T30UX Series with Discrete Output Product Manual

Original Instructions
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ПРОМЭЛЕКТРОНИКА/ sales@prom-elec.com

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Chapter 1 Product Description

Ultrasonic sensor with TEACH-mode configuration



- 1, 2, and 3 m (3.28, 6.56, and 9.84 ft) versions with short dead zones (10% of max range)
- Built-in temperature compensation
- Fast, easy-to-use TEACH-Mode programming or IO-Link Communication
- Remote TEACH for security and convenience
- Wide operating temperature range of –40 °C to +70 °C (–40 °F to +158 °F)
- Compact, self-contained, right-angle sensor package with fully encapsulated electronics

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

Models	Range	Frequency	Cable	Discrete Output	Response Time
T30UXDA	100 mm to 1 m (3.9 in to 39 in)	224 kHz	Standard 2 m (6.5 ft) cable	NPN, PNP, NO, NC, Selectable	45 ms
T30UXDAQ8			4-pin M12 integral QD		
T30UXDAQPMA			150 mm (6 in) PUR pigtail cable with 4-Pin threaded M12 QD		
T30UXDB	200 mm to 2 m (7.8 in to 78 in)	174 kHz	Standard 2 m (6.5 ft) cable		92 ms
T30UXDBQ8			4-pin M12 integral QD		
T30UXDBQPMA			150 mm (6 in) PUR pigtail cable with 4-Pin threaded M12 QD		
T30UXDC	300 mm to 3 m (11.8 in to 118 in)	114 kHz	Standard 2 m (6.5 ft) cable		135 ms
T30UXDCQ8			4-pin M12 integral QD		
T30UXDCQPMA			150 mm (6 in) PUR pigtail cable with 4-Pin threaded M12 QD		

A model with a QD connector requires a mating cable. See "Accessories" on page 15.

For a list of discontinued models, see "Discontinued Models" on page 17.

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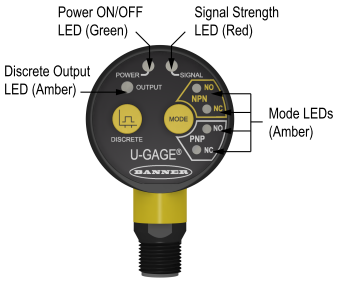
Overview

The U-GAGE® T30UX is an easy-to-use ultrasonic sensor with an extended range and built-in temperature compensation. Simple push-button configuration provides flexibility for a variety of applications.

Easy-to-see indicator LEDs communicate the status of the sensor. The Green “Power” LED ON indicates that the sensor is in Run Mode (the sensor’s normal operating condition). The Red “Signal” LED indicates the target signal strength. The Amber “Output” LED indicates that the output is enabled and the sensor is receiving a signal within the window limits (depending on NO or NC) The Amber “Mode” LED indicates the currently selected mode.

Features



Principles of Operation

Ultrasonic sensors emit one or multiple pulses of ultrasonic energy, which travel through the air at the speed of sound. A portion of this energy reflects off the target and travels back to the sensor. The sensor measures the total time required for the energy to reach the target and return to the sensor. The distance to the object is then calculated using the following formula: **D = ct ÷ 2**

D = distance from the sensor to the target
c = speed of sound in air
t = transit time for the ultrasonic pulse

To improve accuracy, an ultrasonic sensor may average the results of several pulses before outputting a new value.

Temperature Effects

The speed of sound is dependent upon the composition, pressure, and temperature of the gas in which it is traveling. For most ultrasonic applications, the composition and pressure of the gas are relatively fixed, while the temperature may fluctuate.

In air, the speed of sound varies with temperature according to the following approximation:

In metric units: $C_{m/s} = 20\sqrt{273 + T_C}$

$C_{m/s}$ = speed of sound in meters per second

T_C = temperature in °C

In English units: $C_{ft/s} = 49\sqrt{460 + T_F}$

$C_{ft/s}$ = speed of sound in feet per second

T_F = temperature in °F

Temperature Compensation

Changes in air temperature affect the speed of sound, which in turn affects the total time for the echo measured by the sensor. An increase in air temperature shifts both sensing window limits closer to the sensor. Conversely, a decrease in air temperature shifts both limits farther away from the sensor. This shift is approximately 3.5% of the limit distance for a 20° C change in temperature.

The T30UX series ultrasonic sensors are temperature compensated. This reduces the error due to temperature by about 90%. The sensor will maintain its window limits to within 2.2% over the -40° to +70° C (−40° to +158° F) operating range of the sensor.

NOTE:

- Exposure to direct sunlight can affect the sensor’s ability to accurately compensate for changes in temperature.
- If the sensor is measuring across a temperature gradient, the compensation will be less effective.

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Chapter 2 Installation

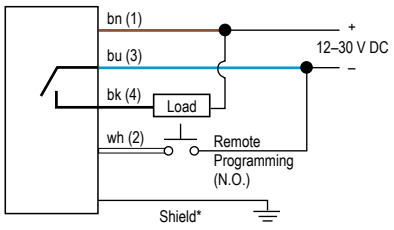
Mount the Device Using the Threaded Base

1. If your device came with a lock washer or gasket, place it on the threaded base.
2. Insert the base of the device though a hole or a bracket.
   - If desired and available, insert the device through an appropriately sized hole in the machine or equipment at the desired location.
   - If a bracket is needed, insert the device into the bracket.
3. Thread the mounting nut onto the base of the device, finger tight.
4. If using a bracket, mount the device and the bracket to the machine or equipment at the desired location. Do not tighten the mounting screws at this time.
5. Check the device alignment, if precise alignment is necessary.
6. Tighten the nut.
7. If using a bracket, tighten the mounting screws to secure the device and the bracket in the aligned position.

Wiring

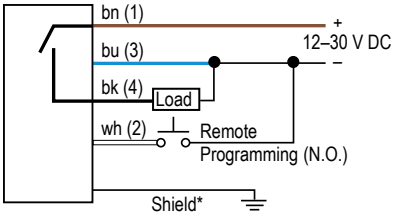
Cabled and quick disconnect (QD) connector wiring is functionally identical. Shielded cordsets are recommended for all QD models.

NPN (sinking) output selected



* It is recommended that the shield wire be connected to either earth ground or DC common.

PNP (sourcing) output selected



* It is recommended that the shield wire be connected to either earth ground or DC common.

4-pin M12 male quick disconnect connector



Wiring Key

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

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Chapter 3 Configuration Instructions

Sensor Configuration

Two TEACH methods may be used to configure the sensor:

- Teach individual minimum and maximum limits, or
- Use Auto-Window feature to center a sensing window around the taught position.

The sensor may be configured either via its push button, or via a remote switch. Remote configuration also may be used to disable the push button, preventing unauthorized personnel from adjusting the configuration settings. To access this feature, connect the white wire of the sensor to 0 V DC, with a remote configuration switch between the sensor and the voltage.

Configuration is accomplished by following the sequence of input pulses. The duration of each pulse (corresponding to a push button “click”), and the period between multiple pulses, are as “T”: **0.04 seconds < T < 0.8 seconds**

Remote line configuration requires a greater than 1 second pause between pulse sequences.

Mode Setup - Output Configuration

Sensors can be set up for either NPN (sinking) or PNP (sourcing). In addition, the user can select between Normally Open (N.O.) and Normally Closed (N.C.) operation. Normally Open is defined as the output energizing when the target is present. Normally Closed is defined as the output energizing when the target is absent (see "Teaching Minimum and Maximum Limits" on page 7). A button click or pulse on the remote line is: 0.04 s < T < 0.8 s.

1. Enter Output Configuration setup mode.

Method	Action	Result
Push Button	Push and hold the MODE button for longer than 2 seconds.	Power LED: OFF Mode LED: Flashing Amber shows previously selected mode
Remote Input	Double-pulse the remote line.	Power LED: OFF Mode LED: Flashing Amber shows previously selected mode

2. Select the output.

Method	Action	Result
Push Button	Press the MODE button to cycle to select the output configuration: ◦ NPN - Normally Open ◦ NPN - Normally Closed ◦ PNP - Normally Open ◦ PNP - Normally Closed	Power LED: OFF Mode LED: Flashes to indicate currently selected mode (120 second time out[1])
Remote Input	◦ Single-pulse for NPN - Normally Open ◦ Double-pulse for NPN - Normally Closed ◦ Triple-pulse for PNP - Normally Open ◦ Quad-pulse for PNP - Normally Closed	Power LED: ON Green Mode LED: ON to indicate currently selected mode (Sensor returns to RUN mode)

3. Save and return to Run mode.

[1] The sensor will revert to previously saved configuration and return to RUN mode if TEACH is inactive for 120 seconds after the initial 2 second hold on push button

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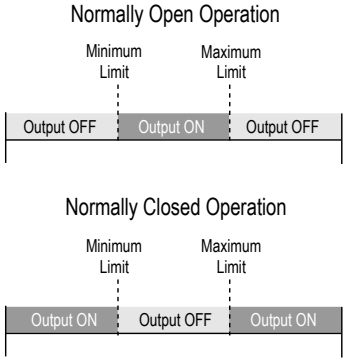
Method	Action	Result
Push Button	Press and hold the MODE button for longer than 2 seconds.	Power LED: ON Green Mode LED: ON Amber for selected mode
Remote Input	No action required; the sensor returns to Run Mode automatically.	None

Teaching Minimum and Maximum Limits

General Notes on Teaching

- The sensor returns to RUN mode if the first TEACH condition is not registered within 120 seconds after the initial 2 second hold on the Discrete button.
- To exit TEACH mode without saving any changes, press and hold the Discrete button or remote line longer than 2 seconds (before teaching the second limit). The sensor reverts to the last saved limits.
- After the first limit is taught, the sensor remains in TEACH mode until the TEACH sequence is finished or exited by a 2 second hold on the Discrete button or remote line.
- A button click or pulse on the remote line is: 0.04 s < T < 0.8 s.

Teaching independent minimum and maximum limits



1. Enter TEACH mode.

Method	Action	Result
Push Button	Press and hold the Discrete button longer than 2 seconds.	Power LED: OFF Output LED: ON
Remote Input	No action required; sensor is ready for first limit teach.	None

2. Teach the first limit.

Method	Action	Result
Push Button	a. Position the target for the first limit (120 second time out).	Signal LED: Must be ON Red or Flashing Red [2]
	b. Press the Discrete button.	**Teach Accepted** Power LED: OFF Output LED: Flashing **Teach Not Accepted** Output LED: ON
Remote Input	a. Position the target for the first limit.	**Signal LED:** Must be ON Red or Flashing Red[2]

Continued on page 8

[2] Sensor will not Teach or indicate “Teach Not Accepted” when there is no signal present (Signal LED Red or Flashing Red)

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Continued from page 7

Method	Action	Result
	b. Single-pulse the remote line.	**Teach Accepted** Power LED: OFF Output LED: Flashing **Teach Not Accepted** Power LED: ON

3. Teach the second limit.

Method	Action	Result
Push Button	a. Position the target for the second limit (no time out).	Signal LED: Must be ON Red or Flashing Red
	b. Press the Discrete button.	**Teach Accepted** Output LED: ON or OFF, depending on NO or NC Mode Power LED: ON **Teach Not Accepted** Output LED: Flashing Power LED: OFF
Remote Input	a. Position the target for the second limit (no time out).	**Signal LED:** Must be ON Red or Flashing Red.
	b. Single-pulse the remote line.	**Teach Accepted** Output LED: ON or OFF, depending on NO or NC Mode Power LED: ON **Teach Not Accepted** Output LED: Flashing Power LED: OFF

Teaching Limits Using the Auto-Window Feature

Teaching the same limit twice automatically centers a window on the taught position (see "Figure: Window Size" on page 9 for window sizes).

General Notes on Teaching

- The sensor returns to RUN mode if the TEACH condition is not registered within 120 seconds after the initial 2-second hold on the Discrete button.
- To exit TEACH mode without saving any changes, press and hold the Discrete button or remote line longer than 2 seconds (before teaching the second limit). The sensor will revert to the last saved limits.
- After the first limit is taught, the sensor remains in TEACH mode until the TEACH sequence is finished or exited by a 2-second hold on the Discrete button or remote line.
- A button click or pulse on the remote line is: 0.04 s < T < 0.8 s.

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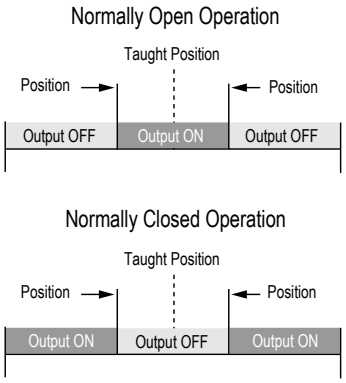
Using the Auto-Window feature for teaching each output



Window Size

Models	Window
"A" suffix	± 10 mm (0.4 in)
"B" suffix	± 20 mm (0.8 in)
"C" suffix	± 30 mm (1.2 in)

1. Enter TEACH mode.

Method	Action	Result
Push Button	Press and hold the Discrete button longer than 2 seconds.	Power LED: OFF Output LED: ON
Remote Input	No action required; the sensor is ready for the first limit teach.	None

2. Teach the first limit.

Method	Action	Result
Push Button	a. Position the target for the center of window (120 second time out).	Signal LED: Must be ON Red or Flashing Red [3]
	b. Press the Discrete button.	**Teach Accepted** Power LED: OFF Output LED: Flashing **Teach Not Accepted** Output LED: ON
Remote Input	a. Position the target for the center of window.	Signal LED: Must be ON Red or Flashing Red[3]
	b. Single-pulse the remote line.	**Teach Accepted** Power LED: OFF Output LED: Flashing **Teach Not Accepted** Output LED: ON

3. Re-teach the limit.

[3] Sensor will not Teach or indicate “Teach Not Accepted” when there is no signal present (Signal LED Red or Flashing Red)

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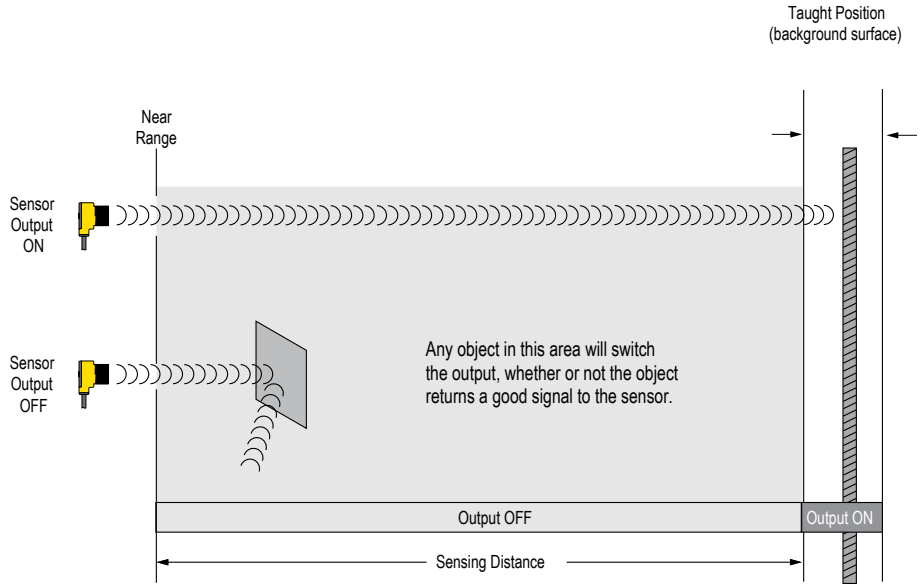
Method	Action	Result
Push Button	Without moving the target, press the Discrete button again.	**Teach Accepted** Output LED: ON or OFF, depending on NO or NC Mode Power LED: ON **Teach Not Accepted** Output LED: Flashing Power LED: OFF
Remote Input	Without moving the target, single-pulse the remote line again.	**Teach Accepted** Output LED: ON or OFF, depending on NO or NC Mode Power LED: ON **Teach Not Accepted** Output LED: Flashing Power LED: OFF

An application for the Auto-Window feature (retroreflective mode)



Remote Line TEACH

General Notes

- Run Mode is the sensor's normal operating condition
- The duration of each Pulse is defined as "T": **0.04 < T < 0.8 s**
- A Hold will exit TEACH MODE and return to Run Mode with previously saved changes. The duration of a Hold is: **T > 2 s**
- A Timeout will occur if a condition is not registered within 120 seconds, causing the sensor to return to Run Mode (during sensor configuration only)
- Sensor configuration user feedback shown on Green LED. See flowchart.
- The Red Signal LED will be ON whenever the target is in view.

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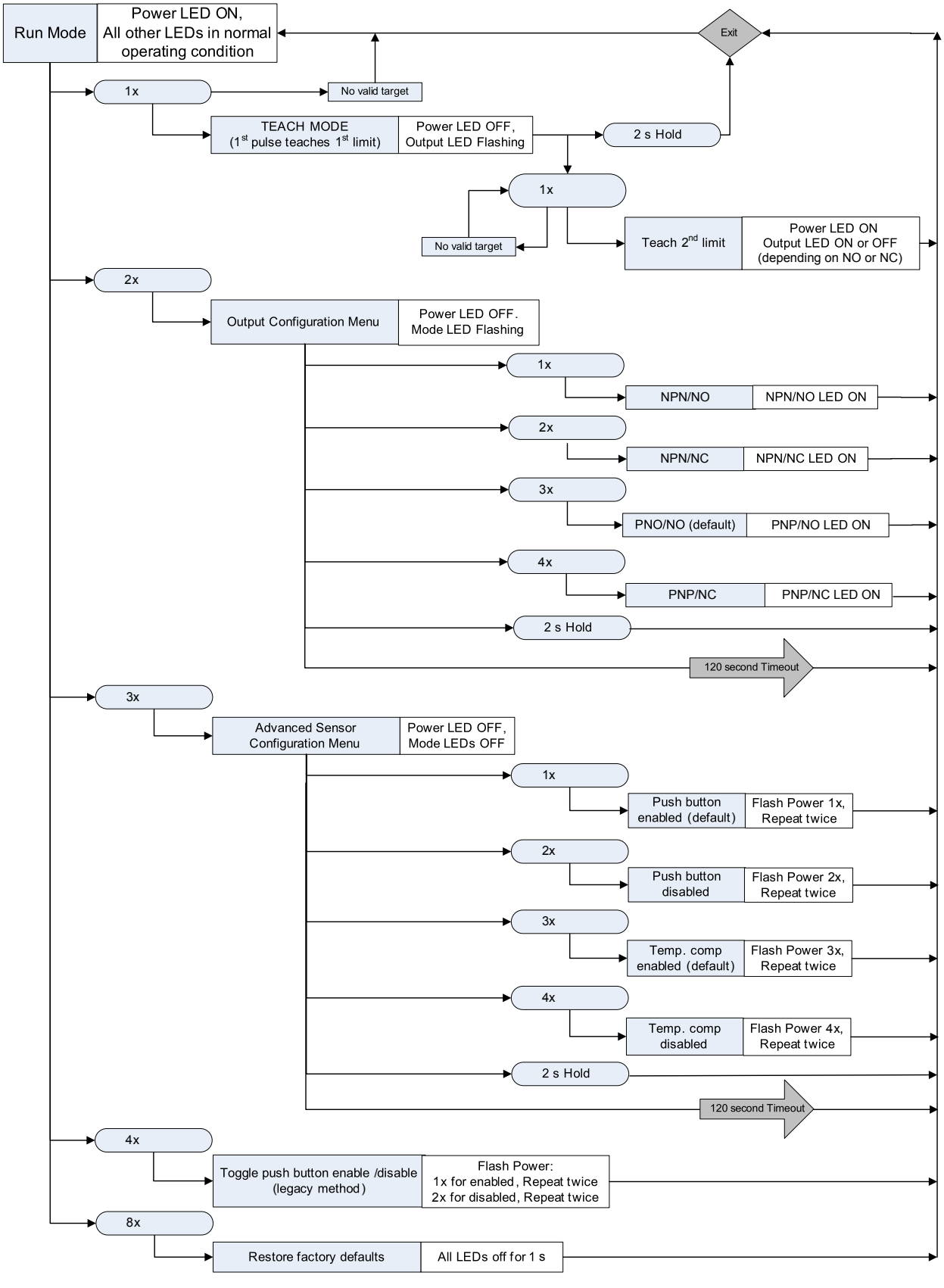

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Chapter 4 Specifications

Sensing Range

"A" suffix models: 100 mm to 1 m (3.9 in to 39 in)

"B" suffix models: 200 mm to 2 m (7.8 in to 78 in)

"C" suffix models: 300 mm to 3 m (11.8 in to 118 in)

Ultrasonic Frequency

"A" suffix models: 224 kHz

"B" suffix models: 174 kHz

"C" suffix models: 114 kHz

Supply Voltage

10 V DC to 30 V DC (10% maximum 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 (see "Mode Setup - Output Configuration" on page 6).

The default setting is PNP/NO

Output Rating

Discrete output models: 100 mA max.

OFF-state leakage current: NPN: < 200 µA at 30 V DC (see NOTE 1); **PNP:** < 10 µA at 30 V DC

ON-state saturation voltage: NPN: < 1.6 V at 100 mA; **PNP:** < 3 V at 100 mA

Sensing Hysteresis

"A" suffix models: 2 mm

"B" suffix models: 3 mm

"C" suffix models: 4 mm

Minimum Window Size

10 mm (0.4 in)

Adjustments

Sensing window limits: TEACH-Mode of near and far window limits may be set using the push button or remotely via TEACH input.

Output Configuration: NPN, PNP, Normally Open (NO), Normally Closed (NC) select (see "Mode Setup - Output Configuration" on page 6 or "Remote Line TEACH" on page 10).

Advanced configuration options: Push button enabled/disabled, temperature compensation enabled/disabled (see "Remote Line TEACH" on page 10)

Construction

Housing: PBT polyester

Push buttons: polyester

Transducer: epoxy /ceramic composite

Environmental Rating

Leakproof design, rated IP67

Connections

2 m (6.5 ft) or 9 m (30 ft) shielded 4-conductor (with drain) PVC cable, 150 mm (6 in) PUR cable with an M12 connector (QPMA), or 4-pin integral M12 connector (Q8)

Output Response Time

"A" suffix models: 45 ms

"B" suffix models: 92 ms

"C" suffix models: 135 ms

Output Protection Circuitry

Protected against short circuit conditions

Repeatability

"A" suffix models: 0.1% of distance (0.5 mm min.)

"B" suffix models: 0.1% of distance (1.0 mm min.)

"C" suffix models: 0.1% of distance (1.5 mm min.)

Application Note

The temperature warmup drift upon power-up is less than 1% of the sensing distance.

Temperature Effect

0.02% of distance/°C

Delay at Power-up

500 ms

Operating Conditions

–40 °C to +70 °C (–40 °F to +158 °F)

95% at +50 °C maximum relative humidity (non-condensing)

Vibration and Mechanical Shock

All models meet Mil. Std. 202F requirements method 201A (vibration: 10 to 60 Hz max., double amplitude 0.06 in, max acceleration 10G). Also meets IEC 947-5-2; 30G 11 ms duration, half sine wave

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

Certifications

CE

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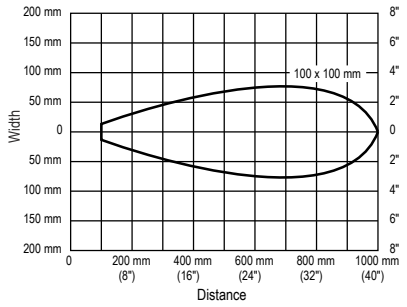
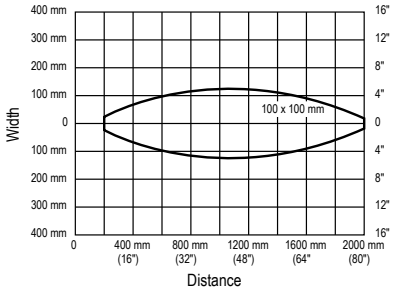
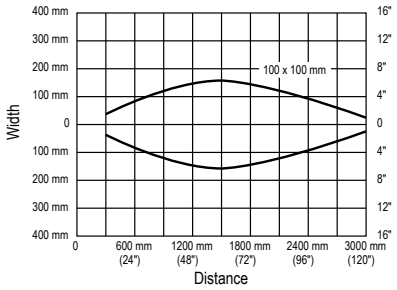
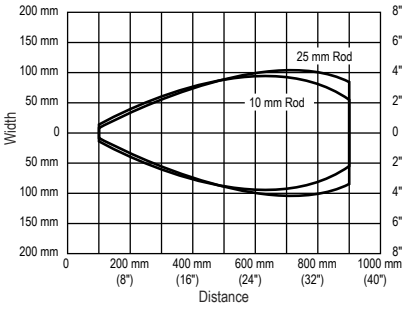
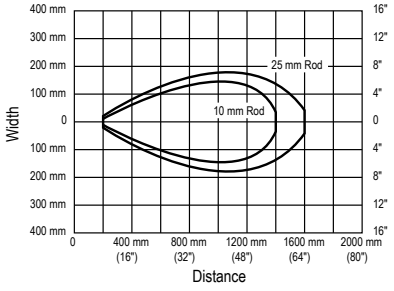
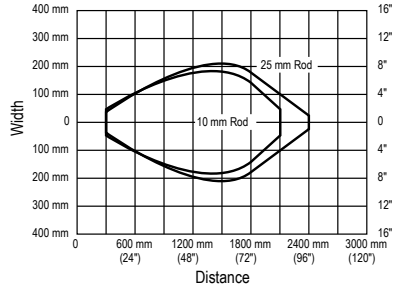
NOTE: NPN < 200 µA for load impedance > 3 kΩ; for load current of 100 mA, leakage < 1% of load current

Performance Curves

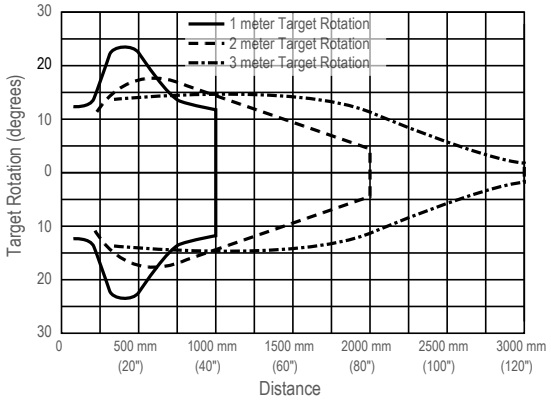
With Plate Target (Typical)

1-Meter Models	2-Meter Models	3-Meter Models
		

With Rod Target (Typical)

1-Meter Models	2-Meter Models	3-Meter Models
		

Maximum Target Rotation Angle



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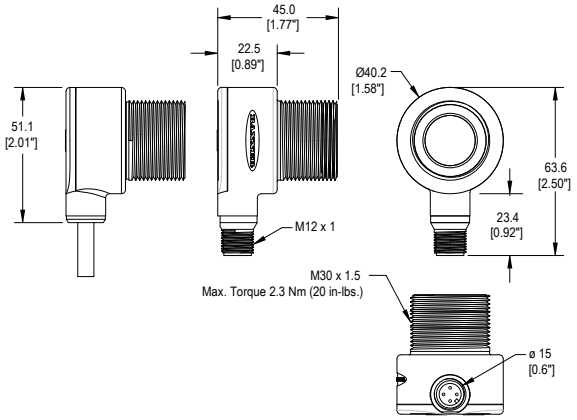
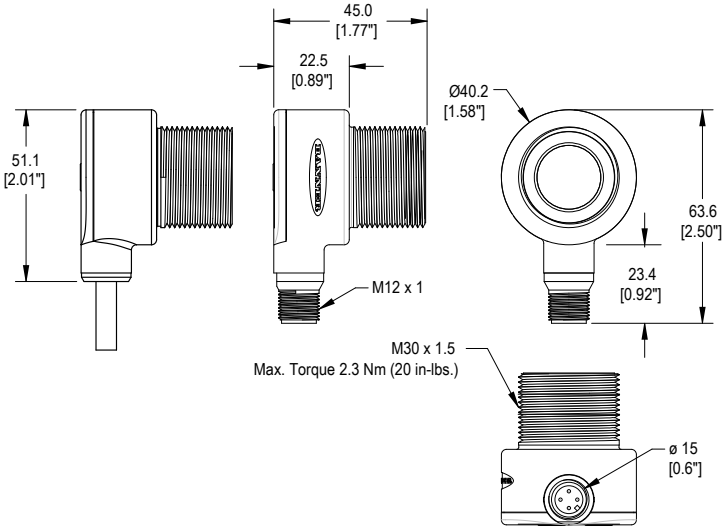
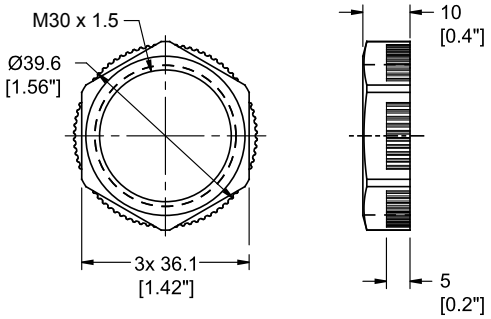
Dimensions

All measurements are listed in millimeters [inches], unless noted otherwise. The measurements provided are subject to change.

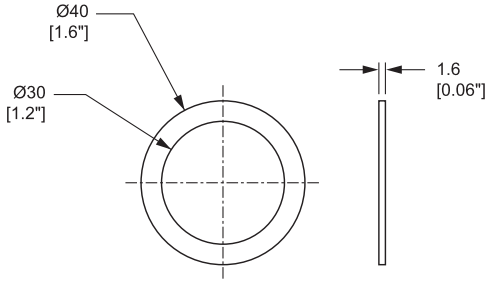




Locknut (included with all models)



Washer (included with all models)



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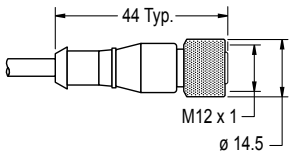
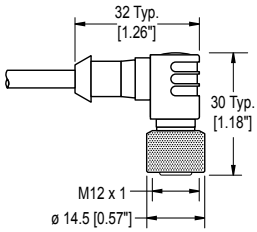
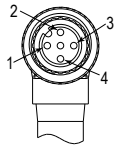
Chapter 5 Accessories

Quick-Disconnect Cables

4-Pin Single-Ended M12 Female Shielded Cordsets					
Model	**Length**	**Style**	**Dimensions**	**Pinout (Female)**	
MQDEC2-406	2 m (6.56 ft)	Straight			1 = Brown 2 = White 3 = Blue 4 = Black
MQDEC2-415	5 m (16.4 ft)				
MQDEC2-430	9 m (29.5 ft)				
MQDEC2-450	15.2 m (50 ft)				
MQDEC2-406RA	2 m (6.56 ft)	Right-Angle			
MQDEC2-415RA	5 m (16.4 ft)				
MQDEC2-430RA	9 m (29.5 ft)				
MQDEC2-450RA	15.2 m (50 ft)				

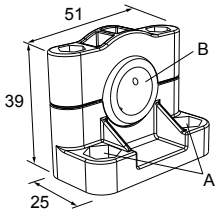
Brackets

All measurements are in mm.

SMB1815SF

- Swivel with set screws for mounting sensors by the cable hub
- Black reinforced thermoplastic polyester
- Stainless steel swivel locking hardware and hex wrench included
- CAD Files: DXF, PDF, IGS, STP

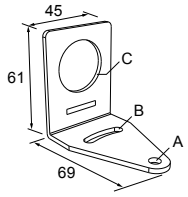
Hole center spacing: A = 36.0
Hole size: A = ø 5.0, B = ø 15.0



SMB30A

- Right-angle bracket with curved slot for versatile orientation
- Clearance for M6 (¼ in) hardware
- Mounting hole for 30 mm sensor
- 12-gauge stainless steel
- CAD Files: DXF, PDF, IGS, STP

Hole center spacing: A to B=40
Hole size: A=ø 6.3, B= 27.1 × 6.3, C=ø 30.5



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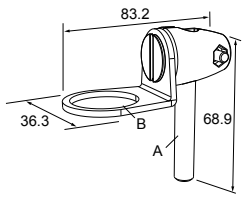
SMB30FA

- Swivel bracket with tilt and pan movement for precise adjustment
- Mounting hole for 30 mm sensor
- 12-gauge 304 stainless steel
- Easy sensor mounting to extrude rail T-slot
- Metric- and inch-size bolt available
- CAD Files: DXF, PDF, IGS, STP

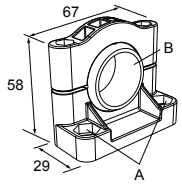
Bolt thread: SMB30FA, A=3/8 - 16 × 2 in; SMB30FAL, A=3/8 - 16 × 4 in; SMB30FAM10, A=M10 - 1.5 × 50
Hole size: B=ø 30.1



SMB30SC

- Swivel bracket with 30 mm mounting hole for sensor
- Black reinforced thermoplastic polyester
- Stainless steel mounting and swivel locking hardware included
- CAD Files: DXF, PDF, IGS, STP

Hole center spacing: A=ø 50.8
Hole size: A=ø 7.0, B=ø 30.0



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Chapter 6 Product Support and Maintenance

Discontinued Models

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

Models	Range	Frequency	Cable	Discrete Output	Response Time
T30UXDA W/30	100 mm to 1 m (3.9 in to 39 in)	224 kHz	9 m (30 ft) cable	NPN, PNP, NO, NC, Selectable	45 ms
T30UXDB W/30	200 mm to 2 m (7.8 in to 78 in)	174 kHz			92 ms
T30UXDC W/30	300 mm to 3 m (11.8 in to 118 in)	114 kHz			135 ms

Clean with Cloth or Water

Clean as necessary using only a lint-free cloth or a water-dampened lint-free cloth. Do not use any other chemicals for cleaning.

Repairs and Translations (No Field-Replaceable Parts)

English

Contact Banner Engineering for troubleshooting of this device. **Do not attempt any repairs to this Banner device; it contains no field-replaceable parts or components.** If the device, device part, or device component is determined to be defective by a Banner Applications Engineer, they will advise you of Banner's RMA (Return Merchandise Authorization) procedure.

```
IMPORTANT: If instructed to return the device, pack it with care. Damage that occurs in return
shipping is not covered by warranty.
```

Obtain assistance with product repairs by contacting your local Banner Engineering Corp distributor or by calling Banner directly at (763) 544-3164. Access literature translated into your native language on the Banner website at www.bannerengineering.com or contact Banner directly at (763) 544-3164.

Deutsch

Wenden Sie sich zur Fehlerbehebung dieses Geräts an Banner Engineering. **Versuchen Sie nicht, Reparaturen an diesem Banner-Gerät vorzunehmen. Das Gerät enthält keine am Einsatzort auszuwechselnden Teile oder Komponenten.** Wenn ein Banner-Anwendungstechniker zu dem Schluss kommt, dass dieses Gerät, ein Teil oder eine Komponente davon defekt ist, erhalten Sie von dem Techniker Erläuterungen zu Banners RMA-Verfahren (Return Merchandise Authorization) für die Warenrückgabe.

```
WICHTIG: Wenn Sie der Techniker anweist, das Gerät zurückzusenden, verpacken Sie es bitte
sorgfältig. Transportschäden bei der Rücksendung werden von der Garantie nicht abgedeckt.
```

Unterstützung bei Produktreparaturen erhalten Sie von Ihrem örtlichen Banner Engineering Corp Händler oder direkt von Banner unter Tel. (763) 544-3164. Die in Ihre Muttersprache übersetzte Literatur finden Sie auf der Banner-Website unter www.bannerengineering.com oder kontaktieren Sie Banner direkt unter Tel. (763) 544-3164.

Français

Pour plus d'informations sur le dépannage du produit, contactez Banner Engineering. **Ne tentez pas de réparer ce dispositif Banner. Il ne contient aucun composant ou pièce qui puisse être remplacé sur place.** Si un ingénieur de Banner conclut que le dispositif ou l'une de ses pièces ou composants est défectueux, il vous informera de la procédure à suivre pour le retour des produits (RMA).

```
Important : Si vous devez retourner le dispositif, emballez-le avec soin. Les dégâts
occasionnés pendant le transport de retour ne sont pas couverts par la garantie.
```

Pour vous aider lors de la réparation de produits, contactez votre distributeur Banner local our appelez directement Banner au (763) 544-3164. La documentation traduite dans votre langue est disponible sur le site internet de Banner www.bannerengineering.com ou contactez directement Banner au (763) 544-3164.

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Italiano

Per le procedure di individuazione e riparazione dei guasti di questo dispositivo, contattare Banner Engineering. **Non tentare di riparare questo dispositivo Banner, in quanto non contiene parti o componenti sostituibili dall'utente.** Se il dispositivo, una parte del dispositivo o un componente del dispositivo viene riscontrato difettoso da un tecnico Banner, il nostro personale vi comunicherà la procedura da seguire per ottenere l'autorizzazione al reso.

> **Importante:** Se si ricevono istruzioni di rispedire il dispositivo al produttore, imballarlo con cura. I danni dovuti al trasporto non sono coperti dalla garanzia.

Per assistenza nelle riparazioni dei prodotti, contattare il distributore locale Banner Engineering Corp o contattare direttamente Banner al numero (763) 544-3164. È possibile accedere alla documentazione tradotta nella propria lingua madre sul sito Web Banner all'indirizzo www.bannerengineering.com o contattare direttamente Banner al numero (763) 544-3164.

Español

Comuníquese con Banner Engineering para solucionar de problemas de este dispositivo. **No intente ninguna reparación a este dispositivo de Banner, contiene piezas o componente que no se pueden cambiar en terreno.** Si algún ingeniero de aplicaciones de Banner determina que el dispositivo, alguna de las piezas o alguno de los componentes del dispositivo está defectuoso, le informará el procedimiento de autorización de devolución de mercancía (RMA, por sus siglas en inglés) de Banner.

> **Importante:** Si se le solicita devolver el dispositivo, empáquelo con cuidado. Puede haber daños durante el envío de devolución que no estén cubiertos por la garantía.

Para reparaciones de productos, por favor contacte a su distribuidor local de Banner Engineering o llame a Banner directamente al 00 1 (763) 544-3164. Vea la literatura traducida en su idioma en el sitio web Banner en www.bannerengineering.com o comuníquese con Banner directamente al 00 1 (763) 544-3164.

中国人

如需对本装置进行故障排查，请联系邦纳。**请勿尝试自行维修该邦纳装置；本装置不包含任何可在现场更换的部件或组件。** 若经邦纳应用工程师确认设备、设备部件或组件存在缺陷，他们将告知您邦纳退货授权 (RMA) 流程。

> **重要注意事项：** 如被要求退回装置，请妥善包装后寄回。退货运输过程中发生的损坏不在保修范围内。

请联系当地的 Banner Engineering Corp 经销商或直接致电 Banner +1 (763) 544-3164，以获得产品维修帮助。请访问邦纳网站 www.bannerengineering.com 或直接拨打 +1 (763) 544-3164 联系邦纳，获取翻译成您母语的资料。

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日本語

この装置のトラブルシューティングについては、バナーエンジニアリングにお問い合わせください。**このバナー装置には、現場では交換できない部品またはコンポーネントが含まれているため、修理を試みてはいけません。** バナーのアプリケーションエンジニアが装置、装置の部品、または装置のコンポーネントに欠陥があると判断した場合、バナーのRMA（返品承認）手続きについてお知らせします。

> **重要 ：** 返品を指示された場合は、装置を丁寧に梱包してください。返品時に発生した破損は保証の対象外となります。

製品の修理については、最寄りのBanner Engineering Corp代理店にお問い合わせいただくか、米国+1 (763) 544-3164まで直接お電話でお問い合わせください。バナーのウェブサイト（www.bannerengineering.com）でお客様の言語に翻訳された資料にアクセスするか、米国+1 (763) 544-3164まで直接お電話でお問い合わせください。

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čeština

Pro řešení problémů se zařízením kontaktujte společnost Banner Engineering. **Neprovádějte žádné opravy zařízení Banner. Neobsahují žádné komponenty nebo části, které by byly vyměnitelné.** Pokud je zařízení, jeho část nebo díl označen technikem společnosti Banner jako poškozený, bude Vám doporučeno vyplnit reklamační RMA protokol.

```
Důležité: Pokud byl vydán požadavek na vrácení zařízení, pečlivě ho zabalte. Poškození vzniklé
při dopravě není považováno za záruční opravu.
```

Pokud produkt potřebuje opravu, vyžádejte si pomoc od místního distributora společnosti Banner Engineering Corp nebo přímo na telefonním čísle (763) 544-3164. Dokumentaci přeloženou do vašeho jazyka si vyhledejte na webových stránkách společnosti Banner na adrese www.bannerengineering.com nebo se obraťte přímo na společnost Banner na telefonním čísle (763) 544-3164.

Polski

W celu rozwiązania problemów z urządzeniem należy skontaktować się z działem technicznym firmy Banner Engineering. **Pod żadnym pozorem nie próbuj naprawiać tego urządzenia firmy Banner; nie zawiera ono części ani elementów, które można wymieniać samodzielnie.** Jeśli urządzenie, jego część lub element zostaną uznane za wadliwe przez inżyniera technicznego Banner, poinformuje on użytkownika o firmowej procedurze zwrotu towaru (RMA) firmy Banner.

```
Ważne: Jeśli urządzenie ma zostać zwrócone, należy je starannie zapakować. Uszkodzenia powstałe
podczas odsyłki nie są objęte gwarancją.
```

Aby uzyskać pomoc w zakresie naprawy produktu, należy skontaktować się z lokalnym dystrybutorem Banner Engineering Corp lub zadzwonić bezpośrednio do firmy Banner pod numer (763) 544-3164. Dostęp do literatury przetłumaczonej na swój język ojczysty można uzyskać na stronie internetowej firmy Banner pod adresem www.bannerengineering.com lub kontaktując się bezpośrednio z firmą Banner pod numerem (763) 544-3164.

Português

Entre em contato com a Engenharia da Banner para a solução de problemas deste dispositivo. **Não tente fazer nenhum reparo neste dispositivo Banner; ele não contém peças ou componentes substituíveis em campo.** Se um técnico de aplicações da Banner determinar que o dispositivo, peça ou componente do dispositivo está com defeito, ele o informará sobre o procedimento de RMA (Autorização de Devolução de Mercadoria) da Banner.

```
Importante: Se for instruído a devolver o dispositivo, embale-o com cuidado. Os danos ocorridos
no transporte de devolução não são cobertos pela garantia.
```

Obtenha assistência para reparos do produto entrando em contato com o distribuidor local da Banner Engineering Corp ou ligando diretamente para a Banner no telefone (763) 544-3164. Acesse a literatura traduzida para seu idioma nativo no site da Banner em www.bannerengineering.com ou entre em contato diretamente com a Banner pelo telefone (763) 544-3164.

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```
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```

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Contact Us

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