ToughSonic® TS-100.14 Level & Distance Sensor

PC or Push Button Setup, Waterproof, Two Selectable Outputs

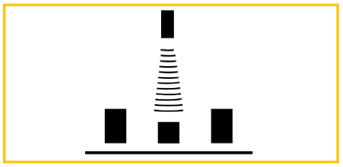
ToughSonic sensors with SensorView™ software put the power of ultrasonics in your hands yet retain the simplicity of push-button TEACH setup. You can quickly adjust, optimize, save, and clone your applications without calibration!

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

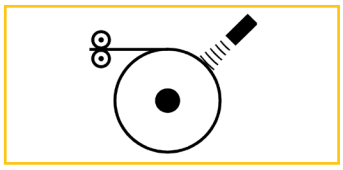
Outputs respond to measured distance and non-contact technology means nothing touches your materials. Many applications exist in all industries.

Contact Senix today to discuss your specific needs.

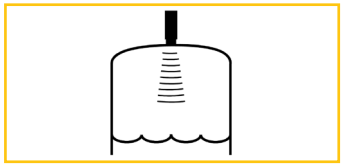
Non-Contact Ultrasonic
Distance & Level Measurement
(1-Inch NPT thread)



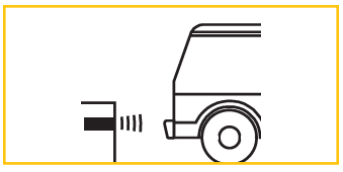
Distance-Proximity



Dimension



Level or Volume



Object Detection

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!

PC Setup Power!

PC Programming Software

Use SensorView™ 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

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

Push Button “Teach”

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

Output Selection

In addition to the model’s RS-232 or RS-485 serial data interface there are two SensorView™ selected outputs to suit your application. All outputs have configurable endpoints, setpoints, event responses and time delays.

Voltage & Current Loop

Voltage & Current Loop are both provided simultaneously in standard (0-10 VDC, 4-20 mA) or custom ranges. They are fully configurable and can either rise or fall with increasing distance.

Switches

Switches can be selected in lieu of one or both analogs, and set to either “PNP” or “NPN” type (sourcing or sinking). Each has independently adjustable set point, hysteresis, window, initial conditions, ON delay, OFF delay, and loss of target response for ultimate flexibility.

For pricing or any further information, please contact Omni Instruments Ltd.

Measurement and data acquisition solutions

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Specifications

Optimum Range	10 ft. (3 m)	**Max Range**	14 ft. (4.3 m)
Deadband	Typ. < 4 in. (100 mm)	**Adjustment**	Button “teach” or SensorView™
Case Material	316 stainless steel, m 30 x1.5 threaded	**Configuration**	Stored in non-volatile memory
Temperature	-40° to 158° F (-40° to 70° C)	**Outputs**	Two selectable, plus serial data
Humidity	5 to 95% (non-condensing)	**Transducer**	Ruggedized piezoelectric
Compensation	Temperature compensated	**Protection**	NEMA-4X, NEMA-6P, IP68
Resolution	Serial data: 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), SensorView™ adjustable; also affected by SensorView™ filter selections		
Output Selection	Voltage & 4-20 mA current loop (defaults), switches, or a combination; see Connections below		
Voltage Output	0-10, 0-5 VDC or PC customized, 10 mA max; also 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		
RS-232, RS-485	Modbus protocol, 9600 to 115200 baud, 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, 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)

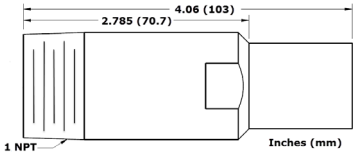
(*) Outputs on the black and white wires are SensorView selected. The black wire options are 4-20 mA current loop or switch. White wire options are 0-10 VDC or switch. Switches can be sourcing or sinking. Max current loop resistance is derated below 15 VDC input voltage.

(**) At default update rate. Output currents not included.

Part Numbers

Model Number	Description
TS-100.14B1X.007FA (Legacy: TSPC-N1S1-485)	14 ft (4.3m), 1.0 in NPT SS housing, RS-485 standard (6 Wire), 6.5 ft (2m) cable length
TS-100.14B2X.007FA (Legacy: TSPC-N1S1-485A)	14 ft (4.3m), 1.0 in NPT SS housing, RS-485 serial only (4 Wire), 6.5 ft (2m) cable length
TS-100.14B1X.007FB (Legacy: TSPC-N1S1-232)	14 ft (4.3m), 1.0 in NPT SS housing, RS-232 standard (6 Wire), 6.5 ft (2m) cable length
TS-100.14B2X.007FB (Legacy: TSPC-N1S1-232A)	14 ft (4.3m), 1.0 in NPT SS housing, RS-232 serial only (4 Wire), 6.5 ft (2m) cable length

Dimensions



Mechanical

- Dimensions are in inches (mm)
- Standard Cable: 6.5ft (2m)
- Ships with instructions
- Total Weight: 14.2 oz (0.4 kg)