# T30UX Series

## Right-Angle, Long-Range Ultrasonic Sensors

- Built-in temperature compensation for high-accuracy across a wide range of ambient temperatures
- Resists harsh environments with rugged IP67 (NEMA 6) housing and fully encapsulated electronics
- Push-button and remote TEACH-mode programming with an external switch, computer or controller for added security and convenience

### T30UX

| Range | Frequency | Connection | Response Time | Output | Models* |
|---|---|---|---|---|---|
| 100 mm to 1 m | 224 kHz | 2 m 4-Pin Euro QD | 45 ms | **Discrete:** NPN, PNP, NO, NC, Selectable | **T30UXDA** **T30UXDAQ8** |
| 200 mm to 2 m | 174 kHz | 2 m 4-Pin Euro QD | 92 ms | **Discrete:** NPN, PNP, NO, NC, Selectable | **T30UXDB** **T30UXDBQ8** |
| 300 mm to 3 m | 114 kHz | 2 m 4-Pin Euro QD | 135 ms | **Discrete:** NPN, PNP, NO, NC, Selectable | **T30UXDC** **T30UXDCQ8** |
| 100 mm to 1 m | 224 kHz | 2 m 4-Pin Euro QD | Selectable 45 or 105 ms | **Analog:** 0 to 10 V dc | **T30UXUA** **T30UXUAQ8** |
| 100 mm to 1 m | 224 kHz | 2 m 4-Pin Euro QD | Selectable 45 or 105 ms | **Analog:** 4 to 20 mA | **T30UXIA** **T30UXIAQ8** |
| 200 mm to 2 m | 174 kHz | 2 m 4-Pin Euro QD | Selectable 92 or 222 ms | **Analog:** 0 to 10 V dc | **T30UXUB** **T30UXUBQ8** |
| 200 mm to 2 m | 174 kHz | 2 m 4-Pin Euro QD | Selectable 92 or 222 ms | **Analog:** 4 to 20 mA | **T30UXIB** **T30UXIBQ8** |
| 300 mm to 3 m | 114 kHz | 2 m 4-Pin Euro QD | Selectable 135 or 318 ms | **Analog:** 0 to 10 V dc | **T30UXUC** **T30UXUCQ8** |
| 300 mm to 3 m | 114 kHz | 2 m 4-Pin Euro QD | Selectable 135 or 318 ms | **Analog:** 4 to 20 mA | **T30UXIC** **T30UXICQ8** |

**Connection options:** A model with a QD requires a mating cordset.

For 9 m cable, add suffix **W/30** to the 2 m model number (example, **T30UXDA W/30**).
**QD models:** For a 4-pin 150 mm Euro-style PUR pigtail QD, add suffix **QPMA** the 2 m model number (example, **T30UXDAQPMA**).
* Contact factory to request chemically resistant flange or fill-level control models.

4-Pin

**Euro-Style with Shield**
Straight connector models listed; for right-angle, add **RA** to the end of the model number (example, **MQDEC2-406RA**)

**MQDEC2-406**
2 m (6.5')
**MQDEC2-415**
5 m (15')
**MQDEC2-430**
9 m (30')

*Additional cordset information is available*
*See page 758*

**SMB30A**

**SMB30FA..**

**SMB1815SF**

*Additional bracket information is available*
*See page 723*


**T30UX (Long-range) Models**

## T30UX Specifications

| | |
|---|---|
| **Supply Voltage and Current** | 10 to 30 V dc (10% max. ripple) at 40 mA, exclusive of load |
| **Supply Protection Circuitry** | Protected against reverse polarity and transient voltages |
| **Output Configuration** | **Discrete (switched) output models:** SPST solid-state switch. Configurable as NPN (sinking) or PNP (sourcing) via Mode push button. Normally Open (NO) or Normally Closed (NC) operation is also selectable via Mode push button. The default setting is PNP/NO.<br>**Analog output models:** 0 to 10 V dc or 4 to 20 mA, depending on model |
| **Output Ratings** | **Discrete output models:** 100 mA max.<br>**OFF-state leakage current: NPN:** < 200 µA @ 30 V dc (see NOTE 1) **PNP:** < 10 µA @ 30 V dc<br>**ON-state saturation voltage: NPN:** < 1.6 V @ 100 mA **PNP:** < 3 V @ 100 mA<br>**Analog output models:**<br>**Analog Voltage Output:** 2.5 kΩ min. load resistance<br>Minimum supply for a full 10 V output is 12 V dc (for supply voltages between 10 and 12, V out max. is at least V supply -2)<br>**Analog Current Output:** 1 kΩ max. @ 24 V input; max. load resistance = (Vcc-4)/0.02Ω<br>For current output (4-20 mA) models, ideal results are achieved when the total load resistance R = [(Vin – 4)/0.020]Ω.<br>Example, at Vin = 24 V dc, R ≈ 1 kΩ (1 watt) |
| **Output Protection Circuitry** | Protected against short circuit conditions |
| **Output Response Time** | **"A" suffix models:** 45 milliseconds **"B" suffix models:** 92 milliseconds **"C" suffix models:** 135 milliseconds |
| **Delay at Power-up** | 500 milliseconds |
| **Temperature Effect** | 0.02% of distance/ ºC |
| **Linearity (analog models)** | 0.25% of distance |
| **Repeatability/Resolution** | **"A" suffix models:** 0.1% of distance (0.5 mm min.)<br>**"B" suffix models:** 0.1% of distance (1.0 mm min.)<br>**"C" suffix models:** 0.1% of distance (1.5 mm min.) |
| **Sensing Hysteresis (discrete models)** | **"A" suffix models:** 2 mm **"B" suffix models:** 3 mm **"C" suffix models:** 4 mm |
| **Minimum Window Size** | 10 mm |
| **Adjustments** | **Sensing window limits:** TEACH-Mode configuration of near and far window limits may be set using the push button or remotely viaTEACH input<br>**Discrete output models:**<br>**Output Configuration:** NPN, PNP, Normally Open (NO), Normally Closed (NC) select<br>**Advanced configuration options:** Push button enabled/disabled, temperature compensation enabled/disabled<br>**Analog output models:**<br>**Response speed selection:** Fast or Slow<br>**Advanced configuration options:** Analog output slope, push button enabled/disabled, temperature compensation enabled/disabled |
| **Indicators** | **Green Power LED ON:** Power ON, RUN mode<br>**Red Signal LED:** Target signal strength<br>**Amber Output LED:** Output enabled; sensor receiving a signal within the window limits<br>**Amber Mode LED:** Currently selected mode |
| **Loss of Signal Indication (analog models)** | **0 to 10 V dc models:** Analog output goes to 0 V<br>**4 to 20 mA models:** Analog output goes to 3.6 mA |
| **Construction** | **Housing:** PBT polyester **Push buttons:** Polyester **Transducer:** Epoxy /ceramic composite |
| **Environmental Rating** | Leakproof design, rated IEC IP67 (NEMA 6) |
| **Operating Conditions** | **Temperature:** -40 to +70 °C **Relative humidity:** 95% at 50 °C non-condensing |
| **Vibration and Mechanical Shock** | All models meet Mil. Std. 202F requirements. Method 201A (Vibration: 10 to 60Hz max., double amplitude 0.06", maximum acceleration 10G). Also meets IEC 947-5-2 requirements: 30G, 11 milliseconds duration, half sine wave. |
| **Application Notes** | The temperature warmup drift upon power-up is less than 1% of the sensing distance |
| **Certifications** | CE c UL us LISTED |

NOTE: NPN < 200 µA for load impedance > 3 kΩ; for load current of 100 mA, leakage < 1% of load current