SENSOR® NETWORKS, INC
Inspection, Testing & Asset-Integrity Solutions

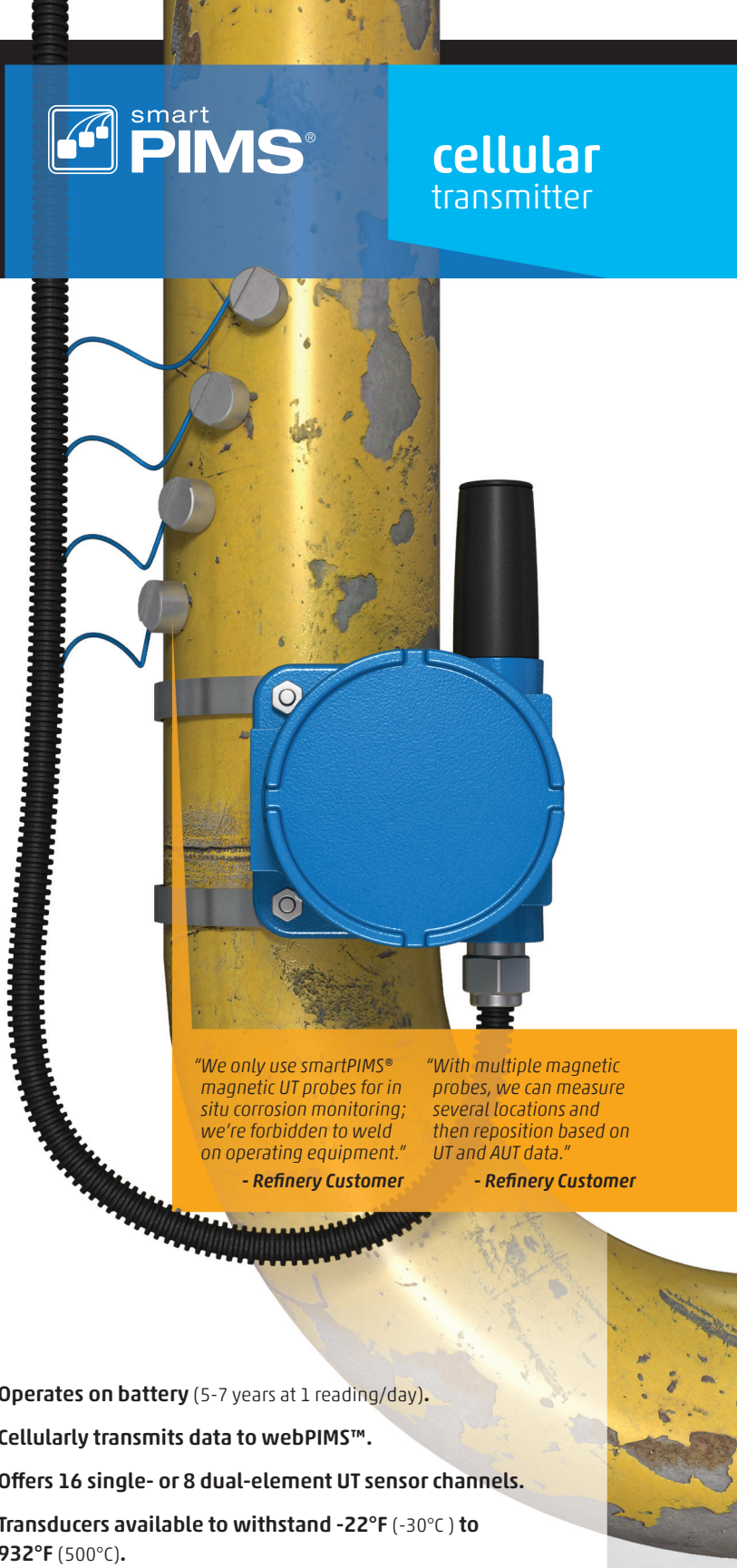
smart PIMS®

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."
- Refinery 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).

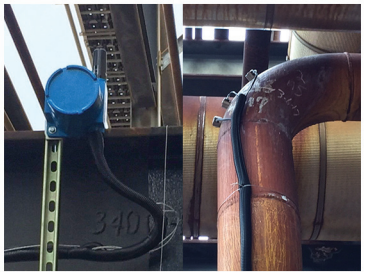
Maintains 1 mil (0.001" / 0.025mm) **resolution and 0.040"** (1mm) **minimum wall thickness.**

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.

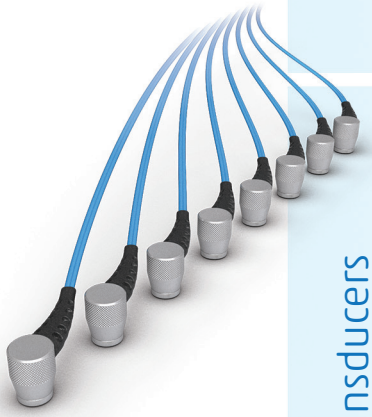
specifications

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

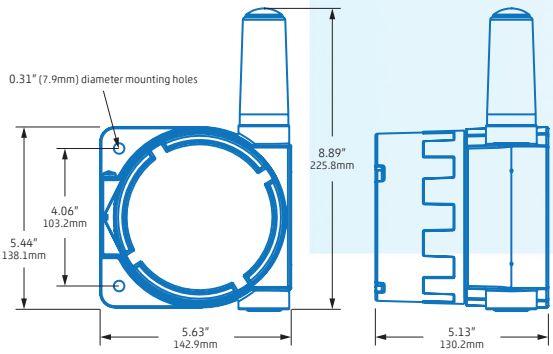
type . . . . . coaxial, ¼″ dia.
maximum length to transducer . . . . . standard 10′ (3.0m) and 25′ (7.6m), custom to 50′ (15.2m)

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 +300 °F -30 to +150 °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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