# T30 AC-Voltage Series Sensor Quick Start Guide

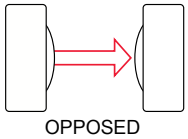
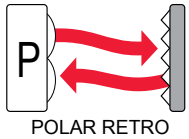
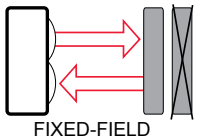
## Features

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 121523.



**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 | Connection |
|---|---|---|---|---|
|  OPPOSED | T303E | - | 60 m (200 ft) | 2 m (6.5 ft) cable |
| | T303E W/30 | - | | 9 m cable |
| | T303EQ1 | - | | 4-pin 1/2 in-20UNF (1/2-in Dual Key) quick disconnect (QD) |
| | T30AW3R | LO | | 2 m (6.5 ft) cable |
| | T30AW3RQ1 | LO | | 4-pin 1/2 in-20UNF (1/2-in Dual Key) quick disconnect (QD) |
| | T30RW3R | DO | | 2 m (6.5 ft) cable |
| | T30RW3R W/30 | DO | | 9 m cable |
| | T30RW3RQ1 | DO | | 4-pin 1/2 in-20UNF (1/2-in Dual Key) quick disconnect (QD) |
|   POLAR RETRO | T30AW3LP | LO | 6 m (20 ft) | 2 m (6.5 ft) cable |
| | T30AW3LPQ1 | LO | | 4-pin 1/2 in-20UNF (1/2-in Dual Key) quick disconnect (QD) |
| | T30RW3LP | DO | | 2 m (6.5 ft) cable |
| | T30RW3LPQ1 | DO | | 4-pin 1/2 in-20UNF (1/2-in Dual Key) quick disconnect (QD) |
|  FIXED-FIELD | T30AW3FF200 | LO | 200 mm (8 in) cutoff | 2 m (6.5 ft) cable |
| | T30AW3FF200Q1 | LO | | 4-pin 1/2 in-20UNF (1/2-in Dual Key) quick disconnect (QD) |
| | T30RW3FF200 | DO | | 2 m (6.5 ft) cable |
| | T30RW3FF200Q1 | DO | | 4-pin 1/2 in-20UNF (1/2-in Dual Key) quick disconnect (QD) |
| | T30AW3FF400 | LO | 400 mm (16 in) cutoff | 2 m (6.5 ft) cable |
| | T30AW3FF400Q1 | LO | | |
| | T30RW3FF400 | DO | | 2 m (6.5 ft) cable |
| | T30RW3FF400Q1 | DO | | 4-pin 1/2 in-20UNF (1/2-in Dual Key) quick disconnect (QD) |
| | T30AW3FF600 | LO | 600 mm (24 in) cutoff | 2 m (6.5 ft) cable |
| | T30AW3FF600Q1 | LO | | 4-pin 1/2 in-20UNF (1/2-in Dual Key) quick disconnect (QD) |
| | T30RW3FF600Q1 | DO | | 4-pin 1/2 in-20UNF (1/2-in Dual Key) quick disconnect (QD) |

Standard 2 m (6.5 ft) cable models are listed. A model with a QD connector requires a mating cable.

The following models are no longer available for order but are still covered by the information in this document.

- T30AW3R W/30
- T30AW3LP W/30
- T30RW3LP W/30
- T30AW3FF200 W/30
- T30RW3FF200 W/30
- T30AW3FF400 W/30
- T30RW3FF400 W/30
- T30AW3FF600 W/30
- T30RW3FF600 and T30RW3FF600 W/30

Original Instructions
22-Jul-26

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116162
p/n: 116162 Rev. E

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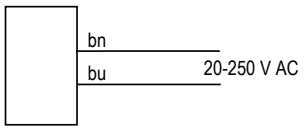
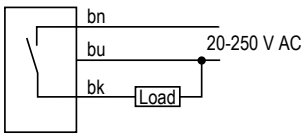
## Wiring Diagrams

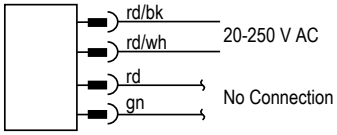
*Cabled emitters*



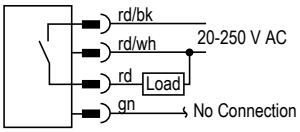

*All other cabled models*



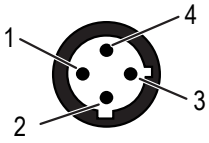

*4-pin 1/2 in-20UNF (1/2-in Dual Key) quick disconnect emitters*




*All other 4-pin 1/2 in-20UNF (1/2-in Dual Key) quick disconnect models*




*4-pin 1/2 in-20UNF (1/2-in Dual Key) male pinout*




Key:

1 - Red/black
2 - Red/white
3 - Red
4 - Green

## Specifications

**Supply Voltage and Current**

20 V AC to 250 V AC (50 Hz to 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

**Output Protection Circuitry**

Protected against false pulse on power-up

**LED**

Opposed mode models: Infrared, 950 nm

Polarized retroreflective mode models: Visible red, 680 nm

Fixed-field mode models: Infrared, 880 nm

**Output Configuration**

SPST solid-state AC switch; three-wire hookup; light operate or dark operate, depending on model

**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 ms, non-repetitive

**OFF-state leakage current:** < 100 mA

**ON-state saturation voltage:** 3 V at 300 mA AC; 2 V at 15 mA AC

**Output Response**

**Time Opposed mode:** 16 ms ON, 8 ms OFF

**Other models:** 16 ms ON and OFF

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

**Repeatability**

**Opposed mode:** 2 ms

**Other models:** 4 ms

Repeatability and response are independent of signal strength

**Indicators**

Two LEDs (Green and Amber)

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

**Amber ON steady:** sensor sees light

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

**Construction**

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

**Environmental Rating**

Leakproof design rated IP69K per ISO 20653

**Connections**

2 m (6.5 ft) integral PVC-jacketed cable, or Integral 4-pin 1/2 in. 20UNF quick-disconnect connector

**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**

Banner Engineering BV
Park Lane, Culliganlaan 2F bus 3
1831 Diegem, BELGIUM

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

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**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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