SENSOR® NETWORKS, INC

Inspection, Testing & Asset-Integrity Solutions

smart PIMS®

cellular transmitter

Non-Intrusive Ultrasonic Sensors for **Corrosion/Erosion Monitoring**

Sensor Networks' smartPIMS® Cellular non-intrusive ultrasonic corrosion/erosion monitoring system is battery powered with 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. Use smartPIMS® Cellular for:

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

"We only use smartPIMS® magnetic UT probes for in situ corrosion monitoring; we're forbidden to weld on operating equipment."

- REFINERY CUSTOMER

"With multiple magnetic probes, we can measure several locations and then reposition based on UT and AUT data."

- MIDSTREAM CUSTOMER

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.

Ultra-high-temp probes with mounting bracket.

smartPIMS® Cellular with 8 dual-element sensors installed inside CML ports.

smartPIMS® Cellular with 3 dual-element sensors installed on overhead line.

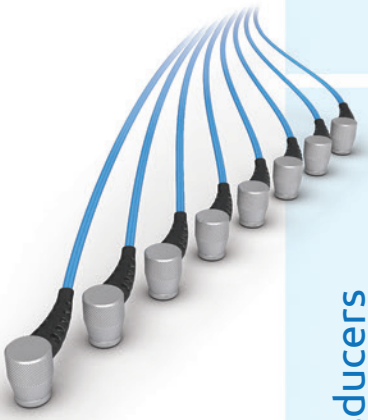
Dual-element sensor attachment can be either magnetic housing, or via strap with temporary or permanent couplant.

specifications

digital sensor interface

transmitter

type	cellular (3G/4G-LTE)
encryption type	secure socket layer (SSL)
model no.	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
pulser 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 Ⓔx II 3G, Ex ec IIC T4 Gc, T_{amb} -20ºC to +60ºC
enclosure	
type	instrumentation housing
material	cast aluminum
rating	NEMA 4X, IP66
temperature range	-4°F to + 140°F (-20°C to +60°C)
dimensions (without antenna)	5.44" × 5.63" × 5.13" (138.1 ×142.9×130.2mm)
weight	5.5 lbs. (2.5 kg)



transducer cable

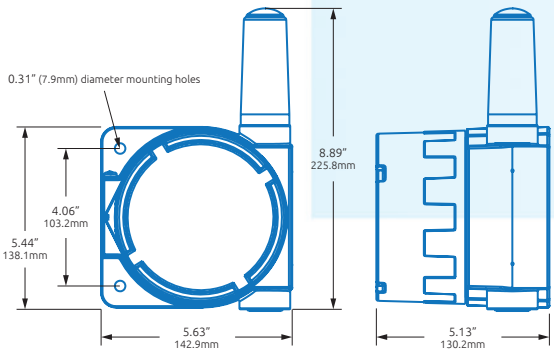
type	coaxial, ¼" dia.
maximum length to transducer	standard 10' (3.0m) and 25' (7.6m), custom to 50' (15.2m)

transducers

transducers

	single-element contact	dual-element contact	delay-line contact
model	XD-101	XD-301	XD-201
application	general purpose	severe pitting	ultra-high-temp
frequency	5 MHz	5 MHz	7 MHz
active area (dia.)	0.25"/6.35mm	0.375"/10mm	0.375"/10mm
overall (dia. x h)	1.0 × 1.0" 25.4 × 25.4 mm	0.75 × 0.75" 19 × 19 mm	0.8 × 2.25" 20.3 × 57.2 mm
# of transducers	1–16	1–8	1–16
resolution	0.001"/0.025mm	0.001"/0.025mm	0.001"/0.025mm
thickness range†	0.200–6.0" 5.1–150.0mm	0.040–6.0" 1.0–150.0mm	0.125–1.0" 3.0–25.0mm
temp range	-22 to +149 °F -30 to +65 °C	-22 to +275 °F -30 to +132 °C	-22 to +932 °F -30 to +500 °C
attachment	magnet/adhesive	magnet/adhesive	mechanical clamp

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



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