

Q4X Stainless Steel Laser Sensor with Dual Discrete Outputs and IO-Link



Quick Start Guide

Class 1 laser CMOS sensor with dual outputs and IO-Link. Patent pending.

This guide is designed to help you set up and install the Q4X sensor with dual discrete outputs and IO-Link. For complete information on programming, performance, troubleshooting, dimensions, and accessories, please refer to the Instruction Manual at www.bannerengineering.com. Search for p/n 190074 to view the Instruction Manual. Use of this document assumes familiarity with pertinent industry standards and practices.

For illustration purposes, the threaded barrel model Q4X images are used throughout this document.



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

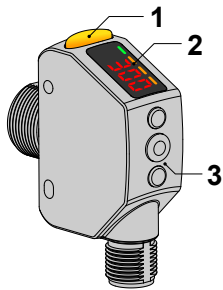


Figure 1. Sensor Features—Threaded Barrel Models

1. Output Indicator (Amber)
2. Display
3. Buttons

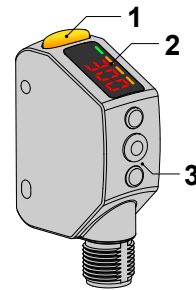


Figure 2. Sensor Features—Flush Mount Models

Display and Indicators

The display is a 4-digit, 7-segment LED. The main screen is the Run mode screen.

For 2-pt, BGS, FGS, and DYN TEACH modes, the display shows the current distance to the target in millimeters. For dual TEACH mode, the display shows the percentage matched to the taught reference surface. A display value of **9999** indicates the sensor has not been taught.

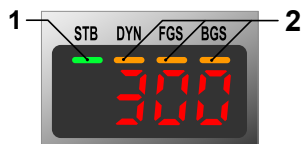


Figure 3. Display in Run Mode

1. Stability Indicator (STB—Green)
2. Active TEACH Indicators
 - DYN—Dynamic (Amber)
 - FGS—Foreground Suppression (Amber)
 - BGS—Background Suppression (Amber)



Note: The indicators represent the currently selected channel. However, if Output 2 is set to something other than LO, DO, or Complementary, then the indicators represent the Channel 1 status.



Output Indicator

- On—Output is on
- Off—Output is off

Active TEACH Indicators (DYN, FGS, and BGS)

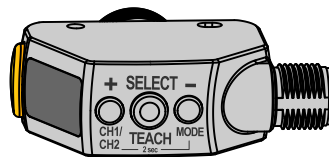
- DYN, FGS, and BGS all off—Two-point TEACH mode selected (default)
- DYN on—Dynamic TEACH mode selected
- FGS on—Foreground suppression TEACH mode selected
- BGS on—Background suppression TEACH mode selected
- DYN, FGS, and BGS all on—Dual TEACH mode selected

Stability Indicator (STB)

- On—Stable signal within the specified sensing range
- Flashing—Marginal signal, the target is outside the limits of the specified sensing range, or a multiple peak condition exists
- Off—No target detected within the specified sensing range

Buttons

Use the sensor buttons (SELECT) (TEACH), (+) (CH1/CH2), and (-) (MODE) to program the sensor.



(SELECT) (TEACH)

- Press to select menu items in Setup mode
- Press and hold for longer than 2 seconds to start the currently selected TEACH mode (the default is two-point TEACH)

(+) (CH1/CH2)

- Press to navigate the sensor menu in Setup mode
- Press to change setting values; press and hold to increase numeric values
- Press and hold for longer than 2 seconds to switch between Channel 1 and Channel 2

(-) (MODE)

- Press to navigate the sensor menu in Setup mode
- Press to change setting values; press and hold to decrease numeric values
- Press and hold for longer than 2 seconds to enter Setup mode



Note: When navigating the menu, the menu items loop.

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 1 Lasers

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

<p>COMPLIES WITH 21 CFR 1040.10 AND 1040.11 EXCEPT FOR DEVIATIONS PURSUANT TO LASER NOTICE No. 50, DATED JUNE 24, 2007. BANNER ENGINEERING CORP. 9714 10TH AVENUE NORTH MINNEAPOLIS, MN 55441</p>	<p>CLASS 1 LASER PRODUCT</p>	<p>COMPLIES WITH IEC 60825-1:2007</p>
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Laser wavelength: 655 nm

Output: < 0.20 mW

Pulse Duration: 7 μs to 2 ms