

**RETROFIT SIGN CONVERSION LED KIT
FOR USE ONLY IN ACCORDANCE WITH
KIT INSTRUCTIONS
43KR**



SYSTEM 100 INSTALLATION MANUAL

NOTICE TO DISTRIBUTORS: When provisioning an LED Kit for a customer, include a copy of this installation sheet and only provide items specified in this manual. No substitutions allowed. Customer need only follow instructions in this installation sheet to assure that converted sign meets UL requirements for retrofit sign conversion.

KIT INSTRUCTIONS: HOW TO RETROFIT AN EXISTING SIGN:

CAUTION: Disconnect all power to the sign before beginning conversion to the Venbrite Led System.

1. Remove channel letter face.
2. Install a disconnect switch if missing.
3. **For Neon Signs** (including raceway & remote mounted transformer applications): Carefully remove neon tubing, tube supports, GTO wire**, bushings, PK housings (if used) and transformers. Leave transformer box & conduit in remote transformer applications.
For Fluorescent Signs: Carefully remove fluorescent tubes, tube supports, wire covers, output wiring and Ballasts.
For LED Signs: Carefully remove power supplies, LED drivers, LED modules, arrays and output wiring.
NOTE: Comply with all applicable federal and local regulations when disposing of channel letter neon, Fluorescent or LED lighting system components.
4. Remove all debris from the sign. Clean the application surface of the sign interior with an oil-free, non-residue solvent or cleaner, following manufacturer's directions. Any residue can interfere with proper adhesion of the VHB tape affixed to the LED module back.
5. Inspect the sign interior for holes. Fill openings 1/2 inch or smaller with rated caulk or silicone, following manufacturer's directions. Use a metal patch secured with screws or rivets on larger openings or holes. Do NOT fill drain holes.
6. Install Venbrite LED System as instructed in this Installation Manual.

**** ALTERNATE CONSTRUCTION FOR RETROFIT SIGN CONVERSION LED KIT**

Neon Sign conversion to the Venbrite® LED system may also use the following retrofit option where existing GTO wire, either in a raceway or remote neon transformer application, may be used to provide the electrical connection between LED strings or LED Driver output.

1. If the existing GTO wire in the sign has an outside diameter, over insulation, less than or equal to 5/16 in (0.312 in) then it can be used in retrofit.
2. Follow instructions 1-5 above for converting a Neon sign, except that GTO wire is not removed. For remote application, use the existing transformer box, conduit & GTO wire. Mark both ends of GTO wire(s) to provide polarity identification. This will save time when installing the Venbrite® system. Polarity must be observed. Note that the Venbrite® LED system is protected for reverse polarity, so installing with incorrect polarity can easily be remedied.
3. Install the Venbrite® LED System as instructed in this Installation Manual. For remote application, install Venbrite® driver in the transformer box. Prepare the GTO & Venbrite® L.V. LED wire ends for connection as shown below. Note that the L.V. LED wire is stripped longer than GTO wire, brought over & twisted around the stripped GTO wire before inserting into wire nut
4. Observing polarity, connect output leads of the Venbrite® driver to the GTO wire. Connect the LED string wires to the GTO wire using Ventex Wire Nut P/N: VA-WN02 or Ideal Industries Inc (E163183) wire connector cat no. #30-x62 (where 'x' = package style). Confirm Polarity is correct.

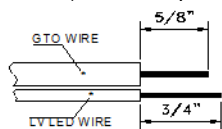


Fig. 5

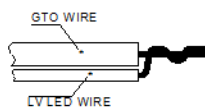


Fig. 6

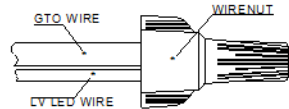


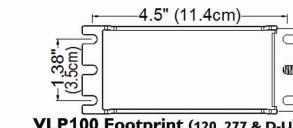
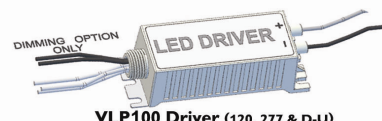
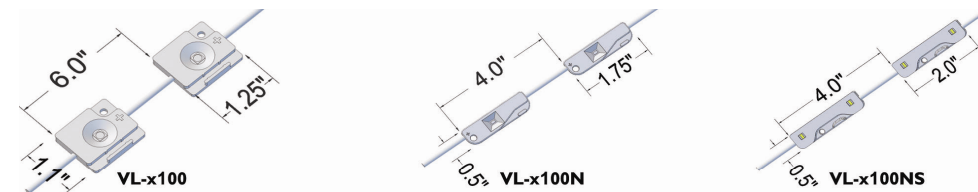
Fig. 7

Thank you for purchasing the Venbrite® LED SYSTEM. For proper installation and operation please read the following directions and tips carefully. It is the user's responsibility to ensure installation complies with national and local electrical codes.

Drivers: VLP100-120 // VLP100-277
VLP100D-U
Strings: VL-x100 // x100N // x100NS
Series-driven, constant current led system for signage
x = LED Color
W=White // CW=Cool White // WW=Warm White
G=Green // B=Blue // R=Red // A=Amber

SPECIFICATIONS

LED DRIVER:	VLP100-120	VLP100-277	VLP100D-U
Input Voltage, (50/60Hz)	120V _{AC} (+/- 10%)	277V _{AC} (+/-10%)	100V _{AC} – 277V _{AC} (+/-10%)
Input Current @ Max Load	0.5A _{RMS}	0.25A _{RMS}	0.5A _{RMS} @ 120V _{AC}
Power Factor	0.95 min	0.90 min	0.95 min
Input Conduit Connection	1/2in Conduit Thread (12.7mm)		
Input Leads - L(Blk), N(Wht), E(Grn)	18 AWG 18" (0.46M) - UL1015		
Input Surge Protection	Varistor Type		
Output Voltage	0-400 V _{DC} (+/- 200V _{DC} max to Gnd)		
Output Current (Line & Load Regulated)	125mA _{DC} (Factory Set)		
Dimming Output	N/A		50% (see #16)
Output Leads (+ pos & - neg)	18 AWG 18" (0.46M) - VA-W02 (+Red) VA-W00 (-Blk)		
Maximum LED Modules (ft) per Driver: For x: W=white, CW=cool white, G=green, B=blue, A=Amber	VL-R100	150 modules (75ft)	
	VL-x100	120 modules (60ft)	
	VL-R100N	150 modules (50ft)	
	VL-x100N	120 modules (40ft)	
	VL-R100NS	135 modules (45ft)	
VL-x100NS	105 modules (35ft)		
Minimum LED Modules per Driver:	1 LED Module (all colors)		
Accessory: LED Wire	P/N= VA-W09 (18 AWG, 600V, WHT, VW-1)		
Accessory: Wire Nut	P/N= VA-WN01 or VA-WN02		
Built-In Protection:	GFI, Open & Short Circuit, Overload, Reverse Polarity		
Driver Size: LxWxH (cm) / Wt	4.85" x 2.0" x 1.45" (12.4cm x 5.0cm x 3.7cm) / 12.5oz (350g)		
Agency Approvals & Compliance:	E324241	E329929 43KR	RoHS Compliant
Operating Temperature	-30°F to 122°F (-34°C to 50°C) When Operating at Ambient Temperatures Higher than Above Limit, Reduce Load by 10% for each 9°F (5°C) Ambient Rise		



GENERAL PURPOSE RETROFIT SIGN CONVERSION
FOR USE ONLY IN ACCORDANCE WITH KIT INSTRUCTIONS
KIT IS COMPLETE ONLY WHEN ALL PARTS REQUIRED BY THE INSTRUCTIONS ARE PRESENT

INSTALLATION INSTRUCTIONS:

CAUTION: Output is **NOT** Class 2. Make sure input power is off prior to installation.

* WIRES IN SERIES, JUST LIKE NEON *

The Venbrite® LED System has been designed especially for installation in channel letter signs, raceway / wireway & remote applications. The System is UL Recognized and may be used in non-enclosure rated signs as well as reverse channel letter applications. Direct mounting of LED modules and/or driver on plastic sheet is permitted under suitable conditions.

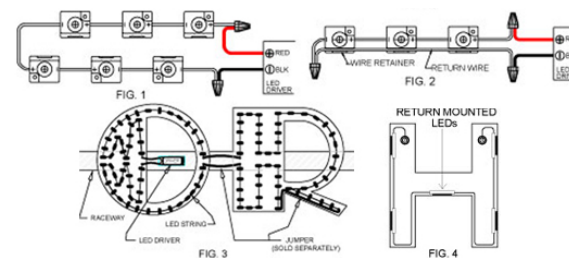
1. This LED System is suitable for dry or damp locations. Do not mount where it can stand in water.
2. Primary wiring must be connected by a licensed electrician and comply with National Electrical Code and NFPA 70 standard, including the use of disconnect switches and enclosures.
3. The LED driver can be direct mounted in enclosure or non-enclosure rated self-contained channel letters, box signs, raceway / wireway or remote applications.
4. **DO NOT** ground output wiring.
5. Input grounding (green) wire of LED driver must be connected to ground.
6. If using multiple LED drivers, maintain at least 6 inches of distance between them. This will minimize the effects of "electronic crosstalk."
7. Mount the LED driver using proper size hardware (# 8 sheet metal screws or pop rivets). Optional UL approved mounting methods may also be used. LED modules can be mounted using the attached peel & stick VHB tape, # 6 screws, 1/8in pop-rivets or an approved UL recognized adhesive may also optionally be used.
8. If the LED driver is mounted on a metallic surface, make sure it is grounded to the metal frame via the ground foot provided on the LED driver, using UL approved mounting methods. Typically a straight run of LED modules would be fastened using a screw or rivet in each end module while the middle modules are held down using the attached VHB tape.
9. Observe output polarity. Although LED Driver & LED modules will not be damaged by reverse polarity, there will be no light produced.
10. **DO NOT** connect LED Strings in parallel as they will run dimmer than normal.
11. **DO NOT** use a dimmer on input of the LED driver. The driver maintains a constant output current regardless of load or primary voltage.
12. **DO NOT** connect Venbrite® LED Modules to a Class 2 supply or any battery.
13. **DO NOT** overload. The driver has overload protection. If the Maximum number of LED's per driver is exceeded the unit will Latch OFF (trip).
14. When connecting LED driver to LED Module String, use the following:
 - A) For Enclosure Rated Sign; Any application approved UL wire connector and #18AWG, 600V wire, can be used.
 - B) For Non-Enclosure Rated Sign; use Ventex Wire Nut P/N: VA-WN01 or Ideal Industries Wire Connector cat no. #30-x61 (where 'x' = package style); for return/jumper wire, Use LED wire, Ventex P/N: VA-W09 (#18 AWG, 600V, White, VW-1). This LED wire, sold separately, is unique & integral to the LED system. No substitutes allowed unless otherwise specified in this manual. Typically a single stroke LED string will need a return wire from the end farthest away from the driver. (See examples next page). This same wire can also be used to jump between LED string ends as required.
15. Mounting on Suitable Sign face material: A temperature test was conducted with LED modules in a box with an overall density of 1 module/6in3 (98cm3) & LED driver in a box with an overall density of 1 driver/31in3 (500 cm3). The maximum case temperature measured was 83°C for both driver & LED case. The suitability of any condition that would result in a more severe wattage density shall be determined. The temperature rating of any UYMR2 material the LED module or driver may be mounted to shall be considered in the end product.
16. **Dimming option:** Connect yellow & violet wires to an ON-OFF switch. When switch is ON the output current is reduced 50%. For polarized switch, tie yellow wire to positive contact and violet to negative one. If the dimming option is not required, cut the yellow & violet wires and cap each with wire nut.

TROUBLESHOOTING TIPS

There is a protection circuit in the LED driver that will latch off (trip) the power whenever an open circuit, GFI or overload condition occurs. If your LED sign is off, and the AC input power is on, the LED driver has probably tripped due to fault conditions. If so, remove power to the driver. This action will reset the protection circuit. Clear the fault and wait at least 5 seconds before reapplying power. If tripping continues, remove power and check the following:

1. Is output wiring properly connected? Turn off power and check wiring.
2. Does LED driver have correct input AC voltage? Measure volts AC into driver. Check the breaker. Check the wiring.
3. Is there a break in the output series connected circuit? Jumper the cut wire.
4. Is there a short circuit at the LED driver output? Look for damaged wire.
5. Is output wired with the polarity reversed? Make sure driver + output is connected to + of 1st LED Module. Make sure each successive LED module is connected + to -.
6. Have the maximum modules per LED driver been exceeded? Count the modules and confirm number is within maximum listed under specifications.

Note: Do not attempt to disassemble LED driver or LED module for repairs. This action will void any warranty offers made by Ventex.



INSTRUCTIONS FOR REPLACING A DEFECTIVE LED MODULE:

In the event of a defective LED in a module, a parallel shunt, located in the module, will allow current to continue to flow through and light the remaining LED modules. This will allow identification of the faulty LED module. Simply turn off the power and replace with the correct color module using UL recognized hardware (wire nut, butt splice, etc) for Enclosure rated signs and for Non-Enclosure rated signs use Ventex Wire Nut (VA-WN01) or Ideal Industries (#30-x61) and if needed Ventex L.V. LED Wire (VA-W09). Turn power back on.

Venbrite® LED strings can easily be mounted in a number of different configurations. For a double stroke letter, Fig. 1 shows a simple loop pattern that will minimize the use of a return wire. Fig. 2 shows a single stroke pattern with return wire. The return wire, sold separately, is pressed into a wire support clamp located on each module to facilitate assembly. Fig. 3 shows a raceway application. Fig. 4 shows side mounted application.

NOTE: Output polarity is required.

Venbrite® Warranty

Ventex Venbrite® LED System Warranty

Ventex Technology, LLC warrants its Venbrite® LED Systems to be free from defects in materials and workmanship for a period of five (5) years from date of manufacture, provided the LED modules and LED Drivers are used together as a system and no third party devices are attempted to be used in the system. Should any LED Module or LED Driver fail to perform during the warranty period, Ventex will replace or repair any defective product that has been returned to Ventex as per the Terms and conditions specified below.

Venbrite® Terms and Conditions This limited warranty is based on reasonable usage in signage for image identification. All LED systems have varying degrees of light degradation over the life of the product and even the best of LED designs considers this to be a normal part of LED technology. This Limited Warranty is valid only when the Venbrite LED modules and LED Driver are used together for their intended purpose and properly installed and wired in accordance with all instructions, building codes, the latest UL Standards of Safety, NEC, CSA or any other domestic or international safety agencies. Any use outside intended use or conditions stated in the Venbrite Instruction Sheets, including third party dimming, flashing or other effects, or extreme environmental conditions void this warranty.

Venbrite® Claim Assistance If a Venbrite LED product fails under this warranty, please contact Customer Service at Ventex Technology, LLC (1-800-510-5400) for an RMA number. With the RMA number, the product should be returned to Ventex Technology, LLC transportation prepaid, within 30 days of RMA issuance for the RMA to remain valid. Ventex may elect to provide replacement product or repair at its own discretion once verification of the defective product is determined. Ventex's liability on any claim shall never exceed the purchase price of the specific product which gives rise to the claim.

Ventex Limitation of Liability Ventex Venbrite LED Systems are the highest quality lighting products. Repair or replacement of product is the sole remedy available. THE AFOREMENTIONED IS IN LIEU OF ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PURPOSE. UNDER NO CIRCUMSTANCES SHALL VENTEX TECHNOLOGY, LLC BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, INDIRECT OR SPECIAL DAMAGES OR LIABILITY, TRANSPORTATION, INSTALLATION OR COSTS, DELAYS, OR FOR ANY OTHER DAMAGES, COSTS, OR EXPENSES INCURRED, LOSS OF PROFITS, INCOME OR REVENUE, IRRESPECTIVE OF HOW THEY OCCURRED.

In addition, any drawing, layout, estimate, quotation or other documentation, whether verbally or written, regarding suggested product type, quantities or usage is for reference only and should be treated as such. Ventex will not be responsible for minimum or estimated illumination levels or other performance characteristics. Ventex maintains the right to test or examine all products returned under warranty to evaluate proper usage, determine the cause of failure and in our own judgment, make a determination whether the products are defective and covered under warranty. There are no warranties, obligation and/or liabilities on the part of Ventex, whether for products, services or otherwise, which extend beyond the description mentioned in this document.