VAS — Vibration Analyser System brochure

Category: Condition Monitoring — vibration (Pillar 4)

One-line: Catch bearing wear, imbalance, misalignment, and looseness on rotating machinery — before they become a breakdown — with continuous vibration analysis that feeds alarms and incidents into EREMOS V2.

What it is

VAS is a vibration condition-monitoring system. It watches rotating machinery — motors, pumps, fans, gearboxes, conveyors — for deviations from normal vibration patterns, and identifies the developing fault: bearing wear, imbalance, misalignment, looseness, or structural cracking, before it becomes a breakdown. It runs the analysis a reliability engineer would run by hand, continuously.

VAS is **built on the mDAQ hardware platform**, configured for specialized vibration acquisition and analytics — one acquisition platform, multiple application specialties, one intelligence stack. It is part of the Condition Monitoring pillar, and it **feeds EREMOS V2**: every flagged deviation becomes an alarm and a tracked incident in the same operational stack your team already uses.

What it does

- **Detects developing faults early.** Watches for deviations from normal vibration patterns and flags bearing, imbalance, misalignment, looseness, and structural issues as the vibration signature develops.
- **Runs reliability-grade analysis, continuously.** Time-domain severity and frequency-domain (FFT / spectrum) analysis on rotating equipment — not a once-a-quarter handheld spot-check.
- **Built on one platform.** The same mDAQ acquisition platform, configured for vibration — one platform across your acquisition and condition-monitoring needs.
- **Feeds the maintenance workflow.** Flagged deviations become EREMOS V2 alarms and tracked incidents — triage, assign, resolve, close.

What it replaces

VAS removes from the customer BOM:

- a **dedicated vibration-analyser console** (often a five-figure standalone instrument);
- a separate **condition-monitoring software stack**;
- **manual handheld vibration spot-checks** (which miss everything between visits);
- a **third-party predictive-maintenance vendor relationship**.

Key specifications

Analysis capabilities are orientation-level and confirmed per deployment / machine class — not a locked feature matrix. The analysis package is configured per machine class: FFT/spectrum, RMS severity, order analysis, and advanced plots are selected where the machine and sensor setup require them.

Category	Available / orientation capability — configured per machine class
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Time-domain analysis	Peak detection, RMS severity (trend against normal)
Frequency-domain analysis	FFT / spectrum
Advanced analysis	Order analysis, Bode plot, polar plot, cascade, waterfall
Failure-mode mapping	Bearing, gear, and structural fault signatures
Acquisition platform	Built on the **mDAQ** hardware platform, configured for vibration acquisition — see the mDAQ specs for the platform

Output / integration	Feeds **EREMOS V2** (alarms, dashboards, incident workflows) over the canonical stream
Ingress protection	IP65 / IP67-**compatible** configurations can be scoped where the placement requires it; protection level + enclosure approach + any certification requirements confirmed during BOM scope — *compatibility, not a certified rating; no formal IP certification currently claimed*

Confirmed during BOM scope (deployment-specific detail a reliability buyer expects — no invented numbers):

Item	Confirmed during BOM scope
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Sensors	Accelerometer type, axis count, sensitivity, frequency range, mounting method, cable routing, and placement count per machine
Acquisition	Sampling rate, resolution, bandwidth, measurement schedule (continuous vs. interval), and waveform / spectrum / trend retention
Speed / order reference	RPM source, tach / speed input if required, variable-speed assumptions, and order-analysis applicability
Analysis configuration	Which analyses + alarm thresholds per machine class; baseline / learning period; failure-mode templates
Mounting	Sensor mounting (stud / magnet / adhesive), cable routing, enclosure approach, environment
Integration	Alarm / incident mapping into EREMOS V2; report cadence

Analysis values are orientation-level and confirmed per deployment + machine class. Sensor selection, sampling, thresholds, and baselines are confirmed during BOM scope. Hardware platform specs: see mDAQ.

In the field

Accelerometers mount on the monitored equipment — sensor type, mount (stud / magnet / adhesive), and placement confirmed during BOM scope. Acquisition runs on the mDAQ platform: vibration sampling rate / resolution and measurement schedule (continuous vs. interval) confirmed during BOM scope. A baseline / learning period establishes "normal" per machine; alarm thresholds and failure-mode templates are set per machine class. Flagged deviations publish to EREMOS V2 as alarms and incidents. Connectivity, power, environment, and IP65 / IP67-compatible configuration are per the mDAQ platform and confirmed during BOM scope (no certified rating claimed).

Where it fits

Rotating equipment + accelerometers → **VAS** (built on the mDAQ platform) → canonical stream → EREMOS V2 (alarms / incidents / dashboards). VAS shares the acquisition platform with **mDAQ** and the intelligence stack with **EREMOS V2** — one platform, multiple specialties, one intelligence stack. For the oil-health instrument, see **E-IDOS**.

Field-readiness

Built for the machine, on one platform: VAS runs on the mDAQ acquisition platform, configured for vibration — ruggedized for rotating-equipment environments. Sensor mounting and IP65 / IP67-compatible configuration are confirmed during BOM scope.

Where it's deployed (anonymized; category descriptors only):

- **Deployed in defense and space-agency programs.**
- **Maintenance and AMC providers across India and the Middle East** use VAS to deliver their own condition-monitoring services.
- **Operating across India and the Middle East.**

Formal third-party certifications are not currently claimed. Certification, ingress-protection, and site-compliance requirements are handled case-by-case during BOM scope; IP65 / IP67-compatible configurations can be scoped where required, and certified/rated claims are published only when formal evidence exists for the specific

product/configuration. VAS detects and gives early warning where the vibration signature shows it — it does not guarantee against every failure. Named customer stories are published only with the customer's written approval; defense and space-agency customer, program, and agency names remain off-record permanently. The category descriptors above are the standing, authorized proof.

Next step

Start with the machine you worry about most — the motor, pump, fan, or gearbox whose failure would hurt most. Bring its duty cycle and its failure history; we'll scope the sensors, the analysis, and the alarms against that machine, and validate the warning logic before you scale it across the floor.

Bring us your most-watched machine · Talk to a reliability engineer — contact@elpisitsolutions.com

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