

T30 Sensors - DC-Voltage Series

Self-Contained, DC-Operated Sensors

For complete technical information about this product, including dimensions, accessories, and specifications, see www.bannerengineering.com and search 121524



more sensors, more solutions

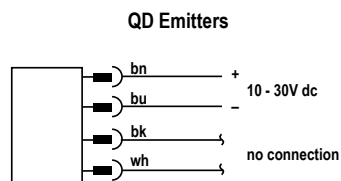
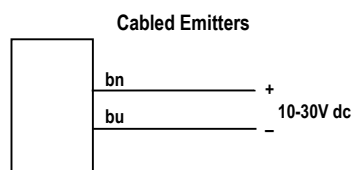


WARNING: Not To Be Used for Personnel Protection
Never use this device as a sensing device for personnel protection. Doing so could lead to serious injury or death. This device does NOT include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A sensor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

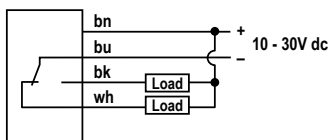
Models

Sensing Mode	Model ¹	Output	Range	LED
 OPPOSED	T306E	-	60 m (200 ft)	Infrared, 950 nm
	T30SN6R	NPN		
	T30SP6R	PNP		
 POLAR RETRO	T30SN6LP	NPN	6 m (20 ft)	Visible Red, 680 nm
	T30SP6LP	PNP		
 FIXED-FIELD	T30SN6FF200	NPN	200 mm (8 in) cutoff	Infrared, 880 nm
	T30SP6FF200	PNP	200 mm (8 in) cutoff	
	T30SN6FF400	NPN	400 mm (16 in) cutoff	
	T30SP6FF400	PNP	400 mm (16 in) cutoff	
	T30SN6FF600	NPN	600 mm (24 in) cutoff	
	T30SP6FF600	PNP	600 mm (24 in) cutoff	

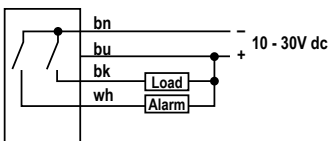
Hookups



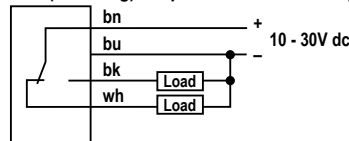
NPN (Sinking) Outputs Standard Hookup



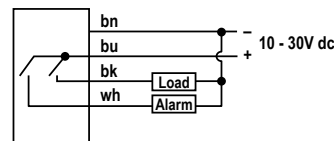
NPN (Sinking) Outputs Alarm Hookup



PNP (Sourcing) Outputs Standard Hookup



PNP (Sourcing) Outputs Alarm Hookup



NOTE: Cabled hookups are shown. QD hookups are functionally identical.

¹ Standard 2 m (6.5 ft) cable models are listed. To order 9 m (30 ft) cable: add suffix **W/30** (for example, T306EW/30). To order 4-pin Euro-style QD models: add suffix **Q** (for example, T306EQ). A model with a QD connector requires a mating cable.



Specifications

Supply Voltage and Current

10 to 30V dc (10% max. 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 Configuration

SPDT solid-state dc switch; NPN (current sinking) or PNP (current sourcing) 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 upon hookup to power supply

Output Rating

150 mA maximum (each) in standard hookup. When wired for alarm output, the total load may not exceed 150 mA.

OFF-state leakage current: < 1 μ A at 30V dc

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

Output Protection Circuitry

Protected against false pulse on power-up and continuous overload or short circuit of outputs

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 μ s

Retro, Fixed-Field and Diffuse: 750 μ s

Repeatability and response are independent of signal strength.

Indicators

Two LEDs (Green and Yellow)

Green ON steady: power to sensor is ON

Green flashing: output is overloaded

Yellow ON steady: N.O. output is conducting

Yellow flashing: excess gain marginal (1 to 1.5x) in light condition

Construction

PBT polyester housing; polycarbonate (opposed-mode) or acrylic lens

Environmental Rating

Leakproof design rated NEMA 6P, DIN 40050 (IP69K)

Connections

2 m (6.5 ft) or 9 m (30 ft) attached cable or 4-pin Euro-style quick-disconnect fitting

Operating Conditions

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

Humidity: 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 to 60 Hz, max., double amplitude 0.06 in acceleration 10G). Method 213B conditions H&I (Shock: 75G with unit operating; 100G for non-operation)

Certifications



Banner Engineering Corp Limited Warranty

Banner Engineering Corp. warrants its products to be free from defects in material and workmanship for one year following the date of shipment. Banner Engineering Corp. will repair or replace, free of charge, any product of its manufacture which, at the time it is returned to the factory, is found to have been defective during the warranty period. This warranty does not cover damage or liability for misuse, abuse, or the improper application or installation of the Banner product.

THIS LIMITED WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES WHETHER EXPRESS OR IMPLIED (INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE), AND WHETHER ARISING UNDER COURSE OF PERFORMANCE, COURSE OF DEALING OR TRADE USAGE.

This Warranty is exclusive and limited to repair or, at the discretion of Banner Engineering Corp., replacement. **IN NO EVENT SHALL BANNER ENGINEERING CORP. BE LIABLE TO BUYER OR ANY OTHER PERSON OR ENTITY FOR ANY EXTRA COSTS, EXPENSES, LOSSES, LOSS OF PROFITS, OR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES RESULTING FROM ANY PRODUCT DEFECT OR FROM THE USE OR INABILITY TO USE THE PRODUCT, WHETHER ARISING IN CONTRACT OR WARRANTY, STATUTE, TORT, STRICT LIABILITY, NEGLIGENCE, OR OTHERWISE.**

Banner Engineering Corp. reserves the right to change, modify or improve the design of the product without assuming any obligations or liabilities relating to any product previously manufactured by Banner Engineering Corp.

T30 Sensors - DC-Voltage Series

Self-Contained, DC-Operated Sensors

For complete technical information about this product, including dimensions, accessories, and specifications, see www.bannerengineering.com and search 121524



more sensors, more solutions

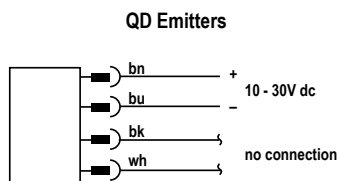
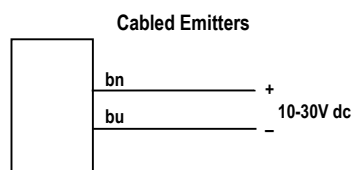


WARNING: Not To Be Used for Personnel Protection
Never use this device as a sensing device for personnel protection. Doing so could lead to serious injury or death. This device does NOT include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A sensor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

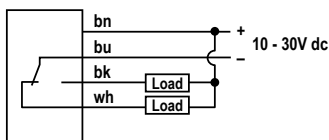
Models

Sensing Mode	Model ¹	Output	Range	LED
 OPPOSED	T306E	-	60 m (200 ft)	Infrared, 950 nm
	T30SN6R	NPN		
	T30SP6R	PNP		
 POLAR RETRO	T30SN6LP	NPN	6 m (20 ft)	Visible Red, 680 nm
	T30SP6LP	PNP		
 FIXED-FIELD	T30SN6FF200	NPN	200 mm (8 in) cutoff	Infrared, 880 nm
	T30SP6FF200	PNP	200 mm (8 in) cutoff	
	T30SN6FF400	NPN	400 mm (16 in) cutoff	
	T30SP6FF400	PNP	400 mm (16 in) cutoff	
	T30SN6FF600	NPN	600 mm (24 in) cutoff	
	T30SP6FF600	PNP	600 mm (24 in) cutoff	

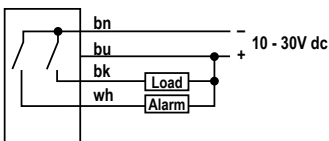
Hookups



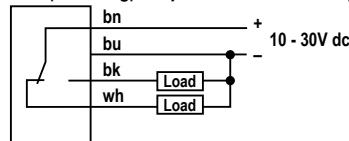
NPN (Sinking) Outputs Standard Hookup



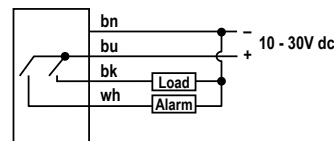
NPN (Sinking) Outputs Alarm Hookup



PNP (Sourcing) Outputs Standard Hookup



PNP (Sourcing) Outputs Alarm Hookup



NOTE: Cabled hookups are shown. QD hookups are functionally identical.

¹ Standard 2 m (6.5 ft) cable models are listed. To order 9 m (30 ft) cable: add suffix **W/30** (for example, T306EW/30). To order 4-pin Euro-style QD models: add suffix **Q** (for example, T306EQ). A model with a QD connector requires a mating cable.



Specifications

Supply Voltage and Current

10 to 30V dc (10% max. 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 Configuration

SPDT solid-state dc switch; NPN (current sinking) or PNP (current sourcing) 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 upon hookup to power supply

Output Rating

150 mA maximum (each) in standard hookup. When wired for alarm output, the total load may not exceed 150 mA.

OFF-state leakage current: < 1 μ A at 30V dc

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

Output Protection Circuitry

Protected against false pulse on power-up and continuous overload or short circuit of outputs

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 μ s

Retro, Fixed-Field and Diffuse: 750 μ s

Repeatability and response are independent of signal strength.

Indicators

Two LEDs (Green and Yellow)

Green ON steady: power to sensor is ON

Green flashing: output is overloaded

Yellow ON steady: N.O. output is conducting

Yellow flashing: excess gain marginal (1 to 1.5x) in light condition

Construction

PBT polyester housing; polycarbonate (opposed-mode) or acrylic lens

Environmental Rating

Leakproof design rated NEMA 6P, DIN 40050 (IP69K)

Connections

2 m (6.5 ft) or 9 m (30 ft) attached cable or 4-pin Euro-style quick-disconnect fitting

Operating Conditions

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

Humidity: 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 to 60 Hz, max., double amplitude 0.06 in acceleration 10G). Method 213B conditions H&I (Shock: 75G with unit operating; 100G for non-operation)

Certifications



Banner Engineering Corp Limited Warranty

Banner Engineering Corp. warrants its products to be free from defects in material and workmanship for one year following the date of shipment. Banner Engineering Corp. will repair or replace, free of charge, any product of its manufacture which, at the time it is returned to the factory, is found to have been defective during the warranty period. This warranty does not cover damage or liability for misuse, abuse, or the improper application or installation of the Banner product.

THIS LIMITED WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES WHETHER EXPRESS OR IMPLIED (INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE), AND WHETHER ARISING UNDER COURSE OF PERFORMANCE, COURSE OF DEALING OR TRADE USAGE.

This Warranty is exclusive and limited to repair or, at the discretion of Banner Engineering Corp., replacement. **IN NO EVENT SHALL BANNER ENGINEERING CORP. BE LIABLE TO BUYER OR ANY OTHER PERSON OR ENTITY FOR ANY EXTRA COSTS, EXPENSES, LOSSES, LOSS OF PROFITS, OR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES RESULTING FROM ANY PRODUCT DEFECT OR FROM THE USE OR INABILITY TO USE THE PRODUCT, WHETHER ARISING IN CONTRACT OR WARRANTY, STATUTE, TORT, STRICT LIABILITY, NEGLIGENCE, OR OTHERWISE.**

Banner Engineering Corp. reserves the right to change, modify or improve the design of the product without assuming any obligations or liabilities relating to any product previously manufactured by Banner Engineering Corp.