# Fluorescent Box Sign to LED Retro-fit Installation Instructions

## STxx-865-SS and STxx-865-DS

For Wet, Damp, and Dry Locations

### Equipment Needed

- Wire Strippers
- Manual screwdriver, rivet gun, or powered screwdriver with bit
- Tape Measure
- Pliers and/or Wrenches

**⚠ WARNING!!**

**To avoid electrical shock or fire:**

-Disconnect power at service panel prior to installation, troubleshooting or maintenance.

-Follow NEC and local wiring codes.

-Properly ground power supply(s) and fixture.

- Do not connect output of multiple LED power supplies in series or parallel.

-Module Ambient Operating Temperature = -29C to +60C

### Components Needed

- Wire nuts that accept 18 AWG wire
- UL recognized 18 AWG wire
- Serrated head sheet metal screws
- 18 AWG IDC, butt splice or junction connectors
- Cleaning cloth
- Non petroleum based cleaner
- Non-hardening caulk
- Disconnect switch (if required)
- *Everline* Sign Tube
- *Everline* 24V, Class 2 Power Supply
- Metal patch material

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**Step 1:** Before proceeding, ensure that the sign is not and cannot be energized by following the appropriate lock out/tag out procedures.

**Step 2:** Determine if the sign can be retrofitted and identify which parts to remove. The sign must be a listed sign that uses standard R17D recessed double contact (RDC) lamp holders.

-Remove existing fluorescent lamps and dispose of according to local codes.

-Remove existing enclosure covers to access the ballast. Remove the ballast from the existing electrical enclosure and cut back any exposed Type 2 wiring leading from the ballast to the lampholders. The lampholders will be re-used to mechanically mount the LED Modules but will be electrically non-functional.

**Step 3:** Prepare the sign by cleaning it with non-petroleum-based cleaner and let it dry.

**Step 4:** Examine the lampholders for mechanical serviceability. Replace lampholders that show signs of physical damage; ie cracked receptacle components, non-functioning springback.

**Step 5:** Examine the orientation of lampholder receptacle position and verify the LED array will face the diffuser/sign when mounted. If necessary, re-clock the mounting button on each end of the module as shown in Figure 1.

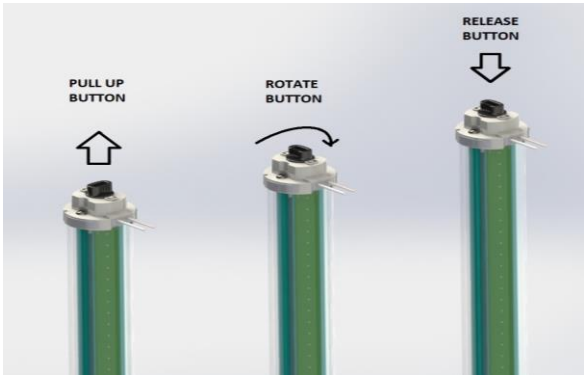


**Figure 1**

**Step 6:** Install the LED modules into the lampholders and interconnect the modules using one of the options shown in Figure 2 and 3 . The CLASS 2, 24 Volt connections can be made with IDC connectors, butt splices or wire nuts.

**WARNING!! :** All LED module wire interconnections must join white to white and white/red to white/red wires.

- At the end of the series chain of modules, the remaining 2 wires should be SEPARATELY capped with wire nuts.

**WARNING!! :** DO NOT connect the leads together at the end of the series chain.

**WARNING!! :** DO NOT EXCEED the maximum number of modules per driver listed in TABLE 1.

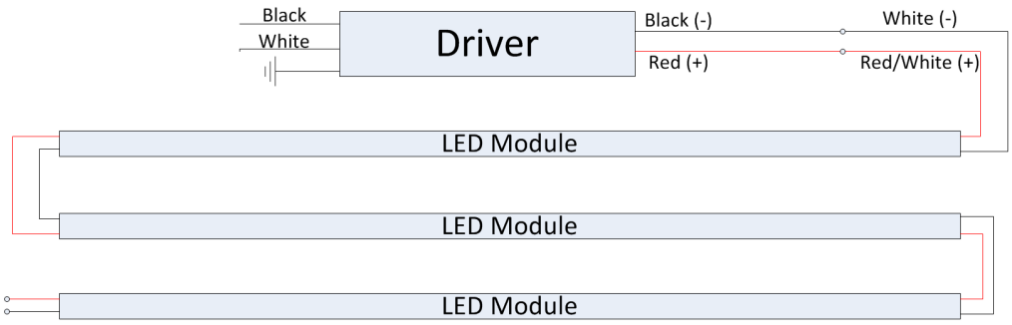


**Figure 2: Daisy Chain Wiring**

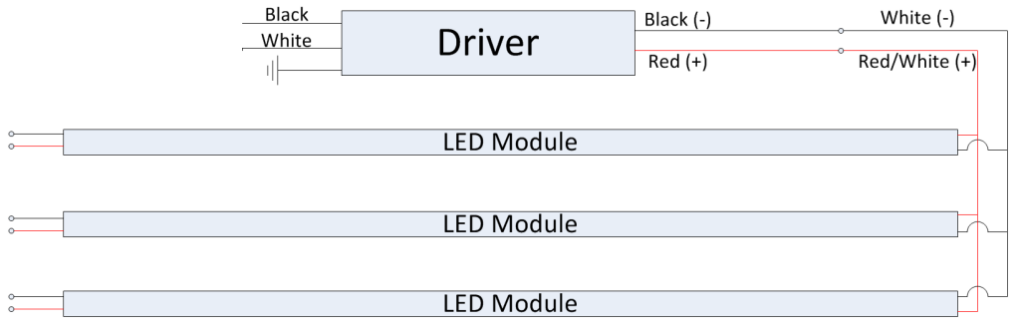


**Figure 3: Parallel Wiring**

**Step 7**: Install the LED driver power supply into the existing suitable electrical enclosure inside the sign. Fasten the supply securely using serrated head self taping screws to create a suitable ground to the sign.

**Step 8:** Determine if a disconnect switch needs to be installed.

-Disconnect switches may be remotely mounted in signs installed in the U.S.

-Signs installed in Canada are required to have a disconnect switch as part of the sign.

-Whether existing or new, the disconnect switch must be suitably rated for the driver, (1 amp@120V; .4 amp @277 Volt, minimum).

**Step 9:** DRIVER INTERCONNECT

-Use the existing conduit or raceway for wiring. Drill access holes where required for the CLASS 2, 24 volt wires to exit the raceway to interconnect to the LED module chain.

**CLASS 2 WIRING**

-Connect the white/red wire leading to the module chain to the red wire from the driver.

-Connect the white wire leading to the module chain to the black wire from the driver.

Use suitable UL Listed Class 2 wire if a wire extension is needed from module chain to the driver.

**SUPPLY CONNECTIONS**

-Connect the incoming wiring through the disconnect switch to the driver such that the line wire is attached to the line side (BLACK) wire of the power supply.

-Connect the incoming neutral wire to the white (NEUTRAL SIDE) of the driver. Make all wire-wire AC connections with approved 18AWG wire nuts.

**Step 10:** Patch or seal any unused openings in the rain enclosure that are not intended to be drain holes.

- Openings greater than ½ inch in diameter require a metal patch secured by screws or rivets and caulked with non-hardening caulk.
- Smaller holes may be sealed with a non-hardening caulk.

**Step 11:** Clear work area and test sign operation.

## Loading of a standard 24V 100W power supply

| Catalog Number | Module Power(W) | Max Qty/100W PS |
|---|---|---|
| ST24-865-SS | 6 | 16 Modules |
| ST24-865-DS | 12 | 8 Modules |
| ST48-865-SS | 12 | 8 Modules |
| ST48-865-DS | 24 | 4 Moduels |
| ST72-865-SS | 18 | 4 Modules |
| ST72-865-DS | 36 | 2 Modules |
| ST96-865-SS | 24 | 4 Modules |
| ST96-865-DS | 48 | 2 Modules |

Note: Max 32’ of single sided modules OR 16’ of double sided modules may be used on a 24V, 100W power supply

**Table 1: Driver Loading**

## Product Specifications

| Part Number | Length | Configuration | Voltage (V) | Initial Lumens | Power (Watts) | Lm/W |
|---|---|---|---|---|---|---|
| ST24-865-SS | 24" | Single Sided | 24 | 680 | 6 | 113 |
| ST24-865-DS | 24" | Double Sided | 24 | 1,360 | 12 | 113 |
| ST48-865-SS | 48" | Single Sided | 24 | 1,360 | 12 | 113 |
| ST48-865-DS | 48" | Double Sided | 24 | 2,720 | 24 | 113 |
| ST72-865-SS | 72" | Single Sided | 24 | 2,040 | 18 | 113 |
| ST72-865-DS | 72" | Double Sided | 24 | 4,080 | 36 | 113 |
| ST96-865-SS | 96" | Single Sided | 24 | 2,720 | 24 | 113 |
| ST96-865-DS | 96" | Double Sided | 24 | 5,440 | 48 | 113 |

## Trouble Shooting

| | |
|---|---|
| **NO LIGHT OUTPUT** | - Verify the power at breaker is on.<br><br>- Verify all module CLASS2 interconnections are white connected to white and white/red connected to white/red.<br><br>-Verify the last module in the chain has its loose set of wires individually capped off.<br><br>-Verify driver inut voltage is 120/277 volts; verify output voltage is 24 volts. |
| **NOT ENOUGH LIGHT** | -Verify the number of modules per driver does not exceed the recommended quantity in TABLE 1. |
| **SHADOWS** | - Tape down any wires that are hanging between the modules and the diffuser. |

Universal Lighting Technologies, Inc.
51 Century Blvd., Suite 230
Nashville, TN 37214-3683

General Info: (615) 316-5100
For Technical Engineering Services (TES), application support and warranty information, call 1-800-225-5278

Website: www.unvlt.com

Email: webmaster@unvlt.com



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