

*Miniature self-contained photoelectric sensors in universal-mount housing*

For complete technical information about this product, including dimensions, accessories, and specifications, see [www.bannerengineering.com](http://www.bannerengineering.com) and search 63908.

**Models**

Model <sup>1</sup>	Sensing Mode	Output Type
QS186E	20 m (66 ft) Opposed	Emitter
QS186EV		NPN
QS18VN6R		PNP
QS18VP6R	3 m (10 ft) Opposed	Emitter
QS186EB		NPN
QS18VN6RB		PNP
QS18VP6RB	3.5 m (12 ft) Polarized Retro	NPN
QS18VN6LP		PNP
QS18VP6LP		NPN
QS18VN6LV	6.5 m (21 ft) Non-Polarized Retro	NPN
QS18VP6LV		PNP
QS18VN6CV15	16 mm (0.63 in) Convergent	NPN
QS18VP6CV15		PNP
QS18VN6CV45	43 mm (1.7 in) Convergent	NPN
QS18VP6CV45		PNP
QS18VN6D	450 mm (18 in) Diffuse	NPN
QS18VP6D		PNP

Model <sup>1</sup>	Sensing Mode	Output Type
QS18VN6DB	450 mm (18 in) Diffuse	NPN
QS18VP6DB		PNP
QS18VN6W	100 mm (4 in) Divergent Diffuse	NPN
QS18VP6W		PNP
QS18VN6FF50	50 mm (2 in) Fixed-Field	NPN
QS18VP6FF50		PNP
QS18VN6FF100	100 mm (4 in) Fixed-Field	NPN
QS18VP6FF100		PNP
QS18VN6FP	220 mm (8.7 in) Individual (Opposed) 60 mm (2.4 in) Bifurcated (Diffuse) Range specified using 1.5 mm plastic fiber op- tics	NPN
QS18VP6FP		PNP
QS18VN6F	500 mm (20 in) Individual (Opposed) 38 mm (1.5 in) Bifurcated ( Diffuse) Range specified using 3.2 mm plastic fiber op- tics	NPN
QS18VP6F		PNP

**QD Models:**

- 4-pin integral Euro-style QD: add suffix **Q8**, for example, **QS186EQ8**.
- 4-pin 150 mm (6 in) Euro-style pigtail QD: add suffix **Q5**, for example, **QS186EQ5**.
- 4-pin integral Pico-style pigtail QD: add suffix **Q7**, for example, **QS186EQ7**.
- 4-pin 150 mm (6 in) Pico-style pigtail QD: add suffix **Q**, for example, **QS186EQ**.



**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.

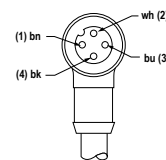
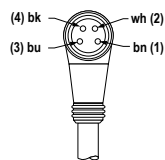
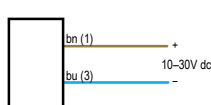
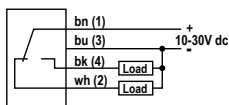
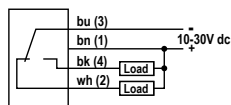
<sup>1</sup> Only standard 2 m (6.5 ft) cable models are listed. For 9 m (30 ft) cable, add suffix **W/30** to the model number, for example, **QS186E W/30**.

## Wiring

QS18 Sensors with NPN (Sinking) Outputs	QS18 Sensors with PNP (Sourcing) Outputs	QS18 Emitters	4-Pin Pico-Style Pin-Out (Cable Connector Shown)	4-Pin Euro-Style Pin-Out (Cable Connector Shown)
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Cable and QD hookups are functionally identical.

QD wh and bk wires are unused.



## Specifications

### Supply Voltage

10 to 30V dc (10% maximum ripple) at less than 25 mA, exclusive of load;  
Protected against reverse polarity and transient voltages

### Light Source

Glass Fiber Optic, Opposed and Diffuse mode models: 940 nm infra-red;  
Plastic Fiber Optic, Retroreflective, Convergent and FF mode models: 660 nm visible red

### Output Configuration

**Solid-state complementary (SPDT):** NPN or PNP (current sinking or sourcing), depending on model;

**Rating:** 100 mA maximum each output at 25°C

### Off-state leakage current:

FF Mode - less than 200  $\mu$ A at 30V dc  
All others - less than 50  $\mu$ A at 30V dc

**ON-state saturation voltage:** less than 1V at 10 mA; less than 1.5V at 100 mA

Protected against false pulse on power-up and continuous overload or short circuit of outputs

### Output Response

**Opposed Mode:** 750 microseconds On; 375 microseconds Off

**FF Mode:** 850 microseconds On/Off

**All others:** 600 microseconds On/Of

NOTE: 100 millisecond delay on power-up; outputs do not conduct during this time

### Repeatability

**Opposed Mode:** 100 microseconds

**FF Mode:** 160 microseconds

**All others:** 150 microseconds

### Adjustments

**Glass Fiber Optic, Plastic Fiber Optic, Convergent, Diffuse, and Retro-reflective mode models (only):** Single-turn sensitivity (Gain) adjustment potentiometer

### Indicators

2 LED indicators:

**Green steady:** Power On

**Green flashing:** Output overloaded

**Yellow\* steady:** Light sensed

**Yellow\* flashing:** Marginal excess gain (1.0 to 1.5x excess gain)

NOTE: Prior to date code 0223, the output indicator was red.

### Construction

ABS housing, rated IEC IP67; NEMA 6; UL Type 1

### Connections

2 m (6.5 ft) 4-wire PVC cable; 4-pin Pico-style QD; 4-pin Euro-style QD

9 m (30 ft) 4-wire PVC cable; 4-pin Pico-style 150 mm (6 in) pigtail QD; 4-pin

Euro-style 150 mm (6 in) pigtail QD

### Operating Conditions

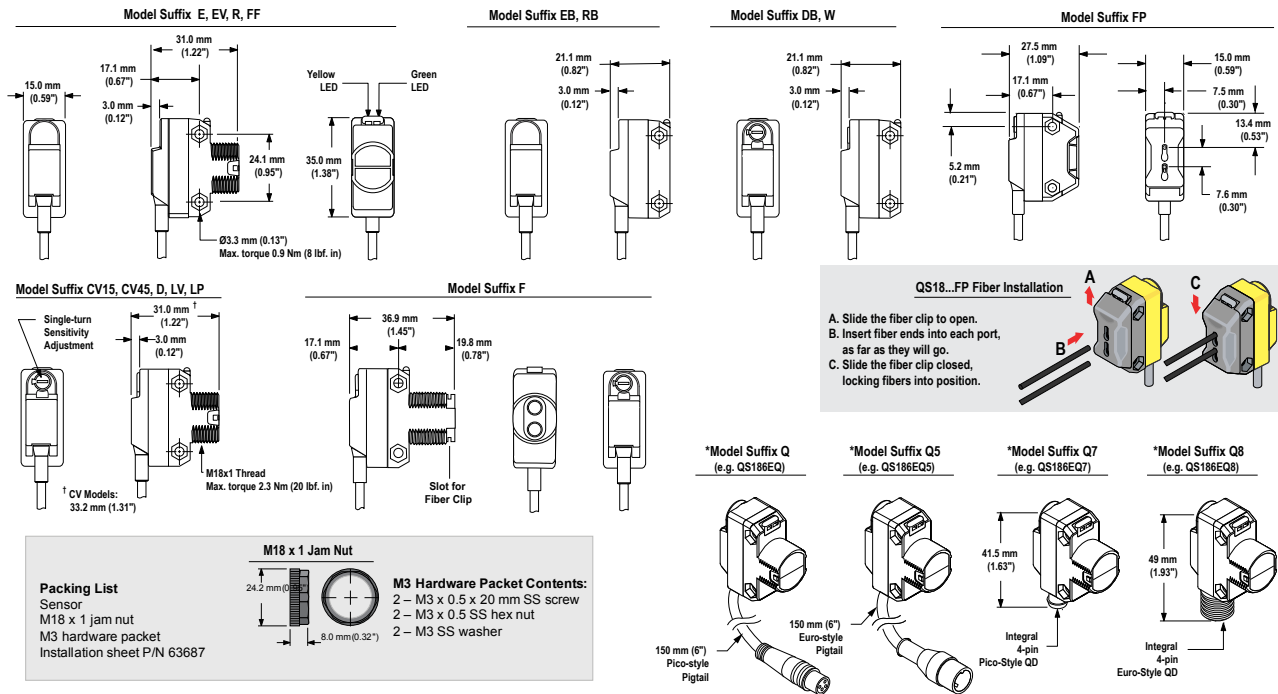
**Temperature:** -20 °C to +70 °C (-4 °F to +158 °F)

**Relative Humidity:** 90% at 50 °C (non-condensing)

### Certifications



## Dimensions



## Banner Engineering Corp Limited Warranty

Banner Engineering Corp. warrants its products to be free from defects in material and workmanship for one year following the date of shipment. Banner Engineering Corp. will repair or replace, free of charge, any product of its manufacture which, at the time it is returned to the factory, is found to have been defective during the warranty period. This warranty does not cover damage or liability for misuse, abuse, or the improper application or installation of the Banner product.

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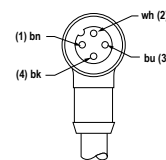
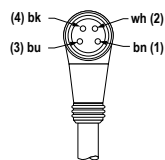
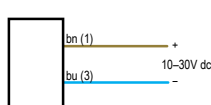
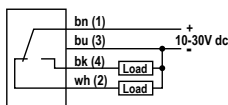
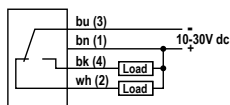
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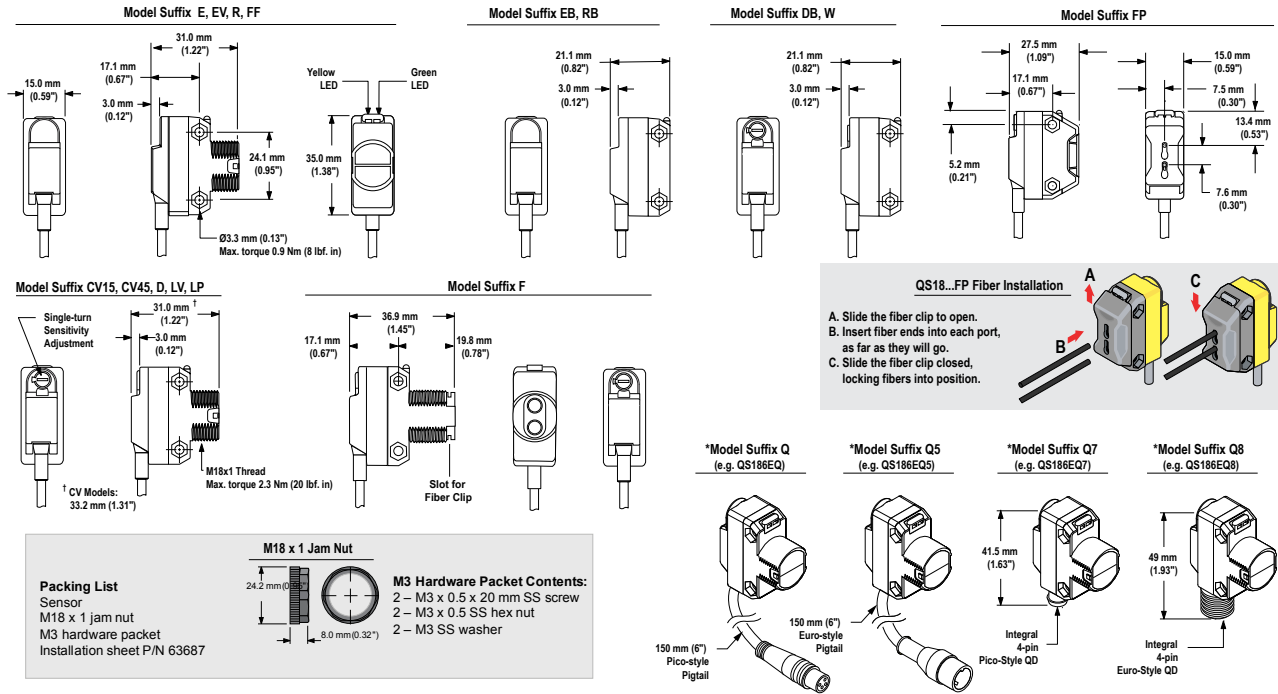
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