

# WORLD-BEAM QS18 Ultrasonic Sensors

## Product Specifications

<b>Supply Voltage and Current</b>	12 to 30V dc (10% max. ripple) @ less than 25 mA (exclusive of load)
<b>Sensing Range</b>	50 to 500 mm
<b>Ultrasonic Frequency</b>	300 kHz <b>Rep. rate:</b> 7.5 milliseconds
<b>Supply Protection Circuitry</b>	Protected against reverse polarity and transient voltages
<b>Delay at Power-up</b>	300 milliseconds
<b>Output Configuration</b>	SPST solid-state switch conducts when target is sensed within sensing window; One NPN (current sinking) or one PNP (current sourcing), depending on model
<b>Output Rating</b>	100 mA max. <b>OFF-state leakage current:</b> less than 10 $\mu$ A (sourcing); less than 200 $\mu$ A (sinking) <b>NPN saturation:</b> less than 1.6V @ 100 mA <b>PNP saturation:</b> less than 3.0V @ 100 mA
<b>Temperature Effect</b>	<b>Non-encapsulated models:</b> $\pm$ 0.05% per $^{\circ}$ C from -20 $^{\circ}$ C to +50 $^{\circ}$ C, $\pm$ 0.1% per $^{\circ}$ C from +50 $^{\circ}$ to +60 $^{\circ}$ C <b>Encapsulated models:</b> $\pm$ 0.05% per $^{\circ}$ C from 0 $^{\circ}$ to +60 $^{\circ}$ C, $\pm$ 0.1% per $^{\circ}$ C from -20 $^{\circ}$ to 0 $^{\circ}$ C
<b>Repeatability</b>	0.7 mm
<b>Hysteresis</b>	1.4 mm
<b>Output Response Time</b>	15 milliseconds
<b>Minimum Window Size</b>	5 mm
<b>Adjustments</b>	<b>Sensing window limits:</b> TEACH-mode programming of near and far window limits may be set using the push button or remotely using TEACH input.
<b>Indicators</b>	<b>Range Indicator (Red/Green):</b> Green:Target is within sensing range Red:Target is outside sensing range OFF:Sensing poser is OFF <b>Teach/Output Indicator (Yellow/Red):</b> Yellow:Target is within taught limits Red:Sensor is in TEACH mode OFF:Target is outside taught window limits
<b>Construction</b>	<b>Sensor housing:</b> ABS <b>Push button:</b> TPE <b>Push-button housing:</b> ABS <b>Lightpipes:</b> Polycarbonate
<b>Environmental Rating</b>	IEC IP67; NEMA 6P, or IEC IP68; NEMA 6P depending on model
<b>Connections</b>	2 m or 9 m 4-wire attached PVC cable, or 150 mm pigtail with 4-pin Pico-style QD (Q), or 150 mm pigtail with 4-pin Euro-style QD (Q5), or 4-pin

integral Pico-style QD (Q7), or 4-pin integral Euro-style QD (Q8), depending on model. QD cable are ordered separately.

**Operating  
Conditions**

**Temperature:**-20° to +60° C

**Relative humidity:**100% (non-condensing)

**Vibration and**

All models meet Mil. Std. 202F requirements. Method 201A (Vibration; frequency 10 to 60 Hz, max., double amplitude 0.06-inch acceleration 10G).

**Mechanical Shock**

Also meets IEC 947-5-2 requirements: 30G 11 milliseconds duration, half sine.

**Application Note**

Objects passing inside the specified near limit may produce a false response.