

MindConnect Edge Analytics

Benefits

- Leverage vibration analysis to detect anomalies and monitor assets
- Use predictive maintenance to improve asset availability: Reduce downtime by knowing how your asset is performing
- Easily create common KPIs
- Intuitively optimize asset performance and health using advanced analytics

Features

- Collect, record and archive high dynamic signals from a variety of data sources
- Get sample rates up to 50 kHz per second
- Buffer local data in the memory for analytics and send to MindSphere for long-term archiving
- Process and analyze a flexible amount of data (up to 48 kHz with the Siemens SM1281)
- Leverage a wide range of data providers and connectivity options
- Analytics tools for expert and nonexpert users

Use vibration analysis to detect anomalies and monitor assets

Summary

Running MindConnect Edge Analytics allows you to continuously monitor the condition of your machines to detect anomalies and prevent unplanned downtime. This type of monitoring is often hard to accomplish: Comprehensive monitoring of all assets creates massive amounts of data that is difficult to manage and expensive to process. Using MindConnect Edge Analytics solves these problems.

Using an analytics algorithm as the data is streamed, MindConnect Edge Analytics enables the preprocessing of high frequency data. It allows you to set

parameters on what information is important to send and what is not worth sending to MindSphere. This data filtering pinpoints the needle in the haystack: This method enables quick analysis of condition monitoring and data visualization, which allows for early detection of damage or abnormal machine behavior. This optimizes production efficiency and lowers maintenance efforts thanks to predictive maintenance and root-cause analysis.

Vibration analysis

MindConnect Edge Analytics enables the analysis of vibration across a wide range of industrial equipment. Analyze signals by calculating selected quantities such as the acceleration and velocity root mean square (RMS), or the crest factor. These

The screenshot displays the MindConnect Edge Analytics web interface. The main content area is titled "Vibration Characteristic Values" and is divided into several sections:

- General:** Shows the analysis package name "MD_BeLft_RMS" and its description "Master drive bearing left RMS calculation".
- Settings:** Configures the input data name as "MotorSM1281 V81 [MasterDrive/MasterDrive(V81)Signal]", sets the speed value to 200 rpm, calculation interval to 1 sec, and upload interval to 1 min.
- Calculations:** A table showing the selected calculation values to be added to the existing data storage asset. The table includes columns for "Type" and "Upload" status.

Type	Upload
RMS Velocity	<input checked="" type="checkbox"/>
Peak-Peak Velocity	<input checked="" type="checkbox"/>
Zero-Peak Velocity	<input checked="" type="checkbox"/>
RMS Acceleration	<input checked="" type="checkbox"/>
Peak-Peak Acceleration	<input checked="" type="checkbox"/>
Zero-Peak Acceleration	<input checked="" type="checkbox"/>
Crest Factor	<input checked="" type="checkbox"/>

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values are crucial for evaluating vibrations of stationary machine components. The resulting quantities are monitored against defined upper warning and alarm limits. Key performance indicators (KPIs) are enabled with by:

- RMS velocity
- Peak-peak velocity
- Zero-peak velocity
- RMS acceleration
- Peak-peak acceleration
- Zero-peak acceleration
- Crest factor

Manufacturers need to optimize machine availability and utilization. This improves the health of assets, lowers overall costs and creates a competitive edge.

MindConnect Edge Analytics enables companies to monitor the condition of machines to detect anomalies and prevent unplanned downtime.

In general, streaming data from machines, industrial equipment and other connected devices creates a massive amount of data, which can be difficult and expensive to manage. By using an analytics algorithm as the data is streamed, you can set parameters on what information is worth sending to the cloud and what isn't. MindConnect Edge Analytics enables the preprocessing of high frequency data before it is sent to MindSphere.

About edge analytics for MindSphere

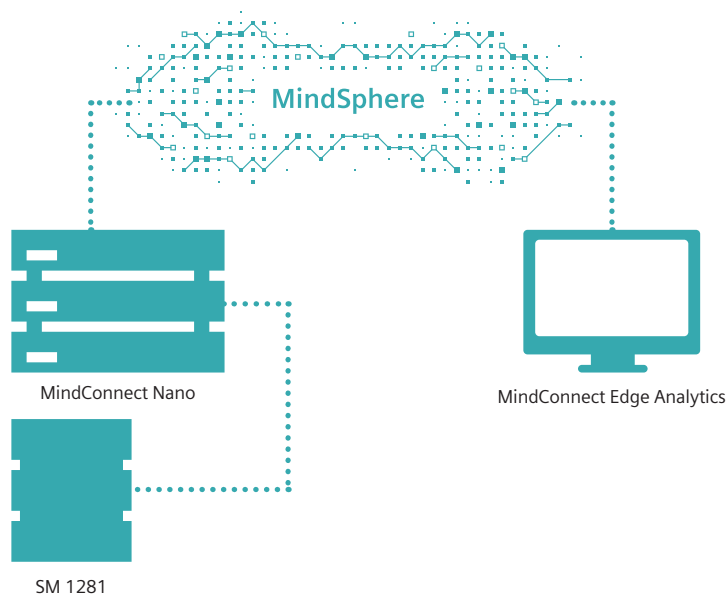
CMS X-Tools

Edge analytics for MindSphere is based on CMS X-Tools, a Siemens condition monitoring system (CMS). The integration of CMS X-Tools enriches the MindSphere ecosystem with edge computing and analytics functions. It enables easy

engineering for data analytics workflows and supports a wide range of assets for data acquisition, providing dynamic data intelligence in all industries. Additionally, it offers many opportunities to collect field signals on a CMS device in the production area. Data can be read cyclically in a frequency up to 48 kilohertz (kHz) with the Siemens SM1281. It can then be analyzed, compressed and stored in the system. The preprocessed data can be sent directly to MindSphere.

MindSphere

MindSphere is the operating system that lets you connect, collect and get context from the Internet of Things (IoT) data. Companies can ingest and visualize immediate, real-time data and analytic results in one centralized location with no development required. In addition, users can access the MindSphere Store to find powerful industrial applications that enable visibility into product value chains, which can provide them with confidence they are making optimal business decisions.



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