



U-GAGE™ QT50U Series Sensors with Dual-Discrete Outputs

Long-Range Ultrasonic Sensors with TEACH-Mode Programming



Features

- Fast, easy-to-use TEACH-Mode programming; no potentiometer adjustments
- Selectable dual NPN or PNP outputs 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 of -20° to +70°C (-4° to +158°F)
- Temperature compensation



Models

Models	Sensing Range	Cable*	Supply Voltage	Output
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
QT50UDBQ6		5-pin Euro-style QD		
QT50UDBQ		5-pin Mini-style QD		

* NOTES:

- 9 m 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 QD connector requires a mating cable; see page 11.




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.

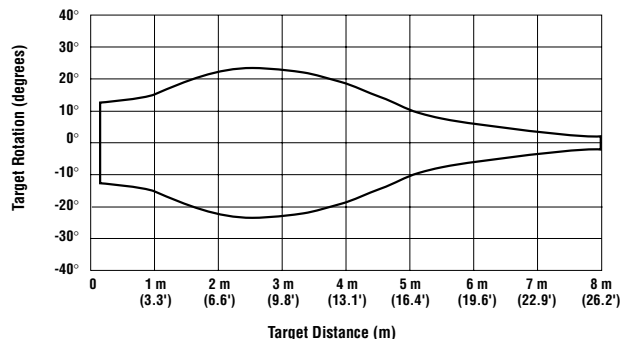
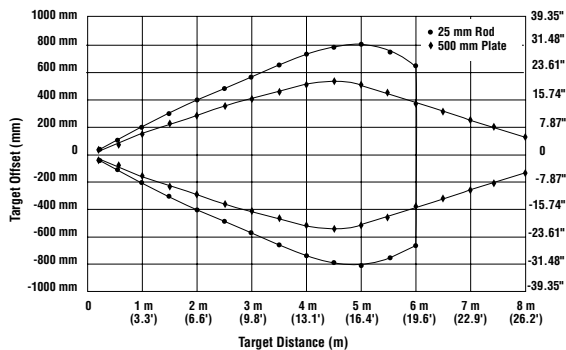
U-GAGE™ QT50U Series Sensor — Discrete Output

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
Discrete Output Configuration	PNP or NPN, selectable via DIP switch
Output Ratings	150 mA maximum Off-state leakage current: < 5 μ A Output Saturation NPN: < 200 mV @ 10 mA and < 650 mV @ 150 mA Output Saturation PNP: < 1.2V @ 10 mA and < 1.65V @ 150 mA
Output Response Time	100 ms to 1600 ms. See "Switches 5 and 6" in the table on page 3.
Temperature Effect	Uncompensated: 0.2% of distance/°C Compensated: 0.02% of distance/°C
Hysteresis	5 mm
Repeatability	1.0 mm
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 6).
Indicators	Green Power On LED: Indicates power is ON (see page 5) Red Signal LED: Indicates target is within sensing range, and the condition of the received signal (see page 5) Teach/Output indicator (bicolor Yellow/Red): Yellow – Target is within taught limits OFF – Target is outside taught window limits Red – Sensor is in TEACH mode
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	Transducer: Ceramic/Epoxy composite Housing: ABS/Polycarbonate Membrane Switch: Polyester Lightpipes: Acrylic
Operating Conditions	Temperature: -20° to +70° C (-4° to +158° F) Maximum relative humidity: 100%
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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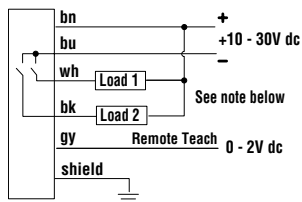
Performance Curves



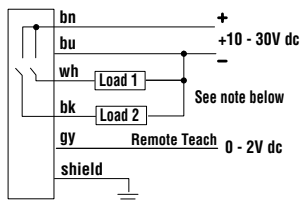
Hookups

Cabled Models

NPN Hookup

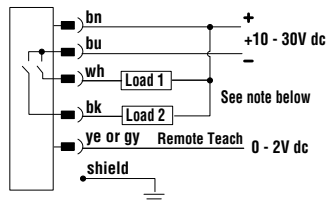


PNP Hookup

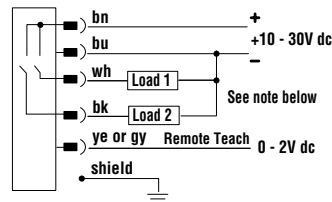


QD Models

NPN Hookup



PNP Hookup

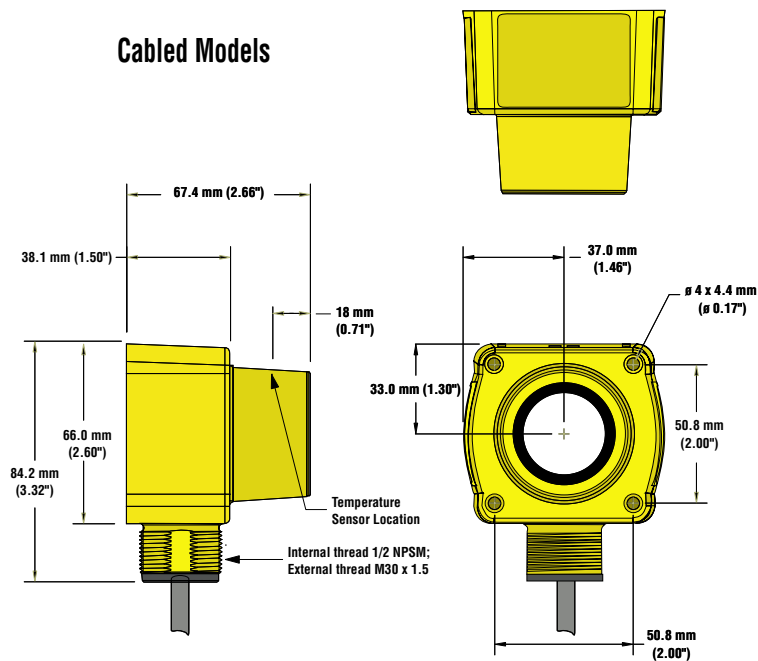


NOTES:

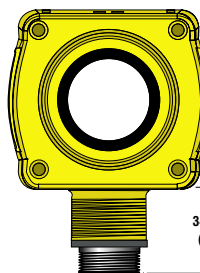
- NPN or PNP hookup must agree with DIP-switch settings (see pages 3 and 4).
- It is recommended that the shield wire be connected to earth ground or DC common.

Dimensions

Cabled Models



Models with 5-Pin Mini-Style QD



Models with 5-Pin Euro-Style QD

