

BANNER®

Ultrasonic Solutions

Worldwide service and support. Banner is a global leader in process and factory automation, helping customers increase efficiency, reduce costs, ensure quality, monitor and control processes, and safeguard employees.

Ultrasonic Sensors That Think as Well as They Hear

Call in the Banner U-GAGE® ultrasonic sensor to solve applications that photoelectrics can't. With our complete line of advanced ultrasonic sensors at hand, you have the most versatile, accurate and effective solutions for the toughest applications challenges.

Place the U-GAGE in just about any severe environment. Rated to IP68; NEMA 6P, they can weather the elements. Chemical-resistant models are ideal in a wide variety of level control and other harsh chemical processes. Numerous housing styles, mounting options and ranges give you a choice of solutions for your application. Our ultrasonics are even versatile in outputs; some models offer analog and discrete outputs in the same sensor. And most models have push buttons for fast programming of custom sensing windows.



Banner ultrasonics feature built-in temperature compensation, allowing the sensor to self-correct for its environment and maintain the highest sensing accuracy in changing conditions. Available in models with sensing ranges from 30 mm to 8 m and sensing resolutions from 0.1% to 0.25% of total sensing distance, our microprocessor design ensures consistent performance across the entire sensing range.

Ultrasonic sensors use sound waves, not light, and this makes them ideal for problematic clear material sensing applications. Use ultrasonics to effectively and accurately sense liquids, clear objects and targets in dirty environments. Ultrasonics are inherently impervious to color differences, high reflectivity and glare, all of which are application challenges for photoelectrics.

If you thought ultrasonic sensors couldn't cut it, think again. You'll find our advanced U-GAGE sensors can solve the most difficult applications in your plant with the power of ultrasound.

U-GAGE® T30UX: Latest Addition to Banner's Extensive Line of Ultrasonic Sensors

The latest addition to Banner's offering of T30U ultrasonic sensors, the T30UX features the popular T-style right-angle sensor package with 30 mm threaded nose mount. Enhancements include an extended sensing range, reduced dead zone and integrated temperature compensation for consistent sensor performance up to 3 m. Rated IP67/NEMA 6P, the T30UX can survive harsh environments and the most difficult sensing applications. Designed for high accuracy, they provide reliable sensing of opaque or translucent objects and are not affected by color—making them ideal for detecting clear liquids, hot slurry, clear bottles and webs, automotive plate glass and multi-color targets.



Advanced T30UX features offer superior performance and ease-of-use:

- High-accuracy temperature compensation across a wide band of temperature variations
- Easy programming using on-board push buttons or remote TEACH wire
- Precise custom-sized sensing windows anywhere within a 100 mm to 1 m, 200 mm to 2 m or 300 mm to 3 m range
- Models with a single analog or discrete output
- Reduced ultrasonic dead zone of only 10% of total range
- Enhanced shielding and advanced ASIC design to reduce application problems typically associated with ultrasonic sensors
- Superb EMI/RFI noise immunity
- Easy visual status monitoring with highly visible indicator lights

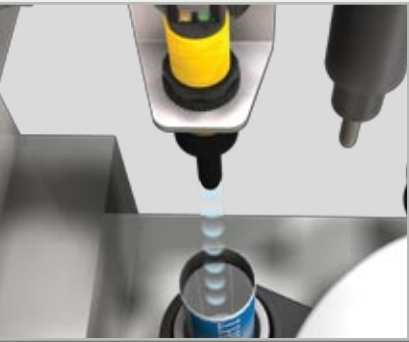
Try the U-GAGE® T30UX to see how the newest offering from our complete line of versatile, accurate and effective ultrasonic solutions can solve your toughest sensing challenges.

1.888.373.6767**BANNER®****more sensors, more solutions****bannerengineering.com**

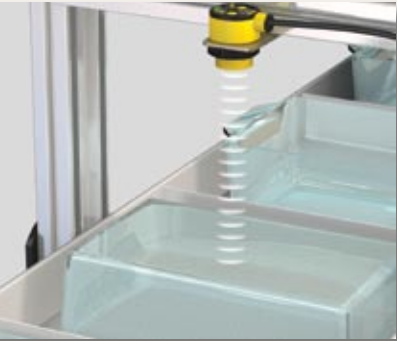
Banner Engineering Corp.
9714 Tenth Avenue North
Minneapolis, MN 55441



Bottle Counting



Liquid Level Monitoring



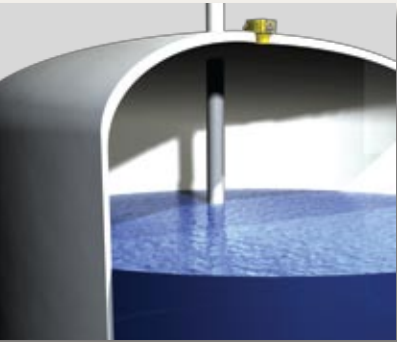
Inverted Clear Object Detection



Bottle Detection



Nut Detection



Pump/Level Control

Model	Range
QS18U 300 kHz 	
S18U 300 kHz 	
T30U 150 mm to 1 m: 228 kHz 300 mm to 2 m: 128 kHz 	
T30UX 100 mm to 1 m: 224 kHz 200 mm to 2 m: 174 kHz 300 mm to 3 m: 114 kHz	
Q45U 100 mm to 1.4 m: 230 kHz 250 mm to 3 m: 128 kHz 	
Q45UR 400 kHz 	
QT50U 75 kHz 	
T18U 230 kHz 	
M25U 140 kHz 	

Output Configuration	Response Time	Temperature Compensation	Resolution & Repeatability	Ratings & Operating Conditions	Fill Level Control	TEACH Programming	Accessories	Supply Voltage	Data Sheet
Discrete NPN or PNP	15 ms		0.7 mm	IP67 or IP68, NEMA 6P -20° to +60° C	—	Yes		12 to 30V dc	119287
Discrete Bipolar NPN/PNP	5 ms		0.5 mm	IP67, NEMA 6P -20° to +60° C	—	Yes		10 to 30V dc	108964
Analog 0 to 10V dc or 4 to 20 mA ³	2.5 or 30 ms ²		Analog Linearity Slow: ± 0.5 mm Fast: ± 1.0 mm		—				110738
Dual Discrete Both NPN or Both PNP ³	150 mm to 1 m: 48 ms 300 mm to 2 m: 96 ms	—	± 0.25% of measuring distance Analog Linearity ± 0.5% of full scale	IP67, NEMA 6P -20° to +70° C		Yes		12 to 24V dc	59200
Analog NPN or PNP, 0 to 10V dc or 4 to 20 mA ³	150 mm to 1 m: 48 ms 300 mm to 2 m: 96 ms				—			12 to 24V dc or 15 to 24V dc ³	57438
Discrete NPN or PNP, NO or NC ¹	100 mm to 1 m: 45 ms 200 mm to 2 m: 92 ms 300 mm to 3 m: 135 ms		0.1% of measuring distance Analog Linearity 0.25% of full scale	IP67, NEMA 6 -40° to +70° C		Yes	—	10 to 30V dc	138381
Analog 0 to 10V dc or 4 to 20 mA ³	100 mm to 1 m: 45 ms or 105 ms selectable 200 mm to 2 m: 92 ms or 222 ms selectable 300 mm to 3 m: 135 ms or 318 ms selectable				—				141958
Discrete Bipolar NPN/PNP	100 mm to 1.4 m: 20, 40, 160 or 640 ms ¹ 250 mm to 3 m: 40, 80, 320 or 1280 ms ¹		0.1% of measuring distance Analog Linearity 1.0% of full scale	IP67, NEMA 6P -25° to +70° C		Yes	—	12 to 24V dc	100 mm to 1.4 m: 44177 250 mm to 3 m: 48454
Analog 0 to 10V dc or 4 to 20 mA ¹	100 mm to 1.4 m: 40 to 1,280 ms ¹ 250 mm to 3 m: 80 to 2560 ms ¹				—			15 to 24V dc	100 mm to 1.4 m: 47818 250 mm to 3 m: 48456
Discrete Bipolar NPN/PNP	40 or 160 ms ¹	—	Discrete Repeatability: ±0.2% of measuring distance Analog Resolution (of distance): 320 ms = 0.2% 10 ms = 0.4% Linearity: 1% of full scale	Controller: IP67, NEMA 6P Sensor: IP65, NEMA 4 -25° to +70° C	—	Yes		12 to 24V dc	59321
Analog 0 to 10V dc or 4 to 20 mA ¹	10 or 320 ms ¹				—			15 to 24V dc	59323
SPDT Electromechanical Relay	100, 400 or 1600 ms ¹		1.0 mm Analog Linearity ± 0.2% of full scale	IP67, NEMA 6P -20° to +70° C		Yes		85 to 264V ac, 50/60 Hz / 24 to 250V dc	117764
Dual Discrete Both NPN or Both PNP ¹	100, 400, 800 or 1600 ms ¹							10 to 30V dc	110112
Analog 0 to 10V dc or 4 to 20 mA ¹	100, 500, 1100 or 2300 ms ¹ (100 ms update rate)				—				70137
Complementary NPN or PNP (1 NO & 1 NC) ³	1 or 2 ms ²	—	—	IP67, NEMA 6P -40° to +70° C	—	—	—	12 to 30V dc	40124
Discrete Bipolar NPN/PNP	3.0 or 4.0 ms ²	—	—	IP67 (NEMA 6), IP69K -20° to +70° C	—	—		10 to 30V dc	137794

¹User Configurable

²Selectable by wiring

³By model

 Wave Guide: See P/N 130153

 Chemical-Resistant: See P/N 122155

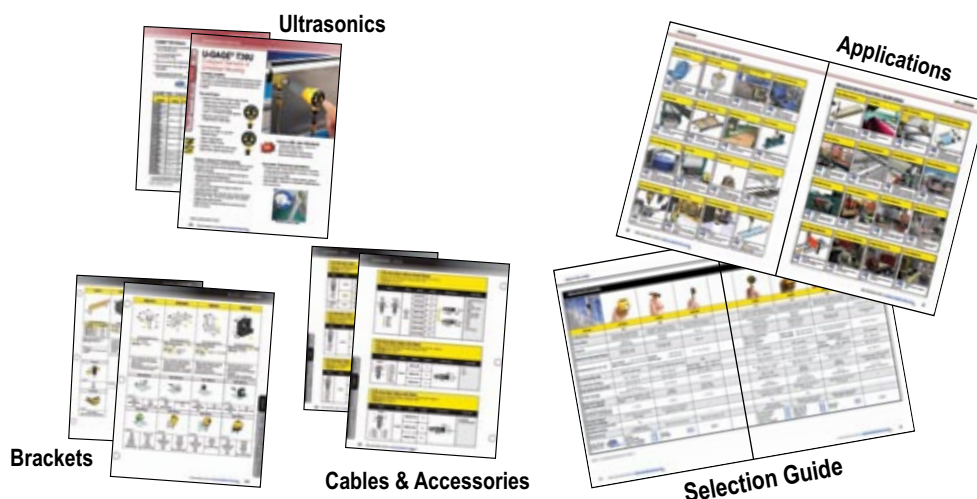
 Mounting Flange: See P/N 116804

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a Banner Catalog**



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Banner Engineering
9714 Tenth Avenue North
Minneapolis, MN 55441

Sensors

- Presence
- Absence
- Inspection
- Gating
- Counting
- Measurement
- Position

Vision

- Pattern Recognition
- Complex Part Inspection
- Multi-Component Gauging
- Part ID/Orientation
- Assembly Verification
- Print Verification
- Traceability (Bar Code and Text)

Wireless

- Process Control & Monitoring
- Factory Automation
- Agriculture & Water Management
- Traffic Monitoring & Control
- Commercial & Consumer Monitoring

Indicator Lights

- Bin & Part Picking
- Error Proofing
- Pick-to-Light & Call for Parts
- Visual & Audible Indication
- Operator Guidance
- Visual Management
- Andon Indication
- Pilot & Stack Light Replacement

Machine Safety

- Safety Light Screens
- Fiber Optic Safety Systems
- Safety Modules & Controllers
- Emergency Stop Devices
- Safety Interlocks
- Ergonomic Two-Hand Control & Run Bars



Catalogs



Industry/
Specifier's Guides



Product
Literature



Software &
Data Sheets



Training



Drawings



Reference

Q&A

Q: How does an ultrasonic sensor work?

Q: When would I use an ultrasonic?

Q: What sorts of targets should I avoid when using an ultrasonic sensor?

Q: What environmental conditions affect an ultrasonic sensor?

Go online for answers to these ultrasonic questions or to pose your own!

Online Training & Tutorials

A complete resource for tutorials, product questions & answers—and the mechanics & theory behind sensor technology available online at www.bannerengineering.com.

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Banner Engineering Corp.

9714 Tenth Avenue North, Minneapolis, MN 55441

Tel. 763.544.3164