



## LED Driver Replacement FAQ

LED Lighting Fixtures have been installed since the early 2000's but, because of the long life cycle of LED technology, little focus has been placed on the replacement market. As LED fixtures fall out of the warranty period and components wear, the decision whether to replace the failed fixture or the worn component comes down to how confidently the installer can select the right driver for the intact module. Universal Lighting Technologies offers a comprehensive portfolio of driver options in multiple Can variations with High, Medium, and Low wattage offerings and dimming protocols. Below are frequently asked questions regarding LED drivers and information you need to know so that you can be confident in selecting the right Universal Lighting Technologies replacement LED driver.

|   | QUESTION   | ANSWER  |
|---|--|---|
| 1 | <p><b>How do I know when the LED driver in a fixture needs to be replaced?</b></p> | <p>There are primarily two types of components in an LED fixture: LED Drivers and LED Modules. When fixtures are not functioning properly, one of these has typically failed. Determining which component has failed can be difficult depending on the symptoms. There are, however, a few troubleshooting techniques to identify whether the problem lies with the LED driver or LED module.</p> <ul style="list-style-type: none"> <li>• If some LEDs on the module are lit while others are not, or if there is visible damage to the module surface or LEDs, the cause of the fixture's failure is most likely the LED module.</li> <li>• If the fixture is flickering, check the wiring of the driver to the module. If everything is properly connected, the cause is likely a faulty driver.</li> <li>• If all of the LEDs on the module are dim or not producing light, the cause is likely a faulty driver but also check the following:             <ul style="list-style-type: none"> <li>o If the system is connected to a dimming control, disconnect the dimming circuit from the driver to verify that the problem is not in the lighting control programming.</li> <li>o Module connectors can be delicate. Check all connections to make sure that they are intact. Also, be sure that the wire conductors have not been severed within the insulation or by the fixture's sheet metal.</li> </ul> </li> </ul>   |
| 2 | <p><b>What types of LED drivers are offered by Universal?</b></p>                  | <p>Universal offers Constant Current and Constant Voltage LED drivers in a variety of form factors and with several control options.</p> <p><b>Constant Voltage Drivers</b> are typically used in outdoor fixtures and signs. These LED drivers provide a constant DC voltage output, typically 12V or 24V. The LED module, connected in parallel, is designed to run at a specified voltage and incorporates a current regulator to control the current through the LED. Constant Voltage drivers are ideal for sign applications because of their flexibility to connect a wide range of modules in parallel.</p> <p><b>Constant Current Drivers</b> are a different technology and, like the name suggests, are designed to provide constant current to an LED module within a specific voltage range. The driver may power a single module or multiple LED modules within the fixture. Driver Output Ratings include output current and voltage range. Common rated currents include 350mA, 700mA, 1050 mA, and 1400mA.</p> <p>The entrance of tunable LED drivers has made LED fixtures even more efficient. Tunable drivers are Constant Current LED drivers that have been tuned to provide a precise amount of current to the LED module that is less than what the driver is rated for. Tuning is performed by the fixture manufacturer to adjust light levels and minimize heat loss. If a driver has been tuned, it is often indicated on the product label.</p> |



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|--|---|
| <p>3</p> <p><b>What information do I need to know to replace the driver?</b></p> | <p>To cross reference an existing driver for replacement, there are 4 pieces of information that you will need:</p> <ol style="list-style-type: none"> <li> <p><b>1. In what type of fixture is the driver being replaced?</b></p> <p>While you may not need the exact dimensions of the driver, it's important to take note of the type of fixture the driver that was installed. Drivers in Linear fixtures, Track and Downlight (compact) fixtures, Outdoor fixtures and Sign/Channel Lighting have generally the same driver size and form factor. Taking a quick measurement within the fixture will also give you the maximum size the replacement driver can be to ensure that it will fit properly.</p> </li> <li> <p><b>2. Is the driver Constant Current or Constant Voltage?</b></p> <p>Constant Voltage drivers are often used in outdoor fixtures, signs, and channel lighting while Constant Current drivers are found in everything from outdoor, general indoor, specialty, and architectural lighting. If there is a question, Constant Voltage drivers list a specific voltage like 12 or 24V while Constant Current lists voltage as a range (examples: 2-42V, 14-30V, 8-19V, etc.) and a specific output current.</p> </li> <li> <p><b>3. What are the Output specifications?</b></p> <p>The three specifications to look for are Current (mA), Max Power (W), and the Voltage Range (V).</p> <p><b>Current (mA):</b> Equivalent to specified or up to 10% less than the mA rating. Any less than that, and there may be a detectable difference to the light level in the fixture as compared to the other installed fixtures. If the driver has been factory tuned, Universal offers a range of pre-tuned drivers that are available in increments of 50mA.</p> <p><b>Max Power (W):</b> Equivalent to what is specified or higher. Max Power refers to the available amount of Watts, not necessarily what is used by the LED modules.</p> <p><b>Output Voltage (V):</b> Refers to the operable range output of the LED Driver. This may be listed only as a max voltage.</p> </li> <li> <p><b>4. Are there any control requirements?</b></p> <p>Most of the Universal LED drivers are equipped with 0-10V dimming. A dimming driver can always be used for applications where no dimming is required.</p> </li> </ol> |



| QUESTION |   | ANSWER   |
|----------|---|--|
| 4        | What types of LED driver form factors are offered by Universal? | The first generations of drivers manufactured in the industry were odd, round or oblong. There is value in understanding that the interchangeable shapes offered by Universal have marketplace longevity and application design flexibility. |

| Case | Length | Width | Height | Mounting Length       | Lead Exit     |
|------|--------|-------|--------|-----------------------|---------------|
| A    | 9.50"  | 1.70" | 1.18"  | 8.89"                 | Side          |
| C    | 14.25" | 1.18" | 1.00"  | 13.75"                | Side          |
| D    | 16.88" | 1.25" | 1.00"  | 16.28"                | Side          |
| F    | 9.50"  | 2.40" | 1.55"  | 8.89"                 | Side          |
| FJ   | 9.50"  | 2.40" | 1.55"  | #8/32 Studs 2.0"      | Bottom        |
| J    | 3.74"  | 1.57" | 1.00"  | 3.35" x 1.18"         | Side          |
| JF   | 4.67"  | 1.30" | 1.19"  | 4.39" x 0.96"         | Side          |
| JL   | 5.30"  | 1.34" | 1.00"  | 4.82" x 0.97"         | Fixed Output  |
| K    | 4.93"  | 2.95" | 1.00"  | 4.59"                 | Fixed Output  |
| KS   | 4.93"  | 2.95" | 1.00"  | #8/32 Studs 2.0"      | 0-10V Dimming |
| L    | 4.95"  | 2.39" | 1.00"  | 4.61"                 | 0-10V Dimming |
| LS   | 4.95"  | 2.39" | 1.00"  | #8/32 Studs 2.0"      | 0-10V Dimming |
| MS   | 3.27"  | 3.00" | 1.56"  | #8/32 Studs 2.0"      | Bottom        |
| MSF  | 4.00"  | 3.00" | 1.56"  | 3.62" x 2.44"         | Side          |
| Q    | 12.13" | 2.08" | 1.54"  | 9.9" with 0.9" offset | Side          |
| VF   | 5.43"  | 3.62" | 1.57"  | 5.16" x 2.84"         | Side          |
| VN   | 5.02"  | 3.62" | 1.57"  | No Feet               | Side          |
| VJ   | 5.02"  | 3.62" | 1.57"  | #8/32 Studs 2.0"      | Bottom        |



A-Can



C-Can



D-Can



F-Can



FJ-Can



J-Can



JF-Can



JL-Can



K, KS-Can



L, LS-Can



MS-Can



MSF-Can



Q-Can



VF, VN, VJ-Can  
(VN-Can Shown)



| QUESTION |   | ANSWER   |
|----------|---|--|
| 5        | What are the most common LED driver replacement options offered by Universal? | Among the first drivers to be used in fixtures were 150W drivers which are ideal for first generation outdoor driver replacement. EVERLINE's 150W Constant Current drivers are available in both UNV (120V-277V) and HRV (347V-480V) voltages. |



| Constant Voltage Drivers |                |               |               |
|--------------------------|----------------|---------------|---------------|
|                          | Output Voltage | Max Power (W) | Input Voltage |
| D12V20UNV-JL             | 12V            | 20            | 120-277       |
| D12V60UNV-A              | 12V            | 60            | 120-277       |
| L12V60UNV-Q              | 12V            | 60            | 120-277       |
| D24V100UNV-A             | 24V            | 96            | 120-277       |
| L12V100UNV-Q             | 24V            | 96            | 120-277       |



| 150W Constant Current Drivers |                  |               |             |               |
|-------------------------------|------------------|---------------|-------------|---------------|
|                               | Output Ratings   |               |             | Input Voltage |
|                               | Max Current (mA) | Max Power (W) | Voltage     |               |
| D530C150UVT-F                 | 530              | 150           | 99V to 285V | 120-277       |
| D530C150HVT-F                 | 530              | 150           | 99V to 285V | 347-480       |
| D700C150UVT-F                 | 700              | 150           | 75V to 214V | 120-277       |
| D700C150HVT-F                 | 700              | 150           | 75V to 214V | 347-480       |
| D10CC150UVT-F                 | 1050             | 150           | 50V to 143V | 120-277       |
| D10CC150HVT-F                 | 1050             | 150           | 50V to 143V | 347-480       |
| D14CC150UVT-F                 | 1400             | 150           | 38V to 107V | 120-277       |
| D14CC150HVT-F                 | 1400             | 150           | 38V to 107V | 347-480       |



### Constant Current Linear Drivers w/ Constant Power Tuning

|                | Output Ratings   |               |  | Input Voltage |
|----------------|------------------|---------------|--|---------------|
|                | Max Current (mA) | Max Power (W) | Voltage                                    |               |
| D700C30UNVTW-C | 700              | 30            | 15V to 44V @ 0.700A<br>15V to 56V @ 0.530A | 120-277       |
| D10CC30UNVTW-C | 1050             | 30            | 15V to 30V @ 1.050A<br>15V to 56V @ 0.530A | 120-277       |
| D10CC55UNVTW-C | 1050             | 55            | 15V to 53V @ 1.05A<br>15V to 56V @ 0.98A   | 120-277       |
| D15CC55UNVTW-C | 1500             | 55            | 15V to 37V @ 1.50A<br>15V to 56V @ 0.98A   | 120-277       |
| D21CC80UNVTW-D | 2100             | 80            | 15V to 38V @ 2.1A<br>15V to 56V @ 1.4A     | 120-277       |



### Constant Current Compact Drivers w/ Constant Power Tuning

|                       | Output Ratings   |               |  | Input Voltage |
|-----------------------|------------------|---------------|--|---------------|
|                       | Max Current (mA) | Max Power (W) | Voltage                                    |               |
| D700C30UNVTW-L (& LS) | 700              | 30            | 15V to 44V @ 0.700A<br>15V to 56V @ 0.530A | 120-277       |
| D10CC30UNVTW-L (& LS) | 1050             | 30            | 15V to 30V @ 1.050A<br>15V to 56V @ 0.530A | 120-277       |
| D10CC55UNVTW-L (& LS) | 1050             | 55            | 15V to 53V @ 1.05A<br>15V to 56V @ 0.98A   | 120-277       |
| D15CC55UNVTW-L (& LS) | 1500             | 55            | 15V to 37V @ 1.50A<br>15V to 56V @ 0.98A   | 120-277       |
| D350C15UNVA-JF*       | 350              | 15            | 3V to 42V                                  | 120-277       |

\* The D350C15UNVA-JF is not tunable.

For more information regarding Universal's LED Replacement Driver options or Technical Engineering Services, please call **1-800-225-5278**.