

T18 Series Sensors (AC Voltage)



Installation Guide

For complete technical information about this product, including dimensions, accessories, and specifications, see <http://www.bannerengineering.com> and search for your model number. See also document 121525.



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

Models ¹	Sensing Mode	Range	LED	Output	
T183E	Opposed	20 m (66 ft)	Infrared, 950 nm	-	
T18AW3R				LO	
T18RW3R				DO	
T18AW3L	Retroreflective with Gain Control	2 m (79 in) ²		LO	
T18RW3L				DO	
T18AW3LP	Polarized Retroreflective			Visible Red, 680 nm	LO
T18RW3LP			DO		
T18AW3D	Diffuse with Gain Control	500 mm (20 in)	LO		
T18RW3D			DO		
T18AW3FF25	Fixed Field	25 mm (1 in) Cutoff	Infrared, 880 nm		LO
T18RW3FF25		DO			
T18AW3FF50		50 mm (2 in) Cutoff		LO	
T18RW3FF50		DO			
T18AW3FF100		100 mm (4 in) Cutoff		LO	
T18RW3FF100		DO			

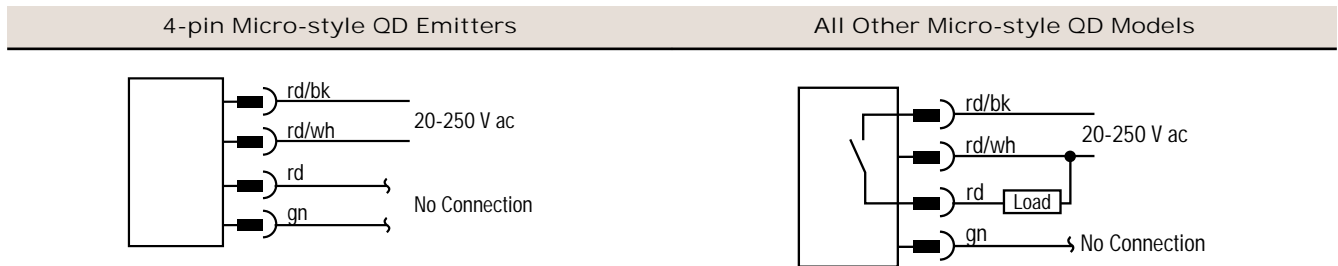
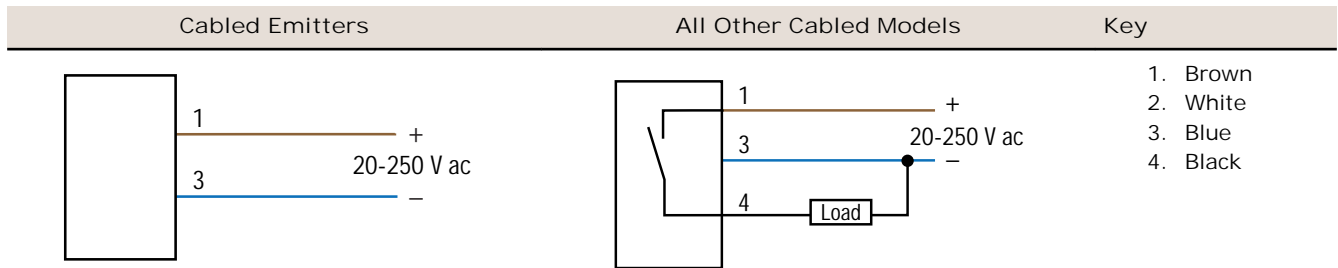
¹ Standard 2 m (6.5 ft) cable models are listed.

- To order the 9 m (30 ft) cable models, add suffix W/30 (for example, T183E W/30).
- To order the 4-pin Micro-style QD models, add suffix Q1 (for example, T183EQ1). A model with a QD connector requires a mating cable.

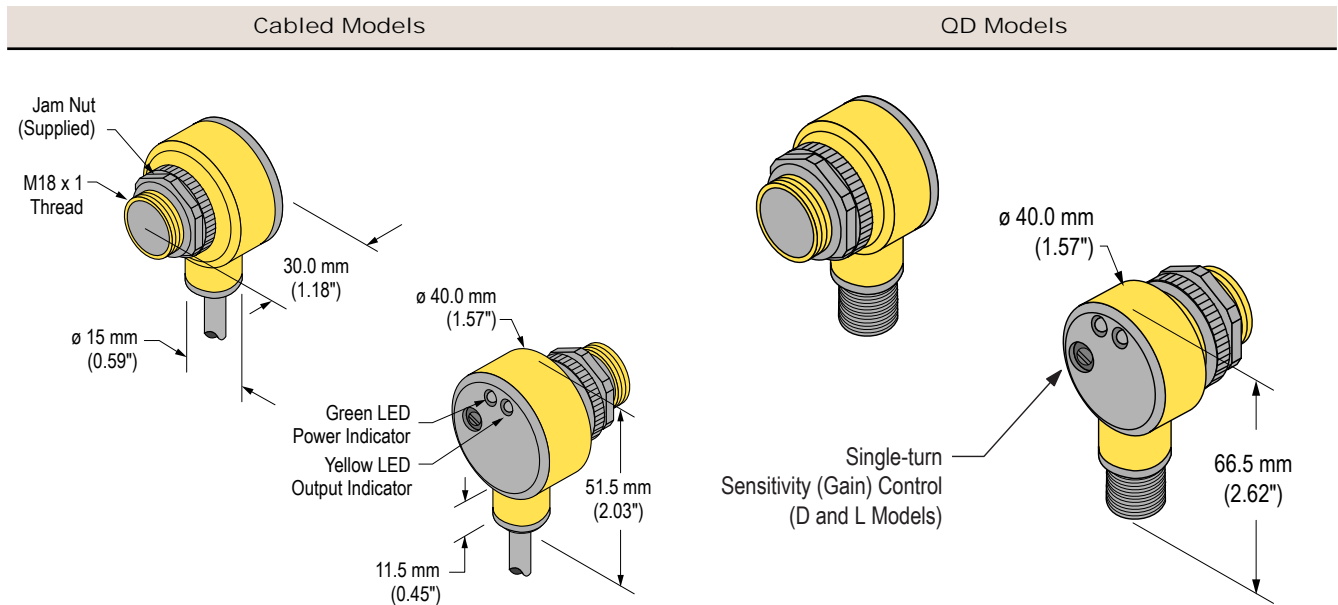
² Use polarized models when shiny objects will be sensed.



Wiring



Dimensions



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 reverse polarity and transient voltages

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

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

Operating Conditions

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

Vibration and Mechanical Shock

All models meet Mil. Std. 202F requirements. Method 201A (Vibration; frequency 10 Hz to 60 Hz, max., double amplitude 0.06 inch acceleration 10G). Method 213B conditions H&I.

Shock: 75G with unit operating; 100G for non-operation

Certifications



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.

Adjustments

Non-polarized retroreflective and diffuse models (only) have a single-turn rear-panel sensitivity control (turn clockwise to increase gain)

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; or 4-pin Micro-style quick-disconnect fitting

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 <http://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

4-Pin Micro-Style Cordsets				
Model	Length	Style	Dimensions	Pinout (Female)
MQAC-406	1.83 m (6 ft)	Straight		<p>1 = Red/Black 2 = Red/White 3 = Red 4 = Green</p>
MQAC-415	4.57 m (15 ft)			
MQAC-430	9.14 m (30 ft)			

4-Pin Micro-Style Cordsets				
Model	Length	Style	Dimensions	Pinout (Female)
MQAC-406RA	1.83 m (6 ft)	Right-Angle		
MQAC-415RA	4.57 m (15 ft)			
MQAC-430RA	9.14 m (30 ft)			

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