# ToughSonic® REMOTE 14 Level Sensor

## Level & Distance Data Collection for Remote Monitoring

REMOTE Series

**Non-Contact Air Ultrasonic Distance & Level Measurement**

REMOTE sensors are designed for level and distance measurement in remote monitoring and other demanding outdoor applications. Surge protection assures reliable performance in lightning prone areas, and they consume less power than our other models.

Connect to one sensor or up to 32 sensors in an RS-485 network group. Whether your data needs are simple or complex this sensor can handle them. Connect with displays, RTUs, PLCs, PCs or custom systems.

These all-weather sensors provide years of maintenance free service and survive submersion.


***SenixVIEW PC Software included!***

### Communications

***Addressable Modbus RTU*** industry standard protocol is supported by PCs and most monitoring equipment.

***Protocol options*** also include simple ASCII or phased high speed multi-sensor data collection for special applications.

***Baud rate selectable*** from 9600 to 115k to meet your needs.

***Operating mode*** can be either measure-on-poll or free-running. When free running the latest data is returned on poll. In either mode sensor data may be filtered or averaged by pre-selected algorithms.

***SenixVIEW software*** supports configuration and testing of one sensor or a group (network) of sensors. It also allows storage and recall of setups for fast sensor cloning (copying) to save time.

### Features & Benefits

***Rugged Packaging*** contains electronics and cable potted into a stainless 316 housing for reliable performance in wet or dirty environments.

***Smart Ultrasonics*** gives you control of sensor parameters to optimize performance in each application. Additional support features include data logging, statistics and output test features for installation and verification.

***Distance Measurements*** are made without contact with the liquid or solid material and are:

- Long range, short dead band
- Unaffected by optical factors like color and transparency
- Narrow beam with adjustable sensitivity to suit your needs
- Temperature compensated
- No warmup, ready to measure within 1 second of power on

### Indoor & Outdoor

The REMOTE 14 offers high performance, short distance measurement in challenging remote monitoring installations and many other environments.

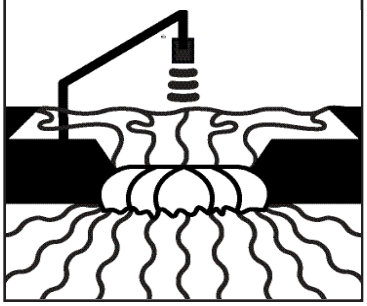
***Surge Protected*** for transients up to 7 kV on the data and power circuits — 75% stronger immunity than CE EMC directives, for improved lightning resistance.

***21% Lower Power*** consumption than our ToughSonic 14 for solar/battery installations.

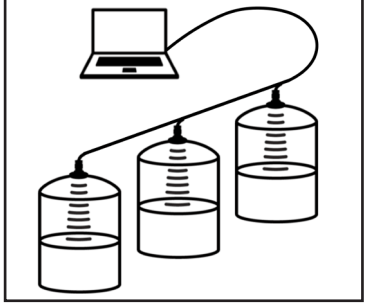
***Some Example Applications:***

- Irrigation control
- Open channel flow
- Conveyor contents profiling
- Agricultural machine control
- Liquid tank networks
- SCADA* level sensing (*Supervisory Control and Data Acquisition)

**Level & Flow**



**Multi-Sensor Networks**



**Remote Monitoring**

TOUGHSONIC®
Tough. Smart.

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# ToughSonic® REMOTE 14 Level Sensor

## Specifications

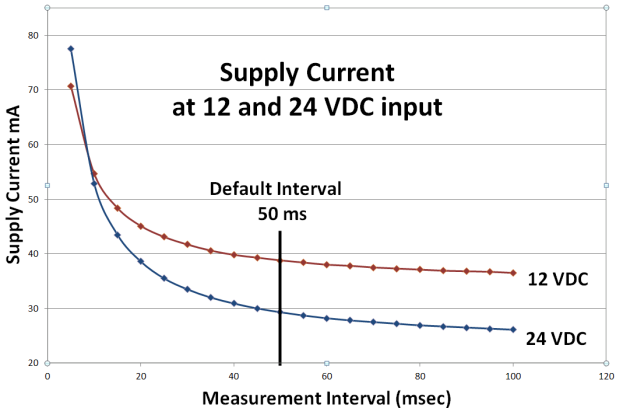
| | | | |
|---|---|---|---|
| ***Optimum Range **** | *10 ft. (3 m)* | ***Max. Range **** | *14 feet (4.3 m)* |
| ***Deadband*** | *Typ. < 4 in. (100 mm)* | ***Beam Width*** | *6° ± 1° off axis @ -3db* |
| ***Case Material*** | *316 stainless steel* | ***Configuration*** | *Stored in sensor's non-volatile memory* |
| ***Temperature*** | *-40 to 158 F (-40 to 70 C)* | ***Data Output*** | *Modbus, ASCII streaming, specials* |
| ***Humidity*** | *0 to 100% operating* | ***Transducer*** | *120 kHz, Ruggedized Piezoelectric* |
| ***Compensation*** | *Selectable temperature compensation* | ***Protection*** | *NEMA-4X, NEMA-6P, IP68* |
| ***Data Resolution*** | *0.0034 in. (0.086 mm) per count* | ***Adjustment*** | *SenixVIEW PC Software* |
| ***Repeatability*** | *Nominal 0.2% of range @ constant temp. Affected by target, distance, environment* | | |
| ***Update Rate*** | *20 Hz (50 ms), SenixVIEW adjustable; also affected by SenixVIEW filter selections* | | |
| ***Modbus Protocol*** | *Modbus RTU, 9600 to 115200 baud, 8 data bits, 1 stop, no parity* | | |
| ***ASCII Protocol*** | *Five ASCII distance characters followed by Carriage Return; for single sensor connections only* | | |
| ***RS-485 Networks*** | *From 1 to 32 sensors can operate in an addressable multi-drop network* | | |
| ***Ready time*** | *< 1 second after power application* | | |
| ***Cable*** | *2m standard length, potted into sensor body, PUR with shield and drain, other lengths available* | | |
| ***Conformance*** | *CE, RoHS, Surge protection exceeds IEC 61000-4-5* | | |

| ***Target Requirements*** | |
|---|---|
| ***Objects*** | *Detects liquid surface, flat or curved objects. Surface must reflect ultrasound to sensor* |
| ***Distance Ranges (*)*** | *Affected by size, shape, orientation of target (sound level reflected back to sensor), environment*<br>*Restrict use to Optimum Range when using over a wide range of environmental conditions* |
| ***Orientation*** | *Sensor should be oriented perpendicular to liquid surface for maximum reflection* |
| ***Optical*** | *Unaffected by target color, light, transparency or other optical characteristics* |

## Connections

| ***Connection*** | ***Wire*** | ***Description*** |
|---|---|---|
| ***Power (**)*** | *Brown* | *10-30 VDC @ 80 mA max*<br>*Typical: 30 mA @ 24 VDC* |
| ***Ground*** | *Blue* | *Power & interface common* |
| ***RS-232 out***<br>***RS-485-*** | *Gray* | *Serial data connection (depends on model)* |
| ***RS-232 in***<br>***RS-485+*** | *Yellow* | *Serial data connection (depends on model)* |

*(**) Continuous measurements at default interval.*
*Minimum 15 VDC input for optimum sensitivity.*

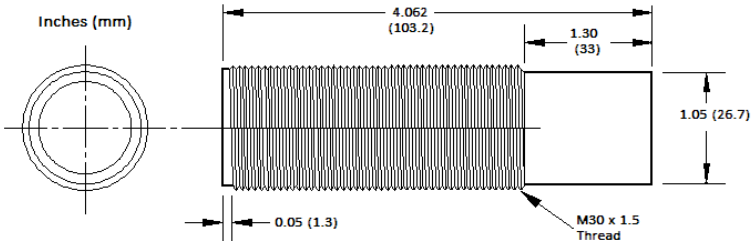



## Part Numbers

| ***Model Number*** | ***Description*** |
|---|---|
| *U14-REMOTE-232* | *Sensor with serial RS-232 interface (limited to single sensor connections)* |
| *U14-REMOTE-485* | *Sensor with serial RS-485 interface (allows addressable multi-sensor networks)* |

*Senix also offers interconnection, communications, mounting, and display components*

## Dimensions




### *Mechanical*

Dimensions are in inches (mm)

Mounting Hole: 1.2 in. (30.5 mm) diameter

Standard Cable: 6.5ft (2m)

Ships with manual and two 30mm SS316 mounting nuts (mounting brackets available)

Weight: 10.4 oz (0.29 kg)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