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About DigivibeMX® Version 11

DigivibeMX® is a versatile, multi-functional software capable of analyzing machine vibration in real time, performing traditional route data collection and balancing single-plane or two-plane rotors – in-situ or on Soft Bearing Suspension balancing machines. The *DigivibeMX®* model purchased determines which software capabilities are available for the user.

- ***DigivibeMX® M10*** provides dynamic balancing capabilities only
- ***DigivibeMX® M20*** provides route and off-route vibration data collection and analysis capabilities only
- ***DigivibeMX® M30*** combines the full balancing and vibration analysis capabilities of M10 and M20.
- ***DigivibeMX® Phantom*** supports remote machine health monitoring and analysis using our Phantom sensors.

DigivibeMX® combines powerful machine health monitoring tools with easy-to-use functions and easy-to-interpret visual interfaces. The software provides immediate capabilities for inexperienced users, and more sophisticated tools for experienced users seeking a full range of analysis capabilities.

Functions include:

- Real-time vibration waveform and FFT spectrum analysis.
- Single-plane or two-plane dynamic rotor balancing with weight calculator.
- Balancing Wizard enables Soft Bearing Suspension dynamic balancing without trial weights.
- Automatic RPM filtering.
- Orbital Analysis.
- Circular Time Waveform signal rendering.
- Automatic generation of vibration analysis and balancing reports (compatible with Microsoft Word and Excel 2007).
- Powerful SQL database.
- Accuracy up to +/- 0.1 RPM.
- Up to 2 million lines of resolution.
- ODS simulation features built into the software, compatible with imported .obj .xaml and .3ds modeling files.
- ISO or customizable band alarms for Velocity and Acceleration Enveloping.
- Individual enveloping alarms for establishing machine baselines.
- Trigger recording.
- Simultaneous or sequential recording of 2 planes for dynamic balancing.
- In-Situ recording for balancing.
- Octave Bands.
- Machine Learning models.

DigivibeMX® Is distributed with electronic equipment and optional accessories approved by Erbessd Instruments®.

Visit our web page for more information on available equipment.

<http://www.erbessd-instruments.com>

Types of Sensors

DigivibeMX®v11 wired interface systems include the following sensors:

100 mV/G Accelerometers:

Vibration sensors. Their output voltage is proportional to the acceleration of vibration.

Used for:

- Dynamic Balancing in 1 and 2 planes
- Vibration Analysis
- Route Data Collection
- Capturing ODS modeling data



Laser Optical Sensor:

Laser-emitting speed sensor:

Used for:

- Measuring rotational speed (CPM or Hz)
- Dynamic Balancing (Phase Angle)



System Requirements

Minimum requirements of a desktop, laptop or tablet computer* for DigivibeMX® v11 software installation:

- Intel® Celeron® (2.50 GHz / 400MHz) or higher
- Minimum 4GB DDR2 or higher RAM
- Windows® 10 or higher operating system
- SVGA or higher monitor (enhanced for touch screens)
- 750 MB of minimum disk space
- 1 USB 2.0 port
- Internet connection (for software installation and activation) Note- DigivibeMX installs by default in Phantom mode, without a license. If you have purchased a license for M10, M20, or M30 software, licensing is done after the default installation. License activation may also be accomplished by using the WiserVibe Pro mobile App for iOS and Android devices for offline activation.

Other Required Software:

- MySQL Connector Net 6.5.4 (Included with system purchase)
- SQL Compact server 3.5 SP2 (Included with system purchase)
- Microsoft Word 2007 or higher (for reporting features)

Software Installation

From USB or Download: Open the *DigivibeMX_P_DV11P.11xx* folder location in Windows Explorer.

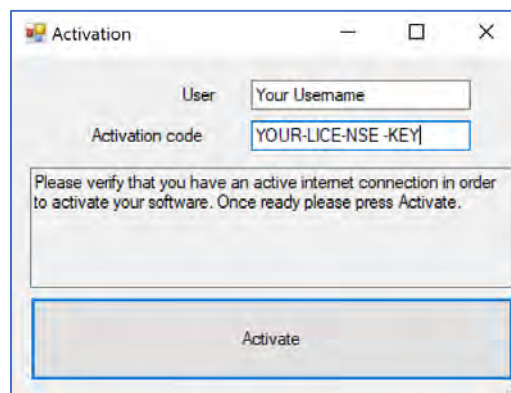
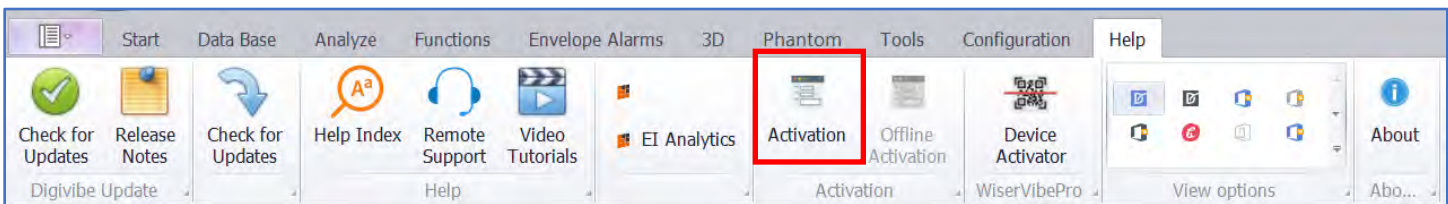
Open the IMPORTANT INSTALLATION INFORMATION text file and follow the instructions provided. Currently this includes:

1. Install the MySQL connector by double-clicking on mysql-connector-net-6.5.4.
2. Install SSCE Runtime by double-clicking on SSCERuntime_x64-ENU.
3. Install the WebView2plugin by double-clicking on MicrosoftEdgeWebView2Setup.exe.
4. Install *DigivibeMX* by double-clicking on the setup.exe file.

IMPORTANT INSTALLATION INFORM...	Text Document	1 KB	No	1 KB	38%	1/27/2022 10:44 AM
MicrosoftEdgeWebView2Setup	Application	1,643 KB	No	1,740 KB	6%	12/8/2021 4:31 PM
mysql-connector-net-6.5.4	Windows Installer Package	12,212 KB	No	13,112 KB	7%	8/19/2015 10:04 AM
setup	Application	239 KB	No	519 KB	55%	5/25/2023 2:02 PM
SSCERuntime_x64-ENU	Application	2,468 KB	No	2,560 KB	4%	2/17/2019 10:01 PM

Product Activation

After installation, launch *DigivibeMX®* software and select the **Activation** icon in the Help menu.



Enter your username and activation code in the corresponding boxes.

The key consists of 16 characters, for example **WWWWW-YYYY-WWWWW-YYYY** (do not include dashes).

Calibration

The following Erbesd Instruments interfaces and wireless devices are pre-calibrated on their chipsets. They do not require calibration in *DigivibeMX®* software:



INT4-GX4 (GX-400)



WiSER1x



WiSER3x



PHANTOMS

The following legacy wired interfaces must be calibrated in *DigivibeMX®* before performing vibration analysis or dynamic balancing. Calibration data is unique and specific to each individual interface. Therefore, it is also necessary to ensure the interface being used is correctly identified in the software before collecting data. Otherwise, collected data will likely be displayed inaccurately. This procedure is required during initial product activation. It will also be necessary to recalibrate if you ever upgrade *DigivibeMX®* software, modify the initial calibration file or completely reformat the computer.

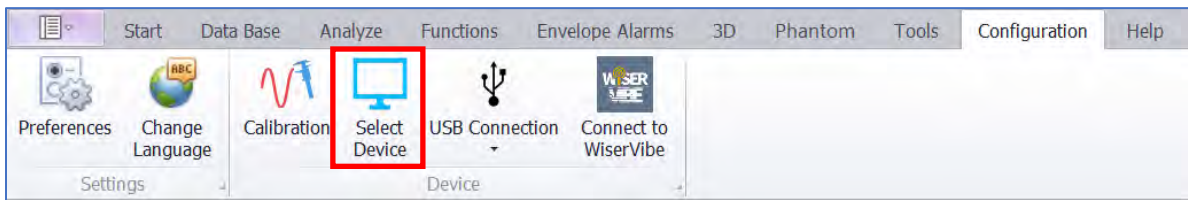


INT2-16A/INT2-17A (I-600/I-700)

To calibrate: Connect the 2 or 4 channel interface to the computer via USB. Connect the calibration device to the Op port using the 5-pin Tachometer cable, as shown. Ensure the computer recognizes that a new device has been installed.



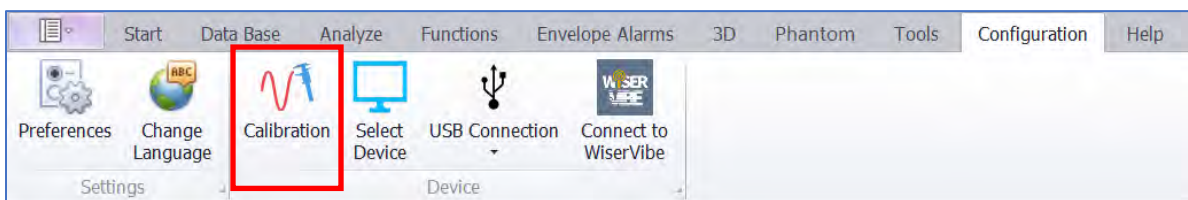
On the *DigivibeMX*® **Configuration** menu, click **Select Device** and verify that *DigivibeMX*® detects the connected interface. If no device is found, exit the software, check all connections, restart *DigivibeMX*® and recheck.



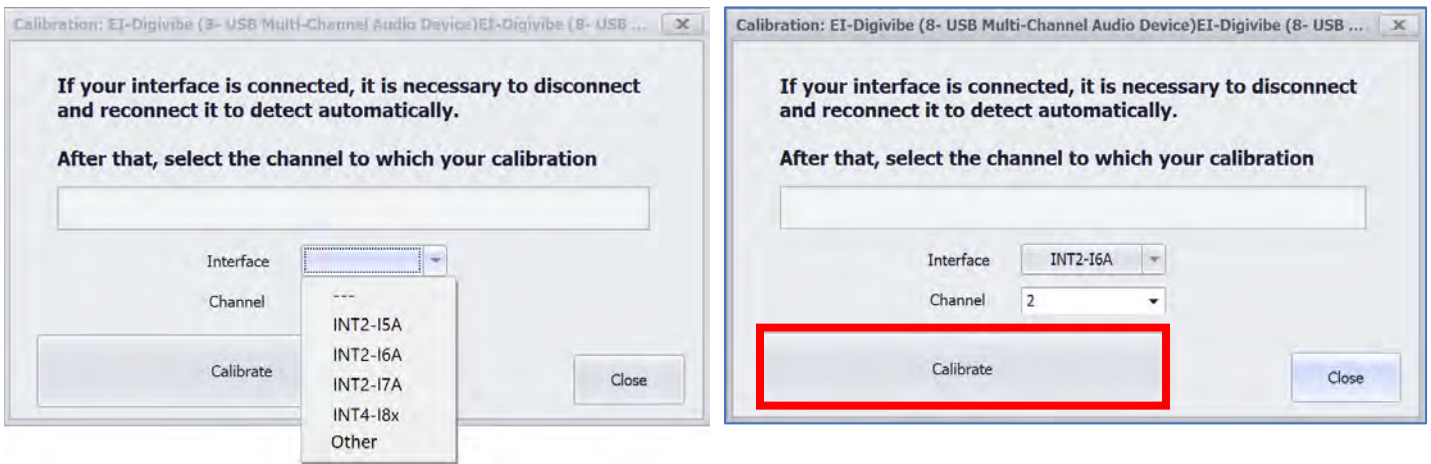
Confirm the interface is detected by *DigivibeMX*® and click **Accept**



On the **Configuration** menu, click **Calibration**



The Calibration window opens. Select your Interface. Select the Channel to which the Calibration device is connected. Then click **Calibrate**.



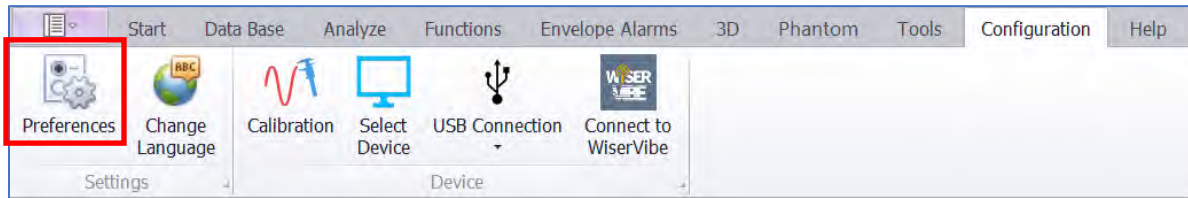
The following screen confirms a successful calibration. *DigivibeMX®* is now ready for use with the calibrated interface.



Other Configuration Menu Controls

Signal and Channel Preferences

Users should review the Signal and Channels settings in **Preferences** and make desired changes, before attempting to record or analyze data. Open the **Configuration** Menu and select **Preferences**:

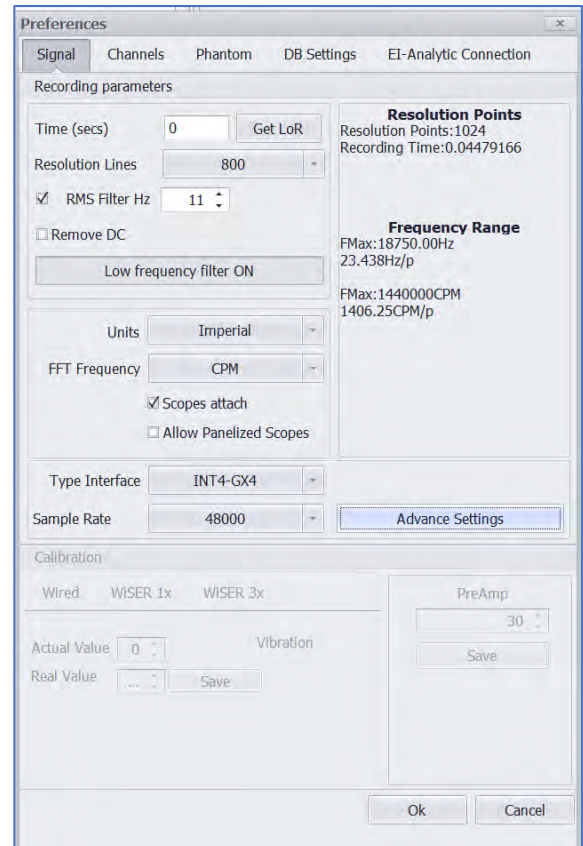


The **Preferences** window opens, containing tabs for user-defined options.

The Signal Tab

The Signal tab is used to specify default data recording, filtering and display parameters.

- **Resolution Lines:** Specifies the default lines of resolution for data collection. Detailed information about how the specified Resolution Lines affect Resolution Points and Frequency Range are also displayed. Adjustments can be made for specific data collection points when creating Routes, as desired.
- **RMS Filter Hz:** Sets RMS filter range. Default is 11-11000 Hz.
- **Remove DC:** Removes drive current from the interface cable.
- **Low Frequency Filter button:** Toggles the low-frequency filter ON or OFF. Eliminates the low frequency ski-sloping and hay stacking noise traditionally seen in FFT displays.
- **Units:** Select between Imperial or Metric default units.
- **FFT Frequency:** Select between Hz, CPM or Orders default units.
- **Scopes attach:** When checked, the Time Waveform and FFT are displayed in the same amplitude units. To see different units for TWF and FFT, leave unchecked.
- **Allow Panelized Scopes:** Activates panelized display in the Analyze window. Opens signal files in separate panels.
- **Type Interface:** Identifies the current or most recent DigivibeMX Interface model connected. Should be confirmed prior to data collection.
- **Advance Settings:** Enables the Calibration settings portion of the Signal tab, if applicable. It is not recommended to make any adjustments to these settings without the assistance of an Erbesd Instruments support engineer, as changes to these settings will affect the accuracy of connected interfaces.

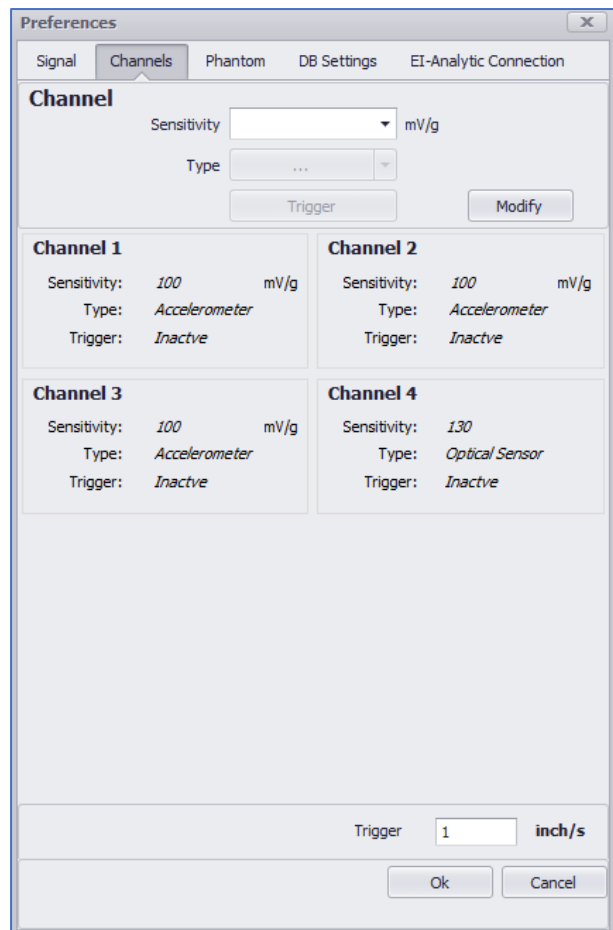


Channels Tab

The Channels tab is used to specify sensor Type and Sensitivity for up to 4 channels.

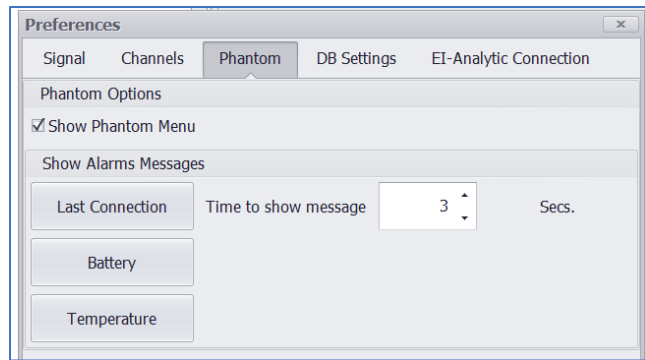
NOTE: Sensitivity, Type and Trigger controls are inactive until a channel is selected. Channel 3 is inactive with the wired GX-400 interface, unless the optional splitter cable is used.

- **Sensitivity:** Specifies the sensitivity for the installed sensor. Unless specialty accelerometers are specified, all Erbesd Industries accelerometer device sensitivity is 100 mV/g. The Laser Optical Sensor sensitivity is 130 mV/g.
- **Type:** Identifies whether the sensor is an Accelerometer, Velocimeter, Proximity Probe or Optical Sensor
- **Trigger:** Toggles default vibration trigger setting between Active or Inactive (portable instruments only).



Phantom Tab

The Phantom tab is used to allow the Phantom Menu to be displayed or hidden, as desired. The Show Alarms Messages section allows the length of time to be set for Phantom sensor alarm messages to be displayed at the bottom of the DigivibeMX screen.



DB Settings Tab

The DB settings tab is used to change the default location of the local database files stored on a PC/tablet.

EI-Analytic Connection Tab

The EI-Analytic tab is used to select which TCP port is used to communicate using HTTPS with an EI-Analytics cloud database. Well-known TCP port 443 or non-standard port 3030 can be selected.

Specify USB or WiFi Connected Interface

Select **USB Connection** when using a USB-connected GX400 or legacy interface to collect data.



Select **Wifi Connection** when using WiSER1x or WiSER3x wireless sensors to collect data. After the sensor is connected to the receiving device via Wifi, select the yellow Connect Wifi plug to pair the sensor with DigivibeMX software.



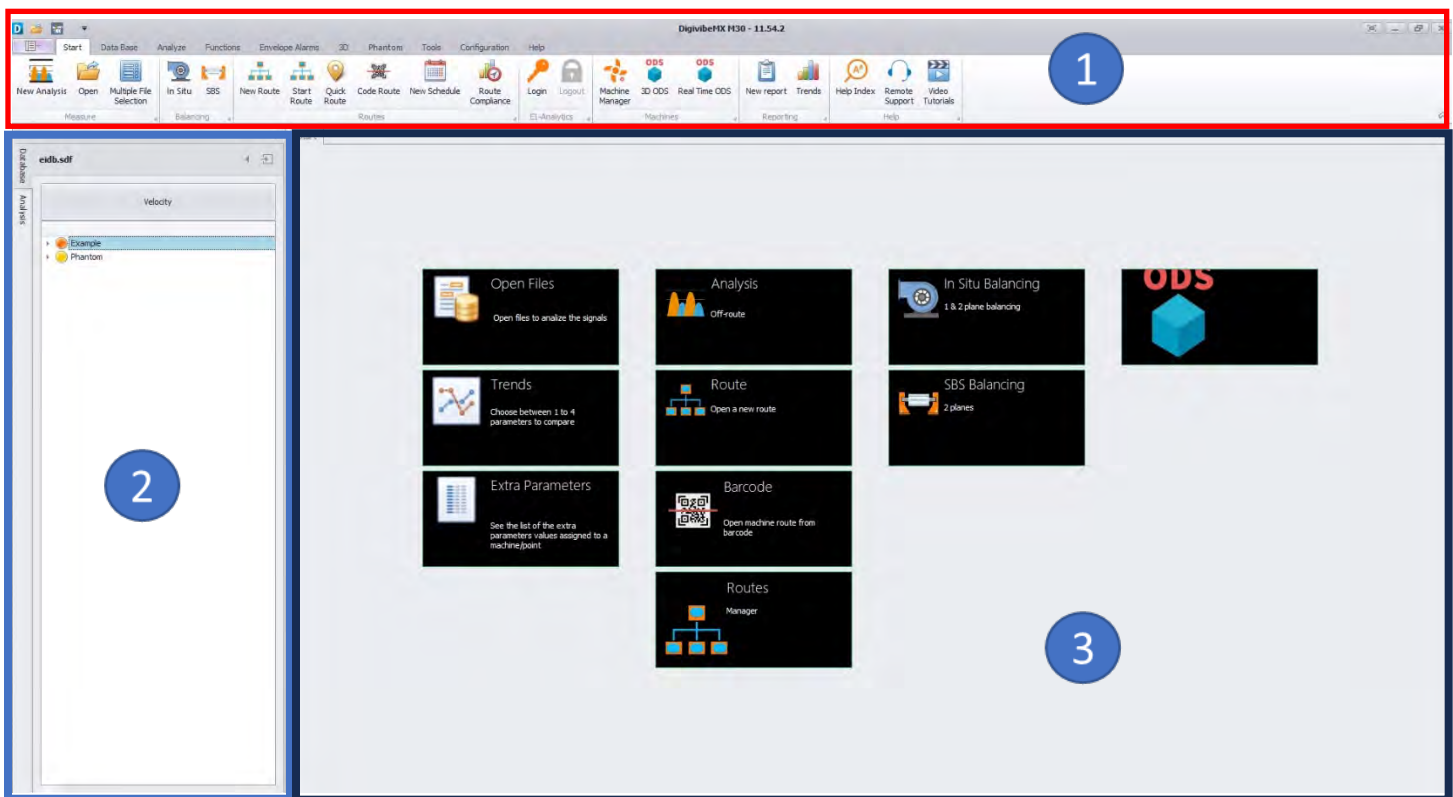
Navigating DigivibeMX® Software

User Interface

DigivibeMX® version 11 has a classic Windows-style appearance. The software is organized by Menus. Each Menu features toolbars with control buttons. However, DigivibeMX® version 11 has been specifically designed to be portable and touchscreen friendly.

The User Interface is divided into 3 main sections:

- **Section 1:** Menus and Toolbars.
- **Section 2:** Data Tree and Shortcut Tabs (Start Menu) / Signal Values (Analysis Menu – M20, M30, Phantom).
- **Section 3:** Quick-launch Tiles (Start Menu) / Analysis and Work Area for other software functions.



Menus and Modules

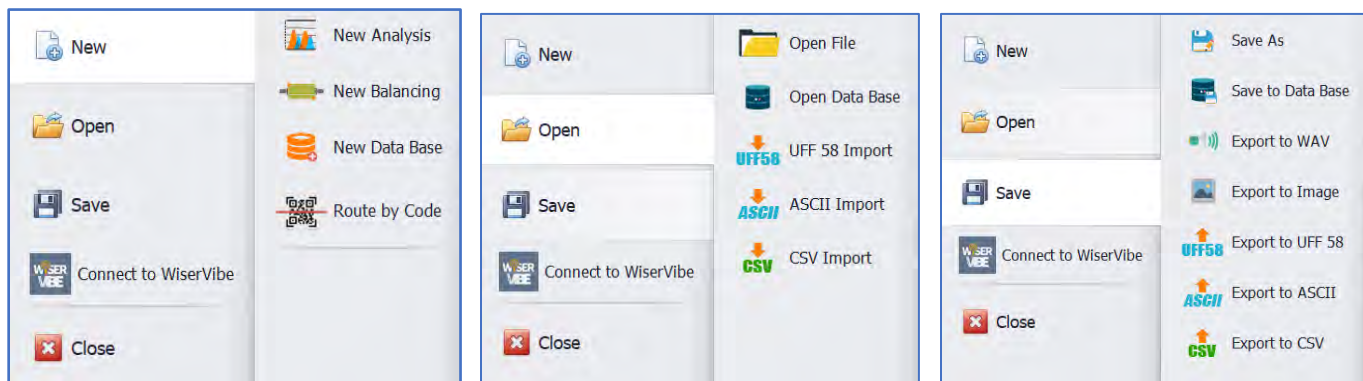
The graphic user interface of DigivibeMX® Version 11 has been designed with intuitive menu options, touchscreen compatibility and easy access to functions. Certain menus and modules may not be available, depending upon the software model purchased.

MENU	M10	M20	M30	PHANTOM
File Manager	✓	✓	✓	✓
Start	✓	✓	✓	✓
Data Base	---	✓	✓	✓
Analyze	✓	✓	✓	✓
Functions	---	✓	✓	✓
Envelope Alarms	---	✓	✓	✓
3D (ODS)	---	✓	✓	✓
Phantom	---	✓	✓	✓
Tools	✓	✓	✓	✓
Configuration	✓	✓	✓	✓
Help	✓	✓	✓	✓
In Situ Balancing	✓	---	✓	---
SBS Balancing	✓	---	✓	---
Portable Routes	---	✓	✓	---

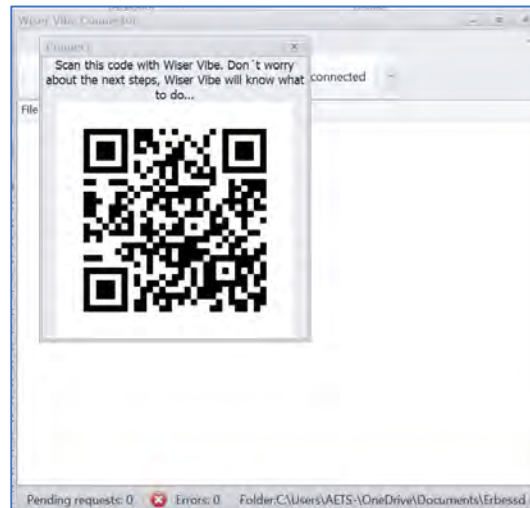
File Manager (All DigivibeMX Models)

The File Manager icon opens options to:

- Launch one of several New common tasks.
- Open a recorded file or database.
- Save an off-Route vibration recording – into the current database or as an independent file.
- Open the Connect to WiserVibe function.



The WiserVibe Connector function allows connectivity between a mobile device (iOS or Android) using the WiserVibe Pro App and a Windows® device running DigivibeMX software. **Note** – both devices need to be on the same data network subnet! A QR code is displayed for the mobile device’s camera to scan in order to transfer files between devices. This feature can also be accessed via the Configuration menu.



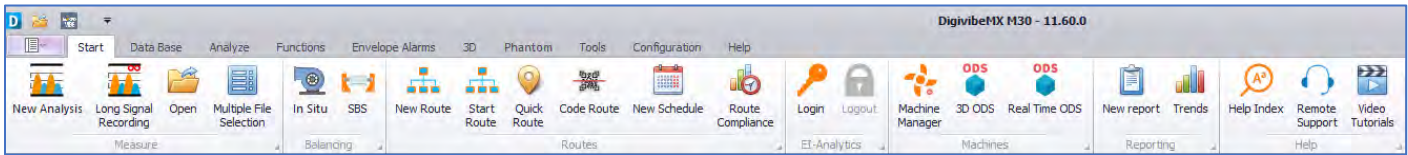
Compatible File Types

DigivibeMX® supports 7 different file types as shown in the following table:

Extension	Compatibility	Description
.anl	DigivibeMX®	Files of vibration analysis for 1 or more channels.
.asc	DigivibeMX®,	Text file containing all data in Alpha-Numeric format.
.bal	DigivibeMX®	Balance Calculator session, retrieves all the information entered into the calculator.
.uff	Universal File Format	This file is used by many vibration analysis software and ODS programs.
.wav	Sound file	This file is compatible with any audio software.
.jpg	Image viewer	It is used in vibration graphics and polar graphs. It is elective between BMP and JPG
.bmp	Image viewer	It is used in vibration graphics and polar graphs. It is elective between BMP and JPG

Start Menu (All DigivibeMX Models)

Options and control buttons on the Start Menu will vary depending on the software model purchased. The picture below represents M30 with all available features.



Measure toolbar

- **New Analysis:** Starts a new Off-Route Vibration Analysis recording session. Opens the Analysis Menu and Waveform/FFT window in the Analysis and Work Area (M20, M30).
- **Long Signal Recording:** For collection of Off-route data with recording times up to 1440 minutes.
- **Open:** Opens a File Explorer window for navigating to and opening a saved Vibration Analysis recording file (All DigivibeMX models).
- **Multiple File Selection** Allows multiple signal files to be opened concurrently by selecting them from the Data tree on the left side of the screen.

Balancing toolbar

- **In Situ:** Starts a new Dynamic Balancing session and launches the Influence Coefficients Balancing module (M10, M30).
- **SBS:** Starts a new Balancing session and launches the Balancing window and the SBS Balancing Wizard (M10, M30).

Routes toolbar

- **New Route:** Launches the Route creation window. Used to create new Vibration Analysis Routes from available machines in the current database.
- **Start Route:** Launches the Route data collection module. Used load and collect an existing Vibration Analysis Route for machines in the current database.
- **Code Route:** Launches the Route to collect an existing Vibration Analysis Route by scanning machine barcodes assigned in DigivibeMX.
- **New Schedule:** Launches the Route Schedule window. Once created, Routes can be scheduled as a reminder to take measurements.
- **Route Compliance:** Launches the Route Compliance window. This feature is used to show the history of Route performance. It can show Routes completed or overdue by date range.

EI-Analytics toolbar

- **Login:** Launches the Login screen for access to the Erbesd Instruments EI-Analytic cloud database service.
- **Logout:** Once logged into EI-Analytic, this icon provides the Logout function.

Machine toolbar

- **Machine Manager:** Opens the Machine Manager window. This is used to create and edit the machines database and to administer bearings, gearboxes and the Machine Learning feature. **(M20, M30, Phantom)**
- **3D ODS:** Starts a 3D ODS simulation session. **(M20, M30, Phantom)**
- **3D ODS Real Time:** Starts a Real-time 3D ODS simulation session. **(M20, M30, Phantom)**

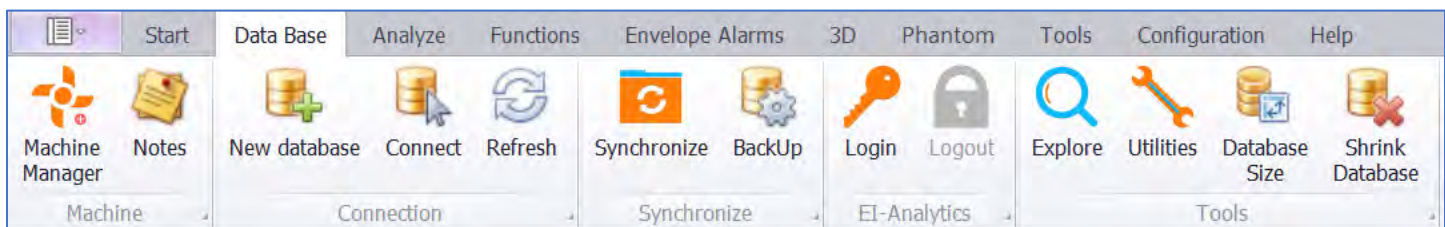
Reporting toolbar

- **New Report:** Launches the Reports module.
- **Trends:** Launches the Tendencies Dashboard.

Help toolbar (All DigivibeMX models)

- **Help Index:** Launches the Table of Contents of the DigivibeMX User Manual.(PDF)
- **Remote Support:** This is a TeamViewer QuickSupport download link, allowing Erbesd Instruments technical support engineers to assist via remote access.
- **Video Tutorials:** This links to the Erbesd Instruments YouTube channel for viewing video tutorials.

Data Base Menu (M20, M30, Phantom)



Machine toolbar

- **Machine Manager:** Opens the Machine Manager window. This is used to create and edit the machines database and to administer bearings, gearboxes and the Machine Learning feature.
- **Notes:** Opens a window to create a tool-tip style note at the machine or point level in the database.

Connection toolbar

- **New database:** Opens a File Manager window to create a new SQL, SQLCe or MySQL database.
- **Connect:** Connects DigivibeMX to a different SQL, SQLCe or MySQL database.
- **Refresh:** Once a database is open, this will refresh the screen to reflect changes made to the database.

Synchronize toolbar

- **Synchronize:** Opens the database synchronization window. This feature provides synchronization between a source and a target database, e.g., an EI-Analytics database to a local SQLCe database. Note this function supports 15 days of data to be synchronized at a time.
- **Backup:** Opens the Database Backup window. This allows an entire database to be backed up from source to target, e.g., an EI-Analytics database to a local SQLCe database or vice versa.

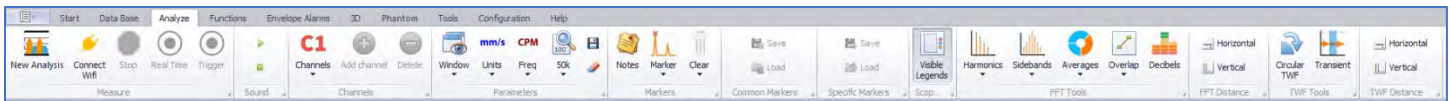
EI-Analytics toolbar

- **Login:** Launches the Login screen for access to the Erbesd Instruments EI-Analytic cloud database service.
- **Logout:** Once logged in, this icon provides the Logout function.

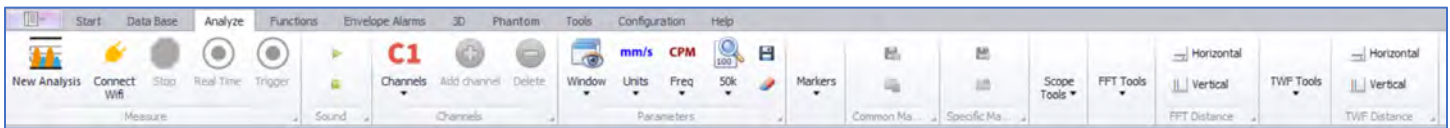
Tools toolbar

- **Explore:** Opens a window to explore the SQL database tables.
- **Utilities:** Opens a toolbar with options to Update a database version, Repair a database, Compact a database, or Open the database importer.
- **Database Size:** This opens a small window that displays the currently loaded database size in Gigabytes.
- **Shrink Database:** This opens the Shrink Database window that provides two functions. 1) Delete old files from a database and 2) Extract Files (Time waveform and FFT) from the current database and store them elsewhere. These files are not deleted, just relocated.

Analyze Menu (All DigivibeMX Models)



Note – Depending on the screen resolution of the display you are using, some of the Analyze Menu toolbars such as Markers, Scope tools, FFT tools, TWP tools will be collapsed, as shown below.



Measure toolbar

- **New Analysis:** Launches a new off-route analysis screen.
- **Connect WiFi:** Connect the DigivibeMX software to a WiSER1X or WiSER3X sensor that is already connected to the device via Wi-Fi. The Record button will not appear until this connection is successful.
- **Record:** Starts a manual off-route data recording.
- **Stop:** Ends a manual off-route data recording or live, real-time recording.
- **Real Time:** Starts a live, real-time recording.
- **Trigger:** Sets a recording to begin when the preset Trigger vibration threshold is reached.

Sound toolbar

- **Play icon:** Plays the audio of a displayed vibration data collection.
- **Stop icon:** Ends audio playback of a displayed vibration data collection.

Channels toolbar

- **Channels:** Selects the number of channels to record for an off-route data collection.
- **Add Channel:** Adds another channel of data from the database or external file for analysis.
- **Delete:** Removes a channel of data from analysis.

Markers toolbar

- **Notes:** Opens the window to create a tool-tip style note.
- **Marker:** Allows the user to place custom markers on the Time Waveform or FFT.
- **Clear:** Clears all markers from the Time Waveform or FFT.

Common Markers toolbar

- **Save:** Saves all markers placed on the Time Waveform or FFT to be recalled later for other signals.
- **Load:** Loads previously saved common markers to be displayed on the signal.

Specific Markers toolbar

- **Save:** Saves all markers placed on the Time Waveform or FFT to the currently viewed signal only.
- **Load:** Loads previously saved specific markers to be displayed on the signal.

Scope tools

- Toggles on and off the visible legends shown on the right side of the Time waveform and FFT panels of the Analysis window.

FFT Tools toolbar

- **Harmonics:** Displays 1 – 10 harmonic marker lines from a selected point in the FFT.
- **Sidebands:** Displays 1 - 4 sideband marker lines from a selected point in the FFT.
- **Averages:** Recalculates the FFT using up to 10 averages (default view is 1).
- **Overlap:** Allows the user to overlap the FFT up to 90 times.
- **Decibels:** Displays the FFT in Db amplitude.

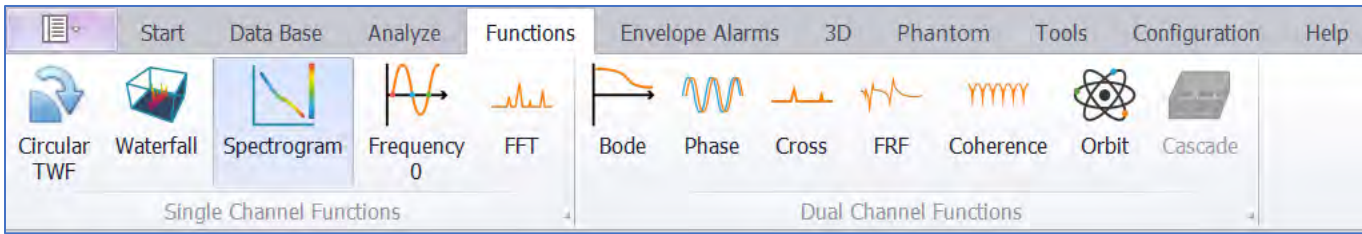
TWF Tools toolbar

- **Circular TWF:** Displays the Time Waveform in a circular pattern based on a selected frequency.
- **Transient:** Displays interval sideband markers from a selected point in the Time Waveform .

TWF and FFT Distance toolbars

- **Horizontal:** Allows the user to measure between two points horizontally in the TWF or FFT.
- **Vertical:** Allows the user to measure between two points vertically in the TWF or FFT.

Functions Menu (M20, M30, Phantom)



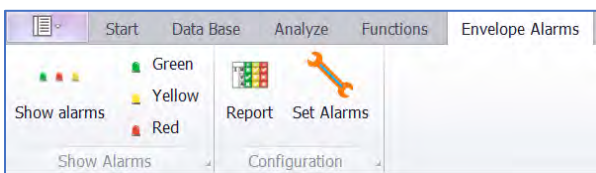
Single Channel Function toolbar

- **Circular TWF:** Displays the Time Waveform in a circular pattern based on a selected frequency.
- **Waterfall:** Displays a cascading 3D FFT representation of the vibration signal.
- **Spectrogram:** Color representation of signal amplitude.
- **Frequency 0:** Frequency calculation based on the time elapsed between crossings of 0 axis.
- **FFT:** Amplified frequency spectrum.

Dual Channel Functions toolbar

- **Bode:** Bode chart for calculating resonant frequencies.
- **Phase:** Graphic that represents the Phase in each frequency of the whole spectrum.
- **Cross:** 2 signal crossing function to weight matching frequencies.
- **FRF (Frequency Response Function):** Measures the output spectrum of a system in response to a stimulus.
- **Coherence:** Statistics to examine the relationship between 2 data collections.
- **Orbit:** Dynamic 2D representation of rotor shaft displacement.
- **Cascade:** Displays a 3D cascade graph of several waveforms or FFTs (highlight multiple desired readings in the Historic Measures screen to activate Cascade).

Envelope Alarms Menu



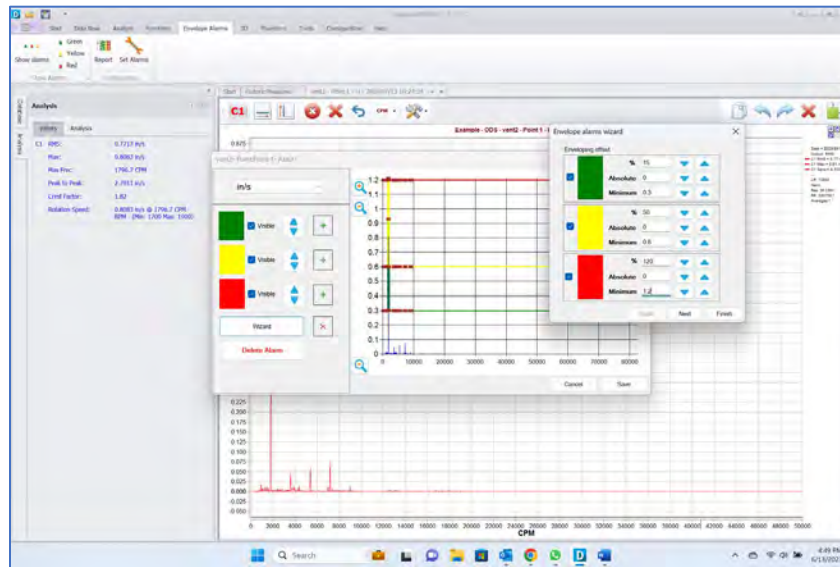
Show Alarms toolbar

- **Show Alarms:** Displays all envelope alarms set on the current recording (if any).
- **Green:** Displays or hides the lowest level alarm envelope.
- **Yellow:** Displays or hides the mid-level alarm envelope.
- **Red:** Displays or hides the highest level alarm envelope.

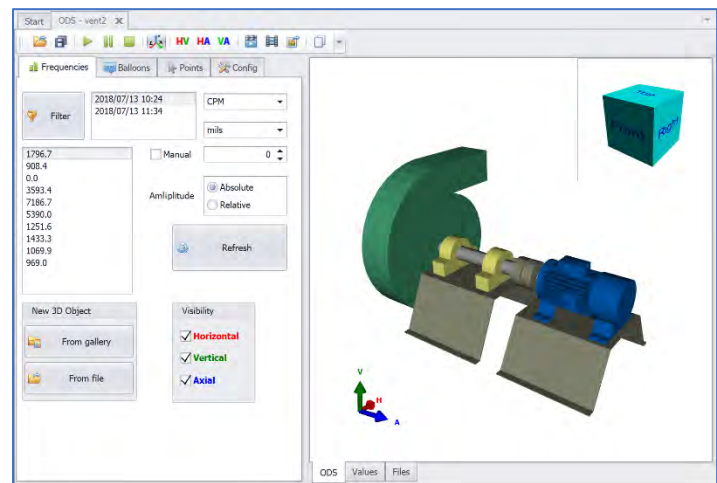
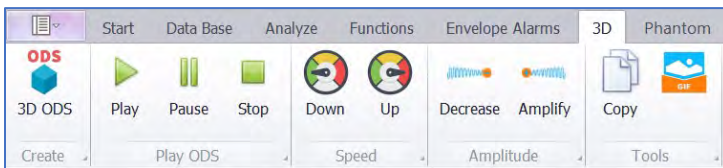
Configuration toolbar

- **Report:** Displays alarm levels set at each monitoring point and axis on the machine to which the current recording belongs.

- **Set Alarms:** Uses the current recording's FFT to set envelope alarm parameters that will be applied to each recording at that monitoring point (select Set Alarms, click Wizard)



3D Menu (M20, M30, Phantom)



Create toolbar

- **ODS:** Opens the 3D ODS simulation Control Panel for a selected machine in the database (select ODS configured machine from the database, select 3D Menu, select ODS).

Play ODS toolbar

- **Play:** Starts movement of the 3D ODS simulation.
- **Pause:** Pauses the simulation.
- **Stop:** Stops the simulation.

Speed toolbar

- **Down:** Decreases the simulation speed.
- **Up:** Increases the simulation speed.

Amplitude toolbar

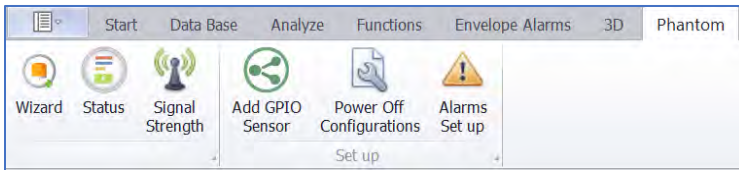
- **Decrease:** Decreases amplitude of the simulation movement.
- **Amplify:** Increases amplitude of the simulation movement.

Tools toolbar

- **Copy:** Export the 3D ODS simulation as a still image file.
- **GIF:** Export the 3D ODS simulation as a moving GIF file.

NOTE: For detailed instructions about using 3D ODS functions, please refer to Page 88.

Phantom Menu (M20, M30, Phantom)



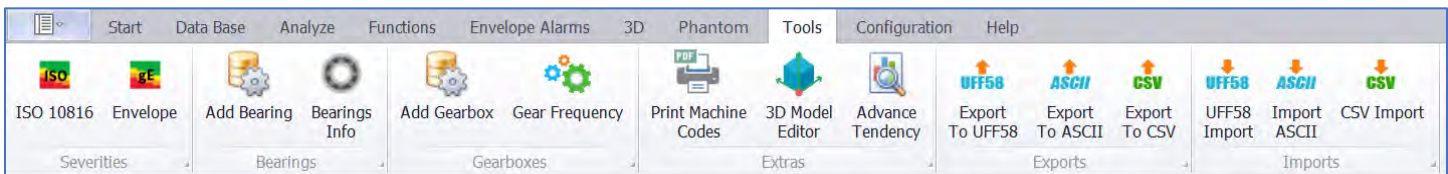
Phantom toolbar

- **Wizard:** Opens the Phantom Management window used to add, edit, replace or delete Phantom sensors. Also includes a Battery Calculator tool and shortcuts to GPIO sensor administration and Power off configuration windows.
- **Status:** Opens the Phantom status window to view current status. Info includes firmware version, battery level, signal strength, and time of the latest update.
- **Signal Strength:** Opens the Signal Strength window to view the signal strength of Phantom sensors. Note – signal strength info is also included in the Status window.

Set up toolbar

- **Add GPIO Sensor:** This button provides a shortcut to the General purpose I/O (GPIO) sensor administration window. This function is also included in the Phantom Wizard.
- **Power Off Configurations:** This is a shortcut to the Power Off Configurations window. This function is also included in the Phantom Wizard.
- **Alarms Set up:** Is a shortcut to administer Alarm Notification thresholds for Phantom sensors. This is also found in the Phantom Wizard as part of adding or editing a Phantom sensor config.

Tools Menu (All DigivibeMX Models)



Severities toolbar

- **ISO 10816:** Opens the ISO 10816 machine vibration severity chart (velocity units)
- **Envelope:** Opens the acceleration enveloping machine vibration severity chart (acceleration enveloping units)

Bearings toolbar

- **Add Bearing:** Opens the Bearing Finder window. Allows users to search for bearings in the included database or add a custom bearing configuration.
- **Bearings Info:** Opens the Bearing database.

Gearboxes toolbar

- **Add Gearbox:** Opens the Gearbox window to add, edit, or delete a Gearbox from the database.
- **Gear Frequency:** Opens the Gear Calculator window.

Extras toolbar

- **Print Machine Codes:** Opens the QR Code generation window to create and print QR Code labels.
- **3D Model Editor:** Opens the 3D ODS Control Panel for editing or importing 3D ODS models.
- **Advance tendency:** Opens the Advance Tendency Dashboard for detailed machine health severity analysis.

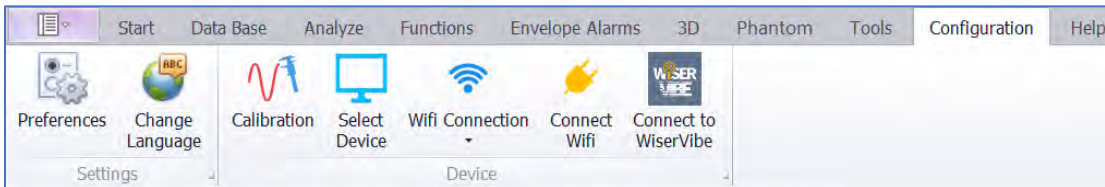
Exports toolbar

- **Export to UFF58:** When a signal is open for analysis, this button will export the selected raw data (time waveform and/or FFT) to a file in UFF58 format.
- **Export to ASCII:** When a signal is open for analysis, this button will export the selected raw data (time waveform and/or FFT) to a file in ASCII format.
- **Export to CSV:** When a signal is open for analysis, this button will export the selected raw data (time waveform and/or FFT) to a file in CSV format.

Imports toolbar

- **UFF58 Import:** Imports signal data for analysis from a UFF58 format file.
- **ASCII Import:** Imports signal data for analysis from an ASCII format file.
- **CSV Import:** Imports signal data for analysis from a CSV format file.

Configuration Menu (All models)



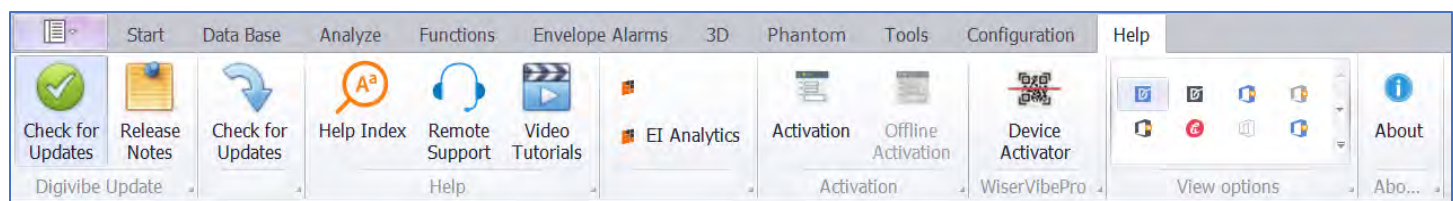
Settings toolbar

- **Preferences:** Configures DigivibeMX® software and hardware for balancing and/or data collection.
- **Change Language:** Allows selection of language. Currently 9 languages are supported.

Device toolbar

- **Calibration:** Calibrates the software using the calibration device and 2/4 Channel interface.
- **Select Device:** Used to verify and select a connected interface.
- **USB/Wifi Connection:** Toggles DigivibeMX input sources between USB-connection and WiFi-connection devices (WiSER1x and WiSER3x).
- **Connect Wifi:** After a WiSER1x or WiSER3x is connected to a PC/tablet via Wi-Fi, this button connects DigivibeMX software to the sensor.
- **Connect to Wiservibe:** The Wiservibe QR Connect function allows connectivity between a mobile device using the Wiservibe Pro App and a Windows device running DigivibeMX software. A QR code is displayed for the mobile device's camera to scan, in order to transfer files between devices. **Note:** Both devices must be on the same data network subnet to use this feature.

Help Menu (All models)



DigivibeMX Update toolbar

- **Check for Updates:** Checks the Erbesd Instruments server for updated software versions. DigivibeMX v11 updates can be performed immediately or downloaded for later installation. Note- DigivibeMX software automatically checks for newer versions of software every time it launches and will open a notification window if a newer version is found.
- **Release Notes:** This opens a PDF file containing the Release Notes for the current and previous versions of DigivibeMX v11. This includes all Improvements and Bug Fixes for each release.

Help toolbar

- **Help Index:** Launches the Table of Contents of the DigivibeMX User Manual.(PDF)
- **Remote Support:** This is a TeamViewer QuickSupport download link, allowing Erbesd Instruments technical support engineers to assist via remote access.
- **Video Tutorials:** This links to the Erbesd Instruments YouTube channel for viewing video tutorials.

Activation toolbar

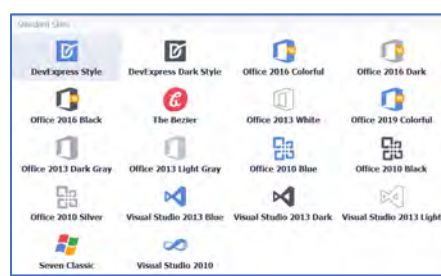
- **Activation:** Launches the License Activation window for licensing models M10, M20 and M30.
- **Offline Activation:** Used when no Internet connection is available to License DigivibeMX v11 software.

WiserVibePro toolbar

- **Device Activator:** Select this option to display a QR code used in conjunction with the WiserVibe Pro mobile App License Activation feature. This can be used to activate a DigivibeMX software license when no internet connection is possible for the device with DigivibeMX installed.

View Options toolbar

- Clicking the down arrow on the right side of the View Options toolbar allows you to select from one of 18 skins to customize the appearance of DigivibeMX.



About toolbar

- **About:** Displays software version and copyright information.

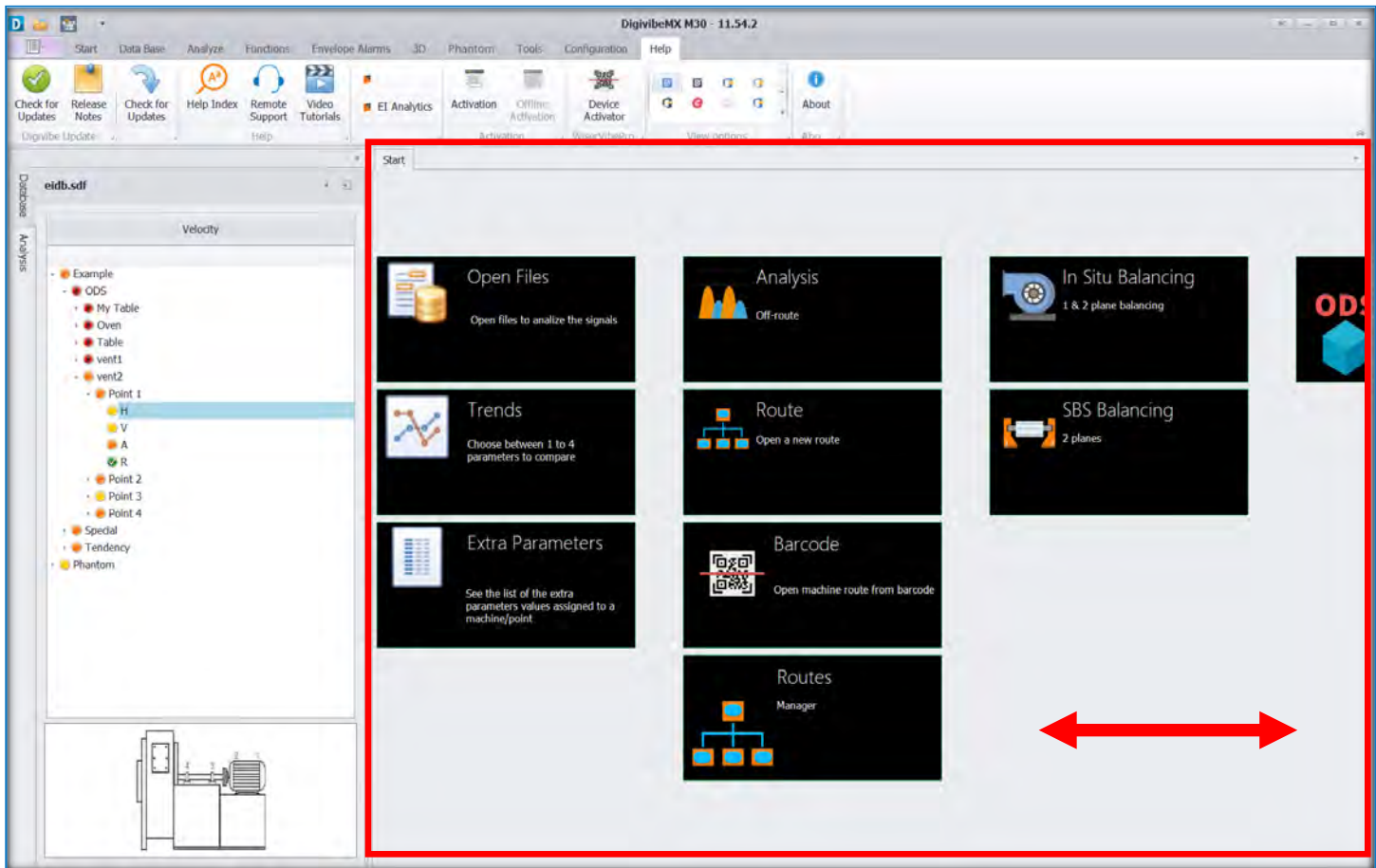
Using DigivibeMX® Software

DigivibeMX® is a powerful and versatile Condition Monitoring software. It empowers users with industry-leading vibration analysis and dynamic balancing capabilities. New tasks open in one of two ways:

- In a tabbed window of the **Analysis and Work Area**, which allows switching between several tasks in progress. Individual tabs can be closed when tasks are complete.
- As a separate module of the software, which can be closed when the task is complete (Route data collection and Balancing functions)

Start Tab


Features large quick-launch tiles to make selecting and launching key functions easier in a tablet computer environment. The pane can be scrolled horizontally by holding the mouse left-click button and dragging the screen, by rolling the mouse scroll wheel, or with a finger slide on touchscreens. Tiles may be rearranged as desired.



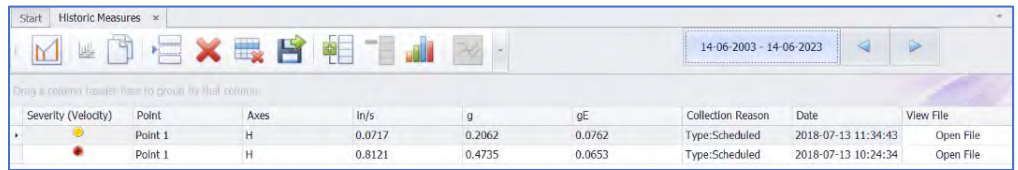
Start Screen tiles

Open Files tile (M20, M30, Phantom)

Opens the Historic Measures tab, which allows selection of vibration signal recordings from the database for analysis.




Open Files
Open files to analyze the signals



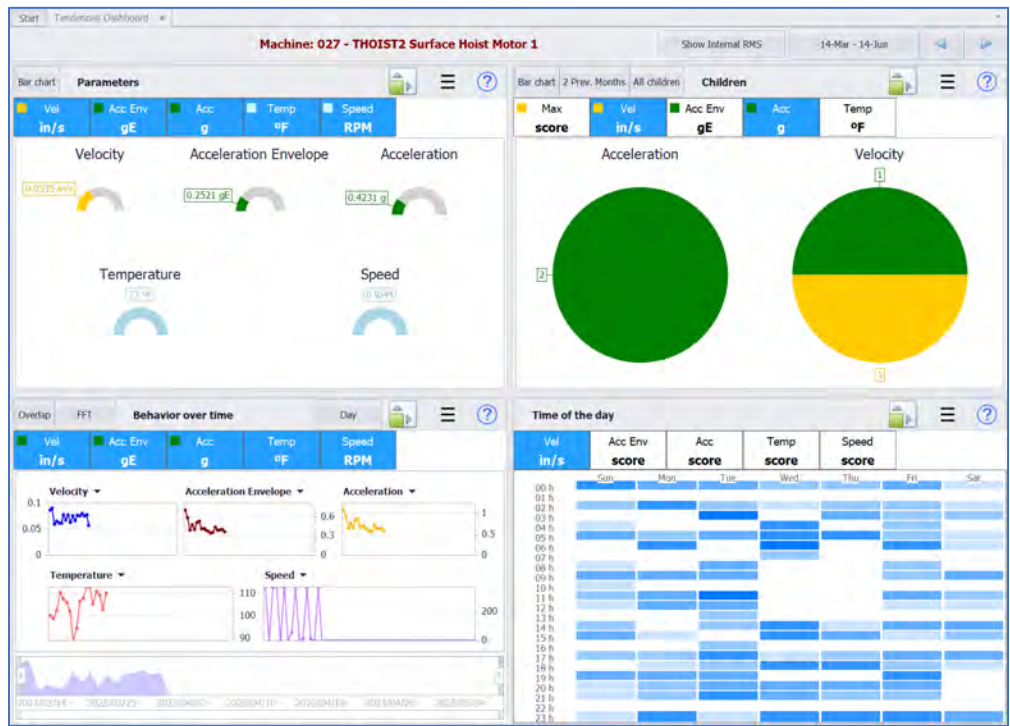
Severity (Velocity)	Point	Axes	In/s	g	gE	Collection Reason	Date	View File
●	Point 1	H	0.0717	0.2062	0.0762	Type:Scheduled	2018-07-13 11:34:43	Open File
●	Point 1	H	0.8121	0.4735	0.0653	Type:Scheduled	2018-07-13 10:24:34	Open File

Trends tile (M20, M30, Phantom)

Opens the Dashboard Tendency tab, which allows trending of vibration data from the database in real values (acceleration, velocity, displacement, acceleration enveloping) or severity (score).

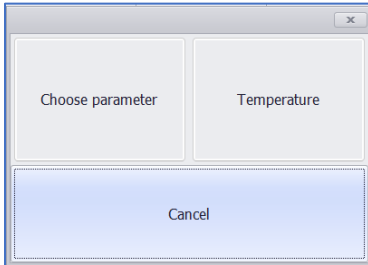
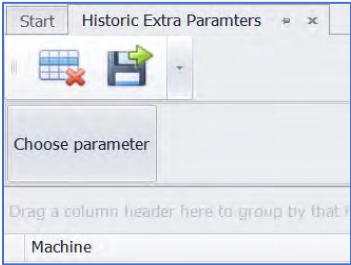
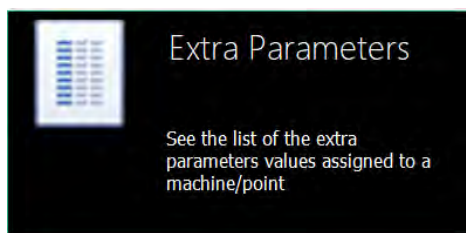


Trends
Choose between 1 to 4 parameters to compare

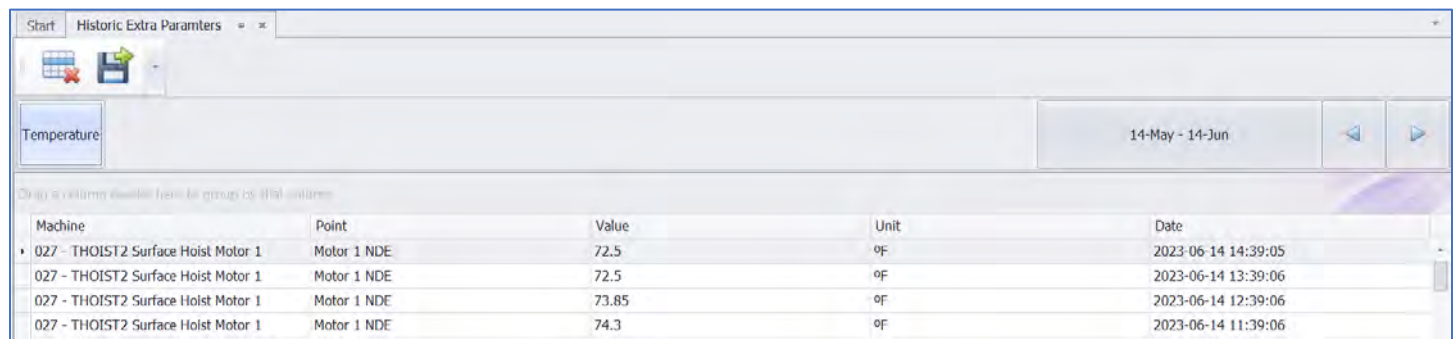


Extra Parameters tile

The Extra Parameters tile is used to display non-vibration information collected by Phantom Sensors such as Temperature, RPM, Electrical Current, Thermal Images, GPIO sensor outputs, etc. All data, **except vibration signals**, is accessed via the Extra Parameters tile. For all vibration signal files, use the Open Files tile.

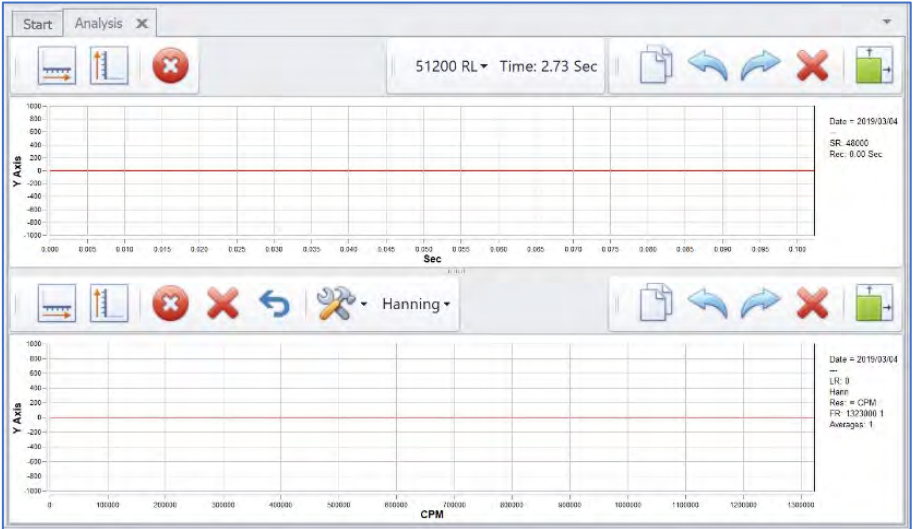
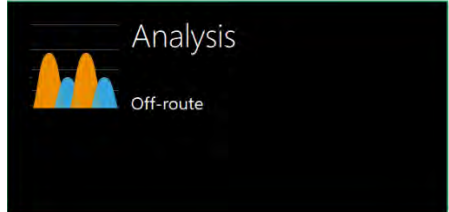


When the Historic Extra Parameters window opens, click on Choose Parameter; the available options will be displayed.



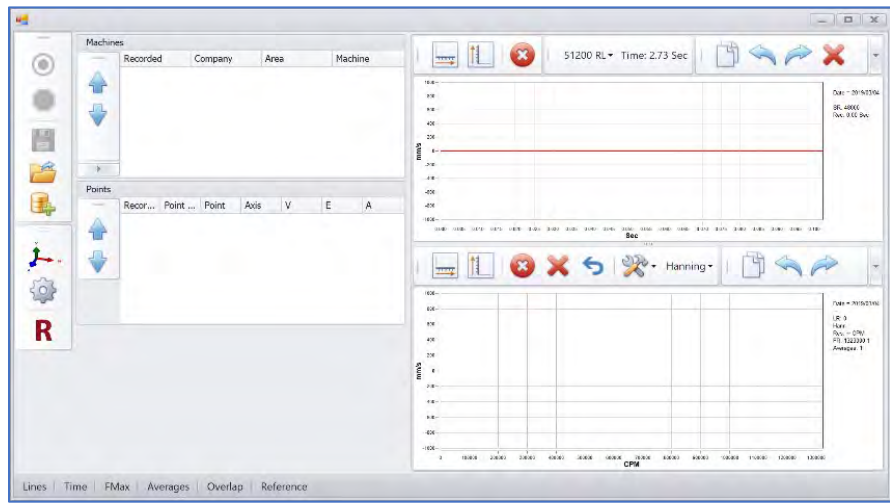
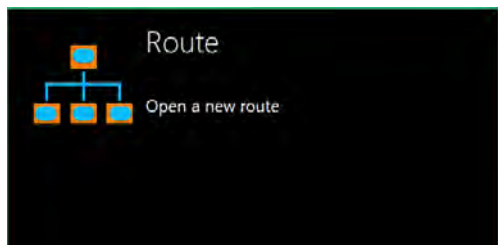
Analysis tile (M20, M30)

Opens the Analysis tab for collecting and analyzing off-route data.



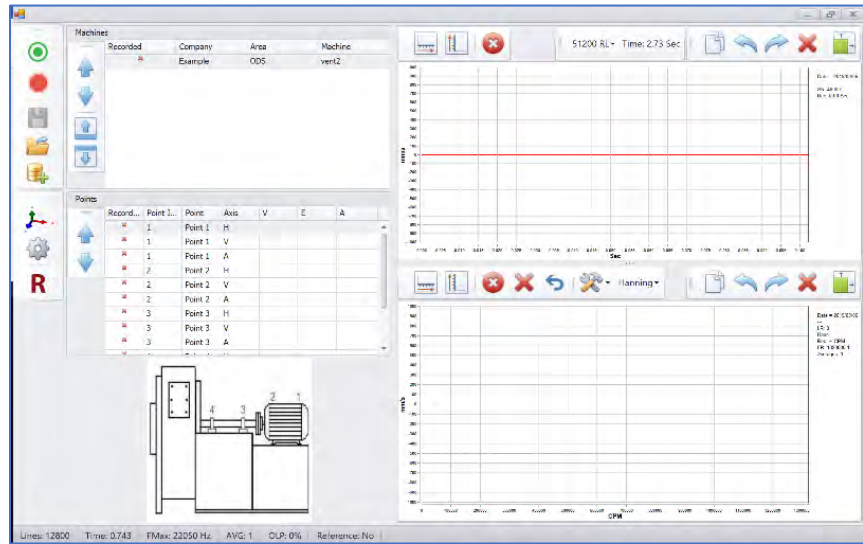
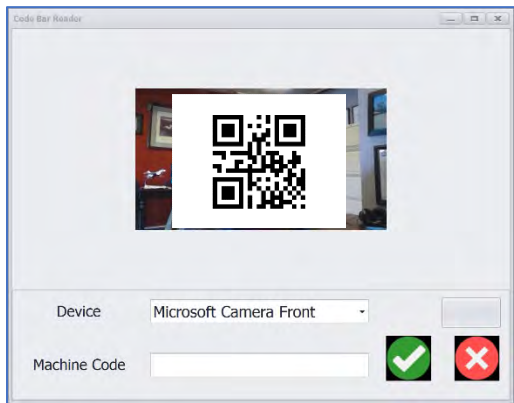
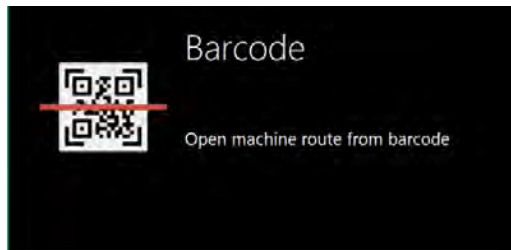
Route (Open) tile

Opens the Route module for loading and collecting an existing route.



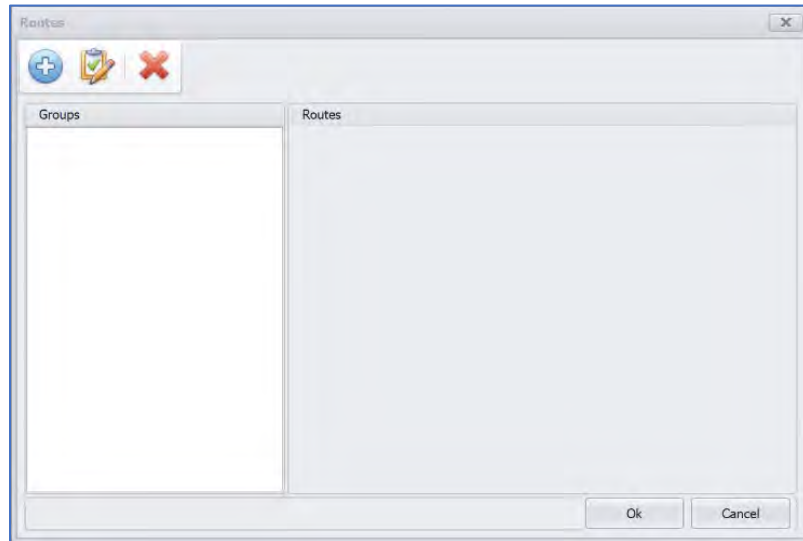
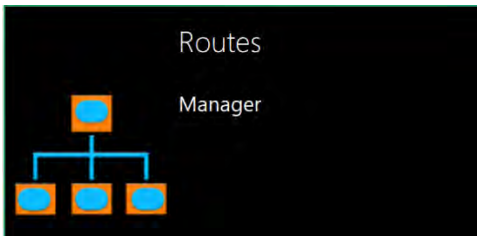
Barcode tile (M20, M30)

Opens the Barcode reader. A scanned machine then opens in the Route module for vibration data collection.



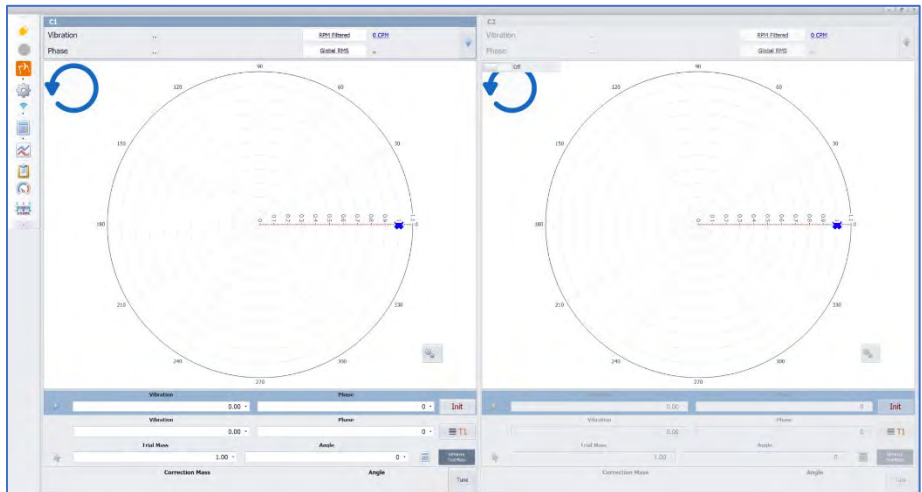
Routes Manager tile (M20, M30)

Opens the Routes window for creating new vibration data collection routes from machines in the current database.



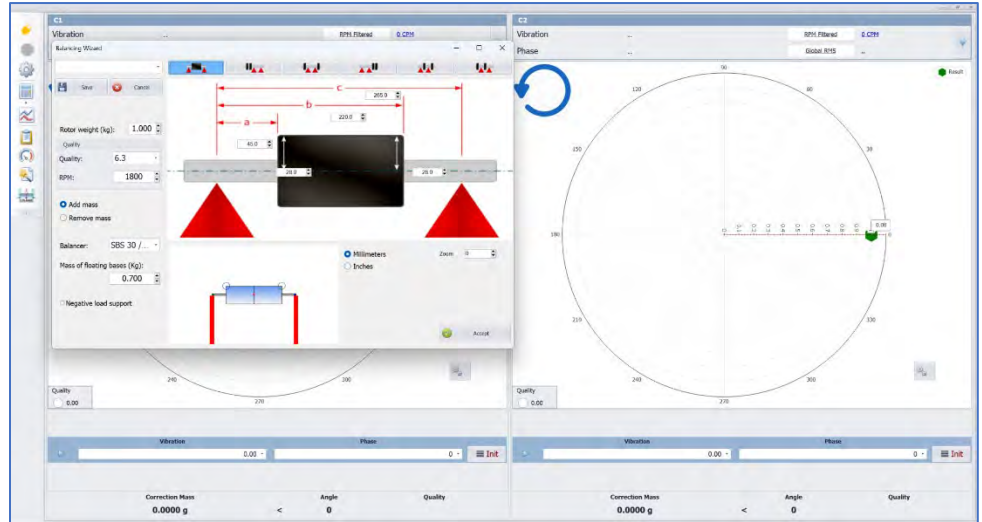
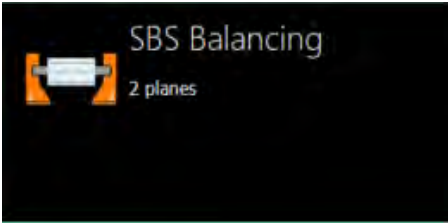
In Situ Balancing tile (M10, M30)

Opens the Balancing module to perform 1 and 2 plane balancing using the Influence Coefficients method. For details regarding In Situ and SBS balancing, see Balancing User Guides.



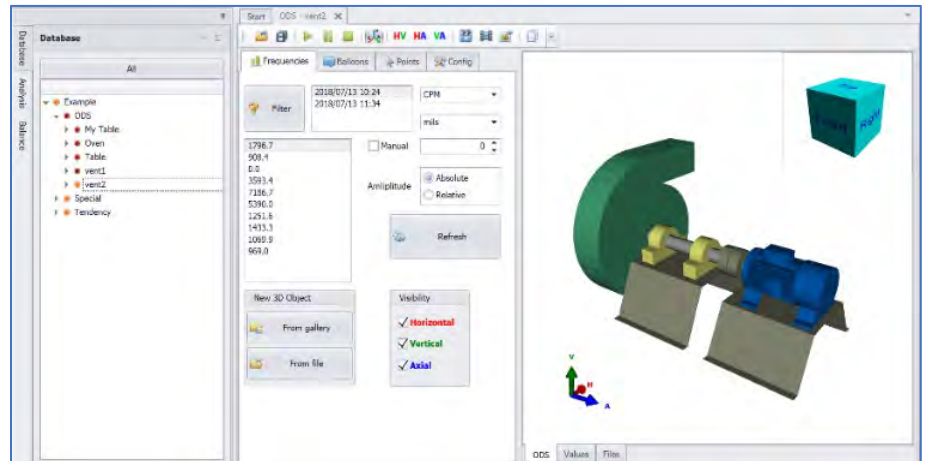
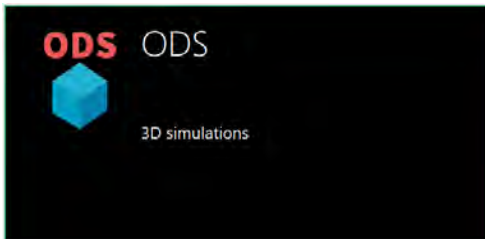
SBS Balancing tile (M10, M30)

Opens the Balancing module for 1 and 2 plane balancing for Soft Bearing Suspension balancing machines. Also opens the Balancing Wizard tool used with SBS balancing. For details regarding In Situ and SBS balancing, see Balancing User Guides.



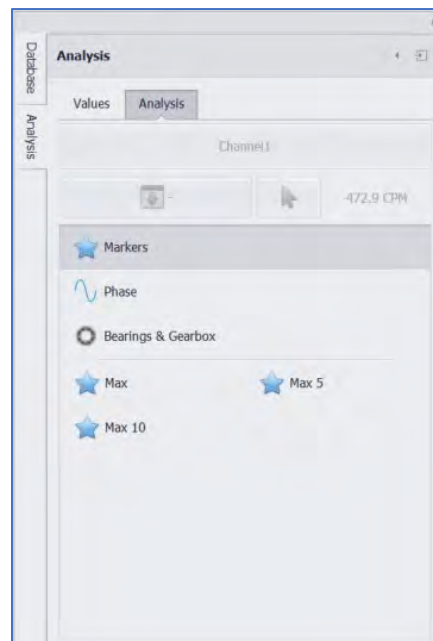
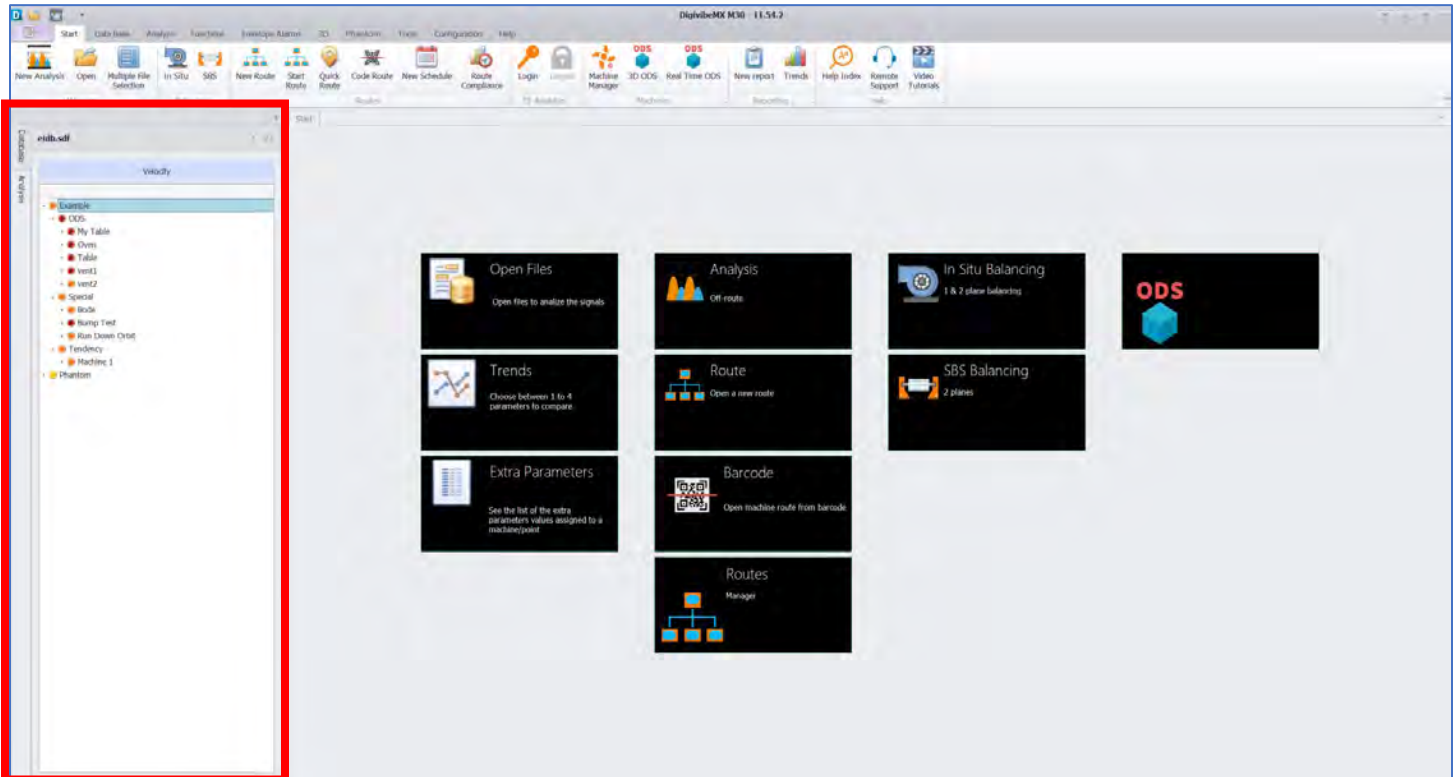
ODS tile (M20, M30)

Selecting a 3D-model assigned machine from the database, then selecting the ODS tile opens the machine in the ODS control panel.



Left-Hand Panel and Shortcut Tabs

The **left-hand panel**, also known as the Data Tree, provides information related to the current database or tasks in progress. It also features two shortcut tabs, allowing quick transition between viewing the Database and Analysis tasks in progress.

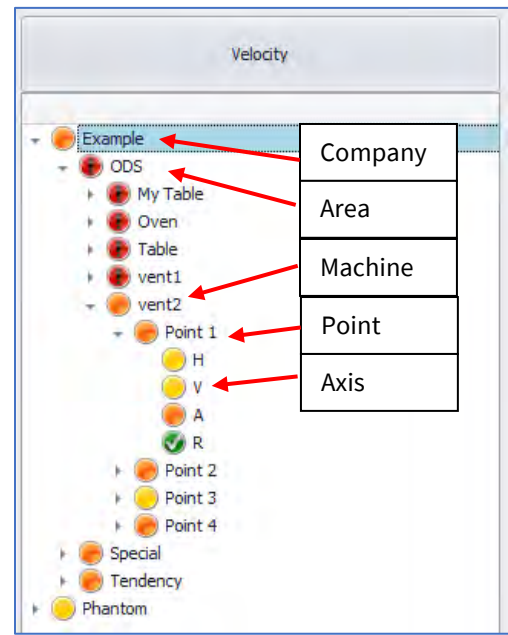


Database Tab

The Database Tab provides navigation within the currently-opened database. This is a file and folder system where all collected data is stored. The DigivibeMX® database is compatible with SQL, MySQL, SQLCe file formats. For specific Data Base Menu features and functions, please refer to the "Using the Data Base Menu" section on page 44.

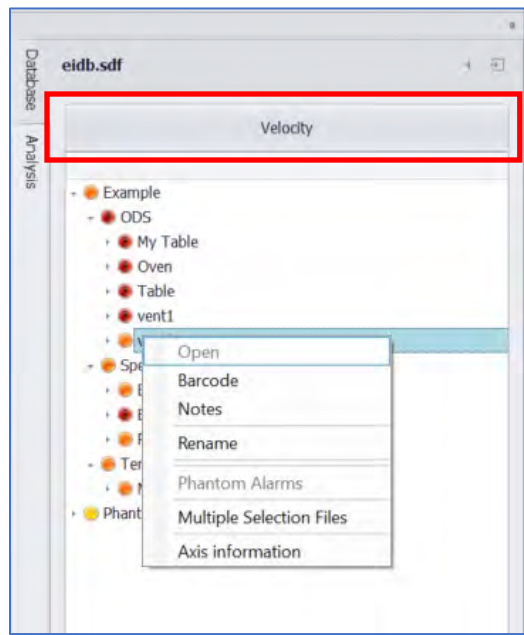
Database folders and files are displayed in a standard tree format. Database hierarchy is as follows:

1. **COMPANY:** This is the highest level in the database Typically this is configured using the Company Name, Customer Name or Plant Location (for service providers or other users collecting data in multiple plant locations).
2. **AREA:** This usually defined as a Production or Process Area or a building name.
3. **MACHINE:** Each machine is assigned a unique Machine ID.
4. **POINT:** Bearing or measurement location on the Machine.
5. **AXIS:** H (horizontal), V (vertical), A (axial) or R (reference channel for ODS rendering).



NOTE: Names are assigned to Company, Area, Machine and Points in the database. The only special character permitted in these name fields is the underscore.

If Machine Alarms are used, each level of the database will display the highest severity alarm for any collected data it contains. **The colors displayed reflect the most current data.** This includes RMS data. For example, if a Phantom sensor reported a yellow alarm condition, based on the configured alarm threshold, and subsequently reported a green RMS reading, the color shown will be green.



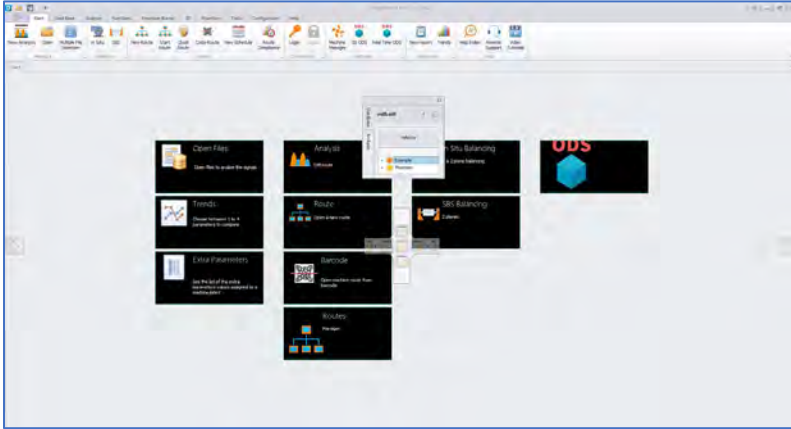
The data tree can be **filtered** to display various information such as Velocity(default), acceleration, etc. If alarms are configured for the parameter chosen, the display will reflect the corresponding colors.

NOTE: Right clicking on items in the Database opens a context menu. Active options available from the menu will depend upon the level of the item selected.





The button unpins the left-hand panel from its default location. The panel can be moved to the right-hand side of the Digivibe screen, stacked above, below or hidden. Click and hold the unpinned panel and drag toward the center of the screen. An orientation diagram appears. Drag the panel to the new desired position on the diagram.



Analysis Tab

The Analysis tab opens the telemetry panel for Vibration Analysis and Off-Route data collection. Up to 4 channels of data may be simultaneously displayed and compared.

The Analysis panel has 2 information tabs: Values and Analysis.

The Values information tab displays the following values of collected vibration data for each channel.

- **RMS:** Root Mean Square of overall vibration.
- **Max:** Maximum amplitude FFT peak.
- **Max Freq:** Frequency of highest FFT vibration peak.
- **Peak to Peak:** Amplitude of the waveform from its highest to lowest peak.
- **Crest Factor:** Compares how close the waveform is to a pure sinusoidal waveform value of 1.414.



The button hides the displayed information.



The button restores the hidden information.

Database

Analysis

[Unpin]

Analysis

Values

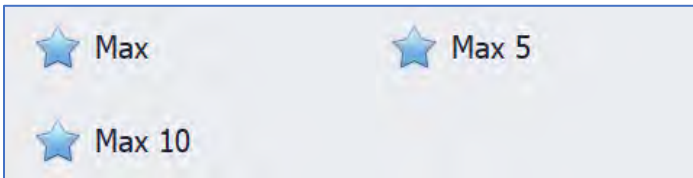
Analysis

C1 RMS:	0.0728
Max:	0.0399
Max Freq:	7186.7
Peak to Peak:	0.4284
Crest Factor:	2.90
C2 RMS:	0.8128
Max:	0.8524
Max Freq:	1796.7
Peak to Peak:	2.8083
Crest Factor:	1.78
C3 RMS:	0.1243
Max:	0.0877
Max Freq:	5390.0
Peak to Peak:	0.6247
Crest Factor:	2.40
C4 RMS:	0.0640
Max:	0.0329
Max Freq:	1796.7
Peak to Peak:	0.4496
Crest Factor:	3.17

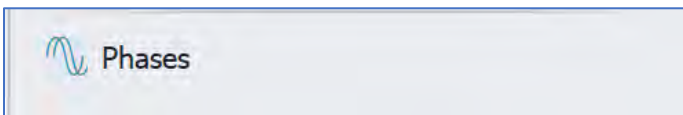
The **Analysis** information tab features several key functions for quickly analyzing common concerns.

- **Reference Channel button:** Used to select the channel to which analysis functions will be applied.
- **Frequency and Arrow buttons:** Used to select or specify the desired fundamental frequency to compare relative phase or calculate bearing and gear fault frequencies.

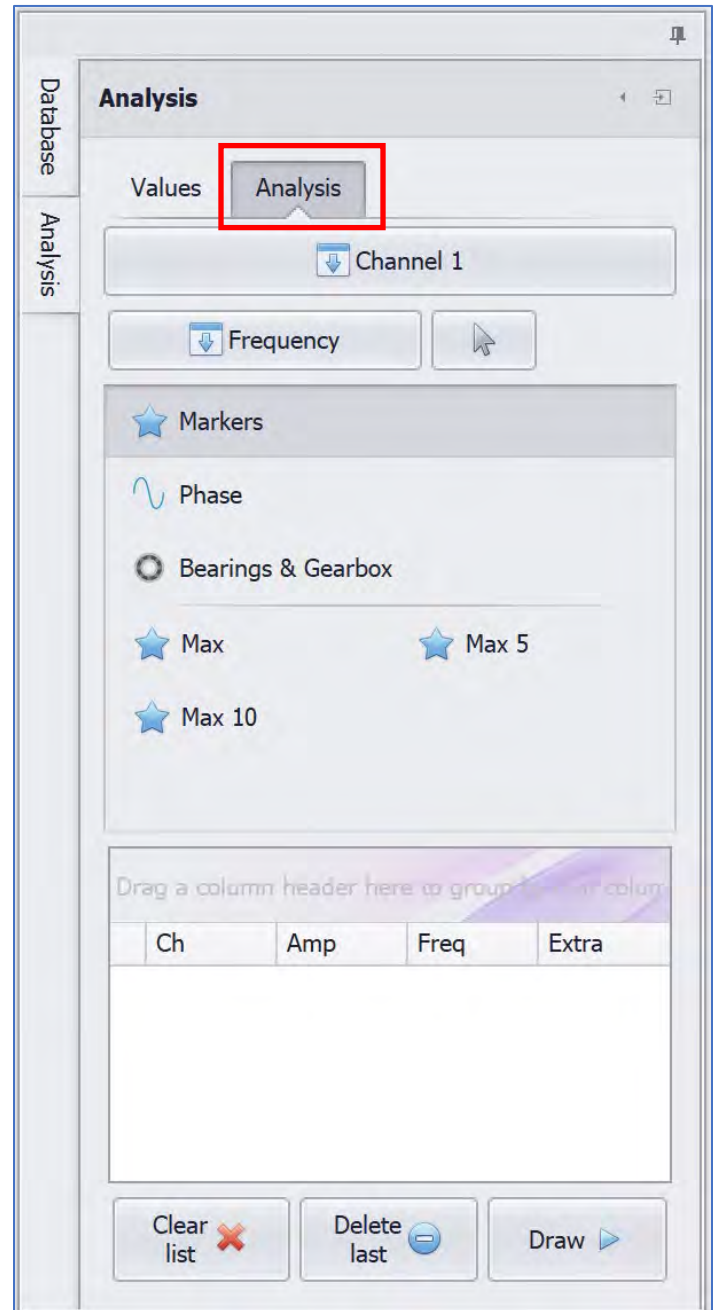
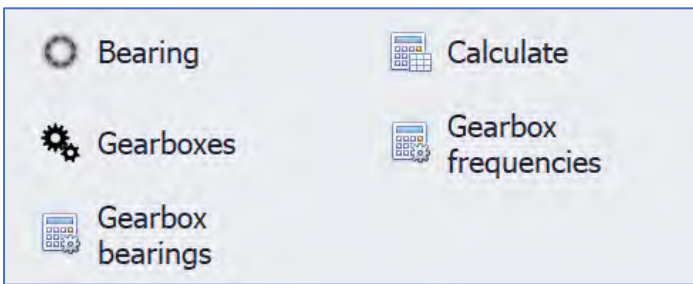
- **Markers:** Places markers on the FFT spectrum for the Max, Max 5 or Max 10 frequencies, as desired.



- **Phase:** Shows the relative phase comparison for all channels open for analysis (up to 4).



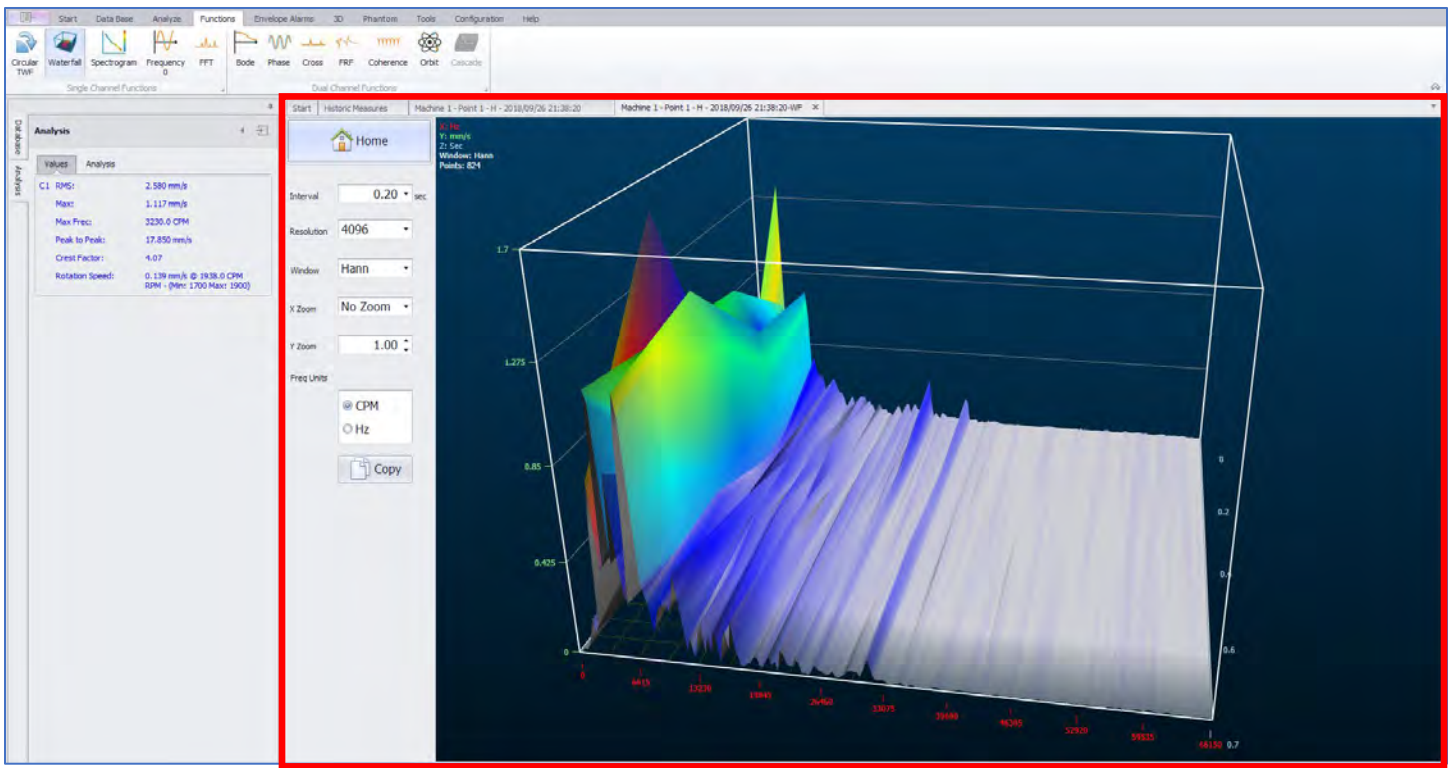
- **Bearings & Gearboxes:** Displays bearing and gearbox fault frequencies assigned during machine building in the database. If none are assigned, they may be added using the Bearing and Gearboxes tools.



- **Values Field:** Displays values for the specified Markers, Phase, or Bearing & Gearbox calculations.
- **Clear list:** Clears data from the Values Field.
- **Delete last:** Deletes the last value calculated from the Values Field.
- **Draw:** Places corresponding markers on the FFT spectrum for values displayed in the Values Field.

Analysis and Work Area

The Start screen, new tasks and functions open as tabbed windows in the **Analysis and Work Area**.

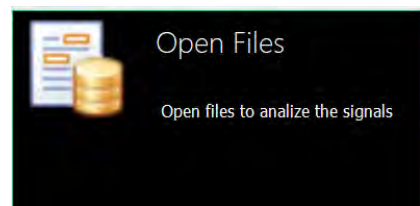


This format allows users to easily switch between various tasks in progress. When a certain task or function is no longer required, its tab may simply be closed. The only exceptions are Dynamic Balancing and Route Data Collection functions, which open separately in their own independent software modules.

Historic Measures window (M20, M30, Phantom)

Used to open recorded signal files stored in the database.

On the Start tab, select the Open Files tile to open the Historic Measures window.



Selecting the *Company* level in the data tree displays the most severe data collection for each *Area*.

Severity (Velocity)	Area	MAXmm/s	MAX g	MAX gE	C_File
●	ODS	36.5850	--	0.5338	No File
●	Special	20.0031	--	0.0464	No File
●	Tendency	2.8495	--	0.0799	No File

Selecting the *Area* level in the data tree displays the most severe data collection for each for each *Machine* in that area.

Severity (Velocity)	Machine	MAXmm/s	MAX g	MAX gE
My Table	My Table	36.5850	-	0.0196
Oven	Oven	24.9680	-	0.1017
Table	Table	10.2494	-	0.0313
vent1	vent1	23.8397	-	0.5338
vent2	vent2	6.9309	-	0.1900

Selecting the *Machine* level in the data tree displays the most recent collections at each *Point* and *Axis* for that machine. Select **Open File** to open the Time Waveform and FFT in the Analysis window.

Severity (Velocity)	Point	Axes	mm/s	g	gE	Collection Reason	Date	View File
	Point 1	H	2.5985	0.1880	0.0608	Type:Requested	2018-09-26 21:38:20	Open File
	Point 1	V	2.8495	0.2179	0.0791	Type:Requested	2018-09-26 21:38:37	Open File
	Point 1	A	1.5485	0.1204	0.0357	Type:Requested	2018-09-26 21:38:40	Open File
	Point 2	H	1.3161	0.1041	0.0321	Type:Requested	2018-09-26 21:38:42	Open File
	Point 2	V	2.5762	0.2014	0.0799	Type:Requested	2018-09-26 21:38:44	Open File
	Point 2	A	1.5751	0.1344	0.0452	Type:Requested	2018-09-26 21:38:46	Open File

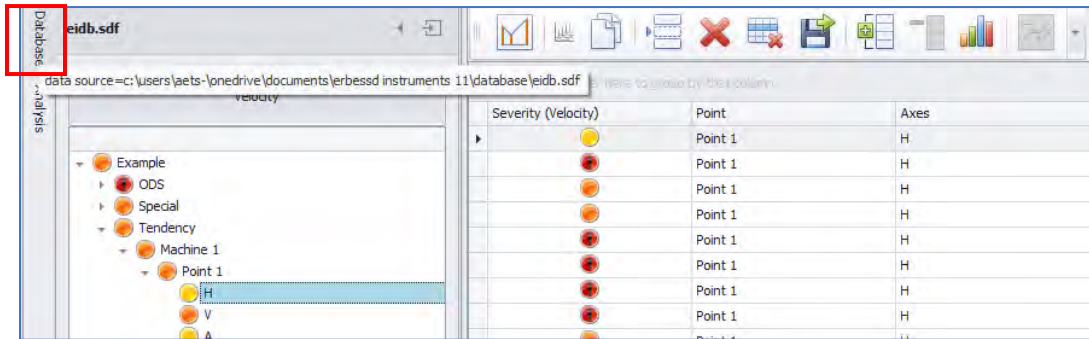
Selecting the *Point* level in the data tree displays the most recent collections at each *Axis* for that point. Select **Open File** to open the Time Waveform and FFT in the Analysis window.

Severity (Velocity)	Point	Axes	mm/s	g	gE	Collection Reason	Date	View File
	Point 1	H	2.5985	0.1880	0.0608	Type:Requested	2018-09-26 21:38:20	Open File
	Point 1	V	2.8495	0.2179	0.0791	Type:Requested	2018-09-26 21:38:37	Open File
	Point 1	A	1.5485	0.1204	0.0357	Type:Requested	2018-09-26 21:38:40	Open File

Selecting the *Axis* level in the data tree displays all historical collections at that axis. Select **Open File** to open the Time Waveform and FFT in the Analysis window.

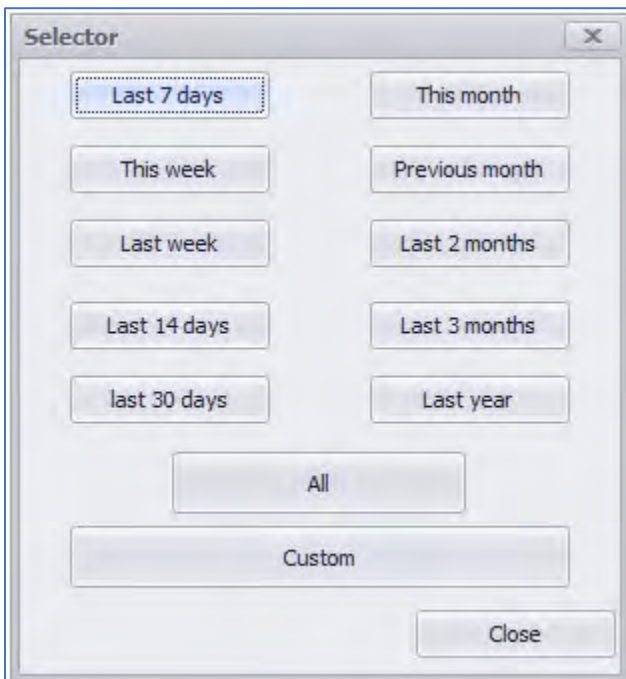
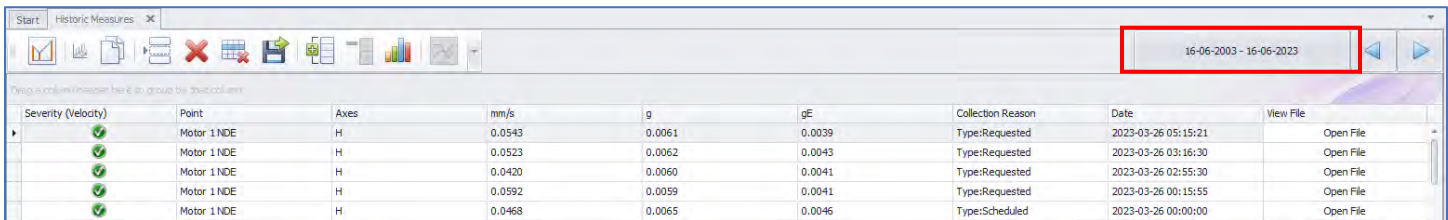
Severity (Velocity)	Point	Axes	mm/s	g	gE	Collection Reason	Date	View File
	Point 1	H	2.5985	0.1880	0.0608	Type:Scheduled	2018-09-26 21:38:20	Open File
	Point 1	H	8.1979	0.2430	0.0463	Type:Scheduled	2018-07-15 13:01:59	Open File
	Point 1	H	3.2450	0.2431	0.0392	Type:Scheduled	2018-04-27 00:00:00	Open File
	Point 1	H	3.2450	0.2431	0.0392	Type:Scheduled	2018-04-27 00:00:00	Open File
	Point 1	H	13.9038	0.4399	0.0847	Type:Scheduled	2018-04-01 00:00:00	Open File
	Point 1	H	11.8117	0.4692	0.1385	Type:Scheduled	2018-03-15 00:00:00	Open File
	Point 1	H	9.6843	0.3952	0.0500	Type:Scheduled	2018-03-01 00:00:00	Open File
	Point 1	H	7.1835	0.3397	0.0443	Type:Scheduled	2018-03-15 00:00:00	Open File
	Point 1	H	4.0922	0.3958	0.0555	Type:Scheduled	2018-02-01 00:00:00	Open File
	Point 1	H	4.2839	0.3196	0.0259	Type:Scheduled	2018-01-15 00:00:00	Open File
	Point 1	H	6.0208	0.3300	0.0340	Type:Scheduled	2018-01-01 00:00:00	Open File

To view the file path where the current database is located, hover the cursor over the left-hand **Database** tab.



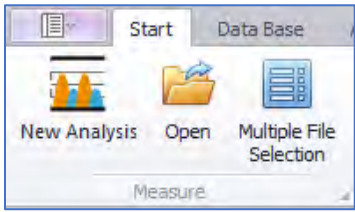
IMPORTANT: The Historic Measures window displays signal files sorted by the **DATE**. The default date range is one month from the current date.

Clicking on the **date** button opens a Selector window to change the date range.

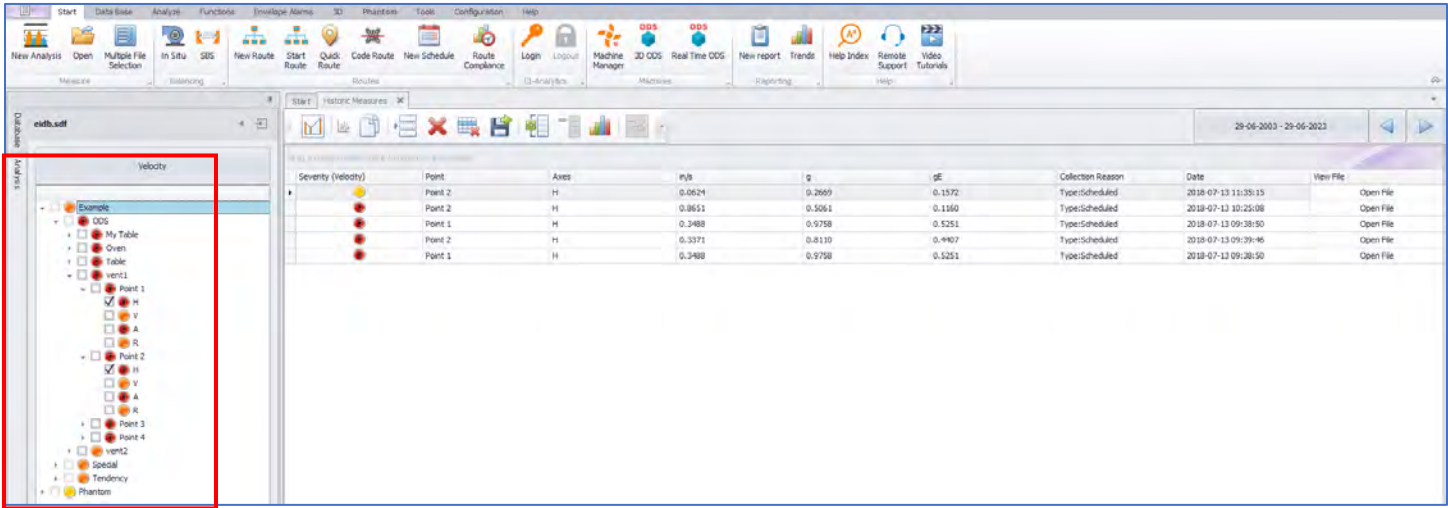


Opening Multiple files

Click the Multiple File Selection button on the Start Menu.

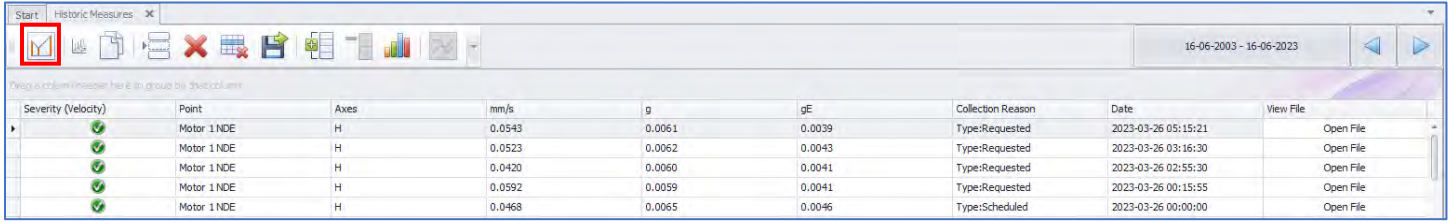


The Data tree will change to include check boxes for each level of the database. By using the check boxes, multiple selected signal files can be shown together in the Historic Measures window.



Historic Measure window tools

RMS: For Phantom sensors, RMS velocity data is collected periodically and stored in the database. To toggle the display of RMS data, use the **RMS** toolbar button. This icon will be greyed out for data collected by portable sensors such as the WiSER3X.



The **Collection Reason** column shows the RMS values as **Type:Internal RMS**. No signal file (Timewave form or FFT) is created for RMS readings. Neither acceleration nor acceleration envelope data is included in the RMS data.

Severity (Velocity)	Point	Axes	mm/s	g	gE	Collection Reason	Date	View File
✓	Motor 1 NDE	H	0.0500	-	-	Type:Internal RMS	2023-03-26 09:58:45	No File
✓	Motor 1 NDE	H	0.0700	-	-	Type:Internal RMS	2023-03-26 08:54:56	No File
✓	Motor 1 NDE	H	0.0500	-	-	Type:Internal RMS	2023-03-26 06:54:56	No File
✓	Motor 1 NDE	H	0.0500	-	-	Type:Internal RMS	2023-03-26 05:58:46	No File
✓	Motor 1 NDE	H	0.0543	0.0061	0.0039	Type:Requested	2023-03-26 05:15:21	Open File
✓	Motor 1 NDE	H	0.400	-	-	Type:Internal RMS	2023-03-26 04:58:46	No File
✓	Motor 1 NDE	H	0.0500	-	-	Type:Internal RMS	2023-03-26 03:58:46	No File
✓	Motor 1 NDE	H	0.0523	0.0062	0.0043	Type:Requested	2023-03-26 03:16:30	Open File
✓	Motor 1 NDE	H	0.0500	-	-	Type:Internal RMS	2023-03-26 02:58:46	No File
✓	Motor 1 NDE	H	0.0420	0.0060	0.0041	Type:Requested	2023-03-26 02:55:30	Open File

Collection reasons include:

Route: Route data collection from portable sensors, such as WiSER3X.

Scheduled: Regular collection by Interval or Time-of-day.

Software Reset: Sensor configuration changed.

Manual Data: Off-Route signal data was collected and saved to a specific machine point.

Requested: On-demand request for Recording via software or sensor was reset by magnet.

Triggered: Recording triggered by another sensor.

Axis Alarmed: This axis reported an alarm condition.

Axis Not Alarmed: One of the other two axes of this machine point reported an alarm condition (triaxial sensor).

Internal RMS: Velocity RMS calculated by the sensor.

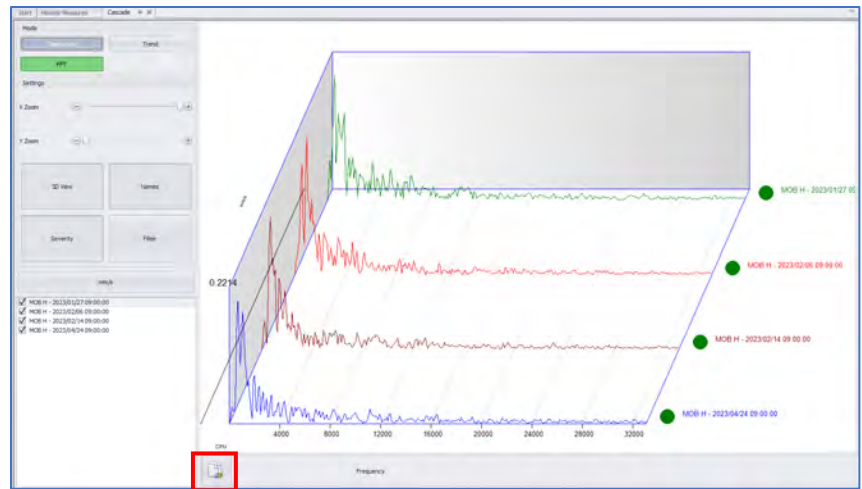
Cascade: To open multiple readings in a cascade plot, highlight the desired readings (drag down the list or Ctrl+click to select desired rows) and select the **Cascade** icon

Severity (Velocity)	Point	Axes	mm/s	g	gE	Collection Reason	Date	View File
	Point 1	H	2.5985	0.1880	0.0608	Type:Scheduled	2018-09-26 21:38:20	Open File
	Point 1	H	8.1979	0.2430	0.0463	Type:Scheduled	2018-07-15 15:09:59	Open File
	Point 1	H	3.2450	0.2431	0.0192	Type:Scheduled	2018-04-27 00:00:00	Open File
	Point 1	H	3.2450	0.2431	0.0192	Type:Scheduled	2018-04-27 00:00:00	Open File
	Point 1	H	13.9018	0.4359	0.0847	Type:Scheduled	2018-04-01 00:00:00	Open File
	Point 1	H	11.8117	0.4693	0.1385	Type:Scheduled	2018-03-15 00:00:00	Open File
	Point 1	H	9.6843	0.3952	0.0500	Type:Scheduled	2018-03-01 00:00:00	Open File

Mode: Choose between TWF, FFT or Trends view.

Settings:

- Increase or decrease zoom on the X or Y axis.
- Switch between 2D or 3D view.
- Toggle point name labels on/off.
- Toggle severity indication on/off.
- Toggle filter on/off.
- Select amplitude units to display.



The check boxes can be used to display or hide selected recordings.

Use the **Copy** button to copy the cascade plot to the computer clipboard and paste into a Word document, email, etc.

The Historic Measures tab **Copy** button copies data from highlighted cells to paste into Excel, Word, etc.

Severity (Velocity)	Point	Axes	mm/s	g	gE	Collection Reason	Date	View File
	Point 1	H	2.5985	0.1880	0.0608	Type:Scheduled	2018-09-26 21:38:20	Open File
	Point 1	H	8.1979	0.2430	0.0463	Type:Scheduled	2018-07-15 15:09:59	Open File
	Point 1	H	3.2450	0.2431	0.0192	Type:Scheduled	2018-04-27 00:00:00	Open File
	Point 1	H	3.2450	0.2431	0.0192	Type:Scheduled	2018-04-27 00:00:00	Open File
	Point 1	H	13.9018	0.4359	0.0847	Type:Scheduled	2018-04-01 00:00:00	Open File
	Point 1	H	11.8117	0.4693	0.1385	Type:Scheduled	2018-03-15 00:00:00	Open File
	Point 1	H	9.6843	0.3952	0.0500	Type:Scheduled	2018-03-01 00:00:00	Open File

The **Enter Data Manually** button allows data to be manually entered into the database.

Severity (Velocity)	Point	Axes	mm/s	g	gE	Collection Reason	Date	View File
●	Point 1	H	2.5985	0.1880	0.0608	Type:Scheduled	2018-09-26 21:38:20	Open File
●	Point 1	H	8.1979	0.2430	0.0463	Type:Scheduled	2018-07-15 15:09:59	Open File
●	Point 1	H	3.2450	0.2431	0.0192	Type:Scheduled	2018-04-27 00:00:00	Open File
●	Point 1	H	3.2450	0.2431	0.0192	Type:Scheduled	2018-04-27 00:00:00	Open File
●	Point 1	H	13.9018	0.4359	0.0847	Type:Scheduled	2018-04-01 00:00:00	Open File
●	Point 1	H	11.8117	0.4693	0.1385	Type:Scheduled	2018-03-15 00:00:00	Open File
●	Point 1	H	9.6843	0.3952	0.0500	Type:Scheduled	2018-03-01 00:00:00	Open File

Manual Data
003 - THOISTS Production Hoist Motor 1
Motor 1 NDE
H

Machine Point Axes

Date: 2020/09/03 10:59:24

Velocity RMS: 0 mm/s
Envelope Acc RMS: 0 gE
Acceleration RMS: 0 mm/s²

Save Cancel

Clicking on **Delete** opens the Delete Manager window which allows filtering of data for deletion. For example, if the Delete Only Files radio button is selected, as shown below, only full data collection files will be deleted, the RMS data will remain. Delete All Measures deletes both signal files and RMS data.

Severity (Velocity)	Point	Axes	mm/s	g	gE	Collection Reason	Date	View File
●	Point 1	H	2.5985	0.1880	0.0608	Type:Scheduled	2018-09-26 21:38:20	Open File
●	Point 1	H	8.1979	0.2430	0.0463	Type:Scheduled	2018-07-15 15:09:59	Open File
●	Point 1	H	3.2450	0.2431	0.0192	Type:Scheduled	2018-04-27 00:00:00	Open File
●	Point 1	H	3.2450	0.2431	0.0192	Type:Scheduled	2018-04-27 00:00:00	Open File
●	Point 1	H	13.9018	0.4359	0.0847	Type:Scheduled	2018-04-01 00:00:00	Open File
●	Point 1	H	11.8117	0.4693	0.1385	Type:Scheduled	2018-03-15 00:00:00	Open File
●	Point 1	H	9.6843	0.3952	0.0500	Type:Scheduled	2018-03-01 00:00:00	Open File

Delete Measures

Select a machine to show the points
Example
Phantom

Delete data from points Delete data from ALL machines
 Delete data from machines

Check All

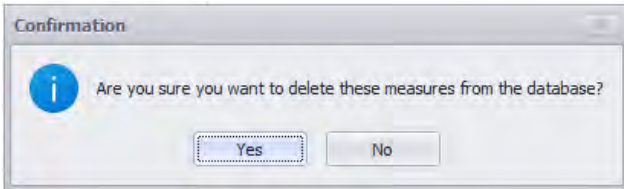
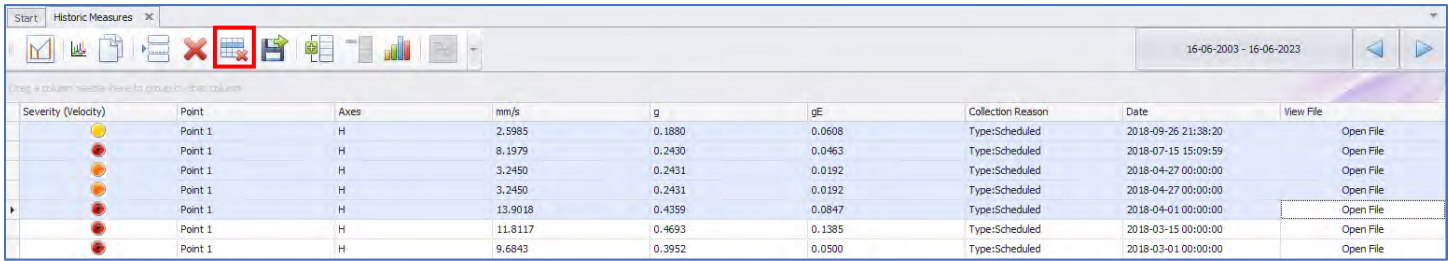
Measurements from the selected date and earlier will be deleted
Pick a date: 2020/09/03

Horizontal Vertical Axial

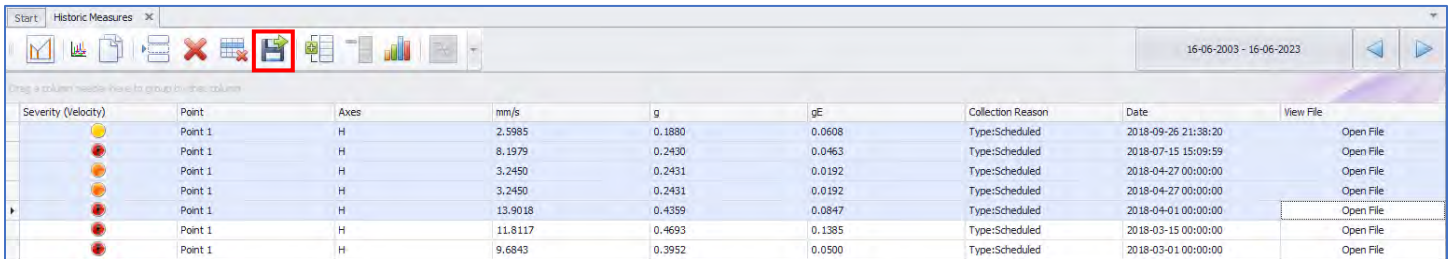
Delete All Measures
 Delete Only Files

Delete Close

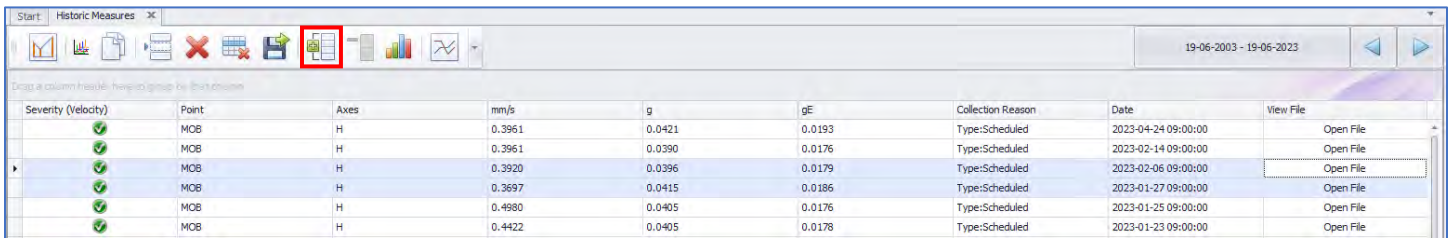
The **Delete Multiple Rows** button will delete any highlighted rows, but will pop an “Are you sure?” screen first.



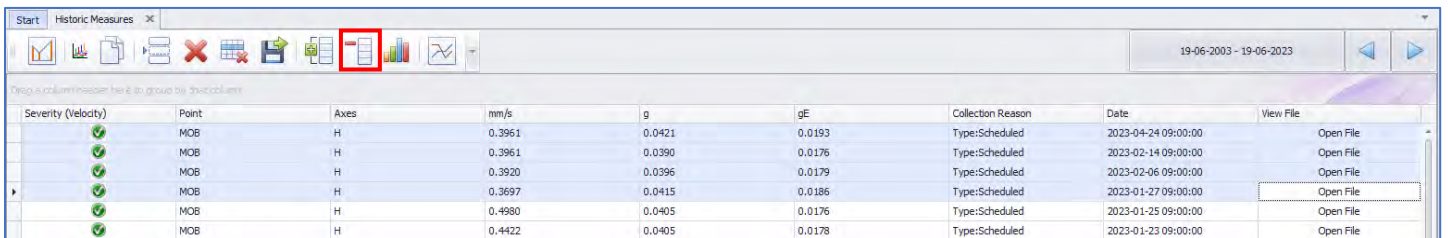
The **Export** button allows exporting of data from selected rows to Excel , Word or CSV format files .



The **Add Measures** button is used to select data to be used to generate an Octave Band chart.



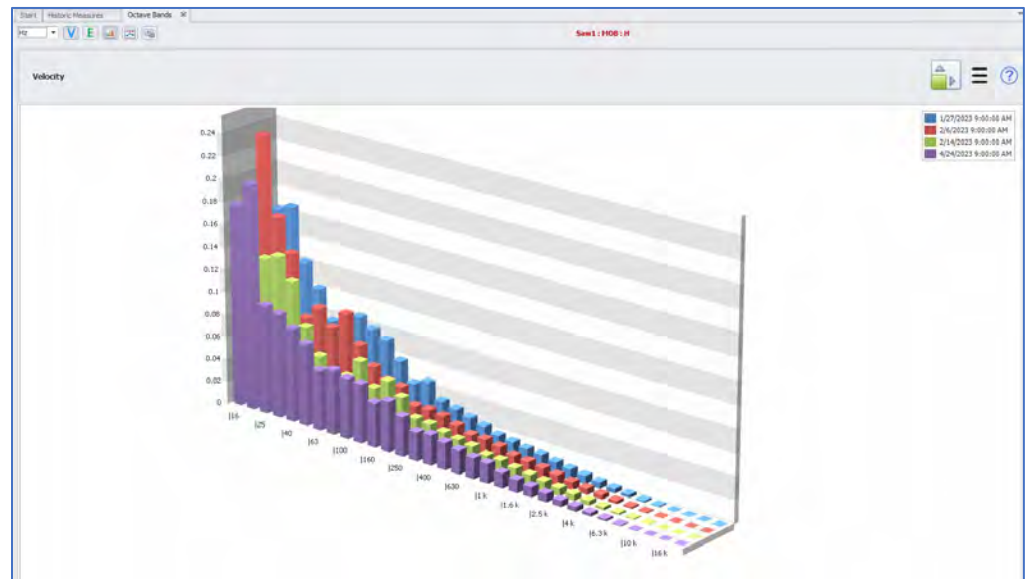
The **Remove Measures** button removes selected rows from the Octave band chart.



The **Open Octave Band Chart** button displays the data previously selected in the Octave Bands window.

Severity (Velocity)	Point	Axes	mm/s	g	gE	Collection Reason	Date	View File
✓	MOB	H	0.3961	0.0421	0.0193	Type:Scheduled	2023-04-24 09:00:00	Open File
✓	MOB	H	0.3961	0.0390	0.0176	Type:Scheduled	2023-02-14 09:00:00	Open File
✓	MOB	H	0.3920	0.0396	0.0179	Type:Scheduled	2023-02-06 09:00:00	Open File
✓	MOB	H	0.3697	0.0415	0.0186	Type:Scheduled	2023-01-27 09:00:00	Open File
✓	MOB	H	0.4980	0.0405	0.0176	Type:Scheduled	2023-01-25 09:00:00	Open File
✓	MOB	H	0.4422	0.0405	0.0178	Type:Scheduled	2023-01-23 09:00:00	Open File

The Octave Band chart can be displayed in bar or line graph view, be set to CPM or Hz, and show velocity or enveloped acceleration info. The Frequency Panel can also be expanded for more details.



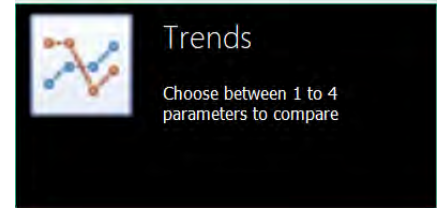
When multiple rows are selected in the Historic Measures window, the **Open Multiple Files** button may be used to show up to 4 signals simultaneously.

Severity (Velocity)	Point	Axes	mm/s	g	gE	Collection Reason	Date	View File
✓	MOB	H	0.3961	0.0421	0.0193	Type:Scheduled	2023-04-24 09:00:00	Open File
✓	MOB	H	0.3961	0.0390	0.0176	Type:Scheduled	2023-02-14 09:00:00	Open File
✓	MOB	H	0.3920	0.0396	0.0179	Type:Scheduled	2023-02-06 09:00:00	Open File
✓	MOB	H	0.3697	0.0415	0.0186	Type:Scheduled	2023-01-27 09:00:00	Open File
✓	MOB	H	0.4980	0.0405	0.0176	Type:Scheduled	2023-01-25 09:00:00	Open File
✓	MOB	H	0.4422	0.0405	0.0178	Type:Scheduled	2023-01-23 09:00:00	Open File

All signals are shown together, superimposed in the same Time Waveform and FFT windows.

Dashboard Tendency window (M20, M30, Phantom)

On the Start tab, select the Trends tile to open the Dashboard Tendency window.

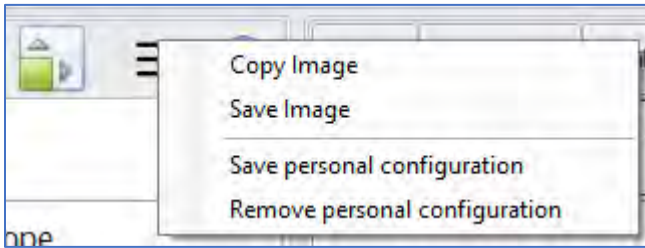


The Dashboard Tendency window features four panels of machine data trending information. The information displayed is determined by the **database level** and **date range** selected. Information in each of the four panels is derived from the alarms set (displacement, velocity, acceleration and acceleration enveloping). Click on the desired values in each panel to instantly re-render the graph according to score (severity), vibration amplitude or hidden from view. Moving the cursor across a graph produces a cursor line for specific point information.

For each panel of the Tendencies tab, there is an option to expand the panel to full screen:



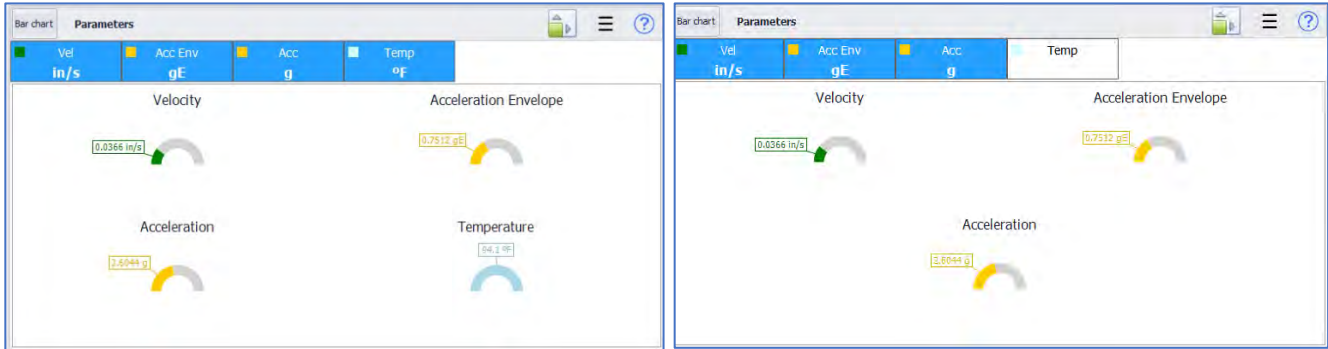
Options to Copy or Save the panel display are found in the Menu.



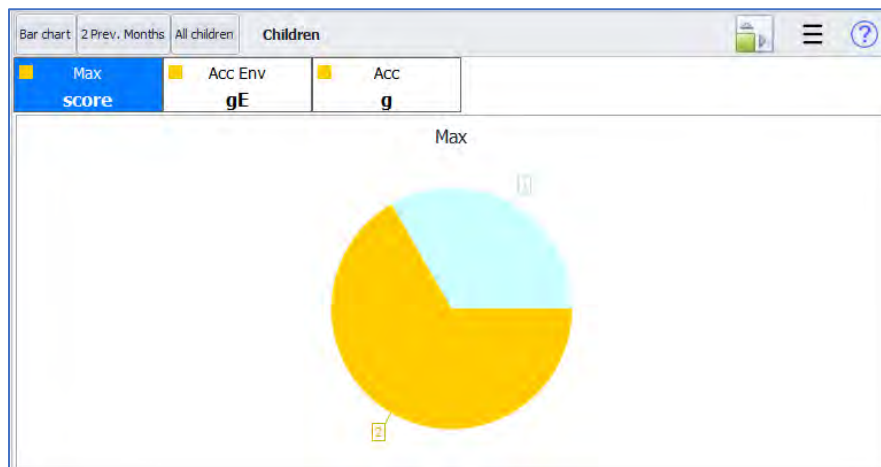
Save Personal Configuration retains the current options for reviewing subsequent items in the Tendencies tab. The settings will revert to default once the current DigivibeMX session is closed. Remove personal configuration resets the options to default.



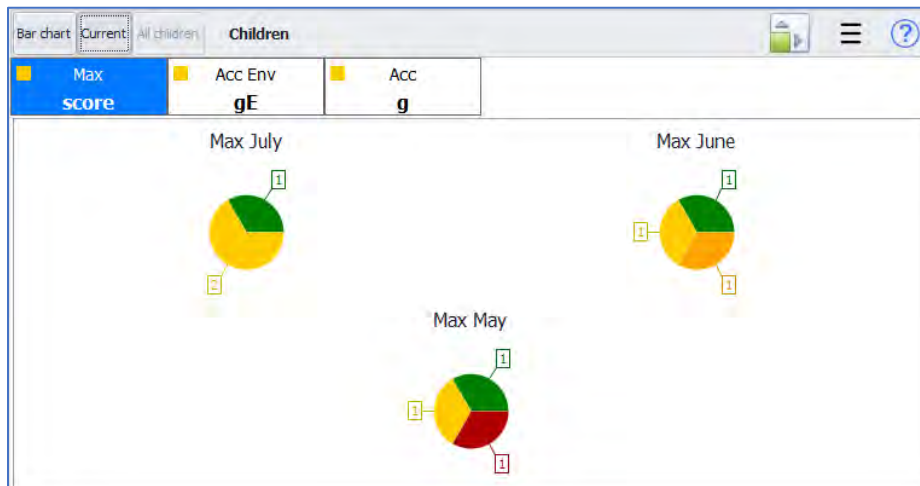
- Parameters panel** – Chart display of the last recorded measurement for the database level selected. Left/Right chart scales correspond to the nearest value displayed. Parameters may be added or removed from the display by clicking on them. Those highlighted in Blue will be displayed Data may also be shown in Bar chart mode.



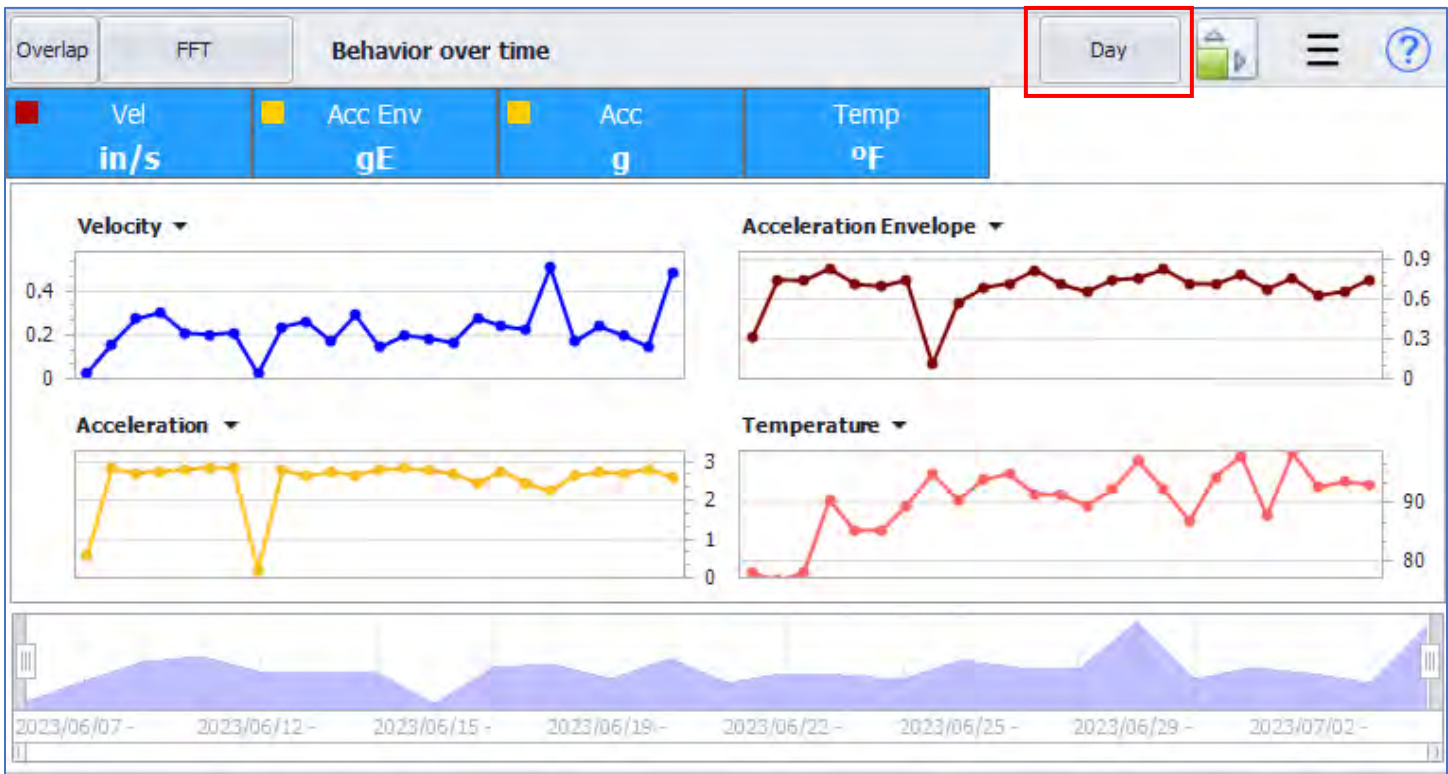
- Children panel** – Displays the last recording values in pie chart or bar chart view for children under the parent database level selected.



Selecting **2 Prev. Months** updates the display accordingly and toggles the button to allow reverting to **Current**:



- **Behavior Over Time panel** – Displays a trend line of highest values of the day for children under the selected parent level of database, for the date range selected. Left/Right chart scales correspond to values selected.



Click on the **Day** button to change the date range to be displayed.



- **Time of the Day panel** – Displays the highest severity or amplitude collection on the indicated day and time. The blue bars indicate data collections. Higher score or amplitude recordings appear darker. Hovering the cursor over a blue bar displays the corresponding value.
- **Show RMS button:** Toggles the addition of RMS data to the trends display.

The Expand panel button will expand the selected panel to full screen mode.

Using the Data Base Menu (M20, M30, Phantom)

The Database Menu features tools to manage the three database types compatible with DigivibeMX® - SQL, MySQL and SQLCe.

Toolbars on the Data Base Menu include:

- **Machine toolbar:** The Machine Manager is used to create, edit, or delete machines, bearings and gearboxes. Machine Learning may also be configured here, as well as the Notes feature.
- **Connection toolbar:** Create, connect to and refresh databases with recent updates.
- **Synchronize toolbar:** Used for the Synchronize and Backup database features.
- **EI-Analytics toolbar:** Login and Logout of an EI-Analytic database (with subscription.)
- **Tools toolbar:** Explore the data tables and database Utilities, show current database size and use the Shrink Database feature.



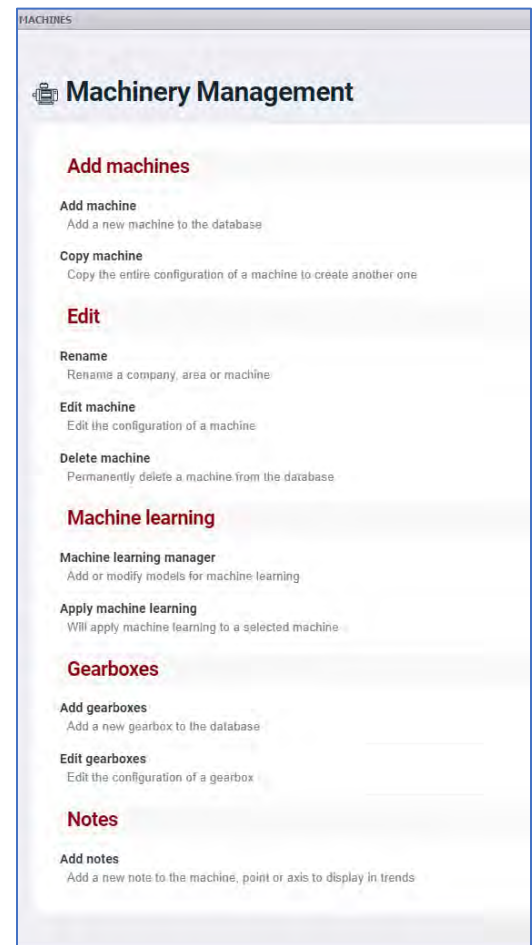
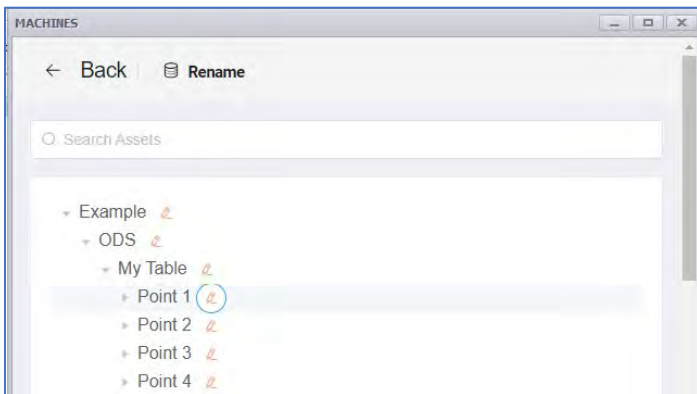
Machine Manager

Opens the **Machinery Management** window. **Note:** This web-based interface is identical when using DigivibeMX, EI-Analytics via a web browser or the Wiservibe Pro mobile App.

Add Machine: Opens the Add Machine window for adding new machines to the database.

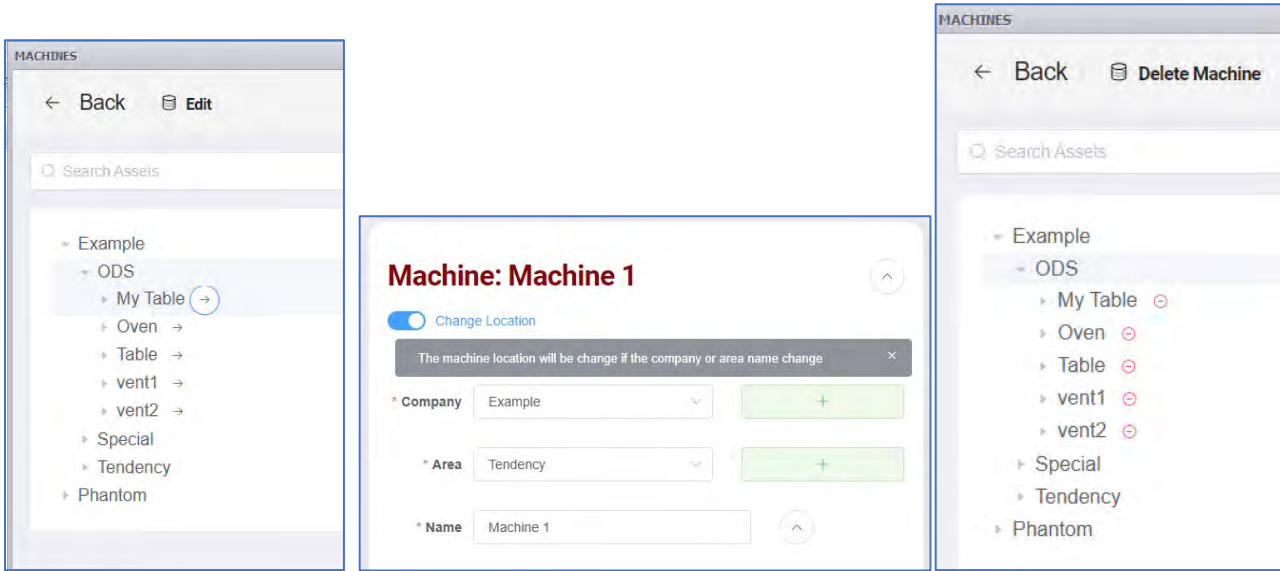
Copy Machine: Copies an existing machine for quick additions. This works well for creating multiple machines with the same parameters, e.g., RPM, bearings, etc.

The **Rename** feature allows renaming a Company, Area, Machine, or Point.



Edit Machine: To select a machine for editing, click on the arrow beside the machine name. The Edit function can be used to change a machine's *Company* or *Area* assignment in addition to all other fields in the machine configuration.

Delete Machine: Select from the list to delete a machine.

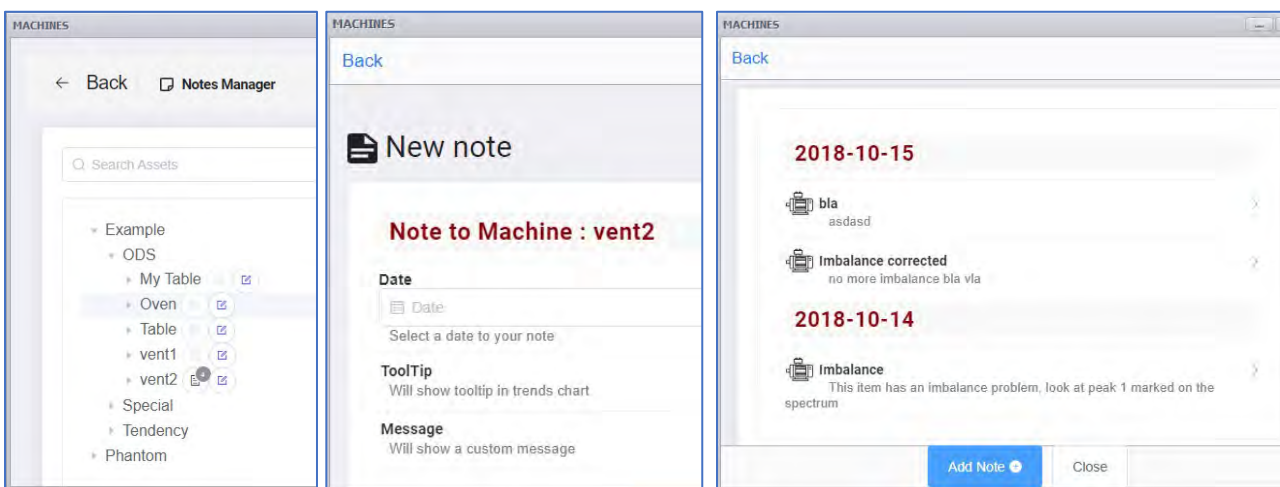


Machine Learning Manager: Opens the Machine Learning window to add or edit machine learning models.

Apply Machine Learning: Applies a machine learning model to a selected machine.

Gearbox Add/Edit: Opens the Gearbox window to allow adding and editing of gearboxes in the database.

Notes: Opens the Notes manager screen to allow adding, editing or viewing notes attached to a machine.



Creating a new Machine

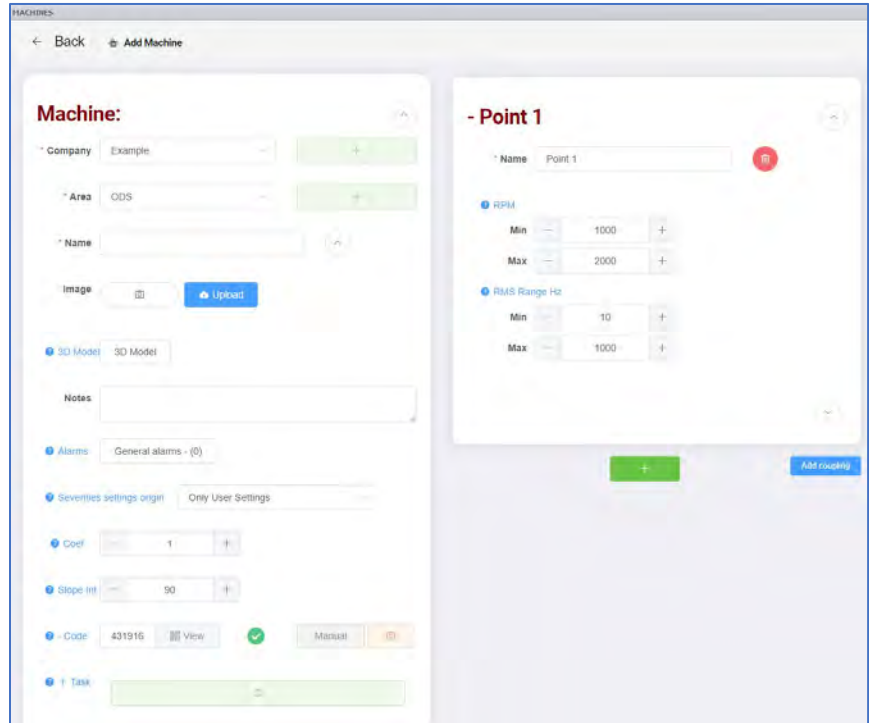
The **Add Machine** screen has two sections, the Machine panel and the Points panel. Contextual Help is available for some fields by clicking the blue question marks.

The **Machine** panel contains fields for:

- **Company:** The company who owns the machine.
- **Area:** The production area in which the machine is located.

New Company and Area info can be added by using the add button.

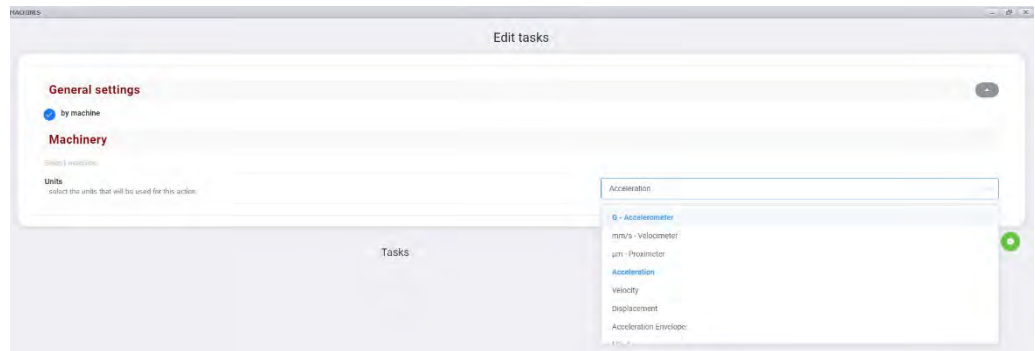
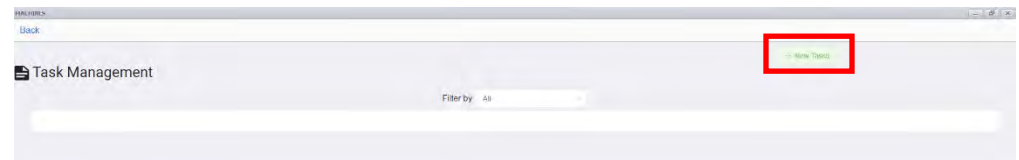
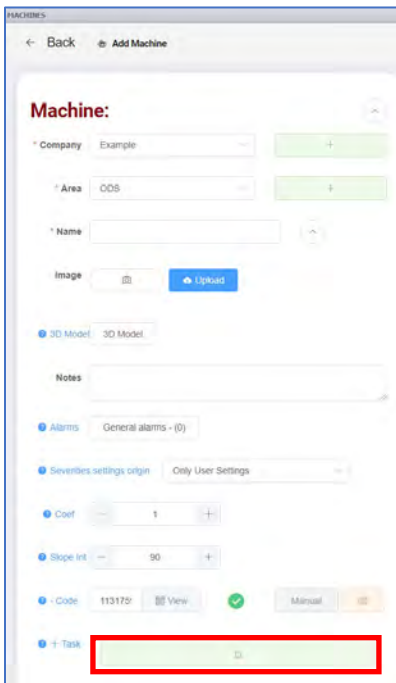
- **Name:** The machine name or ID number.
NOTE: the only special character permitted in the name field is an underscore.
- **Image:** Optional 2D image of the machine may be uploaded to the database for reports. Also, clicking the photo button will capture an image using the PC camera.
- **3D Model:** 3D ODS models can be selected from the DigivibeMX database. External 3D models in .3ds, .xaml, or .obj formats can also be imported to DigivibeMX.
- **Notes:** Text field for documenting additional machine information.
- **Alarms:** General alarms may be configured here for non-vibration sensors such as Temperature, Speed, Current, etc. These types of sensors may be administered at the Machine level **or** the Point level in the database. If created at the Machine level, the corresponding alarms should be configured here, if created at the Point level, configure alarms in the Points panel **Extras** field as described in the next section.
- **Severities settings origin:** Dropdown menu includes Only User Settings(default), Only Machine Learning Settings, Default Settings or Machine Default settings. The choice is used to determine the severity color (red, yellow, orange, green) of the icons in the data tree as well as in EI-Analytic and the WiserVibe Pro App.
- **Coefficient:** The machine maintenance priority or criticality for severity trending on a 1-10 scale (1 for critical machines, 10 for non-essential machines).
- **Slope Interval:** The time period of data to be considered for machine severity calculations.
- **Code:** DigivibeMX automatically generates a unique code(number) that can be used to identify a machine. Click the View button to see a unique QR code for scanning purposes. A Manual code may also be entered, or an image created via a device's camera.
- **Task:** Opens the Tasks window. **NOTE-** This feature is only available with an EI-Analytics cloud database subscription; it is not currently supported when using local databases. Task Manager provides notifications via email and/or push notifications to the WiserVibe Pro App, based on configurable thresholds for velocity, acceleration, etc., for a given machine.



Setting Tasks for Machines

Tasks can be created to notify users of Machine health changes via email and/or push notifications to the Wiservibe Pro mobile App. A subscription to an EI-Analytics database is required for this feature to operate. Tasks cannot be assigned when a local database is used.

The Machine Manager allow Tasks to be created/assigned in the Add/Edit Machines windows. Click on the green **Notification** bar to open the Task manager window. When editing an existing machine, previously assigned Tasks will be shown for review or a New Task may be created using the **New Tasks** button.



Select the Units from the drop-down box for which Notification is desired. This includes vibration units of velocity, acceleration, and acceleration envelope in addition to non-vibration parameters such as temperature, RPM, Amperage, etc.

Then click the green Add button  This opens the Tasks window.

- Assign a name for this Task.
- Choose which Axes will cause Notification.
- Depending on the Units chosen, the Units drop-down box will contain an appropriate list for selection. For example , if velocity is chosen, then RMS, Min, Max, Crest Factor, Peak to Peak, etc., will be included.
- Conditions include Equal to, Less than, Greater than, etc.
- Value is set for the chosen Units and Condition, such as the example above where the velocity Max Greater than .05 inch/s will cause Notification to be sent.
- Assign a title for the email Notification.
- Information entered in the Content field populates into the Subject line of the email.
- Check the Send email green slider to enable email Notification.
- Email mode can be set to **Immediate** (send email without delay) or **Batch** (sends all pending email notifications once a day).
- Time Interval for Emails allows setting a buffer to prevent repeat emails from being sent when immediate mode is used. If the condition repeats during the assigned time window, no email will be sent.
- Time Interval for Push Notifications provides the same function as described with emails.

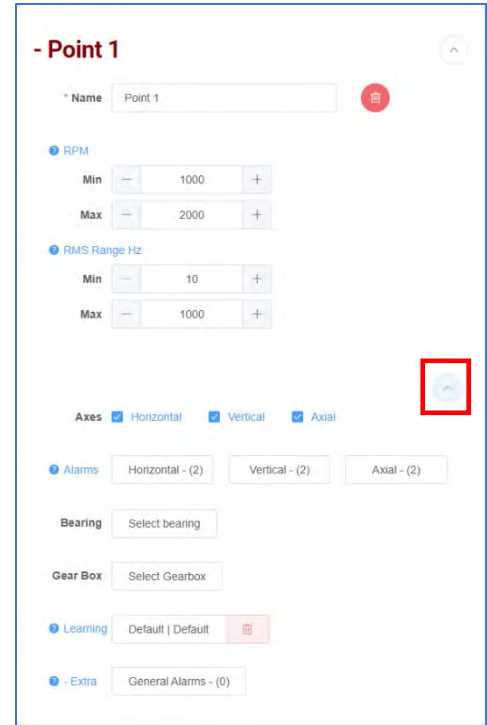
Click OK when finished.

Multiple Tasks may be assigned to the same machine. E.g., one for Velocity, another for Acceleration. When initially creating a database, it is recommended to configure Tasks before using the Copy Machine feature.

Configuring Point 1 on a Machine

Point 1 is created by default in a separate panel. Every machine has a minimum of 1 point, although it is not used when non-vibration Phantom sensors are assigned at the machine level. Click on the **up/down arrow** to expand or hide the bottom portion of the Points panel.

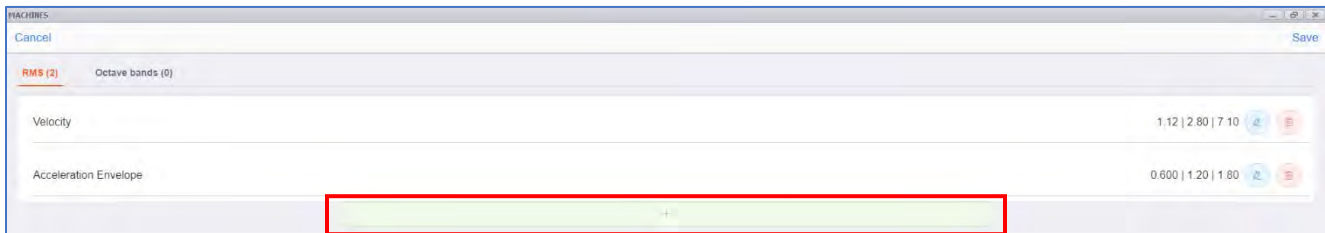
- **Name:** Use a naming convention for points that works for you. Names like MOB (motor outboard) or NDE (non-driven end) are commonly used. Only underscores are permitted as a special character in the name field.
- **RPM:** Enter the Min and Max RPM values for the machine point. An accurate RPM range is required for Acceleration Envelope calculation and identifying the machine's running speed
- **RPM Range Hz:** For high-sensitivity Phantom sensors (V10, V10E) use the default range of frequencies from 10 to 1000 Hz. It is recommended to change this for high-range Phantom triaxial sensors (V11, V11E) to 20 Hz Min and 1000 Hz Max to get higher precision.
- **Axes:** Defaults to triaxial, adjust as necessary.




Alarms

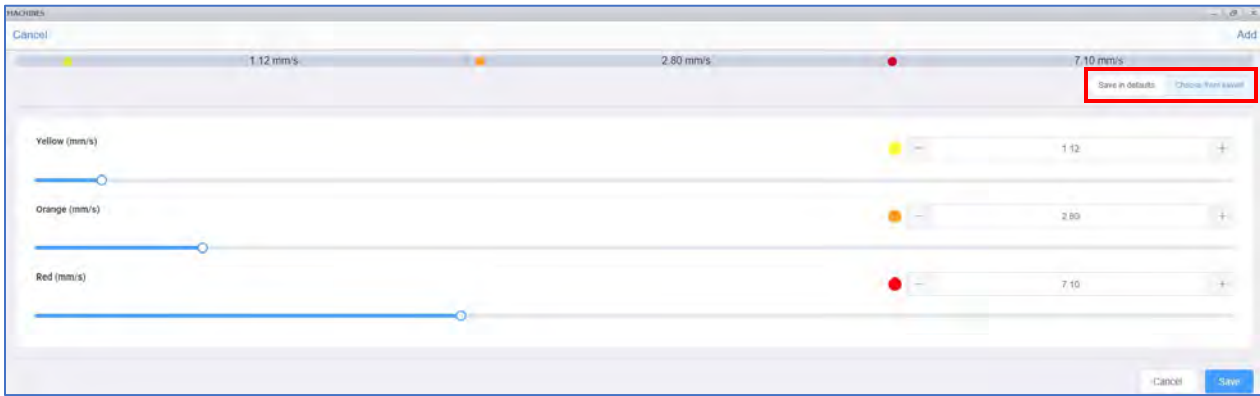
These fields are used to set Axis-level severity alarms that determine the color displayed in the data tree. Click on Horizontal, Vertical or Axial to set the alarms for each axis. This opens the Alarm config window. By default, there are two parameters assigned for RMS alarms - Velocity and Acceleration Envelope.

Click on the large green **Add** button to add another RMS alarm parameter (Acceleration and/or Displacement).

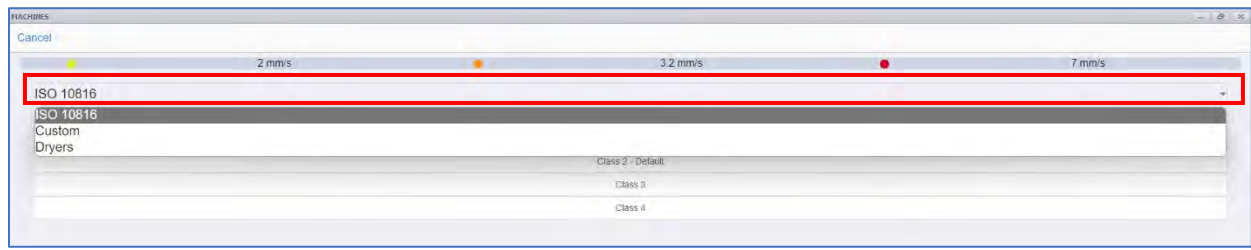


Click on the **Edit**  button to change the default settings, which are based on ISO 10816 Class 2 standards.

This opens the Alarm Settings window. Once set, the alarm values can be **saved in defaults**. Previously created alarms can be applied by using **Choose from saved** option.



The saved choices are accessed via the **large drop-down box**.



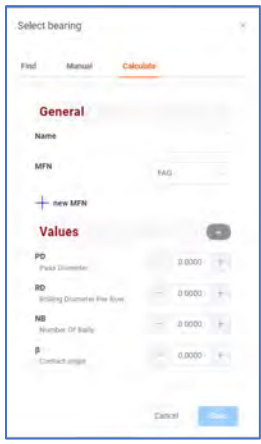
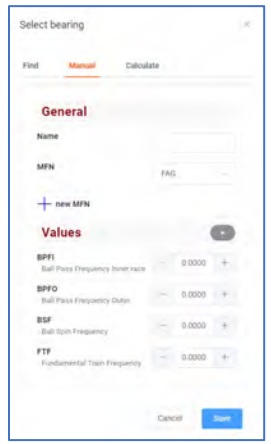
As shown, the ISO Class 2 alarms are the defaults. Once changes are made, click on Save.

Adding Bearings

The **Select Bearing** button opens the Bearing window.



DigivibeMX v11 features a Bearing database containing fault frequencies of over 40,000 common bearings from major manufacturers. Bearings may be permanently assigned to a machine measurement point or specified during Analysis. The Bearing database features a Search function, a Manual function for adding new bearings and fault frequencies to the database, and a Calculator to calculate bearing fault frequencies using bearing component measurements.



Enter complete or partial bearing part numbers to Search the database. Bearings can be manually created using calculated fault frequencies or those provided by the bearing manufacturer. The Calculator can be used to calculate fault frequencies using measurements or from data provided by the bearing manufacturer.

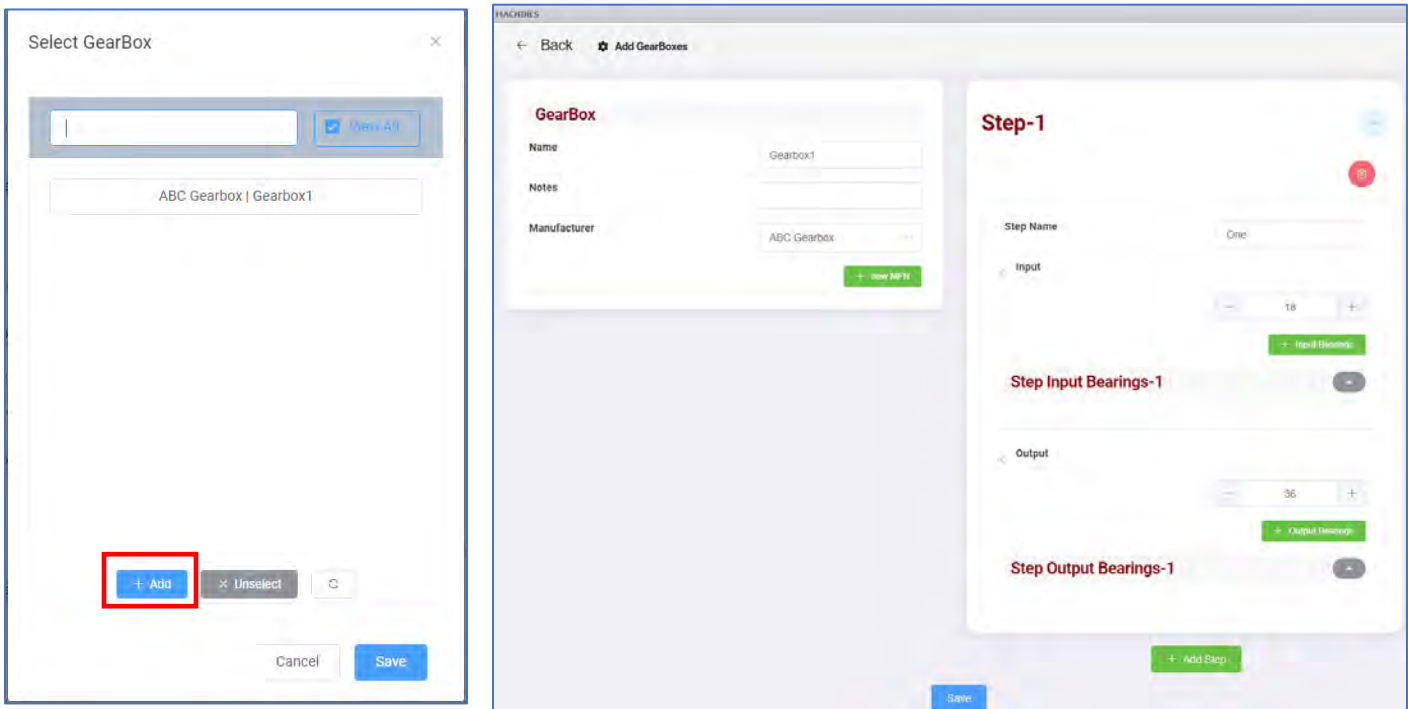
Adding a Gear Box



To assign a gearbox to this machine point, or create a gearbox in the database, click on **Select Gearbox**.



This opens the Select Gearbox window, used to create a comprehensive library of gearboxes. Once created, the gearboxes may be permanently assigned to a machine measurement point or specified during analysis.

Select a previously configured gearbox from the list or click the **+Add** button to create a new gearbox configuration.



- **Name:** Enter the name of the new gearbox.
- **Notes:** Add any desired notes.
- **Manufacturer:** Select from previously configured list or Click on the  button to configure a new Manufacturer.
- **Step Name:** Add the step name to the Step-1 panel.
- **Input:** Enter the number of teeth.
- **Input Bearings:** A bearing configuration may be added by selecting the  button.
- **Output:** Enter the number of teeth.
- **Output Bearings:** Add an output bearing, if desired.

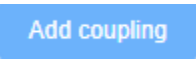
Select the  button to configure another step in the Gearbox configuration.

Click  when finished. The new gearbox will be assigned to the current machine point.

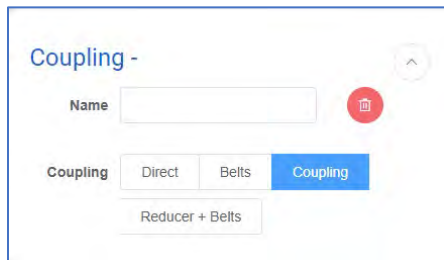
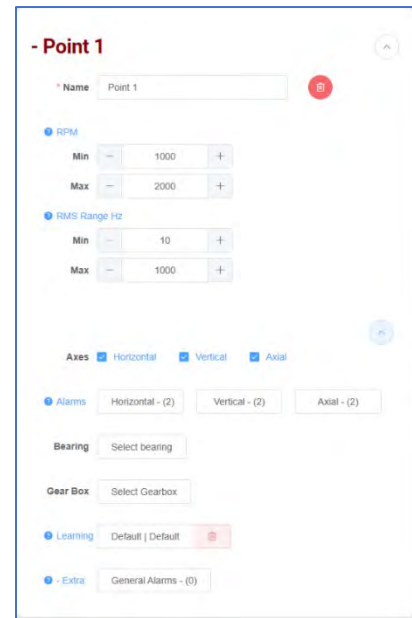
- **Learning:** The Machine Learning feature uses predictive algorithms to analyze historical data and thereby identify when notification is to be made regarding the health status of a machine point.
- **Extras:** In addition to vibration data, Extra Values such as Temperature, RPM and Amperage may be documented. Extra Values may be assigned at the Machine level, or at a Measurement Point. Click on the General Alarms button to set alarms for sensors that are assigned at the point level. These point level alarms have no relation to the Axis alarms previously described.

Adding a Coupling

To add a Coupling, click the Add coupling button.



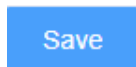
Enter a name and select which type of coupling is used for this machine.



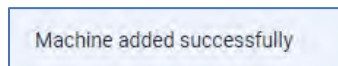
To add another machine point, click the green add button.



After adding all machine points, click on Save.



You should see a confirmation message appear.

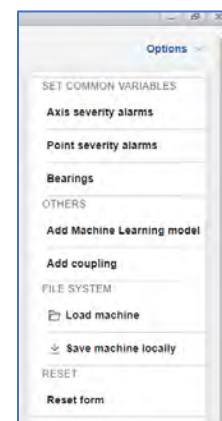


Note: At the top right of the Add Machine screen is the Options Menu.

This provides shortcut access to common functions such as Alarms, Coupling and Bearings configurations.

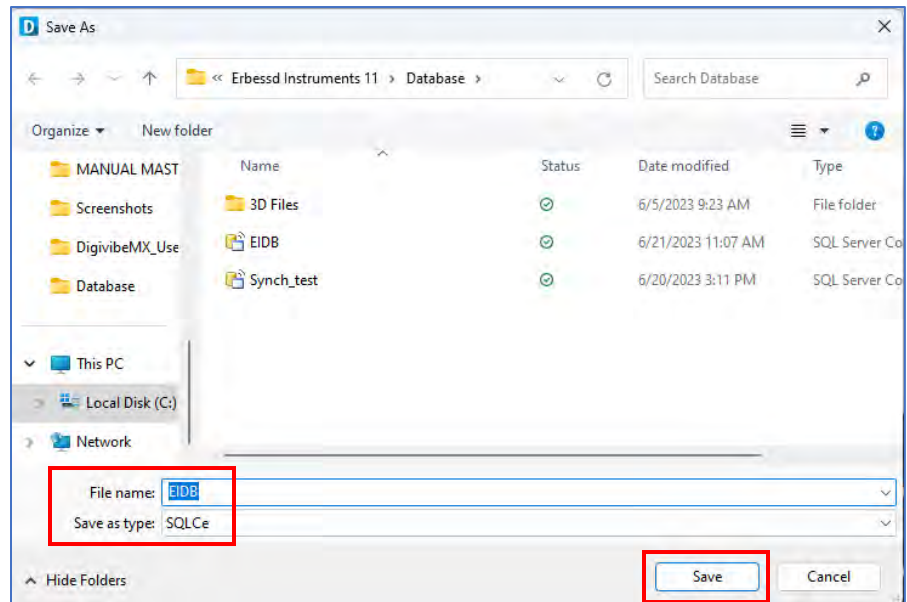
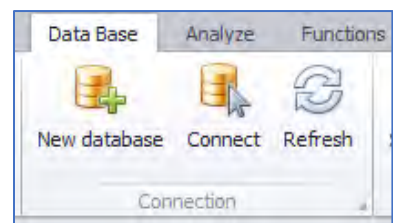
Machine configuration may be saved as a text file by using **Save Machine locally**.

Load machine loads a previously saved machine text file.



Connection toolbar

New database: Allows a new SQLCe database to be created. SQL database files can be created and saved in any location. It is recommended to keep all database files together in an easily-located common folder. The default folder is (Documents > Erbesd Instruments 11 > Database). Clicking **New database** opens the **Save As** window to the default location. Specify an alternate location, if desired. Enter the name of the new database in the **File Name** text field. **Save as type:** SQLCe.



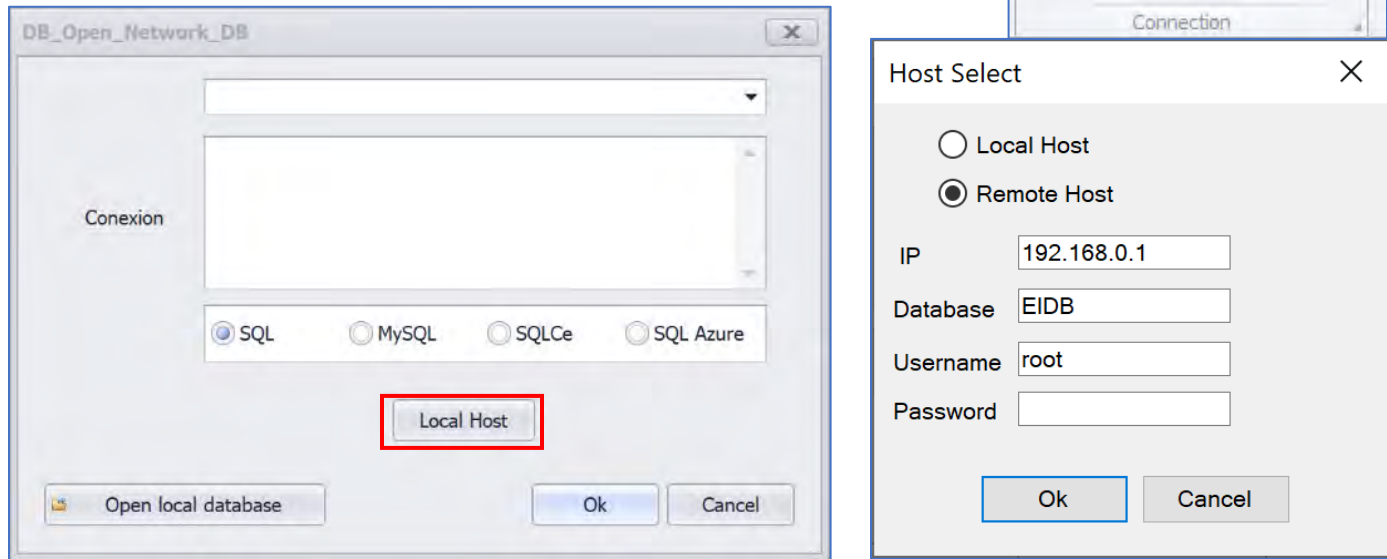
Click the **Save** button to save the new database. Click Yes for any notification boxes that may appear after the database file is created.

NOTE: SQLCe databases have a 3.5GB capacity limit. It may be necessary to periodically thin the SQLCe database of old data, or synchronize the database structure to a new SQLCe database - to avoid having the database refuse new data because it has reached its maximum allowable capacity.

Connect: DigivibeMX software cannot create a new SQL Server, MySQL or SQL Azure network database. The empty database must be created independently, then DigivibeMX is mapped to the database location. Once connected, DigivibeMX will create the required fields and tables. Locating the SQL Server or MySQL database on a shared network server will require entering the destination server's IP address. Locating an SQL Azure database will require the TCP address. Accessing the database may also require a database administrator Username and Password authentication. Be prepared with this information before proceeding. Consult a local IT administrator or SQL database administrator for assistance.

Open the Data Base Menu in DigivibeMX. Select **Connect** on the Connection toolbar.

The **DB_Open_Network_DB** window opens. Select SQL, MySQL or SQL Azure database format. Click **Local Host** button to continue. The **Host Select** window opens.



For a SQL Server or MySQL database, enter the server's IP address. For an SQL Azure database, enter the TCP address. Then enter the Database name. Enter the database Username and Password, if required. Click the OK button to continue.

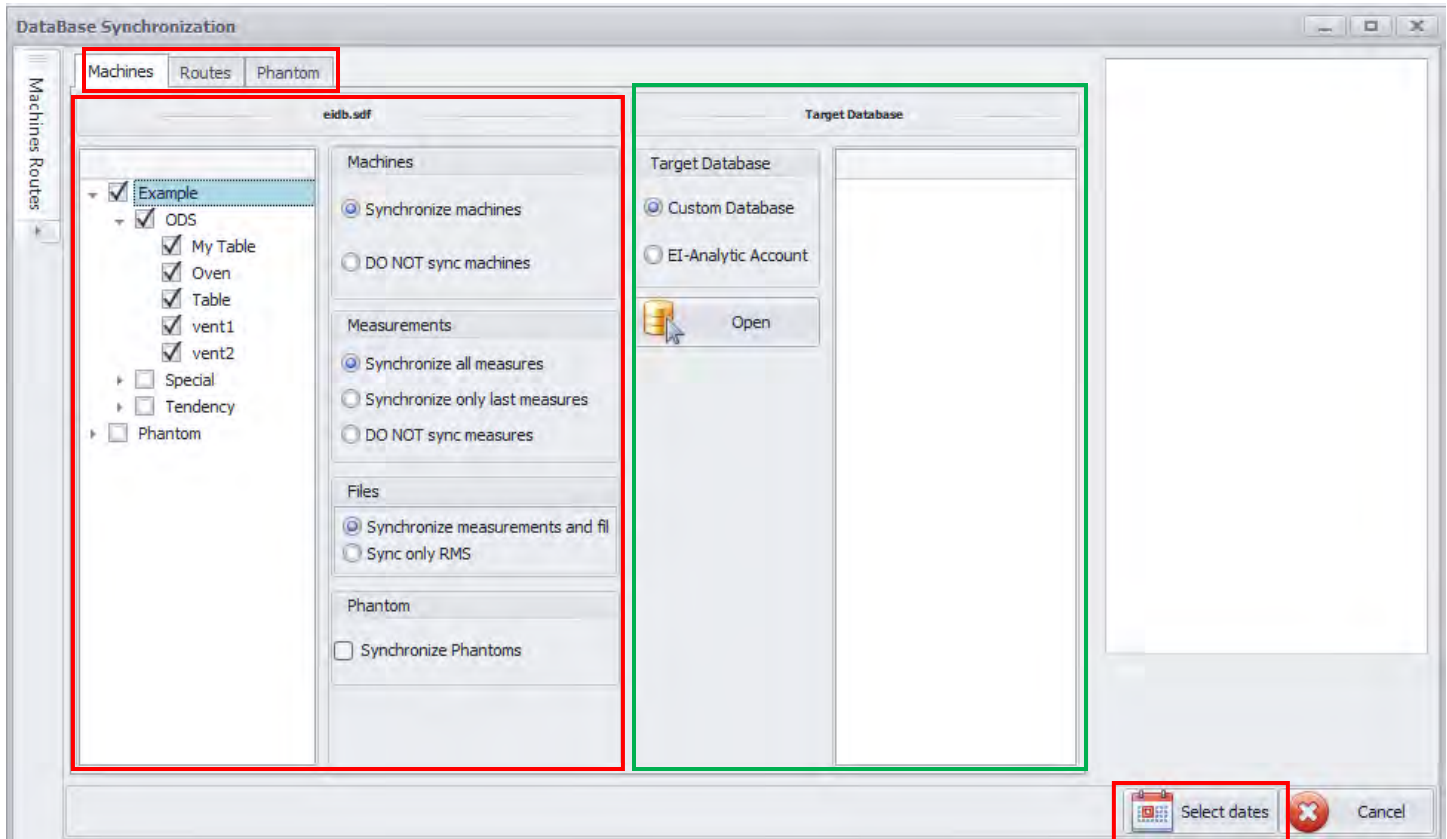
The destination address connection string will appear in the DB_Open_Network_DB Connection window. Click the Ok button to connect.

- If database files are moved between devices or stored remotely, **Connect** allows mapping DigivibeMX to their new location.
- **Refresh:** Updates the database view to reflect any new data or modifications.

Synchronize toolbar

- **Synchronize:** Opens the Database Synchronization window.

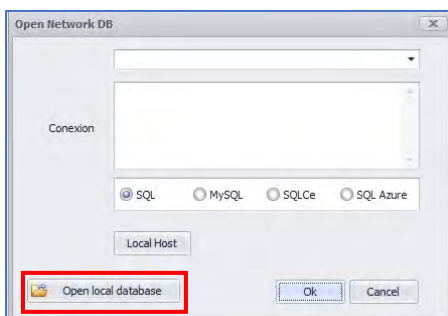




There are three tabs on the left side panel, **Machines**, **Routes**, and **Phantom**. This panel is also divided into **Source** and **Target** databases.

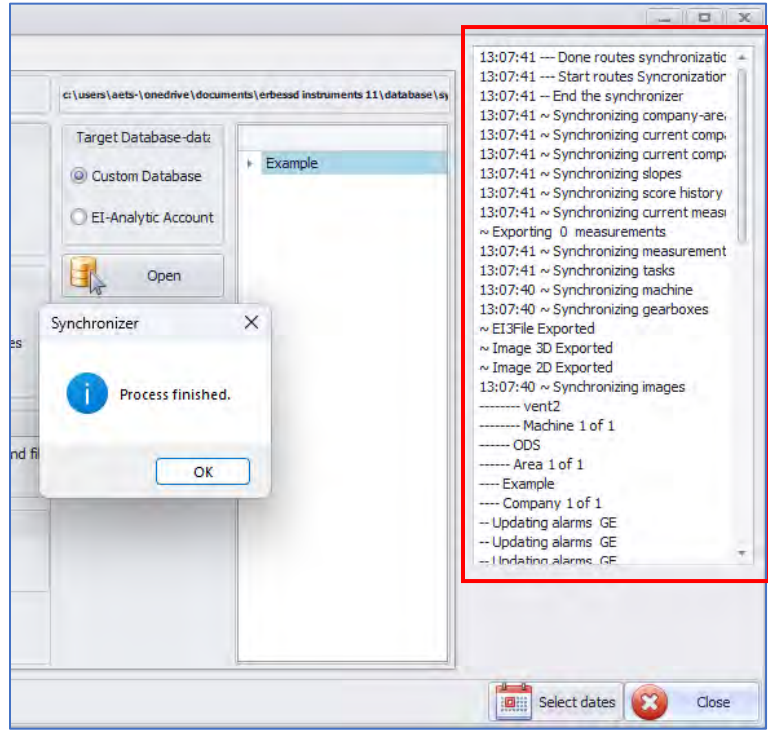
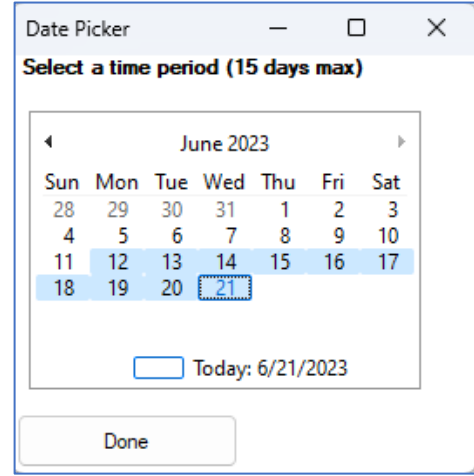
Machines tab: Select **Source** machines for synchronization on the left data tree. The **Source** by default is the database that you are currently using. In this example, the **Source** is a local SQLCe database. To sync an EI-Analytics database as the **Source**, first login to the desired database, then select Database>Synchronize.

- **Choose options:**
 - **Machines:** Sync or DO NOT sync
 - **Measurements:** Sync all, only the last measurement, or none
 - **Files:** Measurements and signal files, or RMS data only
 - **Phantom:** Include Phantom sensor configuration for sensors assigned to the selected machine(s)
- **Select target Database:** Select either local or EI-Analytic, then click Open.
 - Click **Open local database** Note -You must create a target database before this step!



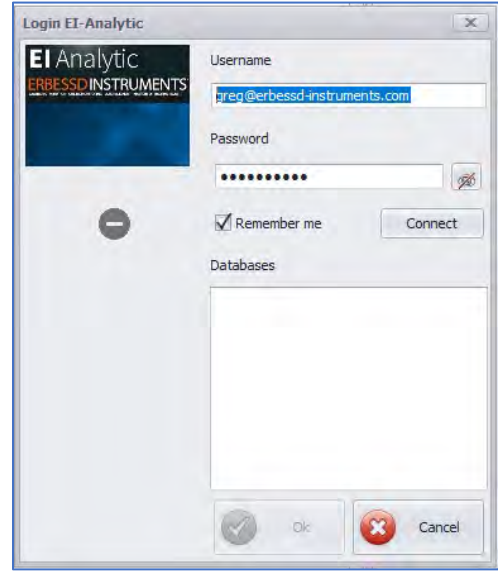
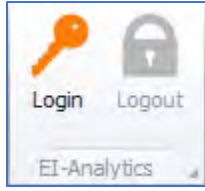
- **Select Dates:** Click on the **Select Dates** button and choose a date range for synchronization. Up to 15 days may be synchronized at a time. Click on a start date, then holding the shift key, select the end date of the range. Click Done to execute the sync.

The **right-hand panel** shows the synchronization process. The length of time to complete the process depends on how many machines and options are chosen.



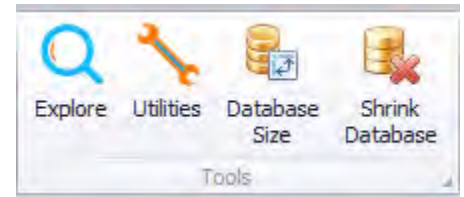
EI-Analytics toolbar

- **Login and Logout:** Enter the **Username** and **Password** for your EI-Analytics account, and press **Connect**. Check **Remember me** to save credentials for subsequent login sessions. Select the desired database from the list and click **OK**. Once logged-in, the Logout button will be available .

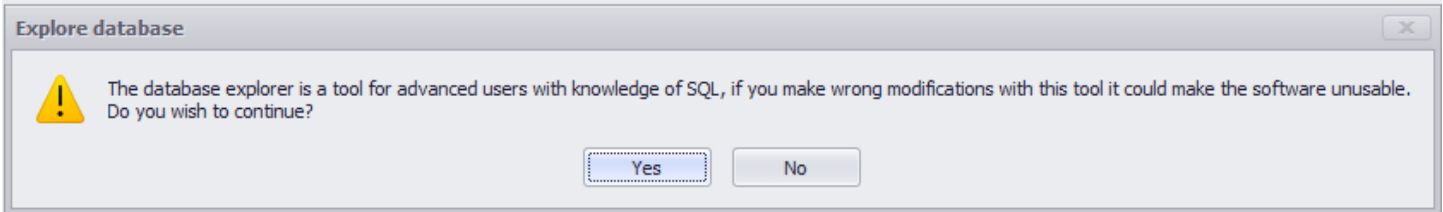


Tools toolbar

- **Explore:** Allows manual exploration of the database and data tables.

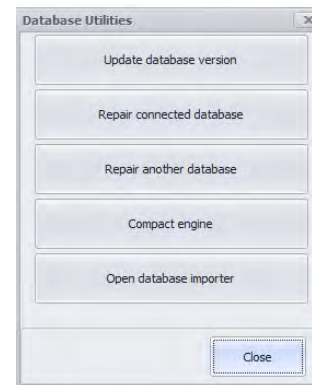


Upon clicking **Explore**, A warning message will appear:

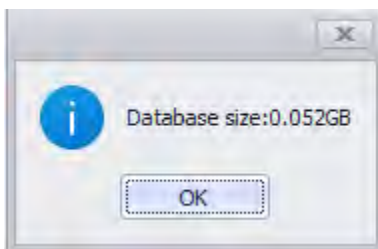


If you assume the risk, click **Yes**. Detailed use of the Database Explorer is not included in this document.

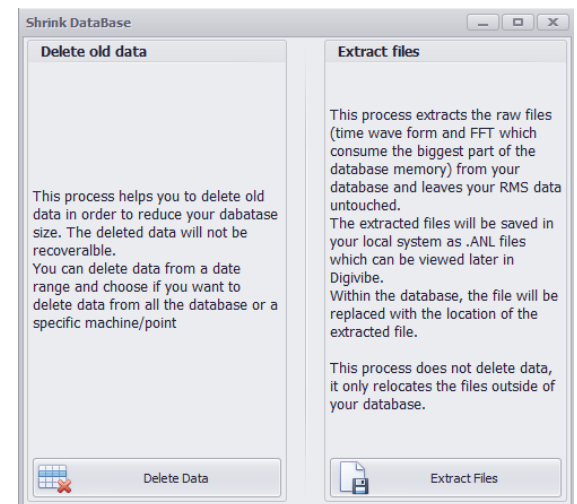
- **Utilities:** Utilities include:
 - Update database
 - Repair database
 - Repair another database
 - Compact engine
 - Open database importer



- **Database Size:** Click to see the size of the current database.



- **Shrink Database:** opens the Shrink Database window that provides two functions. 1) Delete old files from a database and 2) Extract Files (Time waveform and FFT) from the current database and store them elsewhere. These files are not deleted, just relocated.



Data Collection with Portable Instruments (M20, M30)

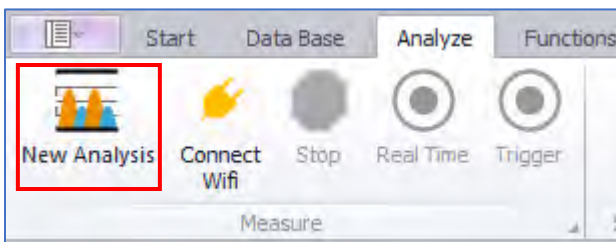
The Analyze and Functions Menus feature tools for collecting and analyzing machine vibration data.

New off-route analysis (M20, M30)

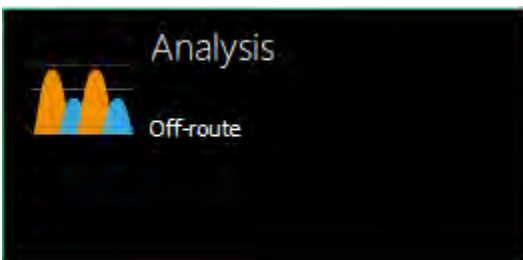
This type of immediate, off-route analysis with a portable instrument is not associated with any machine in the database. It will not automatically be saved. Off-route analysis is recommended for spot-checking, troubleshooting or other situations when machine vibration data must be displayed, but not necessarily saved to the database. However, off-route data collections can be saved by opening the File Manager and selecting Save. Files can be saved to the database under an existing machine. Files can also be saved outside the database as .anl files and emailed to other DigivibeMX users for review.

There are two different methods for opening a new immediate, off-route data collection and analysis session:

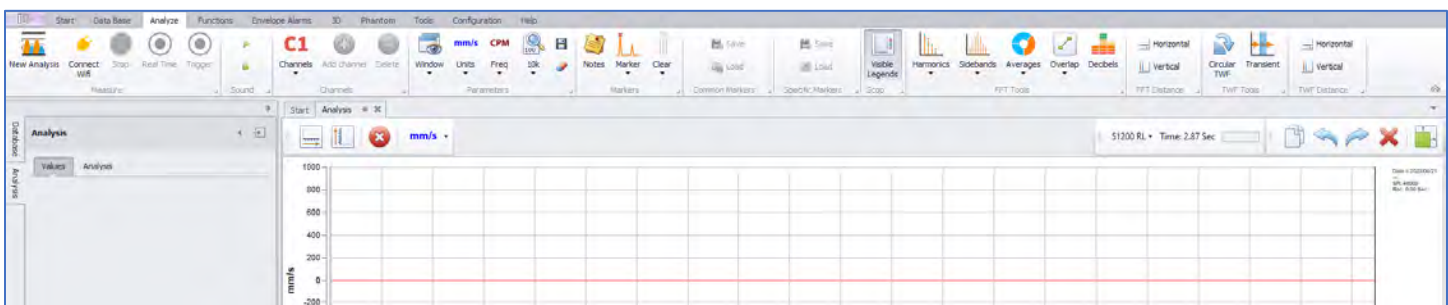
Method 1 – New Analysis on the Analyze Menu



Method 2- Analysis tile on the Start tab



Both methods open the Analyze Menu, launch the Analysis tab and switch the left-hand panel to the Analysis view.



NOTE: When no interface is connected the recording control buttons will be greyed-out, as shown above.

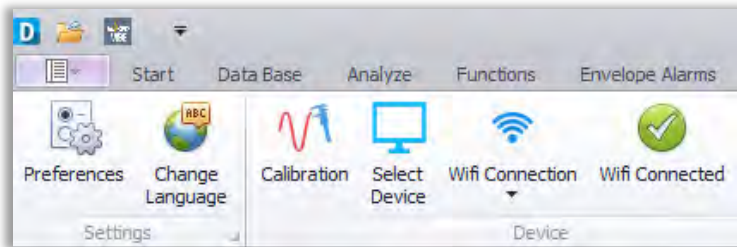
Long Signal Recording

DigivibeMX 11 version 11.60 supports the Long Signal Recording feature. Signal files up to 1440 minutes in length may now be recorded.

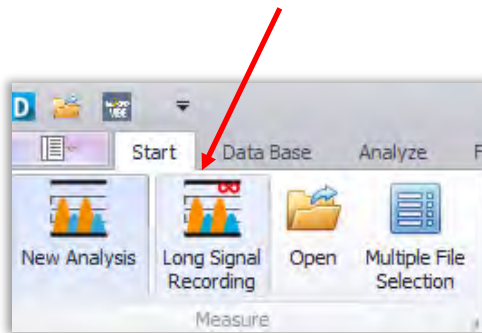
Data may be collected using either a WiSER 3X portable triaxial data collector (Wi-Fi), or a single-axis accelerometer connected via a GX400 Interface(USB).

NOTE - Long Recording files can be VERY large. The example 66 sec recording shown below is 25 Mb in size. A 10 minute recording will be approximately 250 Mb. A 40 minute recording will be about 1 Gb. These files can take a considerable amount of time to load for analysis.

To use this feature, connect to either USB or Wi-Fi interface as usual for an Off-route data collection.

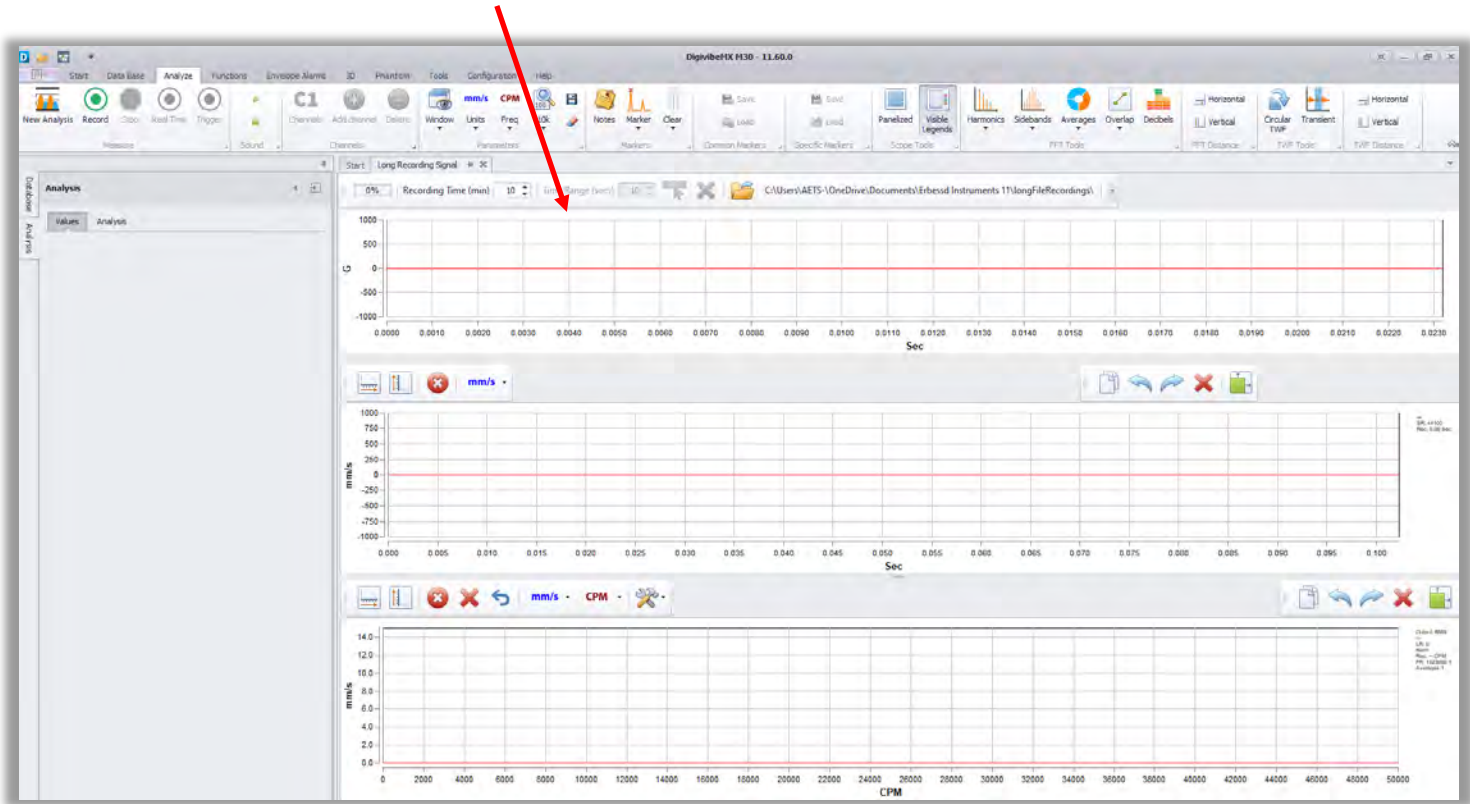


On the Digivibe Start Menu, click the **Long Signal Recording** button.

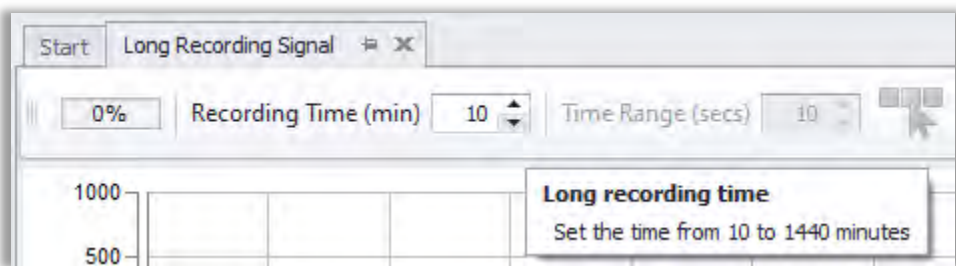


A new **LongRecordingSignal** Tab will open.

The top graph in the analysis window displays the Long Recording time waveform data as the recording takes place.

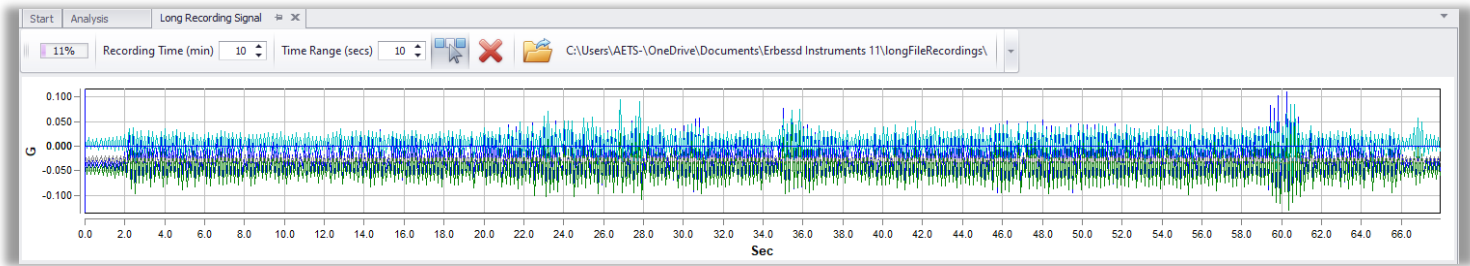


Set the desired **Recording time** then press **Record** to begin.

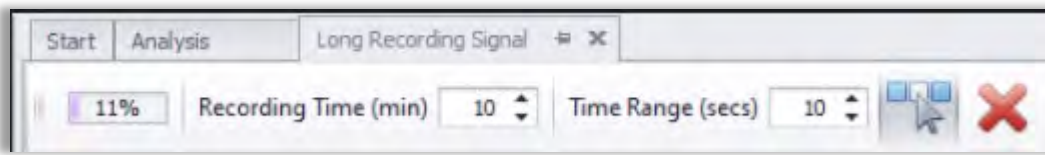


The recording will stop when the Recording Time elapses, or if the **Stop** button is pressed.

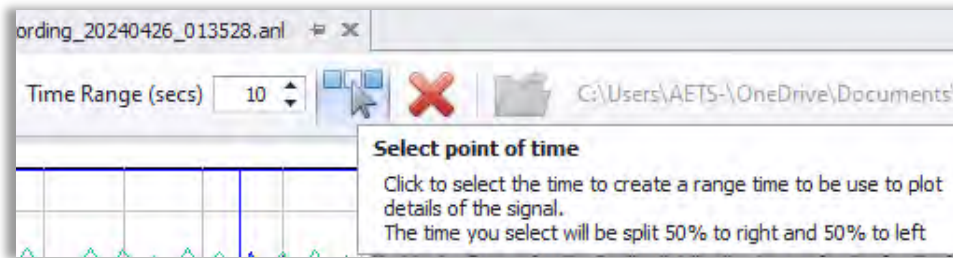
The example shows a 66 second test recording. The percentage of total Recording Time is shown at top left (11%).



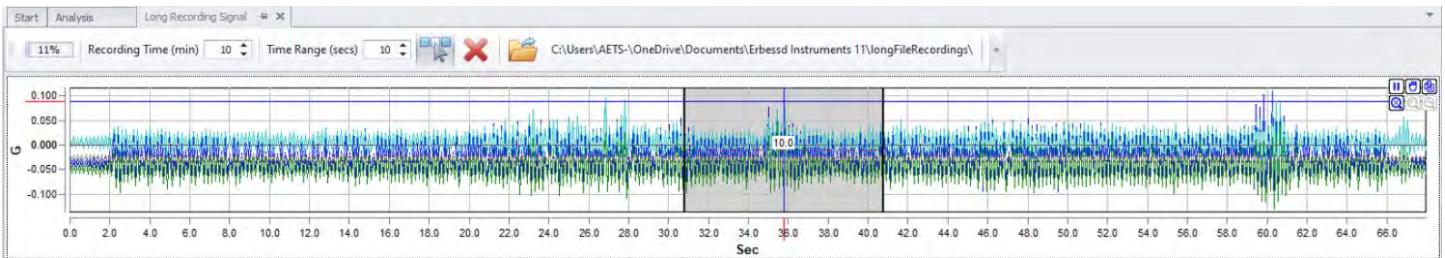
Use the **Time Range** field to select an area of the Long Recording to be displayed in the TWF and FFT Graphs below.



For example, 10 seconds.

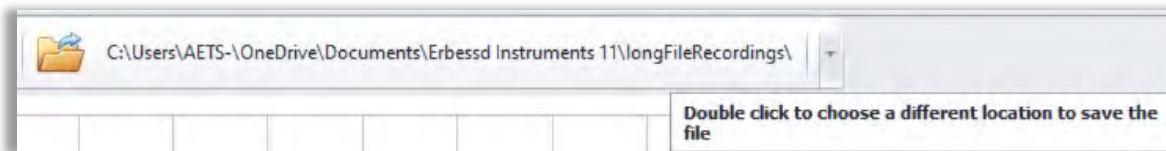


Press the **Select** button, then click on a point in the recording (the center of the 10 second range).



Delete Cursors removes the selected range.

The folder where the Long Recording files are stored can easily be selected:





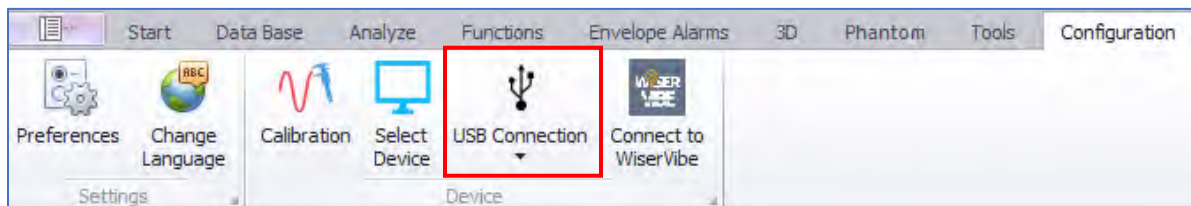
Analysis of the TWF and/or FFT graphs may be performed on any selected part of the Long Recording.

Connecting Portable Sensors

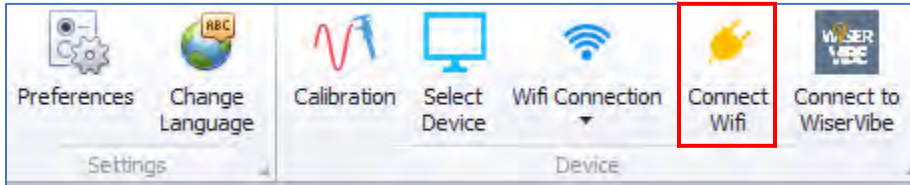
Portable sensors include:

- Accelerometer connected to a GX400 wired USB interface.
- WiSER1X single-axis accelerometer (Wi-Fi)
- WiSER3X triaxial accelerometer (Wi-Fi)

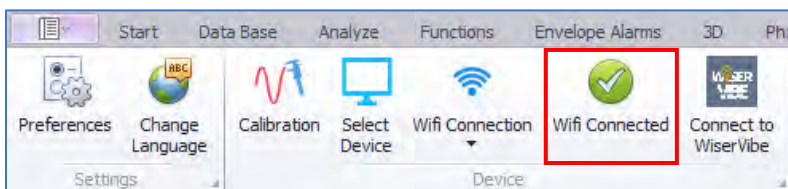
Wired GX400 interface: Plug in the USB cable from the GX400 to the device running DigivibeMX, then set the Device type to **USB Connection** on the Configuration Menu.



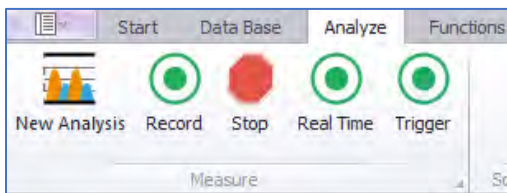
WiSER Wi-Fi : Set the Device type to WiFi in the Configuration Menu. Turn on the WiSER sensor. It will create a Wi-Fi network called **EIWISER**. Select the Wi-Fi network named **EIWISER** from the available networks list on your device. Enter the password 88888888 (eight 8's) and click Connect. Once successfully connected, select the **Connect WiFi** button on the Analyze menu.



The **Wi-Fi Connected** icon will appear on the toolbar:



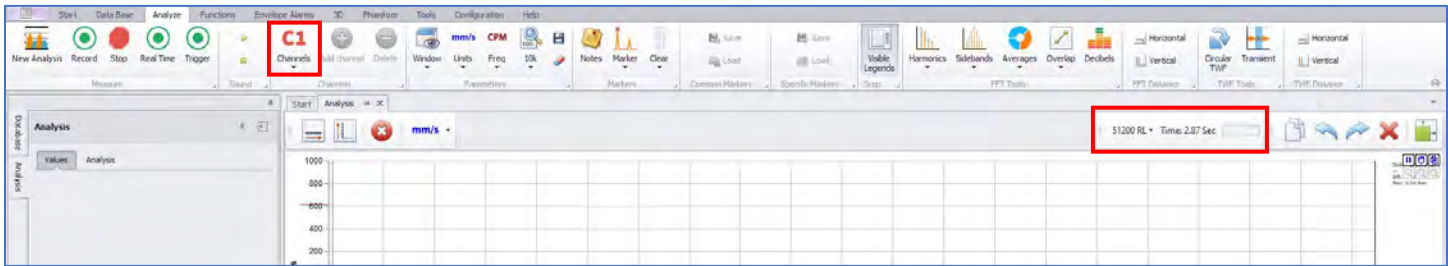
The previously greyed-out control buttons will now be available.




Off Route Analysis continued

Start/Stop Data Collection


The Analysis tab launches with the default recording parameters specified in the Configuration Menu>Preferences. If different **resolution lines** or **recording times** are desired, changes can be made prior to recording data. Select the number of data channels to be collected (up to 4) from the **Channels** dropdown. The Time Waveform and FFT will render in real time as data is collected.



Data collection is started with  and will end automatically, based on the specified Resolution Lines.

Data collection can be stopped manually with

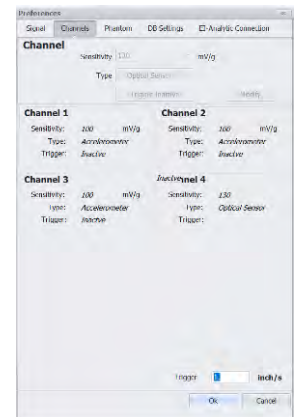


To monitor a live stream of continuous data, use  to begin, then press Stop when finished.

NOTE: Real Time data is not saved while monitoring. Only the information visible in the TWF and FFT can be saved when the collection is stopped. To record a long TWF, set the recording time to the required duration and press Record.

The  function is used in conjunction with the Trigger value specified in Configuration>Preferences>Channels tab.

NOTE: Press the Trigger button to prepare DigivibeMX for a Trigger recording. The actual recording will not begin until the specified Trigger vibration value is reached.

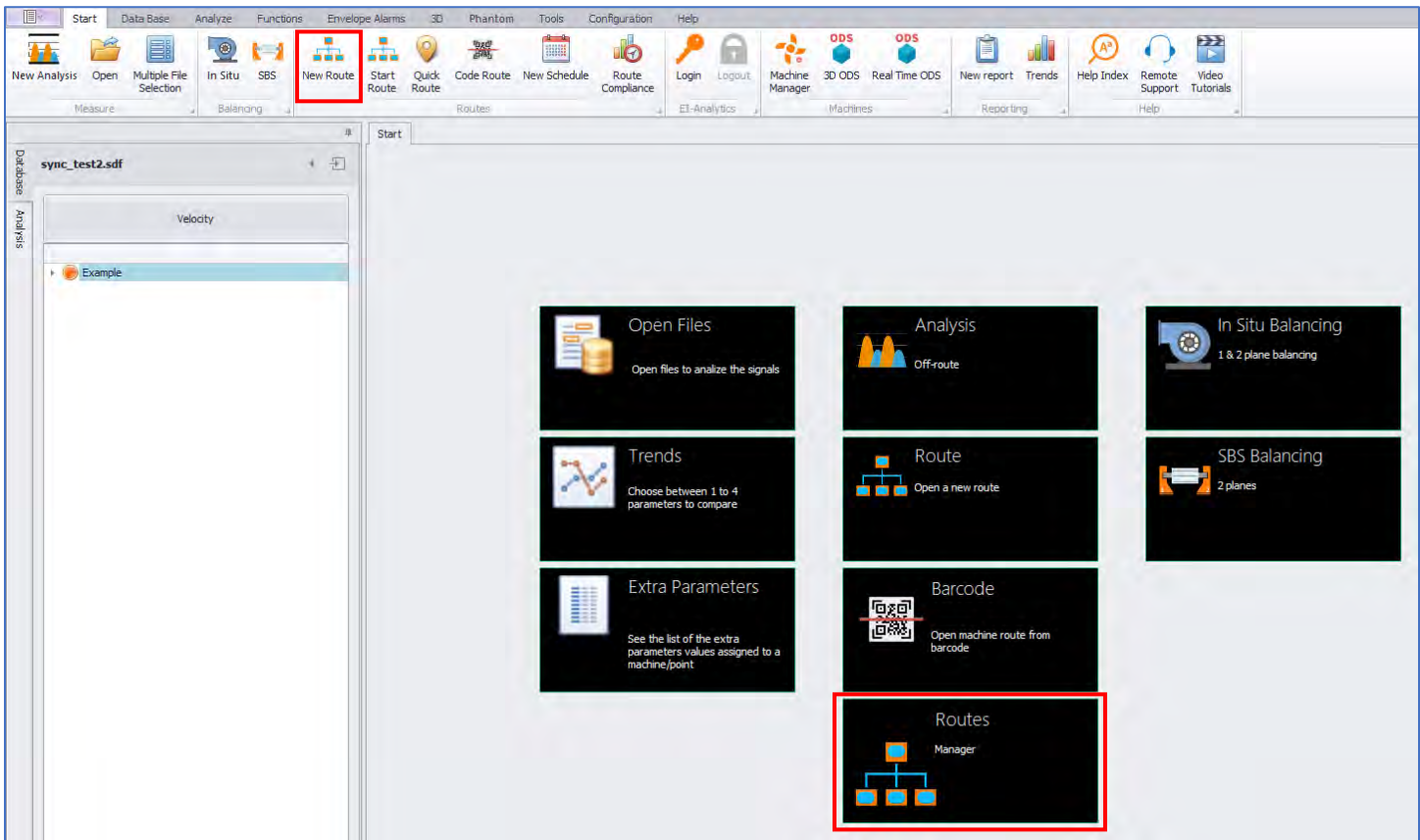


Route Data Collection (M20, M30)

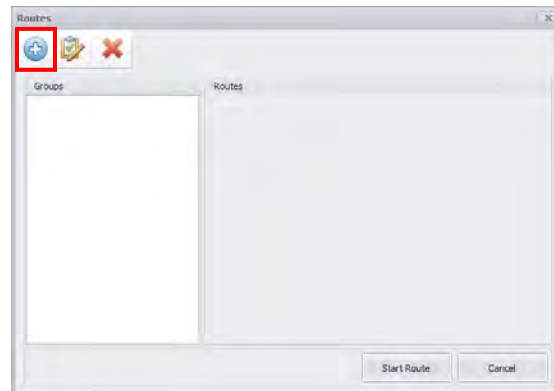
Machines in the DigivibeMX database are rarely displayed in the same order that their data would be collected. DigivibeMX allows Machines and Points to be grouped and organized into logical Routes that a technician would travel for fast, efficient data collection with portable instrument - such as WiSER1X, WiSER3X or the GX-400 USB-connected interface.

Creating a New Data Collection Route

To create a new data collection Route, select **New Route** from the Start Menu options or select the **Routes Manager** tile.

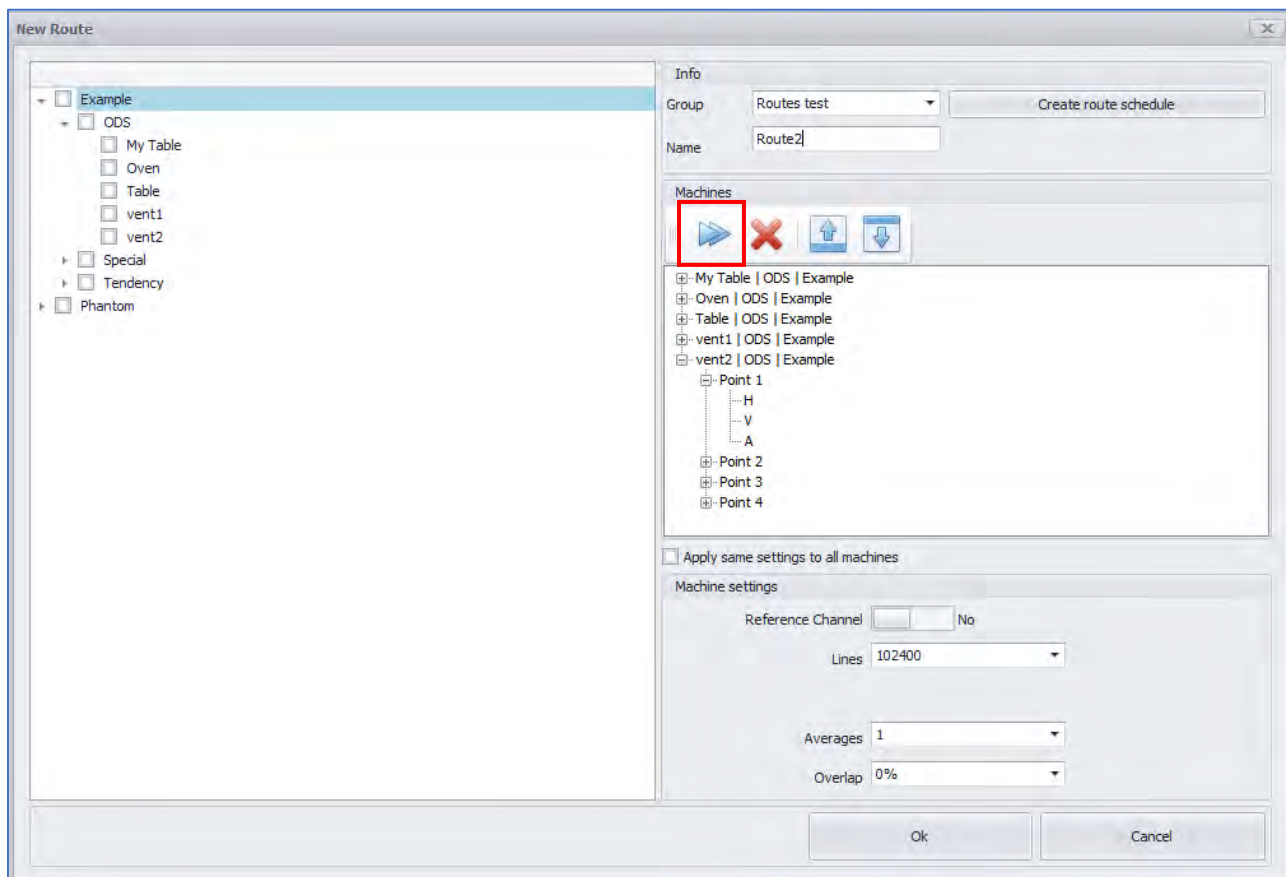


The Routes window opens. This window will be used to create and manage portable data collection Routes. Click the **Blue Plus** button to create a New Route.



The New Route window opens.

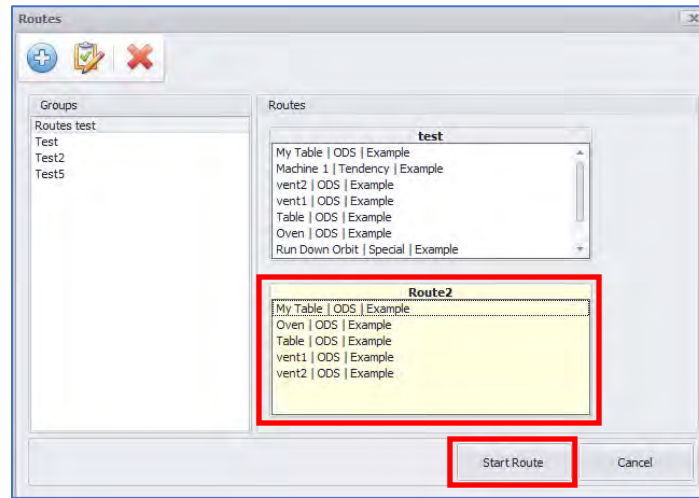
- The data tree view on the left can be expanded to the Machine level
- Check machines that will be included in the Route
- DigivibeMX is designed to create a library of Route Files, as new Routes are created. Select or create a Group where the Route File will be stored and assign the Route a Name. This will help make the Route easier to recall later for modification or repeat collection.
- Click the **double arrow button (Add)** to add selected machines to the Route list.
- The **X** button can be used to remove a machine or Point from the Route list.
- Items can be highlighted and moved up or down the Route list using the Up and Down buttons. This allows the Machines and Points to be arranged in a logical order for efficient Route data collection.
- Specific data collection parameters (Reference data channel collection for ODS, Lines of Resolution, FMax, Averages, Overlap) can be defined at the Machine, Point or Axis level.



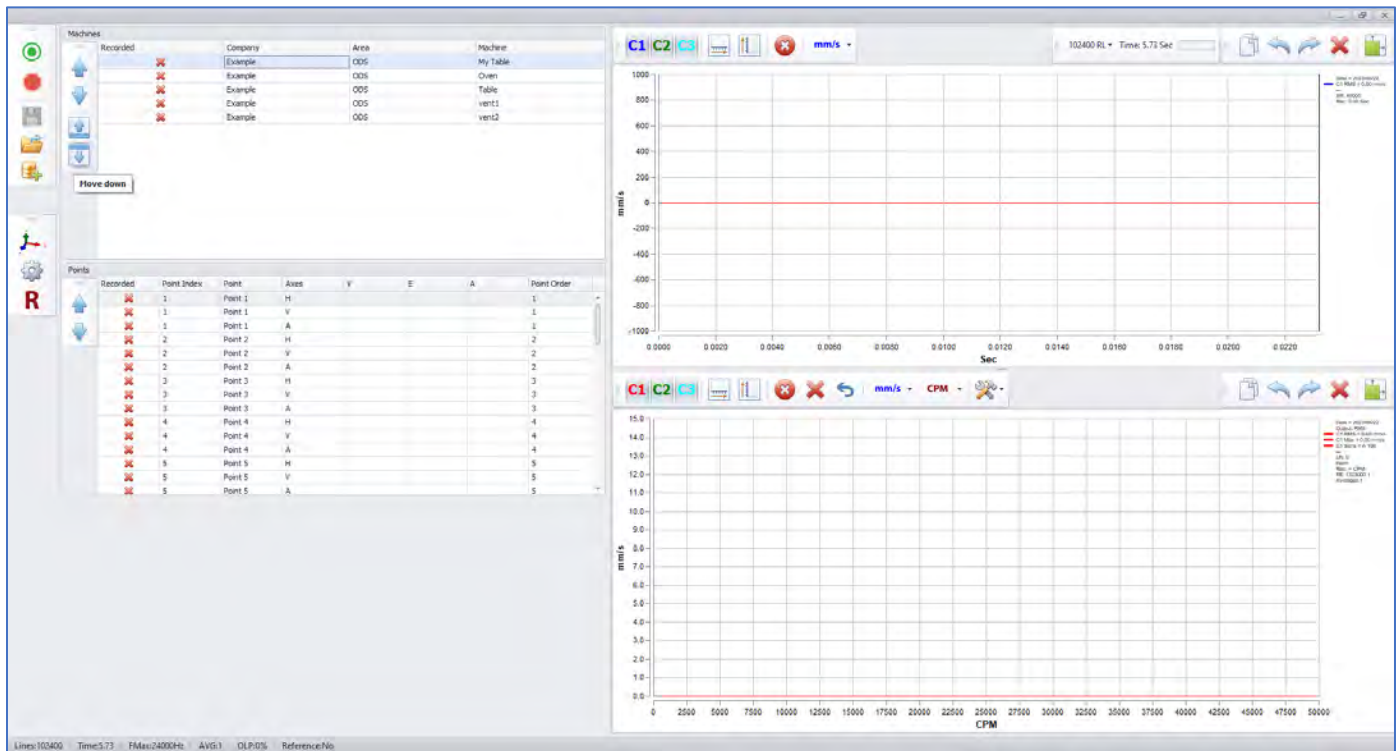
- When satisfied with the Route list and parameters, select Ok to save the route.

The New Route is now displayed as an available Route for collection in the Routes window. The window will display all Routes created within a Group selected from the Groups panel. Machines in the database can be easily organized into different Routes with unique parameters for different data collection purposes. These features allow users to create an ever-growing library of data collection Routes that can be recalled and collected at any time.

Select the desired **Route** and click **Start Route** to launch the Routes Module and load the Route for data collection.











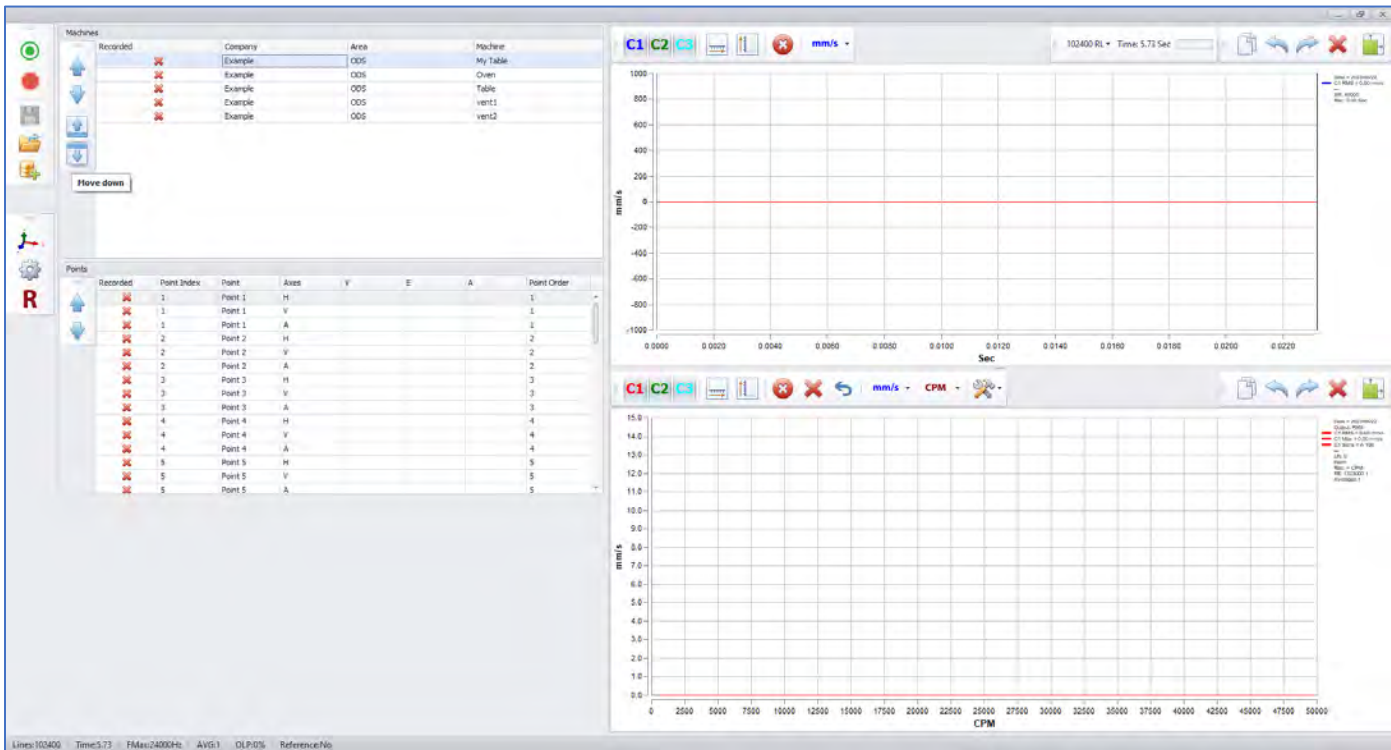
The Routes Module opens with the Machines and Points listed in the order they will be collected.



Collecting Route Data

Route data collection can be performed using any Erbesd Instruments portable instrument. Data can be collected one axis at a time using a single-axis wired or wireless accelerometer (EI-WiSER). Data can also be collected from 3 axes simultaneously using a wired or Wireless triaxial accelerometer (EI-WiSER3x). Simultaneous collection of Reference Channel data can also be specified before the Route is started. As each data Point or Axis is collected, the data is temporarily saved to the database and the software automatically advances to the next Point or Axis. If a Point or Axis cannot be collected, the user may simply advance to the next Point or Axis. When the Route is complete, the user will be prompted to save all recordings. The Routes Module will remain open until closed by the user.

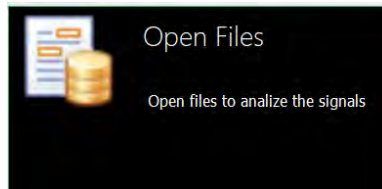
-  Start Data Recording (**NOTE:** Toolbars can be “dragged” and moved around the perimeter of the screen)
-  Stop Data Recording
-  Save Recorded Data
-  Open Routes Window to Select, Modify or Create a Route
-  Select a Database
-  Toggle Triaxial Data Collection Mode
-  Triaxial Axis Orientation
-  Reference Channel Collection for ODS



Using the Analyze and Functions Menus (M20, M30, Phantom)

Viewing Vibration Data

To review collected signal files, select the Open Files tile on the Start tab. This opens the Historic Measures tab. Select the desired level of data in the database. Select **Open File** to open the recording for analysis.



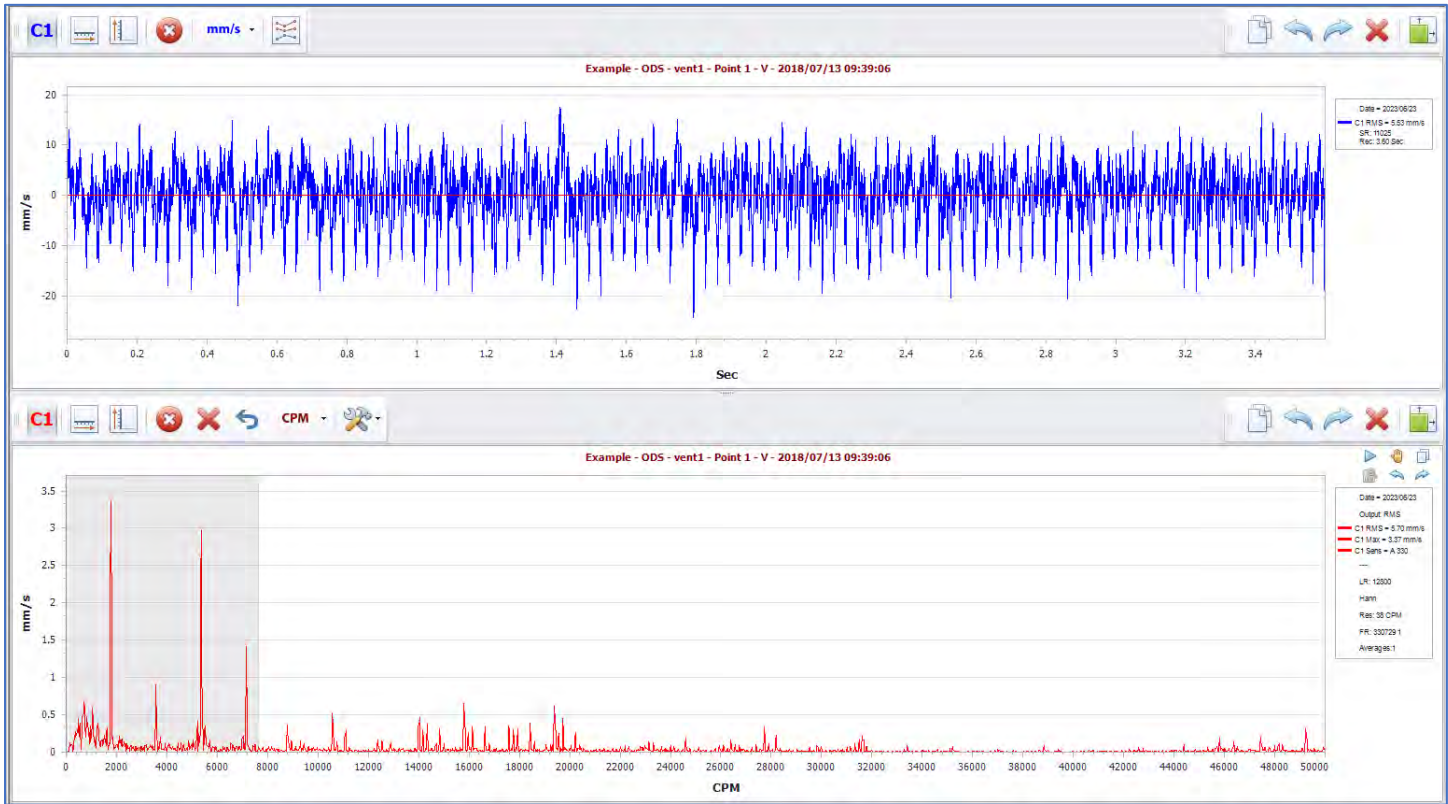
Severity (Velocity)	Point	Axis	mm/s	g	gE	Collection Reason	Date	View File
●	Point 1	H	2.5985	0.1880	0.0608	Type:Scheduled	2018-09-26 21:38:20	Open File
●	Point 1	H	8.1979	0.2430	0.0463	Type:Scheduled	2018-07-15 15:09:59	Open File
●	Point 1	H	3.2450	0.2431	0.0192	Type:Scheduled	2018-04-27 00:00:00	Open File
●	Point 1	H	3.2450	0.2431	0.0192	Type:Scheduled	2018-04-27 00:00:00	Open File
●	Point 1	H	13.9018	0.4359	0.0847	Type:Scheduled	2018-04-01 00:00:00	Open File
●	Point 1	H	11.8117	0.4693	0.1385	Type:Scheduled	2018-03-15 00:00:00	Open File
●	Point 1	H	9.6843	0.3952	0.0500	Type:Scheduled	2018-03-01 00:00:00	Open File
●	Point 1	H	7.1835	0.3397	0.0545	Type:Scheduled	2018-02-15 00:00:00	Open File
●	Point 1	H	4.0922	0.2958	0.0555	Type:Scheduled	2018-02-01 00:00:00	Open File
●	Point 1	H	4.2839	0.3198	0.0259	Type:Scheduled	2018-01-15 00:00:00	Open File
●	Point 1	H	6.0208	0.3300	0.0540	Type:Scheduled	2018-01-01 00:00:00	Open File

The selected recording opens in the Analyze Menu. To add additional channels for comparative analysis (up to 4 channels), for dual channel analysis functions, etc: select **Add Channel**, then select whether to add another channel from the database or Browse for an external file (such as an .anl file of a data recording emailed by another user).

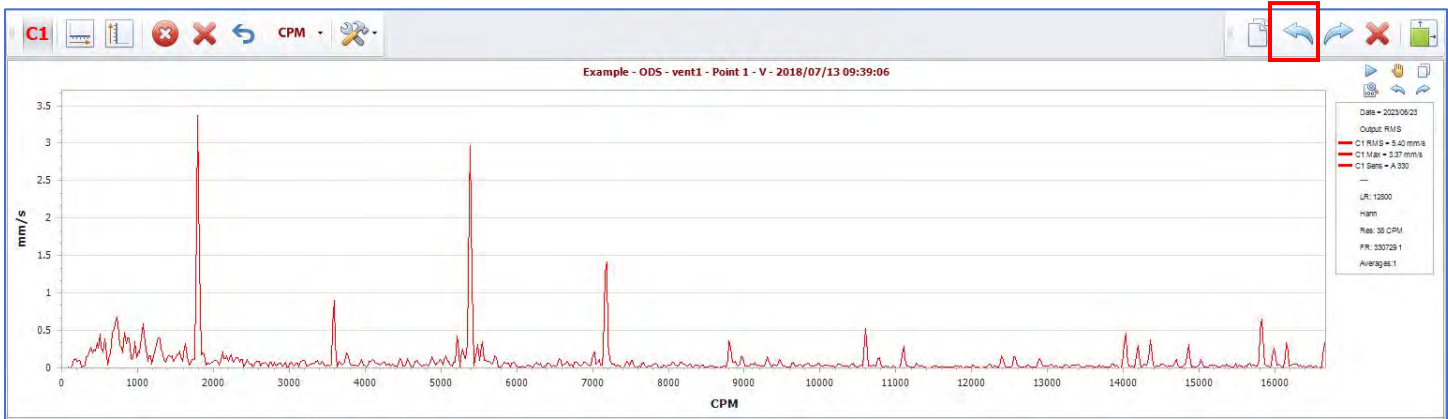


Viewing Vibration Data continued (M20, M30, Phantom)

Selecting and Zooming: Magnifying a desired section of waveform or spectrum can be accomplished in a variety of ways. To select a section of the waveform or FFT for closer inspection, press and hold the left mouse button then slide it along the graph over the desired section to magnify. When the left mouse button is released, the selected section will be magnified.

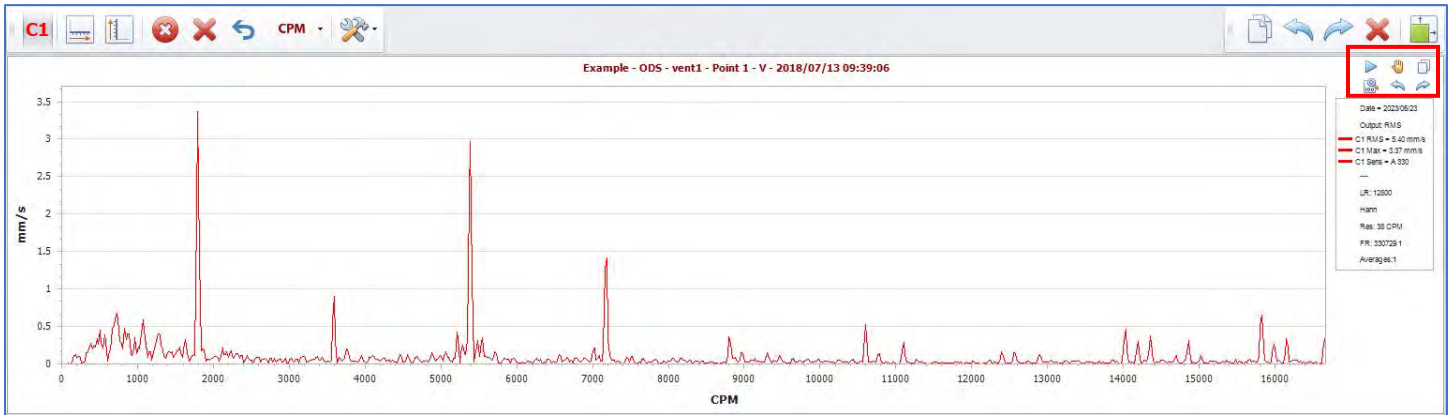


Magnified view:



To undo the last zoom, click the **Undo Zoom** button on the toolbar.

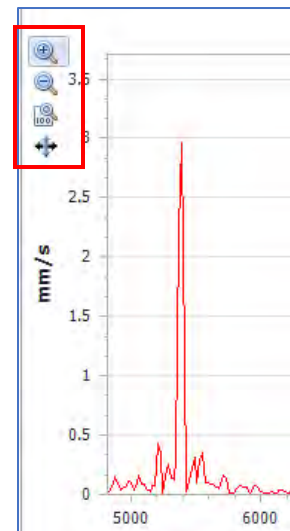
- To increase/decrease zoom on only one axis, place the mouse pointer over the axis scale and roll the mouse scroll wheel.
- To move the graph view while zoomed, place the mouse pointer over the desired axis scale. Press and hold the left mouse button, then drag the axis scale up/down or left/right.
- Floating **zoom control buttons** also appear automatically when the mouse pointer is positioned over an axis.



NOTE: Zooming in on any section of the Time Waveform automatically re-renders the FFT, which will appear to be at lower resolution than the FFT of the entire waveform.

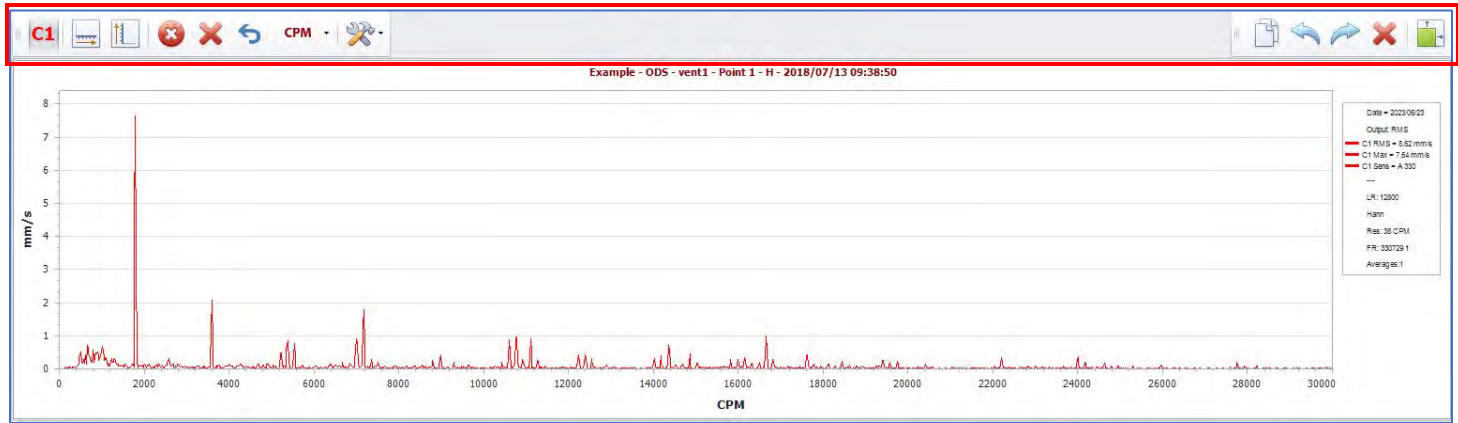
More **control buttons** appear when hovering the mouse over the X or Y axis.













- Zoom in
- Zoom out
- Set Frequency Limit
- Set control Horizontal/Vertical



Time Waveform/FFT Graph tools (M20, M30, Phantom)

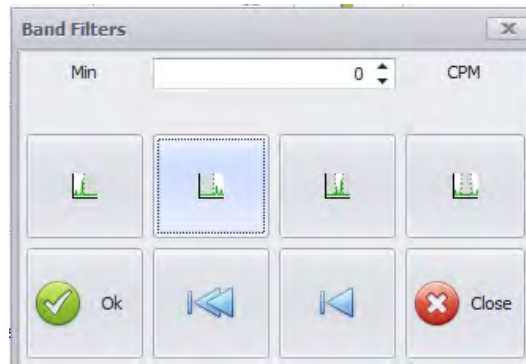
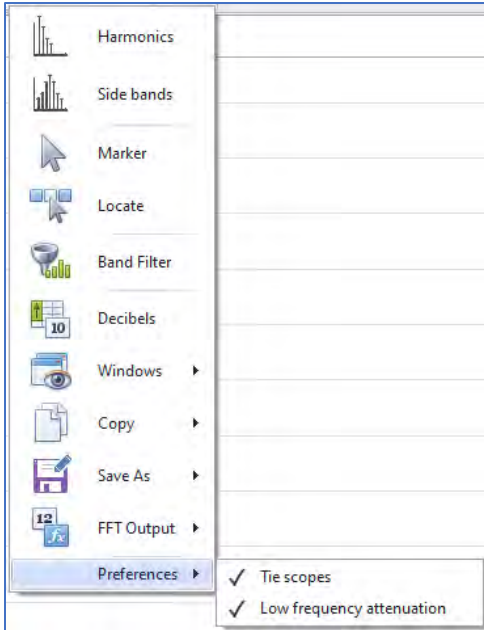
A number of panel control buttons are located above each waveform/spectrum graph.



-  Click to hide/display channels (more channels may appear if multiple channels are recorded or opened for analysis)
-  Vertical measurement cursors
-  Horizontal measurement cursors
-  Remove cursors
-  Clear all markers from graph
-  Clear last marker from graph
-  Copy graph to paste into a document
-  Undo zoom
-  Reset zoom
-  Clear zoom
-  Expand panel to full screen / collapse panel back to split screen
-  Analysis tools

Analysis tools dropdown

Clicking on the Analysis tools dropdown opens a menu of shortcuts. For details regarding each tool, see the next section. **Note** – Band Filter and Preferences are only available via this dropdown menu. Band Filter opens a dialog box that allows several filters to be applied: low-pass, high-pass, pass-band and band-reject.



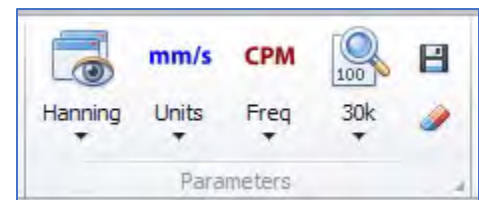
Preferences: Tie/Untie scopes: When tied, the TWF and FFT amplitude units will be tied together in a common specified unit. When untied, the TWF and FFT amplitude units can be specified independently.

Low Frequency Attenuation: Applies Low frequency attenuation of the signal below 11Hz.

Units and FFT Spectrum Windowing (M20, M30, Phantom)

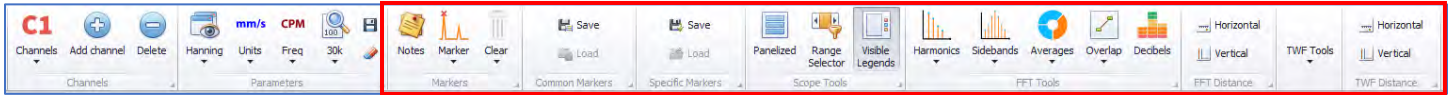
Because Erbesd Instruments technologies capture waveform data on each collection, a recording opened for analysis can be re-rendered immediately to suit user preferences. The Parameters toolbar on the Analyze Menu contains the following options:

- **Window:** Hanning is usually the default windowing view for FFT spectra. Other options include: Rect, Bartlett, Blackman, Hamming, Kaiser, CosSum and FlatTop.
- **Units:** Imperial and Metric amplitude units for Acceleration, Velocity and Displacement are available.
- **Freq:** Frequency units for Hz, CPM and Orders are available.
- **Graph frequency limit:** Sets the maximum frequency limit of the FFT graph (according to Freq units selected).
- **Save:** Save personal configuration. Keeps the previous 4 settings when analyzing signals for the remainder of the open session. Once Digivibe is closed, the settings revert to default.
- **Erase:** Clear Personal configuration resets the values of the previous 4 parameters to default.

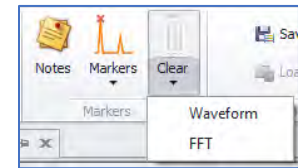
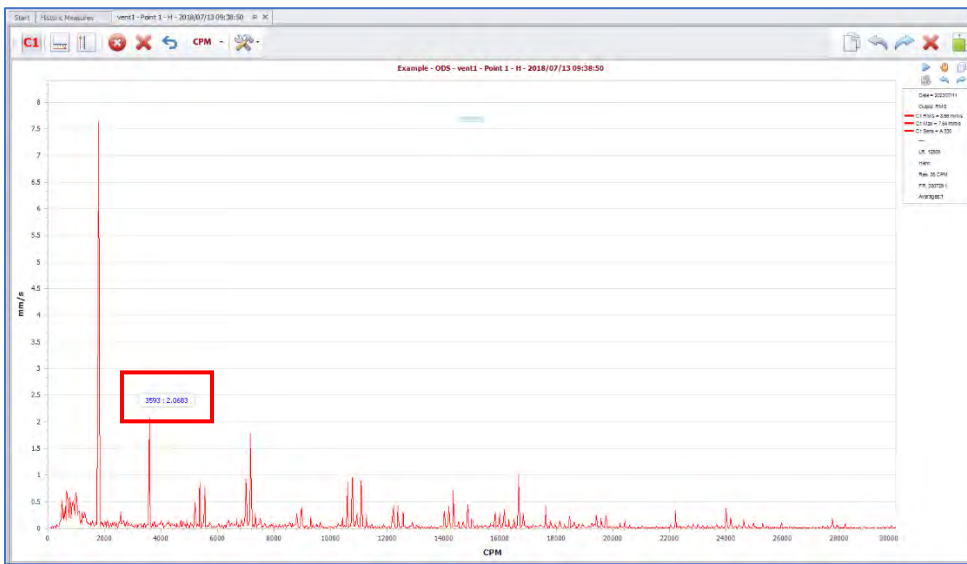
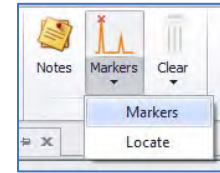


Analysis Menu Tools (M20, M30, Phantom)

The Analysis Menu toolbar features essential functions for analyzing collected vibration data. Depending on screen resolution, some toolbars may be collapsed.



Markers: Select Markers from the toolbar dropdown and click on any desired point in the FFT to place a **marker**. Use the **Clear** button to erase markers from TWF or FFT. The **Locate** feature shows amplitude and frequency where the mouse pointer is located.

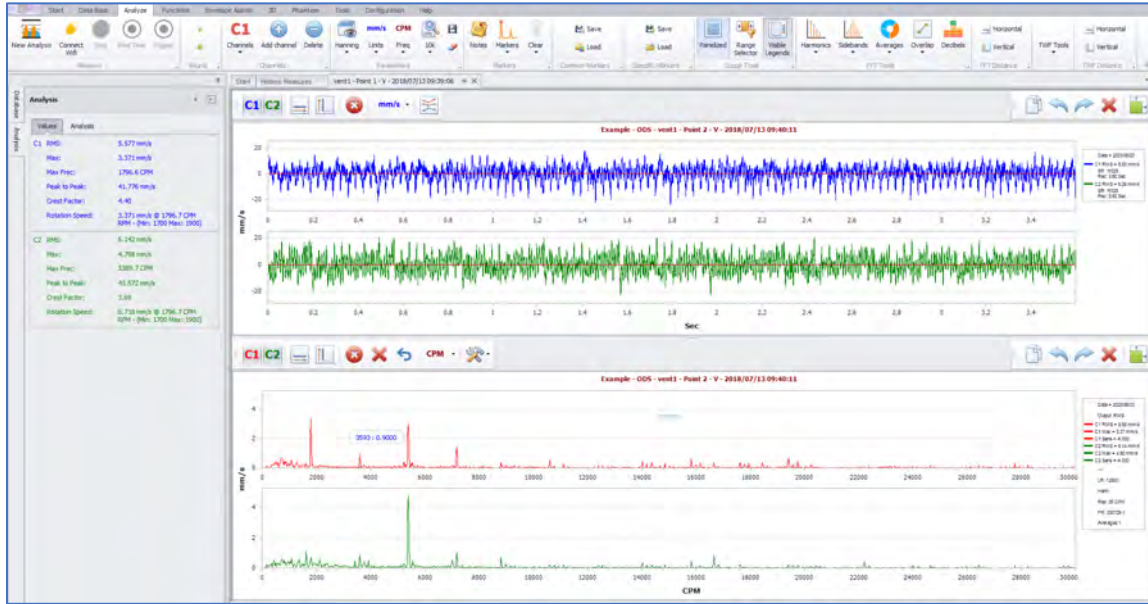


Common Markers: May be used to save and recall markers on future recordings for the same point and axis.

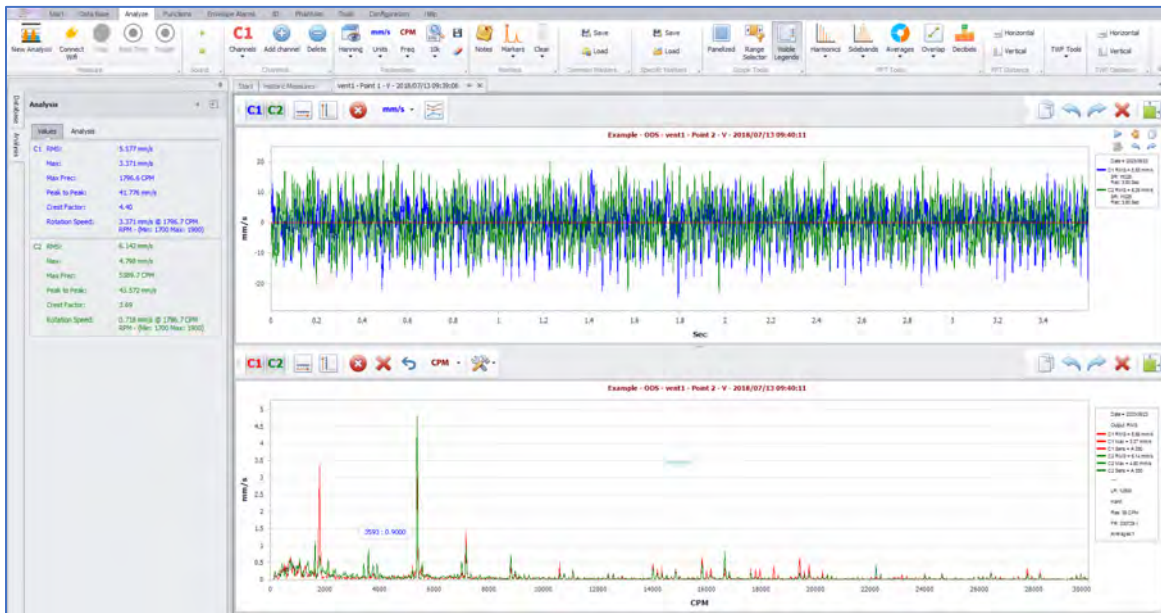
Specific Markers: May be used to save and recall markers for future analysis of the same recording.

Scope Tools:

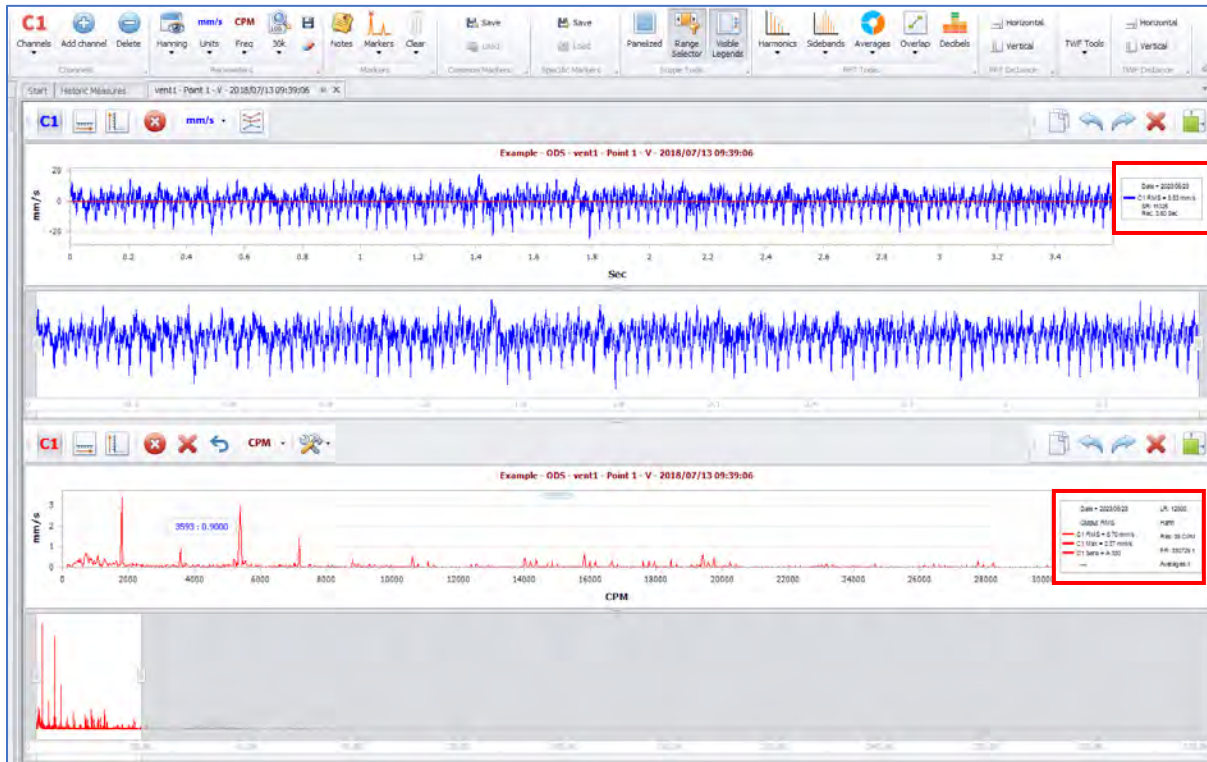
- **Panelized:** Multiple signals are displayed in separate panels. **NOTE** – To enable Panelized Scopes, go to the Configuration Menu, open Preferences. On the Signal tab, the Allow Panelized Scopes option must be checked.



When turned off, the signals are combined into one panel.



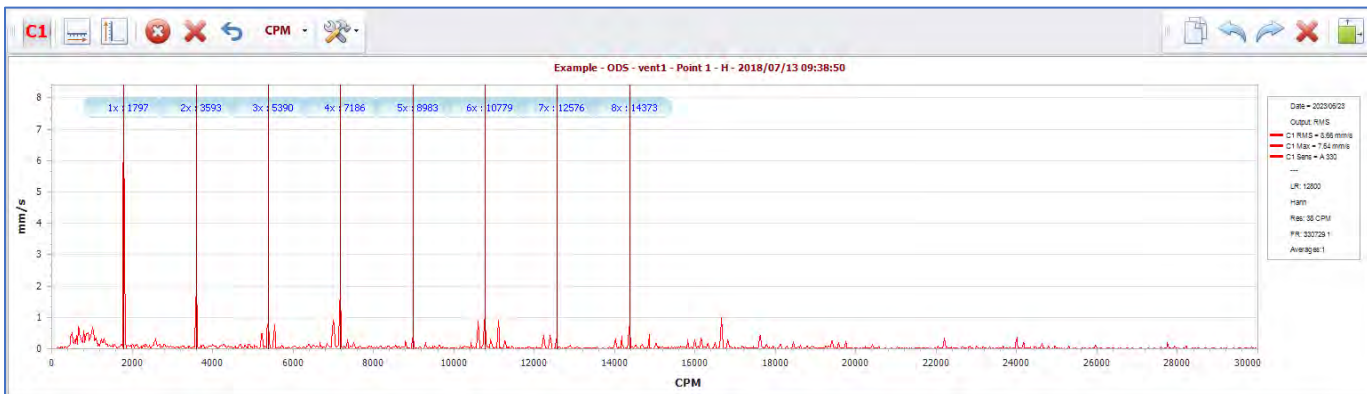
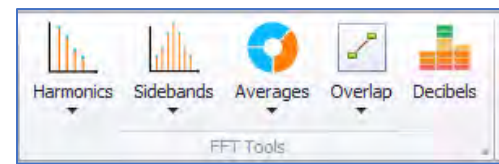
- **Range Selector:** Breaks up the entire spectrum into ranges. Select the desired range by clicking on it.



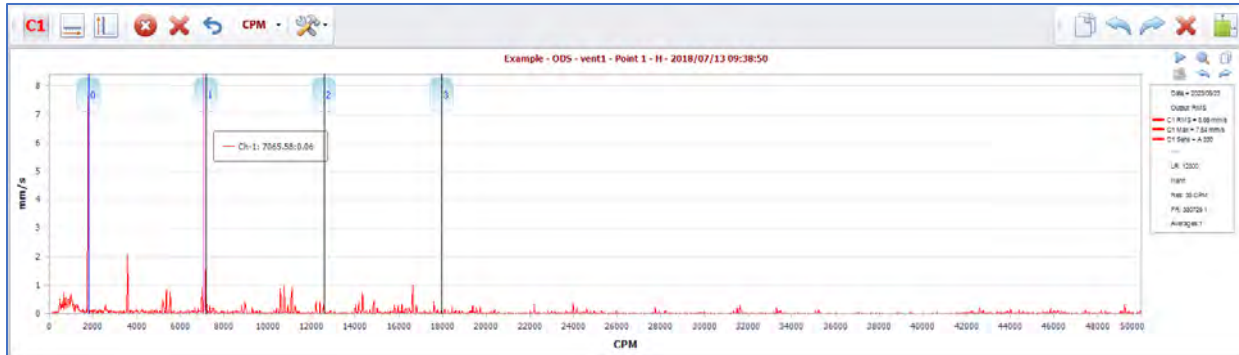
- **Visible Legends:** Toggles the display of the **Legends** section on the right side of the TWF and FFT graphs:

FFT tools:

- **Harmonics:** Specify the number of Harmonic cursor lines desired (8 in this example), then select the vibration peak from which harmonics will be calculated. Cursor lines denoting the harmonic frequencies appear on the graph. Use Remove Cursors to clear cursor lines from the graph.

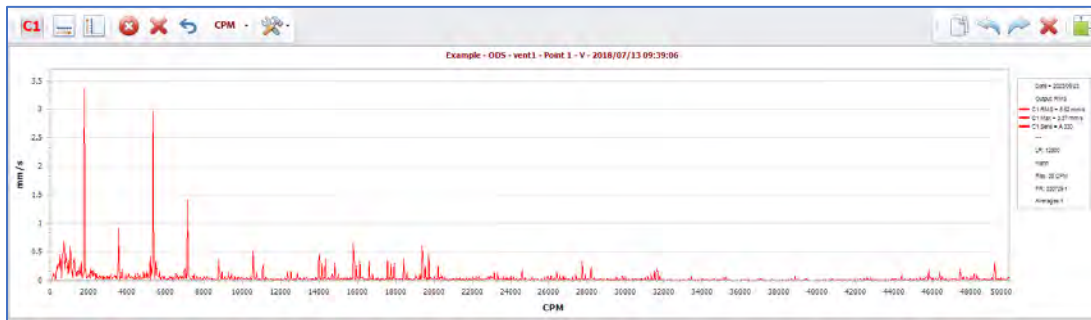


- Sidebands:** Specify the number of Sideband cursor lines desired (3 in this example), then click the vibration peak to be analyzed for Sidebands. A blue line for each Sideband of the selected peak appears on the graph. Moving the mouse pointer laterally across the graph will expand/reduce the sideband spacing. When the desired sideband spacing is achieved, click again to freeze the sideband cursors in place. Use Remove Cursors to clear cursor lines from the graph.

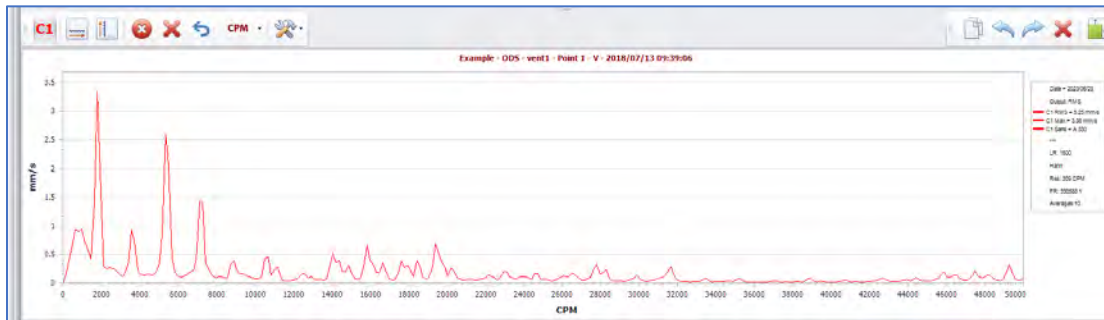


- Averages:** Specify the number of averages used to produce the FFT. The default FFT view is one average. Increasing the number of averages reduces the appearance of random outlying peaks and periodic occurrences, showing a truer representation of repeating events in the FFT. However, increasing the number of averages lowers FFT resolution.

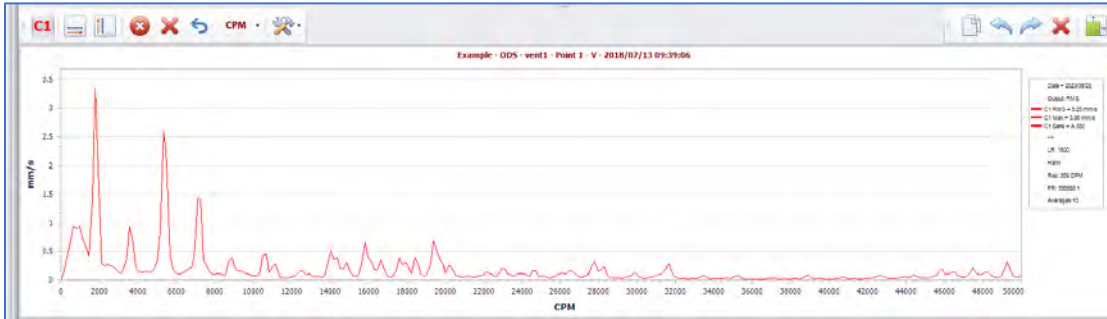
This is the DigivibeMX® default FFT view, which is produced using 1 average:



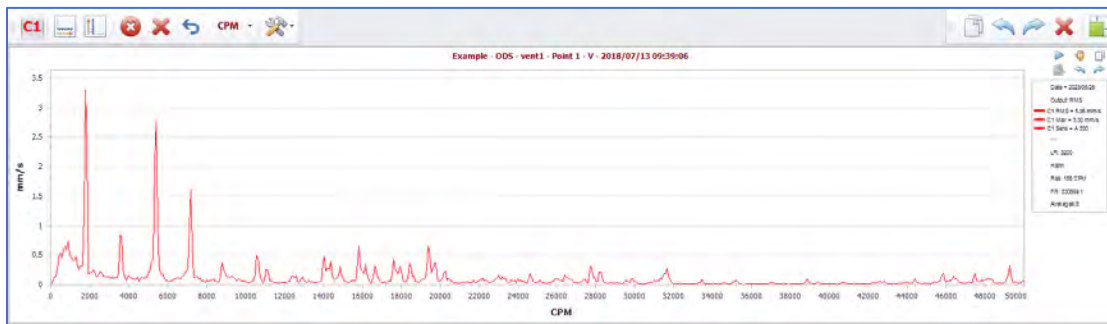
This FFT shows the same frequency range, but was averaged 10 times:



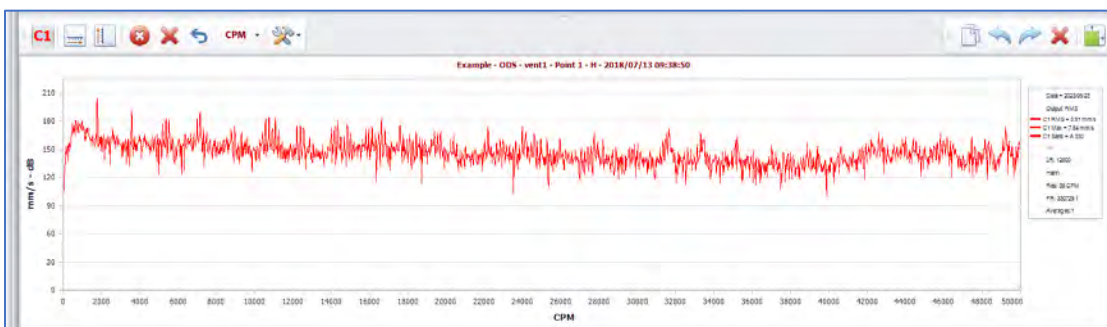
- **Overlap:** Specify the percentage of Overlap when changing the Averages to greater than 1. The default is 0%. The following FFT was produced using 10 Averages and the default 0% Overlap:



Changing the Overlap to 50% results in the following FFT:

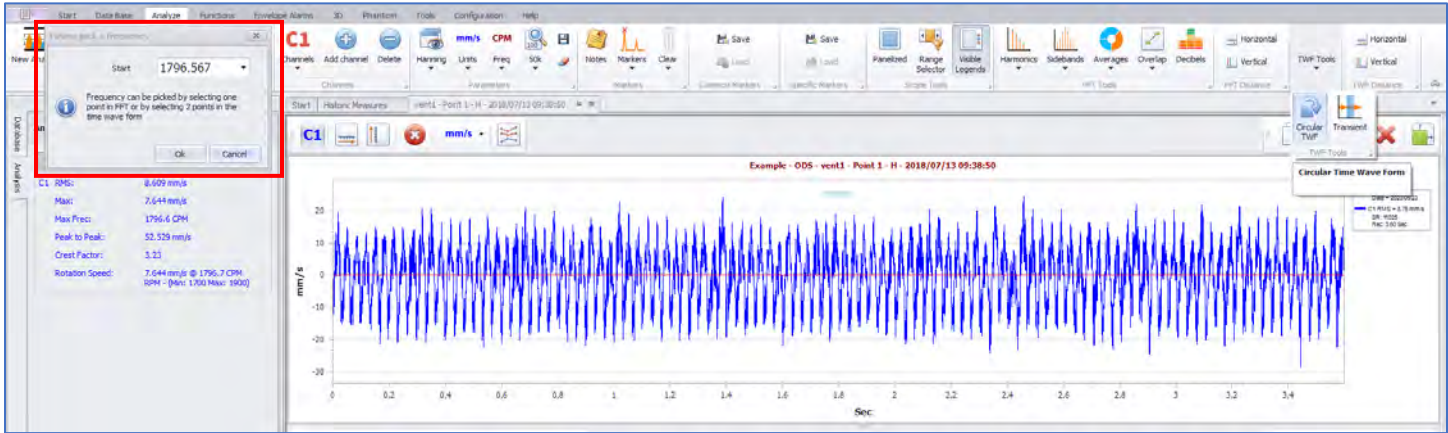


- **Decibels:** Converts and displays the FFT in Decibels.

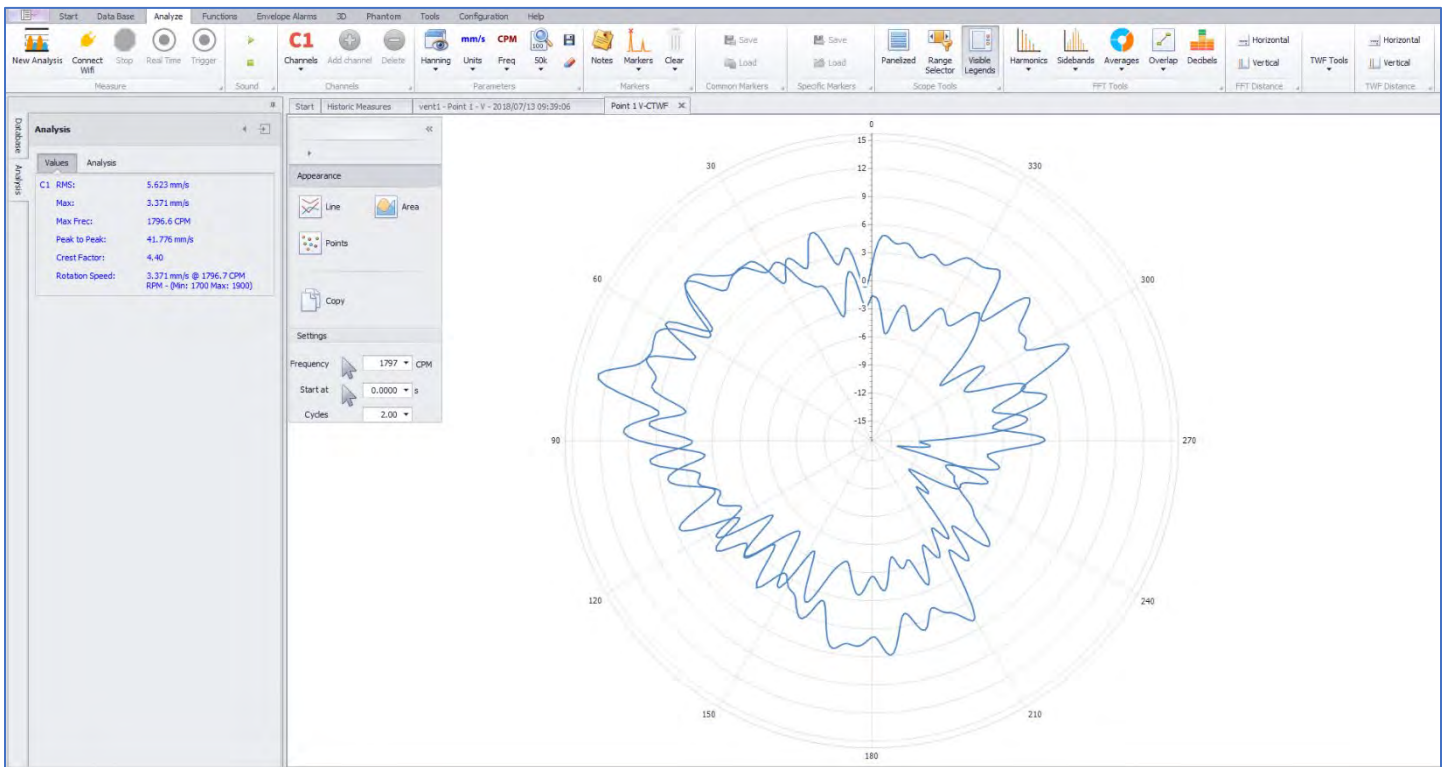


TWF tools

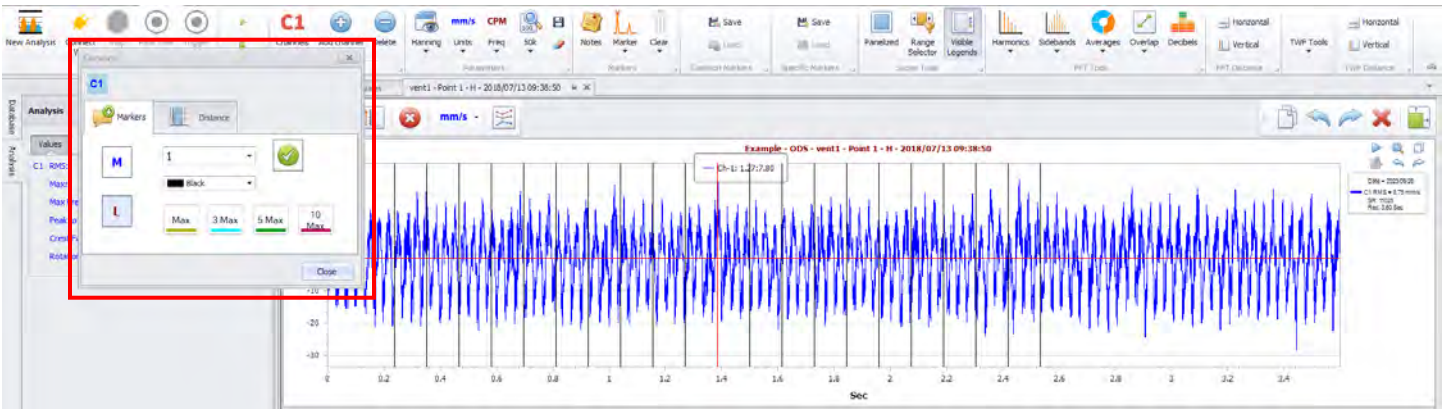
- **Circular Time Waveform:** Opens the **Select Frequency** window. Select the desired frequency from the dropdown or enter it manually.



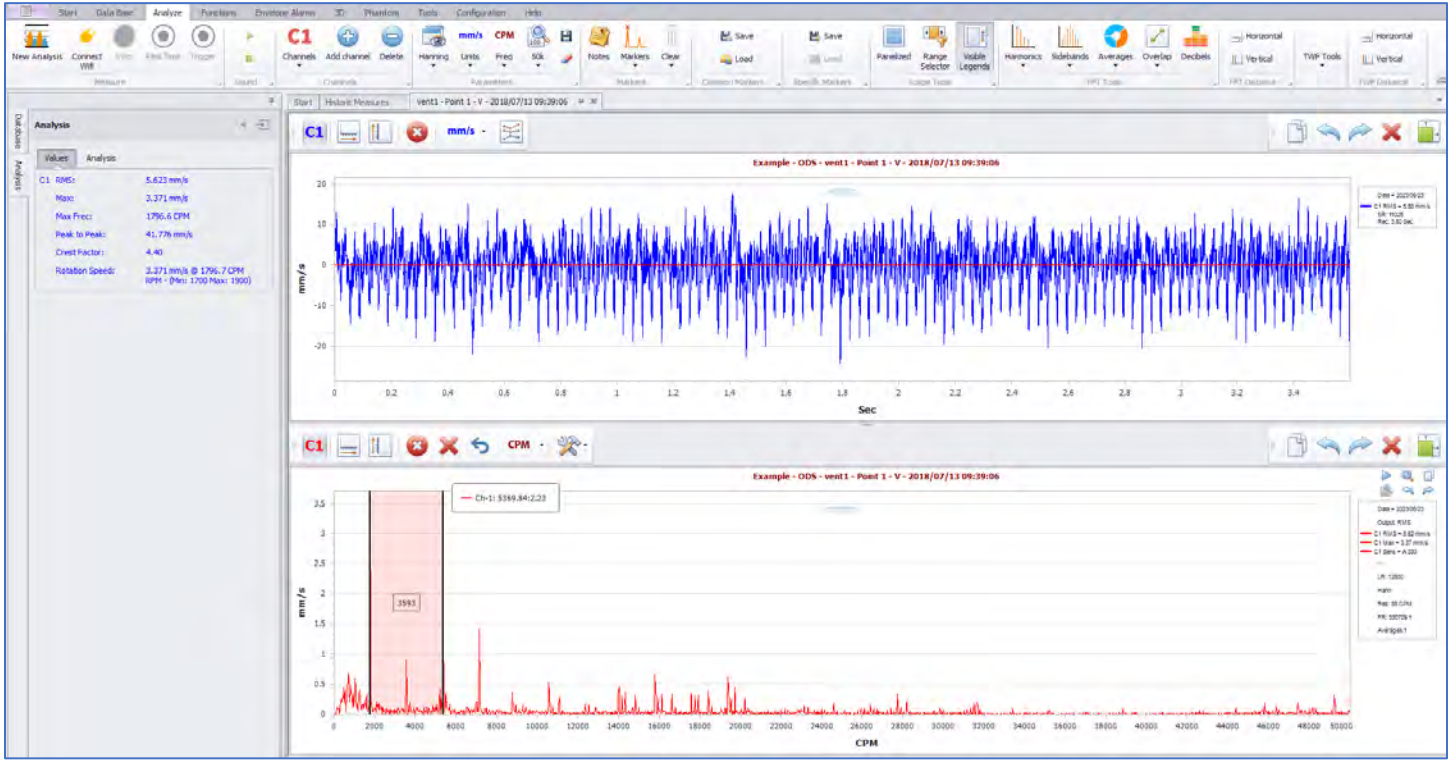
The Circular TWF is rendered in a new tabbed panel, based on the selected frequency. Graph Appearance options include Line, Area or Points. Frequency, Start time and Cycles can all be changed after the graph is opened. Changes will be re-rendered immediately. The Copy button allows copying the graph for pasting into a Word document, email, etc.



- Transient:** Selecting Transients opens the **Cursors** window. Click the desired frequency to analyze in the TWF. Then click the desired instance to inspect for transient events in the Time Waveform. Moving the mouse cursor laterally across the Time Waveform changes the sideband cursor frequency spacing. (Zooming in on the affected part of the Time Waveform can help narrow down cursor spacing to the desired frequency interval). Use Clear to remove cursor lines from the graph.



TWF Distance/FFT Distance: Calculates and displays the horizontal or vertical distance between any two selected points on the Time Waveform or FFT graph. Use Clear to remove marked areas from the graph.



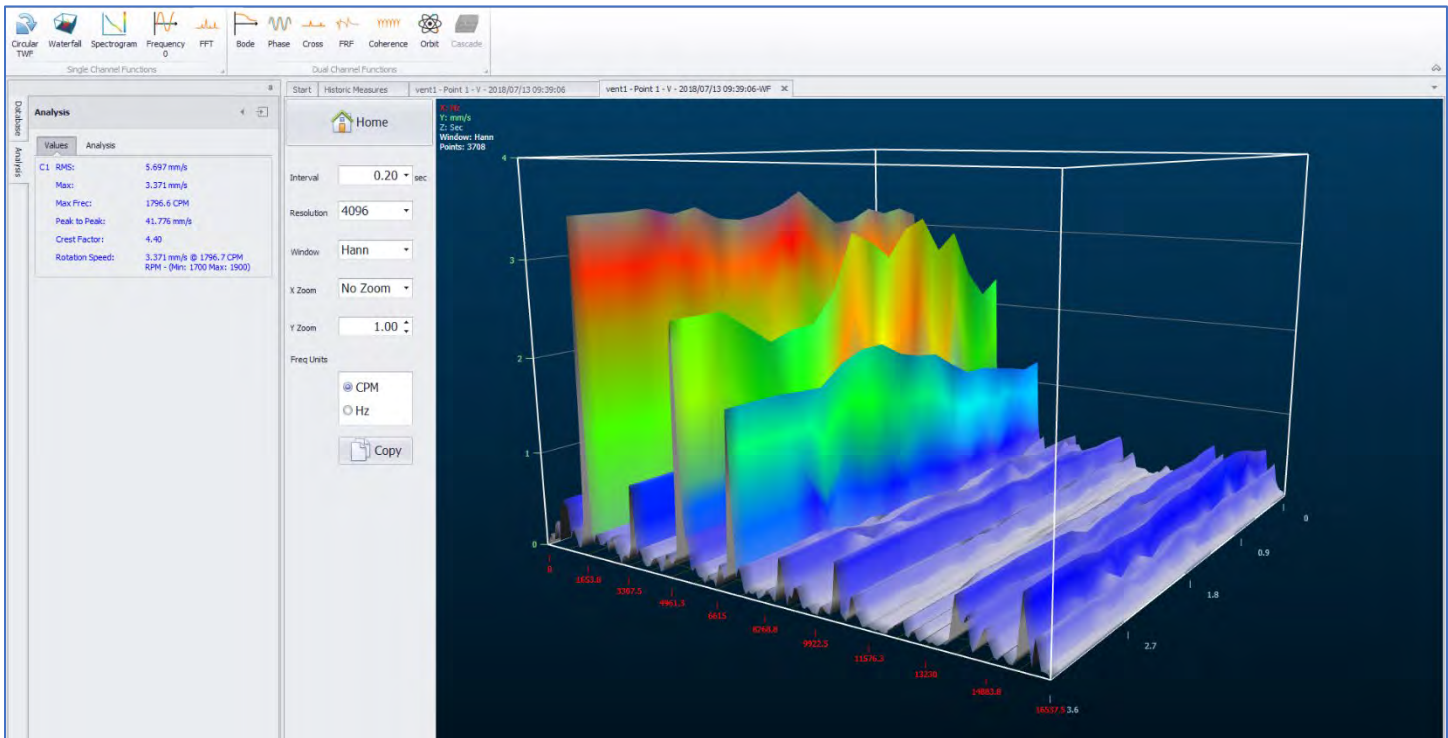
Functions Menu Tools (M20, M30, Phantom)

In addition to the Analyze Menu, the Functions Menu also features a number of essential tools for analyzing collected vibration data: The Functions Menu tools are divided between two toolbars: Single Channel functions and Dual Channel functions.

Single Channel functions

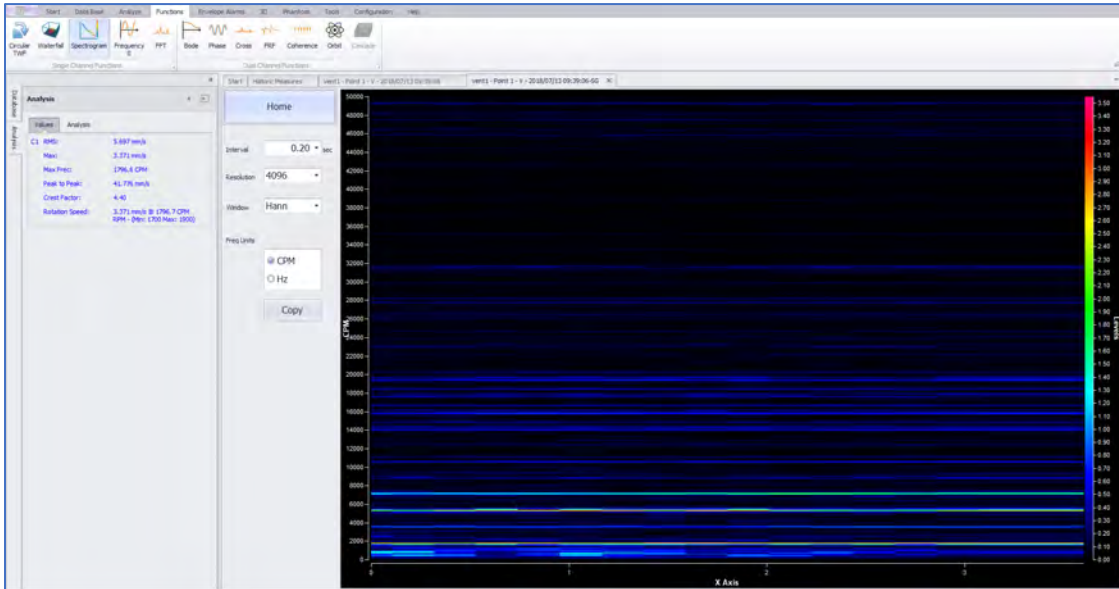
Circular TWF: Explained previously. If multiple channels are opened for Analysis, all will be rendered.

Waterfall: Produces a color-coded 3D representation of a recorded signal as both Time Waveform (0-pk) and FFT. This unique tool allows users to observe how frequency amplitudes in the FFT may fluctuate over time.



Spectrogram: Produces a color-coded bar graph representation of vibration severity by frequency range. Interval, Resolution, Windowing format and Frequency units may be changed. The graph will immediately re-render. The Copy button copies the graph for pasting into a Word document, email, etc.

NOTE: Lines may initially appear very small. Zoom the view as necessary. Position the mouse pointer over the desired axis and scroll up/down to zoom the axis in/out. Click, hold and drag an axis in the desired direction to reposition the graph.



Frequency 0: Opens a small window displaying the Cross-by-0 Frequency.

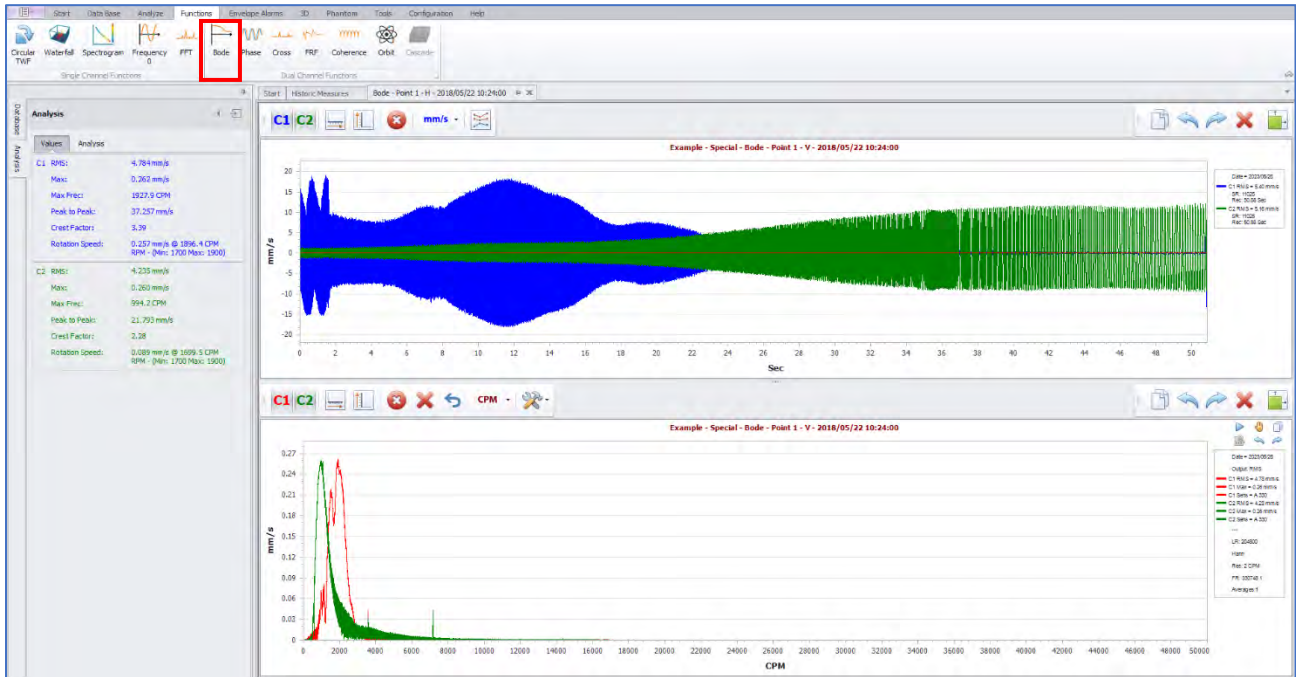


FFT: Displays the FFT in full screen mode. This the same as maximizing the FFT portion of the analysis screen.

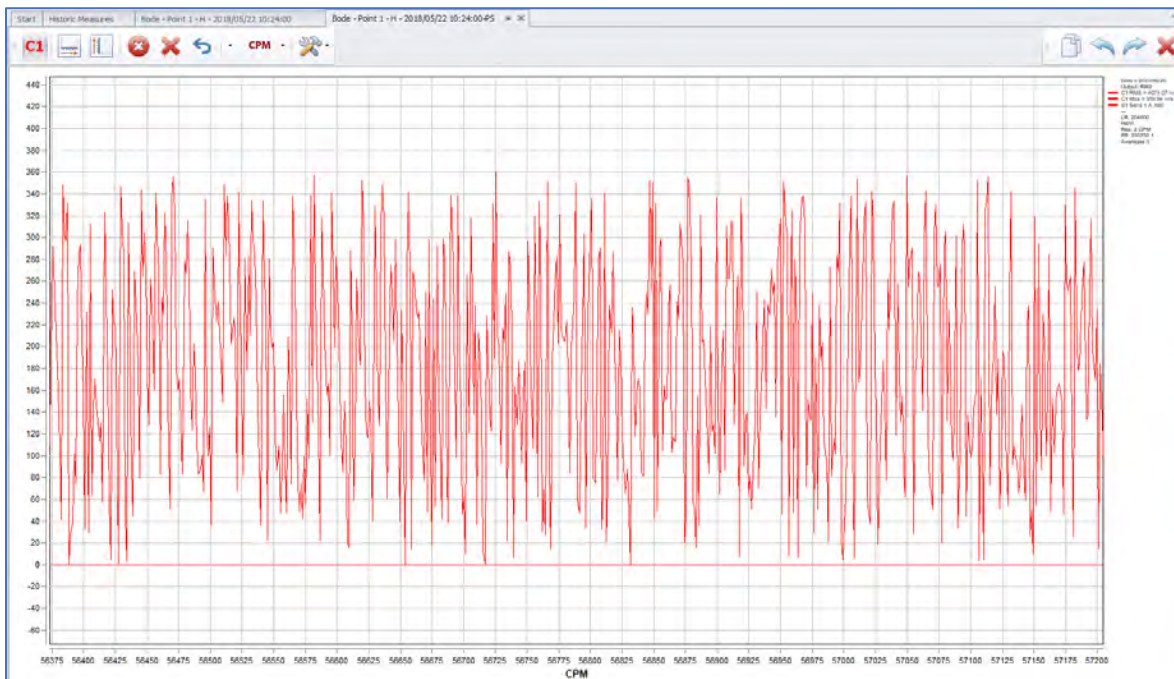
Dual Channel Functions toolbar

The following tools are provided for dual-channel analysis.

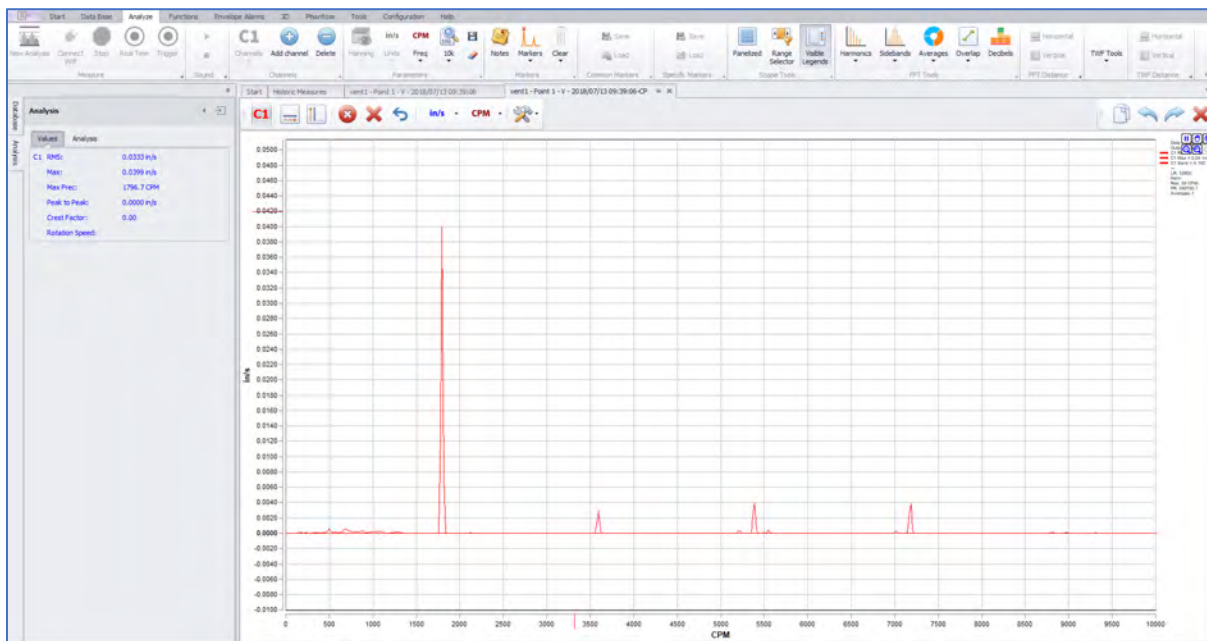
Bode: Displays machine start-up or run-down data collections in Bode Plot format. (Open vibration data, add speed data channel, select Bode, select Channel 1 for vibration – Bode plot opens. Select how you would like data to be plotted.)



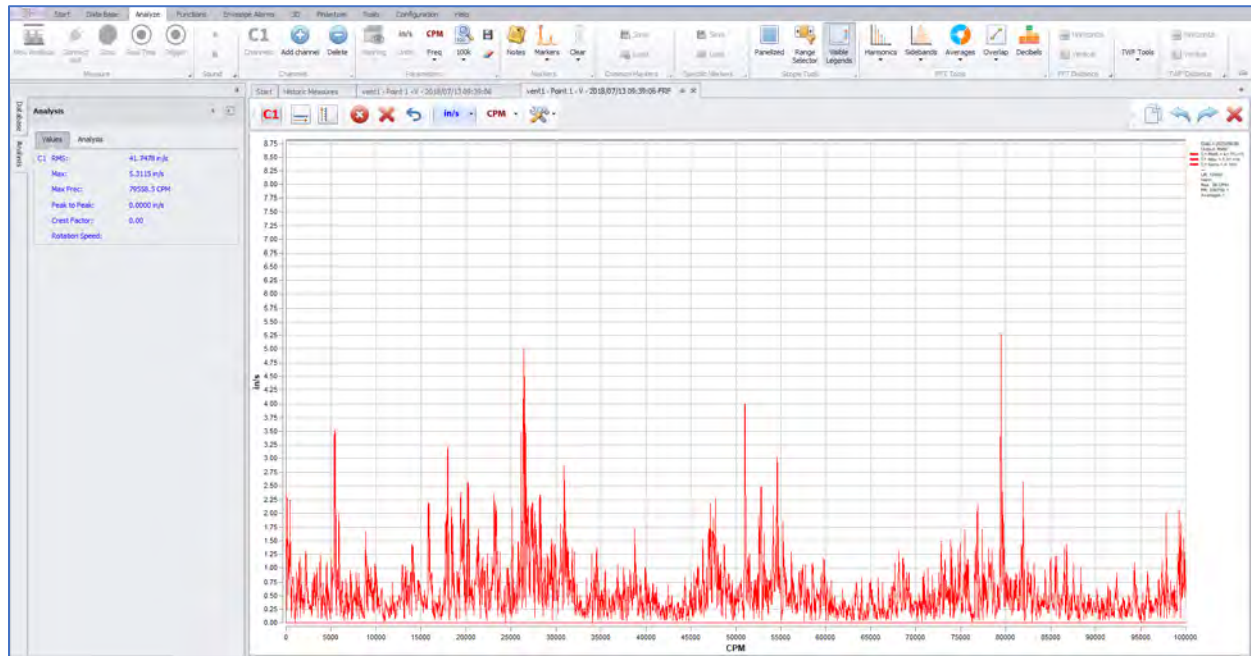
Phase: Displays the phase angle differences between a measured point and its reference point, across the entire frequency spectrum.



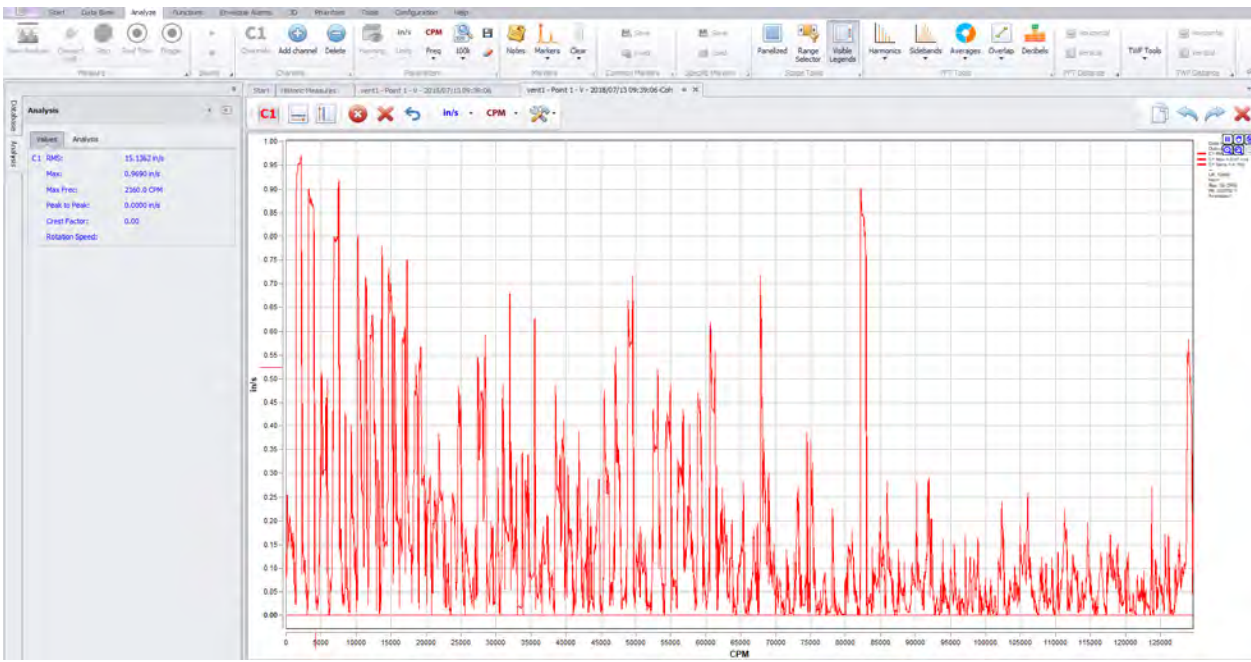
Cross Spectrum: Displays two channel data as a Cross Spectrum FFT graph.



FRF: (Frequency Response Function): Displays a FFT-style graph measuring the output spectrum of a system, in response to a stimulus.



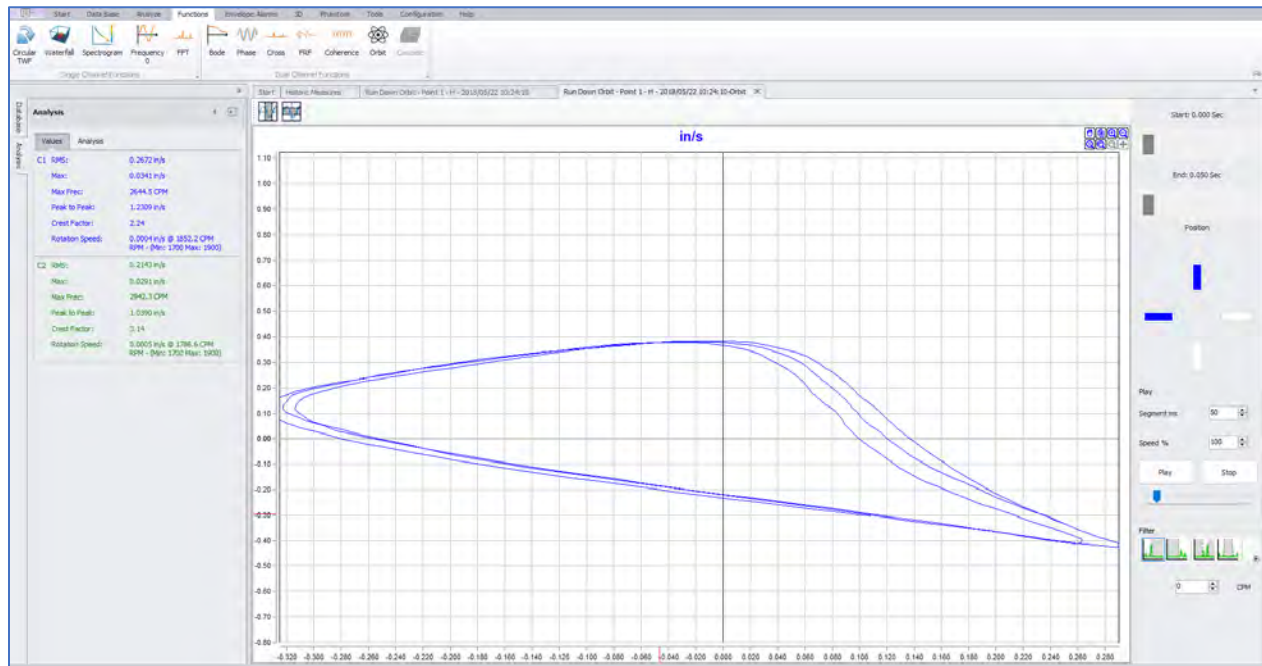
Coherence: Displays a spectral representation showing the relationship between two signals or data sets.



Orbit: Displays a static or dynamic graph representing the end travel of a rotating shaft.

NOTE: Orbit Analysis requires simultaneous data collection in the vertical and horizontal planes. In order to accomplish this, one would need triaxial, biaxial or two single-axis accelerometers. A single triaxial or biaxial accelerometer could be positioned vertically. With two single axis accelerometers, one must be positioned horizontally and the other vertically – each collected on its own channel. Start a new analysis and collect both channels simultaneously.

Create an orbit plot from the data by clicking on the **Orbit** button located in the Functions Menu toolbar. If the collected data is identified as Horizontal and Vertical, DigivibeMX can determine which channel is vertical and which is horizontal.



In the orbit view, the duration of the drawing can be adjusted in milliseconds. The rendering speed of the graph can be adjusted by percentage. It is also possible to zoom in to fit an appropriate size. The image can be copied from DigivibeMX® with the right mouse button and pasted elsewhere as a still image.

Observe the dynamic graph in video format by clicking the Start button. Playback can be paused and restarted at any point. A slider bar under the Pause and Stop buttons can be used to manually scroll through the entire Orbit plot.

Below the configuration settings on the right-hand side are Filter tools that can be used to filter Low Pass, Pass Band, Pass High and Block Band to improve the graphical interface.

Envelope Alarms Menu Tools (M20, M30, Phantom)

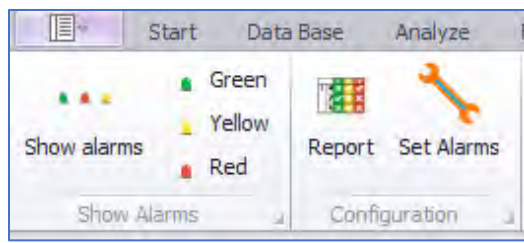
Overall alarm values for Displacement, Velocity, Acceleration and Acceleration Envelope can be set for Machine Points when a new Machine is created in the database. These alarms are useful for ensuring that any source of vibration across the entire FFT spectrum will trigger a change in the Machine’s alarm status. However, due to their unique design, installation or functions, some machines simply do not run within normal parameters across all frequency ranges. In such cases, a user may want to wrap an alarm envelope around an existing “ideal state” data collection. They may also wish to reduce or increase alarm tolerances at certain frequency ranges. Capabilities to establish and monitor these types of customized alarms are provided on the Envelope Alarms Menu. To set a new alarm envelope around an existing data collection, first use Open Files and select Open File to open the desired recording. Then proceed to the Envelope Alarms Menu.

Show Alarms toolbar

The following tools are provided to view or hide alarms that are set around a recording.

Show Alarms: Displays all envelope alarms set on the open recording (if any alarms have been set).

Green / Yellow / Red: Toggles on/off the individual Green, Yellow and Red alarm envelopes.



Configuration toolbar

The following tools are provided to set an alarm envelope around a recording, and provide an overview of the Machine’s current envelope alarm conditions.

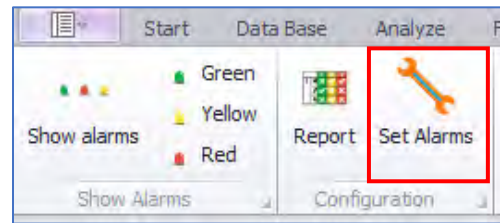
Report: Displays the envelope alarm status of all Points and Axis for the Machine to which the current recording belongs.

Set Alarms: Opens the Alarms Wizard to establish or edit an envelope alarm around the displayed recording. **Note-**The collection must be set at the axis level to properly function.

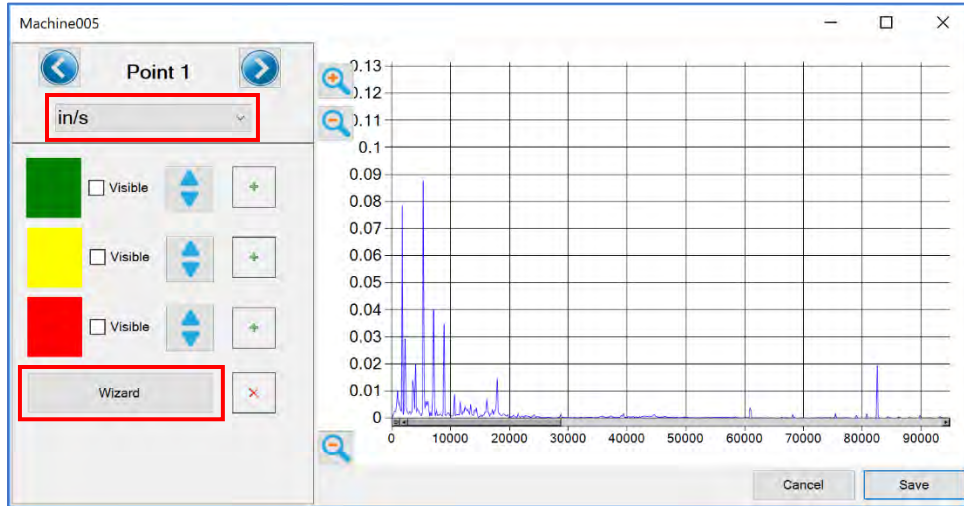
Setting an alarm envelope around a recording

With the desired recording open, select **Set Alarms**.

NOTE: Source signals for Alarm Enveloping must be opened from the **Axis** level of the database. If the FFT is not visible after clicking Set Alarms, the source signal was probably opened from a higher level of the database (Point or Machine level).

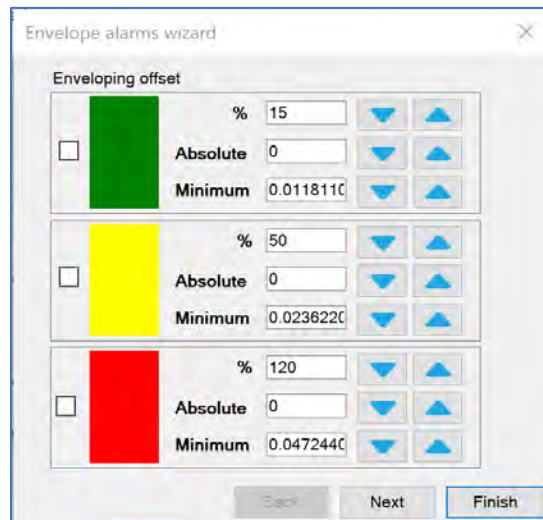


The alarm enveloping window opens, displaying the Machine and Point to which the recording is assigned. The arrow buttons can be used to advance to the previous or next Point in the database. Units appear as displayed in the original Analysis window but can be changed to alarm the recording for Displacement, Velocity, Acceleration or Acceleration Enveloping. To set the alarm envelope parameters, click the Wizard button to launch the Envelope Alarms Wizard.

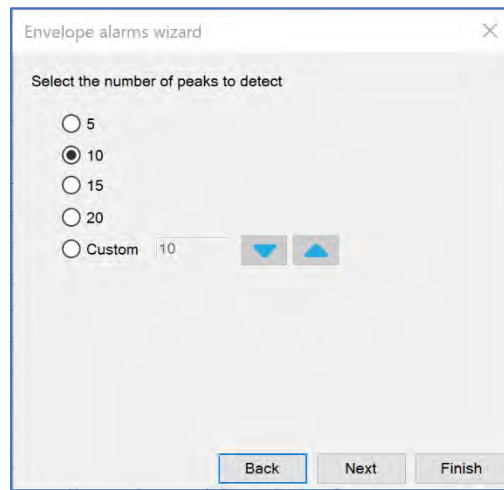


Use the Envelope Alarms Wizard to specify the increased vibration tolerance across the entire FFT Spectrum, before an alarm condition changes. These values may be defined by a percentage increase or an absolute value. Minimum indicates the amount of resulting alarm envelope from the highest amplitude documented in the enveloped recording. Checking the boxes displays the checked band on the Alarm Enveloping window reading. When satisfied with the overall envelope parameters, click Next to proceed.

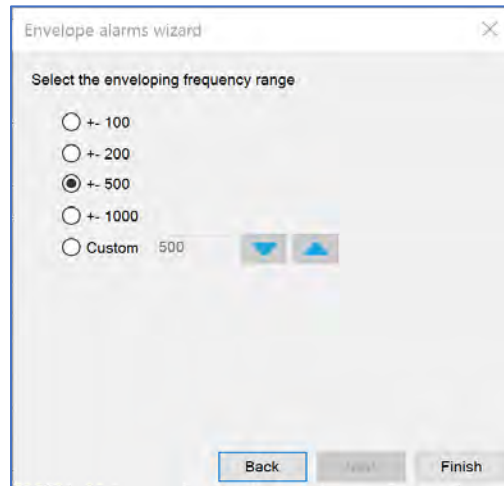
NOTE: Alarm envelopes can be adjusted at specific frequency ranges later in the process.



The next screen allows users to select the number of peaks to be alarmed. Indicate the desired number of peaks to alarm, then click Next to proceed.



The next screen allows users to specify the frequency range offset (in CPM) around each enveloped peak in the FFT Spectrum.

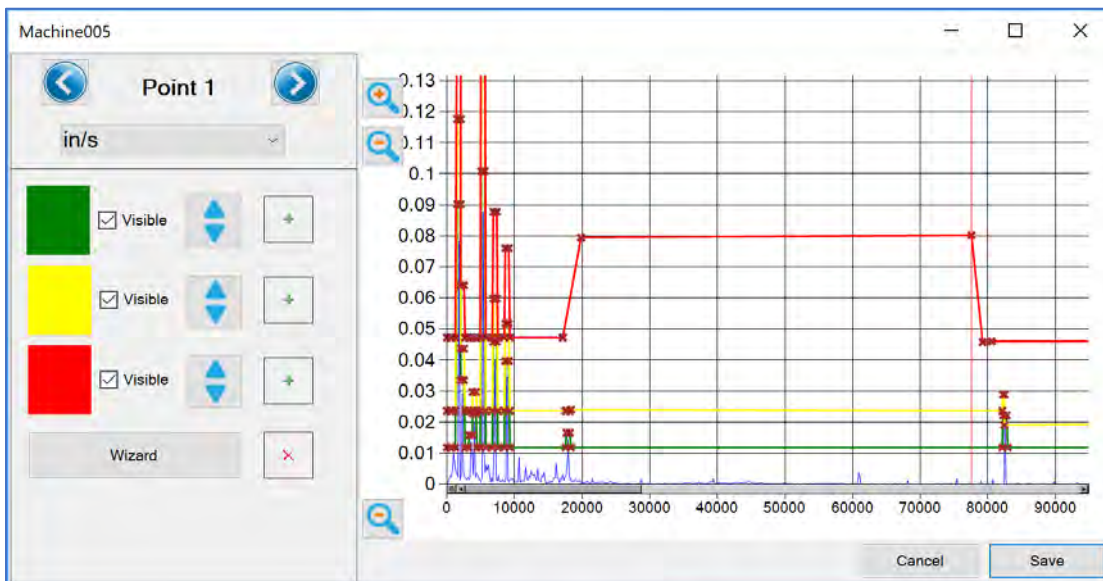


When satisfied with the overall envelope parameters, click Finish.

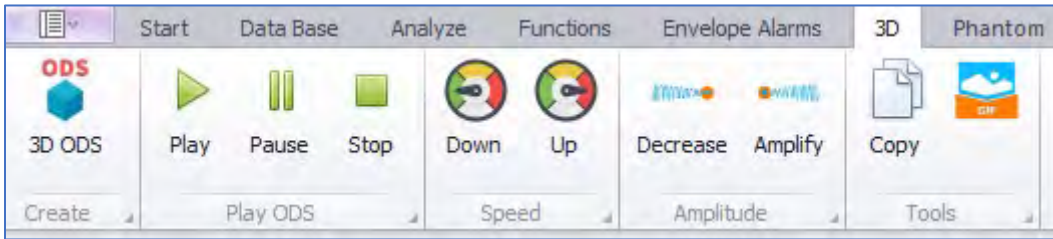
The alarm enveloping window now displays the new envelope alarms around the FFT Spectrum. If the alarm bands are not immediately visible, it may be necessary to zoom out the view.



To adjust the alarm bands in specific frequency ranges, click and hold the red **x** on the desired alarm envelope nearest the beginning of the desired frequency range. Drag it to the desired frequency and amplitude, then release. Then click and hold the red **x** nearest the end of the desired frequency range and drag it to the desired location, then release. Click Save when finished to save the envelope alarm.



3D Menu Tools (M20, M30)



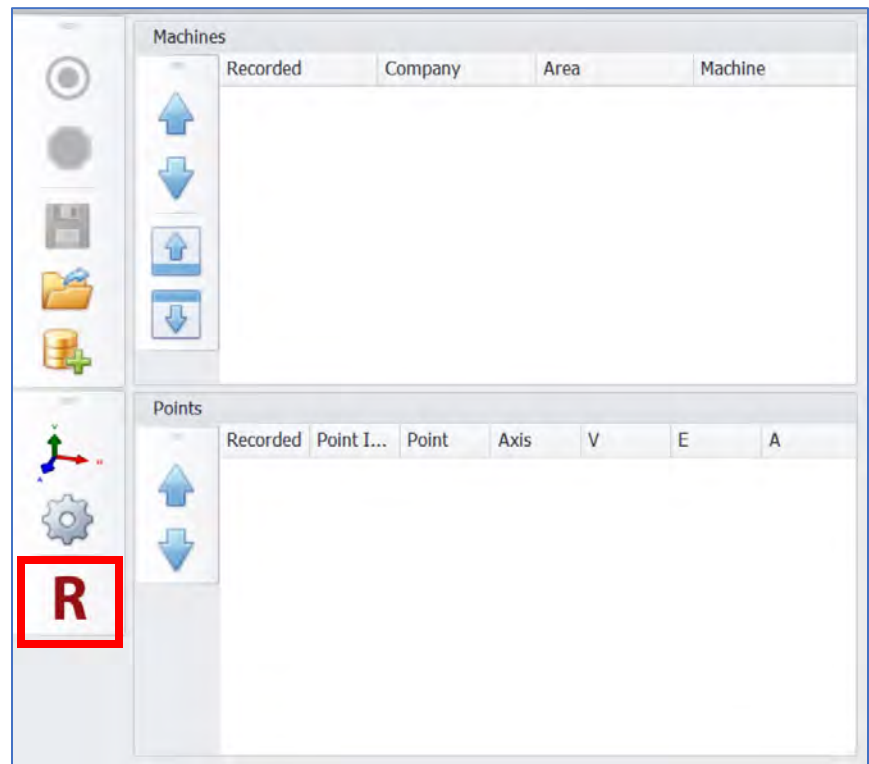
ODS

Operating deflection shape (ODS) is a type of analysis capable of animating the deformation of a mechanical system at a selected frequency. The ODS analysis animates the machine's movement at each measurement point during operation, relative to a common stationary point. These animations can be very useful by defining areas of structural weakness and identifying areas of mechanical clearance. In resonance cases, the ODS analysis can provide an estimate of the mode of vibration of an excited natural frequency.

ODS Modeling Requires Reference Channel Data

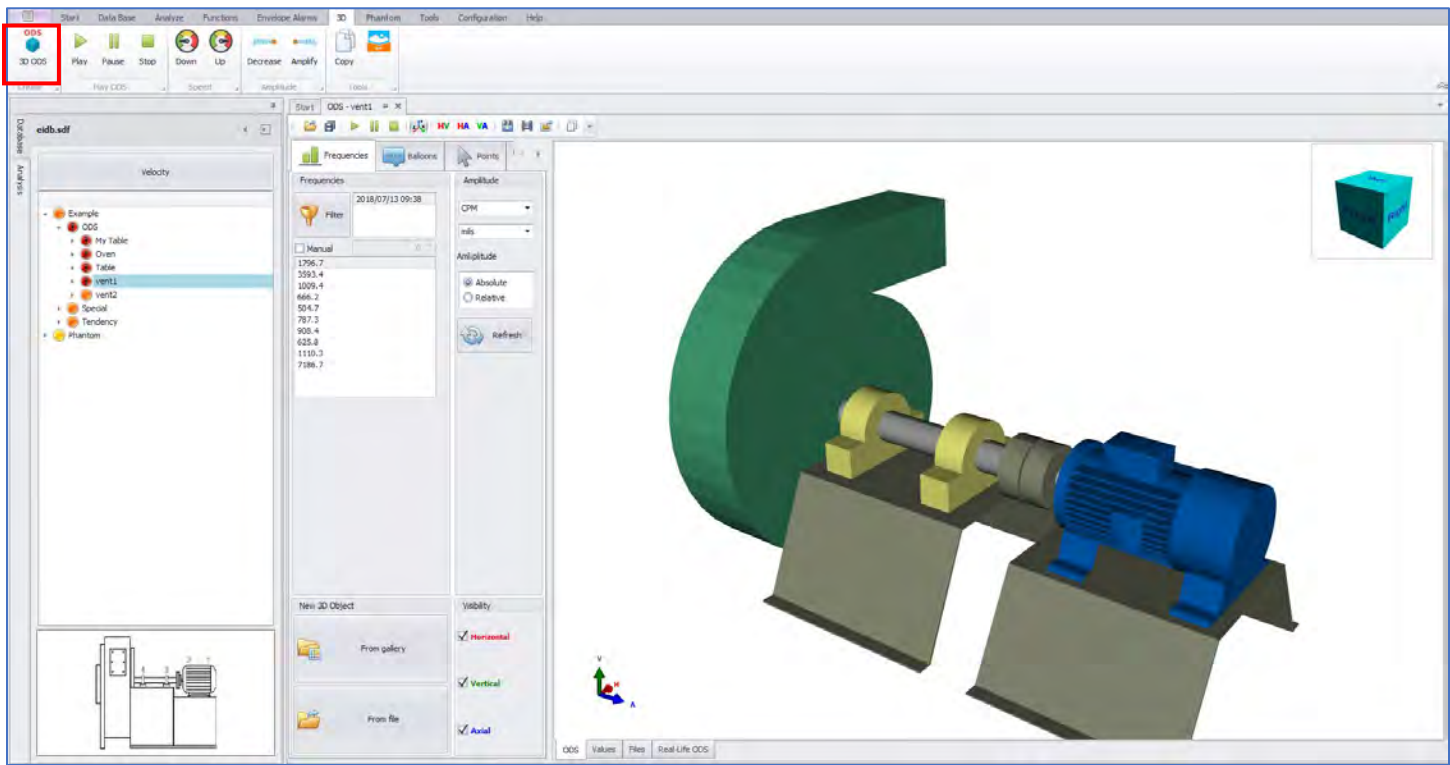
At the present time, Reference Channel data collection is only possible in Route mode, using portable interfaces. The Phantom system is not capable of collecting the simultaneous Reference Channel data that corresponds with Phantom Vibration triaxial or biaxial sensor data collections.

ODS modeling data may be collected as part of every data collection Route, simply by adding simultaneous Reference Channel data collections to be recorded at each point. With Reference Channel data collection enabled, an extra Reference Channel accelerometer must be placed somewhere on the machine near the vibration data collection points. The Reference Channel accelerometer remains in place while all other machine data points are collected. This allows the vibration at all measured points to be compared with the stationary reference point, and therefore compared among themselves with the reference point acting as a constant. The Reference Channel is indicated in the software with the letter "R".

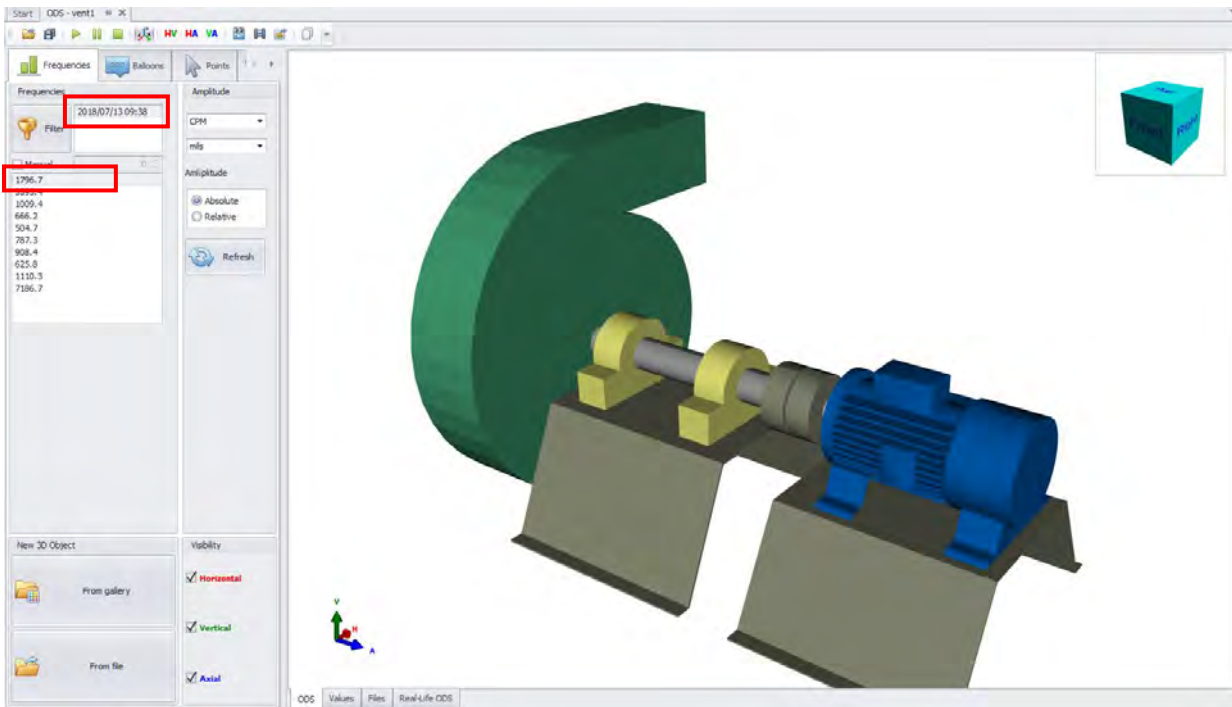


Analysis of ODS Data

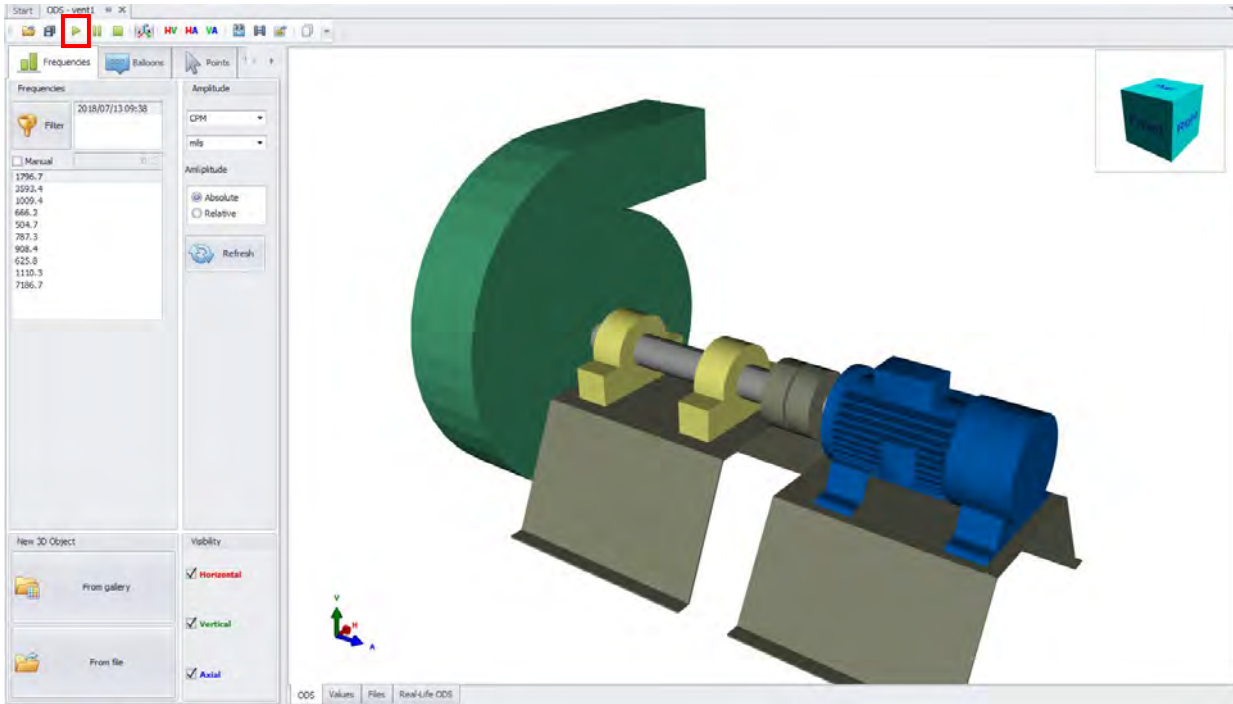
Select the machine you want to analyze and start the **ODS** function:



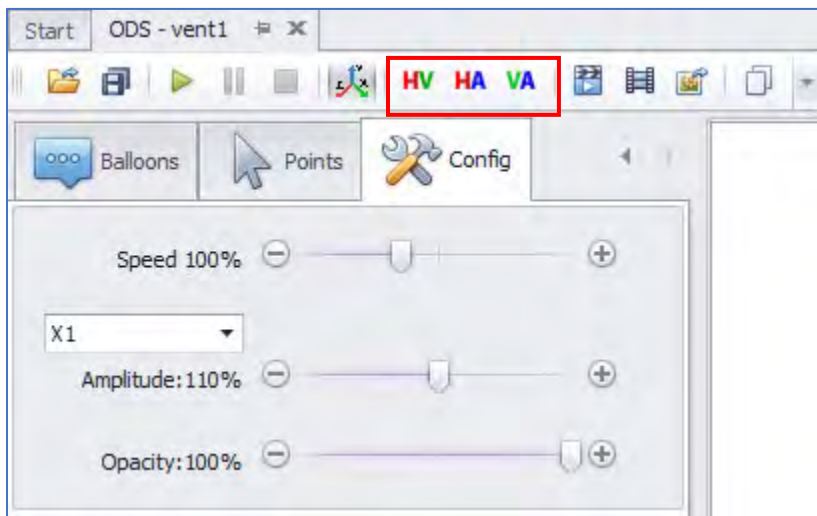
Select ODS data collection route by **date** and **RPM**.



Select **Play** to begin the ODS animation of collected data.

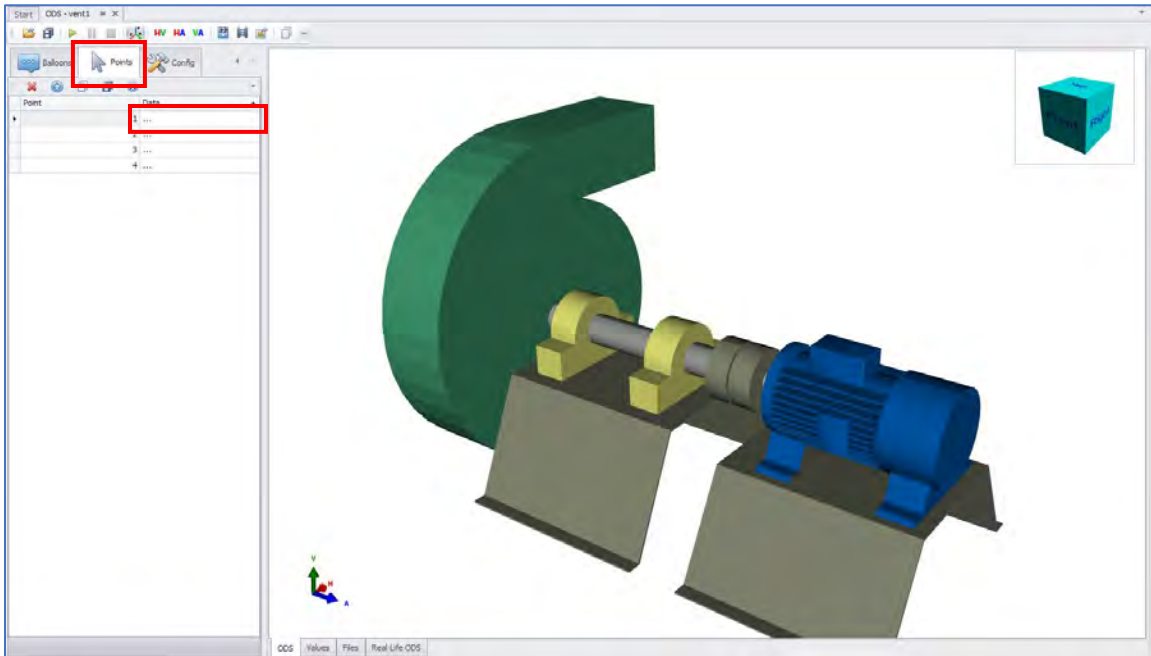


The animation speed of the ODS model can be increased or decreased using the slider control. The effects of vibration can be reduced or increased with the Amplitude control. A still image or moving .gif file can be copied for Word documents or emails using the Copy or GIF controls. **Axis of orientation** can be swapped as desired.



Phase Analysis of ODS Data

Select the **Points** tab and click on the **Data** cell of the point you want to analyze:



The phases are calculated between all points with respect to the Reference:

- Horizontal
- Vertical
- Axial

Subtract the phase of the point and direction that interests you with respect to the 2nd point of interest and thus obtain the phase between them (for example the Phase between 1H and 1V = $358^\circ - 238^\circ = 120^\circ$).

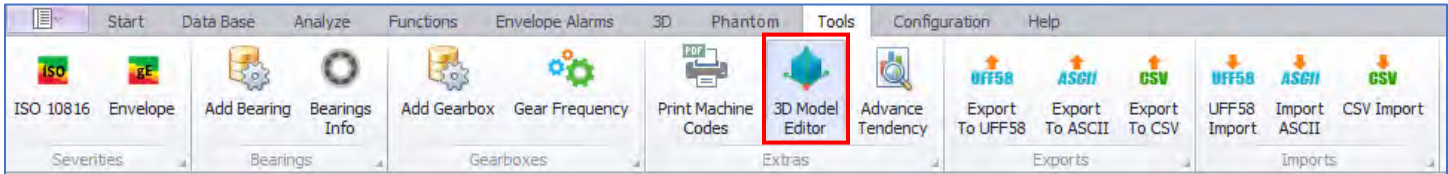
IMPORTANT: Make sure that the measurements were taken in the directions indicated in figure 3D, otherwise select the "Inv" box to reverse the direction at a given point (the arrow changes direction).

Información								
Point Index			Position					
1	X	54.2803						
	Y	5.0264						Locate
	Z	2.1428						
Horizontal			Vertical			Axial		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Inv	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Inv	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Inv
Ampl	Phase	Freq	Ampl	Phase	Freq	Ampl	Phase	Freq
1.60	358	179...	0.706...	238	1796.7	0.1	326	1...

Guide to Configuring a 3D Model

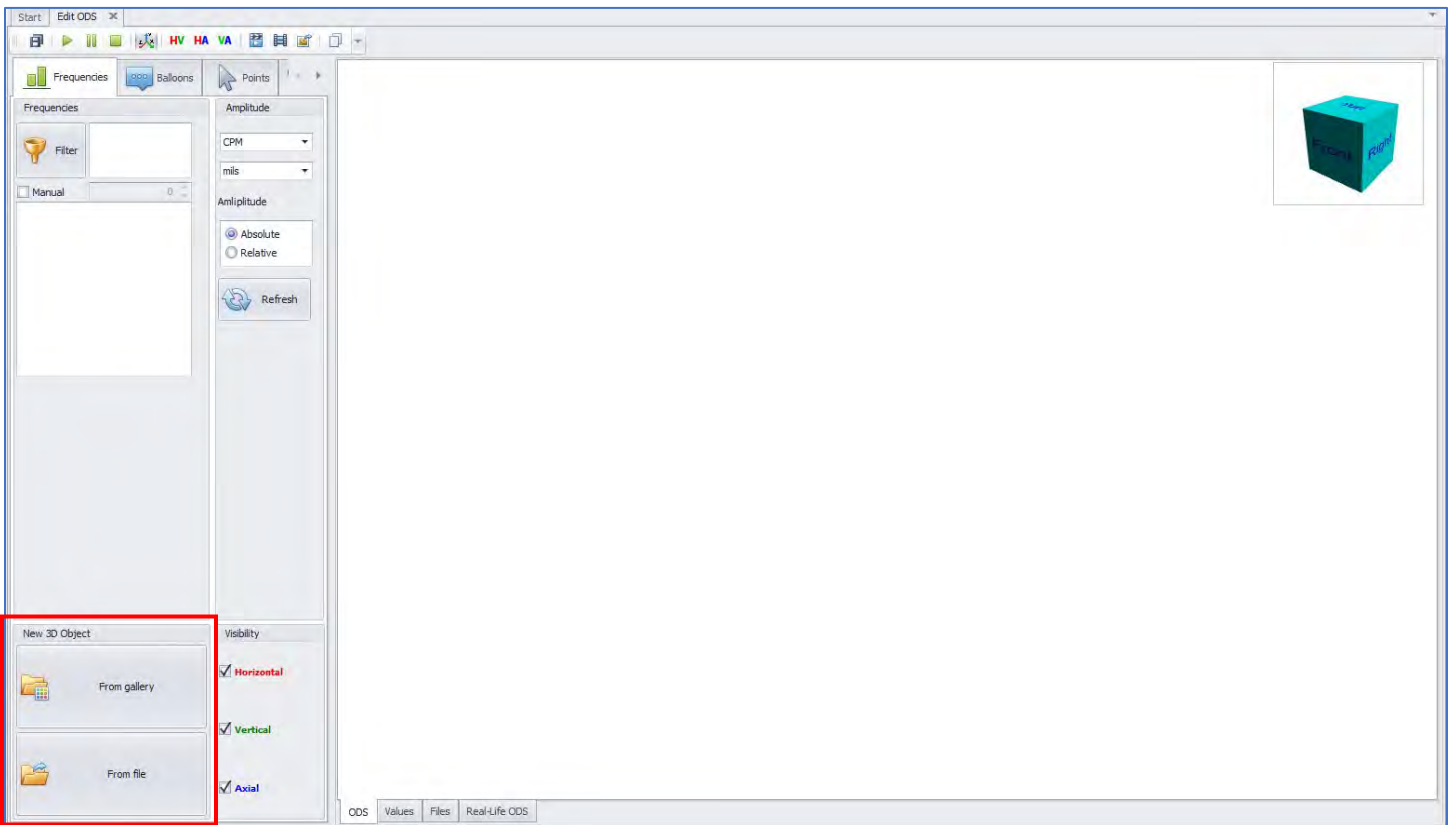
To import a 3D model go to the Tools Menu and click on **3D Model Editor**.

NOTE: Supported file formats in DigivibeMX for 3D machine models are .3ds, .xaml and .obj.

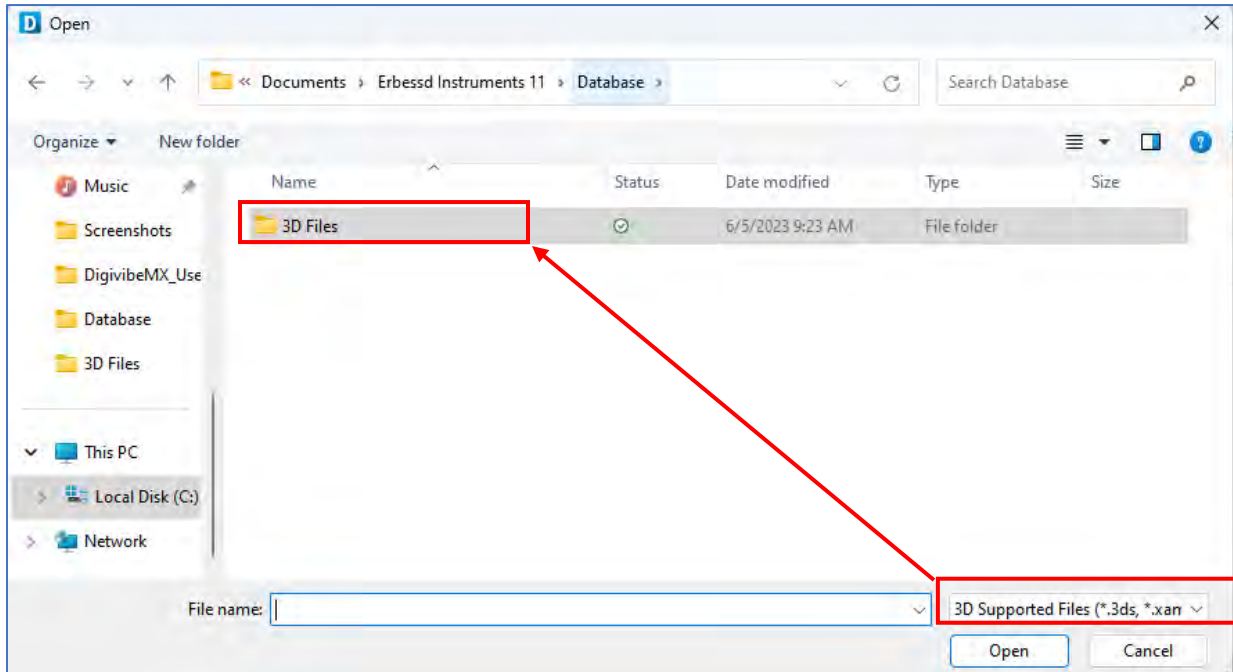


The Edit ODS window opens. Select a New 3D Object:

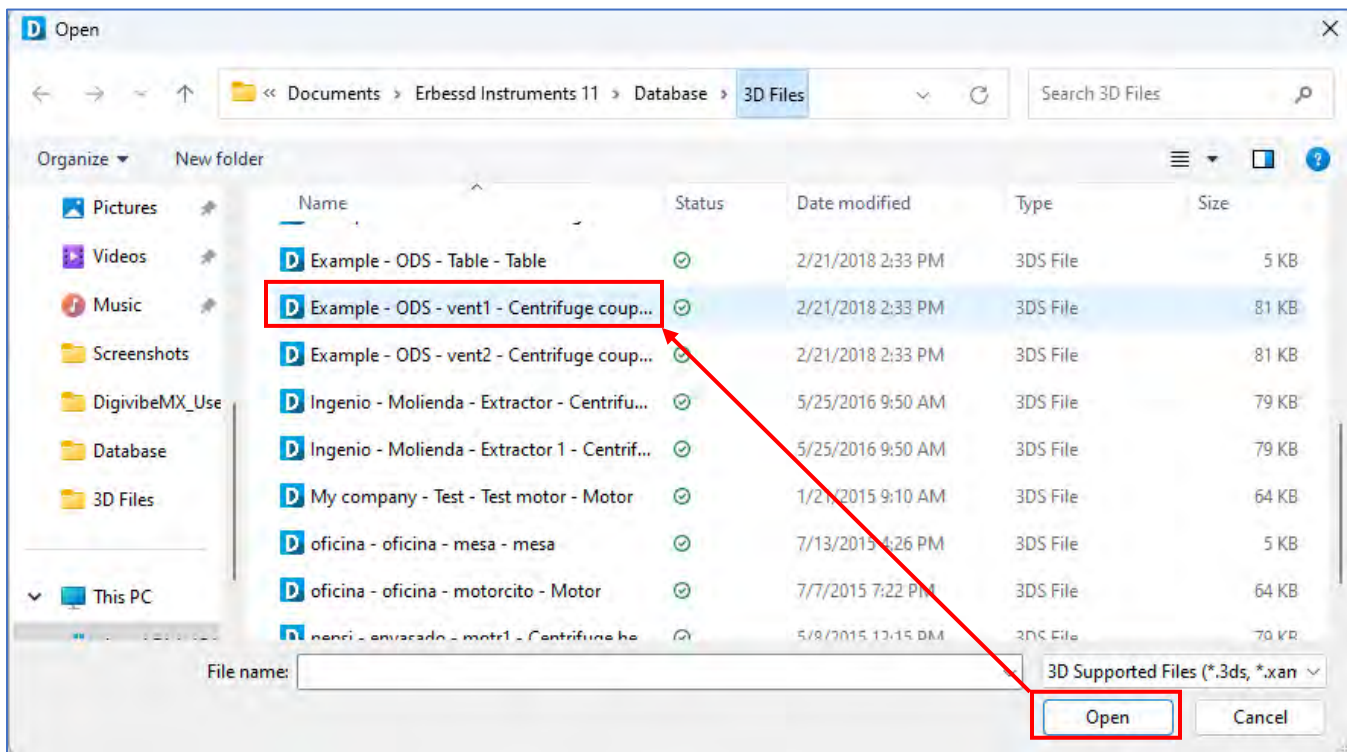
- **From gallery** to modify a file already in the gallery
- **From file** to import and modify a new machine ODS file



Clicking on **From file** opens the default folder created by DigivibeMX to store 3D files:

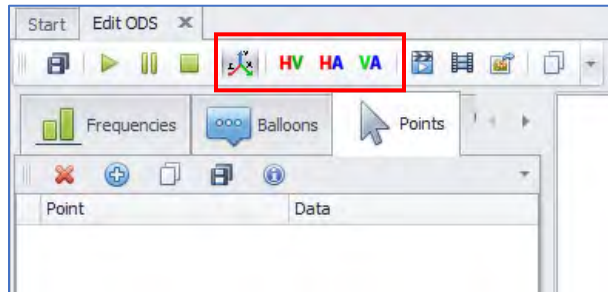


Select the desired file and click Open.

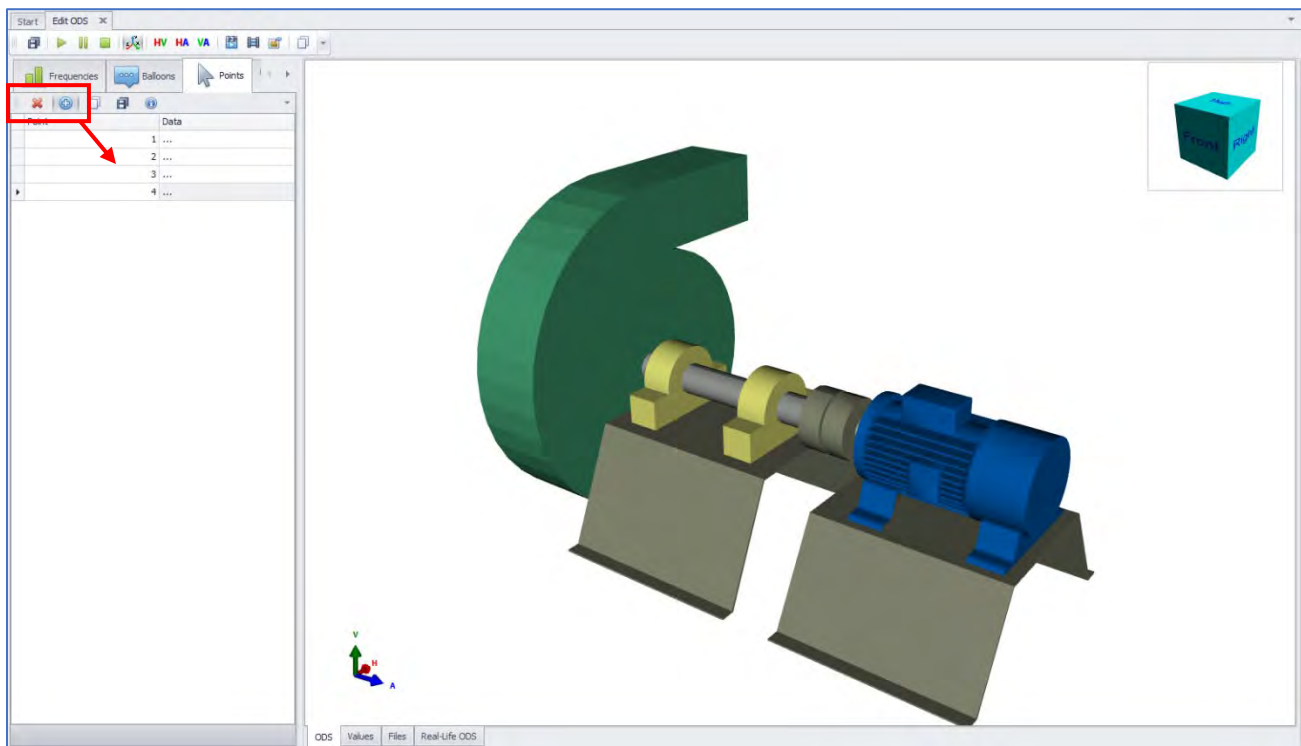


The 3D image is shown in the Edit ODS tab. The cube in top right corner can be mouse-controlled to spin the image in 3D.

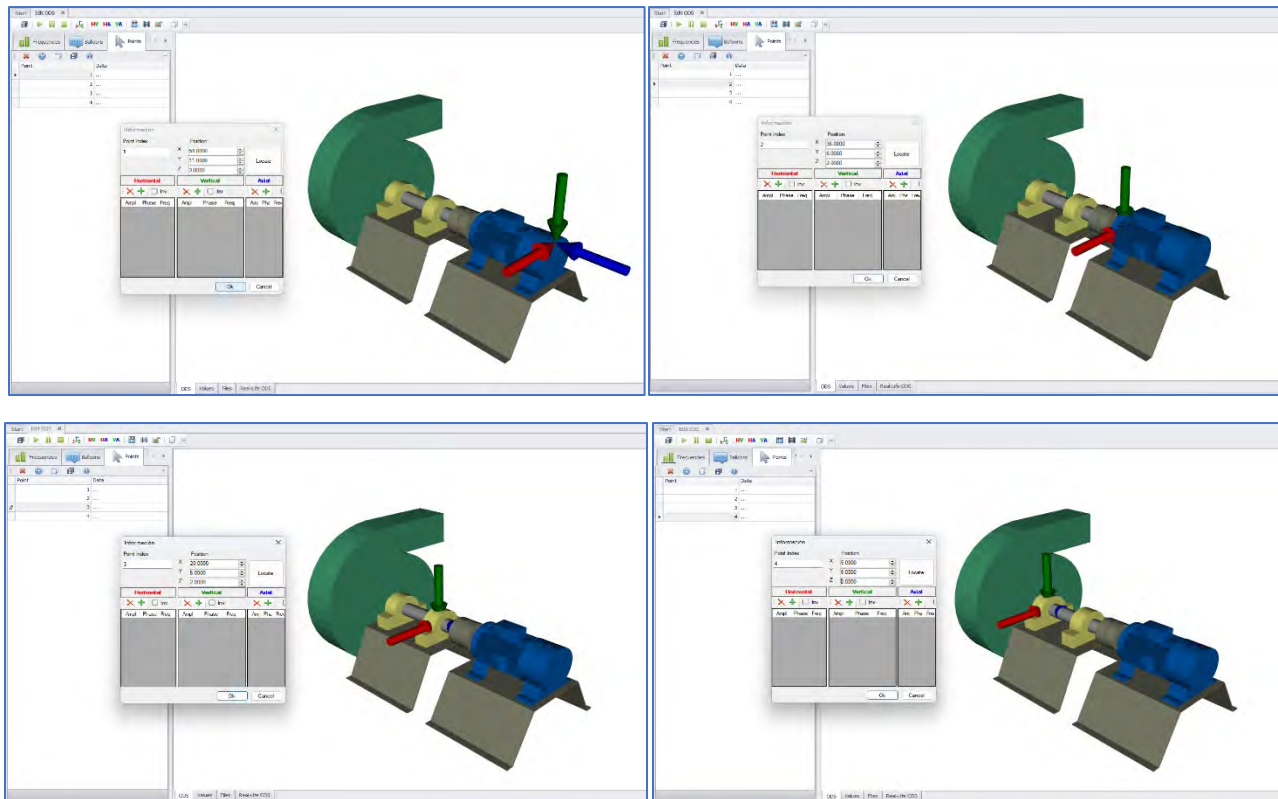
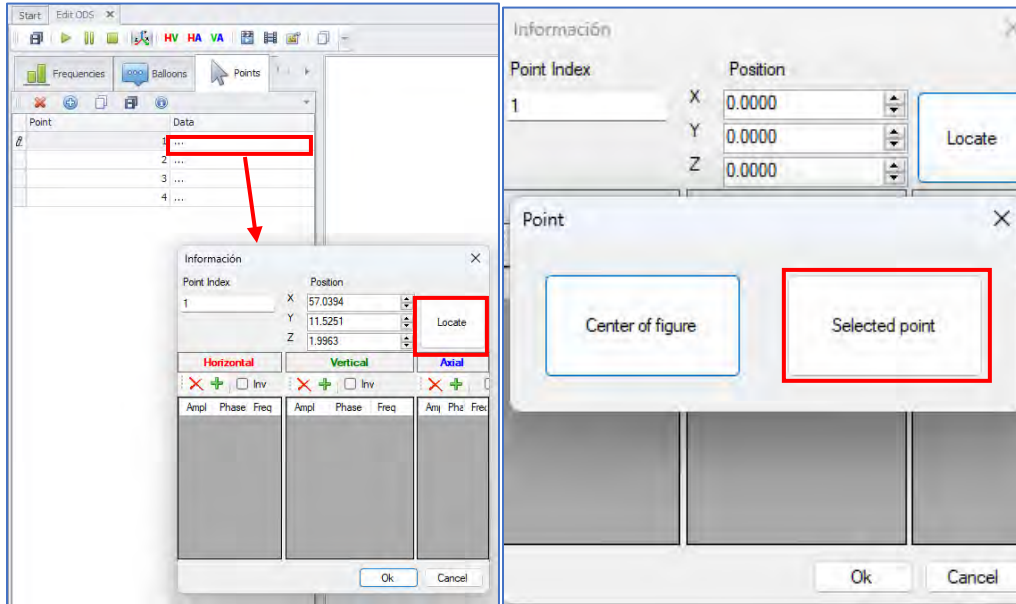
Click on the Show **Axis label button**. An axis graphic is shown at the lower left of the screen. Use the **axis orientation buttons** to set the axes as desired for the machine.



Next, add the number of waypoints you need, or delete the ones you do not need using the **add** or **delete** buttons.

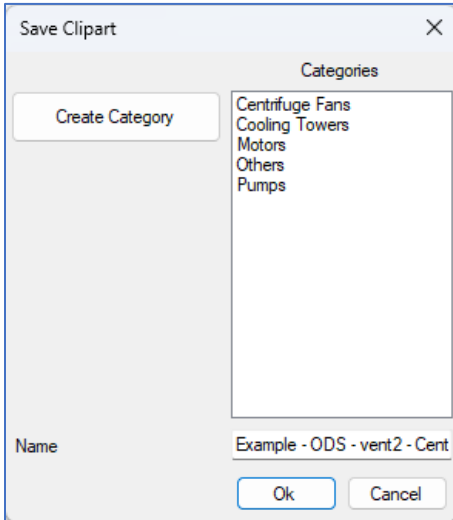
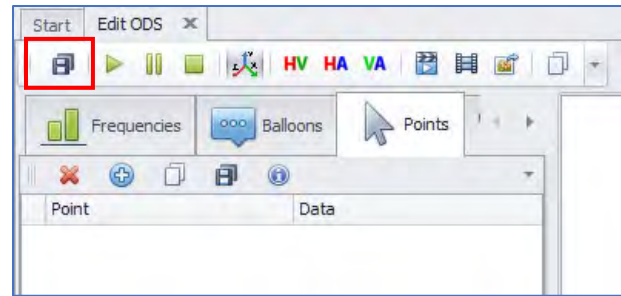


Clicking on the **Data** field beside a point opens a position window and places axial arrows onto the diagram. Click the **Locate** button and it will flash red. Click on the diagram to set the location for this point. Then click on the **Selected point** button on the pop-up window. Use the up and down arrows in the X, Y and Z fields to fine-tune the position of the chosen point on the diagram. Repeat for all points.



Click on the **Save** button to save the 3D model to the clipboard for use on other machines.

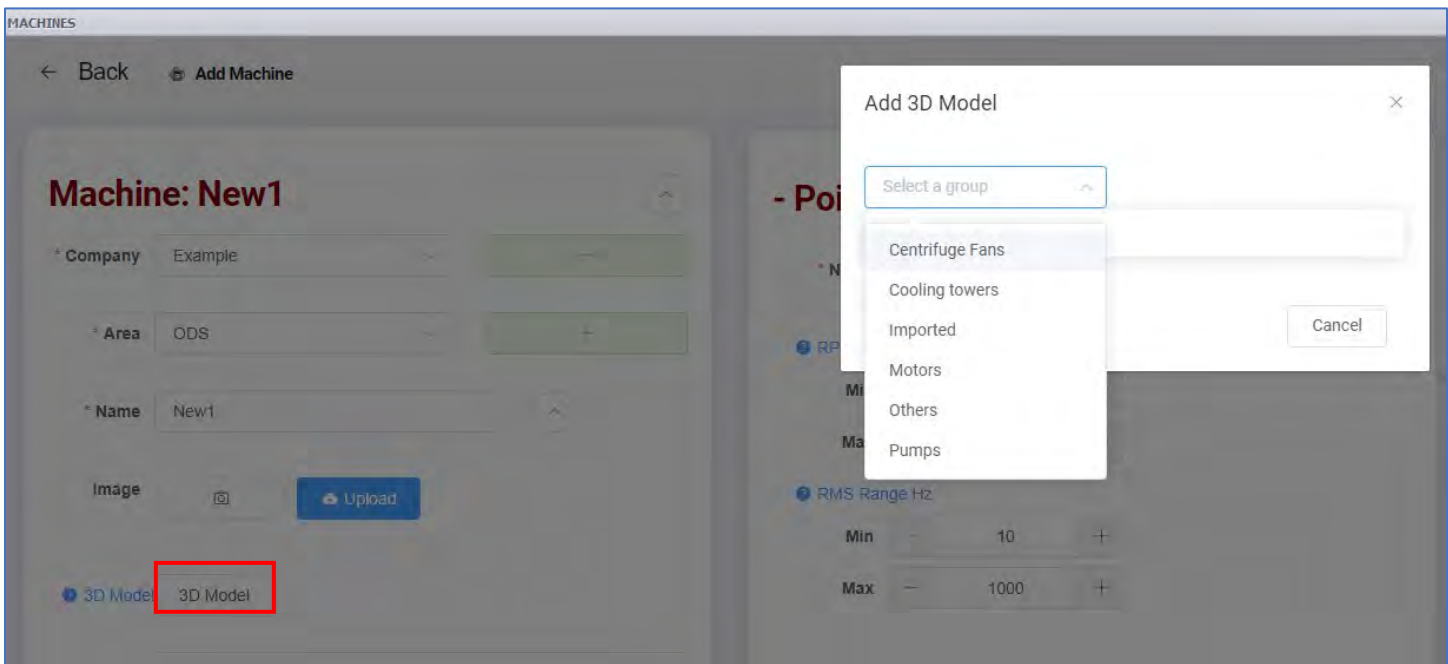
You can add this custom machine to an existing category folder or create a new one:



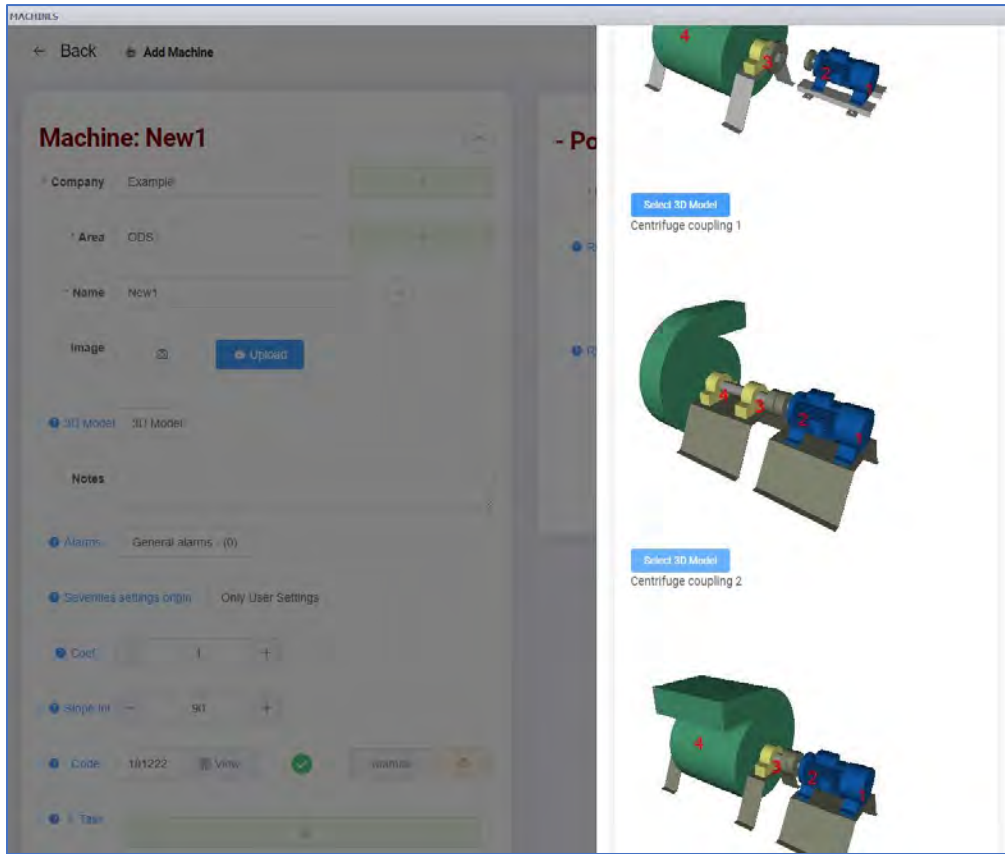
You can now assign this 3D model to any machine in the Database.

Go to the Database Menu and open Machine Manager:

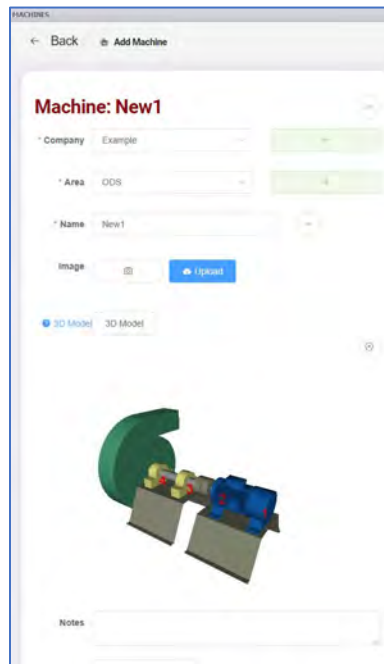
A **3D model** may be applied when creating a new machine or editing an existing one. Select the group from the drop-down box.



Then select the desired Model from the Group list:



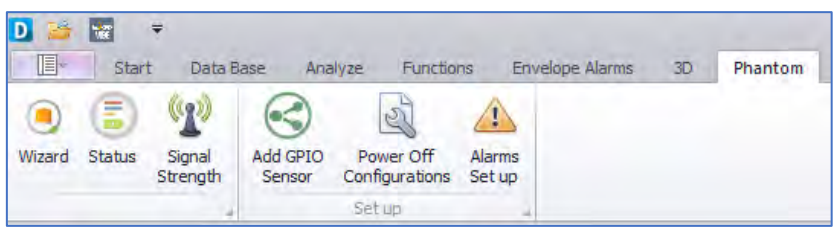
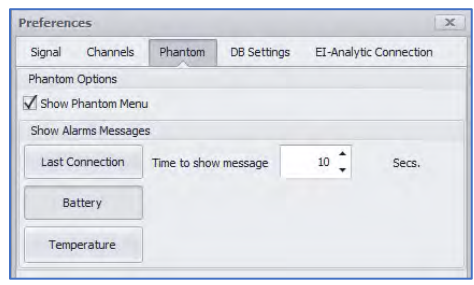
The model is now displayed as part of the machine configuration:



Phantom Menu Tools (M30, Phantom)

Phantom Menu Tools are exclusively used with the Phantom wireless Machine Health monitoring system.

NOTE: In the M30 version of DigivibeMX, the Phantom Menu may not be visible when the software is activated. To display the Phantom menu, go to the Configuration Menu and open Preferences. On the Phantom tab, check the Show Phantom Menu box. The Show Alarms Messages section allows the length of time to be set for Phantom sensor alarm messages to be displayed at the bottom of the DigivibeMX screen.

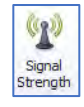


The **Wizard** is used to add, replace, edit, or delete Phantom sensors in the database. For details see the **Phantom Setup Guide**, included with software.



The **Status Devices** window information includes firmware version, battery level, signal strength, and time of the latest update.

Device	Device T...	Device C...	Device N...	Battery L...	Temperat...	Signal Str...	Firmware	Last Upd...	Machine ...	Point Name	Gallery	Edit	Alarm Status
Accelero...	189298418	98418	1	77	-46	182	2023-06...	Dryer 2	MDE	Lab	Lab	Edit	Show
Accelero...	189286917	V11E-869...	1	73.4	-55	182	2023-06...	TSaw	MOB	Lab	Lab	Edit	Show
Thermogr...	189275016	TCam1	1	72.5	-57	108	2023-06...	TCam	-	Lab	Lab	Edit	Show



The **Signal Strength** button opens a window for display of signal strength info for Phantom sensors connected to the same network as the device running DigivibeMX. **Hint** - The **Status** window contains the same information at-a-glance without needing to be on the same network.



Add GPIO Sensor provides a shortcut to the General purpose I/O (GPIO) sensor administration window. This function is also included in the Phantom Wizard.



Power Off Configurations: This is a shortcut to the Power Off Configurations window. This function is also included in the Phantom Wizard.

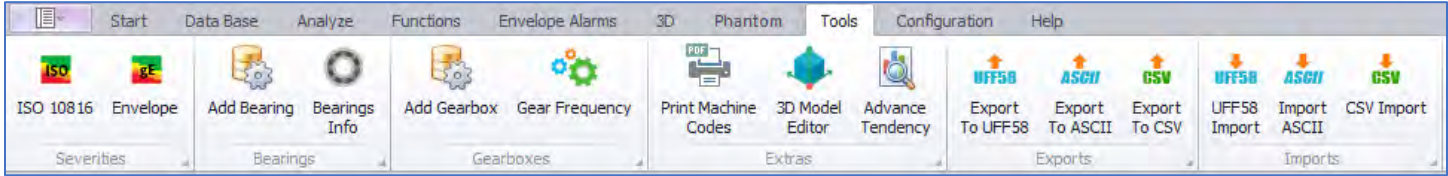


Alarms Set up: Is a shortcut to administer Alarm Notification thresholds for Phantom sensors. This is also found in the Phantom Wizard as part of adding or editing a Phantom sensor.

NOTE: For detailed information about configuring Phantom sensors, please review the **Phantom Setup Guide** included with system purchase.

Tools Menu Tools (M20, M30, Phantom)

The Tools Menu features six toolbars:



Severities toolbar

- **ISO 10816:** Opens the ISO 10816 machine vibration severity chart (velocity units).

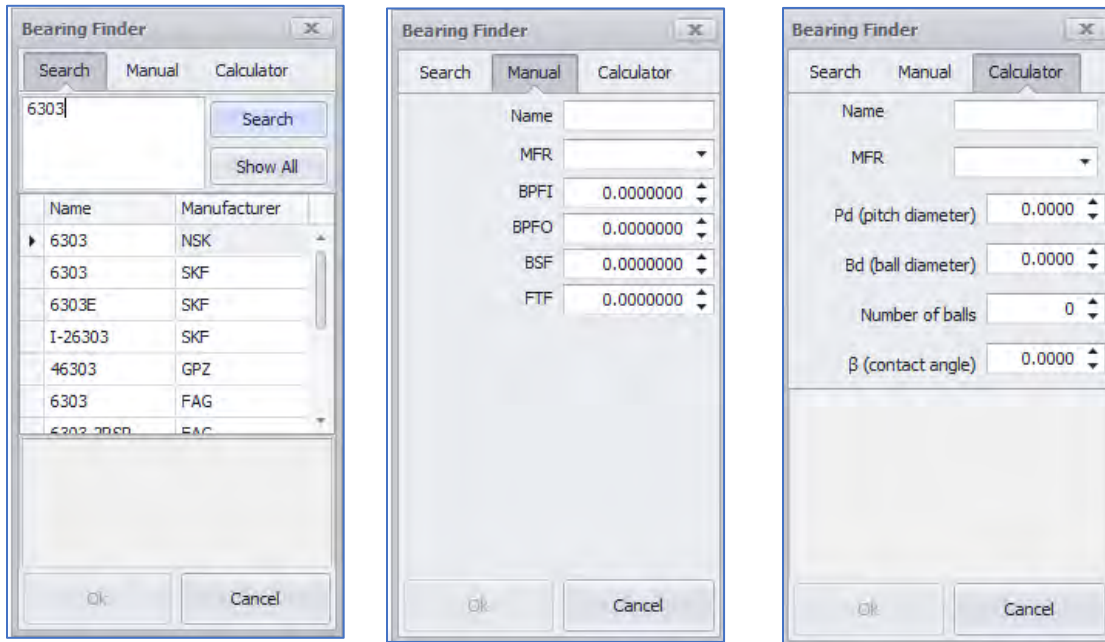
VIBRATION SEVERITY PER ISO 10816						
	MACHINE		CLASS I	CLASS II	CLASS III	CLASS IV
	in/s	mm/s	Small < 3.7kW-5HP	Medium < 373kW-500HP	Large rigid foundation	Large soft foundation
Vibration Velocity Vrms	0.01	0.28	Excellent			
	0.02	0.45	Excellent			
	0.03	0.71	Excellent			
	0.04	1.12	Good			
	0.07	1.80	Good			
	0.11	2.80	Satisfactory			
	0.18	4.50	Satisfactory			
	0.28	7.10	Unsatisfactory			
	0.44	11.2	Unsatisfactory			
	0.71	18.0	Unacceptable			
	1.10	28.0	Unacceptable			
1.77	45.0	Unacceptable				

- **Envelope:** provides Acceleration Envelope vibration tolerances for 3 general machine classifications.

Enveloping Severity g_E peak to peak	Speed		
	Speed <500rpm	Speed between 500 & 1800rpm	Speed is either 1800 or 3600rpm
0.1	Good	Good	Good
0.5	Satisfactory	Good	Good
0.75	Satisfactory	Satisfactory	Good
1	Unsatisfactory	Satisfactory	Satisfactory
2	Unsatisfactory	Unsatisfactory	Satisfactory
4	Unacceptable (danger)	Unacceptable (danger)	Unsatisfactory
10	Unacceptable (danger)	Unacceptable (danger)	Unacceptable (danger)

Bearings toolbar

- Add Bearing:** Opens the Bearing Finder window. DigivibeMX v11 features a bearing database containing fault frequencies of over 40,000 common bearings from major manufacturers. Bearings may be permanently assigned to a machine measurement point, or specified during analysis. The Bearing database features a **Search** function, a **Manual** function for adding new bearings and fault frequencies to the database, and a **Calculator** to calculate bearing fault frequencies using bearing component measurements. Bearings may also be administered using the Machine Manager, in the Points field.

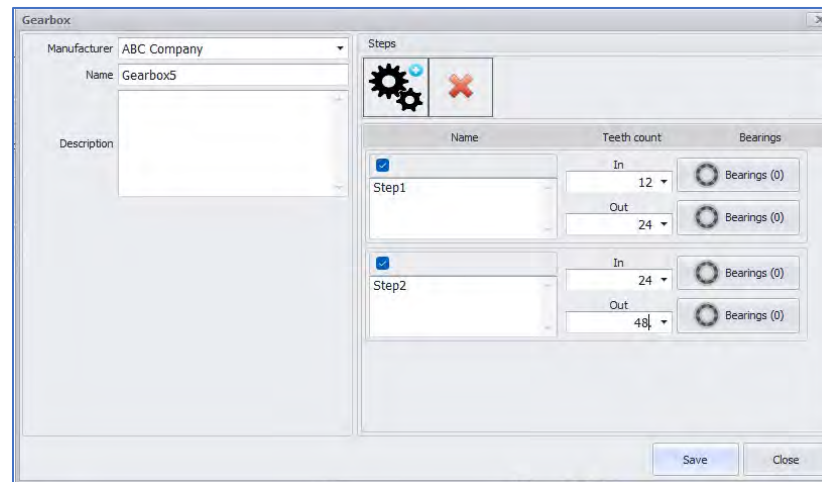
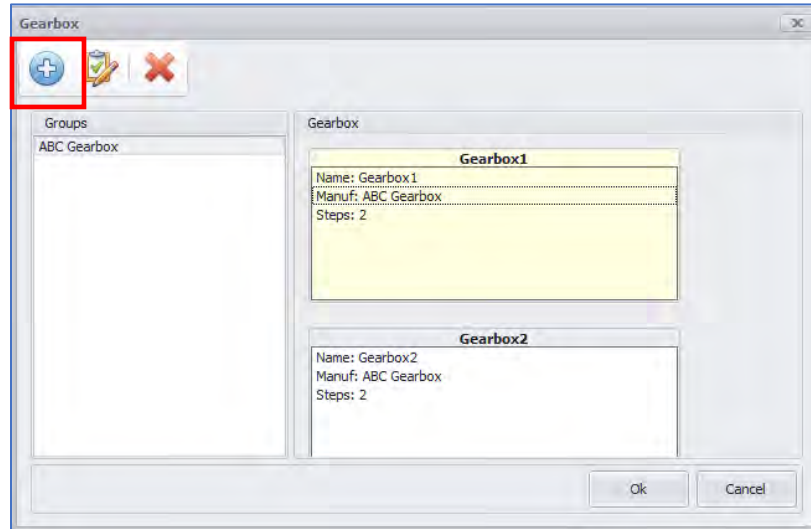


- Bearings Info:** Opens the Bearing database.


Manufacturer	Name	BPF1	BPFO	FTF	BSF
NSK	02473/02420	9.26469993591309	6.73530006408691	0.421000003814697	2.97160649299622
NSK	02474/02420	9.26469993591309	6.73530006408691	0.421000003814697	2.97160649299622
NSK	02475/02420	9.26469993591309	6.73530006408691	0.421000003814697	2.97160649299622
NSK	02872/02820	9.14416408538818	6.85583543777466	0.428000003099442	3.27775526046753
NSK	02878/02820	9.14416408538818	6.85583543777466	0.428000003099442	3.27775526046753
NSK	03062/03162	7.216628074646	4.783371925354	0.398999989032745	2.31524991989136
NSK	05062/05175	8.21036529541016	5.78963470458984	0.414000004529953	2.72961950302124
NSK	05068/05185	8.21036529541016	5.78963470458984	0.414000004529953	2.72961950302124
NSK	05075/05185	8.21036529541016	5.78963470458984	0.414000004529953	2.72961950302124
NSK	05079/05185	8.21036529541016	5.78963470458984	0.414000004529953	2.72961950302124
NSK	07079/07204	9.19958305358887	6.80041646957397	0.425000011920929	3.14845132827759
NSK	07087/07196	9.19958305358887	6.80041646957397	0.425000011920929	3.14845132827759
NSK	07097/07196	9.19958305358887	6.80041646957397	0.425000011920929	3.14845132827759
NSK	07097/07204	9.19958305358887	6.80041646957397	0.425000011920929	3.14845132827759
NSK	07098/07204	9.19958305358887	6.80041646957397	0.425000011920929	3.14845132827759

Gearboxes toolbar

- **Add Gearbox:** Opens the Gearbox window to add, edit, or delete a Gearbox from the database. Gearboxes may now also be configured using the Machine Manager, in the Points field. Click the **Add** button to begin.



- **Manufacturer:** Select from previously configured list or click on this field to add a new Manufacturer.
- **Name:** Enter the name of the new gearbox.
- **Description:** Add any desired notes.
- **Step Name:** Add the step name to the Step-1 panel.
- **Input:** Enter the number of teeth.
- **Input Bearings:** A bearing configuration may be added by selecting the Bearings button.
- **Output:** Enter the number of teeth.
- **Output Bearings:** Add an output bearing, if desired.

Select the  button to configure another step in the Gearbox configuration.

Click Save when finished.

- **Gear Frequency:** opens the Gearbox library, as detailed in the Create a New Machine in the Database>Machine Manager section of this manual, see page 44.

Extras toolbar

- **Print Machine Codes:** This function has been moved to the Machine Manager as part of the machine configuration.
- **3D Model Editor:** Opens the 3D ODS Control Panel for editing or importing 3D ODS models.

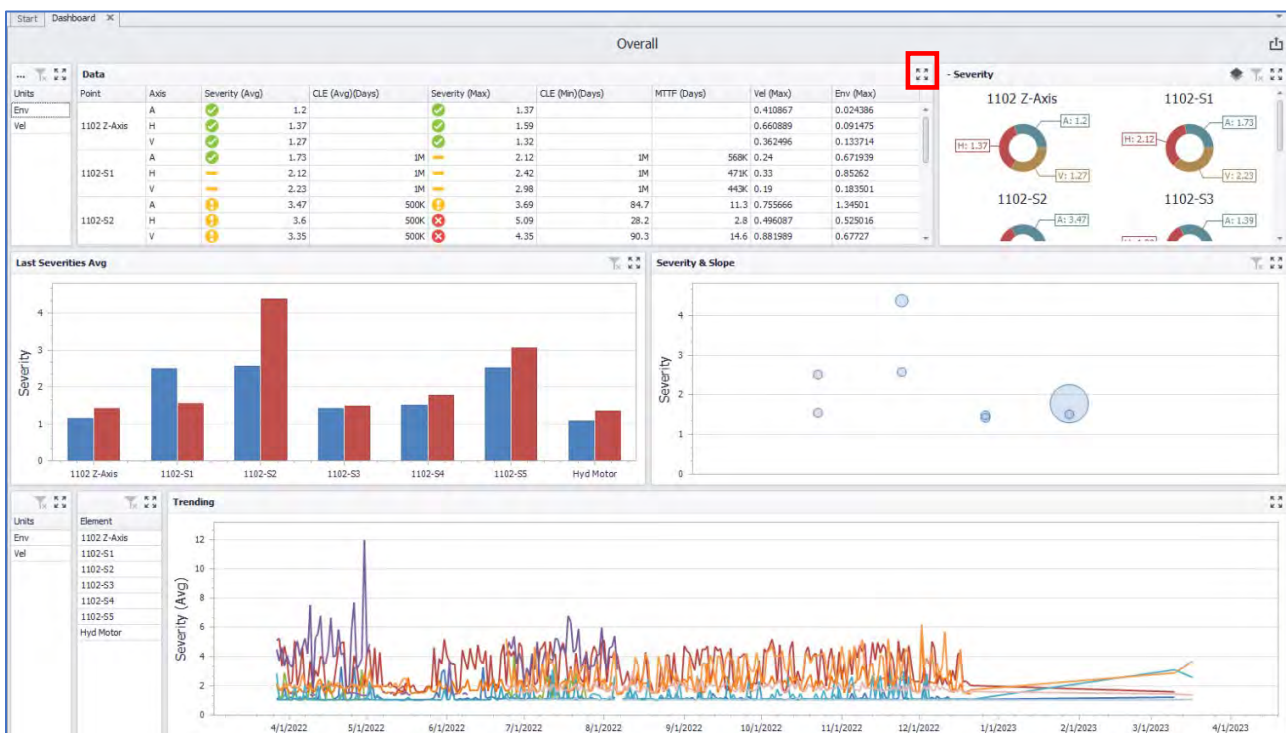
Advance Tendency

Opens the Advance Tendency dashboard for detailed machine health severity analysis. The Dashboard window contains 5 panels of Severity information. Severity values provide an indication of overall machine health and should not be confused with the values of collected data (vibration, temperature, etc).

Severity values are as follows: 0-1=Inoperative, 1-2=Excellent, 2-3=Satisfactory, 3-4=Unsatisfactory, 4-5=Poor

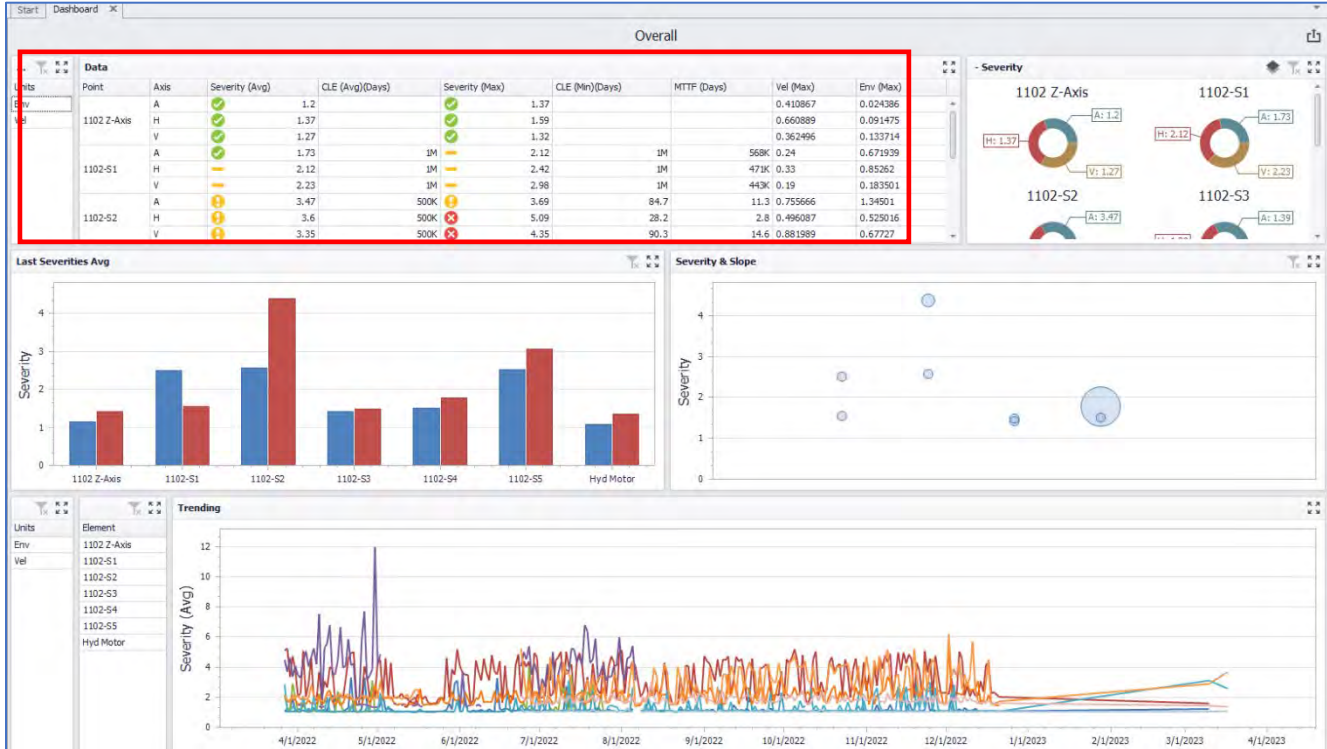
- **Data panel** – Displays the average severity of machines or points under the database level selected, for the slope interval specified in machine configurations.
- **Severity panel** – Chart display of the average severity on machines or points under the database level selected, for the slope interval specified in machine configurations.
- **Last Severities Average panel** – Displays average severity based on the most recent data collection.
- **Severity & Slope panel** - Provides a chart overview of average machine health severities and the degree of change between the last two recordings.
- **Trending panel** – Displays a severity trend for all historical readings in the database.

The data displayed is determined by the database level selected – Company, Area, Machine or Point. Clicking the **arrows** button on any panel opens it to a full-size window view.



Data Panel

The Data panel provides a tabled overview of machine health data for the database level selected, as follows:

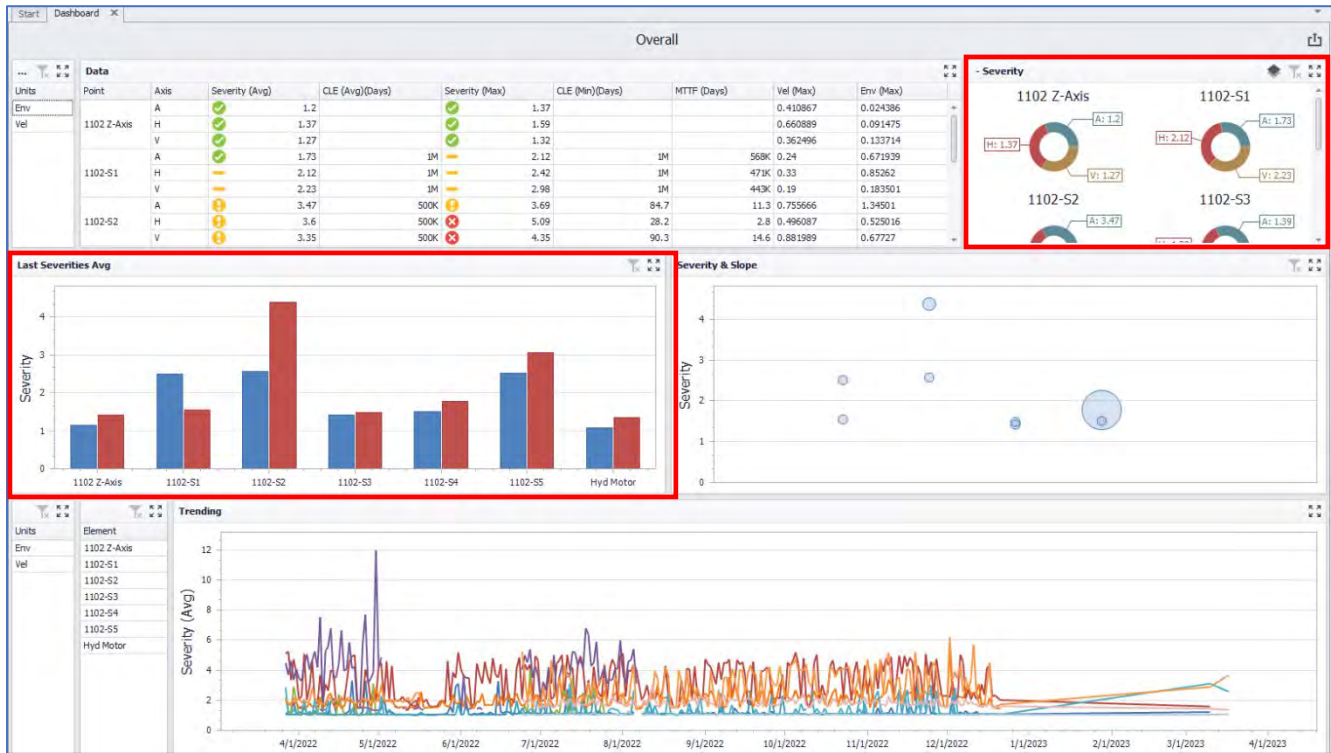


- **Area:** The area in which the data was collected. (When database level Company is selected)
- **Machine:** The machine on which the data was collected. (When database level Company or Area is selected)
- **Point:** The monitoring point where the data was collected. (When database level Area or Machine is selected)
- **Axis:** The direction in which the data was collected. (When database level Machine or Point is selected)
- **Severity (Average):** Average severity is calculated using the most recent RMS values collected, versus the ISO or User-defined alarms for the specified slope interval (days) in the machine’s configuration.
- **CLE – Calculated Life Expectancy (Average)(Days):** The machine’s estimated full lifespan from new.
- **Severity (Maximum):** The maximum severity of any historical data collection at any point/axis
- **CLE – Calculated Life Expectancy (Minimum)(Days):** The estimated days for the machine to deteriorate from green alarm status to red alarm status.
- **MTTF – Mean Time To Failure (Days):** The estimated days remaining until the machine deteriorates from current alarm status to red alarm status.
- **Vel (Maximum):** The maximum Velocity of any historical data collection at the point/axis.
- **Env – (Maximum):** The maximum Acceleration Envelope value of any historical data collection at the point/axis.

Severity Panel

The **Severity** panel provides a ring chart overview of current machine health severities, based on the most recent recordings. (0-1=Inoperative, 1-2=Excellent, 2-3=Satisfactory, 3-4=Unsatisfactory, 4-5=Poor)

Ring segments are divided equally among the next lower level of database, beneath the level selected (Areas when a Company is selected, Machines when an Area is selected, etc.). Colors are only intended to distinguish between ring segments. Colors are not an indication of severity or alarm status.

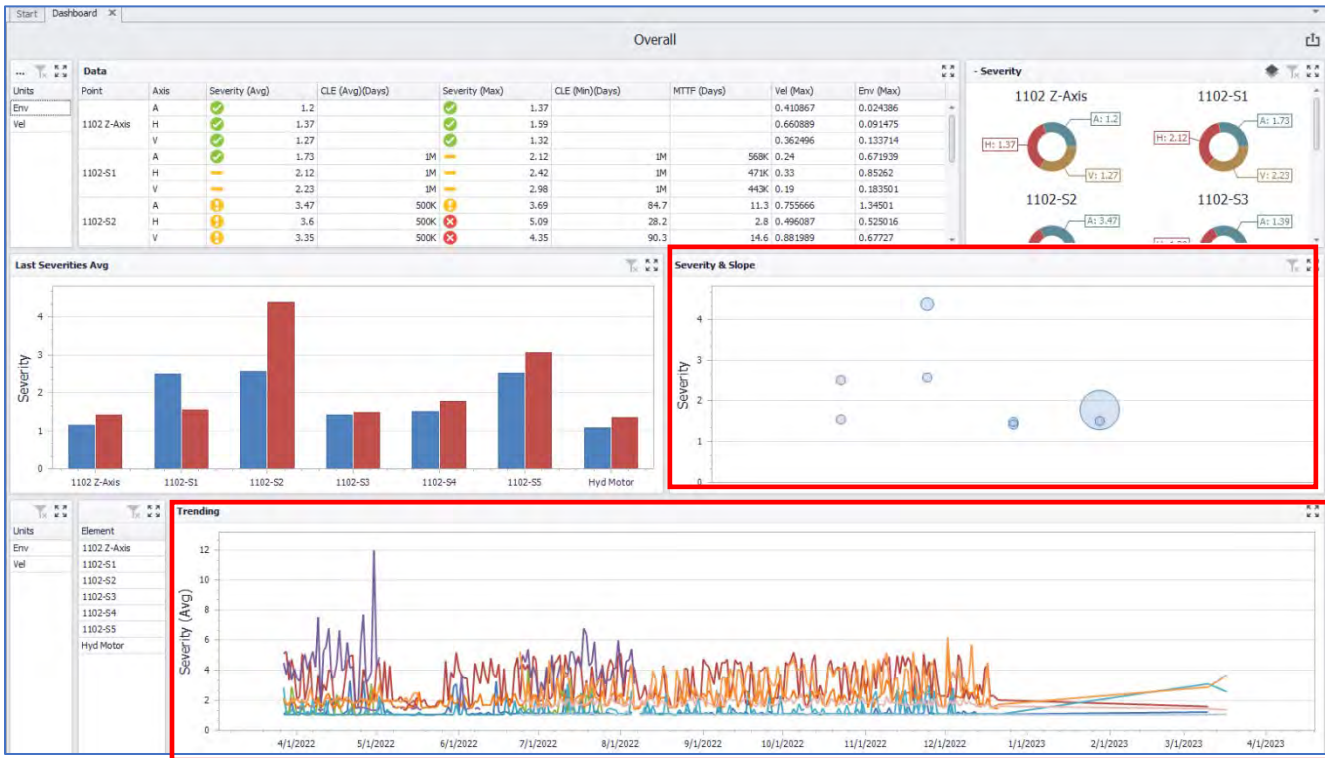


Last Severities Avg panel

The **Last Severity Avg** panel provides a bar chart overview of average machine health severities, based on the most recent recordings versus any currently-assigned alarm values: Velocity, Acceleration Envelope, Acceleration and/or Displacement. (0-1=Inoperative, 1-2=Excellent, 2-3=Satisfactory, 3-4=Unsatisfactory, 4-5=Poor).

Severity & Slope panel

The **Severity & Slope** panel provides a chart overview of average machine health severities and the degree of change between the last two recordings. The circle position on the graph indicates the current severity. The size of the circle indicates the slope of change between the last two recordings (whether increased or decreased). Smaller circles indicate little change between the last two recordings. Larger circles indicate a greater change between the last two recordings. (0-1=Inoperative, 1-2=Excellent, 2-3=Satisfactory, 3-4=Unsatisfactory, 4-5=Poor)

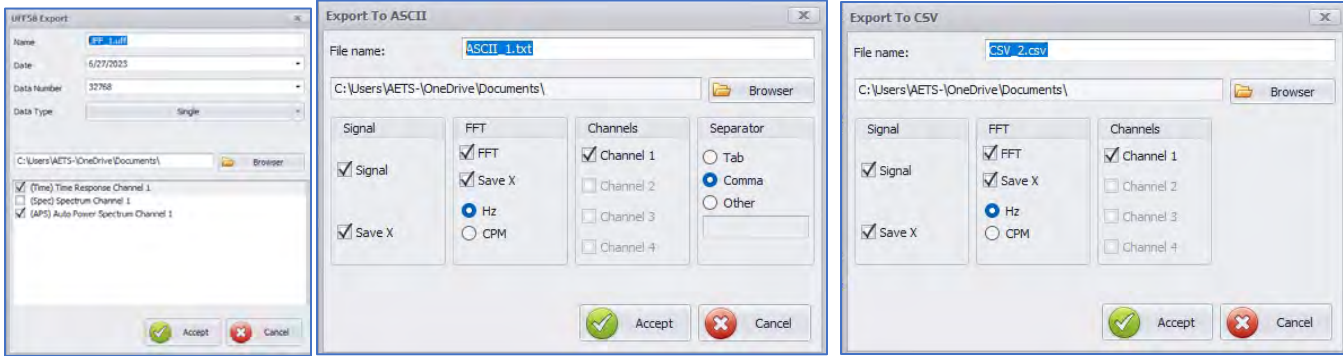


Trending Panel

The **Trending** panel plots the highest velocity and acceleration envelope severities recorded each day, within the database level selected. (0-1=Inoperative, 1-2=Excellent, 2-3=Satisfactory, 3-4=Unsatisfactory, 4-5=Poor).

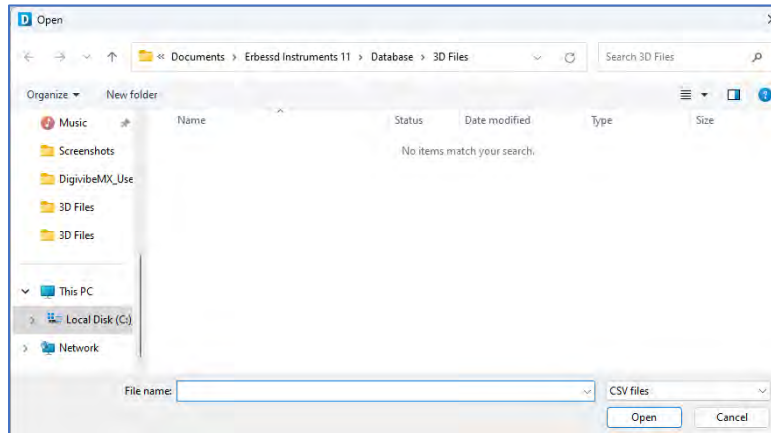
Exports toolbar

- **Export to UFF58:** When a signal is open for analysis, this button will export the selected raw data (time waveform and/or FFT) to a file in UFF58 format.
- **Export to ASCII:** When a signal is open for analysis, this button will export the selected raw data (time waveform and/or FFT) to a file in ASCII format.
- **Export to CSV:** When a signal is open for analysis, this button will export the selected raw data (time waveform and/or FFT) to a file in CSV format.

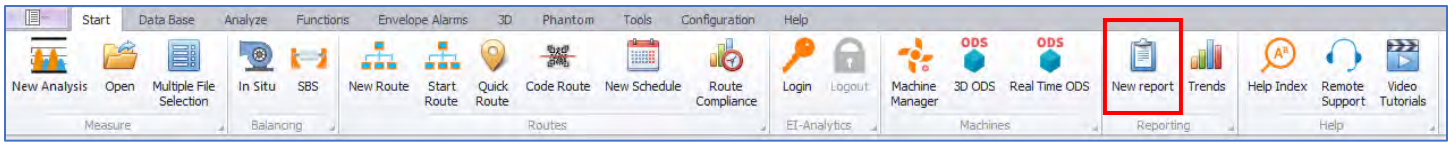


Imports toolbar

- **UFF58 Import:** Imports signal data for analysis from a UFF58 format file.
- **ASCII Import:** Imports signal data for analysis from an ASCII format file.
- **CSV Import:** Imports signal data for analysis from a CSV format file.



Other Start Menu Tools

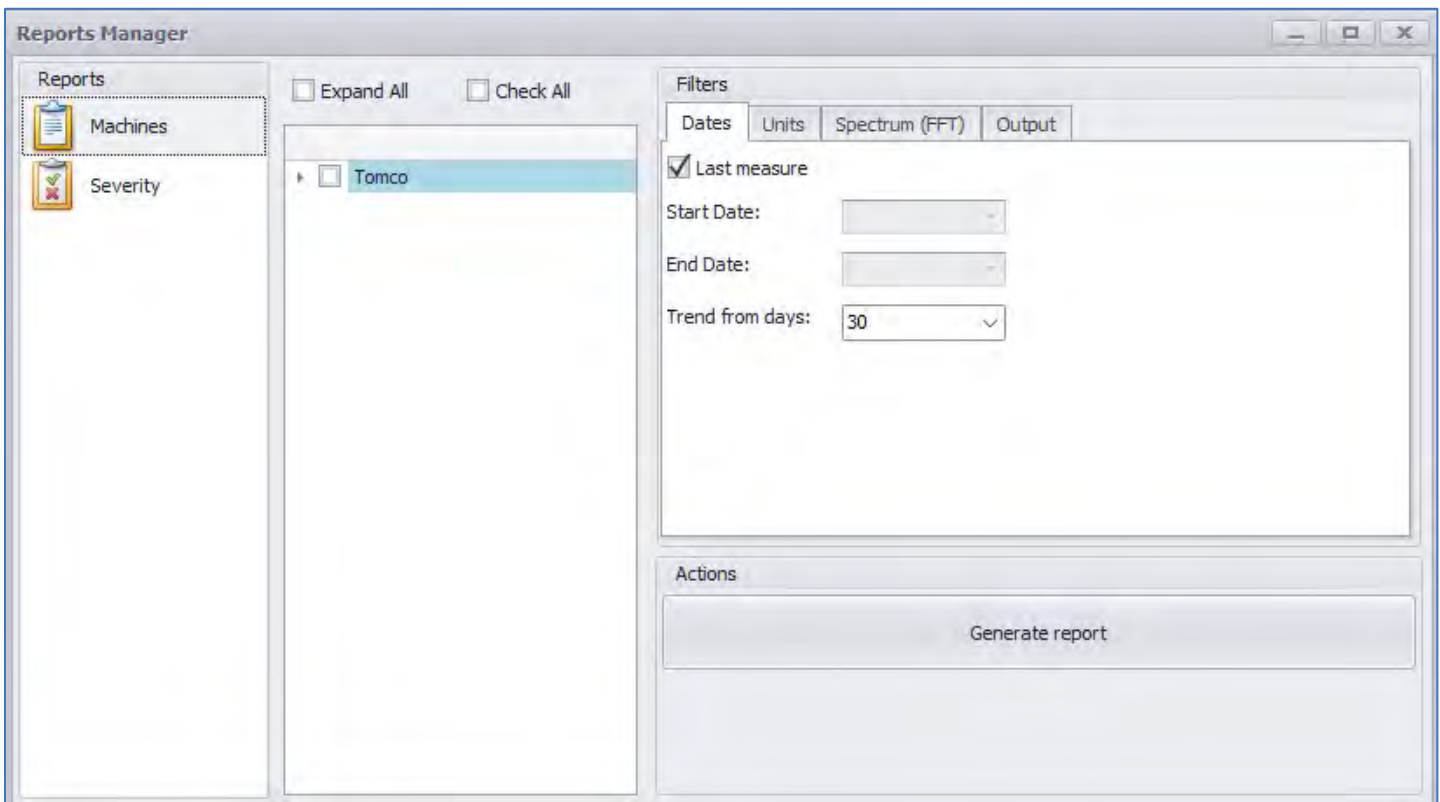


Balancing

For details regarding In Situ and SBS balancing, see Balancing User Guides.

Reporting (M10, M20, M30)

Click **New report** on the Start Menu to open the Reports Manager window.

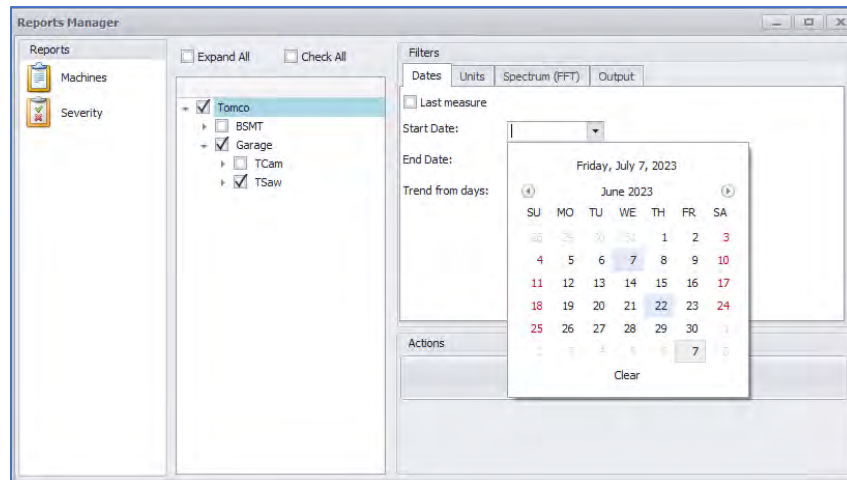


There are two types of automatic reports that can be generated with DigivibeMX®:

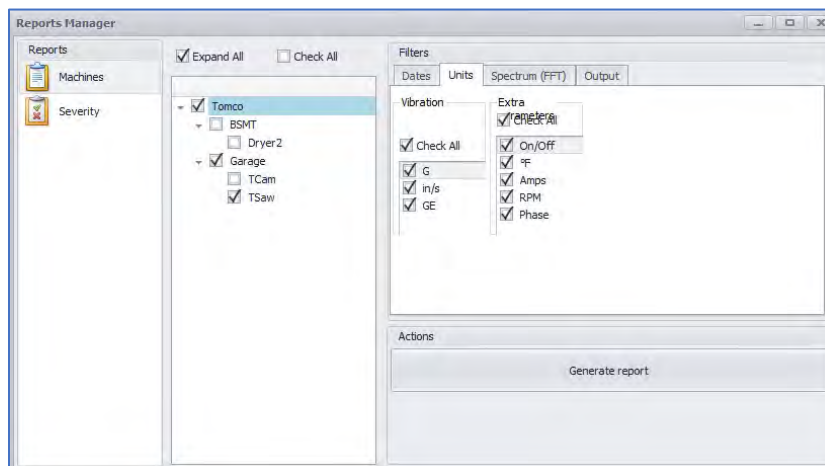
1. Machines report
2. Severity report

Click on Machines or Severity and select machines from the list.

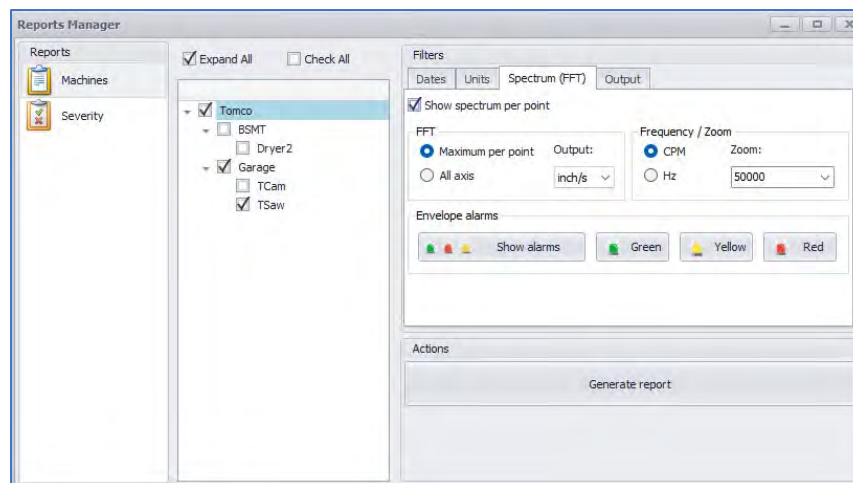
Set the Filters: Choose either Last measure only or pick a **Date** range.



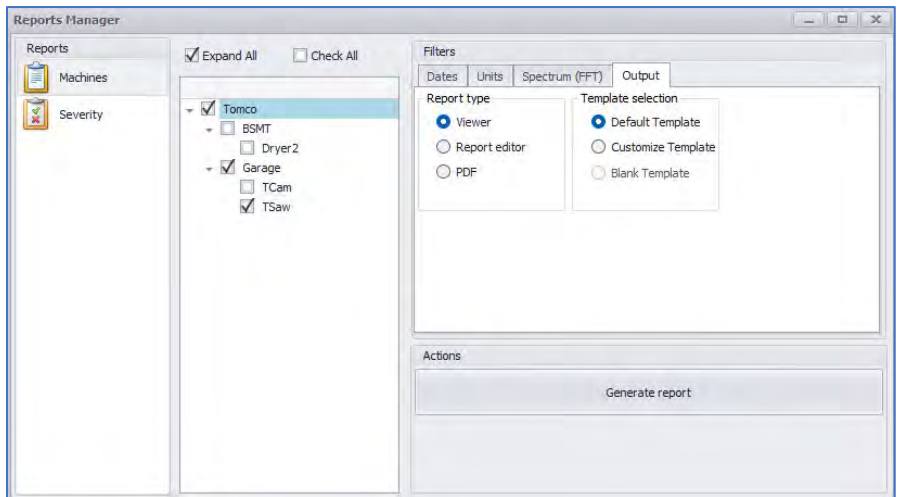
Set desired info for Vibration and Extra Parameters on the **Units** tab.



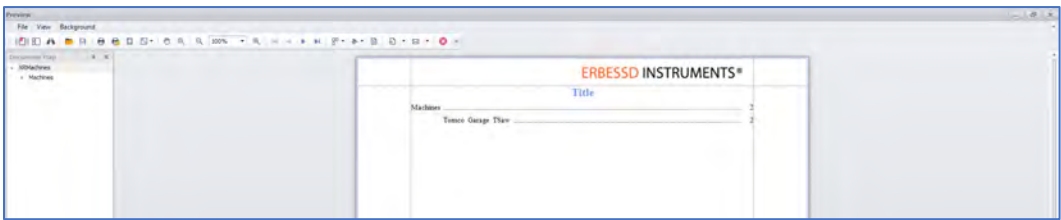
The **Spectrum** tab contains additional settings for FFT, Frequency/Zoom and Envelope alarms.



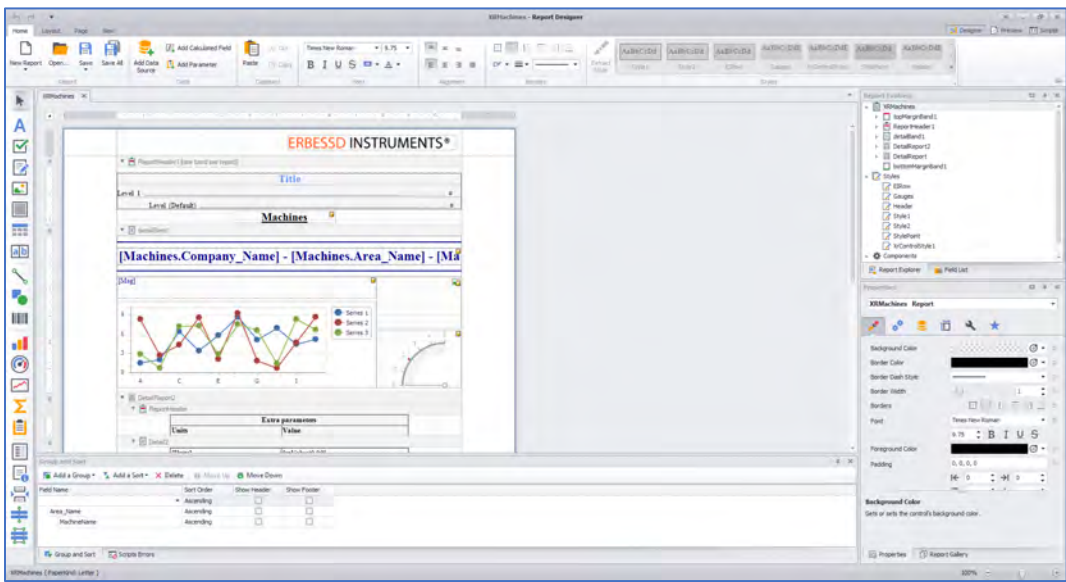
The **Output** tab settings include Report type and Template selection.



Viewer: opens a preview window. You can also export to PDF or print the doc from this window.



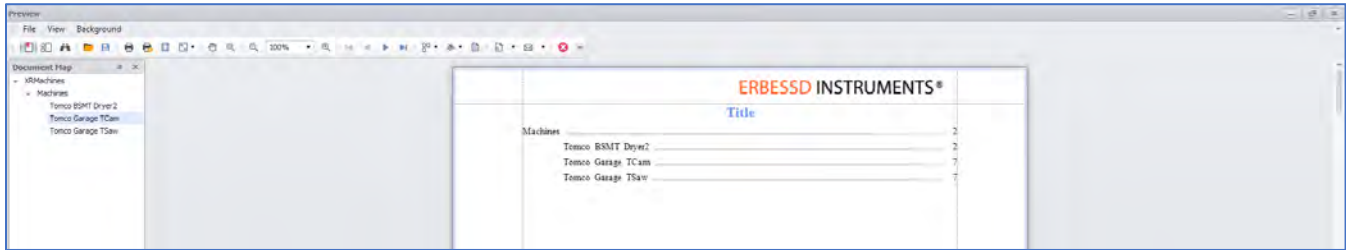
Report editor: Opens DevExpress Report Designer to allow custom report templates to be built. Details of DevExpress Report Designer usage are not included in this Guide. Details can be found on the DevExpress website:
<https://docs.devexpress.com/XtraReports/14651/get-started-with-devexpress-reporting>



PDF: Outputs the report in PDF format to a folder of your choice.

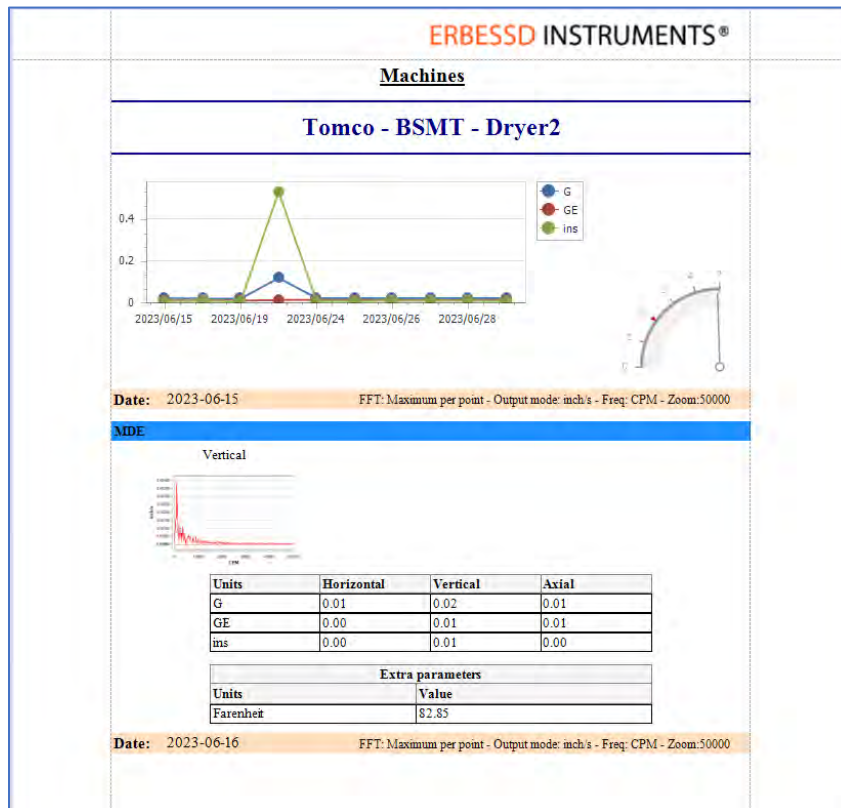
Click **Generate Report** when all selections have been made.

Sample Machines report (M20, M30)



The Title page of the Machine report contains a summary of all machines selected. The data tree on the left can be used to navigate directly to a machine.

Each Machine has a trend graph covering the chosen time window. The requested vibration data and Extra parameters info are displayed for each day of the reporting period.



Sample Severity Report (M20, M30)

The Severity report is a summary of the requested info, sorted by date.

Preview

File View Background

100%

ERBESSD INSTRUMENTS®

Severity Report

Date: 6/23/2023 12:00:00 AM		
Company: Tomco	Temp	Vel
Area: Garage	Temp	Vel
Machine: TSaw	Temp: 75.65 °F	Vel: 0.0481 in/s
Point: MOB	Temp: 75.65 °F	Vel: 0.0481 in/s
Axial	Temp: 32 °F	Vel: 0.0481 in/s
Horizontal	Temp: 32 °F	Vel: 0.029 in/s
Vertical	Temp: 32 °F	Vel: 0.0171 in/s
Point: MIB	Temp: 32 °F	Vel: 0.0224 in/s
Axial	Temp: 32 °F	Vel: 0.0224 in/s
Horizontal	Temp: 32 °F	Vel: 0.0134 in/s
Vertical	Temp: 32 °F	Vel: 0.0162 in/s
Date: 6/25/2023 12:00:00 AM		
Company: Tomco	Temp	Vel
Area: Garage	Temp	Vel
Machine: TSaw	Temp: 75.65 °F	Vel: 0.0266 in/s
Point: MOB	Temp: 75.65 °F	Vel: 0.0266 in/s
Axial	Temp: 32 °F	Vel: 0.0122 in/s
Horizontal	Temp: 32 °F	Vel: 0.0266 in/s
Vertical	Temp: 32 °F	Vel: 0.012 in/s
Date: 6/27/2023 12:00:00 AM		
Company: Tomco	Temp	Vel
Area: Garage	Temp	Vel
Machine: TSaw	Temp: 74.75 °F	Vel: 0.0226 in/s
Point: MOB	Temp: 74.75 °F	Vel: 0.0226 in/s
Axial	Temp: 32 °F	Vel: 0.0135 in/s
Horizontal	Temp: 32 °F	Vel: 0.0226 in/s
Vertical	Temp: 32 °F	Vel: 0.0118 in/s
Date: 6/29/2023 12:00:00 AM		
Company: Tomco	Temp	Vel

Trends

The Trends button opens the Tendencies Dashboard, this is the same as clicking the Trends Tile on the Start tab. See full description of the Tendencies Dashboard on page 41.

Product Registration

DigivibeMX® is a registered trademark and therefore requires an activation via the internet that can be made using the "Activation" option in the "Help" menu. It is essential to carry out this operation as otherwise the program could be suddenly deactivated.

Updates

DigivibeMX® is an application that is constantly updated. The software automatically checks for updates upon startup, and opens a dialog box if a newer version is found. Users can proceed with the update or optionally defer to update later. These updates are published on the Erbesd Instruments® web page and are free to all users of Erbesd Instruments within the installed version.

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