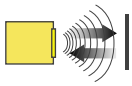
BANNER®
more sensors, more solutions

U-GAGE™ S18U Series Sensors with Analog Output

18 mm Ultrasonic Sensors with TEACH-mode programming

Features

- Fast, easy-to-use TEACH-Mode programming; no potentiometer adjustments
- Short dead zone
- Scalable output automatically distributes the output signal over the width of the programmed sensing window
- Two bi-colored status LEDs
- Rugged encapsulated design for harsh environments
- Choose 2 meter or 9 meter unterminated cable, or 5-pin Euro-style QD connector
- Wide operating range of -20° to +60°C (-4° to +140°F)
- Choose either straight or right-angle housing
- Temperature compensation
- Selectable response times of 2.5 or 30 ms
- Select analog models with either 0-10V dc or 4-20 mA output



Ultrasonic

Models

Model Number	Sensing Range	Cable*	Supply Voltage	Output	Housing Configuration
S18UUA	30 to 300 mm (1.2" to 11.8")	5-wire, 2 m (6.5') cable	10 to 30V dc	0 to 10V dc	Straight
S18UUAQ		5-pin Euro style QD			
S18UIA		5-wire, 2 m (6.5') cable		4 to 20 mA	
S18UIAQ		5-pin Euro style QD			
S18UUAR		5-wire, 2 m (6.5') cable		0 to 10V dc	Right-Angle
S18UUARQ		5-pin Euro style QD			
S18UIAR		5-wire, 2 m (6.5') cable		4 to 20 mA	
S18UIARQ		5-pin Euro style QD			

* 9 m cables are available by adding suffix "**W/30**" to the model number of any cabled sensor (e.g., **S18UUA W/30**).
A model with a QD connector requires a mating cable; see page 10.

U-GAGE™ S18U Series Sensor — Analog Output

Specifications

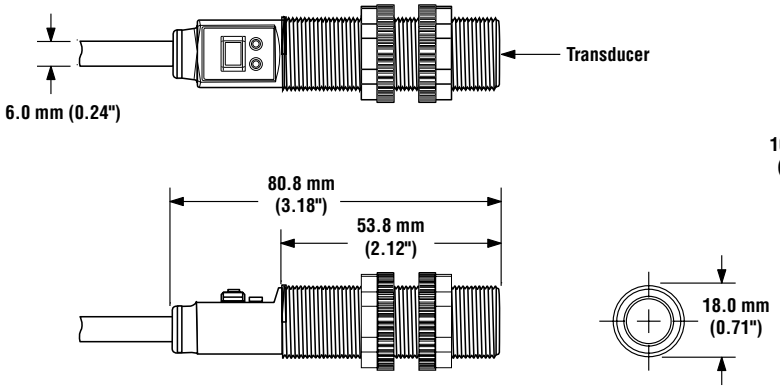
Sensing Range	30 to 300 mm (1.2" to 11.8")	
Supply Voltage	10 to 30V dc (10% maximum ripple); 65 mA max. (exclusive of load), 40 mA typical @ 25V input	
Ultrasonic Frequency	300 kHz, rep. rate 2.5 ms	
Supply Protection Circuitry	Protected against reverse polarity and transient voltages	
Output Configuration	**Analog Output:** 0 to 10V dc or 4 to 20 mA, depending on model	
Output Protection	Protected against short circuit conditions	
Output Ratings	**Analog Voltage Output:** 2.5 kΩ minimum load resistance Minimum supply for a full 10V output is 12V dc (for supply voltages between 10 and 12, V out max is at least V supply -2) **Analog Current Output:** 1 kΩ max @ 24V input Max load resistance = (Vcc-4)/0.02 ohms **For current output (4-20 mA) models,** ideal results are achieved when the total load resistance R = [(Vin – 3)/0.020]Ω. Example, at Vin = 24V dc, R ≈ 1 kΩ (1 watt). A worst-case shift of 1% of sensing distance is caused by operating the sensor at Vin = 30V dc and R = 0 Ω.	
Output Response Time (for a 95% step change)	**2.5 milliseconds:** Black wire at 5-30V dc **30 milliseconds:** Black wire at 0-2V dc (or open) Consult factory for other response speed options	
Delay at Power-Up	300 milliseconds	
Temperature Effect	0.02% of distance/ °C	
Linearity*	**2.5 ms response:** ±1 mm	**30 ms response:** ± 0.5 mm
Resolution*	**2.5 ms response:** 1 mm	**30 ms response:** 0.5 mm
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 via TEACH input (see page 3).	
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
Remote TEACH Input	**Impedance:** 12 kΩ	
Construction	**Threaded Barrel:** Thermoplastic polyester **Push Button:** Santoprene	**Push Button Housing:** ABS/PC **Lightpipes:** Acrylic
Operating Conditions	**Temperature:** -20° to +60° C (-4° to +140° 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 (see page 10 for quick-disconnect cable options)	
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 60 Hz 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 1.7% of sensing distance upon power-up (see Temperature Compensation, page 2)	
Application Notes	Objects passing inside the specified near limit may produce a false response.	
Certifications	CE c UL us	

* Linearity and resolution are specified using a 50 mm x 50 mm (2" x 2") aluminum plate at 22°C under fixed sensing conditions.

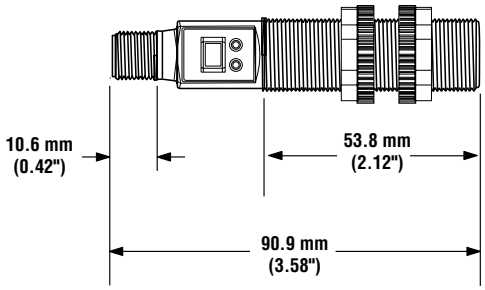
Dimensions

Straight Housing

Cabled Models

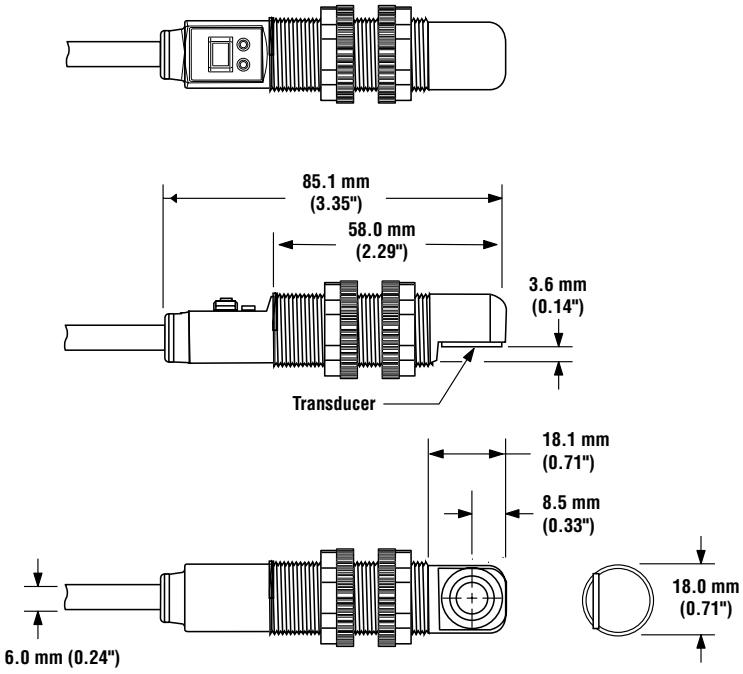


QD Models



Right-Angle Housing

Cabled Models



QD Models