

Q4X Stainless Steel Analog Laser Sensor



Quick Start Guide

Class 1 laser CMOS analog sensor with an analog output. Patent pending.

This guide is designed to help you set up and install the Q4X Analog 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 185624 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.

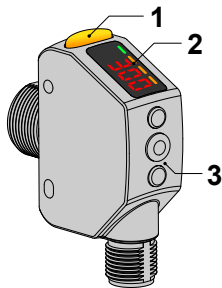


WARNING: Not To Be Used for Personnel Protection

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.

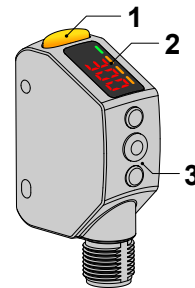
Features

Figure 1. Sensor Features—Threaded Barrel Models



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

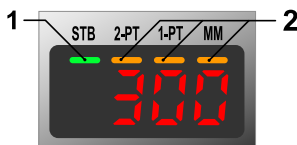
Figure 2. Sensor Features—Flush Mount Models



Display and Indicators

The display is a 4-digit, 7-segment LED. The main screen is the Run Mode screen, which shows the current distance to the target in millimeters.

Figure 3. Display in Run Mode



1. Stability Indicator (STB = Green)
2. Active TEACH Indicators
 - 2-PT = Two-Point TEACH (Amber)
 - 1-PT = One-Point TEACH (Amber)
3. Display Value Indicator (MM = Amber)

Output Indicator

- On—Displayed distance is within the taught analog output window
- Off—Displayed distance is outside of the taught analog output window

Active TEACH Indicators (2PT and 1PT)

- 2-PT on—Two-point TEACH mode selected (default)
- 1-PT on—One-point TEACH mode selected

Stability Indicator (STB)

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

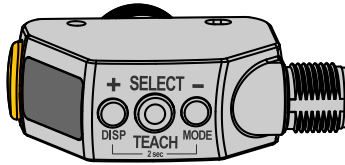
Display Value Indicator (MM)

- On—Display shows the distance in millimeters (default)
- Off—Display shows the analog output value

Buttons

Use the sensor buttons **(SELECT)(TEACH)**, **(+)(DISP)**, and **(-)(MODE)** to program the sensor.





(SELECT)(TEACH)

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

(-)(MODE)

- Press to change the distance setting for the 0 V (4 mA) point; press and hold to decrease numeric values
- Press and hold for longer than 2 seconds to enter Setup mode
- Press to navigate the sensor menu in Setup mode

(+)(DISP)

- Press to change the distance setting for the 10 V (20 mA) point; press and hold to increase numeric values
- Press and hold for longer than 2 seconds to toggle the display value between the distance and the analog output
- Press to navigate the sensor menu in 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.

≤ 510 mm Models - IEC 60825-1:2007 Class 1 Laser

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

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	<div style="border: 1px solid black; padding: 2px; display: inline-block;"> CLASS 1 LASER PRODUCT </div>
COMPLIES WITH IEC 60825-1:2007	

Laser wavelength: 655 nm

Output: < 0.20 mW

Pulse Duration: 7 μs to 2 ms

> 510 mm Models - IEC 60825-1:2014 Class 1 Laser

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

COMPLIES WITH 21 CFR 1040.10 AND 1040.11 EXCEPT FOR CONFORMANCE WITH IEC 60825-1:2014, AS DESCRIBED IN LASER NOTICE No. 56, DATED MAY 8, 2019. BANNER ENGINEERING CORP. 9714 10TH AVENUE NORTH MINNEAPOLIS, MN 55441	<div style="border: 1px solid black; padding: 2px; display: inline-block;"> CLASS 1 LASER PRODUCT </div>
COMPLIES WITH IEC 60825-1:2014	

Laser wavelength: 655 nm

Output: < 0.39 mW

Pulse Duration: 7 μs to 2 ms