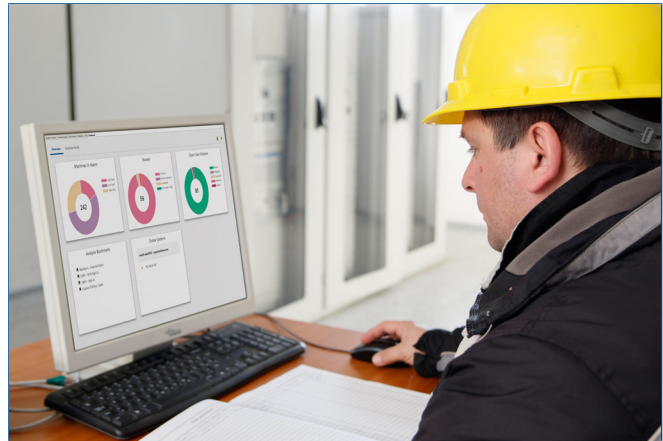


AMS Machinery Manager

- Dashboard overview for status at a glance
- Analysis tools for diagnosis and prognosis of machinery health
- Real-time asset health integration with process automation systems



AMS Machinery Manager provides you with the tools that you need to determine your plant's machinery health.

A Comprehensive View with Accurate Diagnosis

At some point, mechanical equipment will break down. With luck, the breakdown won't occur at the peak of your production schedule or be caused by an out-of-inventory part.

By knowing the health of your rotating mechanical assets, you can plan for repairs rather than react to failures. You can also share the information between maintenance and operations so that repairs are anticipated and production schedules are adjusted accordingly. Your facility can achieve increased availability and performance from production assets, rather than experience expensive downtime and costly repairs.

AMS Machinery Manager combines predictive maintenance techniques with comprehensive analysis tools to provide easy and accurate assessment of the machinery health in your facility.

Integrated Solution

AMS Machinery Manager can interface with multiple hardware platforms to monitor different types of mechanical assets and identify unique failure symptoms.

The modular technology applications incorporate diagnostic and reporting sources into a common database for analysis of machinery health across the entire plant.

Integrated Technology Solutions Include:

- Portable vibration analysis
- Continuous online machinery monitoring with the AMS 6500 Machinery Health Monitor
- Wireless vibration analysis with the AMS 9420 Wireless Vibration Transmitter

Easy to Understand for Users of All Levels

While maintenance personnel may specialize in different monitoring technologies, the centralized dashboard, common user interface, and database administration tools in AMS Machinery Manager modules make the integration of asset health information easy to understand for all users.

Users have a shorter learning curve with each new technology to give both the beginner and advanced user the experience and information they need.

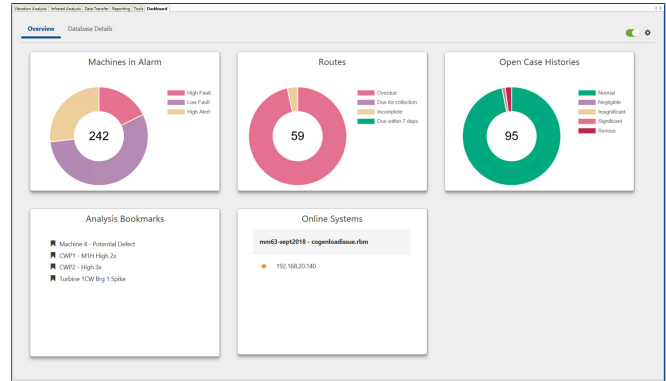
Simple to Install

Information Technology personnel appreciate the ease of installation and the self-contained database tools that allow a software administrator to handle any issues that may arise, from granting user access to managing the database.

Report, Track, and Trend in a Central Location

AMS Machinery Manager provides a central location for all current and historical reporting, shareable across the organization. Graphical representation from equipment problem trends, work order status, cost savings, and management style reporting are easily generated through an established case history repository.

The case history module is a multi-technology asset information repository, so it allows you to view case history information from many different technologies. This allows you to be well informed on the status of your assets through information logged by oil analysts, vibration analysts, infra red analysts and others. The inclusions of asset images, diagnostic plots, Windows audio and video files, and Microsoft files such as Word and Excel give you the complete information you need in order to make the best diagnosis.



The dashboard allows you to quickly assess the status of your machines and reliability program, then launch directly to areas of importance.

Interactive Reporting

The Reporting Application allows you to generate interactive reports from their databases. You can sort, expand and collapse asset results, and select parameter data in the report to be viewed in the vibration plot. Print and customize the reports with company logos and export reports to Word, Excel and or .pdf for further edits. This Reporting application allows you to define exactly what types of parameters to view within a report as well as to share 'your setup' with other AMS Machinery Manager users.

The reporting application displays a detailed table of parameter-based exceptions. The table includes the following columns: Analysis Parameter, Trend Value, Alarm Code, % Fault, and % Change from Previous. The data is organized into sections for different machines and parameters.

Analysis Parameter	Trend Value	Alarm Code	% Fault	% Change from Previous
Machine 2 - 25 Oct 18				
Chord Value	283 inches	C	64.741	0
Subharmonics	363 inches	C	16.562	0
3.60PM	352 inches	C	10.173	0
2.60PM	355 inches	C	72.292	0
3.60PM	127 inches	C	16.790	0
6.60PM	330 inches	C	138.088	0
IMD	2.820 G's	C	94.271	0
Machine 2 - 29 Oct 18				
Chord Value	361 inches	C	90.290	0
Subharmonics	393 inches	C	26.837	0
3.60PM	393 inches	C	23.992	0
2.60PM	393 inches	C	69.674	0
3.60PM	397 inches	D	104.844	0
6.60PM	713 inches	C	67.160	0
IMD	2.344 G's	C	19.125	0

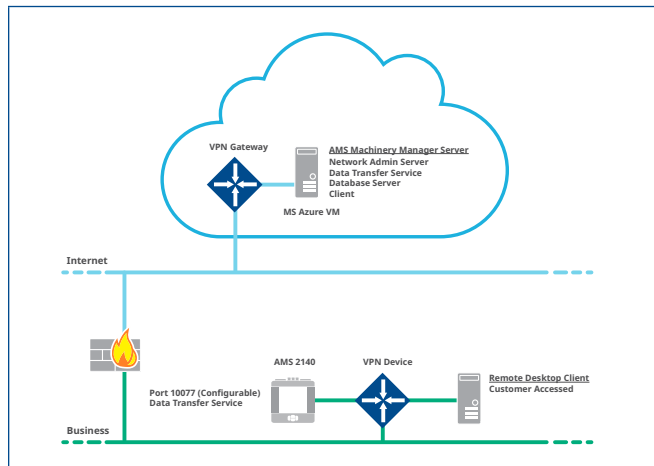
Interactive reports allow you to customize what information will be included and how it will appear.

Deployment Options to Fit Any Organization

Whether you are a small organization or a global multi-plant operation, AMS Machinery Manager’s platform offers a wide variety of licensing and deployment options to fit your needs. From a standalone system to wide area networking capabilities, AMS Machinery Manager provides efficient and reliable storage and analysis of data that can be accessed from anywhere in your organization.

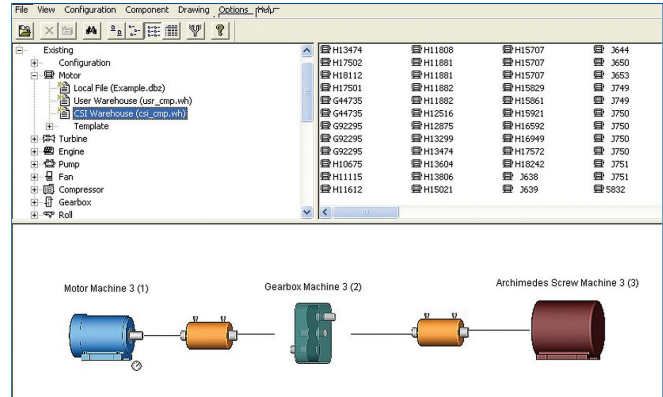
Local Area Networks (LAN)

Local area networks are perfect for organizations that need to share their data internally. The network license has read access capability for up to 249 users. This allows other plant personnel to access and view the data concurrently. Write seats, database access, analysis, reporting, and communications are controlled by the user’s job responsibilities.



Cloud based installations can reduce maintenance costs and provides an alternative to wide area network installations.

To better enable digital transformation, AMS Machinery Manager can also be deployed in the Microsoft Azure cloud, removing the need to install software locally. The supported architectures in the cloud can support single servers, as well as client/server architectures including data lockers, and allow for up to ten concurrent users. Please note, cloud deployment is supported for AMS 2140 users only.



Quickly build a predictive maintenance database through the step-by-step, graphical, drag-and-drop wizard application.

Build Databases in Minutes and Access Predictive Diagnostics Immediately

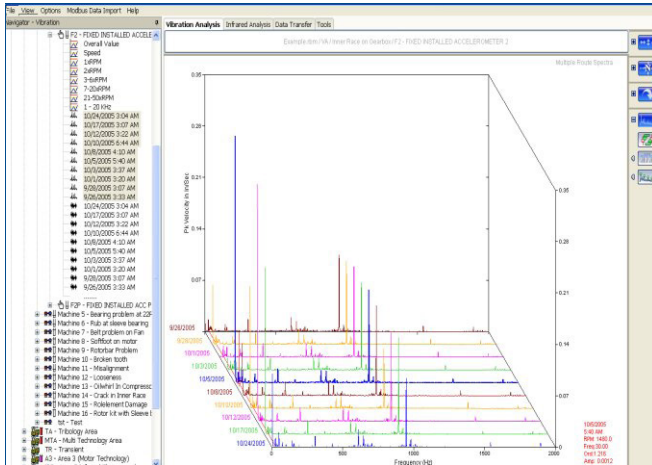
Setting up your database can be one of the most challenging parts of building a predictive maintenance program. Gathering and organizing the appropriate asset information is a daunting task, especially for novice users.

With AMS Machinery Manager, a database wizard eliminates the guesswork by stepping you through the entire process with a graphical drag-and-drop interface. You can set up everything you need – from individual machine components to machine trains.

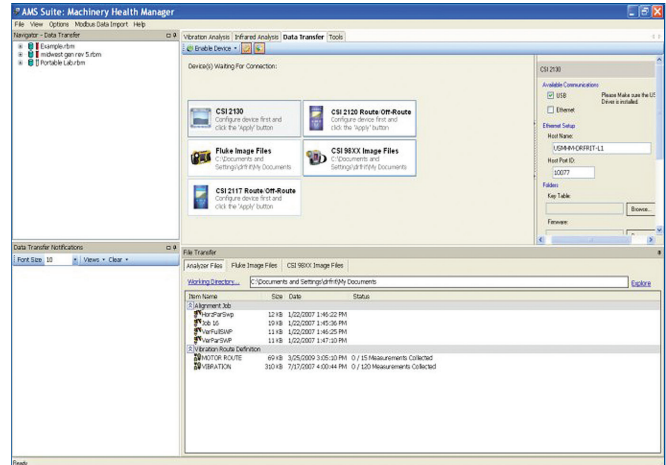
Automatically Setup Alarms, Analysis Parameters, and Measurement Points

Simply choose assets from an extensive library of motors, bearings, gearboxes, belts, and other components. A knowledge engine compiled from years of field analyst experience automatically creates measurement points, analysis parameter sets, and alarm limit settings along with configurations for the automated diagnostic system.

With a few simple keystrokes, you can build the database, download route information, analyze data, and report your machinery health findings.



Dynamic display controls allow you to adjust the angle of the plot display.



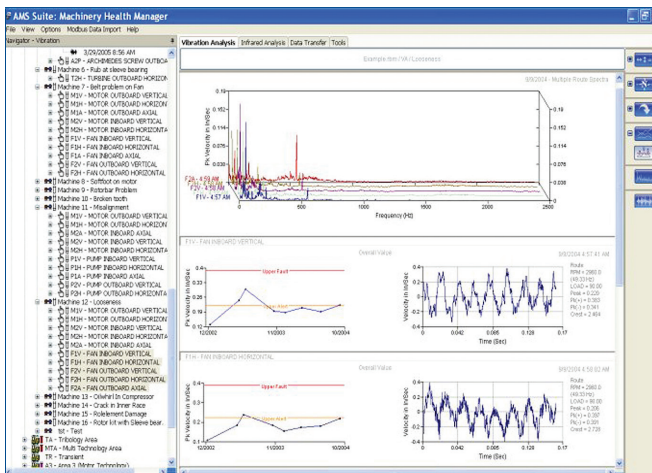
Drag-and-drop your route to upload and download your data.

Flexible Analysis Interface

With AMS Machinery Manager, you can view data more efficiently because you don't need to constantly switch screens. All plots can be displayed as full screen or several plots can be combined in a single window. With multiple monitor support, separate plots can be displayed on up to three monitors.

Common applications of this powerful flexibility include:

- Looking at three directions: the X, Y, and Z plot in a single screen
- Viewing the complete machine component: all measurement points on a motor in a single screen
- Viewing a complete machine
- Viewing similar machines from more than one database
- Selecting how many and what types of plots will appear in your view
- Identifying changes in data from month to month



View a complete machine at one time and customize your plot view by selecting what you want to see on the screen. This view shows spectrum, waveform, and trend plots.

Efficient Route Setup

A route is an ordered list of asset data collection points that can be used to efficiently acquire data. Route collection options allow you to determine the type of data you wish to store, along with when and how to store the data.

Choose the assets you want to include in the route by simply right-clicking on the navigator and selecting Create Route. Then drag-and-drop the routes to the portable analyzer or folder on your computer. Once you have collected your data, drag-and-drop the route information back to AMS Machinery Manager for analysis.

Quickly Determine Machine Status

Use the AMS Machinery Manager Parameter Status Profile to quickly view parameter alarm status of a machine with a simple, configurable color selection (like green, yellow, and red). This capability helps you to determine where additional attention is needed.



Quickly determine the status of a machine with the Parameter Status Profile.

Navigational Ease

Navigational functionality allows you to maneuver between different plot types like single spectrum, multiple-point waveforms, and trends. Navigation between data, measurement points, machines, areas, and multiple databases is easy with the navigational tree.

Prescreen to narrow the search by selecting only points in alarm, survey dates, or notes that have been assigned to a machine or data point.

Automated Diagnostics Narrow the Search

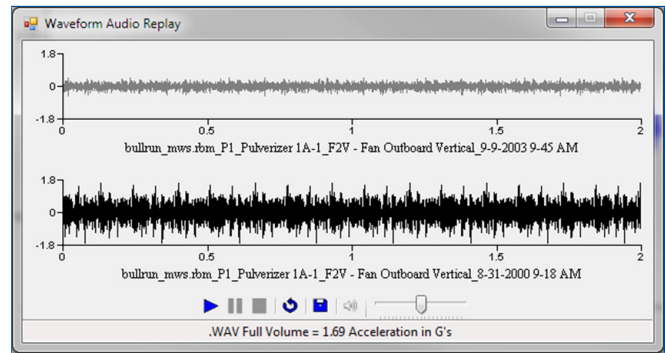
When you are unsure or need a second opinion on your analysis, the Automated Diagnostic module can confirm your diagnosis or point you to other underlying faults. The Automated Diagnostic program will help you understand how it reached its conclusion and can also be used as a training tool. The module steps you through reasoning, rules, and facts as it analyzes the collected data to increase your knowledge and diagnostic skills.

Fine Tune Alarms

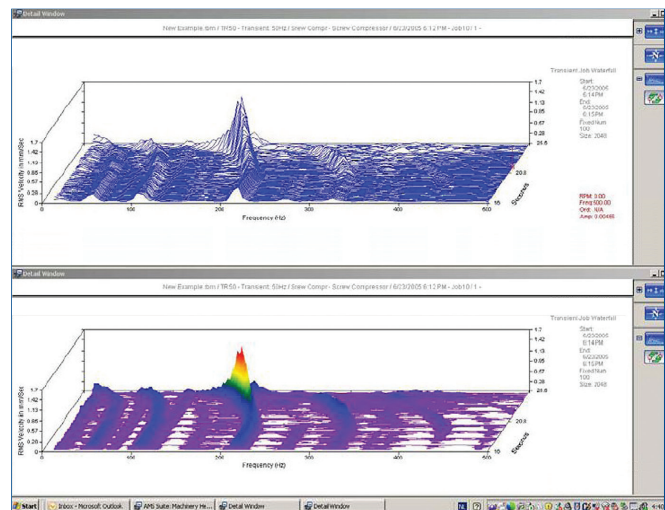
During your analysis or after you have had time to acquire several months of data, you may need to adjust your original alarm setups. The Automated Statistical Limit Calculation module can take data from vibration patterns and construct narrowband alarms. Envelope alarms can also be manually defined and created from a reference spectrum.

Waveform Audio Replay

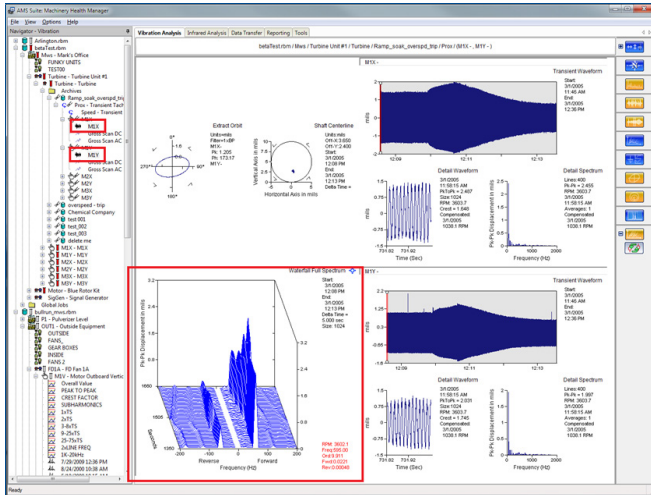
Replay the audio from a periodic or online waveform, a transient detailed waveform, or an analyze job waveform. A loop button is available to continuously repeat shorter waveforms. You can also compare the audio from two waveforms. For example, a waveform collected from a problem machine will often sound different than a waveform from a similar machine without a fault present. The audio output can be saved as a .wav file and attached to reports for sharing.



Compare the audio from two different waveforms with the Waveform Audio Replay option.



Viewing a waterfall plot in color allows you to see the difference in the amplitudes more readily.



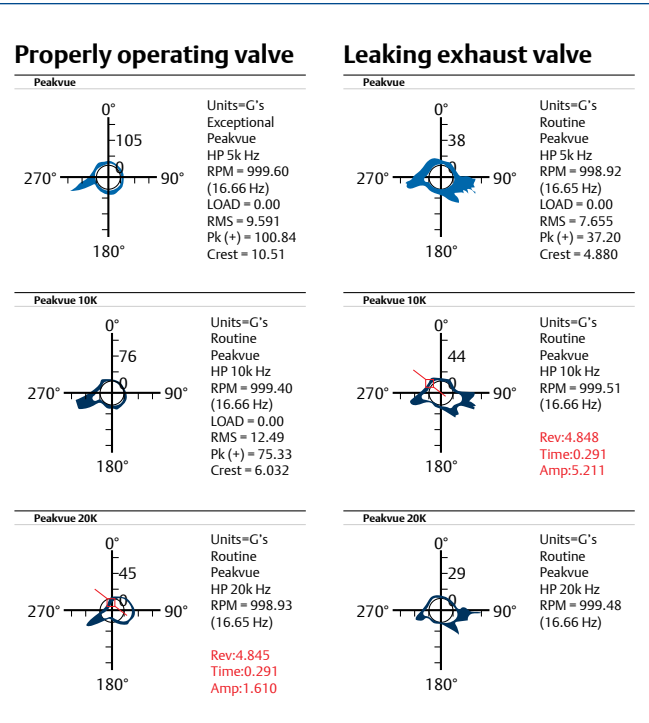
With Cascade Full Spectrum, the user can quickly differentiate between a rub and an oil swirl anomaly.

Advanced Analytical Tools

AMS Machinery Manager offers extensive analysis tools to enable accurate diagnosis of machine health.

Analysis tools are available for specific challenges, such as slow or variable speed equipment, rolls, waveform analysis, early bearing or gear impacting, electrical defects, and more. Advanced tools include:

- Colored waterfall plots
- Waveform autocorrelation
- Waveform Audio Replay
- Circular waveform plot
- Orbits/filtered orbits
- Bode nyquist
- Full Spectrum & Cascade Full Spectrum (online data)
- 3D Shaft Centerline Animation Plot (online data)
- Transient replay that replays a AMS 2140 transient signal, including the startup of your critical machinery
- Transient waveform runout correction
- Customizable narrow band trends
- Dynamic display control to customize the view of 3D plots

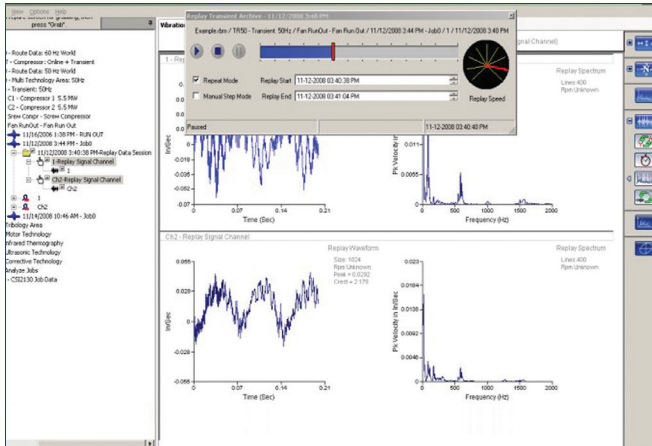


Waveform data incorporated onto circular polar plots delivers insight to developing valve faults.

Transient Live Display Mode

The live mode in AMS Machinery Manager provides real-time data plots, including overall levels, orbits, shaft centerline, Bode/Nyquist, cascade, waveform, and spectrum. Overlay baseline plots (from portable or online systems) on good startup plots to view differences.

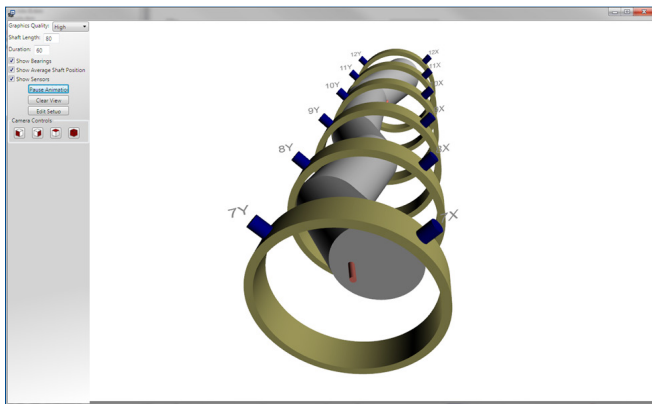
With the transient live mode, you can make real-time decisions with operators and production staff to bring a turbine up for critical production needs or to shut down to protect the asset.



Transient data collection allows for continuous data recording simultaneously on all channels. You can replay the stored data for detailed analysis at any moment within the collection cycle.

Shaft Animation Plots

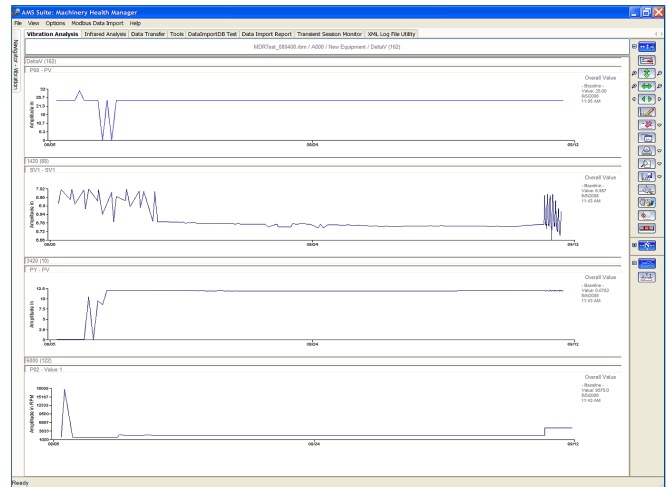
The shaft animation plot shows the actual motion of the shaft around the average shaft position. Click on displayed sensors to bring up detailed spectrum, waveform, waterfall or bode/ Nyquist plots, while clicking on a bearing brings up orbit and shaft centerline plots. Orbit and waveform plots have animated cursors that update as the shaft rotates. You control the setup information for the animation, including graphics quality, play speed, and resting voltage and bearing clearance data crucial for accuracy in the animation. The View Control buttons provide four default views (front, side, top, and a combination of the three). Or you can also rotate or pan across the view by holding down either the left or right mouse button over the plot and dragging. Rotating the mouse wheel changes the zoom.



Live 3D shaft animation plots show the actual motion of the shaft around the average shaft position.

Wireless and Wired Transmitters

AMS Machinery Manager supports the import of advanced diagnostic data, including spectra and waveforms from the AMS 9420 Wireless Vibration Transmitter. This data along with other types of process variables are imported via the Smart Wireless Gateway. In addition, process data from any IEC -approved *WirelessHART*®-enabled transmitter can be imported into AMS Machinery Manager through the Smart Wireless Gateway. Correlating both vibration and process data allows for a more comprehensive analysis of developing problems.



With data import, you can view process automation information or diagnostics from *WirelessHART* devices.

Configuration and user interface options in AMS Machinery Manager optimize bandwidth usage, battery life, and time spent interacting with transmitters:

- Spectrum-on-Alert automatically retrieves only the data you need, when you need it
- Select spectrum resolution - from 400 to 1,600 lines - to conserve power and bandwidth
- Use efficiency tools for easy mapping and configuration of transmitters
- Auto-calculate capabilities optimize network traffic
- Use the device log to identify and resolve system issue quickly by providing insight into transmitter operations

Continuing Support to Ensure Success

Training Courses Build Expertise

Emerson Educational Services help maximize the return on your technology and personnel investment. Courses are taught by professionals with experience in developing or working within actual plant predictive or reliability-based maintenance programs. Training is offered in Emerson's state-of-the-art training facilities or onsite, giving you expert training without leaving your facility. Emerson also offers virtual classroom training.

Certified instructors deliver the curriculum using Adobe Connect Meeting Room with full audio and video support. Students can pose question directly to the instructor or share them with the classroom.

Technical Support You Can Count On

Your company makes significant investments in technology to safeguard its production assets. AMS Machinery Manager product support, delivered by Guardian, is designed to deliver the latest functionality for your existing technologies and protect your investment through priority access to support and repair services.

AMS Machinery Manager Cloud Hosted Solution

Emerson has partnered with Microsoft to offer **AMS Machinery Manager Cloud Hosted Solution** in the Azure platform. This eliminates the need for customers to deploy and maintain on-premise installations of the software along with costly infrastructure investment. Available functionality includes route vibration data upload and download, use of data lockers, and the full breadth of vibration analysis and reporting tools traditionally supported for the AMS 2140 in AMS Machinery Manager.

Having your system on the cloud means that authorized staff can securely access information and data anytime and anywhere. This translates into enhanced mobility, flexibility and collaboration within your teams, with your corporate analyst pool, or even with Emerson experts.

Asset Condition Monitoring Services

Emerson's team of machinery monitoring experts can supplement plant programs with **Asset Condition Monitoring Services**. Specialists are available to monitor and analyze data from Emerson's route-based vibration analyzers, wireless vibration devices, and online systems. They follow up with easy-to-read, actionable periodic reports for your maintenance department.

Subscription Base License Package

	A470001-XX-0	A472001-0	A474505-0	A478010-0	A474507-0
Module/Package	Local Area Network	Vib View Silver	Vib View Online	Advanced Vibration Analysis	Online Transient Analysis
Local Area Network Access	✓				
Database Management		✓	✓		
OilView Trivector Lab		✓	✓		
ODBC Driver		✓	✓		
Trend Plotting		✓	✓		
Fault Frequencies		✓	✓		
Advanced Plotting and Analysis Tools		✓	✓		
Wizard Database Setup		✓	✓		
CMMS Interface Tools		✓	✓		
Advanced Reporting		✓	✓		
Machine History Viewer		✓	✓		
Asset History Management		✓	✓		
Basic Statistical Alarm Management		✓	✓		
Multi Window Plotting and Analysis		✓	✓		
Dual-Monitor Support		✓	✓		
Management Reporting		✓	✓		
Multi Speed-Multi Plane Balance Calculator		✓	✓		
Manual Data Entry		✓	✓		
Route Management		✓			
Support for Dual-Channel and Transient Analysis of AMS 2600 & AMS 6500 Prediction systems					✓
Post-processing and in-depth analysis for collected data from Advanced Cross-Channel Analysis, ODS/Modal and Advanced Transient Analysis DLPs of AMS 2140				✓	
Online Database Configuration			✓		
Dashboard View of Monitored Equipment			✓		

Optional Additional Packages

	A472019-0	A472050-0	A478000-0	A478002-0
Module/Package	AutoStat	Nspectr	UltraMgr	UltraPlot
Advanced Statistical Alarm Management	✓			
Rule-Based Automated Diagnostics		✓		
Post-processing of data from Balance DLP from AMS 2140			✓	
In-depth analysis of data from Balance DLP from AMS 2140				✓

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