Eddyfi Technologies
Beyond current

MATPIMS

Non-intrusive. Innovative. Efficient.

Elevating asset protection with non-intrusive ultrasonic sensors in two configurations, matPIMS® seamlessly integrates data collection and analysis for enhanced corrosion and erosion monitoring.

NON-INTRUSIVE MONITORING FOR PRECISION AND RELIABILITY

matPIMS are non-intrusive corrosion/erosion area monitors designed to take ultrasonic thickness readings that can be collected and analyzed over time.

Built in two variations (3×5 and 1×15), matPIMS are comprised of single-element ultrasonic sensors in an array/matrix pattern to provide consistent coverage of targeted or critical areas.

Data is transmitted to a SCADA/DCS system via Modbus (RS-485) for frequent polling, or manually offloaded using a PC/laptop. The data can then be transmitted to webPIMS™ for recording, trending, and analysis.

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.

matPIMS redefines corrosion and erosion monitoring with non-intrusive ultrasonic sensors. Offered in both 3×5 and 1×15 configurations, it ensures consistent coverage of critical areas, facilitating effortless data collection and comprehensive analysis for asset protection.

DISCOVER THE ADVANTAGES OF MATPIMS

A whole new approach to corrosion/erosion monitoring

FEATURES AND BENEFITS

- **Convenient and consistent data collection:** Once installed, thickness data can be taken and collected as frequently as required from a safe and convenient access point

- **Corrosion monitoring:** matPIMS gives short or long-term corrosion rate data needed to monitor crude-slate changes or to correlate operational system updates. Accurate to 0.025 mm (0.001 in) historically problematic locations.

- **Monitoring low spots:** For post-NDE screening of pits to monitor remaining thickness and asset useful life.

- **Buried pipe and slurry lines:** Installation of matPIMS on buried pipelines allows for convenient data collection without the need for frequent, expensive digs.

Figure 1: Fully coated and wrapped installation with RS-485 cable mounted in test station for data collection.

- **Monitoring critical locations:** matPIMS area monitors cover a larger range at critical locations. Available in 1×15, 3×5 and custom arrays, each with one reference calibration sensor mounted in head shell.

- Sensors permanently installed, either buried or above-ground.

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

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

- **Reduced cost:** Minimize scaffolding and insulation removal/refitting costs for internal corrosion monitoring.

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

- Replace/augment intrusive methods.

- Powered by laptop or hard-wired.

Figure 2: matPIMS 3x5 Matrix (left) and 1x15 Linear (right).

Figure 3: matPIMS™ 3x5 matrix permanently installed with RS-485 cable back to surface for data collection, pre-overwrap.

Figure 4: matPIMS™ 1×15 array permanently installed using viscoelastic putty to overcoat sensor strip and head before wrapping/backfill.

SPECIFICATIONS

	Model number		M-PIMS115, M-PIMS35
	Protocol/communication		Modbus/RS-485, 2-wire
	Power		10-24 VDC
Transmitter	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	-20°C to 65°C (-5°F to 150°F)
		Dimensions	78.7 × 66 × 29.2 mm (3.1 × 2.6 × 1.15 in)
		Weight	0.45 kg (<1 lbs)
		Cable	Standard 7.6 m (25 ft) / max 305 m (1,000 ft)
Tablet Datalogger	Performance	Processor	Intel i5-4200U 1.6GHz with 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, -10°C to 55°C (14°F to 131°F)
		Dimensions/weight	269.7 x 190 x 19.8 mm / 1.24 kg (11.4 × 7.48 × 0.78 in /2.73 lbs)

TRANSDUCERS:	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.)	6.35 mm (0.25 in)	6.35 mm (0.25 in)	6.35 mm (0.25 in)
Overall (W x H)	25.4 × 231.6 mm (1.0 x 9.12 in)	50 × 68 mm (2.0 x 2.7 in)	25.4 × up to 2540 mm (1.0 × up to 100 in)
Number of transducers	16 (15 active, 1 ref.)	16 (15 active, 1 ref.)	up to 32
Resolution	0.025 mm (0.001 in)	0.025 mm (0.001 in)	0.025 mm (0.001 in)
Thickness range†	3.0 to 150.0 mm (0.125 to 6.0 in)	3.0 to 150.0 mm (0.125 to 6.0 in)	3.0 to 150.0 mm (0.125 to 6.0 in)
Temperature range	-20 to 65°C (-5 to 150°F)	-20 to 65°C (-5 to 150°F)	-20 to 65°C (-5 to 150°F)
Attachment	Epoxy	Epoxy	Epoxy

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

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