ToughSonic 200 series sensors and SensorView™ software put the power of ultrasonics in your hands. You can quickly adjust, optimize, save, and clone your applications quickly without calibration!

These sensors are housed in a rugged, chemically inert PVDF sealed housing for long life. They mount above the material surface and measure distance downward without contact. All outputs respond simultaneously to that measured distance.

Applications include pump control, bulk inventory, batch processing, water management and high/low level alarms.
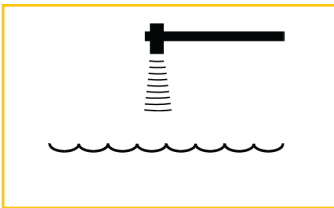
Non-Contact Ultrasonic Distance & Level Measurement (2" NPT Front, 1" NPT Rear Mount)

Up to 35-ft. (10.7m) maximum range in IP68 rated PVDF housing

SensorView™ Programming included!
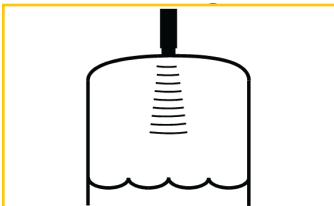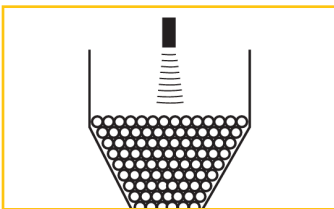
Features

Level Measurements

- Long or short measurements
- Unaffected by optical factors like color and transparency
- Computer (PC) software allows remote adjustment

Level or Height

Packaging & Performance

- Durable housing for long life
- Bottom and top thread mounts
- Short & overload protected I/O
- Adjustable filters compensate for tank mixers or turbulence
- Temperature compensation for improved accuracy
- Adjustable sensitivity

Solids Level

Functionality Beyond Sensing

Adjustable interface features like switch hysteresis and time delays offer solutions for basic level alarms and pump controls without additional hardware.

Environmental

PC Setup Power!

PC Programming Software

Use SensorView™ software (see separate data sheet) to adjust all sensor features. You can view, analyze, or log data to optimize your application. Disconnect and the sensor retains the setup.
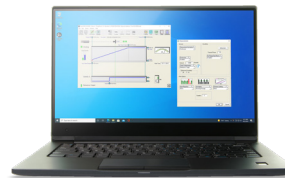
Copy without Calibration

Application setups can be saved for future recall. From a single sensor inventory part you can quickly clone sensors, without recalibration, for any number of different field installations.

Multiple Outputs

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

Analog Outputs (3)

These include voltage (0-10 VDC) and two current loops (4-20 mA sinking and sourcing). Both output types have user-selectable voltage/current ranges and endpoints for best resolution. Easily invert the analog output slope.

Switches (2)

Two switches are SensorView™ 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 to easily create controls and alarms.

Specifications

Optimum Range	25 ft. (7.6 m)	Max Range	35 ft. (10.7 m)
Deadband	Typ. < 12 in. (30.5 cm)	Adjustment	SensorView™ software
Case Material	PVDF	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	Rugged piezoelectric
Compensation	Temperature compensated	Protection	NEMA-4X, NEMA-6P, IP68
Resolution	Digital: 0.0135 in. (0.344 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	5 Hz (200 ms), SensorView™ adjustable; affected by SensorView™ 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 450! (*)		
Current Loop #2	Current sinking 4-20 mA or PC customized, max. loop 450! (*)		
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		

Target Requirements

Target	Detects flat or irregular surfaces. Target surface must reflect sound back 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
Granular Solids	De-rate max range by 50%; range affected by material density and orientation
Orientation	Orient sensor beam perpendicular to target surface for best performance

Connections

Cable Connection	Wire	Description
Power	Brown	10-30 VDC @ 50 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 (adjustable end values between 4 and 20 mA)
Current Loop Output *	Orange	4-20 mA sinking (adjustable 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 values. The max. loop resistance is derated below 15 VDC input voltage.
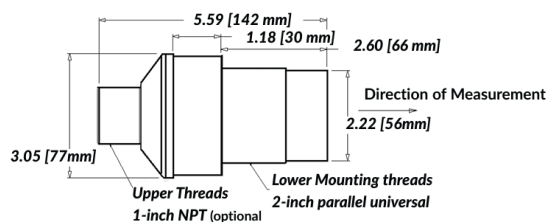
(**) At default update rate. Output currents not included. Sensitivity reduced below 15 VDC input voltage.

Part Numbers

Model Number	Description
TS-200.35J1X.007FA (Legacy: LVL-500-485)	35' range, 2" NPT front & 1" NPT rear mount, PVC housing, RS-485 & analog output
TS-200.35J1X.007FB (Legacy: LVL-500-232)	35' range, 2" NPT front & 1" NPT rear mount, PVC housing, RS-232 & analog output

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

Dimensions

5.59 [142 mm]
1.18 [30 mm]
2.60 [66 mm]
Direction of Measurement
2.22 [56mm]
3.05 [77mm]
Upper Threads 1-inch NPT (optional)
Lower Mounting threads 2-inch parallel universal

Mechanical

- Mounting: Lower 2-in. Parallel Upper 1-in. NPT (optional 1-in. BSP or M32 x 1.5 metric by special order)
- Attached Cable: PUR jacket, 6.5ft (2 m) long
- Total Weight: 24.7 oz. (0.70kg)