

S18 Series Sensor (AC Voltage)



Datasheet

For complete technical information about this product, including dimensions, accessories, and specifications, go to www.bannerengineering.com and search for your model number. See also document 121521.



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

Sensing Mode	Range	LED	Output	Model
 OPPOSED	20 m (66 ft)	Infrared 950 nm	-	S183E
			LO	S18AW3R
			DO	S18RW3R
 RETRO	2 m (79 in)	Infrared 950 nm	LO	S18AW3L
			DO	S18RW3L
 POLAR RETRO ¹	2 m (79 in)	Visible Red 680 nm	LO	S18AW3LP
			DO	S18RW3LP
 DIFFUSE	100 mm (4 in)	Infrared 880 nm	LO	S18AW3D
			DO	S18RW3D
	300 mm (12 in)		LO	S18AW3DL
			DO	S18RW3DL
 FIXED-FIELD	25 mm (1 in) cutoff	Infrared 880 nm	LO	S18AW3FF25
			DO	S18RW3FF25
	50 mm (2 in) cutoff		LO	S18AW3FF50
			DO	S18RW3FF50
	100 mm (4 in) cutoff		LO	S18AW3FF100
			DO	S18RW3FF100

Standard 2 m (6.5 ft) cable models are listed.

- To order the 9 m (30 ft) cable models, add suffix **W/30** (for example, **S183E W/30**).
- To order the 4-pin 1/2"-20UNF QD models, add suffix **Q1** (for example, **S183EQ1**). A model with a QD connector requires a mating cable.
- To order the 5-pin 1/2"-20UNF QD models, add suffix **Q** (for example, **S183EQ**). A model with a QD connector requires a mating cable.

¹ Use polarized models when shiny objects will be sensed.



Wiring

Figure 1. Cabled emitters

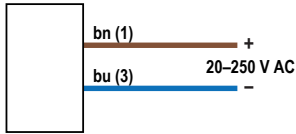


Figure 2. 4-pin 1/2"-20UNF QD emitters

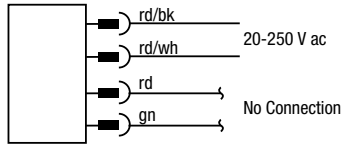


Figure 3. 5-pin 1/2"-20UNF QD emitters

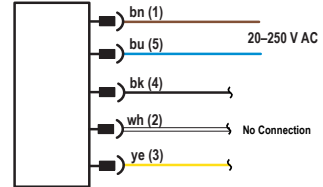


Figure 4. All other cabled models

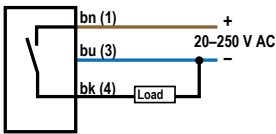


Figure 5. All other 4-pin 1/2"-20UNF QD Models

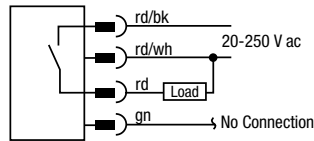
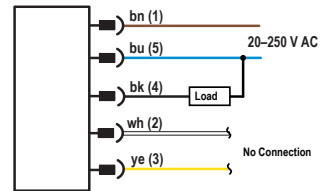
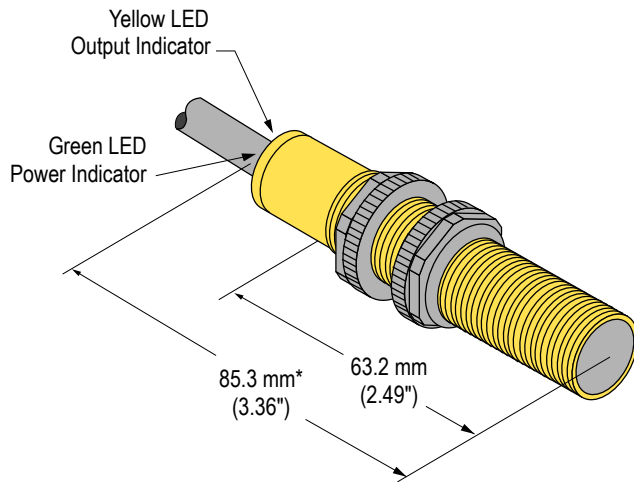


Figure 6. All other 5-pin 1/2"-20UNF QD Models



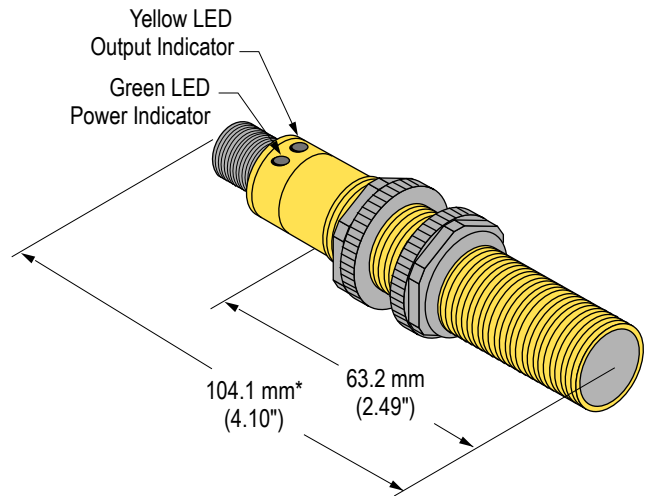
Dimensions

Cabled Models



*Polarized retro and fixed-field models = 86.3 mm (3.40")

QD Models



*Polarized retro and fixed-field models = 105.1 mm (4.14")

Specifications

Supply Voltage and Current

20 to 250 V AC (50/60 Hz)
 Average current: 20 mA
 Peak current: 200 mA at 20 V AC, 500 mA at 120 V AC, 750 mA at 250 V AC

Supply Protection Circuitry

Protected against transient voltages

Indicators

Two LEDs (green and amber)
 Green on: power to sensor is on
 Amber on: sensor sees light
 Amber flashing: excess gain marginal (1 to 1.5x) in light condition

Construction

Housing: PBT polyester housing
 Lens: polycarbonate (opposed-mode) or acrylic (other models)

Connections

2 m (6.5 ft) integral cable; 9 m (30 ft) integral cable; 4-pin 1/2"-20UNF quick-disconnect fitting; or 5-pin 1/2"-20UNF quick-disconnect fitting

Operating Conditions

-40 °C to +70 °C (-40 °F to +158 °F)
 90% at +50 °C maximum relative humidity (non-condensing)

Environmental Rating

Leakproof design rated NEMA 6P and IEC IP67 per IEC 60529
 IP69K per DIN40050 for quick disconnect and cable models when the cables are protected from direct spray

Vibration and Mechanical Shock

All models meet MIL-STD-202F, Method 201A (Vibration: 10 Hz to 60 Hz maximum, 0.06 inch (1.52 mm) double amplitude, 10G acceleration) requirements.
 Method 213B conditions H&I.
 Shock: 75G with device operating; 100G for non-operation

Certifications



Output Configuration

SPST solid-state AC switch; Three-wire connections; Choose light operate or dark operate models
 Light Operate: Output conducts when sensor sees its own (or the emitter's) modulated light
 Dark Operate: Output conducts when the sensor sees dark

Output Rating

300 mA maximum (continuous)
 Fixed-field models: derate 5 mA/°C above +50 °C (+122 °F)
 Inrush Capability 1 amp for 20 milliseconds, non-repetitive
 OFF-state leakage current: < 100 microamps
 ON-state saturation voltage: 3 V at 300 mA AC; 2 V at 15 mA AC

Output Protection Circuitry

Protected against false pulse on power-up

Output Response Time

Opposed mode models: 16 ms ON, 8 ms OFF
 Other models: 16 ms ON and OFF
 NOTE: 100 ms delay on power-up

Repeatability

Opposed mode models: 2 ms
 Other models: 4 ms
 Repeatability and response are independent of signal strength.

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

Accessories

Cordsets

4-Pin 1/2-in Dual Key Cordsets—Single Ended				
Model	Length	Style	Dimensions	Pinout (Female)
MQAC-406	2 m (6.56 ft)	Straight		<p>1 = Red/Black 2 = Red/White 3 = Red 4 = Green</p>
MQAC-415	5 m (16.4 ft)			
MQAC-430	9.14 m (30 ft)			
MQAC-406RA	1.83 m (6 ft)	Right-Angle		
MQAC-415RA	5 m (16.4 ft)			
MQAC-430RA	9.14 m (30 ft)			