

Vibration Instrumentation Validation & Diagnostic Engineering Solutions

KEY FEATURES

- On-Site Operational System Control
- Comprehensive Sensor Testing
- Dynamic and Static Validation
- Multi-Frequency and Amplitude Range Analysis
- Temperature Deviation Control (Optional)



Related applications



Hydrogenerators



Windturbines



Turbogenerators



Pumps, fan, cooling towers...



Gearless millsdrives



Gas & steam turbines

DESCRIPTION

MC-monitoring SA is renowned for its cutting-edge condition monitoring solutions. Our Vibration Instrumentation Validation & Diagnostic service is designed to ensure that operational systems meet their specified performance criteria. This service includes thorough testing of both MC-monitoring products and competitive products, providing a versatile solution for diverse industry needs.

This service is crucial for ensuring the precision and reliability of vibration sensors and measurement systems. It involves comprehensive testing, including static calibration, full-scale measurement, dynamic validation, and optional temperature deviation control. Our approach ensures that each element of the system operates within its specified parameters, guaranteeing optimal performance and reliability.

Our Vibration Instrumentation Validation & Diagnostic service offers numerous advantages, including:

- **Enhanced System Reliability:** Ensures that all components function as intended.
- **Precision Testing:** Detailed analysis from static calibration to dynamic operation.
- **Customization:** Tailored testing for MCm products and competitive products.
- **Cost-Efficiency:** Prevents unnecessary maintenance and downtime by precise monitoring.

Monitoring solution



Endwinding monitoring



Air gap monitoring



Magnetic flux monitoring



Roller bearing monitoring



Axial thrust position monitoring



Shaft & bearing vibration monitoring



Rotor poles temperature monitoring



Runner clearance monitoring

DESCRIPTION (continued)

Data Security and Confidentiality

At MC-monitoring SA, data security and confidentiality remain our top priority. We implement stringent security measures to safeguard sensitive data obtained during testing and adhere to the best industry practices and regulations.

Service Customization

We recognize the uniqueness of each industry's monitoring requirements. Our Vibration Instrumentation Validation & Diagnostic service is highly adaptable, offering custom testing parameters and procedures to align perfectly with your system's needs.

SERVICE OVERVIEW

The Vibration Instrumentation Validation & Diagnostic service by MC-monitoring SA offers a detailed examination of vibration sensors and systems, performed by our Category II certified Vibration Analysts. This service ensures the optimal performance and reliability of your monitoring equipment in real-world settings.

1. Monitoring Equipment and Techniques:

- **Advanced Instrumentation:** Utilizing state-of-the-art monitoring equipment, our team ensures precise data acquisition and analysis.
- **Custom Sensor Configuration:** Depending on the client's system, we configure our testing equipment to match the types of sensors in use, including proximity probes, absolute sensors, tachometers, and air-gap sensors.

2. Sensor Testing Procedures:

Proximity Probe Testing:

- **Static Calibration:** Conducted at two points (10% and 90% of range) to determine the sensor's actual sensitivity.
- **Full-Scale Measurement:** Assessing the entire operational range for accuracy and consistency.
- **Dynamic Validation:** Using a shaker to test sensor performance across various amplitudes and frequencies.
- **Temperature Deviation Control:** Optional testing using controlled temperature variations to assess sensor stability.

Absolute Sensors:

- **Control of Value Accuracy:** Ensuring the sensor's readings are precise and reliable.
- **Dynamic Testing:** Similar to proximity probes, testing across various amplitudes and frequencies.
- **Distortion Measurement:** Comparing vibrations measured directly with those recorded by the sensor to evaluate accuracy.

Reference (Tacho):

- **Calibrated Rotating Target Simulation:** To verify the sensor's accuracy in measuring rotational speed.

Air-gap Sensors:

- **Static Validation:** Using calibrated spacers to test air-gap sensors at different points.
- **Sensitivity Testing:** Determining the real sensitivity of the sensor under various conditions.
- **Monitoring System Validation:** Simulating the entire measurement range using a 4..20mA simulation to assess how the monitoring system interprets and handles the full spectrum of data.

SERVICE OVERVIEW (continued)

Rotor Temperature Monitor:

- **Temperature Simulation:** Static simulation of different temperatures to check sensor sensitivity against specifications.
- **Monitoring System Validation:** Simulating the entire measurement range using a 4..20mA simulation to assess how the monitoring system interprets and handles the full spectrum of data.

3. Measurement System Analysis:

Channel Checks:

- **Power Supply Control:** Testing the power supply to sensors, ensuring stability and adequacy.
- **DC Value Detection:** Injecting DC values and checking the system's ability to detect and measure them accurately.
- **Harmonic Extraction and Bode Diagrams:** Analysing the system's filtering capabilities and frequency response.
- **Frequency/Amplitude Sensitivity:** Evaluating system sensitivity across various frequencies and amplitudes.
- **4..20mA Output Testing:** Verifying the accuracy of 4..20mA output in relation to process values under different loads.
- **Sensor Error Response:** Testing system reactions to sensor errors like 'Not OK' or 'Out of Range' statuses.

System-Wide Evaluations:

- **Visual Inspection:** Conducting thorough visual checks for physical integrity and proper installation.
- **Current Consumption Analysis:** Measuring and verifying the system's power usage.
- **Relay Output Testing:** Simulating various operational scenarios to test relay responses.
- **Temperature Measurement:** Monitoring temperatures at different system points to ensure operational safety.
- **Log File Review:** Checking system logs for consistency and error reporting.

Our service provides a detailed and customized approach to testing, ensuring that your vibration instrumentation and measurement systems operate at peak efficiency and reliability.

Comprehensive Reporting

Our detailed reporting includes in-depth analysis of each test performed, ensuring you have all the necessary data for informed decision-making about your system's health and performance.

Adherence to Industry Standards

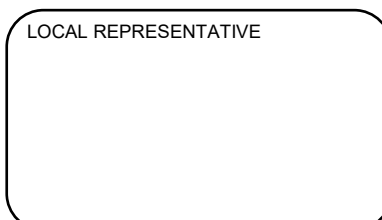
Our service aligns with relevant industry standards, ensuring reliable and consistent testing quality.

For more information or to schedule this service, contact MC-monitoring SA. Our team is committed to enhancing your system's reliability and reducing operational risks.

MC-monitoring Quality certifications



LOCAL REPRESENTATIVE



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