BANNER®

more sensors, more solutions

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U-GAGE® ULTRASONIC Sensors

Banner U-GAGE® ultrasonic sensors solve difficult applications in your plant.

Ultrasonic sensors that think as well as they hear.

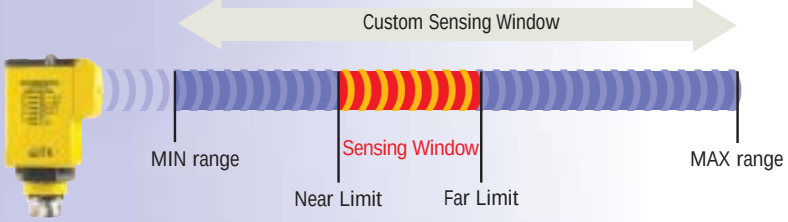
Banner has reinvented ultrasonic sensing to be infinitely more accurate, versatile and effective in solving some of the nastiest applications you face. We have applied our industry-leading photoelectric sensor technologies to a new line of advanced ultrasonic sensors. If you've never tried ultrasonic sensors, or if you've tried them unsuccessfully before, try them again. You'll find our U-GAGE sensors to be the most advanced and capable ultrasonics ever.

Superior measurement accuracy with microprocessor control.

U-GAGE sensors offer incredible accuracy with resolutions from 0.1% to 0.25% of the sensing distance to solve tough measurement applications never before possible. Our sophisticated microprocessor control and proprietary firmware ensures consistent sensing performance in a wide variety of applications.

So versatile, a single sensor can solve thousands of applications.

U-GAGE technology allows you to set an infinite number of ranges and sensing windows with a single sensor by simply pushing a button. Now you can inventory one or two sensors that replace literally hundreds of older-style, fixed-range sensors. You can also choose from numerous housing styles that fit your application and preference. Models are available with multiple outputs, including some that offer both analog and discrete outputs in the same sensor!



Survives the environment and your most difficult sensing applications.

Banner U-GAGE sensors are leakproof and designed to withstand extremely hostile environments including outdoor use, with ratings up to IP67 and NEMA 6P. They are also inherently immune to target color differences and high-power light interference —even sunlight won't affect their performance. They are immune to all light reflections, making them perfect for problematic clear-material sensing applications.

U-GAGE®: The industry's most advanced ultrasonic sensing features.

A new innovation in programming versatility and ease-of-use.

Now setting an infinite number of sensing ranges and windows is simple! With a push button right on the sensor housing or the turn of a screw, Banner ultrasonic sensors offer selectable negative or positive slope for analog sensing. Users can also choose from a variety of options for ON/OFF or High/Low level control. A remote programming option is available that can also be used to disable the push buttons to prevent unwanted tampering.

Wide choice of ranges and unique retrosonic mode.

Available in models with sensing ranges from 30 mm to 8 m and sensing resolution from 0.1% to 0.25% of the total sensing distance, their sophisticated microprocessor design ensures consistent performance across the entire sensing range, even with changing ambient conditions. Many models feature a retrosonic mode: the sensor is taught a distinct point within its sensing range and will detect any object regardless of shape, size or reflective angle that crosses between the sensor face and the taught point.

Temperature compensation.

Because the speed of sound changes 1.8% per 10°C, many Banner ultrasonic sensor models feature special temperature compensation circuitry to stabilize window limit trip points for applications where the ambient operating temperatures will vary.

Use an ultrasonic sensor when your application requires:

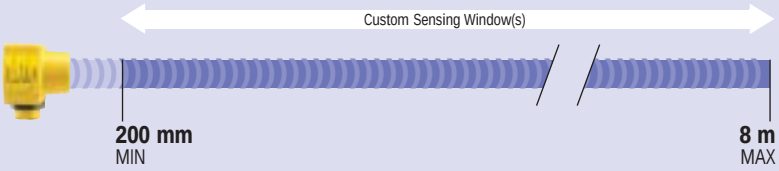
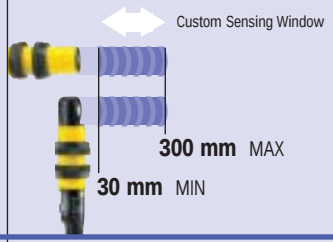
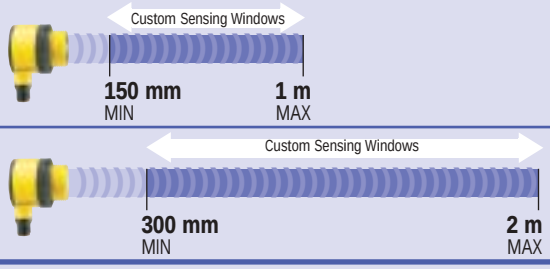
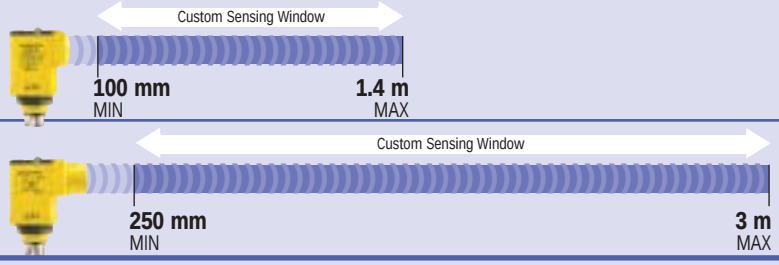
- Precise user-defined sensing windows.
- Reliable background suppression proximity sensing.
- Positive clear-object detection.
- High accuracy in wet or dirty environments.
- Liquid level measurement.
- Immunity to surface color changes.
- Accurate detection of highly reflective targets.
- Reliable operation in high glare or sunlight.

Use an optical sensing method if your application requires:

- A visible sensing spot on the target.
- Operation in a windy environment.
- Operation in high temperature gradients.
- Sensing through a sight glass as in a vacuum environment.
- Small spot or target size detection.
- Sensing of an angled surface.
- Fast, sub-millisecond response time.
- Accurate detection of low-density materials.

Visit www.bannerengineering.com for a complete listing of available optical sensing solutions.

Banner gives you the widest selection of ultrasonic models and features.

Model	Housing	Range	Output Configuration	
QT50U Long-Range Programmable 75 kHz			Dual Discrete	Both NPN or Both PNP[1]
			Analog	0 to 10V dc or 4 to 20 mA[1]
S18U Compact 18 mm Threaded Barrel 300 kHz			Discrete	Bipolar-NPN and PNP
			Analog	0 to 10V dc or 4 to 20 mA[3]
T30U Compact 30 mm Threaded Barrel Short Range: 228 kHz Long Range: 128 kHz			Dual Discrete	Both NPN or Both PNP[3]
			Discrete and Analog	NPN or PNP 0 to 10V dc or 4 to 20 mA[3]
Q45U Medium-Range Programmable Short Range: 230 kHz Long Range: 128 kHz			Discrete	Bipolar-NPN and PNP
			Analog	0 to 10V dc or 4 to 20 mA[1]
Q45UR Short-Range Remote Head 400 kHz			Discrete	Bipolar-NPN and PNP
			Analog	0 to 10V dc or 4 to 20 mA[1]
T18U Medium-Range Opposed 230 kHz			Complementary NPN or PNP (1 N.O. 1 N.C.)[3]	

[1]Selectable via dip switch. [2]Selectable via wiring. [3]By model. [4]Icons represent fastest response time for product.

Response Time[4]	Temperature Compensation & Effect	Analog Linearity	Ratings & Operating Conditions	High/Low Limit Control	TEACH Programming	LED Signal Strength Indication	Supply Voltage	Data Sheet Reference
100, 400, 800 or 1,600 ms[1]	Yes[1] Uncompensated: 0.2% of sensing distance/°C Compensated: 0.02% of sensing distance/°C	N/A	IP67, NEMA 6P -20° to +70°C	Yes[1]	Yes	Yes	10 to 30V dc	110112
100, 500, 1100 or 2,300 ms[1]		0.2% of full scale		N/A				70137
5 ms	Yes 0.02% of sensing distance/°C	N/A	IP67, NEMA 6P -20° to +60°C	No	Yes	Yes	10 to 30V dc	108964
2.5 or 30 ms[2]		Slow: ±0.5 mm Fast: ±1.0 mm						110738
Short-Range: 48 ms Long-Range: 96 ms	No 0.2% of sensing distance/°C	N/A	IP67, NEMA 6P -20° to +70°C	Yes[3]	Yes	Yes	12 to 24V	59200
Short-Range: 48 ms Long-Range: 96 ms		0.5% of full scale		N/A			15 to 24V dc	57438
Short-Range: 20, 40, 160, or 640 ms[1] Long-Range: 40, 80, 320, or 1,280 ms[1]	Yes[3] Uncompensated: 0.2% of sensing distance/°C Compensated: 0.05% of sensing distance/°C	N/A	IP67, NEMA 6P -25° to +70°C	Yes[1]	Yes	Yes	12 to 24V dc	Short-Range: 44177 Long-Range: 48454
Short-Range: 40 to 1,280 ms Long-Range: 80 to 2,560 ms		1.0% of full scale		N/A			15 to 24V dc	Short-Range: 47818 Long-Range: 48456
40 or 160 ms[1]	Yes 0.05% of sensing distance/°C	N/A	Controller: IP67, NEMA 6P Sensor: IP65, NEMA 4 -25° to +70°C	No	Yes	Yes	12 to 24V dc	59321
10 to 320 ms[1]		1.0% of full scale					15 to 24V dc	59323
1 ms or 2 ms[2]	N/A	N/A	IP67, NEMA 6P -40° to +70°C	No	No	Yes	12 to 30V dc	40124

U-GAGE® QT50U: A versatile, programmable sensor with a long 8 meter range.

Long range, small dead zone.

QT50U Series ultrasonic sensors feature an extended sensing range of up to 8 m. Its 200 mm minimum sensing distance is the industry's shortest for a long-range ultrasonic product.

Microprocessor TEACH.

Advanced microprocessor TEACH-mode programming simplifies setup and offers added application flexibility. Configuration is easy via two push buttons located on the sensor or through a remote TEACH wire, which can also be used to disable the push buttons to prevent unwanted tampering. An 8-pin DIP switch located on the back of the unit enables a temperature compensation feature, providing the highest accuracy across a wide variety of temperature variations.

Retrosonic mode.

Reduce inherent ultrasonic dead zone to zero by selecting the QT50U's retrosonic mode. The sensor is taught a distinct point and will detect any object regardless of shape, size or reflective angle that passes between the sensor face and the taught point.

Independently adjustable sensing windows for near and far limits.

The QT50U discrete model offers extraordinary versatility with two independent near and far limits per output, making it well suited for applications where high and low media level monitoring is required. Analog models feature Banner's scaleable analog output. With many possible configurations, just one analog or discrete model can replace virtually hundreds of sensors.

Unique housing construction.

With the QT50U, all smarts are on board and accessible for configuration either from beneath a sealed cap on the back of the unit or via the exposed push buttons and display. The fully encapsulated housing offers a rugged, leakproof ultrasonic sensing solution for applications involving liquid detection or washdown.

QT50U Model Selection

Discrete Outputs Analog Output

Models	Range	Cable	Supply Voltage AC sensing solutions on page 11	Output Types
QT50UDB	200 mm to 8 m (8" to 26')	5-wire, 2 m (6.5') cable*	10 to 30V dc	Dual NPN or PNP Selectable
QT50UDBQ		5-pin Mini-style QD**		
QT50UDBQ6		5-pin Euro-style QD**		
QT50ULB	200 mm to 8 m (8" to 26')	5-wire, 2 m (6.5') cable*	10 to 30V dc	0 to 10V dc or 4 to 20 mA Selectable
QT50ULBQ		5-pin Mini-style QD**		
QT50ULBQ6		5-pin Euro-style QD**		

* 9 m (30') cables are available by adding suffix "w/30" to the model number of a cabled sensor (e.g., QT50UDB w/30).
** A model with a quick-disconnect (QD) connector requires a mating cable, see page 15 for a partial listing of available cables.

U-GAGE® S18U: A compact ultrasonic sensor with push-button programming.

A high-accuracy, close-range solution.

Offering highly accurate object detection from 30 mm to 300 mm, the S18U reliably detects opaque or translucent objects, is not affected by color and offers programmable background suppression.

Microprocessor TEACH-mode programming.

The S18U's microprocessor-based design eliminates the need for potentiometer adjustments. Programming is simplified with a TEACH-mode push button located directly on the sensor housing or via a remote TEACH wire that also may be used to disable the push button to prevent unwanted tampering. Bright LEDs display status during setup and operation.

A built-in temperature compensation feature on all units allows the sensor to self-correct for its environment and maintain the highest sensing accuracy in changing conditions.

Straight or right-angle emitter housings.

The S18U Series features an industry-standard 18 mm threaded barrel design and is available in a straight or right-angle housing, offering the highest flexibility for application integration. Wide ranges of mounting options are available.

S18U Model Selection

Discrete Output Analog Output

Models	Range	Cable	Supply Voltage	Output	Housing Configuration
S18UBA	30 mm to 300 mm (1.2" to 11.8")	5-wire, 2 m (6.5') cable*	10 to 30V dc	Bipolar NPN and PNP	Straight
S18UBAQ		5-pin Euro-style QD**			
S18UBAR		5-wire, 2 m (6.5') cable*			Right-Angle
S18UBARQ		5-pin Euro-style QD**			
S18UUA	30 mm to 300 mm (1.2" to 11.8")	5-wire, 2 m (6.5') cable*	10 to 30V dc	0 to 10V dc	Straight
S18UUAQ		5-pin Euro-style QD**			
S18UIA		5-wire, 2 m (6.5') cable*		4 to 20 mA	
S18UIAQ		5-pin Euro-style QD**			
S18UUAR	30 mm to 300 mm (1.2" to 11.8")	5-wire, 2 m (6.5') cable*	10 to 30V dc	0 to 10V dc	Right-Angle
S18UUARQ		5-pin Euro-style QD**			
S18UIAR		5-wire, 2 m (6.5') cable*		4 to 20 mA	
S18UIARQ		5-pin Euro-style QD**			

* 9 m (30') cables are available by adding suffix "w/30" to the model number of a cabled sensor (e.g., S18UBA w/30).
** A model with a quick-disconnect (QD) connector requires a mating cable, see page 15 for a partial listing of available cables.

U-GAGE® T30U: The smallest, most versatile 30 mm barrel ultrasonic sensor.

Analog & discrete outputs in the same sensor.

The T30U sets new standards for ultrasonic sensor versatility by including both discrete and analog outputs in the same unit. Choose a model with either an NPN or a PNP discrete output, plus a 0 to 10V dc or 4 to 20 mA sourcing analog output in the same sensor. Now you can perform both measurement and on-off switching simultaneously with a single sensor. And both output windows can be programmed simultaneously or independently, with either a positive or negative analog output slope.

Push-button TEACH-mode programming is faster, easier and more secure.

The T30U allows you to simply push buttons to set accurate, custom-sized sensing windows and place them anywhere within a 150 mm-to-1 m or 300 mm-to-2 m range.

T30U Model Selection

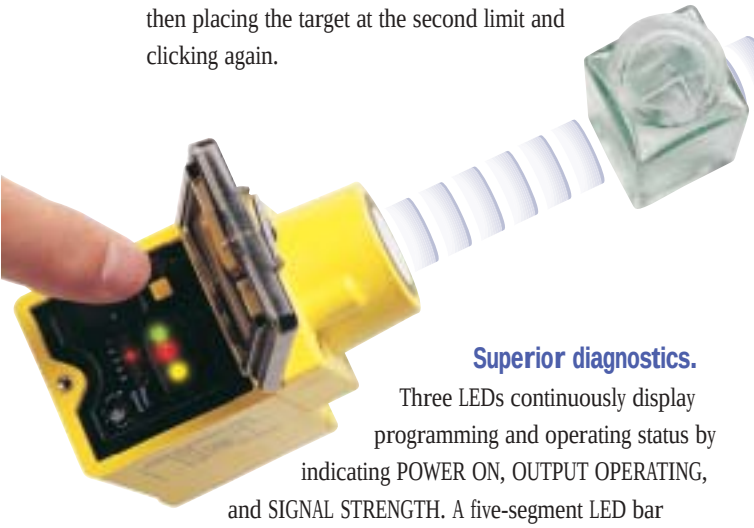
Dual Discrete Outputs Analog and Discrete Output

Models	Range	Cable	Supply Voltage	Discrete Output	Analog Output
T30UDNA	150 mm to 1 m (5.9" to 39")	2 m (6.5')*	12 to 24V dc	Dual NPN	None
T30UDNAQ		5-pin Euro-style QD**			
T30UDPA		2 m (6.5')*		Dual PNP	
T30UDPAQ		5-pin Euro-style QD**			
T30UDNB	300 mm to 2 m (11.8" to 79")	2 m (6.5')*	12 to 24V dc	Dual NPN	None
T30UDNBQ		5-pin Euro-style QD**			
T30UDPB		2 m (6.5')*		Dual PNP	
T30UDPBQ		5-pin Euro-style QD**			
T30UINA	150 mm to 1 m (5.9" to 39")	2 m (6.5')*	12 to 24V dc	NPN	4 to 20 mA
T30UINAQ		5-pin Euro-style QD**			
T30UIPA		2 m (6.5')*		PNP	
T30UIPAQ		5-pin Euro-style QD**			
T30UUNA	150 mm to 1 m (5.9" to 39")	2 m (6.5')*	15 to 24V dc	NPN	0 to 10V dc
T30UUNAQ		5-pin Euro-style QD**			
T30UUPA		2 m (6.5')*		PNP	
T30UUPAQ		5-pin Euro-style QD**			
T30UINB	300 mm to 2 m (11.8" to 79")	2 m (6.5')*	12 to 24V dc	NPN	4 to 20 mA
T30UINBQ		5-pin Euro-style QD**			
T30UIPB		2 m (6.5')*		PNP	
T30UIPBQ		5-pin Euro-style QD**			
T30UUNB	300 mm to 2 m (11.8" to 79")	2 m (6.5')*	15 to 24V dc	NPN	0 to 10V dc
T30UUNBQ		5-pin Euro-style QD**			
T30UUPB		2 m (6.5')*		PNP	
T30UUPBQ		5-pin Euro-style QD**			

* 9 m (30') cables are available by adding suffix "w/30" to the model number of a cabled sensor (e.g., T30UDNA w/30).
** A model with a quick-disconnect (QD) connector requires a mating cable, see page 15 for a partial listing of available cables.

U-GAGE® Q45U: Push-button programming for versatility and ease of use.

Simply push one button to set up operating window limits from 100 mm to 1.4 m. Microprocessor-controlled, TEACH-mode limits are set by simply placing the target at one of the desired limits and clicking the push button, then placing the target at the second limit and clicking again.



Superior diagnostics.

Three LEDs continuously display programming and operating status by indicating POWER ON, OUTPUT OPERATING, and SIGNAL STRENGTH. A five-segment LED bar graph also indicates the relative position of the target within the sensing window.

Selectable response modes and times.

Q45U Sensors with discrete output are programmable for either ON/OFF presence detection or HIGH/LOW level control. ON/OFF control mode energizes the solid-state, normally-open (NO) or normally-closed (NC) output when a target is detected within the sensing window or when the target is outside the sensing window. HIGH/LOW mode energizes the output when the first window limit is reached, and the output stays energized until the target reaches the second window limit, meeting the logic needs for fill-level, web tensioning control and similar applications. Response time is also programmable from 20 ms to 2.56 seconds, depending on model, utilizing DIP switches (discrete models) or a potentiometer (analog models) located beneath the sensor's hinged, sealed polycarbonate cover.

Q45U Model Selection

Discrete Output Analog Output

Models	Range	Temperature Compensation	Cable	Supply Voltage	Output Type
Q45UBB63DA	100 mm to 1.4 m 4" to 55"	No	2 m (6.5')*	12 to 24V dc	Bipolar NPN and PNP
Q45UBB63DAQ			5-pin Mini-style QD**		
Q45UBB63DAQ6			5-pin Euro-style QD**		
Q45UBB63DAC	100 mm to 1.4 m 4" to 55"	Yes	2 m (6.5')*	12 to 24V dc	
Q45UBB63DACQ			5-pin Mini-style QD**		
Q45UBB63DAQ6			5-pin Euro-style QD**		
Q45UBB63BC	250 mm to 3 m 9.8" to 118"	Yes	2 m (6.5')*	12 to 24V dc	
Q45UBB63BCQ			5-pin Mini-style QD**		
Q45UBB63BCQ6			5-pin Euro-style QD**		
Q45ULIU64ACR	100 mm to 1.4 m 4" to 55"	Yes	2 m (6.5')*	15 to 24V dc	0 to 10V dc or 4 to 20 mA (Selectable)
Q45ULIU64ACRQ			5-pin Mini-style QD**		
Q45ULIU64ACRQ6			5-pin Euro-style QD**		
Q45ULIU64BCR	250 mm to 3 m 9.8" to 118"	Yes	2 m (6.5')*	15 to 24V dc	
Q45ULIU64BCRQ			5-pin Mini-style QD**		
Q45ULIU64BCRQ6			5-pin Euro-style QD**		

* 9 m (30') cables are available by adding suffix "w/30" to the model number of a cabled sensor (e.g., Q45UBB63DA w/30).
** A model with a quick-disconnect (QD) connector requires a mating cable, see page 15 for a partial listing of available cables.

U-GAGE® Q45UR: Ultra-accurate gauging in compact remote sensing packages.

Precise discrete or analog sensing for hard-to-access and difficult applications.

With all the advanced features of the standard Q45U, the Q45UR adds the convenience of a choice of three remote sensing heads to access applications with limited space or difficult environments. High-precision discrete output models can resolve object presence within 0.6 mm at any point from 50 mm to 250 mm with exceptional sensing repeatability: ±0.2% of the sensing distance set point. Analog models feature 0.1 mm to 0.5 mm resolution, with a sensing range of 50 mm to 250 mm. Discrete output models are Bipolar, NPN and PNP, and analog output models are selectable for 0 to 10V dc or 4 to 20 mA output.

Set your own custom sensing "windows" with the push of a button.

With Banner's push-button programming, you can set your own custom sensing "windows." On discrete output models, you can set an automatic sensing "window" size of 1, 2, 3, or 4 mm with DIP switches. The sensing distance setpoint, programmed using the push button, becomes the center point of the window. Both discrete and analog Q45UR sensors also allow users to define a custom sensing window ranging from 5 mm to 200 mm and both models have selectable response modes and speeds. The analog output can be set to a positive or negative slope and output response speed is set using the single-turn potentiometer (analog models) or DIP switch (discrete models).

Advanced diagnostics and temperature compensation.

Three LEDs continuously display programming and operating status. The red LED flashes in direct proportion to the received signal strength, to assist in alignment. A yellow LED indicates the target is in the operating window limits and OUTPUTS CONDUCTING. All models also feature a highly visible, 5-segment, moving-dot red LED, which indicates the relative position of the target within the sensing window. Thermistors in the remote sensing heads compensate for temperature variations, assuring superior accuracy at the sensing point.

18 mm barrels, or compact cubical sensing heads.

The rugged remote sensor heads are available in either a stainless steel or plastic 18 mm diameter threaded barrel housing, or an ultra-compact, Flat-Pak plastic model. They all feature a tough ceramic transducer, and are rated IEC IP65 and NEMA 4. They have a wide operating temperature range: -25° to +70°C (-13° to +158°F).

Q45UR Model Selection

Includes one controller and one sensor head.

Discrete Output
Analog Output

Models	Cable	Sensor Head
Q45UR3BA63CK	2 m (6.5')*	18 mm Stainless Steel Barrel
Q45UR3BA63CQK	5-Pin Mini-style QD**	
Q45UR3BA63CQ6K	5-Pin Euro-style QD**	
Q45UR3BA63CKS	2 m (6.5')*	18 mm Plastic Barrel
Q45UR3BA63CQKS	5-Pin Mini-style QD**	
Q45UR3BA63CQ6KS	5-Pin Euro-style QD**	
Q45UR3BA63CKQ	2 m (6.5')*	Flat-Pak Plastic Cubical
Q45UR3BA63CQKQ	5-Pin Mini-style QD**	
Q45UR3BA63CQ6KQ	5-Pin Euro-style QD**	
Q45UR3LIU64CK	2 m (6.5')*	18 mm Stainless Steel Barrel
Q45UR3LIU64CQK	5-Pin Mini-style QD**	
Q45UR3LIU64CQ6K	5-Pin Euro-style QD**	
Q45UR3LIU64CKS	2 m (6.5')*	18 mm Plastic Barrel
Q45UR3LIU64CQKS	5-Pin Mini-style QD**	
Q45UR3LIU64CQ6KS	5-Pin Euro-style QD**	
Q45UR3LIU64CKQ	2 m (6.5')*	Flat-Pak Plastic Cubical
Q45UR3LIU64CQKQ	5-Pin Mini-style QD**	
Q45UR3LIU64CQ6KQ	5-Pin Euro-style QD**	

* 9 m (30') cables are available by adding suffix "w/30" to the model number of a cabled sensor (e.g., Q45UR3BA63CK w/30).

** A model with a quick-disconnect (QD) connector requires a mating cable, see page 15 for a partial listing of available cables.

U-GAGE® T18U: Ultimate reliability in dual range, opposed ultrasonic sensors.

Reliable sensing of clear materials.

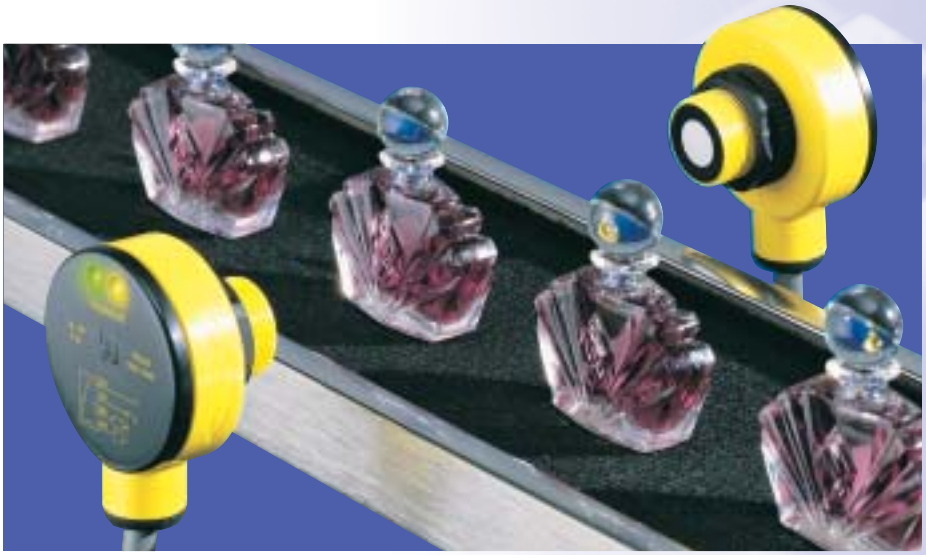
High frequency acoustic emitter and tuned receiver are ideal for sensing under bright lighting and for reliably detecting clear materials such as glass. They operate from 12 to 30V dc with current-sinking (NPN) or current-sourcing (PNP) complementary outputs to interface with a wide variety of loads.

Popular patented housing.

T-style right-angle sensor package with 18 mm threaded mounting barrel allows more versatile mounting in less space, measures only 40 mm in diameter and 30 mm deep.

Unique signal strength indicator.

Advanced, built-in microprocessor analyzes the signal and controls an indicator LED which flashes in direct proportion to the strength of the sensor's received signal.



Dual ranges and response times.

Choice of two ranges and two response times in the same units for the ultimate in versatility. Choose a response time of 2 ms and range of 600 mm for longer ranges or simply reverse the polarity and achieve ultra-fast response of 1 ms with a range of 300 mm for high speed applications such as counting.

T18U Model Selection

Models	Type	Range	Cable	Supply Voltage	Output Type
T186UE **T186UEQ**	Emitter	Normal Sensitivity: 600 mm (24") High Sensitivity: 300 mm (12")	2 m (6.5 ft)* 4-Pin Euro-style QD**	12 to 30V dc	—
T18VN6UR **T18VN6URQ**	Receiver		2 m (6.5 ft)* 4-Pin Euro-style QD**		Complementary NPN
T18VP6UR **T18VP6URQ**	Receiver		2 m (6.5 ft)* 4-pin Euro-style QD**		Complementary PNP

* 9 m (30') cables are available by adding suffix "w/30" to the model number of a cabled sensor (e.g., T186UE w/30).

** A model with a quick-disconnect (QD) connector requires a mating cable, see page 15 for a partial listing of available cables.

NOTE: Sensor pair requires one emitter and one receiver.

AC sensing solutions also available. Go to bannerengineering.com for more information.

QT50U AC: Long-range sensor.

Available soon. Go to bannerengineering.com/qt50u or contact factory for details.

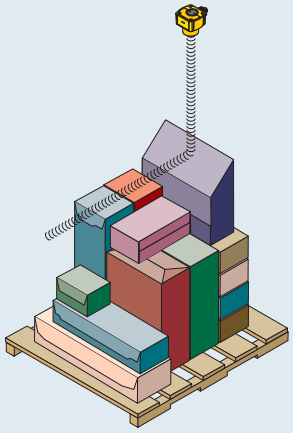
Sonic OMNI-BEAM™: AC & DC piezoelectric sensors.

This proven ultrasonic sensor features an adjustable sensing window and 10-element LED array for easy setup. Models include switched output with ON/OFF and HIGH/ LOW control modes and analog.

ULTRA-BEAM™: AC & DC sensors that are low on cost.

This cost-effective long-range (0.5 m to 6 m) ultrasonic sensing solution features a rugged metal mesh-protected electrostatic transducer and molded PBT polyester housing.

Banner U-GAGE® ultrasonic sensor applications.



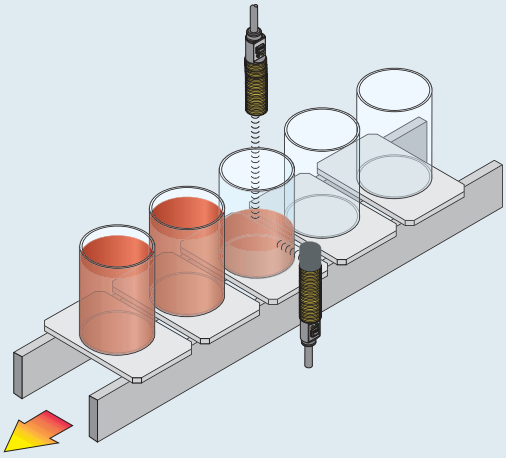
MATERIALS HANDLING DETECTION

Product: QT50U

Objective: To detect the presence or absence of a target that may include a non-perpendicular sensing surface.

Sensor Model: QT50U with discrete output.

Operation: In materials handling applications, the presence or absence of diverse targets (for example, pallets) must be sensed reliably. The QT50U can reliably sense targets that do not present a flat, perpendicular sensing surface through its unique retrosonic sensing mode. When a pallet or package of any size or shape is in the sensing location, the sensor does not sense the floor and turns its output ON.



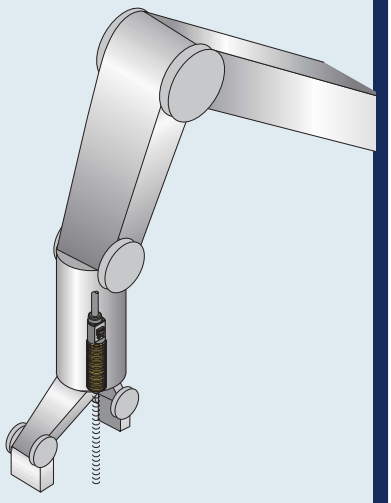
LIQUID LEVEL MEASURING IN CLEAR CONTAINERS

Product: S18U

Objective: Measure liquid levels in clear containers.

Sensor Models: S18UBAR right-angle and S18UIA straight barrel sensors.

Operation: The S18U is ideal for detecting clear objects and measuring liquid levels, regardless of color or consistency. The unique right-angle housing allows easy fixturing to peer over the sides of a conveyor.



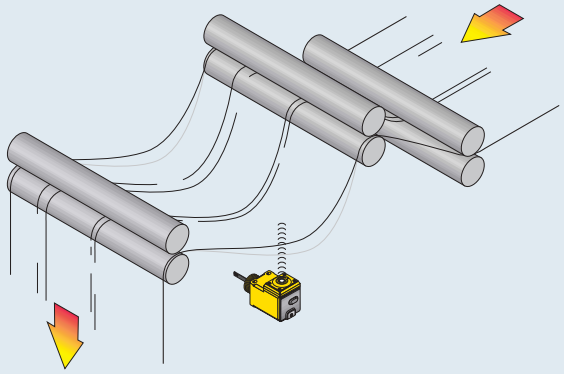
END EFFECTOR POSITION FEEDBACK

Product: S18U

Objective: To provide proximity information to an assembly robot control.

Sensor Models: S18UIA straight-barrel sensor.

Operation: The lightweight ultrasonic sensor communicates to the robot controller, the distance from the end effector to any object or surface.



LOOP TENSION MONITORING

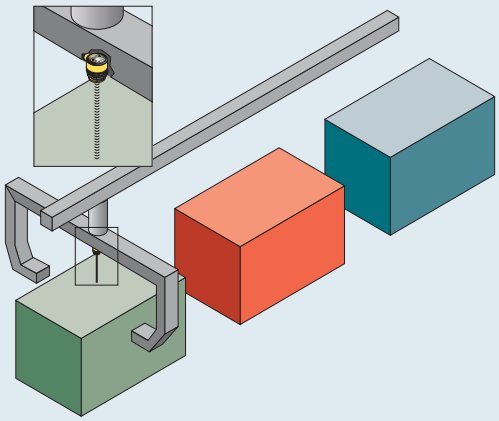
Product: Q45U

Objective: To control web speed by monitoring loop tension.

Sensor Model: Q45ULIU64ACR analog sensor.

Operation: The analog Q45U ultrasonic sensor uses dual microprocessors to smooth output response to web movement. The sensor ignores invalid or erratic echoes. The smoothed output reduces stress on motors and motor drives.

Banner U-GAGE® ultrasonic sensor applications.



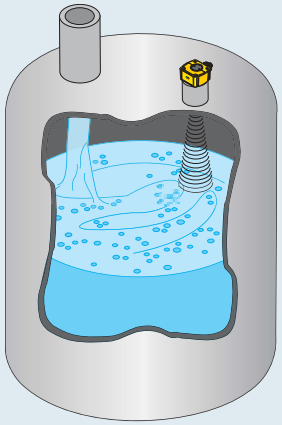
OVERHEAD CRANE GUIDANCE

Product: T30U

Objective: The T30 sensor is programmed to signal the crane to stop when the crane is at a preset distance from a load. Remote TEACH-mode response settings for the sensor are applied by a system controller.

Sensor Model: T30UDNB dual-discrete ultrasonic sensor.

Operation: A T30U sensor mounted above the conveyor may be used to detect small differences in product height.



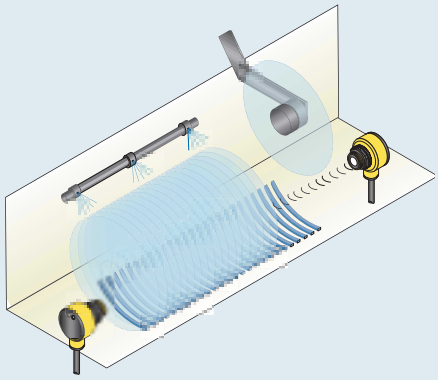
LIQUID LEVEL MONITORING

Product: QT50U

Objective: To monitor the level of liquid in a tank.

Sensor Model: QT50U sensor with analog output.

Operation: The narrow beam of the QT50U allows the sensor to be mounted at the top of a storage tank without its beam reaching the tank wall. As the liquid level changes, the sensor sends an ongoing signal that is scaled to represent the current depth of liquid in the tank.



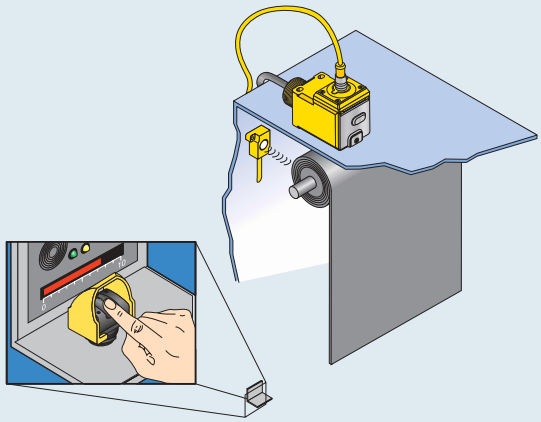
EMPTY COMB VERIFICATION

Product: T18U

Objective: Verify that no hard disks remain on the "comb" following the rinsing procedure.

Sensor Model: T18U opposed ultrasonic sensor pair.

Operation: Originally, the hard disk substrates being rinsed in the comb rinsing machine were aluminum, and it was easy to tell, using standard photoelectric sensors, whether any disks remained in the rack following the rinsing procedure. When clear glass substrates are used, however, an ultrasonic opposed sensor pair can reliably sense whether any disks remain. (Photoelectric clear object detection sensors are not recommended for this application because of the spray rinse.)



ROLL DIAMETER MONITORING

Product: Q45UR and Flat-Pak Remote Sensor

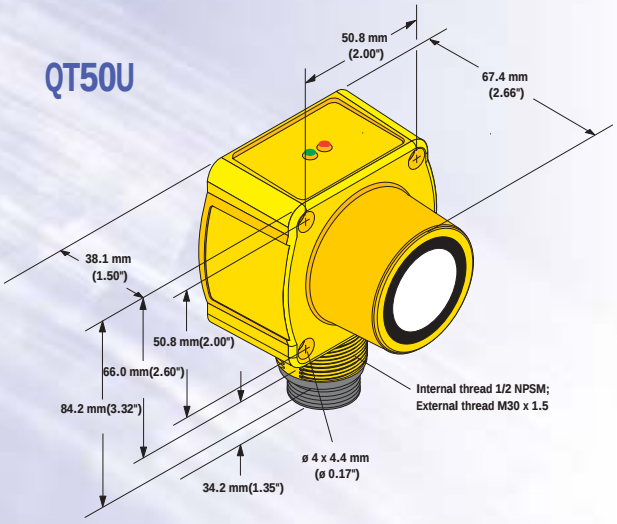
Objective: To monitor the payout of a roll of material.

Sensor Model: Q13C2.0 remote ultrasonic sensor and Q45UR3LIU64C analog controller.

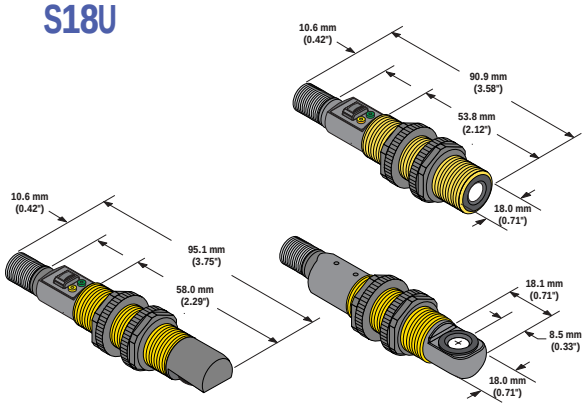
Operation: The Flat-Pak remote ultrasonic sensor and its controller work together to provide roll diameter information to a process controller. The OPTO-TOUCH™ optical touch button is used to program remotely using the Q45UR controller's TEACH input.

U-GAGE® ultrasonic sensor dimensions.

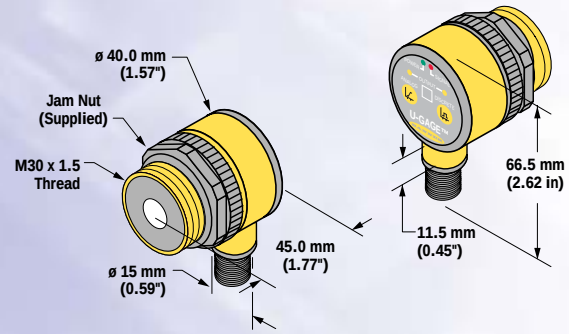
QT50U



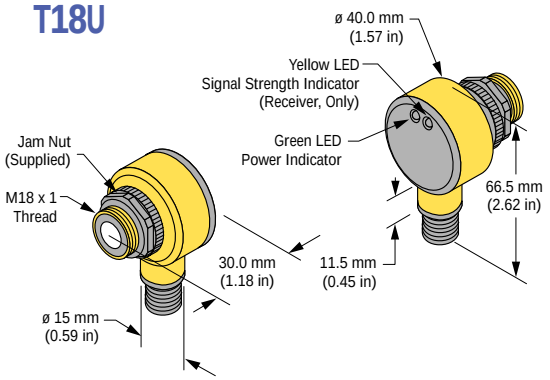
S18U



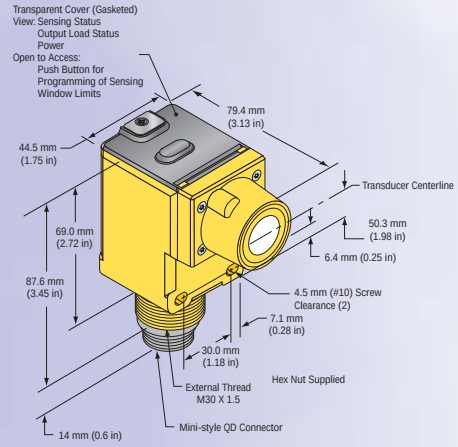
T30U



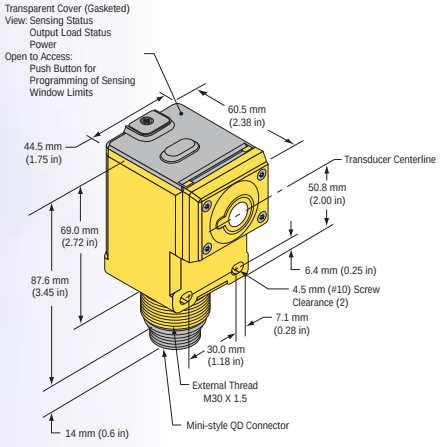
T18U



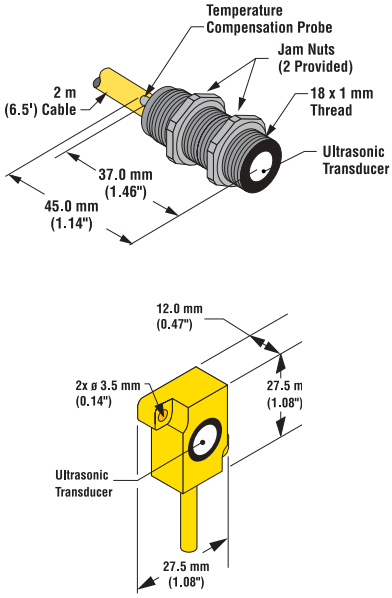
Q45U Long Range



Q45U/Q45UR Controller



Q45UR Remote Transducers



NOTE: Dimensions shown are for quick-disconnect models.
For a more complete listing of available models and drawings go to www.bannerengineering.com/ugage

Banner ultrasonic sensor accessories.

Mounting Brackets

Bracket Models, Descriptions and Photos			
SMB18A • 18 mm mounting hole, 12-gauge, stainless steel bracket with a curved mounting slot for versatility and orientation. • Clearance for M4 (#8) hardware.	S18U	Q45UR Barrel	T18U
SMB18SF • Threaded 18 mm split-clamp black PBT polyester bracket. • Stainless steel mounting hardware included.	S18U	Q45UR Barrel	T18U
SMB1815SF • Swivel black PBT polyester bracket with set screws for mounting the sensor by its cable hub. • Stainless steel mounting hardware included.	T30U	T18U	
SMB30MM • 30 mm mounting hole, 11-gauge, stainless steel bracket with curved mounting slots for versatility and orientation. • Clearance for M6 (1⁄4") hardware.	QT50U	T30U	Q45U or Q45UR
SMB30SC • Threaded 30 mm swivel, black PBT polyester bracket. • Stainless steel mounting hardware included.	QT50U	T30U	Q45UR or Q45U

NOTE: For detailed dimension drawings of available brackets go to www.bannerengineering.com

Quick-Disconnect (QD) Cables

Following is the selection of cables available for ultrasonic QD models.

Style	Model	Length	Connector	For Use With
5-Pin Mini-style w/Shield	MBCC2-506 MBCC2-512 MBCC2-530	2 m (6.5') 4 m (12') 9 m (30')	Straight	QT50U, Q45U, Q45UR Series
5-Pin Euro-style w/Shield	MQDEC2-506 MQDEC2-515 MQDEC2-530	2 m (6.5') 5 m (12') 9 m (30')	Straight	QT50U, S18U, T30U, Q45U, Q45UR Series
4-Pin Euro-style	MQDC-406 MQDC-415 MQDC-430	2 m (6.5') 5 m (15') 9 m (30')	Straight	T18U

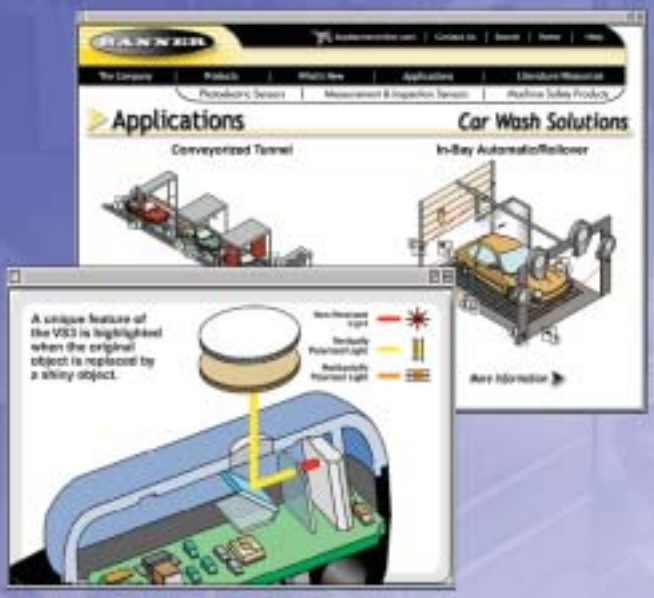
NOTE: For a complete listing of available cables go to www.bannerengineering.com

Product Information

Literature & Resources

www.bannerengineering.com

Applications & Tutorials



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