



UFO-LED16

16W Emergency Micro Inverter
Installation, Operation, and Service Instructions



GENERAL INSTALLATION GUIDELINES FOR LED EMERGENCY DRIVER Appareil d'éclairage de secours

When using electrical equipment and this lighting device basic safety precaution should be followed at all times including but not limited to the following:

IMPORTANT SAFE PRACTICES

PLEASE READ CAREFULLY AND FOLLOW ALL INSTRUCTIONS FOR YOUR OWN SAFETY

IMPORTANT: Do not connect battery until fixture is installed.

IMPORTANT: An un-switched AC power source of 120VAC to 277VAC is required.

This device is designed for use in fixtures listed for dry and damp locations.

CAUTION: Make sure all electrical connections conform to the National Electrical Code and all applicable local regulations.

ATTENTION: Assurez-vous que toutes les connexions électriques sont conformes au Code national de l'électricité et à toutes les réglementations locales applicables.

CAUTION: Do not let power supply cords touch hot surfaces.

ATTENTION: Ne laissez pas les cordons d'alimentation toucher des surfaces chaudes.

CAUTION: Do not mount near gas or electric heaters.

ATTENTION: Ne montez pas à proximité de radiateurs à gaz ou électriques.

CAUTION: Do not use outdoors.

ATTENTION: Ne pas utiliser à l'extérieur.

CAUTION: Battery is rechargeable Ternary Lithium Battery type and must be recycled or disposed of properly.

Do not use this emergency driver with accessory equipment other than recommended by manufacturer; failure to follow this may cause an unsafe condition. Servicing should only be performed by qualified service personnel.

Do not use this emergency driver for other than intended use.

ATTENTION: La batterie est de type batterie au lithium ternaire rechargeable et doit être recyclée ou éliminée correctement.

N'utilisez pas ce pilote d'urgence avec des accessoires autres que ceux recommandés par le fabricant; Le non-respect de cette consigne peut entraîner une situation dangereuse. L'entretien ne doit être effectué que par du personnel de service qualifié.

N'utilisez pas ce pilote d'urgence à d'autres fins que celles prévues.

CAUTION: Equipment should be mounted in locations and at heights where it will not readily be subjected to tampering by unauthorized personnel.

ATTENTION: L'équipement doit être monté dans des endroits et à des hauteurs où il ne sera pas facilement soumis à des manipulations par du personnel non autorisé.

CAUTION: For use with a metal enclosed wiring system.

ATTENTION: À utiliser avec un système de câblage fermé en métal.

CAUTION: Sealed unit. Battery not replaceable. Replace entire unit when necessary.

ATTENTION: Unité scellée. Batterie non remplaçable. Remplacer l'unité entière si nécessaire.



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IMPORTANT: The output EM power will be the maximum of connected battery unless programmed to a lesser value. EM output power will not exceed the battery rating.

IMPORTANT: Indicator (LED light) illuminated indicates battery in charge mode when AC power is applied. It is recommended and required by applicable code to test emergency function to ensure proper operation of the system; push the test switch for sixty (60) seconds every 30 days to ensure the emergency driver is functioning as LED light source illuminated. Conduct a ninety minute (90) discharge test one time (1) per year; LED light source should be illuminated for a minimum of ninety minutes (90).

ASSEMBLY and FIELD INSTALLATION WIRING:

WARNING: AC power must be off before proceeding with assembly or installation of emergency driver.

ATTENTION: RISQUE DE CHOC - COUPER L'ALIMENTATION NORMALE ET DE SECOURS AVANT DE PROCÉDER À L'ENTRETIEN.

CAUTION: Install In Accordance With the National And Local Electrical Code. Disconnect Power Before Servicing. Driver Must Be Grounded. For use with a metal enclosed wiring system

Débranchez l'alimentation avant l'entretien. Pilote doivent être mis à la terre.

ATTENTION: L'installation doit être conforme aux normes du Code National Électrique.

CAUTION: This equipment has not been evaluated to determine its effect on equipment or systems to which it may be connected. Loads connected to this equipment should be evaluated together with this equipment to determine reliable operation of the combination.

ATTENTION: Cet équipement n'a pas été évalué pour déterminer son effet sur l'équipement ou les systèmes auxquels il peut être raccordé. Les charges reliées à cet équipement doivent être évaluées en même temps que cet équipement afin de déterminer le fonctionnement fiable de la combinaison.

SAVE THESE INSTRUCTIONS

INSTALLATION

GUIDELINE ON CALCULATING EMERGENCY ILLUMINATION LEVEL

The purpose of this guideline is to identify the illumination level of the LED luminaire when used with Dual-Lite's UFO-LED16 LED emergency driver. The path of egress illumination level during emergency operation is determined by types of luminaires, Luminaire Efficacy, Luminaire Mounting Height, Emergency Power and some other effects in real application.

Step 1: Select an LED Luminaire, and make sure the LED light source is electrically compatible with Dual-Lite's LED emergency driver. Get the Light Distribution data (usually an .ies file) and Rated Efficacy data (lumen per watt) from luminaire supplier.

If the luminaire is DLC® (DesignLights Consortium) compliant, you can also get the efficacy information from DLC website.

- Open DLC Qualified Product List (QPL) database search page: <https://www.designlights.org/search/>
- Searching keywords by model, brand name or manufacturer for the luminaire used.
- Find the "Efficacy" data listed on website or calculated by dividing "Light output" by "Wattage", the efficacy value should be shown in lumen per watt (lm/W).

If the luminaire is ENERGY STAR compliant, you can also get the luminaire efficacy information from ENERGY STAR website.

- Open ENERGY STAR certified Light Fixtures database search page:
<https://www.energystar.gov/productfinder/product/certified-light-fixtures/results>
- Searching keywords by model, brand name or manufacturer for the luminaire used.
- Find the "Energy Efficiency" data listed on website. If it is showed as "Measured at the Source", please contact with luminaire supplier for additional light loss for this light source inside the fixture. The value should be shown in lumen per watt (lm/W).

Step 2: Determine the Emergency Power and calculate the Emergency Light Output. Emergency Light Output is equal to the Emergency Power multiply by luminaire efficacy. For example, if the luminaire is 120lm/W and in 16W emergency operation, the total Emergency Light Output is 120lm/W X16W = 1920lm.

Step 3: Use industry lighting design software to calculate the illumination level according to the luminaire layout in room, luminaire mounting height, the original .ies file and Emergency Light Output calculated above. If the illumination level cannot meet life safety codes, go back to Step 2 to use a higher Emergency Power or go back to Step 1 to select a higher efficacy luminaire or use more luminaires in the room.

WARNING - This product contains chemicals known to the State of California to cause cancer, birth defects, and/or other reproductive harm. Thoroughly wash hands after installing, cleaning, or otherwise touching this product.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

OPERATION

TEST SWITCH INDICATOR STATUS

Non-Self Diagnostic (disabled):

Condition		Result	
AC input	Test switch	LED load	Red LED Status Indicator
ON	Released	ON (lamp output) or OFF (EMBB only)	ON
ON	Press and hold	ON (switches to UFO-LED16 output)	Flashing Red, 0.1s on / 3s off
ON	Released	ON (switches to lamp output) or OFF (EMBB only)	ON
OFF	Released	ON (switches to UFO-LED16 output)	Flashing Red, 0.1s on / 3s off

SERVICE ALERT CODES

FROM "STATUS" LED INDICATOR:

● RED BLINKING = BATTERY DISCONNECTED

● = AC ON

Self Diagnostic (enabled):

Models with Self-Testing/Self-Diagnostic Circuitry Provide:

- Visual indication of AC power status
- Visual indication of self-diagnostic test status and results

Visual Indication of any Unit Malfunction Include

- Battery Disconnected
- Battery Fault
- Overload Warning
- Power/Load Fault

LED Status Indicator

A bi-color LED (Green/Red) is provided in the test switch

Green Operating Status LED

Serves as both an AC power and self-test indicator. During normal operation, the Green Operating Status LED will be illuminated indicating the presence of AC power. During all automatic or manual self-test cycles, the Green Operating Status LED will blink.

Red Service Alert LED

Under normal operating conditions, the Red Service Alert LED indicator will remain off. If the controller detects a malfunction, the Red Service Alert LED will blink in the pattern listed in the following image:

SERVICE ALERT CODES

FROM "STATUS" LED INDICATOR:

● RED BLINKING = BATTERY DISCONNECTED

●● = BATTERY FAULT

●●● = OVERLOAD WARNING

●●●● = OVERLOAD TRIGGERED

●●●●● = ABNORMAL POWER / NO LOAD FOUND

●●●●●● = AC ON

●●●●●●● GRN BLINKING = TEST MODE ENABLED

Automatic Tests

The unit will automatically initiate a self-test/ self-diagnostic cycle based on the following table:

Automatic Tests		
Testing Period	Duration of Test	LED Status Indicator
Once a month	1 minute	2 blinks per second
Once every year	90 minutes	1 blink per second

Manual Tests

By using the unit's test switch, one can initiate different duration test cycles based on the following table:

Manual Tests		
Initiating Action	Duration of Test	LED Status Indicator
Press test switch once	1 minute	2 blinks per second
During 1 minute test, press and hold switch for 2 seconds then release	90 minutes	1 blink per second

At any time after a 90 minute test cycle has begun, press and hold the switch for two seconds then release to cancel the remainder of the 90 minute test. This returns the unit to normal operation.

OPERATION

TEST SWITCH OPERATIONS

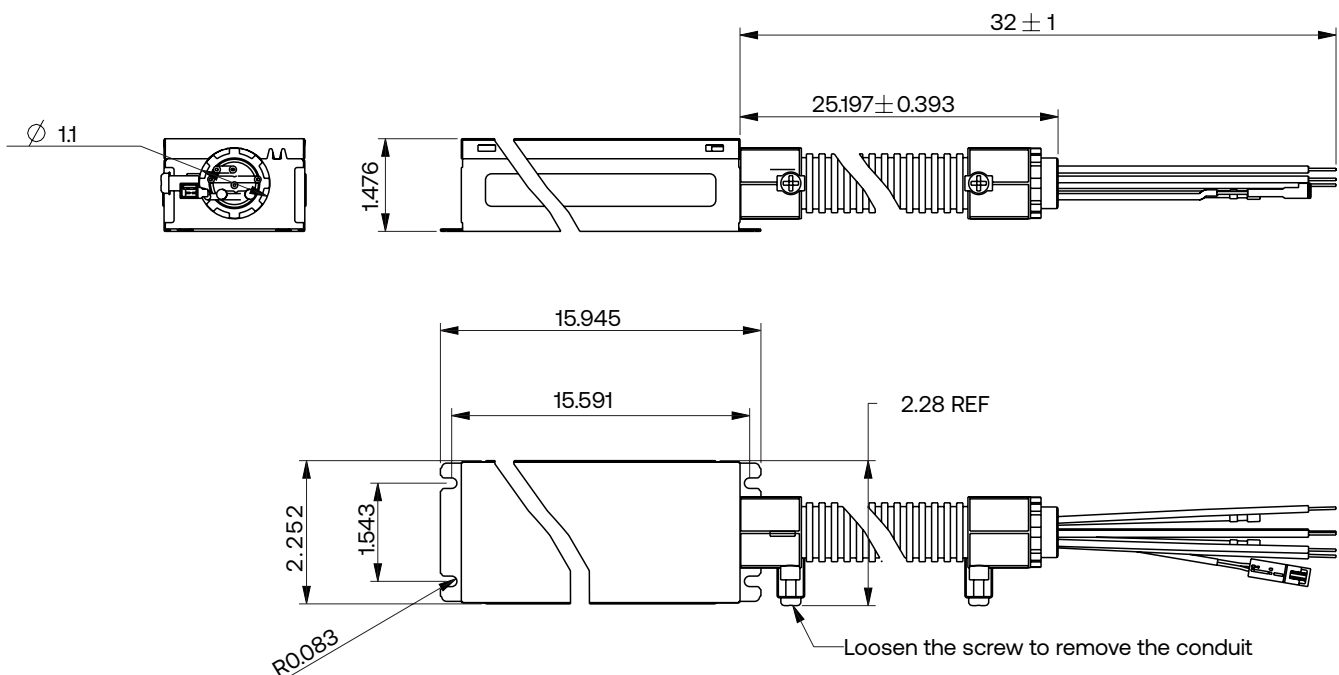
1. **EM Test:** Press and hold the test button (>1s) to enter EM mode in normal AC powered.
2. **Manual Self-Diagnostic:** In standby/charging mode, the indicator light remains solid green. Press the button for the first time (hold for about 1 second)—if the battery voltage > 8.2V, the device will manually enter monthly inspection mode and record the current battery voltage value. During the monthly inspection emergency state, press and hold the button again (hold for about 2 seconds; in practice, about 3 seconds). If the current battery voltage > 11.85V, the device will manually enter annual inspection discharge mode (90-minute discharge). If the current battery voltage < 11.85V, it cannot manually enter annual inspection discharge.
3. **Enable/Disable Auto Self-Diagnostic:** Press quickly once and release, then press and hold the test button for 2 seconds. A solid green light indicates activation. To deactivate, press quickly once again and release, then press and hold the test button for 2 seconds before releasing. A solid red light indicates deactivation.
4. **Clear Error Code:** To clear an acknowledged fault condition in self-diagnostic mode, press and hold the button for more than 10 seconds. This returns the unit to normal operation

EMERGENCY BATTERY DISCONNECT

Press and hold the test switch for 5 seconds during EM output condition to turn off EM output. This is useful for production environment to turn off the EM output once a luminaire has completed functionality testing. Emergency output will return to normal after the mains power is restored.

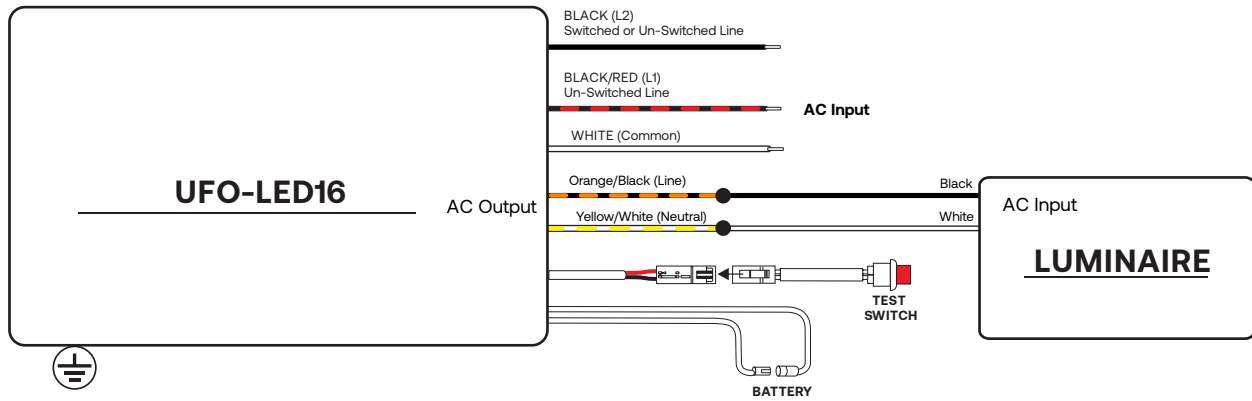
MECHANICAL DATA

Overall Dimensions	
Length	15.945"
Width	2.252"
Height	1.478"



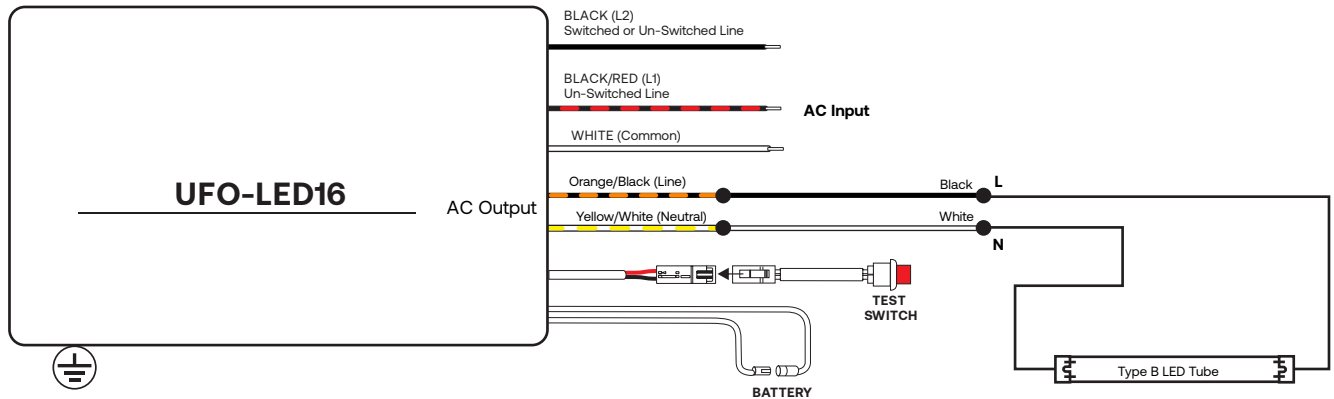
WIRING DIAGRAM

For Luminaire(s) with an output power less than 16W and Non 0-10 dimming function

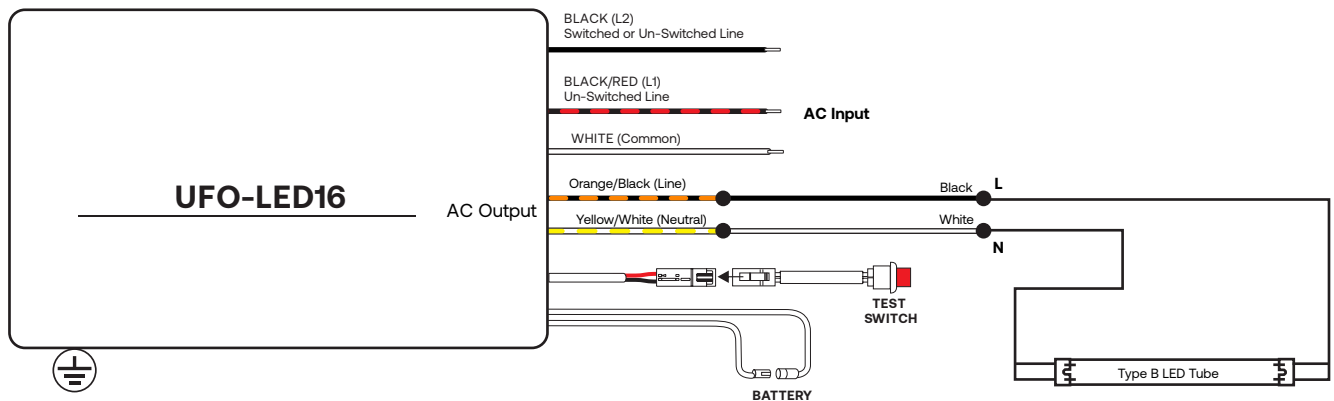


Note: If a switched line (L2) is not used, the switched (L2) and un-switched (L1) lines must be combined.

Shunted



Non-Shunted



MAINTENANCE

Although no routine maintenance is required to keep the emergency micro inverter functional, it should be checked periodically to ensure that it is working. If a unit is to be deliberately taken out of service for an extended period, the battery should be disconnected in order to preserve its life.

To avoid a shock hazard, the following steps must be done in the following order:

- a. Turn-off AC power to the UFO-LED16 by disconnecting the AC Branch Circuit Breakers or Fuses.
- b. Disconnect the battery connector (red wires).
- c. All wiring may then be disconnected as needed to uninstall the UFO-LED16.

The following schedule is recommended:

1. Visually inspect the charging indicator light monthly. It should be illuminated. See OPERATION section for indicator illumination.
2. Test the emergency operation of the fixture at 30-day intervals for a minimum of 30 seconds. For non-self-diagnostic models, simply depress and hold the illuminated test switch button. The lighting load should operate at full output. When self-diagnostic mode is enabled, a 1-minute test will automatically run every month.
3. Conduct a 90-minute discharge test once a year, by turning off the AC circuit breaker at the service panel. The lighting load should operate at reduced illumination for at least 90 minutes. Self-diagnostic enabled models will automatically conduct a 90-minute test every 12 months. Always remember to turn AC circuit breaker back on when maintenance is finished.

REFER ANY SERVICING INDICATED BY THESE CHECKS TO QUALIFIED PERSONNEL

