

BoxLED Plus T12HO LED Lighting Conversion System BX-RETRO-ADAPT

INSTALLATION GUIDE

WARNING: ONLY QUALIFIED PERSONNEL SHOULD PERFORM INSTALLATION TO AVOID ELECTRICAL SHOCK OR COMPONENT DAMAGE, DISCONNECT POWER BEFORE PERFORMING INSTALLATION OF THE POWER SUPPLIES, MODULES, AND/OR PLASTIC ADAPTERS.

Failure to install the power supplies and/or LED modules in accordance with the National Electric Code (NEC), all applicable Federal, State, and local electric codes as well as the specific Underwriters Laboratories (UL) safety standards for the installation, location and application may cause serious personal injury, death, property damage and/or product malfunction. These instructions are guidelines for installation of LED modules and power supplies. Installation requirements may vary depending on the application. Licensed electricians should provide all installation services for connection for both primary and secondary (input/output) of the power supplies.

1.0 Prepare for Installation

1.1 Tools Required:

- Wire stripper/cutter
- Screwdriver
- Measuring tape
- Metal cutting saw
- Needle Nose Pliers

1.2 Supplies Required:

- BoxLED Plus or BoxLED Plus DS LED Modules (BX-PL, BX-DS-PL)
- 24V Power Supplies
- BoxLED Retrofit Adapters (BX-RETRO-ADAPT)
- BoxLED Adapter track (BX-SS-ADAPT-TRACK) or BoxLED DS Adapter track (BX-DS-ADAPT-TRACK)
- UL approved supply wire
- UL approved wire nuts

1.3 Carefully remove existing fluorescent tubes and power supplies.

- 1.3.1 Make sure power to the sign is turned off
- 1.3.2 Remove existing fluorescent lamps and ballasts – leave existing R17d sockets in place
- 1.3.3 Note the length of the fluorescent lamps that are removed (F18, F24, etc.)
 - 1.3.4 Dispose of all old sign components in the proper manner
- 1.3.5 Clean the inside of the sign ensuring it is free of dirt

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2.0 Track Preparation

2.1 Determine the correct length of the adapter track to be used based on the length of the fluorescent lamps removed in step 1.3 (See Table 1)

<u>Fluorescent Lamp</u>	<u>Adapter Track Length</u>
F18	13.95"
F24	19.91"
F30	25.91"
F36	31.91"
F42	37.91"
F48	43.91"
F60	55.91"
F64	59.91"
F72	67.91"
F84	79.91"
F96	91.91"

Table 1

2.2 For single sided box signs use the BX-SS-ADAPT-TRACK (73839)

2.3 For double sided box signs use the BX-DS-ADAPT-TRACK (73838)

2.4 **The tracks, as shipped, are the correct length to replace an F96T12HO and no cutting is required**

2.4.1 The back of each track is marked with lines to indicate the correct length at which to cut the track for other length fluorescent lamps (Figure 1)

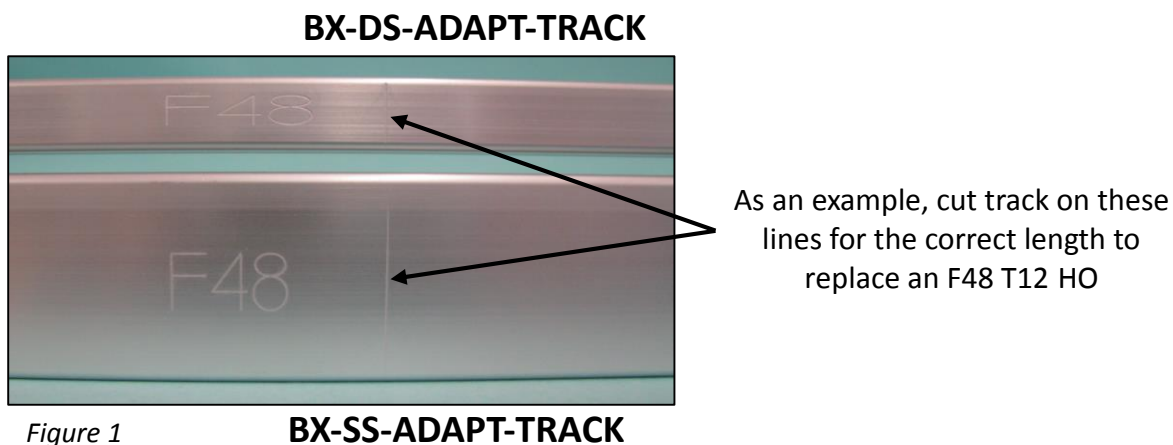


Figure 1

2.5 The track can be easily cut on the marked lines with sharp hacksaw or chopsaw with a metal cutting blade or any other appropriate metal cutting tool

2.5.1 Be careful not to distort the ends of the track while cutting

2.5.2 Remove any burrs on the cut ends of the track with a file or emery cloth to ease the insertion into the plastic BoxLED Adapter

Note: Cut-off lengths of track can be used to replace shorter fluorescent lamps by simply measuring and cutting the track to lengths shown in Table 1. In this case, ignore the lines on the back of the track.

3.0 Module Installation

- 3.1 Install the BoxLED Plus or BoxLED Plus DS modules into the adapter track as described in the installation instructions included with the modules and available at www.sylvania.com/signage
- 3.2 Pay close attention to the number of modules that can be loaded on each power supply as shown in section 6 of these instructions

3.3 Single Side Track

- 3.3.1 Examples of typical numbers of modules that can be used in Single Sided signs for various track lengths and sign depths are shown in table 2
- 3.3.2 *The numbers in the chart below should be used ONLY as a GUIDELINE. The exact number of modules required in the tracks for each sign must be tested on-site and will vary based on the distance the tracks are mounted from the face, the face material, the color of the face, etc.*
- 3.3.3 Utilize the power supply loading information in section 6 of these instructions to determine the required number of power supplies

Fluorescent Lamp Length	Distance from sign face	Number of Modules	Distance from sign face	Number of Modules	Distance from sign face	Number of Modules
F18	6-7"	2	8-10"	2	>10"	2
F24	6-7"	3	8-10"	2	>10"	3
F30	6-7"	3	8-10"	3	>10"	3
F36	6-7"	4	8-10"	3	>10"	4
F42	6-7"	4	8-10"	4	>10"	4
F48	6-7"	5	8-10"	4	>10"	5
F60	6-7"	6	8-10"	5	>10"	6
F64	6-7"	6	8-10"	5	>10"	6
F72	6-7"	7	8-10"	6	>10"	7
F84	6-7"	8	8-10"	7	>10"	8
F96	6-7"	9	8-10"	8	>10"	9

Table 2 – Typical BoxLED Single Side Module Counts

Note: Minimum recommended sign depth is 6"

- 3.3.4 Clean the mounting tracks to ensure optimum adhesion of the LED modules
- 3.3.5 Remove the protective film from the tape on the back of the LED modules (Figure 2)

- 3.3.6 Snap the BoxLED Plus modules into the track by first inserting one end of the module into the track (Figure 3) and then pushing the other end down to snap it into place
- 3.3.7 Tie wrap any excess wire length to inside of track to prevent shadowing (Figure 4)

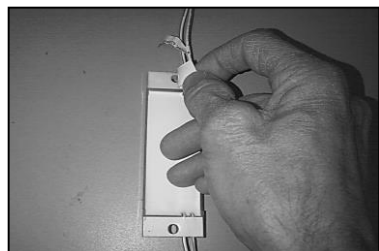


Figure 2

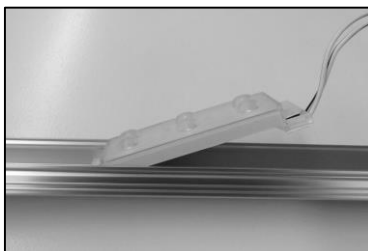


Figure 3

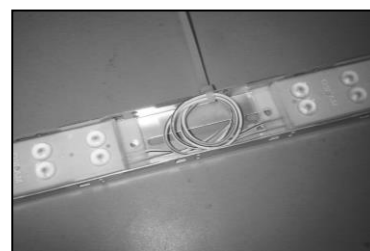


Figure 4

3.4 Double Side Track

- 3.4.1 Examples of typical numbers of modules that can be used in Double Sided signs for various track lengths and sign depths are shown in table 3
- 3.4.2 *The numbers in the chart below should be used ONLY as a GUIDELINE. The exact number of modules required in the tracks for each sign must be tested on-site and will vary based on the distance the tracks are mounted from the face, the face material, the color of the face, etc.*
- 3.4.3 Utilize the power supply loading information in section 6 of these instructions to determine the required number of power supplies

Fluorescent Lamp Length	Sign Depth	Number of Modules	Sign Depth	Number of Modules	Sign Depth	Number of Modules
F18	12-14"	2	16-20"	2	>24"	2
F24	12-14"	3	16-20"	2	>24"	3
F30	12-14"	3	16-20"	3	>24"	3
F36	12-14"	4	16-20"	3	>24"	4
F42	12-14"	4	16-20"	4	>24"	4
F48	12-14"	5	16-20"	4	>24"	5
F60	12-14"	6	16-20"	5	>24"	6
F64	12-14"	6	16-20"	5	>24"	6
F72	12-14"	7	16-20"	6	>24"	7
F84	12-14"	8	16-20"	7	>24"	8
F96	12-14"	9	16-20"	8	>24"	9

Table 3 – Typical BoxLED Double Side Module Counts

Note: Minimum recommended sign depth is 12"

- 3.4.4 Insert one end of the module into the track and push down on the opposite end until it clicks into place (see figures 5 & 6)



Figure 5

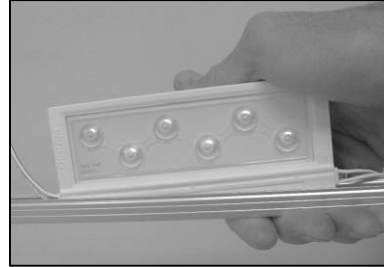


Figure 6

- 3.4.5 Tie wrap any excess wire length to inside of track to prevent shadowing

- 3.4.6 If the track is to be installed in a vertical position, it is recommended that a small crimp is bent into the track below each module with needle nose pliers to prevent the modules from moving down over time due to thermal cycling and vibration (see figures 7 & 8)



Figure 7



Figure 8

4.0 Adapter Installation

- 4.1 The BoxLED adapters (BX-RETRO-ADAPT) can be used with either the single side or the double side track

- 4.1.1 The larger, outer “U” shaped opening is used for the single side track (figure 9)
- 4.1.2 The small, inner “U” shaped opening in the center of the track is used for the double side track (figure 10)

4.2 After the desired number of modules have been installed in the track, slide one adapter on each end of the track that was prepared in step 2.0

4.2.1 The adapter must be installed with the opening of the “U” facing up as pictured in figures 9 & 10

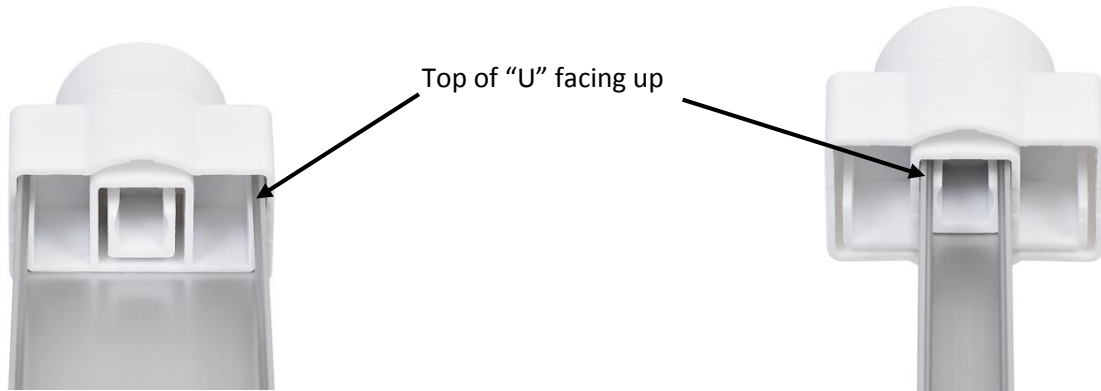


Figure 9: BoxLED Adapter installed on the single side adapter track

Figure 10: BoxLED Adapter installed on the double side adapter track

4.3 For tracks that will require power supply wiring to be wired into the track at a point that is not easily reached after the track is installed in the sign, pre-wire the modules according to the power supply loading tables shown in section 6 of these instructions – tie wrap the power wires to the track to prevent shadows

4.4 Insert the assembled track(s) with BoxLED modules and BoxLED adapters into the existing R17d sockets in the sign

4.5 If the LED modules are not facing in the correct direction, grasp the track as close to the center as possible and rotate the entire track so that the modules face in the desired direction – the adapters will rotate in the sockets and will click into place at 90 degree increments – there is no need to remove the track from the R17d sockets to rotate it

5.0 Electrical Installation

5.1 Use wire nuts to connect the red striped (+) input wire of the modules to the red (+) output wire of the 24V power supply. Connect the black striped (-) input wire of the modules to the blue (-) output wire of the 24V power supply

5.2 Cap off the ends of any unused module wires

5.3 Make sure AC line is OFF before beginning power supply installation

5.4 Connect power supply to AC line in accordance with applicable local and state electrical codes

5.5 Secure power supply to clean metal surface using screws (see figure 11)

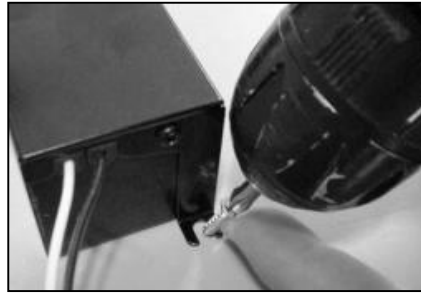


Figure 11

5.6 OPTIONAL AC DISCONNECT SWITCH INSTALLATION: Connect disconnect switch in line with VAC line (black wire) (see figure 12)

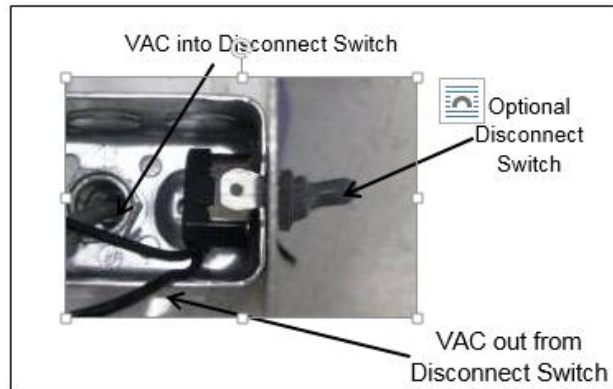


Figure 12

5.7 Finish power supply AC connection by connecting black VAC line to black input cord of power supply, and white neutral to white input cord of power supply. Connect green ground wire from line to the same metal surface the power supply is mounted on (see figure 13)

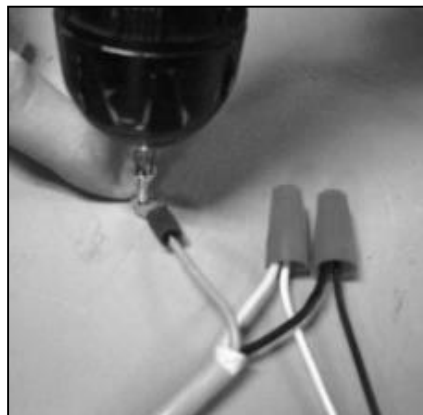


Figure 13

6.0 Power Supply Information

Item Number	Ordering Description	Power Supply Wattage	Input Voltage (VAC)	Input Current (A)	Output Voltage (V)
51514	OT75W/24V/UNV	75W	120/277	0.76/0.33	24
51522	OT96W/24V/UNV	96W	120/277	0.97/0.39	24

6.1 Single Side Signs

Max. Number of BoxLED Single Side Modules per Power Supply

Item Number	Ordering Abbreviation	BX06BA-W4F-XXX Products: 71287, 71288, 71289	BX-PL-XXX Products: 73519, 73534, 73535, 73738
		Max Modules per Power Supply	Max Modules per Power Supply
51514	OT75W/24V/UNV	13	20
51522	OT96W/24V/UNV	17	26

6.2 Double Side Signs

Max. Number of BoxLED Double Side Modules per Power Supply

Item Number	Ordering Abbreviation	BX12BA-W4F-XXX Products: 71920	BX-DS-PL-XXX Products: 73502, 73737
		Max Modules per Power Supply	Max Modules per Power Supply
51514	OT75W/24V/UNV	7	10
51522	OT96W/24V/UNV	9	13

NOTE:

- Power supply spacing to other heat producing components shall be minimum 2 inches spacing to sidewalls, and minimum 2 inches spacing to top of enclosure.
- Power supply shall be installed in a suitable electrical enclosure or raceway. If one is not provided, a UL Listed Sign Accessory Transformer Box may be used.

Troubleshooting Guide

Problem	Possible Cause	Corrective Action
Entire sign does not light	No input power	Check AC connection to power supply.
Entire sign/one or more LED runs do not light	No power to LED modules	Check power supply connection to modules.
		Check DC polarity- power supply red output wires must be connected to red striped module wires, power supply blue or black output wires must be connected to black striped module wires.
		Verify power supply output voltage is 24V +/- 1.0V
Part of an LED run does not light	No power to that run	Check module to module connection for correct polarity.
One module does not light	Module has been damaged	Replace the module. Observe correct polarity.



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