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

Copyright © 2003 Flash Technology Corporation of America®, Franklin, TN, 37067, U.S.A.

All rights reserved. Reproduction or use of any portion of this manual is prohibited without express written permission from Flash Technology Corporation of America and/or its licensor.

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

While every effort has been made to ensure that the information in this manual is complete, accurate and up-to-date, Flash Technology Corporation of America assumes no liability for damages resulting from any errors or omissions in this manual, or from the use of the information contained herein. Flash Technology Corporation of America reserves the right to revise this manual without obligation to notify any person or organization of the revision.

In no event will Flash Technology Corporation of America be liable for direct, indirect, special, incidental, or consequential damages arising out of the use of or the inability to use this manual.

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>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front Matter</td>
<td>ii</td>
</tr>
<tr>
<td>Abstract</td>
<td>ii</td>
</tr>
<tr>
<td>Copyright</td>
<td>ii</td>
</tr>
<tr>
<td>Trademark Acknowledgments</td>
<td>ii</td>
</tr>
<tr>
<td>Applicable Specification</td>
<td>ii</td>
</tr>
<tr>
<td>Disclaimer</td>
<td>ii</td>
</tr>
<tr>
<td>Warranty</td>
<td>ii</td>
</tr>
<tr>
<td>Replacement Parts</td>
<td>ii</td>
</tr>
<tr>
<td>Table of Contents</td>
<td>iv</td>
</tr>
<tr>
<td>Table of Contents (cont’d)</td>
<td>v</td>
</tr>
<tr>
<td>Table of Contents (cont’d)</td>
<td>vi</td>
</tr>
<tr>
<td>Table of Contents (cont’d)</td>
<td>vii</td>
</tr>
<tr>
<td>List of Tables</td>
<td>vii</td>
</tr>
<tr>
<td>List of Figures</td>
<td>vii</td>
</tr>
<tr>
<td>List of Figures (cont’d)</td>
<td>viii</td>
</tr>
</tbody>
</table>

**Section 1 — Introduction**  
System 1-1  
Remote Monitoring and Control Option: Eagle Software 1-1

**Section 2 — Outline, Mounting, and Installation**  
Unpacking 2-1  
Tools 2-1  
Access 2-1  
FTC 121-2R Controller 2-1  
FTC 121-2W Controller 2-1  
Mounting 2-1  
FTC 121-2R Controller 2-1  
FTC 121-2W Controller 2-1  
PFC 510 Photocell 2-1  
Wiring 2-2  
All installation wiring should have an insulation rating of 600 volts. 2-2  
External Connections 2-2  
Installation Checklist 2-2

**Section 3 — Operation**  
Menu Functions 3-1  
View Menu 3-1  
User Menu 3-1  
Directory of Available Screens 3-2  
Operation Panel 3-4  
LED Indicators and Front Panel Buttons 3-5  
Menus and Screens 3-5  
Cursor 3-6  
Screen Saver 3-6
Table of Contents (cont’d)

Opening Screens ................................................................. 3-6
   New Starting Screen ......................................................... 3-6
   Alarms ............................................................................. 3-6
   No Unacknowledged Alarms or Status Codes are Present .......... 3-6
   No Alarms Present Screen ............................................... 3-6
View and User Menus ............................................................. 3-6

Section 4 Operation — View Menu .......................................... 4-1
View Menu ............................................................................. 4-1
Front Panel Button Functions .................................................. 4-1
Handling Alarms ..................................................................... 4-2
   Acknowledge or Reset an Alarm ........................................... 4-2
   Remote Notification of Alarms .............................................. 4-2
   Alarm Displays .................................................................... 4-2
      Alarm Screens ................................................................ 4-2
      Unacknowledged System Alarm Screen ......................... 4-2
         Alarm Conditions .......................................................... 4-3
         Specific Beacon Alarm .................................................. 4-3
         Alarm Display Selection Screen ................................... 4-3
         Unacknowledged System Alarms Present Screen ............ 4-4
         Alarm to be Acknowledged Screen ............................... 4-4
         Alarm Reset Screen ...................................................... 4-4
         Ensure Alarm Reset Screen ......................................... 4-5
         Alarm to be Reset Screen .............................................. 4-5
         Alarm is Reset Screen .................................................. 4-5
Graphic Display ..................................................................... 4-6
   Graphic Display Screen ..................................................... 4-6
      Graphic Display Selection ............................................... 4-6
   Graphic Display Screen ..................................................... 4-6
Manual Intensity Select ........................................................... 4-6
   Manual Intensity Selection .................................................. 4-6
   Intensity Select Screen ...................................................... 4-7
Display Brightness .................................................................. 4-7
   Display Brightness Selection .............................................. 4-7
   Display Brightness Screen .................................................. 4-7
Date/Time Display ................................................................... 4-7
   Date/Time Display Selection .............................................. 4-7
   Date/Time Display Screen ................................................... 4-7
Intensity Change Times ............................................................ 4-8
   Intensity Change Times Selection ...................................... 4-8
   Intensity Change Times Display Screen .............................. 4-8
General Information ............................................................... 4-9
   General Information Selection ............................................ 4-9
   General Information Screen ................................................. 4-9
Communications Status ........................................................... 4-9
   Communications Status Screen—No Problems ..................... 4-9
   Communications Status Screen—Problems ......................... 4-10
User Menu .............................................................................. 4-10

FTC 121-2 Revision 2 — 6-24-2003 v
# Table of Contents (cont’d)

**Section 5 — Operation; User Menu**  .......................................................... 5-1

| User Menu | 5-1 |
| Accessing the User Menu (...more...) | 5-1 |
| Password Selection | 5-1 |
| Enter Password Screen | 5-1 |
| Incorrect Password Screen | 5-2 |
| User Menu Selections | 5-2 |

**Diagnostics**  .......................... 5-3

| Diagnostics Screens | 5-5 |
| Diagnostics Selection | 5-5 |
| Total Flashes Screen | 5-5 |
| Day Flashes Screen | 5-5 |
| Twi Flashes Screen | 5-6 |
| Nite Flashes Screen | 5-6 |
| Red Flashes Screen | 5-6 |
| Internal Temp Screen | 5-6 |
| Line Voltage Screen | 5-7 |
| Trig. Voltage Screen | 5-7 |
| Bank Voltage Screen | 5-7 |
| Day Energy Screen | 5-8 |
| Twi Energy Screen | 5-8 |
| Night Energy Screen | 5-8 |
| Red Energy Screen | 5-9 |
| Mode Flashes Screen | 5-9 |
| Mode Triggers Screen | 5-9 |
| Marker Voltage Screen | 5-9 |
| # Marker Bulbs Screen | 5-10 |
| Firmware Number and Version Screen | 5-10 |

**Set Intensity Change Times**  .......................... 5-10

| Set Intensity Change Times Selection | 5-11 |
| Set Intensity Change Times Screen | 5-11 |

**Alarm and Status Code Phone Numbers**  .......................... 5-11

| Alarm Call Out Phone Numbers Selection | 5-11 |
| Alarm Call Out Phone Numbers Screen | 5-11 |
| Status Call Out Phone Number Selection | 5-12 |
| Status Call Out Phone Numbers Screen | 5-12 |

**Install PEC**  .......................... 5-12

| Install PEC Selection | 5-13 |
| Install PEC Screen | 5-13 |

**Set Tower Name**  .......................... 5-13

| Set Tower Name Selection | 5-13 |
| Set Tower Name Screen | 5-13 |

**Change Password**  .......................... 5-13

| Change Password Selection | 5-14 |
| Change Password Type Screen | 5-14 |
| Change Password Screen | 5-14 |

**Set Number of Rings**  .......................... 5-15
Table of Contents (cont’d)

Set Number of Rings Selection ................................................................. 5-15
Set Number of Rings Screen ................................................................. 5-15
Construction Mode ............................................................................... 5-15
   Set Construction Mode Selection ......................................................... 5-15
   Construction Mode Screen .............................................................. 5-15
Backup Mode ....................................................................................... 5-16
   Backup Mode Selection .................................................................. 5-16
   Backup Mode Screen .................................................................... 5-16
Alarm Relay Mode ............................................................................... 5-16
   Set Alarm Relay Mode Selection ..................................................... 5-16
   Alarm Relay Mode Screen ............................................................ 5-16
Logoff ................................................................................................. 5-17
   Logoff Screen ............................................................................. 5-17

Section 6 — Replaceable and Spare Parts .............................................. 6-1
Customer Service .............................................................................. 6-1
Ordering Parts .................................................................................. 6-1
Controller Parts ................................................................................ 6-1
Photocell Part .................................................................................... 6-1
INDEX .................................................................................................. 6-1

List of Tables

Table ....................................................................................................... Page
3-1 Sequential Directory of View and User Screens .............................. 3-2
3-2 LED Indicators .............................................................................. 3-5
3-3 Front Panel Button Functions ......................................................... 3-5
6-1 Controller Replaceable Parts ............................................................. 6-1

List of Figures

Figure ..................................................................................................... Page
2-1 FTC 121-2R Controller Mounting and Outline ............................... 2-3
2-2 FTC 121-2W Controller Mounting and Outline ............................. 2-4
2-3 PEC 510 Photocell Mounting and Outline .................................... 2-5
2-4 Installation Wiring ........................................................................ 2-6
2-5 FTC 121-2R/W Internal Wiring ....................................................... 2-7
3-1 Operation Panel ............................................................................ 3-4
3-2 New Starting Screen .................................................................... 3-6
3-3 No Alarms Present Screen ............................................................ 3-6
4-1 View Menu Selections .................................................................. 4-1
4-2 ALARM Display Selection Screen .............................................. 4-3
4-3 Alarms Present Screen ................................................................ 4-4
4-4 Alarm to be Acknowledged Screen ............................................. 4-4
4-5 Alarm Reset Screen .................................................................... 4-4
4-6 Ensure Alarm Reset Screen ........................................................... 4-5

FTC 121-2  Revision 2 — 6-24-2003 vii
List of Figures (cont’d)

4-7 Alarm to be Reset Screen .......................................................... 4-5
4-8 Alarm is Reset Screen ................................................................. 4-5
4-9 Graphic Display Screen ............................................................... 4-6
4-10 Intensity Select Screen ............................................................... 4-7
4-11 Display Brightness Screen ......................................................... 4-7
4-12 Date/Time Display Screen ........................................................... 4-8
4-13 Intensity Change Times Display Screen ...................................... 4-9
4-14 General Information Screen ....................................................... 4-9
4-15 Communication Status Screen - No Problems .............................. 4-10
4-16 Communication Status Screen - Problems .................................. 4-10
5-1 Enter Password Screen ............................................................... 5-1
5-2 Incorrect Password Screen ......................................................... 5-2
5-3 User Menu Selections ................................................................. 5-3
5-4 Total Flashes Screen .................................................................. 5-5
5-5 Day Flashes Screen ................................................................... 5-5
5-6 Twi Flashes Screen .................................................................... 5-6
5-7 Nite Flashes Screen .................................................................... 5-6
5-8 Red Flashes Screen .................................................................... 5-6
5-9 Internal Temp Screen .................................................................. 5-7
5-10 Line Voltage Screen .................................................................. 5-7
5-11 Trig. Voltage Screen .................................................................. 5-7
5-12 Bank Voltage Screen .................................................................. 5-7
5-13 Day Energy Screen ................................................................... 5-8
5-14 Twi Energy Screen ................................................................... 5-8
5-15 Night Energy Screen .................................................................. 5-8
5-16 Red Energy Screen ................................................................... 5-9
5-17 Mode Flashes Screen .................................................................. 5-9
5-18 Mode Triggers Screen ................................................................. 5-9
5-19 Marker Voltage Screen ............................................................... 5-10
5-20 # Marker Bulbs Screen ............................................................... 5-10
5-21 Firmware Number and Version Screen ....................................... 5-10
5-22 Set Intensity Change Times Screen ........................................... 5-11
5-23 Alarm Call Out Phone Numbers Screen ..................................... 5-12
5-24 Status Call Out Phone Numbers Screen ..................................... 5-12
5-25 Install PEC Screen ................................................................. 5-13
5-26 Set Tower Name Screen ............................................................. 5-13
5-27 Change Password Type Screen .................................................. 5-14
5-28 Change Password Screen .......................................................... 5-14
5-29 Set Number of Rings Screen .................................................... 5-15
5-30 Set Construction Mode Screen .................................................. 5-15
5-31 Backup Mode Screen ............................................................... 5-16
5-32 Alarm Relay Mode Screen ......................................................... 5-16
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-33 Logoff Screen</td>
<td>5-17</td>
</tr>
<tr>
<td>6-1 Controller Component Locations</td>
<td>6-2</td>
</tr>
<tr>
<td>6-2 Photocell Component</td>
<td>6-3</td>
</tr>
</tbody>
</table>
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.
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 Photocell
- 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 external 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.
Figure 2-1 FTC 121-2R Controller Mounting and Outline

NOTE: DIMENSIONS ARE IN INCHES (MILLIMETERS)
Figure 2-2 FTC 121-2W Controller Mounting and Outline
Figure 2-3 PEC 510 Photocell Mounting and Outline

Note: All dimensions are in inches (millimeters)

1/2" NPT
Figure 2-4 Installation 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 photo-cell 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

<table>
<thead>
<tr>
<th>Menu</th>
<th>Main Screen or Menu Line</th>
<th>Screen Reference</th>
<th>Sub-Screen</th>
</tr>
</thead>
<tbody>
<tr>
<td>View</td>
<td>New Starting Screen</td>
<td>Figure 3-2 Page 3-6</td>
<td>Figure 3-3 No Alarms Present Screen on Page 3-6</td>
</tr>
<tr>
<td></td>
<td><strong>ALARM Display Selection Screen</strong></td>
<td>Figure 4-2 Page 4-3</td>
<td>Figure 4-3 Alarms Present Screen on Page 4-4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Figure 4-4 Alarm to be Acknowledged Screen on Page 4-4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Figure 4-5 Alarm Reset Screen on Page 4-4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Figure 4-6 Ensure Alarm Reset Screen on Page 4-5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Figure 4-7 Alarm to be Reset Screen on Page 4-5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Figure 4-8 Alarm is Reset Screen on Page 4-5</td>
</tr>
<tr>
<td></td>
<td><strong>Graphic Display Selection</strong></td>
<td>Figure 4-9 Page 4-6</td>
<td>Figure 4-9 Graphic Display Screen on Page 4-6</td>
</tr>
<tr>
<td></td>
<td>Manual Intensity Selection</td>
<td>Figure 4-10 Page 4-7</td>
<td>Figure 4-10 Intensity Select Screen on Page 4-7</td>
</tr>
<tr>
<td></td>
<td>Display Brightness Selection</td>
<td>Figure 4-11 Page 4-7</td>
<td>Figure 4-11 Display Brightness Screen on Page 4-7</td>
</tr>
<tr>
<td></td>
<td>Date/Time Display Selection</td>
<td>Figure 4-12 Page 4-8</td>
<td>Figure 4-12 Date/Time Display Screen on Page 4-8</td>
</tr>
<tr>
<td></td>
<td>Intensity Change Times Selection</td>
<td>Figure 4-13 Page 4-9</td>
<td>Figure 4-13 Intensity Change Times Display Screen on Page 4-9</td>
</tr>
<tr>
<td></td>
<td>General Information Selection</td>
<td>Figure 4-14 Page 4-9</td>
<td>Figure 4-14 General Information Screen on Page 4-9</td>
</tr>
<tr>
<td></td>
<td><strong>Communications Status</strong></td>
<td>Figure 4-15 Page 4-10</td>
<td>Figure 4-15 Communication Status Screen - No Problems on Page 4-10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Figure 4-16 Communication Status Screen - Problems on Page 4-10</td>
</tr>
</tbody>
</table>
Table 3-1 Sequential Directory of View and User Screens (Continued)

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

<table>
<thead>
<tr>
<th>Menu</th>
<th>Main Screen or Menu Line</th>
<th>Screen Reference</th>
<th>Sub-Screen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change Password Selection</td>
<td>Figure 5-27 Page 5-14</td>
<td></td>
<td>Figure 5-27 Change Password Type Screen on Page 5-14</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Figure 5-28 Change Password Screen on Page 5-14</td>
</tr>
<tr>
<td>Set Number of Rings Selection</td>
<td>Figure 5-29 Page 5-15</td>
<td></td>
<td>Figure 5-29 Set Number of Rings Screen on Page 5-15</td>
</tr>
<tr>
<td>Set Construction Mode Selection</td>
<td>Figure 5-30 Page 5-15</td>
<td></td>
<td>Figure 5-30 Set Construction Mode Screen on Page 5-15</td>
</tr>
<tr>
<td>Backup Mode Selection</td>
<td>Figure 5-31 Page 5-16</td>
<td></td>
<td>Figure 5-31 Backup Mode Screen on Page 5-16</td>
</tr>
<tr>
<td>Set Alarm Relay Mode Selection</td>
<td>Figure 5-32 Page 5-16</td>
<td></td>
<td>Figure 5-32 Alarm Relay Mode Screen on Page 5-16</td>
</tr>
</tbody>
</table>

**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.

![Figure 3-1 Operation Panel](image-url)
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

<table>
<thead>
<tr>
<th>LED</th>
<th>Color</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>POWER</td>
<td>Steady green</td>
<td>Indicates that power is on.</td>
</tr>
<tr>
<td>ALARM</td>
<td>Blinking red</td>
<td>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.</td>
</tr>
<tr>
<td>LINK OK</td>
<td>Steady green</td>
<td>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.</td>
</tr>
<tr>
<td>DAY</td>
<td>Steady or blinking yellow</td>
<td>Steady yellow when the system is in Day intensity under automatic photocell control. It blinks yellow if the system is in manual Day mode.</td>
</tr>
<tr>
<td>TWILIGHT</td>
<td>Steady or blinking yellow</td>
<td>Steady yellow when the system is in Twilight intensity under automatic photocell control. It blinks yellow if the system is in manual Twilight mode.</td>
</tr>
<tr>
<td>NIGHT</td>
<td>Steady or blinking yellow</td>
<td>Steady yellow when the system is in Night intensity under automatic photocell control. It blinks yellow if the system is in manual Night mode.</td>
</tr>
</tbody>
</table>

### Table 3-3 Front Panel Button Functions

<table>
<thead>
<tr>
<th>Button</th>
<th>General Function</th>
<th>Specific Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>UP</td>
<td>These buttons select menu choices from a menu screen, or modify the value of a setting in a function-setting screen.</td>
<td>• Selects the previous menu choice or function, or adjusts the value of a setting upward in a function-setting screen.</td>
</tr>
<tr>
<td>DOWN</td>
<td>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.</td>
<td>• Selects the next menu choice or function, or adjusts the value of a setting downward in a function-setting screen.</td>
</tr>
<tr>
<td>ENTER</td>
<td>This button functions differently in different situations, as described in the next column.</td>
<td>• 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.</td>
</tr>
<tr>
<td>EXIT</td>
<td>This button functions differently in different situations, as described in the next column.</td>
<td>• 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.</td>
</tr>
</tbody>
</table>

**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.

There are no ALARM(S) currently in the system

**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.

**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.

![Figure 4-1 View Menu Selections](image)

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

### 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 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.
**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*.

**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 problem may be the strobe, the controller, or the connecting cable.

**Figure 4-4 Alarm to be Acknowledged Screen**

**Button Functions:**

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

**Alarm Reset Screen**

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

**Figure 4-5 Alarm Reset Screen**

**Button Functions:**

- The **ENTER** Button prompts you again to make sure that you really want to reset this alarm as shown in *Figure 4-6 Ensure Alarm Reset Screen* 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).
A circle that “flashes” (fills solid) at a regular flash rate indicates a properly working beacon (no alarms).

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

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

An “S” indicates Service Mode.

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.

![Figure 4-9 Graphic Display Screen](image)

**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 Twilight 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.
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.

Figure 4-11 Display Brightness Screen

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.

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.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NIGHT-TWI</td>
<td>05:00 AM</td>
</tr>
<tr>
<td>TWI-DAY</td>
<td>05:30 AM</td>
</tr>
<tr>
<td>DAY-TWI</td>
<td>04:30 PM</td>
</tr>
<tr>
<td>TWI-NIGHT</td>
<td>05:00 PM</td>
</tr>
</tbody>
</table>

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.
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.

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.

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.

User Menu

Figure 4-14 General Information Screen

| Master System | White w/ Red Strobe | FTC 121E v x.x.x |

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.
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.

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.
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 outside the programmed thresholds
- **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**
  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
  -Limit: x The lower limit alarm threshold of this tier
- **# 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.

<table>
<thead>
<tr>
<th>Total Flashes</th>
<th>T3B4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual: 121,123</td>
<td>Missed: 1</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Day Flashes</th>
<th>T3B4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual: 60,000</td>
<td>Missed: 1</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Twi Flashes</th>
<th>T3B4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual:</td>
<td>5000</td>
</tr>
<tr>
<td>Missed:</td>
<td>0</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Night Flashes</th>
<th>T3B4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual:</td>
<td>56,123</td>
</tr>
<tr>
<td>Missed:</td>
<td>0</td>
</tr>
</tbody>
</table>

Figure 5-7 Nite Flashes Screen

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.

<table>
<thead>
<tr>
<th>Red Flashes</th>
<th>T3B4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual:</td>
<td>111,812</td>
</tr>
<tr>
<td>Missed:</td>
<td>0</td>
</tr>
</tbody>
</table>

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

Trig. Voltage T3B4
Latest: 161 V
-Limit: 150 V

Bank Voltage T3B4
Latest: 1077 V
-Limit: 900 V

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

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.

<table>
<thead>
<tr>
<th>Day Energy</th>
<th>T3B4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latest:</td>
<td>10,257</td>
</tr>
<tr>
<td>-Limit:</td>
<td>5000</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Twi Energy</th>
<th>T3B4</th>
</tr>
</thead>
<tbody>
<tr>
<td>+Limit:</td>
<td>5000</td>
</tr>
<tr>
<td>Latest:</td>
<td>3737</td>
</tr>
<tr>
<td>-Limit:</td>
<td>500</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Night Energy</th>
<th>T3B4</th>
</tr>
</thead>
<tbody>
<tr>
<td>+Limit:</td>
<td>500</td>
</tr>
<tr>
<td>Latest:</td>
<td>270</td>
</tr>
<tr>
<td>-Limit:</td>
<td>10</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Red Energy</th>
<th>T3B4</th>
</tr>
</thead>
<tbody>
<tr>
<td>+Limit:</td>
<td>500</td>
</tr>
<tr>
<td>Latest:</td>
<td>420</td>
</tr>
<tr>
<td>-Limit:</td>
<td>10</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Mode Flashes</th>
<th>T3B4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual:</td>
<td>1312</td>
</tr>
<tr>
<td>Missed:</td>
<td>0</td>
</tr>
</tbody>
</table>

Figure 5-17 Mode Flashes Screen

Button Functions in the Mode Flashes 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.

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.

<table>
<thead>
<tr>
<th>Mode Triggers</th>
<th>T3B4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual:</td>
<td>1312</td>
</tr>
<tr>
<td>Missed:</td>
<td>0</td>
</tr>
</tbody>
</table>

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 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 previous screen.
- The UP Button moves to the next screen.
- The EXIT Button displays the User Menu with the cursor at the Diagnostics line.

Figure 5-19 Marker Voltage Screen

# 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.

Figure 5-20 # Marker Bulbs Screen

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.

Figure 5-21 Firmware Number and Version Screen

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.

<table>
<thead>
<tr>
<th>NIGHT-TWI</th>
<th>05:00 AM</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWI-DAY</td>
<td>05:30 AM</td>
</tr>
<tr>
<td>DAY-TWI</td>
<td>04:30 PM</td>
</tr>
<tr>
<td>TWI-NIGHT</td>
<td>05:00 PM</td>
</tr>
</tbody>
</table>

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.
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.

Buttons to Install 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.

![Figure 5-25 Install PEC Screen](image)

**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”.

![Figure 5-26 Set Tower Name Screen](image)

**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.

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.

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

Construction Mode

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

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.

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 individual 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 moves the small arrow shown next to the currently operative selection to the one you select with the UP or DOWN Button.

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.

Button Functions:
- The UP or DOWN Buttons move the cursor between the options.
- The ENTER Button makes the selection operative and returns the display to the User Menu with the cursor next to the Alarm Relay Mode line.
• 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

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

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

* 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
Figure 6-2 Photocell Component

FTC 121-2
Revision 2 — 6-24-2003

HEX 1.0 (25.4)

1/2" NPT
This page is intentionally left blank.
Alarm Mode Screen

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

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

**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

A
Access
to controller 2-1
Acknowledging
alarms and status codes 4-2
Alarm 4-2
acknowledge 4-2
call out phone numbers screen 5-11
call out phone numbers selection 5-11
conditions 4-3
display 4-2
display selection 4-3
ensure reset 4-5
ext beacon fail 4-3
filter 4-3
handling 4-2
invalid PEC response 4-3
is reset 4-5
marker 4-3
night PEC failure 4-3
not present 3-6
photocell failure 4-3
present and unacknowledged 4-4
remote notification 4-2
reset 4-2, 4-4
screens 4-2
specific beacon 4-3
strobe COMM failure 4-3
strobe DAY 4-3
strobe failure 4-3
strobe NITE 4-3
strobe RED 4-3
strobe TWI 4-3
system
   unacknowledged 4-2
to be acknowledged 4-4
to be reset 4-5
twilight PEC error 4-3
unacknowledged system 4-2
Alarm and status code
dial-out phone numbers 5-11
Alarm code
   phone number 5-11
Alarms and status codes
   viewing 4-2
Antenna obstruction light, see AOL
AOL 4-6
B
Bank voltage 5-4
   screen 5-7
Beacon
   specific
      alarm 4-3
Brightness
   display 4-7
Bulbs
   number of marker
      screen 5-10
Buttons
   front panel 3-5
      functions 4-1
      functions 3-5
C
Catenary mode 4-9
Codes 2-2
Communications
   status 4-9, 4-10
   status screen 4-9
Components
   location
      controller 6-2
      PEC 6-3
Connection
   rear panel 2-2
Construction mode 5-15
   setting
      screen 5-15, 5-16
      selection 5-15, 5-16
Control
   remote 1-1
Controller
   component locations 6-2
   mounting 2-1
   parts 6-1
Cursor 3-6
Customer service
   phone numbers 6-1
D
Damage in shipment 2-1
Date
display screen 4-7
selection 4-7
Day
energy 5-4
screen 5-8
flashes 5-3
screen 5-5
Diagnostic
screens 5-5
Diagnostic screens
summary 5-3
bank voltage 5-4
day energy 5-4
day flashes 5-3
firmware 5-4
flash count 5-3
internal temp 5-4
line voltage 5-4
marker voltage 5-4
mode flashes 5-4
mode triggers 5-4
night energy 5-4
nite flashes 5-3
red energy 5-4
red flashes 5-3
trigger voltage 5-4
twi energy 5-4
twi flashes 5-3
Diagnostics 5-3
Directory of screens 3-2
Display
brightness 4-7
brightness screen 4-7
brightness selection 4-7
screens 3-5
Dual system 4-9
defined 1-1
E
EAGLE software 1-1
Electrical codes 2-2
Energy
day
screen 5-8
night
screen 5-8, 5-9
twi
External beacon fail 4-3
F
Filter alarm 4-3
Firmware 5-4
number
screen 5-10
Flash
count 5-3
day
screen 5-5
mode
screen 5-9
nite
screen 5-6
red
total
screen 5-5
twi
screen 5-6
Front panel
button
functions 3-5
buttons 3-5
figure 3-4
selections screen
view menu 4-1
LED indicators 3-5
FTC 121-1
introduction 1-1
FTC 121-1R
figure
mounting and outline 2-3
FTC 121-1W
figure
mounting and outline 2-4
Function-setting screens 3-5
G
General information 4-9
screen 4-9
selection 4-9
Graphic display 4-6
of structure 4-6
screen 4-6
screens 4-6
Indicators
   LED
      front panel 3-5
Install PEC 5-12
   screen 5-13
   selection 5-13
Installation
   access 2-1
   checklist 2-2
   figure
      wiring 2-6
   PEC 5-12
   tools 2-1
   wiring 2-2
Intensity
   automatic mode 4-6
   change time
      setting 5-10
   change times 4-8
      selection 4-8
   change times display screen 4-8
   day, night, or twilight 4-6
   manual selection 4-6
   select
      manual 4-6
   selection screen 4-7
   set change times screen 5-11
   setting change times 5-10
Internal
   temp 5-4
   temperature
      screen 5-6
   wiring 2-7
Introduction
   FTC 121-1 1-1
   operation 3-1
L
   LED
      front panel 3-5
      indicators 3-5
         front panel 3-5
Line
   voltage
      screen 5-7
   Line voltage 5-4
   Logoff 5-16
      screen 5-17
M
   Manual intensity
      select 4-6
      selection 4-6
   Marker
      alarm 4-3
      bulbs
         number of
            screen 5-10
      voltage 5-4
         screen 5-9
   Menu functions
      summary 3-1
   Menus 3-5
      defined 3-5
Mode
   catenary 4-9
   flashes 5-4
      screen 5-9
   normal 4-9
   structure operating 4-9
   triggers 5-4
      screen 5-9
Modem 5-11
Monitoring
   remote 1-1
Mounting
   controller 2-1
   PEC 2-1
Mounting and outline
   figure
      FTC 121-1R 2-3
      FTC 121-1W 2-4
      PEC 2-5
N
   Night
      energy 5-4
         screen 5-8
      PEC failure 4-3
   Nite flashes 5-3
      screen 5-6
   No alarms present screen 3-6
   Normal mode 4-9
# marker bulbs 5-4
Diagnostic screens
   summary
      # marker bulbs 5-4
Number of rings 5-15
   selection 5-15
O
Opening screens 3-6
Operation
   introduction 3-1
   panel 3-4
   figure 3-4
Ordering parts 6-1
P
Panel
   front
      figure 3-4
Parts
   controller 6-1
   ordering 6-1
   substitute
      use of 1-ii
Password
   changing 5-13
      password type screen 5-14
         selection 5-14
   changing screen 5-14
   characters 5-1
   deleting a character 5-2
   enter screen 5-1
   entering 5-1
   forgetting 5-14
   incorrect screen 5-2
   notify EAGLE operator 5-14
   selection 5-1
   use of asterisks 5-2
PEC 5-12
   components 6-3
   failure 4-3, 5-12
   figure
      mounting and outline 2-5
   install 5-12
      screen 5-13
      selection 5-13
   mounting 2-1
   response
   invalid 4-3
Photocell, see PEC
Photo-electric control, see PEC
Power restored 4-3
Procomm 5-11
R
Rear panel
   connection 2-2
Red
   energy 5-4
      screen 5-9
   flashes 5-3
      screen 5-6
Resetting alarms and status codes 4-2
Rings
   set number of 5-15
   set number of screen 5-15
S
Screen
   alarm call out phone numbers 5-12
   alarm display selection 4-3
   alarm is reset 4-5
   alarm reset 4-4
   alarm to be acknowledged 4-4
   alarm to be reset 4-5
   alarms present 4-4
   bank voltage 5-7
   change password 5-14
   change password type 5-14
   communication status-no problem 4-10
   communication status-problems 4-10
   date/time display 4-8
   day energy 5-8
   day flashes 5-5
   directory 3-2
   display brightness 4-7
   ensure alarm reset 4-5
   enter password 5-1
   firmware number 5-10
   general information 4-9
   graphic display 4-6
   incorrect password 5-2
   install PEC 5-13
   intensity change times 4-9
   intensity select 4-7
   internal temp 5-7
line voltage 5-7
logoff 5-17
marker voltage 5-10
mode flashes 5-9
mode triggers 5-9
new starting 3-6
night energy 5-8
nite flashes 5-6
no alarms present 3-6
# marker bulbs 5-10
red energy 5-9
red flashes 5-6
saver 3-6
set construction mode 5-15, 5-16
set intensity change times 5-11
set number of rings 5-15
set tower name 5-13
status call out phone numbers 5-12
total flashes 5-5
trigger voltage 5-7
twi energy 5-8
twi flashes 5-6
user menu selections 5-3
Screens
defined 3-5
opening 3-6
Selections
figure
front panel 4-1
Service menu 3-6
Set tower name 5-13
screen 5-13
selection 5-13
Standard system
defined 1-1
Status code
call out phone numbers 5-12
call out phone numbers screen 5-12
not present 3-6
phone number 5-11
Strobe
COMM failure 4-3
communication failure 4-3
day alarm 4-3
failure 4-3
nite alarm 4-3
power failure 4-3
red alarm 4-3
twi alarm 4-3
Structure
display 4-6
operating mode 4-9
T
Telephone
numbers
customer service 6-1
Temperature
internal
screen 5-6
Time
selection 4-7
Time display
screen 4-7
Tools
for installation 2-1
Total flashes
screen 5-5
Tower
graphic display 4-6
name
setting 5-13
Trigger
mode
screen 5-9
Trigger voltage 5-4
screen 5-7
Twi
energy 5-4
screen 5-8
flashes 5-3
screen 5-6
Twilight
PEC error 4-3
U
Unpacking 2-1
User
password 5-13
User menu 5-1
access 5-1
functions 5-1
selections screen 5-2, 5-3