

SAFETY WARNINGS

IMPORTANT SAFETY INFORMATION

DANGER

Risk of shock. Disconnect power before installation.
DANGER- RISQUE DE CHOC- COUPER L'ALIMENTATION AVANT L'INSTALLATION

WARNING

Risk of fire or electric shock. LED Retrofit Kit installation requires knowledge of signs electrical systems. If not qualified, do not attempt installation. Product must be installed in accordance with NEC or your local electrical code. If you are not familiar with these codes and requirements, contact a qualified electrician.

ATTENTION- Risque d'incendie ou de choc électrique. L'installation du kit upgrade LED exige la connaissance des systèmes électriques pour enseignes. Si non qualifié, ne tentez pas d'installation. Ce produit doit être installé conformément à NEC ou votre code électrique local. Si vous n'êtes pas familier avec ces codes et ces exigences, veuillez contacter un électricien qualifié.

WARNING

Risk of fire or electric shock. To prevent wiring damage or abrasion, do not expose wires to the edge of sheet metal or any other sharp objects.

ATTENTION- Pour éviter les dégâts de câblage par l'abrasion, ne pas mettre en contact les fils électriques avec des bords de tôle ou d'autres objets pointus.

WARNING

Risk of fire or electric shock. Check the existing wiring for damage before installing upgrade kit. Do not install if existing wires are damaged.

ATTENTION- Risque d'incendie ou de choc électrique. Vérifier si le câblage existant n'est pas endommagé avant l'installation du kit upgrade LED. Ne pas installer si des fils sont endommagés.

WARNING

Risk of fire or electric shock. Sign wiring and electrical parts may be damaged when drilling for installation of the LED upgrade kit. Check for enclosed wiring and components.

ATTENTION- Risque d'incendie ou de choc électrique. Câblage électriques peuvent être endommagés lors du perçage pour l'installation du kit upgrade LED. Vérifier les fils et composants.

WARNING

Risk of fire or electric shock. Install this kit only in host signs that have been identified in the installation instructions and where the input rating of the retrofit kit does not exceed the input rating of the sign.

AVERTISSEMENT - Risque d'incendie ou de choc Électrique. Installez cet ensemble seulement dans des enseignes hôtes qui ont été identifiés dans les instructions d'installation et dont la capacité d'entrée de l'ensemble ne dépasse pas la capacité d'entrée de l'enseigne.

**SUITABLE FOR WET OR DAMP OR DRY LOCATION.
POUR EMPLOI MOUILLÉE OU HUMIDE OU ENDROIT SEC**

WARNING

Risk of fire or electric shock. Install this kit only in signs that have the construction features and dimensions shown in the photographs and/or drawings.

ATTENTION- Risque d'incendie ou de choc électrique. Installez ce kit seulement dans les enseignes qui ont les caractéristiques de construction et les dimensions dans les photographies ou les dessins de la page suivante.

Only the holes indicated in the photographs or drawings may be made or altered as a result of the kit installation. Do not leave any other holes open in a wiring enclosure or electrical component.

Seulement les trous indiqués dans les photographies ou les dessins peuvent être faits ou altérés pour l'installation du kit upgrade LED. Ne laissez aucun trou ouvert dans le compartiment électrique.

NOTE THE RETROFIT KIT IS ACCEPTED AS A COMPONENT OF A SIGN WHERE THE SUITABILITY OF THE COMBINATION SHALL BE DETERMINED BY UL OR AUTHORITIES HAVING JURISDICTION.

LE NÉCESSAIRE DE MODERNISATION EST ACCEPTÉ À TITRE DE COMPOSANT D'UN ENSEIGNE LORSQUE LA PERTINENCE DE LA COMBINAISON DOIT ÊTRE DÉTERMINÉE PAR LA UL OU PAR LES AUTORITÉS COMPÉTENTES.

WARNING

Risk of fire or electric shock. Do not use this retrofit kit with existing shunted bi-pin lampholders in the host sign. Note: Shunted lampholders are found only in fluorescent signs with Instant-Start ballasts. Instant-Start ballasts can be identified by the words "Instant Start" or "I.S." marked on the ballast. This designation may be in the form of a statement pertaining to the ballast itself, or may be combined with the marking for the lamps with which the ballast is intended to be used, for example F40T12/IS. For more information, contact the LED retrofit manufacturer.

AVERTISSEMENT - Afin d'éviter tout risque d'incendie ou de choc électrique, ne pas utiliser ce nécessaire de modernisation dans un luminaire qui utilise une douille de lampe à deux broches shuntées. Note : les douilles de lampe shuntées ne se trouvent que dans les luminaires fluorescents munis de ballasts à allumage instantané. Les ballasts à allumage instantané peuvent être identifiés par les mots « Allumage instantané » ou « A.I. » (ou en anglais "InstantStart" ou "I.S.") Inscrits sur le ballast. Cette désignation peut être sous forme d'un énoncé concernant le ballast lui-même ou peut être combinée au marquage des lampes avec lesquelles le ballast est destiné à être utilisé (p. ex., F40T12/ AI ou en anglais F40T12/IS) Pour plus d'information, communiquer avec le fabricant du néces de modernisation du luminaire à del.

SAFETY WARNINGS | IMPORTANT SAFETY INFORMATION



Before you begin.

Read these instructions completely & carefully.



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

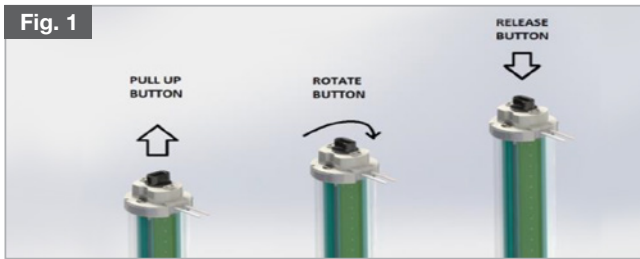
INSTALLATION

EQUIPMENT NEEDED

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

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
- Non-hardening caulk
- Disconnect switch (if required)
- Everline Sign Tube
- Everline 24V, Class 2 Power Supply
- Metal patch material



Step 1:

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

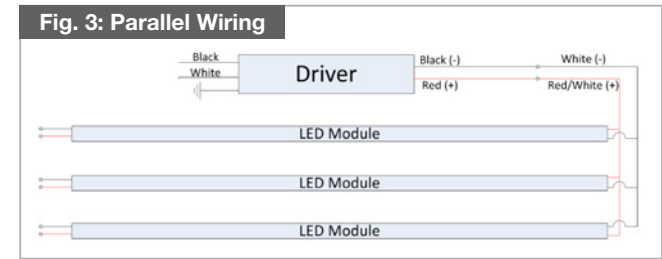
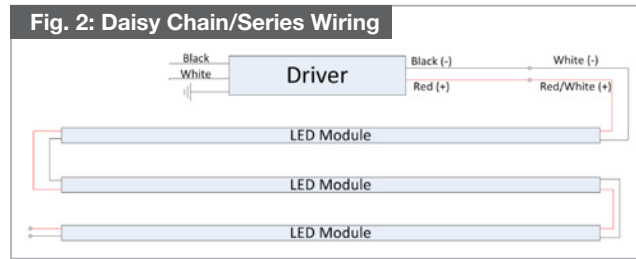
Step 2:

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:

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



Step 4:

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**.

Step 5:

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**.

INSTALLATION

Step 6:

Install the LED driver power supply into the existing suitable electrical enclosure inside the sign or remotely according to the table below. Fasten the supply securely using serrated head self tapping screws to create a suitable ground to the sign.

Driver Model	Installation
D24V100UNV-Q	Remote mount using listed junction box.
D24VA100UNV-A	
D24VA100UNVA-A	Install in existing wiring compartment of the electrical enclosure of the sign.
D24V100UNV-A	

Step 7:

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 8: 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 sign module to the red wire from the driver.
 - Connect the white wire leading to the sign module 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 wire nuts for the branch circuit & LED driver supply conductors.

Step 9:

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 10:

Clear work area and test sign operation.

TABLE 1

LOADING OF A STANDARD 24V 100W POWER SUPPLY

Part Number	Module Power (W)	Max Qty/100W PS
STR24-865-SS	6	16
STR24-865-DS	12	8
STR36-865-SS	9	11
STR36-865-DS	18	5
STR48-865-SS	12	8
STR48-865-DS	24	4
STR60-865-SS	15	6
STR60-865-DS	30	3
STR72-865-SS	18	5
STR72-865-DS	36	2
STR84-865-SS	21	4
STR84-865-DS	42	2
STR96-865-SS	24	4
STR96-865-DS	48	2
STR108-865-SS	27	3
STR108-865-DS	54	1
STR120-865-SS	30	3
STR120-865-DS	60	1

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

INSTALLATION

PRODUCT SPECIFICATIONS

Part Number	Length	Configuration	Voltage (V)	Initial Lumens	Power (Watts)	Lm/W
1 ST24-865-SS	24"	Single Sided	24	775	6	129
2 ST24-865-DS	24"	Double Sided	24	1550	12	129
3 ST36-865-SS	36"	Single Sided	24	1163	9	129
4 ST36-865-DS	36"	Double Sided	24	2325	18	129
5 ST48-865-SS	48"	Single Sided	24	1550	12	129
6 ST48-865-DS	48"	Double Sided	24	3100	24	129
7 ST60-865-SS	60"	Single Sided	24	1938	15	129
8 ST60-865-DS	60"	Double Sided	24	3875	30	129
9 ST72-865-SS	72"	Single Sided	24	2325	18	129
10 ST72-865-DS	72"	Double Sided	24	4650	36	129
11 ST84-865-SS	84"	Single Sided	24	2713	21	129
12 ST84-865-DS	84"	Double Sided	24	5425	42	129
13 ST96-865-SS	96"	Single Sided	24	3100	24	129
14 ST96-865-DS	96"	Double Sided	24	6200	48	129
15 ST108-865-SS	108"	Single Sided	24	3488	27	129
16 ST108-865-DS	108"	Double Sided	24	6975	54	129
17 ST120-865-SS	120"	Single Sided	24	3875	30	129
18 ST120-865-DS	120"	Double Sided	24	7750	60	129

Driver Model	Installation
L24V100UNV-Q	Remote mount using listed junction box.
D24VA100UNV-A	Install in existing wiring compartment of the electrical enclosure of the sign.
D24VA100UNVA-A	
L24V100UNV-A	

TROUBLE SHOOTING

NO LIGHT OUTPUT	<ul style="list-style-type: none"> Verify the power at breaker is on. Verify all module CLASS2 interconnections are white connected to white and white/red connected to white/red. Verify the last module in the chain has its loose set of wires individually capped off. Verify driver input voltage is 120/277 volts; verify output voltage is 24 volts.
NOT ENOUGH LIGHT	<ul style="list-style-type: none"> Verify the number of modules per driver does not exceed the recommended quantity in TABLE 1.
SHADOWS	<ul style="list-style-type: none"> Tape down any wires that are hanging between the modules and the diffuser.

LOADING OF A STANDARD 24V 100W POWER SUPPLY

Part Number	Module Power (W)	Max Qty/100W PS
ST24-865-SS	6	16
ST24-865-DS	12	8
ST36-865-SS	9	11
ST36-865-DS	18	5
ST48-865-SS	12	8
ST48-865-DS	24	4
ST60-865-SS	15	6
ST60-865-DS	30	3
ST72-865-SS	18	5
ST72-865-DS	36	2
ST84-865-SS	21	4
ST84-865-DS	42	2
ST96-865-SS	24	4
ST96-865-DS	48	2
ST108-865-SS	27	3
ST108-865-DS	54	1
ST120-865-SS	30	3
ST120-865-DS	60	1

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

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WARNING To avoid electrical shock or fire:

- Disconnect power at service panel prior to installation, troubleshooting or maintenance.
- Always follow NEC and local wiring requirements.
- Properly ground power supply and fixture. Do not connect output of power supplies in series or parallel.
- Power supply to LED module connections are black to negative and red to positive. Operating temperature -30°C to 65°C

INSTALLATION

SPECIFICATIONS

Input Voltage	120-277V AC 50-60Hz
Input Current	0.95A/120V 0.40A/277V
Output Voltage	24V DC
Output Current	4.0 Amps

COMPONENTS NEEDED

- Wire stripper
- Manual screwdriver, rivet gun or powered screwdriver and bit
- UL recognized 18 AWG supply wire
- UL LISTED Junction Box or
- UL LISTED Junction Box for WET Locations
- Wire nuts that accept 18-20 AWG wire
- ½" NPT Conduit nipple
- ½" NPT Conduit Nuts
- 15/16" Wrench

Step 1:

Pull the three (3) primary wires (line, neutral, and ground) through a ½" NPT pipe NIPPLE.

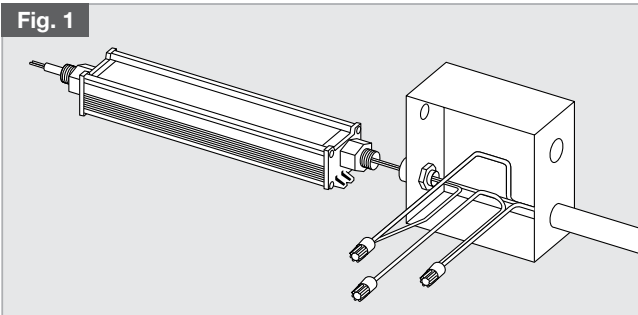
Step 2:

Secure conduit hub on power supply with 15/16" wrench while tightening nipple.

Step 3:

Thread a ½" NPT nut sufficiently to allow the desired positioning of the power supply with respect to the junction box. **(For wet locations use junction box that is UL Listed for wet locations.)**

Fig. 1



Step 4:

Pull the three (3) primary wires into the junction box and through a second ½" NPT nut.

Step 5:

Thread both ½" NPT nuts firmly against the junction box.

Step 6:

(Have a licensed electrician) Connect the three (3) primary wires to the respective wires coming from the sign's service with wire nuts. Connections are black to black; white to white; and green to green.

NOTE: Multiple LED Drivers may be mounted to a single outlet box for connection to the mains supply. Repeat steps 1-6 for each additional driver. Follow all applicable installation and electrical codes when configuring multiple drivers to a single outlet box.

Step 7:

Plug all unused ports/knockouts on the junction box with suitable plugs.

Step 8:

Install junction box cover and ensure that the mounting seam has sufficient sealer to waterproof junction box.

Step 9:

Connect the red (+) wire on the secondary (output) of the LED Driver to the positive (+) lead of the LED module. Connect the black (-) wire of the secondary of the LED Driver output cable to the negative lead (-) of the LED module.

NOTE: The LED Driver output is designated Class 2 and the driver connects to sign modules with an integral class 2 cable. Class 2 cables do not require conduit per NEC (NFPA70) article 725. When routing the LED driver Class 2 output Cable through a wall to reach the sign modules (in accordance with NFPA 70), seal all wall penetrations with silicone to avoid water damage.