

non-intrusive ultrasonic sensors for corrosion/erosion monitoring

Sensor Networks' smartPIMS[®] Datalogger non-intrusive ultrasonic corrosion/erosion monitoring system is equipped with onboard battery and memory that can store up to 3000 thickness readings. It takes measurements at any user-defined time interval, storing them for manual offload to tablet or PC via RS-485 cable. Use smartPIMS[®] Datalogger for:

- Applications where frequent measurements are required, but wireless infrastructure is not available.
- Situations where wireless infrastructure is not available

monitor corrosion rate

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

monitor "low spots"

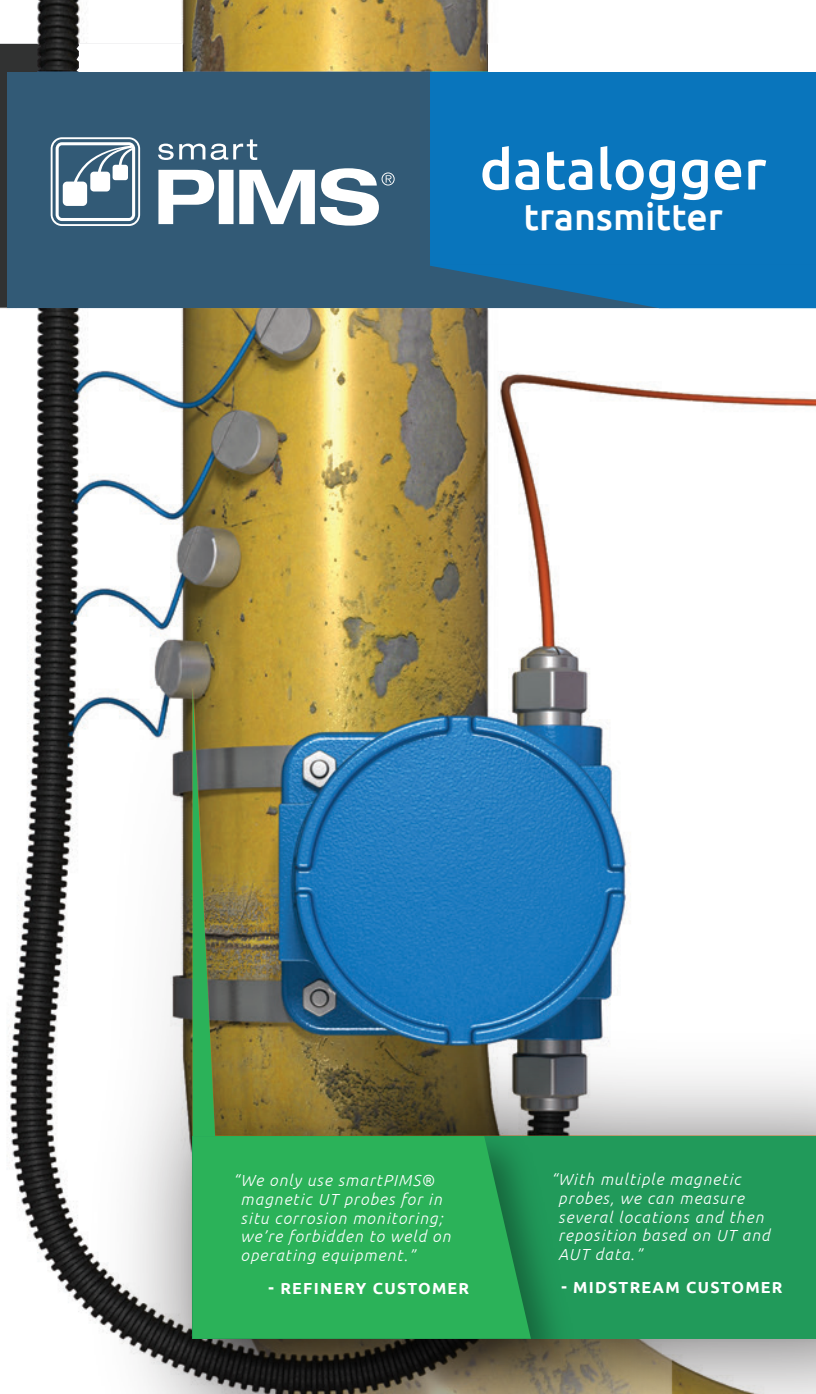
post-NDE screening of pits to monitor remaining thickness • measures down to 0.040" (1.02mm)

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



"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

Operates on battery (2 years at 1 reading/day).

Stores 3000 readings (each w/ time, date, waveform).

Connects via Modbus (RS-485) to tablet/PC.

Offloads data to XML/CSV file or directly to webPIMS.

Offers 16 single- or 8 dual-element UT probe channels.

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

Transducers withstand -22°F (-30°C) to 932°F (500°C).

Sensors install buried or above-ground, temporarily or permanently.

ATEX, IECEx, UL/CSA and Japanese hazardous-area certifications.



specifications

digital sensor interface

transmitter

model no.	smartPIMS® Datalogger
protocol/communication	Modbus / RS-485, 2-wire, max. 1000' (305m)
battery type	Li D-cell, 3.6 VDC, qty. 2
battery life	2 years (typical, based on 1 reading/day)
storage capacity	3000 readings (FIFO)
UT 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, T _{amb} -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) dims./wt. 5.44x5.63x5.13" (138x143x130mm) / 5.2 lb (2.36 kg)
performance	processor Intel i5-4200U 1.6GHz w/ 3MB L3 cache (dual-core) memory / storage 8 GB RAM / M2-SATA SSD, 64 GB operating system Windows 10
connections	network power, data via RS-485-to-USB adapter
physical	environ. ratings IP65, MIL-STD-810G, 14–131°F (-10 to +55 °C) dimensions/weight 11.4" x 7.48" x 0.78" / 2.73 lbs.

tablet datalogger

transducer cable

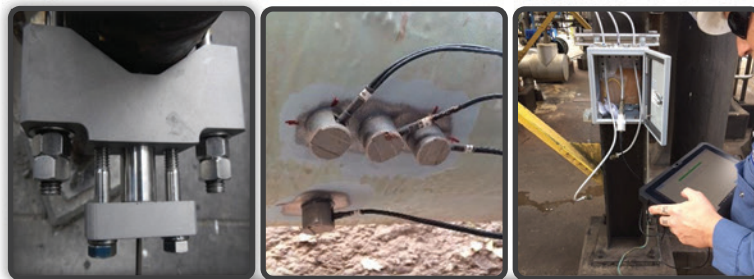
type	coaxial, 1/4" dia.
maximum length to transducer	standard 10' (3.0m) and 25' (7.6m), custom to 50' (15.2m)

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 x 1.0" 25.4 x 25.4 mm	0.75 x 0.75" 19 x 19 mm	0.8 x 2.25" 20.3 x 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^f	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 +150°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/ gold foil

^fminimum resolutions stated as typical values, but will vary with pipe condition

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- Clamped high-temp probe monitors ~640°F line.
- Dual-element probes monitor individual pits.
- Datalogger cable runs to enclosure for data collection.



0.31" (7.9mm) diameter mounting holes

