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.

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.

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
specifications

transducers

model
M-PIMS115, M-PIMS35
	M-PIMS35

transmitter
Model: Modbus / RS-485, 2-wire, max. 1000' (305m)

power
10-24 VDC

protocol/communication
Modbus / RS-485, 2-wire, max. 1000' (305m)

UT system
channels: 16 ultrasonic

pwm

analog frequency

gain

-10dB to +70dB

digitizer frequency

0.001"/0.025mm

cable

1.0 × up to 100" (25.4 × up to 2540 mm)

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.

cable

25' (7.6m)

transducer

model
M-PIMS115, M-PIMS35, Custom

tablet datalogger

M-PIMS115, M-PIMS35

datalogger

16 (15 active, 1 ref)

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.

cable

25' (7.6m)

transducer

model
M-PIMS115, M-PIMS35, Custom

application

general wall loss

7.5 MHz

7.5 MHz

7.5 MHz

active area (dia.)

0.25"/6.35 mm

0.25"/6.35 mm

0.25"/6.35 mm

overall (w x h)

1.0 × 9.12"

2.0 × 2.7"

1.0 × up to 100"

25.4 × 231.6 mm

50 × 68 mm

1.0 × 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"

0.125–6.0"

0.125–6.0"

3.0–150.0 mm

3.0–150.0 mm

3.0–150.0 mm

temp range

-5 to +150°F

-5 to +150°F

-5 to +150°F

-20 to +65°C

-20 to +65°C

-20 to +65°C

attachment

epoxy

epoxy

epoxy

©2018 Sensor Networks, Inc. All rights reserved. smartPIMS® and microPIMS® are registered trademark. matPIMS™ and webPIMS™ are trademarks of SNI. Multiple patents pending.
PIMS: Permanently Installed Monitoring System.