



U-GAGE™ QT50U Series Sensors with Analog Output

Long-Range Ultrasonic Sensors with TEACH-Mode Programming



Features

- Fast, easy-to-use TEACH-Mode programming; no potentiometer adjustments
- Scalable output automatically distributes the output signal over the width of the programmed sensing window.
- Minimum and Maximum window limits can be adjusted independently.
- Selectable 0 to 10V dc or 4 to 20 mA output, selected via DIP-switch
- Access to bank of 8 DIP switches through sealed cover for superior user functionality
- Rugged encapsulated design for harsh environments
- Unique housing design allows for multiple mounting configurations.
- Choose models with integral 2 m (6.5') or 9 m (30') cable, or with Mini-style or Euro-style quick-disconnect fitting
- Wide operating range: -20° to +70°C (-4° to +158°F)
- Temperature compensation
- Programmable for either positive or negative output slope



Models

Models	Sensing Range	Cable*	Supply Voltage	Output
QT50ULB	200 mm to 8 m (8" to 26')	5-wire, 2 m (6.5') cable	10 to 30V dc	Selectable: 0 to 10V dc or 4 to 20 mA
QT50ULBQ		5-pin Mini-style QD		
QT50ULBQ6		5-pin Euro-style QD		

* NOTES:

- 9 m cables are available by adding suffix "w/30" to the model number of a cabled sensor (e.g., QT50ULB w/30).
- A model with a QD connector requires a mating cable; see page 10.

Information about discrete-output models is available on Banner's website: www.bannerengineering.com




WARNING . . . Not To Be Used for Personnel Protection

Never use these products as sensing devices for personnel protection. Doing so could lead to serious injury or death.

These sensors do NOT include the self-checking redundant circuitry necessary to allow their use in personnel safety applications. A sensor failure or malfunction can cause either an energized or de-energized sensor output condition. Consult your current Banner Safety Products catalog for safety products which meet OSHA, ANSI and IEC standards for personnel protection.

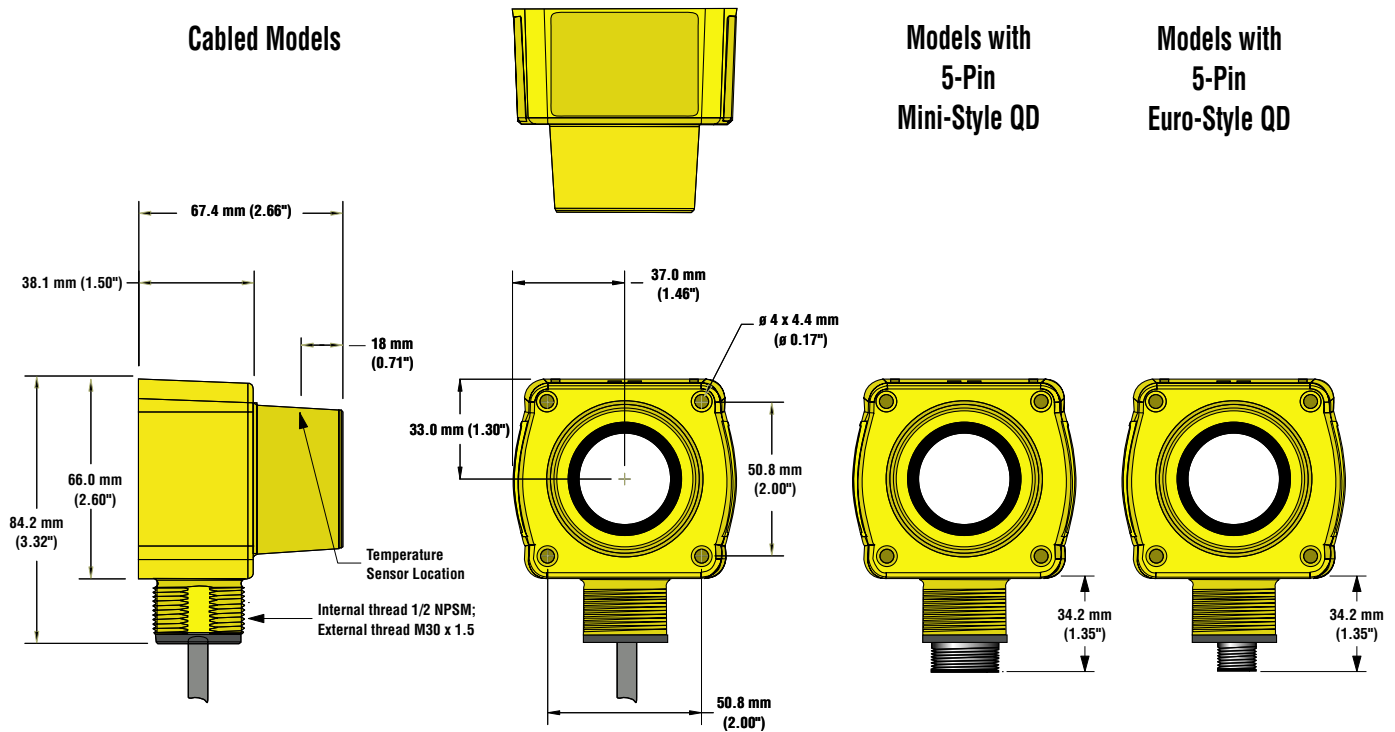
U-GAGE™ QT50U Series Sensor — Analog Output

Specifications

Sensing Range	200 mm to 8 m (8" to 26')
Supply Voltage	10 to 30V dc (10% maximum ripple); 100 mA max at 10V, 40 mA max at 30V (exclusive of load)
Ultrasonic Frequency	75 kHz burst, rep. rate 96 ms
Supply Protection Circuitry	Protected against reverse polarity and transient overvoltages
Output Protection	Protected against short circuit conditions
Delay at Power-up	1.5 seconds
Analog Output Configuration	<p>Voltage Sourcing: 0 to 10V dc Minimum Load Resistance = 500 ohms Minimum Required Supply Voltage for Full 0-10V Output Span = $(\frac{1000}{R_{LOAD}} + 13)V$ dc</p> <p>Current Sourcing: 4 to 20 mA Maximum Load Resistance = 1 kΩ or $(\frac{V_{supply}}{0.02} - 5)$ ohms, whichever is lower</p> <p>Minimum required supply voltage for full 4-20 mA output span = 10V dc or $[(R_{LOAD} \times 0.02) + 5]V$ dc, whichever is greater. 4-20 mA output calibrated at 25° C with a 250 Ω load.</p>
Temperature Effect	<p>Uncompensated: 0.2% of distance/°C Compensated: 0.02% of distance/°C</p>
Linearity	+/- 0.2% of span from 200 to 8000 mm; +/- 0.1% of span from 500 to 8000 mm (1 mm minimum)
Resolution	1.0 mm
Output Response Time	100 ms to 2300 ms. See "Switches 5 and 6" in the table on page 3.
Minimum Window Size	20 mm
Adjustments	Sensing window limits: TEACH-Mode programming of near and far window limits may be set using the push buttons or remotely via TEACH input (see page 5).
Indicators	<p>Green Power On LED: Indicates power is ON (see page 7) Red Signal LED: Indicates target is within sensing range, and the condition of the received signal (see page 7) Teach/Output indicator (bicolor Yellow/Red): Yellow – Target is within taught limits Flashing Yellow – Target is outside taught window limits Red – Sensor is in TEACH mode</p>
Remote TEACH	To Teach: Connect gray or yellow wire to 0 to +2V dc; impedance 12k Ω (See page 4 for transmit disable function)
Construction	<p>Transducer: Ceramic/Epoxy composite Housing: ABS/Polycarbonate Membrane Switch: Polyester Lightpipes: Acrylic</p>
Operating Conditions	<p>Temperature: -20° to +70° C (-4° to +158° F) Maximum relative humidity: 100%</p>
Connections	2 m (6.5') or 9 m (30') shielded 5-conductor (with drain) PVC jacketed attached cable or 5-pin Euro-style quick-disconnect or 5-pin Mini-style quick-disconnect
Environmental Rating	Leakproof design is rated IEC IP67; NEMA 6P
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 ms duration, half sine wave
Temperature Warmup Drift	Less than 0.8% of sensing distance upon power-up with Temperature Compensation enabled (see Temperature Compensation, pages 4 and 5)
Application Notes	Objects passing inside the specified near limit (200 mm) may produce a false response.
Certifications	

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Dimensions



Accessories

Quick-Disconnect (QD) Cable

Style	Model	Length	Connector	Pin-Outs
5-Pin Mini with shield	MBCC2-506 MBCC2-512 MBCC2-530	2 m (6.5') 4 m (12') 9 m (30')		
5-Pin Euro Straight with shield	MQDEC2-506 MQDEC2-515 MQDEC2-530	2 m (6.5') 5 m (15') 9 m (30')		
5-Pin Euro Right-angle with shield	MQDEC2-506RA MQDEC2-515RA MQDEC2-530RA	2 m (6.5') 5 m (15') 9 m (30')		