

smartPIMS® Modbus

non-intrusive ultrasonic sensors for corrosion/erosion monitoring

Metal Samples along with Sensor Networks Inc., offers the smartPIMS® Modbus non-intrusive ultrasonic corrosion/erosion monitoring system which connects directly to a PC or laptop to take isolated measurements, or integrates with your SCADA/DCS system for polling at any user-defined time interval. Data can be readily transmitted to webPIMS™, a cloud based back-end for analysis and trending, or simply exported to XML or CSV as necessary for reporting purposes. The smartPIMS® Modbus is used for:

- Infrequent data collection (mid-stream applications).
- Hardwiring to a plant's control system (downstream or offshore).
- Service companies collecting data (refineries).
- Manual data collection (power generation).

monitor corrosion rate

resolution to 0.001" (0.025mm) • high-risk areas • historically problematic locations

monitor "low spots"

post-NDE screening of pits to monitor remaining thickness • measures down to 0.040" (1.02mm)

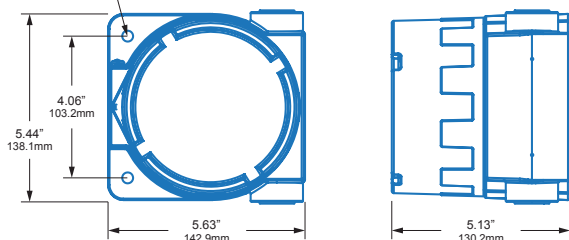
replace/augment intrusive methods

validation of coupons, ER probes, etc.

reduce costs

reduce scaffolding and insulation removal/refitting for internal corrosion monitoring • more accurate/reliable data improving operations

0.31" (7.9mm) diameter mounting holes



- Connects via Modbus (RS-485) to tablet/PC or SCADA/DCS.
- Outputs data to XML or CSV file, or directly to webPIMS.
- Up to 32 units connect on multi-drop network extending as far as 1000' (305m).
- Offers 16 single- or 8 dual-element UT probe channels.
- Transducers available to withstand -22°F (-30°C) to 932°F (500°C).
- Maintains 1 mil (0.001" / 0.025mm) resolution and 0.040" (1mm) minimum wall thickness.
- Sensors install buried or above-ground, temporarily or permanently.
- ATEX, IECEx, UL/CSA and Japanese hazardous-area certifications.



Technical Specifications

Digital Sensor Interface

Transmitter:

Model:	smartPIMS® Modbus
Protocol/Communication:	Modbus / RS-485, 2-wire, max. 1000' (305m)
Power:	10-24 VDC
Ultrasonic System:	Channels: 16 ultrasonic, 1 temperature Pulsar Voltage: ±5V bipolar square wave Analog Frequency: 1–10 MHz (-3dB) Gain: -10dB to +70dB Digitizer Frequency: 40 Msps Certification: Class I, Div. 2, Groups A-D, T4, Class 1, Zone 2, IIC, T4 II 3G, Ex ec IIC T4 Gc, Tamb -20°C to +60°C
Enclosure:	Type: Instrumentation housing Material/rating: Cast aluminum / NEMA 4X, IP66 Temperature Range: -4°F to + 140°F (-20°C to +60°C) Dimensions: 5.44 × 5.63 × 5.13" (138 × 143 × 130mm) Weight: 5.2 lb (2.36 kg)

Tablet Datalogger:

Performance:	Processor: Intel i5-4200U 1.6GHz w/ 3MB L3 cache (dual-core) (min.) Memory / Storage: 8 GB RAM / M2-SATA SSD, 64 GB (min.) Operating System: Windows 10
Connections:	Network power, data via RS-485-to-USB adapter
Physical:	Environmental ratings: IP65, MIL-STD-810G, 14 to 131°F (-10 to +55 °C) * Dimensions: 11.4" × 7.48" × 0.78" * Weight: 2.73 lbs. *

* due to model changes, actual size/weight may change

Transducers

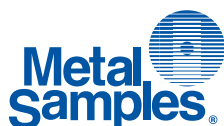
Transducer Cable:

Type:	Coaxial, ¼" dia.
Max. Length to Transducer:	Standard 10' (3.0m) and 25' (7.6m), custom to 50' (15.2m)

Transducers:

	Dual-Element Contact	Delay-Line Contact
Model:	XD-301	XD-201
Application:	Severe pitting	Ultra-High-Temp
Frequency:	5 MHz	7 MHz
Active Area (dia.):	0.375" (10mm)	0.375" (10mm)
Overall (dia. x h):	0.75" x 0.75" (19 x 19mm)	0.8" x 2.25" (20.3 x 57.2mm)
# of transducers:	1-8	1-16
Resolution:	0.001" (0.025mm)	0.001" (0.025mm)
Thickness range*:	0.040 - 6.0" (1.0 - 150.0mm)	0.125 - 1.0" (3.0 - 25.0mm)
Temp. range:	-22 to +275°F (-30 to + 135°C)	-22 to +932°F (-30 to 500°C)
Attachment:	magnet / adhesive	mechanical clamp

* minimum resolutions stated as typical values, but will vary with pipe condition



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