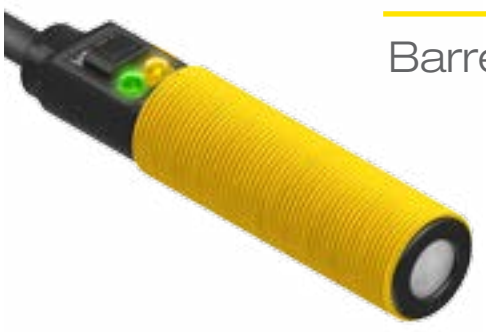
S18U Series

Barrel Ultrasonic Sensors

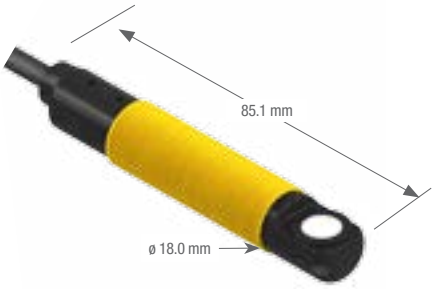


- Features minimal dead zone and can eliminate dead zone if used in retrosonic mode
- Compensates for temperature to provide greatest sensing accuracy
- Push-button and remote TEACH-mode programming with an external switch, computer or controller for added security and convenience

Straight Models

S18U

Range	Connections	Output	Housing Configuration	Models
30 to 300 mm	2 m 5-pin Euro QD	0 to 10 V dc	Straight	S18UUA S18UUAQ
30 to 300 mm	2 m 5-pin Euro QD	4 to 20 mA	Straight	S18UIA S18UIAQ
30 to 300 mm	2 m 5-pin Euro QD	Bipolar NPN/PNP	Straight	S18UBA S18UBAQ



Right-Angle Models

S18U Right-Angle

Range	Connections	Output	Housing Configuration	Models
30 to 300 mm	2 m 5-pin Euro QD	0 to 10 V dc	Right-Angle	S18UUAR S18UUARQ
30 to 300 mm	2 m 5-pin Euro QD	4 to 20 mA	Right-Angle	S18UIAR S18UIARQ
30 to 300 mm	2 m 5-pin Euro QD	Bipolar NPN/PNP	Right-Angle	S18UBAR S18UBARQ

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

For 9 m cable, add suffix **W/30** to the 2 m model number (example, **S18UUA W/30**).

Euro-Style with Shield
Straight connector models listed; for right-angle, add **RA** to the end of the model number (example, **MQDEC2-506RA**)

5-Pin

MQDEC2-506
2 m (6.5')
MQDEC2-515
5 m (15')
MQDEC2-530
9 m (30')

SMB18A

SMB18FM

SMB18SF

Ultrasonic Wave Guides

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

Additional cordset information is available
See page 758

Additional bracket information is available
See page 723

Additional wave guide information is available
See page 959

S18U Specifications

Supply Voltage and Current	10 to 30 V dc (10% max. ripple); 65 mA max. (exclusive of load), 40 mA typical @ 25 V input
Ultrasonic Frequency	300 kHz, rep. rate 2.5 milliseconds
Supply Protection Circuitry	Protected against reverse polarity and transient voltages
Output Protection	Protected against short circuit conditions
Output Ratings	**Analog Voltage Output:** 2.5 kΩ min. load resistance Minimum supply for a full 10 V output is 12 V dc (for supply voltages between 10 and 12, V out max is at least V supply -2) **Analog Current Output:** 1 kΩ max @ 24 V input Max load resistance = (Vcc-4)/0.02 Ω **Discrete:** 100 mA max. **OFF-state leakage current:** less than 5 µA **NPN saturation:** less than 200 mV @ 10 mA and less than 600 mV @ 100 mA **PNP saturation:** less than 1.2 V @ 10 mA and less than 1.6 V @ 100 mA
Output Configuration	**Analog:** 0 to 10 V dc or 4 to 20 mA, depending on model **Discrete: Bipolar:** One NPN (current sinking) and one PNP (current sourcing) output in each model. Solid-state switch conducts when target is sensed within sensing window.
Output Response Time	**Analog: 30 milliseconds:** Black wire at 0 to 2 V dc (or open) **2.5 milliseconds:** Black wire at 5 to 30 V dc **Discrete:** 5 milliseconds
Delay at Power-up	300 milliseconds
Linearity	**Analog output models: 2.5 milliseconds response:** ± 1 mm **30 milliseconds response:** ± 0.5 mm
Resolution	**Analog output models: 2.5 milliseconds response:** 1 mm **30 milliseconds response:** 0.5 mm
Repeatability	**Discrete models:** 0.5 mm
Temperature Effect	0.02% of distance/ °C
Temperature Warmup Drift	Less than 1.7% of sensing distance upon power-up
Minimum Window Size	5 mm
Switching Hysteresis	**Discrete output models:** 0.7 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	**Power/Signal Strength (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
Remote TEACH Input	**Impedance:** 12 kΩ
Construction	**Threaded Barrel:** Thermoplastic polyester **Push Button Housing:** ABS/PC **Push Button:** Santoprene **Lightpipes:** Acrylic
Environmental Rating	Leakproof design is rated IEC IP67; NEMA 6P
Operating Conditions	**Temperature:** -20 to +60 °C **Relative humidity:** 100%
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
Application Notes	Objects passing inside the specified near limit may produce a false response
Certifications	CE cULus