# LINEARlight

## Low Power Consumption White or Colored LED Modules


### Key Features & Benefits

- LEDs are closely spaced to minimize hotspots in shallow installations
- Available in a variety of colors to fit different applications
- Low profile module enables mounting in compact spaces
- Dimmable by pulse width modulation, a method that maintains consistent lumen output and color
- Comes with a range of accessories including optics, heat sink and mounting means, facilitating easy installation
- Long life: up to 100,000 hours for colors and 50,000 ($L_{50}$) hours for white when temperature at Tc point is maintained at 40°C minimizing maintenance frequency

LINEARlight LED modules open creative design options. These are ideal wherever subtle or discreet lighting effects are desired or where temperature or space limitations prevent the use of conventional means of illumination. The sleek LED modules are available in red, orange, yellow, green, blue, and a variety of white color temperatures.

The LINEARlight module is optimally paired with OPTOTRONIC® 10.5Vdc power supplies. They are easily configured with a series of power feed and board-to-board connectors. To facilitate easy installation, optional connector assemblies and mounting tracks are available in 18" and 56" lengths. These may be paired with diffuser accessories to modify and soften light distribution.

### Product Offering

| Ordering Abbreviation | Wattage | Color |
|---|---|---|
| L4LRE/10V/827/LNRLT | 4 | 2700K |
| L4LRE/10V/830/LNRLT | 4 | 3000K |
| L4LRE/10V/835/LNRLT | 4 | 3500K |
| L4LRE/10V/840/LNRLT | 4 | 4000K |
| L4LRE/10V/854/LNRLT | 4 | 5400K |
| L4LRE/10V/617/LNRLT | 4 | Amber Red |
| L4LRE/10V/606/LNRLT | 4 | Orange |
| L4LRE/10V/587/LNRLT | 4 | Yellow |
| L4LRE/10V/527/LNRLT | 4 | True Green |
| L4LRE/10V/470/LNRLT | 4 | Blue |

### Application Information

**Applications**

- Border lighting
- Edge lighting
- Egress marking
- Path lighting
- Walkways

**Specifications and Certifications**

The OSRAM LINEARlight is UL2108 Recognized for US and Canada Class 2 Unit. (UL file # E258264)

RoHS compliant

This light source meets restrictions on hazardous substances.

Listed in Sign Components Manual (SAM)

## Specification Data

| | |
|---|---|
| Catalog # | Type |
| Project | |
| Comments | |
| Prepared by | Date |

## Ordering Information

| Item Number | Ordering Abbreviation | Module Length (ft) | No. of LEDs | Power (W) | Voltage (Vdc) | Current (Amps) | Color | Color Temperature/ Wavelength | Lumens (lm)* | Lumens/ft | Watts/ft |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 70288 | L4LRE/10V/827/LNRLT | 1.47 | 32 | 4 | 10.5 | 0.4 | White | 2700K | 88 | 59.9 | 2.8 |
| 70329 | L4LRE/10V/830/LNRLT | 1.47 | 32 | 4 | 10.5 | 0.4 | White | 3000K | 89 | 60.5 | 2.8 |
| 70326 | L4LRE/10V/835/LNRLT | 1.47 | 32 | 4 | 10.5 | 0.4 | White | 3500K | 89 | 60.5 | 2.8 |
| 70330 | L4LRE/10V/840/LNRLT | 1.47 | 32 | 4 | 10.5 | 0.4 | White | 4000K | 111 | 75.5 | 2.8 |
| 70289 | L4LRE/10V/854/LNRLT | 1.47 | 32 | 4 | 10.5 | 0.4 | White | 5400K | 111 | 75.5 | 2.8 |
| 70007 | L4LRE/10V/617/LNRLT | 1.47 | 32 | 4 | 10.5 | 0.4 | Amber Red | 617nm | 78 | 53 | 2.8 |
| 70083 | L4LRE/10V/606/LNRLT | 1.47 | 32 | 4 | 10.5 | 0.4 | Orange | 606nm | 98 | 66.7 | 2.8 |
| 70006 | L4LRE/10V/587/LNRLT | 1.47 | 32 | 4 | 10.5 | 0.4 | Yellow | 587nm | 69 | 46.9 | 2.8 |
| 70008 | L4LRE/10V/525/LNRLT | 1.47 | 32 | 4 | 10.5 | 0.4 | True Green | 525nm | 57 | 38.8 | 2.8 |
| 70009 | L4LRE/10V/470/LNRLT | 1.47 | 32 | 4 | 10.5 | 0.4 | Blue | 470nm | 34 | 23 | 2.8 |

* All data is related to entire module measured at Tc point of 25°C. Data reflects statistical mean values. Actual data may differ depending on variances in the manufacturing process. Users need to take into account the lumen depreciation as the temperature rises with various thermal management solutions installed.

## Ordering Guide

| L | 4 | L | R | E | / | 10V | / | 8 | 30 | OR | 617 | / | LNRLT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LED | Wattage | Linear | Rigid | Engine | | Voltage | | CRI>80 | Color Temperature 3000K | | Wavelength | | Product Family LINEARlight |

## Power Supply Information

| Max. No. of Modules & Max. Length per Power Supply | OT6 (51502) | | OT20 (51599) | | OT50 (51509) | |
|---|---|---|---|---|---|---|
| | No. of Modules | Max. Length (ft) | No. of Modules | Max. Length (ft) | No. of Modules | Max. Length (ft) |
| **All Item Numbers** | 1 | 1.47 | 1 | 5.88 | 11 | 16.2 |

Notes:
1. A maximum of three (3) LINEARlight modules may be connected in any single branch circuit. Multiple branch circuits are supported. Consult the wiring diagram for more details.
2. OPTOTRONIC® power supplies are optimally paired with SYLVANIA LED modules and are specifically designed with protection features for safe operation.
3. The module is designed to work with constant voltage power supplies only. Reference the power supply PIB # ECS049 for product specification information.
4. The LINEARlight can be dimmed when used the OT DIM or OTRGB DIM controllers. Because of the power consumed by these controllers, an additional de-rating of the overall "Maximum" load must be factored into the above chart. To determine this de-rating (wattage) value please reference Step 8 of Application Note # LED026.
5. These values are an approximation based on typical "power" values listed under the "Ordering Information" parameters. To accurately determine the maximum LED load, please evaluate the application based on the application note "Determining the Maximum LED Load on a Constant Voltage Power Supply" LED026. This document can be found at www.sylvania.com.

## Minimum and Maximum Ratings

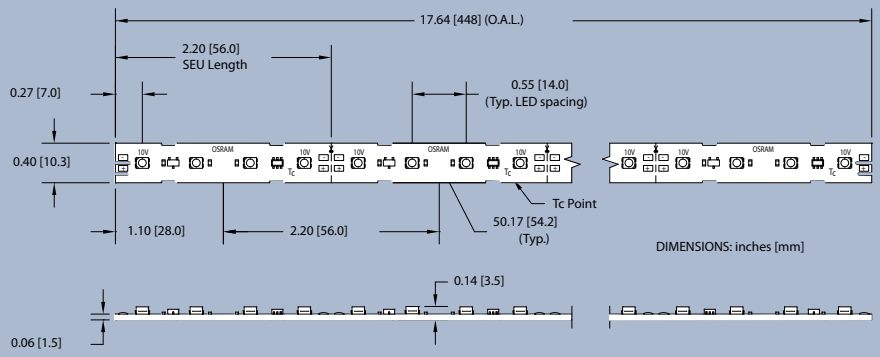
| Parameter | Values |
|---|---|
| Operating Temperature at Tc point | -30 to +75°C (-22 to +167°F) for green, blue and whites; -30 to +85°C (-22 to +185°F) for all others |
| Storage Temperature | -40 to +85°C (-40 to +185°F) |
| Voltage Range | 10 to 11 Vdc |
| Maximum Reverse Voltage | 0Vdc |

Notes:
1. Exceeding maximum ratings may damage the LED module and cause potential safety hazards.
2. Elevated operating temperatures can be expected to negatively impact the service life in terms of lumen output.

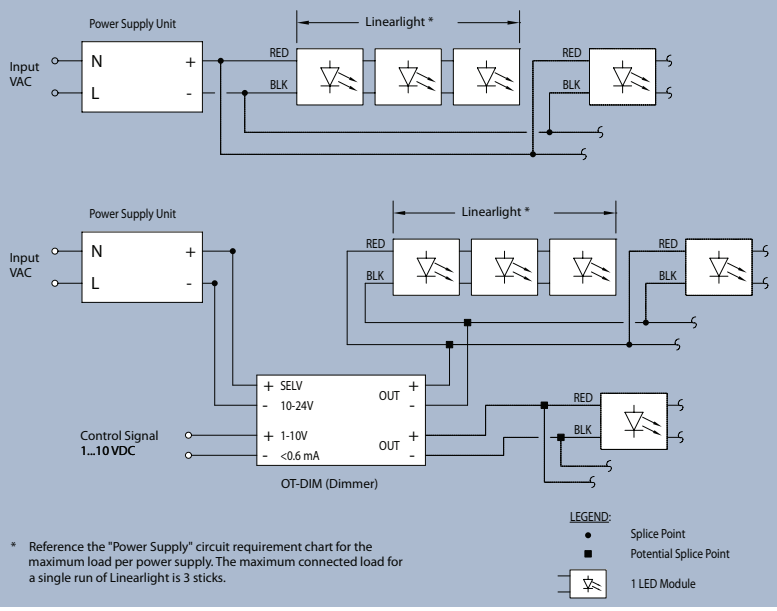
## Accessories

| Item Number | Ordering Abbreviation | Description | Length (in.) | Order Qty. |
|---|---|---|---|---|
| 70115 | LAC-C/LL/IC/2P/20IN | Input Connector | 19.69 | 10 |
| 70133 | LAC-C/LL/BB/2P/2IN | Board to Board | 1.97 | 10 |
| 70116 | LAC-C/LL/BB/2P | Board to Board | – | 10 |
| 71237 | LAC-T/LNRLT/P/5FT | Prismatic Mounting Track | 56 | 6 |
| 71239 | LAC-T/LNRLT/D/5FT | Diffused Mounting Track | 56 | 6 |

## Assembly Diagram




## Wiring Diagram




* Reference the "Power Supply" circuit requirement chart for the maximum load per power supply. The maximum connected load for a single run of Linearlight is 3 sticks.

## Safety Information

**WARNING: ONLY QUALIFIED PERSONNEL SHOULD PERFORM INSTALLATION.**

**TO AVOID ELECTRICAL SHOCK OR COMPONENT DAMAGE, DISCONNECT POWER BEFORE ATTEMPTING INSTALLATION OF THE POWER SUPPLIES AND/OR MODULES.**

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.

1. The LED module itself and all its components shall not be subjected to mechanical stress and assembly must not damage or destroy conducting paths on the circuit board.
2. Installation of LED modules shall be made with regard to all applicable electrical and safety standards. Only qualified personnel should be allowed to perform installations.
3. Observe correct electrical polarity, incorrect polarity may destroy the module. (Depending on the product, incorrect polarity may lead to emission of red or no light.)
4. The LINEARlight can typically survive transient total current levels of up to 2 Amps. As a general design precaution, if the maximum current of the power supply is more than 2 Amps, fast-blow fuses should be incorporated into the wiring plan.
5. Electrostatic Discharge (ESD) precautions shall be incorporated when handling or installing the module. (For more information, reference document # LED093 ESD Protection for LED Systems.)
6. The module, as manufactured, has no conformal coating and therefore offers no inherent protection against corrosion. The ability to customize the length of the module by cutting at specifically marked points is a key feature of the product and hence the reason for no factory installed conformal coating. For these reasons, it is recommended that the user complete all module modification first (cutting, wiring) and then apply a conformal coating in the final stages of installation.
7. Damage by corrosion and improper heat sinking will not be honored as a materials defect claim. It is the user's responsibility to ensure adequate heat sink and protection against corrosive agents such as moisture, condensation and other harmful elements.

## Assembly Information

1. Solder connections should only be performed on designated solder pads (marked "10V +/-"). During soldering, do not exceed the maximum soldering time of 10 seconds and the maximum soldering temperature of 260°C.
2. Each module can be separated into submodules of 4 LEDs each by carefully sawing or cutting at the marked lines between coupons.
3. The mounting of the module is carried out by attaching it at the mounting holes. Mounting screws should be treated with synthetic washers to prevent circuit board damage and possible short circuiting.
4. For applications involving exposure to humidity and dust, the module must be protected by a fixture, or housing with a suitable protection class. The module can be protected against condensation by treatment with an appropriate circuit board grade conformal coating. The conformal coating should have the following features:
    a. Optical transparency
    b. UV – resistance
    c. Thermal expansion matching the thermal expansion of the module 15-30 x 10^-6cm/cm/K
    d. Low permeability of steam for all climate conditions
    e. Resistance against corrosive environment

The Acrylic Protective Lacquer (APL) from the company Electrolube (www.electrolube.com) has been tested and meets the conditions for this product (or equivalent). Please reference "Assembly Information" for any preparation instructions.



## Warranty

SYLVANIA LED products are covered by our LED Module, OPTOTRONIC® Power Supply and/or Control warranty.

The LINEARlight is covered under warranty as long as the temperature at the Tc point does not exceed 40°C; exceeding this temperature will void all warranties.

For additional information or to download the warranty registration form, refer to the latest version of the warranty available in the Literature section of www.sylvania.com/LED.

Module Warranty: 3 years

System Warranty: 5 years

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