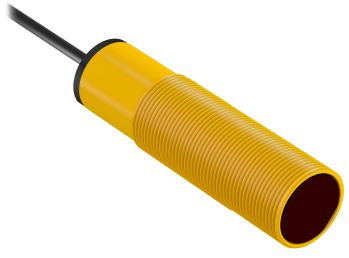
S18 Series Sensor (AC Voltage) Datasheet

Features

For complete technical information about this product, including installation instructions, application requirements and guidelines, technical specifications, and accessories, go to www.bannerengineering.com and search for instruction manual part number 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

Opposed mode models

Models	Range	LED	Output	Connection
S183E Emitter	20 m (66 ft)	Infrared 950 nm	-	2 m cable
S18AW3R Receiver			LO	2 m cable
S18RW3R Receiver			DE	2 m cable

Retroreflective mode models

Models	Range	LED	Output	Connection
S18AW3L	2 m (79 in)	Infrared 950 nm	LO	2 m cable
S18RW3L			DO	2 m cable

Polarized retroreflective mode models

Models[1]	Range	LED	Output	Connection
S18AW3LP	2 m (79 in)	Visible Red 680 nm	LO	2 m cable
S18RW3LP			DO	2 m cable

Diffuse mode models

Models	Range	LED	Output	Connection
S18AW3D	100 mm (4 in)	Infrared 880 nm	LO	2 m cable
S18RW3D			DO	2 m cable
S18AW3DL	300 mm (12 in)		LO	2 m cable
S18RW3DL			DO	2 m cable

Fixed-field mode models

Models	Range	LED	Output	Connection
S18AW3FF25	25 mm (1 in) cutoff	Infrared 880 nm	LO	2 m cable
S18RW3FF25			DO	2 m cable
S18AW3FF50	50 mm (2 in) cutoff		LO	2 m cable
S18RW3FF50			DO	2 m cable
S18AW3FF100	100 mm (4 in) cutoff		LO	2 m cable
S18RW3FF100			DO	2 m cable

- 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.

[1] Use polarized models when shiny objects will be sensed.

Original Instructions
11-Aug-26

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116160
p/n: 116160 Rev. G

ПРОМЭЛЕКТРОНИКА/ sales@prom-elec.com

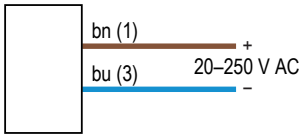
- To order the 5-pin 1/2"-20UNF QD models, add suffix **Q** (for example, **S183EQ**). A model with a QD connector requires a mating cable.

In light operate (LO) mode, the output is ON when the target returns the same or more light to the sensor and OFF when the sensor detects less light than the configured/taught target. In **opposed and retroreflective sensing modes**, light operate is active when the beam is unblocked. In **diffuse, fixed field, and adjustable field sensor modes**, light operate is active when the target is present.

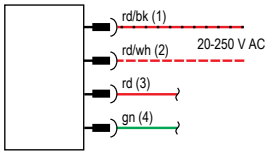
In dark operate (DO) mode, the output is ON when the target returns less light to the sensor than the configured target and OFF when the sensor detects more light than the configured/taught target. In **opposed and retroreflective sensing modes**, dark operate is active when the beam is blocked. In **diffuse, fixed field, and adjustable field sensor modes**, dark operate is active when the target is absent.

Wiring

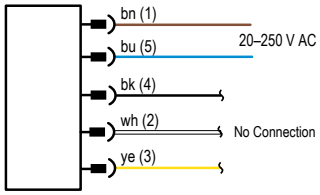
Cabled emitters



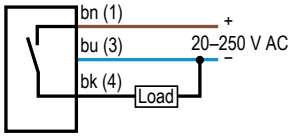
4-pin 1/2"-20UNF QD emitters



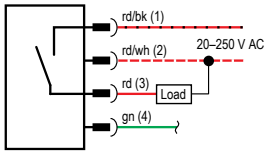
5-pin 1/2"-20UNF QD emitters



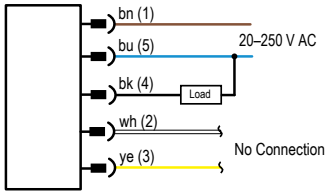
All other cabled models



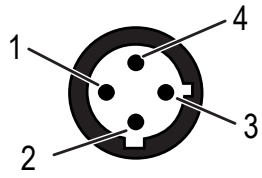
All other 4-pin 1/2"-20UNF QD Models



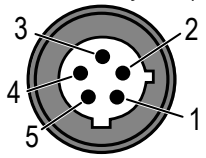
All other 5-pin 1/2"-20UNF QD Models



4-pin 1/2-in dual key male pinout



5-pin 1/2-in dual key male pinout



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 1.5×) 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

Output Protection Circuitry

Protected against false pulse on power-up

Output Configuration

SPST solid-state AC switch; Three-wire connections; Choose light operate or dark operate models
Light Operate: Output conducts when the 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 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.

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

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Certifications

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1831 Diegem, BELGIUM

Turck Banner LTD Blenheim House
Blenheim Court
Wickford, Essex SS11 8YT
GREAT BRITAIN

Required Overcurrent Protection

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

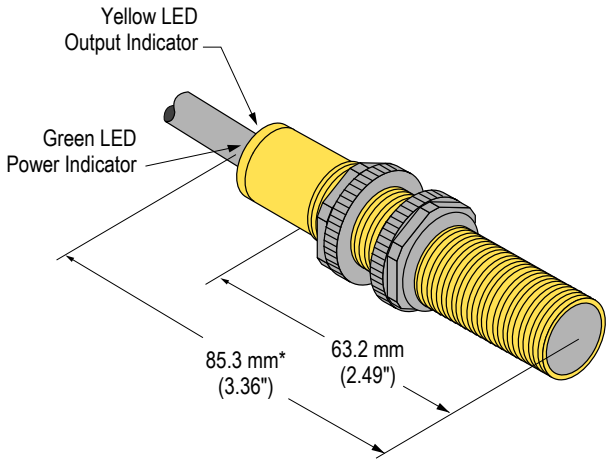
Overcurrent protection is required to be provided by end product application per the supplied table.
Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.
Supply wiring leads < 24 AWG shall not be spliced.

For additional product support, go to www.bannerengineering.com.

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

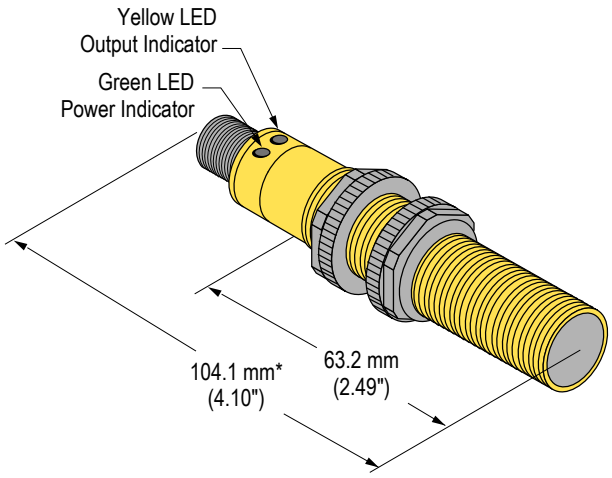
Dimensions

Cabled models



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

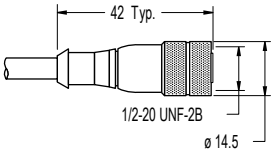
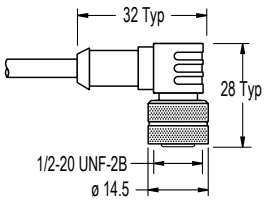
Quick disconnect models



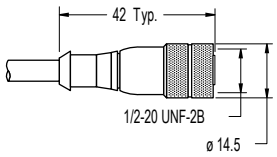
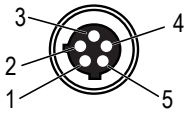
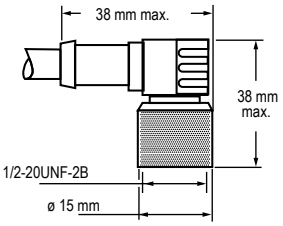
*Polarized retro and fixed-field models = 105.1 mm (4.14")

Accessories

Cordsets

4-Pin Single-Ended 1/2-in Dual Key Female Cordsets				
Model	**Length**	**Style**	**Dimensions**	**Pinout (Female)**
MQAC-406	2 m (6.56 ft)	Straight		 1 = Red/Black 2 = Red/White 3 = Red 4 = Green
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)			

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5-Pin Single-Ended 1/2-in Dual Key Female Shielded Cordsets				
Model	**Length**	**Style**	**Dimensions**	**Pinout (Female)**
MQVR3S-506	2 m (6.56 ft)	Straight		 1 = Brown 2 = White 3 = Yellow 4 = Black 5 = Blue
MQVR3S-515	5 m (16.4 ft)			
MQVR3S-530	10 m (32.8 ft)			
MQVR3S-506RA	2 m (6.56 ft)	Right Angle		
MQVR3S-515RA	5 m (16.4 ft)			
MQVR3S-530RA	10 m (32.8 ft)			

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