Sealite®
www.sealite.com

SL-LED Series

Light Source and Universal LED Controller

INSTALLATION & SERVICE MANUAL

V3-0

Version No.	Description	Date	Author	Approved
1.0	Manual Launch	March 2015	S. Turner	
1.1	Manual Update	June 2016	A. Dixon	
2.1	Manual Update	Oct 2016	A. Dixon	M. Nicholson
2.2	Manual Update	May 2019	M. Dutka	M. Nicholson
2.3	Minor notes	July 2019	M. Dutka	M. Nicholson
3.0	New model - SL-LED 324S	June 2020	M. Dutka	M. Nicholson

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Introduction

Congratulations! By choosing to purchase a Sealite lantern you have become the owner of one of the most advanced LED marine lanterns in the world.

Sealite Pty Ltd has been manufacturing lanterns for over 25 years, and particular care has been taken to ensure your lantern gives years of service.

As a commitment to producing the highest quality products for our customers, Sealite has been independently certified as complying with the requirements of ISO9001:2015 quality management system.

Sealite lanterns comply with requirements of the US Coast Guard in 33 CFR part 66 for Private Aids To Navigation.

By taking a few moments to browse through this booklet, you will become familiar with the versatility of your lantern, and be able to maximise its operating function.

Operating Principle

A microprocessor drives an array of ultra-bright LED's through a DC/DC converter, which enables the LED's to operate within the manufacturer's specifications.

On darkness, the microprocessor will initiate a program check and after approximately 1 minute begin flashing

to the set Flash Character.

The flasher unit has a low current requirement to optimise its use with external battery power supply systems.

Technology

Sealite is the world's fastest growing manufacturer of marine aids to navigation. We employ leading mechanical, optical, hardware & software engineers to create innovative products to service the needs of our customers worldwide, and offer the widest range of solar-powered LED lanterns in the marketplace.

Electronics

Sealite employs leading in-house electronic engineers in the design and development of software and related circuitry. All individual electronic components are sourced directly by Sealite procurement staff ensuring that only the highest quality components are used in our products.

LED Technology

All marine lanterns use the latest advancements in LED (Light Emitting Diode) technology as a light source. The major advantage of LED's over traditional light sources is well established in that they typically have an operational life in excess of 100,000 hours, resulting in substantial savings to maintenance and servicing costs.

Precision Construction

Commitment to investing in the design and construction of injection-moulded parts including optic lenses, light bases and a range of other components ensures that all Sealite products are of a consistent & superior quality.

Optical Performance

Sealite manufactures a range of marine LED lenses moulded from multi-cavity dies. The company has superior in-house lens manufacturing capabilities to support outstanding optical performance.

Award-winning, Patented Technology

Several United States and Australian patent registrations are held on Sealite's range of innovative designs, with other regional patents pending in Canada, United Kingdom and Europe.

SL-LED-CTRL Series
Universal LED Controller

Sealite's LED Universal Controller is used in conjunction with the LED Light Source. Developed using the most advanced engineering and software technology, the Universal Controller is designed to control power to the Light Source in a small form factor.

It can be configured with AIS, GPS and GSM capabilities, providing cutting-edge monitoring of a light source's LED status, power supply, temperature and turntable rotation speed. Advanced programming can be incorporated for intensity settings, complex flash configurations, and alarm conditions.

Technical Specifications

	SL-LED LIGHT SOURCE	
Light Source Characteristics	**SL-LED 324S**	**SL-LED 324**
Maximum Power Rating (W)	Variable up to 200W	Variable up to 200W
Number of LEDs in Array	36	36
LED Height (cm)	1.2	1.6
Average LED Width	1.89	2.57
LED Area (cm²)	2.27	4.11
Average Horizontal Intensity (cd)	2642	2499
Nominal Average Luminance (cd/cm²)	1165	608

Please note: The quoted figures above are for peak outputs when operating at 100% intensity. The maximum recommended power duty cycle including flash character is 50% for low to moderate temperature environments (up to 40°C / 104°F). The system includes thermal monitoring of the light source and controller.

	SL-LED CONTROLLER
Controller Characteristics	**SL-LED-CTRL**
Available Flash Characteristics	Up to 310 including 256 IALA recommended
Intensity Adjustments	User adjustable
Electrical Characteristics	
Circuit Protection	Polarity protected
Nominal Voltage	VDC Model: 18–32VDC VAC Model: 110–240VAC
Temperature Range	-40 to 60°C
External 3rd Party Monitoring	Via RS232/422/485
AIS Connection	Via RS232/422/485 (if built-in module not selected)
Alarm Contacts	1 x Volt free 250VAC @ 5A or 30VDC @ 5A
External Inputs	2 x general purpose digital inputs 3–24VDC
External Outputs	2 x general purpose digital outputs will switch up to 24VDC @ 1A
Physical Characteristics	
Body Material	Baked enamel coated aluminium
Mounting	4 x 6mm screws (preferred mounting landscape)
Height (mm/inches)	111 / 4½
Width (mm/inches)	400 / 15¾
Depth (mm/inches)	230 / 9
Weight (kg/lbs)	5 / 11
Product Life Expectancy	Up to 12 years
Environmental Standards	
Low Temperature	MIL-STD-810G Method 502.5
High Temperature	MIL-STD-810G Method 501.5
Humidity	0 – 100%, condensing
Certifications	
CE & Electrical	EN61000-6-2:2005, IEC61000-4-2:2008, IEC61000-4-3:2010, IEC61000-6-1:2016
Quality Assurance	ISO9001:2015
Waterproof	IP67
Intellectual Property	
Trademarks	SEALITE® is a registered trademark of Sealite Pty Ltd
Warranty *	3 years
Options Available	• AIS Type 1 or Type 3 • GSM Monitoring & Control System • Solar Power • Float charged battery standby systems • GPS antenna for synchronisation of flashing lights

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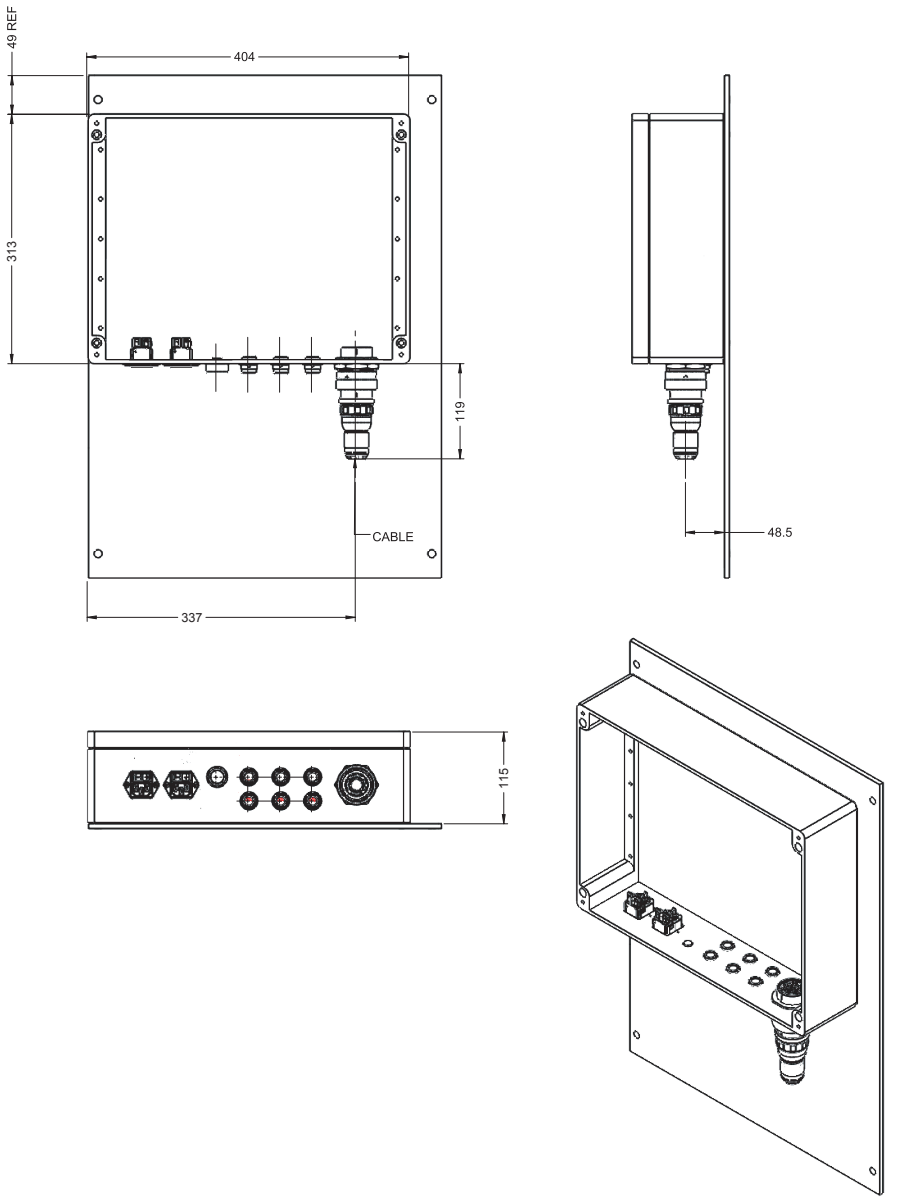
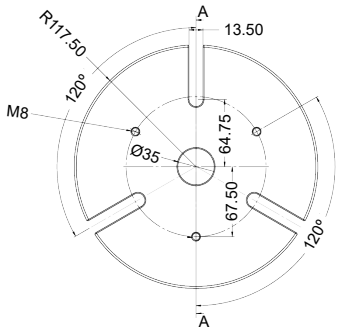
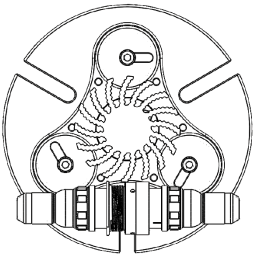
· Specifications subject to change or variation without notice * Subject to standard terms and conditions
† Intensity setting may vary in accordance with manufacturing tolerances (+/-10%)

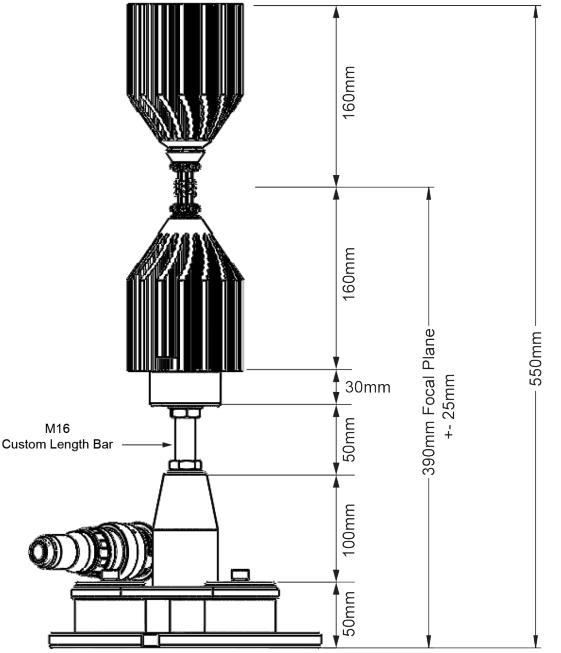
Universal LED Controller



Optional Pedestal to suit existing lighthouse optics
Using SL-LED-PEDESTAL-03







Product Components

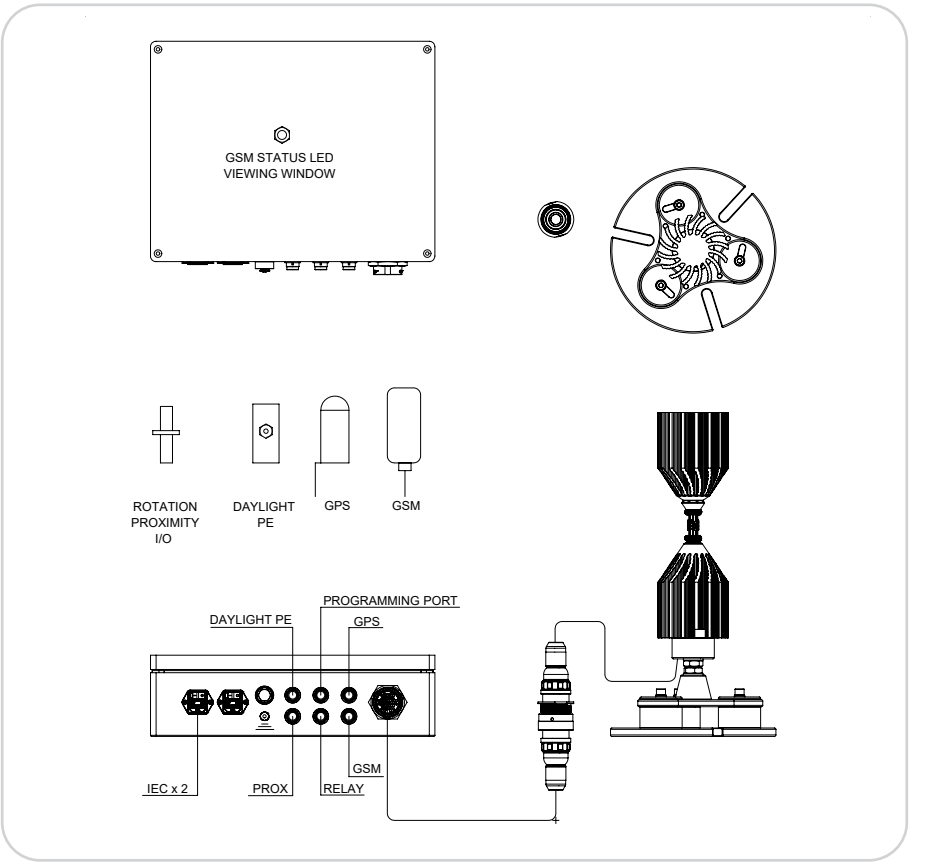
The following components come standard with each lantern:-

- SL-LED-CTRL (Universal LED Controller)
- USB Drive comprising of a PC based Lantern Configuration Tool
- Programming cable
- Installation & service manual

These components are securely packaged within foam in a carton, and shipped to you.

PLEASE NOTE: *The programming cable provided is suitable for use with PC's. If you require connection to your notebook/laptop, a Serial Port to USB cable may need to be purchased.*

Please check that ALL of these components are included with your order, and contact your Sealite representative as soon as possible if anything is missing.



Programming the Universal LED Driver

PC Configuration Tool

Upon request, the Universal LED Driver can be pre-programmed to the customer's specific requirements for convenience (eg. flash, intensity setting etc).

The SL-LED-CTRL Series are extremely intelligent LED controller lanterns with a number of features which can be programmed directly via a user-friendly computer program (as supplied on USB drive with every lantern).

To change/update the settings of your lantern, please read the following instructions.

1. Run the Programming Software

The programming software may be run directly from the USB drive provided, or you may copy the software to your computer hard-drive for future use.

Running the Programming Software from the USB Drive

- Connect the USB drive to your computer.
- Navigate to the USB drive folder & double-click the file called "LanternConfig.exe". A new window will ap*pear displaying the PC Configuration Tool.*

Saving the Programming Software to Computer Hard-Drive

- Connect the USB drive to your computer.
- Navigate to the USB drive folder.
- Copy the file called "LanternConfig.exe" and the ".dll" files
- Navigate to the hard-drive location where you would like to save this program, and then right mouse-click and select "paste". A copy of the programming software will now be saved to your computer hard-drive (to add the programmer to your computer desktop for ease of future access, right-mouse-click and select "Send to desktop").
- Double-click the file c*alled "LanternConfig.exe". A new window will appear displaying the PC Configuration Tool*

PLEASE NOTE: Other documents have been saved on the USB drive for your information & convenience including the latest product specifications sheet and an electronic version of the installation and service manual. You may wish to view these documents to read more about the innovative features and benefits of the SL-LED-CTRL Series.

IMPORTANT: The Sealite PC Configuration Tool is designed for Windows Platforms only.

Image 1. Sealite PC Configuration Tool

2. Connect the SL-LED-CTRL Series Lantern to a Power Source & the Computer

Now that the programming software has been run, you will need to connect the lantern to your computer & power supply so that it can receive programming commands.

Once connection is made, the software automatically determines the colour and pre-programmed settings of the Universal LED Controller after the unit is powered up.

Connecting the SL-LED-CTRL to a Power Source

Option 1: Battery or 24VDC Power Supply

- Connect the High Output LED Light Source to the Universal LED Controller.
- Connect the blue negative wire of the lantern to the battery negative terminal
- Connect the brown positive wire of the lantern to the battery positive terminal

Option 2: 110/240V Power Supply

- Connect the High Output LED Light Source to the Universal LED Controller.
- Connect both mains cables to the IEC317 socket on the side of the enclosure.

Connecting the Lantern to the Computer

- Plug the Bulgin connector end of the programming cable into the lantern PC Programming Port, and the serial port end of the cable into your computer serial/communication port (RS232-E)

PLEASE NOTE: *The programming cable provided is suitable for use with desktop PC's. If you require connection to your notebook/laptop, a Serial Port to USB cable may need to be purchased.*

3. Establish the Programmer-to-Lantern Computer Connection (COM Port)

Now that the lantern is connected to the computer and the Sealite PC Configuration software has been run, the user must create the programmer-to-lantern connection.
The COM Port is the hardware port which the computer accesses when communicating with the lantern.

- Click the "COM Setup" at the top left of the PC Configuration Tool to open the "Serial Port" dialogue box
- In the "Serial Port" dialogue box select the appropriate COM Port from the drop down field for "Port Name"
- Check the "Open Port" check box to open the port
- Click the "OK" button to initiate the connection

The Sealite PC Configuration Tool will then attempt to connect/interrogate the lantern.

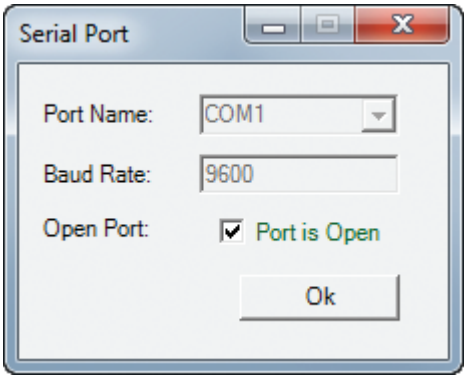
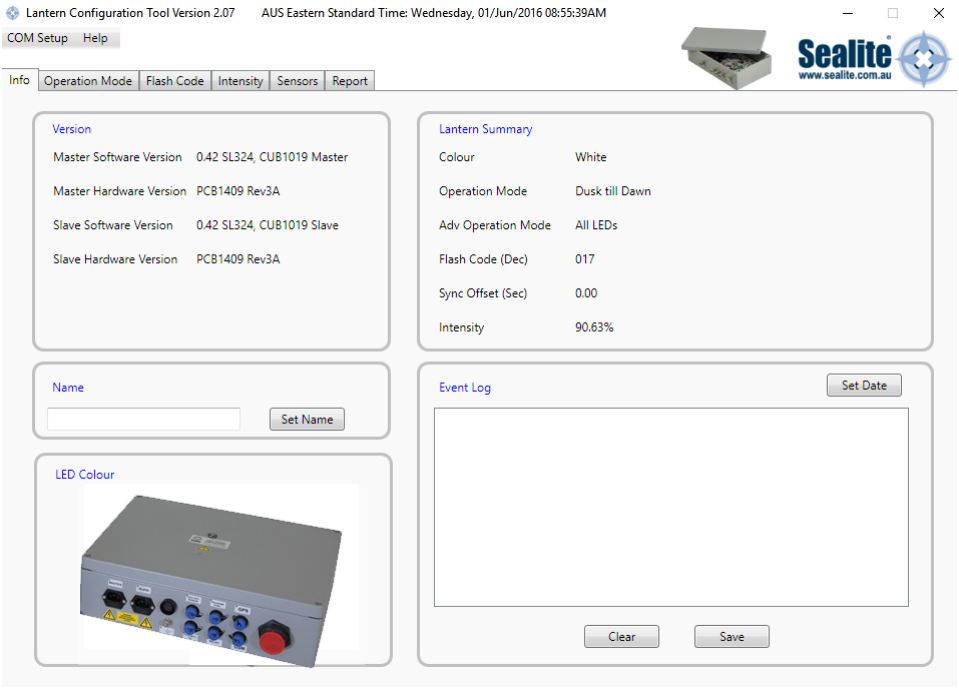


Image 2. Serial Port dialogue box

Correct Connection Established

If the connection is established data about the lantern configuration will appear on the “Info” tab under the headings “Version” & “Lantern Summary” (eg. Lantern Colour, Flash Code, Intensity etc).



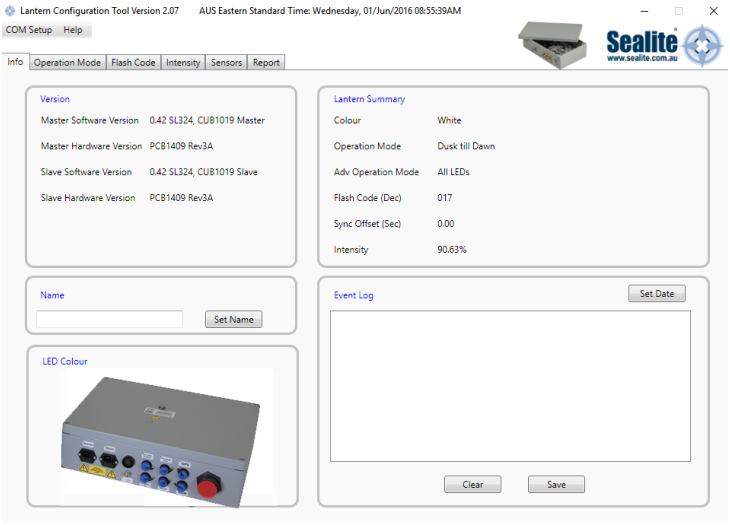
Connection NOT Established

If the connection is not available, the Sealite PC Configuration Tool will not display any lantern specific information under the headings “Version” & “Lantern Summary”. If this error occurs, please check the following:

- Reconnect the lantern to the computer
- Check that the lantern power supply has sufficient charge (eg. battery is charged), and then reconnect it to the lantern
- Re-run the Sealite PC Configuration Tool and follow the information in step 3. The connection should now become established.

The Sealite lantern is now ready to be programmed to your specific requirements.

Info Tab



Provides a summary of the lantern configuration settings, hardware and software versions, and event log.

Version

Is an information panel that identifies the Lantern's internal electronic hardware and firmware versions.

Lantern Summary

Is an information panel that displays a summary of the key lantern settings: colour, operation mode, Peak Intensity setting, Advance Operational Mode, Flash Code, Flash Sync offset and Intensity setting. Refer to the Information, Operation Mode Flash Code, and Intensity Tabs for a description of these parameters.

Name

A user defined name, comprising alphanumeric characters (and -, $, #,@) can be typed into dialogue box and by pressing and stored within the lantern's non-volatile memory by pressing the 'Write Name' button.

LED Colour

A generic picture of the lantern model and colour that the software tool is communicating with is displayed in this panel.

Event Log

Displays the alarm events recorded by the lantern firmware. Possible alarms (flat battery, low battery, LED failure, high temperature). All alarm events are recorded irrespective of whether the lantern has been configured to respond to an alarm.

- To set the date, click 'Set Date', choose date and time, press 'Send'
- To clear the event log, click 'Clear' and select 'Yes'

Operation Mode Tab

Defines the lanterns mode of operation of which there are four possibilities:

Operational Mode

- **Standby**

  The lantern is configured in a minimum current state in which the LEDs are always off and the internal GPS (if installed) is disabled.

- **Always On**

  The daylight sensor is disabled and the lantern operates according to the set flash character and intensity levels.

- **Dusk till Dawn**

  The daylight sensor is monitored and the lantern will only operate at night time.

Adv Op Mode

This is an advanced user mode and typically only used if the lantern is to be used as a special navigational aid such as emergency wreck mark. Not applicable.

All

Default on setting. All LEDs are operated in unison and configured by the Operation Mode, Flash Code and Intensity Tabs.

Reset

By clicking Reset, the factory set default parameters are restored.

Pulse Shape

This is an advanced user mode. It allows the Rising and Falling edge of the flash to be adjusted.

Flash Code

Marine Characteristic Selection

The flash character is defined by first selecting the Mariner code, then the Flash code name and finally timing.

Sealite Code Selection

This is an alternative method to select the lantern flash code by using Sealite rotary switch flash character setting.

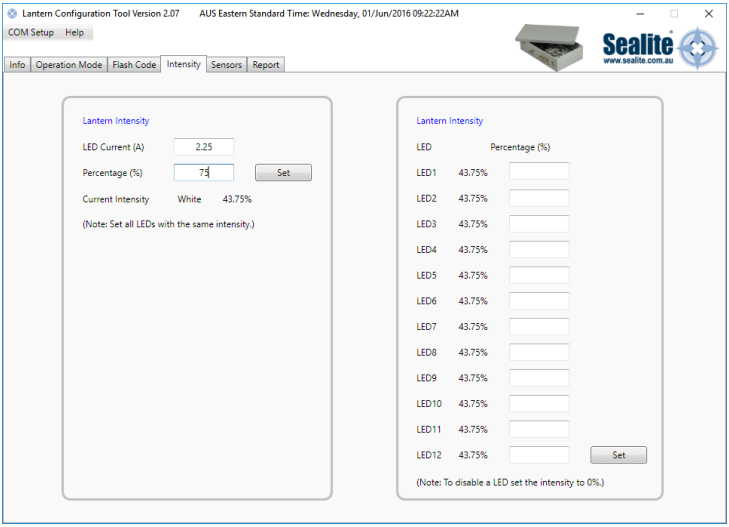
Sync Offset

This panel is used to set a fixed delay to the commencement of the flash character. The built-in GPS receiver and advanced software of the Sealite synchronised lanterns allow for the adoption of SeaFlare™ channel marking – a unique system that cascades the flash synchronisation of channel lanterns in a uni- or bi-directional flash pattern. By default this figure is set to zero.

Manual Entry Custom Flash Character

In this panel a, custom flash characteristics can be defined with up to 10 individual on/off times. When entering a custom code with a duty cycle of 50% or more the controller must be power cycled to take effect.

Intensity

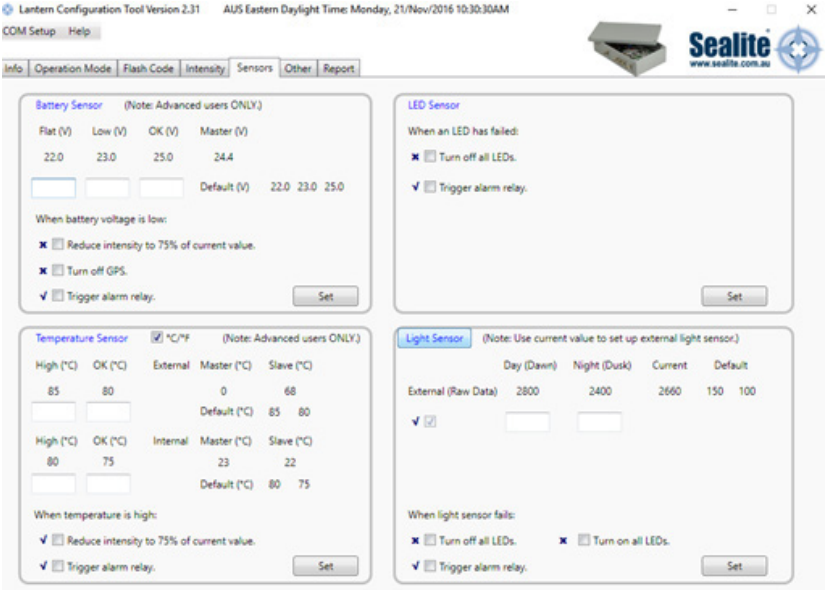


Lantern intensity

The lantern intensity level for each LED can be set by either by defining the operating LED current of the or by entering a desired peak candela or a percentage of maximum peak intensity level.

If an intensity level is selected that is beyond the specification of the lantern, the entered figure will be displayed in red coloured text, and the lantern will be configured to its maximum.

Sensors



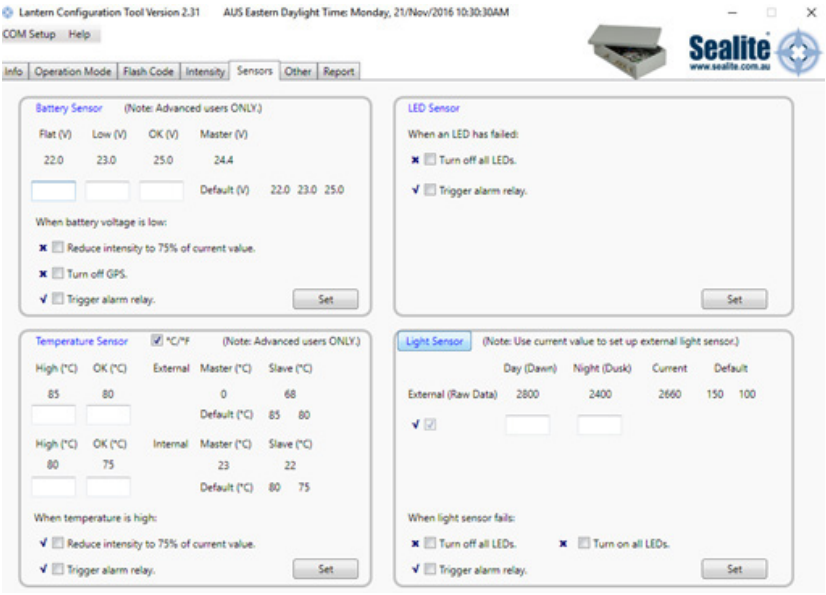
Battery sensors

The SL-LED-CTRL driver continuously monitors its input voltage using three definable thresholds.

- For voltages greater than “OK” level, the lantern reports via IR Remote control requests or the GSM that the input voltage is satisfactory.
- For voltages below “low” the lantern can be configured to operate the internal alarm relay and / or reduce the intensity level by 25% as a measure to extend the operation of the lantern until it reaches the “Fail” voltage.
- At “Fail” the lantern shuts down entirely, and turns of the GPS and the mains LEDs. The lantern will only commence operation once the input voltage has exceeds the “OK” voltage level.

The three thresholds:

- Flat
- Low
- OK are user definable.



Temperature

The SL-LED-CTRL utilises two temperature sensors. One that monitors the temperature of the master board, and the slave board and another that monitors the temperature of the LED Light Source via an in-built thermistor.

The temperature can be set to either Degrees Celsius or Degrees Fahrenheit. Click the box to switch between the different temperatures.

Each sensor has two configurable temperature thresholds: “High” and “OK”. There are also two configurable options for when the “High” temperature threshold is exceeded:

- “Reduce intensity to 75% of current value”.
- “Trigger alarm relay”.

When the “High” temperature threshold is exceeded for either board, any of the selected options will be acted upon. The enabled options will remain active until the board temperatures both reduce to below the “OK” threshold.

Light Sensor

The SL-LED-CTRL lantern has its own external light sensor and whose day/twilight/night thresholds are defined in LUX. These levels can be customised by entering in separate values as a measure of LUX.

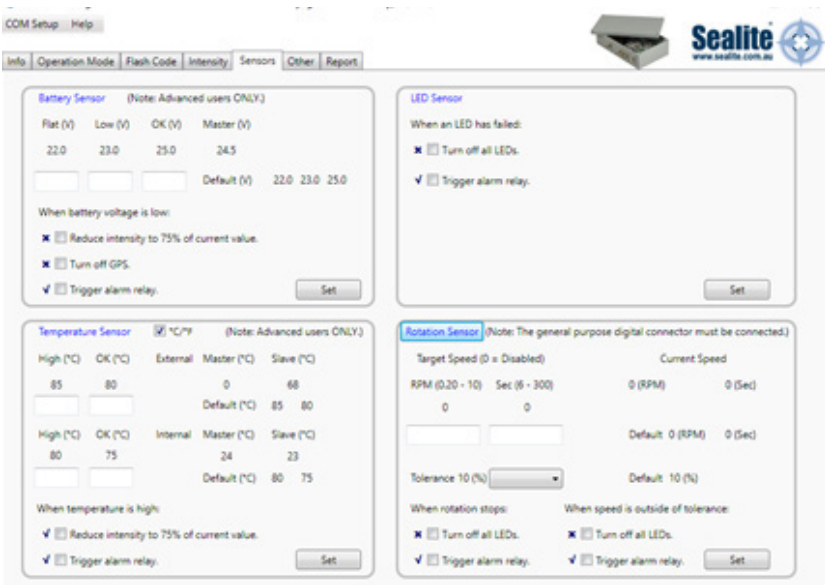
NOTE:

Twilight: this refers to the time between Day and Night.

Due to the placement of some Aids to Navigation in regards to the position of the sun, some ports may find it advantageous to adjust these settings accordingly.

LED Sensor

Built into the SL-LED-CTRL driver, is a closed loop monitoring system for each LED. In the event of a single LED failure, the lantern can be configured to trigger the internal alarm relay which in turn, can be connected externally to trigger other devices, such as redundant light source.

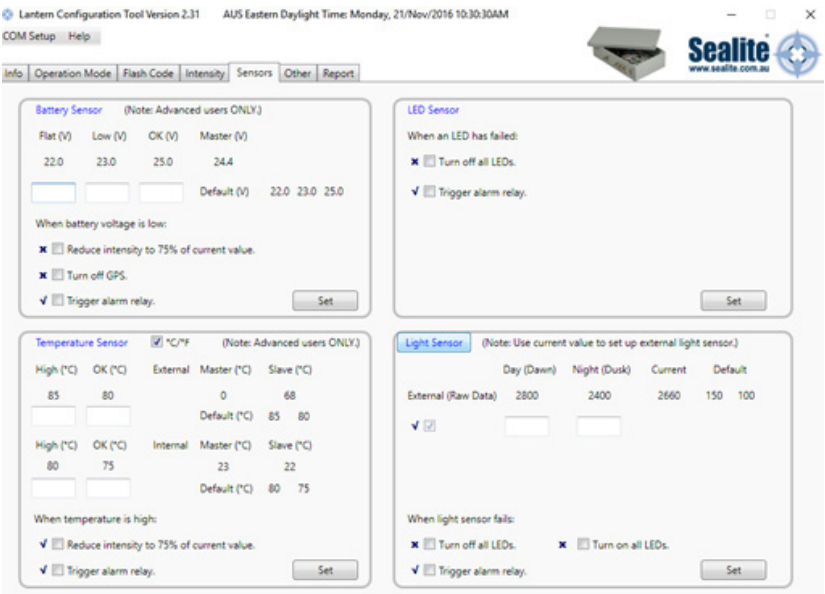


Rotation Sensor

Existing sensors may be interfaced with the controller depending on electrical parameters. Some sensors may not be shared with other equipment. Please consult with Sealite for details.

Sealite recommends Omron type E2B-M12KS04-WP-B1and it may be wired directly to the enclosure or via the Pedestal connecting cable assembly.

The software allows users to define the expected rotation speed and a tolerance on this value for the purpose of setting an alarm condition in the event the rotating speed varies outside of the tolerance. The current speed and as detected by the SL-LED-CTRL driver is displayed.



Relay Mode

The relay can be set to different modes:

Normal:

The relay is in normal mode. It is powered and when an event occurs, power is cut.

Inverted:

The relay is inverted. When an event occurs, the relay is powered.

Off:

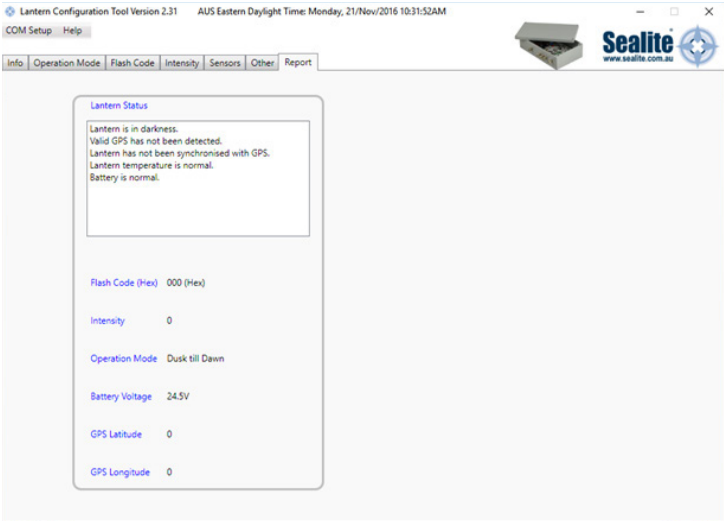
The relay is turned off.

GPS Mode

To reduce the power consumption in your Lantern over a 24 hour period, it is now possible to change the number of times the GPS module activates. The default setting is Normal:

- **Off:**
  The GPS is turned off.
- **Normal:**
  The GPS is turned off for 15 minutes (Night) and 30 minutes (Day).
- **Fast:**
  The GPS is only turned off for 5 minutes (Night) and 10 minutes (Day).
- On:
  The GPS is always on.

AIS Report



Lantern Status

This panel displays the lantern's AIS message that is output via the serial communications port every 10 seconds. Typically this message is processed by an externally installed AIS module, however by itself it is a quick summary of the lantern's operating status. This detail is also displayed on the INFO tab.

Optional GPS Synchronisation

The lanterns can be fitted with a GPS module, and provide the user with the ability to install independently operating lanterns that all flash in synchronisation. No additional power supplies, aerials or control systems are required, and with its microprocessor based system, the GPS option is specifically designed to provide maximum reliability and performance over a wide range of environmental conditions.

Operating Principle

Each light operates independently and requires no operator intervention. A minimum of 4 satellites need to be in view for the built-in GPS receiver to collect time data. At dusk, the light sensor will turn the light on. If time data is available the light will come on synchronised to every other light with the same selected flash code.

Synchronisation is achieved using an internal algorithm based on the highly accurate time base and time data received from the satellites. The satellite data is provided from a number of earth stations using atomic clocks as the time base. Continuous self-checking ensures that the light will continue to run in synchronisation.

Light Activation

At power-up the microprocessor checks that the internal GPS module is programmed correctly and is able to provide valid time base and time data. Once outside with a clear view of the sky, valid data should become available within 20 minutes.

Standby Operation

During standby the microprocessor is in idle mode to reduce power consumption. The microprocessor will automatically exit the idle mode as soon as the lantern becomes active.

Active Operation

When the lantern is active it:

- Checks for valid time data and is turned on after a delay based on the current time and the length of the selected flash code.
- If valid time data is not detected the light will turn on after approximately 10 seconds. This light will not be synchronised.
- If the light turns on unsynchronised it will continually check for valid time data. Once valid data is found the light will automatically synchronise.

Note: Lights will not synchronise if different flash codes are selected.

Optional GSM Monitoring

The lanterns may also be fitted with GSM Cell-Phone Monitoring and Control – enabling users to access real-time diagnostics data and change lantern settings via cell-phone. Flash Codes and Intensity cannot be altered via GSM on the SL-LED-CTRL.

The system can also be configured to send out alarm SMS text messages to designated cellular telephone numbers. Users can also have alarms and reports sent to designated email addresses.

Please contact Sealite for further information and instructions.

Light Source & Pedestal Installation

Tools required

- 19mm spanner, or adjustable spanner
- 6mm Hex Allen Key
- Large Phillips PH3 screwdriver
- Spirit level

Initial Considerations

- Cable length and distance from controller
- Cable paths/exits
- Interface to mounting plate. Typical example PCD 170mm ~ 200mm with slots for M12 bolts

Procedure

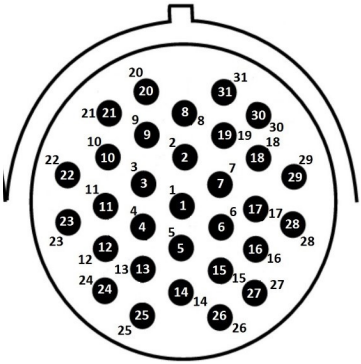
1. The Pedestal Mount baseplate is designed to accommodate a three point mount at PCD from 170mm to 200mm with holes and slots to clear an M12 bolt.
2. This would typically be used with threaded rod or bolts to form an adjustable platform, as is found in many lighthouses.
3. The first step is to survey the installation and confirm the intended mounting method is suitable, then remove the existing lamp assembly.
4. Feed the cable from the Controller to the mounting area, then through the bottom of pedestal baseplate, into gland as shown and pull through into terminal block enclosure. See Step 12 for Details on Wiring the 30Pin Connector.
5. Ensure there is sufficient cable slack to terminate the wires, but leave wire termination until later stage
6. Mount the Pedestal and Light Source at approximately the correct position and tighten the nuts. Be care not to touch the LEDs during the assembly process.
7. Next replace the Light Source with the Aiming Tool. The Light source is removed by loosening the M16 nut at the base of the unit, then carefully unscrewing the assembly off the thread, and then carefully placing aside. Take care not to bump or scratch the LEDs.
8. The Aiming Tool is mounted in reverse fashion by screwing it onto the M16 All-Thread.
9. Begin the alignment procedure by loosening the 3 point mount. The procedure will differ across sites depending on the lens assembly and available equipment, and relies on the installers knowledge and experience.
10. The basic alignment method begins with levelling the mount at approximately the correct height.
11. Once the mount is level, the height and position should be adjusted until the top of the aiming tool is at the focal point of the lens. Most adjustment should be obtained with the 3 point mount. The Light Source may be adjusted on the pedestal by repositioning along the slot and by screwing the M16 All-Thread up and down on the Pedestal.
12. When fitting the 30Pin Connector to the extension cable running between the Light Source and the Control Box use the diagram below for correct pin location in the connector. Slide the Compression Nut and Backshell onto the cable before stripping and Pinning each cable.

Manual Information Tab

Wiring Matrix for SL-LED-CTRL Extension Cable

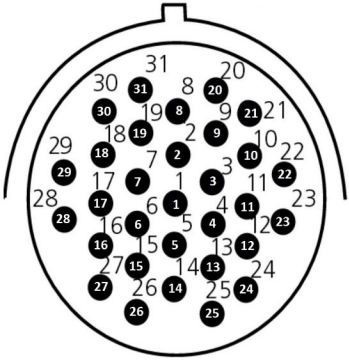
31-Way connector			BOARD		BOARD
Description	Board Description	PIN	Master	LED No.	Slave
LED1+	LED A	1	LED1	1	
LED1-	LED K	2	LED1		
LED2+	LED A	3		2	LED1
LED2-	LED K	4			LED1
LED3+	LED A	5	LED2	3	
LED3-	LED K	6	LED2		
LED4+	LED A	7		4	LED2
LED4-	LED K	8			LED2
LED5+	LED A	9	LED3	5	
LED5-	LED K	10	LED3		
LED6+	LED A	11		6	LED3
LED6-	LED K	12			LED3
LED7+	LED A	13	LED4	7	
LED7-	LED K	14	LED4		
LED8+	LED A	15		8	LED4
LED8-	LED K	16			LED4
LED9+	LED A	17	LED5	9	
LED9-	LED K	18	LED5		
LED10+	LED A	19		10	LED5
LED10-	LED K	20			LED5
LED11+	LED A	21	LED6	11	
LED11-	LED K	22	LED6		
LED12+	LED A	23		12	LED6
LED12-	LED K	24			
Empty / Not Used					
Empty / Not Used					
Thermistor (+3v3)					
Thermistor RTN (Temp)					
Empty / Not Used					
Empty / Not Used					

Name:	Light Head Connector and Male End of Extension Lead
Backshell Colour:	Blue
Pin Type:	Male



View from Rear of Connector

Name:	Control Box Connector and Female End of Extension Lead
Backshell Colour:	Grey
Pin Type:	Female



View from Rear of Connector

We at Sealite have utilised the Deutsch Industrial Connectors to join connect our Light Source to the Control Box.

Below is a list of the part numbers for each connector

Deutsch Part No.	Description
HDP24-24-31ST-L015	Receptacle for socket contacts + L015 threaded adaptor (Grey Threaded End)
HDP26-24-31PE-L015	Plug for pin contacts + L015 threaded adaptor (Blue Threaded End)
M902-2053	HD10 Compression nut for backshell
M902-2243	Backshell for L015 adaptor
0462-201-1631	Deutsch contact Female #16 (Blue Threaded End)
0460-202-1631	Deutsch contact Male #16 (Grey Threaded End)

Important: To crimp the Contacts on to the wire ALWAYS use a #16 Crimping Tool that is compatible with Deutsch Industrial Connectors

External Antenna, GSM

The GSM external antenna comprises of a GSM antenna mounted to 115mm x 40mm enclosure, fitted with a 3m long cable terminated with a Bulgin PX0409 connector.

The Enclosure mounts via an external plate.

The cable plugs into connector on SL-LED-CTRL.

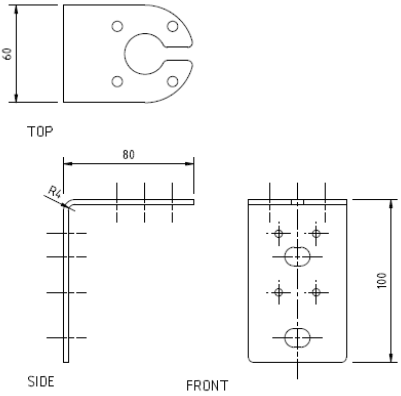
Other options available upon request.

External Antenna, GPS

Sealite offers high gain antenna GPS antenna, mounted to a “L” bracket as shown.

Coaxial cable lengths may be specified which plugs into connector on SL-LED-CTRL.

Other options available upon request.



External Light Sensor (PE Cell)

Existing photocells may be interfaced with the controller depending on electrical parameters. Some sensors may not be shared with other equipment. Please consult with Sealite for details.

Typically mount facing away from equator, not pointing east nor west, to avoid direct sunlight. May be mounted externally to building with due care to environmental debris build up, bird fouling, and access for cleaning.

The Sealite External Light Sensor (PE Cell) comprises of a standard PE cell mounted to 115mm x 40mm enclosure, fitted with a 3m long cable terminated with a Bulgin connector.

The Enclosure mounts via an external plate at two dia 4.5mm mounting points.

The Photocell is terminated with a connector labelled “External Light Sensor” which connects to the SL-LED-CTRL driver.

Other options available upon request.

Maintenance

Take care with AC units. Exposed mains potential. Inspection with lid removed only be performed by qualified personnel.

1. AC units : Green LED indicates power supply is energised
2. AC units : Mains fuse (check with multimeter)
3. Board status LEDs (refer next page)
4. GSM status LEDs (refer to the GSM manual)

Board LED indicators

There are two LED indicators present on the circuit board.

Red status indicator

This indicates the supply voltage level.

- Steady on,, the flat battery cut off is in effect. The battery has been below the manually set FLAT threshold for at least 12 seconds. Default FLAT setting is 22.0v
- Slow flashing, the battery voltage is high, above 29.0v
- Off, the battery voltage is optimal, between 27.0v and 29.0v
- 1 Quick flash, the battery voltage is good, between 25.0v and 27.0v
- 2 Quick flashes, the battery voltage is ok, between 23.0v and 25.0v
- 3 Quick flashes, the battery voltage is low, between 22.0v and 23.0v
- 4 Quick flashes, the battery voltage is flat, below 22.0v

Yellow status indicator

- Off, daylight or standby
- Fast flashing, day to night transition is evaluated
- 1 Quick flash, night operation, synchronization in process
- 2 Quick flashes, night operation, not synchronized yet

General maintenance

- LED light source – do not clean LEDs with abrasive cleaners or chemicals!
- Use compressed air to remove debris.
- If absolutely necessary use IPA with lens cloth, but ensure there are no particles or debris that may rub and scratch the lens.
- Ensure heatsink fins are free of debris, webs and any other contamination that will impede air flow and cause heat build-up.

Trouble Shooting

Problem	Remedy
Unable to communicate with lantern via USB	1. If unit is fitted with GSM capabilities. Make sure the correct cable is connected to the RS232 port on the master board. 2. Connect the USB drive provided by Sealite to the PC and open to view files. 3. Double-click on the file: Configx.xx.exe (note, version number may vary). 4. Extract the executable file. 5. Connect the lantern to a power source. 6. Connect the lantern to the PC. 7. Click “COM Setup”. 8. Select the appropriate COM Port from the drop down menu in the “Serial Port” dialogue box. 9. Ensure the “Open Port” check box is selected and “Port is Open” is displayed. 10. Click “OK”. 11. Lantern should be connected and ready for programming
System will not activate.	• Ensure Light Sensor is in darkness. • Wait at least 60 seconds for the program to initialise in darkness. • Ensure battery terminals are properly connected. • Ensure SL-LED-CTRL is connected to a 24 Volt power supply
Programming settings will not change	• Check programming cable is properly connected to both lantern and computer, and check that the lantern is connected correctly to a power source (and that the power source is charged eg. battery).

Sealite Warranty

Refer to sealite.com for our Warranty Terms and Conditions.

Sealite®

We believe technology improves navigation™

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