

T30 DC-Voltage Sensor Quick Start Guide



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 121524.



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.

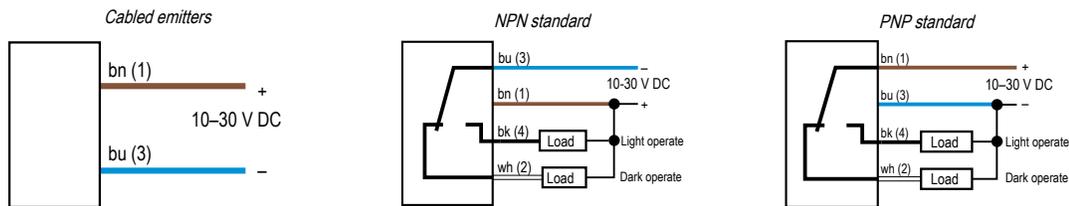
Models

Sensing Mode	Model	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		

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

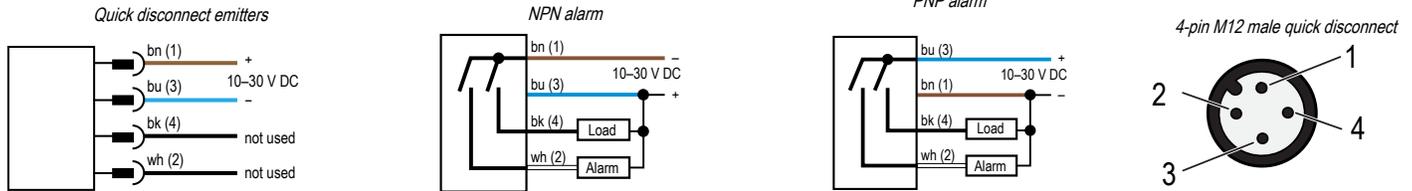
- To order the 9 m (30 ft) PVC cable model, add the suffix "W/30" to the cabled model number. For example, T306E W/30.
- To order the 4-pin M12 integral quick disconnect model, add the suffix "Q" to the model number. For example, T306EQ.
- Models with a quick disconnect require a mating cordset.

Wiring Diagrams



Continued on page 2





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.

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

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 Configuration

- SPDT solid-state DC switch; NPN or PNP outputs, depending on model
- Light Operate:** Normally open output conducts when sensor sees its own (or the emitter's) modulated light
- Dark Operate:** Normally closed output conducts when the sensor sees dark; the normally closed 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 µA at 30 V DC
- ON-state saturation voltage:** < 1 V at 10 mA DC; < 1.5 V at 150 mA DC

Connections

2 m (6.5 ft), 9 m (30 ft) integral PVC cable, or Integral 4-pin M12 male quick-disconnect connector, depending on your model

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 µs
 - Retro, Fixed-Field and Diffuse:** 750 µs
- 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 IP69K per ISO 20653

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 device operating; 100G for non-operation)

Certifications



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

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