Square D™ Lighting Manager – Z10

Instruction Bulletin

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10/2024

Retain for future use.

SQUARE D™

Schneider Electric™

For technical assistance, contact the Technical Services Department at Square D™ IPaCS: 1-888-SQUARED

Table of Contents

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Electrical equipment should be installed, operated, serviced, and maintained only by qualified electrical personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material. This document is not intended as an instruction manual for untrained persons.

Failure to follow these instructions will result in death or serious injury.

⚠ **WARNING**: This product can expose you to chemicals including Lead and lead compounds, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Features

- Display current day, date, time, operating mode, input and output status (On isindicated by reverse video display).
- Schedules and setpoints are password protected.
- Password security: five (5) consecutive inaccurate logon attempts and the securityfunction is locked for 30 minutes.
- Programmable length of bypass and a bypass cancel feature.
- Automatic adjustment for daylight saving time.
- Operating time of the clock, assured by a lithium battery, is 10 years.
- Data backup is provided by an EEPROM Flash memory (10 years).
- Factory wired, labeled and functionally tested, UL Listed and meets NEC® requirements.
- Emergency Override of individual outputs (Channels)
- Individual light level set points for each output (Channel).
- Each output has a programmable time value that the light level must be above orbelow set point to prevent cycling of lights.
- Time clock scheduling for each output (Channel) Current configuration has on or offevents for Mon – Thu, Fri, Sat, Sun. Time clock has a maximum of 50 events.
-
- Light sensor range 255 (bright light) to 0 (dark) close relationship to foot candles)
- Technical assistance in programming and troubleshooting.

Specifications

Supply Voltage	120 Vac (+10% / -15%)
Power consumption	125 watts max
Switching capacity	10 contactors per channel
Temperature	-20 to + 55 (- 4 to + 131) + 40 (+ 104) in an enclosure
Humidity	8% to 90% RH noncondensing
Clock Accuracy	(+/ -) 1 minute/month
Clock battery backup	Lithium battery (10 years)
Data backup	EEPROM Flash memory (10 years)
Display	LCD (4 lines of 18 characters)
Programming language	FBD (Function Block Diagram)
Number of function blocks	Up to 200
Zelio Inputs (Analog)	16 (6)
Zelio Output	10

System Description

The Lighting Manager-z10 from Square D IPaCS is a U.L. listed system that controls the operation of outdoor lighting and signs. Eliminating the need for mechanical time clocks and photocells the Lighting Manager z10 provides standardized lighting control from a single location. It is available in different models, from a standalone controller to a complete lighting control system that may control up to 60 circuits.

Pre-wired and factory tested to insure lower installation and maintenance cost. The compact size saves wall space and maximizes installation flexibility. A terminal strip is provided for the termination of control power, light sensor, and the remote by-pass. The incoming power terminal is fused to ensure protection of the controls. The terminal strip also allows for convenient relocation of contactor coils to the proper channel.

Signs, canopy lights, and parking lot lights turn on and off at defined light level set points and times. An override switch is provided for each output to allow for equipment testing without the need to change the program. Also used for emergency bypass in case of equipment failure. In the ON position, these switches override normal control of the Lighting Manager z10 and turn the channel (output) on. The channel will remain on until the override switch is placed back into the AUTO position.

A programmable bypass timer is provided to extend the scheduled on state of the controller. The bypass time is displayed as a value 0 to 32,727 . The amount of bypass is programmable from 1 minute to 9 hours and 59 minutes.

The display, programming keys and overrides are located on the door of the Lighting Manager z10. Energized electrical controls need not be exposed to make program changes. The normal display is day, date, operating mode and current input / output status. Reverse video is used to distinguish if an input / output is on or off. Pressing one of the keys below the display reveals additional current information such as light level reading and bypass time counter.

Parameters such as light level setpoints, schedules, and timers may be changed from the front keypad. These parameters are password protected to prevent unauthorized changes. A security function locks the Lighting Manager z10 for thirty (30) minutes if an incorrect password is entered 5 times consecutively. A memory cartridge is available to restore factory parameters if data becomes corrupt or to install a new program if major configuration changes are necessary.

Application

In most retail applications, signs and outdoor lighting are activated simultaneously using switches, time clocks, and/or photocells. Energy savings and optimum control are not fully utilized using these methods. Photocells on the roof or light poles must be adjusted for consistent operation. Time clocks do not allow for holidays, special operating hours or daylight savings time. For these special events or after a power outage, the time clocks must be reset. If switches are used, employees must remember to turn the lights on and off.

With the Lighting Manager- z10 from Square D IPaCS, control is provided at one location. A single light sensor will control channels 1, 2, and 3. Each can be programmed with a different set point to allow staging of the outside lighting. For example, turning on signs and advertisements at a minimal drop in light level but allowing the canopy and security lights to remain off until the light level drops even lower.

Channels 4 and 5 are controlled by schedule only and offer two (2) on / off event per day. Current configuration schedule (Monday – Thursday, Friday, Saturday and Sunday) These channels allow control of lights or other loads not related to outside light level. Any equipment that needs to be turned on and off by time clock functions can be connected to these channels for automatic control.
Each channel is independently programmed to use the holiday and the bypass feature.

Dates can be programmed as holidays, keeping the lights off if your business is closed or changing the hours of operation. A remote bypass function can turn the lights on for unexpected times not accounted for in programming (programmable from 1 minute to 9 hours). Daylight savings time can be programmed to automatically update annually based on user entered dates.

The Lighting Manager z10 uses the Zelio® Logic 2 programmable smart relay as the master controller. It was designed for use in small automated systems, both in the industrial and commercial sectors. The additional input and output capacity of the Zelio relay allow flexibility in system design and application.

Operation

Light Sensor Only

A single light sensor provides an input into a FBD comparator for the output. If the light sensors value is below setpoint, an on signal is commanded. After a programmable) minimum on delay the output will turn on. If the light sensor value increases above setpoint the output will turn off after the minimum off delay.

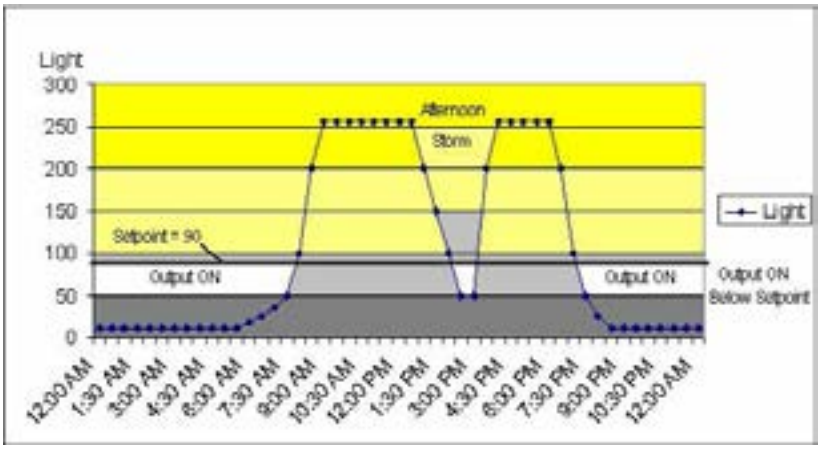

Figure 1: *Operation of output using light sensor only.*

Time Clock Only

The output will turn on and off based on the times programmed for the current day. Time clock schedules can be configured to meet varying requirements. A maximum of 50 events may be programmed into each of the outputs time clock.

Note: *An on or an off time is considered one (1) event. An event may be used on multiple days. Current configuration allow one (1) on and one (1) off event per schedule (Monday – Thursday, Friday, Saturday and Sunday)*

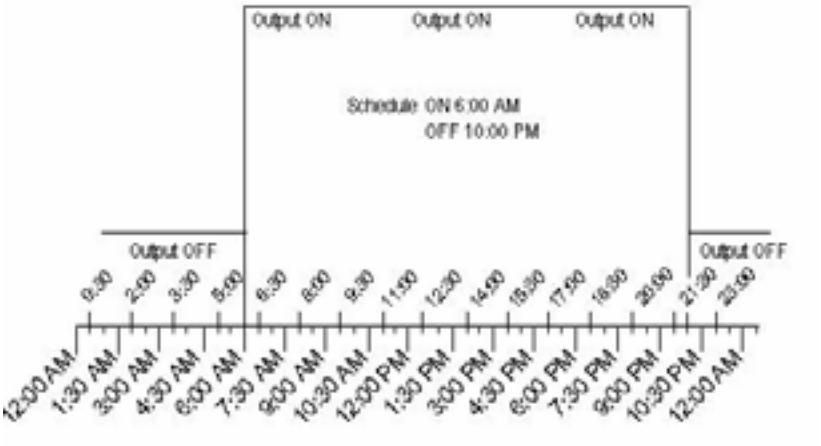

Figure 2: *Operation of output using time clock only*

Operation

Time Clock and Light Sensor

During the scheduled on mode the light sensor provides an input into a FBD comparator for output #1. If the light sensors value is below setpoint an on signal is commanded. After a minimum on delay the output will turn on. If the light sensor value increases above setpoint the output will turn OFF after the minimum off delay. During the scheduled off mode the output will turn off regardless of light sensor reading.

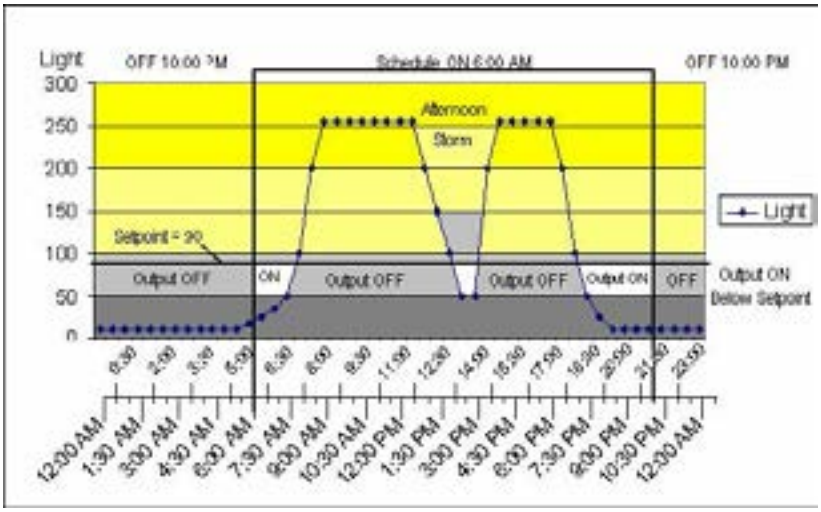

Figure 3: *Operation of output using time clock and light sensor*

Timed Bypass

This function bypasses all other control and allows an output to be turned on for a programmable duration of time. Bypass times are displayed in seconds. The maximum value is 32,727 (approximately 9 hours and 59 minutes).

Note: *Outputs can only be assigned to the Timed Bypass via software programming. Outputs can not be assigned from the Lighting Manager z10 keypad. Timed Bypass duration may be adjusted from the Lighting Manager z10 keypad.*

Bypass Reset

This function cancels Timed Bypass and sets a counter to a programmable duration of time. Bypass times are displayed as seconds. A value of 600 (10 minutes) allows for any remaining timed bypass to be canceled and bypassed output to return to normal operation at the end of bypass reset timer. Bypass Reset duration may be adjusted from the Lighting Manager z10 keypad.

Holiday Clock

Allows days to be defined to operate under a different schedule than the normal daily schedule. These may include off for a day (or multiple of days) or different operating hours for a particular day.

Note: *Outputs can only be assigned to Holiday programming via software programming. Outputs can not be assigned from the Lighting Manager z10 keypad. Holiday events (Dates and times may be modified from the Lighting Manager z10 keypad.*

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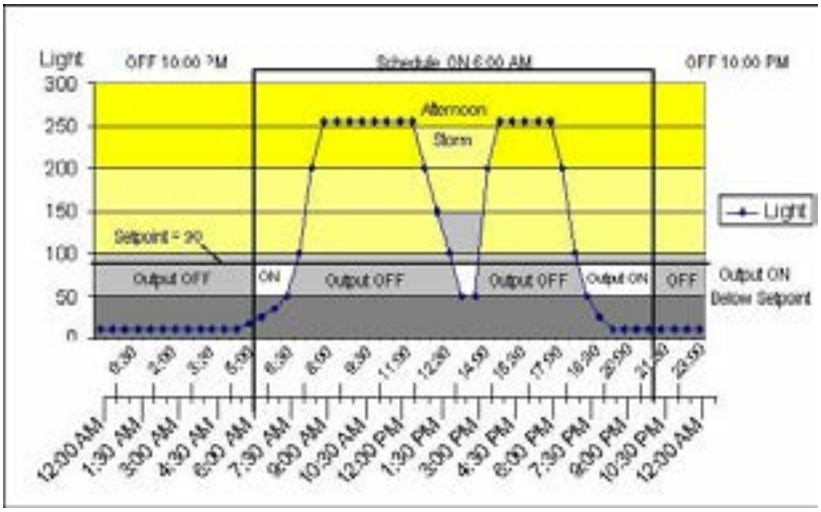

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Installation

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Turn power off before installing, removing, wiring or maintaining.

Failure to follow these instructions will result in death or serious injury.

NOTICE

LOSS OF BRANCH CIRCUIT POWER / LOSS OF EQUIPMENT

- Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, or maintain it.
- Failure to follow instructions could cause damage to the equipment or a hazardous condition.

Failure to follow these instructions can result in equipment damage.

Installing the Lighting Manager z10

- Installation should only be preformed by electrical contractor; wiring must comply with all federal, state and local codes.
- Check the ratings on the Lighting Manager z10 and the equipment to be controlled tomake certain they are compatible.
- Review these instructions and the drawings sent with the equipment carefully. Complete the installation and programming worksheets in this manual prior to installation.

Lighting Manager z10 Location

The Lighting Manager z10 is designed for indoor use only. Install on the interior surface of a conveniently located solid wall. Keep away from areas where weather or cleaning will allow moisture access into the cabinet. It is recommend that the Lighting Manager z10 be located close to the lighting electrical panels.

Lighting Manager z10 Mounting

Mount the cabinet using the mounting hardware provided. When drilling holes for conduit entry ensure that no metal fragments fall into the Lighting Manager z10 enclosure. Foreign debris may lead to fire, equipment damage or malfunction.

Lighting Manager z10 Control Circuits

Contactors coils are pre-wired at the factory, but can be modified in the field. There is a terminal strip (TBz) located in the cabinet, numbered “1 : 2 : 3 : 4 : 5 : S ”. This terminal strip is where the contactor coils are connected to a channel (see note # 1 Fig. 5.) By moving the coil wire from one terminal block to another, you are changing the connection of the contactor from one channel to another.

Note: *A contactor coil control circuit will need to be moved if there are more lighting circuits than available contactors on a particular channel.*

Lighting Manager z10 Wiring

This equipment is supplied with multiple power sources. Turn off the circuit breakers that are to be controlled by the Lighting Manager z10. Identify the conductors going to the breakers, label and remove conductors from the circuit breaker. Route the conductors into the Lighting Manager z10 cabinet and connect to the bottom (load side) of the desired contactor (see note # 4 Fig. 5.) Install a new conductor between the top (line side) of the contactor and the circuit breaker (see note #5 Fig. 5.) Branch circuits may be 1, 2 or 3 pole circuits.

Provide a 120 volt 15 ampere circuit to the terminal strip (TBz) labeled L1 : N : G. (see note # 3 Fig. 5.) A separate grounding wire must be connected to the Lighting Manager z10.

Lighting Manager z10 Light Sensor

Sensor must be able to detect true ambient light. Choose a location that is exposed to full daylight and is not shadowed or directly exposed to night-time illumination Mount the light sensor (hooded portion on top) horizontally on the building roof or canopy (minimum 18 inches above roofline) facing the northern sky.

Wiring to the light sensor must be # 18-3 shielded cable and must be in a separate conduit. Do not run the low voltage wire with or near power wiring. Maximum cable length should not exceed 100 feet. The shield at the light sensor must be cut at the insulation and taped to prevent grounding. The shield and sensor wires should be connected inside the Lighting Manager z10:
Red (+) = Power, Black (-) = Common, Yellow (sig) = Signal to the terminal strip TBz (see Fig.6.)

⚠ CAUTION

UNIT DAMAGE AND POWER SYSTEM OVERVOLTAGE

- To prevent electrical shock and possible equipment damage, disconnect power coming from the Lighting Manager z10 prior to connecting the light sensor

Failure to follow these instructions can result in injury or equipment damage.

Lighting Manager z10 Terminal Strip TBz

RBI	Cancel Bypass
RBO	Start Bypass
24+	Bypass Common
24 + / 24 - / Sig / Shd	Light Sensor
24 + / 24 -	Power to the Zelio Smart Relay
L1 / N / G	120 volt Control Power for the Lighting Manager z10
1 / 2 / 3 / 4 / 5 / Sp	Lighting Manager z10 outputs

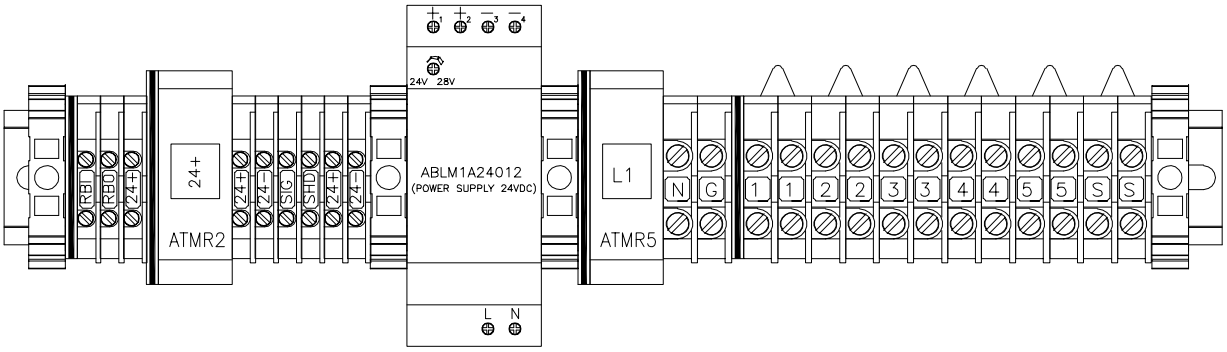


Figure 4: *TBz terminal Strip*

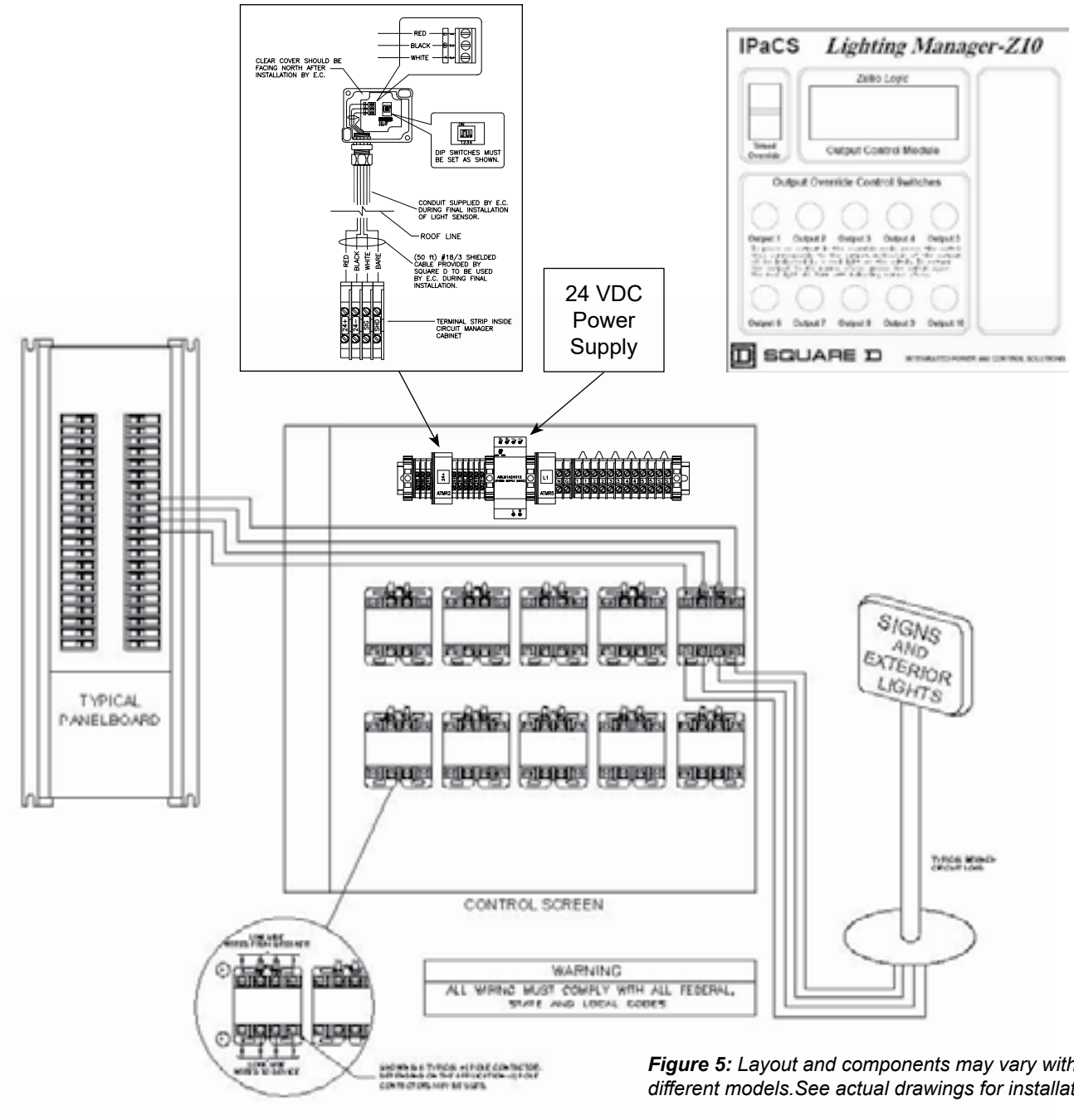


Figure 5: *Layout and components may vary with different models.See actual drawings for installation.*

Keypad / Display Overview

The operating parameters are factory installed into the controller. From the keypad there are several parameters that may be modified or viewed.

The Lighting Manager z10 displays 4 lines of information.

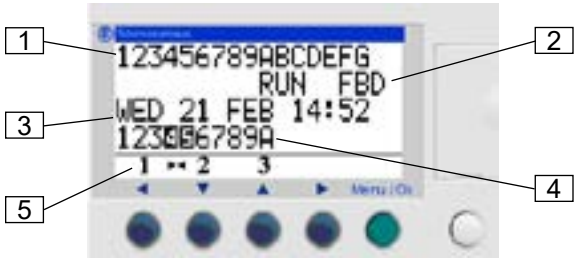
Inputs
All input numbers are displayed, when an input is closed the display is reversed (White numbers with black background.
Example: 123❹❺6789ABCDEFG Input 4 and 5 Closed.

Mode / Program Type
(Run or Stop / FBD (Function Block Diagram)
- **Run Mode:** The Program is enabled to operate. Not all menu options are available in the run mode. To view the configuration or program transfer, the mode must be stop.
- **Stop Mode:** The program is STOPPED and all the inputs and outputs are disabled.
- **FBD:** The language used to program the Lighting Manager z10.

Day, Date, Time
Displays the day of the week, the date (day and month) and the current time in military format (13:00 = 1:00PM)**.**

Outputs
All output numbers are displayed, When an output is closed the display is reversed) (White numbers with black background.
Example: 123❹❺6789A output 4 and 5 are closed (Load ON)

Contextual menu bar
Only available in the RUN mode. Each key is assigned a number and a specific function. (Example: Pressing the key below the number 1 will display current light sensor value) Use the programming reference sheet provided with the Lighting Manager z10 to see each keys function.



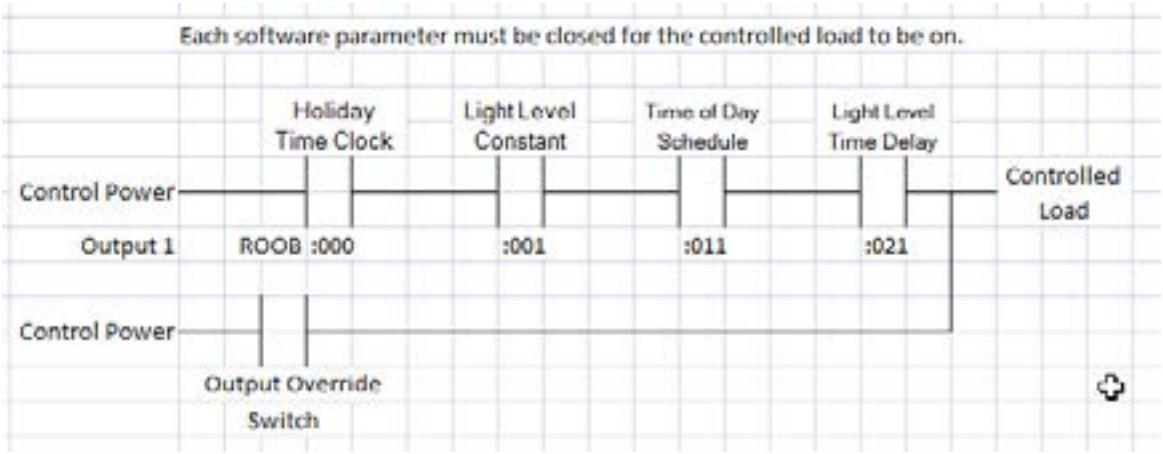
In the program mode the keys are used for navigation and data entry purposes.

Contextual menu key functions		
Left Arrow	◄	Light sensor current reading
Down Arrow	▼	Bypass time counter
Up Arrow	▲	*Currently not used*
Right Arrow	►	Bypass reset time counter

Lighting Manager z10 Software Reference Sheet

The Z10 lighting controller does not display names but software points described below.
R00B Point may be modified from the Lighting Manager z10 display.

Software Point	Function	Discription
R00B: 000	Global	Holiday Time Clock
R00B: 001	Output #1	Light Level Constant (Current light level below constant = ON)
R00B: 002	Output #2	Light Level Constant
R00B: 003 - 010	Output #3 - 10	Light Level Constant
R00B: 011	Output #1	Time of Day Schedule
R00B: 012	Output #2	Time of Day Schedule
R00B: 013 -020	Output #3 - 10	Time of Day Schedule
R00B: 021	Output #1	Light Level Time Delay (Active= ON _ Inactive=OFF)
R00B: 022	Output #2	Light Level Time Delay
R00B: 023- 030	Output #3 - 10	Light Level Time Delay
R00B: 072	Global	Constant High Value (+32767)
R00B: 075	Global	Bypass Timer (05400 seconds) 90 minutes
R00B: 076	Global	Bypass Timer (00300 seconds) 5 minutes



Programming Mode

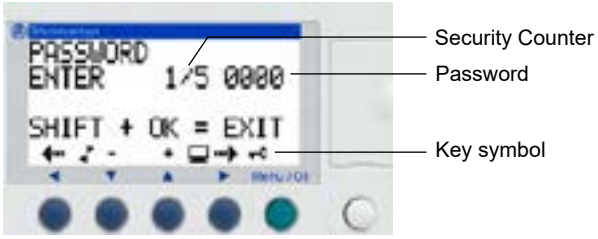
From the normal display, pressing the Menu / OK (Green button) will provide a list of list of functions that are available from the keypad. (See fig.8) A function will be flashing to indicate it is the current selection. The up and down triangle on the right side of display indicates that additional functions are available. Press the ▲ or ▼ key to select the function to view. A function will flash to indicate it has been selected. While the function is flashing, press the Menu / OK (Green button) to enter into that menu.

Function menu display

Important Notes:

- From the Normal display, Pressing Menu / OK toggles into a list of functions.
- Pressing Menu OK while a function is flashing enters into that function menu.
- Functions may be password protected- A password must be entered to view.
- An function is selected when flashing.
- Press ▲ or ▼ to change flashing location.
- Press ◄ at the function menu returns to the normal display.

Password



If a password has been programmed into the system there will be a key symbol displayed in the contextual menu bar. The password must be entered before a user can enter into certain menus.

Press the ▲ / ▼ to change value. The ◄ / ► keys change flashing position. The displayed password must match the programmed value to enter certain functions. When the correct password is displayed, press Menu OK to proceed. If an incorrect password is entered, values are reset to 0 0 0 0 and the security counter is increased. (Example 1/5, 2/5….) If an incorrect password is entered 5 times consecutively, the security function is locked for 30 minutes.

It is possible to exit the password screen without entering a password by pressing the white key and the green key simultaneously.

Table of Functions Descriptions

Function	Password Protected	Changes Allowed	Notes
Parameters	No	Yes / Modify	View or edit Setpoints, Schedules and Timers Displayed as R00B number
Run / Stop	No	Yes / Select	Select the Run or Stop Mode
Configuration Only available in STOP Mode	Yes	Modify	
Password		Enter Only	If the program is password protected (a key is displayed in the Contextual menu bar) the password is required to modify the current program
Filter		Yes / Select	Fast or Slow Used to select internal reaction to changes of inputs
Cycle & Watchdog		Yes / Modify	Select cycle time of the program and watchdog counter
Transfer Only available in STOP Mode		Yes / Select	Used to transfer program Zelio to Memory or Memory to Zelio
Version	No	View Only	View Module Type , Hardware and Software ID
Language	No	Yes / Select	Select language to be used
Fault	No	Yes / Select	View alarm code and clear alarms
Change D / H	No	Yes / Modify	Set date and time
Change Summ / Wint	No	Yes / Modify	Set Daylight Saving begin and end dates

Parameters

This function is used to enter and modify the application settings directly on the Lighting Manager z10 screen. It is possible to modify an applications parameter from the RUN mode. These application parameters include the light level constant, time schedule and bypass timers that turn an output on or off.

The load or output name is not directly displayed but the R00B (Function Block Diagram) used to control the output is displayed. Use the programming reference sheet provided with the Lighting Manager z10 to cross reference or the Lighting Manager z10 Software reference sheet.

Figure 10: Light Level Setpoint

Figure 11: Time Schedule

Note: The outdoor light sensor value changes with ambient light.
- When the light sensor value is below the constant value, the point is closed.
- When light sensor value is above constant value the point is open.

To Edit a Constant

Sequence	Display	Parameters
Press Menu / OK or ▼ key until Parameters is Flashing		
Press Menu / OK	R00B: 001 is flashing	Press the ▲ or ▼ key to select a different R00B number. Proceed when desired R00B number is flashing
Press ▶ to select this R00B to edit		Press the ▲ or ▼ key to change value, when desired value is displayed
Press Menu / OK	Confirm Changes? YES *flashing* NO	Press the ▲ or ▼ key to choose. *Flashing = selected*
Press Menu / OK	constant value is Flashing	
Press Menu / OK	Parameters is Flashing	
Press ◀	Normal display	

Parameters

Figure 12: Edit Time Schedule

Example: T:01 Event
Week 1,2,3,4,5 (every week of the month) and
Days: 0,1,2,3 (Mon, Tue, Wed, Thu) of that week
Event T:01 is to turn ON at 18:00 (6:00 PM)

Function Block Diagram number	A different time clock is used for each output.
T: 01 Event number (Max 50)	Event selected displays NO TACK means the event has not been setup in software and is not available to be modified from the keypad.

Note:
Each event may be assigned to specific days, weeks or months

Week of month	Week of the month EVENT is to occur
Day of week	Day of the week the EVENT is to occur
Event Time	Time (24 hour format)
ON / OFF Switch	

To Edit a Time Schedule

Sequence	Display	Parameters
Press Menu / OK or ▼ key until Parameters is Flashing		
Press Menu / OK	R00B: 001 is flashing	Press the ▲ or ▼ key to select a different R00B number. Proceed when desired R00B number is flashing
Press ◀ / ▶ to select the parameter to edit	Cursor will be flashing on the selected parameter	Press the ▲ or ▼ key to change the value of the selected parameter, when the desired value is displayed press ◀ / ▶ to select a different parameter to edit or Menu OK to confirm changes
Press Menu / OK	Confirm Changes? YES *flashing* NO	Press the ▲ or ▼ key to choose *Flashing = selected*
Press Menu / OK to confirm	Setpoint value is Flashing	
Press Menu / OK	Parameters is Flashing or return to normal display	
Press ◀	Normal display	

Run / Stop

This function is used to Start or Stop the applications of the Lighting Manager z10 Not all menu options are available in the run mode. To view the configuration or program transfer, the mode must be stop.

In the STOP mode all inputs and outputs are disabled. Mode must be set to RUN for automatic control of the Lighting Manager z10.

- If the Lighting Manager z10 is in the STOP mode, entering the Run/Stop function will display the RUN PROG. menu.
- If the Lighting Manager z10 is in the RUN mode, entering the Run/Stop function will display the STOP PROG. menu.

Figure 13: Run Menu Display

Figure 14: Stop Menu Display

To Stop Program

Sequence	Display	Parameters
Press Menu / OK	Run / Stop is Flashing OR	
Press the ▼ key until Run / Stop is Flashing		
Press Menu / OK	Yes is Flashing	Press the ▲ or ▼ key to select Yes / No
With YES flashing **Press Menu / OK**	Return to normal display in the STOP mode	

To Run Program

Sequence	Display	Parameters
Press Menu / OK	Run / Stop is Flashing OR	
Press the ▼ key until Run / Stop is Flashing		
Press Menu / OK	WITH NONVOLAT INI is Flashing	Press the ▲ or ▼ key to select other option
With Nonvolat Ini Flashing **Press Menu / OK**	Return to normal display in the RUN mode	

Configuration

This function is only available when the Lighting Manager z10 is in the STOP mode.

Figure 15: Configuration Menu

Password

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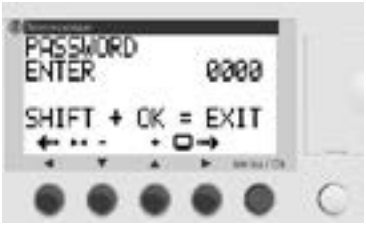

Figure 16: Password Menu

Configuration - Filter

Figure 17: Configuration Filter

To Set Filter

Sequence	Display	Parameters
Press Menu / OK	Configuration is Flashing OR	
Press the ▼ key until Configuration is Flashing		
Press Menu / OK	Filter is Flashing	
Press Menu / OK	Fast = *flashing* Slow	Press the ▲ or ▼ key to choose. *Flashing = selected*
Press Menu / OK	Desired Filter is Flashing	
Press Menu / OK	Return to configuration menu display	
Press ◀ Key	Return to function display	
Press ◀ Key	Return to function display	

Configuration - Filter

Figure 18: Configuration Watchdog

To Set Cycle & Watchdog

Sequence	Display	Parameters
Press Menu / OK	Configuration is Flashing OR	
Press the ▼ key until Configuration is Flashing		
Press Menu / OK	Filter is Flashing	
Press ▼ key 2 times or until Cycle & Watchdog is Flashing		
Press Menu / OK	Cycle time is flashing	Press the ▲or ▼ key to change the value of the selected parameter, when the desired value is displayed press ◀ / ▶ to select a different parameter to edit or Menu OK to confirm changes
Press Menu / OK	Cycle & Watchdog is Flashing	
Press ◀ Key Press	Return to configuration menu display	
Press ◀ Key	Return to normal display	

Transfer

This function is only available when the Lighting Manager z10 is in the STOP mode and a Memory module is installed. Follow the instructions on page 20 to stop the program.

Note: Insertion and Extraction of memory module may be performed with Lighting Manager z10c power on. If an application is present, the transfer will overwrite the existing application.

Figure 19:
Memory Module Location

Figure 20:
Program Transfer

To Transfer Program

Sequence	Display	Parameters
Press Menu / OK	Transfer is Flashing OR	This function is only available when the Lighting Manager z10 is in the STOP mode.
Press the ▼ key until Transfer is Flashing		
Press Menu / OK	Zelio is Flashing	Press the ▲or ▼ key to select other option
To perform action Press Menu / OK	Module>>>Memory then Transfer OK	
Press Menu / OK	Transfer is Flashing	
Press ◀ Key	Return to normal display	

After memory transfer - must return to the run mode
Mode must be set to RUN for automatic control of the Lighting Manager z10

Version

Note: This function is used to precisely identify the version of each system component.
This is a READ ONLY screen - Changes are not allowed.

Figure 21:
Version Display

To Check Version

Sequence	Display	Parameters
Press Menu / OK	Version is Flashing OR	
Press the ▼ key until Version is Flashing		
Press Menu / OK	Module / Hardware Firmware / FBD Func	
Press Menu / OK	Return to normal display	

Language

All messages can be view in six (6) languages English, French, German, Italian, Portuguese, and Spanish. The Up and Down triangle on the right side of the display indicates that additional options are available.

Note: The current language selected is indicated by a black diamond.

Figure 22:
Language Display

To Check Version

Sequence	Display	Parameters
Press Menu / OK	Language is Flashing OR	
Press the ▼ key until Language is Flashing		
Press Menu / OK	English is Flashing	Press the ▲or ▼ key to select a different language
Press Menu / OK	Return to normal display	

Fault

Note:
- Objects can only be modified when it is selected (FLASHING)
- If a Fault exists the code will be displayed.
- Configuration changes may be required to clear a Fault.

Figure 23:
Fault Display

To Check and Clear Faults

Sequence	Display	Parameters
Press Menu / OK	Fault is Flashing OR	
Press the ▼ key until Fault is Flashing		
Press Menu / OK	Yes is Flashing	Press the ▲ or ▼ key to select Yes / No
With YES flashing Press Menu / OK	Fault is Flashing	
Press ◀ Key	Return to normal display	

Table of Fault Codes

Number	Type of Fault	Notes
000	No Fault	
001	Fault in writing to EPROM	This fault defines the transfer problems between the memory cartridge and the controller. If this fault occurs frequently, contact after-sales service.
002	Clock write fault	If this fault occurs frequently, contact after-sales service.
004	Overload on solid state relay output	Once a transistor output reaches a temperature of 170°C, the group of 4 outputs to which it belongs is deactivated. To make this group of outputs operational, the cause of the over current (Short circuit, etc.) must first be deleted, and the fault cleared from the FAULT menu (See Fault Menu, p 27)
050	Smart relay firmware is damaged	Reload the firmware on the smart relay and the used application. If this problem persist, contact after-sales service.
051	Watchdog Overflow	Warning or error according to the selection made in the menu (smart relay display) or in the configuration window (programming software). The cycle time in the module is too short compared with the application program execution time programmed in the controller. If the application does not require the cycle time, you must choose: ***No Watchdog Action***, in the configuration menu.

Table of Fault Codes *(continued)*

052	The controller has executed an unknown operation	If the fault is permanent, reload the firmware on the smart relay and the user application. If this problem persist, contact after-sales service.
053	Link fault between smart relay and bus-type extension	Check operation of the extension (connection, power supply, fault)
054	Link fault between smart relay and input/ outputtype extension	Check operation of the extension (connection, power supply, fault)
058	A fault is present in the firmware (software specific to the controller), or on a part of the controller hardware.	If the fault is permanent, reload the firmware on the smart relay and the user application. If this problem persist, contact after-sales service.
059	At the beginning of RUN on the smart relay application: The application can not switch to run because in is incompatible with the smart relay physically connected to the power supply	If this problem occurs, contact after-sales service.
060	At the beginning of RUN on the smart relay application: The application can not switch to run because in is incompatible with the bus extension physically connected to the power supply	If this problem occurs, contact after-sales service.
061	At the beginning of RUN on the smart relay application: The application can not switch to run because in is incompatible with the Input/ Output extension connected to the power supply	If this problem occurs, contact after-sales service.
062	Version (or build number) incompatibility when loading a program from the backup memory	If this problem occurs, contact after-sales service.
063	Hardware configuration incompatibility when loading a program from the backup memory	If this problem occurs, contact after-sales service.

Change Date / Hour

Figure 24:
Change Date / Hour Display

Note: The quartz that controls the real time clock of the Lighting Manager z10 has a variable monthly drift depending on the environmental conditions. The maximum value of this drift is approximately one (1) minute per month. If you wish to compensate for this drift, you can for example make a -15 second correction per week to compensate for a +60 second drift per month. This compensation is executed on Sunday at one O'clock in the morning.

To Set Date or Time

Sequence	Display	Parameters
Press Menu / OK	Change D/H is Flashing OR	
Press the ▼ key until D/H is Flashing		
Press Menu / OK	Day is Flashing	Press the ▲or ▼ key to set DAY
Press ▶ Key	Month is Flashing	Press the ▲or ▼ key to set MONTH
Press ▶ Key	Year is Flashing	Press the ▲or ▼ key to set YEAR
Press ▶ Key	Hour is Flashing	Press the ▲or ▼ key to set HOUR
Press ▶ Key	Minute is Flashing	Press the ▲or ▼ key to set MINUTE
Press ▶ Key	Second is Flashing	Press the ▲or ▼ key to set SECOND
Press ▶ Key	CAL +00 is Flashing	Press ▲ to add ?? secs/WK Press ▼ to subtract ?? secs/WK
Press Menu / OK	Change D/H is Flashing	
Press ◀ Key	Return to normal display	

Change Date / Hour

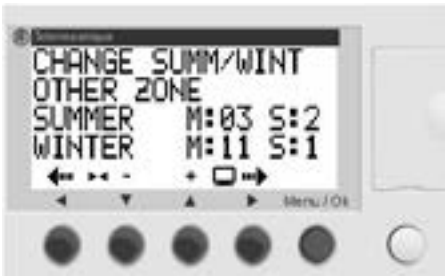

Figure 25:
Change Summer/Winter Display

Notes:
1. Location options Europe, GB , USA, Other Zone, NO
2. If Daylight Saving Time is not observed, the location should be set to NO
3. Europe, GB, USA dates are NOT adjustable
4. Pressing the ▶ Key advances location to Other Zone and moves the flashing cursor to summer month.
    - Summer= Month and Sunday that Daylight Saving is to begin
    - Winter = Month and Sunday that Daylight Saving is to end.
5. M : Month - Represents the month
6. S : Week - Represents Sunday on which week of the month
    - Example: Summer = Daylight Saving begins on the 2nd Sunday of March
    7. Winter = Daylight Saving ends on the 1st Sunday of November

To Set Daylight Saving Time

Sequence	Display	Parameters
Press Menu / OK	Summer / Winter is Flashing OR	
Press the ▼ key until Summer / Winter is Flashing		
Press Menu / OK	The Current Location is Flashing	Press the ▲or ▼ key to set LOCATION
See NOTE 3 and 4 **Press ▶ Key**	Location changes to OTHER ZONE Summer Month is Flashing	Press the ▲or ▼ key to set MONTH
Press ▶ Key	Summer Day is Flashing	Press the ▲or ▼ key to set S: Week
Press ▶ Key	Winter Month is Flashing	Press the ▲or ▼ key to set MONTH
Press ▶ Key	Winter Day is Flashing	Press the ▲or ▼ key to set S: Week
Press Menu / OK	Change Summ/Wint is Flashing	
Press ◀ Key	Return to normal display	

Troubleshooting

For Technical Assistance, Contact the Technical Services Department at Square D™ IPaCS
1-888-SQUARED

No display on the lighting controller Check the status of the LED on the power supply (Terminal strip TBz, located inside the cabinet.) This LED should be ON when power is applied. If the LED is not glowing, check the main switch of the Lighting Manager z10. Check for 120 VAC on terminal L1 (fused) - N – G ((Terminal strip TBz). If 120 VAC is not present, check the circuit breaker or for any wiring problems.

If 120 VAC is present, check the 24 volt DC output to the Zelio® Logic 2 Smart Relay. If there is DC voltage present and there is no display, call for technical assistance.

Figure 26:
Lighting Manager Z10 Power Supply

Channel (Output) stays on all the time

- Check the position of the emergency override switch.
- Verify that the contactor is assigned to a channel (output) that is supposed to be off.
  - ⇨ Check the status of the output on the display (reverse video when output is on black background with white number).
  - ⇨ Check the R00B parameters settings of the output.
- Verify that the Lighting Manager z10 is not in timed override (Contextual menu keys▼= Bypass counter #1, ▲= Bypass counter #2, and ▶ Bypass reset counter).
- Measure the voltage on the terminal block (TBz) that the contactor is assigned.
- Measure the voltage on the coil of the contactor, if no voltage present and the contacts are closed, replace the contactor.
- Call for technical assistance.

Channel Will Not Turn On

- Verify that the contactor is assigned to a channel (output) that is supposed to be on.
  - ⇨ Check the status of the output on the display (reverse video when output is onblack background with white number).
  - ⇨ Check the R00B parameters settings of the output.
- Place the emergency override switch to the on position.
- Measure the voltage on the terminal block (TBz) that the contactor is assigned.
- Measure the voltage on the coil of the contactor, if voltage is present and the contacts are open, replace the contactor.
- Call for technical assistance.

Channel Turns On / Off Intermittently

- Check the current light level reading
  Contextual menu key functions ◀ = Light sensor current reading
- Check the assigned R00B light sensor setpoint (If values are the same or close) Lighting Manager z10 may be turning channel on/ off based on light level. There is a programmable time delay between on and off to prevent this.
- Check for loose connections. If the problem persists, call for technical assistance. Call for technical assistance.

Contactors making noise (chattering or buzzing)

- Use the emergency override switches to turn the contactors on to identify the contactor making the noise.
- Check for proper voltage (120 VAC) at the contactor coil.
- Disconnect power from the contactor and remove to inspect. Foreign material (dust, metal shaving, rust, etc.) may have fallen into the contactor coil.

Note: After installation and before energizing the equipment, the use of vacuum or compressed air to remove any foreign material will greatly reduce contactor noise. If problem persists, call for technical assistance.

Light Level Sensor

⚠ CAUTION

UNIT DAMAGE AND POWER SYSTEM OVERVOLTAGE

- To prevent electrical shock and possible equipment damage, disconnect power coming from the Lighting Manager z10 prior to connecting the light sensor

Failure to follow these instructions can result in injury or equipment damage.

The light sensor is a 0 to 10 volt input into the Lighting Manager z10 to indicate the presence of outdoor ambient light at the sensor location. It is not a 120 volt power switching photocell. The sensors contain a precision photo-diode type cell that provides a proportional output over a wide range of light levels, allowing for accurate lighting control. Zero (0) volts DC indicates darkness and is scaled that 10 volts DC is bright sun light.

The light sensor lens should be cleaned semi-annually with a clean cloth and inspected for cracks or other deformations that may allow moisture inside.

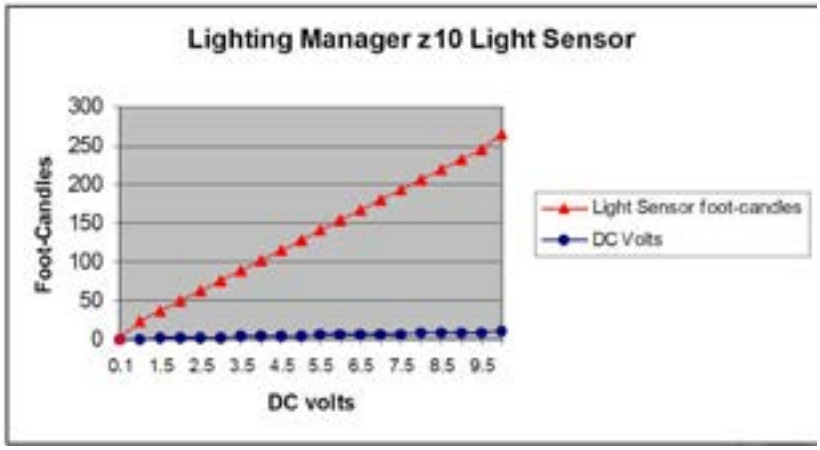

Figure 27: Light Sensor Graph

DC Volts	Light Sensor foot-candles
0.1	1
1.0	23.5
1.5	36
2.0	48.5
2.5	61
3.0	73.5
3.5	86
4.0	98.5
4.5	111
5.0	123.5

DC Volts	Light Sensor foot-candles
5.5	136
6	148.5
6.5	161
7.0	173.5
7.5	186
8.0	198.5
8.5	211
9.0	223.5
9.5	236
10.0	255

***Note:** (DC Voltage and foot-candle readings are approximate)*

Error Messages

The table below lists the error messages that a Lighting Manager z10 could display.

Message	Cause	Corrective action
NO PARAMETER	The user has requested to access the PARAMETERS option when no parameter is available (the diagram does not include any elements with parameters).	
TRANSF.ERR.	A transfer was in progress and the link with the PC was unexpectedly interrupted.	See the documentation for the programming software.
TRANSFER ERROR: NO MEMORY	A transfer to the EEPROM was requested and the EEPROM is not present or incorrectly located.	Check the presence and correct location of the EEPROM.
TRANSFER ERROR: CONFIG INCOMPAT	The user has requested to transfer a program that does not match the characteristics of the target smart relay, for example: Clock, analog input, software version.	Check the origin of the program to transfer and choose a program that is compatible with the appropriate smart relay.
TRANSFER ERROR: VERSION. NCOMPAT	This error appears if one of the versions of the smart relay does not correspond to: Firmware, LD or R00B functions	Check the firmware version used.
Outputs are displayed flashing on the main screen	One or more static outputs have shorted or overloaded.	Troubleshoot, then stop the smart relay to end the blinking before selecting RUN mode

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SQUARE D IPaCS warrants to the original purchaser, that the electrical panels manufactured and sold by it, to be free from defects in material and workmanship under normal use and service for a period of 18 months from date of purchase or one (1) year from date of original installation, whichever occurs first.

SQUARE D IPaCS obligation shall be limited to repairing or replacing any part of its electrical panels which prove to be defective upon examination by **SQUARE D IPaCS** or an authorized representative. This excludes components such as fuses, surge protection devices, lightning arrestors and any part furnished by the purchaser for installation in the electrical panel from **SQUARE D IPaCS.**

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