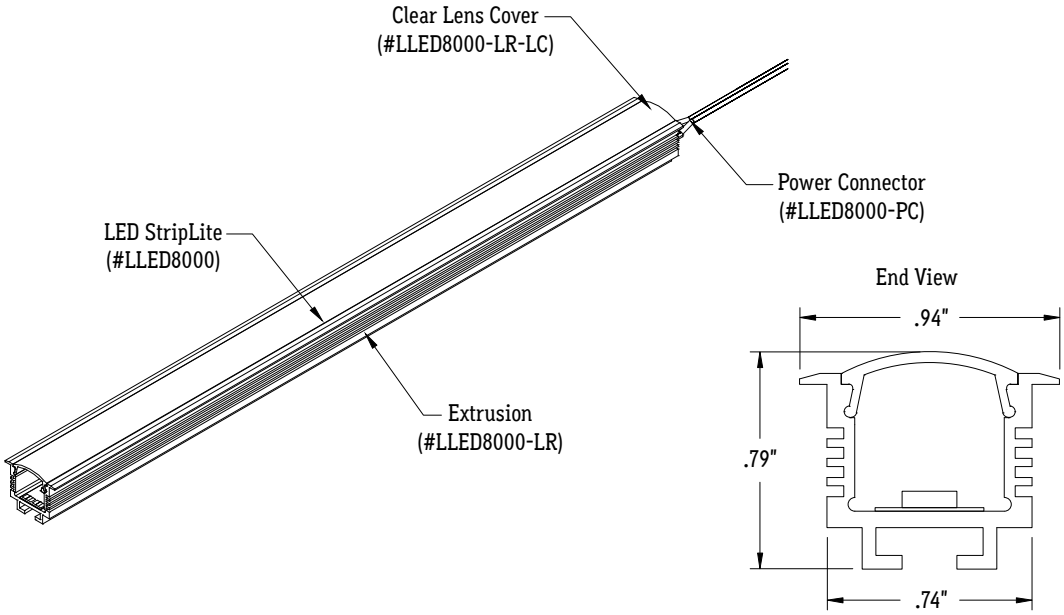
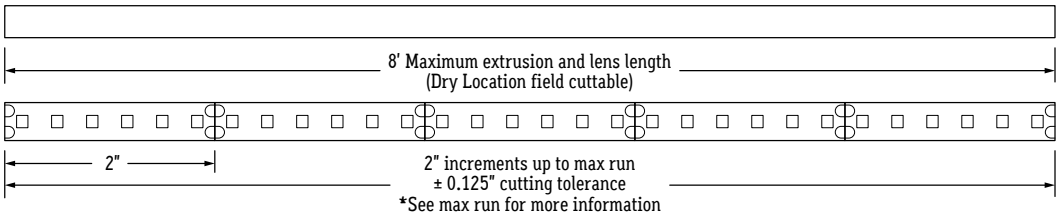
lipLEDs™ Specification Grade Installation Instructions

LLED8000-LR

Overview





IMPORTANT VERIFY CORRECT LUMINAIRE WAS RECEIVED WITH CORRECT COLOR TEMPERATURE AND VOLTAGE BEFORE CUTTING OR INSTALLING. **CALI** WILL NOT BE RESPONSIBLE IF INCORRECT LUMINAIRE IS INSTALLED.

PRODUCT INFORMATION

- For accent, cove, edge, under cabinet lighting
- 24 volts DC for easy and safe installation
- Long life, energy efficient LEDs
- Maximum run based on 5 Amps:
  18' (6.5W), 21' (5.5W), 26' (4.5W), 33' (3.6W), 36' (1.5W, 2.5W)
  Maximum run based on 4 Amps:
  14' (6.5W), 17' (5.5W), 21' (4.5W), 26' (3.6W), 36' (1.5W, 2.5W)
- Can be ordered to specific lengths for easier installation when exact dimensions are known (Example: 10 x 10'6")
- Plug and light system
- Lead wires are typically 33" long and exit on one end

INSTALLATION RECOMMENDATIONS

- LipLEDs LED tape must be mechanically attached directly to mounting surface using mounting clips or channels
- Conduit raceway should be sleeved at one end for low voltage wires going to *trans*FORMER

ELECTRICAL

- LipLEDs products require a 24 volt DC remote *trans*FORMER
- To calculate transformers size find watts per foot (Example: 1.5W per foot)
- Determine length in feet (Example: 30')
- Calculate Load: Multiply Watts per Foot x Length in Feet (Example: 1.5W x 30'= 45W)
- Choose *trans*FORMER from catalog (Example: TRA50)
- Determine maximum distance using Maximum Wire Length Table (Example: 45 watts is between 40W and 80W. Using #14 wire, maximum distance is 37' from *trans*FORMER to first LED)

INSTALLATION TOOLS REQUIRED

- Electric compound miter saw
- 14.4 to 28 volt cordless drill
- Drill bits - concrete or wood
- Electrical cords
- Safety glasses
- Marker
- Electric hammer drill (optional)
- Phillips bits - sufficient quantity
- Electrical three ways
- Measuring tape
- Chalk line
- Sharp scissors
- Soldering iron with kit

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FEATURES	
APPLICATIONS	Accent, Decorative Lighting
VOLTAGE	24VDC
LAMP TYPE	LEDs
DIMMING	Forward Phase (TRA) 0-10V (TRA-E) Hi-Lume 1% A Series (2 Wire) Hi-Lume 1% (3 Wire)
LENGTH	Built to Order
MOUNTING	Mounting Clips or Mounting Channel
CRI	> 90
EFFICACY	95 Lumens per Watt
VIEWING ANGLE	120 Degrees
L70 LED LIFE	60,000 hrs.
MAXIMUM RUN* (Based on 5 amps)	18' (6.5W) 21' (5.5W) 26' (4.5W) 33' (3.6W) 36' (1.5W, 2.5W)
LISTING	Dry or Wet (IP65 or IP67) Location UL2108, CSA C22.2#9 UL8750, CSA250

*Maximum run based on 5 Amps: 18' (6.5W), 21' (5.5W), 26' (4.5W), 33' (3.6W), 36' (1.5W, 2.5W)
Maximum run based on 4 Amps: 14' (6.5W), 17' (5.5W), 21' (4.5W), 26' (3.6W), 36' (1.5W, 2.5W)

WARNING

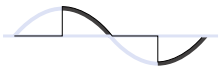
When using lipLEDs for any application, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and personal injury. lipLEDs must be installed in accordance with the NEC or CEC as applicable. CALI will not be responsible for any damage or malfunction caused by the following:

- Do not exceed maximum length per circuit. Each maximum run requires additional power feed from the transformer
- Do not cover lipLEDs as the covering may cause it to overheat, melt, or ignite.
- Do not install lipLEDs in hazardous locations or closer than 6 inches from any curtain or similar combustible material.
- Do not use lipLEDs if damaged, such as broken outer jacket, loose connections, or frayed wire insulation. Inspect periodically.
- Do not submerge lipLEDs in liquid.
- Do not mount lipLEDs with staples, nails, or like means that might damage the insulation. Mount with double-sided tape and mounting clips.
- Do not install lipLEDs in places where it is subject to continuous flexing.
- Do not mount lipLEDs inside tanks or enclosures of any kind without sufficient ventilation.
- Ground Fault Circuit Interrupter (GFCI) protections are required on circuits or outlets.
- Surge protector must be set up for electrical power system to avoid damaging lipLEDs lighting system.
- Do not install in an environment where excessive heat may exist. Ambient temperature -40°F - 122°F (-20°C - 50°C).
- Only wet location models are intended for outdoors. See package label for environmental details.
- Do not install wet location model in areas where water will collect.
- Do not modify wet location extrusion, end caps, or power connectors.

DIMMING PROTOCOL (Forward Phase Dimming)

Technical Requirements for Control Equipment (Forward Phase Dimming)

- Magnetic Low Voltage (MLV) - Magnetic (core and coil, toroidal) transformer-supplied low voltage lighting.
- Electrical Characteristics - Inductive
- Special Requirements - Symmetric cycles (VDC≤2), smooth turn off (positive and negative periods are equal for safe MLV transformer operation)
- Order transformer with TRA prefix.



Symmetric Forward Phase-Control

Click here for list of magnetic transformers

(TRA) Forward Phase Dimming

DIMMING PROTOCOL (0-10V)

LipLEDs are available in 120 or 277 volts with a dimmable remote driver. The remote driver is available with 0-10V dimming capabilities. The following applies to 0-10V dimming interfaces. *A 0-10v fluorescent dimmer will not dim the LEDs.*

Technical Requirements for Control Equipment (0-10V Protocol)

- The output current level of the dimmable driver is controlled by DC voltage (0-10V) applied to the control terminals (blue and white). The light output of LEDs is controlled by the amount of output current from the dimmable driver.
- The control device must be capable of sinking a DC current flow from the driver. The maximum amount under any condition is 500 microamps (uA) per driver.
- The control terminals of the dimmable driver are isolated from the power lines and are suitable for use as Class 2 wiring. Multiple drivers are desired for use with same control device, the control terminals may be connected in parallel in a bus configuration.
- Since the control bus is Class 2 wiring, all control devices that are connected to the power line must have proper isolation between the power line and the control terminals/bus.
- The control device, which intends to control more than one dimmable driver, must be capable of sinking the total current supplied to control bus by the drivers.
- If the control terminals/bus is shorted in any case, the current on the control terminals/bus will be 500 microamps (uA) per driver maximum.
- If the control terminals are opened, the voltage on the control terminals will then be 10V ± 0.5 volt. As a result, dimmable driver supplies maximum output current to LEDs under this condition.
- The driver is intended for use with control voltages between 0 and 10VDC. The control equipment must not impose a voltage greater than 11 V peak maximum on the driver control terminals.
- Order transformer with TRA-E prefix.

Click here for list of electronic transformers

(TRA-E) 0-10V Dimming

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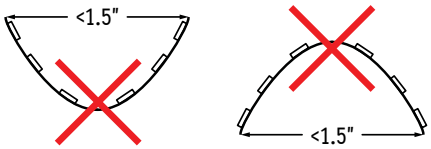
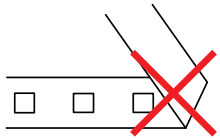
lipLEDs™ Specification Grade Installation Instructions

LLED8000-LR Product Care

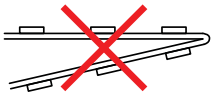
Do not bend lightstrip to a diameter of less than 1.5"



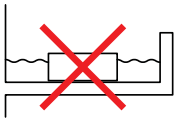
Do not fold, crease, or twist lightstrip



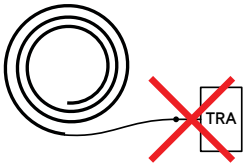
Do not install lightstrip in a zig-zag fashion



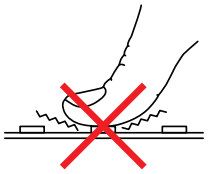
Do not install wet location in outdoor cove without proper drainage



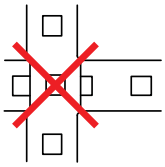
Do not connect lightstrip to power source while spooled or coiled



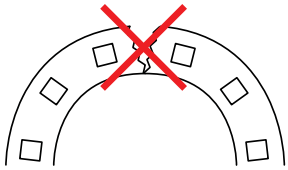
Do not apply excessive pressure to surface of lightstrip or LEDs



Do not overlap lightstrips at any location

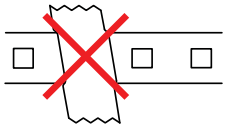


Do not bend lightstrip along a horizontal plane

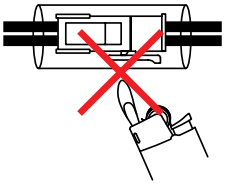


Do not install connectors without shrink tube for wet location

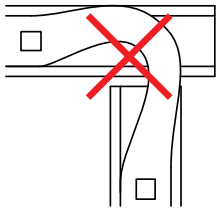
Do not cover lightstrip with any material



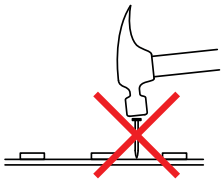
Do not use a lighter to heat shrink tube



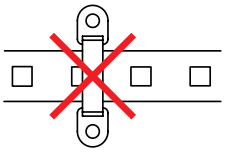
Do not cross or overlap extrusions and twist lightstrip to overlap



Do not penetrate lightstrip with any foreign object



Do not install mounting clip over LED diode



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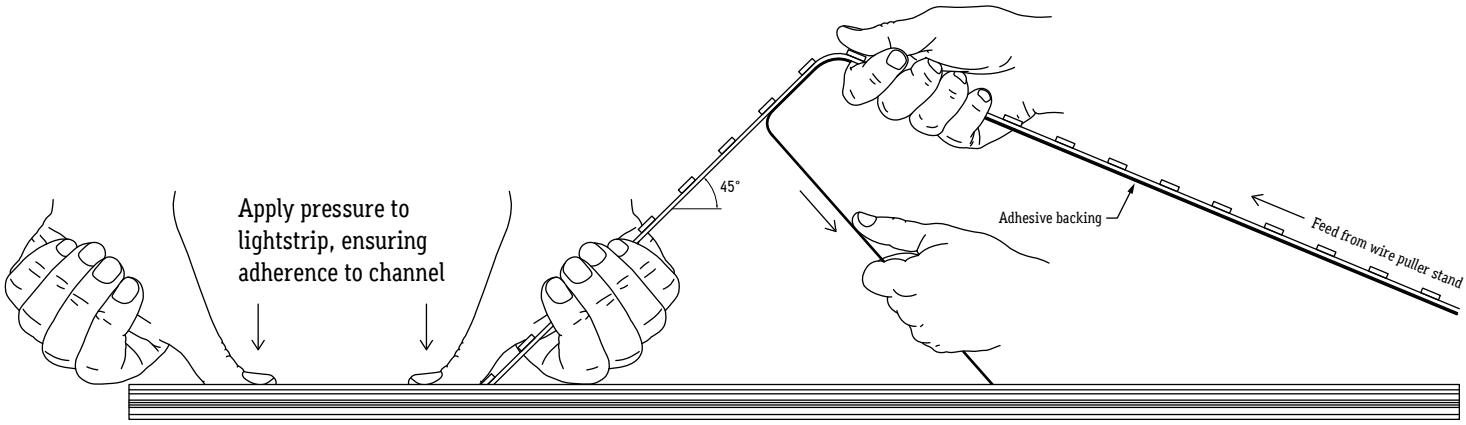
INTERTEK ETL LISTED C US

LLED8000-LR REQUIRES A TEAM EFFORT TO ENSURE SECURE AND CORRECT INSTALLATION



One person on one end applies pressure to LLED8000, securing it to channel

Another person unreels LLED8000 from spool, holding lightstrip at 45° angle

IMPORTANT NOTE TO AVOID COLOR SHIFT:

- Do not paint on or over fixture lens or LEDs. Paint or any other substance on lens or LEDs will cause a shift in color temperature.
- Soffit must be painted evenly with a neutral white to avoid color shift.

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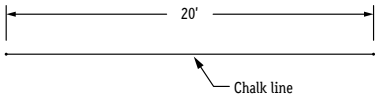
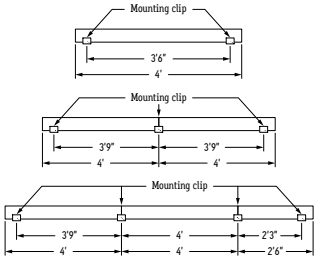
lipLEDs™ Specification Grade
Installation Instructions

LLED8000-LR
Spring Mounting Clip

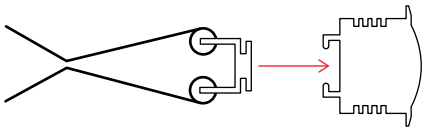
1. Measure area where LLED8000-LR will be installed.
RECOMMENDATION: Use chalk line to ensure a straight installation.



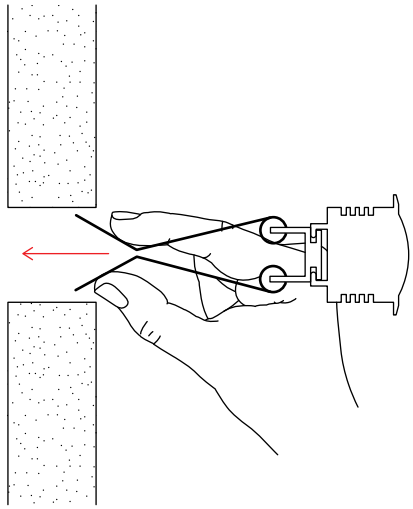
2. Mark location where mounting clips will be installed.
RECOMMENDATION: Quantity of mounting clips = quantity of fixture +1.
Use a mounting clip at the joint between two fixtures.



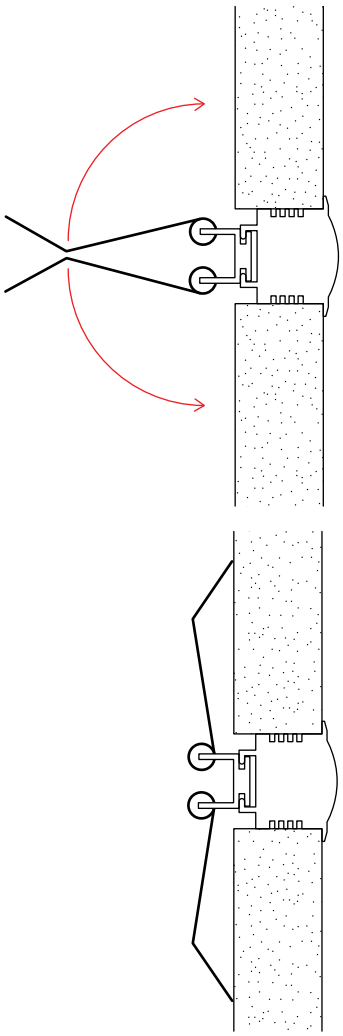
3. Snap mounting clips into channel underneath extrusion.



4. Pinch spring-loaded arms together, then insert into pre-cut recess.



5. Release spring-loaded arms, allowing them to pull extrusion into place.



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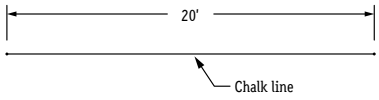
LLED8000-LR

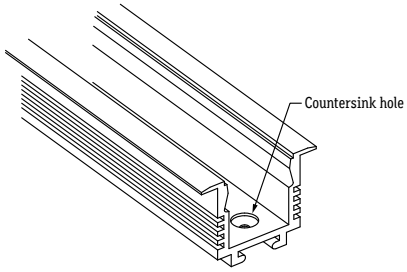
Mounting Fixture (Dry Location)

1. Measure area where LLED8000-LR will be installed.

RECOMMENDATION: Use chalk line to ensure a straight installation.

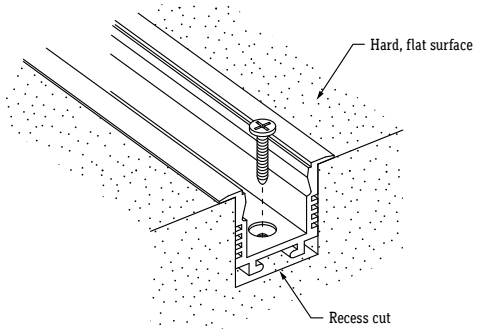


2. Drill holes as needed with drill bit and countersink.

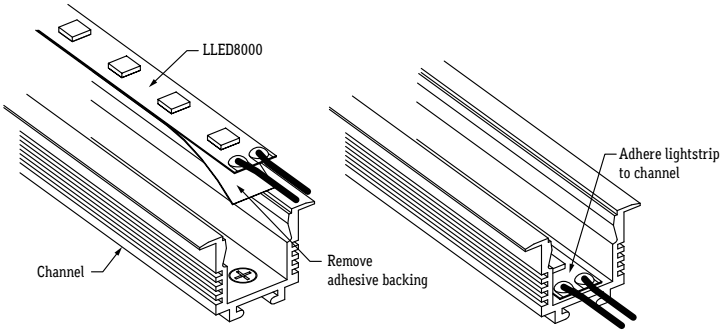


3. Screw channel into pre-cut recess using countersink holes.

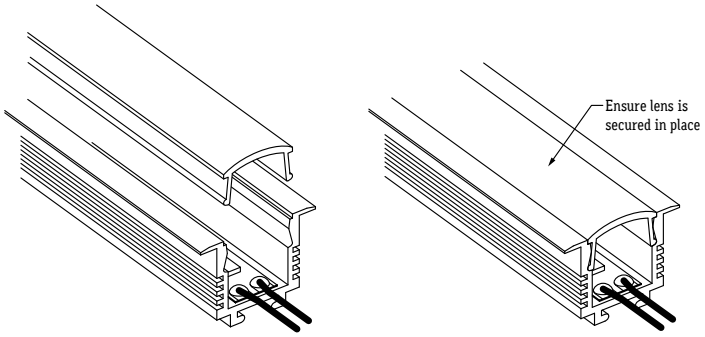
NOTE: Surface must be flat.



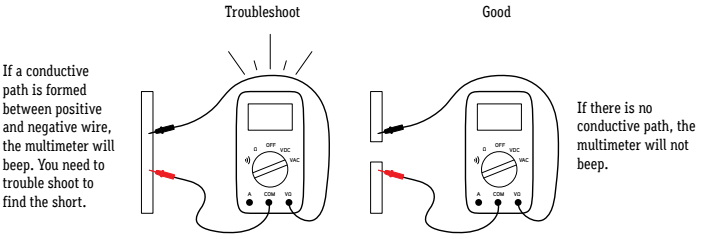
4. Remove adhesive backing from lightstrip, then install into channel.



5. Snap lens into channel.

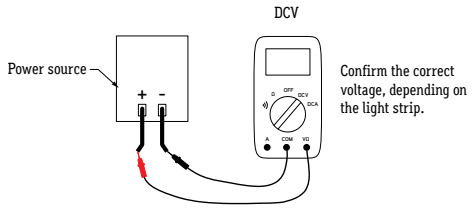


6. Conduct continuity test.

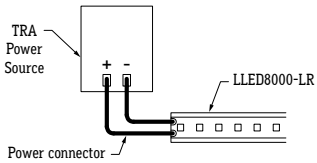


See page 8 for troubleshooting guide

7. Set voltmeter to DC voltage, then test power source before connecting.



8. Connect power source to power connector. If LEDs do not turn on, flip polarity (+, -) or power source connection to power connector.



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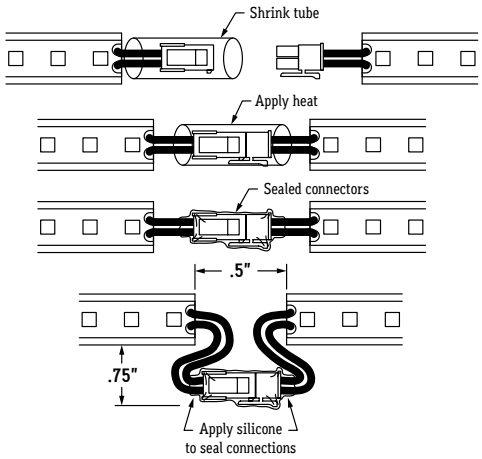
LLED8000-LR

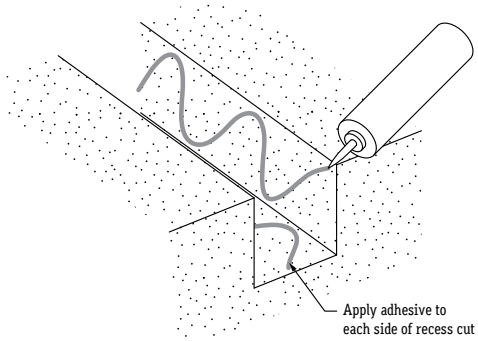
Mounting Fixture (Wet Location)

1. Measure area where LLED8000-LR will be installed.
RECOMMENDATION: Use chalk line to ensure a straight installation.

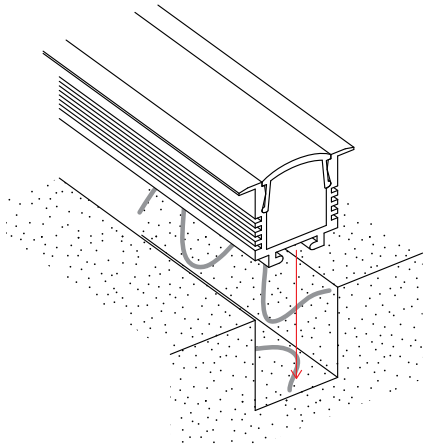
2. If applicable, slide shrink tube over connectors A1-B1 and apply heat. Shrink tube will shrink down completely to seal the connectors.



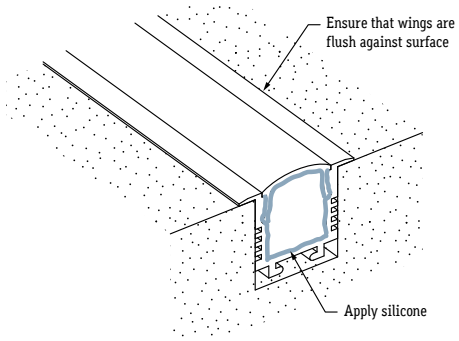
3. Apply adhesive (by others) as needed to inside of pre-cut recess.



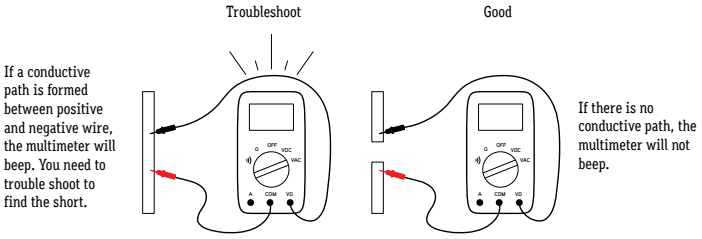
4. Install fixture into recess cut.



5. Ensure fixture is secured in place and flush, then apply silicone at both ends of each run to seal fixture.

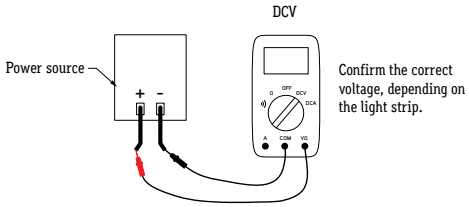


6. Conduct continuity test.

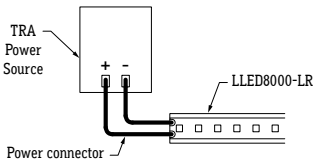


See page 8 for troubleshooting guide

7. Set voltmeter to DC voltage, then test power source before connecting.



8. Connect power source to power connector. If LEDs do not turn on, flip polarity (+, -) or power source connection to power connector.



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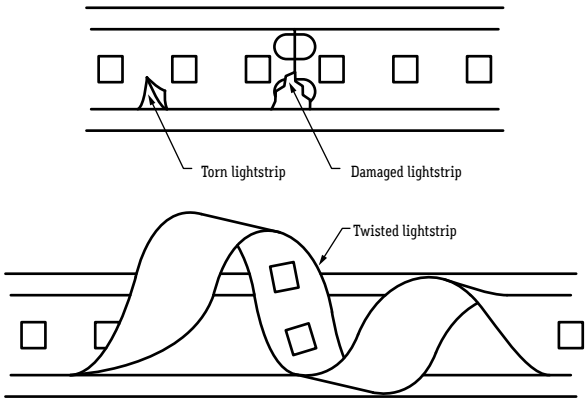
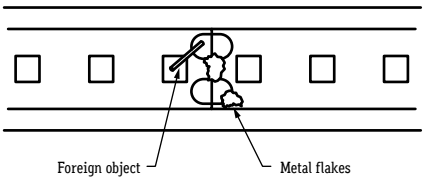
TROUBLESHOOT

- Do not reset breaker multiple times.
- If the unit is overloaded the breaker will trip shutting off the transformer and lights.
- If the breaker reset button has been held down by hand or any type of pressure (example: duct tape), or if the breaker has been reset multiple times without trouble shooting, the unit will:
  - Burn the transformer bobbin
  - Burn the thermal or magnetic breaker
  - Burn the primary or secondary wires due to high amperage caused by overload and/ or short circuit in line which will not allow the breaker to reset
  - Damage the lighting

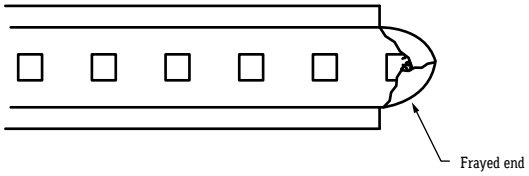
1. Turn off power before beginning. Check for any twisting or damage to the circuit in the LED lightstrip. If there is excessive damage and circuit is broken, the lightstrip must be replaced.



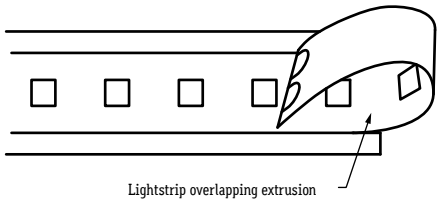
2. Check for metal particles or other foreign objects causing the short.



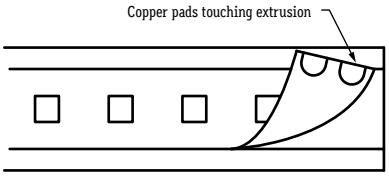
3. Check if cut is clean and not frayed, causing positive and negative copper pads to touch.



4. Ensure the run is not too long and overlapping.



5. Ensure copper pads are not making contact with aluminum extrusion.



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WATTS (VA) PER CIRCUIT (Maximum wire length to prevent voltage drop)

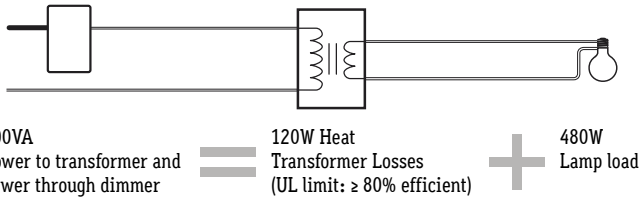
WIRE SIZE	VOLTAGE	40 VA	80 VA	120 VA	160 VA	200 VA	240 VA	260 VA	280 VA	300 VA	320 VA
14GA	12V	37'	18'	12'	9'	7'	6'	6'	5'	5'	4'
14GA	24V	75'	37'	25'	19'	15'	12'	12'	11'	10'	9'
12GA	12V	59'	29'	20'	15'	12'	9'	9'	8'	8'	7'
12GA	24V	118'	59'	39'	30'	24'	18'	18'	17'	16'	15'
10GA	12V	94'	47'	31'	23'	19'	14'	14'	13'	12'	12'
10GA	24V	188'	94'	63'	47'	38'	29'	29'	27'	25'	24'
8GA	12V	149'	74'	50'	37'	30'	23'	23'	21'	20'	18'
8GA	24V	299'	149'	100'	75'	60'	46'	46'	43'	40'	37'

TRANSFORMER CARE

- Do not submerge transformer in any liquid
- Do not leave any exposed wires
- Do not cover transformer without proper ventilation
- Do not install damaged transformer

MAGNETIC LOW-VOLTAGE DIMMER RATINGS

The stated VA (volt-ampere) rating is the rated capacity of the dimmer which includes the magnetic transformer heat losses and the lamp load. A transformer dissipates less than 20% of the connected load as heat. Added together,the lamp load and the transformer loss determine the dimmer capacity required. See the example below.



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CLEANING MATERIALS FOR LENSES AND EXTRUSIONS

The use of solvents and/or cleaners which are not compatible with polycarbonate will result in the softening, crazing, and/or cracking of the plastic part. This is especially true of polycarbonate lamps and mounting bases which may be under stress in their normal applications.

COMPATIBLE WITH POLYCARBONATE:

- Mild soap and water
- Mineral Spirits
- Isobutyl alcohol
- VM and P Naphtha
- Varsol No.2
- Mexane
- Freone TF and TE-35
- Ethanol
- Dirtex
- 2% Sol. Reg. Joy
- 10% Sol Bon Ami
- White Kerosene
- Methyl alcohol
- Heptane
- Petroleum Ether/65 degrees C
- Isopropyl alcohol
- Lacryl PCL-2035 polycarbonate cleaner

NOT COMPATIBLE WITH POLYCARBONATE

- Trichlor
- Gasoline
- ll Liquid Detergents
- Acetone
- Carbon Tetrachloride
- Pink Lux (Phosphate free)
- Triclene
- Chlorinated Hydrocarbons
- #1 & #3 denatured alcohol
- Methyl Ethyl Keytone (MEK)
- Texize-8006, 8129, 8758
- MIBK
- Liquid Cleaner – 8211
- Toluol
- Agitene
- Benzol
- Ajax
- Kleenol Plastics
- Lysol
- Stanisol Naphtha
- Oils
- Lemon Joy (phosphate free)
- Diversol
- Lestoil

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