APPLICATION NOTE

How to Find Faults with eMaint Condition Monitoring: 6 Steps

Learn how eMaint Condition Monitoring simplifies the discovery and analysis of machine faults.

eMaint condition monitoring is a cloud-based software that simplifies asset health monitoring, vibration analysis, and predictive maintenance. You gain powerful insight into asset health: is a fault or failure coming? What type? How and when is maintenance needed?

You can see machine failures coming long before you suffer the costs of unplanned downtime – more than $100,000 per hour, for some organizations.

But how do you harness the power of eMaint condition monitoring to find faults? And what's unique about our software compared to others?

Here's how to see faults and failures coming with eMaint condition monitoring.

See Machine Failures Coming: A Simple Guide to a Complicated Task

It's difficult work to diagnose machine health, discover vibration signatures that indicate faults, and determine the best course of action.

Experts may be able to quickly recognize the common 'fingerprints' of faults in vibration patterns, but given today's labor shortages, few teams have the bandwidth or personnel to devote to hours of research.

eMaint condition monitoring gives you tools that save you time and simplify your investigation – so that even newcomers to vibration analysis can discover game-changing insights.

And we're here to help: global industry experts from our Remote Condition Monitoring services will ensure your program is successful and delivers ROI.

Here are five basic steps to follow when finding faults in eMaint condition monitoring:

1. Gather accurate asset health data, building a solid foundation for your analysis

You can't solve the crime if you don't have trustworthy evidence – and the same principle applies to vibration analysis.

Your first step is to set up the Fluke 3563 Analysis Vibration Sensor to gather vibration data from your critical assets. Fluke 3563 sensors are designed to deliver precise vibration readings to eMaint condition monitoring. The heart of the 3563 is a high-frequency, high-resolution piezoelectric sensor that delivers in-depth vibration readings and early fault detection.

Condition monitoring begins with establishing a connection between sensors and a gateway, which sends condition data to the cloud. Once sensors and gateways are installed on the asset(s) and the connection is achieved, you can start monitoring.

Correct installation and setup of your sensors is key to data fidelity. You need to know where to attach your sensors, and how to test the validity of your data.

Luckily, our expert services are here to help.

Once you have the right setup, it's time to begin discovering and investigating machine faults.

2. Determine average overall vibration levels and set up alarms

Vibration alarms alert you to excessive or abnormal vibration patterns – an essential tool for early fault detection.

Once you've determined average overall vibration levels for the assets and components you're testing, with your own specialists or help from ours, you can establish alarms to notify you when vibration levels exceed your limits.

You're then ready to review cases of excess vibration across your assets and investigate their causes.

3. Configure narrowband alarms for the 4 common rotating machinery faults

Many rotating machinery faults can be attributed to one of four causes: misalignment, looseness, imbalance, or bearing failure.

You can quickly diagnose failures and determine an action plan if you know one of these four are the culprit.

eMaint condition monitoring gives you the power to configure narrowband alarms that can match vibration signatures – including the four common faults. Once activated, you'll receive alerts when vibration signatures match those corresponding to the big four.

4. Explore overall vibration trends

Let's say you want to look deeper. Maybe the vibration patterns you see when your equipment fails don't match up with common fault signatures like the four major rotating machinery faults. Or, you want a more in-depth look at your asset health and its trends over time as expressed by vibration.

eMaint condition monitoring gives you a simple, easy-to-use interface for vibration analysis. You can quickly navigate between sensors, assets, and components, exploring their vibration trends over time. Filters allow you to easily reach the data snapshots you need. You can even drag and drop charts for comparison, seeing how trends change across assets and over time.

Exploring surface trends may not be enough, though, to solve complex machine failure mysteries. That's where Advanced Analysis comes in.

5. Advanced Analysis: Deep-dive into the FFT spectrum

For those seeking the source of enigmatic or difficult to diagnose faults, or simply those looking for deeper insight into their assets' vibration patterns, eMaint condition monitoring offers Advanced Analysis.

Advanced Analysis is a software upgrade that equips you with sophisticated vibration analysis tools for diving into the signal data and analyzing cascade views of historical FFTs.

6. AI Analysis: Unlock the power of AI recommendations

eMaint condition monitoring goes beyond traditional vibration analysis software by empowering you with AI recommendations.

Currently in beta, AI Analysis, another software upgrade, can recognize more than 1,600 combinations of fault factors, automatically performing analysis for you. Then it prescribes maintenance solutions based on what may be most helpful for that fault.

AI Analysis will send you alerts and email notifications with a recommended action. Recommendations include urgency, severity, and the prescribed correction, like so:

- *Severity: SERIOUS*
- *Priority: IMPORTANT*
- *Occurred at: 07-Aug-2023 01:02:03 [UTC]*
- *Recommendations:*
  - *MONITOR MOTOR FOR INCREASED VIBRATION*
  - *REPLACE MOTOR ROTOR*

Human and machine intelligence work hand in hand with AI Analysis – our condition monitoring experts are here to help interpret your AI recommendations and set up your notification system.

AI Analysis helps non-experts quickly discover and resolve faults and saves experts time on identifying faults and solutions.

eMaint Condition Monitoring: Monitor, Predict, & Prevent

eMaint condition monitoring is the ultimate toolset for machine fault investigation. You can see failures coming with alarms, explore vibration data for deep insights, and simplify the process with AI recommendations.

Once you've established an effective alarm system, you can also send your alarms to eMaint CMMS, and automate work orders to trigger when your vibration data heralds a failure.

Together, our sensors and software are a seamless solution for fault detection and prevention that boosts uptime and strengthens overall reliability.

Learn more about eMaint Condition Monitoring.

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