

ToughSonic®/PC Distance Sensor

Computer and Teach Setup, Waterproof, Multiple Output

TSPC-21S 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 quickly 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.



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

- Clamp mounted
- 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.

Multiple Outputs

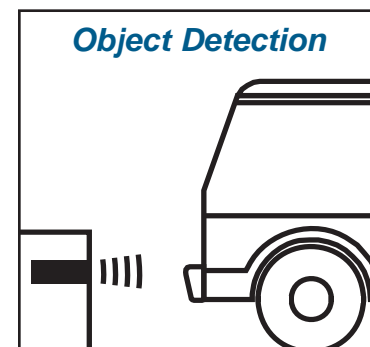
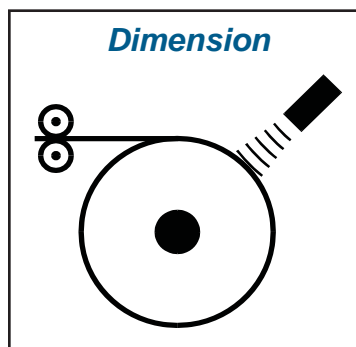
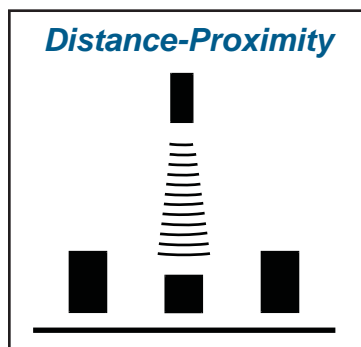
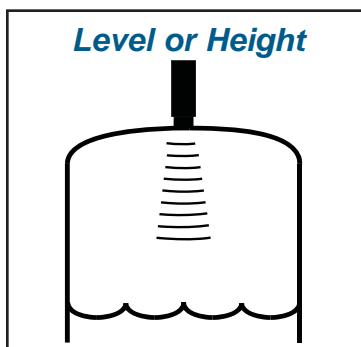
In addition to the model's serial data interface there are five outputs. All have SenixVIEW configured features including distance adjust, initial and no-target response, and time delays.

Analog Outputs

These include voltage (0-10 VDC) and two current loops (4-20 mA sinking and sourcing). The analog slope may be positive or negative with distance and the analog range limits can be set to custom values.

Switches

Two switches are SenixVIEW configurable as either "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.





Senix® TS-21S ToughSonic®/PC Distance Sensor

Specifications

| | | | |
|------------------------|--|----------------------|-------------------------------|
| Optimum Range | 30.5 cm - 10 mtr. (12 in. - 33 ft.) | Max Range | 15.2 meters (50 feet) |
| Case Material | 303 stainless steel | Adjustment | Button "teach" or SenixVIEW |
| Temperature | -40 to 70 C (-40 to 158 F) | 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: 0.086 mm (0.003384 in.); Analog: 4099 steps (over full 0-10 VDC or 0-20 mA) | | |
| Repeatability | Nominal 0.2% of range @ constant temp. Affected by target, distance, environment | | |
| Update Rate | 200 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 500Ω (*) | | |
| Current Loop #2 | Current sinking 4-20 mA or PC customized, max. loop 500Ω (*) | | |
| 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, 9600-19200-38400 baud (selectable), 8 data bits, 1 stop, no parity | | |
| SYNC feature | Permits up to 32 sensors to operate in close proximity without interaction | | |

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 |

Connections

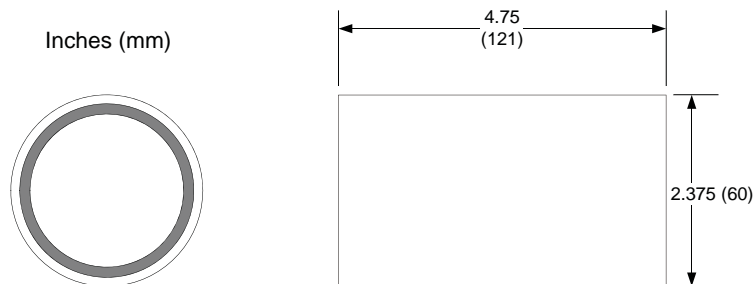
| Cable Connection | Wire | Description |
|-----------------------|--------|---|
| Power | Brown | 10-30 VDC @ 70 mA nominal (sensitivity reduced below 15 VDC) |
| Ground | Blue | Power and interface common |
| Voltage Output * | Violet | 0-10 VDC, 0-5 VDC or custom range values between 0 and 10 VDC |
| Current Loop Output * | Green | 4-20 mA sourcing (adjustable range values between 0 and 20 mA) |
| Current Loop Output * | Orange | 4-20 mA sinking (adjustable 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 model selection) |
| RS-232 in / RS-485- | Yellow | Serial data connection (depends on model - see model selection) |

(*) All 3 analog outputs share the same distance endpoints. The endpoints are adjusted using Teach or SenixVIEW PC software. The 0-10 VDC output range limits are SenixVIEW adjustable. The two 4-20 mA output range limits are shared and are SenixVIEW adjustable.

Part Numbers

| Model Number | Description |
|---------------|--|
| TSPC-21S1-232 | Serial RS-232 interface (PC COM port compatible) |
| TSPC-21S1-485 | Serial RS-485 interface (allows addressable multi-sensor networks) |

Dimensions



Mechanical

Mounting: Senix UA-MB-SS bracket or other body clamp

Attached Cable: 6-ft (2 m)
Total Weight: 25.9 oz (0.73 kg)