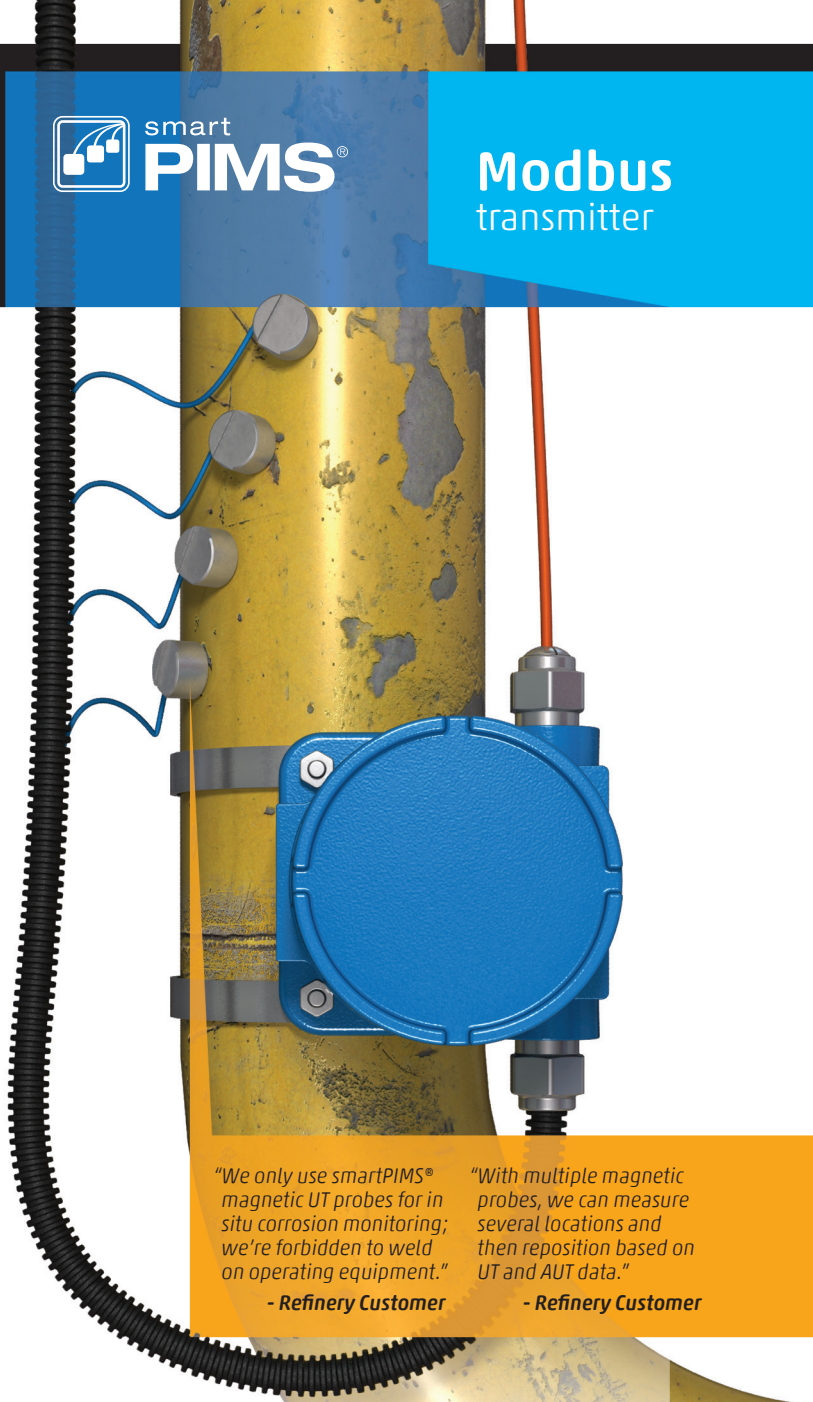
SENSOR® NETWORKS, INC
Inspection, Testing & Asset-Integrity Solutions

smart PIMS®

Modbus transmitter



non-intrusive ultrasonic sensors for **corrosion/erosion monitoring**

Sensor Networks' smartPIMS® Modbus non-intrusive ultrasonic corrosion/erosion monitoring system 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. Use smartPIMS® Modbus 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).

"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

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)**.**

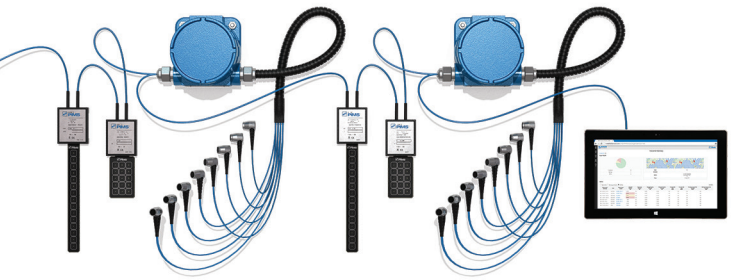
Offers 16 single- or 8 dual-element UT probe channels.

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

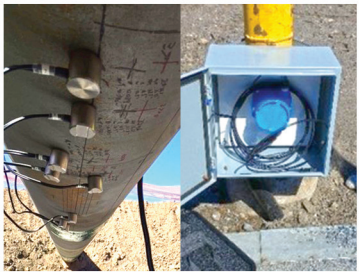
Maintains 1 mil (0.001" / 0.025mm) **precision and 0.040"** (1mm) **minimum wall thickness.**

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

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



Multi-drop systems with up to 32 smartPIMS® DSIs and/or matPIMS™ connect to control room or directly to laptop/PC.



Buried probes attached to pipe and connected to a smartPIMS® Modbus DSI in an above-ground enclosure.

Multiple smartPIMS® Modbus DSIs networked for monitoring dozens of TMLs.

specifications

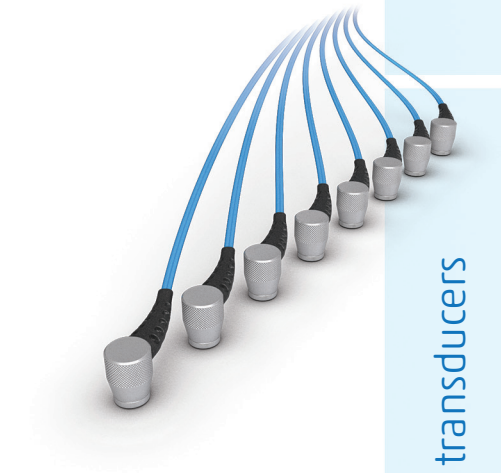
digital sensor interface

transmitter

model no. . . . . . smartPIMS® Modbus
protocol/communication . . . . . Modbus / RS-485, 2-wire, max. 1000′ (305m)
power . . . . . 10-24 VDC
UT 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 / 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″ (138.1 ×142.9×130.2mm)
weight . . . . . 5.2 lbs. (2.36 kg)

tablet datalogger

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
drop/shock resistance MIL-STD-810G
environmental . . . . . IP65, 14–131°F (-10 to +55 °C)
dimensions/weight . . . . . 11.4″ × 7.48″ × 0.78″ / 2.73 lbs.



transducers

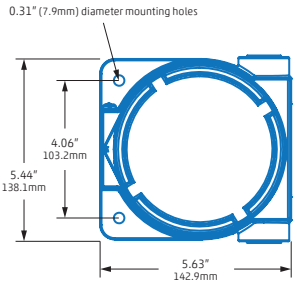
transducer cable

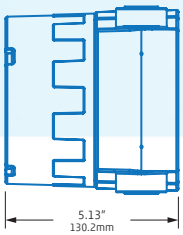
type . . . . . coaxial, ¼″ dia.
maximum length to transducer . . . . . standard 10′ (3.0m) and 25′ (7.6m), custom to 50′ (15.2m)

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 × 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 +150°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/ gold foil

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





176-500 Technology Drive • Boalsburg, PA, 16827 USA
www.sensornetworksinc.com • +1 814-466-7207
Offices in Houston, Hong Kong, Beijing and Osaka

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