

WORLD-BEAM® QS18 Series Sensor



Quick Start Guide

Miniature Self-Contained Photoelectric Sensors In Universal-Mount Housing

This guide is designed to help you set up and install the WORLD-BEAM® QS18. For complete information on programming, performance, troubleshooting, dimensions, and accessories, please refer to the Instruction Manual at www.bannerengineering.com. Search for p/n 197052 to view the Instruction Manual. Use of this document assumes familiarity with pertinent industry standards and practices.



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.

Models

Model ¹	Sensing Mode	Output Type	Model ¹	Sensing Mode	Output Type		
QS186E	20 m (66 ft) Opposed	Emitter	QS18VN6DB	450 mm (18 in) Diffuse	DIFFUSE	NPN	
QS186EV		NPN	QS18VP6DB			PNP	
QS18VN6R		OPPOSED	PNP	QS18VN6DL	600 mm (24 in) Diffuse	DIFFUSE	NPN
QS18VP6R				PNP			
QS186EB	3 m (10 ft) Opposed	Emitter	QS18VN6W	100 mm (4 in) Divergent Diffuse	DIVERGENT DIFFUSE	NPN	
QS18VN6RB		NPN	QS18VP6W			PNP	
QS18VP6RB		PNP	OPPOSED	QS18VN6FF50	50 mm (2 in) Fixed-Field	FIXED-FIELD	NPN
QS18VN6LP	3.5 m (12 ft) Polarized Retro	NPN	QS18VP6FF50	PNP			
QS18VP6LP		PNP	QS18VN6FF100	100 mm (4 in) Fixed-Field	FIXED-FIELD	NPN	
OPPOSED		NPN	QS18VP6FF100			PNP	
QS18VN6LV	6.5 m (21 ft) Non-Polarized Retro	NPN	QS18VN6FF150	150 mm (6 in) Fixed-Field	FIXED-FIELD	NPN	
QS18VP6LV		PNP	QS18VP6FF150			PNP	
RETRO	NPN	RETRO	QS18VN6FP	220 mm (8.7 in) Individual (Opposed) 60 mm (2.4 in) Bifurcated (Diffuse)	PLASTIC FIBER	NPN	
CONVERGENT VISIBLE RED	NPN	CONVERGENT VISIBLE RED	QS18VP6FP			Range specified using 1.5 mm plastic fiber optics	PNP
CONVERGENT VISIBLE RED	43 mm (1.7 in) Convergent	NPN	QS18VN6F	500 mm (20 in) Individual (Opposed) 38 mm (1.5 in) Bifurcated (Diffuse)	GLASS FIBER	NPN	
CONVERGENT VISIBLE RED		PNP	QS18VP6F			Range specified using 3.2 mm plastic fiber optics	PNP
DIFFUSE	450 mm (18 in) Diffuse	NPN					
DIFFUSE		PNP					

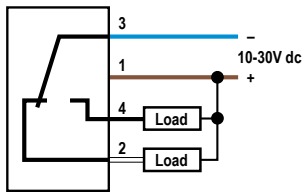
¹ Integral 2 m (6.5 ft) unterminated cable models are listed.

- To order the 9 m (30 ft) PVC cable model, add the suffix "W/30" to the cabled model number. For example, QS186E W/30.
- To order the 4-pin M12/Euro-style integral quick disconnect model, add the suffix "Q8" to the model number. For example, QS186EQ8.
- 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, QS186EQ5.
- To order the 4-pin M8/Pico-style integral quick disconnect model, add the suffix "Q7" to the model number. For example, QS186EQ7.
- 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, QS186EQ.

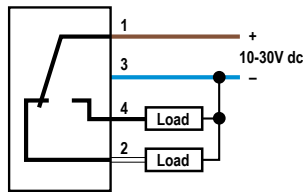


Wiring Diagrams

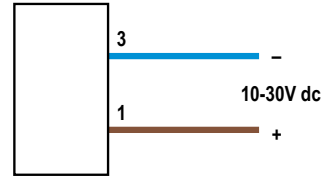
QS18 with NPN (Sinking) Outputs



QS18 with PNP (Sourcing) Outputs



QS18 Emitters



- Key
- 1 = Brown
 - 2 = White
 - 3 = Blue
 - 4 = Black

Quick disconnect (QD) wiring diagrams are functionally identical.

Specifications

Supply Voltage

- 10 V to 30 V 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: Infrared, 940 nm
- Plastic Fiber Optic, Retroreflective, Convergent models: Visible red, 660 nm
- Fixed-Field models: Visible red, 630 nm

Adjustments

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

Indicators

- 2 LED indicators on sensor top:
 - Green solid: Power on
 - Amber solid: Light sensed
 - Amber flashing: Marginal excess gain (1 to 1.5 times excess gain)

Required Overcurrent Protection



WARNING: Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

- Overcurrent protection is required to be provided by end product application per the supplied table.
- Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.
- Supply wiring leads < 24 AWG shall not be spliced.
- For additional product support, go to www.bannerengineering.com.

Supply Wiring (AWG)	Required Overcurrent Protection (Amps)
20	5.0
22	3.0
24	2.0
26	1.0
28	0.8
30	0.5

Repeatability

- Opposed Mode: 100 microseconds
- DL and FF Modes: 90 microseconds
- All Other Modes: 150 microseconds

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
- DL and FF Modes ON-state Saturation Voltage: less than 1.5 V at 10 mA; less than 3 V at 100 mA
- All Other Modes: ON-state Saturation Voltage: less than 1 V at 10 mA; less than 1.5 V 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 and DL Modes: 850 microseconds ON/OFF
- All Other Modes: 600 microseconds ON/OFF
- Note: 100 millisecond delay on power-up; outputs do not conduct during this time

Construction

- ABS housing
- 3 mm mounting hardware included

Connections

- 2 m (6.5 ft) 4-wire PVC cable, 9 m (30 ft) 4-wire PVC cable, 4-pin Pico-style or Euro-style QD, 4-pin Pico-style or Euro-style 150 mm (6 in) QD, depending on model

Environmental

- IEC IP67; NEMA 6

Operating Conditions

- Temperature: -20 °C to +70 °C (-4 °F to +158 °F)
- 95% at +50 °C maximum relative humidity (non-condensing)

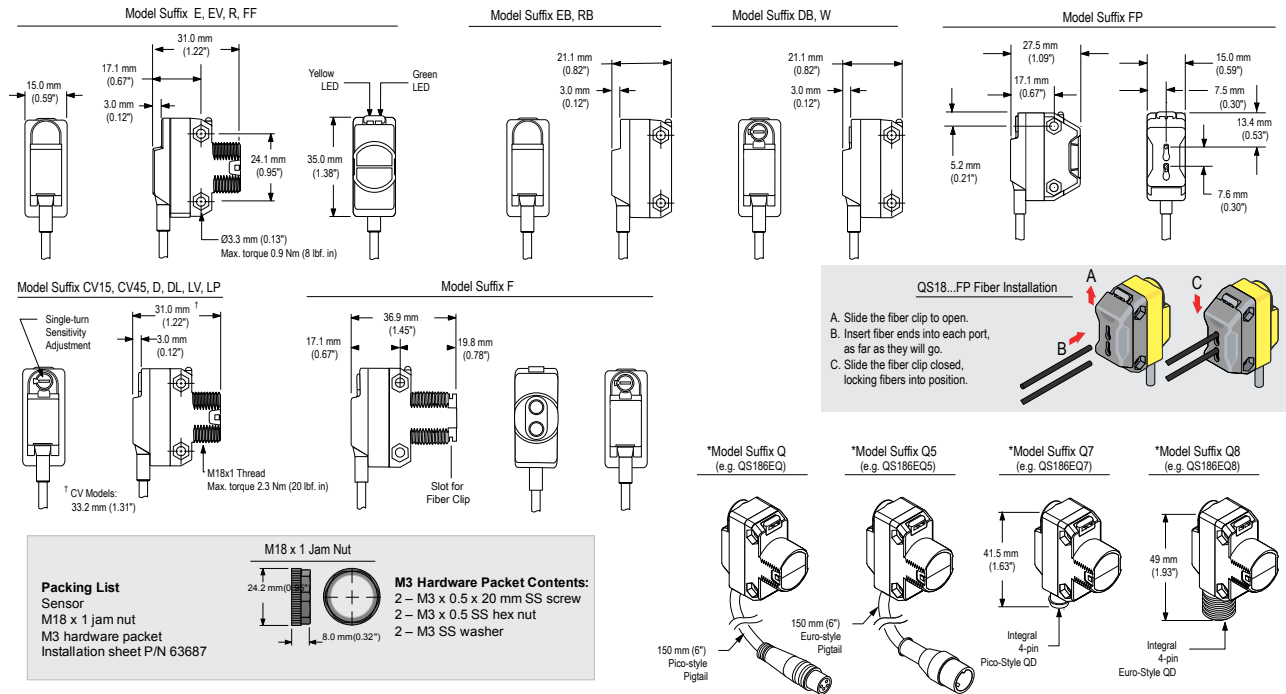
Certifications



Note: For performance specifications of the FF50 and FF100 models built prior to date code 17090, refer to document p/n [63908](#).

Dimensions

All measurements are listed in millimeters [inches], unless noted otherwise.



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