AMETEK®

DREXELBROOK®

DATA SHEET

Piping Specialties, Inc. | 800-223-1468 | www.psi-team.com

USonic™ Series

Ultrasonic Level Transmitter

Two-Wire Loop Powered, HART®

30 ft. Range (9.1 meter)
Intrinsic Safety and Explosion Proof designs and Approvals (pending)

Easy set-up

Via PC software or HART Communicator
Menu driven configuration via integral display

SMARTGain™

Automatically ignores most internal obstructions
No user adjustments required

Full Tank Measurement

Transducer can be recessed in a 2-inch ID, or larger, nozzle to allow level measurements to the very top of the vessel.

Bench Configuration

Eliminates the need to move process material levels for calibration.

Level or Open Channel Flow measurements

Integrated software supports measurement in Level, Distance, Volume or Flow

Affordable, 2-Wire Level Transmitter with the performance and features of premium, line-powered systems.

2-inch Nozzle Mounting

Compact transducer design allows mounting in any 2-inch nozzle. It also allows for a recessed nozzle mounting enabling level to be read to the very top of the vessel.

SMARTGain™

(SMARTGain™) Eliminates interfering signals from agitators and other internal vessel obstructions without the need to empty the vessel and without operator intervention. Easily ignores pipes and obstructions that are in the sonic beam path.

User Friendly

Set the measurement range directly in inches, feet, millimeters, centimeters, or meters via the integral display with environmentally sealed keypad. The display is menu driven and can easily be configured without detailed procedures: no cryptic codes, no problems.

Level and Open Channel Flow measurements

The USonic makes measurements on level, distance, volume or open channel flow easy to configure. Preset flume and weir characterizations are included in the USonic for over 80 different flumes and weirs. Custom characterizations can be user defined for flumes/weirs that are uncommon. Each USonic contains 2 totalizers (one is user resettable).

Ideal for hazardous area installations

Units designed for either Intrinsically Safe or Explosion Proof installations in Class 1 Div. 1, Zone 0 environments.

Usonic™ Series
Ultrasonic Level Transmitter

Piping Specialties, Inc. | 800-223-1468 | www.psi-team.com

Specifications

Input Power
19 to 30 VDC
19 VDC required @ 4 mA minimum

Output signal
2-wire, 4-20mA, HART (isolated)

Maximum Loop Resistance
600 ohms at 24VDC

Output Mode
Level, Distance, Flow, Volume

Display Indications
Level, Distance, Flow rate, Totalization, Temperature, Signal Strength, Milliamp
User selectable, multiple selections can be scrolled automatically

Supported Flow elements:
Parshall
Rectangular Weirs (with and without end contractions)
Trapezoidal (Weir and Flume)
V-Notch
Leopold-Lagco
Palmer-Bowlus
"H" Flumes

Range
1 to 30 ft. (0.3 to 9.1m)

Near Zone
12 inches (305 mm)

Minimum Span
3 inches (76 mm)

Maximum Span
30 ft. (9.1 m)

Response Time
300 millisecond

Display
2-line, 7-digit LCD
Character height: 0.25" top line, 0.36" bottom line
UV Rated - Sunshield not required

Accuracy
+/- 0.15% or 0.2 inch (5 mm) of sensor range, which ever is greater

Repeatability
<0.12 inch (3 mm)

Resolution
<0.12 inch (3 mm)

Ambient Temperature Limits
-40°F to 158°F (-40°C to 70°C)

Temperature Compensation
Built-in, Automatic and readable from display

Fail-Safe
3.7 and 22 mA error signals – user selectable for Lost Echo and Near Zone violations

Configuration
Local Display with Keypad (XP version non-indicating)
PC Software (I.S. and XP versions)
HART Communicator (I.S. and XP versions)

Signal Damping
User programmable from 0 – 99 seconds

Auto Profiling™
Standard feature on every system

Sensor
6.5" CPVC,
I.S. rated -40°F to +158°F at 50 psig. (-40°C to +70°C at 3.4 bar)
XP rated -12°F to +158°F at 50 psig. (-25°C to +70°C at 3.4 bar)

Sensing element connection
2-inch NPT/BSP fitting, CPVC
Flange mounting (via threaded flanges)

Frequency
50KHz

Beam Angle
Conical, 10° (total) @ 3db down

Electrical Enclosures
PBT-RF (Valox UV Stabilized) to NEMA 4X (IP-65)
Explosion proof, powder coated aluminum to NEMA 4X (IP-66) / IP68 (3m / 72h)

Approvals
Class I, Div. 1 & Div. 2, Zone 0 & Zone 1 hazardous locations.
FM, FMc, CE, ATEX, IEC EX

* Specifications subject to change without notice

Usonic™ Series
Ultrasonic Level Transmitter

Piping Specialties, Inc. | 800-223-1468 | www.psi-team.com

Model Numbering

USonic™

Technology

US USonic Continuous Two-Wire Ultrasonic Transmitter

Housing

1 PBT (Valox), NEMA 4X with display / Keypad * (Not Available with ATEX / CE Approvals)
2 Cast Aluminum XP Housing - non indicating with display / Keypad **

Mounting

1 2" NPT with 1/2" NPT Electrical Connections - Approvals: FM, FMc, IECEX
2 2" BSP with M20 Electrical Connections - Approvals: FM, FMc, IECEX
3 2" NPT with 1/2" NPT Electrical Connections- Approvals: ATEX / CE, IECEX
4 2" BSP with M20 Electrical Connections - Approvals: ATEX / CE, IECEX

US — ☐☐

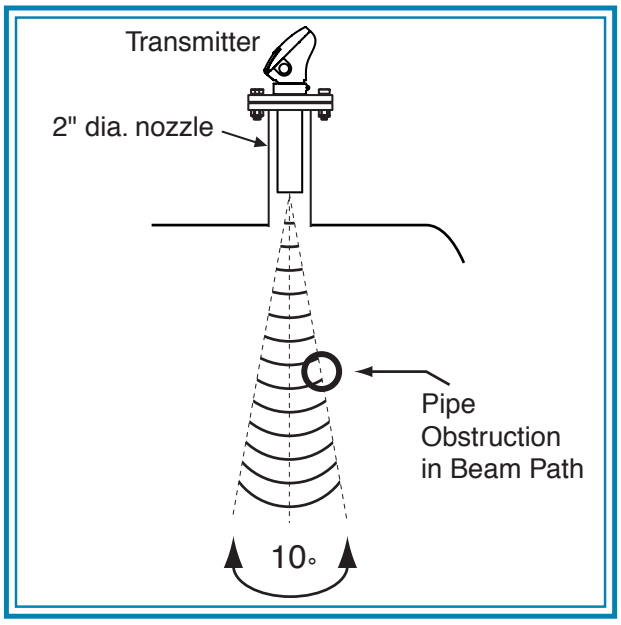
* Intrinsic Safety Approvals
** Intrinsic Safety Approvals & FM / FMc Approved Explosion Proof

* Model Number subject to change without notice

Ignore difficult internal obstructions with patented SMARTGain™

SMARTGain™ is a standard feature with every system and prevents unwanted reflections from internal obstructions and agitator blades. By automatically controlling the transmitter gain (sensitivity to returned echoes), without user intervention, it is possible to ignore obstructions that are mounted within the ultrasonic beam path. SMARTGain™ also provides measurement advantages in horizontal cylinders and spheres by reducing the effects of multiple reflection signal paths.

Ignore Obstructions in the Beam Path



- The edge of a 2-inch (50 mm) pipe can be as close as ½ inch (12 mm) from the centerline of the transducer, and ignored.
- The edge of a 1-inch (25 mm) pipe can be 1-inch (25 mm) from the centerline of the transducer, and ignored.

Usonic™ Series
Ultrasonic Level Transmitter

Piping Specialties, Inc. | 800-223-1468 | www.psi-team.com

Quick Start-up:

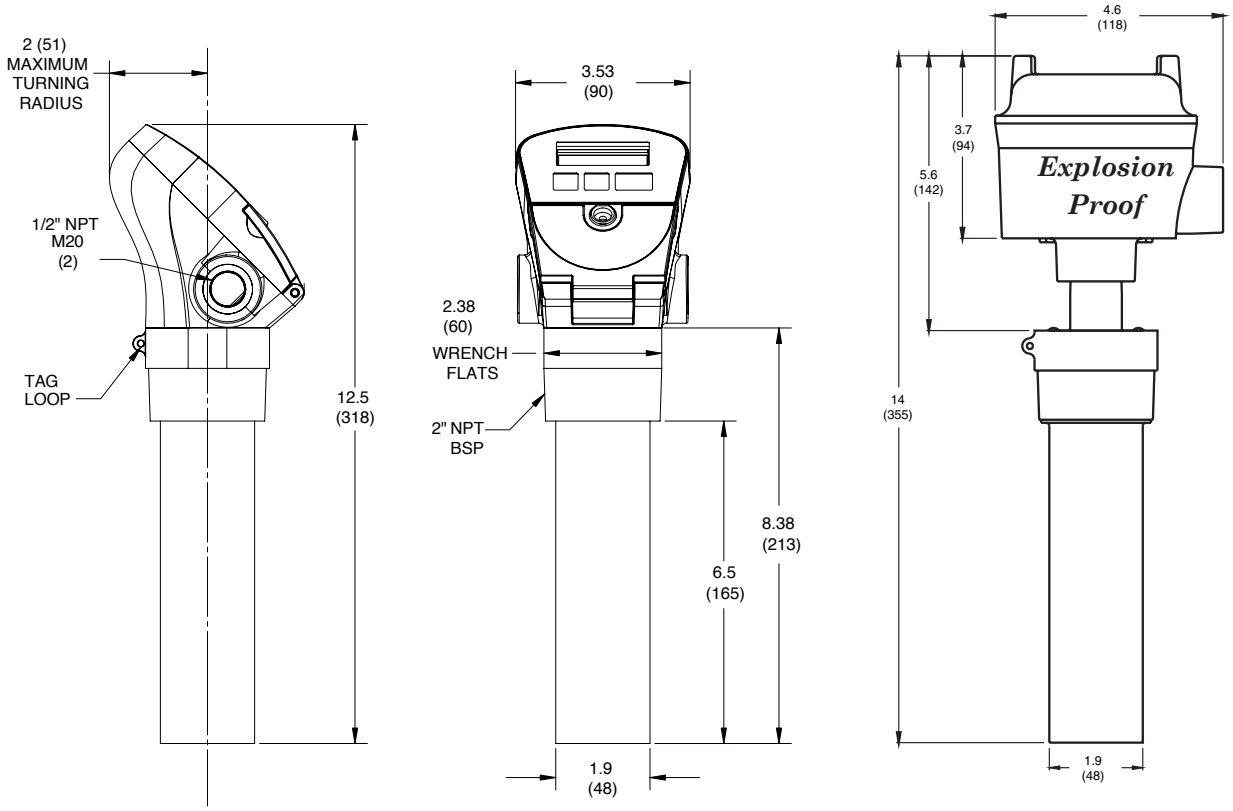
1. Choose Level, Distance, Volume, or Flow as an input type.
2. Choose Configuration Units (Feet, Inches, Meters, Centimeters, Millimeters).
3. Enter Tank Height.
4. Enter LRV and URV (4 & 20 mA points).

That's all that is needed to start measuring accurate Level!

Easy user-defined configuration as simple or complex as needed.

In addition to a quick and easy start-up, in-depth configuration allows the conversion of Level to Volume through internal strapping tables or open channel flow tables and totalizer settings. The USonic has (2) 7-digit totalizers on-board for use in flow measurement inputs; one is user resettable. Systems settings allow user-defined system gain, repetition rates, time delay, error signals, display options, HART® Communication, diagnostics and more.

System Dimensional Drawings:



Phone: +1 215-674-1234 • Fax: +1 215-674-2731
E-mail: drexelbrook.info@ametek.com
205 Keith Valley Road | Horsham PA 19044 U.S.A.
AMETEK®
DREXELBROOK
www.Drexelbrook.com