BANNER®
the photoelectric specialist

Q10 Series

Miniature self-contained dc photoelectric sensors

Features

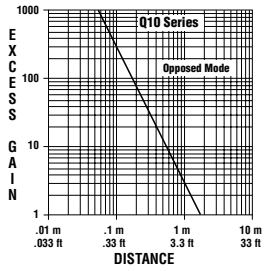
- Self-contained dc sensors in miniature right-angle housings; only 11 mm (0.43 in) thick
- Epoxy-encapsulated circuitry; IP54 (NEMA5) construction; hermetically-sealed optics
- 1.8 m (70 in) opposed range or 0.5 m (20 in) diffuse range; diffuse models have sensitivity adjustment
- Choose models for light operate or dark operate; choose either NPN (sinking) or PNP (sourcing) output models

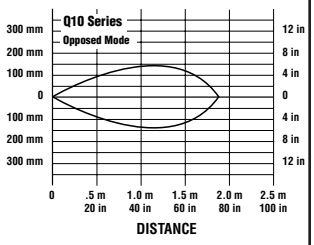


Note: A model with a QD connector requires an optional mating cable.

Q10 Opposed Mode Emitter (E) and Receiver (R)

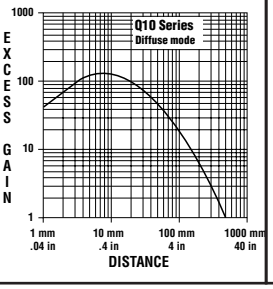
Models	Range	Cable	Supply Voltage	NPN/ PNP	L.O./ D.O.	Excess Gain	Beam Pattern
Q106E **Q106EQ**	1.8 m (70 in)	2 m (6.5 ft) 3-pin Pico QD	10-30V dc	—	—		Effective Beam: 5 mm
Q10AN6R **Q10AN6RQ**		2 m (6.5 ft) 3-pin Pico QD		NPN	L.O.		
Q10RN6R **Q10RN6RQ**		2 m (6.5 ft) 3-pin Pico QD			D.O.		
Q10AP6R **Q10AP6RQ**		2 m (6.5 ft) 3-pin Pico QD		PNP	L.O.		
Q10RP6R **Q10RP6RQ**		2 m (6.5 ft) 3-pin Pico QD			D.O.		

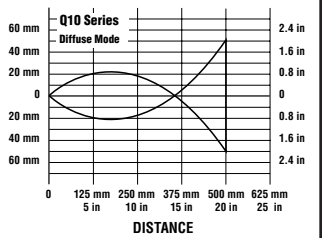




Q10 Diffuse Mode

Models	Range	Cable	Supply Voltage	NPN/ PNP	L.O./ D.O.	Excess Gain	Beam Pattern
						Performance based on 90% reflectance white test card	
Q10AN6D **Q10AN6DQ**	0.5 m (20 in)	2 m (6.5 ft) 3-pin Pico QD	10-30V dc	NPN	L.O.		
Q10RN6D **Q10RN6DQ**		2 m (6.5 ft) 3-pin Pico QD			D.O.		
Q10AP6D **Q10AP6DQ**		2 m (6.5 ft) 3-pin Pico QD		PNP	L.O.		
Q10RP6D **Q10RP6DQ**		2 m (6.5 ft) 3-pin Pico QD			D.O.		

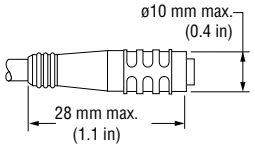
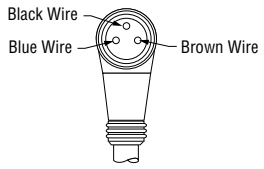
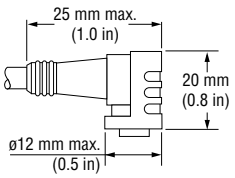




Product Specifications	
Sensing Beam	Infrared, 880 nm
Supply Voltage and Current	10 to 30V dc (10% maximum ripple); Emitter or receiver: 15 mA; Diffuse models: 20 mA (exclusive of load)
Supply Protection Circuitry	Protected against reverse polarity
Output Configuration	SPST solid-state dc switch; Choose NPN (current sinking) or PNP (current sourcing) models Choose light operate (N.O.) or dark operate (N.C.) models
Output Rating	150 mA maximum **Off-state leakage current:** <10 microamps at 30V dc; **On-state saturation voltage:** <0.5V at 10 mA dc; <1.5V at 150 mA dc
Output Protection Circuitry	Protected against false pulse on power-up and continuous overload or short-circuit of outputs Overload trip point ≥220mA, typical, at 20ºC
Output Response Time	Opposed mode: 8 ms "on", 4 ms "off"; Diffuse mode: 3 ms "on" and "off"
Repeatability	**Opposed mode:** 1.0 ms; **Diffuse mode**: 0.75 ms
Adjustments	Diffuse models (only); single-turn, top-mounted SENSITIVITY control for adjustment of system gain (turn clockwise to increase)
Indicators	Opposed mode receivers and diffuse mode sensors have two LEDs: Green and Yellow GREEN **glowing steadily** = power to sensor is "on" GREEN **flashing** = output is overloaded YELLOW **glowing steadily** = light is sensed YELLOW **flashing** = marginal excess gain (1-1.5x) in light condition Emitters have one Green LED to indicate when power to sensor is "on"
Construction	Housings are black ABS; Rated UL 94V0 Lenses are hermetically-sealed glass; lens covers are clear acrylic Circuitry is epoxy-encapsulated and completely sealed Stainless steel M2.5 mounting hardware is included
Environmental Rating	IP54 (NEMA 5)
Connections	2 m (6-1/2 ft) attached cable, or 3-pin pico-style quick-disconnect fitting; Cables for QD models are purchased separately
Operating Temperature	-40º to +70ºC (-40º to 158ºF); Maximum relative humidity 90% at 50ºC (non-condensing)

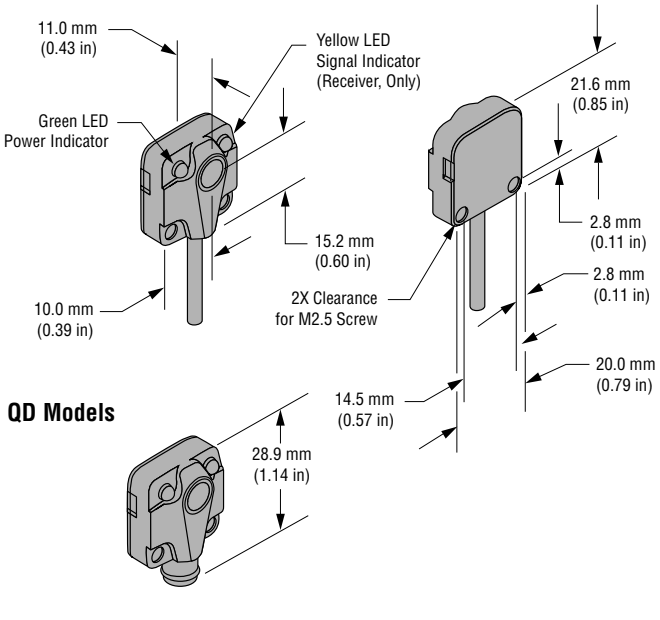
Quick Disconnect (QD) Cables

The following is the selection of cables available for the Q10 QD models

Style	Model	Length	For use with	DImensions	Pinout
3-pin Pico Style straight	**PKG3-2**	2 m (6.5 ft)	All Q10 sensors with quick-disconnect fitting		
3-pin Pico Style right-angle	**PKW3-2**	2 m (6.5 ft)			

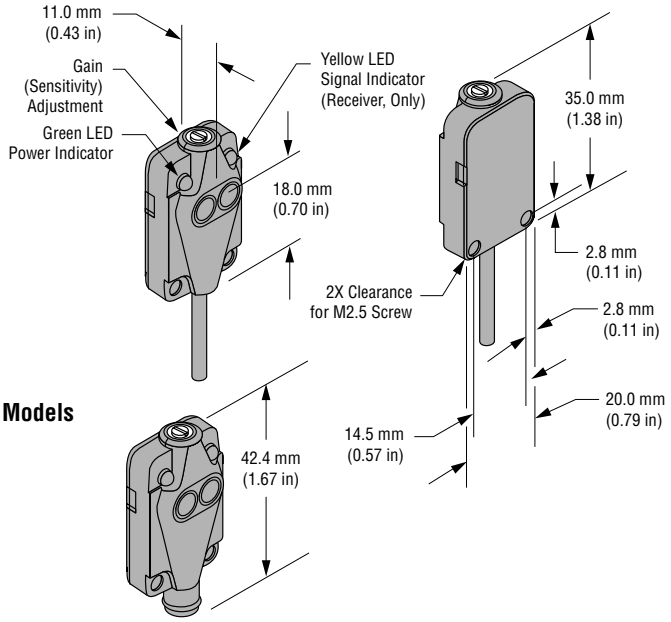
Dimensions

Opposed Mode Models



QD Models

Diffuse Mode Models

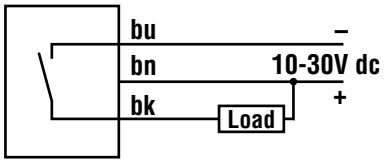


QD Models

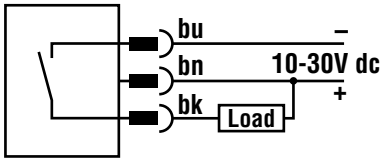
Hookup Diagrams

Sensors with NPN Outputs

Cabled Hookup

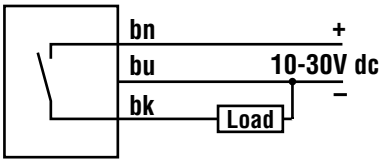


Quick-Disconnect Hookup

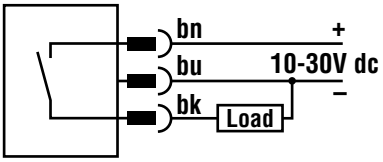


Sensors with PNP Outputs

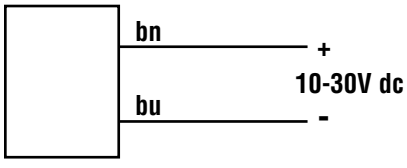
Cabled Hookup



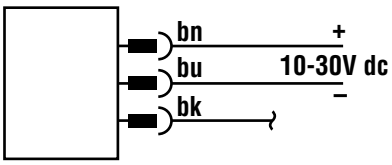
Quick-Disconnect Hookup



Cabled Emitters



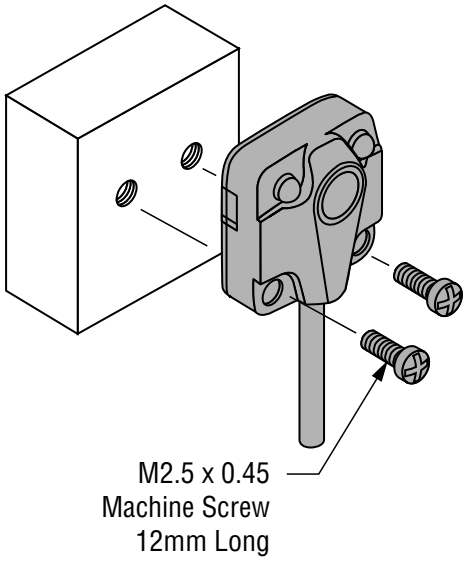
Quick-Disconnect Emitters



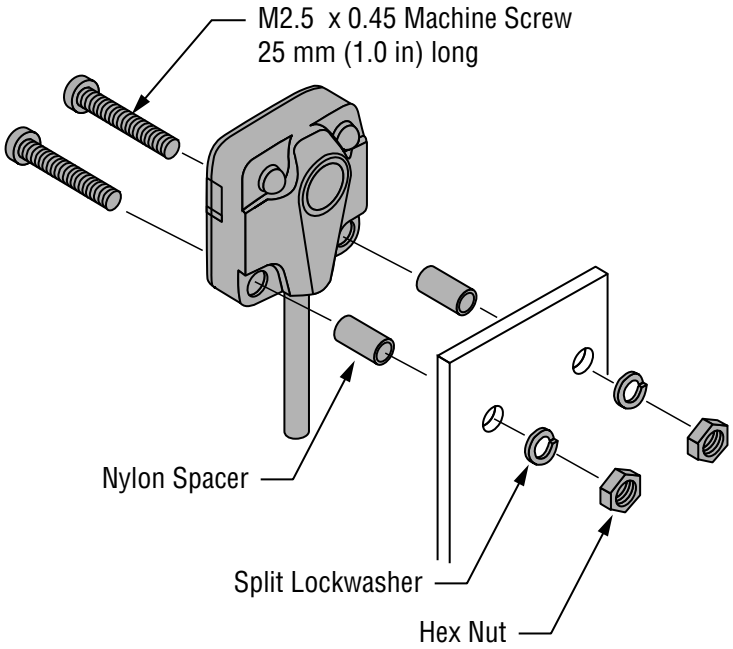
Q10 Series

Mounting Specifications

Flat Mounting



Stand-off Mounting



All hardware shown is supplied with each sensor.

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WARRANTY: Banner Engineering Corporation warrants it products to be free from defects for one year. Banner Engineering Corporation will repair or replace, free of charge, any product of its manufacture found to be defective at the time it is returned to the factory during the warranty period. This warranty does not cover damage or liability for the improper application of Banner products. This warranty is in lieu of any other warranty either expressed or implied.

WARNING These photoelectric presence sensors do NOT include the self-checking redundant circuitry necessary to allow their use in personnel safety applications. A sensor failure or malfunction can result in either an energized or a de-energized sensor output condition.

Never use these products as sensing devices for personnel protection. Their use as a safety device may create an unsafe condition which could lead to serious injury or death.

Only MINI-SCREEN™, MULTI-SCREEN™, MACHINE-GUARD and PERIMETER-GUARD Systems, and other systems so designated, are designed to meet OSHA and ANSI machine safety standards for point-of-operation guarding devices. No other Banner sensors or controls are designed to meet these standards, and they must NOT be used as sensing devices for personnel protection.

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