

Quick Start Guide

Laser displacement sensor with both analog and discrete (switched) outputs

This guide is designed to help you set up and install the L-GAGE® LE Laser Gauging Sensor. For complete information on programming, performance, troubleshooting, dimensions, and accessories, please refer to the Instruction Manual at www.bannerengineering.com. Search for p/n 175094 to view the manual. Use of this document assumes familiarity with pertinent industry standards and practices.



WARNING: Not To Be Used for Personnel Protection

Never use this device as a sensing device for personnel protection. Doing so could lead to serious injury or death. This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A sensor failure or malfunction can cause either an energized or de-energized sensor output condition.

Features and Indicators

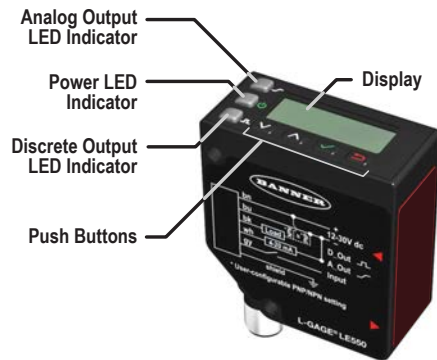


Figure 1. LE Analog Sensor Features

Three LED indicators provide ongoing indication of the sensing status.

Analog Output LED Indicator

- Solid Amber = Displayed distance is within the taught analog output window
- Off = Displayed distance is outside the taught analog output window

Power LED Indicator

- Solid Green = Normal operation, power On and laser On
- Flashing Green (1 Hz) = Power On and laser Off (laser enable mode)

Discrete Output LED Indicator

- Solid Amber = Discrete Output is On
- Off = Discrete Output is Off

Laser Description and Safety Information



CAUTION: Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure. Do not attempt to disassemble this sensor for repair. A defective unit must be returned to the manufacturer.

Class 2 Laser Models



CAUTION: Never stare directly into the sensor lens. Laser light can damage your eyes. Avoid placing any mirror-like object in the beam. Never use a mirror as a retroreflective target.



For Safe Laser Use - Class 2 Lasers

- Do not stare at the laser.
- Do not point the laser at a person's eye.
- Mount open laser beam paths either above or below eye level, where practical.
- Terminate the beam emitted by the laser product at the end of its useful path.

Reference IEC 60825-1:2007, Section 8.2.



Class 2 Lasers

Class 2 lasers are lasers that emit visible radiation in the wavelength range from 400 nm to 700 nm, where eye protection is normally afforded by aversion responses, including the blink reflex. This reaction may be expected to provide adequate protection under reasonably foreseeable conditions of operation, including the use of optical instruments for intrabeam viewing.

Class 2 Laser Safety Notes

Low-power lasers are, by definition, incapable of causing eye injury within the duration of a blink (aversion response) of 0.25 seconds. They also must emit only visible wavelengths (400 to 700 nm). Therefore, an ocular hazard may exist only if individuals overcome their natural aversion to bright light and stare directly into the laser beam.



Figure 2. FDA (CDRH) warning label (Class 2)

Class 1 Laser Models

Class 1 lasers are lasers that are safe under reasonably foreseeable conditions of operation, including the use of optical instruments for intrabeam viewing.

Laser wavelength: 650 nm Output: < 0.22 mW Pulse Duration: 150 µs to 900 µs



Figure 3. FDA (CDRH) warning label (Class 1)

Sensor Installation



NOTE: Handle the sensor with care during installation and operation. Sensor windows soiled by fingerprints, dust, water, oil, etc. may create stray light that may degrade the peak performance of the sensor. Blow the window clear using filtered, compressed air, then clean as necessary using 70% isopropyl alcohol and cotton swabs or water and a soft cloth.

Sensor Orientation

Correct sensor-to-object orientation is important to ensure proper sensing. See the following figures for examples of correct and incorrect sensor-to-object orientation as certain placements may pose problems for sensing distances.

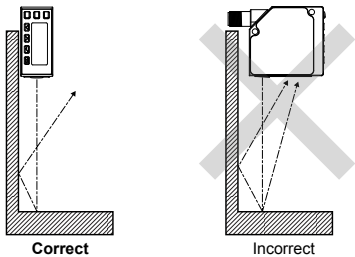


Figure 4. Orientation by a wall

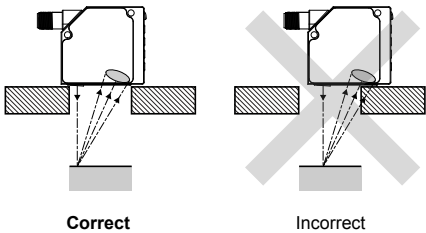


Figure 5. Orientation in an opening

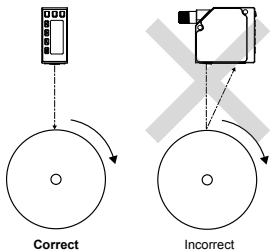


Figure 6. Orientation for a turning object