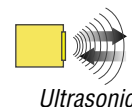


U-GAGE™ S18U Series Sensors with Analog Output

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





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 k Ω 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 k Ω 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 $R = [(V_{in} - 3)/0.020]\Omega$. Example, at $V_{in} = 24V$ dc, $R \approx 1$ k Ω (1 watt). A worst-case shift of 1% of sensing distance is caused by operating the sensor at $V_{in} = 30V$ dc and $R = 0 \Omega$.	
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 k Ω	
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	 	

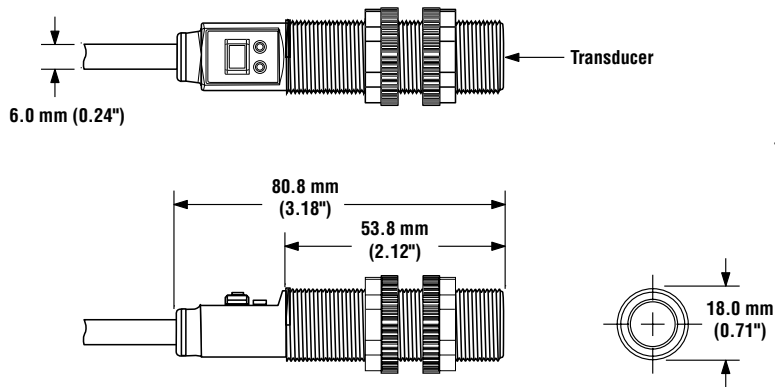
* Linearity and resolution are specified using a 50 mm x 50 mm (2" x 2") aluminum plate at 22°C under fixed sensing conditions.

U-GAGE™ S18U Series Sensor — Analog Output

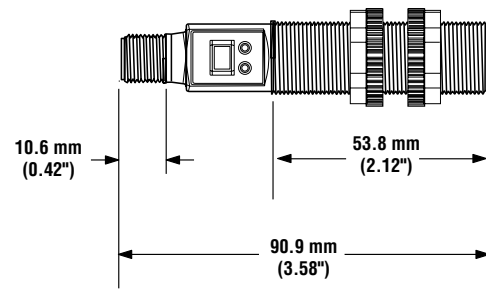
Dimensions

Straight Housing

Cabled Models

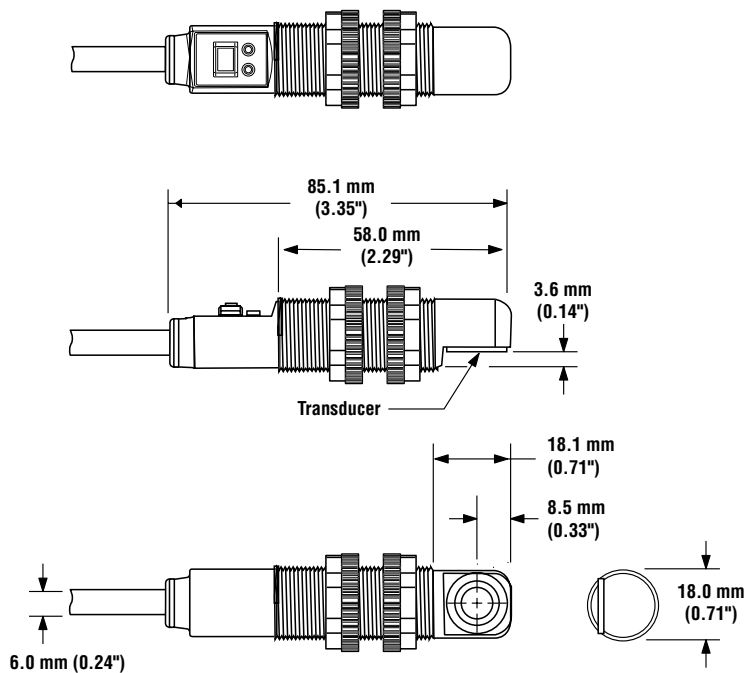


QD Models



Right-Angle Housing

Cabled Models



QD Models

