



Naval Platforms – Structural & Vibration Monitoring

imc Test & Measurement

APPLICATION NOTE // By Antonio Perez

Operational Context

Naval defense systems operate in environments where vibration and structure-borne noise influence reliability and operational performance. Continuous monitoring and synchronized acquisition are essential for understanding long-term structural behavior.

Engineering Challenges

- Capturing synchronized multi-domain measurement data
- Operating under harsh environmental conditions
- Supporting long-duration and transient testing
- Maintaining high data integrity and synchronization



Measurement Strategy

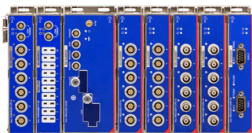
imc systems provide synchronized and distributed acquisition architectures supporting vibration, strain, pressure, acoustic, and operational measurements. The focus is on reliable acquisition, synchronization, validation, and advanced post-processing workflows.

Software & Data Analysis

- imc STUDIO for acquisition, visualization, and triggering
- imc FAMOS for FFT, fatigue, transient, and correlation analysis
- Automated synchronization and reporting workflows



imc CRONOSflex



imc ARGUSfit



imc BUSDAQ



imc CANSASflex

Typical Applications

- Hull vibration analysis
- Propulsion system monitoring
- Structural integrity validation
- Machinery vibration characterization

Customer Value

imc systems provide scalable and reliable acquisition architectures supporting defense validation, durability analysis, qualification testing, and operational measurement workflows while improving data quality, synchronization, and engineering confidence.

Recommended Solution Configuration

Based on the application requirements and environmental conditions, Axiometrix recommends a tailored measurement solution combining high-precision microphones, signal conditioning, and analysis systems to ensure reliable, repeatable, and standards-compliant results in demanding defense environments.

Typical imc Hardware Architecture solutions may include:

- **CRONOSflex** for high-performance synchronized DAQ
- **ARGUSfit** for onboard and mobile acquisition
- **BUSDAQ** for autonomous field logging
- **CANSASflex** for distributed sensor integration
- Integration with **accelerometers**, **strain gauges**, **pressure sensors**, and **CAN signals**

For more information or application-specific recommendations, please contact our team of specialists.

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Axiometrix Solutions brings together three world-class brands:

- **GRAS Sound & Vibration** – Specialists in high-precision measurement microphones and acoustic solutions, trusted for their accuracy, durability, and repeatability.
- **imc Test & Measurement** – Experts in intelligent data acquisition systems and real-time analysis for mechanical and mechatronic testing.
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