QS18U Series

Right-Angle Ultrasonic Sensors

- Senses clear and transparent materials, as well as color variations, including clear web material, clear or shiny bottles, highly reflective surfaces and liquid or dry bulk materials inside cramped locations
- Sensing range up to 500 mm.
- Features a universal housing with an 18 mm threaded lens or side mount
- Available in encapsulated IP68 models rated for a range of harsh conditions
- Push-button and remote TEACH-mode programming with an external switch, computer or controller for added security and convenience

QS18U

Range	Connection	TEACH Options	Models NPN	Models PNP
50 to 500 mm	2 m 4-pin Euro QD	Integral push button and remote TEACH (IP67; NEMA 6P)	QS18UNA QS18UNAQ8	QS18UPA QS18UPAQ8
50 to 500 mm	2 m 4-pin Euro QD	Remote TEACH (epoxy-encapsulated, IP68; NEMA 6P)	QS18UNAE* QS18UNAEQ8*	QS18UPAE* QS18UPAEQ8*

* Models are epoxy-encapsulated, IP68; NEMA 6P with remote TEACH programming

Connection options: A model with a QD requires a mating cordset.

For 9 m cable, add suffix **W/30** to the 2 m model number (example, **QS18UNA W/30**).
QD models:
- For 4-pin integral Euro-style QD, add suffix **Q8** (example, **QS18UNAQ8**).
- For 4-pin integral Pico-style QD, add suffix **Q7** (example, **QS18UNAQ7**).
- For 4-pin 150 mm Euro-style pigtail, add suffix **Q5** (example, **QS18UNAQ5**).
- For 4-pin 150 mm Pico-style pigtail, add suffix **Q** (example, **QS18UNAFQ**).

	4-Pin
Euro-Style with Shield Straight connector models listed; for right-angle, add **RA** to the end of the model number (example, **MQDEC2-406RA**)	**MQDEC2-406** 2 m (6.5') **MQDEC2-415** 5 m (15') **MQDEC2-430** 9 m (30')

	Straight 4-Pin	Right-Angle 4-Pin
Pico-Style with Shield	**PKG4S-2** 2 m (6.5')	**PKW4ZS-2** 2 m (6.5')

Additional cordset information is available
See page 758

SMB18A

SMB18FA..

SMB1815SF

Additional bracket information is available
See page 722

Ultrasonic Wave Guides

Inside Diameter	Model
5.0 mm	**UWG18-5.0**
6.4 mm	**UWG18-6.4**

Additional wave guide information is available
See page 959

QS18U Specifications

Sensing Range	50 to 500 mm	
Supply Voltage and Current	12 to 30 V dc (10% max. ripple); 25 mA max. (exclusive of load)	
Ultrasonic Frequency	300 kHz, rep. rate 7.5 milliseconds	
Supply Protection Circuitry	Protected against reverse polarity and transient voltages	
Output Protection	Protected against short circuit conditions	
Delay at Power-Up	300 milliseconds	
Output Configurations	Solid-state switch conducts when target is sensed within sensing window; one NPN (current sinking) or one PNP (current sourcing), depending on model	
Temperature Effect	**Non-encapsulated models:** ± 0.05% per °C from -20 to +50 °C, ± 0.1% per °C from +50 to +60 °C **Encapsulated models:** ± 0.05% per ° C from 0° to +60° C, ± 0.1% per ° C from -20° to 0° C	
Repeatability	0.7 mm	
Hysteresis	1.4 mm	
Output Ratings	100 mA max. (see Application Note 1) **OFF-state leakage current:** less than 10 µA (sourcing); less than 200 µA (sinking); See Application Note 2 **NPN ON-state saturation voltage:** less than 1.6 V @ 100 mA **PNP ON-state saturation voltage:** less than 3.0 V @ 100 mA	
Output Response Time	15 milliseconds	
Minimum Window Size	5 mm	
Adjustments	**Sensing window limits:** TEACH-Mode programming of near and far window limits may be set using the push button or remotely using TEACH input	
Indicators	**Range Indicator (Red/Green)** **Green:** Target is within sensing range **Red:** Target is outside sensing range **OFF:** Sensing power is OFF	**Teach/Output Indicator (Yellow/Red)** **Yellow:** Target is within taught limits **OFF:** Target is outside taught window limits **Red:** Sensor is in TEACH mode
Construction	**Housing:** ABS **Push Button Housing:** ABS **Push Button:** TPE **Lightpipes:** Polycarbonate	
Environmental Rating	Leakproof design, rated IEC IP67 or IP68; NEMA 6P, depending on model; UL type 1	
Operating Conditions	**Temperature:** -20 to +60 °C **Relative humidity:** 100% (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", maximum acceleration 10G). Also meets IEC 947-5-2 requirements: 30G 11 milliseconds duration, half sine wave.	
Temperature Warmup Drift	See data sheet	
Application Notes	1. If supply voltage is > 24 V dc, derate maximum output current 5 mA/ °C above 50 °C. 2. NPN OFF-state leakage current is < 200 µA for load resistances > 3 kΩ or optically isolated loads. For load current of 100 mA, leakage is < 1% of load current. 3. Objects passing inside the specified near limit may produce a false response.	
Certifications	CE	