## INSTALLING LED Lighting

### Top Tips and Things to Avoid

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| **ANY RETROFIT** | **(1)** Never hot swap an LED lamp  
Hot swapping is removing or installing a lamp with the luminaire powered ON |
| (1) Always de-energize the circuit first.  
Turn the power to the luminaire OFF, preferably at the circuit breaker. | **(2)** Avoid extreme CCT unless specified  
Under 2500K will be very yellow and over 6500K will look blue. |
| (2) Always verify you have the appropriate color temperature (CCT) for the space and occupants.  
Too white or too yellow may spoil the mood or hurt productivity. | **(3)** Never test dimming after all the lamps are installed  
Reworking takes time and costs money, and there is a chance you may damage the lamps or controller. |
| (3) Always research dimming compatibility of the light source and the control before installing.  
Not all LEDs are dimmable and not all dimmable LEDs are controlled the same way. | **(4)** Never force a lamp or luminaire that does not fit.  
Torqueing, bending, and pushing may damage the product. |
| (4) Always check the dimensions for proper fit before purchasing.  
The lamps or luminaires may be too wide, too long, too tall, or have the wrong sockets. | **(5)** For a ballast driven installation, never test for ballast compatibility after all lamps have been installed.  
This can lead to lamp and ballast failures, and the rework takes time and costs money. |
| (5) For a ballast driven installation, always verify ballast compatibility first.  
This applies to Type A (ballast-driven or plug-and-play lamps). | **(6)** For a ballast bypass installation, never test the wiring after all lamps are installed.  
Test along the way to avoid a major rework after the retrofit is complete. |
| (6) For a ballast bypass installation, always verify the pinout, wiring method and type of lamp holder required.  
Mis-wiring can damage the product and reworking takes time and costs money. | **(7)** Never install lamps or luminaries that do not support the existing main’s voltage. |
| (7) Always verify the correct mains voltage. | **(8)** For a ballast driven installation, never assume all existing ballasts are the same make and model. |
| (8) For a ballast driven installation, always check the age of the ballast if there is a failure.  
Chances are the ballast may have reached the end of its life, and sometimes the LED exposes it. | **(9)** Never forget to include emergency lighting in the retrofit plan – whether in a luminaire or in dedicated hardware that meets code. |
| (9) Always account for emergency lighting luminaires and ensure those luminaires have appropriate battery-powered drivers. |  |
## TIPS

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<th>RETROFITTING WITH A REPLACEMENT LED LUMINAIRE</th>
<th>THINGS TO AVOID</th>
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<td>• Always ensure the new luminaire includes the proper mounting hardware for your application.</td>
<td>• Never install a luminaire without utilizing the proper and specified mounting methods.</td>
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<tr>
<th>RETROFITTING WITH LED KITS</th>
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<th>RETROFITTING WITH LED MODULES/LIGHT ENGINES</th>
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<td>• Always check that the existing luminaire mechanically and electronically supports the LED kit.</td>
<td>• Always verify if the tube requires shunted or unshunted Tombstones.</td>
<td>• Always verify the LED engine and LED driver fit and location.</td>
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<td>• Always cap off 0-10v dimming leads on the LED driver if dimming is not used.</td>
<td>• Always verify if the LED replacement lamp is single-ended or double-ended.</td>
<td>• Always verify that the luminaire has provisions for both the LED driver wiring and the LED light engine wiring.</td>
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<td>• Never purchase an LED kit without first measuring mechanical fit and verifying connectivity.</td>
<td>• Never install an unshunted LED lamp into a shunted lamp holder and vice versa.</td>
<td>• Never fasten the LED engine to the luminaire frame until the light engine lays completely flat against the frame sheet metal enclosure.</td>
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<tr>
<td>• Never install LED kits without verifying the functionality first.</td>
<td>• Never install a single-ended LED replacement lamp in a luminaire wired for double-ended lamps, and vice versa.</td>
<td>• Never install both the LED driver wiring and the LED light engine wiring without creating proper pass-through holes in the enclosure.</td>
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For specific questions about LED technology:
- Contact your Field Application Engineer
- Send your questions to Technical Engineering Services at tes@unvlt.com
- Contact your local Universal Lighting representative
- Email marketing@unvlt.com

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