

# Cutting & Installation

# Light Tape® Safety & Handling

## Safety:

- Never power on and leave Light Tape® in a coil. Unroll first before switching on.
- Always consult local electrical codes for wiring regulations and installation requirements.
- Light Tape® should be covered with a protective overlay if installed within direct reach of the general public.
- Always seal Light Tape® lamp with Edge Guard™ end seal tape when cut. Exterior rated Light Tape® must only be cut and sealed in factory.
- Do not make electrical connections when Light Tape® is turned on.
- Do not operate Light Tape® without protective insulating lamination due to risk of shock. Install in dry conditions. Do not cut or expose open ends to moisture.
- Smart Driver™ power supplies are equipped with overload and short circuit protection. If trip occurs during operation, please inspect Light Tape® for damage, and operating voltage is within correct range.
- Do not operate your Smart Driver™ outdoors unless in a suitably rated enclosure. Ensure installation in a dry environment.

## Handling:

- Do not step on Light Tape® during installation. Keep Light Tape® off the floor or any rough surfaces during installation.
- Do not pull on the connector and/or Tab when installing or removing.
- Only install in dry conditions. Do not cut or expose open ends to moisture.
- Take care to not damage lamination when installing around sharp edges or corners. Avoid the use of any sharp objects to force lamp into tight areas.
- Avoid any hard creases. Do not fold, twist, rotate, or kink lamination excessively.
- Do not stretch, puncture, or hard crease Light Tape® in a tight radius, as this will destroy conductive layers causing black spots or failure.
- Do not operate lamp outdoors during peak daylight hours for extended periods as it may be damaged by UV rays.
- Do not thermoform or stretch Light Tape® over objects.
- When cleaning Light Tape® or Smart Driver™, do not use water or chemical cleaners.
- Do not staple or puncture through Light Tape® or the protective lamination. Take care around screw heads or other sharp protruding objects.

## General Installation Guidelines:

- Follow all installation guidelines from Electro-LuminX. Please visit our website [www.lighttape.com](http://www.lighttape.com) for additional information.
- Please read all instructions prior to installation. Contact your regions tech support with any questions.
- When unpacking, please review all contents on the packing list and immediately notify us of any missing or damaged items.
- There is a front and back of Light Tape®. The gray colored side with a white line down the middle is the back, and non-illuminating side.
- Do not mount using an epoxy, silicone, or other exothermic curing adhesives, as they may damage the conductive layers. We recommend 3M double sided tapes. Please contact us for additional information.
- If mounting near a wet area, please provide suitable protection from pooling water. Ensure there are no standing water conditions, and provisions for drainage are made.
- Light Tape® can be mounted outdoors, however should not be operated in direct sunlight. This will shorten the life of the lamp. Use a photo-cell to prevent the Light Tape® from operating in peak daylight hours.
- Always mount in extrusion or approved system for outdoor installations. It is important to allow for the thermal expansion coefficients of exterior surfaces. Both sides of Light Tape® must remain free to move with changing ambient temperatures.
- Do not mount Light Tape® or Smart Driver™ directly to resonant surfaces such as metal, as this may produce amplified harmonics. We recommend mounting to a cork, or foam layer completely covering the subsurface.
- Light Tape® is non-polar, each hemisphere requires its own lead from the power supply. Multiple Light Tape® pieces must be installed in parallel.
- The Smart Driver™ to be selected based on total load. One Smart Driver™ can light multiple Light Tape® pieces. Do not under load or over load the Smart Driver™
- Do not power up the Smart Driver™ without having the proper load applied.
- The Smart Driver™ should be set to 270V AC output. This will help maximize lifetime of the lamp.
- Always mount the Smart Driver™ vertically (with the fan facing up) if the model has a fan to allow proper air circulation.
- Always store electronics in dust free environments to ensure proper performance.

# Indoor Installation Tips



1. Clean surface with isopropyl alcohol to remove all dust, oil and grease. Surface should be smooth and clean for strong adhesion.
2. Determine where you will make the electrical connection. It is important to consider the connector and cap lengths. The conductive electrodes can be located behind the Light Tape®. We recommend all electrical connections are made in a suitably rated junction box. Always consult local electrical codes for wiring regulations and installation requirements.
3. Mount in a manner that allows the LightTape® to be easily serviced (i.e. wall studs behind sheet rock wall). Do not step on Light Tape® during installation. Avoid hard creases. We recommend using our VibraMount™ adhesive as a backing when indoors. Place adhesive on wall, trim to size if needed, and remove liner.
4. Hide the connector. The conductive electrodes are essentially flat conductors. Be care not to rip the surrounding lamination around the lamp; lamination can be trimmed around the tabs if needed. Ensure a sufficient lamination border surrounding the connection tabs.
5. Be very careful when applying Light Tape®, make sure the coiled lamp is straight before you start to unroll. Once it has been applied, pulling Light Tape® off without care may damage the lamp.

## Please note:

For larger panels, it is easier to unroll the Light Tape® into place. Begin with the connector end, make sure the leading edge is square, and slowly unroll the panel into position.

## Remote Power Supply Installation

Sometimes, the power supply must be located far from the lamps. In this case, shielded conduit may be required to protect against high frequency and high voltage.

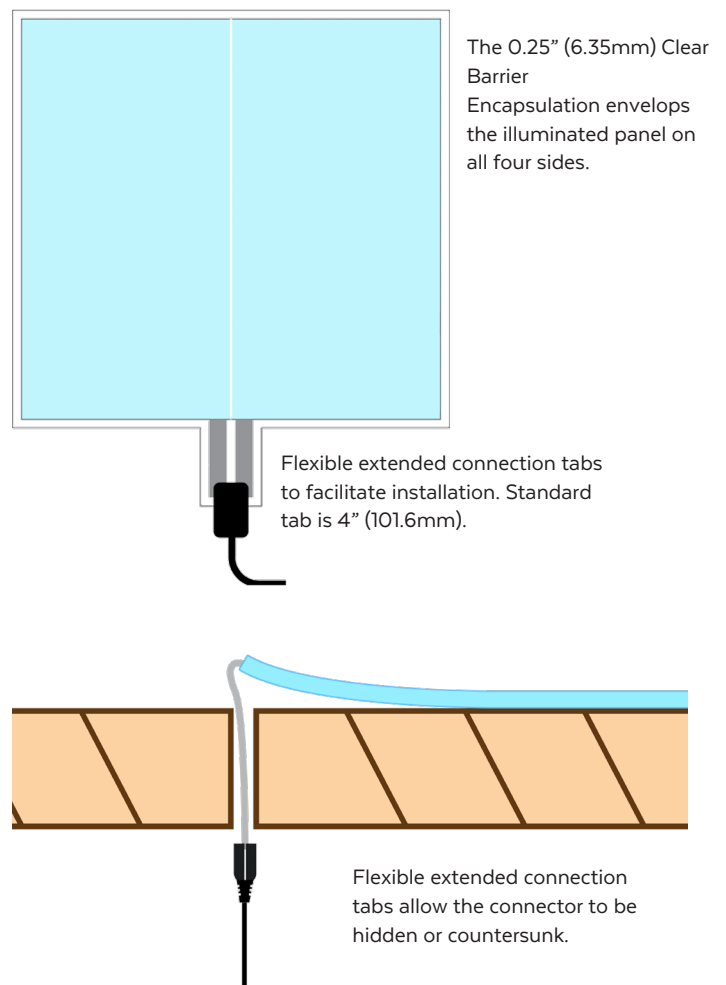
- A suitably rated enclosure is required to store power supply when located outdoors to ensure protection against the elements.
- 50 foot connection radius - it is possible to install the Light Tape® up to 50 feet (15.25m) from the Smart Driver™ Power Supply. Multiple connections are possible from one central location.
- Electrical Metallic Tubing (EMT) conduit is required to shield the high voltage and high frequency AC signals for remote installations. All wiring should be within a conduit and 600 volt rated.
- Always consult local electrical codes for wiring regulations and installation requirements.

# Installing Panels for Backlighting

It is important to consider the following when installing large panels for backlighting

- Light Tape® panels utilized for backlighting are equipped with extension tabs. The tabs are designed to position the electrical connection under the mounting surface.
- Light Tape® panels do not have polarity (+ or -)
- Multiple panels, connected in parallel, can be powered by a single Smart Driver™ lighting ballast.
- Do not crease or hard fold Light Tape®, keep out of work area until ready to install. Ensure it is placed on a clean, smooth surface.
- Plan panel placement before adhering to surface with foam adhesive panels.
- Do not mount Light Tape® or Smart Driver™ directly to resonant surfaces such as metal, as this may produce amplified harmonics. Please note, audible harmonics will be minimised once Light Tape is secured and installation is complete.
- In many cases, very little adhesive is necessary to hold light tape® in position. Please note, LightTape® is designed for compressive loading only, tensional and shear loads must be avoided.

1. To test the backlighting layout, lay the Light Tape® panels on the surface of the substructure. Adjust the placement of the Light Tape® panels to make sure the entire surface area is covered and there are no seams. It is acceptable for the Light Tape® panels to overlap if necessary, to maintain light uniformity.
2. Once preliminary test layout is complete, identify the position of any clearance cutouts required to conceal the connector into the substructure. Then remove all Light Tape® panels prior to creating the cutout/s.
3. Remove release paper from one side of the foam adhesive and adhere into place on the subsurface.
4. Feed the connectors and leads through the cutouts and connect all leads in parallel to the Smart Driver™ power supply. The Light Tape® panels utilized for backlighting are equipped with flexible extension tabs to allow for concealed connections.
5. Peel off release paper from the other side of the foam adhesive.
6. Making sure to replicate preliminary layout, begin to mount the Light Tape® panels. Starting with connector end, unroll panel in a straight path being careful to avoid bumps or ridges, ensuring the Light Tape® is flat to the surface.
7. Once first panel is set in place, continue placing panels one by one until surface is covered, overlapping adjoining panels to cover entire surface area.
8. Test operation of the Light Tape® panels once all are installed and connected to corresponding power supplies prior to installation of the final backlit surface.

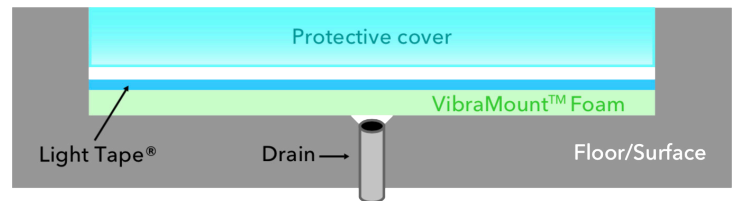


# Floor Installation

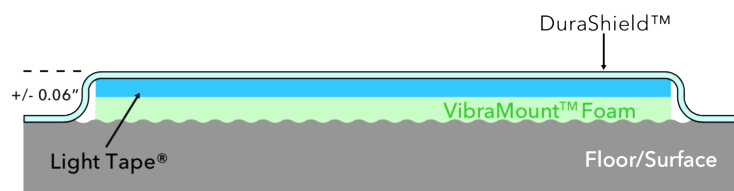
Light Tape® lamps have tremendous impact resistance which makes them difficult to damage. Weight is not an issue, but it is important to protect Light Tape® from abrasion, puncture, and sharp objects which can damage the barrier lamination. However, there are several simple methods you can use to install Light Tape® for years of service.

## Permanent Flush Mount (More than 1 year)

Flush mounting for a seamless integration. A channel is cut into the surface to hold the Light Tape® lamp and protective lens. The protective cover can be made of glass or plastic such as polycarbonate and is placed on top of the Light Tape®. The channel holding the Light Tape® should be smooth and free of debris, a Vibramount insulating adhesive can be added if not.



For exterior or wet applications, we recommend sealing around the edge of the channel to prevent moisture from entering. Factory sealed exterior lamination and exterior connections are required to protect the Light Tape®. A drain may be required to remove standing water.



## Short Term Installation (Less than 1 year)

For **Rough Surfaces**, use Vibramount™ double sided adhesive foam between floor and back of lamp.



For **Smooth Surfaces**, Light Tape® can be applied directly to the floor surface, and covered with DuraShield adhesive tape.

When installing Light Tape® and adhesive tape, it is critical that the mounting surface is cleaned according to these guidelines to get good adhesion. Failure to fully comply with these directions will result in poor adhesion to the mounting surface.

- Surfaces should be clean and dry and free from any loose dirt and dust.
- If attaching to a hard surface, a quick cleaning with a 50/50 mixture of water and Isopropyl Alcohol (90% concentration) in a spray bottle, will remove any loose surface dust and oily residue from the surface.
- Cleaners such as Windex, Formula 409, denatured alcohol, lacquer thinner and other solvents should not be used as they will leave an invisible film behind that will prevent the adhesive from properly bonding to the surface.

# Mounting Materials

## Adhesives

### Light Tape® Edge Guard™

A moisture resistant clear tape for interior applications for protective sealing against electric shock.

### Light Tape® VibraMount™

Designed to easily secure Light Tape® panels to almost any surface while eliminating vibration, VibraMount™ is a double sided adhesive foam core material available in tileable panels.

### Durashield 511 overlay series

A 3M® 4195C/EZ Polyethylene Protective Tape is perfect for exhibitions, museums and temporary events. It protects Light Tape™ from side scuffing, abrasion and impact while on temporary installations of a few weeks

### Durashield 471

(3M® 471 for floor marking) is designed for more heavy duty industrial or permanent applications such as factory floors. Both materials were developed by 3M® to deliver the perfect Light Tape adhesion and barrier for floor applications.

### VHB

Designed to secure Light Tape® strips to almost any surface while eliminating vibration, VHB is a double sided adhesive foam core tape. Clear core is available in 0.5" (12.7mm) and 1" (25.4mm) and black core 60 mil (1/16" / 1.6 mm) is available in widths up to 24" (609.6mm) for large panel installations. Also, it provides impact resistance on uneven surfaces.

## Protective sealants

### 3M® DP-100+ epoxy

A two part epoxy system offering fast cure and machinability. It is easily mixed and meets UL 94. Perfect potting compound for outdoor connections.

### Light Tape® shrink tube

A heat-forming tube used in conjunction with our outdoor Snap-N-Light™ mounting system to form a moisture barrier and secure connector to channel.





# Installing Corners or Bends

## Create a Curve

Form Light Tape® into a soft bend. Do not flatten to create a hard bend.

## Indoor

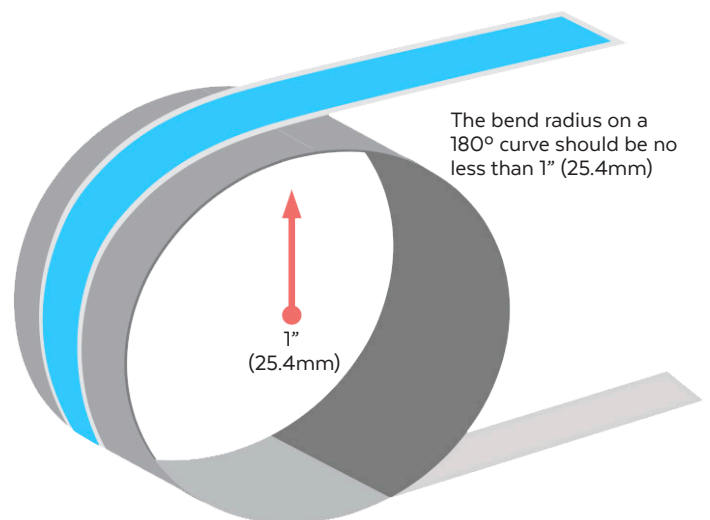
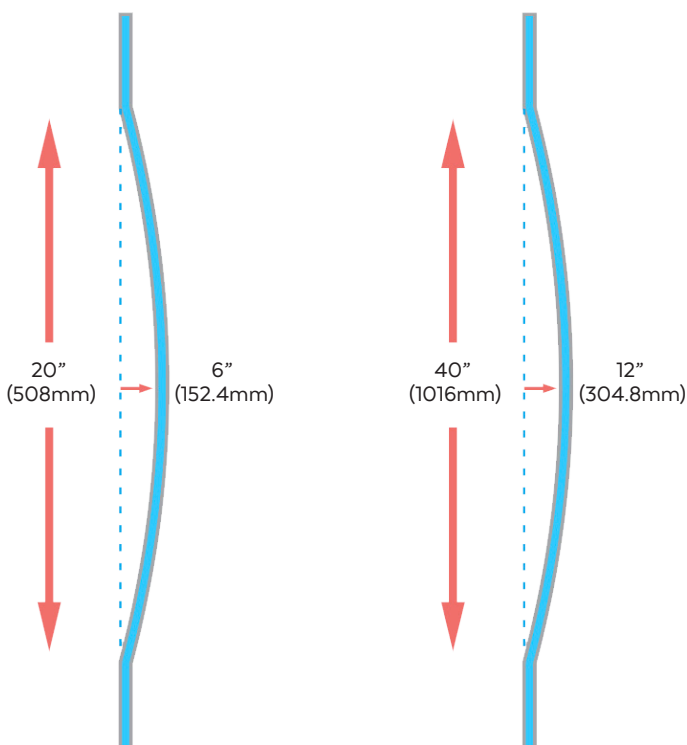
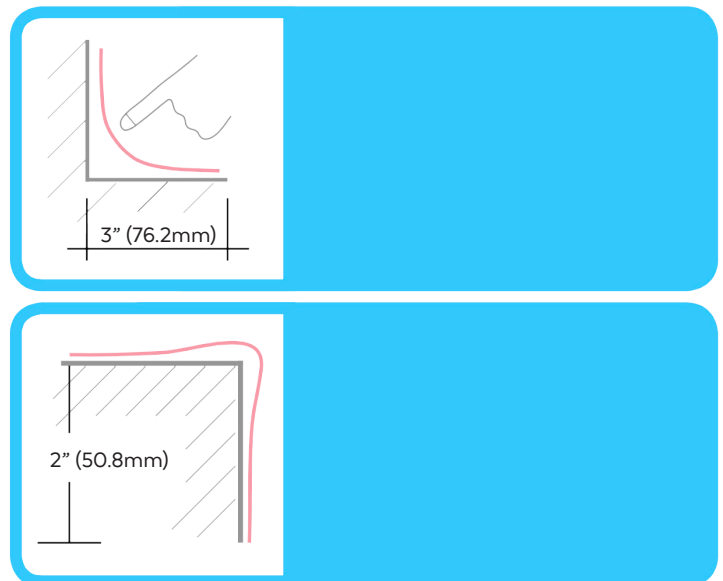
Light Tape® should gently curve around bends and never be creased into a corner. Creating a bend or hard fold will damage the conductive coatings, leading to lamp failure.

## Outdoor

DO NOT bend Light Tape® around corners. Light Tape® is subject to expansion and contraction. Please reconnect per outdoor connection procedure. Hard bends create pinch points, impeding movement.

## Bend Radius

The bend radius recommended for a lateral curve is 30% of the length of the curve. Light Tape® is to lay flat on the surface for the entire length. See illustration on the below.



Each bend radius figure based on 2" (50.8mm) Light Tape® test standard. The thinner the width, the greater the bend.

# Cutting & Sealing Light Tape®

Light Tape® should always be completely sealed. Our factory barrier seal protects the lamp against moisture and acts as an insulator. If the factory barrier lamination is cut, it must be resealed using Edge Guard™ tape.

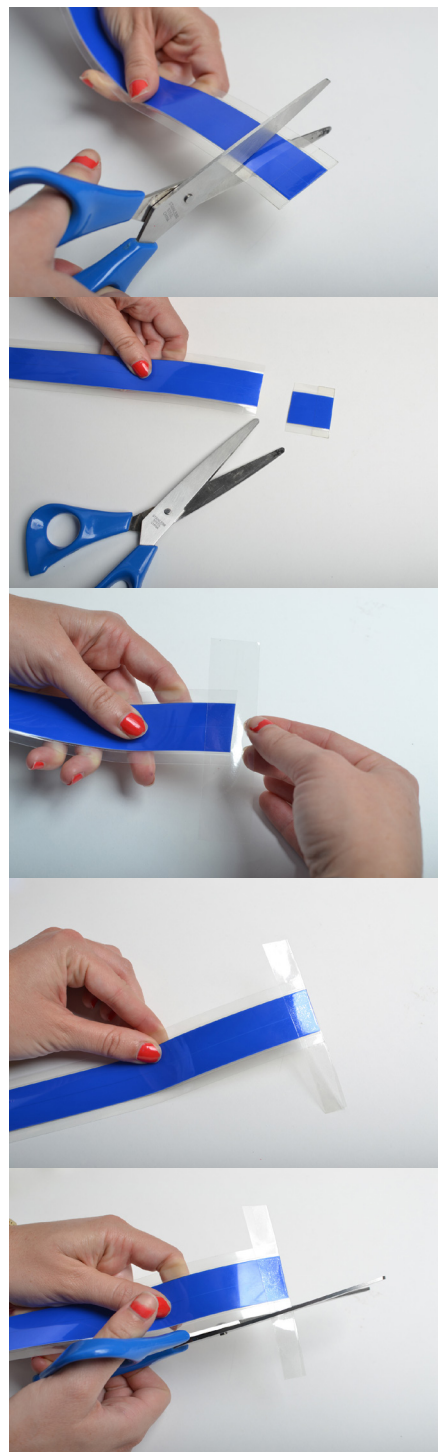
## Note For Outdoor Applications

Field seals are appropriate for most interior applications, but factory seals are required for outdoor, floor, and wet locations.

## Materials

- a. Light Tape® lamp
- b. Scissors
- c. Edge Guard™ end seal tape
- d. Square (for large panels)

1. Make sure Light Tape® is disconnected from power supply. Place lamp under square at desired length for large panels. For smaller widths, simply mark where to cut.
  2. Cut carefully across strip to ensure a straight and square end.
  3. On the cut end, place enough Edge Guard™ to overhang the edges and to evenly fold over on both sides of the lamp. Fold and press to ensure no bubbles form under the Edge Guard™ tape and trim excess from the sides.
- If both ends of the lamp are cut, make sure the Edge Guard™ tape is applied to both ends.





# Making a Connection

The entire rear electrode of Light Tape® is conductive allowing a connection to be easily made.

## Materials

- a. Light Tape® lamp
- b. Large connector wire w/ piercing pins “nics”
- c. needle nose pliers
- d. large connector caps with screws and butyl
- e. clamps/vice grip
- f. power supply
- g. drill/screwdriver

1. After cutting Light Tape® to size, place enough Edge Guard™ to overhang the edges and to evenly fold over on both sides of the lamp. Fold and press to ensure no bubbles form under the Edge Guard™ tape and trim excess from the sides. If both ends of the lamp are cut, make sure the Edge Guard™ tape is applied to both ends prior to making a connection.

1. Hold nic (piercing pins) flush to the underside (Silver side) of the lamp, one on each side of the split electrode midpoint. The pointed barbs on the nics should be facing the silver side of the tape.
2. Crimp the nics one at a time into the non-illuminating (silver side) of the lamp using flat head pliers. Make sure each nic is isolated on either side of split electrode midpoint (SEMP). Apply pressure to pliers until nics are secure and cannot be pulled out easily.

3. Using the appropriately sized power supply, test the connection to ensure it has been properly made

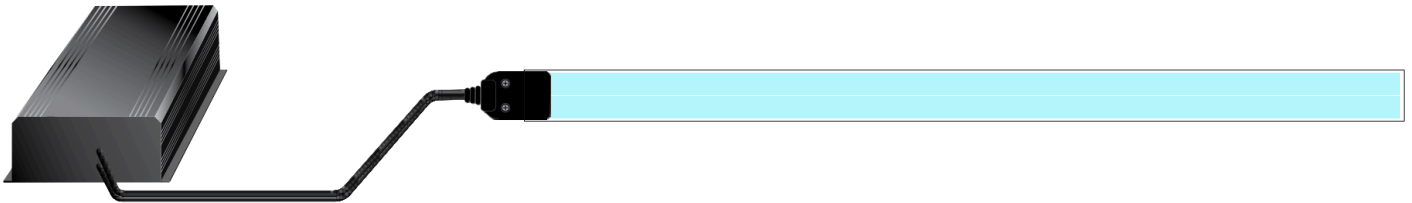
Please note: Do NOT touch the exposed nics or wires when testing to avoid electrical shock.

4. Peel off paper backing from the butyl caps. There is a front and a back cap. Place the cap without threaded holes on the colored side of the lamp and the cap with threaded holes on the silver side. Screw the caps together and use clamps/ vice grip to press connector into sealed position.

Note for Outdoor Applications: Butyl Caps are filled with weatherproof epoxy completely protecting connection from elements.

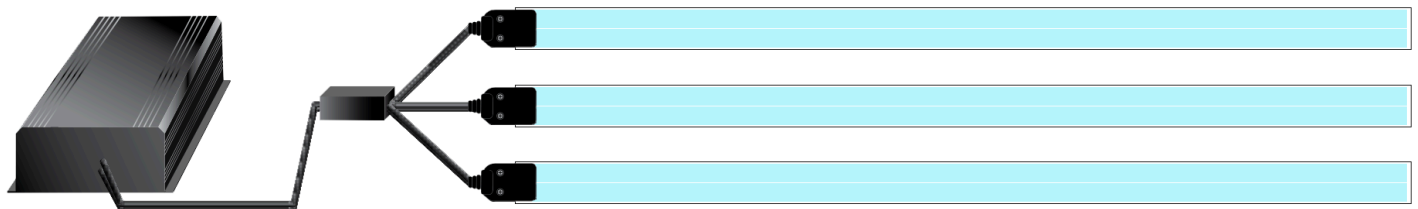


# Connecting Multiple Light Tape® Segments



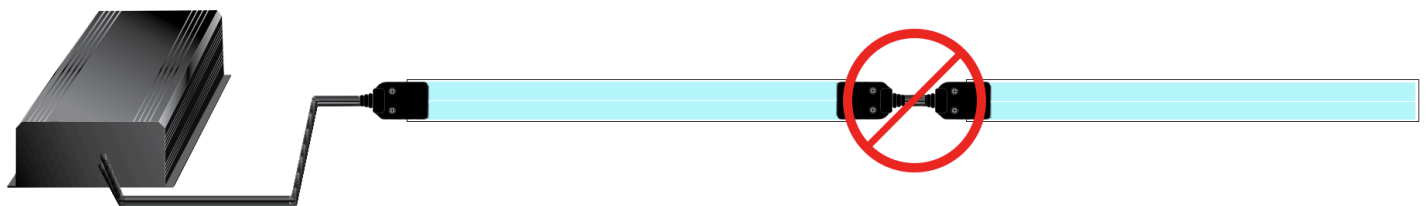
Only one connection is required to power Light Tape® and there is no polarity. Terminating the other end is not necessary. Please see connection guide for “How-To” instructions. It is possible to operate one lamp or multiple lamps with only one power supply. See ballast information before starting to determine the appropriate power supply based on your installation.

## Parallel Connections



Connecting lamps in parallel is the preferred method. Make all connections per local electrical codes. For remote locations and long runs, please use EMT conduit to shield AC signal.

## Do Not connect Light Tape® in series or “daisy chain”



## Maximum recommended distance from single connection

Light Tape® is capable of operating over great distances without any loss of light. The following chart outlines recommended single run footages with standard connectors. However, longer runs are available upon request with the addition of conductive foil tabs to the rear of Light Tape® before factory encapsulation.

| Light Tape® Width | LT-025 |        | LT-050 |        | LT-100 |        | LT-150 |       | LT-200 |        | LT-300 |        | LT-400 |         | LT-600 |         |
|-------------------|--------|--------|--------|--------|--------|--------|--------|-------|--------|--------|--------|--------|--------|---------|--------|---------|
|                   | 0.25"  | 6.35mm | 0.5"   | 12.7mm | 1"     | 25.4mm | 1.5"   | 38mm  | 2"     | 50.8mm | 3"     | 76.2mm | 4"     | 101.6mm | 6"     | 152.4mm |
| Max Distance      | 100 ft | 30.5m  | 125 ft | 38.1m  | 125 ft | 38.1m  | 125 ft | 45.7m | 150 ft | 45.7m  | 100 ft | 30.5m  | 50 ft  | 15.2m   | 50 ft  | 15.2m   |

# Snap-N-Light™

## Mounting Channel Installation

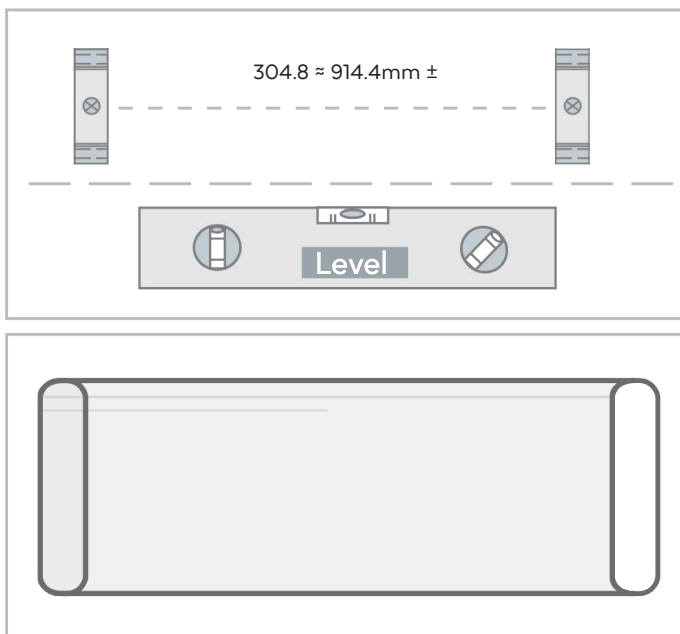
Our engineered mounting channels are designed to protect Light Tape® from tampering and the outdoor environment. Constructed from high grade polycarbonate, they have tremendous impact resistance and weatherability. The system is either installed using clips or adhesive depending on building surface.

In order for our system to work for years, it is important that Light Tape® is mounted properly. All outdoor installations **MUST** be mounted using our mounting channels to allow the Light Tape® and subsurface to expand and contract due to changes in the weather. Any LightTape® used in outdoor installations without mounting channels, unless otherwise authorised, will void warranty.

### A few simple rules and suggestions for the proper installation:

- DO NOT bend mounting channel around corners when mounted outdoors. A sharp bend of the mounting channel will pinch the Light Tape® inside causing delamination and lamp failure.
- All segments should be sealed per Electro-LuminX's procedure. We recommend factory seals for all outdoor installations.
- Be sure to specify connection end - left or right side - so the channel is pointing in the correct direction. This will ensure the drainage slot is on the bottom.
- The connector will extend about 4.5" (11.4 cm) beyond the lit portion of the lamp on the end.
- Always consult local electrical codes for wiring regulations and installation requirements. All connections should be in a junction box.
- For outdoor applications, Light Tape® should be controlled using a timer to prevent daytime operation. Operation in direct sunlight leads to over excitation of the phosphors.

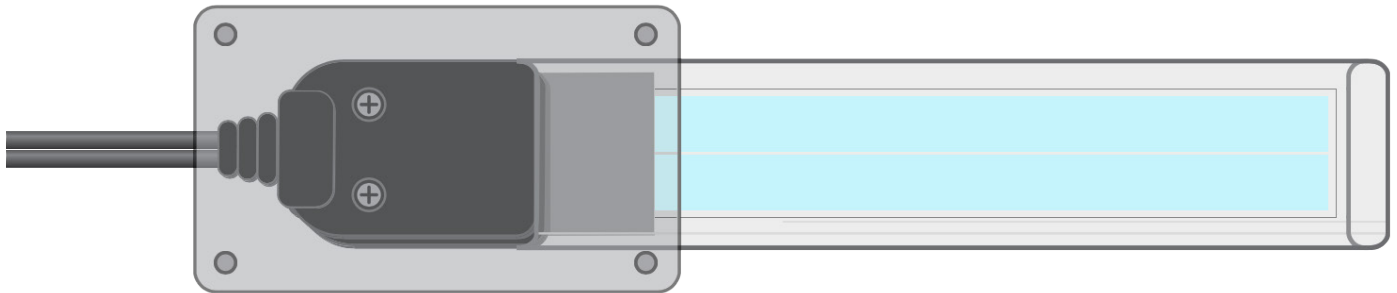
Follow the below step-by-step outdoor mounting instructions to ensure that Light Tape® is installed properly.



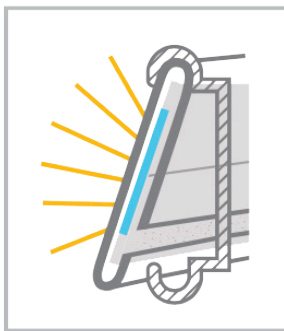
We recommend using flat seat screws such as the pan head below. Angle seated screws such as the flat head can cause damage (cracking) to the mounting clips.



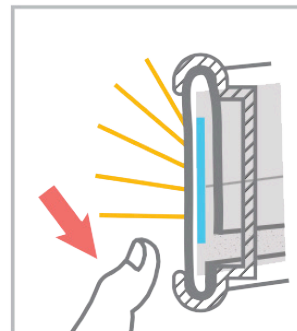
1. Clean the surface and mark a chalk line using a level. Mount clips on 12" (304.8 mm) centers, depending on surface, with #10 screws. Mount with the first clip 1" (25.4mm) from the connector end of the extrusion. If mounting indoors on smooth surfaces, mount UltraBond adhesive foam tape along the level line instead of clips.
2. If your extrusion has a drain slot make sure it is located at the bottom to allow for drainage. DO NOT fill open ends of the extrusion with silicone. If mounting with an adhesive do not block bottom gap.



3. Place connection in junction box and always consult local electrical codes for wiring regulations and installation requirements.



Slide into the top end of the clip first.



Press firmly downward to snap in place, making sure that the slit in back is not covered to allow for drainage.

4. Starting with the connected end, snap the Mounting Channel into the clips (for open channel extrusion: slot on bottom rear). Be careful not to bend or kink the Light Tape® when snapping into place. Be sure that the end of extrusion or bottom rear slit (if using open channel extrusion) are not covered or sealed, especially when using UltraBond™ to mount. This allows for proper air flow and drainage.

Please consult local electrical codes for wiring regulations and installation requirements, and always use the Light Tape® Outdoor Connection Kit.

# Snap-N-Light™

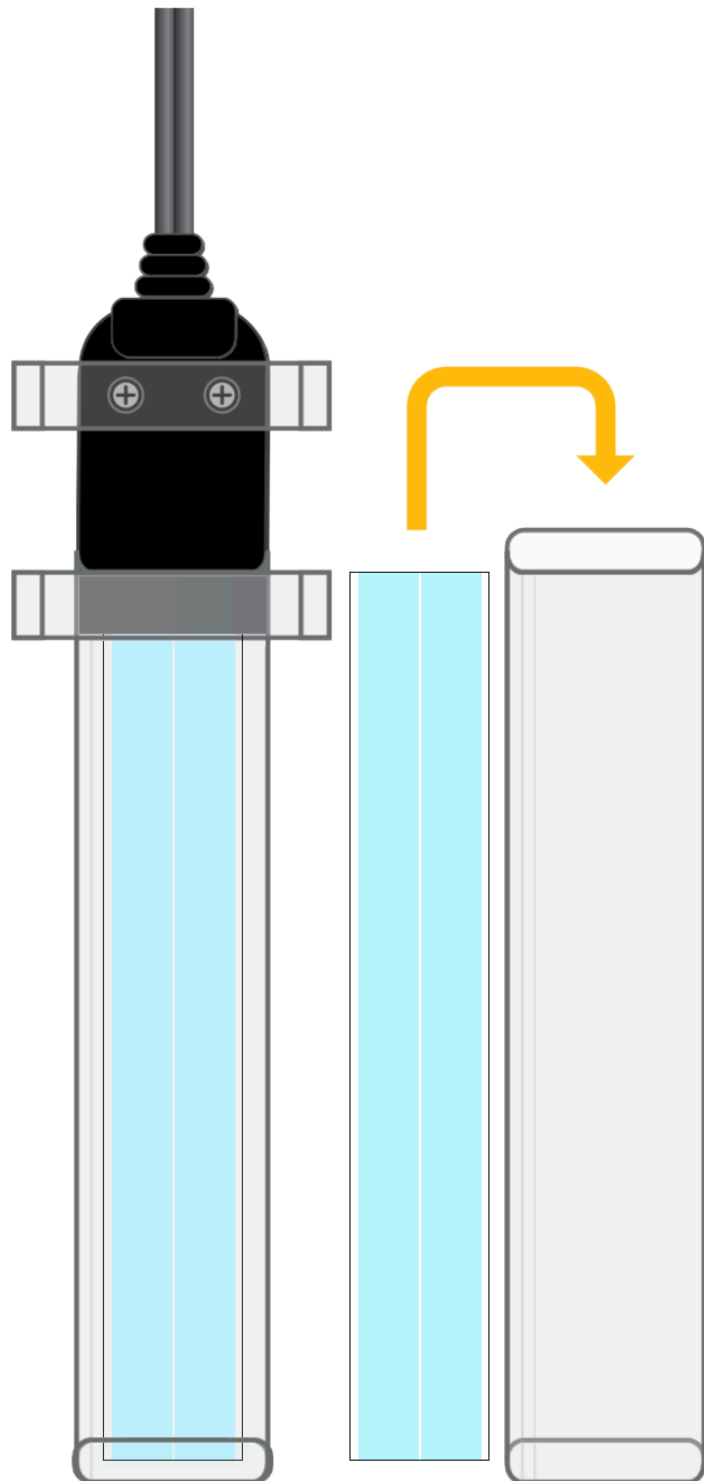
## Vertical Mount

For vertical installations, always have connector on the top with drainage slot in the extrusion facing the mounting surface. To prevent the extrusion channel from sliding through the mounting clips, a suitably rated double sided VHB Tape should be used to attach the connector and the top 5 feet (1.5 m) of the mounting channel to the mounting surface.

**Please note:**

The connector should always be firmly secured to the wall so the extrusion does not slide through the clips. Clean the surface and mark a chalk line using a level. Mount clips on 12" (304.8 mm) centers, depending on surface, with outdoor rated #10 screws. Mount with the first clip 1" (25.4mm) from the connector end of the extrusion.

Place connection in a suitable rated junction box as per local electrical codes. Make sure the connector and power supply is located at the top and the channel opening is at the bottom so the extrusion is allowed to drain. To ensure the mounting channel stays in place, use either a suitably rated double sided VHB Tape or attach an extra support to the top of the connector, securing it to the surface.



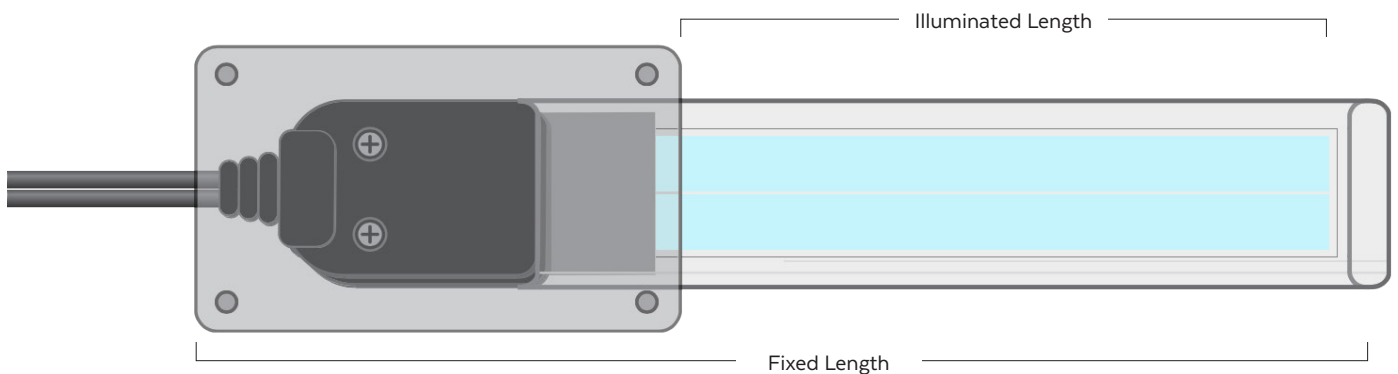
Leave open to ensure air flow

# Snap-N-Light™

## Length

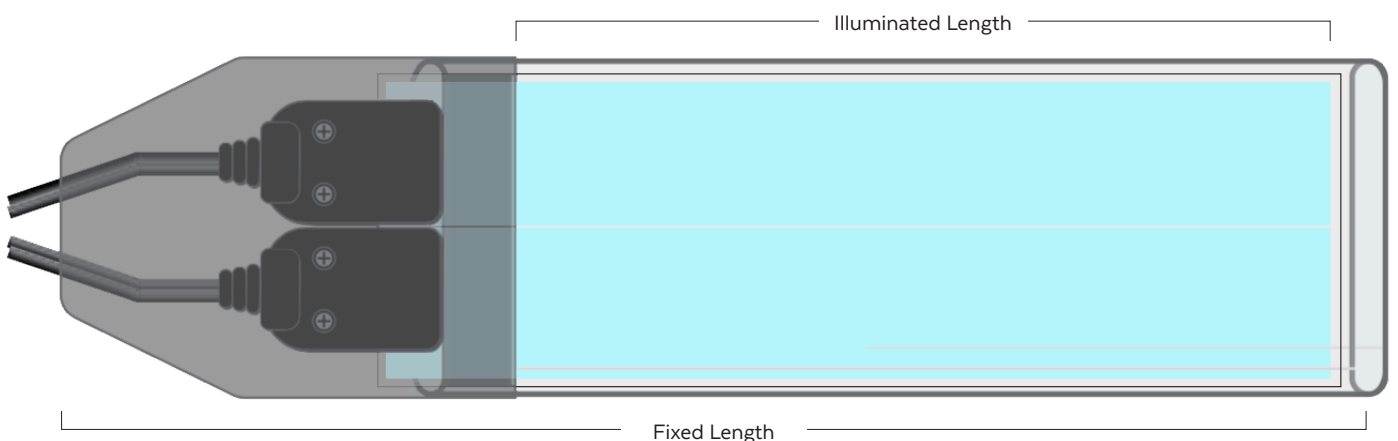
### 1" (25.4 mm) wide Light Tape® Snap-N-Light™ System

Please allow an additional 5.5" (139.7mm) when determining the dimensions of your Light Tape®'s Snap-N-Light™ system. This accounts for 4.5" (114.3mm) inches for the Light Tape® connector and strain relief, 0.5" (12.7mm) for wire flex, and 0.5" (12.7mm) for the area between the end of the illuminated length and the end of the extrusion.



### 2" (50.8 mm) & 4" (101.6 mm) wide Light Tape® Snap-N-Light™ System

The 2" & 4" wide Light Tape® Snap-N-Light™ system employs two connection points for optimal performance. Please allow an additional 5.5" (139.7 mm) when determining the dimensions of your Light Tape's Snap-N-Light™ system. This accounts for 4.5" (114.3mm) inches for the Light Tape® connector and strain relief, 0.5" (12.7mm) for wire flex, and 0.5" (12.7mm) for the area between the end of the illuminated length and the end of the extrusion.





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