



Medium Intensity Red A1-A6 Installation Manual

READ AND FOLLOW ALL SAFETY INSTRUCTIONS



- ***DO NOT*** let any supply cords touch hot surfaces higher than cord ratings.
- ***DO NOT*** mount near gas or electric heaters.
- ***Equipment should be mounted in locations and at heights where it will not be subject to tampering by unauthorized personnel.***
- ***The use of accessory equipment not recommended by the manufacturer may cause unsafe conditions.***
- ***DO NOT*** use this equipment for anything other than intended use.
- ***Do take pictures of the installation and the wiring connections for commissioning and warranty.***
- ***Proper Grounding is required to prevent lightning damage to the system***
- ***The operation and maintenance must be carried out by authorized personnel.***
- ***Repairs and Installation must only be carried out by qualified electrician.***
- ***Genuine Dialight replacement parts must be used when unforeseen repairs are required.***
- ***Observe the national safety rules and regulations during installation!!***
- ***Earth Grounding is required throughout the install process. Failure to do so could void all warranties!!***
- ***No alterations can be done without the agreement from Dialight Corp. Alterations other than written in this manual will void all warranties.***

SAVE THESE INSTRUCTIONS!!!

Notice and Warnings:

This manual contains important information regarding the proper installation, operation, and maintenance of this product. Before using the product, read and understand all instructions, cautions, notes and warnings, as well as all of the labels affixed to the product. Failure to do so could result in personal injury or damage to equipment and/or void the product warranty.



FAILURE TO LEAVE THE ENCLOSURES FREE FROM DEBRIS UPON COMPLETION OF INSTALLATION MAY CAUSE SHORT CIRCUITS AND VOID THE SYSTEM WARRANTY



CAUTION: ONLY APPROVED PHOTOCELLS CAN BE USED WITH THIS SYSTEM



WARNING: FAILURE TO PROPERLY BOND THE LOW INTENSITY L810 LIGHTS AND CONTROLLER ENCLOSURES TO THE TOWER STRUCTURE WILL RESULT IN EVENTUAL LIGHTNING DAMAGE OF THIS SYSTEM. THE SYSTEM'S WARRANTY SHALL BE VOID IF ALL LOW INTENSITY L810 LIGHTS AND CONTROLLER ENCLOSURES ARE NOT PROPERLY BONDED TO THE TOWER STRUCTURE. TO AVOID WARRANTY NULLIFICATION, FOLLOW THE DIRECTIONS IN THEIR ENTIRETY.



CAUTION: NEVER LOOK AT THE LIGHTS WHILE THE SYSTEM IS ENERGIZED. THE LIGHTS COULD ILLUMINATE CAUSING TEMPORARY BLINDNESS WHICH WOULD BE DANGEROUS AT HIGH ELEVATIONS.

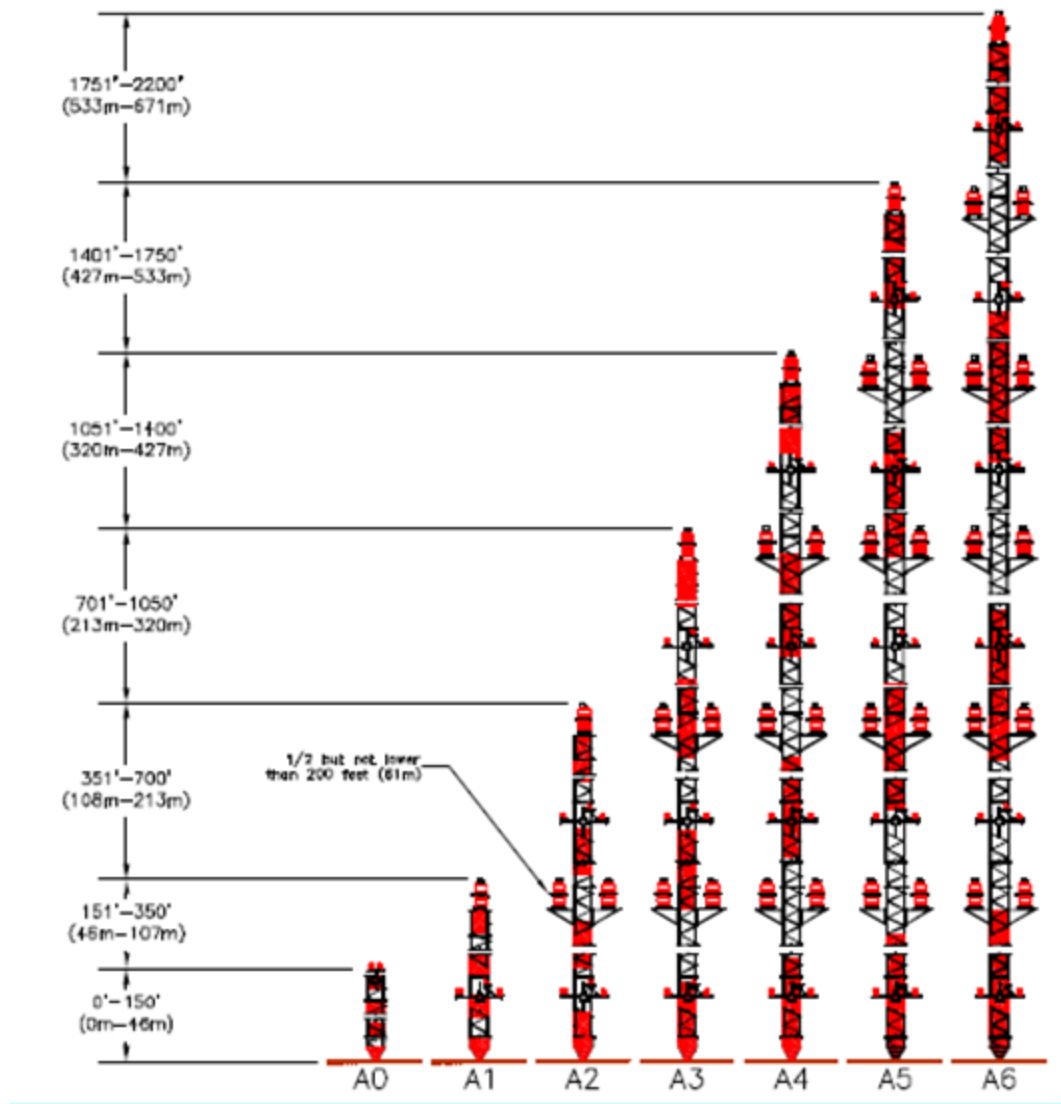
Included in this manual:

- Systems overview
- A tower style drawings
- Hot AM tower install disclaimer
- System Electrical Parameters
- Initial setup/installation requirements
- A1-A6 tower configurations/connections
- D5RC77FCTR (A1,A1+1,A2) Controller connections
- D5RE77FCTR(A2+1,A3+1,A4) Controller Connections
- D5RC77GCTR (A5,A6) Controller Connections
- Connecting the A5/A6 Expansion Box to the system
- Manual Calibration of the current sensors
- Photocell connection
- AC Mains Connections
- LCD Display Overview and System Configuration Settings
- Controller Status LED's
- Relay Board Alarm Dry Contact LED's
- Resetting
- Ext Sync Input (GPS, Etc.)
- Mechanical Dimensions of D564A13001 L864 Flash Head
- Mechanical Dimensions of Controller and A5/A6 expansion box
- Replacement Part Numbers
- Display Events and Alarm descriptions
- Troubleshooting

Systems Overview:

Dialight's LED based Red Obstruction System is ideal for A1 through A6 FAA tower types and can be used to mark other structures as well. The operation of the lights is configurable and fully monitored. The side markers and/or beacons can be run in steady burn or flashing mode, with up to 6 port banks individually mode selectable. The flash rate of the lights is also configurable, from lit solid and up to 40 flashes per minute. The Dialight Gateway is optional and provides remote monitoring of the system. The lights are ETL verified to the FAA requirements.

A Tower Style (Red at night) Drawings:



Hot AM Tower Installations:

The controller supplied with this install manual and hardware are NOT intended to be directly installed on to AM towers where the whole structure is the radiating antennae.

Contact www.dialight.com or your Sales Rep before installing.

Dialight provides additional information and different hardware kits for these structures

System Electrical Parameters:

Nominal Supply Voltage (VAC)	Conditions	Watts
120Vac 50/60Hz	Red night mode (A2- system)	Max 110W
230Vac 50/60Hz	Red night mode (A2- system)	Max 110 W
120Vac 50/60Hz	Red night mode (A3- system)	Max 200W
230Vac 50/60Hz	Red night mode (A3- system)	Max 200 W
120Vac 50/60Hz	Red night mode (A4- system)	Max 275W
230Vac 50/60Hz	Red night mode (A4- system)	Max 275 W
120Vac 50/60Hz	Red night mode (A5- system)	Max 325W
230Vac 50/60Hz	Red night mode (A5- system)	Max 325 W

NOTE: A2 is defined as 3 Beacon and 2 Marker light levels.

NOTE: A2+1 is defined as 4 Beacons and 2 Marker light levels.

NOTE: A3 is defined as 5 Beacon and 3 Marker light levels.

NOTE: A4 is defined as 7 Beacons and 4 Marker light levels.

Additional side light enclosure is required for structures A5 and A6

NOTE: A5 is defined as 9 Beacons and 5 Marker light levels.

NOTE: A6 is defined as 11 Beacons and 6 Marker light levels.

Initial setup/Installation Requirements:

1: Board address set up and light connection: Each monitor board and alarm relay board must be assessed with its rotary address switch. For the monitor boards; from right to left, board furthest to the right shall be addressed as "0," and each additional board being addressed as 1, 2...9, each board having a consecutive number setting. For the alarm relay boards, the board lying flat on the chassis plate shall be addressed as "0," and each additional board being addressed as 1, 2...9, each board having a consecutive number setting.

2: Beacon/side marker (RTO) light connections: See diagrams for A tower configurations. Detailed connections for each will be described following the diagrams.

**NOTE: for A5 and A6 towers, the use of the Expansion Box as pictured, housing a third Monitor board, will be necessary.*

3: Cable requirements: For the Mains cable, the electrician or installer is to calculate the wire requirements based on the amount of Beacons being installed. It is recommended that no install utilizes less than 14AWG wire with at least a 90°C temperature rating. See electrical parameters.

Cable between the Beacons and the Controller must be a minimum of 14AWG and 3 conductors. In some cases the cable provided will be 5 conductors.

WARNING: Earth Ground wires must be connected to grounding points.

NOTE: Cable with foil and braid is required for lightning protection when conduit or Tek cable is not used.

Multi-conductor cable is used for A2 and A2+1 structures. (700 feet or less)

A3 and larger systems require 600 volt single conductors and conduit.

TEK cable can be used on all structures.

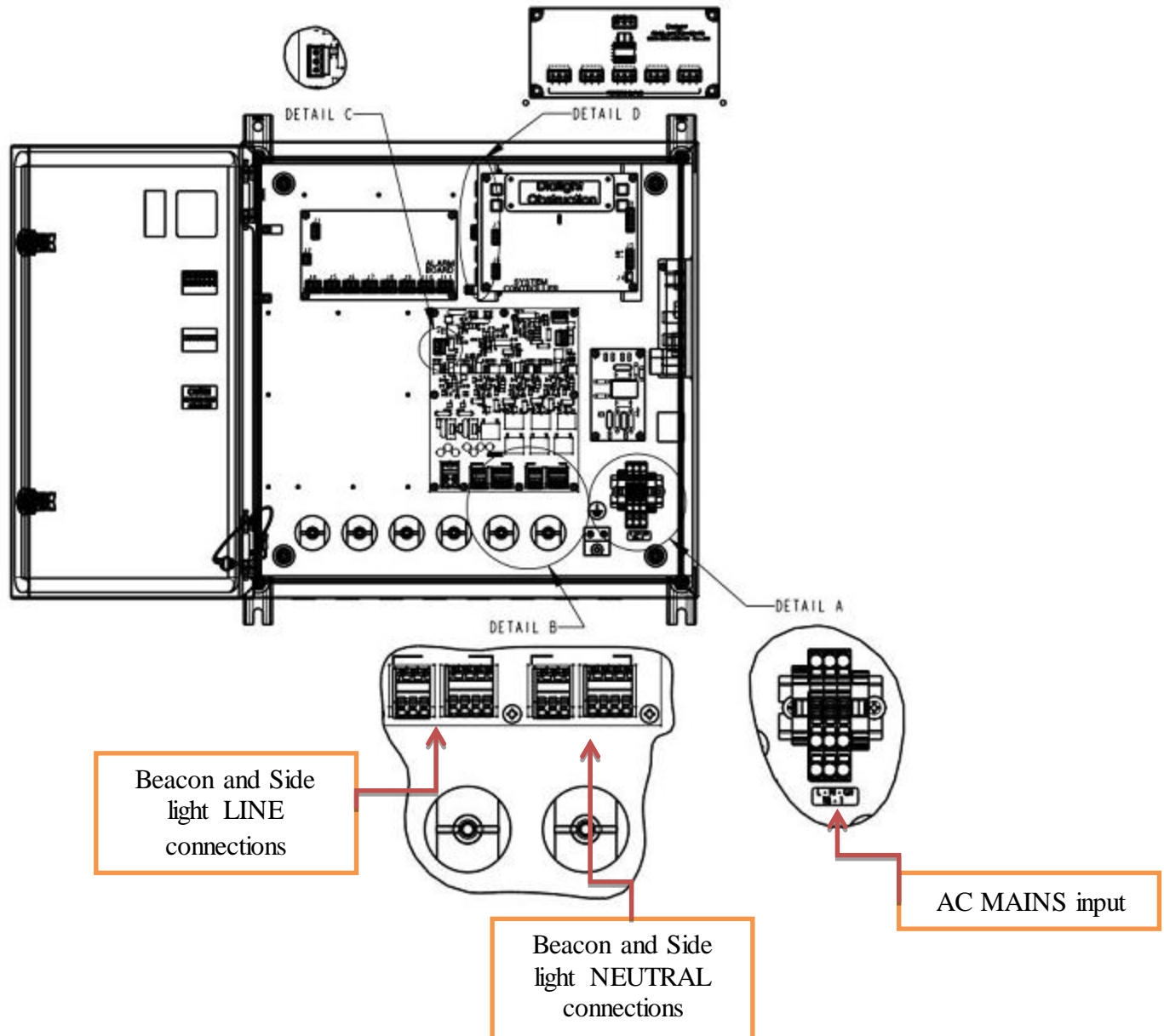
Cable between the Side lights and the controller must be a minimum of 16AWG and 3 conductors.

Cable between Photocell and the Controller must be a minimum of 18AWG and 3 conductors.

NOTE: Failure to do any of the above could void all factory warranties. If in doubt please contact your sales agent or representative.

For more details contact www.dialight.com or your local sales rep.

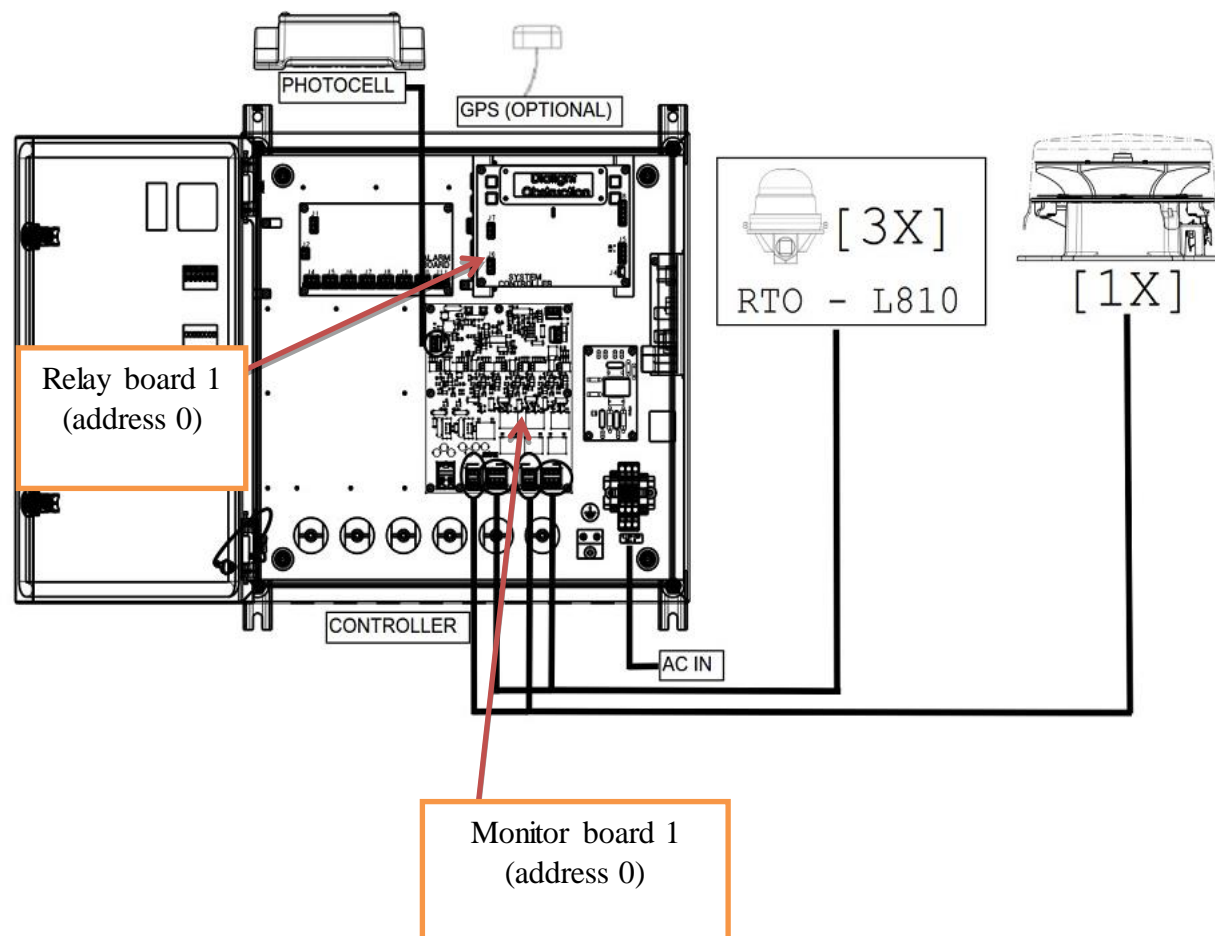
D5RC77FCTR (A1,A1+1,A2) Controller Connections:



Note: On Port Connection Tables shown below each configuration:

- BC1 = Beacon 1, BC2 = Beacon 2 etc. BC1 being the upper most Beacon.
- SDLite T1 = Side Marker Light Tier 1, SDLite T2 = Side Marker Light Tier 2 etc. SDLite T1 being the lowest tier of side markers from the ground.
- XXXX indicates the port is not used.

D5RC77FCTR in A1 Configuration:

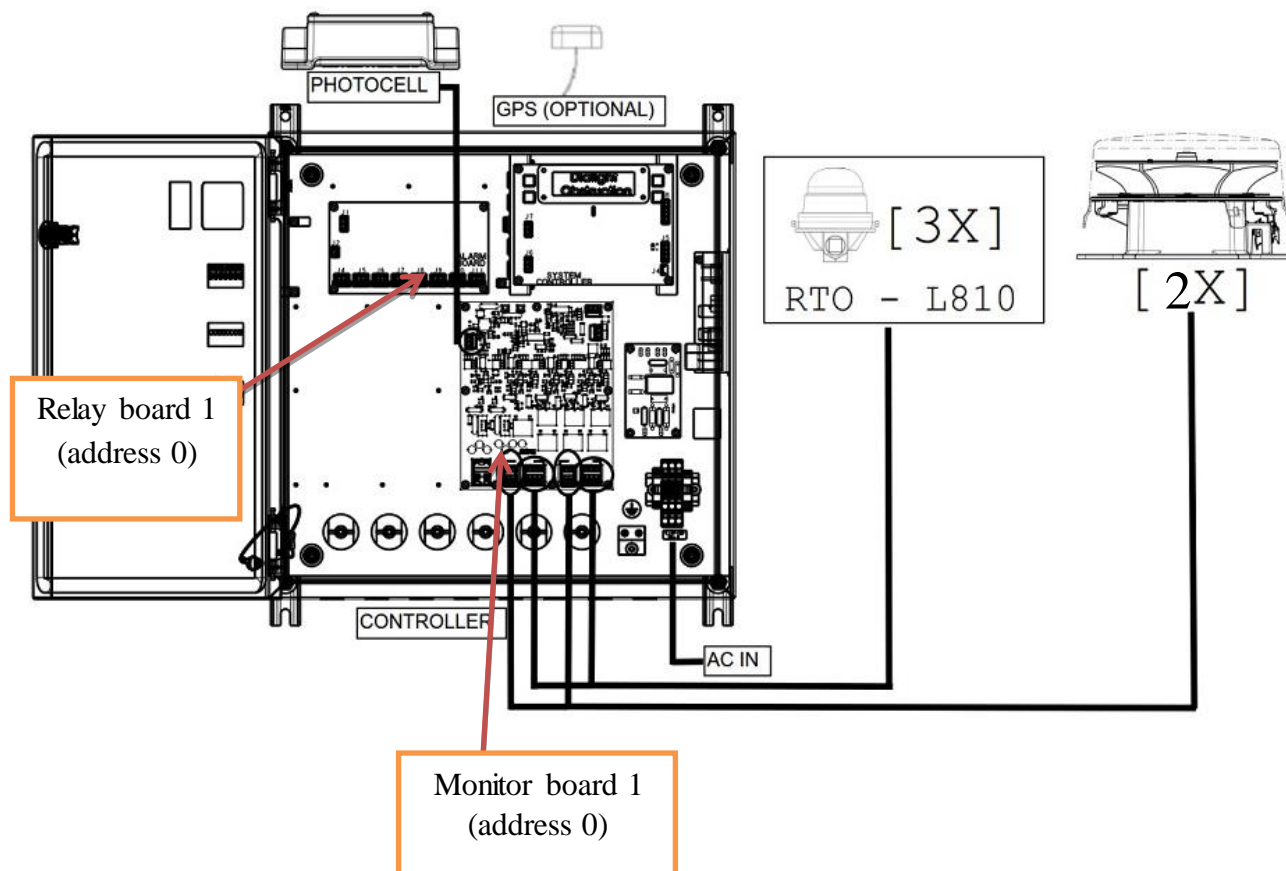


For A1:

1 monitor board:

Port1	Port2	Port3	Port4	Port5	Port6	Port7
BC1	xxxx	xxxxx	SDLite T1	xxxxx	xxxxx	xxxxx

D5RC77FCTR in A1+1 Configuration:

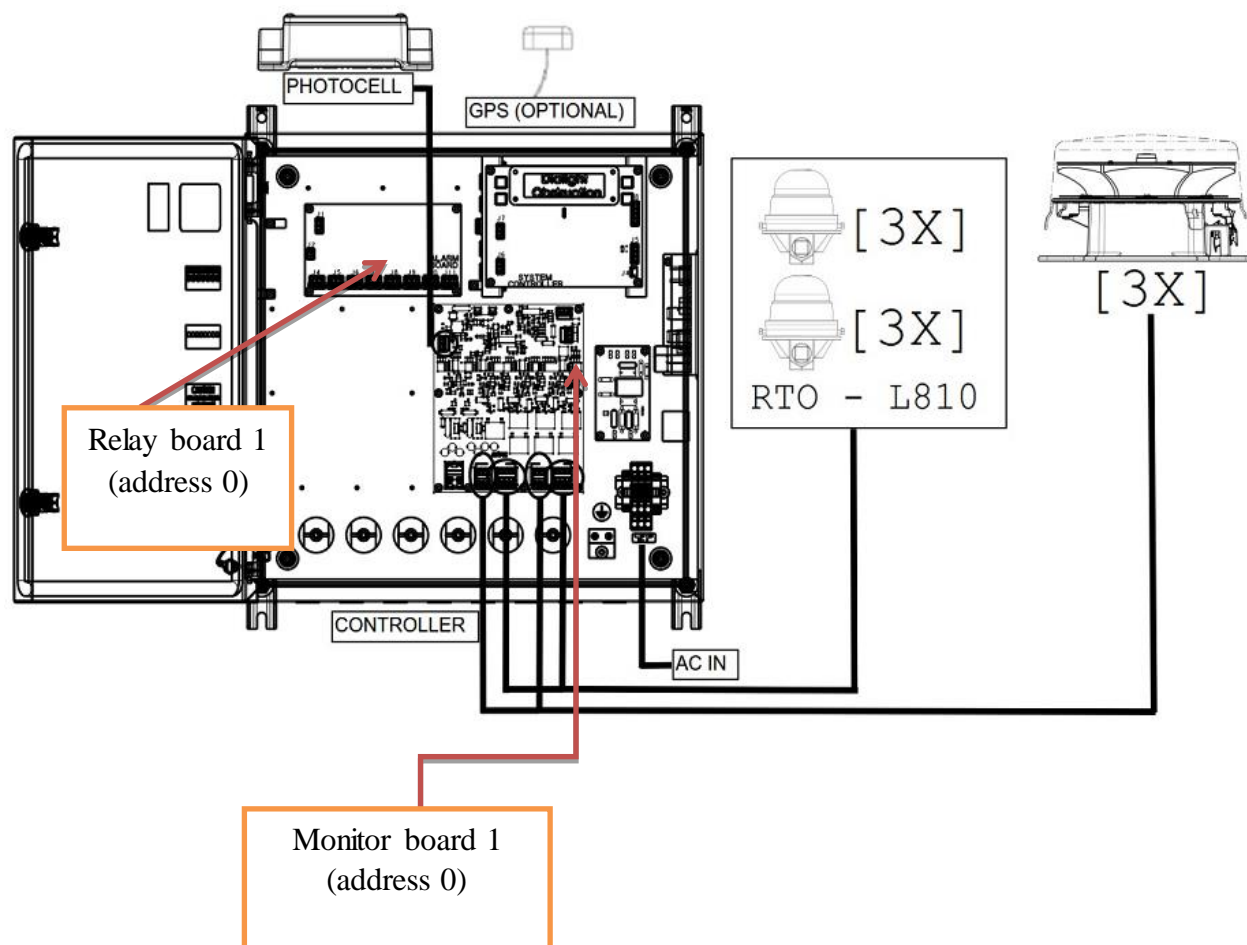


For A1+1:

1 monitor board:

Port1	Port2	Port3	Port4	Port5	Port6	Port7
BC1	BC2	xxxxx	SDLite T1	xxxxx	xxxxx	xxxxx

D5RC77FCTR in A2 Configuration

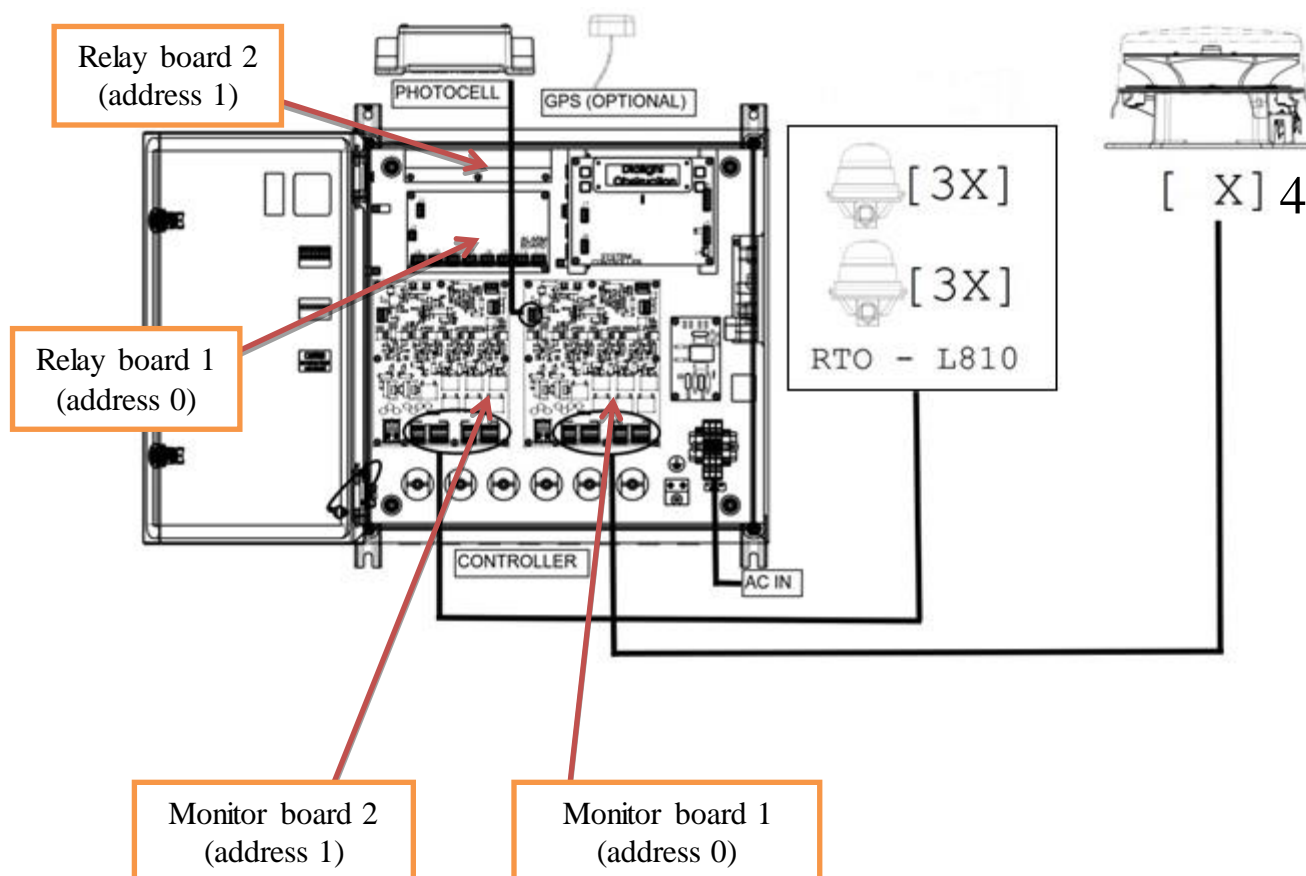


For A2:

1 monitor board:

Port1	Port2	Port3	Port4	Port5	Port6	Port7
BC1	BC2	BC3	SDLite T1	SDLite T2	xxxxx	xxxxx

D5RE77FCTR in A2+1 Configuration:



For A2+1:

2 monitor boards:

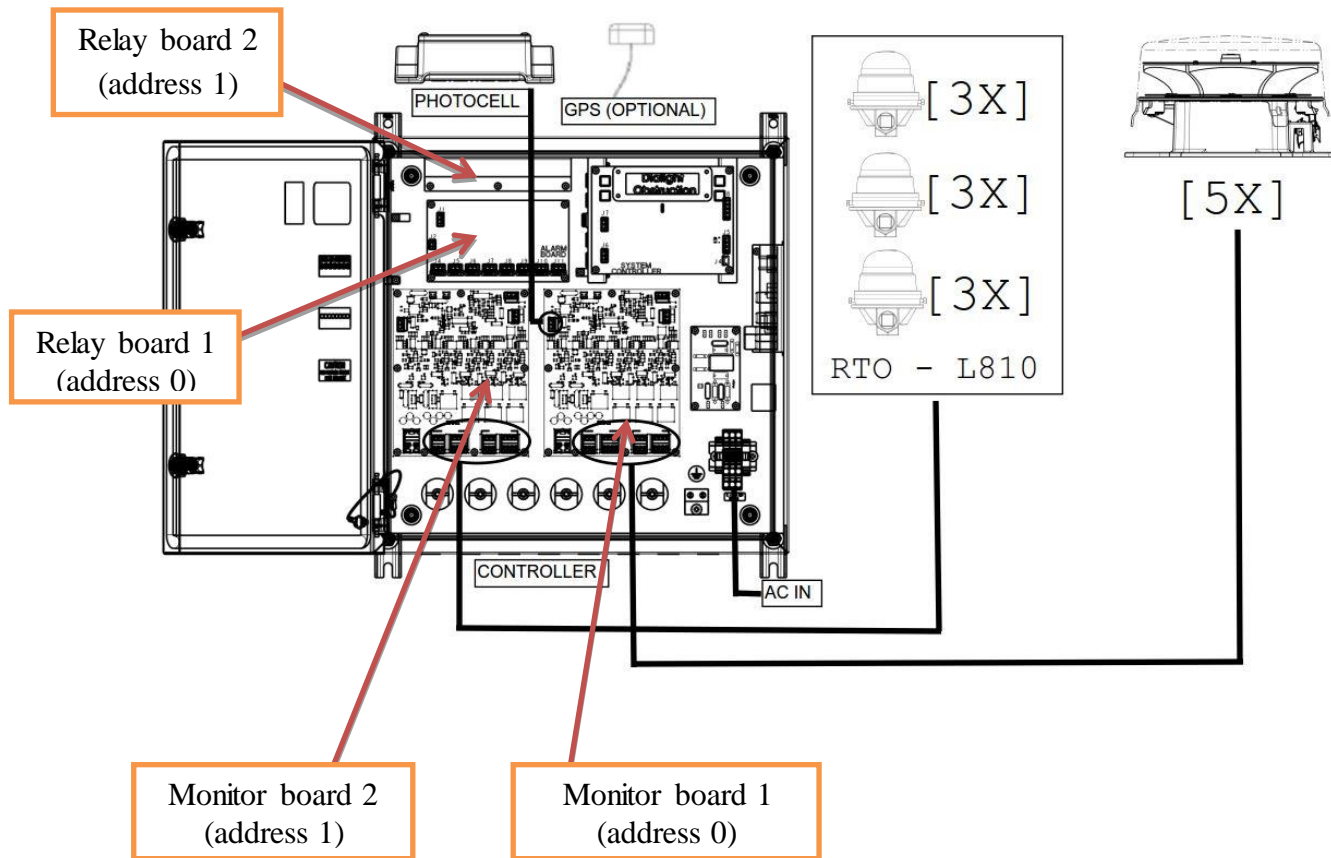
Monitor board 1: Detail B

Port1	Port2	Port3	Port4	Port5	Port6	Port7
BC1	BC2	BC3	BC4	xxxxx	xxxxx	xxxxx

Monitor board 2: Detail B

Port1	Port2	Port3	Port4	Port5	Port6	Port7
SDLite T1	SDLite T2	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx

D5RE77FCTR in A3 Configuration



For A3:

2 monitor boards:

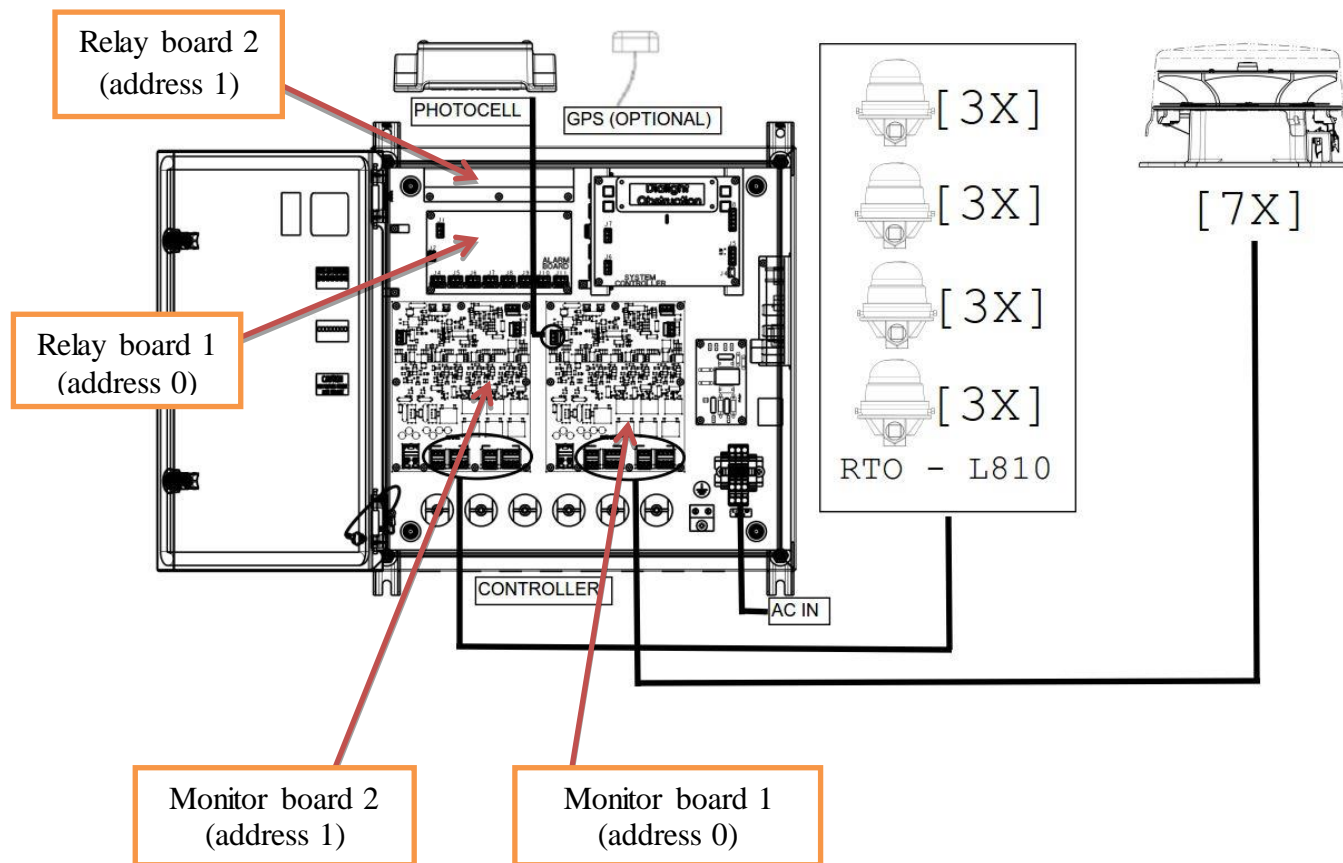
Monitor board 1: Detail B

Port1	Port2	Port3	Port4	Port5	Port6	Port7
BC1	BC2	BC3	BC4	BC5	xxxxx	xxxxx

Monitor board 2: Detail B

Port1	Port2	Port3	Port4	Port5	Port6	Port7
SDLite T1	SDLite T2	SDLite T3	xxxxx	xxxxx	xxxxx	xxxxx

D5RE77FCTR in A4 Configuration



For A4:

2 monitor boards:

Monitor board 1: Detail B

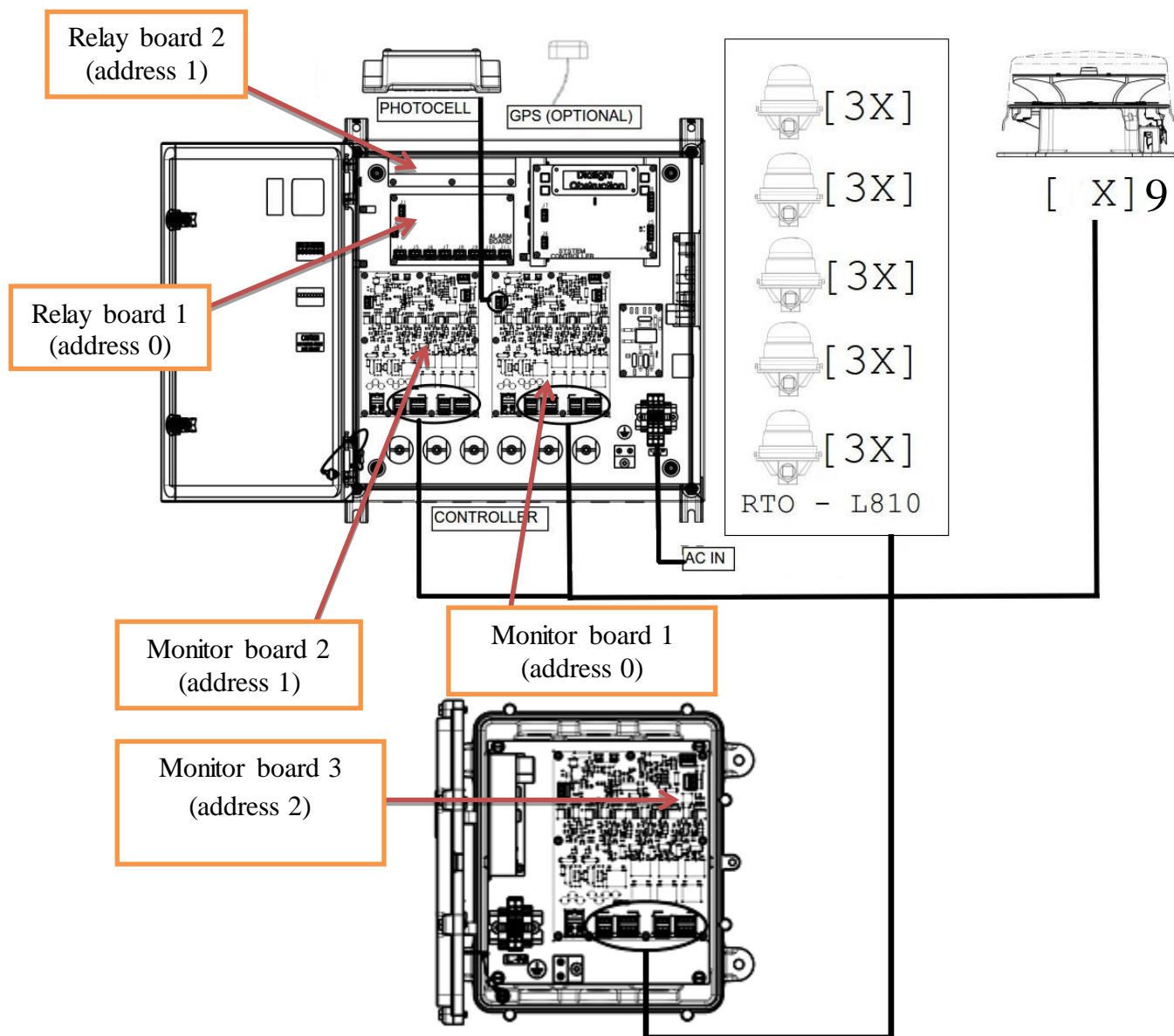
Port1	Port2	Port3	Port4	Port5	Port6	Port7
BC1	BC2	BC3	BC4	BC5	BC6	BC7

Monitor board 2: Detail B

Port1	Port2	Port3	Port4	Port5	Port6	Port7
SDLite T1	SDLite T2	SDLite T3	SDLite T4	xxxxx	xxxxx	xxxxx

- BC1 = Beacon 1, BC2 = Beacon 2 etc. BC1 being the upper most Beacon.
- SDLite T1 = Side Marker Light Tier 1, SDLite T2 = Side Marker Light Tier 2 etc. SDLite T1 being the lowest tier of side markers from the ground.
- XXXX indicates the port is not used.

D5RC77GCTR in A5 Configuration:



For A5: Three Monitor Boards

Monitor board 1: Detail B

Port1	Port2	Port3	Port4	Port5	Port6	Port7
BC1	BC2	BC3	BC4	BC5	BC6	BC7

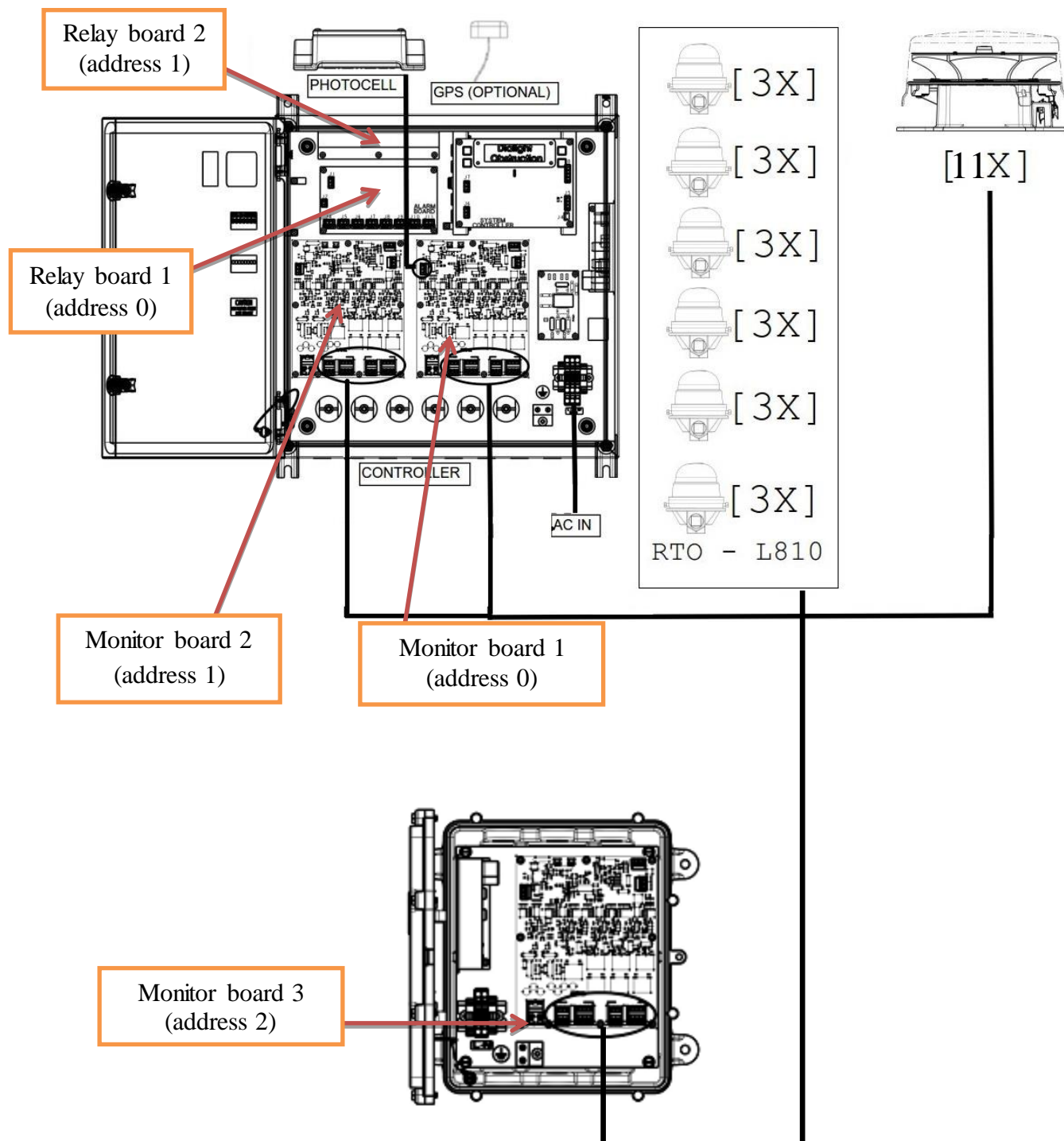
Monitor board 2: Detail B

Port1	Port2	Port3	Port4	Port5	Port6	Port7
BC8	BC9	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx

Monitor board 3: Detail B

Port1	Port2	Port3	Port4	Port5	Port6	Port7
SDLite T1	SDLite T2	SDLite T3	SDLite T4	SDLite T5	xxxxx	xxxxx

D5RC77GCTR in A6 Configuration:



For A6: 3 monitor boards:

Monitor board 1: Detail B

Port1	Port2	Port3	Port4	Port5	Port6	Port7
BC1	BC2	BC3	BC4	BC5	BC6	BC7

A6 Continued:

Monitor board 2: Detail B

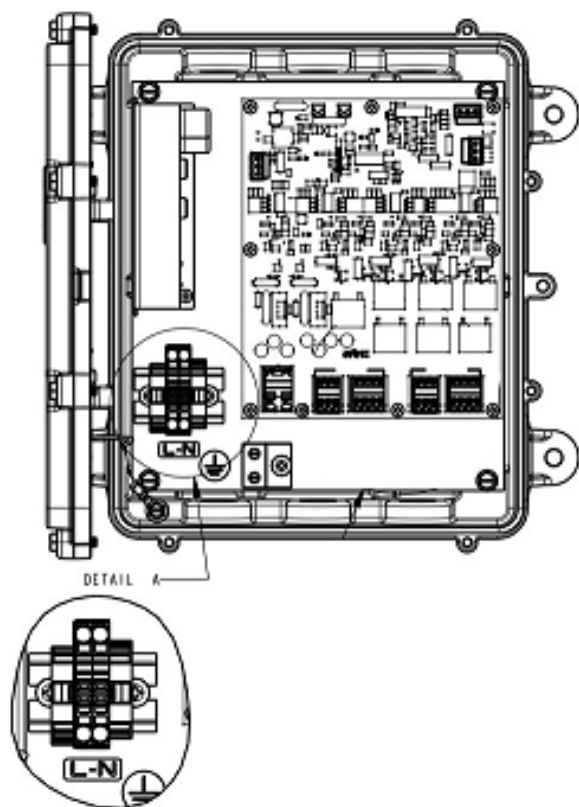
Port1	Port2	Port3	Port4	Port5	Port6	Port7
BC8	BC9	BC10	BC11	xxxxx	xxxxx	xxxxx

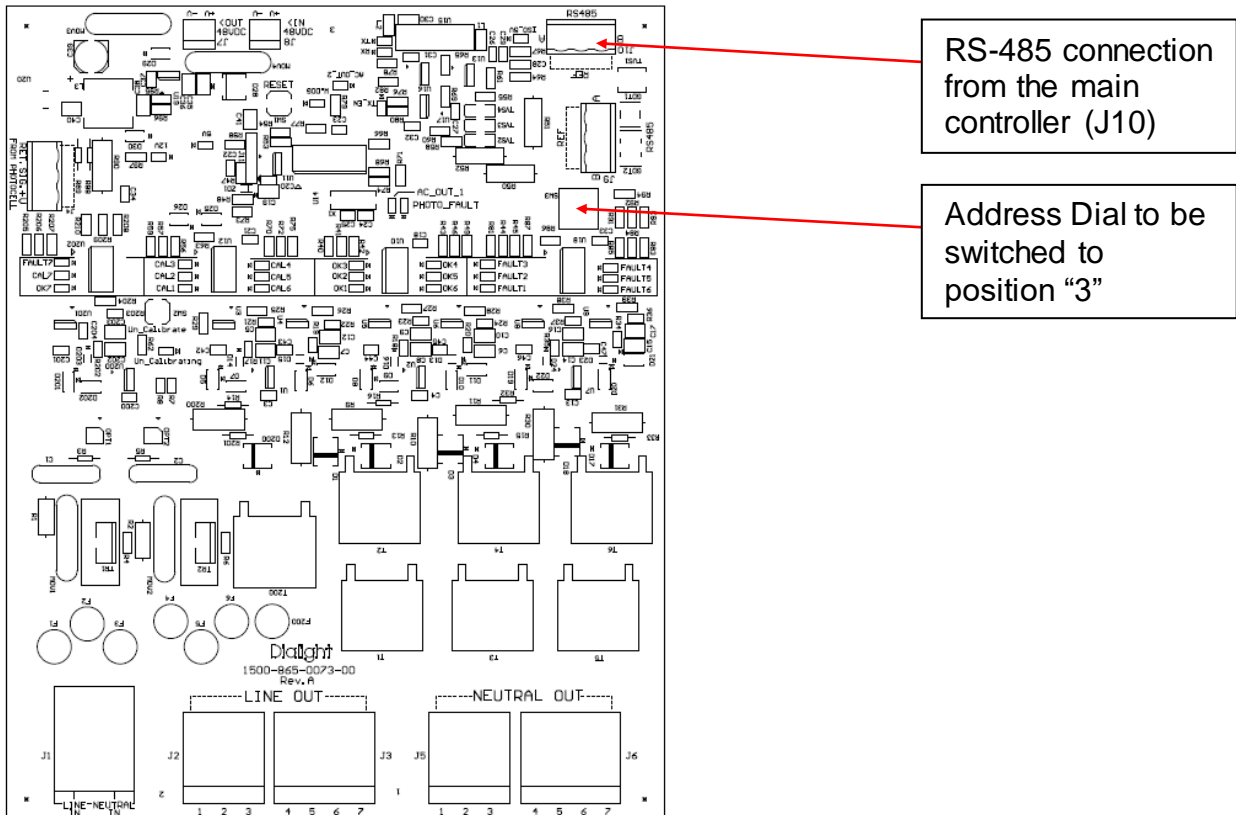
Monitor board 3: Detail B

Port1	Port2	Port3	Port4	Port5	Port6	Port7
SDLite T1	SDLite T2	SDLite T3	SDLite T4	SDLite T5	SDLite T6	xxxxx

Connecting the A5/A6 Expansion Box to the system:

The expansion box will need its own AC power input (Detail A) as well as an RS-485 communication line from the main controller, refer to the second diagram. This additional monitor board will be indexed as “3” on the rotary dial, see second diagram.

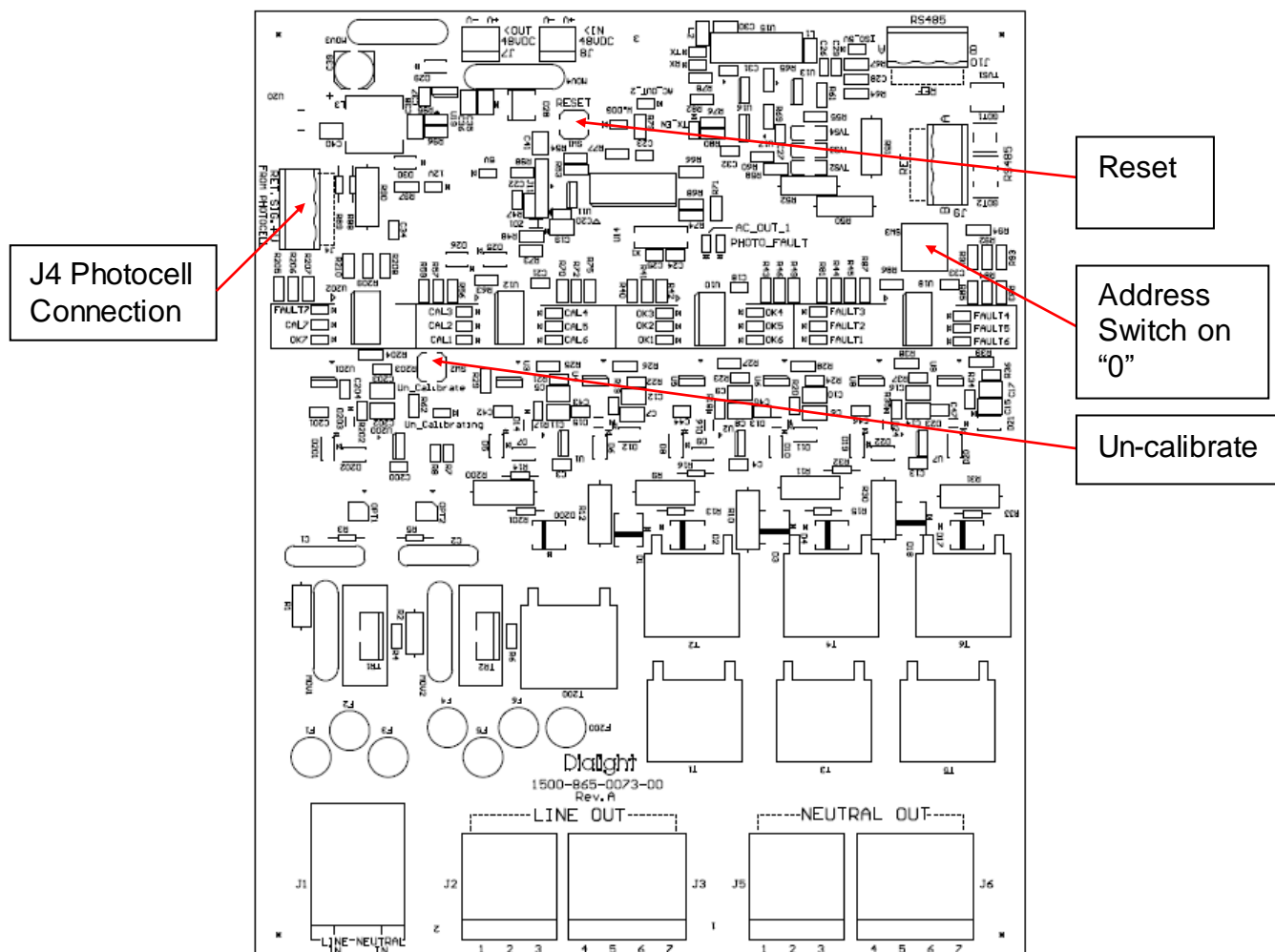




Manual Calibration of the Current Sensors:

Manual Calibration Steps: For use during initial installation. Each Monitor board must individually be calibrated initially once the system and lights are completely installed. The Auto Calibration as shown in the configuration menu steps must be done to finalize installation.

1. To Perform the Manual Calibration scheme follow the steps below, refer to the diagram following this process.
 - a. Press and hold the Un-calibrate button labeled SW2 on the Monitor board for 2 to 3 seconds.
 - b. Fault LED's 1-7 will light up RED.
 - c. Press the RESET button SW1 located on the Monitor board to start the calibration process.
 - d. After the board has been calibrated (the green OK LED's turn on according to connected ports),
 - e. RESET the system using the RESET button on the main LCD board.

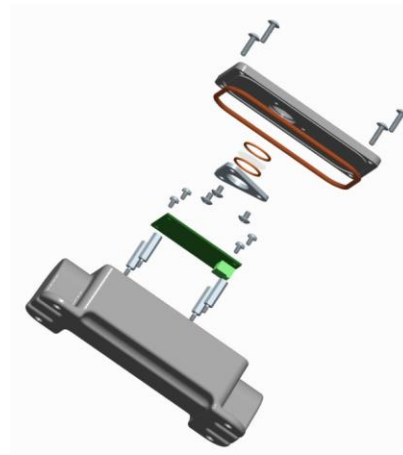


NOTE: Calibration can be done multiple times during the install process.

NOTE: If a light needs to be replaced then the calibration procedure must be re-done.

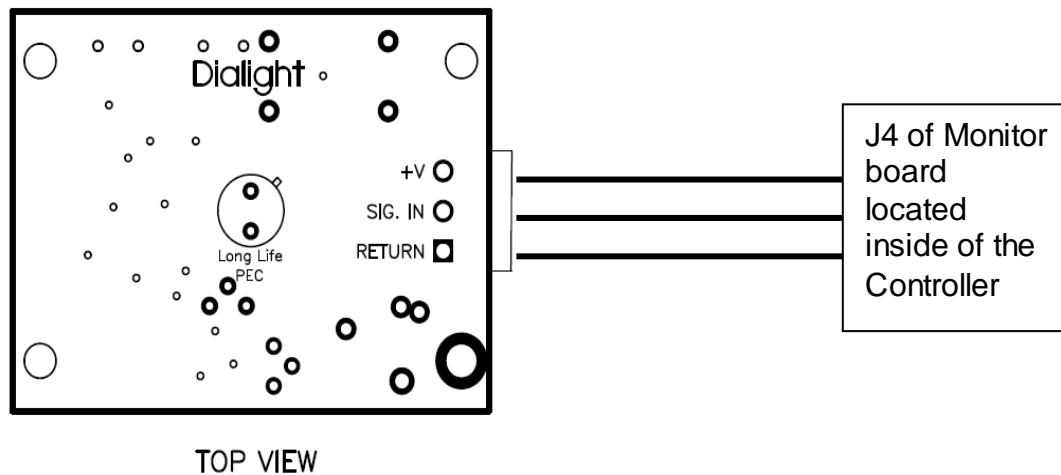
Photocell Connection:

Attach output of the Photocell (D256-6000PEC) to J4 of the Monitor board 1 (**The monitor board with the rotary switch set to "0"**), see Monitor Board diagram above.



Photocell Exploded View

Open the supplied photocell enclosure. The Photocell requires 3 connections to be made inside the photocell enclosure and 3 inside the Controller.



+V = 12Vdc (supplied from Controller)
 SIG. IN = Sense voltage relayed to Controller
 Return = Ground

NOTE: Maximum allowable distance is 500 feet from the Controller.

NOTE: Photocell must be mounted facing North in an un-obstructive view of the sky.

NOTE: The Photocell comes supplied with one end threaded for ¾" NPT conduit, which is recommended for installing the photocell. If a cable is used without conduit in a hazardous location installation then the cable at minimum **MUST** have either a shield or braid that is properly connected to body of the photocell and to the enclosure of the controller it is being installed to. Failure to properly ground or use a cable without the shield or braid will void all warranties and the product could be subject to premature failures.

AC Mains Connections:

Apply AC power to TB1, see Detail A in above diagrams

NOTE: See electrical specifications for power consumption and electrical recommendations.

The Enclosure has holes factory drilled to accommodate all the cable requirements. Additional holes can be added in any convenient location for the user and installer. If installed outdoors, water ingress must be considered.

NOTE: If there is existing AC in the vicinity of the Controller installation then these cables can be used if they meet the recommendations in this guide.

NOTE: Multiple grounding points are provided in the enclosure for protective and functional Earth/Ground connections.

LCD Display Overview:

The Startup Screen displays:



NOTE: The Site manager and installer should take a note of this screen if any troubleshooting is required.

The Initializing Screen:

This screen shows a countdown for the initial 15 flashes.



Main Menu Screens:

Allows the user or maintenance personnel to view or access the displays

Pressing the up or down buttons scrolls through all the displays and displays choices in each of the configuration screens

Pressing the “Ent” button goes in to selected screen for logs or set up.

Pressing the “CLR” button escapes back to the main screen choices.

Configuration Type Screen: Configuring the system

- A) To change configuration of Controller go to ‘Config Type’ screen’ and press enter.

**CONFIG TYPE A
‘Enter to change’**

Select External GPS using the up/down button, Yes/NO press enter.

**Ext GPS = NO
u/d=chg, enter=done**

- B) Select the number of Tiers that are connected to the system, 1 through 6 and then press enter:

**Number of 810 TIERS=1
u/d=chg, enter=done**

- C) Select the total number of L-810’s that will connected, 1 through 24, and then press enter.

**TOTAL NUM 810 = 0
u/d=chg, enter=done**

- D) Select the number of Beacons that will be a part of the system, 1 through 11, and then press enter.

**Number of BC=1
u/d=chg, enter=done**

- E) Select the number of Monitor boards that are connected to the system, 1 through 4, and then press enter.

**Number of SD BDs=1
u/d=chg, enter=done**

- F) The Monitor board ports can be configured to be either flashing or steady burn. Press Enter to change.

**SD BD Config
'enter' to change**

- G) Select the Port function (Flashing or Steady) for each Monitor board.

**SD BD J3 J2 = F S
u/d=chg, enter=done**

Use the up/down buttons to scroll to the 'Status 'screen when complete press enter

- H) Select the Night Flash per minute rate (options are 20/30/40)

**Flash per min=
u/d=chg, enter=done**

Use the up/down buttons to scroll to the 'Status 'screen when complete press enter

- I) Recalibrate the current sensors:

**CAL curnt sens= NO
u/d=chg, enter=done**

Use the up/down buttons to scroll to the 'Status 'screen when complete press enter

J) Enable or disable the transition alarm

Trans PEC Alarm = YES
u/d=chg, enter=done

System settings – Configuration menu selections per tower type:

For an A1	For an A1+1	For and A2
After pressing ENTR: a. Ext GPS= (set to NO) b. Tower Style = A c. NUM of RTO TIERS = 1 d. Total NUM of RTO's= 3 e. Number of BC = 1 f. Number of SD BD's = 1 g. SD BD CONFIG = J3 F J2 S h. Flash per minute = 30 i. Cal Curnt sensor = NO	After pressing ENTR: a. Ext GPS= (set to NO) b. Tower Style = A c. NUM of RTO TIERS = 1 d. Total NUM of RTO's= 2 e. Number of BC = 2 f. Number of SD BD's = 1 g. SD BD CONFIG = J3 F J2 S h. Flash per minute = 30 i. Cal Curnt sensor = NO	After pressing ENTR: a. Ext GPS= (set to NO) b. Tower Style = A c. NUM of RTO TIERS = 2 d. Total NUM of RTO's= 6 e. Number of BC = 3 f. Number of SD BD's = 1 g. SD BD CONFIG = J3 F J2 S h. Flash per minute = 30 i. Cal Curnt sensor = NO

For an A2+1	For an A3	For and A4
After pressing ENTR: a. Ext GPS= (set to NO) b. Tower Style = A c. NUM of RTO TIERS = 2 d. Total NUM of RTO's= 6 e. Number of BC = 4 f. Number of SD BD's = 2 g. SD BD CONFIG = J3 F J2 F h. SD BD CONFIG = J3 S J2 S i. Flash per minute = 30 j. Cal Curnt sensor = NO	After pressing ENTR: a. Ext GPS= (set to NO) b. Tower Style = A c. NUM of RTO TIERS = 3 d. Total NUM of RTO's= 9 e. Number of BC = 5 f. Number of SD BD's = 2 g. SD BD CONFIG = J3 F J2 F h. SD BD CONFIG = J3 S J2 S i. Flash per minute = 30 j. Cal Curnt sensor = NO	After pressing ENTR: a. Ext GPS= (set to NO) b. Tower Style = A c. NUM of RTO TIERS = 4 d. Total NUM of RTO's= 12 e. Number of BC = 7 f. Number of SD BD's = 2 g. SD BD CONFIG = J3 F J2 F h. SD BD CONFIG = J3 S J2 S i. Flash per minute = 30 j. Cal Curnt sensor = NO

For an A5	For an A6
After pressing ENTR:	After pressing ENTR:
a. Ext GPS= (set to NO)	a. Ext GPS= (set to NO)
b. Tower Style = A	b. Tower Style = A
c. NUM of RTO TIERS = 5	c. NUM of RTO TIERS = 6
d. Total NUM of RTO's= 15	d. Total NUM of RTO's= 18
e. Number of BC = 9	e. Number of BC = 11
f. Number of SD BD's = 3	f. Number of SD BD's = 3
g. SD BD CONFIG = J3 F J2 F	g. SD BD CONFIG = J3 F J2 F
h. SD BD CONFIG = J3 F J2 F	h. SD BD CONFIG = J3 F J2 F
i. SD BD CONFIG = J3 S J2 S	i. SD BD CONFIG = J3 S J2 S
j. Flash per minute = 30	j. Flash per minute = 30
k. Cal Curnt sensor = NO	k. Cal Curnt sensor = NO

Use the up/down buttons to scroll to the 'Status 'screen, when complete press enter.

Status Screen of Alarms:

NOTE: If an Alarm is found, the Status screen will change from "NORMAL" to "ALARM" to indicate there is an active Alarm.

By pressing "Ent" you will be able to view alarm logs. Time stamps are actual times that the alarm occurred. Refer to 'interpretation of the logs' for further details.

Status: Normal
'Enter' to view Alm

Status: Alarm
'Enter' to view Alm

Error/Event Log:

This screen allows the user to enter into the log screen that shows all the Error/Events that have occurred during a given time stamp. When entering the screen the highest or last log will be shown. By using the up or down keys the user can scroll back 127 entries before the screen rolls back to the latest entry.

NOTE: If for some reason the highest entry cannot be found press the "CLR" button to exit the log and then press the "Ent" key to return to highest log.

Press 'Enter' Key
to view event log.

Setting the real time clock:

By selecting "Ent" the user can set the actual time and date of the Controller.

NOTE: This may come preset from the factory for either East or West Coast time.

NOTE: The board has a battery, so if for some reason the Controller needs to be powered down, the time and date is kept.

**MMM DD,YY “Time”
‘Enter’ to set Clock**

X is the total number of either Beacons or Marker lights configured.

**Tower Style: A
X 864, X 810 A6**

Screen: Mode of operation: Day, Night

NOTE: These modes change according to the Photocell operation. There are no options for pre-programming select times.

NOTE: During day mode no fixtures will be lit with this Controller.

**MODE: Night T=+YC
ACTIVE: RED 864**

**MODE: DAY T=+YC
ACTIVE: NONE**

Y = the temperature in (C) Celsius on the main controller board, information only.

Forced Mode operation:

NOTE: On this screen the Controller can be forced in DAY or NIGHT by using the push buttons marked TEST ‘White’ and ‘Red’ located on the main LCD board.

NOTE: There is no timeout when selecting ‘White’ or ‘RED’; and the installer must press the “CLR” button to resume normal operation.

**MODE: Night Forced
ACTIVE: RED 864**

**MODE: DAY Forced
ACTIVE: NONE**

NOTE: Day MODE Red Beacons and side lights turn off

Screen: Manual Lighting Inspection Test

The user can perform a manual lighting inspection during this test to ensure proper operation of the system in its entirety.

NOTE: Discreet and Modbus alarms will be generated during this test.

NOTE: If the site is being actively monitored at the time of test, they will see the generated alarms.

System needs to be in **Night mode** before test is started

Test will time out after 2 minutes of no user input during the manual test.

Test relies on user input to complete the necessary checks.

Press “ENTR” to initiate LI test

**Manual LI TEST
‘enter’ to Test**

Press enter

**Manual LI TEST
push RED BTN**

Press the ‘TEST RED’ button

**Manual LI TEST
IN PROCESS RED**

**Manual LI TEST
PASS :)**

OR

**Manual LI TEST
FAIL : (**

**Manual LI TEST
LIT DONE**

System will return to configuration screen when test is completed.

System will reset within 5 minutes of test completion

NOTE: If the OLI manual test is not completed due to prompts not being followed, tests will time out after 5 minutes and display:

Manual LI TEST LIT NOT DONE

After the Lighting inspection (LI) test is done the user can check the LI list in the Alarm menu and it should be as follows:

(A1+1-A2) Red Controller	(A2+1,A3-A4) Red Controller
<ol style="list-style-type: none"> 1. LIT log start 2. PEC Lost ACT 3. 1 BC Fail 1 ACT 4. 1 BC Fail 2 ACT 5. 1 BC Fail 3 ACT NOTE: (only for A2) 6. 1 ALL 810 T1 ACT 7. 1 ALL 810 T2 ACT NOTE: (only for A2) 8. MNTR Comm 1 ACT 9. 1 BC Fail 1 CLR 10. 1 BC Fail 2 CLR 11. 1 BC Fail 3 CLR NOTE: (only for A2) 12. 1 ALL 810 T1 CLR 13. 1 ALL 810 T2 CLR NOTE: (only for A2) 14. PEC Lost CLR 15. MNTR Comm 1 CLR 16. LIT log end 	<ol style="list-style-type: none"> 17. LIT log start 18. PEC Lost ACT 19. 1 BC Fail 1 ACT 20. 1 BC Fail 2 ACT 21. 1 BC Fail 3 ACT 22. 1 BC Fail 4 ACT 23. 1 BC Fail 5 ACT NOTE: (only for A3, A4) 24. 1 BC Fail 6 ACT NOTE: (only for A4) 25. 1 BC Fail 7 ACT NOTE: (only for A4) 26. MNTR Comm 1 ACT 27. PEC Lost CLR 28. MNTR Comm 1 CLR 29. 1 BC Fail 1 CLR 30. 1 BC Fail 2 CLR 31. 1 BC Fail 3 CLR 32. 1 BC Fail 4 CLR 33. 1 BC Fail 5 CLR NOTE: (only for A3, A4) 34. 1 BC Fail 6 CLR NOTE: (only for A4) 35. 1 BC Fail 7 CLR NOTE: (only for A4) 36. 2 ALL 810 T1 ACT 37. 2 ALL 810 T2 ACT 38. 2 ALL 810 T3 ACT NOTE: (only for A3, A4) 39. 2 ALL 810 T4 ACT NOTE: (only for A4) 40. MNTR Comm 2 ACT 41. MNTR Comm 2 CLR 42. 2 ALL 810 T1 CLR 43. 2 ALL 810 T2 CLR 44. 2 ALL 810 T3 CLR NOTE: (only for A3, A4) 45. 2 ALL 810 T4 CLR NOTE: (only for A4) 46. LIT log end

(A5-A6) Red Controller	
47. LIT log start 48. PEC Lost ACT 49. 1 BC Fail 1 ACT 50. 1 BC Fail 2ACT 51. 1 BC Fail 3 ACT 52. 1 BC Fail 4 ACT 53. 1 BC Fail 5 ACT 54. 1 BC Fail 6 ACT 55. 1 BC Fail 7 ACT 56. MNTR Comm 1 ACT 57. PEC Lost CLR 58. MNTR Comm 1 CLR 59. 1 BC Fail 1 CLR 60. 1 BC Fail 2 CLR 61. 1 BC Fail 3 CLR 62. 1 BC Fail 4 CLR 63. 1 BC Fail 5 CLR 64. 1 BC Fail 6 CLR 65. 1 BC Fail 7 CLR 66. 2 BC Fail 8 ACT 67. 2 BC Fail 9 ACT 68. 2 BC Fail 10 ACT NOTE: (only for A6) 69. 2 BC Fail 11 ACT NOTE: (only for A6) 70. MNTR Comm 2 ACT 71. MNTR Comm 2 CLR 72. 2 BC Fail 8 CLR 73. 2 BC Fail 9 CLR 74. 2 BC Fail 10 CLR NOTE: (only for A6) 75. 2 BC Fail 11 CLR NOTE: (only for A6) 76. 3 ALL 810 T5 ACT 77. 3 ALL 810 T6 ACT NOTE: (only for A6) 78. 3 ALL 810 T1 ACT 79. 3 ALL 810 T2 ACT 80. 3 ALL 810 T3 ACT 81. 3 ALL 810 T4 ACT 82. MNTR Comm 3 ACT 83. MNTR Comm 3 CLR 84. 3 ALL 810 T1 CLR 85. 3 ALL 810 T2 CLR 86. 3 ALL 810 T3 CLR 87. 3 ALL 810 T4 CLR 88. 3 ALL 810 T5 CLR 89. 3 ALL 810 T6 CLR NOTE: (only for A6) 90. LIT log end	

Controller Status LED's (located on Main LCD board):

NOTE: Actual colors shown may not match system being installed.

STATUS LED ASSIGNMENTS

S7	S6	S5	S4	S3	S2	S1
COMM	SYNC	25% LED	ALL 810 OFF	Photocell	EXT SYNC	Heartbeat
Failure	Failure	Failure	Failure	Failure	Failure	Flashes
RED	RED	RED	RED	RED	AMBER	GREEN

Relay Board 1 Alarm Dry Contact LED's:

Rotary knob set to Zero

NOTE: PEC mode (Day or Night indication to reader) gets connected to Relay board number 1, This is the relay board addressed as "0" on the rotary switch.

STATUS LED/dry contact ASSIGNMENTS

AL8	AL7	AL6	AL5	AL4	AL3	AL2	AL1
PEC	L 810	Beacon	Beacon	Beacon	PEC/transition	Sync	Sidelight
MODE	FAILURE	3	2	1	FAILURE	Failure	COMM
		Failure	Failure	Failure			
Amber	Red	Red	Red	Red	Red	Red	Red

Relay Board 2 Alarm Dry Contact LED's:

Rotary knob set to One

STATUS LED/dry contact ASSIGNMENTS

AL8	AL7	AL6	AL5	AL4	AL3	AL2	AL1
Beacon	Beacon	Beacon	Beacon	Beacon	Beacon	Beacon	Beacon
11	10	9	8	7	6	5	4
Failure	Failure	Failure	Failure	Failure	Failure	Failure	Failure
Red	Red	Red	Red	Red	Red	Red	Red

Mains AC Power Resetting:

Power on Resetting (i.e. switching power off then on again) is recommended when maintenance or repairs are being done; and all Alarm and Error/Event logs have been cleared.

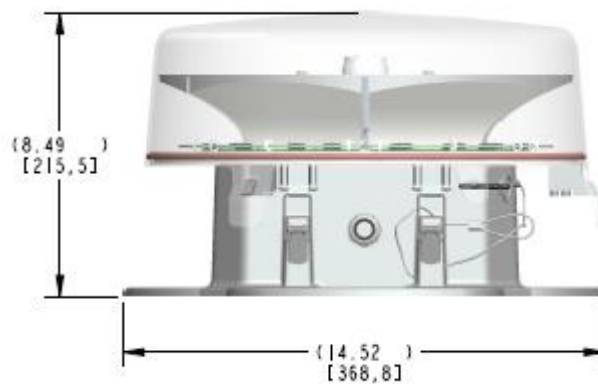
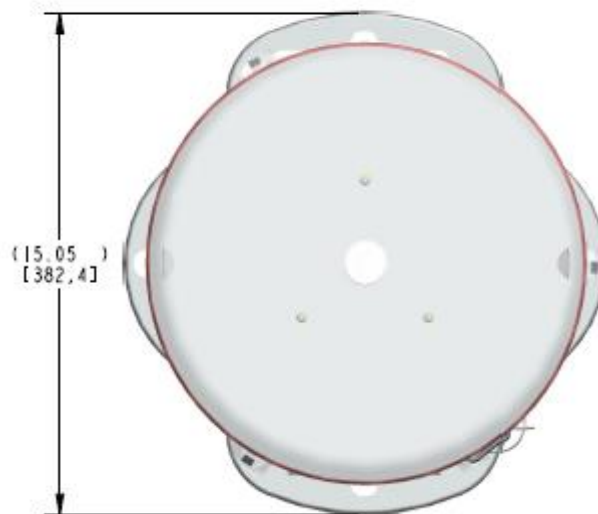
Push Button Reset:

The Reset Button is a firmware re-boot that causes the Controller to do a complete re-start. This reset is most often used when power is either lost or required to be shut down for a period of time. This reset will go through the full initialization and the 15 flash countdown menu. Any alarms reported are actual alarms.

Ext Sync Input:

This connection will synchronize the System with a 3rd party GPS module. The contact looks for a pulsed signal with a period of 1,500 milliseconds, where the leading edge to falling edge of the pulse is greater than 100 milliseconds. This will trigger forty flashes per minute, synchronized with the other system's output.

Mechanical Dimensions of D564-A13-001 L-864 Flash Head (Beacon):

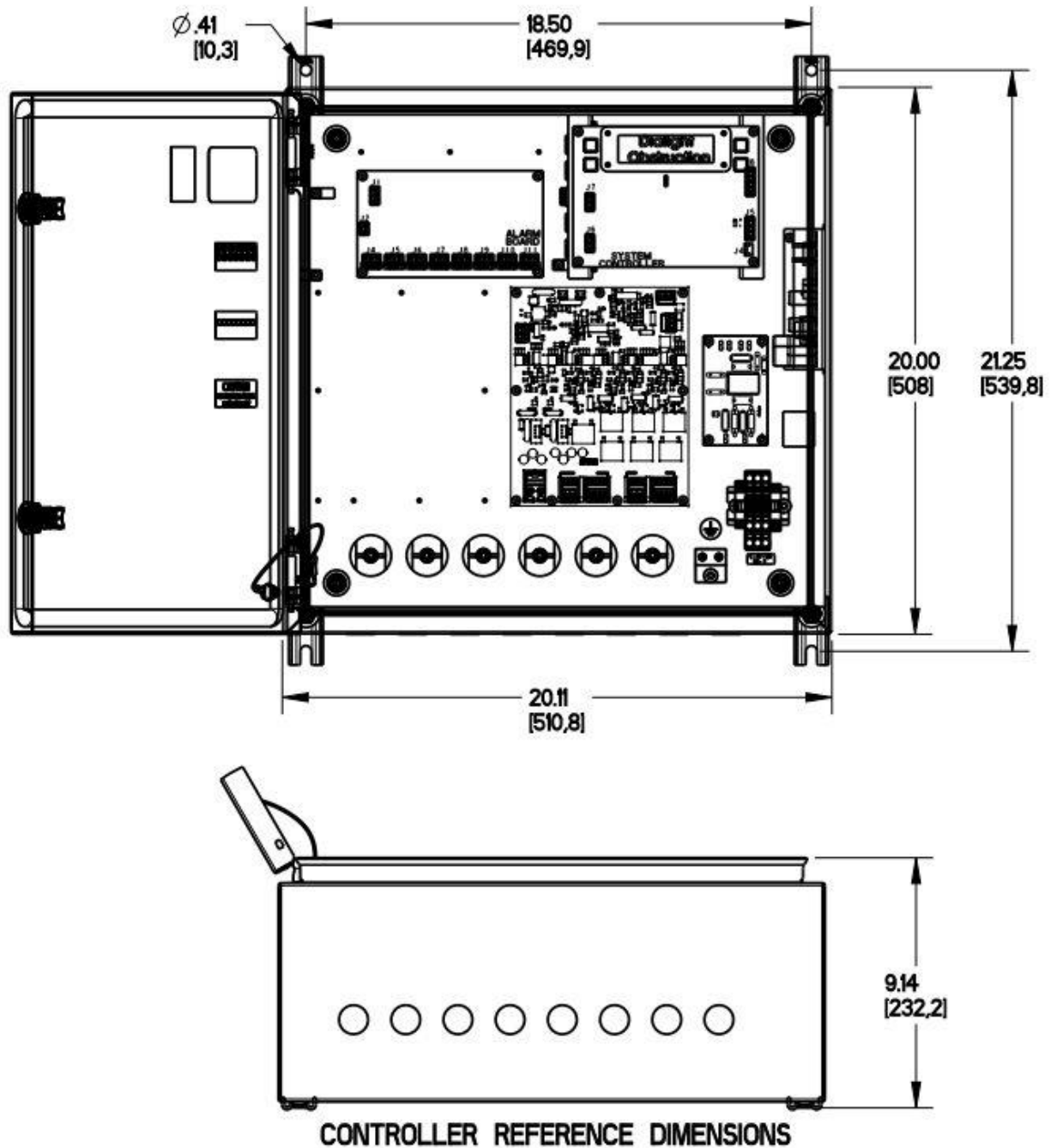


Beacon Reference Dimensions

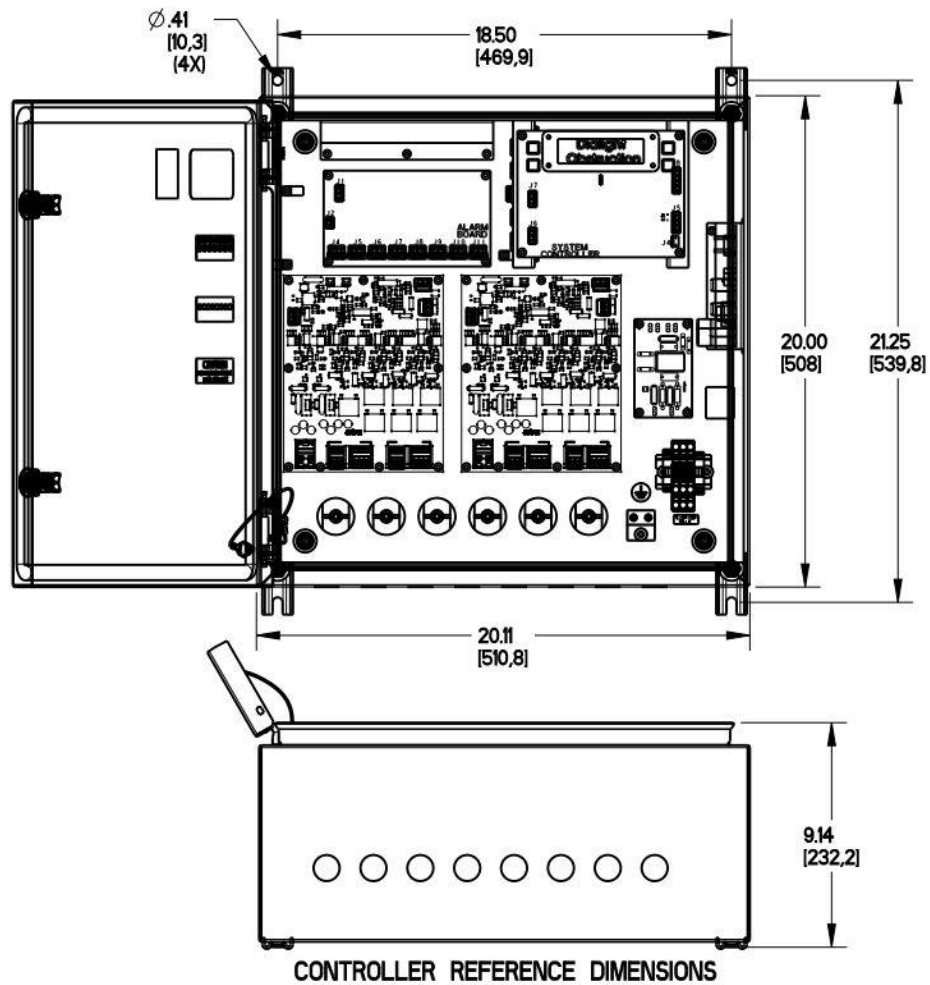
NOTE: Beacon(s) sold separately

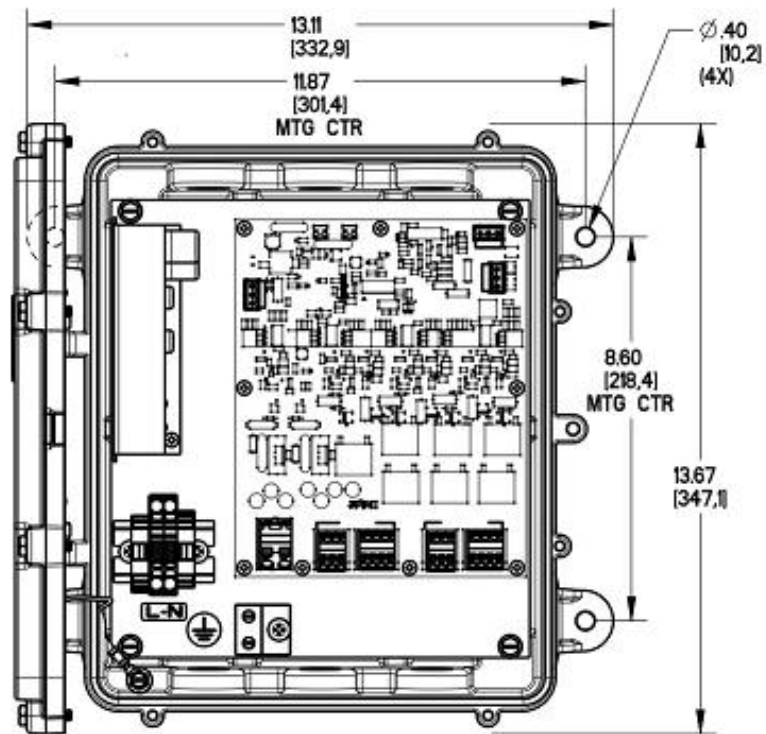
Mechanical Dimensions of Controller:

- **D5RC77FCTR (A1,A1+1,A2) Controller connections**









REPLACEMENT
1ST RELAY ASM.
P/N: D7600RLY

REPLACEMENT
2ND RELAY ASM.
P/N: D7601RLY

REPLACEMENT
LCD ASSEMBLY
P/N: D7407LCD

REPLACEMENT
AC TO DC SUPPLY
P/N: D5R9005RA

REPLACEMENT
AC FILTER/SURGE ASM.
P/N: D7202SUR

REPLACEMENT
LIGHT MONITOR ASM.
P/N: D7506SLM

Controller Replacement Parts

REPLACEMENT
1ST RELAY ASM.
P/N: D7600RLY

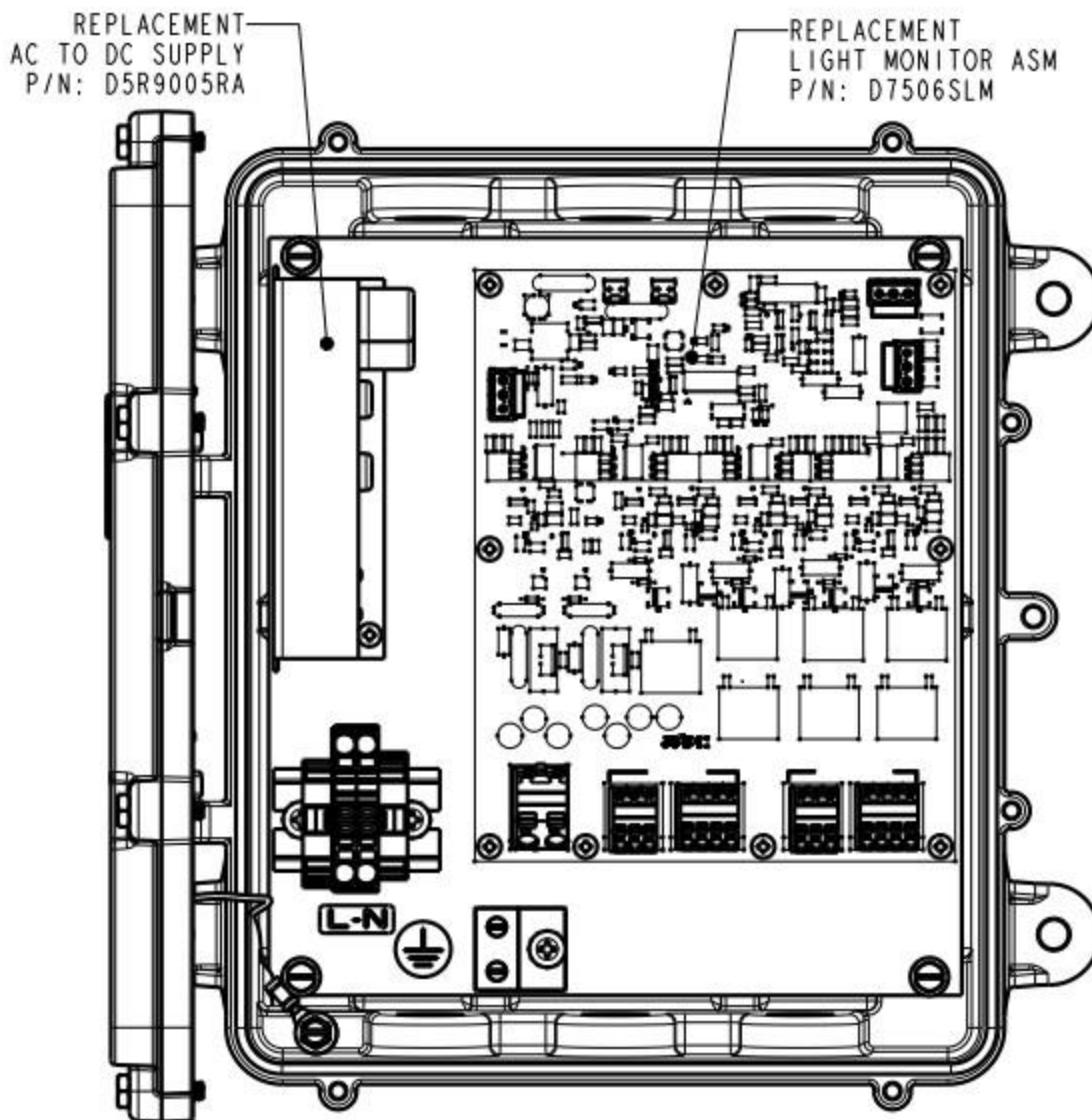
REPLACEMENT
2ND RELAY ASM.
P/N: D7601RLY

REPLACEMENT
LCD ASSEMBLY
P/N: D7407LCD

REPLACEMENT
AC TO DC SUPPLY
P/N: D5R9005RA

REPLACEMENT
AC FILTER/SURGE ASM.
P/N: D7202SUR

REPLACEMENT
LIGHT MONITOR ASM.
P/N: D7506SLM



Display Events and Alarm descriptions:

Navigating the Display

Up/Down: Buttons scroll through menu options, or Log entries

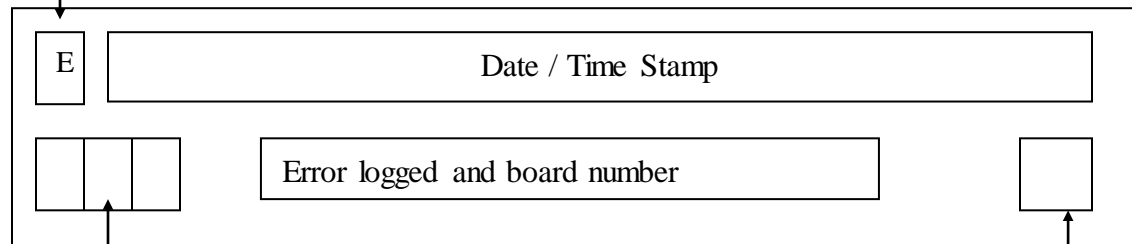
Enter: Selects a menu

Clear: Exits a menu and returns to previous screen
Clears error/alarm registers

Holding the Clear button for 5 seconds when in the Event or Alarm log clears the given Log data. The first recording will be displayed as "Logs Cleared"

E= Event log

Interpreting Error/Event Logs

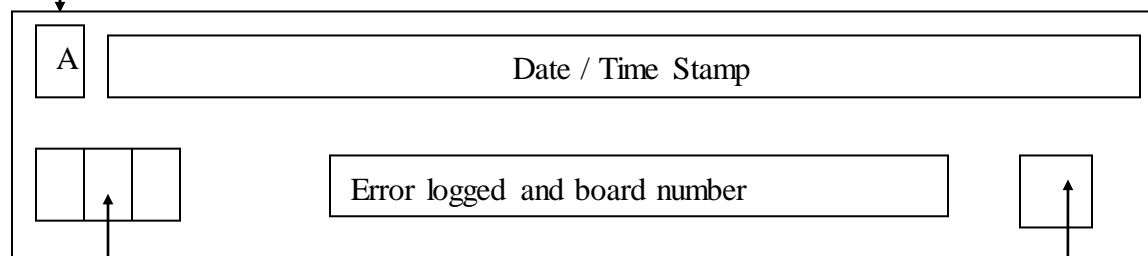


Error Sequence Number, Highest was last Error.

Error Active or Cleared Status
Act or Clr displayed

A= Alarm log

Interpreting Alarm Logs



Error Sequence Number, Highest was last Error.

Error Active or Cleared Status
Act or Clr displayed

NOTE: The above are separate screens shown on the LCD both logs are individually accessible

Alarm List:

NIGHT TESTS - Photocell MUST be in Night Mode							
TEST MODE	Tower type	Error	LCD Alarm Display	How to Generate the Alarm	What LED's light	What is the Fault	What happens
Night Test	A1-A6	No Photocell	PEC LOST	Remove J4 from monitor board 8800-865-3160-05	Relay Board AL3 and Control Board S3	PHOTOCELL FAULT	Beacon goes steady RED; RTO's stay lit
Night Test	A1-A6	No RS485 to Monitor board	MNTR COMM PEC LOST	Remove J10 from monitor board 8800-865-3160-05	Relay board AL1 & AL3, Control Board S3 and S7	Communications and PEC fault	Beacon goes steady RED; RTO's stay lit
Night Test	A1-A6	No Internal RS-485 COMM	MNTR COMM PEC LOST RLY COMM 1	Remove J7 (RS485) from the Control board (8800-865-4000-05)	Relay Board AL1-AL8, Control Board S3 and S7	COMM FAULT PHOTOCELL FAULT RTO FAULT ALL BEACON X FAULT	Beacon goes steady RED; RTO's stay lit
THE FOLLOWING TESTS REQUIRE AN ENCLOSURE WITH SWITCHES FOR DISCONNECTING POWER!!! They are to be done safely per manufacturing guidelines.							
Night test	A1-A6	Side Marker level 1 out	ALL 810 TX	Remove the RTO's from it LX and NX For A1- A2 (MNTR board 1) For A3- A4 (MNTR board 2) For A5- A6 (MNTR board 3)	Relay Board 1 AL7 & Control Board S4	L810 FAULT	Beacon stays RED; ALL RTO's of level 1 turn off
Night Test	A1-A6	25% Red –	1 BC Fail 1	Remove Beacon 1 from MNTR board 1 (L1/N1)	Relay Board 1 AL4 & Control Board S5	Beacon 1 FAULT	Beacon goes steady RED
Night Test	A2-A6	25% Red –	1 BC Fail 2	Remove Beacon 2 from MNTR board 1 (L2/N2)	Relay Board 1 AL5 & Control Board S5	Beacon 2 FAULT	Beacon goes steady RED
Night Test	A2-A6	25% Red –	1 BC Fail 3	Remove Beacon 3 from MNTR board 1 (L3/N3)	Relay Board 1 AL6 & Control Board S5	Beacon 3 FAULT	Beacon goes steady RED
Night Test	A3-A6	25% Red –	1 BC Fail 4	Remove Beacon 4 from MNTR board 1 (L4/N4)	Relay Board 1 AL1 & Control Board S5	Beacon 4 FAULT	Beacon goes steady RED
Night Test	A3-A6	25% Red –	1 BC Fail 5	Remove Beacon 5 from MNTR board 1 (L5/N5)	Relay Board 2 AL2 & Control Board S5	Beacon 5 FAULT	Beacon goes steady RED
Night Test	A4-A6	25% Red –	1 BC Fail 6	Remove Beacon 6 from MNTR board 1 (L6/N6)	Relay Board 2 AL3 & Control Board S5	Beacon 6 FAULT	Beacon goes steady RED
Night Test	A4-A6	25% Red –	1 BC Fail 7	Remove Beacon 7 from MNTR board 1 (L7/N7)	Relay Board 2 AL4 & Control Board S5	Beacon 7 FAULT	Beacon goes steady RED

Night Test	A5-A6	25% Red –	1 BC Fail 8	Remove Beacon 8 from MNTR board 2 (L1/N1)	Relay Board 2 AL5 & Control Board S5	Beacon 8 FAULT	Beacon goes steady RED
Night Test	A5-A6	25% Red –	1 BC Fail 9	Remove Beacon 9 from MNTR board 2 (L2/N2)	Relay Board 2 AL6 & Control Board S5	Beacon 9 FAULT	Beacon goes steady RED
Night Test	A6	25% Red –	1 BC Fail 10	Remove Beacon 10 from MNTR board 2 (L3/N3)	Relay Board 2 AL7 & Control Board S5	Beacon 10 FAULT	Beacon goes steady RED
Night Test	A6	25% Red –	1 BC Fail 11	Remove Beacon 11 from MNTR board 2 (L4/N4)	Relay Board 2 AL8 & Control Board S5	Beacon 11 FAULT	Beacon goes steady RED
VALIDATED THROUGH FACTORY BURN IN PROCESS							
Test		Night to Day transition	Nite to Day	Leave the system in night mode for more than 18 hours (do it only in Burn in)	Relay Board 1 AL3 & Control Board S3	PHOTOCELL FAULT	Beacon stays RED & RTO's stay on

Troubleshooting:

This system has built in diagnostic modes enabling the user to manually switch into Day or Night. To force into either mode, use the buttons labeled DAY and NIGHT, SW5 and SW8. By holding the desired button down for three seconds, the system will manually change modes, and hold that mode for two minutes. The system will return to its normal operation automatically, using photocell input to determine the correct mode.

No power to the system	Ensure proper connections and voltage at the AC terminal block input, 120-240VAC, 50/60Hz	Restore connections at the AC terminal blocks, turn on circuit breaker if off on the AC supply to the system
No L810 or L864 lights are lit, system on in night mode	Ensure proper connections to the light output ports. Night should be indicated in Mode screen, if not, manually force system into night mode using SW5-“Red” labeled button	Restore connections at output ports if found to be improperly connected. If lights turned on while manually forcing system into Night mode, check for proper photocell wiring and functionality
Will not switch from Day to Night, or Night to day	Ensure connections at the Photocell PCB and the Driver board are consistent on both ends of the photocell wire	Using the Dialight 3 conductor cable, ensure that BLACK is connected to RET on the boards, RED to V+ and GREEN to SIG IN

Beacon alarm present (AL4-AL6 on Relay Board 1 and AL1-AL8 on Relay Board 2)	Manually force system into Night mode. Using AC volt meter, ensure there is AC voltage present at port output. Note that this voltage will be turning on and off if port is specified to flash	If voltage is present, the lights or their wiring is suspect. If no voltage is present, there is a possibility of an open fuse on the controller PCB. Note that fuses are not user serviceable, contact Dialight support at this time.
AL7 on Relay Board 1 present	Manually force system into Night mode. Using AC volt meter, ensure there is AC voltage present matching the system input voltage at port outputs that the side markers are connected to	If voltage is present, the lights or their wiring is suspect. If no voltage is present, there is a possibility of an open fuse on the controller PCB. Note that fuses are not user serviceable, contact Dialight support at this time.
AL3 present on Relay board 1 Photocell Alarm, Alarm Log indicating "PEC LOST"	Observe if Photo Fault red LED on Monitor Board 1(address set to "0") is on or off. If LED is on, this indicates a loss of electrical connection or improper wiring to the photocell	Repair wiring as necessary
AL3 present on Relay board 1 Photocell Alarm, Alarm Log indicating "Transition Fail" (18 Hour Alarm)	If environmental conditions do not exceed over 18 hours of daylight or darkness, ensure there are no obstructions interfering with the photocell sensor. If the system is installed with days or nights longer than 18 hours, refer to the configuration menu and Trans PEC Alarm setting	Remove any obstructions to the photocell. Configure system to either produce an alarm after 18 hours of day or night, or configure not to produce 18 hour alarm

REVISION HISTORY

<u>REV</u>	<u>ECO No.</u>	<u>DRN</u>	<u>CKD</u>	<u>APP</u>	<u>QA</u>	<u>CM</u>	<u>DATE</u>
A	23427	CV	SA	DW	LP	JN	1/26/15
B	64576	TLD	AV	AR	YS	JN	12/11/19