

# ToughSonic®/PC Distance Sensor

Windows PC or Button Setup, Waterproof, Multiple Output

**TSPC-30S1 Series**

**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 in a stainless steel sealed housing for long life.

Outputs are proportional or controlled by measured distance. Damage is eliminated because nothing touches your materials.

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

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



**SenixVIEW PC Software included!**

## PC Configured Non-Contact Ultrasonic Distance Measurement

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

#### Create "Mini" Systems

With user-adjustable interface features like switch hysteresis and time delays you can create complete systems such as pump controllers or material flow controls. Save cost by eliminating separate controllers, 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.



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 controlled output wires. Analog and switch output selections are available to suit your application. All outputs have SenixVIEW configured features including distance, initial and no-target response, and time delays.

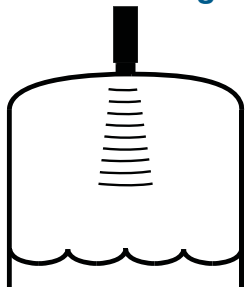
#### Voltage & Current Loop

Select voltage, current or both in standard (0-10 VDC, 4-20 mA) or custom ranges. The outputs are fully configurable. The analog slope may 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 independently adjustable set point, hysteresis, window, initial conditions, ON/OFF polarity, time delay and loss of target response.

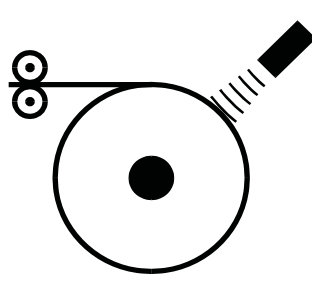
#### Level or Height



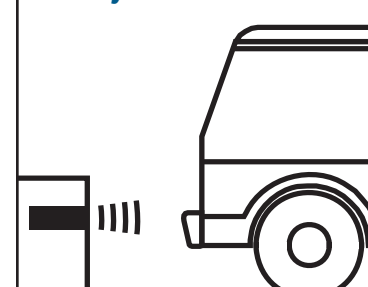
#### Distance-Proximity



#### Dimension



#### Object Detection





# Senix® ToughSonic®/PC Distance Sensor

## Target Performance

TSPC-30S1 Series														
Maximum Range	4.3 meters (14 feet)													
Optimum Range	102 mm - 3 meters (4 in. - 10 ft.)													
Angle off perpendicular (+/-) vs. distance (meters), large flat surface														
m:	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.4	3.7	4.0	4.7
Deg:	17	13	13	12	12	11	10	10	9	8	6	5	5	4

Numbers will vary depending on SenixVIEW adjustable sensitivity.

**Color/Transparency:**  
Unaffected by color, transparency or optical characteristics.

**Orientation**  
Detects flat or curved objects. Surface must reflect back to sensor. Flat surfaces are best when perpendicular to beam axis, and may not be detected at high angles of incidence.

Typical Distances	
Object	Max Range (m)
6.7 cm diam. cylinder	2.1
9 cm floppy disk	3.0
Liquid surface	4.3

## Connections

Cable Connection	Wire	Description
Power	Brown	10-30 VDC @ 60 mA max; Typical: 45 mA @ 24 VDC (**)
Ground	Blue	Power and interface common
Voltage Output	White *	0-10 VDC, 0-5 VDC or custom range values between 0 and 10 VDC
Current Loop Output	Black *	4-20 mA or user adjusted range values between 0 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.  
(\*\*) Sensitivity slightly reduced at input voltages below 15 VDC.

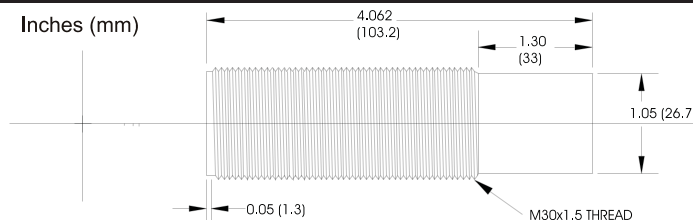
## Specifications

<b>Optimum Range</b>	102 mm - 3 meters (4 in. - 10 ft.)	<b>Max Range</b>	4.3 meters (14 feet)
<b>Case Material</b>	303 stainless steel	<b>Adjustment</b>	Button "teach" or SenixVIEW
<b>Temperature</b>	-40 to 70 C (-40 to 158 F)	<b>Configuration</b>	Stored in non-volatile memory
<b>Humidity</b>	0 to 100% operating	<b>Transducer</b>	Ruggedized piezoelectric
<b>Compensation</b>	Temperature compensated	<b>Protection</b>	NEMA-4X, NEMA-6P, IP68
<b>Resolution</b>	Digital: 0.086 mm (0.003384 in.); Analog: 4099 steps (over full 0-10 VDC or 0-20 mA)		
<b>Repeatability</b>	Nominal 0.1% of range @ constant temp. Affected by target, distance, environment		
<b>Update Rate</b>	50 ms, SenixVIEW adjustable; also affected by SenixVIEW filter selections		
<b>Voltage Output</b>	0-10, 0-5 VDC or PC customized or push-button teachable endpoints, 10 mA max.		
<b>Current Loop</b>	4-20 mA or PC customized, current sourcing, max. loop 500Ω, teachable endpoints		
<b>Sinking Switch</b>	150 mA max. @ 40 VDC max., teachable set point & polarity, fault indication		
<b>Sourcing Switch</b>	150 mA max. @ input voltage, teachable set point & polarity, fault indication		
<b>RS-232, RS-485</b>	Modbus protocol, 9600 to 115200 baud (selectable), 8 data bits, 1 stop, no parity		
<b>SYNC feature</b>	Permits up to 32 sensors to operate in close proximity without interaction		

## 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)

## Dimensions



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

Standard Cable: 2 m (6-ft)

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

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