

## IMPORTANT SAFEGUARDS

WHEN USING ELECTRICAL EQUIPMENT, BASIC SAFETY PRECAUTIONS SHOULD ALWAYS BE FOLLOWED.

### READ AND FOLLOW ALL SAFETY INSTRUCTIONS

**1.**

To prevent electrical shock, switch off the main power supply until installation is complete and AC power is supplied to this product.

**2.**

This product requires an unswitched AC power supply of 120-277 VAC, 50/60Hz.

**3.**

Make sure all connections are in accordance with the National or Canadian Electrical Code as well as any local regulations.

**4.**

To reduce the risk of electrical shock, disconnect both normal and emergency power supplies and connector of this product before servicing.

**5.**

This product is for use with an emergency LED lighting load with a maximum rated voltage of 60 VDC, and a maximum rated current of 1A. It can provide a minimum of 90 minutes of illumination when under the emergency mode.

**6.**

The ESL-EMG-4DC are UL Listed for both factory and field installation. For field installation please see instructions on page 5.

**7.**

This product is suitable for use in dry or damp locations. Do not mount it near gas heaters, air outlets or other hazardous locations.

**8.**

Use this product in 32°F (minimum) to 122°F (maximum) ambient temperatures.

**9.**

The use of accessory equipment not recommended by the manufacturer may cause an unsafe condition and void the warranty.

**10.**

Do not use this product for anything other than its intended use.

**11.**

Installation and service should be performed by qualified service personnel.

**12.**

This product should be mounted in locations and at heights where it will not easily be subjected to tampering by unauthorized personnel.



This product contains a rechargeable nickel-metal hydride battery. THE BATTERY MUST BE RECYCLED OR DISPOSED OF PROPERLY TO PREVENT FIRE.



**CAUTION:** Before installing make certain the AC power is off and the LED lamp emergency backup unit connector is disconnected.

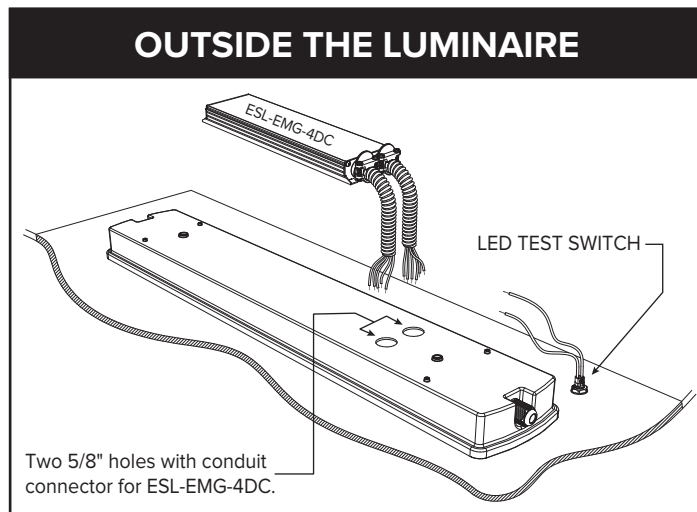
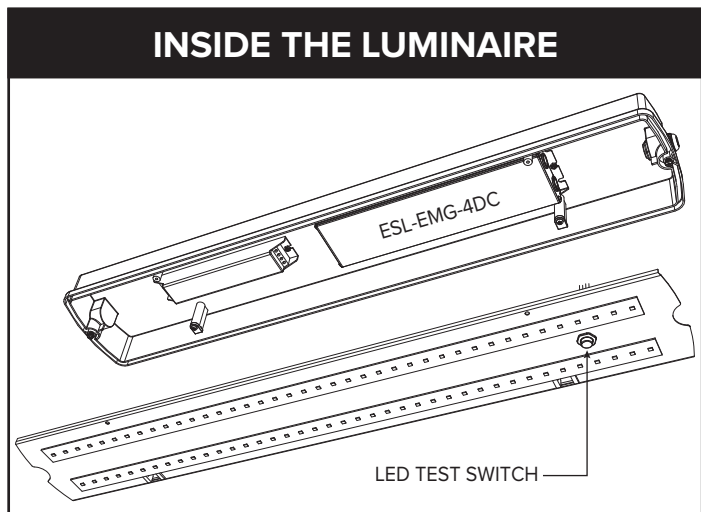
### 1. Specification of ESL-EMG-4DC Series

See the ESL-EMG-4DC SERIES SPECIFICATION chart below for the model selected.

MODEL	VOLTAGE OUTPUT	EMERGENCY OUTPUT (CONSTANT)
ESL-EMG-4DC-5W	13-60 VDC	5 WATTS
ESL-EMG-4DC-9W	14-60 VDC	9 WATTS
ESL-EMG-4DC-15W	15-60 VDC	15 WATTS
ESL-EMG-4DC-25W	25-60 VDC	25 WATTS

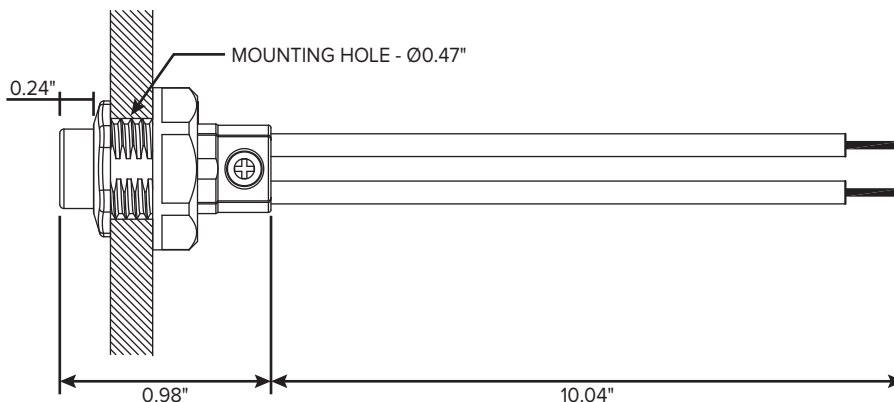
### 2. Installing the ESL-EMG-4DC

The ESL-EMG-4DC can be mounted inside or outside (nearby or on top of) the luminaire.



### 3. Installing the LED Test Switch

Select a convenient location for the LED Test Switch so that it can be seen after installation. Drill a 1/2" hole for mounting. Connect the wires from the LED Test Switch to the ESL-EMG-4DC model according to the wiring diagram on page 3.



**1.**

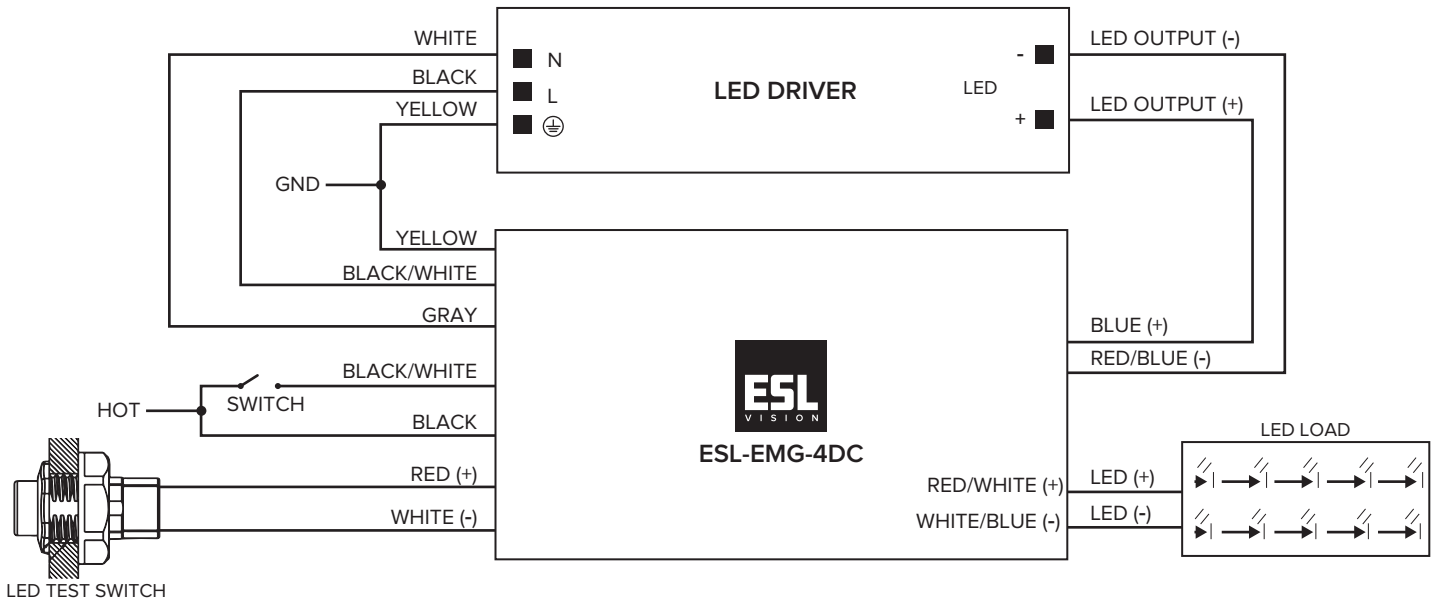
The ESL-EMG-4DC requires an unswitched AC power supply of 120-277 VAC, 50/60Hz.

**2.**

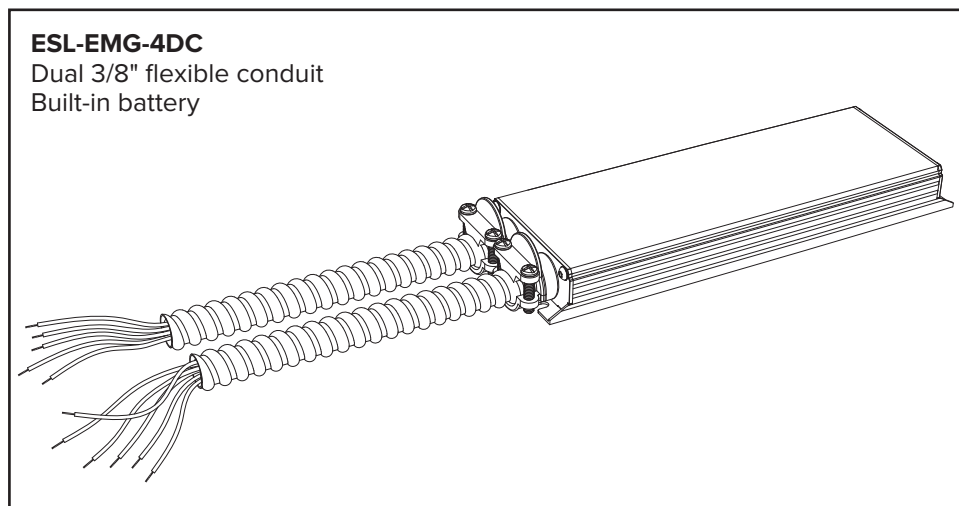
The ESL-EMG-4DC and AC driver must be on the same branch circuit. Ensure the output current of the AC driver does not exceed 5A.

**3.**

Refer to the wiring diagram below or contact factory for additional information or help.



## Wiring Configuration



## Operation

When AC power is applied, the LED test switch will be illuminated, indicating that the batteries are being charged. When AC power fails, the ESL-EMG-4DC automatically switches to emergency power, operating the LED loads at the rated power. The LED test switch will switch off. When the AC power is restored the emergency module switches the system back to normal operation and resumes charging the battery. The minimum emergency operation time is 90 minutes. The charging time for the full discharged battery is 24 hours.

## Testing and Maintenance

Performing periodical tests are recommended to ensure the system is working properly.

**1.**

Visually inspect the LED test switch monthly. IT should be illuminated when AC power is present.

**2.**

Conduct a 30 second discharge test by switching off the main power every month. The LED test switch should switch off and LED loads should operate at reduced illumination.

**3.**

Conduct a 90 minute discharge test once a year. The LED loads should operate at reduced illumination for at least 90 minutes.

## Auto Test

The ESL-EMG-4DC Series has an auto test function which saves the cost of manual maintenance.

**1.**

**Instant Auto Test:** When the system is connected properly and powered on the ESL-EMG-4DC model will auto test if the load and battery pack is connected properly and the battery is charging as normal. If there is any abnormalities, the LED test will flicker. The the abnormality is resolved, the test switch will stay lit with no flicker.

**2.**

**Preprogrammed scheduled Auto Test:** (A) Carry out first monthly auto test after initial power on for at least a full 24 hours or more. Afterwards carryout a monthly auto test every 30 days. (B) Carry out a annual auto test every 52 weeks after first power on. (C) Auto test timing. To reduce the conflict that auto test is executing when the lighting is in use, the preprogrammed scheduled auto test will be executed 2 hours later than the normal operation is disconnected (switched off). For applications where lighting remains illuminated, the module will postpone the scheduled test accordingly, but will not postpone later than the preprogrammed scheduled latest test time. (D) Monthly auto test. The Monthly auto test should be executed every 30 days and should test for; the switchover of normal and emergency modes; if the emergency functions and that the battery charging and discharge condition is normal. Auto test time is approximately 30 seconds. (E) Annual auto test. The annual auto test should be executed every 52 weeks after a full 24 hour charge of the battery. This will test; if the battery voltage is equal to or higher than the limit after a full 24 hour charge; if the emergency operation time is over 90 minutes; if the battery voltage after 90 minutes of emergency operation is equal to or higher than 87.5% of the initial voltage.

- During the auto test, in case a power failure happens and the power cannot be on until the auto test completes, the auto test will be performed again after AC power has been on for 24 hours.

- If the emergency mode makes the battery discharge completely under the power off condition, the preprogrammed scheduled auto test will resume as soon as AC power is restored.

## Manual Test

(1) Press the LED test switch one time to put into emergency mode. (2) Press the LED test switch two times within 5 seconds to put into monthly test sequence. After test is finished the next monthly test will count from this date. (3) Press the LED test switch three times within 5 seconds to put into annual test. After test is finished the next annual test will count from this date. (4) During the manual test, press the LED test switch above 3 seconds, then the manual test can be terminated (the preprogrammed scheduled auto test time will not change).

## LED Test Switch Indications

- LED test switch on: Normal

- LED test switch off: Power failure

- LED test switch gradual change: In testing mode

- LED test switch flickering: Abnormal issue

The ESL-EMG-4DC is suitable for field installation with suitable LED loads including LED luminaires, LED lamps, and other LED options. Follow below three steps to determine if your luminaire is eligible for field installation.

### 1. Determine Electrical Compatibility

- Verify that the LED driver for normal operation is Class 2 compliant.
- Verify that the emergency driver (ESL-EMG-4DC Series) selected does not exceed the power delivered to the LED loads (both voltage and current) of the normal LED driver.

### 2. Calculate Lumen Output in Emergency Mode

- Access luminaire data from Designlights Consortium’s website ([www.designlights.org](http://www.designlights.org)).
- Select “Search the QPL” under the Solid State Lighting tab on the DLC homepage.
- Enter luminaire manufacturer name, part number or QPL code in the search field.
- Find desired luminaire to determine the luminaire’s Efficacy (lumens per watt) in the rated data section.
- Multiply luminaire Efficacy (lumens per watt) by the ESL-EMG-4DC rated output wattage (refer to the below model specification chart).

MODEL	EMERGENCY OUTPUT (CONSTANT)
ESL-EMG-4DC-5W	5 WATTS
ESL-EMG-4DC-9W	9 WATTS
ESL-EMG-4DC-15W	15 WATTS
ESL-EMG-4DC-25W	25 WATTS

### 3. Determine Suitability of Means of Egress Lighting Levels

- Using industry standard lighting design software with the IES files for the emergency luminaires, verify that the above calculated emergency lumens are sufficient to meet code-compliant path of egress illumination levels.

While the ESL-EMG-4DC Series has been found compliant with the requirements of UL Standard 924, it is ultimately the responsibility of the designer/specifier to assure the installed system delivers code-compliant path of egress illumination in accordance with national, state and local code requirements.