



a subsidiary company of LITEON®

LED Illumination System Border Tube BTL Series



Installation Guide

This procedure is designed to aid in the installation of Leotek's BTL alternative to neon. 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.

WARNING

ATTENTION: METTRES HORS TENSION TOUS LES SECTIONNEURS INTEGRES AVANT D'ENTRENDRE LE DEPANNAGE. LES ENSEIGNES MODULAIRES MONTEES SUR PLACE PEUVENT ETRE VERIFIEES EN TOUT TEMPS PAR LE SERVICE D'INSPECTION LOCAL.

Before proceeding with installation or service maintenance of this product:

- Disconnect power to reduce electrical shock risk.
- Review the entire Installation Guide.
- Inspect this properly packaged product for any damage that may have occurred during transit.
- Verify product application complies with manufacturer design recommendations.
- Verify the availability of necessary tools and incidental material.
- Verify applicable code requirements. Field assembly and installation is subject to acceptance by local inspection authority.
- Appropriate safety equipment to be determined by end user, per applicable safety standards and precautions.










Product Description

The Leotek BTL product is a low voltage, long life alternative to neon for interior or exterior, linear lighting applications. BTL products use Light Emitting Diodes (LEDs) instead of neon as a light source. This allows for low voltage (24 volts), long life (10 + years) of maintenance free operation. BTL products are available in 8' lengths that are cuttable every 3". Different lengths can be connected to each other with a weather resistant connector.

Power Supply

The Leotek Power Supply is a 90 Watt switching power supply with input voltage of 90-264 VAC with output of 24 VDC. The red, orange, amber BTL = 56' per Power Supply with 20% reserve. The white, blue and green BTL = 32' per Power Supply with 20% reserve.

Suggested Tools

- 1  Cordless Drill
- 2  Drill Bit
- 3  #2 Phillips Driver Bit
- 4  Wire Cutter/Stripper
- 5  Tape Measure
- 6  Chalk Line
- 7  Marking Pen
- 8  Power/Chop Saw
- 9  Voltage/Amperage Meter

Suggested Material

- 1 Butt Splices (22-18 AWG)
- 2 Primer and Glue
- 3 #8 Pan Head Phillips Screws for Mounting Clips. (Length and thread type depend on mounting surface. Masonry inserts maybe required for concrete or brick walls.)
- 4 Transformer Box (UL Wet Location or NEMA 3R Rating. Minimum Dimensions 12"x12"x6" Vented. Hoffman P/N A12R126, Westrim TC1820-UL or Equivalent)
- 5 Nylon Cable Clamps (Panduit, 3M or Equivalent)
- 6 Silicone Sealant
- 7 ½" PVC Conduit (Water-tight if mounting the transformer in an outdoor box.)
- 8 ½" Conduit Connectors (Water-tight if mounting the transformer in an outdoor box.)
- 9 Disconnect Switch (Red Dot S303E, Leviton 1451-ICP or Equivalent)
- 10 100' 18AWG UL Listed PLTC (Power Limited Tray Cable – For Power Supply leads up to 50'.)

Procedure

Step 1 – Finding the Centerline

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

Step 2 – Mark for Mounting Clips

The recommended spacing for the mounting clips is 3" from each end and 24" on center for length of the section. Marking a tape measure with these increments is helpful in ensuring consistency of installation. (Example: mark the tape measure at 3", 24", 48", 72", 93")

Step 3 – Install Fasteners

Install fasteners by securing a mounting clip on the center chalk line at each of the marks you just made. Use a #8 Pan Head screw of the correct thread type and length for the mounting surface to which you are securing the BTL product. If the mounting surface is brick, stucco or concrete, a masonry anchor or insert should be used.

Step 4 – Attach the BTL

To attach the BTL, slant the BTL and fix it into the steel mounting clips to secure the BTL to the wall or canopy.

Step 5 – Cut the BTL

Cut the BTL to fit by using a power miter saw. (A miter saw must be used to give the straight, clean cut that is required to bond the end cap to the BTL.) Each BTL unit has separation marks indicated on the Printed Circuit Board (PCB). Push the PCB away from the area of the BTL to be cut. After cutting the BTL, push the PCB back into the BTL and note which separation mark is appropriate to snip. The proper separation mark will be the one outside the BTL, which after cut may leave as much as 3" empty at the end of the BTL. It is important to leave enough room in the BTL to accommodate the bonding of the end cap. Even with 3" empty in the BTL the lighting effect will be satisfactory because of the light diffusion within the BTL. 3" is the worst case scenario, most of the time that distance will be less.

Step 6 – Protect the Cut End

To properly protect the cut end from the environment, bond a new end cap in place using supplied adhesive and primer. Apply primer to the bonding surface of the silicone end cap and allow to dry approximately 30 seconds. Now apply the adhesive to the bonding surface on the open end of the BTL and place the primed end cap on it. Hold the end cap in place until the adhesive cures, approximately 15 seconds. Inspect the bond line to make sure that it is continuous and complete, so that moisture cannot enter the tube.

Step 7 – Layout and Electrical Wiring

The power supplies can be mounted anywhere on the outside or inside of the building at a maximum distance of 100' from the BTL (If 10 or 12 AWG wire is used between the power supply and the BTL). The power supply must be mounted in an area that allows for accessibility after installation, and must not be in an area that is adjacent to combustible materials or that will be allowed to exceed temperatures of 90 degrees C (194 degrees F). When laying out the location of the power supplies, the location of available power junction boxes, and how to run the primary to them, should be considered. When mounting outdoors, a secondary enclosure such as a transformer box with a UL Wet Location or NEMA 3R rating is recommended. (see Suggested Material)

Standard Conformance



Class II,
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