ToughSonic® 30 Level & Distance Sensor

Windows PC or Button Setup, Waterproof, Multiple Outputs

TSPC-15S Series

Non-Contact Ultrasonic Distance & Level Measurement

TSPC 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.

TOUGHSONIC®
Tough. Smart.

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

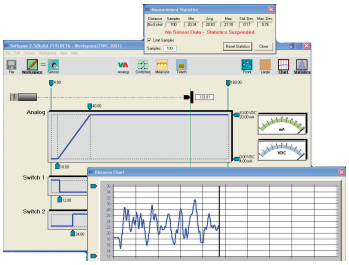
Packaging & Performance

- 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 using 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!

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.



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

Push-button "teach" features provide for several common adjustments when a PC is not available.

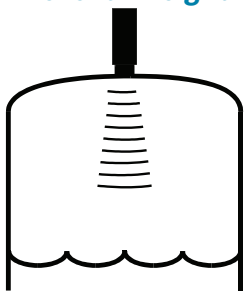
Multiple Outputs

In addition to the model's serial data interface there are five simultaneous outputs, fully configurable with SenixVIEW.

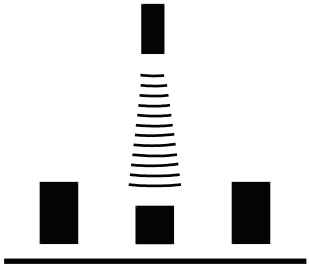
Analog Outputs (3) include 0-10 VDC and dual 4-20 mA current loops (sinking and sourcing). These outputs have user-selectable voltage/current ranges, adjustable endpoint distances, slope reversal, timing parameters and much more.

Switches (2) are SenixVIEW configurable as "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.

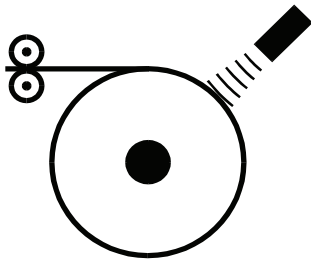
Level or Height



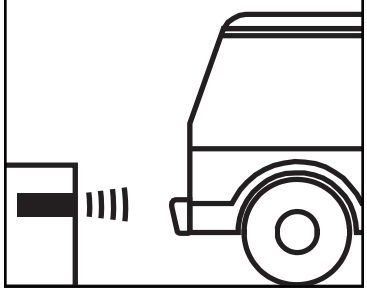
Distance-Proximity



Dimension



Object Detection



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Senix®
Distance Measurement

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ToughSonic® 30 Level & Distance Sensor

Specifications

Optimum Range	20 ft. (6.1 m)	**Max Range**	30 ft. (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**	Five selectable, plus serial data
Humidity	0 to 100% operating	**Transducer**	Ruggedized piezoelectric
Compensation	Temperature compensated	**Protection**	NEMA-4X, NEMA-6P, IP68
Resolution	Digital: 0.0068 in. (0.172 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	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 (*)		
Current 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		

Connections

Cable Connection	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)

(*) Analog outputs share common distance endpoints. Both 4-20 mA outputs share the same adjustable max / min end values. The maximum loop resistance is derated below 15 VDC input voltage.

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

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

Part Numbers

Model Number	Description
TSPC-15S-232	Serial RS-232 interface (PC COM port compatible)
TSPC-15S-485	Serial RS-485 interface (allows addressable multi-sensor networks)

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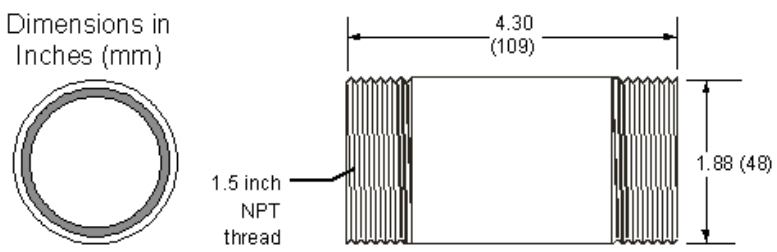
Dimensions



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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