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

mat PIMS™

matPIMS
area monitoring

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

Sensor Networks' matPIMS™ non-intrusive corrosion-monitoring sensor array (array, matrix, etc.) collect thickness data over a surface area. Data is transmitted to a SCADA/DCS system via Modbus (RS-485) for frequent polling, or manually offloaded using a PC/laptop. Use matPIMS™ for:

- Large area monitoring post fix/repair (midstream).
- Directly assessing trouble spots (midstream).
- Sand and slurry erosion monitoring (upstream).
- Slurry and mixing asset erosion (mining).
- DOT monitoring requirements.

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 0.125" (3mm)

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.**

Up to 32 matPIMS and/or smartPIMS single units connect on a multi-drop network extending as far as 1000' (305m).

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

Available in 1×15, 3×5 and custom arrays, each with one reference calibration sensor mounted in head shell.

Transducers rated to -5°F (-20°C) **to 150°F** (65°C).

Sensors permanently installed, either buried or above-ground.

Powered by laptop or hard-wired.

Not hazardous-location rated.

matPIMS™ 3×5 matrix permanently installed with RS-485 cable back to surface for data collection, pre-overwrap.

Fully coated and wrapped installation with RS-485 cable mounted in test station for data collection.

matPIMS™ 1×15 array permanently installed using viscoelastic putty to overcoat sensor strip and head before wrapping/backfill.

specifications

Modbus

transmitter

model no. M-PIMS115, M-PIMS35
protocol/communication . . . . . Modbus / RS-485, 2-wire, max. 1000′ (305m)
power . . . . . 10-24 VDC
UT system
channels . . . . . 16 ultrasonic
pulser voltage . . . . . ±5V bipolar square wave
analog frequency . . . . . 1–10 MHz (-3dB)
gain . . . . . -10dB to +70dB
digitizer frequency . . . . . 40 Msps
enclosure
type . . . . . custom
material . . . . . Delrin
temperature range . . . . . -5°F to + 150°F (-20°C to +65°C)
dimensions . . . . . 3.1×2.6×1.15″ (78.7 ×66×29.2mm)
weight . . . . . <1 lbs. (0.45 kg)
cable . . . . . standard 25′ (7.6m)

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

transducers

model	**M-PIMS115**	**M-PIMS35**	**Custom**
application	general wall loss	general wall loss	general wall loss
frequency	7.5 MHz	7.5 MHz	7.5 MHz
active area (dia.)	0.25″/6.35mm	0.25″/6.35mm	0.25″/6.35mm
overall (w x h)	1.0×9.12″ 25.4 × 231.6 mm	2.0×2.7″ 50×68 mm	1.0 × up to 100″ 25.4 × up to 2540 mm
# of transducers	16 (15 active, 1 ref.)	16 (15 active, 1 ref.)	up to 32
resolution	0.001″/0.025mm	0.001″/0.025mm	0.001″/0.025mm
thickness range†	0.125–6.0″ 3.0–150.0mm	0.125–6.0″ 3.0–150.0mm	0.125–6.0″ 3.0–150.0mm
temp range	-5 to +150°F -20 to +65°C	-5 to +150°F -20 to +65°C	-5 to +150°F -20 to +65°C
attachment	epoxy	epoxy	epoxy

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

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