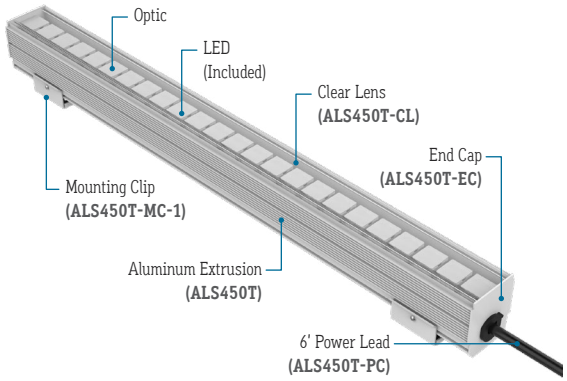
CALI CALIFORNIA ACCENT LIGHTING INC

ALS450T | INSTALLATION

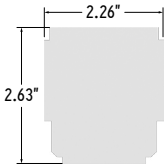
Overview



READ ENTIRE GUIDE BEFORE STARTING INSTALLATION

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

END VIEW



FEATURES	
APPLICATIONS	Wall Washing Lighting
LAMP TYPE	High Output LEDs (No Mercury)
CRI	>90
LENS	Clear, Frosted, or Semi-Frosted
OPTICS AND ASYMMETRIC	10°, 15°, 25°, 30°, 45°, 60°, or Asymmetric Optics
LENGTH	Built to Order
CONSTRUCTION	Aluminum Extrusion
WEIGHT	1.61 lbs per foot
MOUNTING	Mounting Clips (Sold Separately)
LISTING	Dry or Wet (IP65 or IP67) Location UL1598, CSA C22.2#250.0 UL8750, CSA250 UL2108, CSA C22.2 #9
INSTALLATION	Link to Installation Instructions
ELECTRICAL	
DIMMING	0-10V, Forward Phase, DMX, DALI
MAXIMUM RUN (Line Voltage Integral Drivers)	40' (3W, 6W) 35' (9W), 26' (12W), 21' (15W), 17' (18W)
MAXIMUM RUN (Class 2 Remote Drivers)	14' (3W), 7' (6W), 5' (9W), 3'6" (12W), 3' (15W), 2'6" (18W)
PRIMARY VOLTAGE	120V - 277V (UNV) or 120V (Phase Dimming Only)
SECONDARY VOLTAGE	24VDC
TEMPERATURE RATINGS	Operating / Startup: -20° to 48°C (-4° to 120°F) Storage: -40° to 76°C (-40° to 170°F)

PRODUCT INFORMATION

- Lighting for accent, cove, edge, display, or under cabinet
- Line Voltage or Low Voltage (integral or remote transformer drivers)
- Long life, energy efficient LEDs
- Choose from a variety of LED colors and whites
- Can be ordered to specific lengths for when exact dimensions are known
  Example: 10 x 10'6"
- Product is shipped in 8' max luminaires
- Four different mounting options available (custom mounting available upon request)

ELECTRICAL

- Line voltage fixtures do not require a remote driver
- Low voltage fixtures require a remote driver (transFORMER - TRA or TRA-E)
- To calculate transformer size, determine Watts per Foot.
  Example: 3W per Foot
- Determine Length in Feet.
  Example: 30'
- Calculate Load: Multiply Watts per Foot x Length in Feet
  Example: 3W x 30'= 90W
- Choose a transFORMER from catalog.
  Example: TRA150
- Determine maximum distance using Maximum Wire Length Table on transformer page.
  Example: 90 watts is at 90VA on the table. Using #14 wire, maximum distance is 51' from transFORMER to first LED.
- Maximum load per line voltage fixture is 320 watts per circuit
- Maximum load per low voltage fixture depends on size of driver
  Standard Output: 100 Watts Driver Maximum
  Mid Output: 100 Watts Driver Maximum
  High Output: 50 Watts Driver Maximum
- Maximum run for line voltage integral drivers
  40' (3W, 6W)
  35' (9W)
  26' (12W)
  21' (15W)
  17' (18W)

INSTALLATION RECOMMENDATIONS

- AlumLEDs can be mounted to sheetrock, concrete, or wood using proper mounting screws
- All wiring is enclosed inside aluminum housing
- Provide run lengths at time of order

INSTALLATION TOOLS REQUIRED

- Electric Hammer Drill
- 14.4 to 28 Volt Cordless Drill
- Phillips Bits
- Utility Knife
- Electrical Cord
- Marker
- Wire Stripper
- Long Nose Pliers
- Drill Bits - Concrete or Wood
- Electrical Three Ways
- Safety Glasses
- Measuring Tape
- Chalk Line

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Product Care & Maintenance

WARNING

When using alumLEDs for any application, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and personal injuries.
AlumLEDs 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:

- Ensure power is off before installation begins, during replacements, additions, or repairs.
- Do not use alumLEDs if damaged, such as broken boards, loose connections, or frayed wire insulation. Inspect before installing.
- Do not install alumLEDs in hazardous locations.
- Do not cover alumLEDs with any material. Covering may cause LEDs to overheat, melt, or ignite.
- 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 evenly painted with a neutral white to avoid color shift.
- Do not modify alumLEDs in the field.
- Do not overlap alumLEDs luminaires in any way. **(Fig. 1)**
- alumLEDs have line voltage risk of shock. Consult factory for any malfunctions. Do not attempt to repair.
- Only use alumLEDs with specified rated voltages. Do not exceed the specified voltage for any alumLEDs luminaire.
- Do not use alumLEDs extrusion as a raceway for additional wire. Non-factory feed through wires inside alumLEDs will void warranty.
- Ground Fault Circuit Interrupter (GFCI) protections should be provided on circuits or outlets when alumLEDs is used for outdoor applications.
- Surge protector must be set up for electrical power system to avoid damaging alumLEDs lighting system.
- Do not connect wires together, follow provided wiring diagrams.
- Do not cut wire while energized. **(Fig. 2)**
- Do not exceed maximum run lengths.
- Do not secure alumLEDs with nails or like means that might damage the wiring inside. Only secure by using mounting clips.
- Do not mount alumLEDs inside tanks or enclosures of any kind.
- Do not install downward facing luminaires without set screws.
- Do not use improper screw head type on mounting clips. It will cause the mounting clip to open up and become dysfunctional.
- Do not modify mounting clips.
- Do not mount fixture with less than the minimum number of mounting clips required. See mounting clips section for details.
- Do not force alumLEDs into a space that is too small.
- Do not force alumLEDs with cord grip into soffit. **(Fig. 3)**
- Do not install alumLEDs at an angle within a cove. Only install fixtures straight within a cove. **(Fig. 4)**
- Do not bend extrusion around radius.
- Do not submerge dry or wet location alumLEDs in any liquid.
- Do not install wet location in outdoor coves without proper drainage. **(Fig. 5)**
- Do not install alumLEDs in any area that is continuously exposed to flowing or pooling water, such as underneath drain pipes, sprinklers, fountains, misters, etc.
- Do not cut, puncture, or penetrate alumLEDs aluminum housing, end caps, or lens covers.
- Do not drop, bang, or rest weight upon alumLEDs.
- Do not apply excessive pressure to any part of alumLEDs.
- Do not remove end caps from alumLEDs.
- Do not bend alumLEDs power cord or continuous connector past permitted bend radius. Bending past permitted bend radius will break the seal of the cordgrip or damage the insulation. **(Fig. 6)**
  Wet Location: 3.5" minimum bend radius
  Dry Location: 1.5" minimum bend radius
- Do not install alumLEDs in places where the power cord is subject to continuous flexing.
- Do not twist continuous connector or power cord.
- Do not hold, carry, or suspend alumLEDs by the power cord.
- Do not install alumLEDs on ceilings without mounting clips and set screws. **(Fig. 7)**

FIGURES

Fig. 1

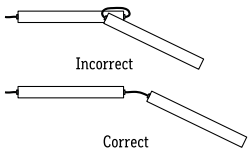


Fig. 2

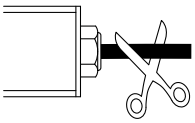


Fig. 3

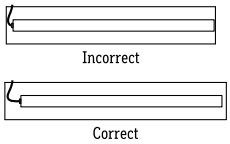


Fig. 4

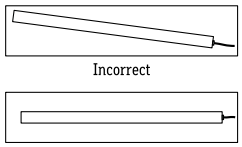


Fig. 5

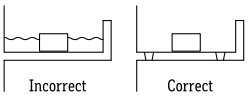


Fig. 6

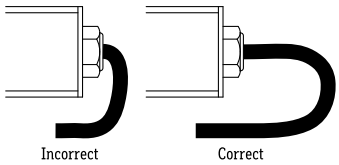
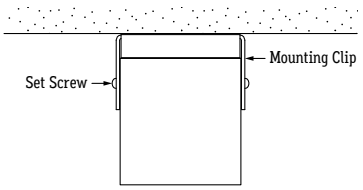


Fig. 7



CLEANING MATERIALS

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
- 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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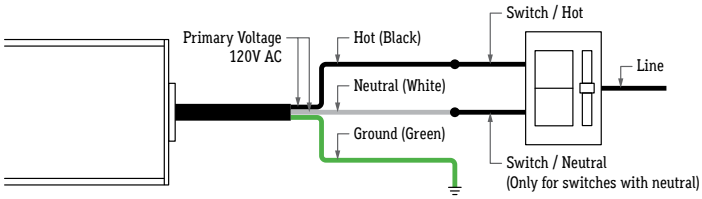
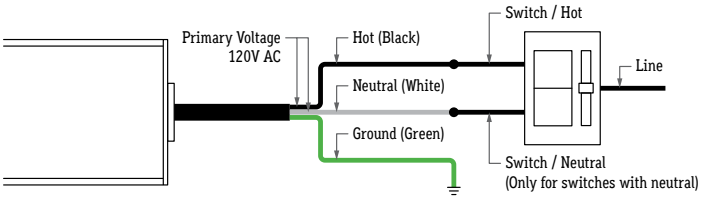
Wiring Diagrams (Integral Driver)

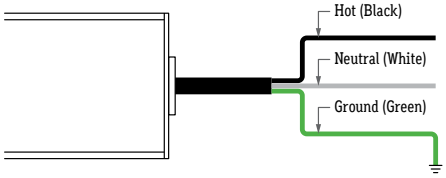
FORWARD PHASE WIRING DIAGRAM



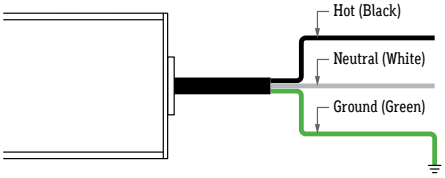
REVERSE PHASE WIRING DIAGRAM



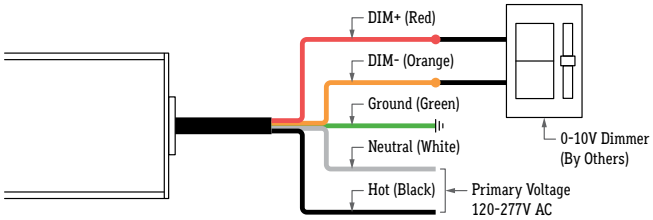
120V WIRING DIAGRAM



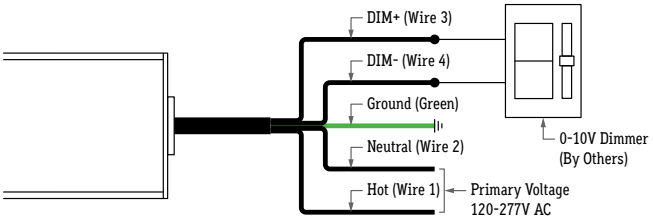
120-277V (UNV) WIRING DIAGRAM



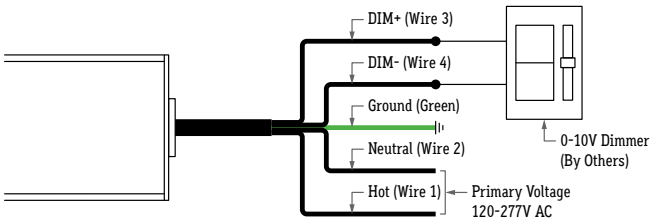
0-10V WIRING DIAGRAM (Dry Location)



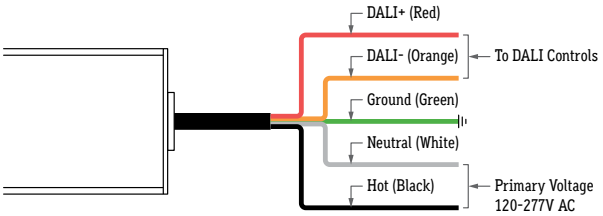
0-10V WIRING DIAGRAM (Dry Location: Side / Bottom Feed)



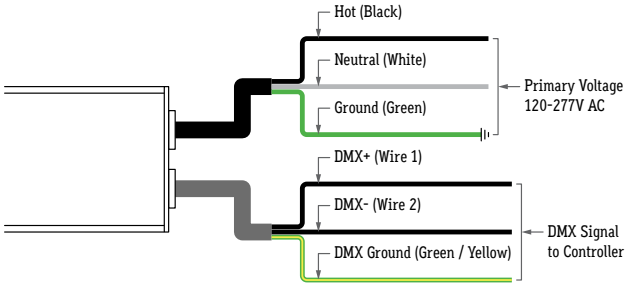
0-10V WIRING DIAGRAM (Wet Location)



DALI WIRING DIAGRAM



DMX WIRING DIAGRAM (Dry or Wet Location)



Note: Verify wire colors and wiring diagram from fixture before connecting. If there is a discrepancy, consult factory before connecting.

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Dimming Protocol & Wiring Diagrams (Forward Phase & 10V Remote Drivers)

FORWARD PHASE (FP) DIMMING PROTOCOL

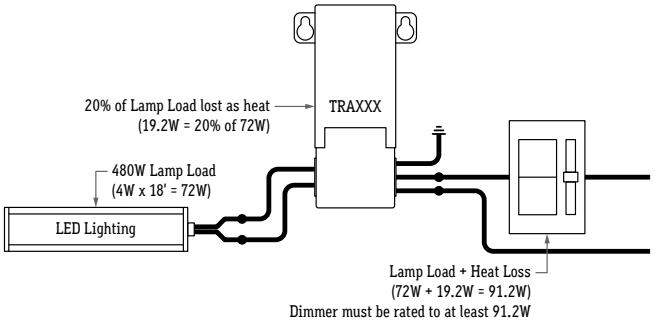
Technical Requirements For Control Equipment (Phase Dimming)

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

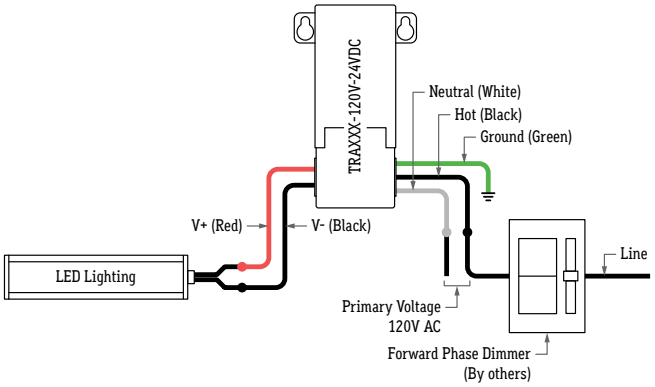
Symmetric Forward Phase-Control

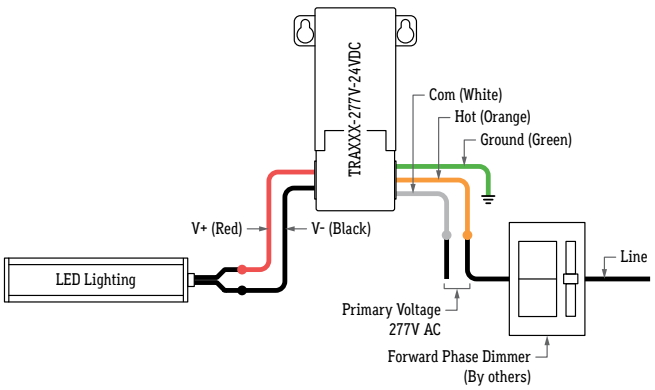
FORWARD PHASE DIMMER RATINGS

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. The lamp load plus the transformer loss determine the dimmer capacity required. See the example below.



FORWARD PHASE WIRING DIAGRAMS (Remote Driver)





0-10V (10V) DIMMING PROTOCOL

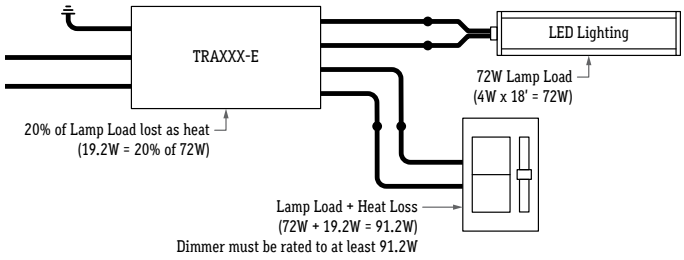
Available in 120 or 277 volts with either a dimmable integral or remote driver. The remote driver is available with 0-10V dimming capabilities. Consult factory for other dimming protocols available. The following applies to 0-10V dimming interfaces.
A 0-10V fluorescent dimmer will not dim the LEDs.

Technical Requirements For Control Equipment (0-10V Dimming)

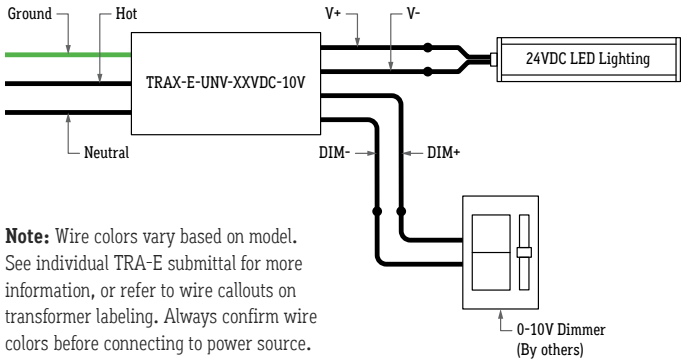
- The light output of the LEDs operated by the controllable LED driver is controlled by DC voltage applied to the control input leads (gray and violet). The actual response curve of LED driver current versus control voltage.
- The control device must be capable of accepting or sinking the DC current flow from the driver. The DC current from the driver that must be sinked by the control circuit is approximately 150uA (+/50% for isolated dim interfaces, up to 1.5mA for non-isolated dim interfaces).
- If the control bus is opened, or if the control device internally opens the control bus under some conditions, the voltage on the control bus will then be a function of the drivers, which is 10-15V. Maximum light output will be delivered under this condition.
- If the control bus is shorted either by a mechanical switch in the control or by the circuitry of the control device, or inadvertently in the wiring, the current on the control bus will be less than 1.5mA.
- As can be determined from the two items, simple two-level operation of the drivers can be achieved by proper usage and application of a simple open/closed switch on the control bus with maximum light being achieved when the switch is open and minimum light with the switch is closed.
- The driver is intended to be used with control voltages between 0-10VDC volts peak maximum on the driver control leads.
- Control equipment intended to control more than one driver must be capable of sinking the current supplied tot the control bus by the maximum number of drivers specified for the control device. At any given level setting it must maintain control bus voltage constant within a range of ±5% as the number of drivers connected to the control bus varies from a minimum of one driver up to the maximum number specified for the control device.
- Driver of various ratings may be mixed on the same control system.

0-10V DIMMER RATINGS

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



0-10V WIRING DIAGRAM (Remote Driver)



Note: Wire colors vary based on model. See individual TRA-E submittal for more information, or refer to wire callouts on transformer labeling. Always confirm wire colors before connecting to power source.

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Dimming Protocol & Wiring Diagrams (Lutron Hi-lume Remote Drivers)

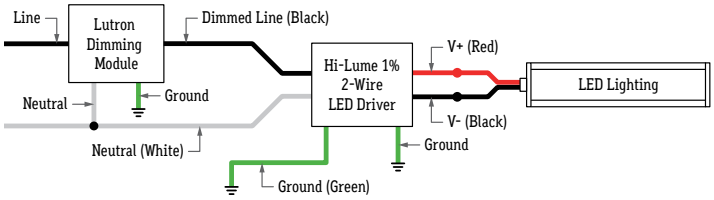
2-WIRE DIMMING PROTOCOL (Lutron LTEA)

Technical Requirements For Control Equipment (2-Wire Dimming)

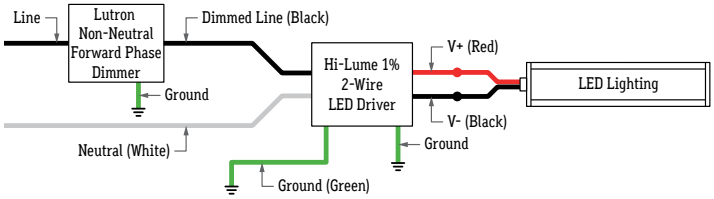
- The Hi-lume 1% 2-Wire LED Driver (LTEA2W) is a high performance LED driver that provides a smooth, continuous, flicker-free 1% dimming for virtually any LED fixture. Primary voltage is 120V and secondary side is 12VDC or 24VDC. A rated life time of 50,000 hours @tc -149°F (65°C). Inrush current: < 2A. Minimum operating temperature ta = 32°F (0°C).
- Continuous, flicker-free dimming from 100% to 1%. Guaranteed compatibility with selected Maestro Wireless, RadioRA 2, HomeWorks QS, GRAFIK Eye QS, GRAFIK Systems, Quantum, and C•L Dimmers.

LTEA 2-WIRE WIRING DIAGRAMS (JA8 Compliant)

Controls Requiring Neutral



Controls Not Requiring Neutral



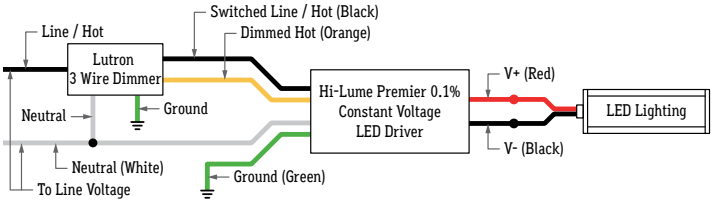
3-WIRE DIMMING PROTOCOL (Lutron L3D0)

Technical Requirements For Control Equipment (3-Wire Dimming)

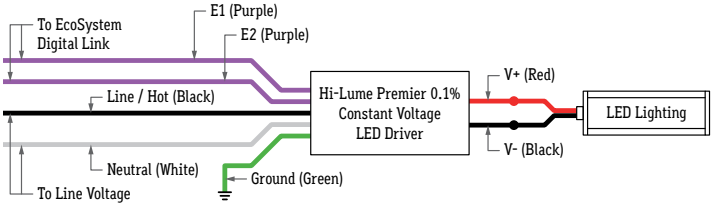
- Hi-lume Premier 0.1% EcoSystem / 3 Wire constant voltage 24V LED driver with Soft-on, Fade-to-Black. The Hi-lume Premier 0.1% Constant Voltage Driver (L3D0E) is a high-performance LED driver capable of controlling up to 96W of 24V constant voltage loads. This driver provides smooth and continuous dimming down to 0.1% low-end. It is ideal for use with strip lighting in applications such as coves, under or over cabinet lighting and pathway lighting. The driver is UL Listed with an integrated wiring compartment and can be mounted up to 150'away from the load.
- Continuous, flicker-free dimming from 100% to 0.1%
- Soft-on, Fade-to-Black operation for EcoSystem controls: fades smoothly between 0% and 0.1% when turned on and off for an incandescent like experience.
- PWM dimming meets IEEE1789 over the entire dimming range.
- UL Listed for United States and Canada (cULus®).
- NOM certified for Mexico.
- Field Adjustment Knob offers customer low-end light output tuning for better fixture-to-fixture matching.
- Guaranteed dimming performance when used with Lutron controls:
  - HomeWorks QS, Energi Savr Node units with EcoSystem controls, GRAFIK Eye QS with EcoSystem controls, PowPak with EcoSystem dimming modules, PowPak with EcoSystem wireless fixture controls, and Quantum systems, allowing for integration into a planned or existing EcoSystem lighting control solution.
  - Lutron 3-wire controls and interfaces.
- Protected from miswires of input power, up to 277 V~, to EcoSystem control inputs.
- Rated lifetime of 50,000 hours at 40 °C (104 °F) ambient temperature and maximum loading.
- FCC Part 15
  - Class A (277 V~)
  - Class B (120 V~)

L3D0 3-WIRE WIRING DIAGRAMS

3-Wire Controls



EcoSystem Digital Controls



Note: Colors shown on diagrams correspond to terminals on driver

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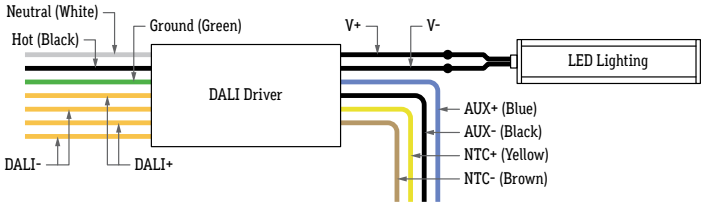
Dimming Protocol & Wiring Diagrams (DALI Remote Drivers)

DALI DIMMING PROTOCOL

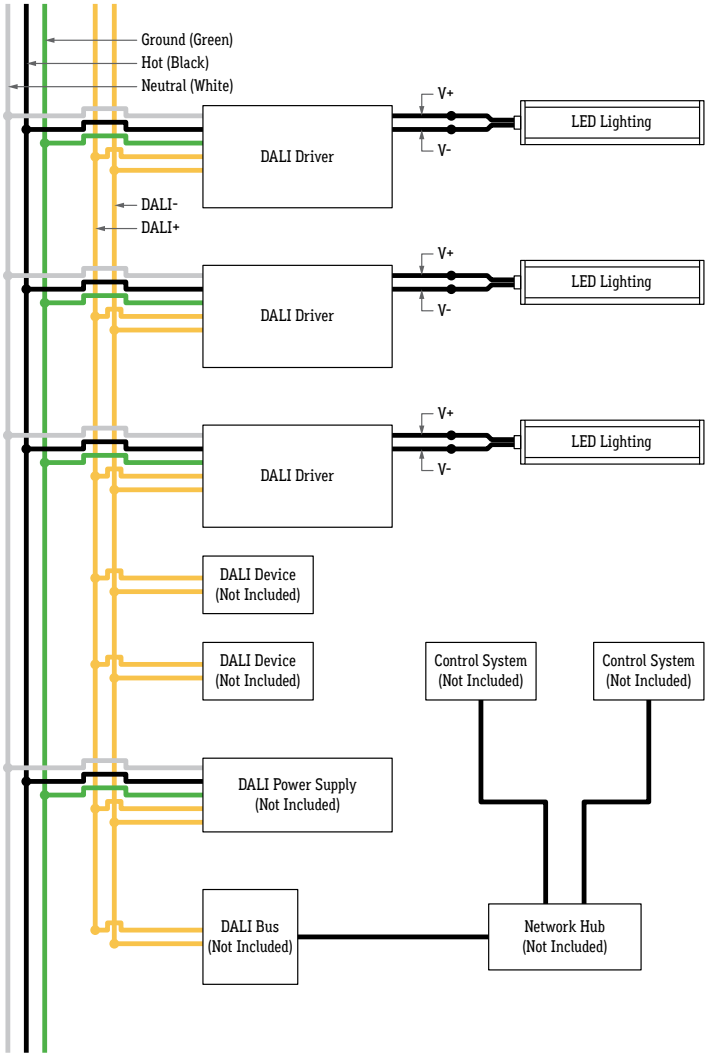
- Up to 64 devices can be supported on a single DALI network without using a DALI gateway
- DALI commissioning not included

DALI WIRING DIAGRAM



Note: Colors shown on diagrams correspond to terminals on driver

TYPICAL DALI BUS CONFIGURATION



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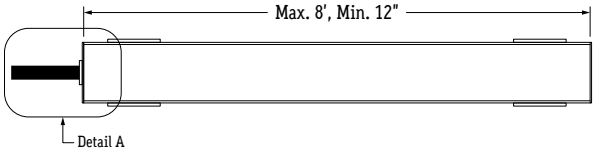
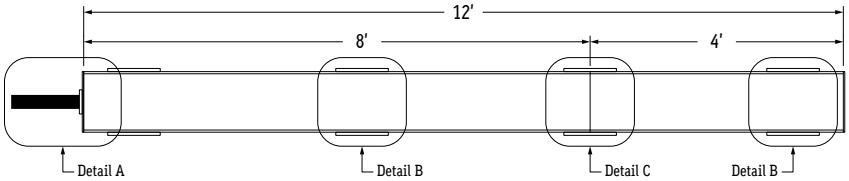
Design Guidelines

Note: Product appearance may differ from examples shown.

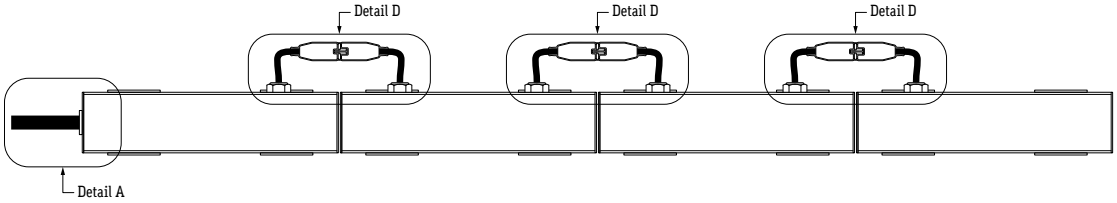
SINGLE RUN (Dry or Wet Location)



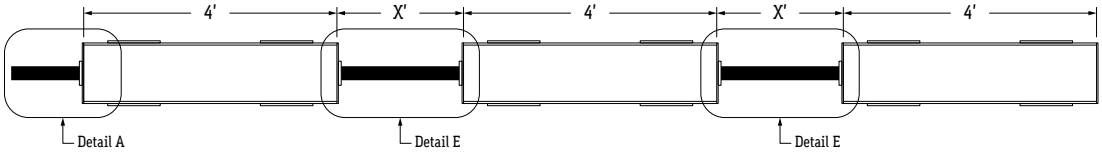
CONTINUOUS RUN (Dry Location)



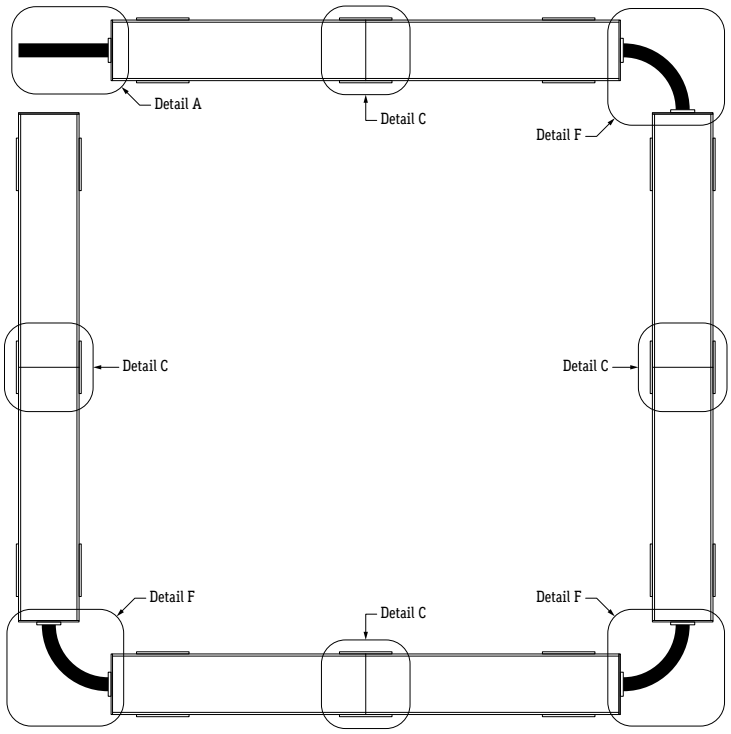
CONTINUOUS RUN (Wet Location)



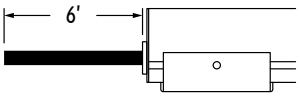
RUNS WITH JUMPER CABLE



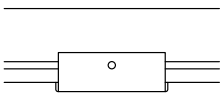
SQUARE RUN (Dry or Wet Location)



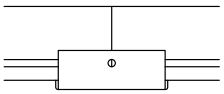
DETAILS



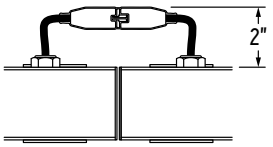
Detail A
Standard 6' power feed



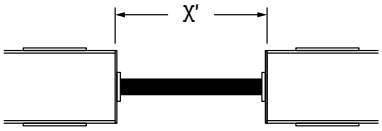
Detail B
Mounting Clip



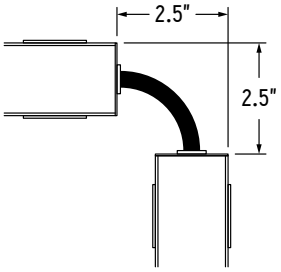
Detail C
Dry Location Continuous Connection



Detail D
Wet Location Continuous Connection



Detail E
Jumper Cable (X = Specified Length)



Detail F
Corner with 6" Jumper Cable

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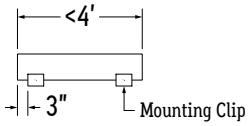
Mounting Clips

DRY LOCATION

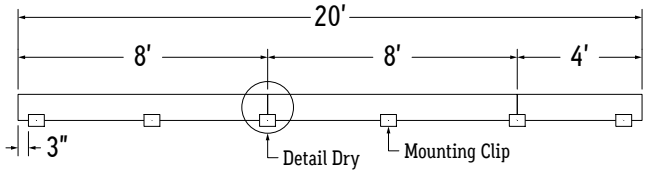
1. Measure area where luminaire will be installed. Use a chalk line to ensure a straight installation.

2. Mark location where mounting clips will be installed along chalk line.

3. Use 3 mounting clips every 8' or 2 if fixture is 4' or shorter.

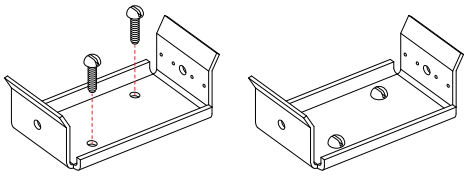


4. Use 1 mounting clips every 4' +1.
Example: 8' + 8' + 4' = 2 MC + 2 MC + 1MC + 1MC = 6 MC total.
Use a mounting clip at the joint between two fixtures (Detail Dry on page 9).

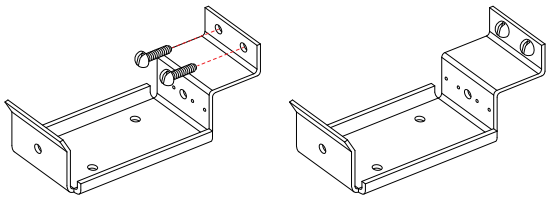


5. Lay mounting clips and pre-drill using proper drill bit for surface and screw size.
Recommendation: 8/32 x 1" screw.
Note: Allow 0.25" clearance for lateral expansion of assembled mounting clips.
Only install mounting clips on flat, even surfaces.

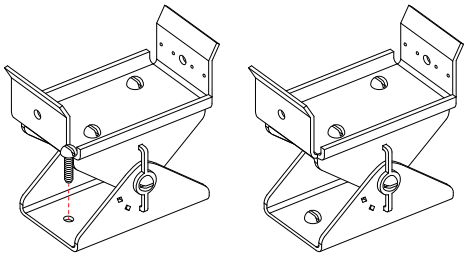
5a. Screw MC-1 mounting clips to surface, then snap fixture into mounting clips.



5b. Screw MC-2 mounting clips to surface, then snap fixture into mounting clips.



5c. Screw MC-3 mounting clips to surface, then snap fixture into mounting clips.

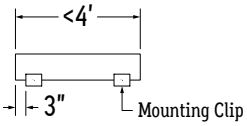


WET LOCATION

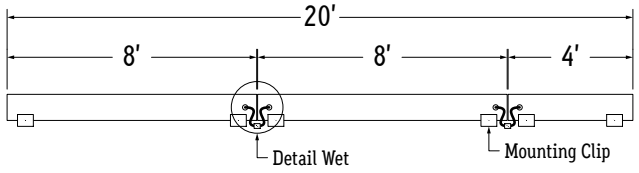
1. Measure area where luminaire will be installed. Use a chalk line to ensure a straight installation.

2. Mark location where mounting clips will be installed along chalk line.

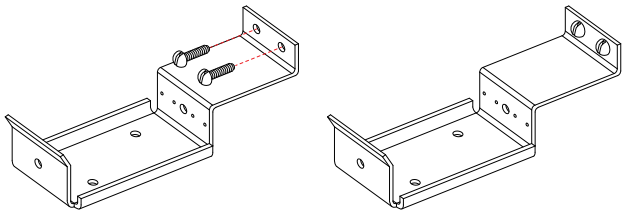
3. Use 3 mounting clips every 8' or 2 if fixture is 4' or shorter.



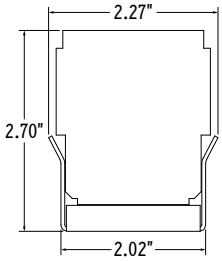
4. Use 2 mounting clips per fixture.
Example: 8' + 8' + 4' = 2 MC + 2 MC + 2MC = 6 MC total.
Push fixtures together at each connection until end caps touch (Detail Wet on page 10).



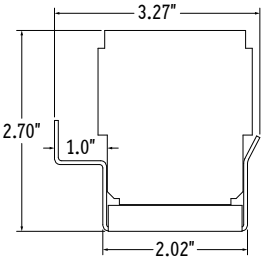
5d. Screw MC-4 mounting clips to surface, then snap fixture into mounting clips.



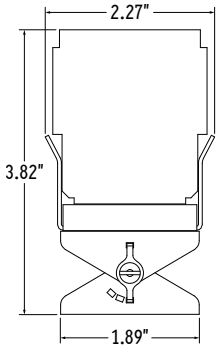
ASSEMBLED END VIEWS



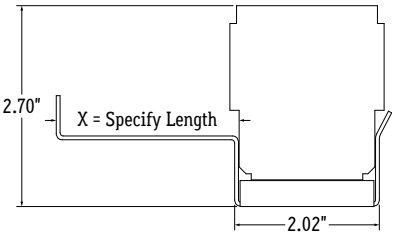
ALS450T-MC-1



ALS450T-MC-2



ALS450T-MC-3



ALS450T-MC-4-X

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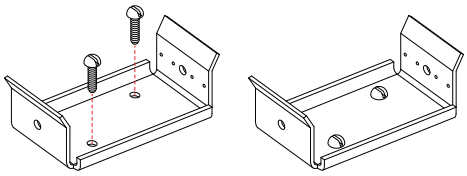
Mounting Fixture (Dry Location)

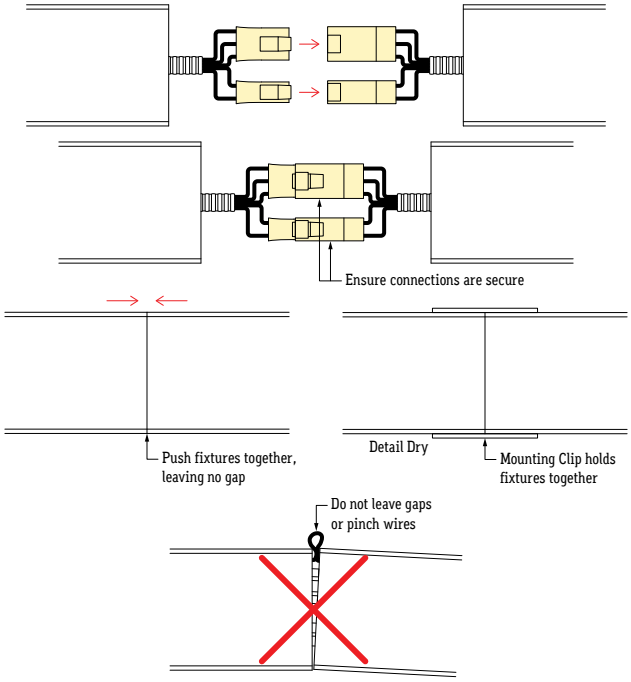
1. Measure area where fixtures will be installed. Use a chalk line to ensure a straight installation.

2. Mark location where mounting clips will be installed.
Note: The number of required mounting clips differs for dry and wet location products. Verify number of mounting clips is appropriate for installation environment before installing. Do not install fixtures with inadequate number of mounting clips.

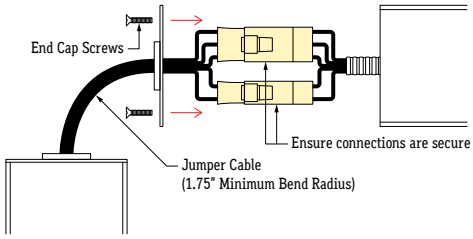
3. Lay mounting clips and pre-drill using proper drill bit for surface and screw size.
Recommendation: 8/32 x 1" screw.
Note: Allow 0.25" clearance for lateral expansion of assembled mounting clips. Only install mounting clips on flat, even surfaces.



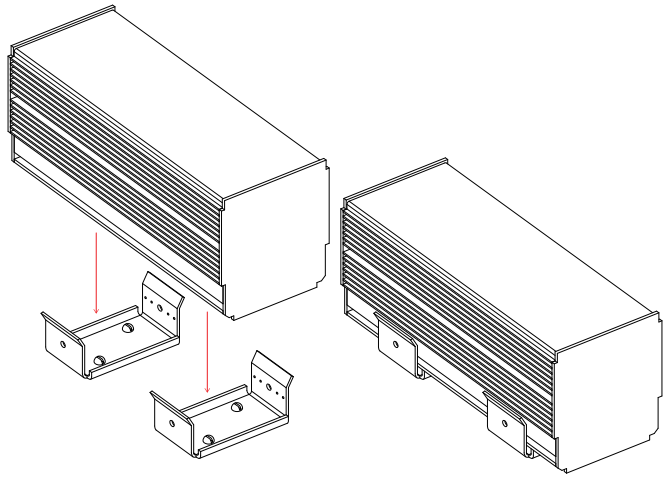
4. If applicable, connect disconnects between fixtures and push together, leaving no gap. Use a mounting clip at the joint between two fixtures.



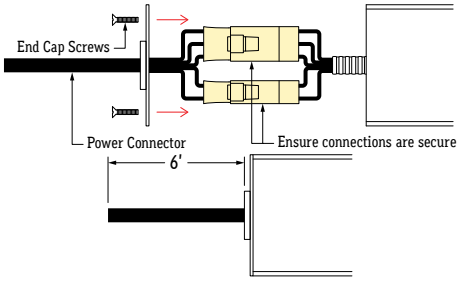
5. If applicable, connect jumper cable disconnects between fixtures. Install end cap screws to connect end cap to fixture.



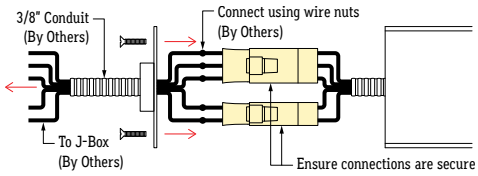
6. Screw mounting clips to surface, then snap fixtures into mounting clips.
Note: Set Screws required for downward and outward facing applications.



7. If applicable, connect power cord disconnects between fixtures. Install end cap screws to connect end cap to fixture.
Note: Standard luminaire provided with 1 factory installed 6' power cord and 1 end cap at the end of each run. Power cord is easily relocated by unscrewing end cap and undoing disconnects.



8. If applicable, connect power disconnects to J-Box. Use power conduit for hardwiring. Connect wires using wire nuts and cap off any unused wires. Ensure connections are secure, then install end cap screws to connect end cap to fixture.
Note: Wires, conduit, and conduit fitting for hardwiring supplied by others. Wires to be determined by installer in order to identify line voltage and 0-10V signal wires.



9. Perform continuity test steps on page 11 before connecting fixture to power source.

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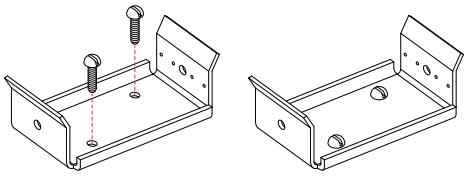
Mounting Fixture (Wet Location)

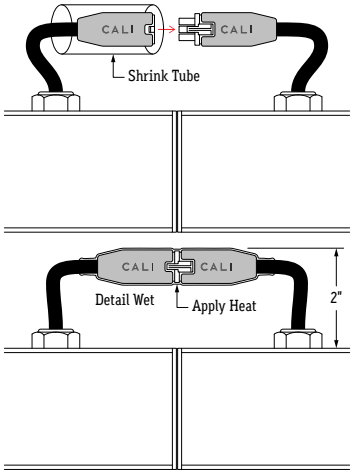
1. Measure area where fixtures will be installed. Use a chalk line to ensure a straight installation.

2. Mark location where mounting clips will be installed.
Note: The number of required mounting clips differs for dry and wet location products. Verify number of mounting clips is appropriate for installation environment before installing. Do not install fixtures with inadequate number of mounting clips.

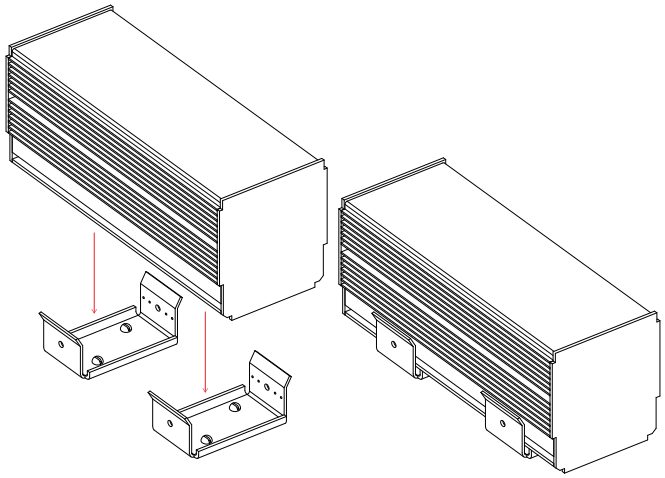
3. Lay mounting clips and pre-drill using proper drill bit for surface and screw size.
Recommendation: 8/32 x 1" screw.
Note: Allow 0.25" clearance for lateral expansion of assembled mounting clips. Only install mounting clips on flat, even surfaces.



4. Slide shrink tube over connectors and apply heat. The shrink tube will shrink down and seal the connectors. Apply silicone around sealed connectors for a stronger seal.



5. Screw mounting clips to surface, then snap fixtures into mounting clips.
Note: Set Screws required for downward and outward facing applications.



6. Perform continuity test steps on page 11 before connecting fixture to power source.

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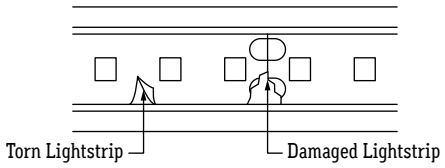
Troubleshooting & Continuity Test

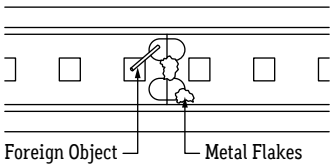
TROUBLESHOOTING TIPS

- Do not reset the 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, such as duct tape, or if the breaker has been reset multiple times without troubleshooting, 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
  - Short circuit in line which will not allow the breaker to reset
  - Damage the lighting

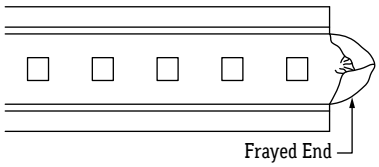
1. Turn off power before beginning. Check for any twisting or damage to the circuit in the LED lightstrip. If there is excessive damage and the circuit is broken, the lightstrip must be replaced.



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



3. Check to make sure cuts in the lightstrip are clean and not frayed, causing positive and negative copper pads to touch.



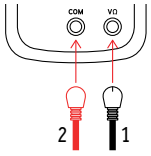
CONTINUITY TEST

A continuity test is performed to determine if electricity can pass through two points on an electrical circuit. This helps identify shorts or malfunctions in the line or fixture. Use a multimeter or continuity tester to perform the steps below.

- Always perform a continuity test before connecting lighting to power source.
- Malfunctions are not always as obvious as the lights not turning on.
- A short or malfunction in the line or fixture will cause damage over time, ultimately damaging the lighting and voiding warranty.

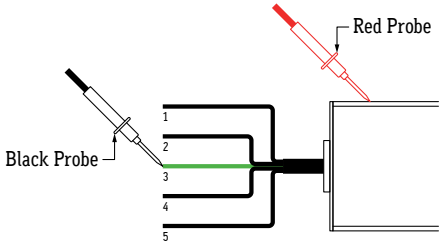
1. Turn power off before beginning. Verify power is turned off by using a non-contact circuit tester. Touch the probe of the tester to positive wire of the power source. The tester will light up if an electrical current is detected.

2. Setup your tester. First insert the black probe lead into the COM jack, then insert the red probe lead into the VΩ jack.

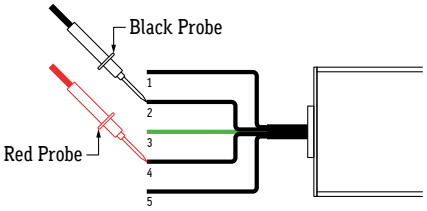


3. Verify that your tester is functional by touching probes together. The tester should light up, beep, or read 0Ω (ohms) of resistance.

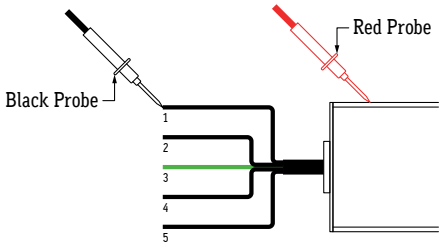
4. Touch the red probe to the fixture extrusion and the black probe to the ground wire (green). If the fixture is properly grounded, the multimeter will beep, flash, or read 0Ω (ohms). If there is no conductive path, the multimeter will not show any feedback. Troubleshoot to identify the malfunction in the ground wire.



5. Touch the red probe to a wire and the black probe to each other wire. Repeat for each wire. If a conductive path is formed between any of the wires, the multimeter will beep, flash, or read 0Ω (ohms). Troubleshoot to identify the malfunction in the line. If there is no conductive path, the multimeter will not show any feedback.
Example: Check for continuity between Wire 2 and Wire 4



6. Touch the red probe to the fixture extrusion and the black probe to each wire except ground. If a conductive path is formed between the extrusion and any of the wires, the multimeter will beep, flash, or read 0Ω (ohms). Troubleshoot to identify the malfunction in the line. If there is no conductive path, the multimeter will not show any feedback.



7. Set voltmeter to AC voltage and test power source. Confirm the correct voltage before connecting lighting to power source. If voltage reading is more than 1 volt higher than the marked output voltage, there is a problem with the power source or driver.

8. Connect power connector to power source. If LEDs do not turn on, troubleshoot to find the problem in the line.

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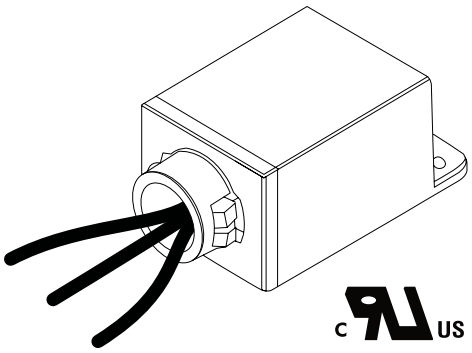
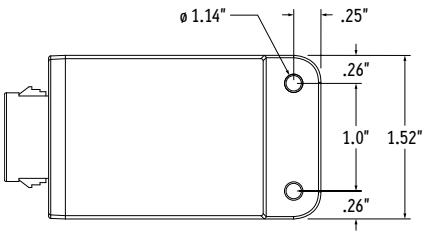
CALI CALIFORNIA ACCENT LIGHTING INC

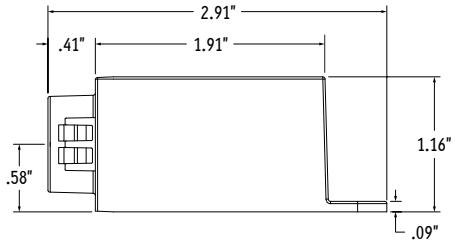
ALS450T | INSTALLATION

Surge Protector



CASE DIMENSIONS





SURGE PROTECTOR SPECIFICATIONS

MODEL	INPUT VOLTAGE	SURGE PROTECTION LEVEL	MOUNTING	ENCLOSURE MATERIAL	INPUT LEADS	INPUT FREQUENCY
ALS-SP	120V - 277V	10kV, 10kA, ANSI C62.41 Category C	SnapLOCK / Footed	Polycarbonate	6", 18AWG stranded, 105°C stripped, 3/8" tinned	60Hz

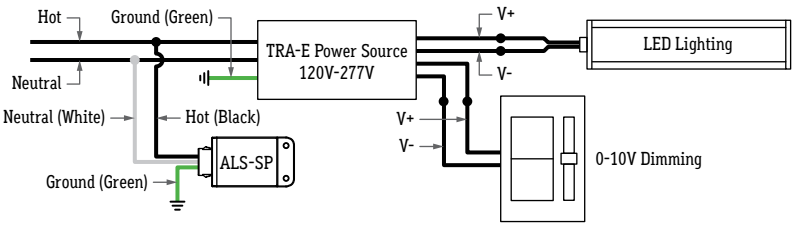
PRODUCT FEATURES

The Surge Series are 3-leaded devices that protect Line-Ground, Line-Neutral, and Neutral-Ground in accordance with IEEE / ANSI C62.41.2 guidelines. Protects against surges according to IE EE C62.41.2 C High (10kA and 10kV). Surge current rating = 10,000 Amps using industry standard 8/20 µSec wave. Surge Location Rated Category C3. UL Recognized Component in the United States and Canada (UL1449). Type 4 Surge Protection Device. High temperature, flame retardant plastic enclosure, 85°C maximum surface temperature rating. Thermally Protected Transient Over-voltage Circuit.

PRODUCT SPECIFICATIONS

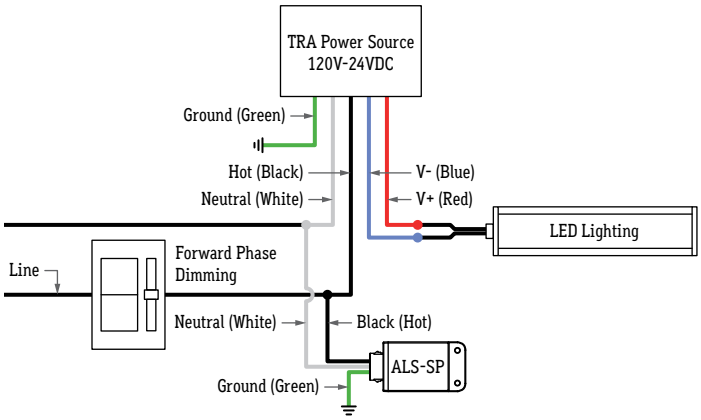
The Surge series of products are designed to be used in conjunction with LED Drivers and fixtures to provide an additional level of protection against powerline disturbances in industrial, commercial and residential applications where surge protection to IEEE C62.41.2 is required.

0-10V WIRING DIAGRAM (10V Dimming)

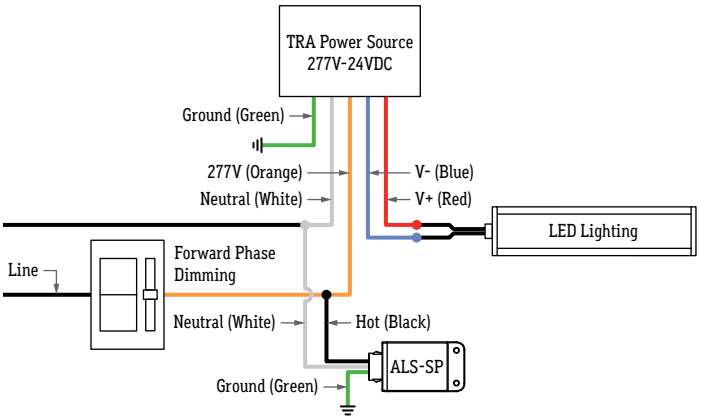


Note: Wire colors vary based on model. See individual TRA-E submittal for more information, or refer to wire callouts on transformer labeling. Always confirm wire colors before connecting to power source.

120V WIRING DIAGRAM (Forward Phase Dimming)



277V WIRING DIAGRAM (Forward Phase Dimming)



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ALS450T | INSTALLATION

Electronic Transformer Remote Driver (TRA-E)

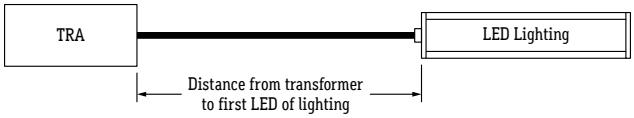
MAXIMUM RUN BASED ON 80% LOAD OF ELECTRONIC TRANSFORMER (TRA-E) MAXIMUM WATTAGE

TRANSFORMER WATTAGE	80% LOAD	1.5W MAX RUN	2W MAX RUN	2.5W MAX RUN	3W MAX RUN	3.6W MAX RUN	4W MAX RUN	4.5W MAX RUN	5W MAX RUN	5.5W MAX RUN	6W MAX RUN	6.5W MAX RUN
16	12.8W	8.5'	6.4'	5.1'	4.2'	3.5'	3.2'	2.8'	2.5'	2.3'	2.1'	1.9'
25	20W	13.3'	10'	8'	6.6'	5.5'	5'	4.4'	4'	3.6'	3.3'	3.1'
40	32W	21.3'	16'	12.8'	10.6'	8.8'	8'	7.1'	6.4'	5.8'	5.3'	4.9'
60	48W	32'	24'	19.2'	16'	13.3'	12'	10.6'	9.6'	8.7'	8'	7.3'
80	64W	42.6'	32'	25.6'	21.3'	17.7'	16'	14.2'	12.8'	11.6'	10.6'	9.8'
90	72W	48'	36'	28.8'	24'	20'	18'	16'	14.4'	13.1'	12'	11.1'
96	76.8W	51.2'	38.4'	30.7'	25.6'	21.3'	19.2'	17.1'	15.36'	13.9'	12.8'	11.8'
120	96W	64'	48'	38.4'	32'	26.6'	24'	21.3'	19.2'	17.4'	16'	14.7'
150	120W	80'	60'	48'	40'	33.3'	30'	26.6'	24'	21.8'	20'	18.4'
185	148W	98.6'	74'	59.2'	49.3'	41.1'	37'	32.8'	29.6'	26.9'	24.6'	22.7'
240	192W	128'	96'	76.8'	64'	53.3'	48'	42.6'	38.4'	34.9'	32'	29.5'
320	256W	170.6'	128'	102.4'	85.3'	85.3'	64'	56.8'	51.2'	46.5'	42.6'	39.3'

PREVENTING VOLTAGE DROP

The maximum wire length to prevent voltage drop refers to the wire that is used between the transformer and 1st LED of the lighting fixture. If the gauge wire is too small, the fixture will not receive correct voltage.

Example: LED luminaire requires 24VDC to operate effectively. If the wire gauge is too small to carry the 24VDC current from the transformer, the voltage can shrink to 16VDC, which is insufficient to power the lighting.



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

WIRE SIZE	VOLTAGE	16 VA	25 VA	40 VA	60 VA	80 VA	90 VA	96 VA	120 VA	150 VA	185 VA	240 VA	320 VA
14GA	12V	46'	42'	37'	32'	28'	25'	23'	21'	18'	16'	11'	4'
14GA	24V	93'	84'	75'	66'	56'	51'	47'	42'	37'	33'	23'	9'
12GA	12V	74'	66'	59'	52'	44'	40'	37'	33'	29'	26'	18'	7'
12GA	24V	147'	132'	118'	103'	89'	81'	74'	67'	59'	52'	37'	15'
10GA	12V	117'	106'	94'	82'	71'	65'	59'	53'	47'	41'	30'	12'
10GA	24V	235'	211'	188'	165'	141'	129'	118'	106'	94'	83'	59'	24'
8GA	12V	186'	168'	149'	130'	112'	102'	93'	84'	74'	65'	46'	18'
8GA	24V	374'	336'	299'	262'	224'	205'	187'	168'	149'	131'	93'	37'

TRANSFORMER CARE

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

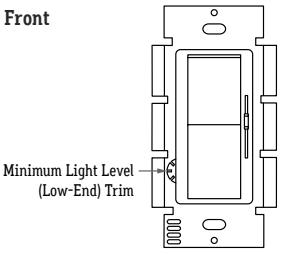
MOUNTING INSIDE AN ENCLOSURE

- Only mount drivers inside enclosures rated for your application
- Always ground drivers to enclosure
- Do not mount drivers without an enclosure
- Use enclosure knockouts and water-tight cordgrips when applicable

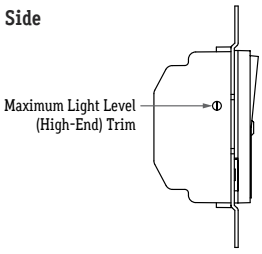
DIMMER TRIM VALUES

- Set dimmer trim value as needed to prevent flickering and irregular dimming
- **Note:** Review dimmer specs for trim value adjustment

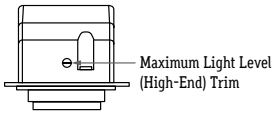
Front



Side



Bottom



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CALIFORNIA ACCENT LIGHTING INC

ALS450T | INSTALLATION

Magnetic Transformer Remote Driver (TRA)

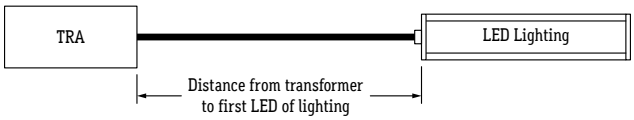
MAXIMUM RUN BASED ON 80% LOAD OF MAGNETIC TRANSFORMER (TRA) MAXIMUM WATTAGE

TRANSFORMER WATTAGE	80% LOAD	1.5W MAX RUN	2W MAX RUN	2.5W MAX RUN	3W MAX RUN	3.6W MAX RUN	4W MAX RUN	4.5W MAX RUN	5W MAX RUN	5.5W MAX RUN	6W MAX RUN	6.5W MAX RUN
5	4W	2.6'	2'	1.6'	1.3'	1.1'	1'	0.8'	0.8'	0.7'	0.6'	0.6'
10	8W	5.3'	4'	3.2'	2.6'	2.2'	2'	1.7'	1.6'	1.4'	1.3'	1.2'
20	16W	10.6'	8'	6.4'	5.3'	4.4'	4'	3.5'	3.2'	2.9'	2.6'	2.4'
35	28W	18.6'	14'	11.2'	9.3'	7.7'	7'	6.2'	5.6'	5.1'	4.6'	4.3'
40	32W	21.3'	16'	12.8'	10.6'	8.8'	8'	7.1'	6.4'	5.8'	5.3'	4.9'
50	40W	26.6'	20'	16'	13.3'	11.1'	10'	8.8'	8'	7.2'	6.6'	6.1'
60	48W	32'	24'	19.2'	16'	13.3'	12'	10.6'	9.6'	8.7'	8'	7.3'
75	60W	40'	30'	24'	20'	16.6'	15'	13.3'	12'	10.9'	10'	9.2'
90	72W	48'	36'	28.8'	24'	20'	18'	16'	14.4'	13.1'	12'	11.1'
150	120W	80'	60'	48'	40'	33.3'	30'	26.6'	24'	21.8'	20'	18.4'
200	160W	106.6'	80'	64'	53.3'	44.4'	40'	35.5'	32'	29.1'	26.6'	24.6'
250	200W	133.3'	100'	80'	66.6'	55.5'	50'	44.4'	40'	36.3'	33.3'	30.7'
300	240W	160'	120'	96'	80'	66.6'	60'	53.3'	48'	43.6'	40'	36.9'

PREVENTING VOLTAGE DROP

The maximum wire length to prevent voltage drop refers to the wire that is used between the transformer and 1st LED of the lighting fixture. If the gauge wire is too small, the fixture will not receive correct voltage.

Example: LED luminaire requires 24VDC to operate effectively. If the wire gauge is too small to carry the 24VDC current from the transformer, the voltage can shrink to 16VDC, which is insufficient to power the lighting.



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

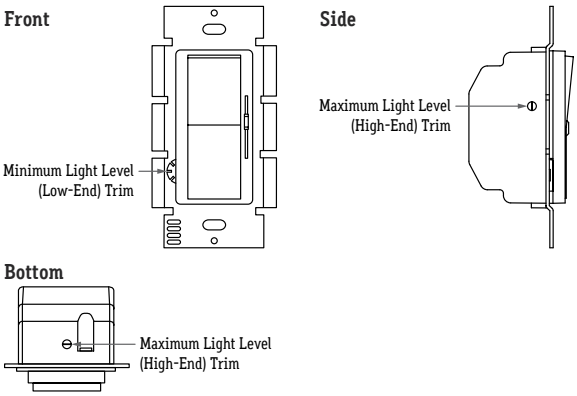
WIRE SIZE	VOLTAGE	5 VA	10 VA	20 VA	35 VA	40 VA	50 VA	60 VA	75 VA	90 VA	150 VA	200 VA	250 VA	300 VA	500 VA	600 VA
14GA	12V	51'	49'	44'	39'	37'	35'	32'	30'	25'	18'	14'	9'	7'		
14GA	24V	103'	98'	89'	80'	75'	70'	66'	61'	51'	37'	28'	18'	14'		
12GA	12V	81'	76'	70'	63'	59'	55'	52'	48'	40'	29'	22'	14'	11'		
12GA	24V	162'	155'	140'	125'	118'	111'	103'	96'	81'	59'	44'	29'	22'		
10GA	12V	129'	123'	112'	100'	94'	88'	82'	76'	65'	47'	35'	24'	18'	7'	4'
10GA	24V	258'	247'	223'	200'	188'	176'	165'	153'	129'	94'	71'	48'	36'	15'	9'
8GA	12V	205'	196'	177'	158'	149'	140'	130'	121'	102'	74'	55'	37'	27'	12'	7'
8GA	24V	411'	392'	355'	318'	299'	280'	262'	243'	205'	149'	112'	75'	55'	24'	14'

TRANSFORMER CARE

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

DIMMER TRIM VALUES

- Set dimmer trim value as needed to prevent flickering and irregular dimming
- **Note:** Review dimmer specs for trim value adjustment



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