



CabLite® Luminous Auto Light Control Installation Manual



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Cablite Luminous Installation Manual Rev 1.0

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1 Introduction

This manual is intended to facilitate the installation of CabLite® ECO lighting system manufactured by Electronic Controls Inc. The audience of the material included in this manual is for certified installation personnel. The CabLite® ECO lighting system complies with modern performance specifications and meets or exceeds code requirements. Installation and adjustments must meet local, state and national codes.

2 Warning and Disclaimer

Thank you for purchasing equipment from ECI America, INC. We want your new equipment to operate safely. Anyone who installs or uses this equipment should read this publication (and any other relevant publications) before installing or operating the equipment.

To minimize the risk of potential safety problems, you should follow all applicable local and national codes that regulate the installation and operation of your equipment. These codes vary from area to area and usually change with time. It is your responsibility to determine which codes should be followed, and to verify that the equipment, installation and operation is in compliance with the latest revision of these codes.

At a minimum, you should follow all applicable sections of the National Fire Code, National Electrical Code, ASME A17.1 Safety code for Elevators and Escalators and the codes of the National Electrical Manufacturer's Association (NEMA). There may be local regulatory or government offices that can also help determine which codes and standards are necessary for safe installation and operation. Equipment damage or serious injury to personnel can result from failure to follow all applicable codes and standards. We do not guarantee the products described in the publication are suitable for your particular application, nor do we assume any responsibility for your product design, installation or operation.

Our products are not fault-tolerant and are not designed, manufactured or intended for use or resale as online control equipment in hazardous environments requiring fail-safe performance, such as in the operation of nuclear facilities, aircraft navigation of communication systems, air traffic control, direct life support machines or weapon systems in which the failure of the product could lead directly to death, personal injury, or severe physical or environmental damage ("High Risk Activities"). ECI America, Inc. specifically disclaims any expressed or implied warranty of fitness for High Risk Activities.

This publication is based on information that was available at the time it was printed. WE reserve the right to make changes to the products and/or publications at any time without notice and without any obligation.

3 Trademarks

All trademarks or registered product names appearing in this document, as they pertain to Electronic Controls, Inc., are the exclusive property of Electronic Controls, Inc.

4 Conventions Used



When you see the “notepad” icon in the left-hand margin, the paragraph to its immediate right will be a special note. Notes represent information that may make your work quicker and more efficient. The word **NOTE:** in boldface will mark the beginning of the text.



When you see the “exclamation point” icon in the left hand margin the paragraph to its right will be a warning. The information could prevent injury, loss of property, or even death in extreme cases. Any warning in this document should be regarded as critical information that should be read in its entirety. The word **WARNING:** in boldface will mark the beginning of the text.

5 Safety Information



Know the safety hazards related to any procedure you are about to perform. Know what equipment has been specified for each specific contact and know what tools and materials you should plan to have available. Before connecting electrical wiring, take precautions to prevent accidents from happening to yourself and others around you.

ALWAYS CONSIDER SAFTY FIRST!

- Wear a hard hat when working in the hoist way.
- Wear safety glasses or goggles when using power tools
- Always wear protective gloves when installing or removing access covers, conduits, wire way or electrical devices.
- When working on car canopy, always be aware of where the sides of the car are located.
- Use properly grounded cords and power equipment (ground fault circuit interrupters).
- Make sure there are proper clearances in hoist way between the car and other devices. Before connecting wiring, cover sharp edges to keep hands and arms from being cut.
- Always know where other people are and how the elevator wiring can affect their safety.
- Safety lock and tag out procedures are always required before performing and kind of service, repair, adjustment, lubrication or inspection of power equipment.
- To reduce the danger of electrical shock, always make sure electrical connections are secure. Also make sure no bare wires are exposed after pulling cable.
- Use a circuit tester to be certain the circuit is not active before touching it.





6 System Overview

The CabLite® Luminous is a microprocessor control lighting system for use passenger, residential and freight elevators cabs. Any combination between one and twelve downlights can be used. The CabLite® Luminous system provides general lighting that meets or exceeds ASME A17.1, local, state and federal codes.

There are 2 available options for the CabLite® Luminous lighting system. The standard system is general lighting with the following:

- Brightness control
- Dimming control
- Standby mode for idle or sleeping cabs
- Motion sense for energy savings during low traffic times

With the EMERGENCY LIGHTING option, you get everything in the standard Luminous system plus emergency lighting eliminating the need for separate emergency lights.

6.1 Downlights

Each downlight is equipped with 2 connectors (located on the top of the can) for chaining up to 12 lights together. The 2 connectors are interchangeable so it does not matter which cable is connected to it. See Figure 1 - Downlight. Each downlight has 2 spring loaded clips that hold the light tight to the ceiling panel.

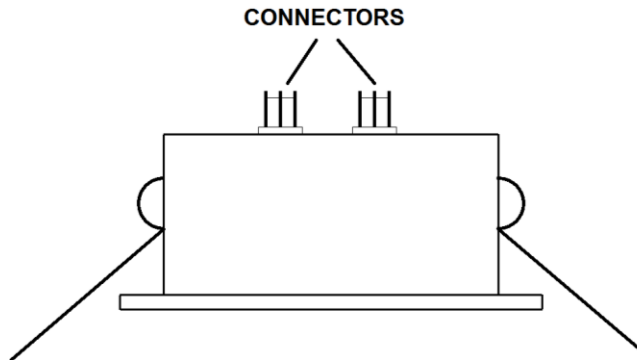


Figure 1 - Downlight

6.2 Downlight Specifications

Operating voltage 24VDC

	5000K	4000K	3000K
# of LEDs	1	1	1
Color Temp	5000K	4000K	3000K
Power Consumption	8W	8W	8W
CRI	80 +/-5	85 +/-5	85 +/-5



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6.3 CabLite® Luminous

The CabLite® Luminous Standard lighting system incorporates Brightness, Dimming and Auto Light control for up to 12 downlights. In addition, there is a standby mode which turns off all downlights for idle or shut down cabs.

The CabLite® Luminous lighting system includes the following

- 1 to 12 downlights
- One 8' cable for the first downlight
- One 4' cable for each additional downlight
- Gang box which includes:
 - 24VDC power supply
 - Control Board
 - cover

6.3.1 Auto Light Control Operation

Auto Light Control is achieved through a motion sensor on the control board. This function is enable through a switch setting on the control board. The sensitivity and duration are set using potentiometers. There are 2 downlights that are specifically marked for this operation. These 2 downlights remain on when Auto Light Control (motion) has timed out. This is a code requirement and the placement of these 2 downlights should be decided before installation.

6.3.2 Control Board

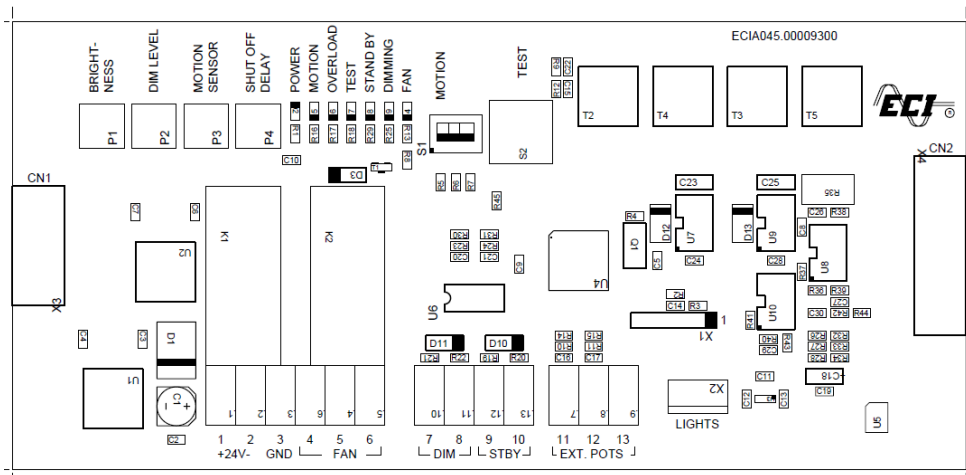


Figure 2- Control board

6.3.2.1 Control Board Connections

- 1 – “+” 24Vdc input from power supply
- 2 – “-” 24Vdc input from power supply
- 3 – GND connection
- 4 – FAN control relay COM
- 5 – FAN control relay N.C. - Closed between pin 4 relay common when in STBY
- 6 – FAN control relay N.O. - Open between pin 4 relay common when in STBY
- 7 and 8 – Diming control. When shorted downlights go to dimming level set by DIM LEVEL potentiometer (P2).

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- 8 and 9 – STBY – When shorted system is put into STANDBY mode turning off all downlights and picking FAN Control relay.
- 11 – EXT POT brightness adjustment
- 12 – EXT POT Dimming Level adjustment
- 13 – EXT POT Common

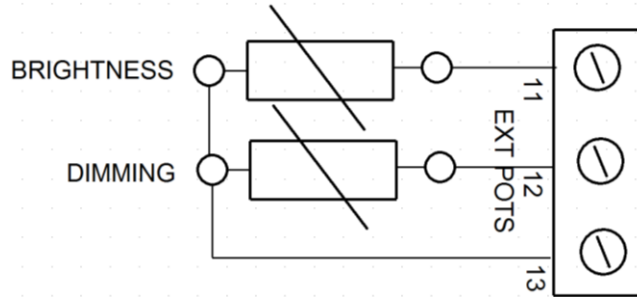


Figure 3 - External POT connections

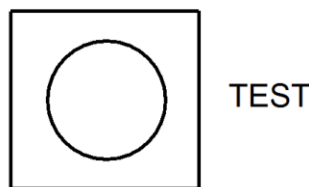
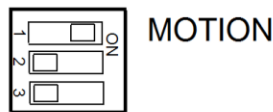
- LIGHTS connector – 3 pin connector for connecting to the first downlight.

6.3.2.2 Control Board Indicators

- POWER LED – lit when 24VDC present. Blinks at initial startup then stays on.
- MOTION LED – Lit when motion is detected (when motion dip switch in ON position)
- OVERLOAD LED –
- TEST LED – Lit when TEST button is pressed for adjusting and testing motion sensitivity.
- STANDBY LED – lit when pin 9 and 10 are shorted putting unit in standby mode
- DIMMING LED – lit when pins 7 and 8 are shorted putting unit in dimming mode.
- FAN –

6.3.2.3 Control Board Configuration and Adjustments

- BRIGHTNESS – potentiometer for setting maximum light level during normal operation
- DIM LEVEL – potentiometer for setting downlight dim level when DIM pins 7 and 8 are shorted.
- MOTION SENSOR – potentiometer for setting the motion sensitivity level. Clockwise decreases sensitivity.
- SHUT OFF DELAY – potentiometer for setting the time duration without any motion before system shuts down lighting. Adjustable from 5 to 15 minutes. Valid only when MOTION DIP switch is in ON position.
- MOTION DIP Switch – When in the ON position (see Figure 4 - Motion DIP switch) the system will shut down all but 2 downlights with no motion detected for period set by SHUT OFF DELAY.





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Figure 4 - Motion DIP switch

- TEST push button – Pressing TEST push button lights the TEST LED and sets the SHUT OFF delay from 5 to 15 seconds for adjusting motion sensitivity. When complete pressing TEST button again will turn off TEST LED and put unit in normal operating mode.

6.4 CabLite® Luminous w/ Emergency Lighting

6.4.1 Emergency Board

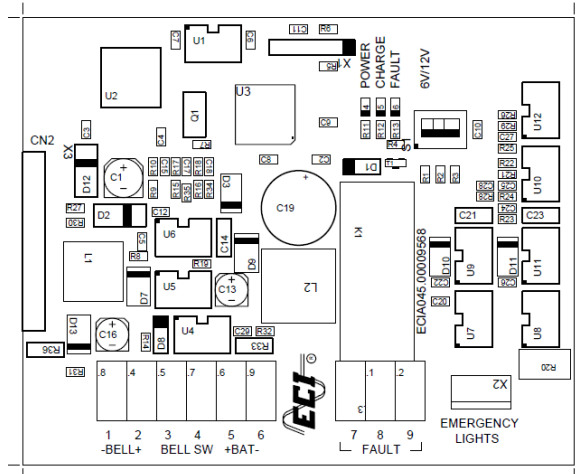


Figure 5 - Luminous Emergency Board

6.4.1.1 Emergency Board Connections

- 1 – “BELL – “ neg output to 12VDC audible sounder
- 2 – “BELL + “ positive output to 12VDC audible sounder
- 3 & 4 – “BELL SW” – When shorted puts 12VDC between pins 1&2 for ringing bell or audible device.
- 5 – “+BAT” positive input from battery.
- 6 – “-BAT” negative input from battery
- 7 – Fault relay Contact
- 8 – Fault relay Contact
- 9 – Fault relay Contact
- EMERGENCY LIGHTS – 3 pin connector for first emergency light in string.

6.4.1.2 Emergency Board Indicators

- POWER LED - +24VDC power present
- CHARGE LED – lit when battery is charging
- FAULT LED – Lit when there is a battery charging problem.

6.4.1.3 Emergency Board Settings

- 6/12V DIP Switch – set based on battery voltage.



7 Installation



Be sure all power is turned off before starting installation.

Locate the positions where you want each downlight and drill the ceiling panels according to the specifications for your downlight listed in sections 7.1 and 7.2.



Be sure there is a minimum 1" clearance between the top of the downlight can and the cab top to accommodate the connectors. See Figure 8 - Installation example

7.1 Flat Bezel Downlight Dimensions

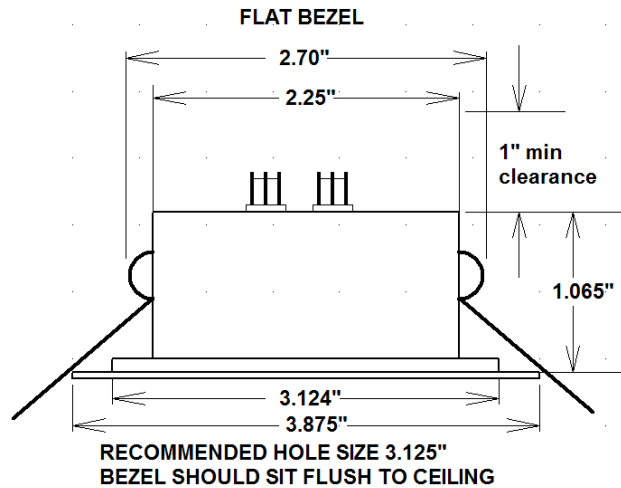


Figure 6 - Flat Bezel Measurements

7.2 Raised Bezel Downlight Dimensions

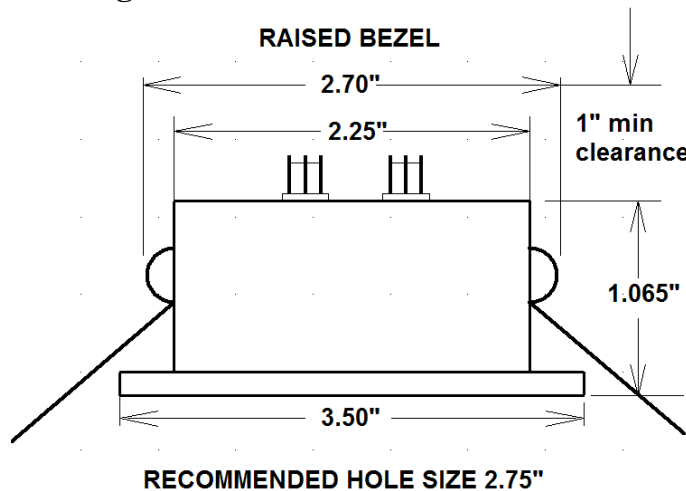


Figure 7 - Raised Bezel Measurements

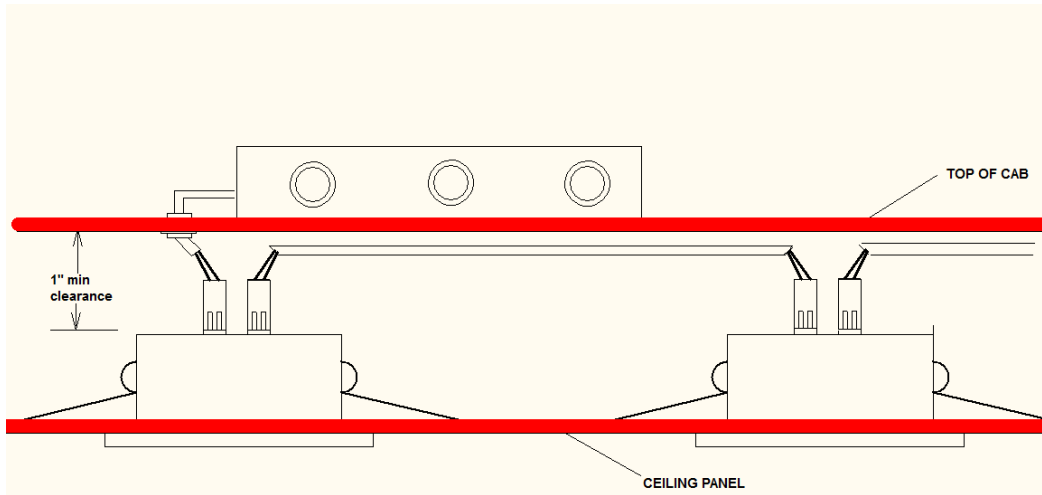


Figure 8 - Installation example

7.3 Luminous Wiring Diagram

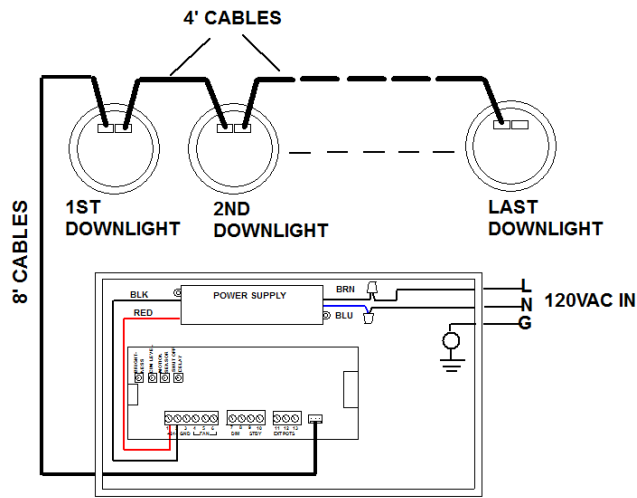


Figure 9 - Luminous Wiring Diagram

Wire AC power to power supply as shown in Figure 9 - Luminous Wiring Diagram. Be sure to secure AC power line through the case of the control box with appropriate hardware

- AC IN line – Brown wire on power supply
- AC IN neutral – Blue wire on power supply

The DC output of the power supply is factory wired to the Control Board.

Route the 8' cable through the control box punch out (securing properly) to the first downlight and connect remaining downlights with 4' cables. The two connectors on the downlights are interchangeable so cable connection does not matter.

Once wiring is complete apply power to lighting system. Check that all downlights are lit. See section 8 Lighting and Control Adjustments for configuring and adjustments.

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7.4 Luminous w/ Emergency Lighting Wiring Diagram

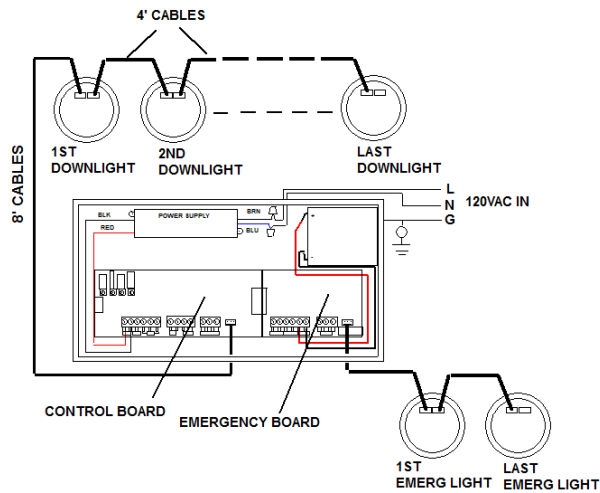


Figure 10 - Luminous w/ Emergency Wiring Diagram

The power supply DC output is prewired from the factory to the control board. The BATTERY negative terminal is prewired to the control board and the positive terminal is left disconnected. Route AC power through one of the punch outs of the gang box and secure cable to box with appropriate hardware. Connect AC in as shown in Figure 10 - Luminous w/ Emergency Wiring Diagram

- AC IN line – Brown wire on power supply
- AC IN neutral – Blue wire on power supply

Route the 8' cable through another punch out of the gang box and secure to box using proper hardware. Connect the 8' cable to the first downlight and the remaining downlights with the 4' cables. The two connectors on the downlights are interchangeable so cable connection does not matter.

The EMERGENCY lights are connected through a second 8' cable as shown in Figure 10.

The standard number of downlights in the emergency lighting string is two. Connecting more than two will shorten the emergency lighting time.

With all downlights connected, remove the plastic cover from the POS terminal of the battery and connect RED wire from control board to battery POS terminal. The EMERGENCY downlights should light at this time.

Apply AC power to CabLite® system. All downlights should light. See Section 8 Lighting and Control Adjustments for configuring and adjustments.

8 Lighting and Control Adjustments

8.1 Brightness Adjustment

Adjust the brightness of the downlights using the BRIGHTNESS pot located on the Control Board.



8.2 Dimming Level Adjustment

If the dimming function is to be used, place a jumper between pins 7 & 8 of control board. Using the DIM LEVEL pot, adjust light level to desired setting then remove jumper.

8.3 Auto Light Control Adjustment

1. Set the MOTION DIP switch to the ON position. See Figure 4 - Motion DIP switch.
2. Press TEST button once. The TEST LED should light. This changes the SHUT OFF DELAY from 5-15 minutes to 5 – 15 seconds.
3. Turn the SHUT OFF DELAY fully counterclockwise. This should set the delay to approx. 5 seconds with TEST LED lit.
4. Close the car doors and wait until all but 2 downlights turn off.
5. At that point open the doors. If downlights do not turn on with the opening of the door, adjust MOTION SENSOR pot and repeat steps 4 & 5 until sensitivity is acceptable.
6. You can adjust the SHUT OFF DELAY with the TEST LED lit. Timing is 5 to 15 seconds with TEST LED on. Should convert to 5 to 15 minutes once TEST LED is off i.e. 10 seconds should be 10 minutes.
7. When complete PRESS TEST button to disable test operation.
8. Replaced cover to control box.

9 Trouble Shooting

9.1 One Light Does Not Turn On

- 1) Swap downlight with another light in string.
 - a) If light still does not operate replace downlight.
 - b) If downlight lights, then check original connection to downlight.
 - i) Replaced cable if necessary

9.2 Lights Do Not turn On (CabLite Luminous)

- 1) Check connection between power supply and first downlight.
- 2) Check for 24VDC at power supply output
 - a) If no 24VDC check for 120VAc at power supply input
 - i) If 120VAC present replace power supply.
 - b) If 24VDC present replace 8' cable

9.3 Lights Do Not Turn On (CabLite Luminous & w/Emergency)

- 1) Check connection between control board and first downlight.
- 2) Using DVM measure +OUT- for 24VDC.
 - a) If no 24VDC check for 24VDC at +IN-
 - i) If no 24VDC at +IN- then check for 120VAC at power supply input
 - ii) If 120VAC present replace power supply.
 - b) If 24VDC present at +IN- then replace Control board.
- 3) If 24VDC present at +OUT- then check continuity of 8' cable and replace if necessary.

9.4 No Emergency Lights with AC loss (Emergency light option)

- 1) Check connection between control board and first emergency downlight in string.
 - a) Check continuity of 8' cable and replace if necessary.



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- 2) With no AC power applied and battery connected, check for 12VDC at +EM- output of control board
 - a) If no 12VDC, check connections between battery and control board.
 - b) Check Battery voltage for 12VDC and replace battery in necessary.
- 3) Check FAULT LED on control board (AC power required).
 - a) If lit replace battery

9.5 Emergency Lights Do Not Light with AC Power (Emergency light option)

- 1) Check connection between control board and first downlight.
- 2) Check for 24VDC at +EM- output.
 - a) If 24VDC present replace 8' cable
 - b) If no 24VDC replace control board.

9.6 Downlights Turning Off and not coming back on

- 1) Check Motion Sensor Adjustment (section 8.3) if Motion Enabled (Figure 4 - Motion DIP switch)
 - a) If Motion not desired turn switch OFF

9.7 No Dimming with pins 7 & 8 connected

- 1) Check DIMMING LEVEL adjustment by shorting pins 7 & 8 of control Board and turning DIMMING LEVEL pot fully clockwise and counter clockwise to see if lighting level changes.
 - a) If no change, replace Control Board
 - b) If level changes then check that the BRIGHTNESS level is different than the DIMMING level