

ToughSonic® Distance Sensor

Waterproof, Two Outputs and Push-Button Setup

TS-30S1 Series

TS ultrasonic distance sensors contain a rugged transducer in a stainless steel case for long service life in tough environments. Typical applications include roll diameter, liquid level, motion control, positioning and dimensioning. They are excellent for tanks, drums and level applications.

Outputs are available in many combinations, including analog 0-10/0-5 VDC, 4-20 mA current loop, PNP (sourcing) switches, NPN (sinking) switches. All outputs are relative to measured distance, any slope and anywhere in the sensor's range.

Non-Contact Ultrasonic Distance Measurement

Features

- Sealed for ingress protection rating IP68 for washdown or outdoor applications like food processing or car washes
- Narrow ultrasonic beam to avoid unwanted obstacles
- Long 14-ft (4.3 m) maximum measurement range
- Short 4-in (10 cm) deadband
- Simple pushbutton "teachable" setup of many features, and calibration using actual targets
- Analog outputs are adjustable anywhere in sensor's range
- Switch outputs have adjustable distance and polarity
- Output response filter for stability with poor targets
- Sync connection for several sensors in close proximity
- Security "Lock" prevents accidental mis-adjustment
- Status indicator for each output

14-ft. (4.3 m) maximum range
30 mm threaded housing
IP68 rated



Push-button "Teachable"

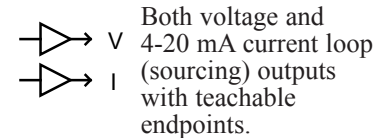
Reliable Operation

- Unaffected by optical factors like color and transparency
- Stable output if target is lost
- Overload and short circuit protected switch & analog outputs
- Heavy duty 316 stainless case, 30x1.5 mm threaded, potted, waterproof with IP68 rating
- Temperature compensation

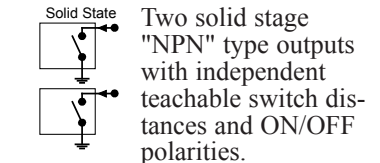
Output Options

Below are 3 common TS family output configurations. Other output combinations are available (see next page).

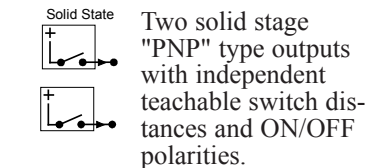
Two Analogs



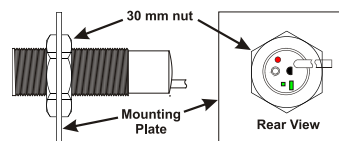
Two Sinking Switches



Two Sourcing Switches

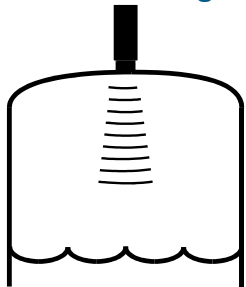


Easy Installation

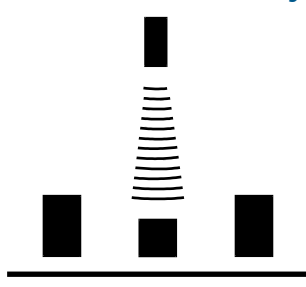


- Quick bolt-in mounting
- Permanently attached cable
- 3 rear LEDs display target, fault and output status
- Simple push-button setup - no potentiometers or tools!

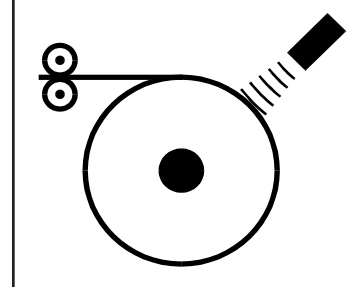
Level or Height



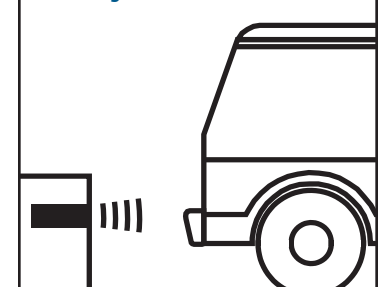
Distance-Proximity



Dimension



Object Detection





Senix® TS-30S1 ToughSonic® Distance Sensor

Specifications

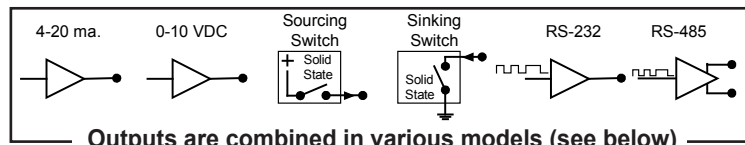
Optimum Range	4 in. - 10 ft. (102 mm - 3 meters)	Max Range	14 Feet (4.3 meters)
Case Material	316 stainless steel	Adjustment	Button "teach"
Temperature	-40 to 158 F (-40 to 70 C)	Configuration	Stored in non-volatile memory
Humidity	0 to 100% operating	Transducer	Ruggedized piezoelectric
Compensation	Temperature compensated	Protection	NEMA-4X, NEMA-6P, IP68
Resolution	Digital: 0.0034 in. (0.086 mm); Analog steps: 4099 (0-10 VDC), 3279 (4-20 mA)		
Repeatability	Nominal 0.2% of range @ constant temp. Affected by target, distance, environment		
Update Rate*	20 (default), 40, 100, or 200 per second, selectable* output response time filter		
Voltage Output*	0-10 and 0-5 VDC (user selectable), 10 mA max; reversable teachable endpoints		
Current Loop*	4-20 mA (sourcing), 450Ω max. @ >15 VDC, reversable teachable endpoints		
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		
Output Select	Defaults are voltage & current loop; see Connections below for additional info		
RS-232, RS-485	See the Senix TSPC and LVL product families for digital data features		
SYNC feature*	Permits up to 32 sensors to operate in close proximity without interaction		
Input Power	10-30 VDC @ 60 mA max (see below); Typical 45 mA @ 24 VDC		

Asterisk (*) indicates button teachable features.

Target Performance

Objects	Detects flat or curved objects. Surface must reflect ultrasound back to sensor.
Max. Distance	Affected by size, shape, orientation of target (sound level reflected back to sensor)
Orientation	Flat surfaces should be oriented perpendicular to sensor output beam
Optical	Unaffected by target color, transparency or other optical characteristics

Part Numbers



Wiring (6-wire cable)	
Brown	DC+ IN
Blue	GND
Gray	SYNC(-) or below
Yellow	SYNC(+) or below

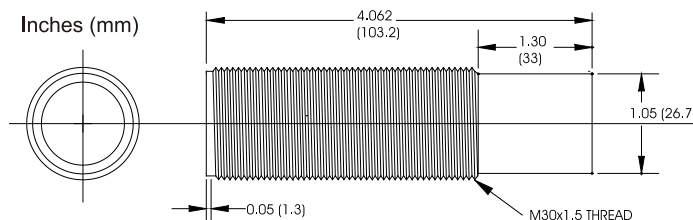
MODEL NUMBER	Output #1 (BLACK wire)	Output #2 (WHITE wire)
TS-30S1-IV	4-20 mA current loop	0-10 / 0-5 VDC
TS-30S1-ISK	4-20 mA current loop	Sinking Switch
TS-30S1-ISR	4-20 mA current loop	Sourcing Switch
TS-30S1-SKV	Sinking Switch	0-10 / 0-5 VDC *
TS-30S1-SRV	Sourcing Switch	0-10 / 0-5 VDC *
TS-30S1-SKSK	Sinking Switch	Sinking Switch
TS-30S1-SRSR	Sourcing Switch	Sourcing Switch
TS-30S1-SKSR	Sinking Switch	Sourcing Switch

Asterisk (*) indicates button teachable features.

(NOTE: For serial data RS-232 and RS-485, see the Senix TSPC or LVL product families)

Each sensor ships with installation instructions and two 30mm SS mounting nuts. Senix also offers interconnection, communication, mounting, and display components.

Dimensions



Dimensions are in inches (mm)
Mounting Hole: 30.5 mm (1.2 in.) diameter

Standard Cable: 6.5ft (2 m)

Ships with instructions and two 30mm stainless mounting nuts