



# BriteStripe®

## Installation Instructions

**Installation Questions?**

Call LSI Field Service Department at:

1(800)436-7800 Ext. 3300

Fax 1(513)984-9723

**Scope: This procedure is designed to aid in the installation of LSI's BriteStripe neon replacement product. Skilled trades people that are familiar with general construction, electrical and sign installation techniques should do installation. Licensed electricians should provide all installation and hook-up of both the primary and secondary input/outputs of the power supply. All installation and hook-up should be done in accordance with all National and Local codes and permits. In no way is this document intended to construe warranty or fitness of use of the products described, nor is it intended to provide safety instruction for those installing the product.**

**THE FIELD ASSEMBLY OF THIS SECTIONAL SIGN IS SUBJECT TO THE ACCEPTANCE OF LOCAL INSPECTION AUTHORITY.  
LES ENSEIGNES MODULAIRES MONTEES SUR PLACE PEUVENT ETRE VERIFIEES EN TOUT TEMPS PAR LE SERVICE D'INSPECTION LOCAL**

**CAUTION: TURN OFF ALL INTEGRAL DISCONNECTS BEFORE SERVICING  
ATTENTION: METTRES HORS TENSION TOUS LES SECTIONNEURS INTEGRES AVANT D'ENTREPRENDRE LE DEPANNAGE**

## **1.0 Product Description**

### **1.1 BriteStripe Product**

BriteStripe product is a low voltage, long life alternative to neon for exterior, perimeter applications. BriteStripe products are unique in that they use Light Emitting Diodes (LED's) instead of neon as a light source. This allows for low voltage (24 volts) and long life (10+ years) of maintenance free operation. BriteStripe products are available in 10', 8', 6', 4', 2' and 1' tube lengths. Depending on your installation requirements and your order, your shipment of BriteStripe can include any combination of these lengths. The different lengths can be connected to each other with a weather resistant connector.

### **1.2 Power Supply**

The power supplies are transformers that step down the voltage from 120 or 277 (depending on model ordered) to 24 volts, the operating voltage of the BriteStripe system. Each power supply has 3 individual outputs. It is recommended that each output power only 30 feet of BriteStripe for a total of 90 total feet per power supply. Each power supply draws a maximum of 3 amps each and in most cases draw considerably less current.

## 1.3 Tools Required

1. Cordless Drill
2. Drill Bits
3. #2 Phillips driver bits
4. Wire stripper
5. Measuring Tape
6. Chalk Line
7. Marking Pens
8. Power Miter Saw (Chop saw)
9. Volt / Ammeter

## 1.4 Supplies Required

**1.4.1 Standard Hardware and Supplies** (Not supplied unless otherwise noted. UL listing may be required on certain items)

1. Butt Splices (22 – 16 AWG, Red)
2. Glue (Weld-on IPS #16 Cement for Acrylic Sheet) (supplied)
3. #8 x 2", round head, Phillips
4. Transformer Box with NEMA 3R rating, min. dimensions 12" x 12" x 6", vented Hoffman p/n A12R126, Westrim TC18SO-UL or equivalent.
5. Nylon Cable Clamps (Panduit or 3M)
6. Wire Nuts
7. Conduit
8. Water tight connector (for conduit), Cord Grip CG-1250S or equivalent
9. Disconnect switch, Red Dot S323E, Leviton 1451-ICP or equivalent

## 1.4.2 Hardware Available from LSI Industries

Part Number	Description
169895***	1 Foot BriteStripe
169897***	2 Foot BriteStripe
169899***	4 Foot BriteStripe
169901***	6 Foot BriteStripe
169903***	8 Foot BriteStripe
169905***	10 Foot BriteStripe
171037	Transformer
171029	BriteStripe Mounting Buttons
171043	"Y" Connector
171044	10' Jumper Wire
171032	End Cap Glue
171034	Silicone End Caps (Clear)
171035	Silicone End Caps (Red)
171036	Clear Plastic End Caps

## 2.0 Required System Components

### 2.1 Mounting Buttons (fasteners)

BriteStripe product is held in place using specially designed mounting buttons, brackets and screws. Do not use any mounting hardware other than those provided by LSI Industries. There should be sufficient mounting buttons to support the BriteStripe product. A wide variety of #8 fasteners (not included) can be used to screw the button to the building depending the material of the mounting surface. The type and length of fastener should be determined by the installer or engineer related to the project. The following per length count of mounting buttons should be included:

10 ft BriteStripe assemblies – 5 screws and buttons required  
8 ft BriteStripe assemblies – 5 screws and buttons required  
6 ft BriteStripe assemblies – 4 screws and buttons required  
4 ft BriteStripe assemblies – 2 screws and buttons required  
2 ft BriteStripe assemblies – 2 screws and buttons required  
1 ft BriteStripe assemblies – 2 screws and buttons required

### 2.2 Power Supplies

The power supplies are used to provide 24 VAC power to each BriteStripe leg. There are 3 separate power outlets available on each power supply.



**Power supply in carton  
Figure 1**



**Power supply mounted in optional weatherproof enclosure  
Figure 2**

## 3.0 Planning Layout

### 3.1 Mechanical

BriteStripe can be mounted to metal fascia, stucco, concrete, brick or any other surface that can be fastened to with conventional fasteners. Using the architectural drawings of the building, lay out where the BriteStripe product is to be located. BriteStripe product can only be mounted to straight surfaces (no radius). Using this layout, measure each side of building or single continuous straight run of BriteStripe. If the measurement of any of these straight runs is greater than 30 feet, break the run into equal (or near equal) lengths such that no length totals more than 30 feet. This simplifies the planning of power requirements and power supply placement. When calculating the length required for each side of the building, other straight sections or individual runs of less than 30 feet, use as many 10' or 8' sections as possible as they are the most efficient size for installation. Use 6', 4', 2' and 1' sections only to complete or balance a run. Each section is field adjustable. 10', 8', 6', 4' and 2' sections can be adjusted in roughly 3" increments. One-foot sections can be adjusted in approximately 1" increments. Each section is marked on the bottom with a black line in the location of the adjustment cut.

### 3.2 Electrical

A power supply can be mounted anywhere on or in the building at a maximum distance from the BriteStripe of 100 feet (if 10 or 12 AWG wire is used between the power supply and the BriteStripe). A distance of 20 or less is recommended. Locate the power supplies such that they are central to the BriteStripe sections they are powering. In most cases this will be the corner of the building, with different power supply legs powering down each side of the building. When laying out the location of the power supplies, the

location of available junction boxes and how to run the primary to them should be taken into consideration. When mounting outdoors, additional protection may be required to prevent precipitation from entering the enclosure. A NEMA 3R transformer enclosure is recommended. No more than 2 transformers should be mounted in one enclosure. In all outdoor installations, primary power (110 VAC) can be routed by using standard conduit and installation techniques (in accordance with codes and accomplished by a licensed, experienced electrician).

### 3.3 Environmental Considerations

When determining the length of each run of BriteStripe, consider that each 10 foot section will expand or contract about  $\frac{1}{2}$ " depending on temperature. If the power supply temperature exceeds 120 F and is fully loaded, nuisance tripping may occur. However once the temperature drops below 120 F then the power supply should operate normally again.

## 4.0 Installing BriteStripe

### 4.1 Marking the Location on the Building

Determine the location of the centerline of the BriteStripe product relative to the top or bottom of building or canopy. Snap a chalk line in the location of this centerline.

#### 4.1.1 Mark for Fasteners

In general, the recommended spacing for mounting buttons is every 2 feet, except at the end of a section, where the mounting button should be 3 inches from the end. Marking a tape measure with these increments is helpful in ensuring consistency of installation (mark the tape measure at 3", 24", 48", 72", 93" points, which coincide with the mounting points recommended for the installation of an 10' section).



**Marking the mounting button location**

**Figure 3**

## 4.2 Install Fasteners

Drill a 1/8" hole at the pre-marked location of each mounting button. Using a #8 x 2" flat head screw, secure the mounting buttons for only the individual BriteStripe section that you are currently installing (ie: each 10', 8' or other sized sections).



**Drilling mounting button holes for an BriteStripe section**  
**Figure 4**

## 4.3 Snap BriteStripe into position

Position the BriteStripe section such that the large connector is located on the left side (as you are facing the building) and the bottom lip of the BriteStripe tube is inside the mounting button bottom groove. Then apply gentle upward pressure until the BriteStripe section “snaps” onto the buttons (as shown in Figure 5).



**Diagram showing bottom lip of BriteStripe in bottom groove of mounting button  
Figure 5**

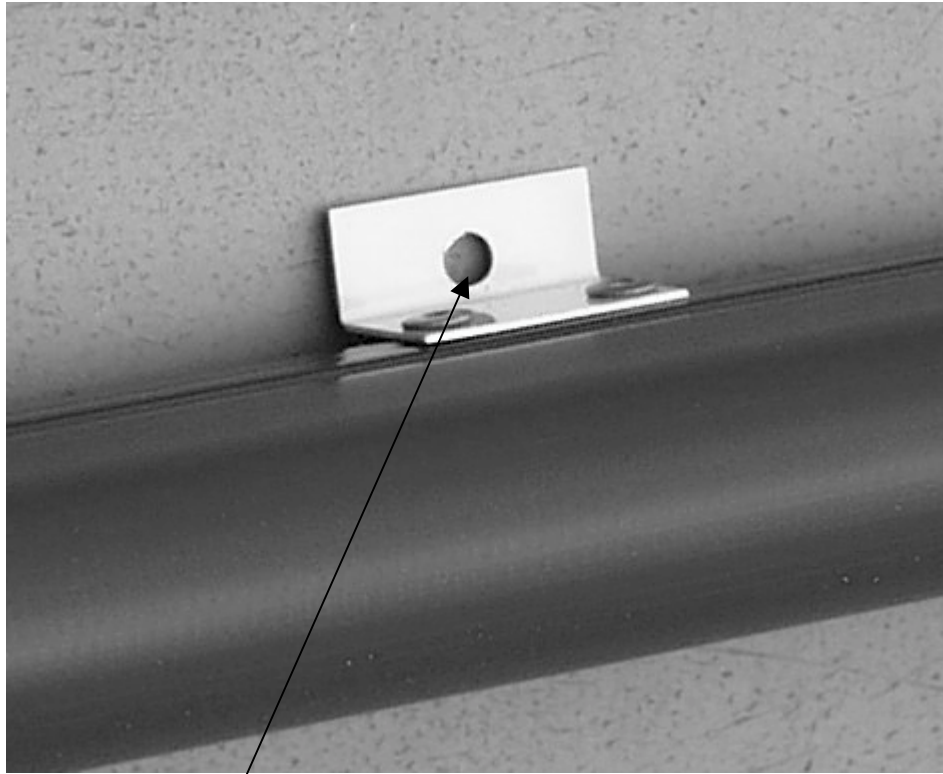




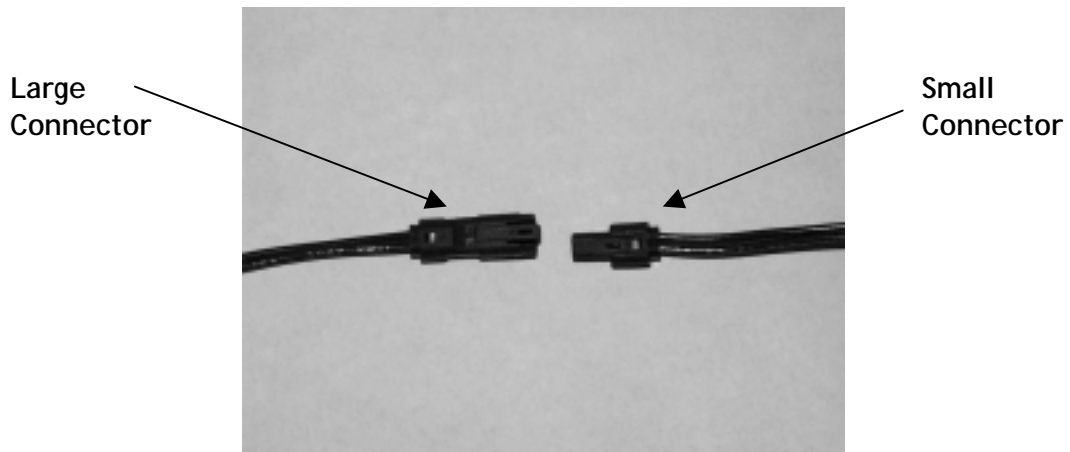
**Correctly attached BriteStripe section to mounting button**  
**Figure 6**

After the section is snapped securely onto the wall, slide it into the exact location it needs to be. When the BriteStripe section is in the correct location, drill a 1/8" hole into the building through the mounting bracket hole. For the first section of a string, position the BriteStripe section in the correct location. For all subsequent strings slide the section up tight against the proceeding section after snapping it onto the buttons. Prior to sliding the section up tight against another section, fasten each connector assembly together and tuck the wires and connectors into the mounting button track so that they are out of the way and not visible from ground level.

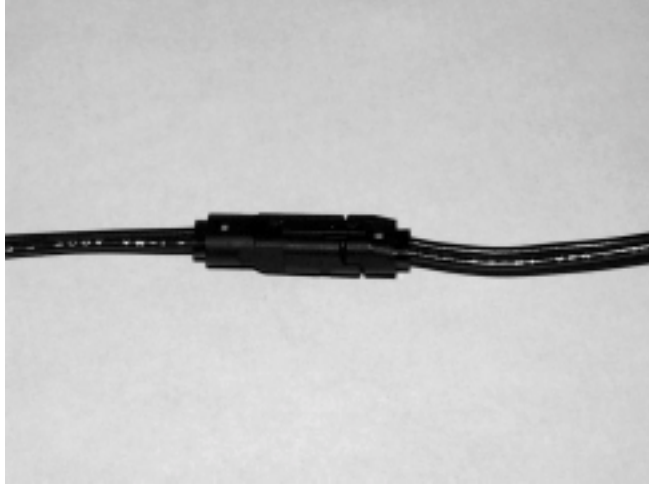
Follow installation layout drawings for number of sections to connect together and where the power supply input connection will be located. Please check to make sure that no more than 30 feet of BriteStripe is connected together on a single leg of the power supply.



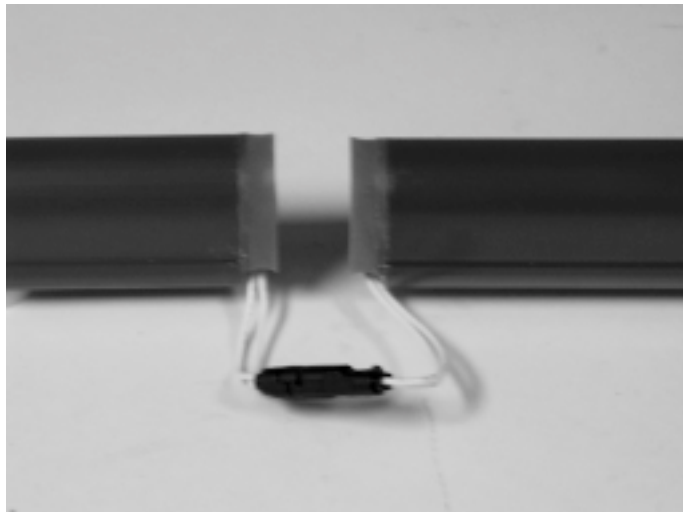
**Drill 1/8" hole and mount with No. 8 Screw  
Figure 7**



**Correct connector orientation – note that tab is aligned with locking clip  
Figure 8**



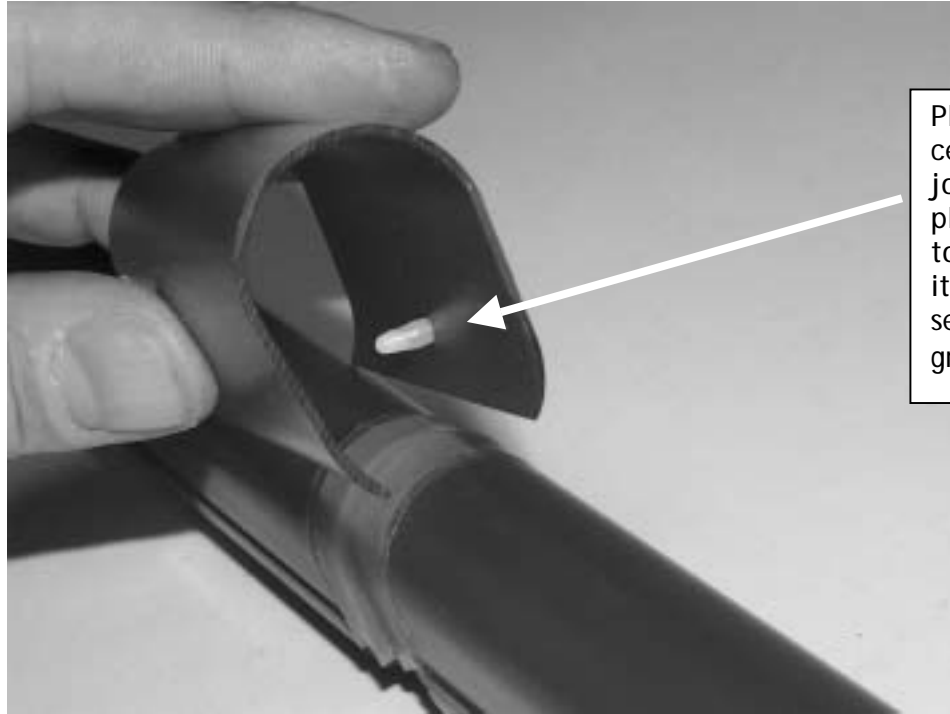
**Correct connector insertion  
Figure 9**



**Connection of two sections  
Figure 10**



**Finished connections with wires and connector hidden in mounting track  
Figure 11**



Plastic rivet is centered on the joint and is placed on the top side so that it will not be seen from the ground.

Cover snaps over end to end joint.

Figure 12

#### 4.4 Complete String/Cut to Fit

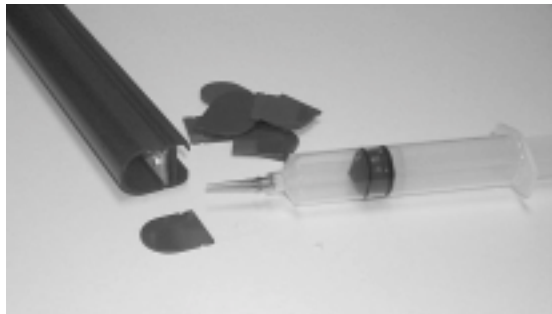
All BriteStripe products are field adjustable for length. By using a miter saw and the separation marks indicated on the product, it is easy to adjust the length of any size section. 10', 8', 6', 4' and 2' sections can be adjusted in roughly 3" increments. One-foot sections can be adjusted in approximately 1" increments. To cut a section, measure the length you need from the **large** connector to the nearest cutting mark. **This is very important, only the section with the large connector will light. The left over small connector section will not light and is scrap.** The cutting mark is a black line visible through the mounting slot. Using a cutoff or miter saw, position the blade such that it cuts on desired cutting mark. Discard the section that will not be used (ie: the section with the small connector on it).

In order to complete the cut end properly for protection from the environment and to match the factory finished look, bond a new plastic end cap in place using an approved adhesive. Apply the glue (Weld-on IPS #16 Cement for Acrylic Sheet) in a continuous bead to the open end of the tube and place the end cap on it. Hold the end cap in place until the adhesive starts to cure (approx. 1 – 5 minutes). Allow the cement to further cure for 10 minutes. Inspect the bond line to make sure that it is continuous and complete so that moisture cannot enter the tube. After the clear end cap is securely bonded, apply the silicon end cap by peeling off the double back tape strip and aligning the silicon end cap with the newly bonded end cap. Press the silicon end cap firmly in place.

Position the cut section onto the end of the run and connect. If the connectors are not compatible, either butt splice the two sections together or use a single gender jumper.



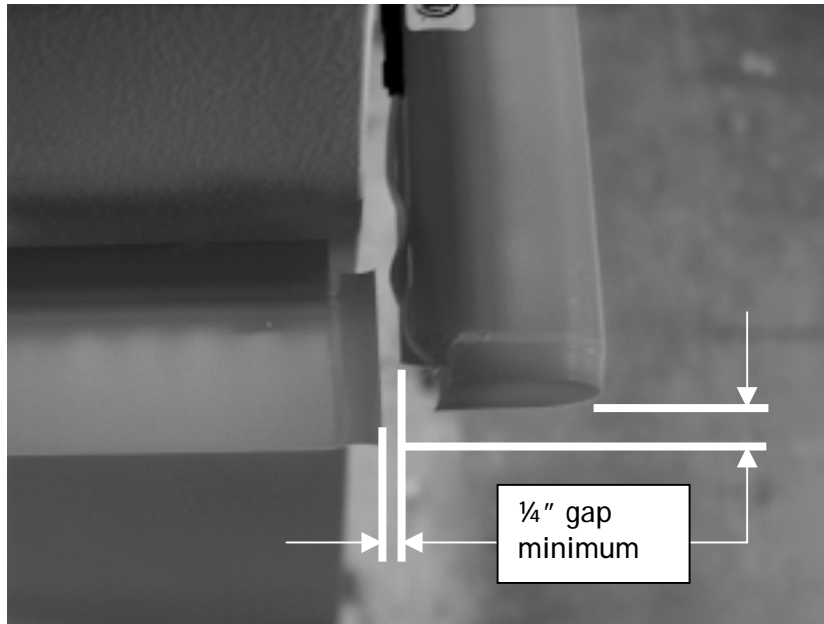
**Cutting a BriteStripe section to length to fit the end of the building  
Figure 13**



**End cap and glue  
Figure 14**

## 4.5 Corners

Corners should be installed as shown in Figure 15. One section should slightly overlap the other leaving a minimum  $\frac{1}{4}$ " space as shown. Figure 16 shows the optional covers snapped in place.



**Corners should slightly overlap, leaving a minimum of 1/4" gap for expansion.  
Figure 15**



**Optional corner covers can be snapped into place as shown.  
Figure 16**

## 4.6 Test

After a run is completely installed, use a test power supply (a power supply that has standard power cord and jumpers installed, contact LSI for more info) to test the installation. If the run does not light or only part of it lights, check the connectors to ensure that they are properly connected together.

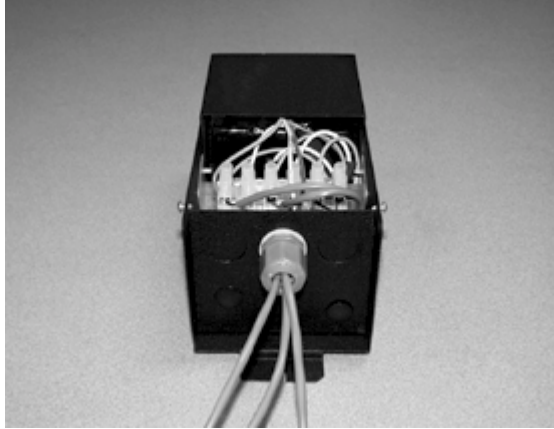
## 5.0 Power Supply Power Supply Mounting and Connection

Mount the power supply directly to the wall, in a vertical position with label at the top (or weatherproof enclosure) with #8 x 2" round head screws at the top and bottom of the power supply. Power supply must be mounted in an area that allows for accessibility to the power supply after installation and must not be in an area that is adjacent to combustible materials or that will be allowed to exceed temperatures or 90 C (194 F). After securely mounting the power supply, remove the metal cover of the power supply to expose the primary and secondary hook-ups. Have the primary connected by a licensed electrician, following the instructions on the inside of power supply cover and in accordance with codes.

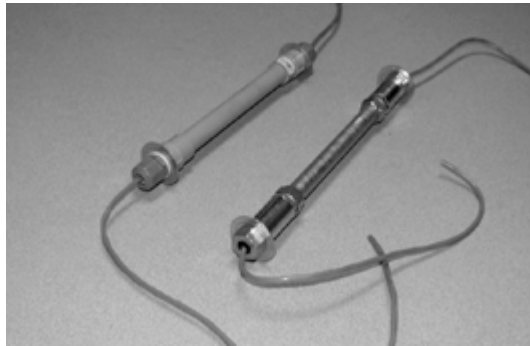
Note: a switch or other disconnect device, which carries the correct rating per UL 48 and is NRTL approved, needs to be wired between the primary power input and the power supply (see figure 21 below) . This disconnect switch or device must meet the following criteria: 1) must be provided with each power supply, 2) must be mounted at or near each power supply, 3) have a manual actuator which shall be protected against mechanical injury and shall be operable before entering the electrical enclosure of the power supply, 4) be marked with an ON and OFF position, and, 5) have no energized parts accessible to contact when in the OFF position and not be of the solid state type. To hook-up the secondary power outlet (to the BriteStripe product), remove one or more of the conduit knockout hole covers in the bottom of the power supply and mount a bushing and strain relief in the hole (see figure 18 below), then insert the correct Power Supply wire jumper assembly. Slide each wire into one output of the terminal block and secure with the screws supplied. When all secondary outputs are correctly and securely connected, create a service loop so that there is no wire tension on the terminal block, tighten water tight connector (see figure 18 below), replace cover and secure with screws supplied. A licensed, experienced electrician, in accordance with all codes and regulations should do all electrical connections, both primary and secondary. When wiring the secondary outputs of the power supply, all routing through walls must be enclosed in a UL approved conduit. For exterior wall routing, a UL approved conduit with watertight connectors (see figure 19 and 20 below). All conduit ends are to be terminated as to mechanically secure the wires and to protect the wire from sharp edges, moving parts or other parts that may abrade the insulation or otherwise damage the wire.



**Inside of cover- Primary hook-up instructions  
Figure 17**



**Correctly wired secondary outputs and service loops**  
Figure 18

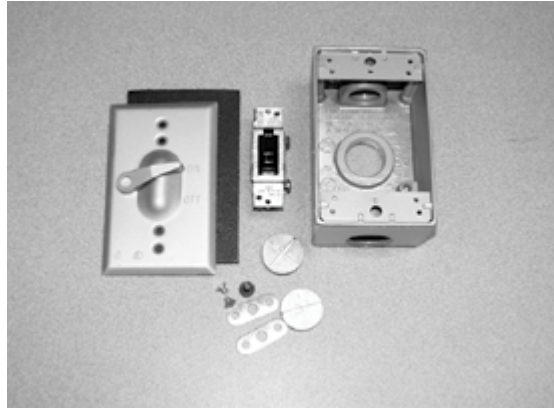


**Example of conduit and waterproof end caps for thru-wall routing (not supplied)**  
Figure 19



**Example of an acceptable finished thru-wall routing**  
Figure 20





**Example of disconnect switches and enclosure (not supplied)**  
Figure 21

## 6.0 Troubleshooting

**Problem:** One complete length of BriteStripe won't light.

**Solution:** Most likely a connector or connection problem. Check connections and voltage at the connector. It could be a loose connection, wire or connector.

**Problem:** More than one length of product does not light.

**Solution:** Most likely a connection problem. Check connections where the product stops lighting. Another cause could be that the transformer is overloaded and the secondary output circuit breaker is tripping. Check how many feet of product are on each leg of the power supply. Each leg should not exceed 30 feet of product. Checking the voltage on the secondary side of the transformer will also help isolate the problem. If the voltage at the secondary side of the transformer is less than 22 volts AC then the primary wiring could be the problem or the power supply could be bad.

**Problem:** The product flashes on and off.

**Solution:** The transformer is overloaded. Check the number of feet on each leg of the transformer (not to exceed 30 feet). If the transformer is hotter than 120 F then this could also be the cause. Flashing is caused by the circuit breaker switching on and off.

**Problem:** One small 2" section is dark

**Solution:** LED problem inside the product. Replace whole strip. Contact LSI for replacement product and send failed unit back for troubleshooting.

**Problem:** After cutting, the product does not light.

**Solution:** Most likely the wrong end was cut. When cutting the product make sure that the end with the big connector is the end that is kept. After cutting, the end with the small connector is scrap and will not light.

## 7.0 Glossary of Terms

### **BriteStripe**

Low voltage lighting system consisting of an extruded acrylic tube that contains printed circuit boards and attached LEDs (Light Emitting Diodes). BriteStripe units are available in 1', 2', 4', 6', 8' and 10' lengths. All lengths can be field adjusted to fit your application.

### **Section**

A single piece of BriteStripe product, characterized by its length, color and connectors.

### **Chain**

Two or more sections of BriteStripe can be connected together, or daisy-chained, to form a "chain" or "string" of lights.

### **Circuit**

The term circuit normally refers to the individually switched lines coming from the electrical panel.

A second use of the term can be to refer to the chains of BriteStripe, which are powered by the same power supply.

### **System**

Complete BriteStripe installation including all BriteStripe chains, power supplies, connecting cables and ancillary hardware.

### **Power Supply**

The power supplies are designed and to convert 110-120 VAC to 24 VAC. There are 3 available power outlets that can each support 30 feet of BriteStripe product.

By special request, 277 VAC versions are also available.

### **GPO**

General purpose 110-120 VAC outlets – usually switched with existing signage lighting.

### **Power Supply Wire Jumper Assembly**

White colored cable assemblies used to provide connection between power supply and the input power end of the BriteStripe chain.

### **Large Connector**

Characterized by a larger, longer black housing and thin metal protruding contacts.

### **Small Connector**

Characterized by a smaller, shorter black housing and metal cavity contacts.

### **Bridge Rectifier**

Each BriteStripe PC board includes a small circuit at one end, which converts the 24 VAC from the power supply to 24 VDC, which is required to power the LEDs. The bridge rectifier is normally located at the same end as the large connector.