

ToughSonic® 14 Level and Distance Sensor

Windows PC or Button Setup, Liquid Tight, Multiple Outputs

Formerly TSPC-30S1

Senix sensors and SenixVIEW software put the power of ultrasonics in your hands yet retain the simplicity of push-button TEACH setup. You can quickly adjust, optimize, save and clone your applications without calibration!

ToughSonic sensors contain a rugged transducer potted in a stainless steel housing for long life.

Outputs respond to measured distance and non-contact technology means nothing touches your materials.

Many applications exist in all industries. Contact Senix today to discuss your specific needs.

Features

Distance Measurements

- Long range, short dead band
- Unaffected by optical factors like color and transparency
- PC or button "teachable" setup
- Narrow beam with adjustments to optimize performance
- Temperature compensated

Packaging & Performance

- Quick mounting
- Durable sealed housing for wet or dirty applications
- Short & overload protected I/O
- Multi-sensor synchronization
- Adjustable sensitivity
- Rear status indicators (3)

Free Functionality

Use adjustable interface features like switch hysteresis and time delays to build complete solutions such as pump or material flow controllers. Save cost by eliminating PLCs, delay circuits and time delay relays!

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



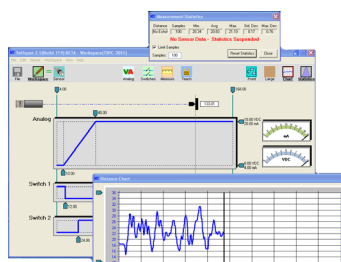
SenixVIEW PC Software included!



Button TEACH or PC Configured Non-Contact Ultrasonic Distance Measurement

PC Setup Power!

Use SenixVIEW software (see separate data sheet) to select and adjust all interfaces, timing parameters, filters and modes. Then view, analyze or log data to optimize your application.



Several push-button "teach" features also provide common adjustments without the PC.

Stock, repairs, OEMs

Flexible configuration means fewer parts to stock and quick duplication! Higher volume OEM options are available.

Output Selection

In addition to the model's serial data interface there are two SenixVIEW selected outputs that can be analogs or switches that can be analog or switches to suit your application. All outputs have configurable features including ranges, target responses and time delays.

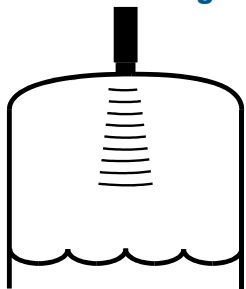
Voltage & Current Loop

Select voltage, current or both in standard (0-10 VDC, 4-20 mA) or custom ranges. The outputs are fully configurable and the analog slope can be positive or negative with distance.

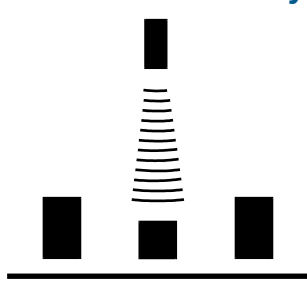
Switches

One or two switches can be selected. Either or both can be "PNP" or "NPN" type (sourcing or sinking). Each has adjustable set point, hysteresis, window, initial conditions, ON delay, OFF delay and loss of target response for ultimate flexibility.

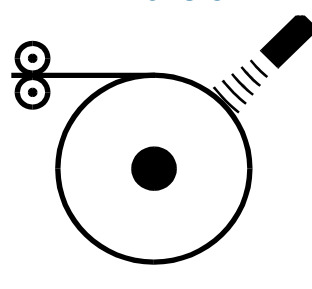
Level or Height



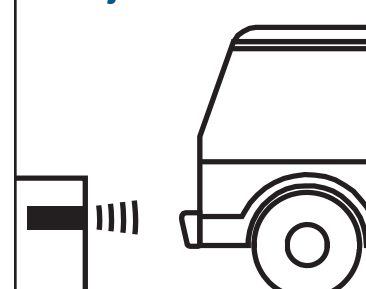
Distance-Proximity



Dimension



Object Detection





Senix ToughSonic® 14 Level and Distance Sensor

Specifications

Optimum Range	4 in. - 10 ft. (102 mm - 3 m)	Max Range	14 feet (4.3 meters)
Case Material	316 stainless steel	Adjustment	Button "teach" or SenixVIEW
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: 4099 steps (0-10 VDC), 3279 steps (4-20 mA)		
Repeatability	Nominal 0.2% of range @ constant temp. Affected by target, distance, environment		
Update Rate	20 Hz (50 ms), SenixVIEW adjustable; also affected by SenixVIEW filter selections		
Voltage Output	0-10, 0-5 VDC or PC customized, 10 mA max; Push-button teachable endpoints		
Current Loop	4-20 mA or PC customized, current sourcing, max. loop 450Ω, 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	Modbus protocol, 9600 to 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 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, light, transparency or other optical characteristics

Connections

Cable Connection	Wire	Description
Power	Brown	10-30 VDC @ 60 mA maximum; Typical: 45 mA @ 24 VDC (**)
Ground	Blue	Power and interface common
Voltage Output	White *	0-10 VDC, 0-5 VDC or custom end values between 0 and 10 VDC
Current Loop Output	Black *	4-20 mA or user adjusted 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 part numbers)
RS-232 in / RS-485+	Yellow	Serial data connection (depends on model - see part numbers)

(*) Outputs on the black and white wires are SenixVIEW selected. The black wire options are 4-20 mA current loop or switch. White wire options are 0-10 VDC or switch. Switches can be sourcing or sinking. Max current loop resistance is derated below 15 VDC input voltage.

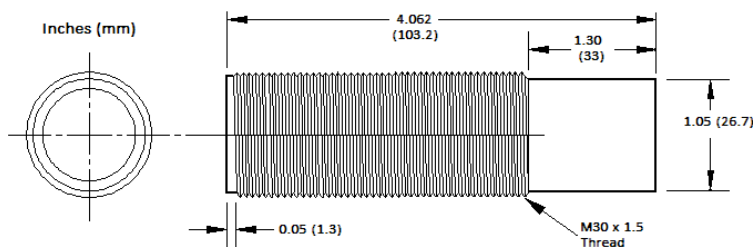
(**) At default update rate. Output currents not included. Sensitivity reduced below 15 VDC input voltage.

Part Numbers

Model Number	Description
TSPC-30S1-232	Serial RS-232 interface (PC COM port compatible)
TSPC-30S1-485	Serial RS-485 interface (allows addressable multi-sensor networks)

Senix also offers interconnection, communications, mounting, and display components

Dimensions



Mechanical

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

Standard Cable: 6.5ft (2m)

Ships with instructions and two 30mm stainless mounting nuts (other options available)

Total Weight: 10.40 oz. (0.29 kg)