LOGIC RAIL™ TECHNOLOGIES

"Sophisticated Model Railroad Electronics"

21175 Tomball Parkway
Suite 287
Houston, TX 77070

Phone: (281) 251-5813
email: info@logicrailtech.com
http://www.logicrailtech.com

Yellow Switch & Signal LEDs (YSSLEDS)

Instructions

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Getting started

Thank you for purchasing a ***Logic Rail Technologies*** product! Please read all instructions prior to installation.

Many prototype CTC panels use a yellow indicator for the Reverse route above the Switch control lever. Below is a picture of example usage on a CTC panel managed by a dispatcher. Other CTC panel items we carry are also designated.

This package includes the following items:

- 2 yellow LEDs (8 mm diameter)
- 2 chrome-painted, plastic mounting bezels
- Current-limiting resistors

LED Technical Specifications

The yellow LED has the following technical specifications:

Parameter	Value
Current – typical (maximum)	20 (30) mA
Applied DC Voltage – typical (maximum)	2.1 (2.5) V
MINIMUM current limiting resistor @ 5V supply voltage	150 Ω, 1/4W
MINIMUM current limiting resistor @ 12V supply voltage	510 Ω, 1/4W

NOTE: the MINIMUM current limiting resistor values will insure that you do not exceed the LED's limits. However, feel free to use any value equal to or greater than the MINIMUM values specified! We have included two each of the minimum value resistors:

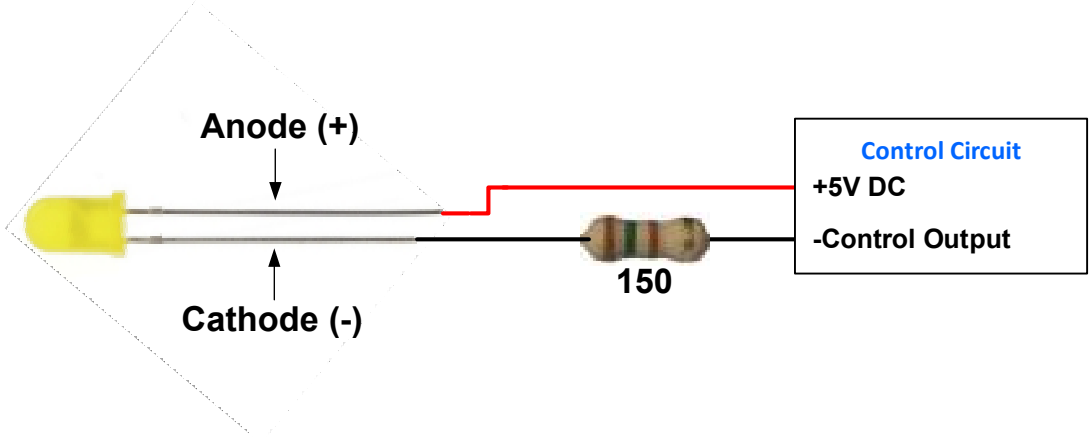
Resistor value	Resistor band colors
150 Ω	Brown-Green-Brown-Gold
510 Ω	Green-Brown-Brown-Gold

Mounting

The mounting bezels require a 0.5" mounting hole. It can be installed in a panel with maximum thickness of 0.25". After drilling the hole and cleaning up any debris carefully push the mounting bezel into the panel from the front of your panel. **Make sure your fingers are clean and free of any oils or grime as this will harm the chrome-painted finish!** Do not use any adhesive at this time!

Wiring for the LED

Choose the appropriate resistor depending upon the DC voltage you'll be using to control the LED. Following the example diagram below connect the resistor in series with shorter lead (cathode/negative). Note: you can elect to wire the resistor to the longer lead (anode/positive) if you prefer; we recommend that whichever approach you take you do it consistently with all panel LEDs. If you're also installing our CTC Panel Repeater Signal you'll see that you must install the resistors on the cathode/negative of each LED element. Please use color coded wires or good labeling! In this wiring example we assume the control circuit will provide +5V DC to LED and has an output which is "active low."



Installing the LED

Once you have made the appropriate connections to the LED you can carefully insert it into the back of the mounting bezel using counter pressure around the front ring of the mounting bezel to keep it in place. Next test the LED illumination using your control circuit. Once you are satisfied that it is operating properly you can secure the LED and mounting bezel from the rear using a non-permanent adhesive. We recommend canopy glue or any similar glue.

Warranty

This product is warranted to be free from defects in materials or workmanship for a period of one year from the date of purchase. ***Logic Rail Technologies*** reserves the right to repair or replace a defective product. The product must be returned to ***Logic Rail Technologies*** in satisfactory condition. This warranty covers all defects incurred during normal use of this product. This warranty is void under the following conditions:

1) If damage to the product results from mishandling or abuse.
2) If the product has been altered in any way.
3) If the current or voltage limitations of the product have been exceeded.

Requests for warranty service must include a dated proof of purchase, a written description of the problem, and return shipping and handling ($6.00 inside U.S./$10.00 outside U.S. - U.S. funds only). Except as written above, no other warranty or guarantee, either expressed or implied by any other person, firm or corporation, applies to this product.

Technical Support

We hope the preceding instructions are sufficient for answering any questions you might have about the installation of this product. However, technical support is available should you need it. You can reach us via phone, email or mail.