub-Screen
	Password Selection	Figure 5-1 Page 5-1	Figure 5-1 *Enter Password Screen* on Page *5-1*
			Figure 5-2 *Incorrect Password Screen* on Page *5-2*
User	*User Menu Selections*	Figure 5-3 Page 5-3	Figure 5-3 *User Menu Selections* on Page *5-3*
	Diagnostics Displays	Figure 5-3 Page 5-3	Figure 5-4 *Total Flashes Screen* on Page *5-5*
			Figure 5-5 *Day Flashes Screen* on Page *5-5*
			Figure 5-6 *Twi Flashes Screen* on Page *5-6*
			Figure 5-7 *Nite Flashes Screen* on Page *5-6*
			Figure 5-8 *Red Flashes Screen* on Page *5-6*
			Figure 5-9 *Internal Temp Screen* on Page *5-7*
			Figure 5-10 *Line Voltage Screen* on Page *5-7*
			Figure 5-11 *Trig. Voltage Screen* on Page *5-7*
			Figure 5-12 *Bank Voltage Screen* on Page *5-7*
			Figure 5-13 *Day Energy Screen* on Page *5-8*
			Figure 5-14 *Twi Energy Screen* on Page *5-8*
			Figure 5-15 *Night Energy Screen* on Page *5-8*
			Figure 5-16 *Red Energy Screen* on Page *5-9*
			Figure 5-17 *Mode Flashes Screen* on Page *5-9*
			Figure 5-18 *Mode Triggers Screen* on Page *5-9*
			Figure 5-19 *Marker Voltage Screen* on Page *5-10*
			Figure 5-20 *# Marker Bulbs Screen* on Page *5-10*
			Figure 5-21 *Firmware Number and Version Screen* on Page *5-10*
	Set Intensity Change Times Selection	Figure 5-22 Page 5-11	Figure 5-22 *Set Intensity Change Times Screen* on Page *5-11*
	Alarm Call Out Phone Numbers Selection	Figure 5-23 Page 5-12	Figure 5-23 *Alarm Call Out Phone Numbers Screen* on Page *5-12*
	Status Call Out Phone Number Selection	Figure 5-24 Page 5-12	Figure 5-24 *Status Call Out Phone Numbers Screen* on Page *5-12*
	Install PEC Selection	Figure 5-25 Page 5-13	Figure 5-25 *Install PEC Screen* on Page *5-13*
	Set Tower Name Selection	Figure 5-26 Page 5-13	Figure 5-26 *Set Tower Name Screen* on Page *5-13*

Table 3-1 Sequential Directory of View and User Screens (Continued)

Menu	Main Screen or Menu Line	Screen Reference	Sub-Screen
	Change Password Selection	Figure 5-27 Page 5-14	Figure 5-27 *Change Password Type Screen* on Page *5-14*
			Figure 5-28 *Change Password Screen* on Page *5-14*
	Set Number of Rings Selection	Figure 5-29 Page 5-15	Figure 5-29 *Set Number of Rings Screen* on Page *5-15*
	Set Construction Mode Selection	Figure 5-30 Page 5-15	Figure 5-30 *Set Construction Mode Screen* on Page *5-15*
	Backup Mode Selection	Figure 5-31 Page 5-16	Figure 5-31 *Backup Mode Screen* on Page *5-16*
	Set Alarm Relay Mode Selection	Figure 5-32 Page 5-16	Figure 5-32 *Alarm Relay Mode Screen* on Page *5-16*
			Figure 5-33 *Logoff Screen* on Page *5-17*

Operation Panel

The operation panel, located on the front of the FTC 121-1 Controller, 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*.
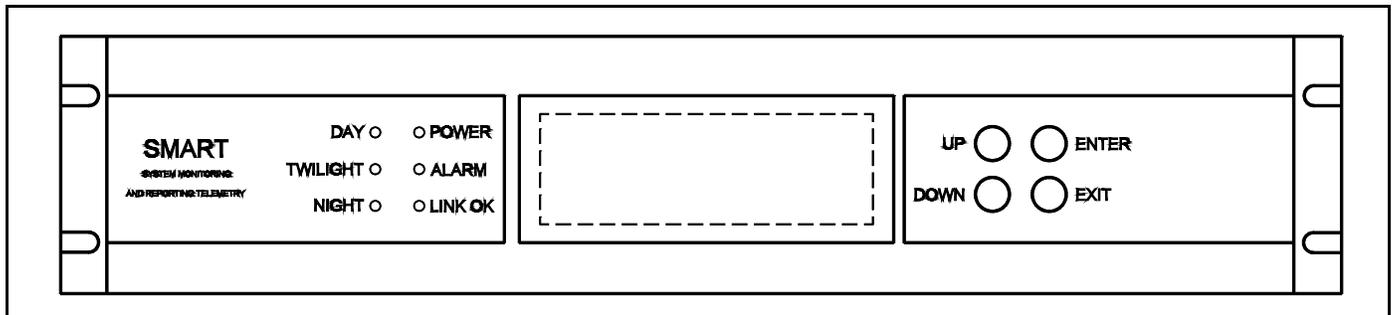
30001

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 controller and the light units is operating correctly. If this LED is *off*, an alarm or status code is generated.
DAY	Steady or blinking yellow	Steady yellow when the system is in *Day* intensity under automatic *photocell* control. It blinks yellow if the system is in *manual Day* mode.
TWILIGHT	Steady or blinking yellow	Steady yellow when the system is in *Twilight* intensity under automatic *photocell* control. It blinks yellow if the system is in *manual Twilight* mode.
NIGHT	Steady or blinking yellow	Steady yellow when the system is in *Night* intensity under automatic *photocell* control. It blinks yellow if the system is in *manual Night* mode.

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

You can see three types of screens: *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.

As a user, two menus concern you: 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. You access the User Menu through the View Menu with a password, and then access 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 Saver

If you see a rapidly spinning bar cursor, it is a screen-saver function. To restore the text, press any button.

If you do not operate the controller front panel for a time, the screen reverts to the View Menu only. You then must reenter the password to see the User Menu. However, note that to return to only the View Menu display you must logoff from the User Menu (see *Section Logoff Screen on Page 5-17*).

Opening Screens

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

New Starting Screen

The first screen to appear with a new controller is shown in *Figure 3-2 New Starting Screen*. This screen displays the tower name, which can be changed (see *Section Set Tower Name Selection on Page 5-13*).

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.
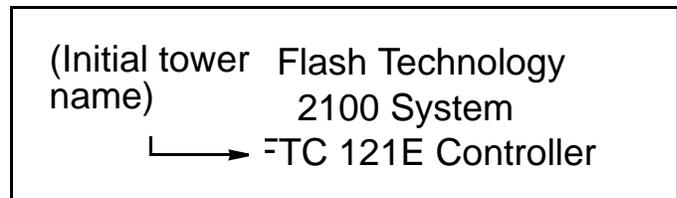
Figure 3-2 New Starting Screen

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* on Page *4-4*.

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*.
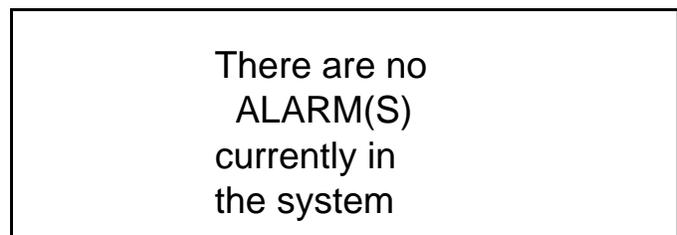
Figure 3-3 No Alarms Present Screen

Button Functions:

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

View and User Menus

See *Section View Menu* on Page *4-1* for a discussion of the remaining lines in the View Menu. See also Figure 5-3 *User Menu Selections* on Page *5-3* 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.
- Select a manual intensity mode.
- Select a display brightness for the screen.

- Display or set the correct date and time for the controller.
- Display the times that intensity changes should occur for your structure lights.
- Display general system information (master or slave, type of strobes, controller version).
- Status of the communications between the controller and lights.
- Enter a password to view the User or Service menus.
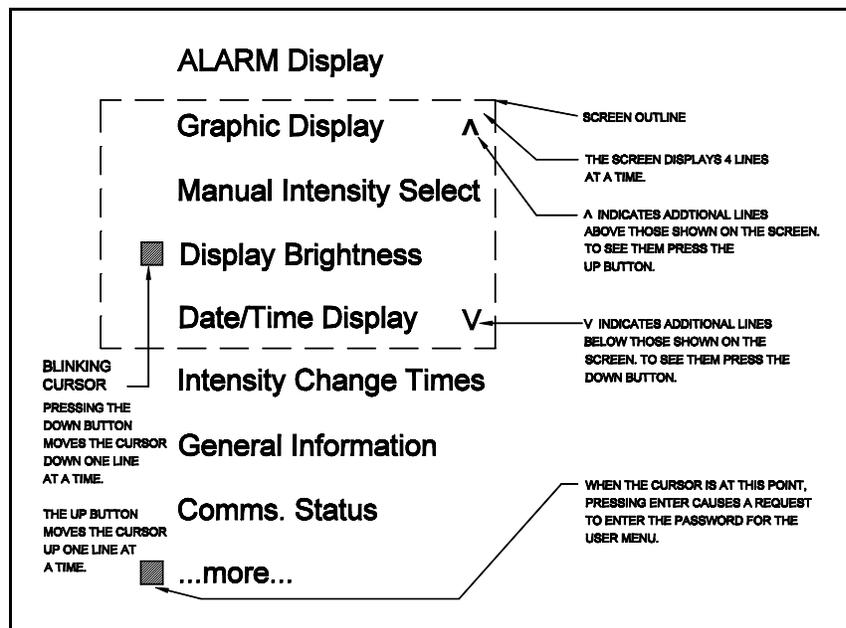
40001

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 *Section Accessing the User Menu (...more...)* on Page *5-1*.

After the initial screen discussed in *Section New Starting Screen* on Page *3-6*, the first available selection in the View Menu is the ALARM Display. If you press a key, the controller 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.

Acknowledge or Reset an Alarm

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 *Section 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* on Page *4-4* 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* on Page *4-4*.

Remote Notification of Alarms

The FTC 121-1 Controller allows you to specify phone numbers for remote alarm notification. If an alarm occurs, the controller dials the previously specified phone numbers to notify appropriate personnel. You set the phone numbers as shown in *Figure 5-23 Alarm Call Out Phone Numbers Screen on Page 5-12*.

Additionally, alarms transfer a set of isolated relay contacts in the controller. The connections to these contacts are available at the terminal strip connections on the back of the FTC 121-1 Controller 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.

Alarm Displays

Alarm Messages report system conditions that are either failures or may indicate approaching failures. The controller indicates an alarm when a strobe misses three consecutive flashes. 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*

> **NOTE**
> Unless otherwise indicated, you should notify FTCA Service in the case of any alarms. The controller notifies FTCA by telephone if the FTCA Service phone number is programmed as an Alarm Call Out phone number.

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* on Page *4-4*. If you acknowledge the alarm, the controller then prompts you to determine if you want to reset the alarm as shown in *Figure 4-5 Alarm Reset Screen* on Page *4-4*. If all alarms are acknowledged, an unreset alarm causes the display of the screen in *Figure 4-3 Alarms Present Screen* on Page *4-4*.

Alarm Conditions

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

- Power Restored — The strobe lost power.
- Strobe COMM Failure — Communication between FTC 121-1 Controller and a beacon repeatedly failed.
- Strobe DAY Alarm — A beacon failed to flash in day mode.
- Strobe TWI Alarm — A beacon failed to flash in twilight mode.
- Strobe NITE Alarm — A beacon failed to flash in white night mode.
- Strobe RED Alarm — A beacon failed to flash in red night mode.
- Marker Alarm — The number of burned out markers in a tier have exceeded the lower limit alarm threshold for that tier.
- Filter Alarm — The filter in a flashhead with a filter actuator mechanism has failed.
- Strobe Failure — A strobe has failed to flash three consecutive times.
- Ext Beacon Fail—The external red light controller signalled that a red beacon in a dual system has failed.
- Twilight PEC Error —The photocell failed to signal the a transition from day to twilight
- Night PEC Failure—The photocell failed to signal the transition from twilight to night.
- Photocell Failure — The photocell failed to change state within a 19-hour period.
- Invalid PEC Response—The photocell is operating incorrectly or is connected incorrectly.

Specific Beacon Alarm

When a faulty condition involves a particular beacon (as opposed to the system as a whole), the screen shown in *Figure 4-4 Alarm to be Acknowledged Screen* on Page *4-4* specifies the beacon and the time of occurrence of the condition. Beacons are specified by their tier and their position in the tier. For example, T2B3 is the third beacon on tier two. The FTC 121-1 Controller can operate a system of up to 7 tiers, with up to 4 beacons per tier, for a total of up to 28 beacons.

Alarm Display Selection Screen

If you press the **ENTER** Button at the initial screen shown in *Figure 3-2 New Starting Screen* on Page *3-6*, *and system alarms are present,* the controller displays the screen shown in *Figure 4-3 Alarms Present Screen* on Page *4-4*. 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* on Page *4-1*, the controller displays the *Figure 4-3 Alarms Present Screen* on Page *4-4*.

Otherwise, if you press the **ENTER** Button without alarms present, the controller displays *Figure 3-3 No Alarms Present Screen* on Page *3-6*.

```
     ▮   ALARM Display
         Graphic Display
       Manual Int. Select
        Display Brightness      V
```

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* on Page *3-6*.

- 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* .

```
            System
          ALARMS(S)
         press any key
          for details
```
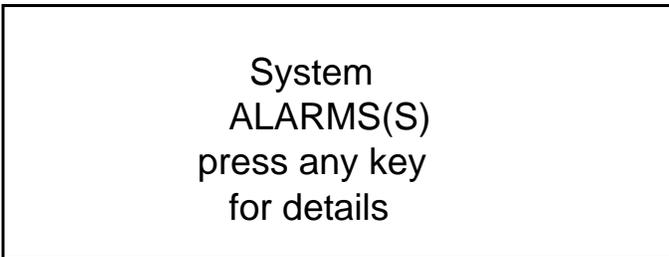
Figure 4-3 Alarms Present Screen

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* on Page *4-5*.

- 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 TxBx, where Tx is the Tier number, and Bx is the Beacon number on that tier. The screen displays a brief description of the alarm; the one in *Figure 4-4* shows Strobe COMM Failure indicating that the controller is failing to communicate with the strobe. The prob-

lem may be the strobe, the controller, or the connecting cable.

```
      T2B1 031997 11:03 AM
        Strobe COMM Failure
          Acknowledge ?
        Y-Enter    N-Exit
```
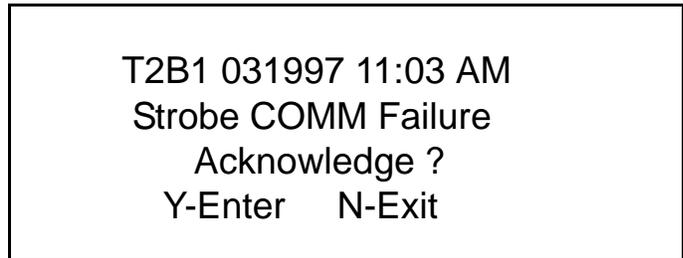
Figure 4-4 Alarm to be Acknowledged Screen

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.

```
         Acknowledged
        For Service call
        1-800-821-5825
        Reset  ?    Y-Enter
```
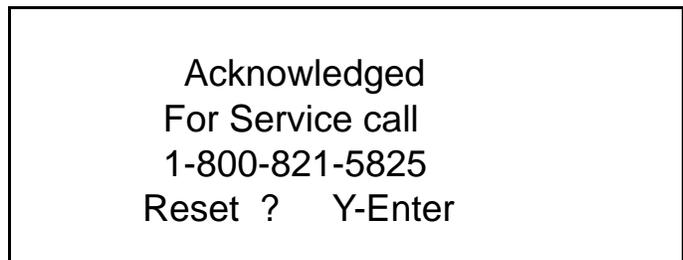
Figure 4-5 Alarm Reset Screen

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* on Page *4-5*.

- 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.

```
Reset ALARM ?
Only after repairs
are performed
Y-Enter    N-Exit
```

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 controller 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* on Page *4-4*.

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.

```
TxBx 031997 11:03 AM
Strobe COMM Failure
Reset ?
Y-Enter     N-Exit
```
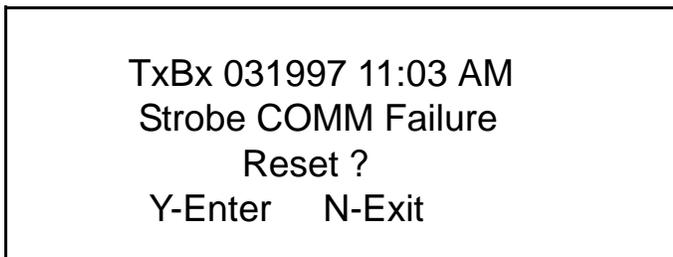
Figure 4-7 Alarm to be Reset Screen

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.
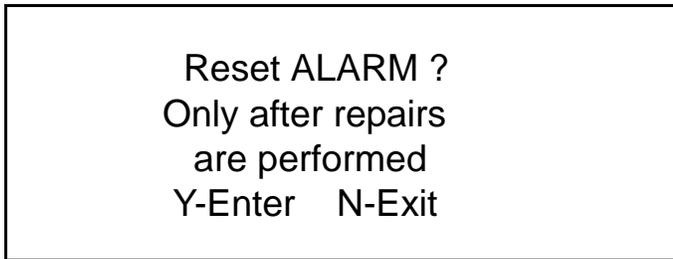
- The **ENTER** Button displays the screen shown in *Figure 4-6 Ensure Alarm Reset Screen* to make certain that you really want to now reset the alarm. After pressing the **ENTER** Button, the screen shown in *Figure 4-8 Alarm is Reset Screen* appears. Press the **ENTER** Button twice to return to the 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 quickly.

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
```
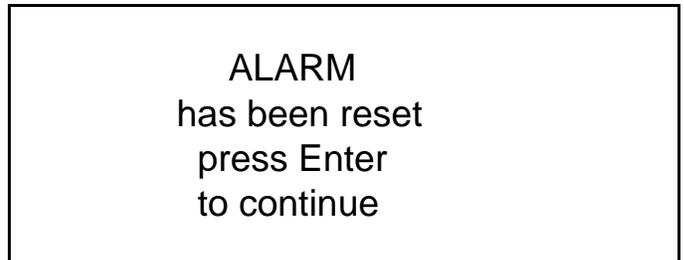
Figure 4-8 Alarm is Reset Screen

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* on Page *4-4*.

Graphic Display

The *Tower Graphic Display* screen in *Figure 4-9 Graphic Display Screen* shows the current status of all installed strobes. The screen depicts the tower graphically as lying on its side, with the top AOL if any, at the right. Each column on the screen is a tier; tier 1 is the left-most column. Each symbol in a column represents one beacon. The strobes are indicated by one of three blinking symbols (**O**, **X, P**, **S** or **i**).

O/●   A circle that "flashes" (fills solid) at a regular flash rate indicates a properly working beacon (no alarms).

X   The beacon is not communicating. The problem could be in the controller, the beacon, or the communication cable.

P   A "P" indicates a failed strobe. It has reported an alarm.

S   An "S" indicates Service Mode.

i   An "i" indicates a strobe in which the trigger has been inhibited and the beacon is no longer flashing. Service personnel may invoke this condition.

Graphic Display Screen

The drawing in *Figure 4-9 Graphic Display Screen* shows 17 installed beacons. The beacon on tier 2, beacon 1 is not communicating. The beacon on tier 5, beacon 2 (an AOL) has reported an alarm. The beacon on tier 1, beacon 4 is inhibited. All other beacons 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* on Page *4-1* displays a graphic screen that shows the position of the beacons on your tower as described in *Figure Graphic Display Screen* . This display matches your tower configuration only if Service Personnel have configured the controller for your particular installation.

Graphic Display Screen

The Graphic Display Screen shows the tower configuration of beacons as though the tower were lying on its side. In the tower light configuration shown in *Figure 4-9* the AOL light is failing. Failures (alarms) are shown as a "P". An AOL is usually set up as beacon 2 on the top tier. In *Figure 4-9* the AOL is in Tier 5 Beacon 2.

```
O  X  O  O
O  O  O  O  P
O  O  O  O
i  O  O  O
```

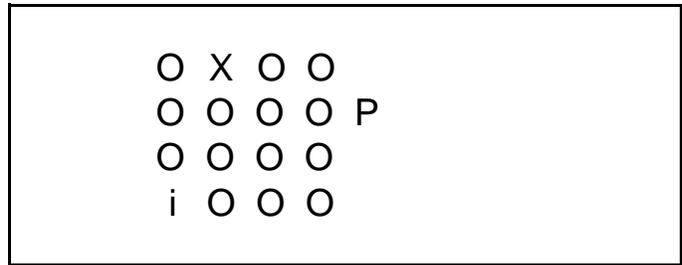**Figure 4-9 Graphic Display Screen**

Button Functions:

- Any button returns the screen to the View Menu.

Manual Intensity Select

The strobes flash at one of three intensities depending on the light level: day, twilight, or night. Normally, the FTC 121-1 switches between these intensities according to information from a photocell (PEC). However, *Manual Intensity Select* allows you to select the intensity of the strobes manually for testing purposes. The system stays in manual mode for only 2 hours and then reverts back to automatic mode. When you enter the screen, the cursor indicates the mode in which the system currently operates. The cursor at the first line (Auto PEC Control) indicates that the system is under control of the PEC.

Manual Intensity Selection

To change to a manually selected intensity by entering the Intensity Select Screen, move the cursor down to the Manual Int. Select line in the View Menu shown in *Figure 4-1 View Menu Selections* on Page *4-1*. Press the **ENTER** Button.

Intensity Select Screen

The example screen shown in *Figure 4-10 Intensity Select Screen* allows you to manually operate the structure in any of three modes, assuming that your structure lights are installed to operate in all three. The first line, Auto (PEC control), selects automatic mode under control of the photocell (PEC). Manual Day operates the structure in day mode. Manual Twi-light operates the structure in twilight mode. Manual Night operates the structure in night mode.

The LED associated with DAY, TWILIGHT, or NIGHT on the front panel *blinks* to show that its associated current operating mode is manually selected.

```
    ■   Auto (PEC control)
        Manual Day
        Manual Twi-light
        Manual Night
```
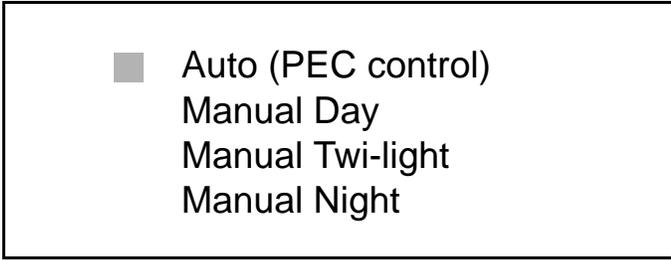
Figure 4-10 Intensity Select Screen

Button Functions:
- The **UP** or **DOWN** Button moves the cursor to the mode you require.
- The **ENTER** Button turns on that mode.
- The **EXIT** Button returns the screen to the Manual Int. Select line in the View Menu.

Display Brightness

The screen in *Figure 4-11 Display Brightness Screen* allows you to adjust the brightness of the display on the controller to your preference from BRIGHTEST, through BRIGHT and MEDIUM, to DIM DISPLAY.

Display Brightness Selection

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

Display Brightness Screen

This screen allows you to change the brightness of the display on the controller 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.

```
    ■   Brightest Display
        Bright Display
        Medium Display
        Dim Display
```

Figure 4-11 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*.

Date/Time Display

The screen shown in *Figure 4-12 Date/Time Display Screen* on Page *4-7* allows you to display the date and time, or change them.

Date/Time Display Selection

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* on Page *4-1* and press the **ENTER** Button. The controller displays the screen in *Figure 4-12 Date/Time Display Screen* on Page *4-7* 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.

```
        ▌03/21/97
        12:15 PM
```
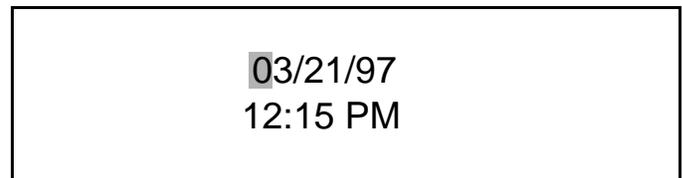
Figure 4-12 Date/Time Display Screen

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 the date and time digits* in the display press the **EXIT** Button.

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.

Intensity Change Times

The screen shown in *Figure 4-13 Intensity Change Times Display Screen* on Page *4-8* displays the times that the intensity of the strobes (night, day or twilight) are changed during a 24 hour period, as triggered by default settings in case of PEC failure. If the system is not currently under PEC control for any reason, the default times specified in the *Figure 5-22 Set Intensity Change Times Screen* on Page *5-11* appear here.

Because the system follows these default times exactly in case of PEC failure, it is important to note that the default settings do not advance or regress several minutes each day as the PEC does by following the daylight conditions. Thus, the PEC should be repaired as soon as possible, and in the meantime you may want to adjust the settings periodically if the repair delay is rather long.

Note that you cannot change the default settings with this screen. You can change the times by using the display line

in the User Menu called Set Intensity Change Times shown in *Figure 5-3 User Menu Selections* on Page *5-3*.

Intensity Change Times Selection

To display intensity change times, move the cursor down to the Int. Change Times line shown in *Figure 4-1 View Menu Selections* on Page *4-1*. Press the **ENTER** Button.

Intensity Change Times Display Screen

This screen allows you to view the default intensity change times for the structure lights. You cannot change the times from this screen, but can change them as discussed in *Section Set Intensity Change Times* on Page *5-10*.

```
■   NIGHT-TWI    05:00 AM
    TWI-DAY      05:30 AM
    DAY-TWI      04:30 PM
    TWI-NIGHT    05:00 PM
```

Figure 4-13 Intensity Change Times Display Screen

Button Functions:
- The **UP** or **DOWN** Buttons only move the cursor.
- The **EXIT** Button returns the screen to the View Menu.

General Information

The *General Information* screen in *Figure 4-14 General Information Screen* on Page *4-9* shows whether the system is a master or slave system, the number of strobes or dual (white/red) beacons currently installed, and the current software version and revision (shown as X.X.X).

General Information Selection

To display general system information, move the cursor in the View Menu with **UP** or **DOWN** Button to the General Information line shown in *Figure 4-1 View Menu Selections* on Page *4-1*. Press the **ENTER** Button. The **ENTER** Button display the screen in *Figure 4-14 General Information Screen* .

General Information Screen

The screen shown in *Figure 4-14* provides information about the type of system (master or slave or dual), operating mode, the kind of strobes, and the version of the software.

Dual System

In a *dual system*, each strobe beacon has a corresponding red beacon. A typical dual system tower may have three FTB 225 Beacons on each tier. Two of the FTB 225 Beacons have red FH 307 Flashheads. The third beacon controls a set of three marker lights, but does not itself flash.

Structure Operating Modes

The FTC 121-1 has two operating modes: normal and catenary.

Normal Mode

In *normal* mode, all strobe lights flash simultaneously 40 times per minute during daylight.

Catenary Mode

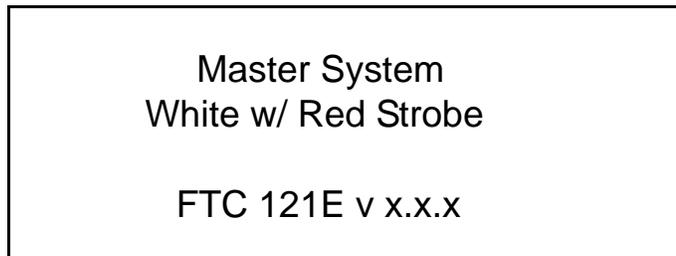In *catenary* mode, the lights flash sequentially by tiers at 60 flashes per minute.

```
                Master System
            White w/ Red Strobe


               FTC 121E v x.x.x
```

Figure 4-14 General Information Screen

Button Functions:

* The **UP** or **DOWN** Buttons are inactive in this screen.
* The **ENTER** Button or **EXIT** Button returns the screen to the menu.

Communications Status

To display Communications Status, move the cursor in the View Menu with **UP** or **DOWN** Button to the Comms. Status line shown in *Figure 4-1 View Menu Selections* on Page *4-1*. Press the **ENTER** Button. The **ENTER** Button displays the screen in *Figure 4-15 Communication Status Screen - No Problems* on Page *4-9* or *Figure 4-16 Communication Status Screen - Problems* on Page *4-9*.

Communications Status Screen—No Problems

The screen shown in *Figure 4-15 Communication Status Screen - No Problems* on Page *4-9* shows that the communications path between the FTC 121-1 Controller and the strobe units is functioning properly.

Note that this screen may indicate proper operation if the tower has no strobes connected and installed by the controller. In this case the controller assumes an empty tower and therefore shows correct communication for that condition.

```
                   Controller
                 communicating
                with ALL beacons
                    properly
```
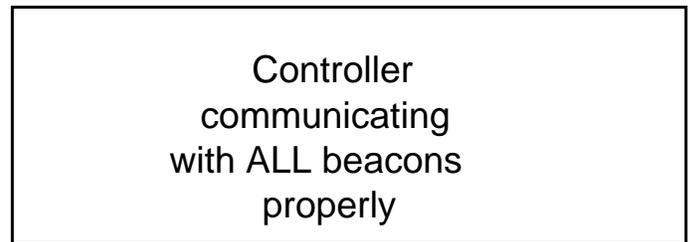
Figure 4-15 Communication Status Screen - No Problems

Button Functions:

* The **ENTER** Button or the **EXIT** Button returns the screen to the View Menu

Communications Status Screen—Problems

The *Communications Status* screen in *Figure 4-16* shows that the communications path between the FTC 121-1 Controller and the strobe units is failing.

```
                 Communications
                 problems exist
               see ALARM display
                   for details
```

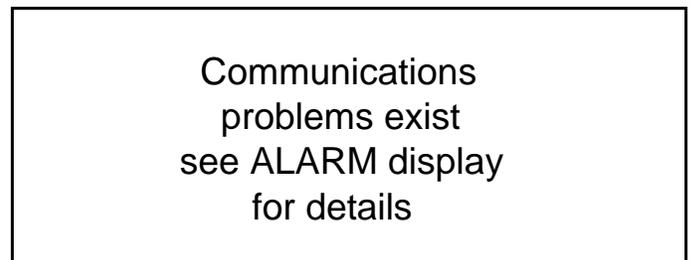**Figure 4-16 Communication Status Screen - Problems**

Button Functions:

* The **UP** or **DOWN** Buttons are inactive in this screen.
* The **ENTER** Button or **EXIT** 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.

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 *Accessing the User Menu (...more...). Figure 5-3* shows only the additional functions not present in the *View Menu.*

> **NOTE**
> The User Menu reverts back to the View Menu if you have not used the controller for 30 minutes. You will then have to enter the password to re-enter the User Menu.

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

- Display diagnostics for each strobe in the structure.
- Display and set the times for the strobes to change intensity when not controlled by the photocell.
- Display and set the phone numbers to be called when status codes occur.
- Set the system to run with or without a PEC.
- Set a new tower name.
- Change the password used to access the menus.
- Set the number of rings before answering for telephone line (computer) access to the controller.
- Set construction mode to modify the lights, or add or remove lights from the system.
- Logoff the additional controller 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 *Section Password Selection* and *Section 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* on Page *4-1* 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 *Section Change Password* on Page *5-13*.

```
                    Enter
                  Password
        A
```

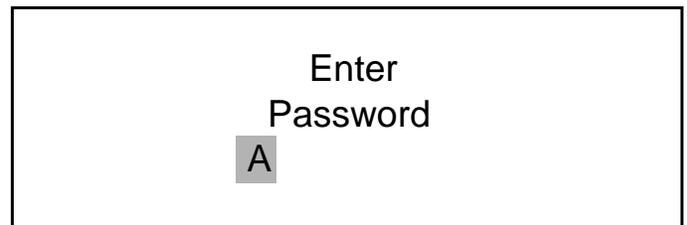**Figure 5-1 Enter Password Screen**

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 controller to accept the password.

- In the *Password* screen in *Figure 5-1 Enter Password Screen* on Page *5-1*, 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.
- If you make a mistake entering a character, the **EXIT** Button backspaces over the character and erases it. The **EXIT** Button can erase the entire line in this way if you hold it down. After it erases all the characters back to the first one, its last action is to return the screen to the View Menu.
- When you have entered 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 you must use the **UP** or **DOWN** Button from that point in the alphabet until you reach the letter you want. You can scroll in either direction for any letter, because the list of characters is circular without an ending point.
- When you have entered all the characters in the password, scroll to the "**<**" character and press the **ENTER** Button. If the password was correct, the menu structure is expanded to allow access to both the View and User Menus by continuous scrolling with the **UP** and **DOWN** Buttons.
- If the password entered was incorrect, the screen in *Figure 5-2 Incorrect Password Screen* appears.

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 *Section Change Password* on Page *5-13*. 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 Flash Technology Customer Service.***

```
Incorrect entry or
format. Please refer
to user's manual and
try again.
```
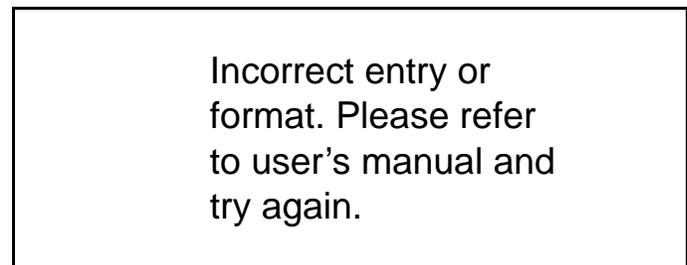
Figure 5-2 Incorrect Password Screen

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 ten 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* on Page *5-3* shows you these selections.

Diagnostics display

Set Intensity Change Times ∧ — ∧ INDICATES ADDITIONAL LINES ABOVE THOSE SHOWN ON THE SCREEN. TO SEE THEM PRESS THE UP BUTTON.

Alarm Phone Numbers

SCREEN OUTLINE

Status Cd Phone Num

Install PEC ∨ — ∨ INDICATES ADDITIONAL LINES BELOW THOSE SHOWN ON THE SCREEN. TO SEE THEM PRESS THE DOWN BUTTON.

BLINKING CURSOR

Set Tower Name

PRESSING THE DOWN BUTTON MOVES THE CURSOR DOWN ONE LINE AT A TIME.

Change Password

THE SCREEN DISPLAYS 4 LINES AT A TIME.

PRESSING THE UP BUTTON MOVES THE CURSOR UP ONE LINE AT A TIME.

Set Number of Rings

Set Construction Mode

Backup Mode

Alarm Relay Mode

...logoff... — WHEN THE CURSOR IS AT THIS POINT, PRESSING ENTER CAUSES A LOGOFF OF THE SYSTEM MENUS AND DISPLAYS THE FIRST SCREEN SHOWING THE TOWER NAME.

50001

Figure 5-3 User Menu Selections

Diagnostics

Diagnostic screens allow you to access detailed information on the performance of each beacon. By pressing the **ENTER** Button with the cursor at the Diagnostics line in the *User Menu*, you can monitor the following by using the **UP** and **DOWN** Buttons:

- Total Flashes: *The total of Day, Twi, and Night mode flashes*
  - Actual: *The number of flashes with energy inside the programmed thresholds*
  - Missed: *The number of flashes with energy outside the programmed thresholds*

- Day Flashes: *The total number of day mode flashes.*
  - Actual: *The number of flashes with energy inside the programmed thresholds*

  Missed: *The number of flashes with energy outside the programmed thresholds*

- Twi Flashes: *The total number of twilight mode flashes.*
  - Actual: *The number of flashes with energy inside the programmed thresholds*
  - Missed: *The number of flashes with energy outside the programmed thresholds*

- Nite Flashes: *The total number of white night mode flashes.*
  - Actual: *The number of flashes with energy inside the programmed thresholds*
  - Missed: *The number of flashes with energy outside the programmed thresholds*

- Red Flashes: *The total number of red night mode flashes.*
  - Actual: *The number of flashes with energy inside the programmed thresholds*
  - Missed: *The number of flashes with energy*

- Internal Temp: *The internal temperature of the power converter or beacon*
  - Latest: x deg C *The most recent measurement*

- Line Voltage: *The line voltage of the power source*
  - Latest: x V *The most recent measurement*
  - -Limit: x V *The lower programmed limit allowed*

- Trig. Voltage *The trigger voltage*
  - Latest: x V *The most recent measurement*
  - -Limit: x V *The lower programmed limit allowed*

- Bank Voltage: *The capacitor bank voltage*
  - Latest: x V *The most recent measurement*
  - -Limit: x V *The lower programmed limit allowed*

- Day Energy: *A measurement of the flash energy in day mode. Limit can be set from the Service Menu.*
  - Latest: x V *The most recent measurement*
  - -Limit: x V *The lower programmed limit allowed*

- Twi Energy: *A measurement of the flash energy in twilight mode.*
  - +Limit: x V *The upper programmed limit allowed*
  - Latest: x V *The most recent measurement*
  - -Limit: x V *The lower programmed limit allowed*

- Night Energy: *A measurement of the flash energy in white night mode.*
  - +Limit: x V *The upper programmed limit allowed*
  - Latest: x V *The most recent measurement*
  - -Limit: x V *The lower programmed limit allowed*

- Red Energy: *A measurement of the flash energy in red night mode.*
  - +Limit: x V *The upper programmed limit allowed*
  - Latest: x V *The most recent measurement*
  - -Limit: x V *The lower programmed limit allowed*

- Mode Flashes: *The number of flashes in the current operating mode*
  - Actual: x *The actual number of flash attempts*
  - Missed: x *The number of missed flashes*

- Mode Triggers: *The number of times the trigger has operated in the current mode*
  - Actual: x *The number of actual triggers*
  - Missed: x *The number of missed triggers*

- Marker Voltage: *The socket voltage of the marker bulbs*
  - Latest: x *The most recent measurement*

- # Marker Bulbs: *The number of marker bulbs currently operating*
  - Latest: x *The number operating now*
  - -Limit: x *The lower limit alarm threshold of this tier.*

- Firmware: *The version number of the main circuit board in the controller.*
  2-4990-xx v0.0

Button Functions in the Diagnostic Screens

- Within a *Diagnostics* screen, the **ENTER** Button shifts the cursor between the function name and the beacon number.
- When the cursor is on the *function name*, the **UP** and **DOWN** Buttons scroll from one *function* to the next or previous function for a given beacon.
- When the cursor is on the beacon number, the **UP** and **DOWN** Buttons scroll from one *beacon* to the next or previous beacon for a given function. (This arrangement allows you to compare all beacons for a particular function, or to examine all functions for a particular beacon.)
- **EXIT** returns the screen to the menu.

Figures *5-4* to *5-21* are examples of *Diagnostic* screens.

NOTE

When you enter *Diagnostics* from the menu, the system returns immediately to the *last* Diagnostic *screen shown during the previous* Diagnostics *access,* even if you have logged off. This is convenient if you regularly monitor a particular function or beacon. However, be aware that your scrolling may not be starting at the top of the list for either beacons or functions.

Diagnostics Screens

The FTC 121-1 Controller provides internal monitoring of system operation. Because it does this, it can communicate the operating parameters by telephone or by using the screen to service personnel for diagnosis and repair. The Diagnostic screens are intended for service personnel.

Diagnostics Selection

You select the Diagnostic Screens by moving the cursor to the Diagnostics line on the User Menu and pressing the **ENTER** Button.

The following sections discuss each Diagnostic Screen in the order of their appearance.

Total Flashes Screen

The example screen shows the total flash count of day, twilight, and night mode flashes (since installation) for the third tier fourth beacon. See *Section Diagnostics* on Page *5-3* for an explanation of the screen items.

```
┌──────────────────────────────────────┐
│  ▉  Total Flashes    T3B4             │
│                                        │
│        Actual:        121,123          │
│        Missed:              1          │
└──────────────────────────────────────┘
```

Figure 5-4 Total Flashes Screen

Button Functions:

- The **ENTER** Button moves the cursor from the beginning of the top line to the tier and beacon number. From there the **UP** and **DOWN** Buttons cycle up or down through the installed beacons and show the count for each beacon position.

- The **DOWN** Button moves to the next screen.

- The **UP** Button moves to the previous screen.

- The **EXIT** Button displays the User Menu with the cursor at the Diagnostics line.

Day Flashes Screen

The example screen shows the total day mode flash count (since installation) for the third tier fourth beacon. See *Section Diagnostics* on Page *5-3* for an explanation of the screen items.

```
┌──────────────────────────────────────┐
│  ▉  Day Flashes        T3B4           │
│                                        │
│        Actual:        60,000           │
│        Missed:              1          │
└──────────────────────────────────────┘
```

Figure 5-5 Day Flashes Screen

Button Functions:

- The **ENTER** Button moves the cursor from the beginning of the top line to the tier and beacon number. From there the **UP** and **DOWN** Buttons cycle up or down through the installed beacons and show the count for each beacon position.

- The **DOWN** Button moves to the next screen.

- The **UP** Button moves to the previous screen.

- The **EXIT** Button displays the User Menu with the cursor at the Diagnostics line.

Twi Flashes Screen

The example screen shows the total twilight mode flash count (since installation) for the third tier fourth beacon. See *Section Diagnostics* on Page *5-3* for an explanation of the screen items.

```
   ■ Twi Flashes     T3B4

      Actual:         5000
      Missed:            0
```

Figure 5-6 Twi Flashes Screen

Button Functions:

- The **ENTER** Button moves the cursor from the beginning of the top line to the tier and beacon number. From there the **UP** and **DOWN** Buttons cycle up or down through the installed beacons and show the count for each beacon position.

- The **DOWN** Button moves to the next screen.

- The **UP** Button moves to the previous screen.

- The **EXIT** Button displays the User Menu with the cursor at the Diagnostics line.

Nite Flashes Screen

The example screen shows the total white night mode flash count (since installation) for the third tier fourth beacon. See *Section Diagnostics* on Page *5-3* for an explanation of the screen items.

```
   ■ Night Flashes    T3B4

      Actual:        56,123
      Missed:            0
```

Figure 5-7 Nite Flashes Screen

Button Functions:

- The **ENTER** Button moves the cursor from the beginning of the top line to the tier and beacon number. From there the **UP** and **DOWN** Buttons cycle up or down through the installed beacons and show the count for each beacon position.

- The **DOWN** Button moves to the next screen.

- The **UP** Button moves to the previous screen.

- The **EXIT** Button displays the User Menu with the cursor at the Diagnostics line.

Red Flashes Screen

The example screen shows the total red night mode flash count (since installation) for the third tier fourth beacon. See *Section Diagnostics* on Page *5-3* for an explanation of the screen items.

```
   ■ Red Flashes      T3B4

      Actual:        111812
      Missed:            0
```

Figure 5-8 Red Flashes Screen

Button Functions:

- The **ENTER** Button moves the cursor from the beginning of the top line to the tier and beacon number. From there the **UP** and **DOWN** Buttons cycle up or down through the installed beacons and show the count for each beacon position.

- The **DOWN** Button moves to the next screen.

- The **UP** Button moves to the previous screen.

- The **EXIT** Button displays the User Menu with the cursor at the Diagnostics line.

Internal Temp Screen

The example screen shows the internal temperature of the power converter for the third tier fourth beacon. It shows the current temperature. See *Section Diagnostics* on Page *5-3* for an explanation of the screen items.

```
      ■ Internal Temp      T3B4


         Latest:          40 deg C
```

Figure 5-9 Internal Temp Screen

Button Functions:

- The **ENTER** Button moves the cursor from the beginning of the top line to the tier and beacon number. From there the **UP** and **DOWN** Buttons cycle up or down through the installed beacons and show the values for each beacon position.
- The **DOWN** Button moves to the next screen.
- The **UP** Button moves to the previous screen.
- The **EXIT** Button displays the User Menu with the cursor at the Diagnostics line.

Line Voltage Screen

The example screen shows the current power source input voltage for the beacon at the third tier fourth beacon. See *Section Diagnostics* on Page *5-3* for an explanation of the screen items.

```
      ■ Line Voltage       T3B4


         Latest:            241 V
         -Limit:            230 V
```

Figure 5-10 Line Voltage Screen

Button Functions:

- The **ENTER** Button moves the cursor from the beginning of the top line to the tier and beacon number. From there the **UP** and **DOWN** Buttons cycle up or down through the installed beacons and show the values for each beacon position.
- The **DOWN** Button moves to the next screen.
- The **UP** Button moves to the previous screen.
- The **EXIT** Button displays the User Menu with the cursor at the Diagnostics line.

Trig. Voltage Screen

The example screen shows the current trigger voltage in the power converter or beacon for the third tier fourth beacon. See *Section Diagnostics* on Page *5-3* for an explanation of the screen items.

```
      ■ Trig. Voltage      T3B4


         Latest:            161 V
         -Limit:            150 V
```

Figure 5-11 Trig. Voltage Screen

Button Functions:

- The **ENTER** Button moves the cursor from the beginning of the top line to the tier and beacon number. From there the **UP** and **DOWN** Buttons cycle up or down through the installed beacons and show the values for each beacon position.
- The **DOWN** Button moves to the next screen.
- The **UP** Button moves to the previous screen.
- The **EXIT** Button displays the User Menu with the cursor at the Diagnostics line.

Bank Voltage Screen

The example screen shows the current capacitor bank voltage in the power converter or beacon for the third tier fourth beacon. See *Section Diagnostics* on Page *5-3* for an explanation of the screen items.

```
      ■ Bank Voltage       T3B4


         Latest:           1077 V
         -Limit:            900 V
```

Figure 5-12 Bank Voltage Screen

Button Functions:

- The **ENTER** Button moves the cursor from the beginning of the top line to the tier and beacon number. From there the **UP** and **DOWN** Buttons cycle up or down through the installed beacons and show the values for each beacon position.
- The **DOWN** Button moves to the next screen.
- The **UP** Button moves to the previous screen.

- The **EXIT** Button displays the User Menu with the cursor at the Diagnostics line.

Day Energy Screen

The example screen shows the current day mode flash energy for the third tier fourth beacon. See *Section Diagnostics* on Page *5-3* for an explanation of the screen items.

```
   ▇ Day Energy        T3B4

        Latest:        10,257
        -Limit:         5000
```

Figure 5-13 Day Energy Screen

Button Functions:

- Press the **ENTER** Button then the **UP** or **DOWN** Buttons to select the tier and beacon number you want to view.
- The **DOWN** Button moves to the next screen.
- The **UP** Button moves to the previous screen.
- The **EXIT** Button displays the User Menu with the cursor at the Diagnostics line.

Twi Energy Screen

The example screen shows the twilight mode flash energy for the third tier fourth beacon. See *Section Diagnostics* on Page *5-3* for an explanation of the screen items.

```
   ▇ Twi Energy         T3B4
        +Limit:         5000
        Latest:         3737
        -Limit:          500
```
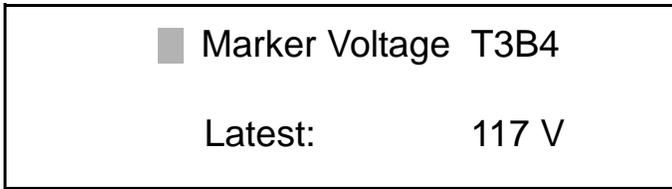
Figure 5-14 Twi Energy Screen

Button Functions:

- The **ENTER** Button moves the cursor from the beginning of the top line to the tier and beacon number. From there the **UP** and **DOWN** Buttons cycle up or down through the installed beacons and show the values for each beacon position.
- The **DOWN** Button moves to the next screen.
- The **UP** Button moves to the previous screen.
- The **EXIT** Button displays the User Menu with the cursor at the Diagnostics line.

Night Energy Screen

The example screen shows the white night mode flash energy for the third tier fourth beacon. See *Section Diagnostics* on Page *5-3* for an explanation of the screen items.

```
   ▇ Night Energy       T3B4
        +Limit:          500
        Latest:          270
        -Limit:           10
```

Figure 5-15 Night Energy Screen

Button Functions:

- The **ENTER** Button moves the cursor from the beginning of the top line to the tier and beacon number. From there the **UP** and **DOWN** Buttons cycle up or down through the installed beacons and show the values for each beacon position.
- The **DOWN** Button moves to the next screen.
- The **UP** Button moves to the previous screen.
- The **EXIT** Button displays the User Menu with the cursor at the Diagnostics line.

Red Energy Screen

The example screen shows the red night mode flash energy for the third tier fourth beacon. See *Section Diagnostics* on Page *5-3* for an explanation of the screen items.

```
┌─────────────────────────────────┐
│  ▉ Red Energy      T3B4         │
│       +Limit:         500       │
│        Latest:        420       │
│       -Limit:          10       │
│                                 │
└─────────────────────────────────┘
```

Figure 5-16 Red Energy Screen

Button Functions:

- The **ENTER** Button moves the cursor from the beginning of the top line to the tier and beacon number. From there the **UP** and **DOWN** Buttons cycle up or down through the installed beacons and shows the values for each beacon position.

- The **DOWN** Button moves to the next screen.

- The **UP** Button moves to the previous screen.

- The **EXIT** Button displays the User Menu with the cursor at the Diagnostics line.

Mode Flashes Screen

The example screen shows the number of flashes in the current operating mode. It also shows the number of missed flashes in that mode. The screen shows the third tier fourth beacon. See *Section Diagnostics* on Page *5-3* for an explanation of the screen items.

```
┌─────────────────────────────────┐
│  ▉ Mode Flashes    T3B4         │
│                                 │
│       Actual:        1312       │
│       Missed:           0       │
│                                 │
└─────────────────────────────────┘
```

Figure 5-17 Mode Flashes Screen

Button Functions:

- The **ENTER** Button moves the cursor from the beginning of the top line to the tier and beacon number. From there the **UP** and **DOWN** Buttons cycle up or down through the installed beacons and shows the count for each beacon position.

- The **DOWN** Button moves to the next screen.

- The **UP** Button moves to the previous screen.

- The **EXIT** Button displays the User Menu with the cursor at the Diagnostics line.

Mode Triggers Screen

The example screen shows the number of times the trigger in the power converter or beacon has operated in the current operating mode. The screen shows the third tier fourth beacon. See *Section Diagnostics* on Page *5-3* for an explanation of the screen items.

```
┌─────────────────────────────────┐
│  ▉ Mode Triggers   T3B4         │
│                                 │
│       Actual:        1312       │
│       Missed:           0       │
│                                 │
└─────────────────────────────────┘
```

Figure 5-18 Mode Triggers Screen

Button Functions in the Mode Triggers Screen

- The **ENTER** Button moves the cursor from the beginning of the top line to the tier and beacon number. From there the **UP** and **DOWN** Buttons cycle up or down through the installed beacons and shows the count for each beacon position.

- The **DOWN** Button moves to the next screen.

- The **UP** Button moves to the previous screen.

- The **EXIT** Button displays the User Menu with the cursor at the Diagnostics line.

Marker Voltage Screen

The example screen shows the socket voltage for the marker lights that are operated by a specific tier on the structure. The screen shows the marker socket voltage for the markers operated by the third tier fourth beacon. See *Section Diagnostics* on Page *5-3* for an explanation of the screen items.
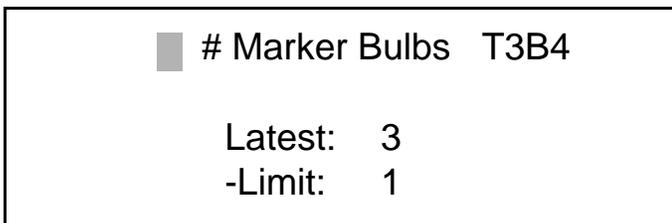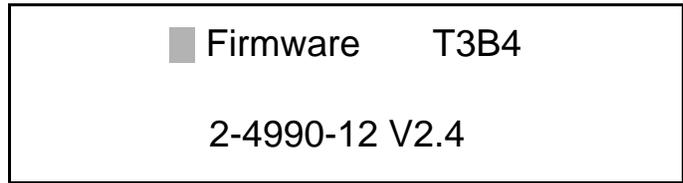
```
    ▊  Marker Voltage  T3B4

        Latest:          117 V
```

Figure 5-19 Marker Voltage Screen

Button Functions:

- The **ENTER** Button moves the cursor from the beginning of the top line to the tier and beacon number. From there the **UP** and **DOWN** Buttons cycle up or down through the installed beacons and shows the value for each beacon position.

- The **DOWN** Button moves to the next screen.

- The **UP** Button moves to the previous screen.

- The **EXIT** Button displays the User Menu with the cursor at the Diagnostics line.

Marker Bulbs Screen

The example screen shows the number of marker bulbs that are operated by a specific tier on the structure. The screen shows the number of marker bulbs for the markers operated by the third tier fourth beacon. See *Section Diagnostics* on Page *5-3* for an explanation of the screen items.

```
    ▊  # Marker Bulbs   T3B4

        Latest:    3
        -Limit:    1
```

Figure 5-20 # Marker Bulbs Screen

Button Functions:

- The **ENTER** Button moves the cursor from the beginning of the top line to the tier and beacon number. From there the **UP** and **DOWN** Buttons cycle up or down through the installed beacons and show the number of markers for each beacon position connected to markers.

- The **DOWN** Button moves to the next screen.

- The **UP** Button moves to the previous screen.

- The **EXIT** Button displays the User Menu with the cursor at the Diagnostics line.

Firmware Number and Version Screen

The example screen shows the number of the Timing and Trigger Board for a specific power converter or beacon. This screen shows the third tier and fourth beacon. See *Section Diagnostics* on Page *5-3* for an explanation of the screen items.

```
    ▊  Firmware      T3B4

        2-4990-12 V2.4
```

Figure 5-21 Firmware Number and Version Screen

Button Functions:

- The **ENTER** Button moves the cursor from the beginning of the top line to the tier and beacon number. From there the **UP** and **DOWN** Buttons cycle up or down through the installed beacons and display the number for each beacon position.

- The **UP** Button moves to the previous screen.

- The **EXIT** Button displays the User Menu with the cursor at the Diagnostics line.

Set Intensity Change Times

Use this menu option to set or change the times of day when the flash-intensity should change between day, twilight and night intensity in the absence of PEC control. The settings have three different uses.

The screen *Figure 5-22 Set Intensity Change Times Screen* is identical to the screen in *Figure 4-13 Intensity Change Times Display Screen* on Page *4-9* but allows you to change the settings instead of merely viewing them. Because the system defaults to these exact times in case of PEC failure, it is important to make sure that the settings remain reasonable as daylight conditions change with the seasons.

Set Intensity Change Times Selection

To set the intensity change times, with the **UP** or **DOWN** Buttons move the cursor up or down the User Menu to the Set Intensity Change Times line shown in *Figure 5-3 User Menu Selections* on Page *5-3*. Press the **ENTER** Button.

Set Intensity Change Times Screen

Pressing the **ENTER** Button displays the screen shown in *Figure 5-22 Set Intensity Change Times Screen* to allow you to change the times at which the controller changes the intensity of the beacons.

```
    ■  NIGHT-TWI      05:00 AM
       TWI-DAY        05:30 AM
       DAY-TWI        04:30 PM
       TWI-NIGHT      05:00 PM
```

Figure 5-22 Set Intensity Change Times Screen

Button Functions:

1. The **UP** or **DOWN** Buttons select the changeover time you want to alter. After you select the line, the **ENTER** Button selects the hours field.

2. The **UP** or **DOWN** Buttons adjust the hours.

3. When you have reached the desired hour, the **ENTER** Button sets the hours and shifts the cursor to the minutes field.

4. **UP** or **DOWN** Buttons adjust the minutes, and then the **ENTER** Button sets the minutes. This completes the setting for that changeover time.

5. The **EXIT** Button returns the screen to the User Menu.

NOTE

The system can get confused if you enter a time for the next changeover that is earlier than the current system time—for example, if you were to enter a changeover time from day to twilight mode of 4:30 PM while the system was in day mode and the time was 5:00 PM. To avoid this problem, change the settings at mid-day (or mid-night, if that's your preference). Also, when you change any settings, make sure that the four settings are still in the right sequence—for example, that night doesn't start earlier than evening-twilight.

Alarm and Status Code Phone Numbers

Use these menu options to set the phone numbers that the FTC 121-1 dials by modem to notify user and service personnel in case of alarm or status code messages. You must enter numbers for alarm and status code messages separately. A phone number must be at least 7 digits and may not contain dashes as shown in *Figure 5-23 Alarm Call Out Phone Numbers Screen* on Page *5-12*. Also, because the communication is by modem, use phone numbers of computers, not people. (To receive phone calls, the computer must have a modem and a communication software package such as *Procomm*™.)

Alarm Call Out Phone Numbers Selection

To set the alarm phone numbers, use the **UP** or **DOWN** Buttons to move the cursor to the Alarm Phone Numbers line shown in *Figure 5-3 User Menu Selections* on Page *5-3*. Press the **ENTER** Button.

The **ENTER** Button causes the controller to display the screen shown in *Figure 5-23 Alarm Call Out Phone Numbers Screen*.

Alarm Call Out Phone Numbers Screen

After you press the **ENTER** Button, the controller displays the screen shown in *Figure 5-23 Alarm Call Out Phone Numbers Screen* on Page *5-12*. With this screen you can change the number that the controller uses to call service personnel and notify them of an alarm.
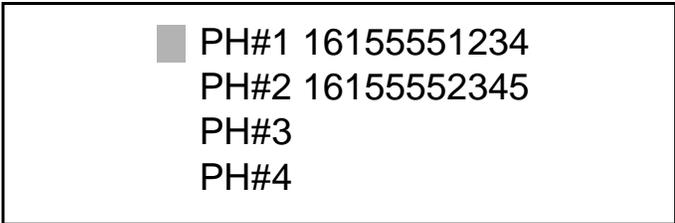
```
    ▉  PH#1 16155551234
       PH#2 16155552345
       PH#3
       PH#4
```

Figure 5-23 Alarm Call Out Phone Numbers Screen

Buttons to Install Alarm Call Out Phone Numbers:

- Press the **ENTER** Button to erase the phone number in the line adjacent to the cursor. This places the cursor at the position of the first digit of the phone number. The **UP** or **DOWN** Button changes the number at the cursor position upward or downward.

- The **ENTER** Button moves the cursor to the next position entering the number entered in the last position. If it's not suitable, change the number with the **UP** or **DOWN** Button, then press the **ENTER** Button.

- The **EXIT** Button erases the number upon which the cursor rests, when the cursor is *within* a phone number field.

- After entering all the required numbers, press the **ENTER** Button to move to one position after the last number. Here, select the "**<**" character with the **UP** or **DOWN** Button.

- The **ENTER** Button at the "**<**" character causes the controller to accept the number.

- To return to the User Menu from this screen, press the **EXIT** Button *while the cursor is to the left of a phone number line*.

Status Call Out Phone Number Selection

You display the Status Call Out Phone Numbers Screen by pressing the **ENTER** Button with the cursor at the Status Code Phone Numbers line shown in *Figure 5-3 User Menu Selections* on Page *5-3*.

The **ENTER** Button causes the controller to display the screen shown in *Figure 5-24 Status Call Out Phone Numbers Screen*. With this screen you can change the number that the controller uses to call service personnel and notify them of a status code.

Status Call Out Phone Numbers Screen

After you press the **ENTER** Button, the controller displays the screen shown in *Figure 5-24 Status Call Out Phone Numbers Screen*, which allows you to change the call out phone numbers for status codes.
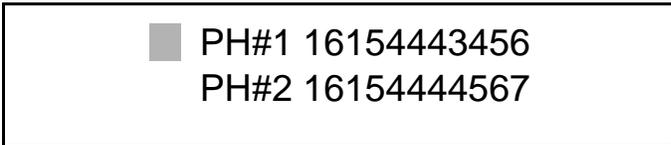
```
    ▉  PH#1 16154443456
       PH#2 16154444567
```

Figure 5-24 Status Call Out Phone Numbers Screen

Buttons to Instal Status Call Out Phone Numbers:

Use the same procedure that is described to install Alarm Call Out Phone Numbers for *Figure 5-23 Alarm Call Out Phone Numbers Screen*.

Install PEC

This function allows you to put the system under normal PEC control or remove the PEC control. You may want to remove PEC control to test the system, or operate the system while constructing or repairing the lighted structure.

When the PEC is removed, the controller uses preset intensity change times (see *Section Intensity Change Times* on Page *4-8*). When the PEC is installed, the controller uses the signals from the PEC to change the intensity of the beacons.

The FTC 121-1 Controller normally follows signals from the PEC in determining when to switch the system between day, twilight and night intensity. (See *Section Intensity Change Times* on Page *4-8* and *Section Set Intensity Change Times* on Page *5-10*). A PEC failure causes the controller to override the PEC signals and changes intensity according to the preset time.

Install PEC Selection

To set the PEC as installed or removed, move the cursor to the Install PEC line in the User Menu shown in *Figure 5-3 User Menu Selections* on Page *5-3*. Press the **ENTER** Button.

Install PEC Screen

The Install PEC Screen allows you to indicate to the controller whether the PEC is installed. The Removed option causes the controller to use the Intensity Change Times displayed in *Figure 5-22 Set Intensity Change Times Screen* on Page *5-11*.

```
    ■➡ PEC Installed
       PEC Removed
```

Figure 5-25 Install PEC Screen

Button Functions:

- The **UP** or **DOWN** Buttons move the cursor to either PEC Installed or PEC Removed.
- The **ENTER** Button moves the small arrow shown next to the currently operative selection to the one you selected 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 Install PEC line.

Set Tower Name

Several situations may require you to change tower name. For example:

- Administrative decisions
- A new tower
- A new controller

Set Tower Name Selection

To change the tower name, move the cursor in the User Menu to the Set Tower Name line shown in *Figure 5-3 User Menu Selections* on Page *5-3*. Press the **ENTER** Button. The controller then displays the screen shown in *Figure 5-26 Set Tower Name Screen*.

Set Tower Name Screen

The Set Tower Name screen allows you to change the name of the tower. It displays the current name and allows you to enter a new name, character by character, with the **UP** and **DOWN** Buttons, and the **ENTER** Button.

When the screen shown in *Figure 5-26 Set Tower Name Screen* is displayed, the cursor is blinking over the first character of the new name to be entered. The screen shows this character as "**A**".

```
    Current Tower Name
    TENNESSEE TOWER
    Enter New Tower Name
    A
```
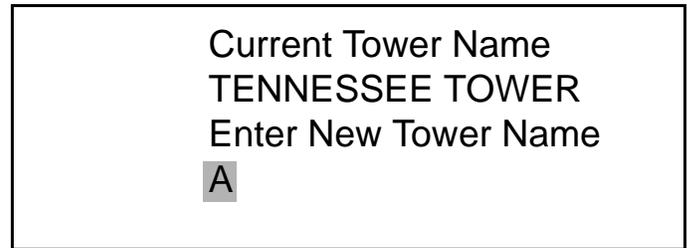
Figure 5-26 Set Tower Name Screen

Button Functions:

- The **UP** or **DOWN** Buttons select the letter you want, then press the **ENTER** Button to enter it. That letter is displayed in the first position of the tower name, and the cursor moves to the second position. A name can have up to 20 characters, including letters, numbers, spaces and certain other symbols. When you have entered all the letters in the tower name, select the "**<**" character and press the **ENTER** Button. This enters the entire name and returns the screen to the User Menu.
- The **EXIT** Button erases the current character over which the cursor is blinking. Holding down the **EXIT** Button erases all the characters back to the beginning of the line and returns the screen to the User 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.
>
> If your FTC 121-1 Controller is monitored at a remote location by FTCA's EAGLE software (see *Section Remote Monitoring and Control Option: Eagle*

Software on Page *1-1*), EAGLE must access your controller using the same password that is entered here. Therefore, if you want to change your password, be sure to coordinate this with the EAGLE operator so that EAGLE can monitor your system.

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* on Page *5-3*. Press the **ENTER** Button. The controller displays the screen shown in *Figure 5-27 Change Password Type Screen*.

Change Password Type Screen

After pressing the **ENTER** Button at the Change Password line in the User Menu, the controller displays the screen shown in *Figure 5-27 Change Password Type Screen*. This screen displays lines that indicate which password is accessible for change. It displays the Service Password only if you have logged into the Service Menu. Selecting one of these lines allows you to change the associated password by the display of the screen shown in *Figure 5-28 Change Password Screen*.

```
             User Password
             Service Password
```
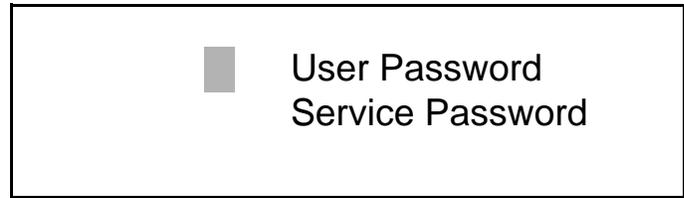
Figure 5-27 Change Password Type Screen

Button Functions:

- The **UP** or **DOWN** Button moves the cursor.

- The **ENTER** Button selects password that you want to change and displays the screen shown in *Figure 5-28 Change Password Screen*.

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.

```
          Current USER PSWD
             **********
          New USER PSWD
          A
```
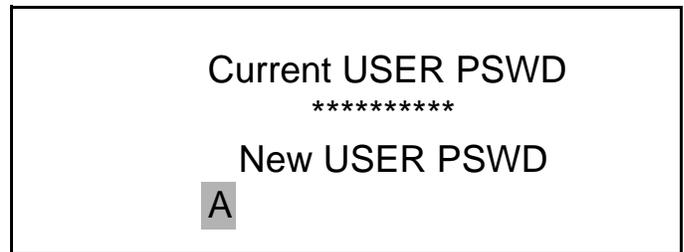
Figure 5-28 Change Password Screen

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 and returns you to the screen in *Figure 5-27 Change Password Type Screen* on Page *5-14*.

- 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 controller. 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.

Set Number of Rings

You can set the number of rings accepted by the internal modem in the controller before it answers a call on the connected telephone line. The screen shown in *Figure 5-29 Set Number of Rings Screen* allows you to change the rings. A high number of rings allows the phone line to be used for normal calls also.

Set Number of Rings Selection

The Set Number of Rings Screen allows you to set the number of rings accepted by the controller before it answers a call on the telephone line by a computer using Flash Technology's Eagle Software. Move the cursor to the Set Number of Rings line shown in *Figure 5-3 User Menu Selections* on Page *5-3*. Press the **ENTER** Button. The **ENTER** Button displays the screen shown in *Figure 5-29 Set Number of Rings Screen*.

Set Number of Rings Screen

You can set the number of rings before answering for the internal modem of the controller at one to eight rings. The screen allows you to change only this single number.

```
Use UP/DOWN to
adjust # of rings
Press ENTER to set
# of rings = 1
```
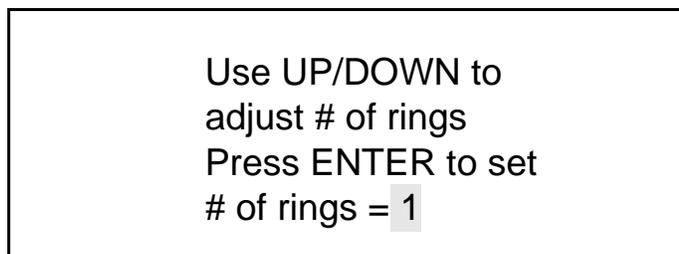
Figure 5-29 Set Number of Rings Screen

Button Functions:

- The **UP** and **DOWN** Buttons change the number of rings from one to eight.
- The **ENTER** Button sets the number of rings into the internal modem.

Construction Mode

You use Set Construction Mode to change the installation units or when the tower is being constructed and the bea-

cons are connected one at a time. Changes to the lighting systems could occur during construction. These could be, for example: the photocell, strobes, power converters, or tower light configuration. Construction Mode prevents alarms.

In construction mode, when actually building the tower or changing strobes, the Graphic Display (see *Section Graphic Display Screen* on Page *4-6*) shows new beacons appearing on the screen as they are connected, or disappearing as they are disconnected.

The controller recognizes the new beacon and adds the beacon to its list of installed beacons. After construction mode is completed, the controller has automatically installed all the beacons.

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* on Page *5-3*. Press the **ENTER** Button. The **ENTER** Button causes the display of the screen shown in *Figure 5-30 Set Construction Mode Screen*.

Construction Mode Screen

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

```
        Construction ON
   ■ ►Construction OFF
```
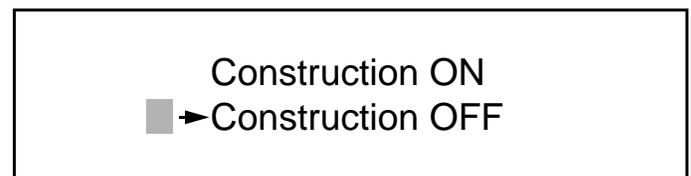
Figure 5-30 Set Construction Mode Screen

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.

Backup Mode

You use Backup Mode to switch between primary and backup flashheads, if any of the beacons in the system are equipped with this feature.

Backup Mode Selection

To set Backup Mode, move the cursor in the User Menu to the Set Construction Mode line shown in *Figure 5-3 User Menu Selections* on Page *5-3*. Press the **ENTER** Button. The **ENTER** Button causes the display of the screen shown in *Figure 5-31 Backup Mode Screen*.

Backup Mode Screen

The Backup Mode screen allows you to switch between primary and backup flashheads.

```
        ▓    Send Backup Mode ON
             Send Backup Mode OFF
```
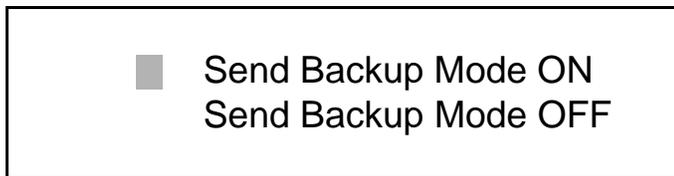
Figure 5-31 Backup Mode Screen

Button Functions:
- The **UP** or **DOWN** Buttons move the cursor to either Send Backup Mode ON or Send Backup Mode OFF.
- The **ENTER** Button activates the selected mode.
- The **EXIT** Button returns the display to the User Menu with the cursor next to the Backup Mode line.

Alarm Relay Mode

Use this option to change the operation of the alarm relays between by beacon and by tier. In By Beacon mode the alarm relays open when an alarm is detected on indivdual beacons. In "By Beacon Tier Mode the alarm relays open when an alarm is detected on a particular tier.

Set Alarm Relay Mode Selection

To set the Alarm Relay Mode, move the cursor in the User Menu to the Alarm Relay Mode line shown in *Figure 5-3 User Menu Selections* on Page *5-3*. Press the **ENTER** Button. The **ENTER** Button causes the display

of the screen shown in *Figure 5-32 Alarm Relay Mode Screen*.

Alarm Relay Mode Screen

The Alarm Relay Mode screen allows you to select the operation of the alarm relays.

```
             By Beacon
        ▓  ► By Tier
```

Figure 5-32 Alarm Relay Mode Screen

Button Functions:
- The **UP** or **DOWN** Buttons move the cursor to either By Beacon or By Biter.
- 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 Alarm Relay Mode line.

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* on Page *3-6*.

Logoff Screen

The Logoff Screen shown in *Figure 5-33 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 controller from all menus except the View Menu.

```
             Change Password       ^
             Set Number of Rings
             Set Construction Mode
        ▓        ...logoff...
```
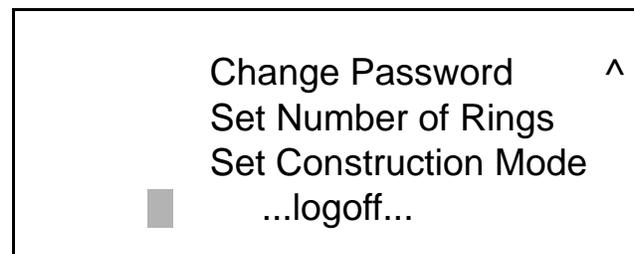
Figure 5-33 Logoff Screen

Button Functions:

- Press the **ENTER** Button to log off.

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

This page is intentionally left blank.

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.

Controller Parts

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

Photocell Part

The PEC 510 Photocell, a single assembly, has the part number *1855001*.

Table 6-1 Controller Replaceable Parts

Item	Description	Part Number Reference
Controller Board	4121 Controller PCB	**24121xx
Relay Board	4122 Relay PCB	2412201
TB3	Terminal Block, 18-position	4901930
TB2	Terminal Block, 12-position	4902074
Transformer	Power Transformer	*4902971
Surge Suppressor	Surge Suppressor Board	2865301
F1	Fuse	*4900342
Phone Connector	Connector, Phone	5902017
Switch Board	Switch Board	2737301
LED Board	Board, LED	2742901

*   This part number may vary according to the specific equipment voltage configuration.
**   The part number for the Controller 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 structure configuration and lighting scheme. Be prepared to answer questions about the type, number, lighting sequence, and arrangement of lights on the structure.
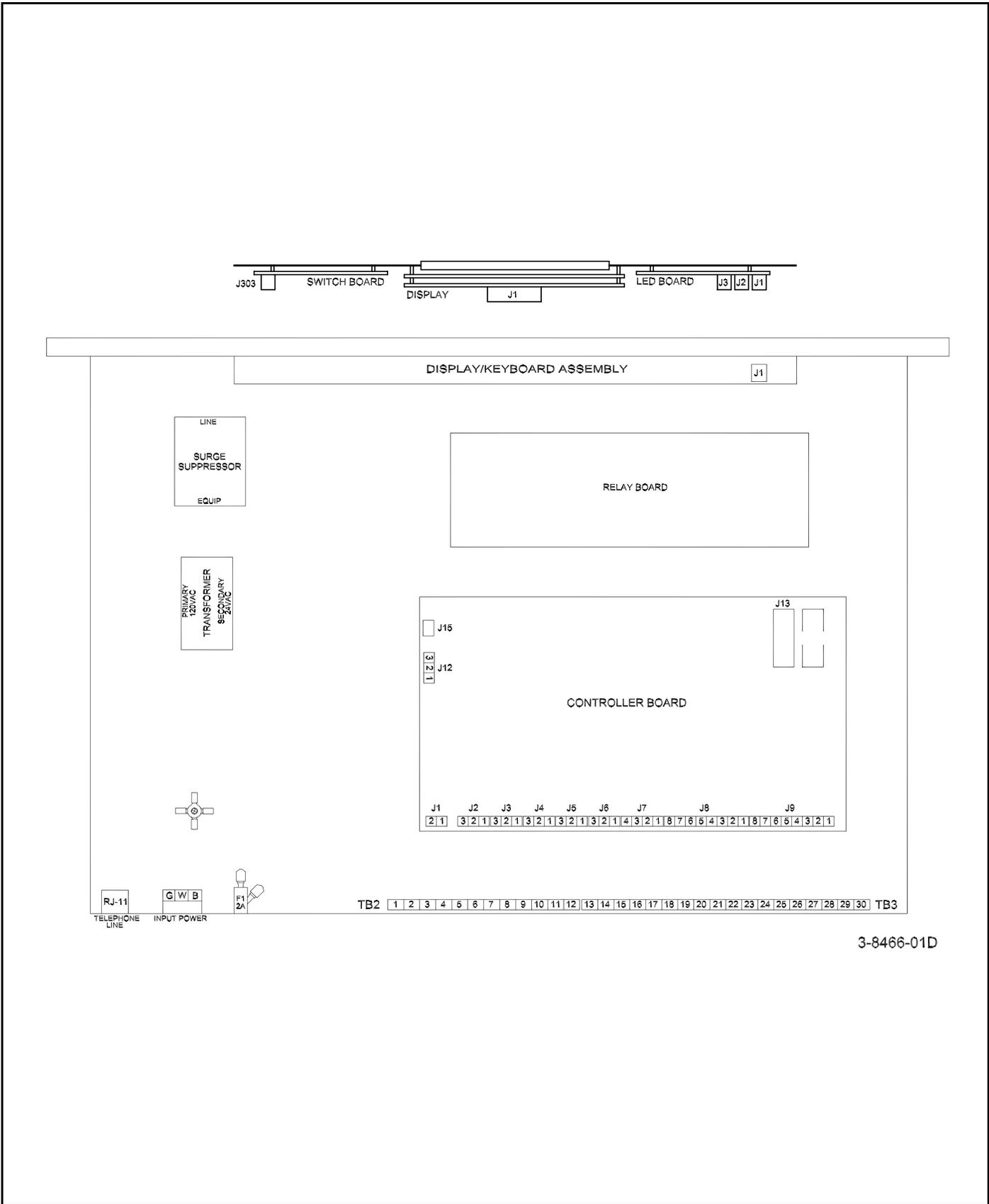
Figure 6-1 Controller Component Locations

60003
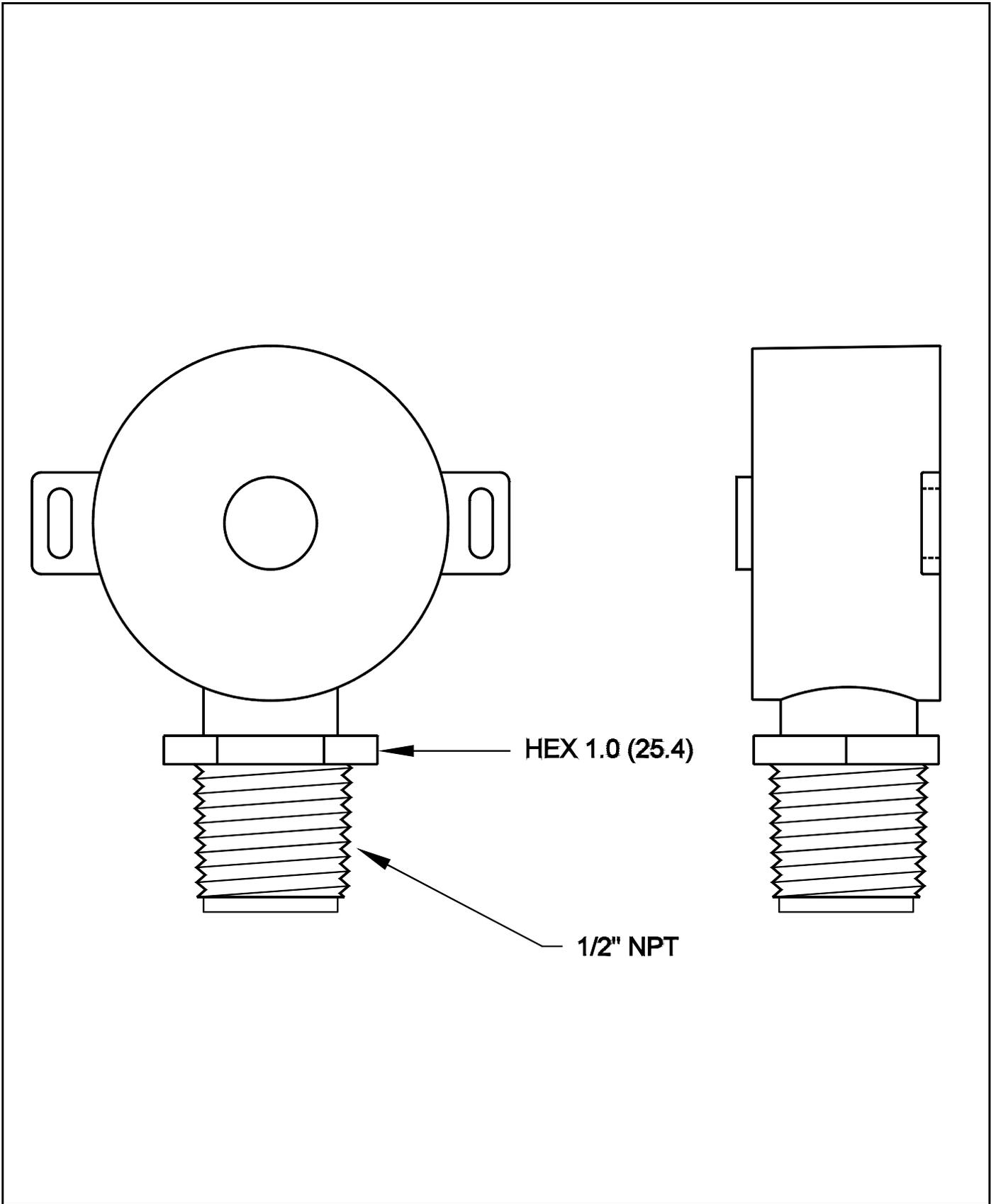
Figure 6-2 Photocell Component

This page is intentionally left blank.

ADDENDUM
FIRMWARE VERSION 4.9

Alarm Mode Screen

The Alarm Mode menu selection was added to the user screen as shown below.

Diagnostics display

Set Intensity Change Times ∧ — ∧ INDICATES ADDITIONAL LINES ABOVE THOSE SHOWN ON THE SCREEN. TO SEE THEM PRESS THE UP BUTTON.

Alarm Phone Numbers

Status Cd Phone Num — SCREEN OUTLINE

Install PEC ∨ — ∨ INDICATES ADDITIONAL LINES BELOW THOSE SHOWN ON THE SCREEN. TO SEE THEM PRESS THE DOWN BUTTON.

BLINKING CURSOR

PRESSING THE DOWN BUTTON MOVES THE CURSOR DOWN ONE LINE AT A TIME.

PRESSING THE UP BUTTON MOVES THE CURSOR UP ONE LINE AT A TIME.

Set Tower Name

Change Password

Set Number of Rings — THE SCREEN DISPLAYS 4 LINES AT A TIME.

Set Construction Mode

Backup Mode

Alarm Relay Mode

Alarm Mode ← — NEW MENU ITEM

...logoff... — WHEN THE CURSOR IS AT THIS POINT, PRESSING ENTER CAUSES A LOGOFF OF THE SYSTEM MENUS AND DISPLAYS THE FIRST SCREEN SHOWING THE TOWER NAME.

The Alarm Mode screen allows you to select the operation of the main alarm relay.

```
Alm Mode Norm
Alm Mode Auto Ack
```

Button Functions:
- The **UP** or **DOWN** Buttons move the cursor to either Alm Mode Norm or Alm Mode Auto Ack.

- The **ENTER** Button moves the small arrow 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 Alarm Mode line.

Operation:

Alm Mode Norm is the default selection. When in this mode the main alarm relay will latch in on any alarm detected by the 121 controller and will require the alarm(s) to be acknowledged by an operator before resetting. This is how the main alarm relay has operated prior to firmware version 4.9

Alm Mode Auto Ack can be selected to change how the main alarm relay operates. With this selection the main alarm relay will reset automatically and the alarm will be acknowledged automatically. The alarm will still be in the system for viewing and can be reset by the operator. For example, any beacon alarm or external red alarm that appears and then resets or disappears due to a temporary condition will be automatically acknowledged and the main alarm relay reset to normal condition. Other alarms pertaining to the controller (i.e. photocell) are not automatically acknowledged.

INDEX

END OF DOCUMENT