TOUGHSONIC® 30
ULTRASONIC LEVEL & DISTANCE SENSOR

DESCRIPTION

The Toughsonic 30' Ultrasonic Sensors measure level and distance through the air using ultrasonic sound waves. They provide fast, reliable non-contact measurements at distances up to 30 feet, with an optimum range of 10 inches to 20 feet. These sensors come standard with 316 stainless steel housings, ruggedized piezoelectric ultrasonic transducers, epoxy potting, rear status indicators, and a permanently attached 2 meter cable. They are rugged and IP68 immersion-rated for use indoors and out.

APPLICATIONS

- Optimal Measuring Range: 10 inches - 20 feet
- 316 Stainless Steel housing
- Voltage & 4-20mA outputs
- Operating Temperature: -40 to +158°F (-40 to +70°C
- RS-232 & RS-485 Communication protocols
- Ability to Sync with up to 32 sensors

PERFORMANCE SPECIFICATIONS

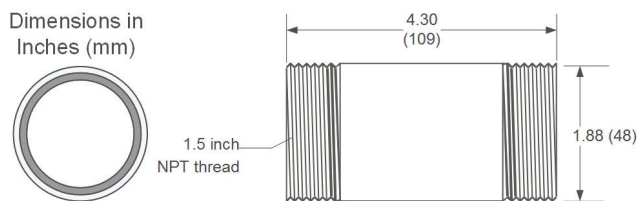|			
Optimum Range	20 ft. (6.1 m)	Max Range	30 feet (9.1 m)
Deadband	Typ. < 10 in. (25.4 cm	Adjustment	Button "teach" or SenixVIEW
Case Material	316 stainless steel	Configuration	Stored in non-volatile memory
Temperature	-40 to 158 F (-40 to 70 C)	Outputs	Two selectable, plus serial data
Humidity	0 to 100% operating	Transducer	Ruggedized piezoelectric
Compensation	Temperature compensated	Protection	NEMA-4X, NEMA-6P, IP68
Resolution	Serial data: 0.0068 in. (0.172 mm); Analog:4099 steps (0-10 VDC), 3279 steps (4-20 mA)Nominal		
Repeatability	Nominal 0.2% of range @ constant temp. Affected by target, distance, environment		
Update Rate	10 Hz (100 ms), SenixVIEW adjustable; affected by SenixVIEW filter selections		
Voltage Output	0-10, 0-5 VDC or PC customized; 10 mA max. (*)		
Current Loop #1	Current sourcing 4-20 mA or PC customized, max. loop 450Ω (*)		
Curent Loop #2	Current sinking 4-20 mA or PC customized, max. loop 450Ω (*)		
Sinking Switch	150 mA max. @ 40 VDC max., teachable set point & polarity, fault indication		
Sourcing Switch	150 mA max. @ input voltage, teachable set point & polarity, fault indication		
RS-232, RS-485	Modbus protocol, 9600-115200 baud (selectable), 8 data bits, 1 stop, no parity		
SYNC feature	Permits up to 32 sensors to operate in close proximity without interaction		
Target Requirements			
Objects	Detects flat or curved objects. Surface must reflect ultrasound to sensor		
Max. Distance	Affected by size, shape, orientation of target (sound level reflected back to sensor), environment		
	Restrict use to Optimum Range when using over a wide range of environmental conditions		
Orientation	Flat surfaces should be oriented perpendicular to sensor output beam		
Optical	Unaffected by target color, transparency, light, or other optical characteristics		

CABLE CONNECTIONS

Cable	Wire	Description
Power	Brown	10-30 VDC @ 70 mA maximum; Typical: 45 mA @ 24 VDC (**)
Ground	Blue	Power and interface common
Voltage Output *	Violet	0-10 VDC, 0-5 VDC or custom end values between 0 and 10 VDC
Current Loop Output *	Green	4-20 mA sourcing (adjustabled end values between 4 and 20 mA)
Current Loop Output *	Orange	4-20 mA sinking (adjustabled end values between 4 and 20 mA)
Switch #1 Output	Black	Sinking ("NPN") or Sourcing ("PNP"), user selected
Switch #2 Output	White	Sinking ("NPN") or Sourcing ("PNP"), user selected
RS-232 out / RS-485-	Gray	Serial data connection (depends on model - see model selection)
RS-232 in / RS-485+	Yellow	Serial data connection (depends on model - see model selection)

PART NUMBERS

Model Number	Description
TSPC-15S-485	Analog, switch and RS-485 serial interface (allows addressable multi-sensor networks)
TSPC-15S-485A *	Same as above but with only RS-485 serial data interface *
TSPC-15S-232	Analog, switch and RS-232 serial data interface (PC COM port compatible)
TSPC-15S-232A *	Same as above but with only RS-232 serial data interface *

DIMENSIONS

Dimensions in Inches (mm)

4.30 (109)

1.5 inch NPT thread

1.88 (48)

Mechanical
Mounting: 1.5 inch NPT thread, top or bottom
Attached Cable: 6.5ft (2 m)
Total Weight: 22.6 oz. (0.64 kg)

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