

# T30 Sensors DC-Voltage Series



## Quick Start Guide

Self-Contained, DC-Operated Sensors

For complete technical information about this product, including installation instructions, application requirements and guidelines, EU Declaration of Conformity, technical specifications, and accessories, see [www.bannerengineering.com](http://www.bannerengineering.com) and search 121524.



### WARNING: Not To Be Used for Personnel Protection

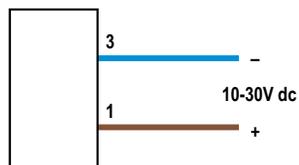
Never use this device as a sensing device for personnel protection. Doing so could lead to serious injury or death. This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A sensor failure or malfunction can cause either an energized or de-energized sensor output condition.

## Models

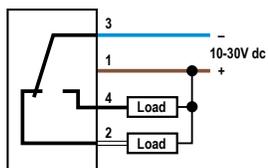
Sensing Mode	Model <sup>1</sup>	Output	Range	LED
 OPPOSED	T306E	-	60 m (196.8 ft)	Infrared, 950 nm
	T30SN6R	NPN		
	T30SP6R	PNP		
 POLAR RETRO	T30SN6LP	NPN	6 m (19.7 ft)	Visible red, 680 nm
	T30SP6LP	PNP		
 FIXED-FIELD	T30SN6FF200	NPN	200 mm (7.9 in) cutoff	Infrared, 880 nm
	T30SP6FF200	PNP		
	T30SN6FF400	NPN	400 mm (15.7 in) cutoff	
	T30SP6FF400	PNP		
	T30SN6FF600	NPN	600 mm (23.6 in) cutoff	
	T30SP6FF600	PNP		

## Wiring Diagrams

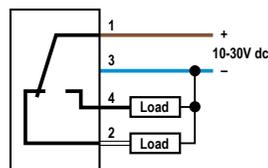
Cabled Emitters



NPN Standard



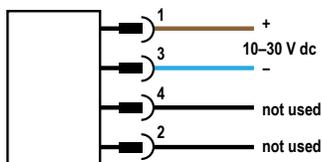
PNP Standard



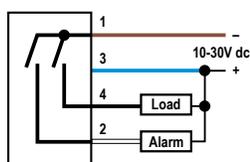
Key:

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

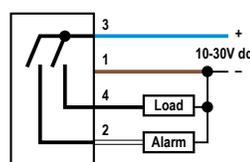
Quick Disconnect Emitters



NPN Alarm



PNP Alarm



<sup>1</sup> 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, T306E W/30.
- To order the 4-pin M12/Euro-style integral quick disconnect model, add the suffix "Q" to the model number. For example, T306EQ.
- Models with a quick disconnect require a mating cordset.



## Specifications

### Supply Voltage and Current

10 V dc to 30 V dc (10% maximum ripple)  
Supply current (exclusive of load current):

**Emitters, Non-Polarized, Retro:** 25 mA

**Receivers:** 20 mA

**Polarized Retroreflective:** 30 mA

**Fixed-Field:** 35 mA

### Output Configuration

SPDT solid-state dc switch; NPN or PNP outputs, depending on model

**Light Operate:** N.O. output conducts when sensor sees its own (or the emitter's) modulated light

**Dark Operate:** N.C. output conducts when the sensor sees dark; the N.C. output may be wired as a normally open marginal signal alarm output, depending on wiring to power supply

### Output Rating

150 mA maximum each

When wired for alarm output, the total load may not exceed 150 mA

**OFF-state leakage current:** < 1  $\mu$ A at 30 V dc

**ON-state saturation voltage:** < 1 V at 10 mA dc; < 1.5 V at 150 mA dc

### 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](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

### Supply Protection Circuitry

Protected against reverse polarity and transient voltages

### Output Protection Circuitry

Protected against output short-circuit, continuous overload, and false pulse on power-up

### Output Response Time

**Opposed mode:** 3 ms ON, 1.5 ms OFF

**Retro, Fixed-Field and Diffuse:** 3 ms ON and OFF



**Note:** 100 ms delay on power-up; outputs do not conduct during this time

### Repeatability

**Opposed mode:** 375  $\mu$ s

**Retro, Fixed-Field and Diffuse:** 750  $\mu$ s

Repeatability and response are independent of signal strength

### Indicators

Two LEDs (Green and Amber)

**Green ON steady:** power to sensor is ON

**Green flashing:** output is overloaded

**Amber ON steady:** N.O. output is conducting

**Amber flashing:** excess gain marginal (1 to 1.5 times) in light condition

### Construction

**Housing:** PBT polyester

**Lens:** Polycarbonate (opposed-mode) or acrylic

### Environmental Rating

Leakproof design rated NEMA 6P, DIN IP69K

### Connections

2 m (6.5 ft) or 9 m (30 ft) integral PVC cable or Integral 4-pin M12/Euro-style quick disconnect

### Operating Conditions

**Temperature:** -40 °C to +70 °C (-40 °F to +158 °F)

**Humidity:** 90% at +50 °C maximum relative humidity (non-condensing)

### 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 unit operating; 100G for non-operation)

### Certifications



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