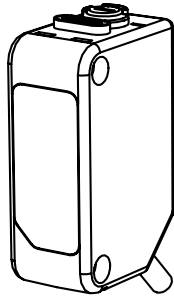


Datasheet



- Photoelectric sensors in a compact, rugged, sealed, over-molded plastic housing
- Standard 3 mm threaded mounting holes on 25.4 mm (1 in) spacing
- Advanced electronic design for excellent noise immunity and cross-talk avoidance
- Threaded metal M8 connector on Pico-style quick-disconnect models
- 10 V dc to 30 V dc operation with complementary solid-state outputs (1 normally open, 1 normally closed); PNP or NPN, depending on model
- Complete offering of mounting brackets and apertures available
- Crosstalk prevention filters available for visible red opposed mode pairs
- Exceptional optical performance with easy to align visible red emitters
- Background suppression models provide reliable detection up to 150 mm while ignoring objects in the background
- Background suppression models provide stable detection in the presence of fluorescent lights



WARNING:

- **Do not use this device for personnel protection**
- Using this device for personnel protection could result in serious injury or death.
- This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A device failure or malfunction can cause either an energized (on) or de-energized (off) output condition.

Models

Model ¹	Sensing Mode	Range	Output ²	Model ¹	Sensing Mode	Range	Output ²
Q20E	Opposed, 624 nm Visible Red Effective Beam: 10 mm (0.4 in)	12 m (39.4 ft)	N/A	Q20PDXL	Long Range Diffuse, 850 nm Infrared	1500 mm (59 in)	PNP
Q20PR			PNP	Q20NDXL			NPN
Q20NR			NPN	Q20PD	PNP		
Q20EL	Opposed, 850 nm Infrared Effective Beam: 10 mm (0.4 in)	20 m (65.6 ft)	N/A	Q20ND	Short Range Diffuse, 624 nm Visible Red	250 mm (10 in)	NPN
Q20PRL			PNP	Q20PDVS			PNP
Q20NRL			NPN	Q20NDVS	NPN		
Q20PLP	Polarized Retroreflective, 645 nm Visible Red	4 m (13 ft) (specified using reflector BRT-84)	PNP	Q20PFF50	Fixed Field, 655 nm Visible Red	50 mm (2 in) cutoff	PNP
Q20NLP			NPN	Q20NFF50			NPN
Q20PLV	Retroreflective, 645 nm Visible Red	6 m (20 ft) (specified using reflector BRT-84)	PNP	Q20PFF100	100 mm (4 in) cutoff		PNP
Q20NLV			NPN	Q20NFF100			NPN
Q20PDL	Long-Range Diffuse, 624 nm Visible Red	800 mm (32 in)	PNP	Q20PFF150	150 mm (6 in) cutoff		PNP
Q20NDL			NPN	Q20NFF150			NPN

Diffuse-mode and fixed-field performances are based on the use of a 90% reflectance white test card.

¹ Integral 2 m (6.5 ft) unterminated cable models are listed.

- To order the 9 m (30 ft) PVC cable model, add the suffix "W/30" to the cabled model number. For example, Q20E W/30.
- To order the 4-pin M8/Pico-style integral quick disconnect model, add the suffix "Q7" to the model number. For example, Q20EQ7.
- To order the 150 mm (6 in) PVC cable model with a 4-pin M8/Pico-style quick disconnect, add the suffix "Q" to the model number. For example, Q20EQ.
- To order the 150 mm (6 in) PVC cable model with a 4-pin M12/Euro-style quick disconnect, add the suffix "Q5" to the model number. For example, Q20EQ5.
- To order the 150 mm (6 in) PUR cable model with a 4-pin M12/Euro-style quick disconnect, add the suffix "QPMA" to the model number. For example, Q20EQPMA.
- Models with a quick disconnect require a mating cordset.

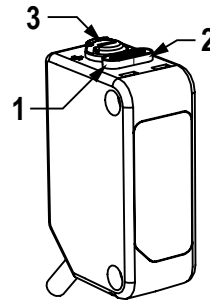
² Available with Health or Alarm Mode output; contact Banner Engineering for details.



Overview

Banner's Q20 family of sensors offers a full complement of sensing modes, with the excellent performance expected of much larger sensors. Their compact plastic housings feature overmolded construction for superior robustness and sealing. Their popular rectangular design is easy to mount into tight spaces; integral threaded mounting holes eliminate the need for separate mounting nuts.

The single-turn Gain potentiometer on most models and bright LEDs (positioned on top of the housing for 360° visibility) provide easy alignment and configuration for reliable sensing.

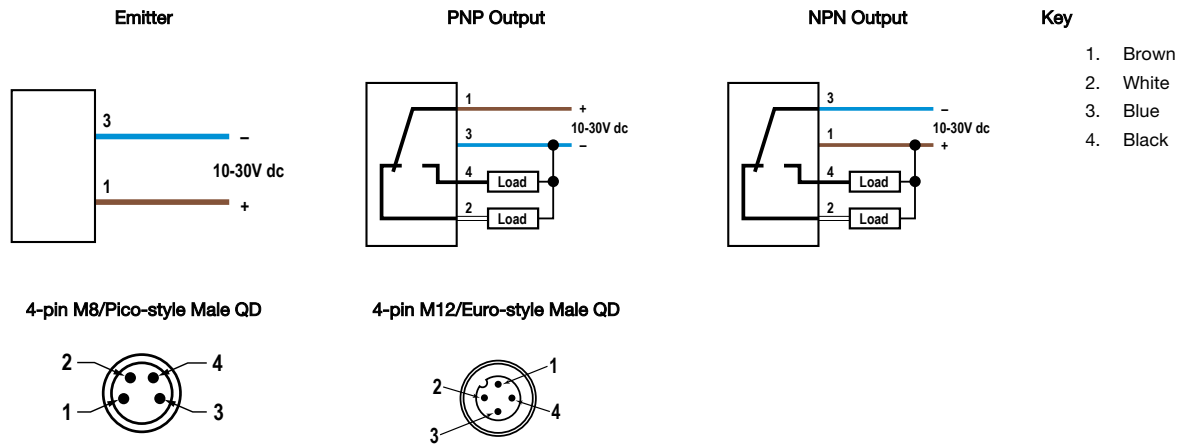


(varies with model)

1. Output LED
2. Power LED
3. Single-Turn Gain Potentiometer (Retro and Diffuse models only)

Wiring Diagrams

Cabled wiring diagrams are shown. Quick disconnect wiring diagrams are functionally identical.



Specifications

Supply Voltage

Fixed-Field: 10 to 30V dc (10% maximum ripple within specified limits) at less than 25 mA, exclusive of load

All others: 10 to 30V dc (10% maximum ripple within specified limits) at less than 18 mA, exclusive of load

Supply Protection Circuitry

Protected against reverse polarity and transient voltages

Repeatability

Opposed mode: 140 microseconds
All other models: 90 microseconds

Construction

ABS housing; PMMA lenses; PBT Gain Adjuster (Retro and Diffuse models only)