

smartPIMS® Cellular

non-intrusive ultrasonic sensors for corrosion/erosion monitoring

Metal Samples along with Sensor Networks Inc., offers the smartPIMS® Cellular non-intrusive ultrasonic corrosion/erosion monitoring system which is battery powered and has an integral SIM card and cellular radio. The Digital Sensor Interface (DSI) unit is programmed to take thickness measurements at any user-defined time interval, then send the data to webPIMS™, a cloud based back-end for analysis, trending and more. The smartPIMS® Cellular is used for:

- Frequent data collection to resolve corrosion-rate or pitting issues.
- Quick, easy installation - temporary or permanent.
- Areas difficult or expensive to access and not conducive to manual data collection.

monitor corrosion rate

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

monitor "low spots"

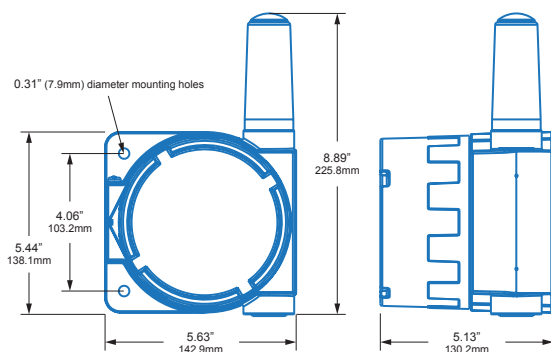
post-NDE screening of pits to monitor remaining thickness • measures down to 0.040" (1.02mm)

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



- Operates on battery (5-7 years at 1 reading/day).
- Cellularly transmits data to webPIMS™.
- Offers 16 single- or 8 dual-element UT sensor 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:

Type:	Cellular (3G/4G-LTE)
Encryption Type:	Secure Socket Layer (SSL)
Model:	smartPIMS® cellular
Battery Type:	Li D-cell, 3.6 VDC, qty. 2
Battery Life:	5 years (typical, based on 1 reading/day)
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 (w/o antenna): 5.44 × 5.63 × 5.13" (138 × 143 × 130mm) Weight: 5.5 lb (2.5 kg)

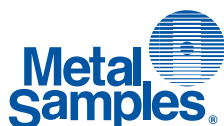
Transducers

Transducer Cable:

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

<u>Transducers:</u>	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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