OTi50W Self Test Slim Emergency Driver

Installation and Troubleshooting Guide - PN: 57412

OSRAM

IMPORTANT SAFEGUARDS

WHEN USING ELECTRICAL EQUIPMENT, BASIC SAFETY PRECAUTIONS SHOULD ALWAYS BE FOLLOWED, INCLUDING THE FOLLOWING:

READ AND FOLLOW ALL SAFETY INSTRUCTIONS

1. This product is for use with an LED lighting load and supplies up to 10W of power at factory programmed current with a voltage between 10.0 VDC and 55.0 VDC in emergency mode for a minimum of 90 minutes.
2. Make sure all connections are in accordance with the National Electrical Code, Canadian Electrical Code and any local regulations.
3. To reduce the risk of electric shock, disconnect AC power of the emergency driver and fuse from fuse holder of the battery pack before servicing.
4. This emergency driver is suitable for factory and field installation. For field installation, please see the instructions on page 3.
5. This product is suitable for damp locations where the driver case temperature is 75°C maximum and battery pack case temperature is 55°C maximum.
6. Do not use for outdoor applications.
7. Product is not suitable for heated air outlets and wet or hazardous locations.
8. Do not install near gas or electric heaters.
9. The use of accessory equipment not recommended by the manufacturer may cause an unsafe condition.
10. Do not use this product for other than intended use.
11. Equipment should be mounted in locations and at heights where it will not readily be subjected to tampering by unauthorized personnel.
12. Servicing should be performed by qualified service personnel.
13. Use caution when servicing batteries.

SAVE THESE INSTRUCTION

THIS PRODUCT CONTAINS A RECHARGEABLE NICKEL-CADMIUM BATTERY. THE BATTERY MUST BE RECYCLED OR DISPOSED PROPERLY.

Normal Mode Operation

When AC power is applied, the driver is in normal mode where the output current is at the programmed setpoint. The Illuminated Test Switch light is ON (not flashing) indicating the batteries are being charged.

Emergency Mode Operation

When power fails, the emergency driver automatically switches to emergency power, operating the emergency LED load at required illumination. When the AC power is restored, the emergency driver returns to the Normal Mode of Operation. This emergency driver will operate an LED lighting load with a voltage between 10.0 VDC and 55.0 VDC and up to 10W of output power. The LED driver ensures that there is light output for a minimum of 90 minutes.

Self-Testing Operation

The OSRAM self-testing emergency driver unit contains a control/monitor circuit that automatically performs a 30-second discharge test once a month and a full 90-minute discharge test once a year. During automated routine testing, the self-testing emergency driver simulates an AC power failure causing the unit to automatically switch to emergency mode. The unit monitors the operation of the LED load, battery voltage and LED load connections. If the unit detects any failures, the indicator light will flash as per failure condition (see Troubleshooting section) until the condition has been corrected and the unit passes the next test. To reset a failure indication, push the three wire Illuminated Test Switch for at least 5 seconds. If the driver detects that condition has not been corrected, the unit will detect the failure and signal the failure condition.

Test Switch

The below illustration shows the test switch that is provided as an accessory with the Emergency driver.

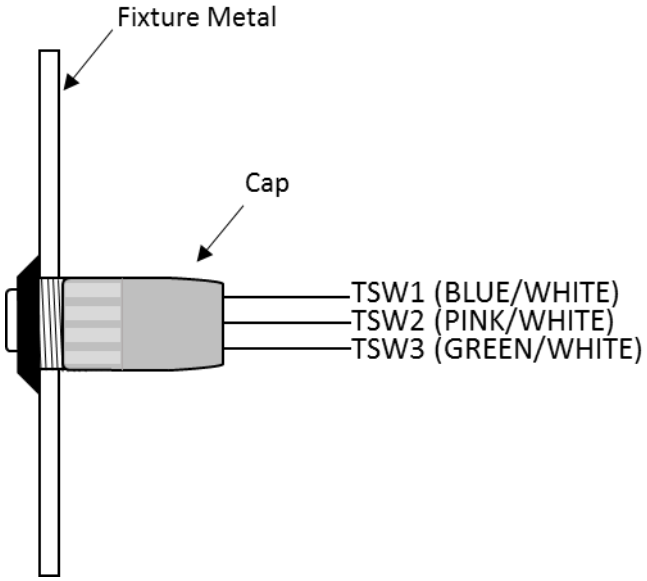

Figure 1: 3-Wire Illuminated Test Switch

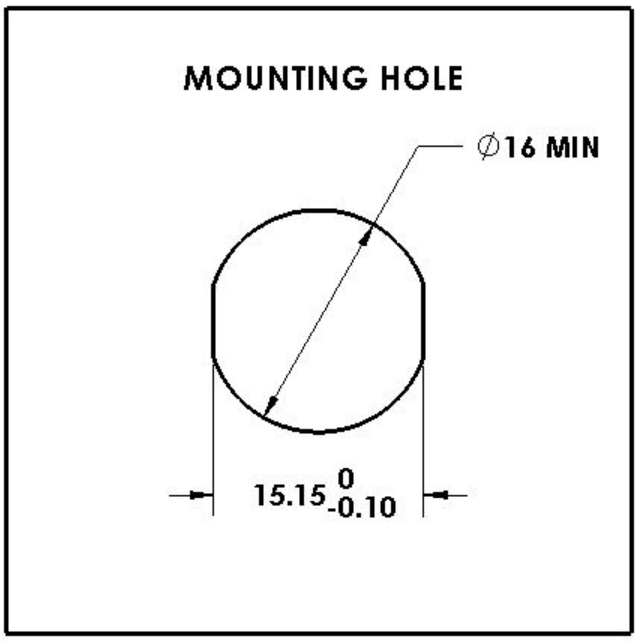

Figure 2: Test Switch mounting hole dimension

Installation Instructions

CAUTION: DO NOT CONNECT BATTERY PACK TO DRIVER UNTILL ALL INSTALLATION & WIRING IS COMPLETE. AFTER INSTALLATION & WIRING COMPLETE, CONNECT BATTERY PACK TO DRIVER BEFORE APPLYING AC POWER.

NOTE: Make sure the necessary branch circuit wiring is available. An unswitched source of power is required and must be from the same branch circuit.

This product is suitable for field installation with suitable LED loads including LED luminaires, DC voltage driven LED replacements for fluorescent lamps and others. There are a set of checks that need to be carried out to determine if your luminaire is eligible for field installation.

1. Ensure the LED load's rated power/current is greater than or equal to the Emergency Mode and Normal Mode power/current output of this LED driver.
2. This is to ensure that this product will not produce more power/current in either modes than the LED load can handle, thus ensuring that the LED load will not be damaged when the system is operating.
3. The Normal and Emergency Mode output current can be programmed in a given range that is dependent on the model type. Please refer to the product specification for the exact range. For more information on programming instructions, please refer to www.osram.us
4. The emergency mode power should be less than or equal to rating of the driver and the battery pack that is being used for the application.
5. Verify that the forward voltage of the luminaire's LED array is within the limits of the emergency LED driver and its programmed settings. The forward voltage of the LED array is commonly designated as V_f and should be found on the luminaire markings, in the luminaire specifications, or imprinted directly on the LED arrays. If multiple LED arrays are to be driven,

verify that the total forward voltage is within the limits of this product. Using a voltage meter, it may be possible to directly measure the voltage across the LED arrays when operating from the emergency driver.

6. Ensure there will be sufficient light output in the end application. Estimate the egress lighting illumination levels by doing the following:
    a. Find the efficacy of the LED load. This can be given by the luminaire manufacture. This number will be given in lumens per watt (lm/w). It is the installer's responsibility to validate the luminaire manufacturer's efficacy data. This can be accomplished by direct measurement, by review of independent 3rd party test data (UL, ETL, etc.), accessing a public database of 3rd party data (such as Design Lights Consortium, www.designlights.org), or other comparable means.
    b. Lumens can be calculated by multiplying the emergency mode power of the LED driver by the efficacy of the LED load. In many cases the actual lumen output in emergency mode will be greater than this calculation gives, however it will provide a good estimate for beginning the lighting design of the system.
    c. Using the results of this calculation and industry standard lighting design tools, calculate the anticipated illumination levels in the path of egress.

Lumens in Emergency Mode	**=**	***Fixture Efficacy***	*****	***Emergency Mode power of the product***		
Lumens in Emergency Mode	**=**	***Fixture Efficacy***	*****	***Emergency Mode Output current***	*****	***LED Load V_f***
(Lumens)	**=**	_____ ***(lm/W)***	*****	_____ ***(A)***	*****	_____ ***(V)***

NOTE: This product has been designed to reliably interface with a wide selection of LED modules and is electrically compatible with every simple LED array that meets criteria 1 and 5 above. However, compatibility cannot be guaranteed with all current and future LED systems. Compatibility testing of the end-use system is suggested. Please contact the factory with any questions.

NOTE: After installation, it will be necessary to measure the egress lighting illumination levels to ensure it complies with national, state, and local code requirements.

Installation of this emergency LED driver will vary based on the luminaire type, however, generally follow these steps:

STEP 1: INSTALLING EMERGENCY DRIVER

- Disconnect AC power from the LED luminaire.
- Mount the emergency LED driver along with the battery pack(s) by the mounting tabs. The luminaire's installation instructions may provide guidance on the recommended mounting location.
- Emergency driver & battery pack assembly (battery, wires & fuse) must be completely installed inside of a UL 1598 / CSA C22.2 no. 250 (Listed Luminaire) enclosure, or a UL 924 / CSA C22.2 no. 141 (Listed Emergency Lighting) enclosure. No open holes should be left within an enclosure of wiring or electrical components.
- The emergency driver and the battery pack(s), including fuses, as a system may be remote mounted from the luminaire, when installed within a UL 1598 / CSA C22.2 no. 250 (Listed Luminaire) enclosure, or a UL 924 / CSA C22.2 no. 141 (Listed Emergency Lighting) enclosure Please refer to the specification sheet for the maximum recommended remote

mounting distance. Remote mount wiring must be in accordance with the National Electrical Code/Canadian Electrical Code and with local installation requirements.

STEP 2: INSTALLING THE TEST SWITCH ON FIXTURE SURFACE

- Mount the supplied 3-wire illuminated test switch in a location that is visible and accessible by maintenance personnel.
- The switch mounts through a mounting hole which may need to be made in the luminaire or could come pre-punched by the luminaire supplier. Please refer figure 2 for mounting hole dimensions.
- Wire the test switch per wiring diagrams provided on these instructions.
- After installing, mark with the "PUSH TO TEST" and "CHARGING INDICATOR LIGHT" labels.

STEP 3: WIRING THE EMERGENCY DRIVER

- Select the appropriate wiring diagram to connect the emergency driver to the LED load. The battery packs have a pre-installed push-in connector that fit on the matching terminal on the driver.
- Make sure all connections are in accordance with the National Electrical Code and any local regulations.
- After installation is complete, connect the battery pack to the driver, place fuse in fuse holder and then apply AC input power to driver (battery assemblies are provided with a max. 3A rated blade type fuse). The charging indicator light should illuminate indicating the battery is charging.
- Allow 24 hrs charge time before operating in emergency mode.
- A short-term discharge test may be conducted after the emergency driver has been charged for one hour. Charge for 24 hours before conducting a long-term discharge test.
- In a readily visible location, attach the label "CAUTION - This unit has more than one power connection point. To reduce the risk of electric shock, disconnect both the branch circuit-breakers or fuses and emergency power supplies before servicing."

NOTE: The Switched and Un-switched hot should be fed from the same branch circuit.

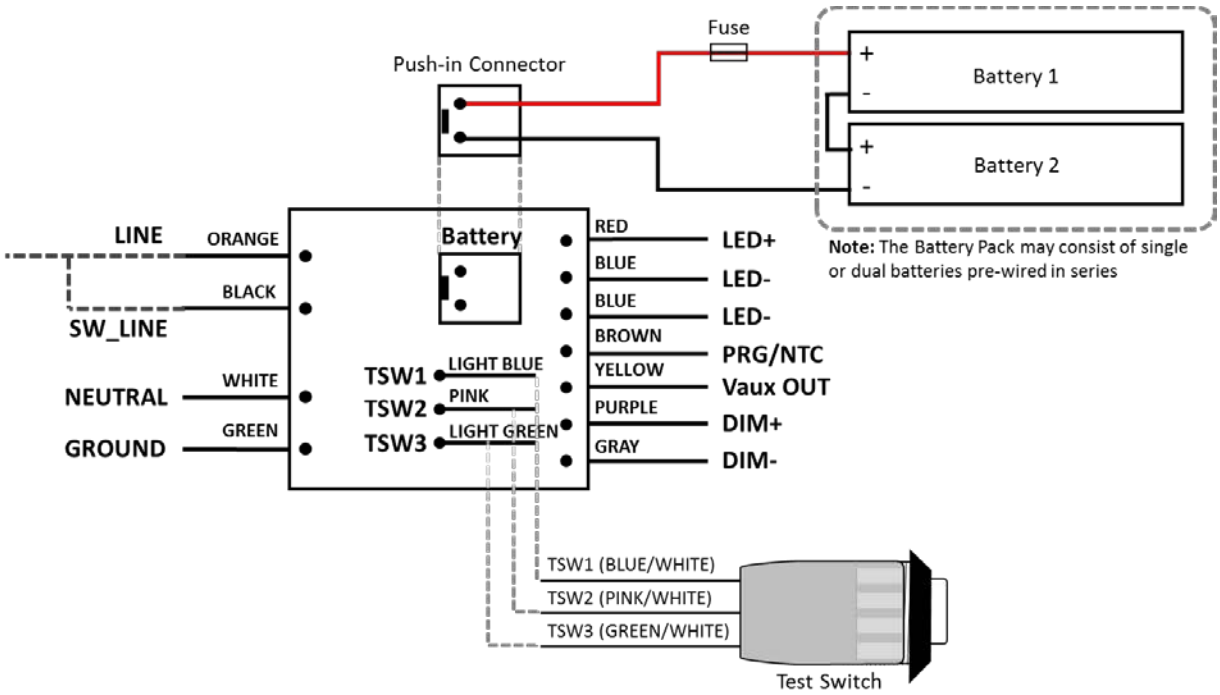

Figure 3: Wiring diagram for non-switched line

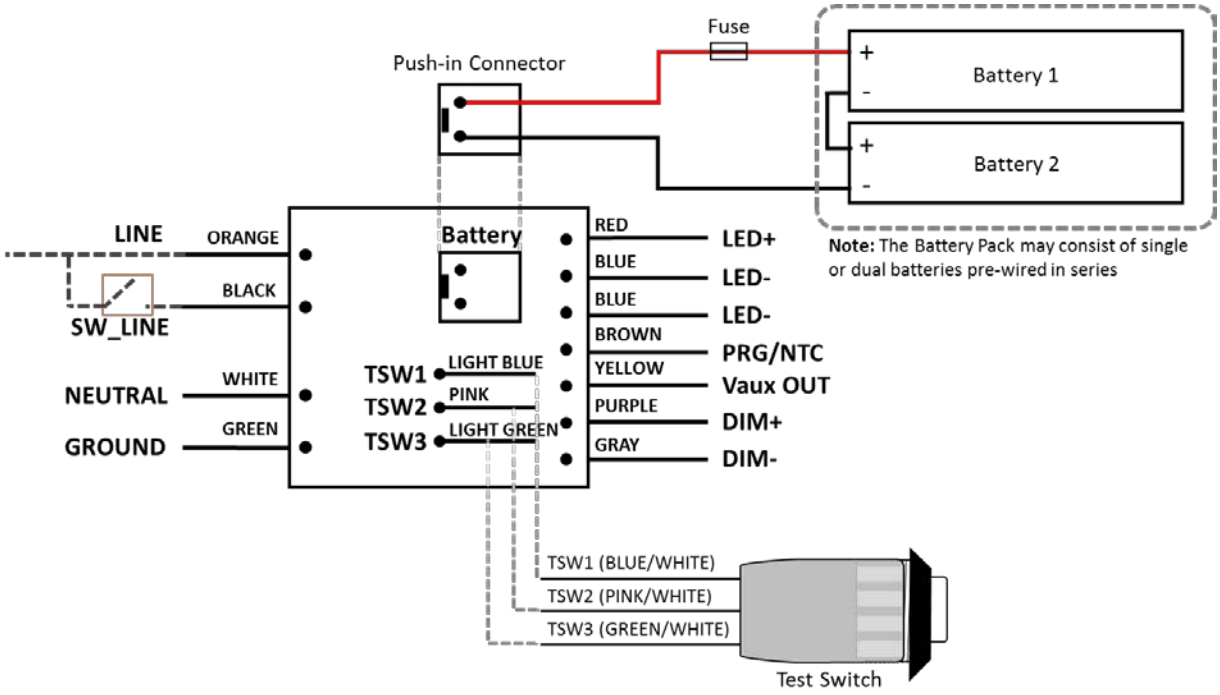

Figure 4: Wiring diagram for switched line

Maintenance

The self-testing emergency driver automatically performs required routine testing. Results are reported to maintenance personnel via the indicator light in the test switch.

Maintenance personnel should periodically check the indicator light. If the indicator light is flashing, follow the steps outlined in the Troubleshooting Guide.

Failure status will be reset when the unit passes:

- The next automatic test, or
- Briefly pressing the 3 wire Illuminated Test Switch for at least 5 sec.

CAUTION: To replace fuse, disconnect AC power for both switched & unswitched lines from the fixture. Replace fuse in the fuse holder. Output light should turn on in Emergency Mode. Supply AC power to fixture. Output light will change to Normal Mode. Illuminated Test Switch indicator light should be illuminated. Contact manufacturer for fuse replacement.

Troubleshooting Guide

The below table provides the different indicators and their corresponding translation in terms of status of the Emergency driver.

STATUS INDICATOR	PROBLEM	CORRECTIVE ACTION
Light ON, not flashing	None	None, unit is operating correctly.
Flashing 1 time in 20 seconds	Battery not connected	Ensure the battery connector is engaged properly to the emergency driver. Check battery wiring and battery pack fuse.
Flashing 2 times in 20 seconds	Battery Low	Charge the battery for one hour. If fault persist, check battery wiring and connections.
Flashing 3 times in 20 seconds	Charging Error	Ensure AC input wiring and battery wiring is correct.
Flashing 4 times in 20 seconds	Output Error	Check output/battery wiring & load for open circuit or short-circuit. Ensure that fixture wiring is in accordance with proper diagram. Check LED load is operational and specified for emergency driver application

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