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EssentialLEDs Orb Display Case Lighting Fixture Installation Instructions

**WARNING: FIXTURES MUST BE INSTALLED USING CLASS 2 POWER UNIT
FROM CONSTANT CURRENT DRIVER CHART PROVIDED BELOW.**

**INSTALLATION OR USE OF FIXTURES WITH OTHER THAN THE UNITS LISTED MAY CAUSE
ELECTRICAL SHOCK, FIRE OR PERMANENT PRODUCT DAMAGE.**

*This Product Must Be Installed in Accordance with the Applicable Installation Code
by a Person Familiar with the Construction and Operation of the Product and the Hazards Involved.*

EssentialLEDs Orb Display Case Lighting fixtures must be installed using 350mA Constant Current LED drivers specifically designed for use with LED products, per product warranty. Visual Lighting Technologies offers a variety of Constant Current LED drivers for use with **Orb** Display Case Lighting fixtures, ranging from 6w to 100w. In some applications, a driver with a standard wall plug may be a convenient option.

Because of the variable drive currents possible with **Orb** fixtures, desired lumen output should be determined at the time of system design. **All fixtures are labeled with wattage use for all three drive currents;** wattage total for a system should not exceed 80% of the driver capacity provided for that system.

Each head of an **Orb** fixture is 4.25 watts and the size and number of drivers needed will be determined by the configuration of your application, which has been designed to use the drivers as efficiently as possible. All drivers are ETL Listed (UL 2180, UL8750, UL962) when used as part of an EssentialLEDs **Orb** display lighting system.

Select the correct Class 2 Power Unit (Constant Current LED driver) from chart provided on page 3

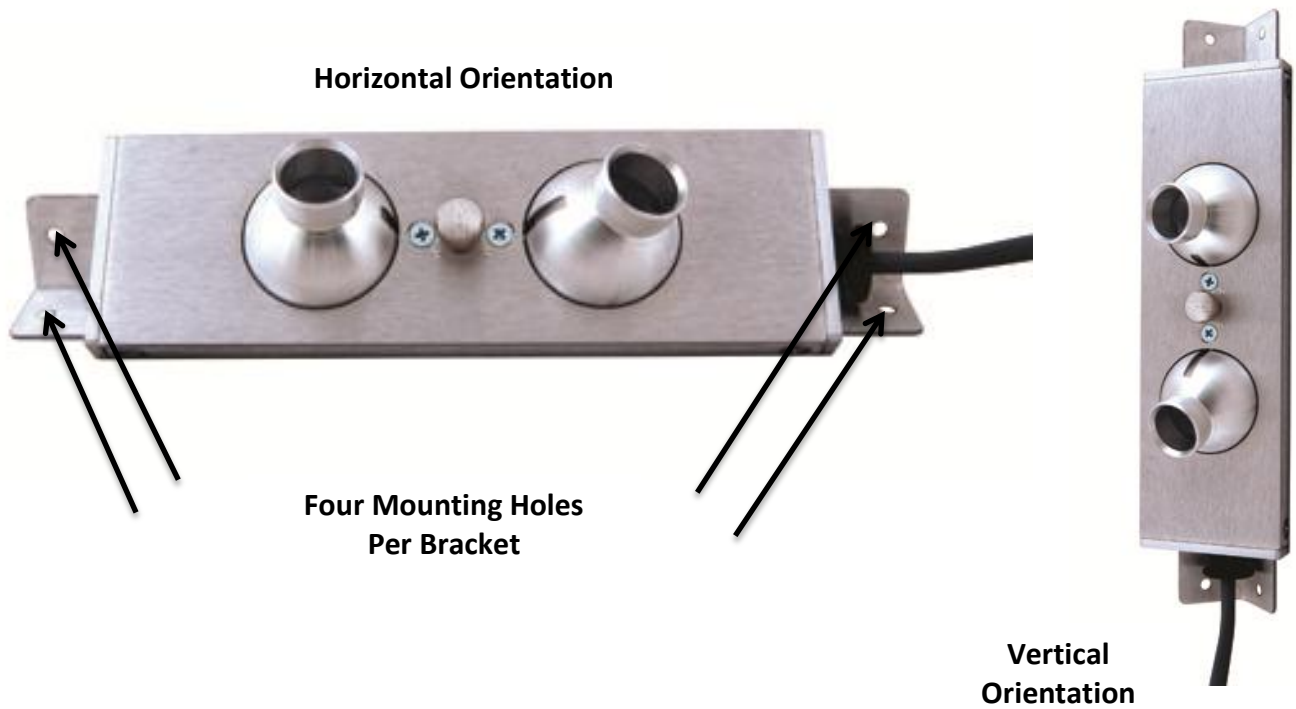
General Notes Re: Installation of EssentialLEDs Orb Display Lighting Fixtures

- Before beginning installation, study the layout and circuit structure as specified in the application plans and insure that each circuit is assigned to an appropriately-sized driver. Using drivers or power supplies other than those supplied by VLT will **VOID PRODUCT WARRANTY.**
- For **any single fixture** or **any combined fixtures**, if total wattage exceeds driver capacity by even a small amount, **the next size driver must be used!** (i.e. 42 LEDs x .25w = 10.5 watts: **Must Use 25w 24v Driver!**) Exceeding driver capacity will void driver warranty and cause the system to deliver less-than-specified light output.
- Before connecting **Orb** fixtures to power supply, insure correct polarity of wiring to avoid damage to the LED board: Red = +, Black = -. **Constant Current LEDs MUST BE WIRED IN SERIES. SEE SCHEMATICS ON PAGE 3.**

- **Orb** fixtures must be installed only in locations that conform with the stated IP rating and within the Operating Ambient Temperature range of -22° to 95° F [-30° to 40° C]. **Orb** fixtures are intended for interior, dry or damp locations only.
- **Orb** fixtures **cannot be daisy-chained**.

Mounting Options

Orb's spherical heads are seated into a self-mounting 90° angled housing/mounting plate. The housing/mounting plate was designed to mount horizontally or vertically, to fit into top, bottom or side corners of display windows, niches or millwork. Each mounting plate has four screw holes; screws provided by others.



Wiring

Feed wiring to driver according to installation plans; when determining placement of driver, avoid strain on fixture wiring.

Standard termination is 96" [2.44m] wire length with male JST Slim Seal connector; connector can be removed for hard wired installations.

Two-foot and 8-foot starter cables are available for connection to driver leads. Two-way, 4-way and 8-way splitters are available for connecting multiple fixtures to one driver.

Placement of the drivers, and the routing of wires to the drivers, will vary from project to project. In some applications, conduit may be needed to provide a wiring chase, or wires may be routed through plenum areas. Supply wire to driver must be 18 AWG minimum, SJ. For more detailed instructions, please consult NEC codes and/or the plans for your specific installation.

Wiring Guidelines

Standard circuit diagrams for wiring EssentialLEDs Elegance-2 fixtures are provided below. Circuit Diagrams illustrate correct wiring schematics for a Single Branch Configuration without Dimmer, Multiple Branch Configuration without Dimmer, and Multiple Branch Configuration with Dimmer. (Dimmers sold separately)

Driver Selection

Driver	Manufacturer	Type	Capacity	Input Voltage	IP Rating
350/500/700mA					
SL036151-X	eldoLED	Constant Current/Dimmable/0-10v	30w	120-277 V 50/60Hz	IP64
SL056151-X	eldoLED	Constant Current/Dimmable/0-10v	50w	120-277 V 50/60Hz	IP64
SL106051-X	eldoLED	Constant Current/Dimmable/0-10v	100w	120-277 V 50/60Hz	IP64
PW056251-X	eldoLED	Constant Current/Dimmable/0-10v	50w	120-277 V 50/60Hz	IP64
PWR10651-X	eldoLED	Constant Current/Dimmable/0-10v	100w	120-277 V 50/60Hz	IP64
350mA					
66864 US	Lightech	Constant Current/Non Dimmable	6w	120-277 V 50/60Hz	IP67
66867 US	Lightech	Constant Current/Non Dimmable	10w	120-240V 50/60Hz	IP67
66885 US	Lightech	Constant Current/Dimmable to 10%	18w	108-132V 50/60Hz	IP67
700mA					
66866	Lightech	Constant Current/Non-Dimming	6w	120-277V 50/60Hz	IP67
66868	Lightech	Constant Current/Non-Dimming	10w	120-240V 50/60Hz	IP67
66884	Lightech	Constant Current/Dimmable to 10%	18w	120-277V 50/60Hz	IP67
66904	Lightech	Constant Current/Dimmable to 10%	36w	120-277V 50/60Hz	IP67

Cleaning and Maintenance

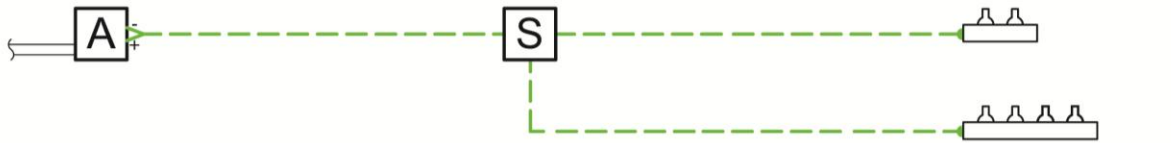
To clean **Orb** products, wipe all surfaces with a soft damp cloth. **DO NOT** use solvents or other harsh chemicals. **DO NOT** use water or cleaning products on **Orb** products.

Orb fixtures have no user serviceable parts; LED components are replaceable, but any maintenance must be performed by a VLT authorized service representative. When not in use, **Orb** fixtures and system driver components should be stored in a cool, dry location.

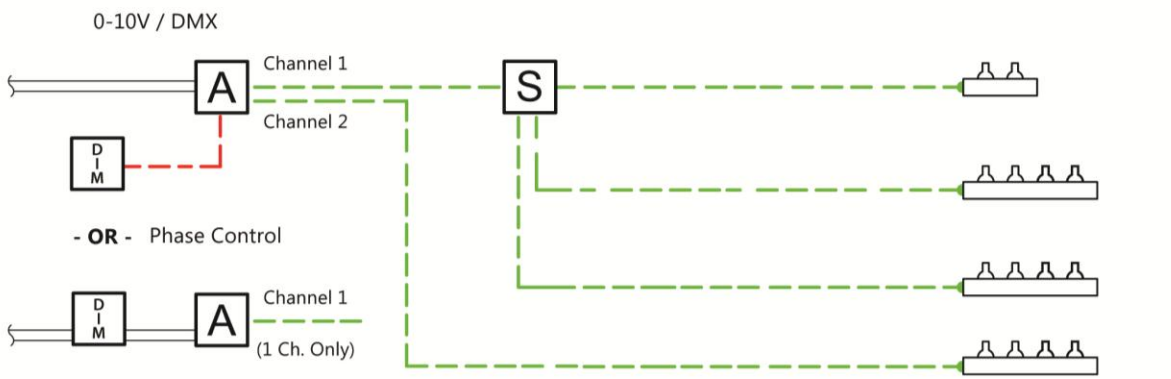
Circuit Diagram



NON-DIM (SHOWN IN MULTIPLE BRANCH CONFIGURATION)



DIMMABLE (SHOWN IN MULTIPLE BRANCH, MULTIPLE CHANNEL CONFIGURATION)



Driver Load	Total # of Orb Heads*		
	350mA	500mA	700mA
6w	4	-	2
10w	7	-	-
18w	9	-	4
30w eldoLED	16 per ch, 16 total	16 per ch, 16 total	9 per ch, 9 total
36w	-	-	4
50w eldoLED	16 per ch, 32 total	16 per ch, 23 total	15 per ch, 15 total
100w eldoLED	16 per ch, 64 total	16 per ch, 60 total	16 per ch, 31 total

*Each Head on an EssentialLEDs Orb fixture is counted individually

SYMBOLS

- Constant Current Driver
- Phase Control, 0-10v, DMX Dimmer
- 2 or 4 way Constant Current Splitter in-series connection

WIRING

- Line Voltage Input
- (2) 20AWG - 33' max total length
- Interconnect Wire
- 0-10v or DMX control wires
- EssentialLEDs Orb Fixture (shown with 2 heads)

SAFETY INSTRUCTIONS

READ ALL INSTRUCTIONS BEFORE USING

When using an electrical furnishing, basic precautions should always be followed, including the following:

WARNING – To reduce the risk of burns, fire, electric shock, or injury to persons:

1. Unplug from outlet before putting on or taking off parts.
2. Close supervision is necessary when this furnishing is used by, or near children, invalids, or disabled persons.
3. Use this furnishing only for its intended use as described in these instructions. Do not use attachments not recommended by the manufacturer.
4. Never operate this furnishing if it has a damaged cord or plug, if it is not working properly, if it has been dropped or damaged, or dropped into water. Return the furnishing to a service center for examination and repair.
5. **Keep electrical cord(s) away from heated surfaces and control cord(s) to avoid tripping hazards.**
6. Never operate the furnishing with the air openings blocked. Keep the air openings free of lint, hair, and the like.
7. Never drop or insert any object into any opening.
8. Do not use outdoors.
9. Do not operate where aerosol (spray) products are being used or where oxygen is being administered.
10. To disconnect, turn all controls to the off position, then remove plug from outlet.
11. For loading always put heavier items at the bottom and not near the top in order to help prevent the possibility of the furnishing tipping over.

WARNING: Risk of Electric Shock – Connect this furnishing to a properly grounded outlet only. See Grounding Instructions.

GROUNDING INSTRUCTIONS FOR ALL GROUNDED, CORD-CONNECTED PRODUCTS:

This product must be grounded. If it should malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This product is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

DANGER – Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Check with a qualified electrician or serviceman if you are in doubt as to whether the product is properly grounded. Do not modify the plug provided with the product – if it will not fit the outlet, have a proper outlet installed by a qualified electrician.

This product is for use on a nominal 120-volt circuit and has a grounding plug. Make sure that the product is connected to an outlet having the same configuration as the plug. No adapter should be used with this product.

GROUNDING INSTRUCTIONS FOR A PERMANENTLY CONNECTED PRODUCT:

This product must be connected to a grounded metal, permanent wiring system, or an equipment-grounding conductor must be run with the circuit conductors and connected to the equipment-grounding terminal or lead on the product.