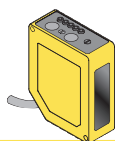


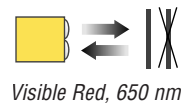
Q60LAF Series Laser Adjustable-Field Sensors

Long-Range Self-Contained Adjustable-Field Laser Sensors



Features

- Long-range adjustable-field background suppression sensor detects objects within a defined sensing field, and ignores objects located beyond the sensing field cutoff
- Powerful visible red laser sensing beam, class 1 and class 2 models available
- Two-turn, logarithmic cutoff point adjustment for easy setting of cutoff point at long range; rotating pointer indicates relative cutoff point setting
- Easy push-button or remote setting of light/dark operate and output timing; continuous status indicators verify all settings at a glance
- Output ON and/or OFF delays adjustable from 8 milliseconds to 16 seconds
- Tough ABS/polycarbonate blend housing is rated IEC IP67; NEMA 6
- Models available for 10-30V dc operation or universal voltage (12 to 250V dc or 24 to 250V ac, 50/60 Hz)



Models

Models	Cutoff Point	Cable*	Supply Voltage	Output Type	Excess Gain (performance based on 90% reflectance white test card)
Class 1 Laser					
Q60BB6LAF1400	Adjustable: 200 mm to 1400 mm (8" to 55")	5-wire 2 m (6.5')	10 to 30V dc	Bipolar NPN/PNP	
Q60BB6LAF1400Q		5-pin Euro-style QD fitting			
Q60BB6LAF1400QP		5-pin Euro-style QD pigtail			
Q60VR3LAF1400		5-wire 2 m (6.5')	Universal Voltage 12 to 250V dc or 24 to 250V ac	E/M Relay (SPDT), N.C. and N.O. contacts	
Q60VR3LAF1400Q1		4-pin Micro-style QD fitting		E/M Relay (SPST), N.O. contact	
Class 2 Laser					
Q60BB6LAF2000	Adjustable: 200 mm to 2000 mm (8" to 80")	5-wire 2 m (6.5')	10 to 30V dc	Bipolar NPN/PNP	
Q60BB6LAF2000Q		5-pin Euro-style QD fitting			
Q60BB6LAF2000QP		5-pin Euro-style QD pigtail			
Q60VR3LAF2000		5-wire 2 m (6.5')	Universal Voltage 12 to 250V dc or 24 to 250V ac	E/M Relay (SPDT), N.C. and N.O. contacts	
Q60VR3LAF2000Q1		4-pin Micro-style QD fitting		E/M Relay (SPST), N.O. contact	

* 9 meter cables are available by adding suffix "W/30" to the model number of any cabled sensor (e.g., Q60BB6LAF1400 W/30). A model with a QD connector requires a mating cable; see page 8.

See Safety Use Warning on back page.

Q60LAF Series Laser Adjustable-Field Sensors

Overview

The Q60LAF sensor is a full-featured adjustable-field sensor. These adjustable-field sensors are able to detect objects of relatively low reflectivity, while ignoring other objects in the background (beyond the cutoff point). The cutoff distance is mechanically adjustable, using the 2-turn adjustment screw (Figure 1). A rotating pointer indicates the relative cutoff position. (The indicator moves clockwise to show increasing distance.) The collimated laser emitter produces a small, bright spot, allowing easy alignment and precision sensing of relatively small objects at long range.

Two push buttons (ON Delay and OFF Delay) are used to set the output delay options, to toggle between light and dark operate modes and to lock out the push buttons for security purposes. For 10 to 30V dc models, these functions also may be accomplished using the remote wire.

Seven LED indicators show, during RUN mode, the sensor configuration and operating status. During Delay Configuration, 5 of the LEDs combine to form a single light bar that indicates relative ON or OFF delay time.

Adjustable-Field Sensing – Theory of Operation

In operation, the Q60LAF compares the reflections of its emitted light beam (E) from an object back to the sensor's two differently-aimed detectors R1 and R2 (see Figure 2). If the near detector (R1) light signal is stronger than the far detector (R2) light signal (see object A, closer than the cutoff distance), the sensor responds to the object. If the far detector (R2) light signal is stronger than the near detector (R1) light signal (see object B, object beyond the cutoff distance), the sensor ignores the object.

The cutoff distance for Q60LAF sensors is adjustable from 200 to 1400 mm (8" to 55") for Class 1 laser models, and 200 to 2000 mm (8" to 80") for Class 2 laser models. Objects lying beyond the cutoff distance are ignored.

In the drawings and discussion on this page and page 4, the letters E, R1, and R2 identify how the sensor's three optical elements (Emitter "E", Near Detector "R1", and Far Detector "R2") line up across the face of the sensor. The location of these elements defines the sensing axis (see Figure 3). The sensing axis becomes important in certain situations, such as those illustrated in Figures 7 and 8.

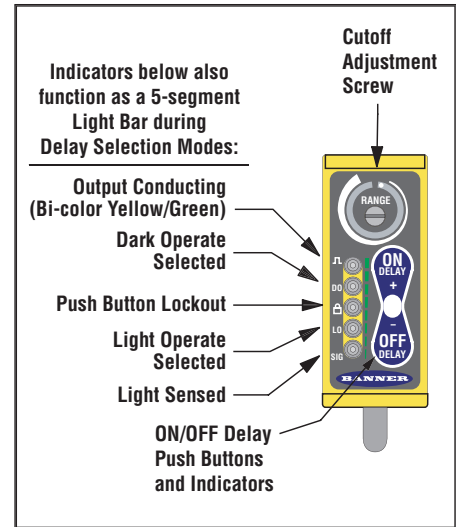


Figure 1. Q60LAF features

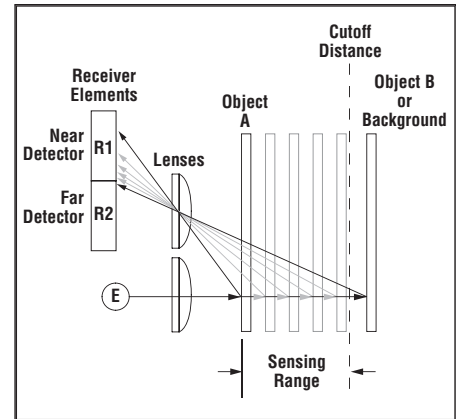


Figure 2. Adjustable field sensing concept

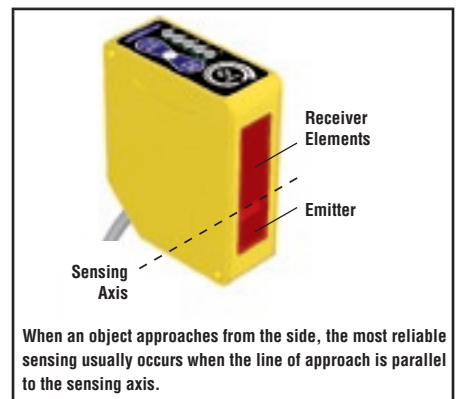


Figure 3. Q60 sensing axis