CONTENT

About DigivibeMX® Version 11 ..... **4**
¿What is DigivibeMX®? 4
Types of sensors **5**
System requirements **5**
Software Installation **6**
Product Activation 6
Calibration 7
Other Configuration Menu Controls **10**
Signal and Channel Preferences 10
Signal Tab 10
Channels Tab 11
Other Tab 11
Specify USB or WiFI Connected Interface (Portable Instruments Only) 12
Change language 13
Wiser VIBE Connection 14
Navigating DigivibeMX® Software **16**
User interface 16
Menus and Modules 17
File Manager (All Digivibe Models) 17
Start Menu (All Digivibe Models) 18
Data Base Menu (M20, M30, Phantom) 19
Analyze Menu (All DigivibeMX Models) 20
Functions Menu (M20, M30, Phantom) 21
Alarms Menu (M20, M30, Phantom) 22
3D Menu (M20, M30, Phantom) 23
Phantom Menu (M30, Phantom) 24
Tools Menu (All DigivibeMX Models) 24
Configuration Menu (All DigivibeMX Models) 25
Help Menu (All DigivibeMX Models) 25
Routes Module (M20, M30) 26
Balancing Module (M10, M30) 27
Using DigivibeMX® Software **28**
Start Tab 28
Start screen tiles 29
Open Files Tile (M20, M30, Phantom) 29
Tendency Tile (M20, M30, Phantom) 29
Extra Parameters Tile (M30, Phantom) 29
Analysis tile (M20, M30, Phantom) 30
Route (Open) Tile (M20, M30, Phantom) 30
Routes Manager Tile (M20, M30, Phantom) 30

Barcode Tile (M20, M30) 31
ODS Tile (M20, M30) 31
Balancing Single Plane Tile (M10, M30) 32
Balancing 2 Planes Tile (M10, M30) 32
Left-Hand Panel and Shortcut Tabs 33
Database Tab 34
Analysis Tab 35
Analysis and Work Area 37
Historic Measures Window (M20, M30, Phantom) 38
Internal RMS (M20, M30, Phantom) 41
Octave Bands (M20, M30, Phantom) 42
Open Multiple Files (M20, M30, Phantom) 43
Multiple File Selection (M20, M30, Phantom) 44
Extra Parameters Window (M20, M30, Phantom) 45
Dashboard Tendency Window (M20, M30, Phantom) 46
Using the Data Base Menu (M20, M30, Phantom) 48
Machine Toolbar 48
Creating a New Machine in the Database (M20, M30, Phantom) 48
Point Configuration 52
Assign a Bearing to a Measure Point 53
Assign a Gearbox to a Measurement Point 54
Assign Alarm Settings to a Measurement Point 55
Assign Extra Values to a Measurement Point 56
Connection Toolbar 58
EI-Analytic Toolbar 59
Tools Toolbar 59
Using the Analyze and Functions Menus (M10, M30, Phantom) 60
New off-route analysis (M20, M30) 60
Start/Stop Data Collection 61
Viewing Vibration (M20, M30, Phantom) 62
Time Waveform/FFT Graph Tools (M20, M30, Phantom) 64
Units and FFT Spectrum Windowing (M20, M30, Phantom) 65
Analysis Menu Tools (M20, M30, Phantom) 66
Scope Tools 67
FFT Tools 68
TWF Tools 72
Functions Menu Tools (M20, M30, Phantom) 75
Single Channel Functions Toolbar 75
Dual Channel Functions Toolbar 78
Alarms Menu Tools (M20, M30, Phantom) 82
Show Alarms Toolbar 82

Configuration Toolbar..... 83
Setting an alarm envelope around a recording..... 83
3D Menu Tools (M20, M30)..... 87
ODS..... 87
ODS Modeling Requires Reference Channel Data..... 87
Adding a new 3D model to the database..... 88
Collecting Data for 3D Simulations (ODS)..... 92
Real ODS..... 95
Schedule Route..... 97
Analysis of ODS Data..... 99
Phase Analysis of ODS Data..... 101
Route Data Collection (M20, M30)..... 102
Advance Tendency (M20, M30, Phantom)..... 103
Data Panel..... 104
Severity Panel..... 105
Last Severities Avg Panel..... 106
Severity & Slope Panel..... 107
Trending Panel..... 108
Saving and Uploading Data Files..... 109
File Types..... 109
Saving Files..... 110
Opening Files..... 110
Phantom Menu Tools..... 111
Phantom Tools..... 111
Wizard..... 111
Status..... 114
Set Up Tools..... 115
Add GPIO Sensor..... 115
Power Off Configurations..... 115
Alarm Notifications..... 116
Reports..... 117
Product Registration..... 120

About DigivibeMX® Version 11

¿What is DigivibeMX®?

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.

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

Visit our 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:
* Not compatible with Windows RT operating system

- Intel® Celeron® (2.50 GHz / 400MHz) or higher
- Minimum 4GB DDR2 or higher RAM
- Windows 10 (*supports Windows 8 and 8.1)
- 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 only)

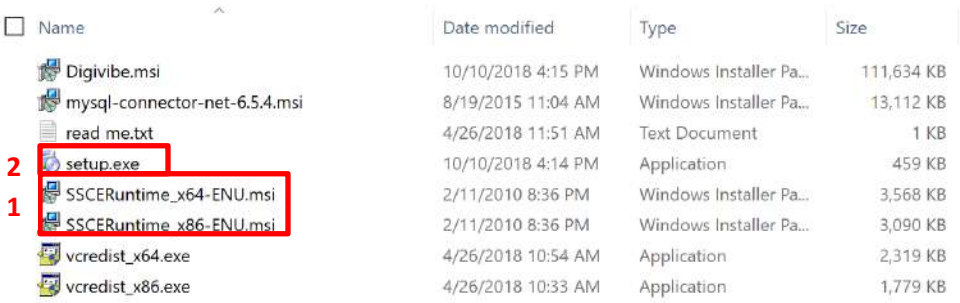
Other Required Software:

- 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)
- Acrobat Reader 7.0 or higher (for opening help guide)

Software Installation

From USB or Download: Open the *DigivibeMX®* folder location in Windows Explorer:

1. Open and install SSCERuntime_ (x64 for 64-bit operating systems; x86 for 32-bit operating systems)
2. Open and install setup.exe

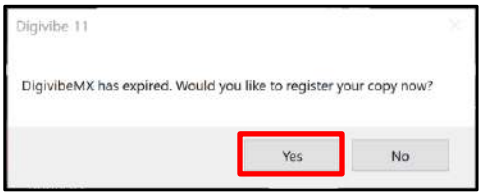


Name	Date modified	Type	Size
Digivibe.msi	10/10/2018 4:15 PM	Windows Installer Pa...	111,634 KB
mysql-connector-net-6.5.4.msi	8/19/2015 11:04 AM	Windows Installer Pa...	13,112 KB
read me.txt	4/26/2018 11:51 AM	Text Document	1 KB
2 setup.exe	10/10/2018 4:14 PM	Application	459 KB
SSCERuntime_x64-ENU.msi	2/11/2010 8:36 PM	Windows Installer Pa...	3,568 KB
1 SSCERuntime_x86-ENU.msi	2/11/2010 8:36 PM	Windows Installer Pa...	3,090 KB
vcredist_x64.exe	4/26/2018 10:54 AM	Application	2,319 KB
vcredist_x86.exe	4/26/2018 10:33 AM	Application	1,779 KB

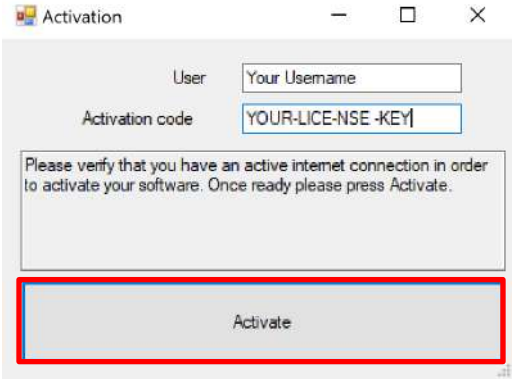
Product Activation

IMPORTANT: Activating *DigivibeMX®* software requires an Internet connection!

Upon first launch of *DigivibeMX®*, you will receive the following message. Click **Yes** to register:



Enter your Username and Activation code. Click **Activate**:

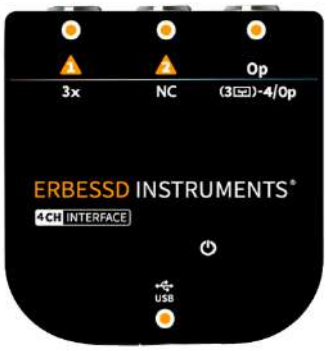


Enter your username and activation code in the corresponding boxes.
The key consists of 16 characters, for example **WWWW-YYYY-WWWW-YYYY** (do not include dashes).

Important: An active internet connection to the Erbessd licensing server is required to activate the software. Sometimes industrial, business or university networks prevent connection due to firewalls. If this occurs, you will receive an SQL error message. If necessary, consider activating the software from a different network (personal cellular network, for example).

Calibration

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



INT4-GX4 (GX-400)

WiSER

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.

INT2-15A (I-500)

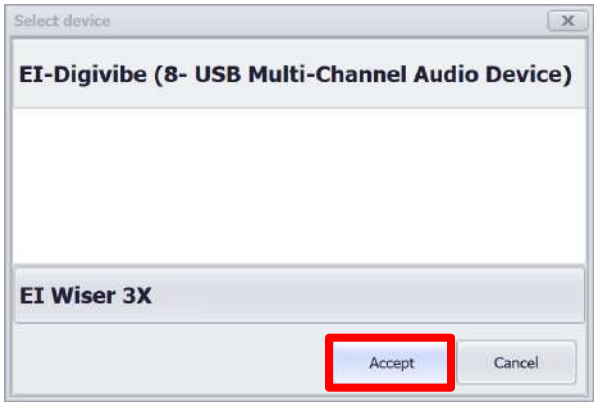
INT2-16A/INT2-17A (I-600/I-700)

INT4-18x (I-800)

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.

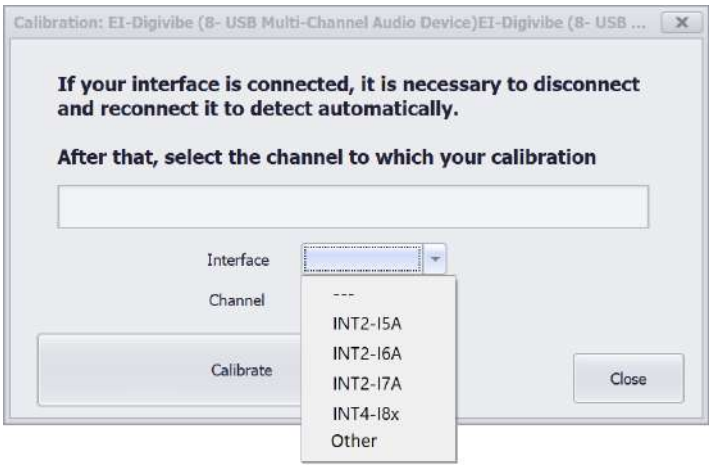
On the *DigivibeMX®* **Configuration** menu, click **Select Device** and verify that *DigivibeMX®* detects the connected interface. If no device is found, exit the software, check all connections, restart *DigivibeMX®* and recheck.

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

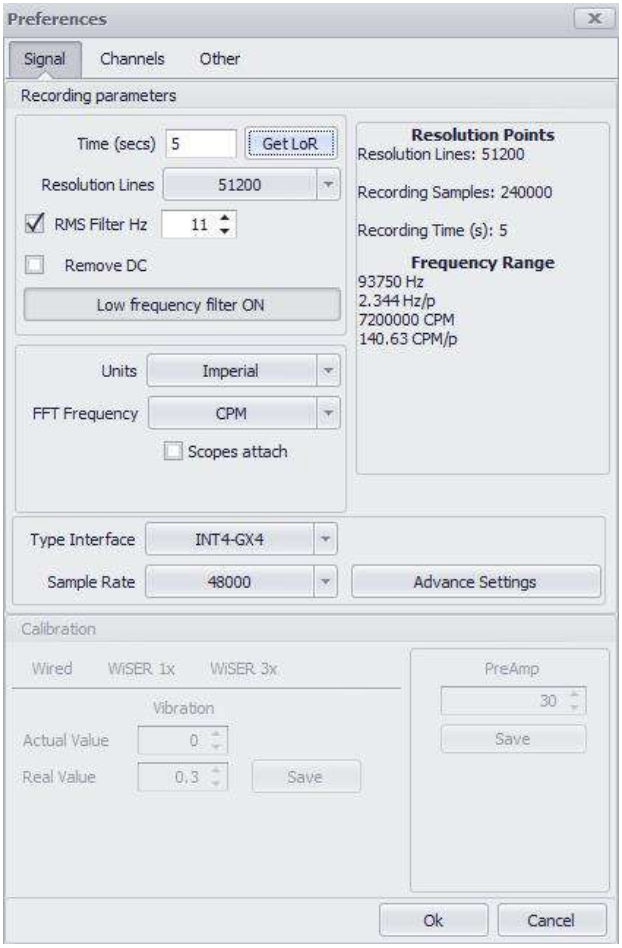
Signal and Channel Preferences

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 three tabs for user-defined options

Signal Tab

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



- **Time (secs):** This tool is very usefull to calculate resolution lines depending on a defined time. This way the selection of resolution lines will be more precise.
- **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 rage. Default is 11-11000 Hz.
- **Low Frequency Filter button**: Toggles the low-frequency filter ON or OFF. Eliminates the low frequency ski-sloping and haystacking noise traditionally seen in FFT displays.
- **Units**: Select between Imperial or Metric default units.
- **FFT Frequency**: Select between Hz, CPM or Orders default units.
- **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 Erbessd 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.

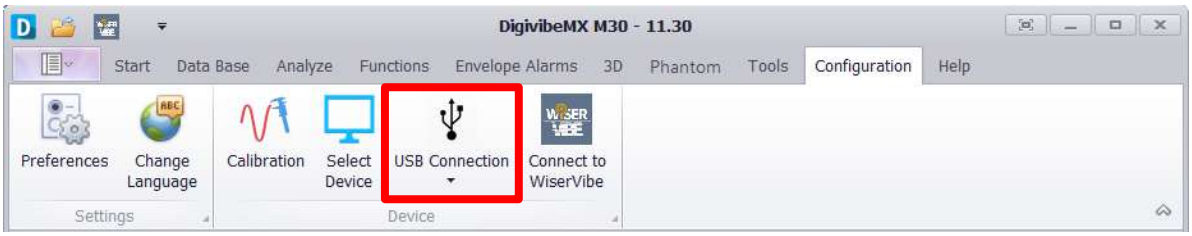
- **Sensitivity**: Specifies the sensitivity for the installed sensor. Unless specialty accelerometers are specified, all Erbessd Industries accelerometer device sensitivity is 100 mV/g. The Laser Optical Sensor sensitivity is 130 mV/g.
- **Type:** Identifies whether the sensor is an Accelerometer, Velocimeter,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

Other Tab

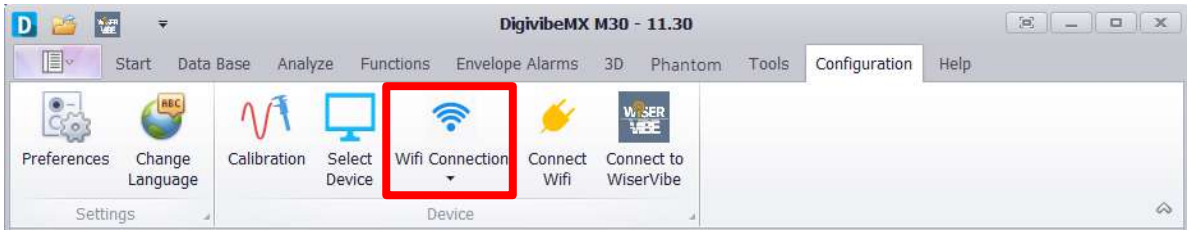
Allows the Phantom menu to be displayed or hidden, as desired.

Specify USB or WiFi Connected Interface (Portable Instruments Only)

At the current time, all Erbessd Instruments portable instruments except WiSER3x require USB Connection.

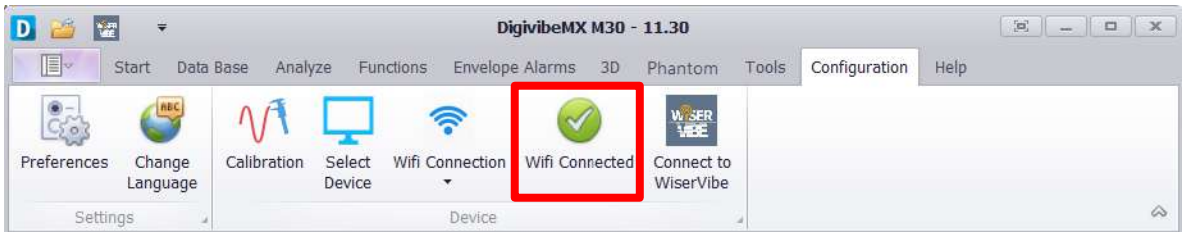


To use the WiSER3x with DigvibeMX, click to change USB Connection to WiFi Connection. Then, press the button on your WiSER3X and connect to the EIWiSER network on your computer.



Once that you're connected to the EIWISER network, click the "Connect WiFi" button that is on the Configuration tab or in the Analyze tab.

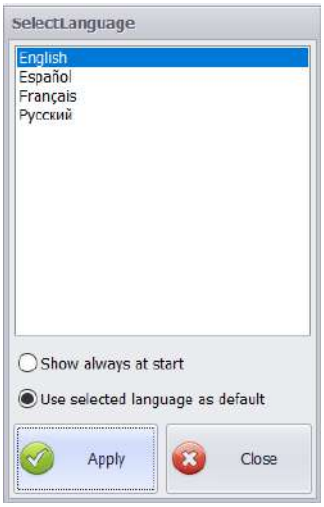
The software will let you know once your device is connected.



Change Language.

DigivibeMX new characteristic is that now it´s multilingual. The language change can be done through the"Configuration" Menu with the "Change Language" button.

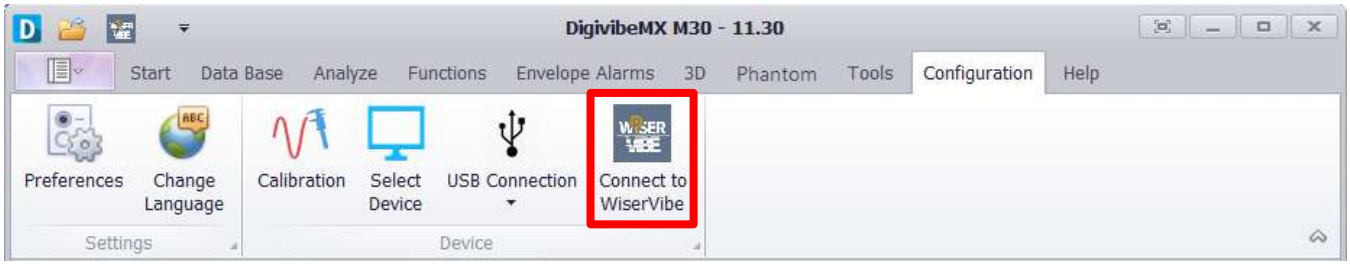
This will open the language selection window. Here you will see the option to change the language of all the interface into Spanish, English, French and Russian.



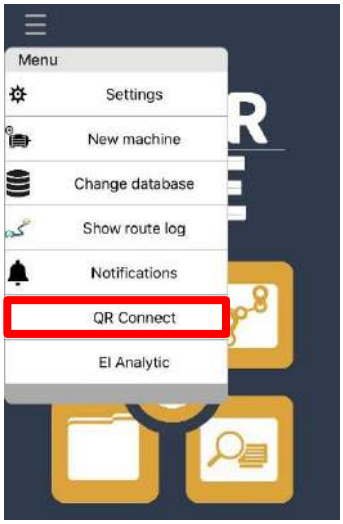
When changing the language the software will need to restart so it will notify when making this action and it will automatically restart.

WiSER VIBE Connection.

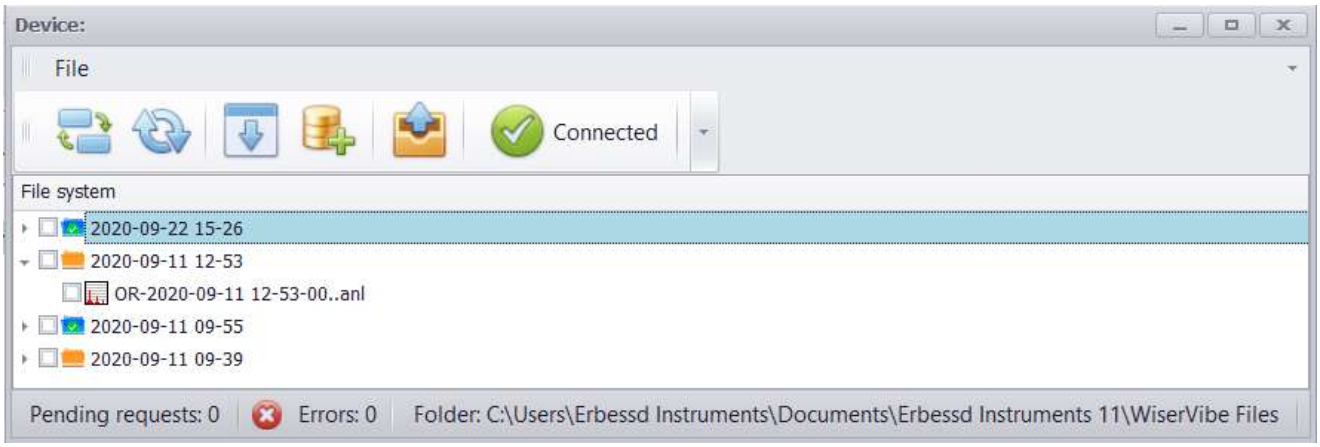
DigivibeMX now allows to create a direct connection and share information through the WiSER VIBE app. With the “Connect to WiSERVibe” button it’s possible to transfer all of the recordings storage on your iOS device.



Pressing this button will generate a QR code from DigivibeMX and with WiSER VIBE, with the option “QR Connect”, scan the code.



When scanning the code the link between DigivibeMX and WiSER VIBE is created and in the main window will appear a “Connected” notification. Now all of the information storaged on your iOS device will be available on DigivibeMX.



In the “Device” window you can find the next buttons:

- **Connect:** Generate a new QR code to connect to DigivibeMX through WiSER VIBE.
- **Refresh:** Updates de list with information on screen.
- **Download selected files:** Allows to download selected recordings from the list to an .anl file.
- **Download to database:** Allows to download selected recordings from the list directly to a point in the database.
- **Add route:** Allows you to add routes from DigivibeMX to WiSER VIBE.

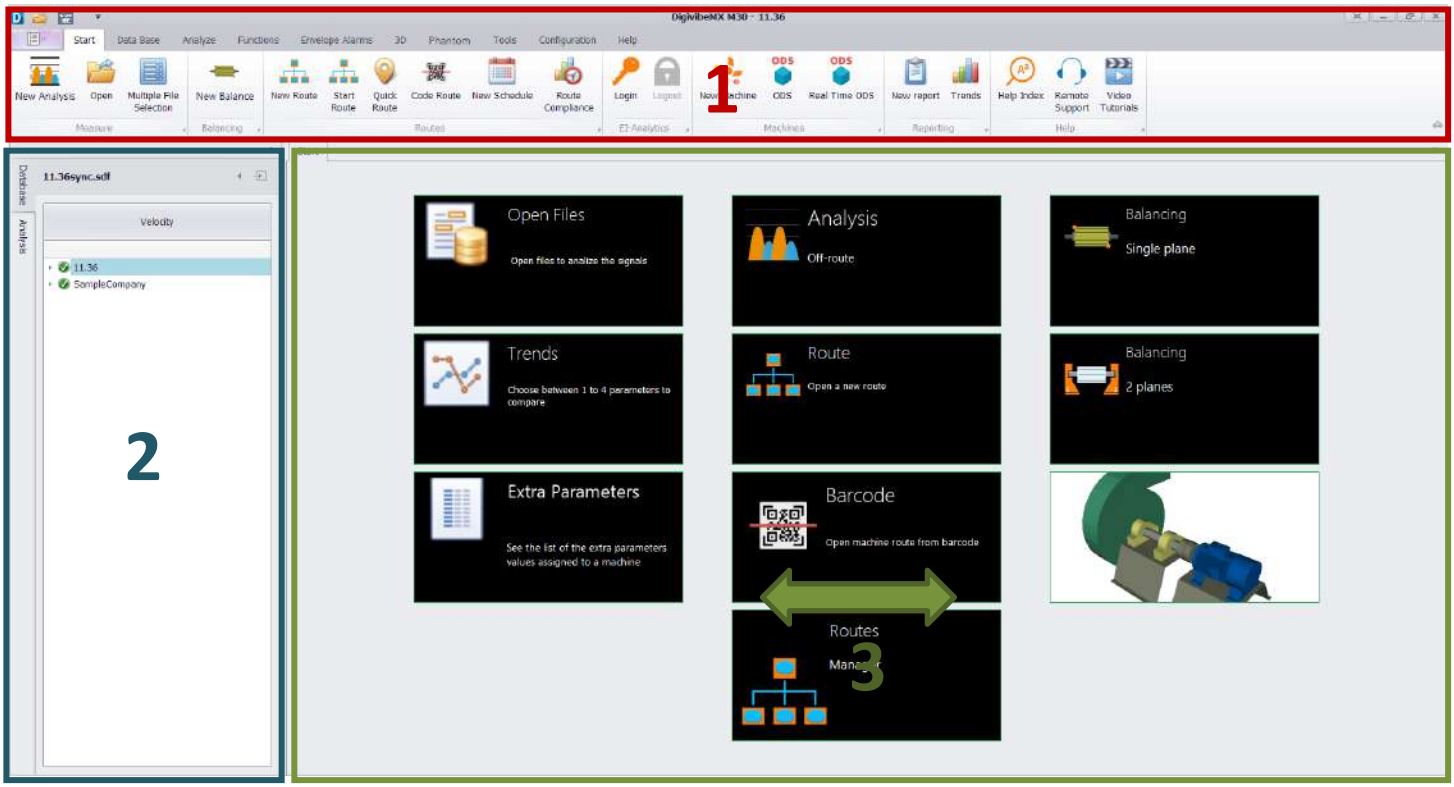
Navigating DigivibeMX® Software

User Interface

DigivibeMX® version 11 has maintained a classic Windows-style appearance. The software is still organized by Menus. Each Menu still features toolbars with control buttons. However, *DigivibeMX®* version 11 has been specifically redesigned to be more portable and touchscreen friendly than previous versions.

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



Depending upon computer screen resolution, all Quick-launch Tiles displayed here may not be visible. The entire panel may be scrolled laterally to view tiles. If using a mouse, roll the scroll wheel or click and drag the panel. On touchscreen devices, simply slide the panel with your finger. Tiles may be rearranged as desired.

Also, some tiles above may not be available, depending upon the software model purchased. For example: The above image represents M30 software with all available features. M10 does not have Database, Vibration Analysis, Routes or ODS features. M20 Does not have Dynamic Balancing features. Phantom does not have Dynamic Balancing or Route features.

Menus and Modules

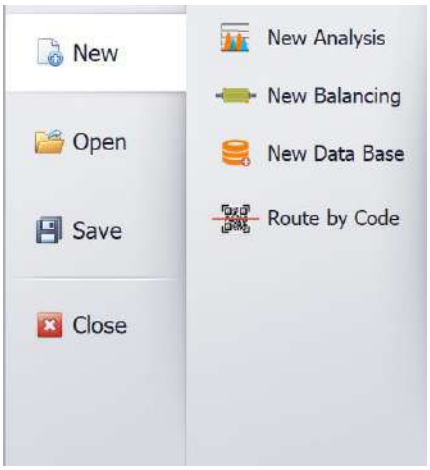
The graphic user interface of *DigivibeMX®* Version 11 has been completely redesigned with more intuitive menu options, increased touchscreen compatibility and easier access to functions. Key operations such as Dynamic Balancing and Route Data Collection now launch in separate modules. Certain menus and modules may not be available, depending upon the software model purchased.

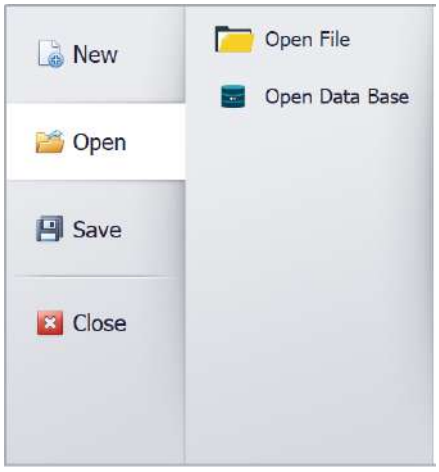
MENU	M10	M20	M30	PHANTOM
File Manager	√	√	√	√
Start menu	√	√	√	√
Data Base menu	---	√	√	√
Analyze menu	√	√	√	√
Functions menu	---	√	√	√
Alarms menu	---	√	√	√
3D (ODS) menu	---	√	√	---
Phantom menu	---	---	√	√
Tools menu	√	√	√	√
Configuration menu	√	√	√	√
Help menu	√	√	√	√
Balancing module	√	---	√	---
Routes module	---	√	√	---

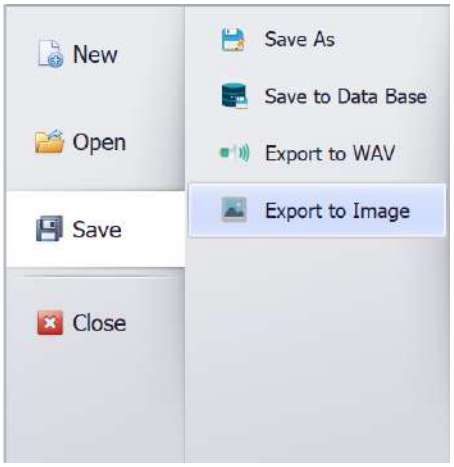
File Manager (All Digivibe Models)

The File Manager button opens File Manager 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.







Start Menu (All Digivibe 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**)
- **Open**: Opens a File Explorer window for navigating to and opening a saved Vibration Analysis recording file (**All DigivibeMX models**)
- **Multiple File Selection**: Allows you to select measurements from any machine so you can open it on different channels on the same plot.
- **New Balance**: Starts a new Dynamic Balancing session and launches the Balancing module (**M10, M30**)

Routes toolbar (M20, M30)

- **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 Routes for machines in the current database
- **Quick Route**: Allows the collection of a route without previously modifying it or creating a name and group.
- **Code Route**: Launches the Route to collect an existing Vibration Analysis Route by scanning machine barcodes assigned in DigivibeMX
- **New Schedule**: Launches the Schedule window to create a new programed route in a specific period of time.
- **Route Compliance**: Launches the graph compliance windows where the information of the routes taken and not taken is shown.

EI-Analytics toolbar

- **Login**: Opens the Login window for **EI-Analytics** (subscription service)
- **Logout**: Logs out of **EI-Analytics** (subscription service)

Machines toolbar

- **New Machine**: Creates a new Machine in the database (**M20, M30, Phantom**)
- **ODS**: Starts a 3D ODS simulation session. (**M20, M30, Phantom**)
- **Real ODS**: Starts an off-route 3D ODS simulation session. (**M20, M30, Phantom**)

Reports toolbar (All DigivibeMX models)

- **New Report**: Launches the Reports module
- **Trends**: Opens the statistical data Dashboard window for the current database in the Analysis and Work Area (**M20, M30, Phantom**)

Help toolbar (All DigivibeMX models)

- **Index:** Opens a link to the Erbessd Instruments user manual.
- **Online Help**: TeamViewer QuickSupport download link, allowing Erbessd Instruments technical support engineers to assist via remote access.
- **Video Tutorials**: Opens a link to the Erbessd Instruments Youtube channel.

Data Base Menu (M20, M30, Phantom)

Machine toolbar

- **New**: Opens the window to create a New Machine in the current database
- **Edit**: Opens the window to Edit a selected machine in the database
- **Delete**: Deletes selected (check marked) Sites, Areas or Machines from the database.
- **Notes**: Opens a window to create a tool-tip style note at the machine or point level in the database

Connection toolbar

- **New**: Opens a File Manager window to create a new SQL database
- **Connect**: Connects DigivibeMX to a different SQL, SQLCe or MySQL database
- **Refresh**: Updates the database with the latest changes made

Synchronize toolbar

- **Synchronize**: Allows transferring data from one database to another, from a local database to a cloud based database or vice versa.

EI-Analytics toolbar

- **Login**: Opens the Login window for **EI-Analytics** (subscription service)
- **Logout**: Logs out of **EI-Analytics** (subscription service)

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**: Calculates the size of your current database.
- **Delete Measures**: Delete Manager tool that allows to remove information of the database in a selected time period.

*Do not use this feature unless you have knowledge on SQL databases.

Analyze Menu (All DigivibeMX Models)

Measure toolbar

- **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 comparison
- **Delete:** Removes one channel of data from de database.
- **50K:** Allows the user to change the displayed unit scale of the CPM graph. You can choose between 10K, 30K, 50K, 100K and 300K.

Parameters tools

- **Window:** Allow the user choose between the 8 FFT configurations
- **Units:** Allow the user change the amplitude units for the FFT and TWF
- **Frequency:** Allow the user to change the frequency of FFT (CPM, Hz Orders)
- **Save Personal Configuration:** Allows to save specific set up defined by user for the type of units, zoom, windowing for the TWF and FFT.
- **Remove Personal Configuration:** Deletes the set up previously defined by the user and configures de default options.

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

Scopes toolbar

- **Panelized**: Allows to distribute the different channels on separate scopes.
- **Range Selector**: Graph that shows the whole spectrum for both scopes (FFT and TWF) and lets you define the range of data shown in the main scope.
- **Visible Legends**: Remove/Show the information presented in the square on the right of the scope.

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

FFT Distance toolbars

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

TWF toolbar

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

TWF Distance toolbars

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

Functions Menu (M20, M30, Phantom)

NOTE: The Functions Menu contains tools for advanced Time Waveform and FFT analysis. A recorded signal should be opened for analysis before proceeding to the Functions Menu.

Single Channel Functions 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)

Alarms Menu (M20, M30, Phantom)

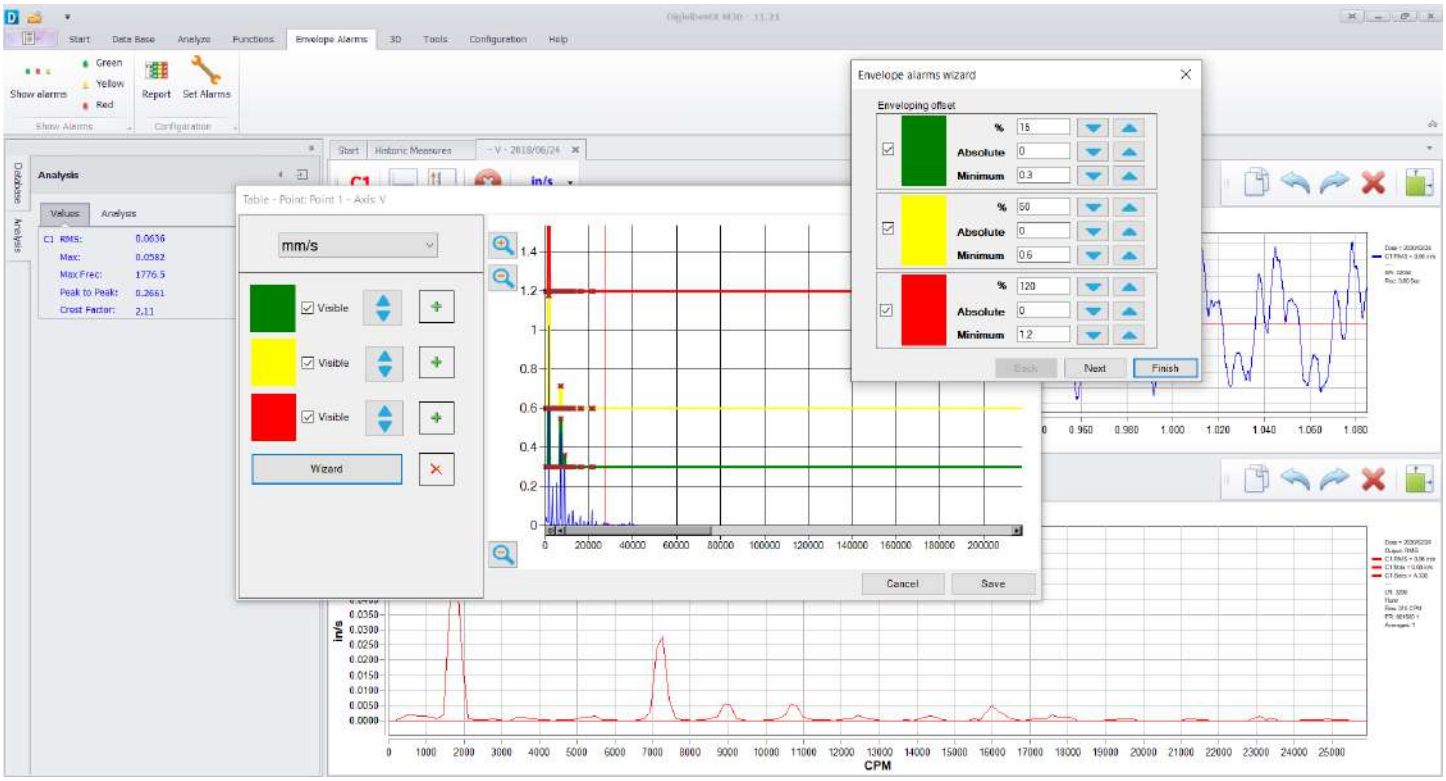
NOTE: The Alarms Menu contains tools for setting envelope alarms around the FFT of a recorded signal. The desired recording should be opened before proceeding to the Alarms Menu.

Show Alarms toolbar

- **Show All 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

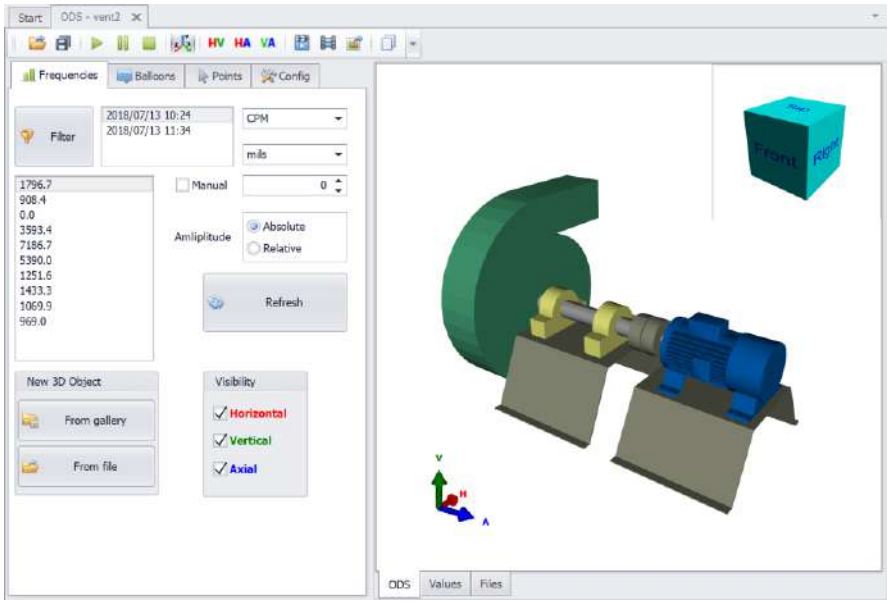
Amplitude toolbar

- **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 128.



Phantom Menu (M30, Phantom)

Phantom toolbar

- **Wizard**: Opens the Phantom Configuration Wizard
- **Status**: Opens the Phantom status window to view a Phantom sensor's current state
- **Signal Strength**: Displays a list of sensors connected to the Gateway. By selecting a sensor, it shows the signal strength for that specific sensor.
- **Add GPIO Sensor:** Opens the Sensors for GPIO window. In this window you can set accelerometers, proximeters and velocimeters.
- **Power Off Configurations:** Allows to set an activity period for sensors with machines that do not met a required value.
- **Alarms Set Up:** Creates an alarm value for collected data.

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 units)

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
- **Bearings Info**: Opens the bearing database
- **Gear Frequency**: Opens the gear frequency calculator
- **Advance Tendency:** Opens the Dashboard tab to show an overview of the overall machine´s health with severity indicators.

Exports and Imports Tool

- **Exports:** Allows to convert and save any currently opened signal into any of the file extensions UFF58, ASCII y CSV.
- **Imports:** Allows to transfer any file extensions UFF58, ASCII y CSV into DigivibeMX.

Configuration Menu (All DigivibeMX Models)

Settings toolbar

- **Preferences:** Configures DigivibeMX® software and hardware for balancing and/or data collection
- **Change Language:** Changes the language of DigivibeMX interface.

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 Connection**: Toggles Digivibe input sources between USB-connection devices and WiFi-connection devices (WiSer3x)

Help Menu (All DigivibeMX Models)

Digivibe Update software toolbar

- **Check for Updates:** Checks the Erbessd Instruments server for updated software versions. DigivibeMX v11 updates can be performed immediately or downloaded for later installation.
- **Release Notes:** Automatically downloads the latest release notes document where the recent updates will be detailed.

Monitoring Service Update software toolbar

- **Check for Updates:** Checks the Erbessd Instruments server for updated EI Monitoring software versions.

Help toolbar

- **Help Index:** Opens a link to the Erbessd Instruments user manual.
- **Online Help**: Opens a link to download TeamViewer QuickSupport for online remote support
- **Video Tutorials**: Redirects to the YouTube page where you can find video tutorials for Erbessd Instruments devices.

www toolbar

- **Erbessd Instruments**: Opens a web browser linked to the Erbessd Instruments website
- **EI Analytic**: Opens a web browser linked to the EI-Analytic homepage

Activation toolbar

- **Activation**: Opens the software activation window
- **About**: Displays software version and copyright information

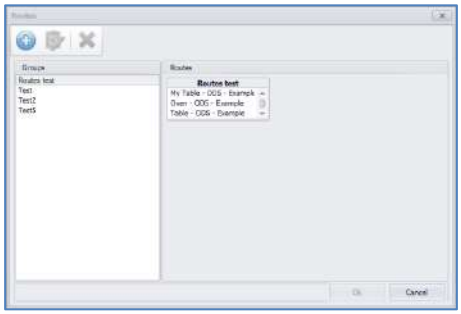
View Options toolbar

- **View Options**: Changes the screen appearance and coloring of DigivibeMX software for easier viewing in high light, low light or other conditions which might otherwise make viewing difficult.

Routes Module (M20, M30)

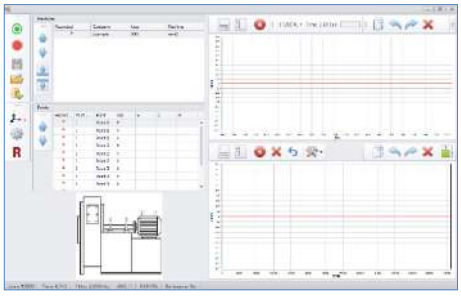
The Routes module is activated by selecting New Route, Start Route, Quick Route or Code Route on the Start menu

Selecting New Route launches the window to create a new vibration data collection route from machines in the current database, before proceeding to the Routes module.

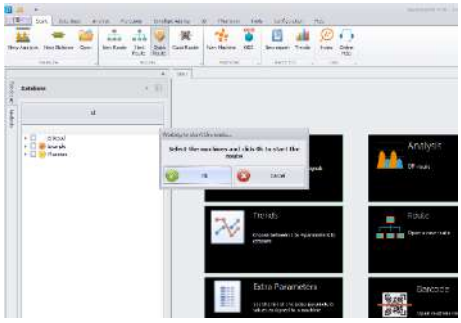


Selecting Start Route launches the Routes module immediately.
Load an existing vibration data collection route to begin collecting data.

Selecting Code Route launches the QR Code scanning window. Scanning a machine QR code opens the scanned machine in the Routes module for immediate data collection.



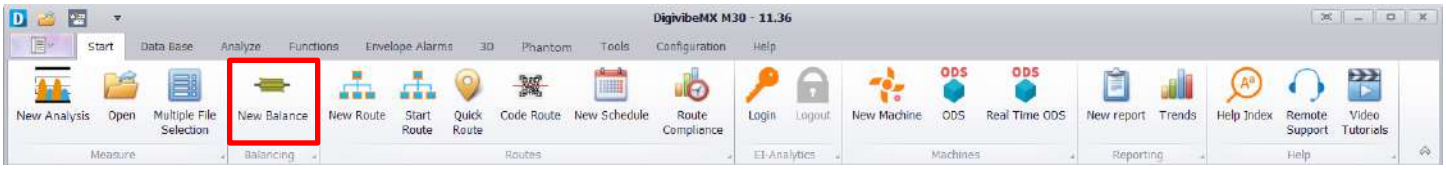
Selecting Quick Route will display a notification and checkboxes will appear in the machine tree. Here, we can select those machines that we need for a fast route with predefined capture values. Clicking Ok will open the route wizard you know in "Start Route"



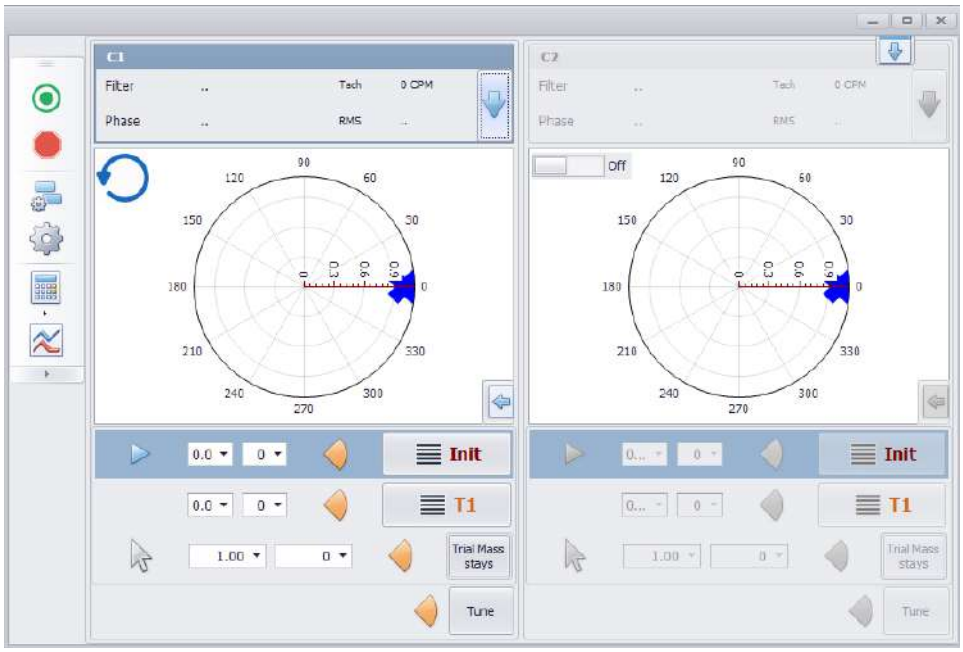
Balancing Module (M10, M30)

The Balancing module in versions M10 and M30 is opened by selecting New Balance on the Start menu, then selecting whether to perform:

- Soft Bearing Suspension (SBS) balancing on a soft bearing suspension balancing stand, or…
- Influence Coefficients balancing on an assembled machine or hard bearing stand



The Balancing module for Influence Coefficients launches in a separate window as follows:



- **2 Planes Auto** (only applies to the I-600 Sequential interface. See Appendix 1 for details): Allows for automatic sequential recording of both planes, or independent recording of each plane
- **Record**: Starts vibration and phase data collection
- **Stop**: Stops vibration and phase data collection
- **Polar Graphic**: Shows or hides the polar graphs in a rolling session
- **Filter**: Defines a rotational speed frequency range to improve phase measurement accuracy
- **Balancing Calculator**: Assists with adjusting to conditions that could affect balancing accuracy
- **Tacho**: Displays the indicated rotor speed signal from the Tachometer

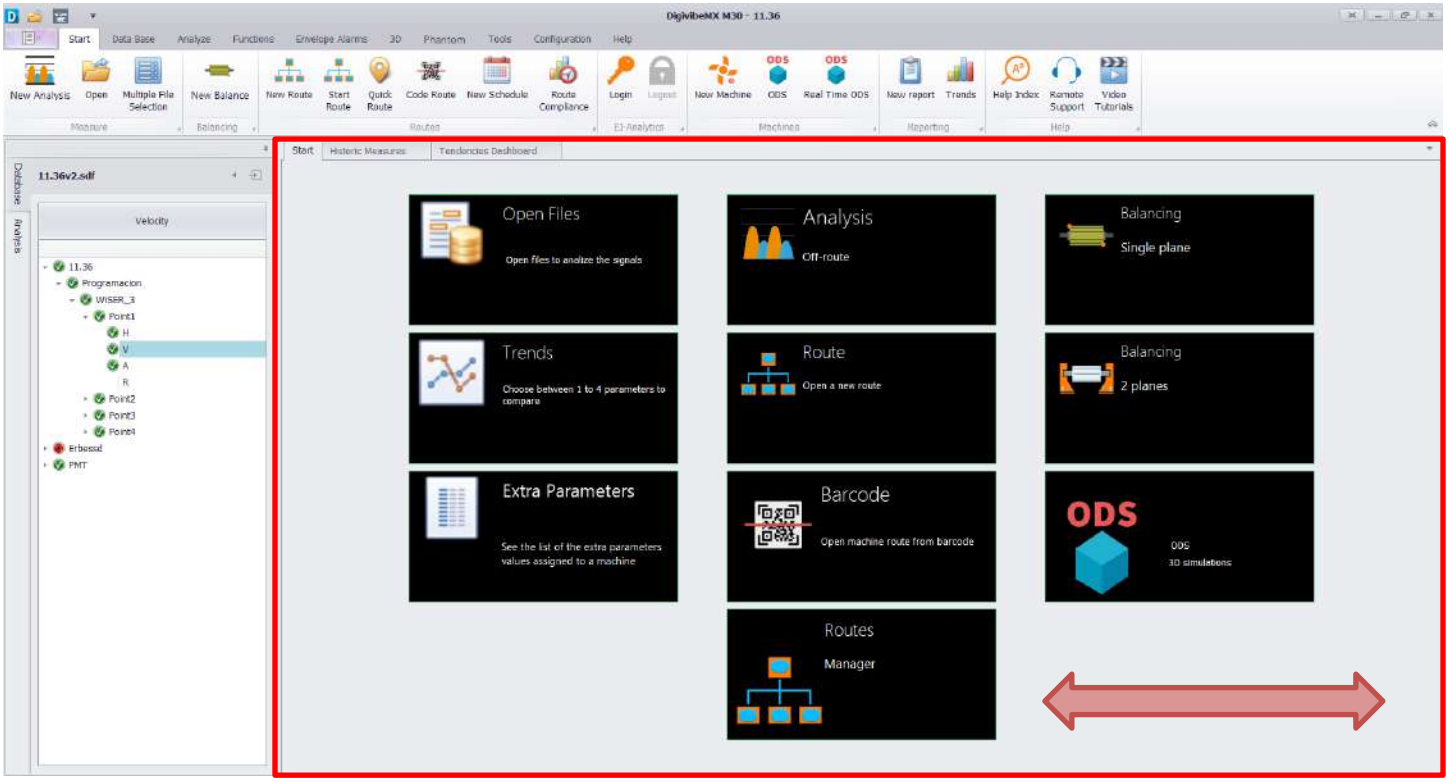
Using DigivibeMX® Software

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)

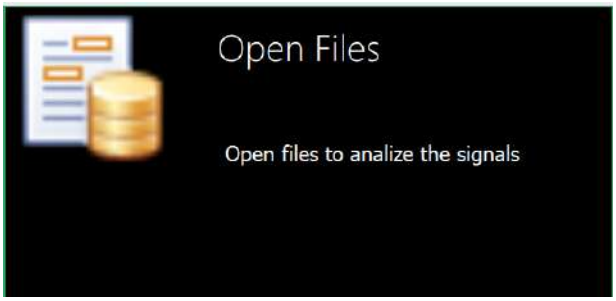
Start Tab

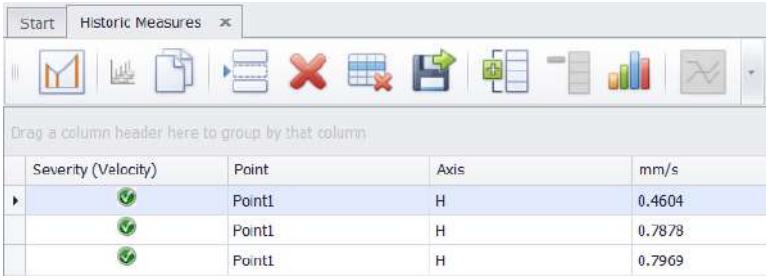
Features large quick-launch tiles to make selecting and launching key functions easier in a tablet computer environment. The pane can be scrolled horizontally by holding the mouse left-click button and dragging the screen, by rolling the mouse scroll wheel, or with a finger slide on touchscreens. Tiles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



Start screen tiles

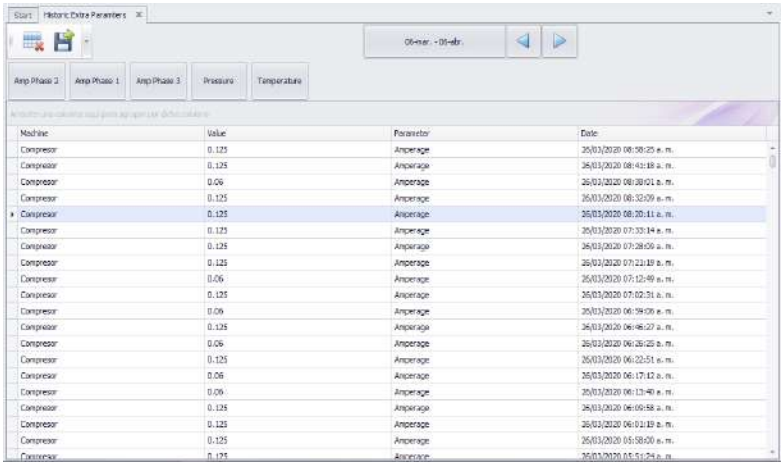
Open Files tile (M20, M30, Phantom) - Opens the Historic Measures tab, which allows selection of vibration data recordings from the database for analysis.



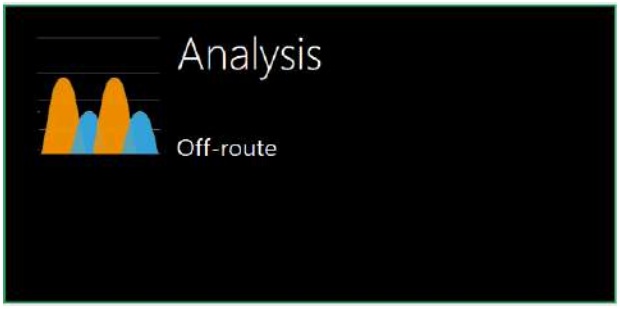


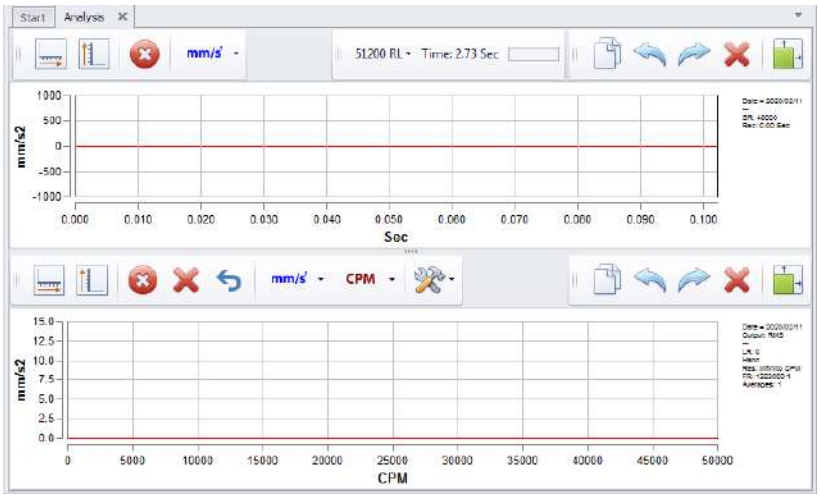
Tendency tile (M20, M30, Phantom) - Opens the Dashboard Tendency tab, which allows trending of vibration data from the database in real values (acceleration, velocity, displacement, acceleration enveloping) or severity (score).

NEW!!! Extra Parameters tile (M30, Phantom) – Opens the Historic Extra Parameter, wich allow to see the historical measures like RPM, Current, Temperature or GPIO.

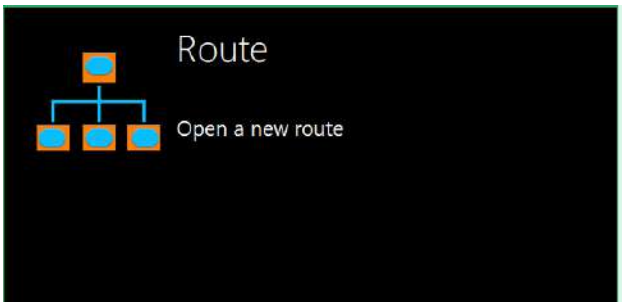


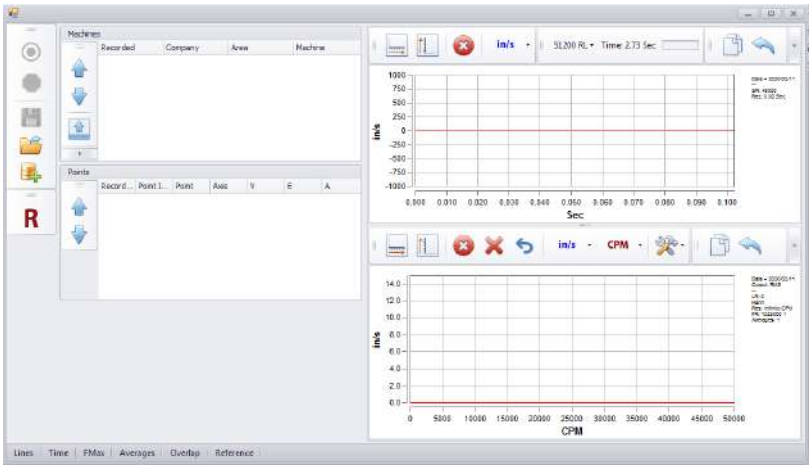
Analysis tile (M20, M30) - Opens the Analysis tab for collecting and analyzing off-route data.



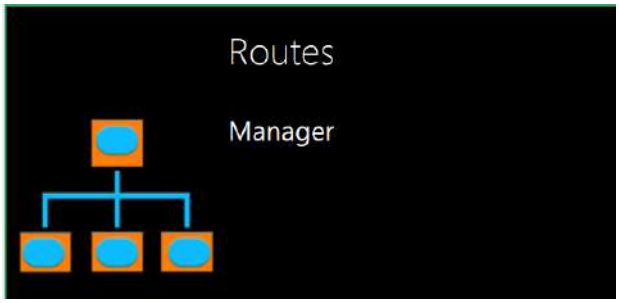


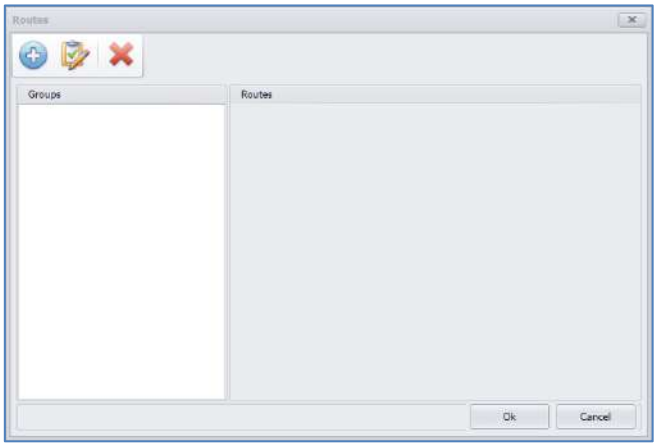
Route (Open) tile (M20, M30) - Opens the Route module for loading and collecting an existing route.



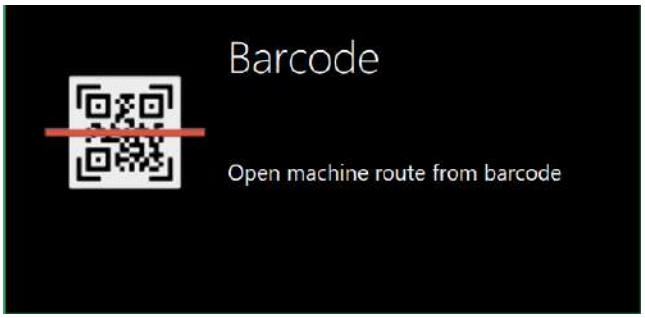


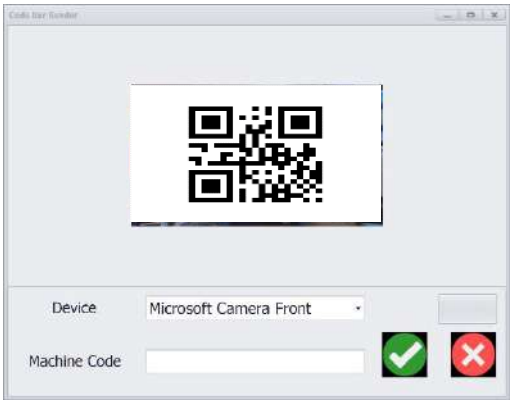
Routes Manager tile (M20, M30) - Opens the Routes window for creating new vibration data collection routes from machines in the current database.

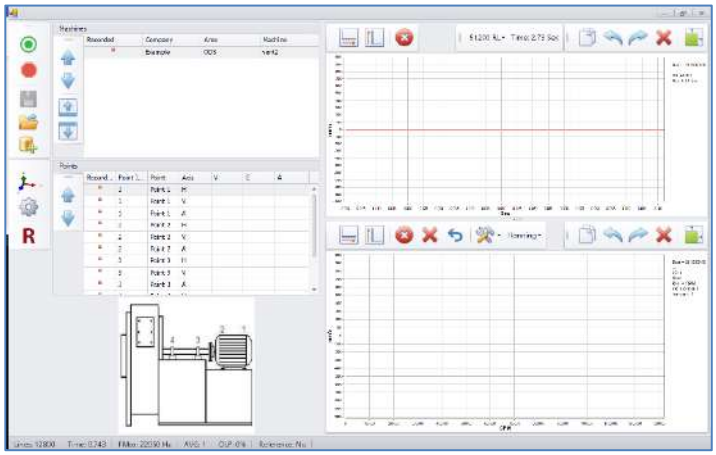




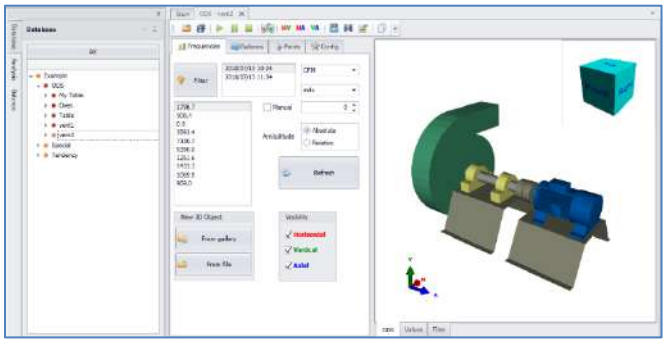
Barcode tile (M20, M30) - Opens the Barcode reader. A scanned machine then opens in the Route module for vibration data collection.



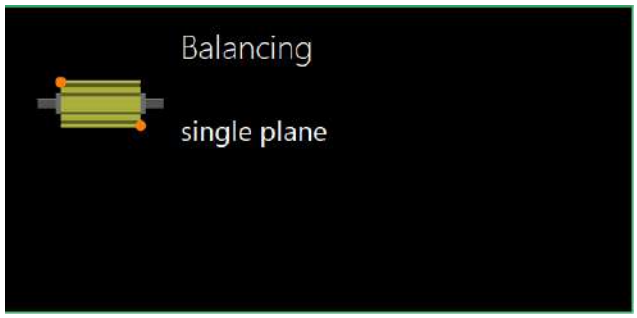


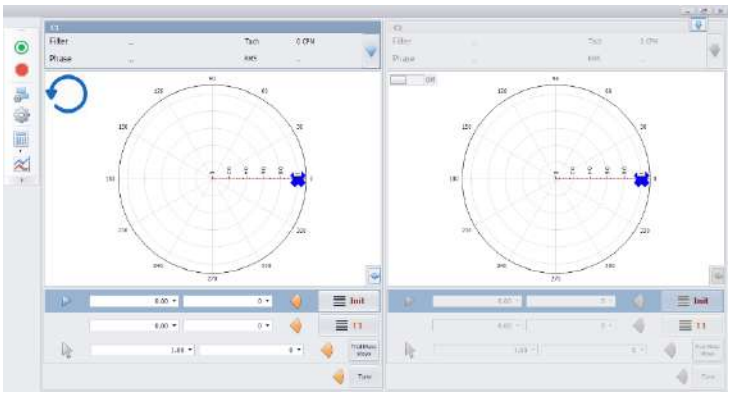


ODS tile (M20, M30) – Selecting a 3D-model assigned machine from the database, then selecting the ODS tile opens the machine in the ODS control panel.

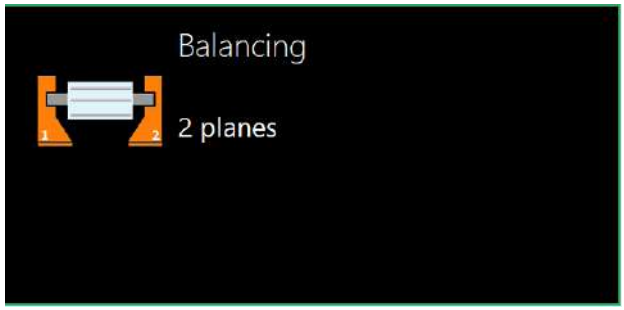


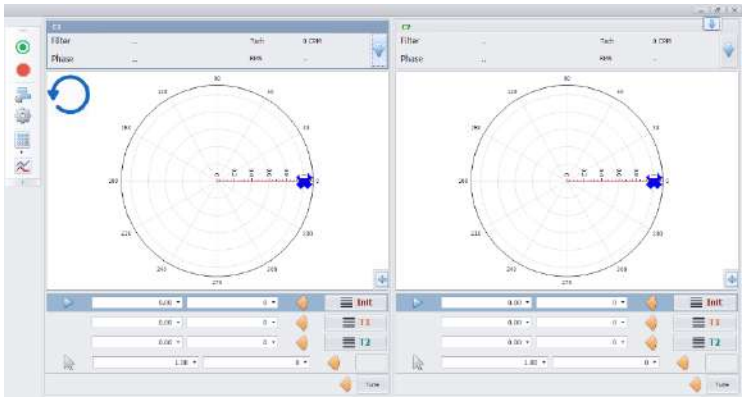
Balancing single plane tile (M10, M30) – Opens the Balancing module to perform a single-plane balance.





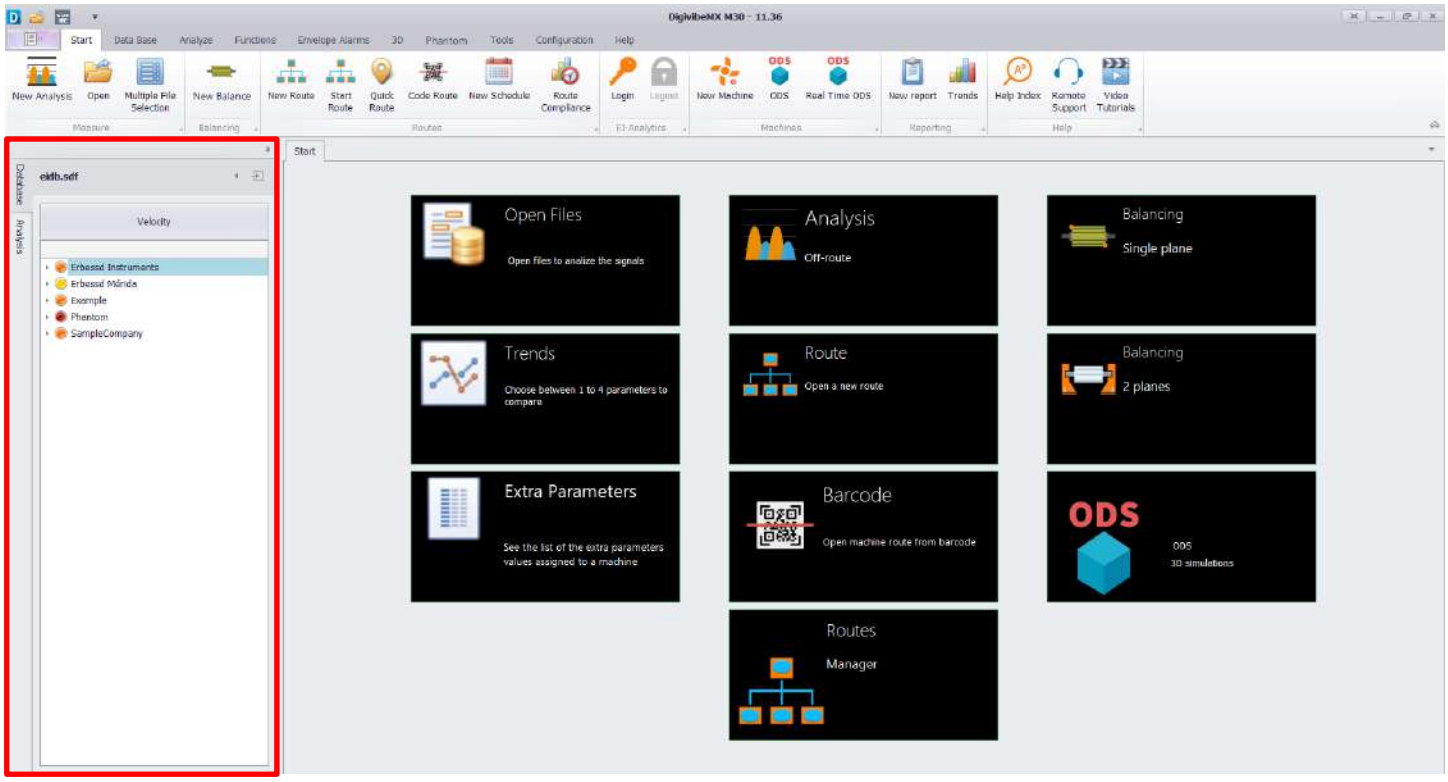
Balancing 2 planes tile (M10, M30) – Opens the Balancing module to perform a 2-plane balance.





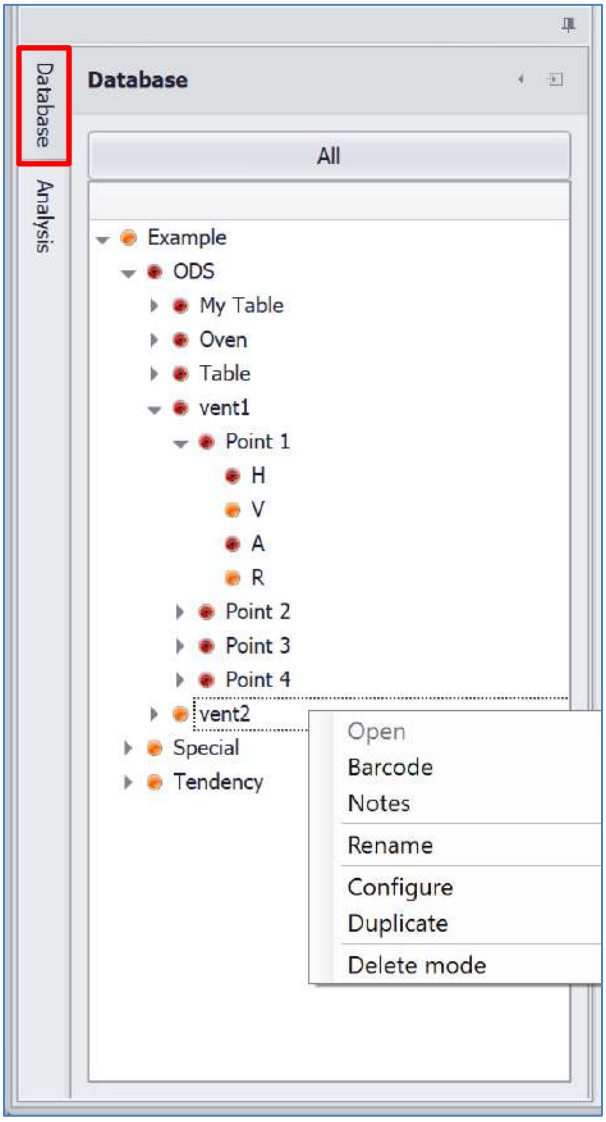
Left-Hand Panel and Shortcut Tabs

The left-hand panel 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 - a file and folder system where all collected data is stored. The DigivibeMX® database system 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 Pg 46.



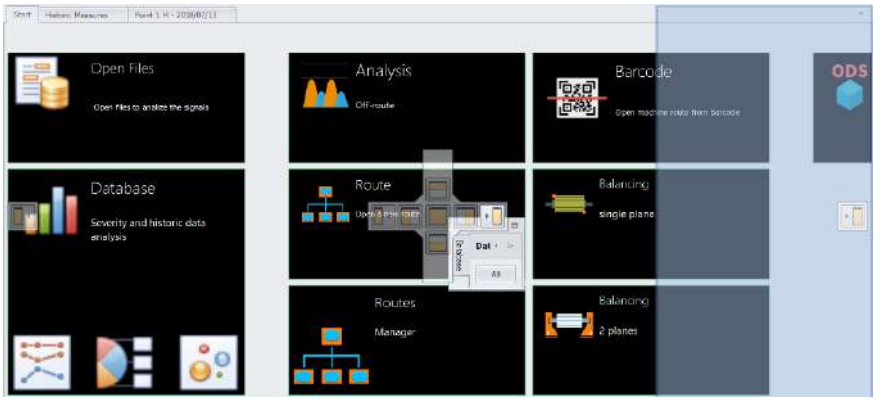
Database folders and files are displayed in a standard tree format. Database hierarchy is as follows:

- **Highest Level**: Company Name, Customer Name or Plant Location (for service providers or other users collecting data in multiple plant locations)
- **Second Level**: Production or Process Area
- **Machine Level**: Machine ID
- **Measurement Point**: Bearing or measurement location
- **Measurement Axis**: H (horizontal), V (vertical), A (axial) or R (reference channel for ODS rendering)

If Machine Alarms are used, each level of the database will display the highest severity alarm for any collected data it contains.

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. Configure and Duplicate options are only available at the Machine Level.

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 (M20, M30)

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

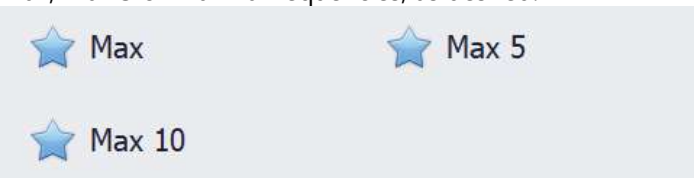
The button restores the hidden information

Analysis Tab continued (M20, M30)

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

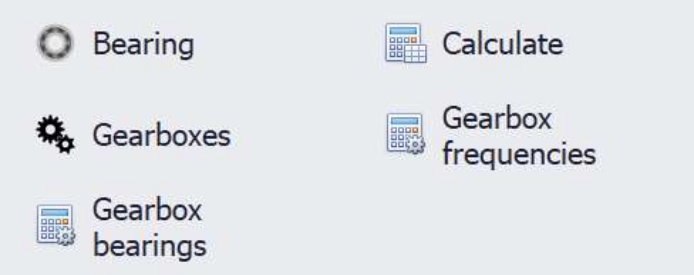
– Reference Channel button: Used to select the channel to which analysis functions will be applied.
- Frequency and Arrow buttons: Used to select or specify the desired fundamental frequency to compare relative phase or calculate bearing and gear fault frequencies.

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

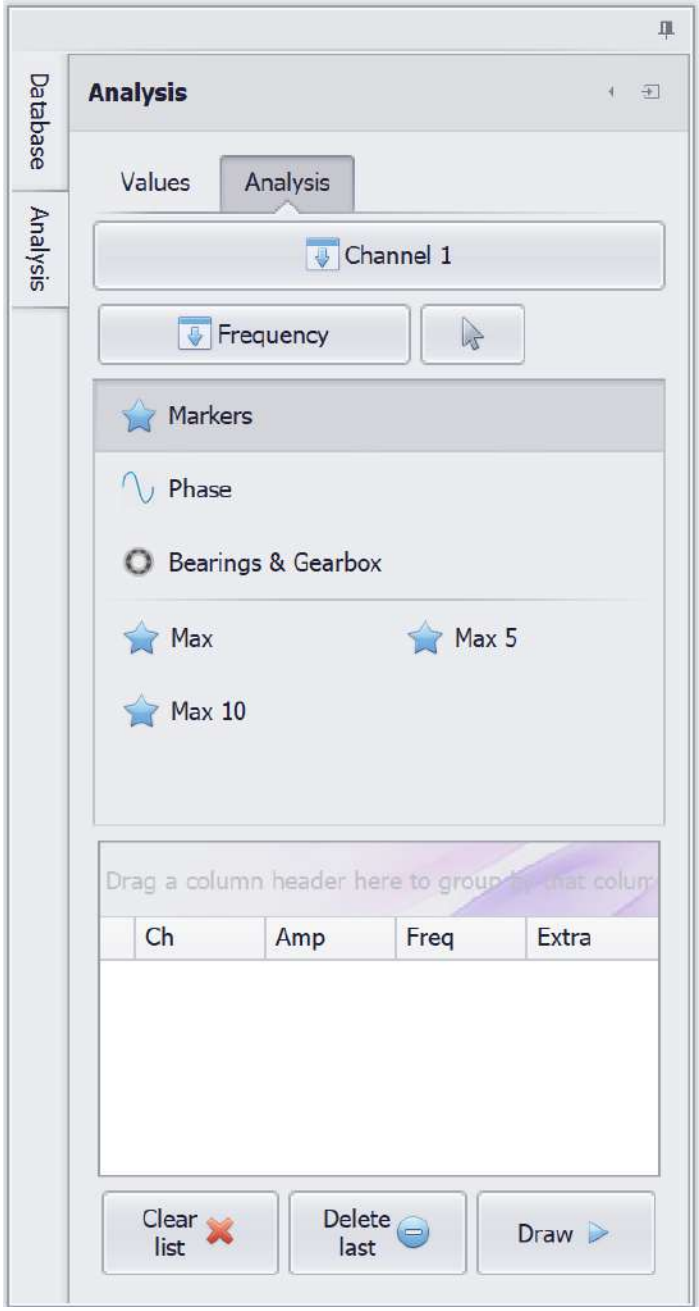


- Phase: Shows the relative phase comparison for all channels open for analysis (up to 4).

- **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.

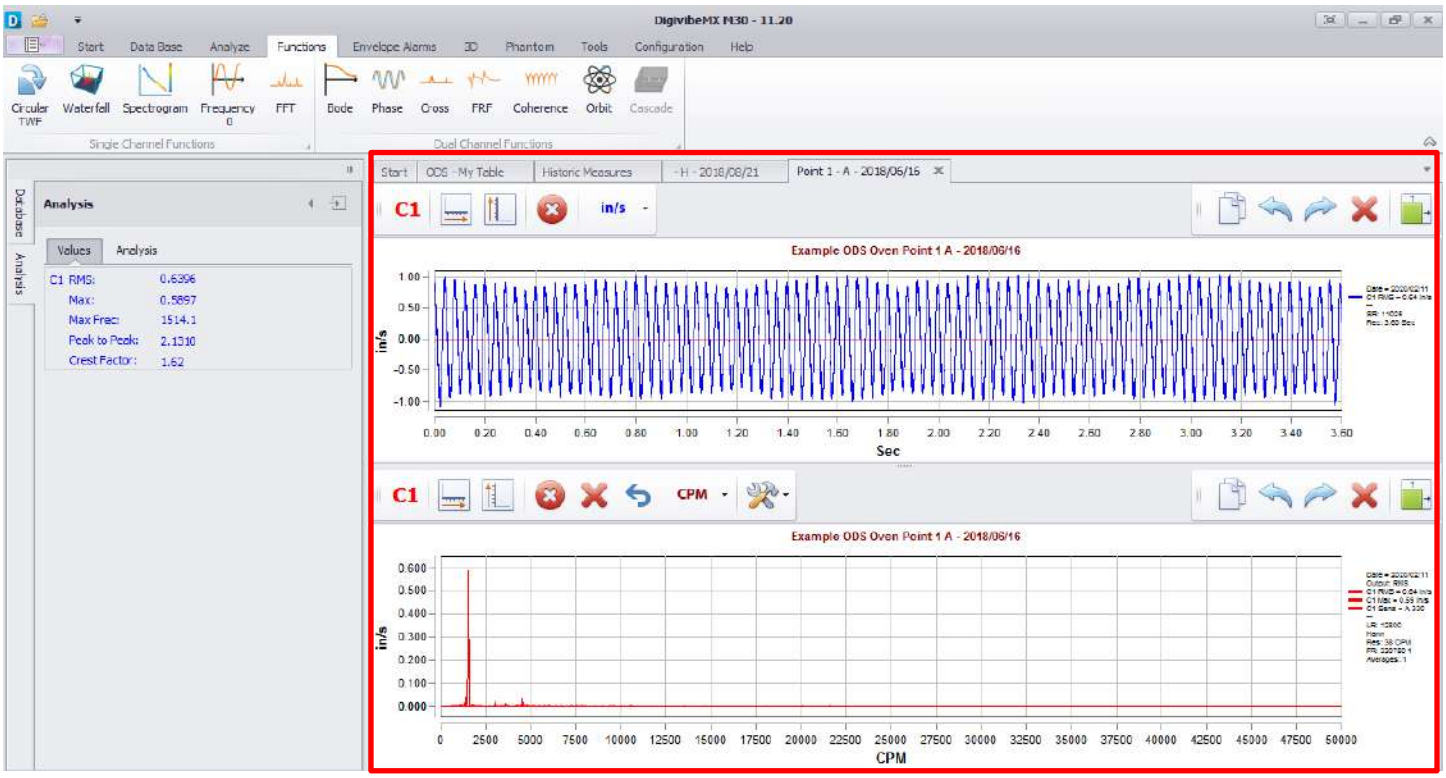


- **Values Field:** Displays values for the specified Markers, Phase, or Bearing & Gearbox calculations.
- **Clear list:** Clears data from the Values Field
- **Delete last:** Deletes the last value calculated from the Values Field.
- **Draw:** Places corresponding markers on the FFT spectrum for values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



Analysis and Work Area

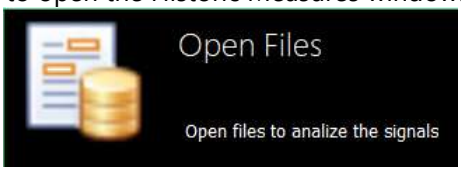
The Start screen, new tasks and functions open as tabbed windows in the Analysis and Work Area.



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.

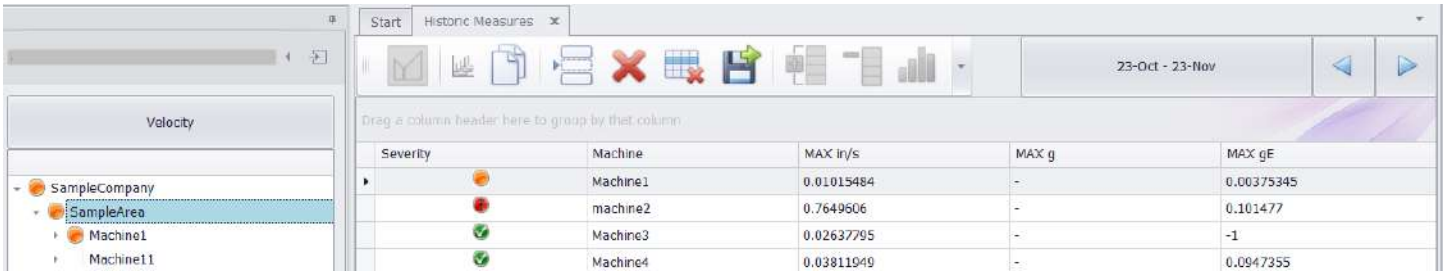
Historic Measures window (M20, M30, Phantom)

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

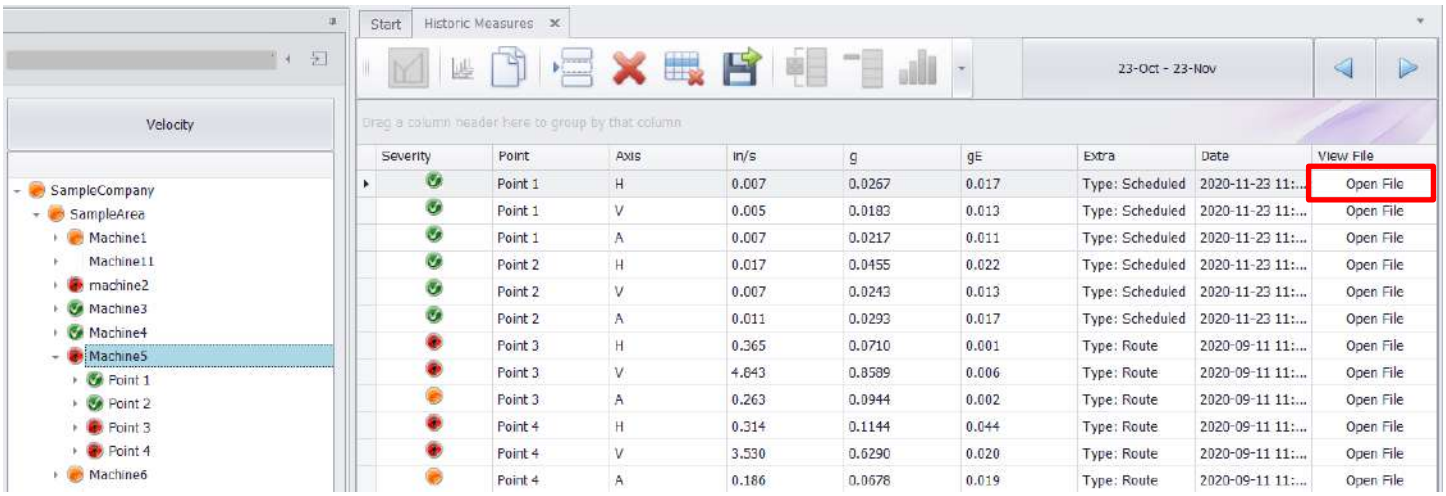


Selecting the Plant level in the data tree displays the most severe data collection for each area in the Plant.

Selecting the Area level in the data tree displays the most severe data collection for each for each machine in that Area.

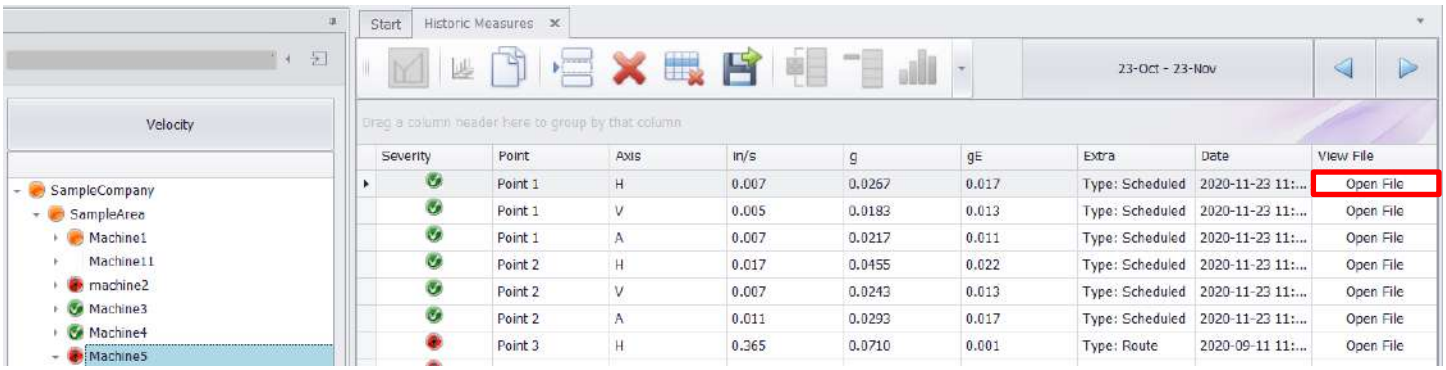


Selecting the Machine level in the data tree displays the most recent collections at each point and axis for that machine. Select View File to open a data collection's Time Waveform and FFT in the Analyze window.

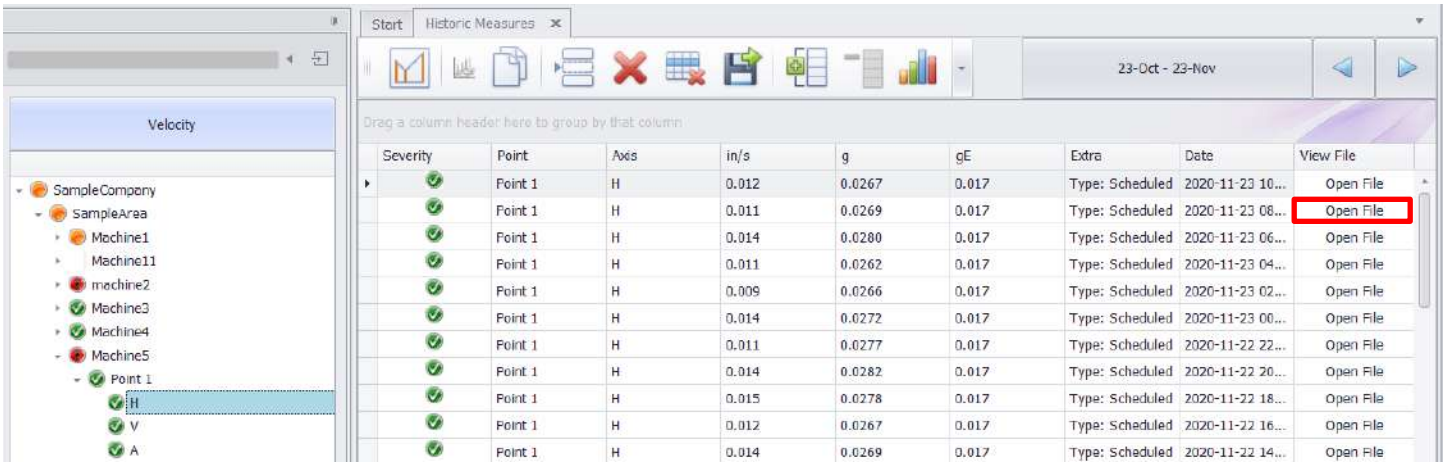


Historic Measures window continued (M20, M30, Phantom)

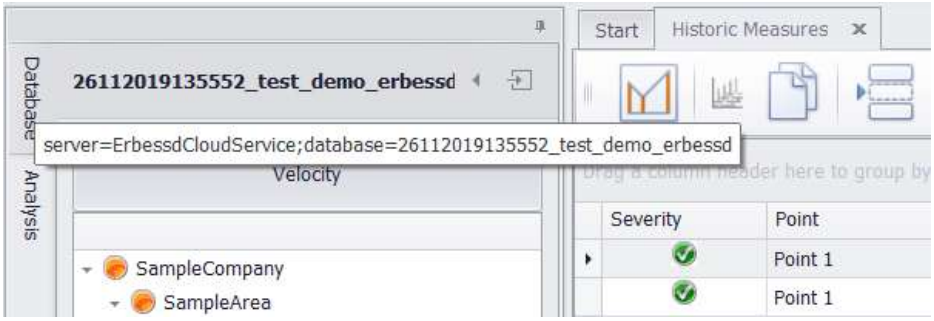
Selecting the Point level in the data tree displays the most recent collections at each axis for that point. Select View File to open a data collection's Time Waveform and FFT in the Analyze window.



Selecting the Axis level in the data tree displays all historical collections at that axis. Select View File to open a data collection's Time Waveform and FFT in the Analyze window.

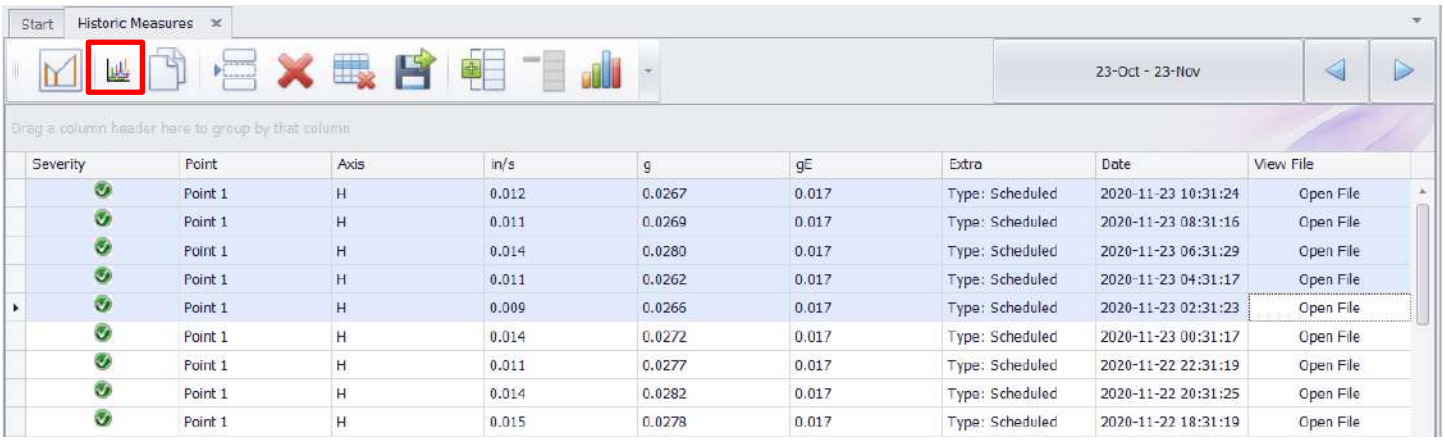


To view the file path where the current database is located, hover the cursor over the left-hand Database tab.



Historic Measures window continued (M20, M30, Phantom)

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. The Copy button copies data from highlighted cells to paste into Excel, Word, etc. The Delete button deletes highlighted cells from the database.



Severity	Point	Axis	in/s	g	gE	Extra	Date	View File
	Point 1	H	0.012	0.0267	0.017	Type: Scheduled	2020-11-23 10:31:24	Open File
	Point 1	H	0.011	0.0269	0.017	Type: Scheduled	2020-11-23 08:31:16	Open File
	Point 1	H	0.014	0.0280	0.017	Type: Scheduled	2020-11-23 06:31:29	Open File
	Point 1	H	0.011	0.0262	0.017	Type: Scheduled	2020-11-23 04:31:17	Open File
	Point 1	H	0.009	0.0266	0.017	Type: Scheduled	2020-11-23 02:31:23	Open File
	Point 1	H	0.014	0.0272	0.017	Type: Scheduled	2020-11-23 00:31:17	Open File
	Point 1	H	0.011	0.0277	0.017	Type: Scheduled	2020-11-22 22:31:19	Open File
	Point 1	H	0.014	0.0282	0.017	Type: Scheduled	2020-11-22 20:31:25	Open File
	Point 1	H	0.015	0.0278	0.017	Type: Scheduled	2020-11-22 18:31:19	Open File

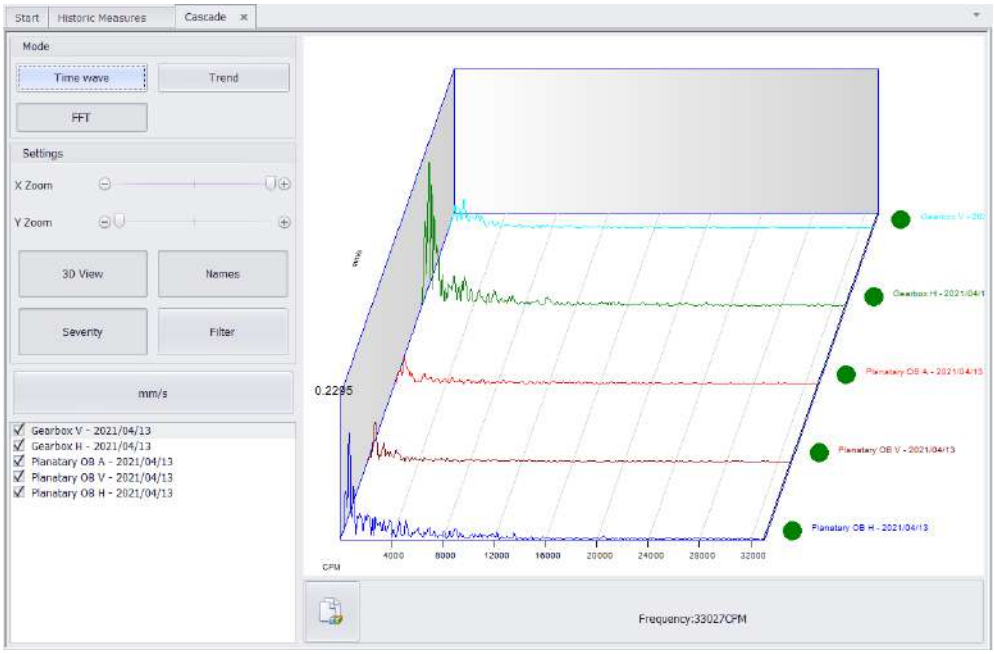
Mode: Select between rendering the TWF, FFT or you can choose Trend option to see the trends for the chosen points..

Settings:

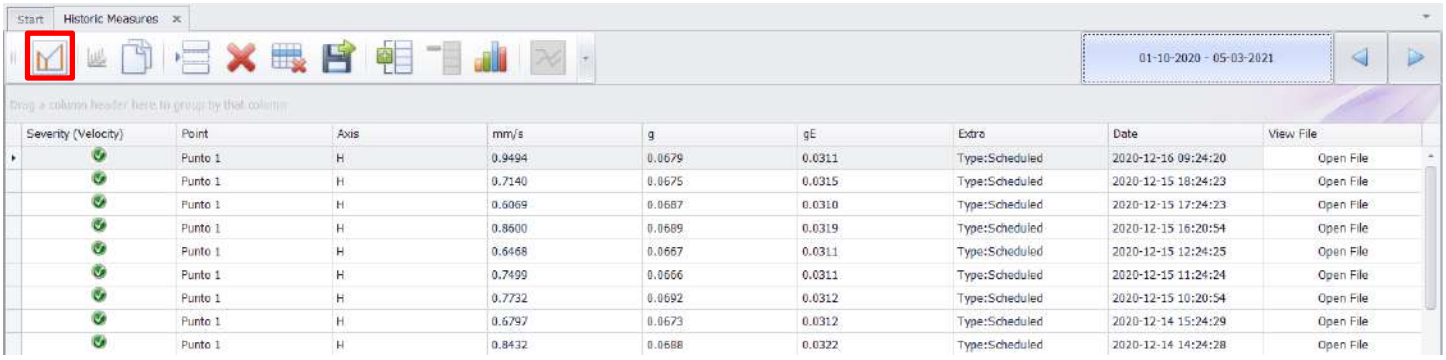
- Increase or decrease zoom on the X or Y axis.
- Switch between 2D or 3D view.
- Toggle point name labels on/off
- Toggle severity indication on/off
- Toggle filter on/off
- Select amplitude units to display.

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

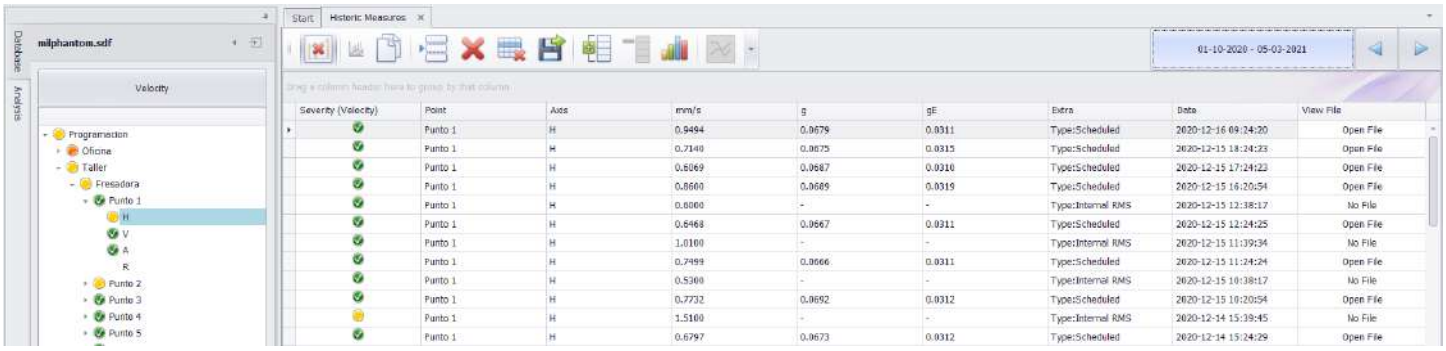
Use the Copy button to copy the cascade plot to the computer clipboard and paste into a Word document, email, etc.



Internal RMS (M20, M30, Phantom)

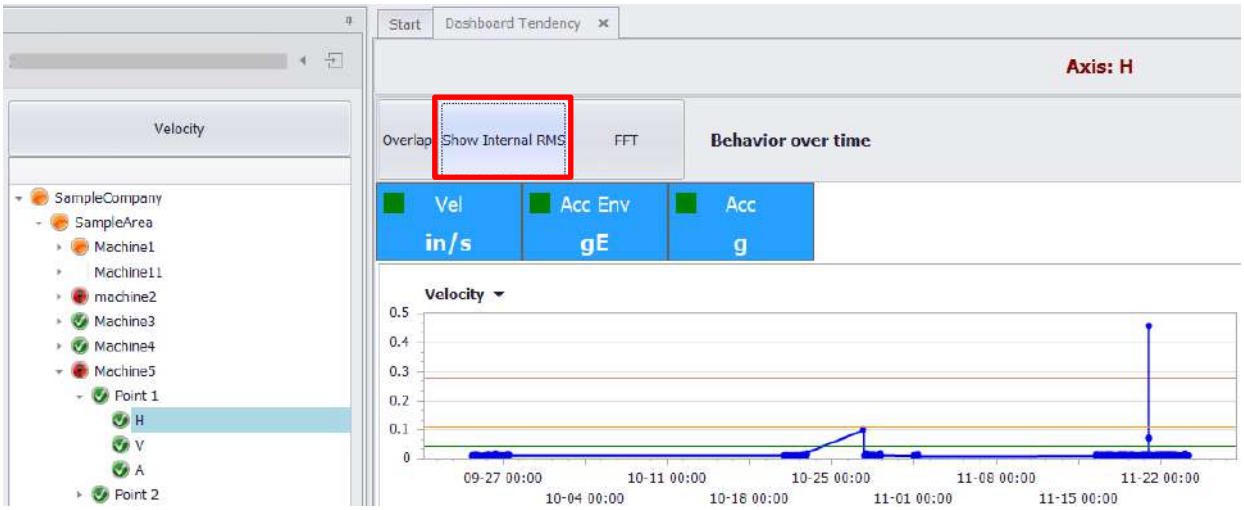


This new DigivibeMX 11 feature allows you to visualize the RMS information of your signals. To access to this data, you have to locate yourself in the tree within an axis and then press the "Show Internal RMS" button. At the end of the list all of the RMS information will appear.

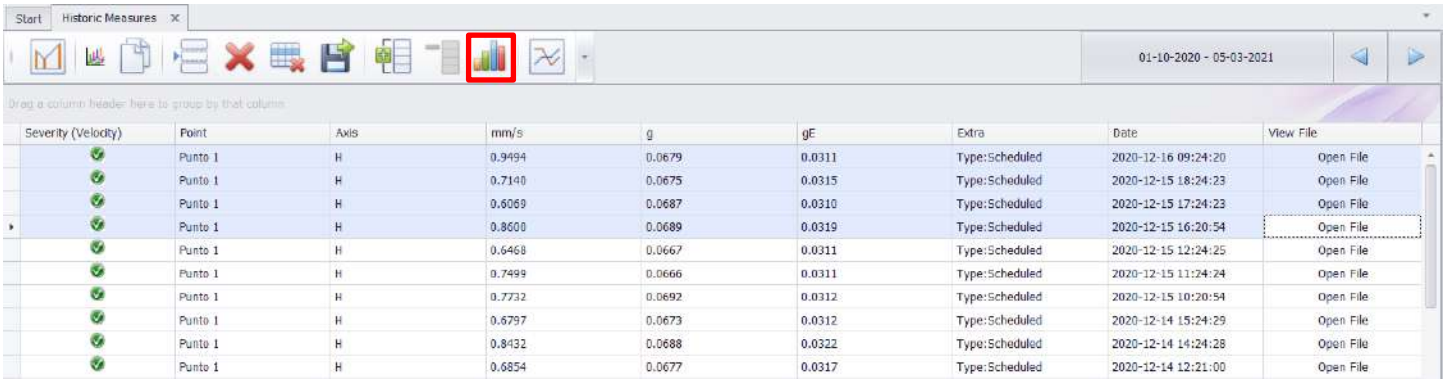


This feature it's only available from DigivibeMX 11.32 and EI Monitoring Service 1.24 and above.

The RMS information is also graphed in the Tendency window, it's important to click on the axis and then press the "Show Internal RMS" button and the information will be displayed.

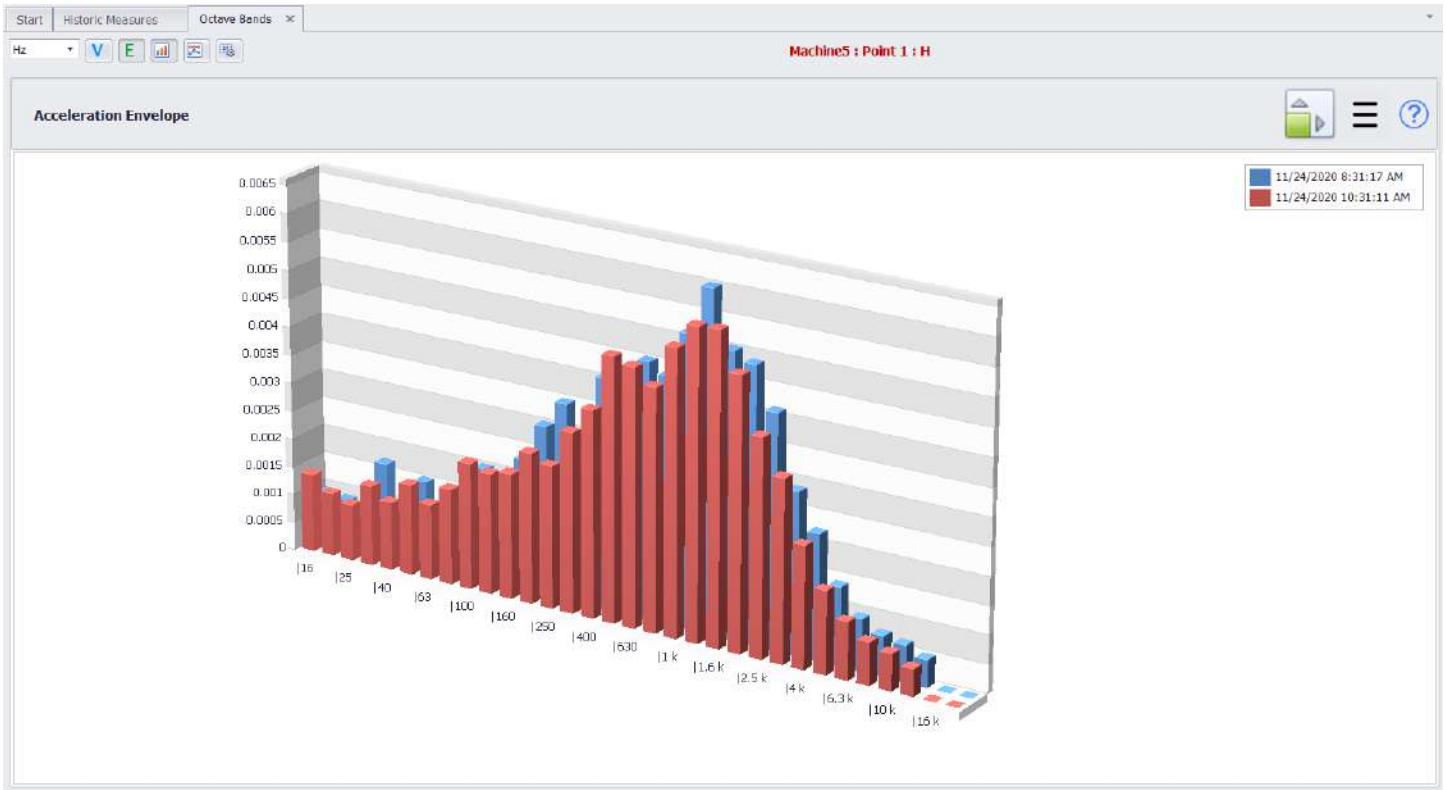


Octave Bands (M20, M30, Phantom)



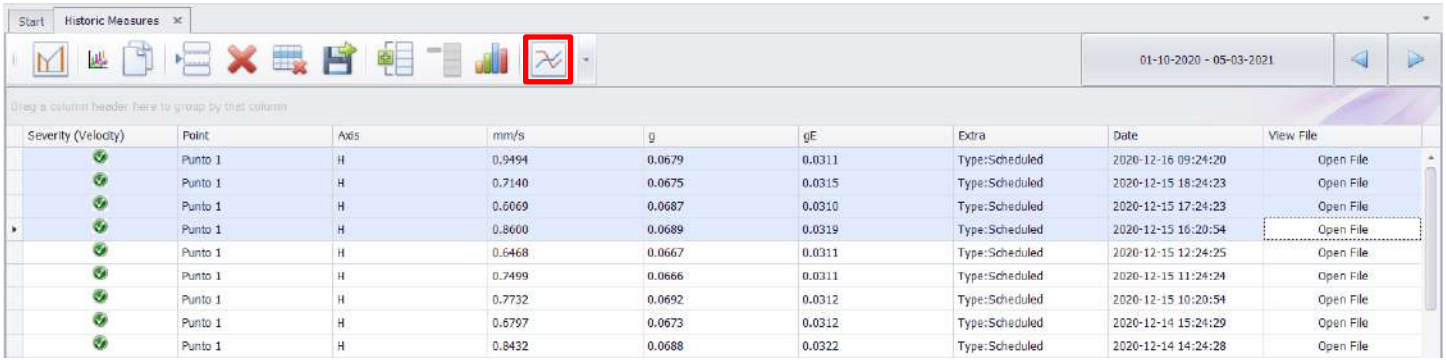
Severity (Velocity)	Point	Axis	mm/s	g	gE	Extra	Date	View File
	Punto 1	H	0.9494	0.0679	0.0311	Type:Scheduled	2020-12-16 09:24:20	Open File
	Punto 1	H	0.7140	0.0675	0.0315	Type:Scheduled	2020-12-15 18:24:23	Open File
	Punto 1	H	0.6069	0.0687	0.0310	Type:Scheduled	2020-12-15 17:24:23	Open File
	Punto 1	H	0.8600	0.0689	0.0319	Type:Scheduled	2020-12-15 16:20:54	Open File
	Punto 1	H	0.6468	0.0667	0.0311	Type:Scheduled	2020-12-15 12:24:25	Open File
	Punto 1	H	0.7499	0.0666	0.0311	Type:Scheduled	2020-12-15 11:24:24	Open File
	Punto 1	H	0.7732	0.0692	0.0312	Type:Scheduled	2020-12-15 10:20:54	Open File
	Punto 1	H	0.6797	0.0673	0.0312	Type:Scheduled	2020-12-14 15:24:29	Open File
	Punto 1	H	0.8432	0.0688	0.0322	Type:Scheduled	2020-12-14 14:24:28	Open File
	Punto 1	H	0.6854	0.0677	0.0317	Type:Scheduled	2020-12-14 12:21:00	Open File

This DigivibeMX 11 feature allows you to perform and even greater vibration analysis creating an Octave Bands graph. When pressing on an axis, you can choose any listed signal and press the "Octave Bands" button. To add more signals to the graph, select the files from the list and then press the "Add Measures" button and if you want to delete signals from the graph, press the "Remove Measures" button.



The previous buttons control the information shown on the "Octave Bands" window; with the buttons located on the upper left corner you can choose between showing Velocity or Envelope Acceleration information. You can also change the type of graph plotted; a bar or a line graph.

Open Multiple Files (M20, M30, Phantom)



Severity (Velocity)	Point	Axis	mm/s	g	gE	Extra	Date	View File
	Punto 1	H	0.9494	0.0679	0.0311	Type:Scheduled	2020-12-16 09:24:20	Open File
	Punto 1	H	0.7140	0.0675	0.0315	Type:Scheduled	2020-12-15 18:24:23	Open File
	Punto 1	H	0.6069	0.0687	0.0310	Type:Scheduled	2020-12-15 17:24:23	Open File
	Punto 1	H	0.8600	0.0689	0.0319	Type:Scheduled	2020-12-15 16:20:54	Open File
	Punto 1	H	0.6468	0.0667	0.0311	Type:Scheduled	2020-12-15 12:24:25	Open File
	Punto 1	H	0.7499	0.0666	0.0311	Type:Scheduled	2020-12-15 11:24:24	Open File
	Punto 1	H	0.7732	0.0692	0.0312	Type:Scheduled	2020-12-15 10:20:54	Open File
	Punto 1	H	0.6797	0.0673	0.0312	Type:Scheduled	2020-12-14 15:24:29	Open File
	Punto 1	H	0.8432	0.0688	0.0322	Type:Scheduled	2020-12-14 14:24:28	Open File

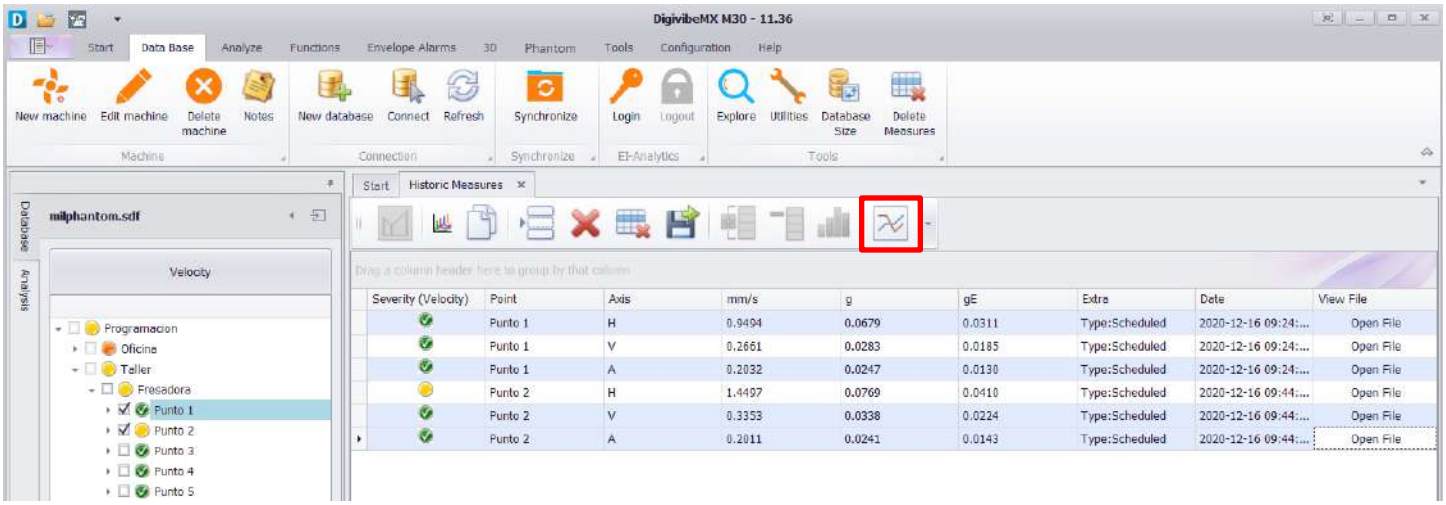
This new feature allows you to open more than one file at a time for you to see the FFT and TWF. You can open a maximum of 4 files at a time, however in the future (with new updates) it could be more. You can even combine this feature with the **multiple file selection** to open files on another point or machine.

You will see that the name of the graph is now “Multiple Signals”, meaning that the files open were used with this tool. Now you can start working with your measurements quicker.

Multiple File Selection (M20, M30, Phantom)

This tool allows you to show more information on the Historic Measures list; even if this information is on another axis. This way you can open files at the same time without having to first open a signal and then adding the channels individually.

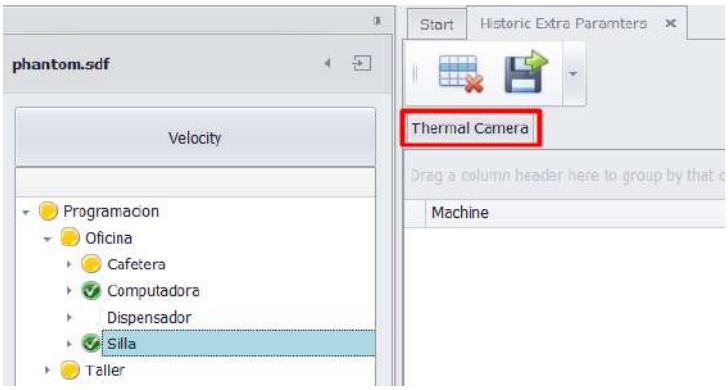
Clicking the button will change the tree into a multiple selection row, check one of the boxes to show it on the Historic Measures list. Check another box to add more measurements to the list and then use the Ctrl button to select measurements and then the "Open Multiple Files" button to open the files in the same graph as different channels.



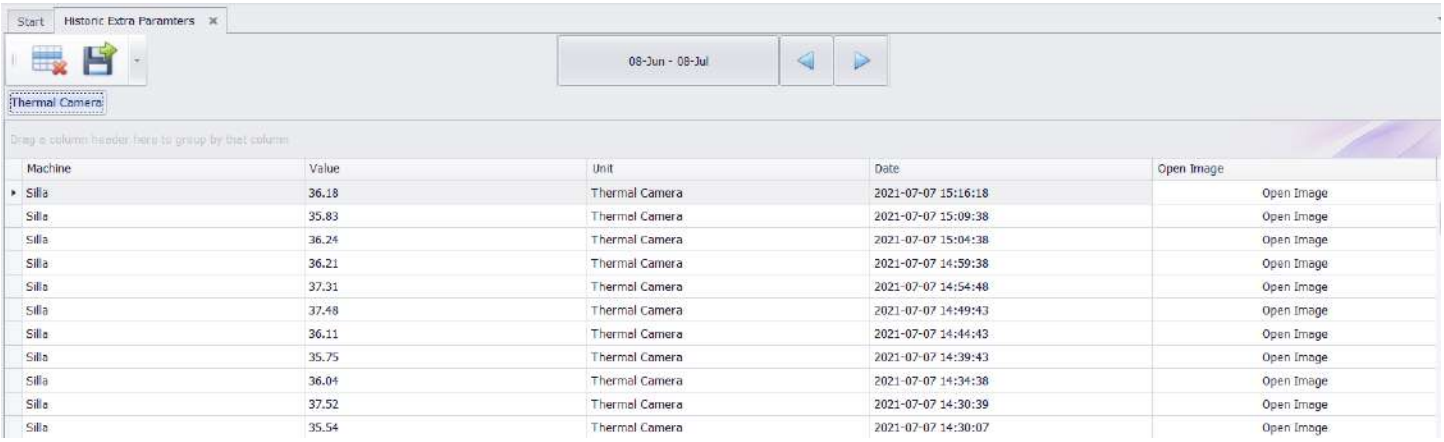
Extra Parameters Window (M20, M30, Phantom)

On the Start tab, select the Extra Parameters tile to open the Historic Extra Parameters window.

This window will allow you to access information from all parameters with the exception for vibration. Select the level where your sensor is placed and immediately you will see a button with the type of sensor:



This button will show the information on a list. Remember that more than one sensor can be set in a machine or point. That means that you might have more than one button available to press but only one can show information at the same time.



Machine	Value	Unit	Date	Open Image
Silla	36.18	Thermal Camera	2021-07-07 15:16:18	Open Image
Silla	35.83	Thermal Camera	2021-07-07 15:09:38	Open Image
Silla	36.24	Thermal Camera	2021-07-07 15:04:38	Open Image
Silla	36.21	Thermal Camera	2021-07-07 14:59:38	Open Image
Silla	37.31	Thermal Camera	2021-07-07 14:54:48	Open Image
Silla	37.48	Thermal Camera	2021-07-07 14:49:43	Open Image
Silla	36.11	Thermal Camera	2021-07-07 14:44:43	Open Image
Silla	35.75	Thermal Camera	2021-07-07 14:39:43	Open Image
Silla	36.04	Thermal Camera	2021-07-07 14:34:38	Open Image
Silla	37.52	Thermal Camera	2021-07-07 14:30:39	Open Image
Silla	35.54	Thermal Camera	2021-07-07 14:30:07	Open Image

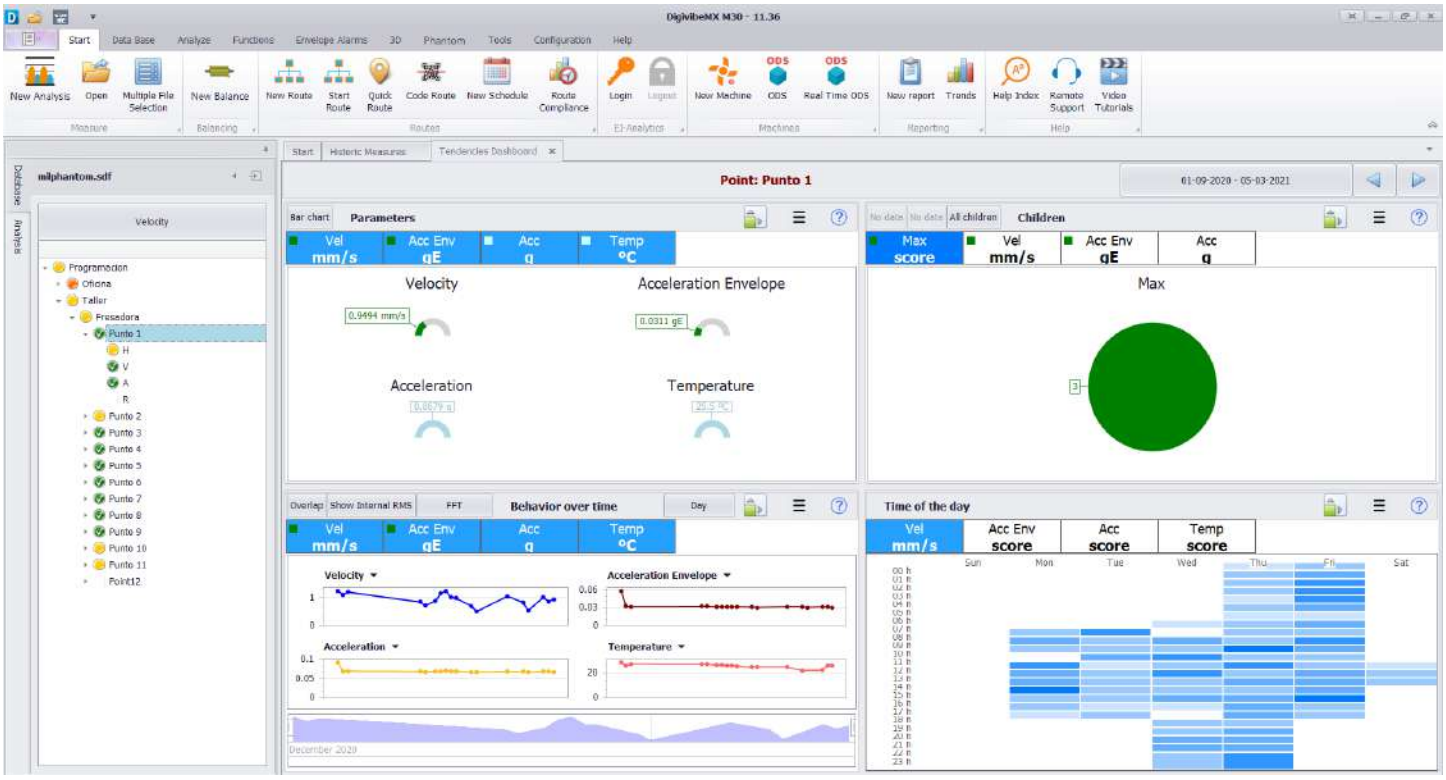
Depending on the sensor added to your database you will see different options and information. In the case of the above image; you will see the 'Thermal Camera' data (available on 11.37 and above). This sensor will allow you to open an image taken by the thermographic camera. Other type of sensors like current, temperature and general purpose will only show the value collected by the sensor.

Dashboard Tendency window (M20, M30, Phantom)

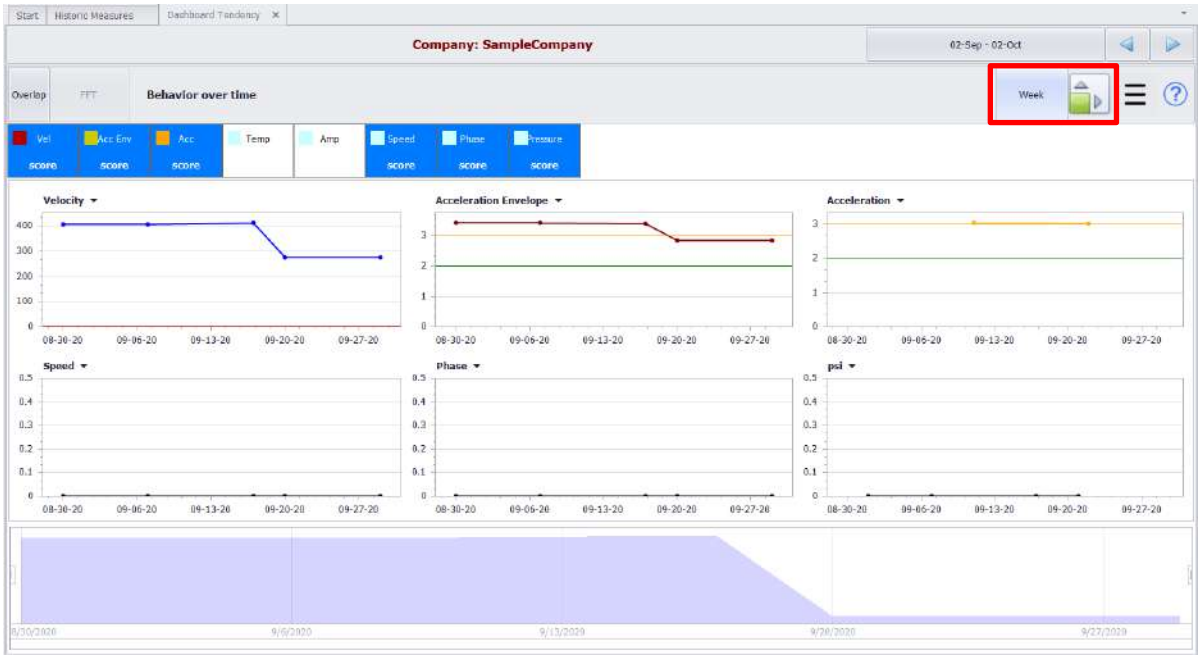
On the Start tab, select the Tendency tile to open the Dashboard Tendency window.

The Dashboard Tendency window features four panels of machine data trending information. The trending information displayed is determined by the database level and date range selected. Displayed information in each of the four panels is determined by 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.

- **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.
- **Parameters panel –** Chart display of the last recorded measurement for the database level selected. Left/Right chart scales correspond to the nearest value 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.
- **Children panel –** Displays the last recording values for children under the parent database level selected.

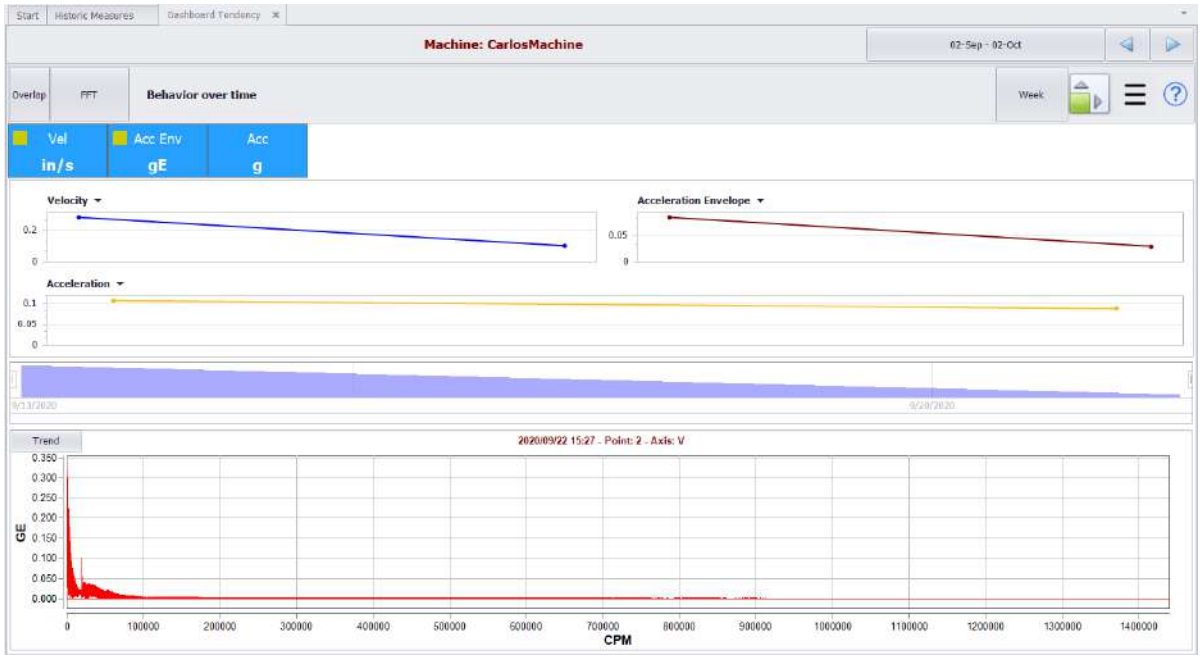


The buttons on the upper right corner control the visualization of the information observed in the tab. Information can be obtained from a specific date range or one determined by the software. The second button allows to maximize the information shown on every section of the trends tab and this way have a full screen visualization.



For the "Behavior over time" it's possible to choose what information to show and which one to hide only by clicking the parameter that you want to show/hide.

When checking vibration information is possible to visualize the FFT trough the same screen choosing the point to observe inside the tendency graphs.



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.

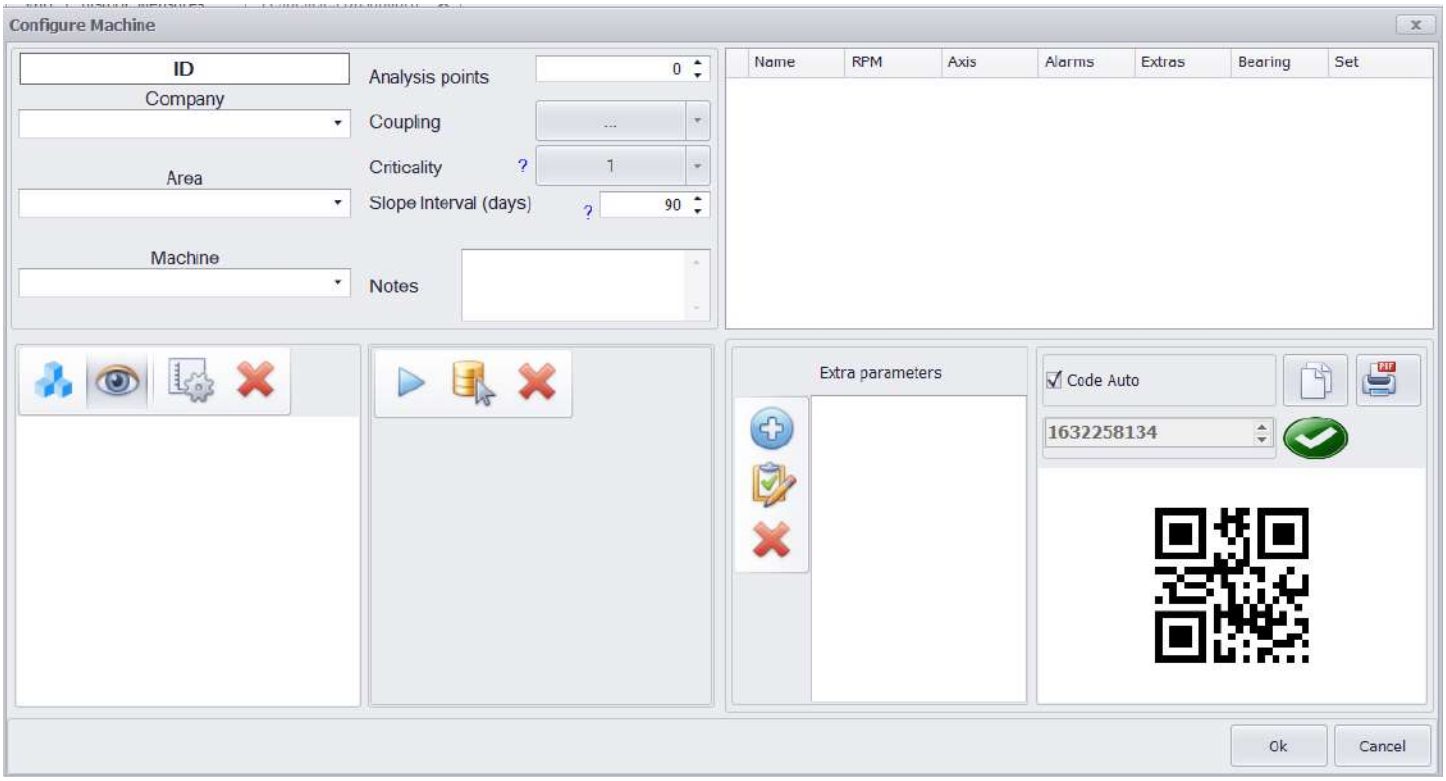
Options on the Database Menu include:

- Create, edit, delete machines and add Notes
- Create, connect to and refresh databases with recent updates
- Login and Logout of an EI-Analytic database (with subscription)
- Explore the data tables and database Utilities

Machine toolbar (M20, M30, Phantom)

Creating a New Machine in the Database

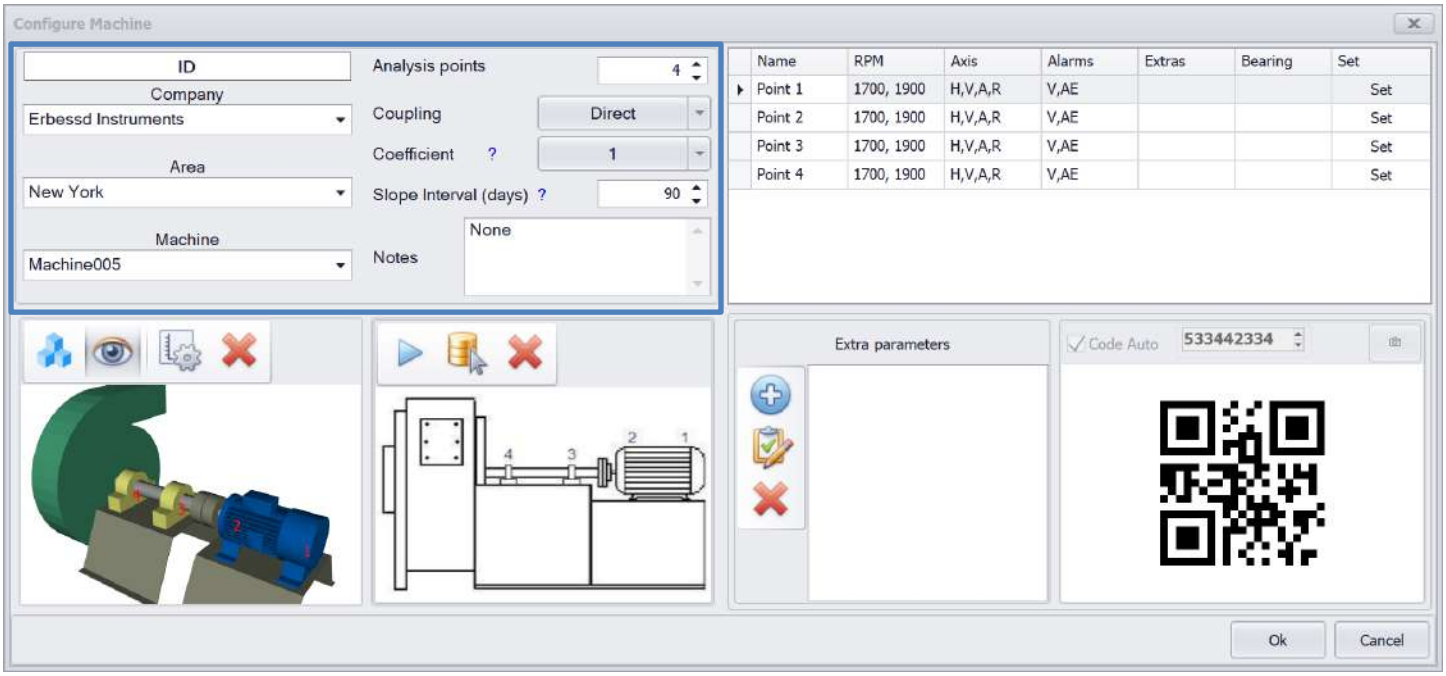
New **:** Opens the Configure Machine window for adding new machines to the database. As new machines are created, new Company and Area database locations can also be created, as desired.



Creating a New Machine in the Database continued

The Configure Machine window has several different panels for specifying machine information.

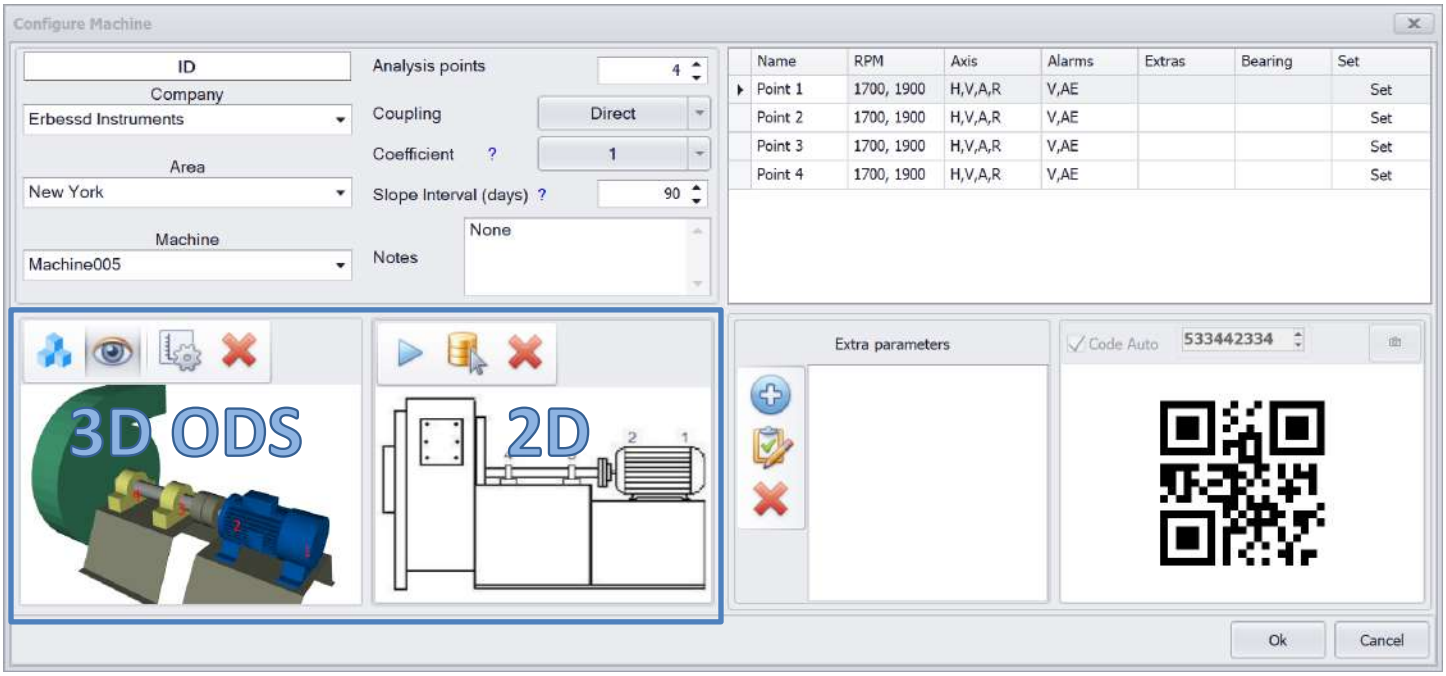
The first panel is used to specify the New Machine identity and its location. The number of analysis points, coupling type, coefficient, slope interval and additional notes (optional) can also be specified.



- Company: The company who owns the machine
- Area: The production area in which the machine is located
- Machine: The machine name or ID number
- Analysis Point: The number of machine monitoring points where data will be collected and analyzed
- Coupling: The machine coupling or drive configuration (direct, belts, coupled, etc.)
- Coefficient: The machine maintenance priority or criticality for severity trending on a 1-10 scale (1 for critical machines, 10 for nonessential machines)
- Slope Interval: The time period to be considered for machine severity calculations
- Notes: Text field for documenting additional machine information

Creating a New Machine in the Database continued

The second panel is for assigning a 3D ODS model or 2D image for the New Machine. 3D ODS models can be selected from the DigivibeMX® database. External 3D models in .3ds, .xaml, or .obj formats can also imported to DIgivibeMX. (Use **Tools Menu/3D Model Editor** to import files and assign data collection points for ODS animation.) Standard 2D images can also be assigned if ODS capabilities will not be required, for reports, or to be displayed during route data collection.



3D ODS image controls: Once assigned, the 3D model view can be turned and zoomed in/out within the pane.

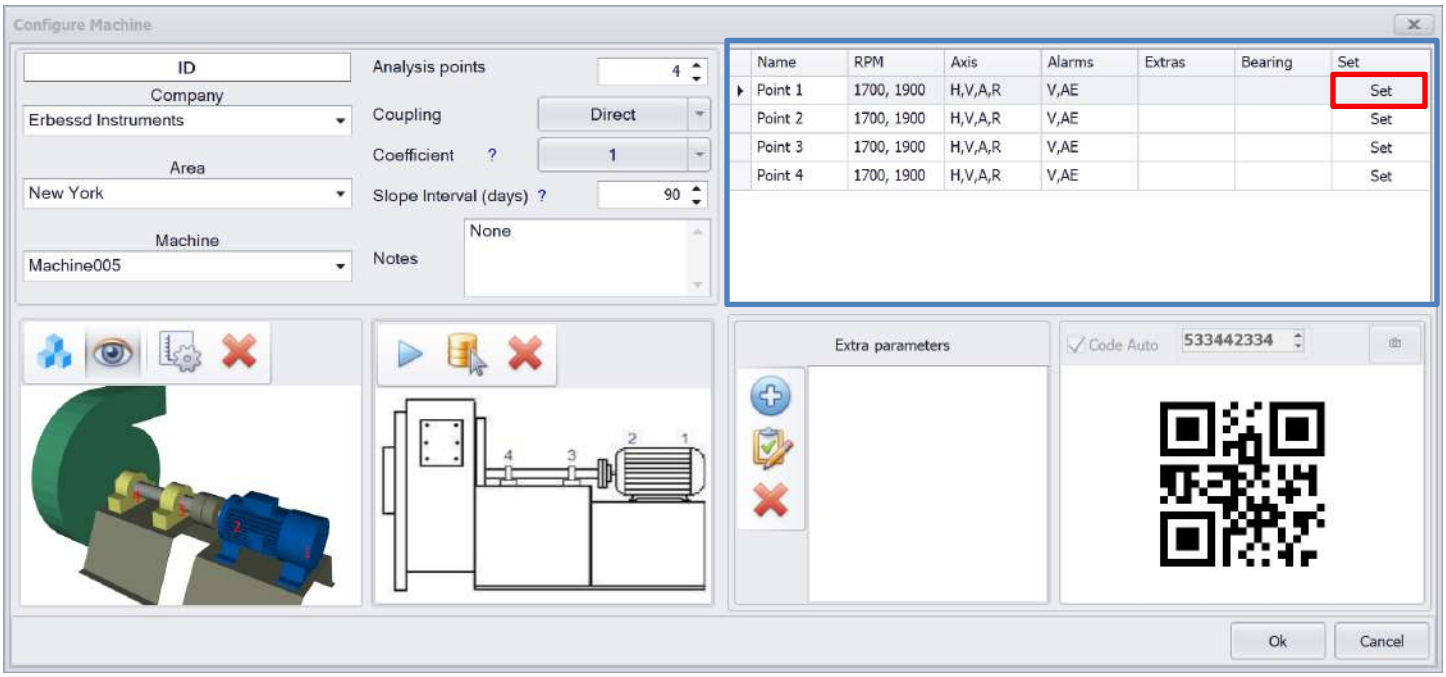
- : Select and assign a 3D ODS image file
- : See point locations on the 3D ODS image file
- : Change the point locations on the 3D ODS image file
- : Remove the selected 3D ODS image file

2D image controls: Once assigned, the 3D model view can be turned and zoomed in/out within the pane.

- : Carry the 3D ODS image over as the 2D image file
- : Select and assign a 2D image file from the local computer
- : Remove the selected 2D image file

Creating a New Machine in the Database continued

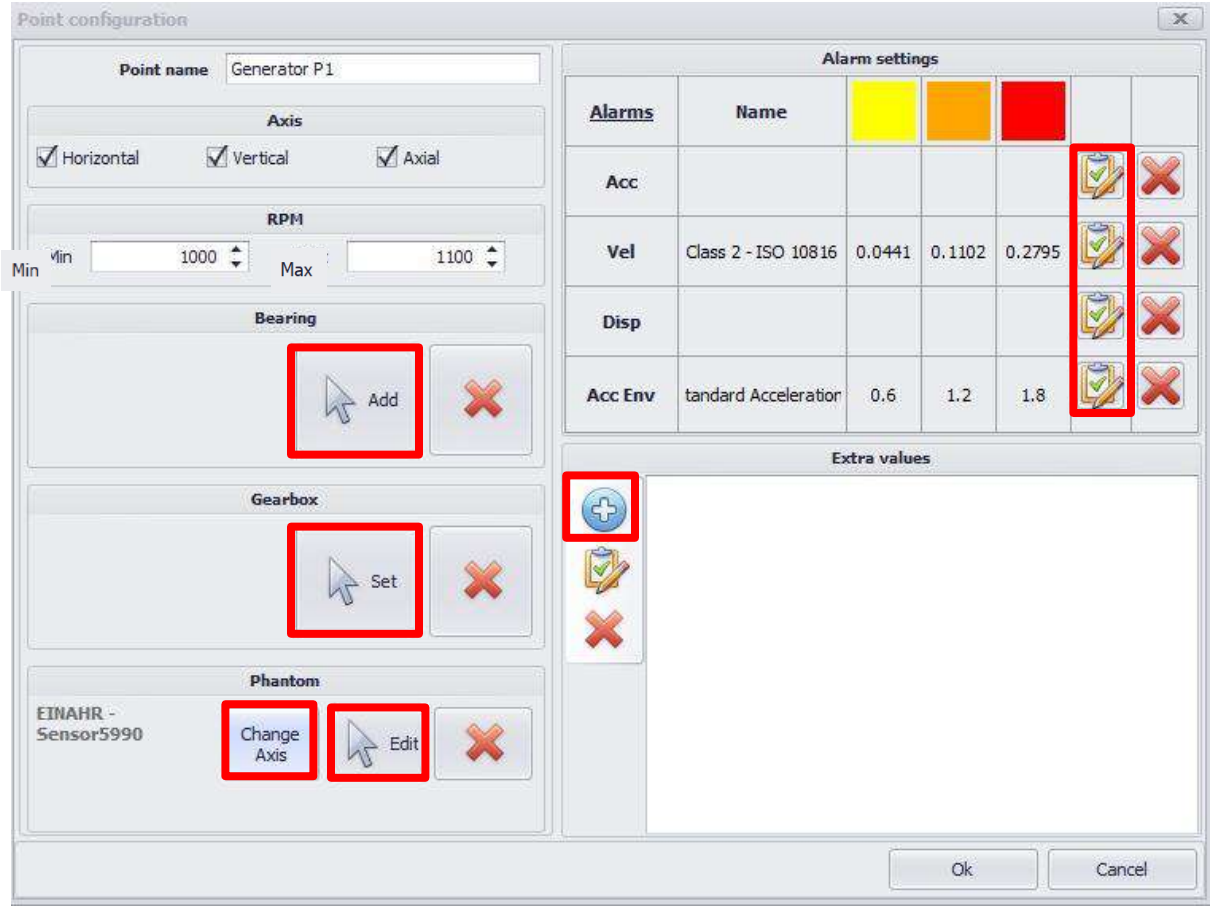
The third panel displays data collection Points for the machine, component speed, Axis of collections, Alarms and other specific Point characteristics. Extra Parameters are explained on Pg. 53. DigivibeMX v11 creates a unique QR code and machine identifier for every New Machine.



Clicking **Set** on any Point opens the Point Configuration window to configure data collection Point parameters. Detailed parameters enable faster identification of machine faults, enabling a more detailed analysis of collected machine data.

Creating a New Machine in the Database continued

Point Configuration

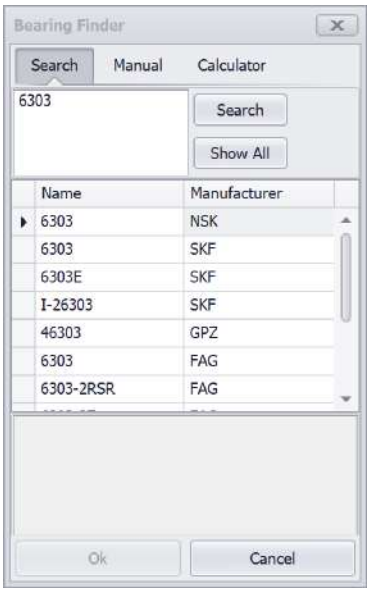


- **Axis**: Select axis directions to be collected at the Point.
- **RPM**: Enter the Minimum and Maximum expected speed range at the Point
- **Bearing**: Use the **Add** button to launch the Bearing Database and select the bearing installed at the Point. Bearing fault frequency FFT markers will be available on all future data collected at the Point. (See Pg. 50)
- **Gearbox**: Use the **Set** button to launch the Gearbox tool to create and/or select a gearbox at the Point. Gearbox frequency FFT markers will be available on all future data collected at the Point. (See Pg. 51)
- **Phantom**: Use the **Set** button to assign a Phantom sensor to collect data at the Point. (details for setting up and assigning Phantoms are available in the Phantom Setup Guide). Use **Change Axis** button to modify the already set axis.
- **Alarm settings**: Use the **Clipboard** buttons to set or edit vibration alarm values, as desired. (See Pg. 52)
- **Extra Values:** Use the **blue plus** button to add a new Extra Value such as speed, Temperature, Current, etc. at the point. Use the Clipboard button to edit any assigned Extra Values. (See Pg. 53)

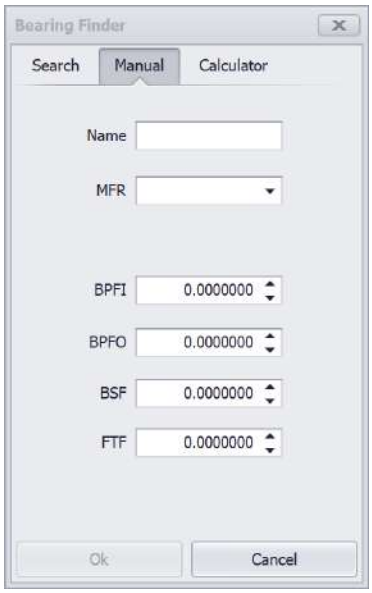
Creating a New Machine in the Database continued

Assign a Bearing to a Measurement Point

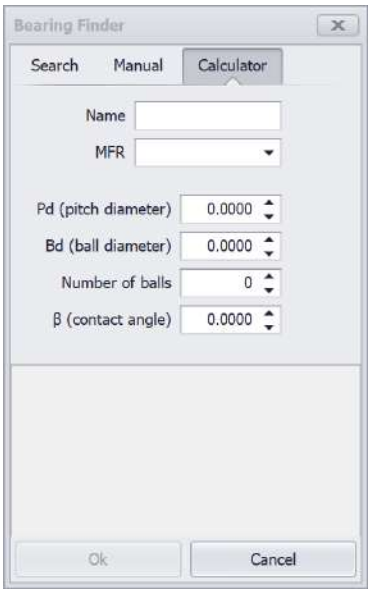
DigivibeMX v11 features a Bearing database containing fault frequencies of over 40,000 common bearings from major manufacturers. Bearings may be permanently assigned to a machine measurement point, or specified during Analysis. The Bearing database features a Search function, a Manual function for adding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

Creating a New Machine in the Database continued

Assign a Gearbox to a Measurement Point

DigivibeMX v11 features a Gearbox tool that may be used to create and edit a comprehensive library of gearboxes. Once created, the gearboxes may be permanently assigned to a machine measurement point, or specified during Analysis.

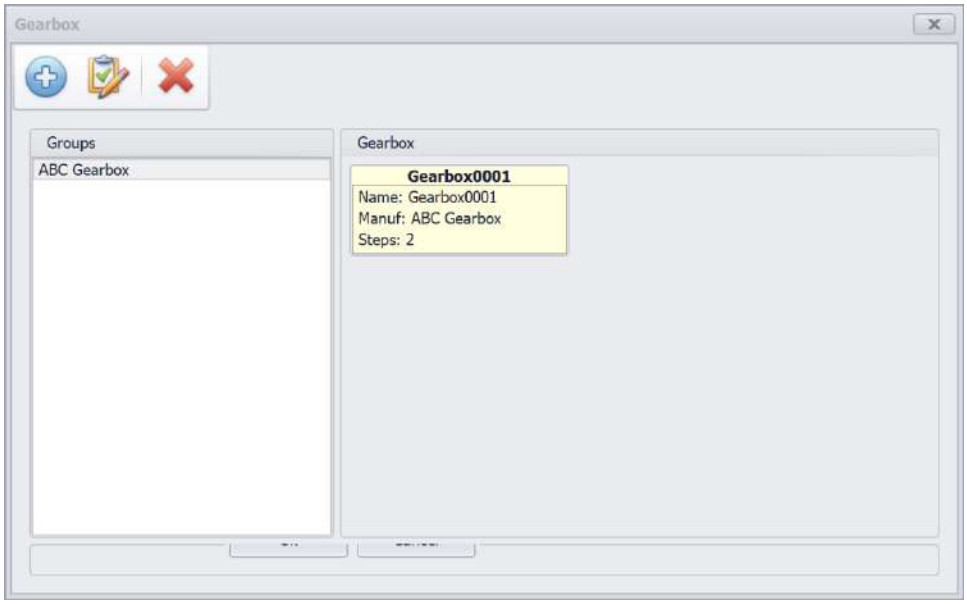
Create a new gearbox

Edit an existing gearbox

Delete a gearbox

Groups panel**:** Gearboxes may be grouped according to function, manufacturer, production area, etc.

Gearbox panel**:** Contains all gearboxes created within a selected group.

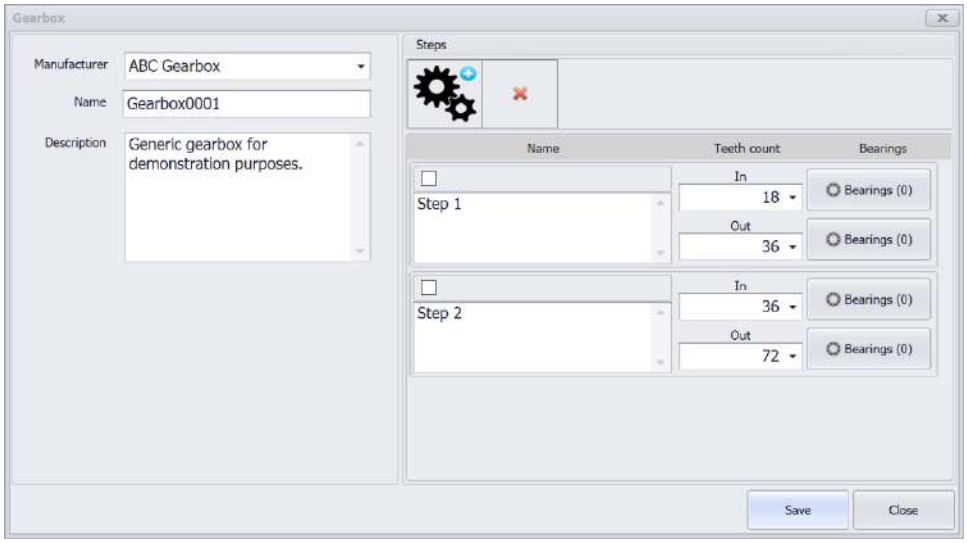


Manufacturer: Group to which the gearbox will be assigned.
Name: The Gearbox name, ID number, Serial Number, etc.
Description: Text field for additional description information.

Add a gearbox step (stage)

Delete a gearbox step (stage)

Bearings button**:** The bearings at each step (stage) may be selected from the Bearing Database.



Creating a New Machine in the Database continued

Assign Alarm Settings to a Measurement Point

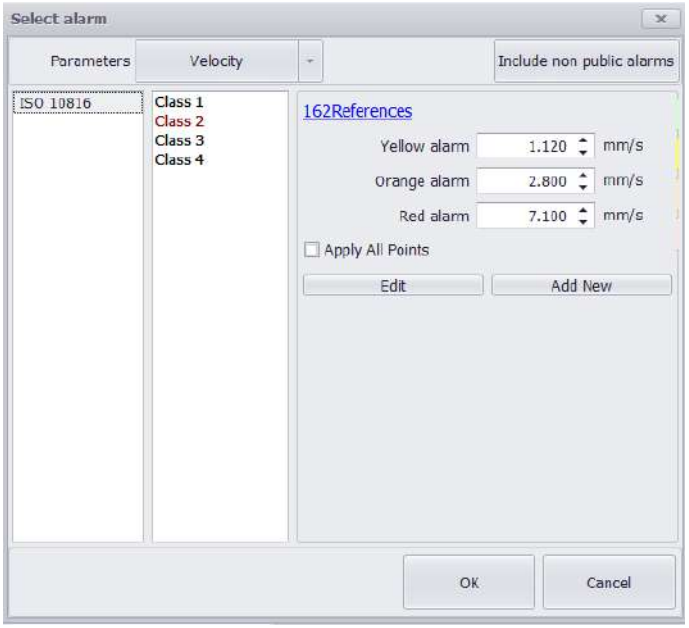
Vibration alarm limits may be set at each Measurement Point. Alarm limits can be specified for Acceleration, Velocity, DIsplacement and/or Acceleration Enveloping values, as desired. Click the Clipboard button on the corresponding alarm value to establish/edit alarm values.

Parameters: Select the desired parameter from the dropdown.

Available alarm Groups are displayed in the left panel (ISO 10816 is the default group).

Alarm configurations contained in the Group are displayed in the right panel.

Click the Edit button to edit the displayed configuration. Click the Add New button to create a new group or configuration as shown below.

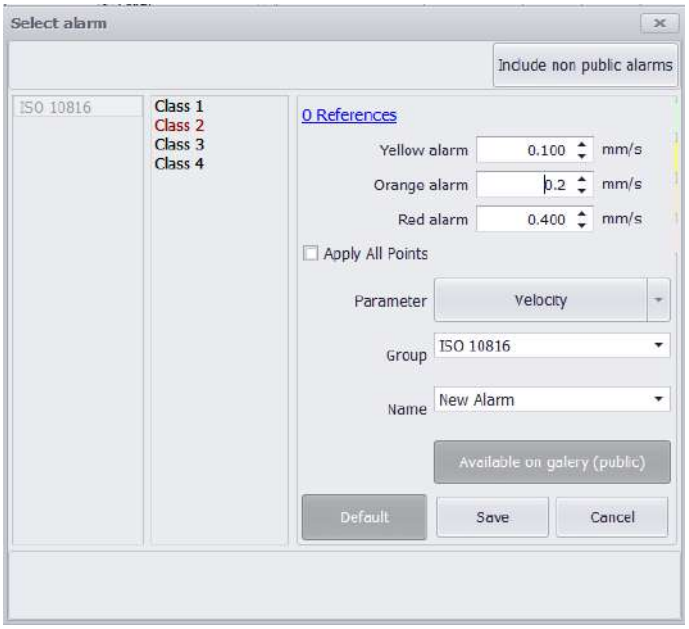


New Yellow, Orange and Red alarm thresholds can be manually entered, or their values adjusted with the up/down arrows.

Specify the Parameter to which the values apply.

Assign the new alarm to a Group and give the configuration a Name.

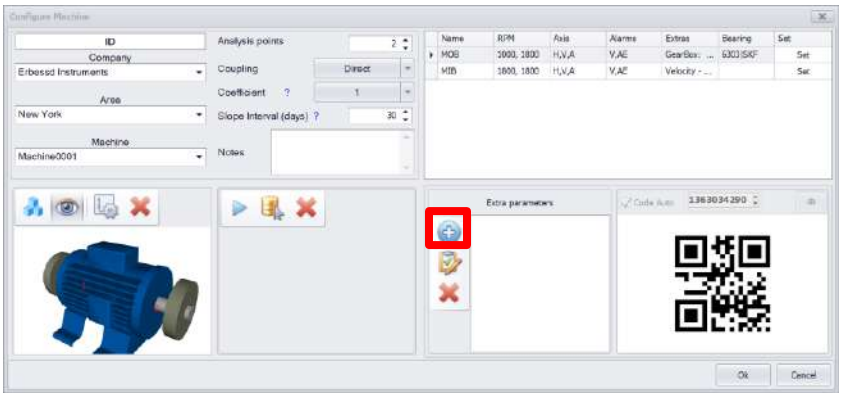
Click the Available on Gallery button to activate the configuration in the gallery, then click Save.

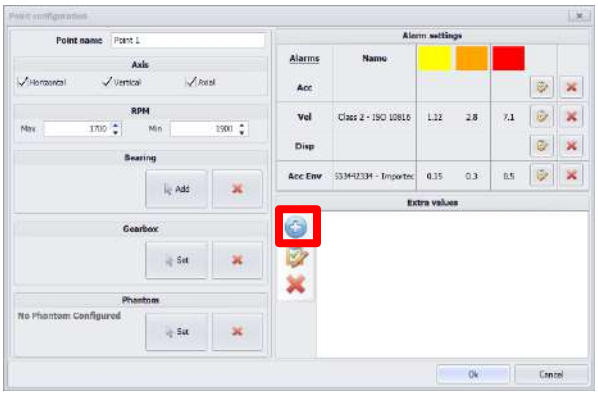


Creating a New Machine in the Database continued

Assign Extra Values to a Measurement Point

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. Clicking the **blue plus** button to add a new Extra Value opens the Add Parameter window (see below).



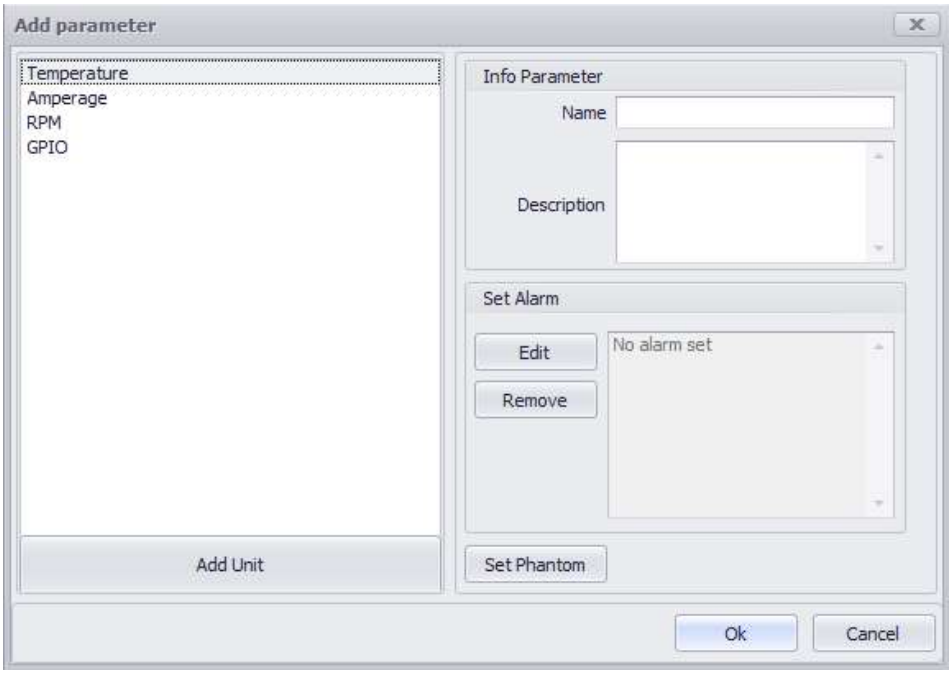


Extra Value parameters are displayed in the left panel (Temperature, Amperage, RPM and GPIO are default parameters).

Existing parameters may be selected, or new parameters may be defined by assigning a new Name. Additional information may be documented in the Description field.

Click the Edit button to assign alarm values, as described on the previous page.

Click the Set Phantom button to assign a Phantom sensor that will collect the parameter.

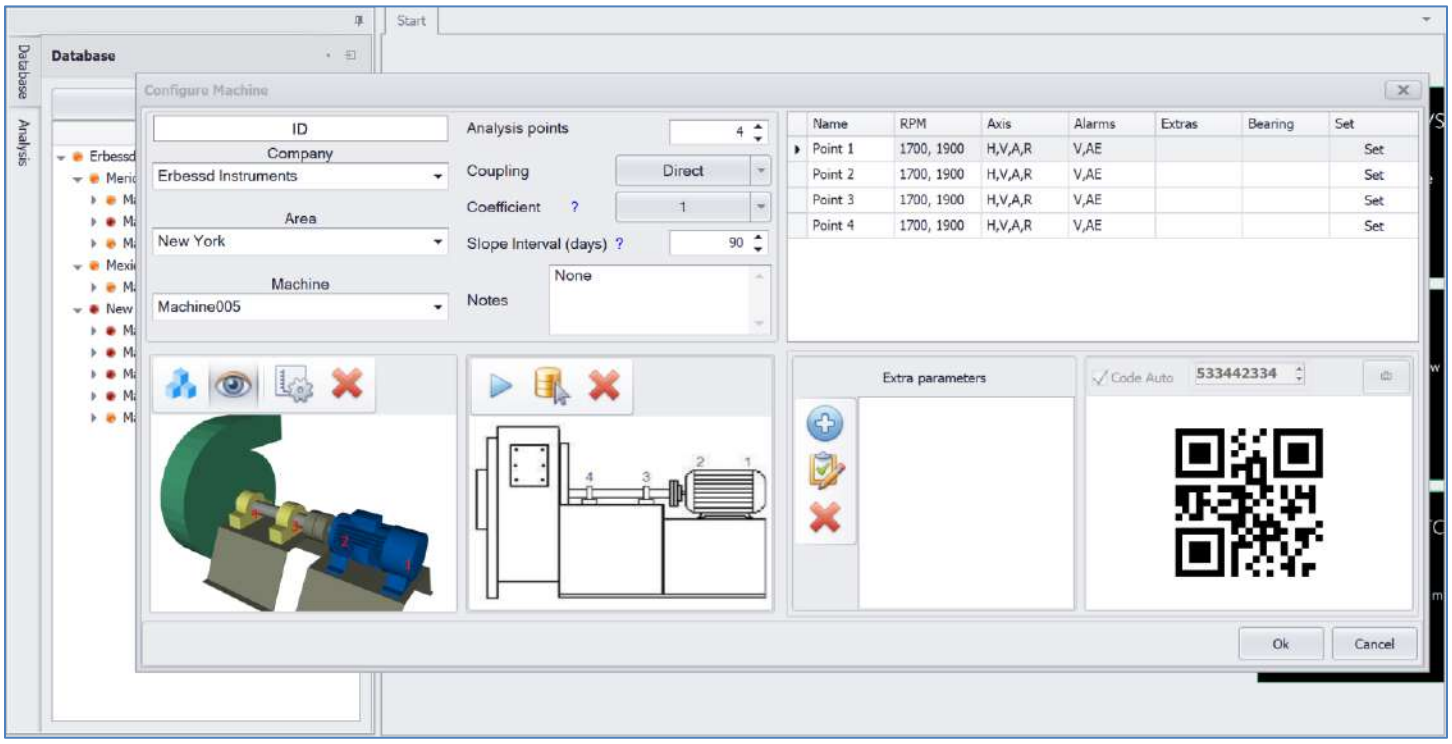


Using the Data Base Menu continued (M20, M30, Phantom)

Machine Toolbar continued

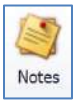
Edit

Selecting a Machine from the Database, then selecting Edit will open the Configure Machine window for editing.



Delete

Selecting Delete allows deleting any items in the Database. Select to items to be deleted then click Delete to remove the desired items from the Database.

Notes 

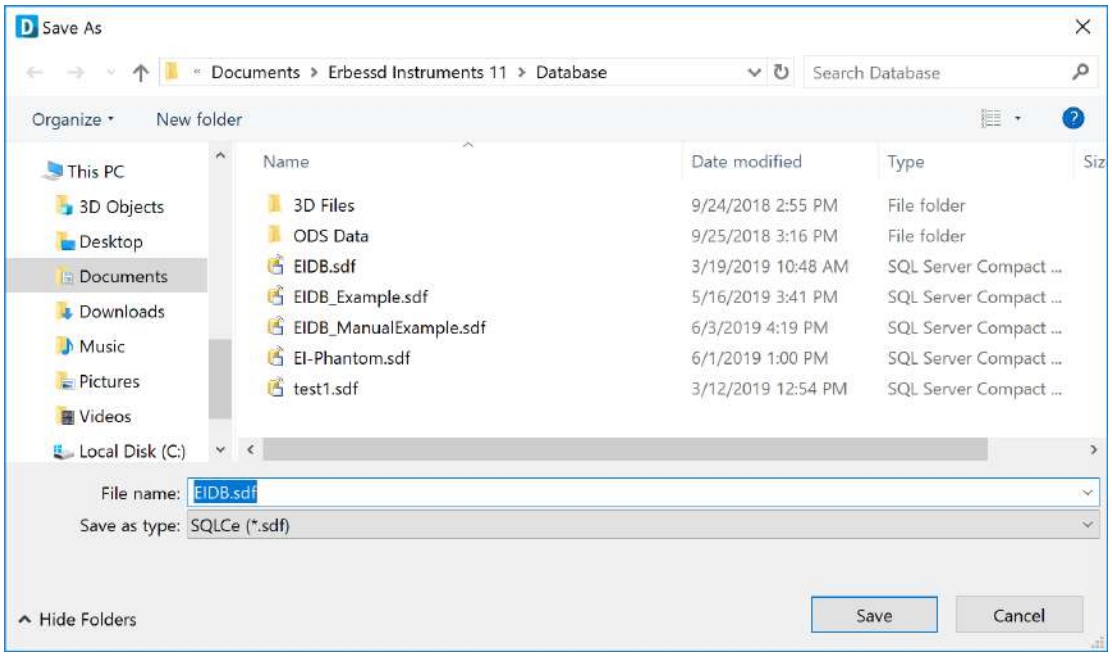
Selecting any item in the Database, then selecting Notes opens the Notes window. Notes may be assigned to any item in the Database.

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

Connection toolbar

New

Selecting New allows a new SQL 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.



Connect

If database files are moved between devices or stored remotely, Connect to Database allows mapping *DigivibeMX* to their new location.

Refresh

Updates the database view to reflect any new data or modifications.

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

EI-Analytic toolbar

Login and **Logout**

Connects *DigivibeMX* to the EI-Analytic cloud-hosted database service, if activated (subscription service). For more details about the EI-Analytic cloud-hosted database service, please contact an Erbessd Instruments distributor, sales or technical support.

Tools toolbar

Explore

Allows manual exploration of the database and data tables.

Repair

Database Utilities to:

- Update a legacy database to the current version
- Repair corrupted databases
- Compact databases
- Import updated databases

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

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 be automatically 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 Start Menu.

Method 2- Analysis tile on the Start tab.

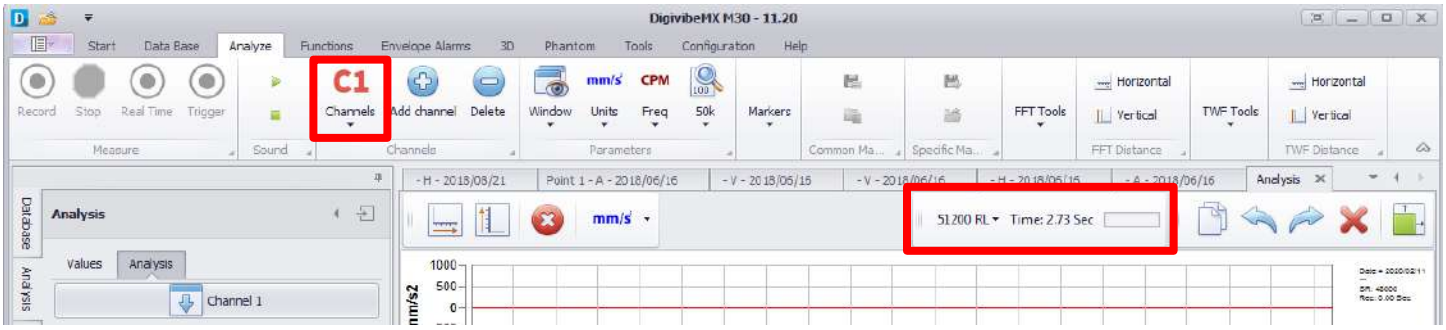
Both methods open the Analyze Menu, launch the Analyze tab and switch the left-hand panel to the Analysis view.

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

New off-route analysis continued (M20, M30)

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.

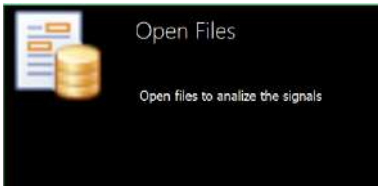
The

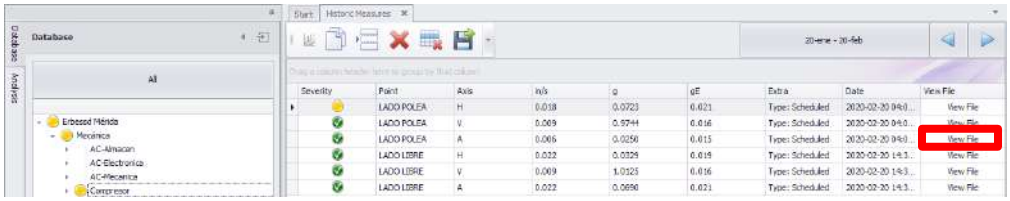
function is used in conjunction with the Trigger value specified in Configuration/Preferences/Channels tab

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

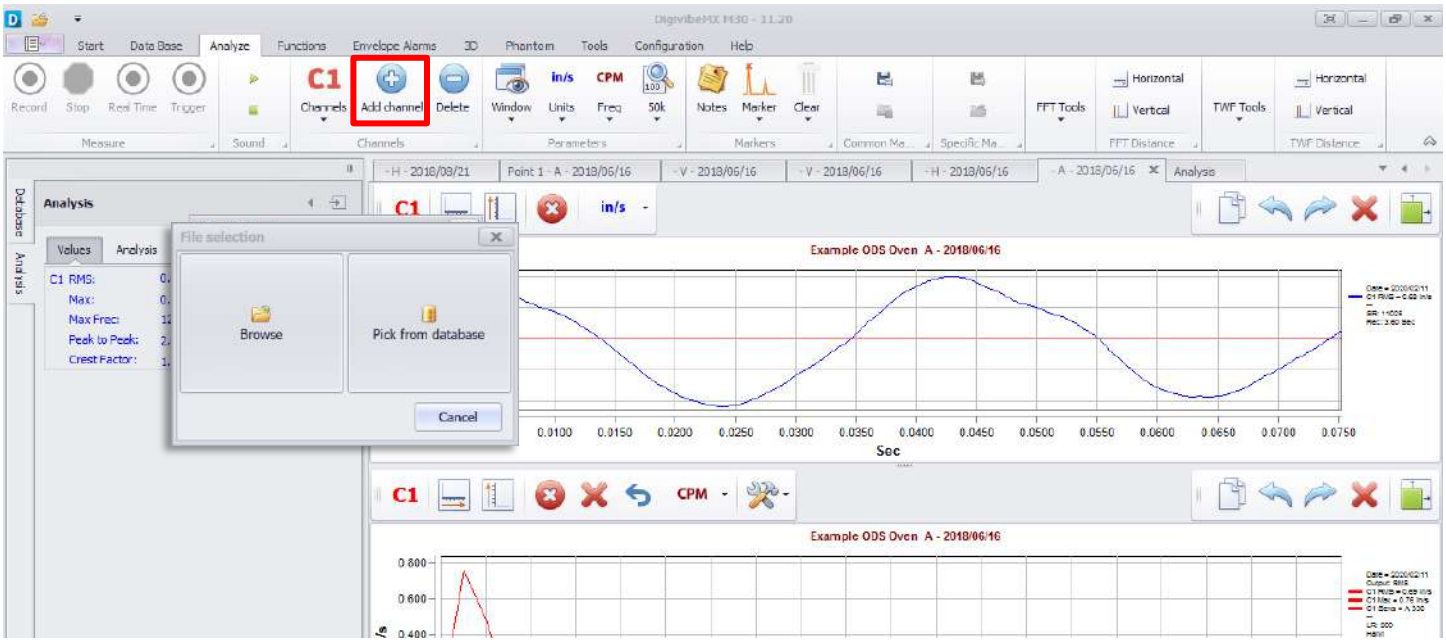
Viewing Vibration Data (M20, M30, Phantom)

To review collected data, 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 View File to open the recording for analysis.



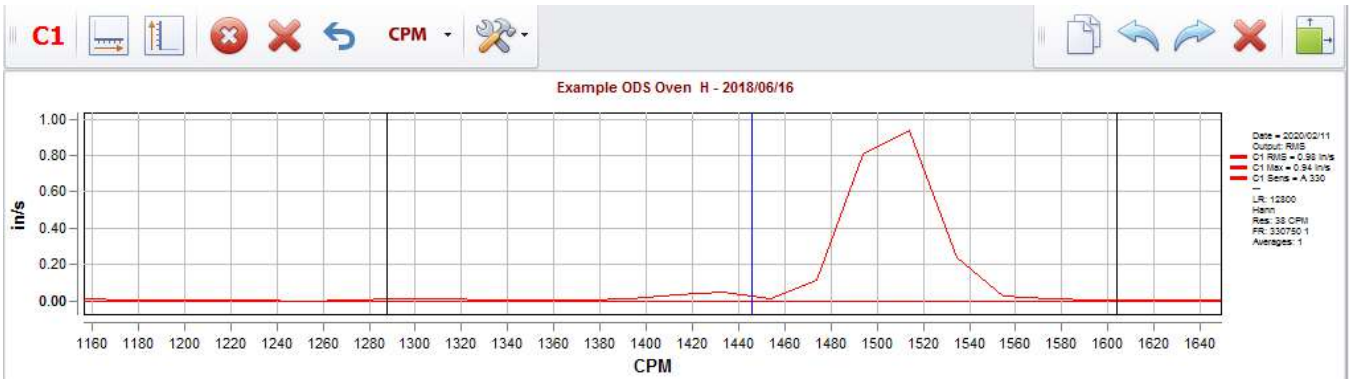


The selected recording opens in the Analyze Menu. To add additional channels for comparative analysis (up to 4 channels), for dual channel analysis functions, etc: select Add Channel, then select whether to add another channel from the database or Browse for an external file (such as an .anl file of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



Viewing Vibration Data continued (M20, M30, Phantom)

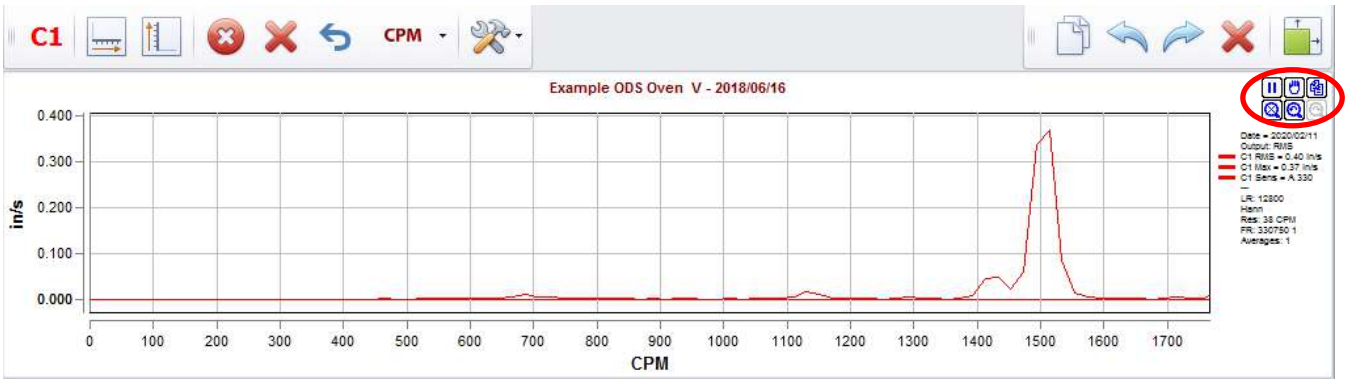
Selecting and Zooming: Magnifying a desired section of waveform or spectrum can be accomplished in a variety of ways. To select a section of the waveform or FFT for closer inspection, press and hold the left mouse button then slide it along the graph over the desired section to magnify. When the left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



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

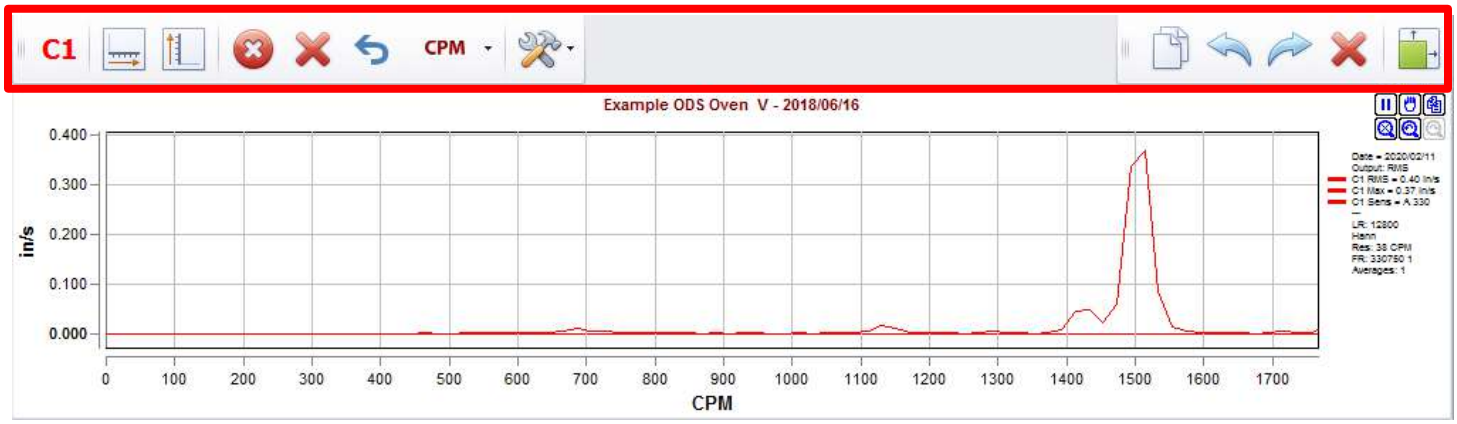
Floating zoom control buttons also appear automatically when the mouse pointer is positioned over an axis.



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.

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

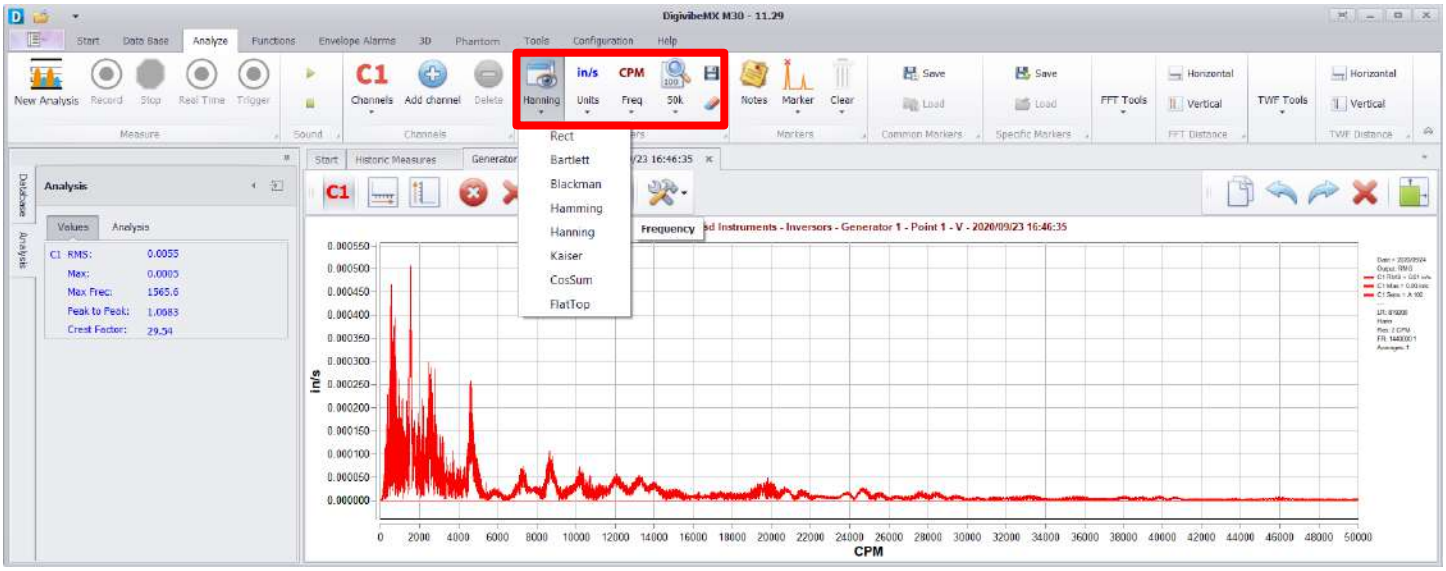
Analysis tools

Changes the graph units between CPM, Hz and Orders.

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

Because Erbessd Instruments technologies capture waveform data on each collection, a recording opened for analysis can be re-rendered immediately to suit user preferences.

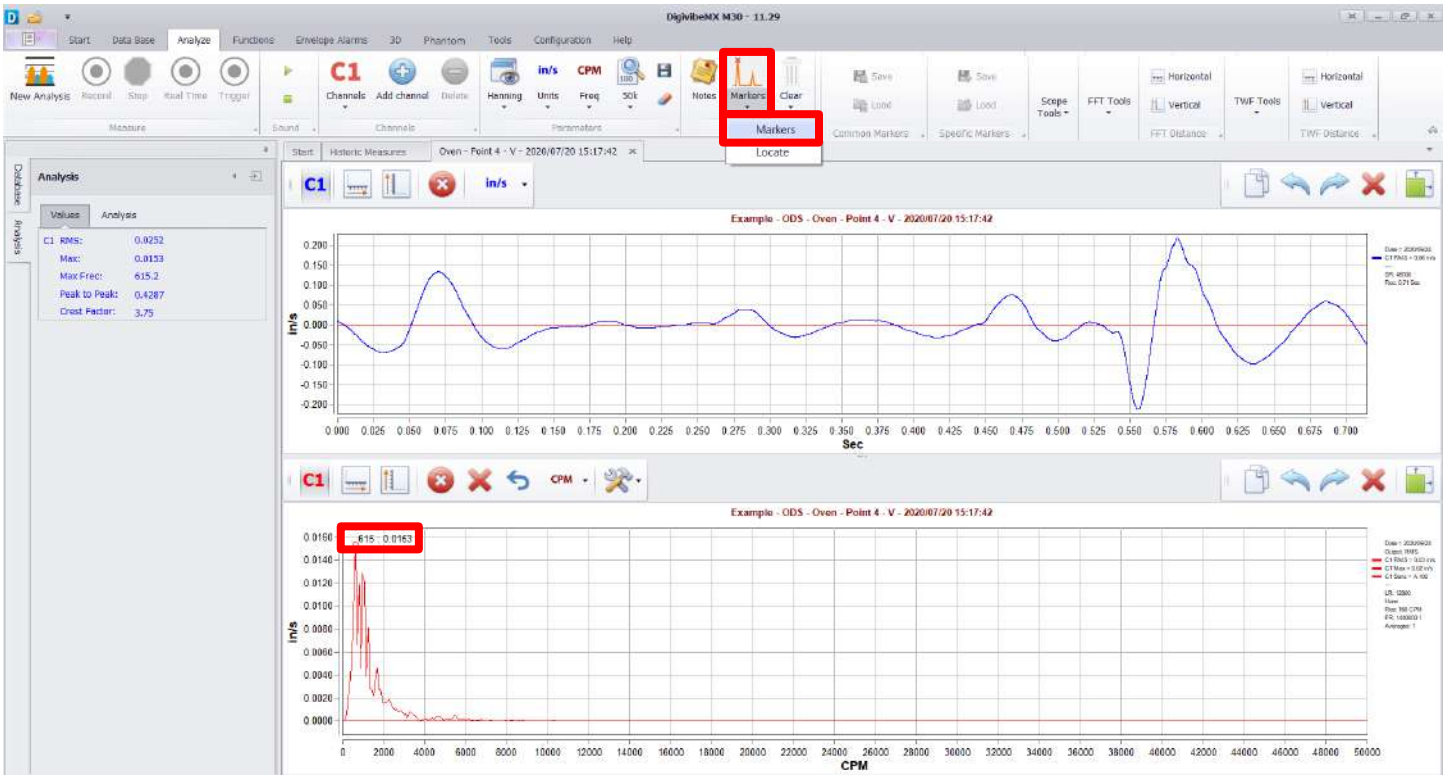
- **Window**: Hanning is usually the default windowing view for FFT spectra. Other options include: Rect, Bartlett, Blackman, Hamming, Kaiser, CosSum and FlatTop.
- **Units**: Imperial and Metric amplitude units for Acceleration, Velocity and Displacement are available.
- **Freq**: Frequency units for Hz. CPM and Orders are available.
- **Graph frequency limit**: Sets the maximum frequency limit of the FFT graph (according to Freq units selected)
- **Save personal configuration:** Saves all the settings chosen in the previous buttons.
- **Remove personal configuration:** Deletes all the settings saved and restores them to default.



Analysis Menu Tools (M20, M30, Phantom)

The Analysis Menu toolbar features essential functions for analyzing collected vibration data:

Markers: Select Markers from the toolbar dropdown and click on any desired point in the FFT t o place a marker:



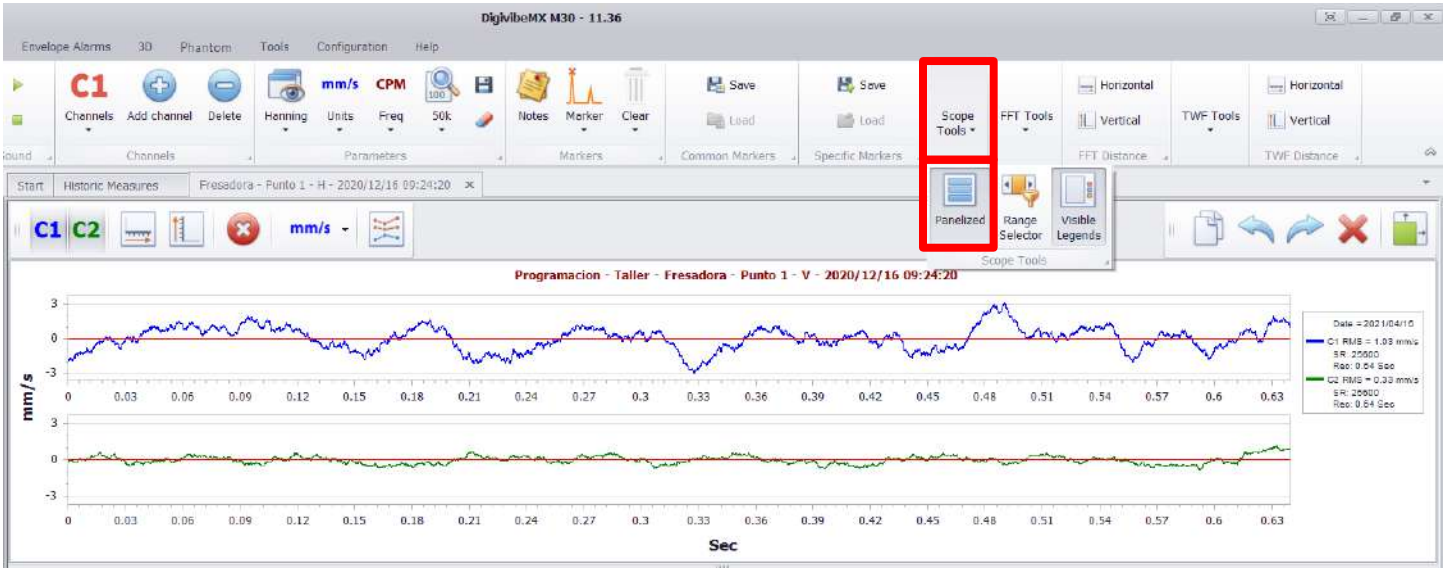
Common Markers: May be used to save and recall markers on future recordings for the same point and axis.

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

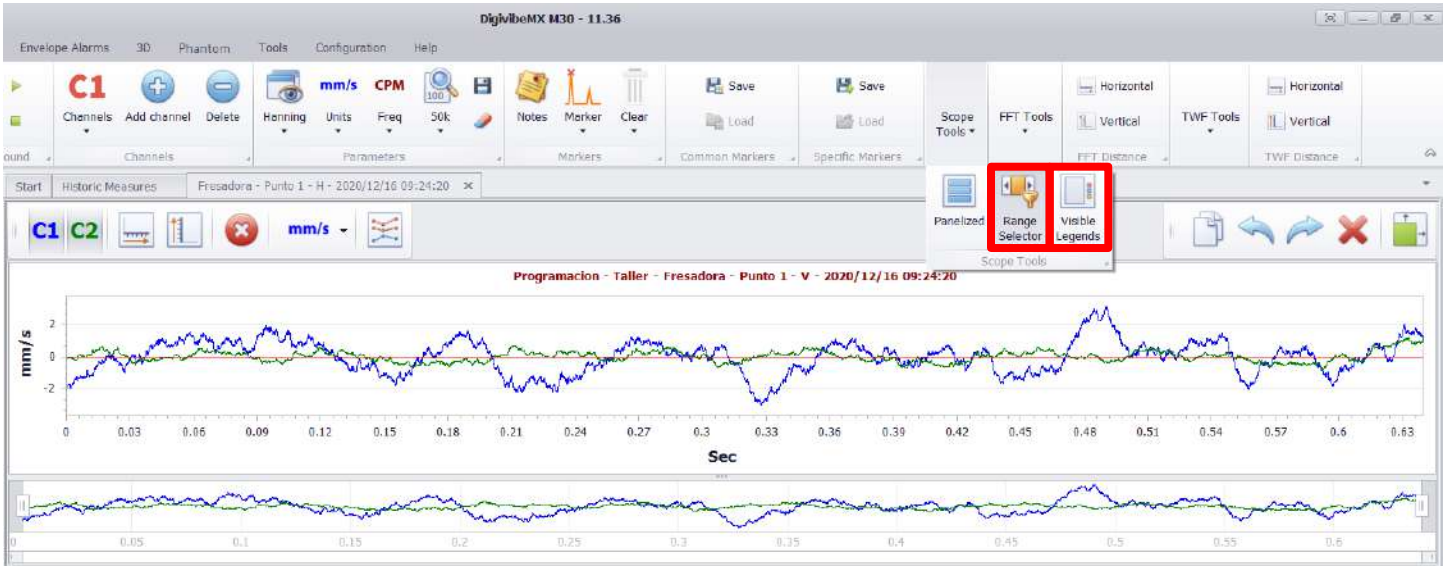
Analysis Menu Tools continued (M20, M30, Phantom)

Scope Tools

This menu allows you to change the view of the classical FFT and TWF so you can work better with one or multiple channels at a time.



The **Panelized** tool allows you to visualize each channel on an independent graph. It divides the TWF and FFT graphs in to separate graphs for each channel.

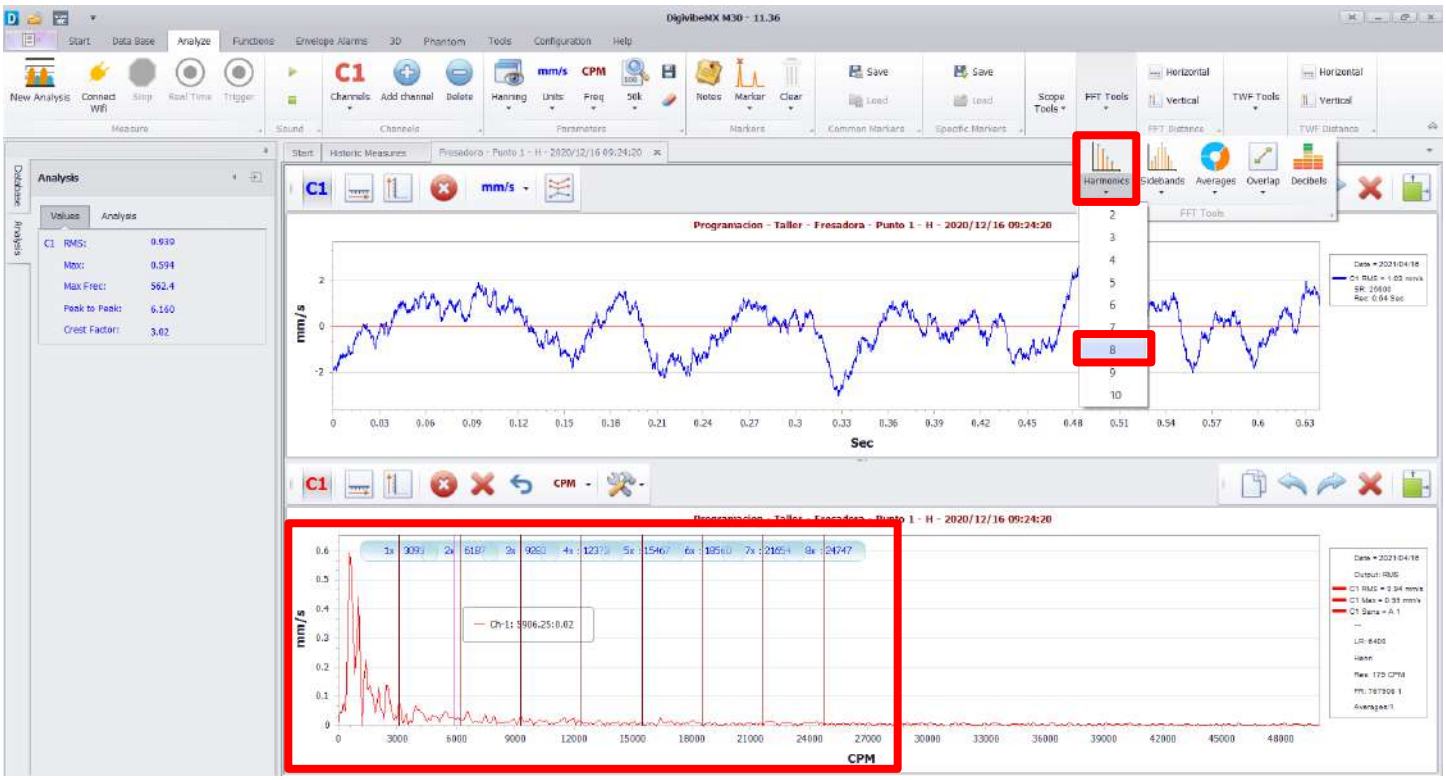


The **Range Selector** in a different kind of zoom that allows you to define a range of time or CPM (according to the graph) to visualize in the scope. The **Visible Legends** tools hides/shows the panel with the channel information that is on the right side of each graph.

FFT Tools

The FFT Tools dropdown menu contains several common tools for FFT analysis.

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

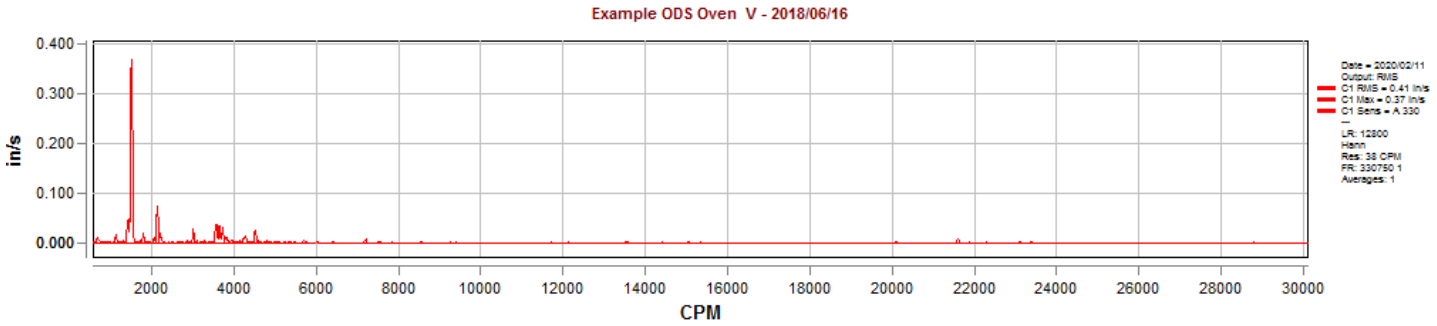


Analysis Menu Tools continued (M20, M30, Phantom)

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.

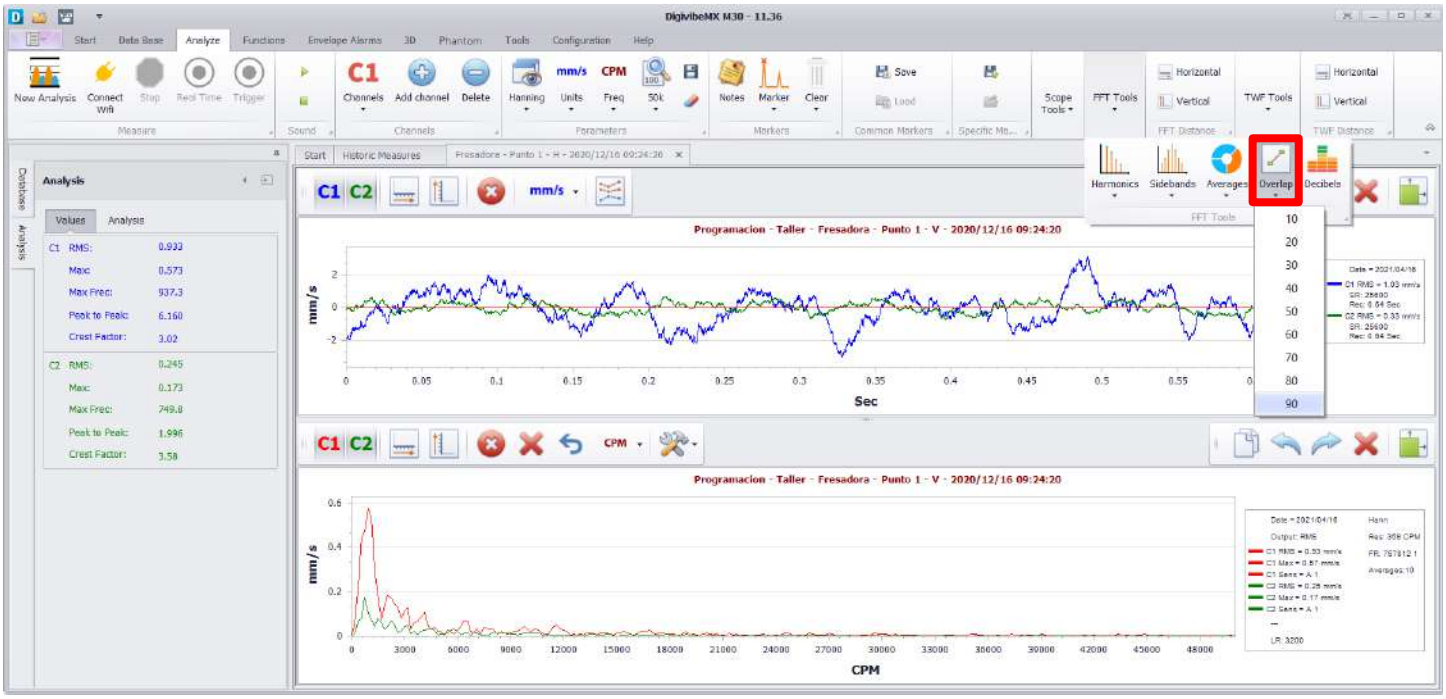
Averages: Specify the number of averages used to produce the FFT. The default FFT view is one average. Increasing the number of averages reduces the appearance of random outlying peaks and periodic occurrences, showing a truer representation of repeating events in the FFT. However, increasing the number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

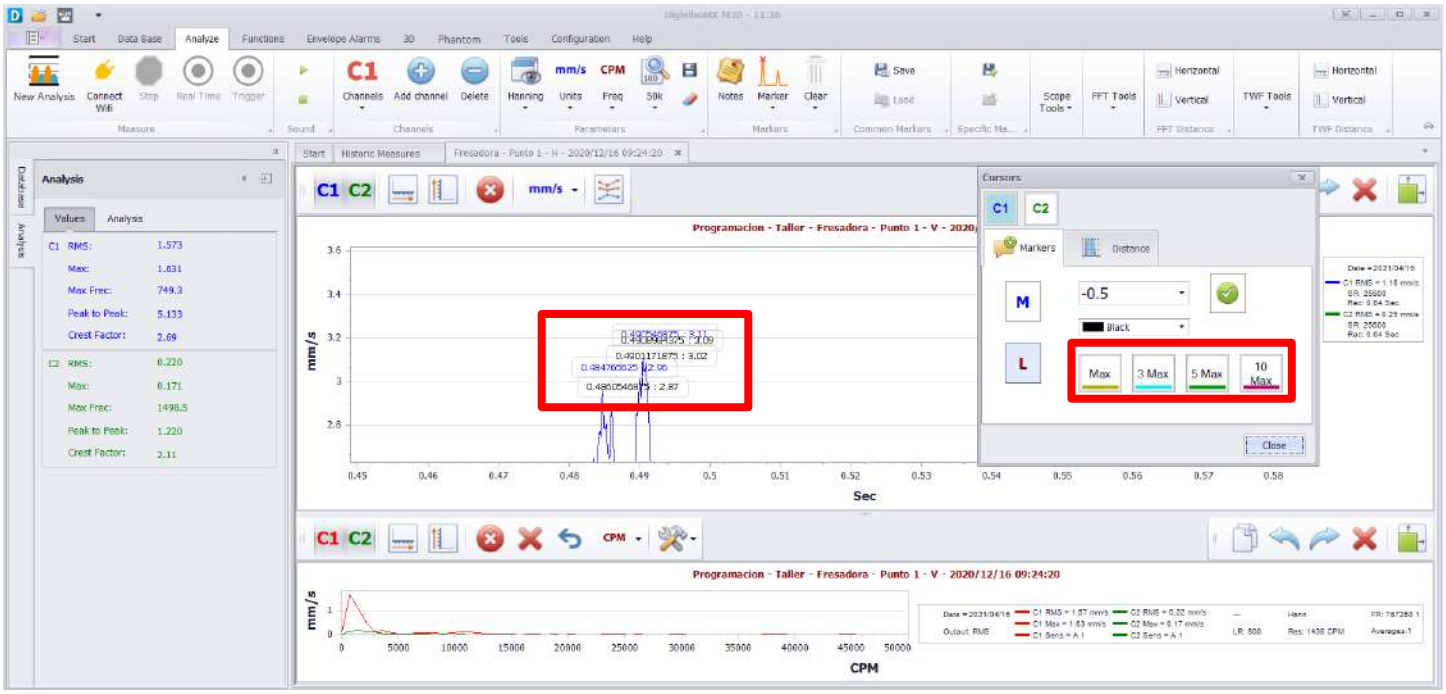


Decibels: Converts and displays the FFT in Decibels.

TWF Tools

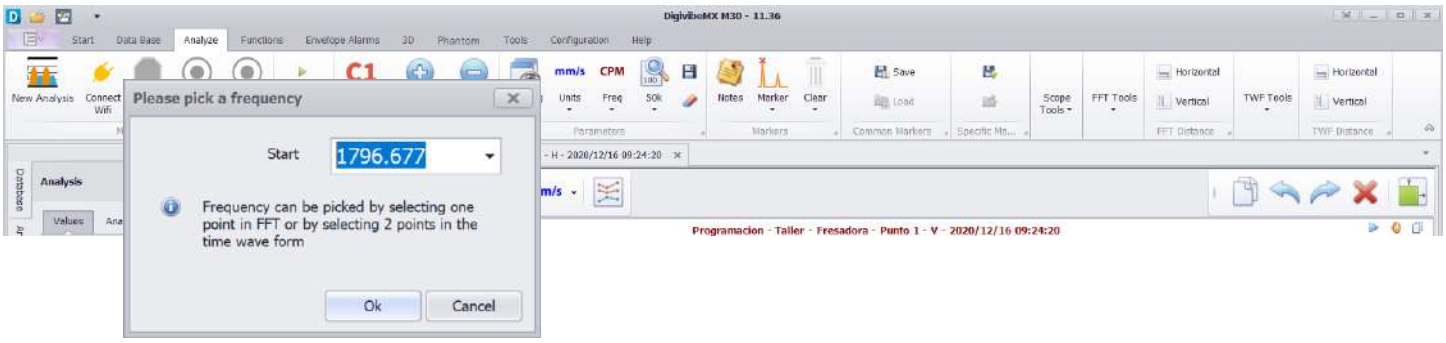
Transient: Select Transient.

Cursors window opens to the Transient tab. Click the desired frequency to analyze in the FFT. 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. The sideband cursor frequency in the Cursors window indicates the sideband cursor spacing. (Zooming in on the affected part of the Time Waveform can help narrow down cursor spacing to the desired frequency interval). Use Remove Cursors to clear cursor lines from the graphs.

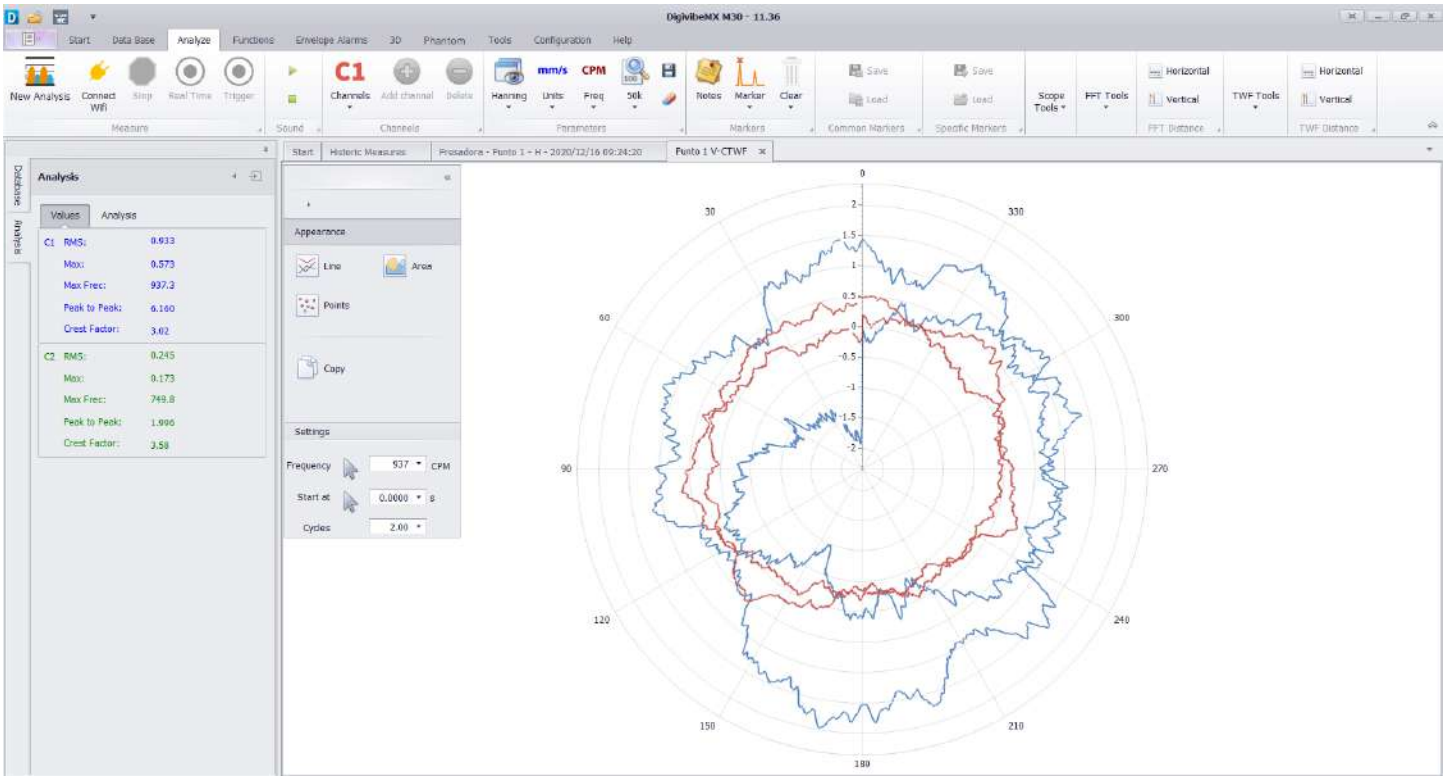


Circular TWF: Opens the Select Frequency window. Select the desired frequency from the dropdown or enter it manually.

NOTE: If the Analysis view contains multiple channels, all channels will be rendered in the Circular TWF graph.



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.



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 Remove Cursors to clear marked areas from the graph.

Functions Menu Tools (M20, M30, Phantom)

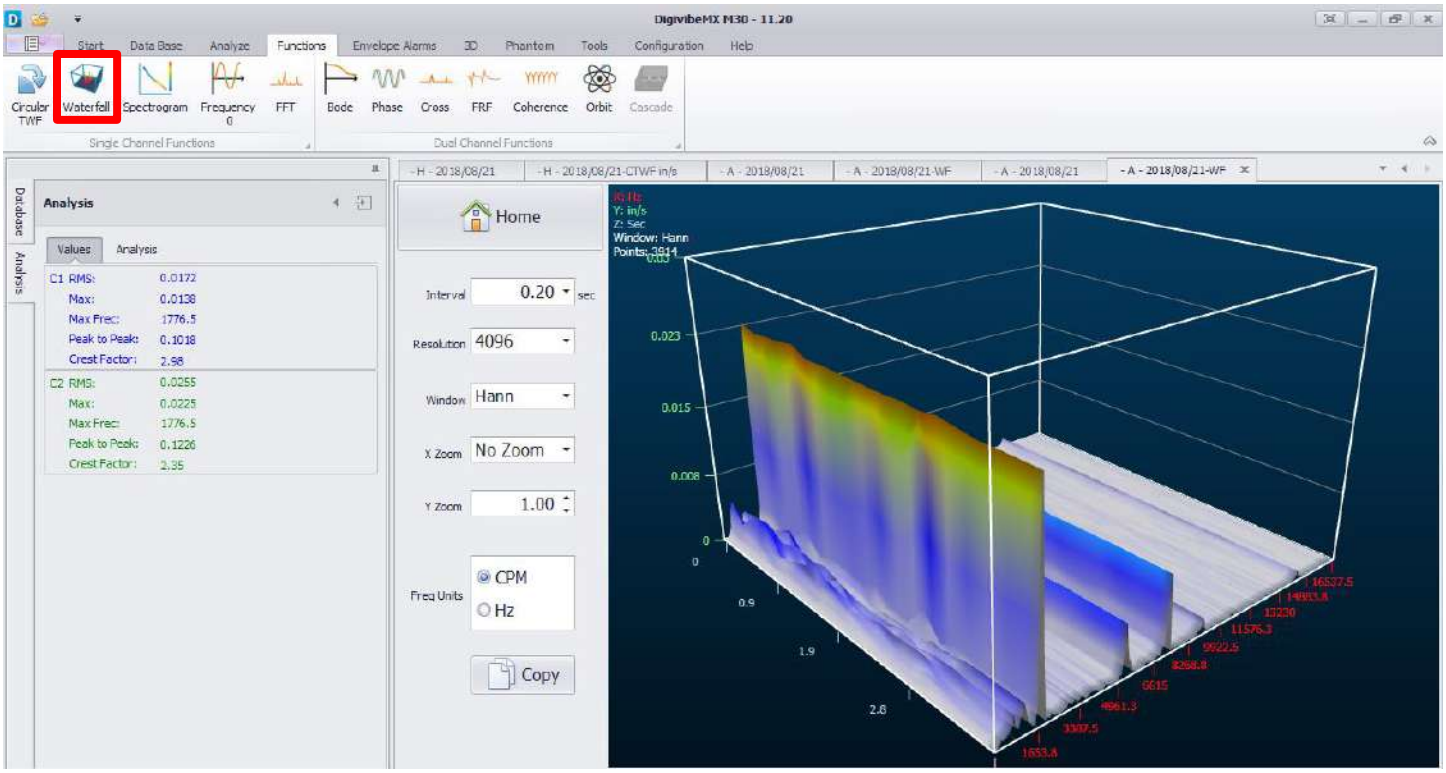
In addition to the Analysis Menu, the Functions Menu also features a number of essential tools for analyzing collected vibration data: The Functions Menu tools are divided between two toolbars: Single Channel functions and Dual Channel functions.

Single Channel Functions toolbar

The following tools are provided for single-channel analysis.

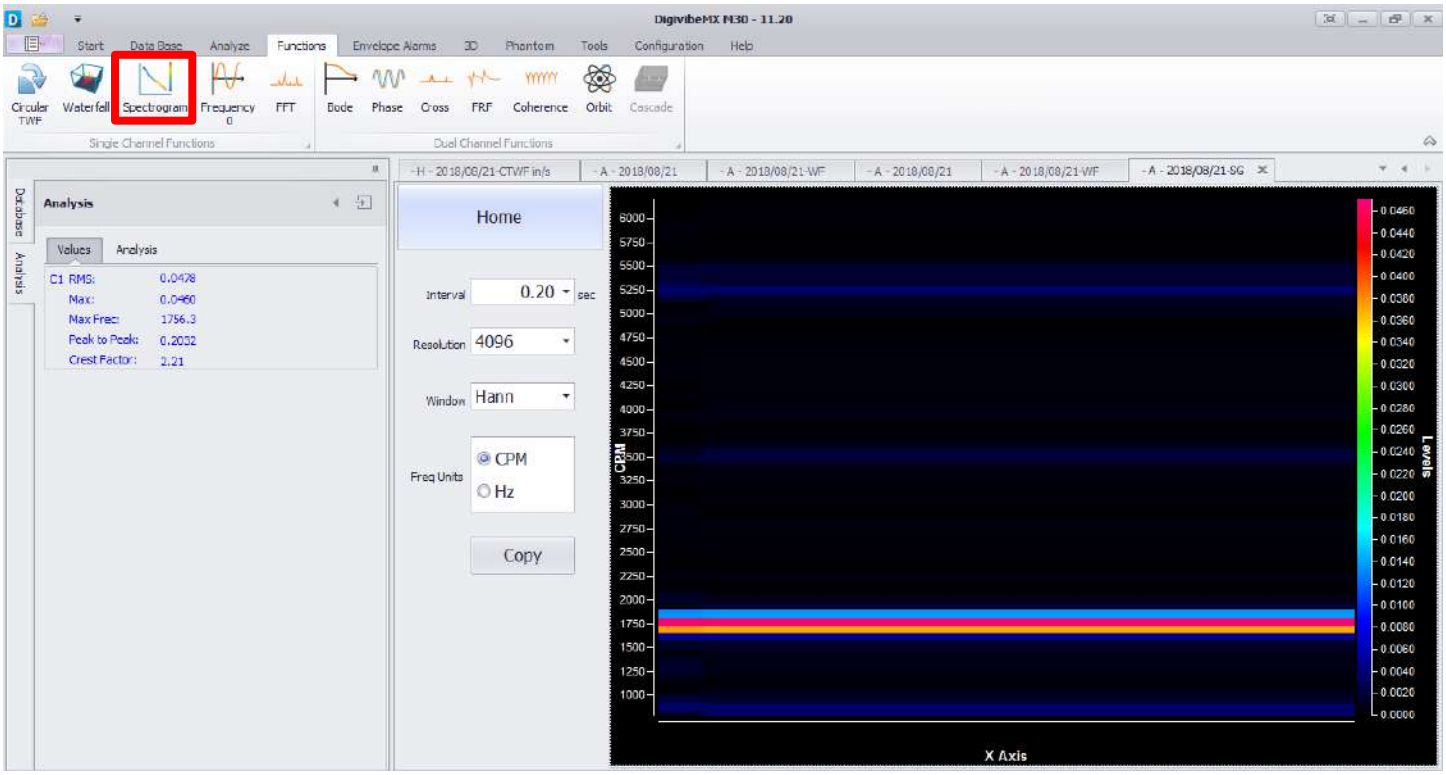
Circular TWF: Explained previously on Pg. 70. (If multiple channels are opened in Analysis, all will be rendered)

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.

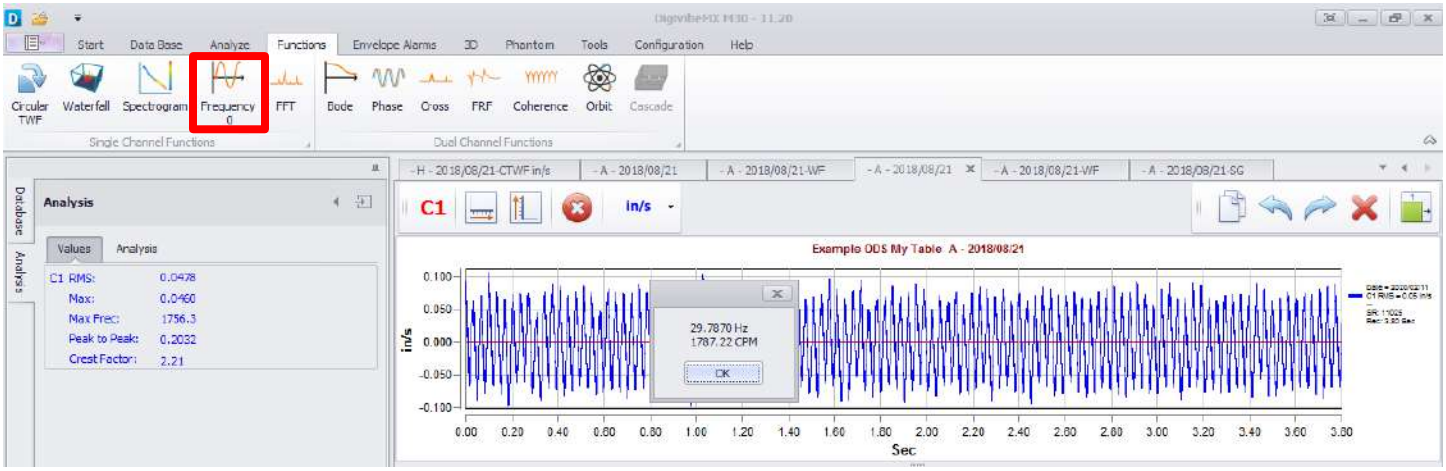


Spectrogram: Produces a color-coded bar graph representation of vibration severity by frequency range. Interval, Resolution, Windowing format and Frequency units may be changed. The graph will immediately re-render. The Copy button copies the graph for pasting into a Word document, email, etc.

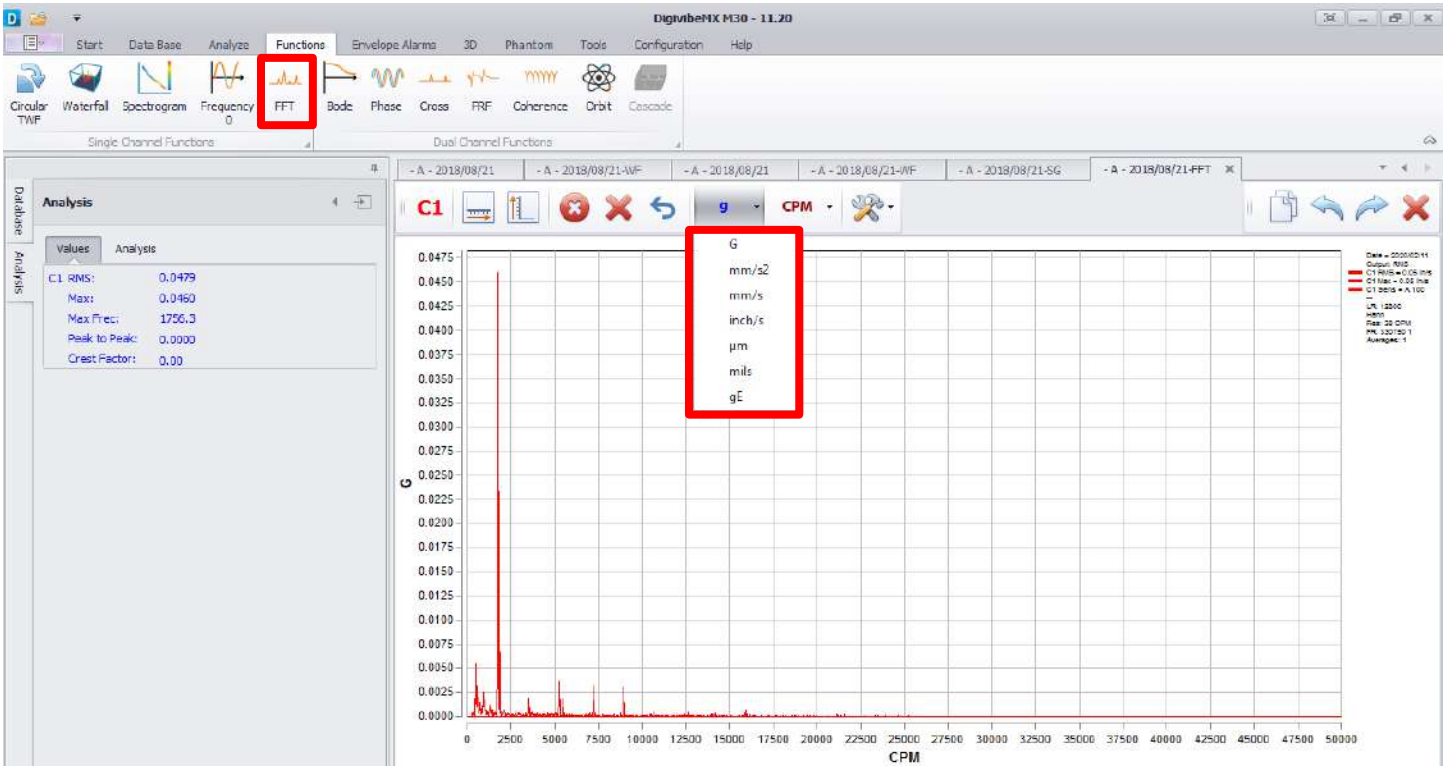
NOTE: Lines may initially appear very small. Zoom the view as necessary. Position the mouse pointer over the desired axis and scroll up/down to zoom the axis in/out. Click, hold and drag an axis in the desired direction to reposition the graph.



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



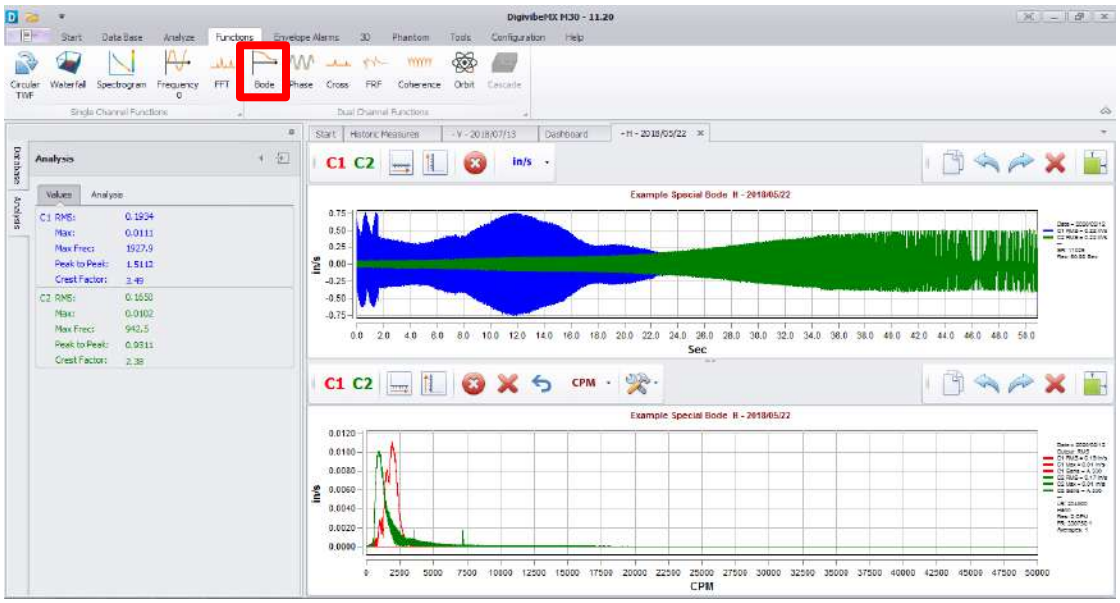
FFT: Displays the FFT with additional dropdown options to convert between Power, Real, Imaginary and Phase views.

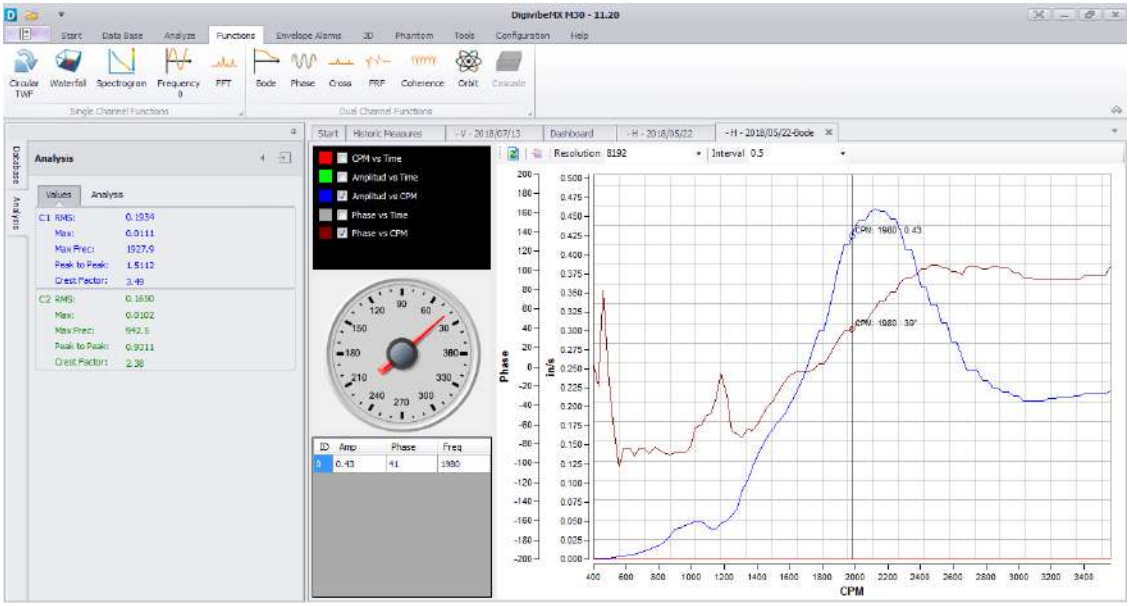


Dual Channel Functions toolbar

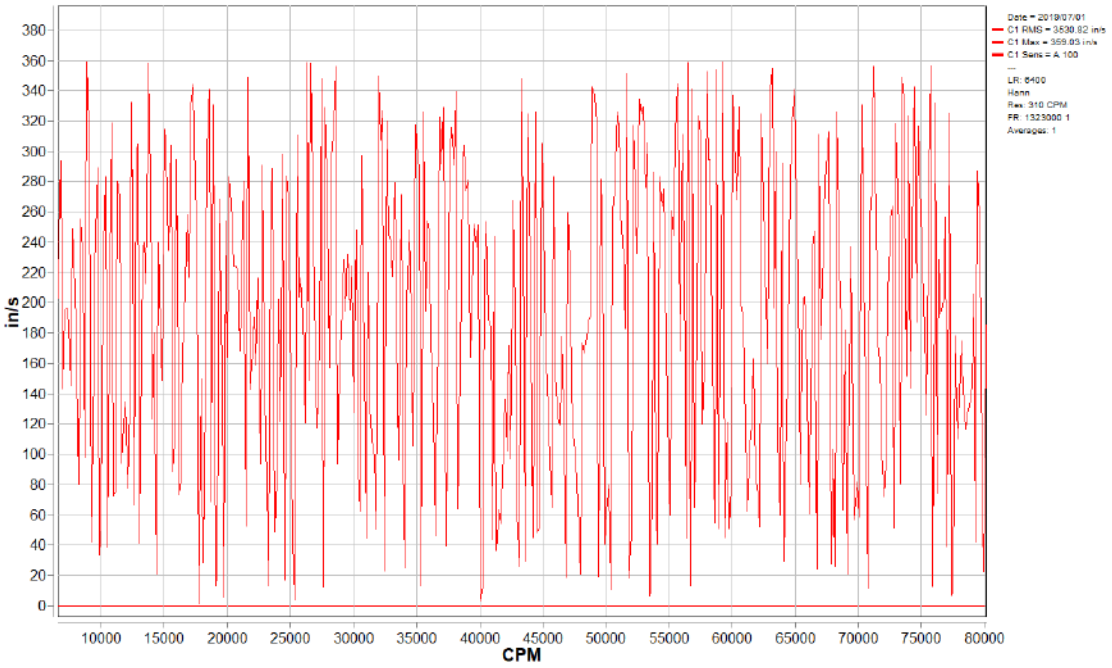
The following tools are provided for dual-channel analysis.

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.)

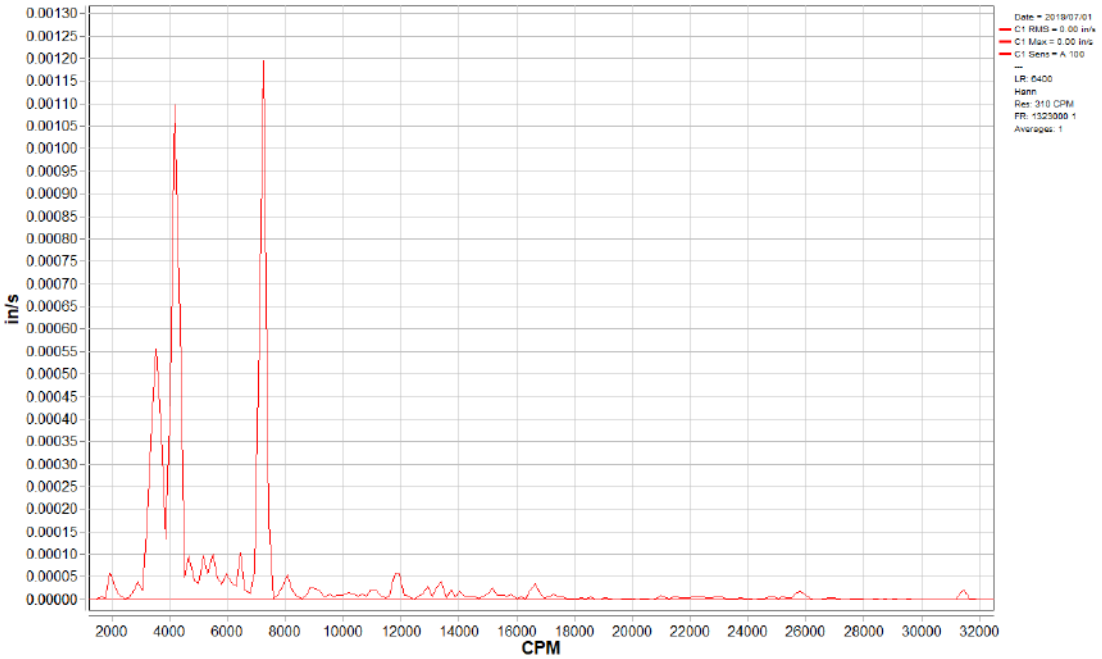




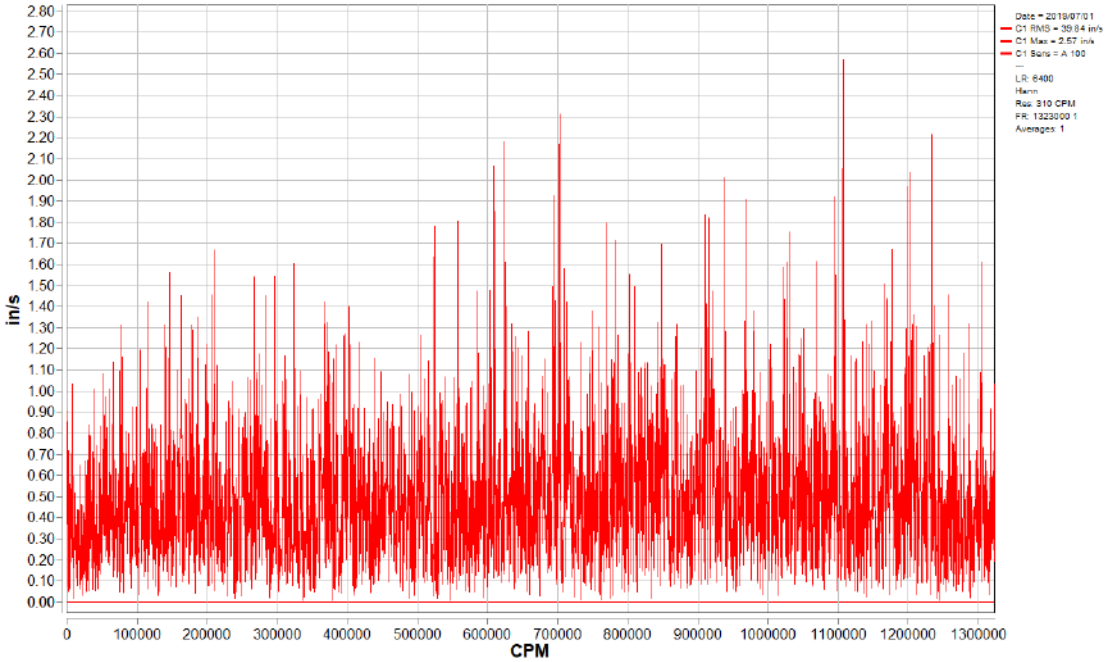
Phase: Displays the phase angle differences between a measured point and its reference point, across the entire frequency spectrum.



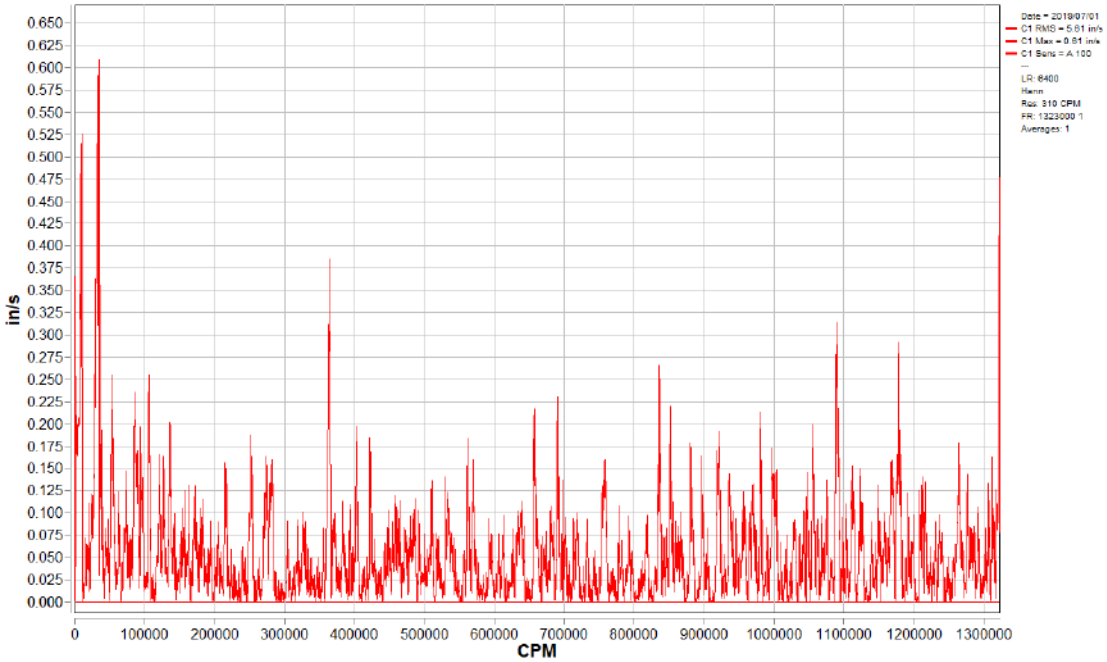
Cross Spectrum: Displays two channel data as a Cross Spectrum FFT graph.



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.

Alarms Menu Tools (M20, M30, Phantom)

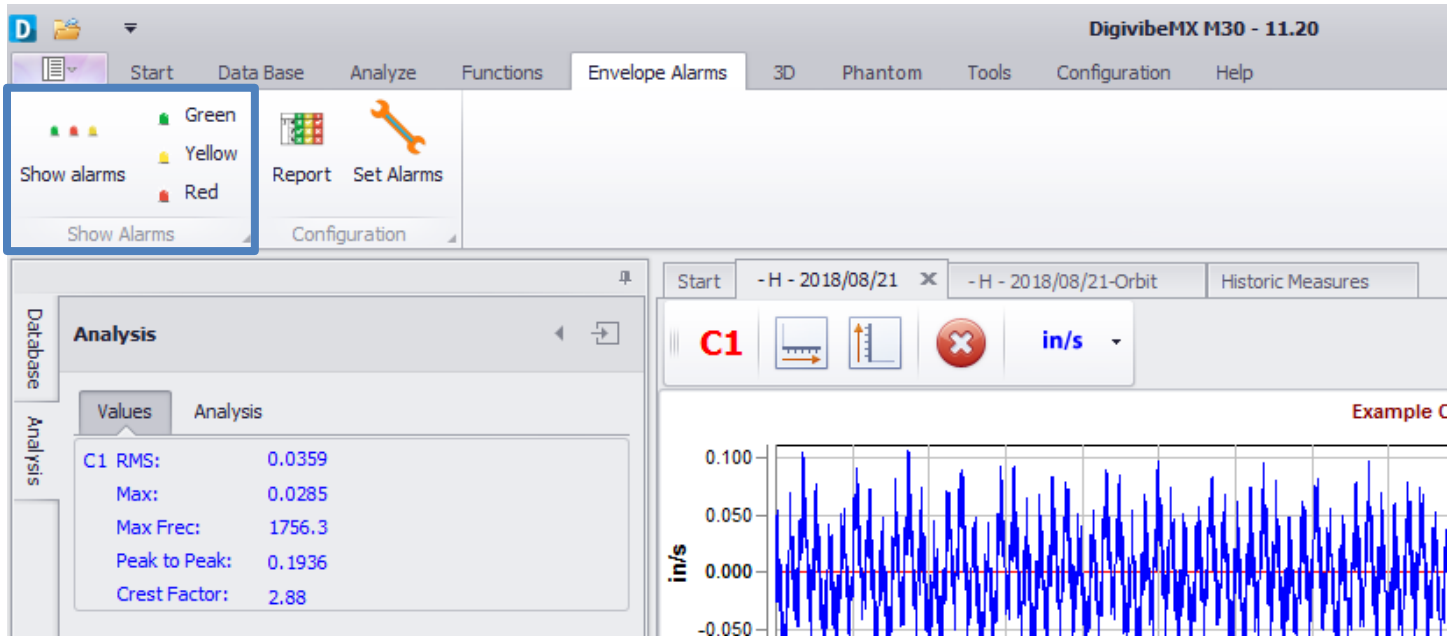
Overall alarm values for Displacement, Velocity, Acceleration and Acceleration alarms can be set for Machine Points when a new Machine is created in the database. These alarms are useful for ensuring that any source of vibration across the entire FFT spectrum will trigger a change in the Machine's alarm 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 Alarms Menu. To set a new alarm envelope around an existing data collection, first use Open Files and select View File to open the desired recording. Then proceed to the 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.



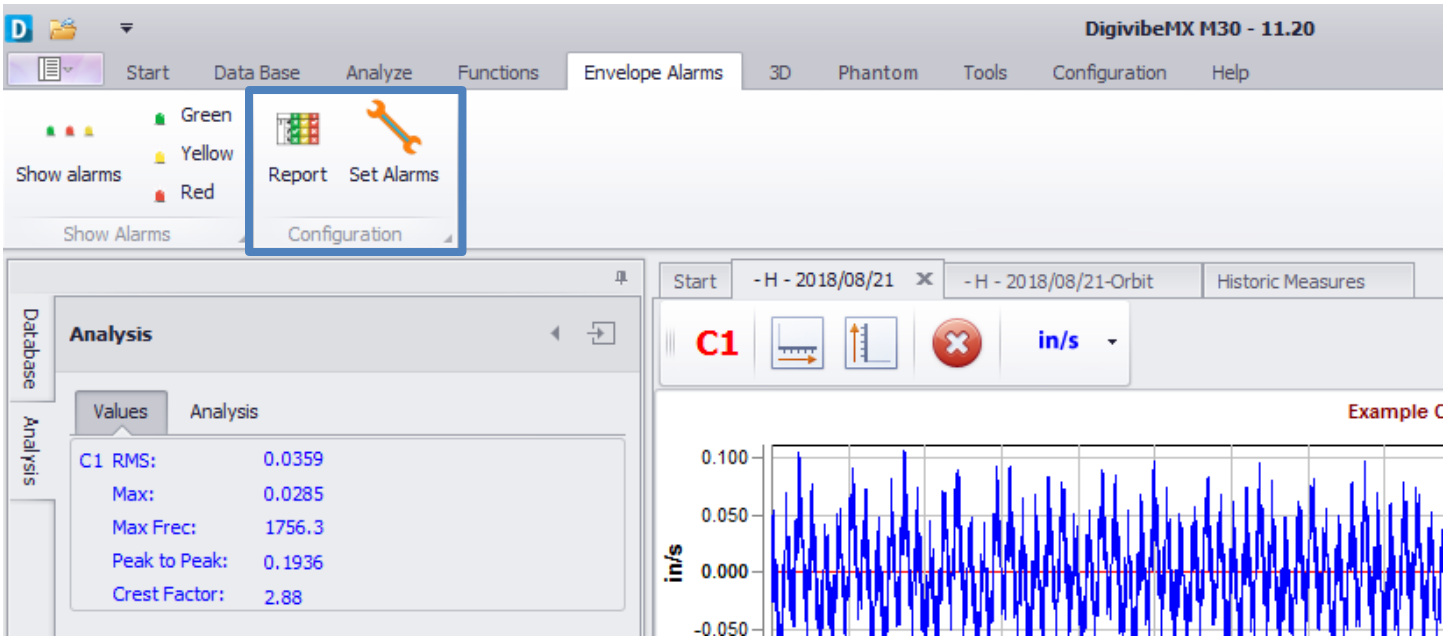
Configuration toolbar

The following tools are provided to set an alarm envelope around a recording, view available alarms 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.

Available Alarms: Displays the alarms that are compatible with the Machine to which the current recording belongs.

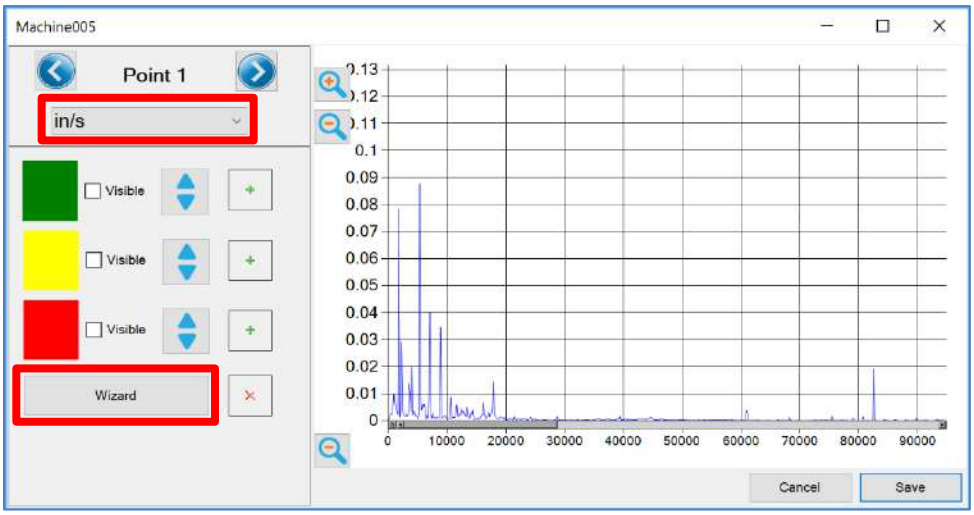
Set Alarms: Opens the Alarms Wizard to establish or edit an envelope alarm around the displayed recording.



Setting an alarm envelope around a recording

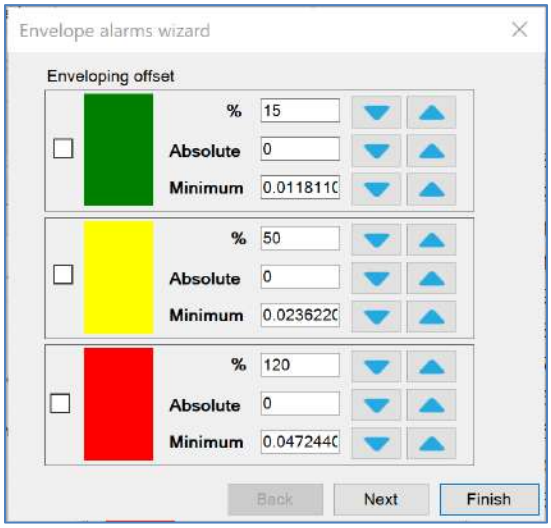
With the desired recording open, select Set Alarms.

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.



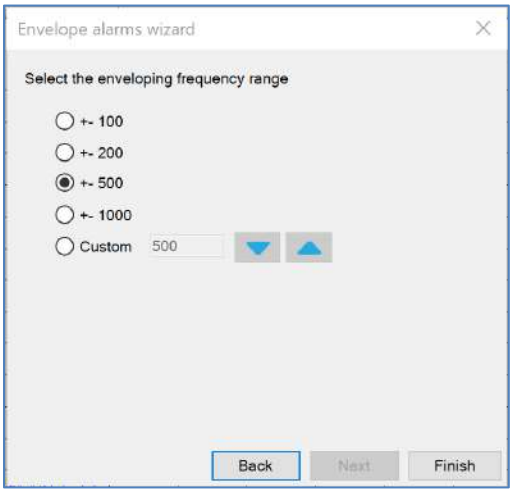
Use the Envelope Alarms Wizard to specify the increased vibration tolerance across the entire FFT Spectrum, before an alarm condition changes. These values may be defined by a percentage increase or an absolute value. Minimum indicates the amount of resulting alarm envelope from the highest amplitude 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.

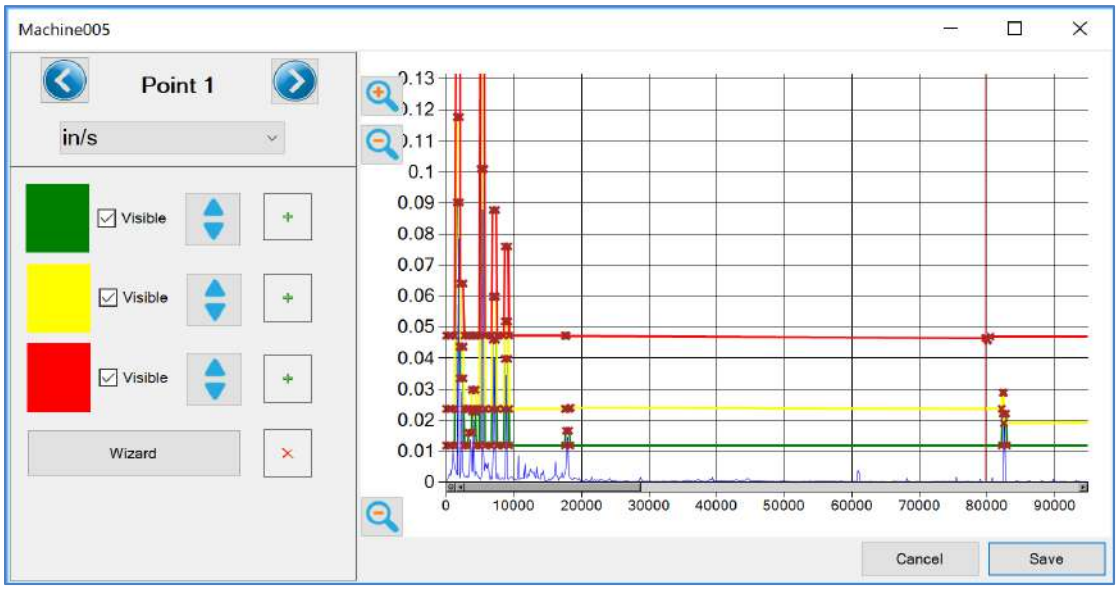


The next screen allows users to select the number of peaks to be alarmed. Indicate the desired number of peaks to alarm, then click Next to proceed.

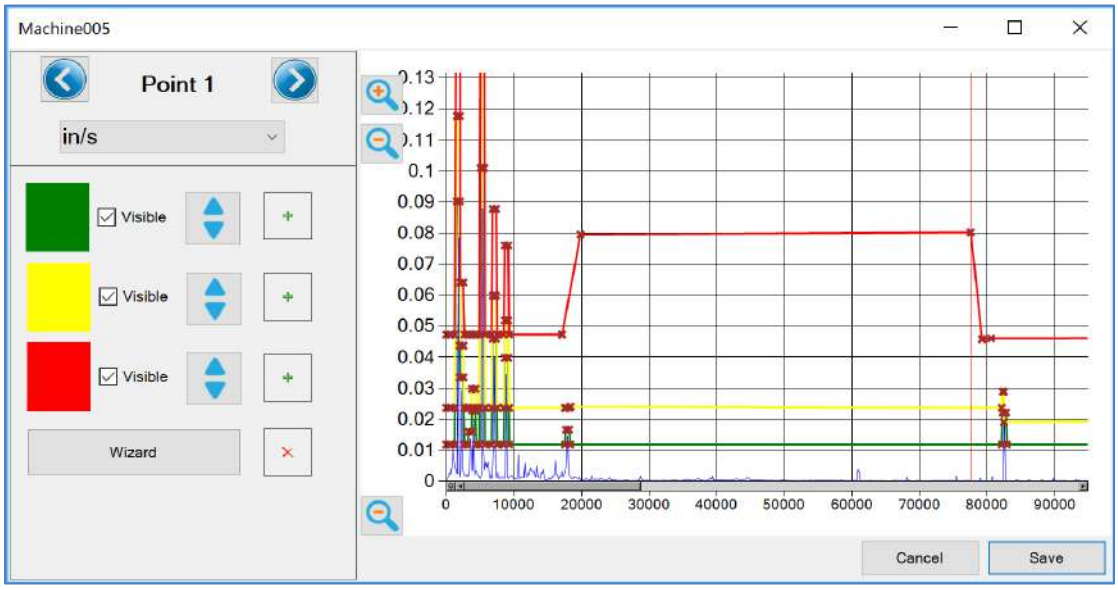
The next screen allows users to specify the frequency range to be included around each enveloped peak in the FFT Spectrum. When satisfied with the overall envelope parameters, click Finish.



The alarm enveloping window now displays the new envelope alarms around the FFT Spectrum.

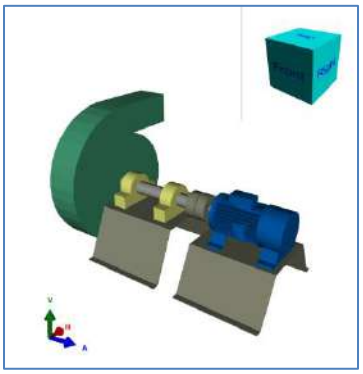


To adjust the alarm bands in specific frequency ranges, click and hold the red x on the desired alarm envelope nearest the beginning of the desired frequency range. Drag it to the desired frequency and amplitude, then release. Then click and hold the red x nearest the end of the desired frequency range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



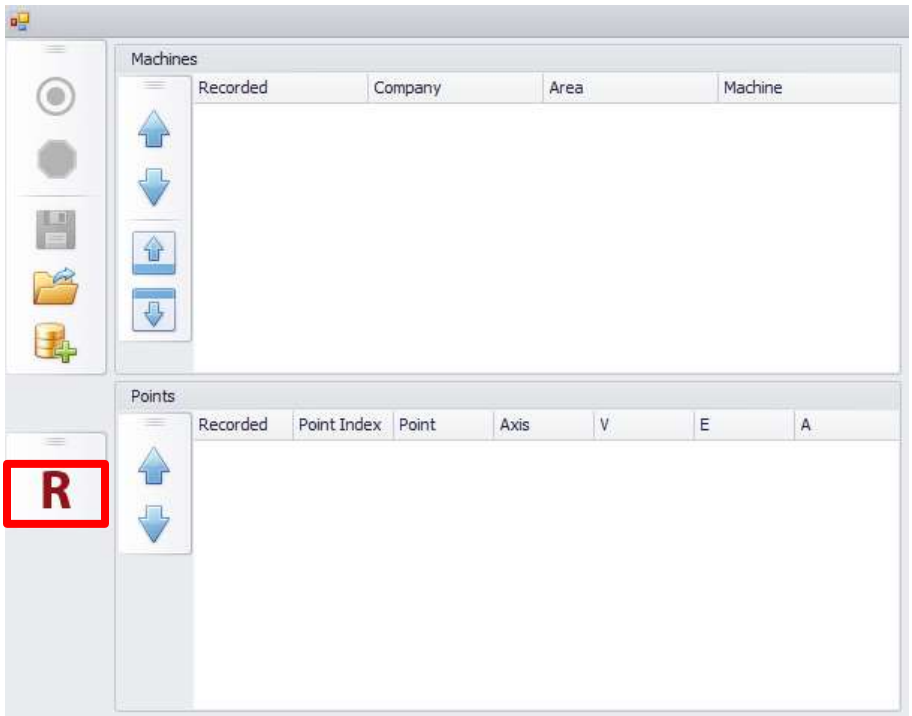
3D Menu Tools (M20, M30)

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.

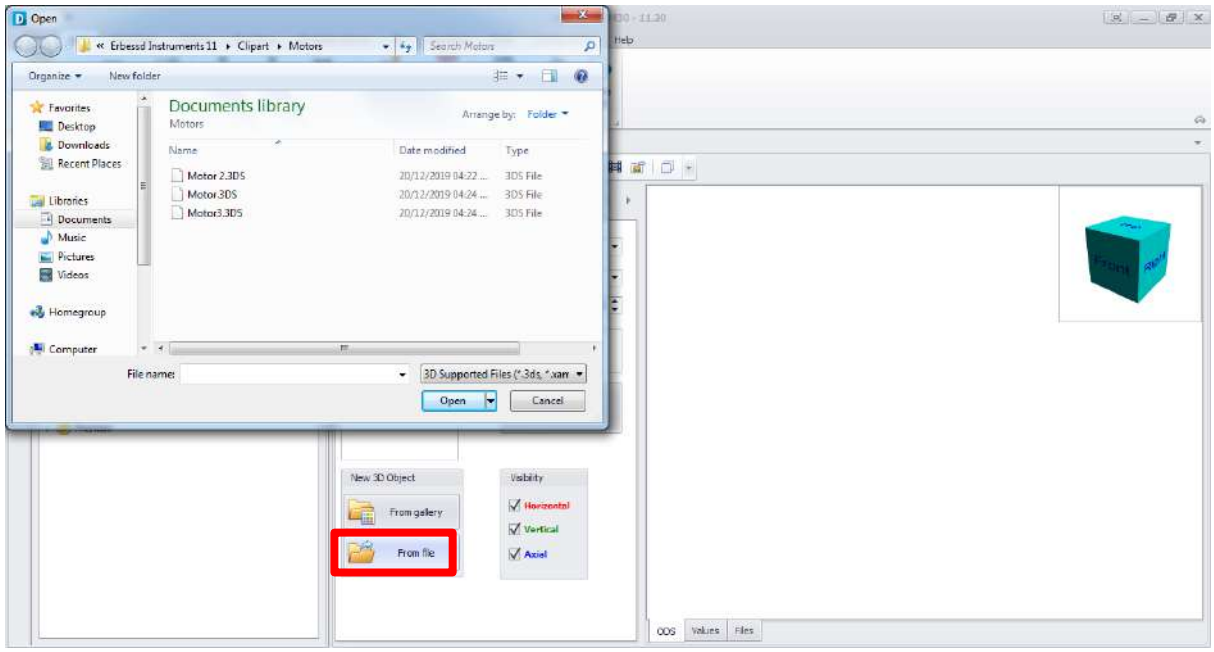
ODS modeling data may be collected as part of every data collection Route, simply by adding simultaneous Reference Channel data collections to be recorded at each point. With Reference Channel data collection enabled, an extra Reference Channel accelerometer must be placed somewhere on the machine near 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".

Adding a new 3D model to the database

It is possible to add new 3D models from a local file to our database, you have to select the Machine where you want to add the model and click on the ODS button from the Start Menu or from the ODS tile.

This will open the ODS window and display that the machine doesn't have a 3D model assigned. In the New 3D Object window you can choose between 3D models loaded in the system (From Gallery) or a 3D model that is local based (From File).

Clicking the From File button will open the file selection window for the 3D model. Choose the desired 3D model and click Open:



Probably the most important of all 3D ODS components is the rotating cube. This cube allows rotation of the 3D model in any direction. Click on the cube and drag it in any desired direction to rotate the model view. Another way is to click on any face or edge of the cube. The figure will automatically rotate until it is in the selected position.

In the top menu you will find the following buttons:

Displays all 3 axes. If an axis direction does not match the direction data was collected, it can be inverted.

HV Invert the Horizontal and Vertical axes.

HA Invert Horizontal and Axial Axes

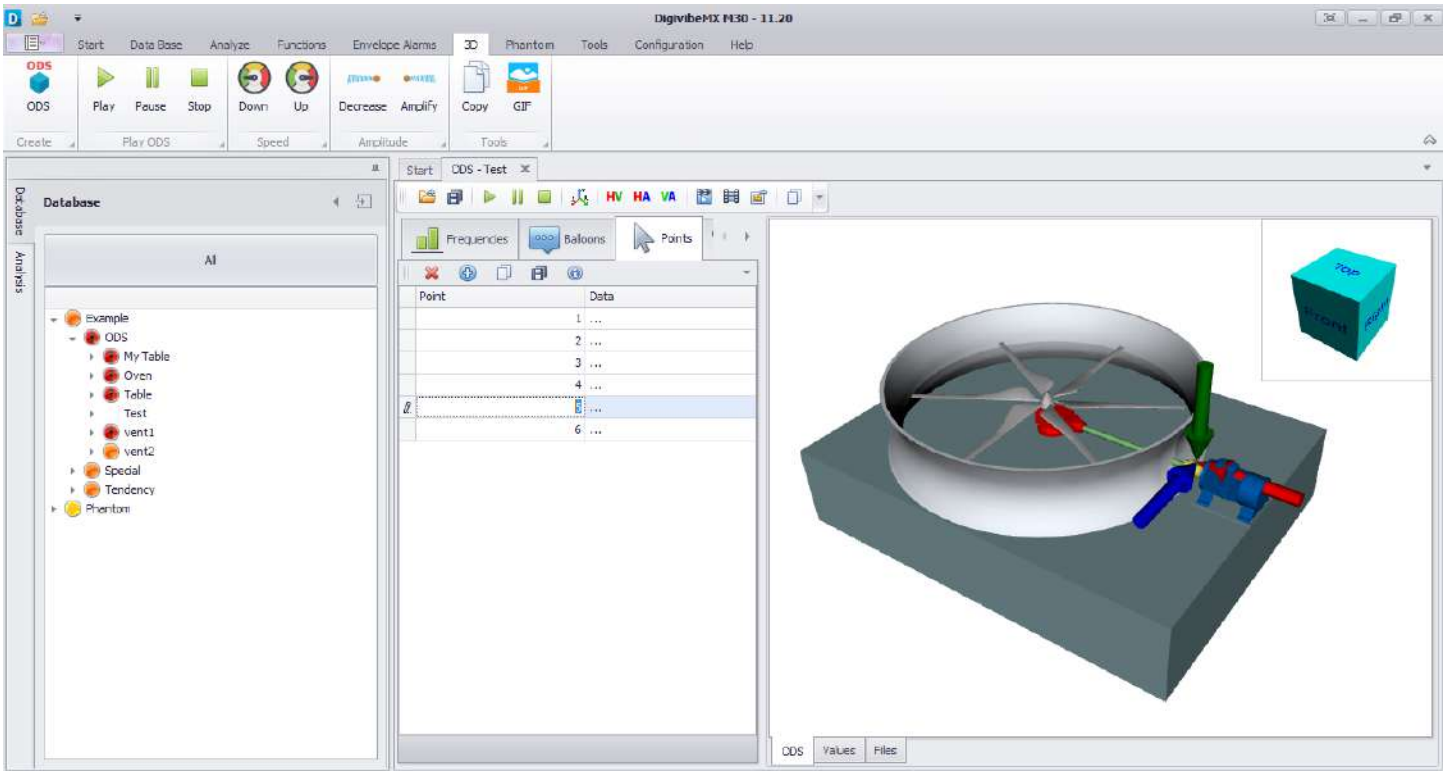
VA Invert the Vertical and Axial axes.

Export animation to AVI video format.

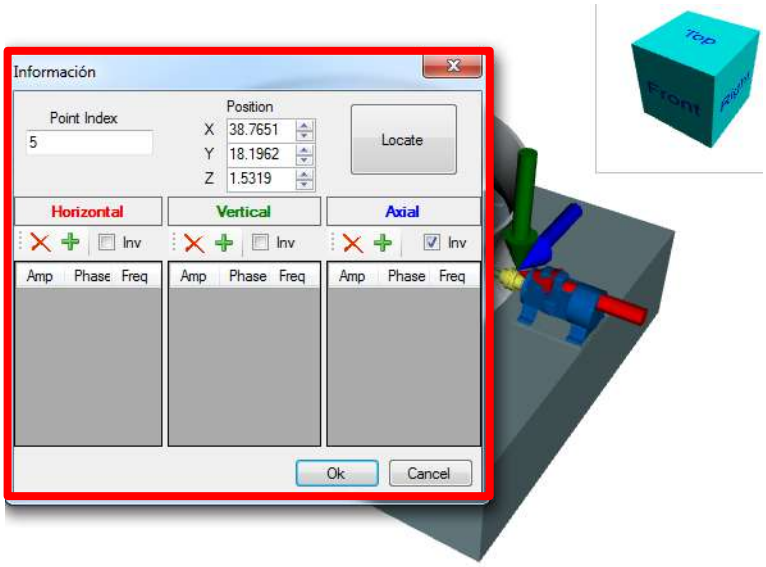
Export animation to GIF animated image format, this option greatly reduces file size.

Export picture in static image format jpg.

In the lower panel you will see the number of vibration points assigned to this image, each row corresponds to a point. You can see the location of each point by selecting the corresponding number.



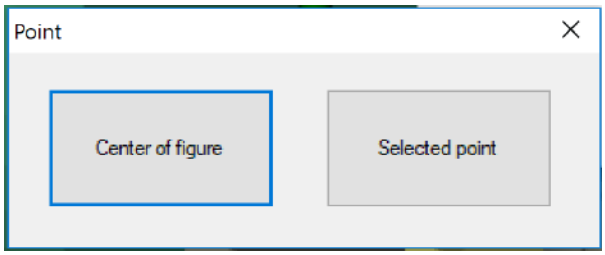
To change the axis orientation of a point or the location of the point itself you can click the "..." button and the following dialog box will appear.



Here you can invert the axis at each point by checking the Inv block. You can also change the axis location on the model, add or delete information for each axis.

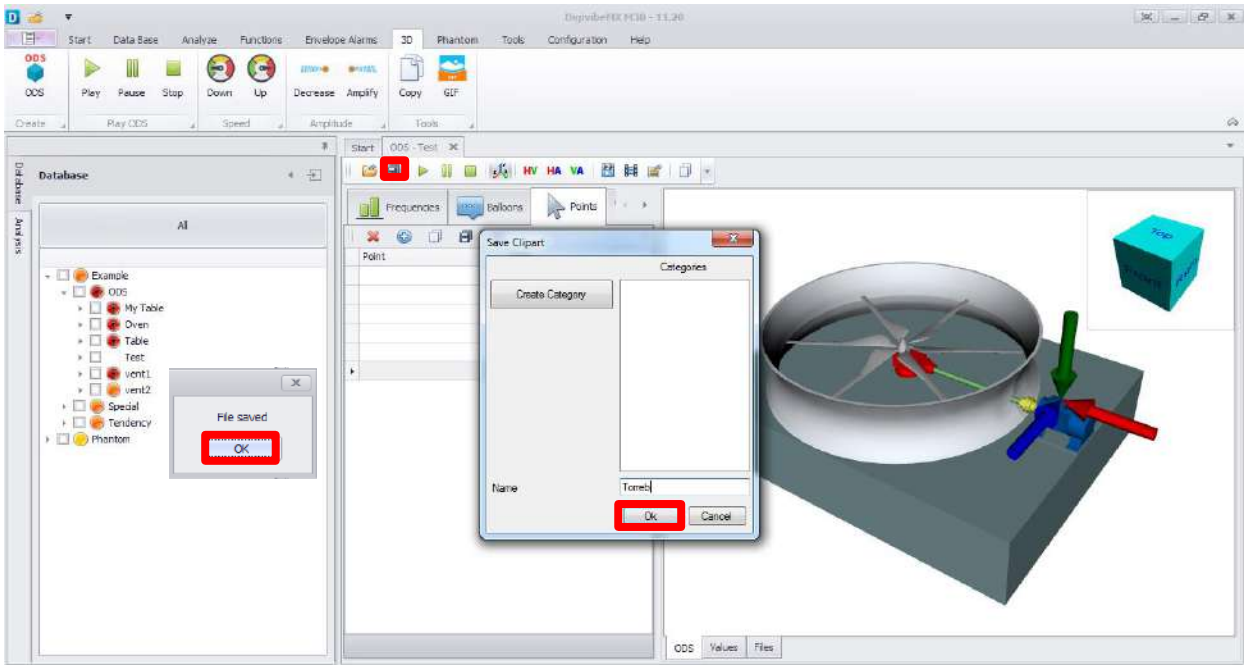
To establish the location of the point press the "Locate" button and it will begin to change color, at this moment select a point directly on the figure and the location will be in the boxes corresponding to X, Y and Z.

Clicking Locate on the 3D model allows you to locate the point just by clicking on the desired part of the machine. This will open the Point window to specify whether the point is in the center of the figure or at a selected point.

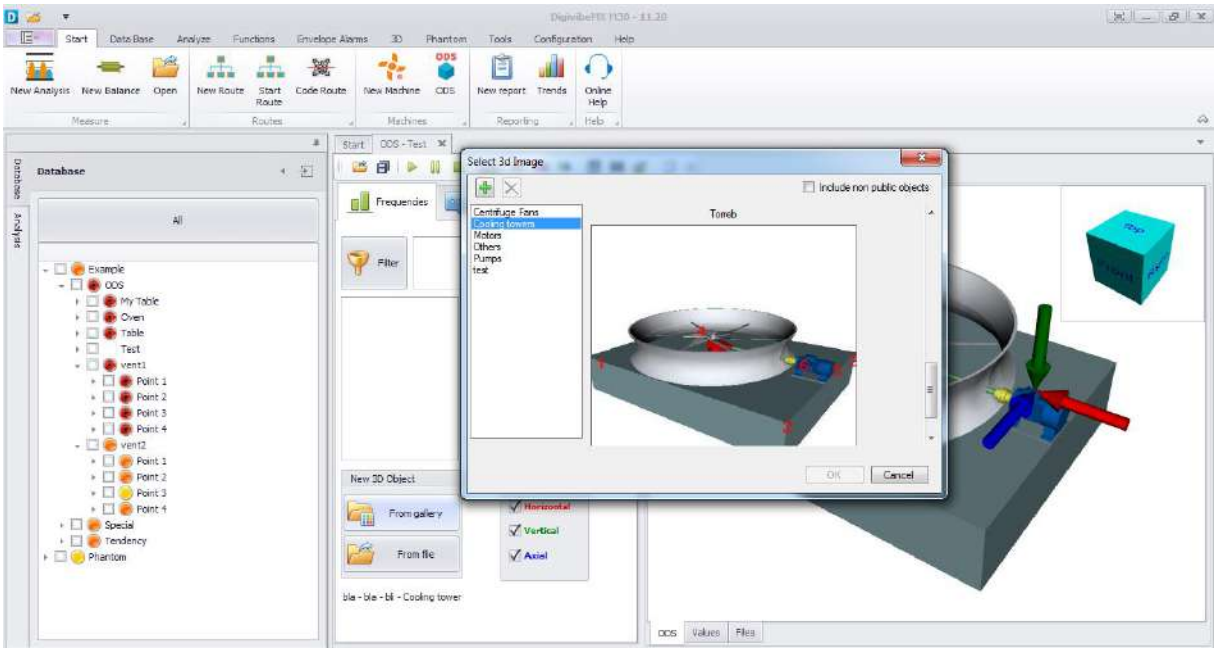


Check where are the points located and placed them in the desired position selecting the number of the point you want to locate.

Once that the 3D model and the points are set, click on the Save button. This will open the Save Clipart window, here we can add a Category and write a Name for the New 3D model.

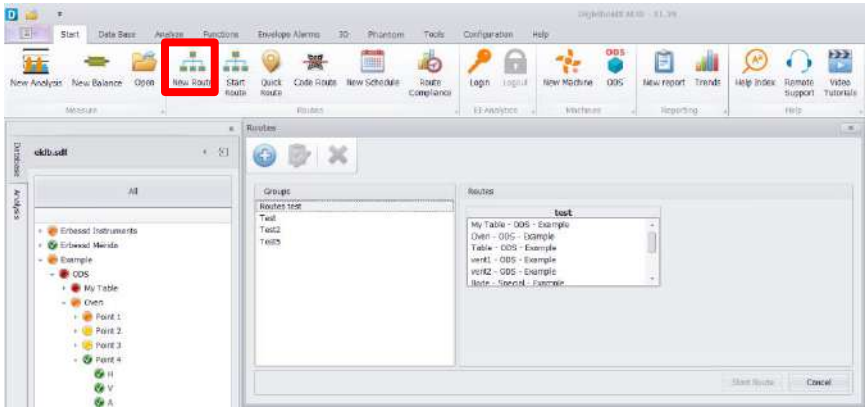


Once that the clipart is saved in our gallery, you can use the same model for other machines with the From Gallery button. Using the plus button you can choose the 3D model recently created, you can find it in the Erbessd Instruments folder from My Documents. This way you can select the 3D model from the Category it was assigned.



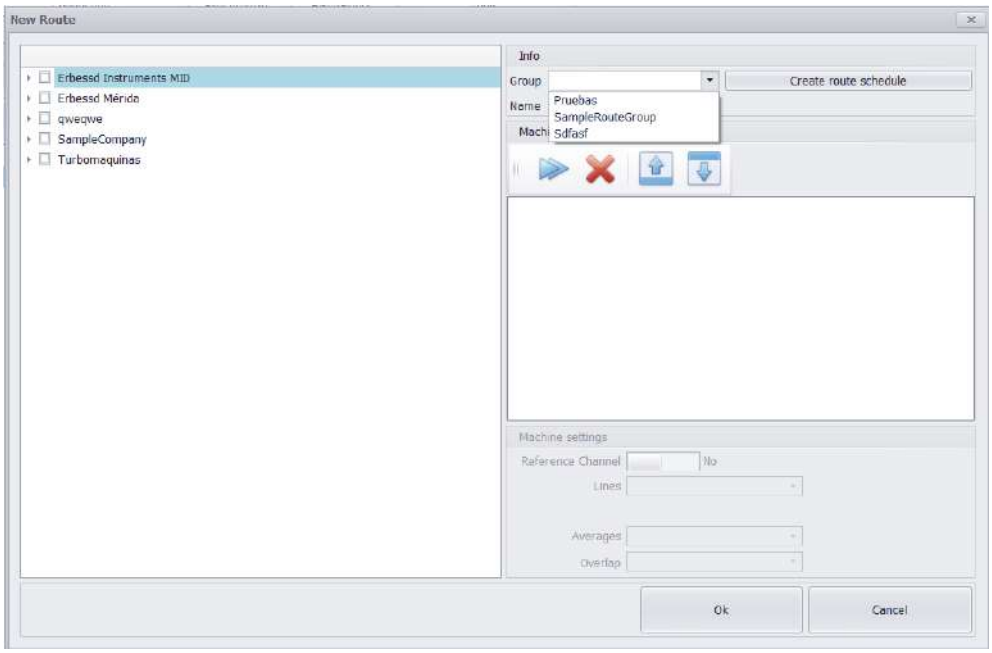
Collecting Data for 3D Simulations (ODS)

For 3D ODS Simulation, measurements need to be taken with 2 accelerometers on a data collection route with R reference point selected. Sensor 1 (single-axis or triaxial) collects data from all points and axes indicated by the route, while the 2nd sensor (single-axis) stays in the same reference location for all data collections. The reference location can be anywhere on the machine that vibration can be safely captured, without interfering with collecting route data points. **Do not** use route data collection points as reference points.

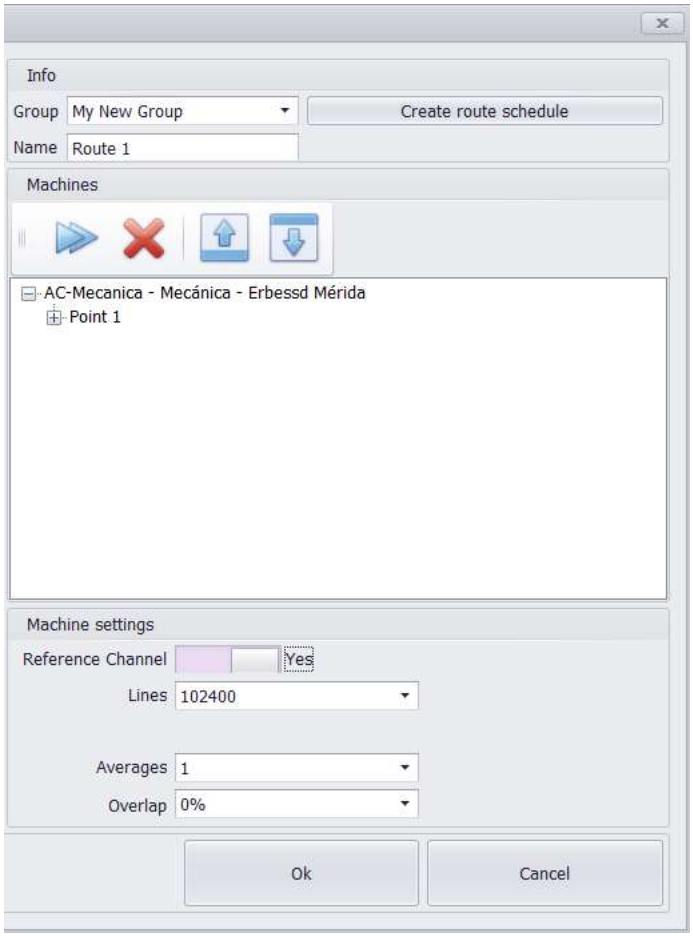


Click the New Route button to open the Routes window, here you can select from all the routes in the database.

To add a new route, click on the plus symbol button and it will open the New Route window.



In this window you can choose between all the assigned machines of the database. In the Group dropdown you can choose between and existing route group or create a new route group. In the Name box you can identify the route with any name.



With the "**Create Route Schedule**" you can determine a programmed route. When you press the button you will open a window that allows you to program your routes daily, monthly, annually or in a personalized time.

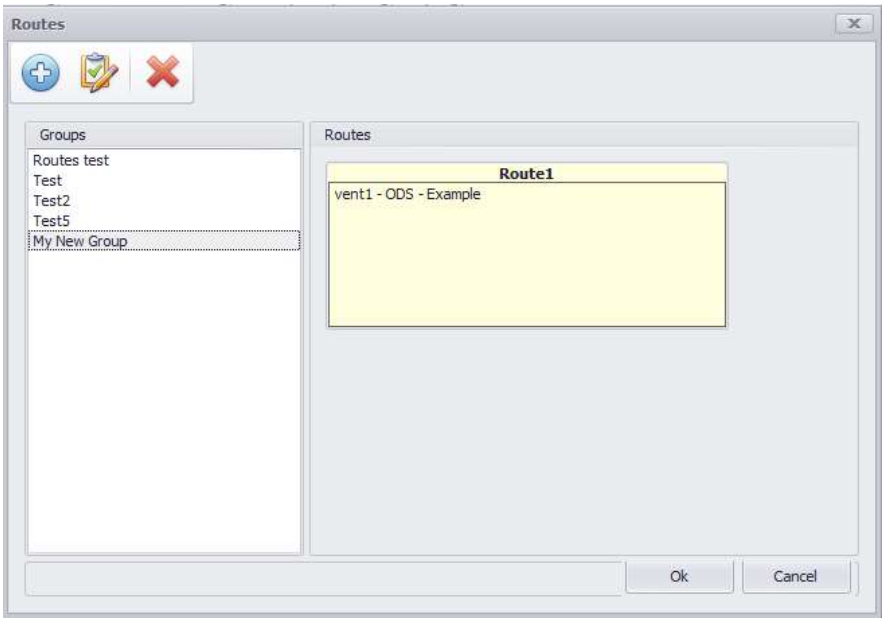
It allows the selected machines to our new group along with its corresponding Points.

Deletes machines that were already added to the group.

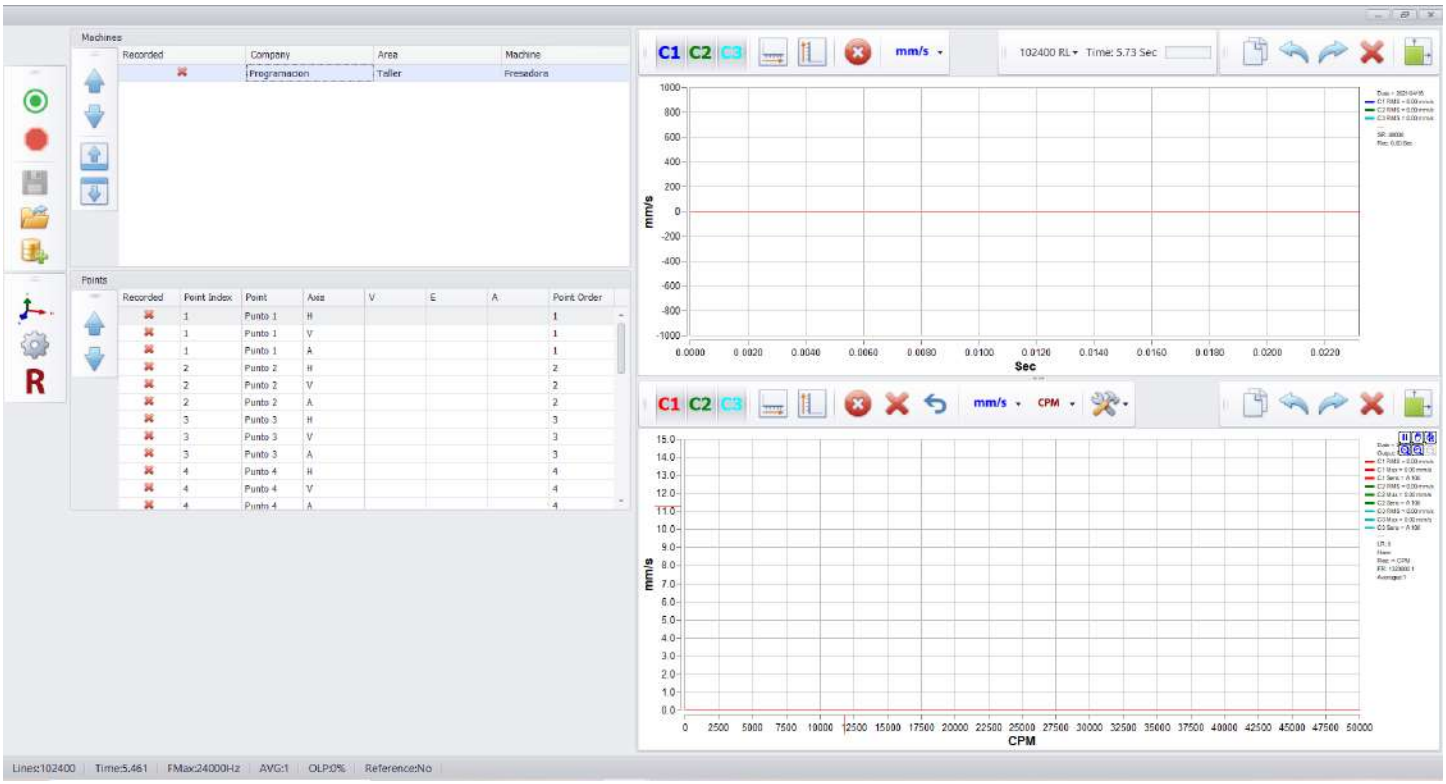
Allows the user to change the level or priority of the machines added to the new route.

In the Machine Settings menu you can choose between having a Reference Channel or not, choose the Resolution Lines from the dropdown menu, determine a Max Frequency, the number of averages to use and the Overlap percentage of the new group.

Clicking the Ok button will open the Routes window where you can see in the boxes the new group and the machine assigned to that group. Select the new Route and click Ok.



Inmediatly after pressing Ok, the next window will open:



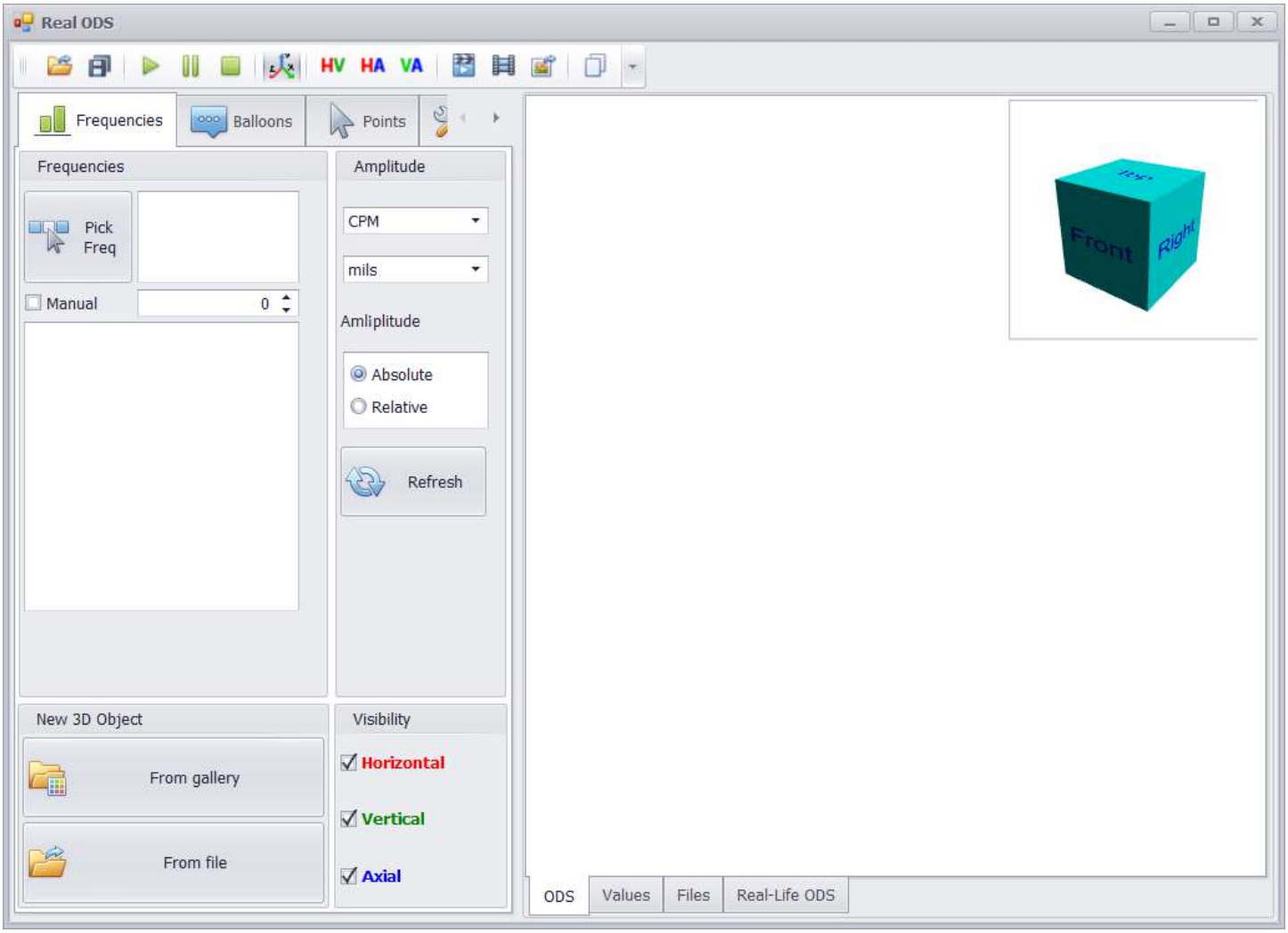
In this window we can see the recorded signals from the Route and the R button to activate our Reference Channel.

Real ODS

The new feature on DigivibeMX allows you to take measurements on the go and make an ODS simulation with them with the Real ODS tool.

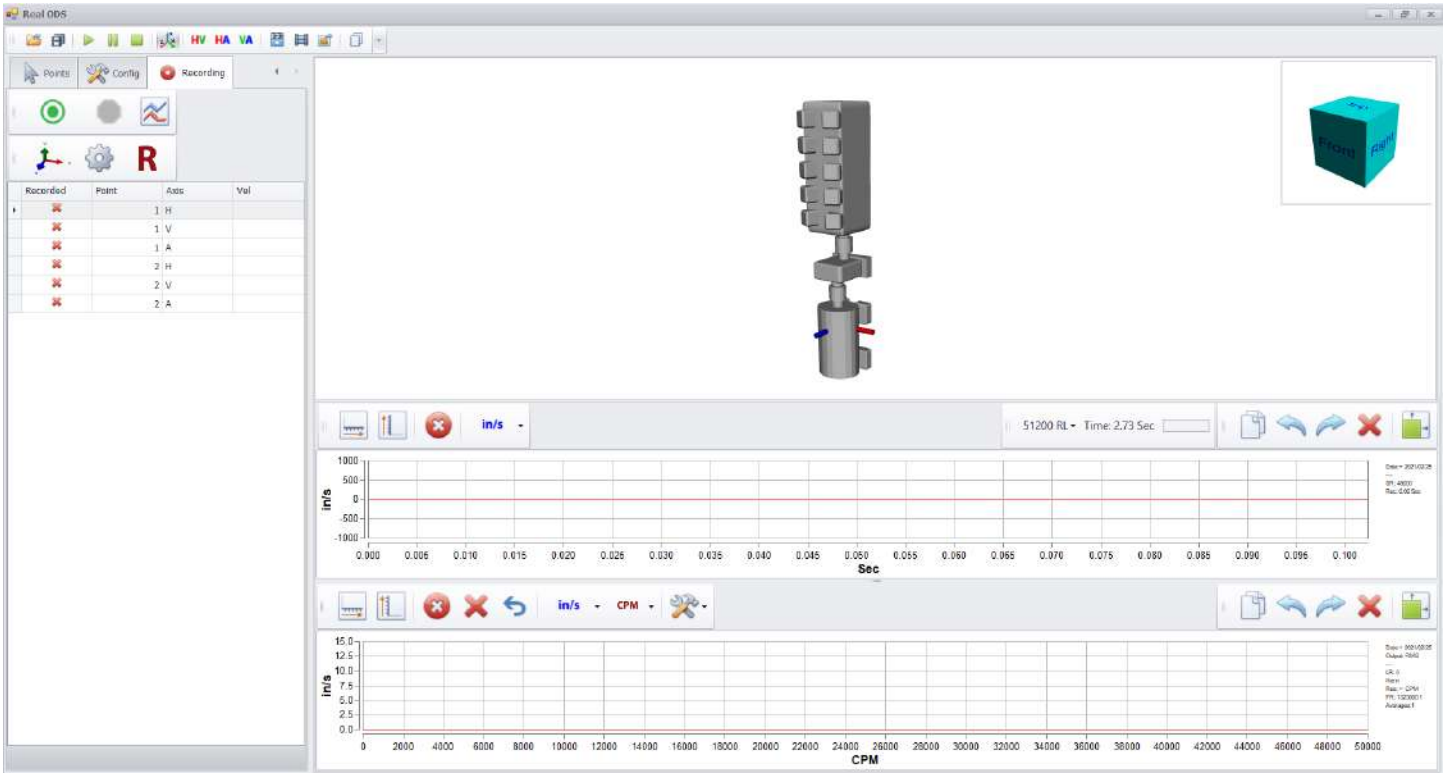
In the Start Menu click the “Real ODS” button to access to the Real ODS window. Here you will find the same options that you can find in the ODS window for route measurements.

When selecting the “Frequencies” tab you can choose between selecting an image from the gallery or uploading a new image from your computer (following the steps mentioned on page 84).



Once that the figure is selected for your measurement. You can add or remove measurement points with the “Points” tab.

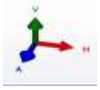
Now that our figure and our points are set up; you can start recording your measurements in the “Recording” tab. Here you can find the main configuration for your recordings.



Record: Allows you to start the recording in a selected point.

Stop: Allows you to abruptly stop any active recording.

Show/Hide Graph: Allows you to present or hide on screen the FFT and TWF graphs of the recording made by your device.

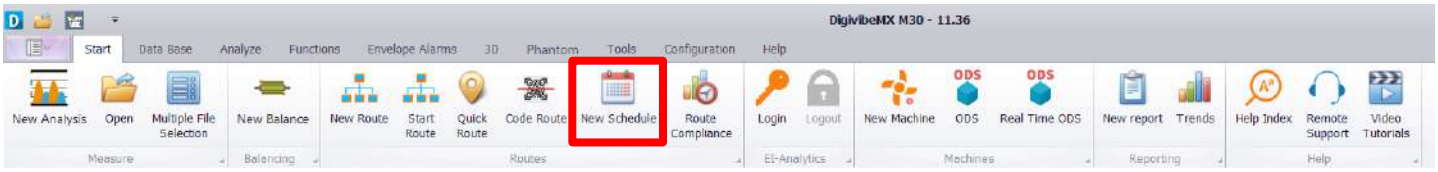


Triaxial: Allows you to set the recording in three simultaneous axis.

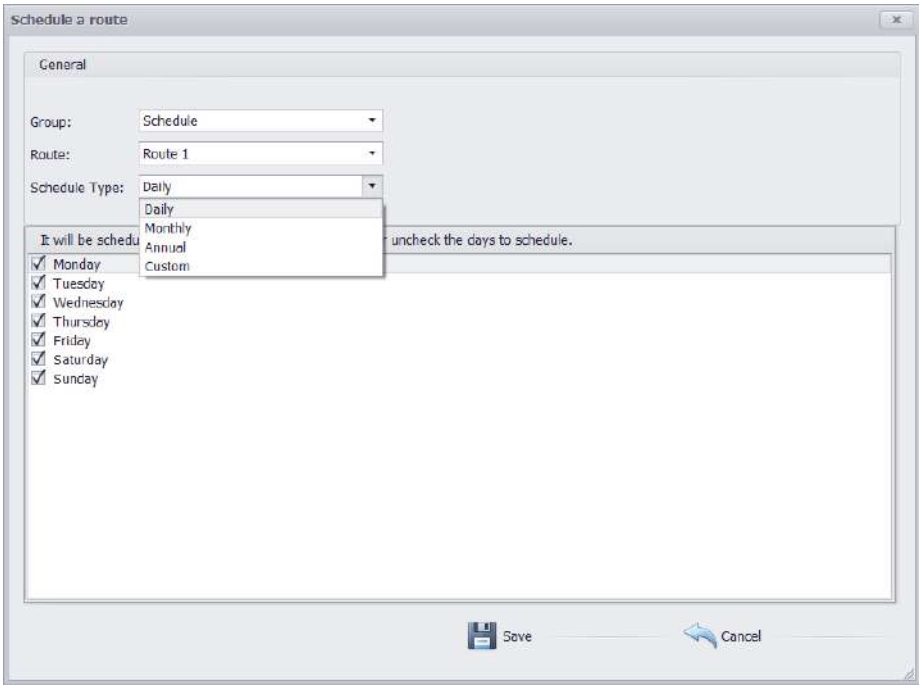
Orientation: Allows you to change the direction in which your sensor is placed.

Scheduled Routes

When you save the a new route, the software will automatically ask you if you want to create a schedule for that route, if you choose no; then you have the chance to do it later with the "**New Schedule**" button.

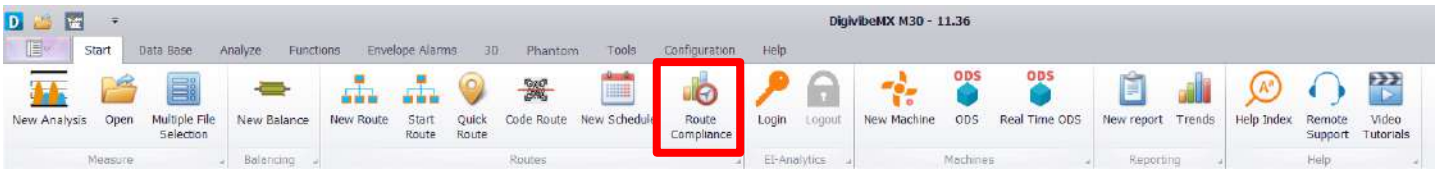


Pressing this button will open the schedule window. Here you can locate each route in the group where you have it saved. With the dropdown menu you can chose the scheduled frequency of the route. You can scheduled them daily, monthly, annually or in dates determined by the user.



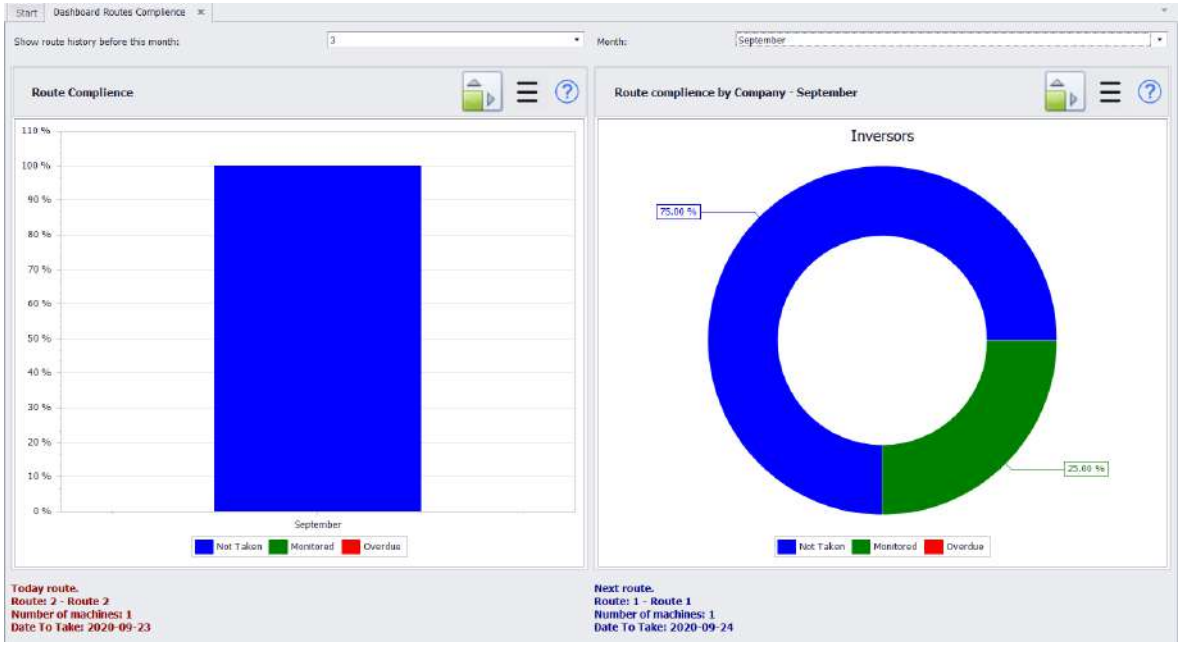
Once that you have selected the days or dates on which you want the route to be scheduled, click "**Save**".

To check the state of your programmed routes, press the "**Route Compliance**" button.



This will open the graph compliance window. Here you can see all the routes grouped in three different categories depending on the compliance status of your route.

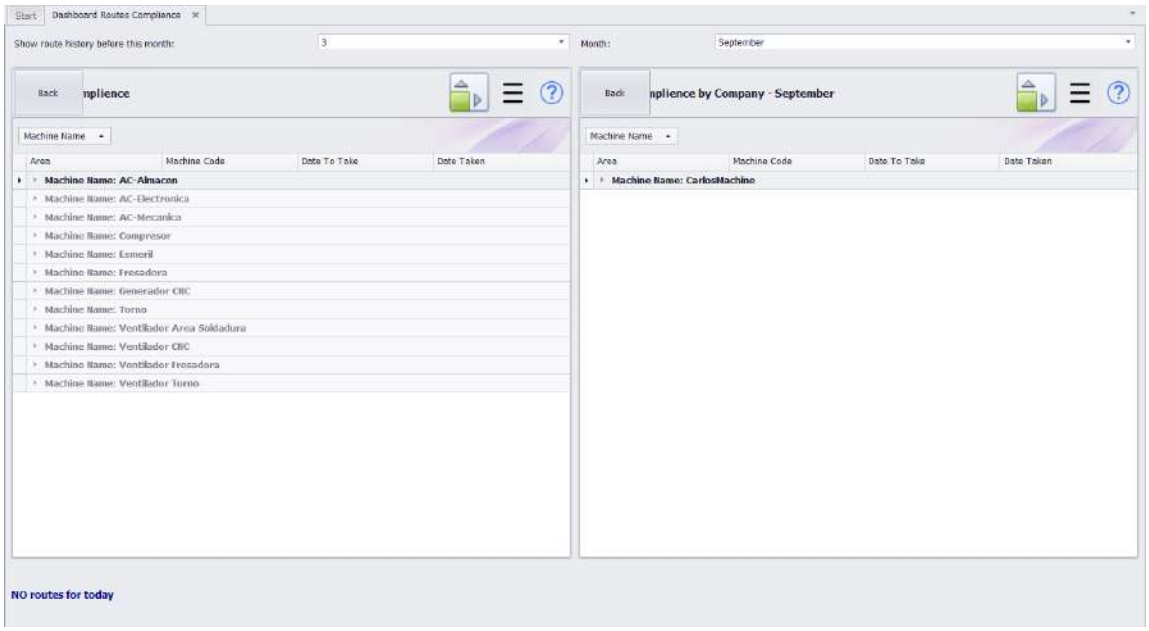
The three status that you can find in this window are:



- **Not taken:** In this color you will find every scheduled route that are pending to measure..
- **Monitored:** This color will group every programed route that have already completed all the days of its schedule.
- **Overdue:** In this color you can find every route that wasn't taken on the day that they were programed and so they are delayed or overdue.

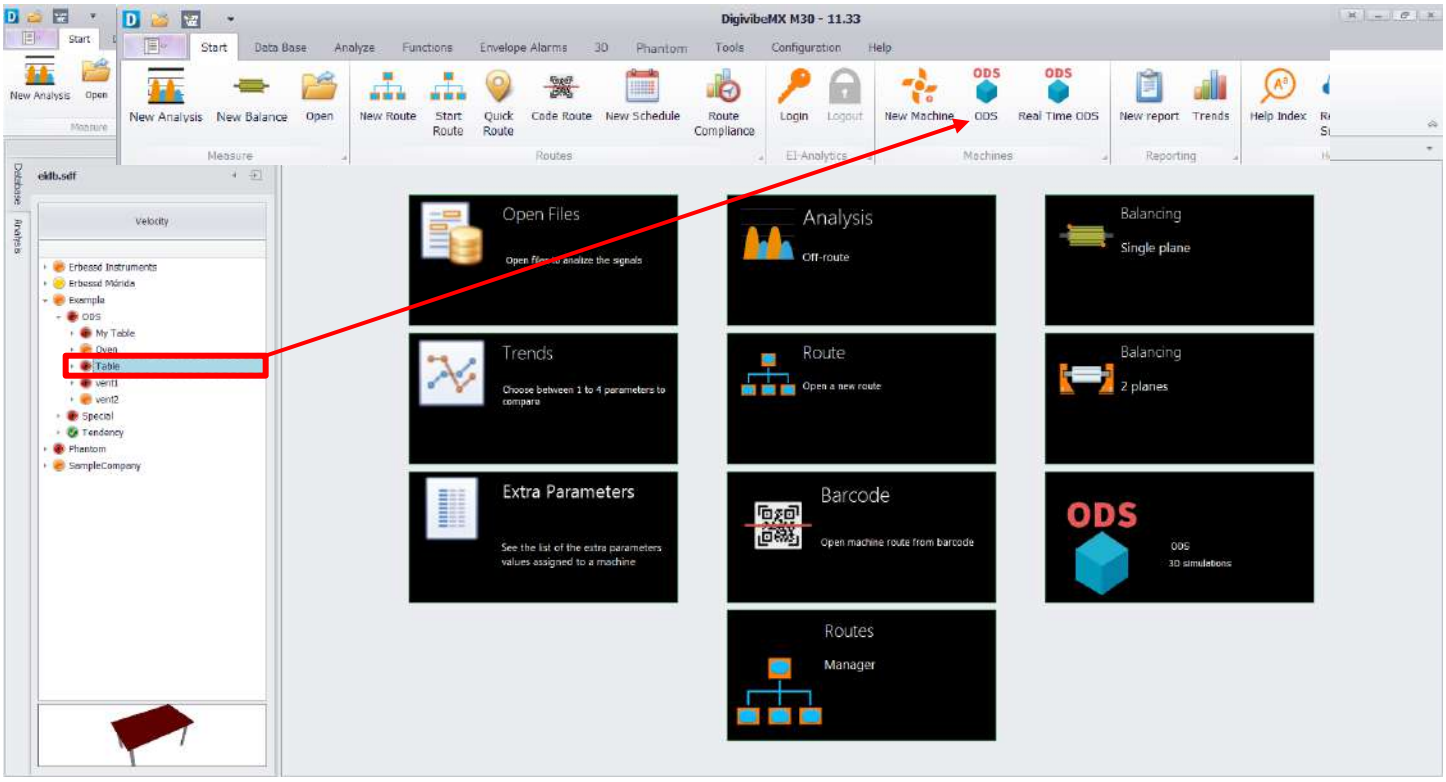
In the lower bar you will see defined which is the next route to take today and which is the next one that hast to be taken indicating date and number of machines.

When you click on any graph, you will see the machines on where that graph was made. You will see all the machines assigned to that route.

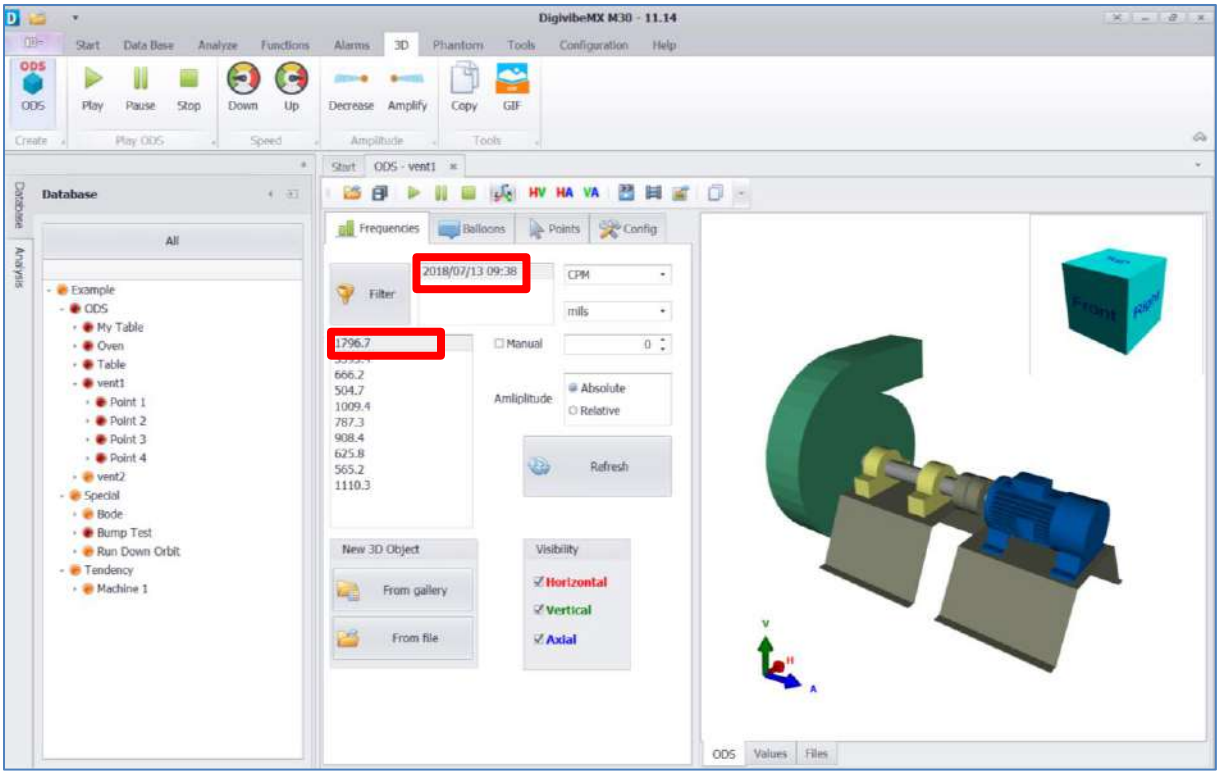


Analysis of ODS Data

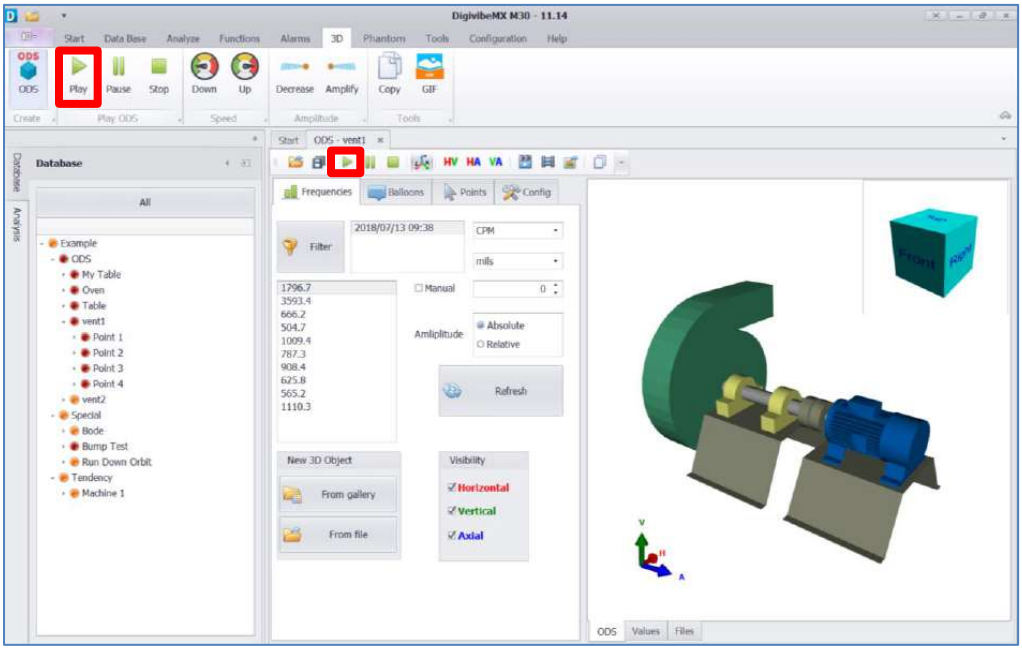
Select the machine you want to analyze and start the **ODS** function:



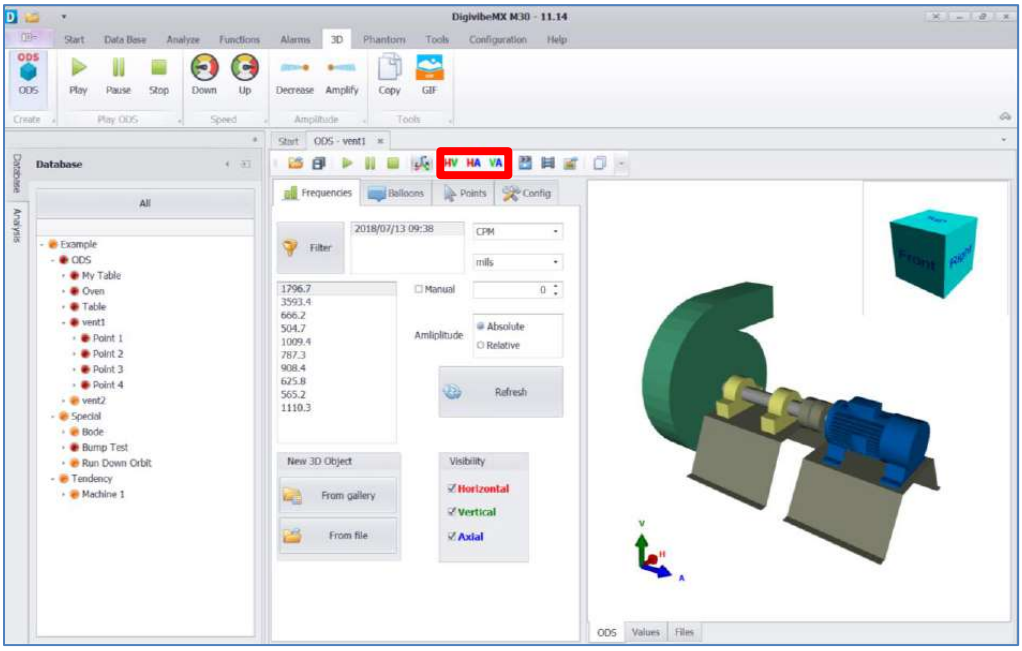
Select ODS data collection route by date and RPM.



Select Play to begin the ODS animation of collected data.

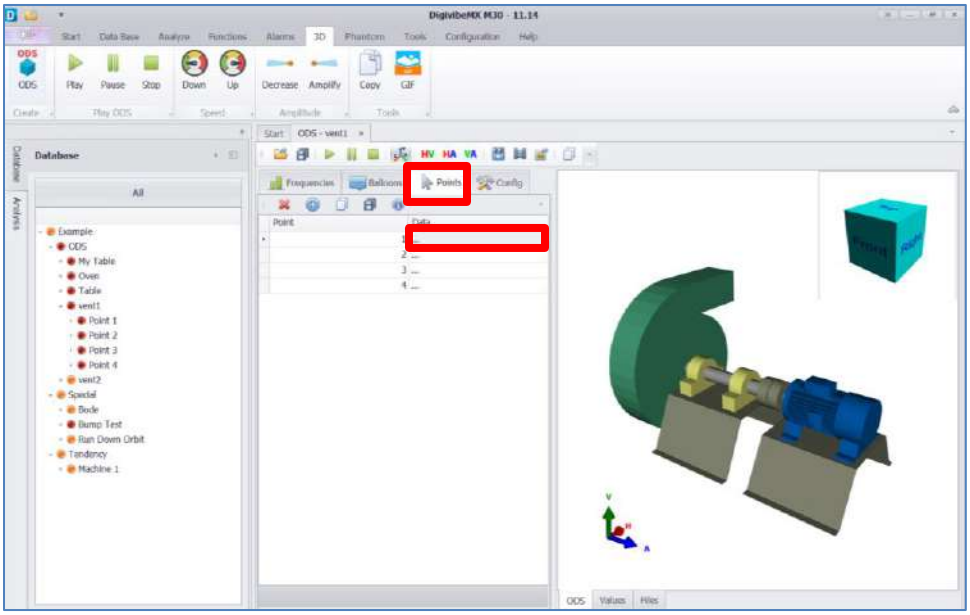


The animation speed of the ODS model can be increased or decreased using the Down or Up controls. The effects of vibration can be reduced or increased with the Decrease or Amplify controls. A still image or moving .gif file can be copied for Word documents or emails using the Copy or GIF controls. Axis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



Phase Analysis of ODS Data

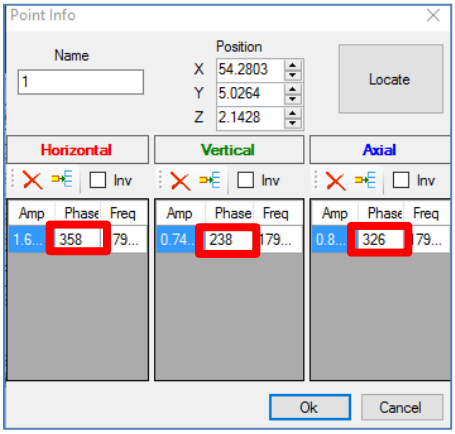
Select the Points tab and click on the Data cell of the point you want to analyze:



- The phases are calculated between all points with respect to the Reference:
- Horizontal
- Vertical
- Axial

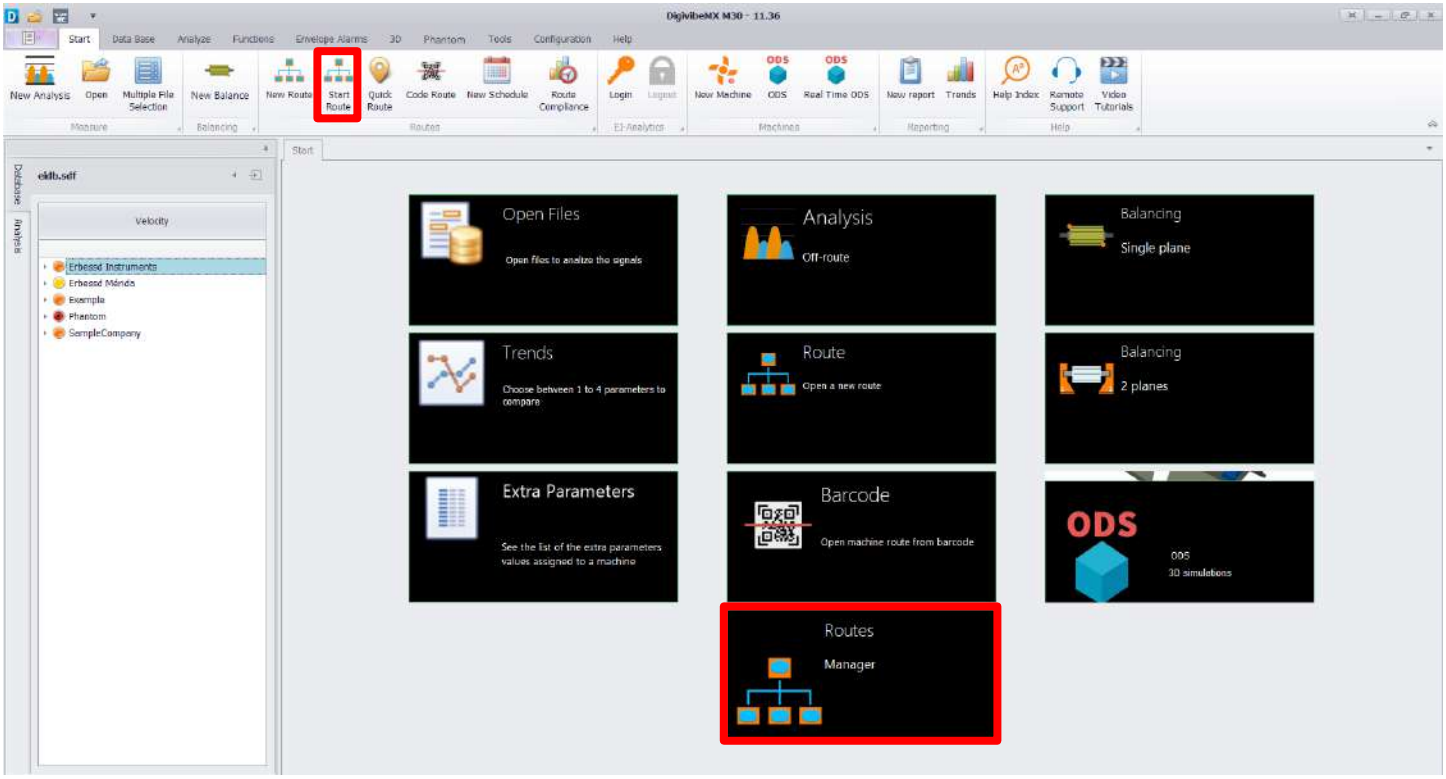
Subtract the phase of the point and direction that interests you with respect to the 2nd point of interest and thus obtain the phase between them (for example the Phase between 1H and 1V = 358 ° - 238 ° = 120 °).

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).



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 an organized into logical Routes that a technician would travel for fast, efficient data collection with portable instrument such as WiSER, WiSER3x or the GX-400 wired interface. To create a new data collection Route, select New Route from the Start Menu options or select the Routes Manager tile.



Advance Tendency (M20, M30, Phantom)

On the Tools menu, select the Advance Tendency icon

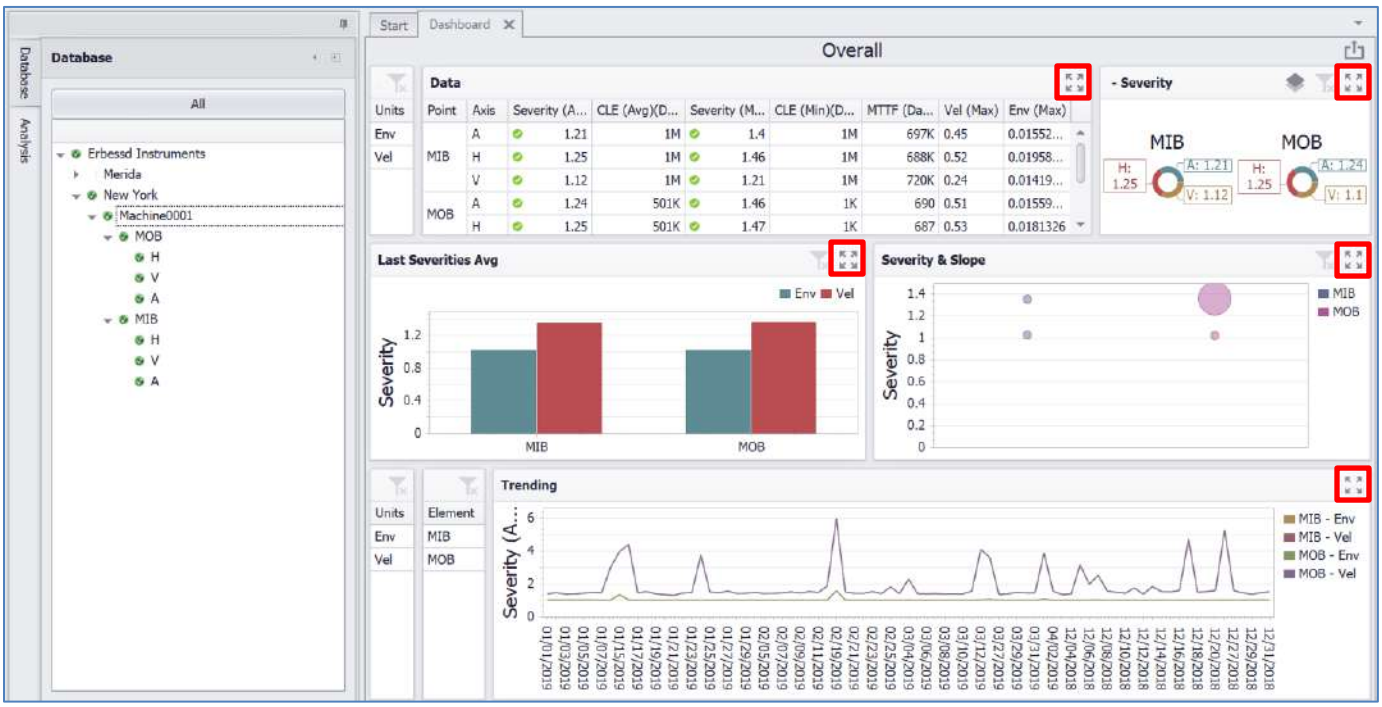
to open the Dashboard window.

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 -**
- **Trending** panel – Displays a severity trend for all historical readings in the database.

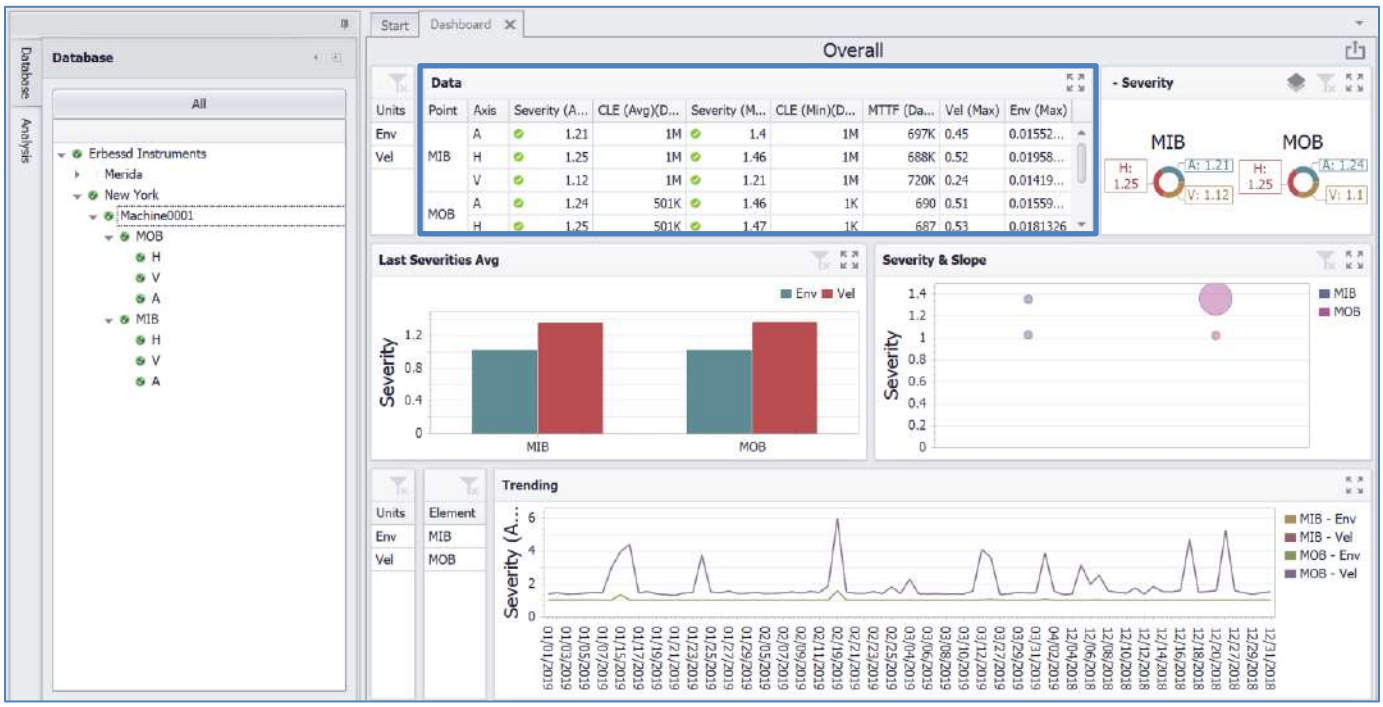
The data displayed is determined by the database level selected – Company, Area, Machine or Point. Clicking the arrows button on any panel opens it to a full-size window view.



Advance Tendency continued (M20, M30, Phantom)

Data panel

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



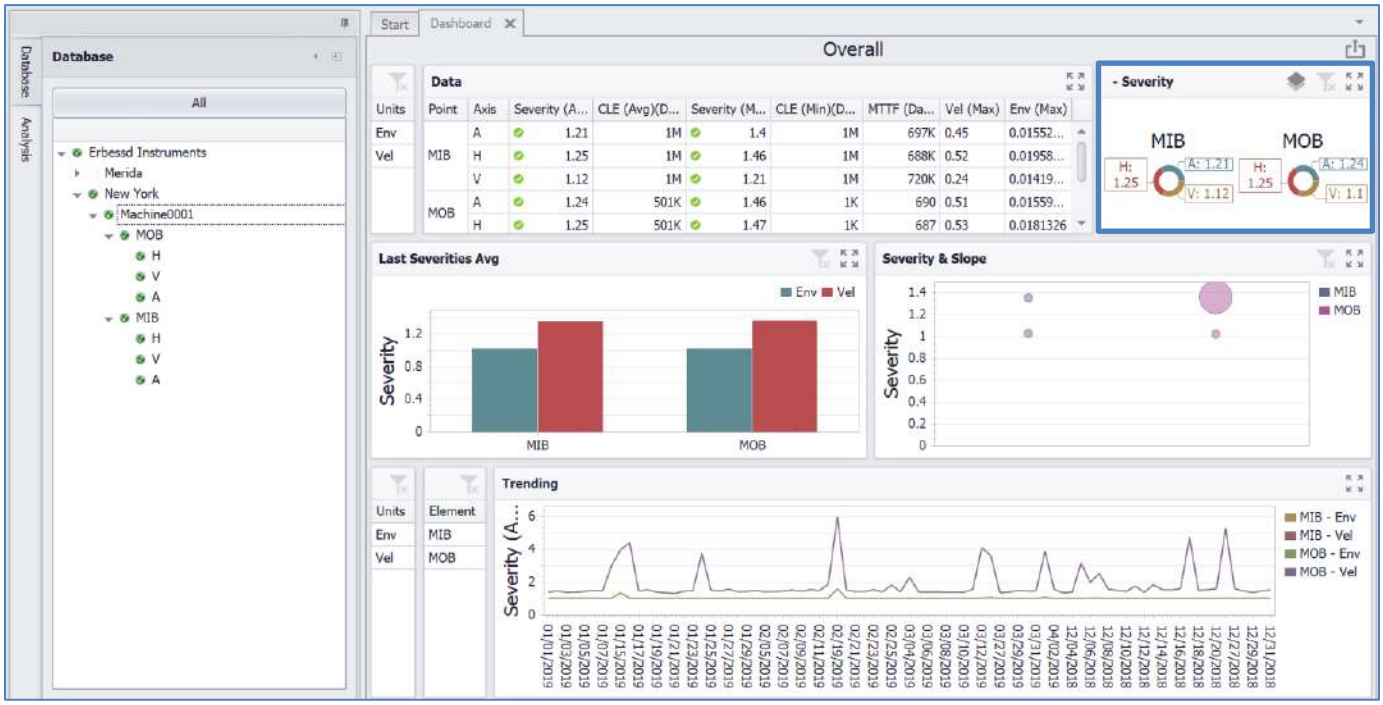
- Area: The area in which the data was collected. (When database level Company is selected)
- Machine: The machine on which the data was collected. (When database level Company or Area is selected)
- Point: The monitoring point where the data was collected. (When database level Area or Machine is selected)
- 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.

Advance Tendency continued (M20, M30, Phantom)

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)

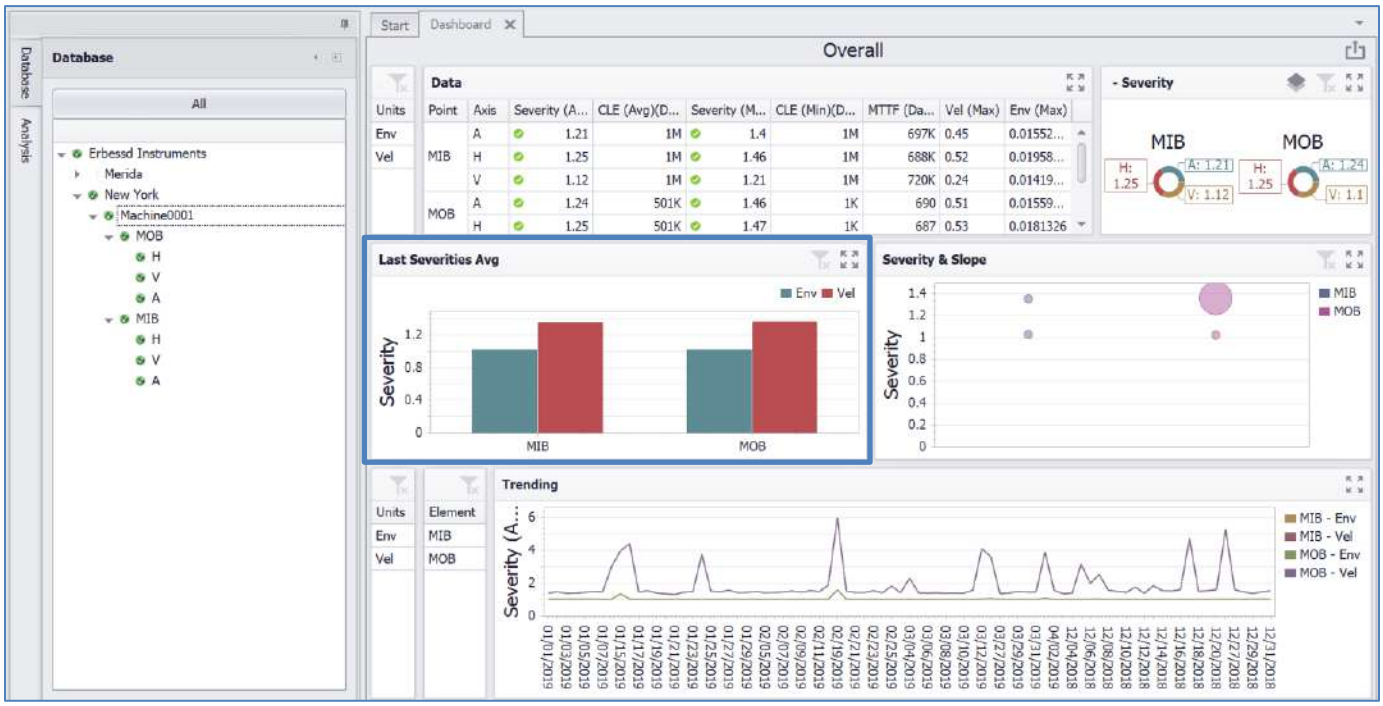
Ring segments are divided equally among the next lower level of database, beneath the level selected (Areas when a Company is selected, Machines when an Area is selected, etc.). Colors are only intended to distinguish between ring segments. Colors are not an indication of severity or alarm status.



Advance Tendency continued (M20, M30, Phantom)

Last Severities Avg panel

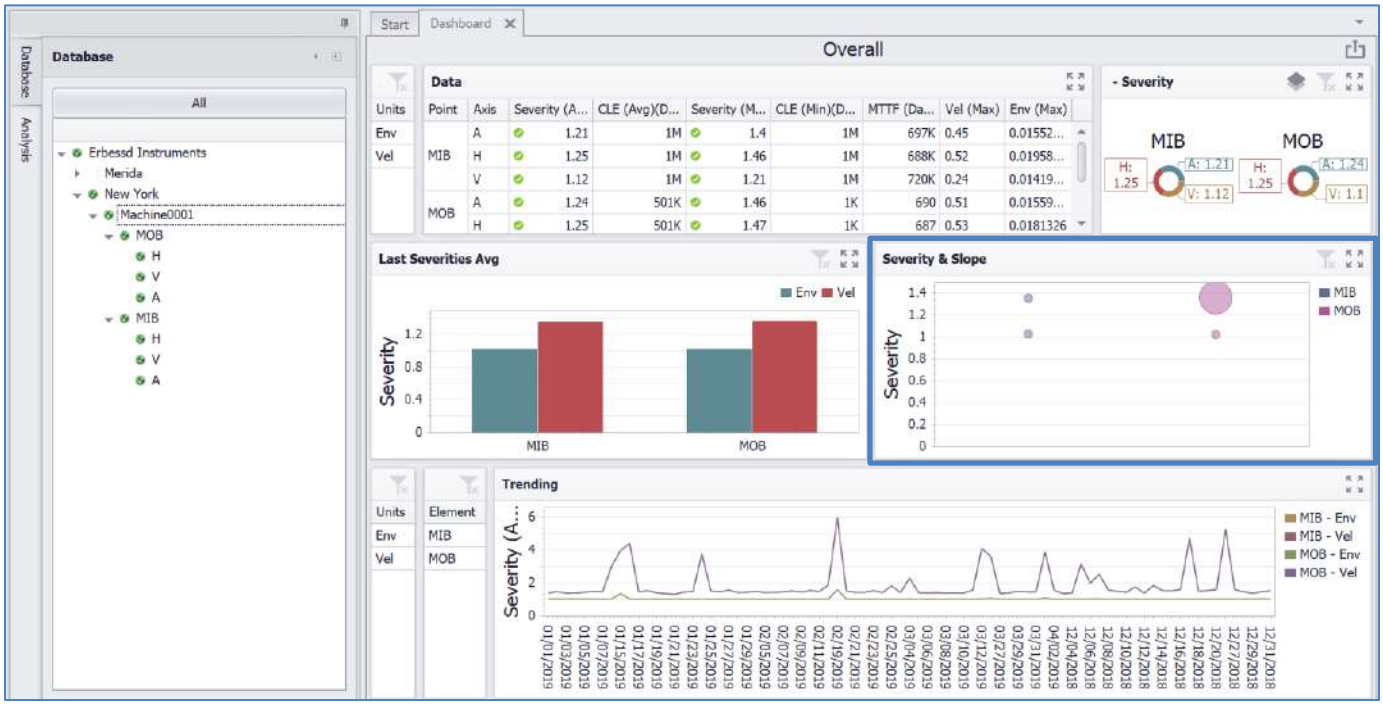
The Last Severity Avg panel provides a bar chart overview of average machine health severities, based on the most recent recordings versus any currently-assigned alarm values: Velocity, Acceleration Envelope, Acceleration and/or Displacement. (0-1=Inoperative, 1-2=Excellent, 2-3=Satisfactory, 3-4=Unsatisfactory,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



Advance Tendency continued (M20, M30, Phantom)

Severity & Slope panel

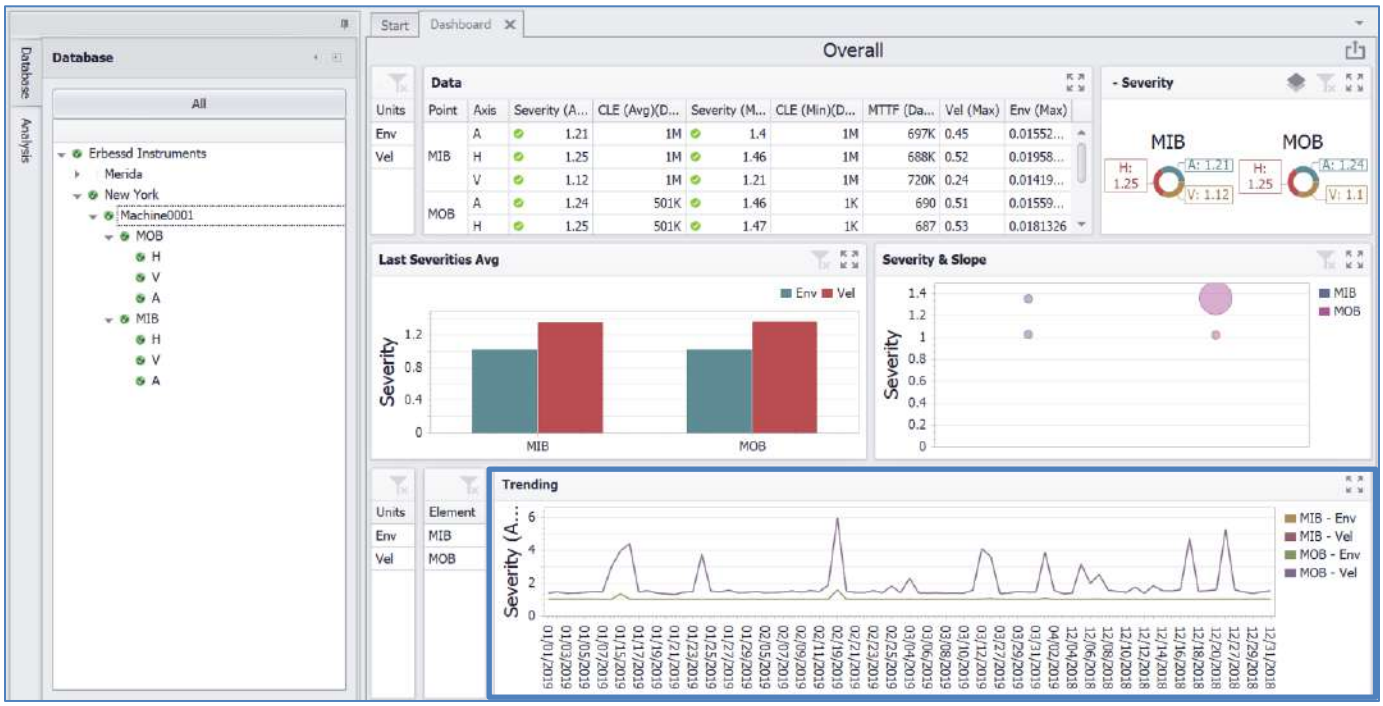
The Severity & Slope panel provides a chart overview of average machine health severities and the degree of change between the last two recordings. The circle position on the graph indicates the current severity. The size of the circle indicates the slope of change between the last two recordings (whether 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)



Advance Tendency continued (M20, M30, Phantom)

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)



Saving and Uploading Data Files

In several functions, DigivibeMX® generates its own files by ordering them in the database, however in the options such as Generic Analysis and Generic Balancing this does not happen since it is not assigned to any equipment. This does not mean that the signals can not be saved. On the contrary, the difference is that you can do it if you want through the toolbar in the File menu - Save or Save As button, or from the context menu - File - Save.

DigivibeMX® handles several types of files depending on the function to which they correspond. They will be described below.

File Types

DigivibeMX® handles 8 different file types whose extensions are as follows:

Extension	Compatibility	Description
.anl	DigivibeMX®	Files of 1 single channel of vibration analysis.
.anl	DigivibeMX®	2-channel rolling files.
.asc	DigivibeMX®, Block de notas	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	Pictures viewer	It is used in vibration graphics and polar graphs. It is elective between BMP and JPG
.bmp	Pictures viewer	It is used in vibration graphics and polar graphs. It is elective between BMP and JPG

Saving Files

Save Options:

- **Button** Save the file corresponding to the visible session.
- **Button** Save as.
- **Button** File menu.
- **File menu - To export - As image**: Save the spectrum image.
- **File menu – Save – Save to Database**: Export to specific database.

Opening Files

Options to open files:

- **Button** Opens a selected file
- **File menu - Open**: Opens a selected file
- **Double-click the desired file from the database file window**: Open the selected database file in a new window.

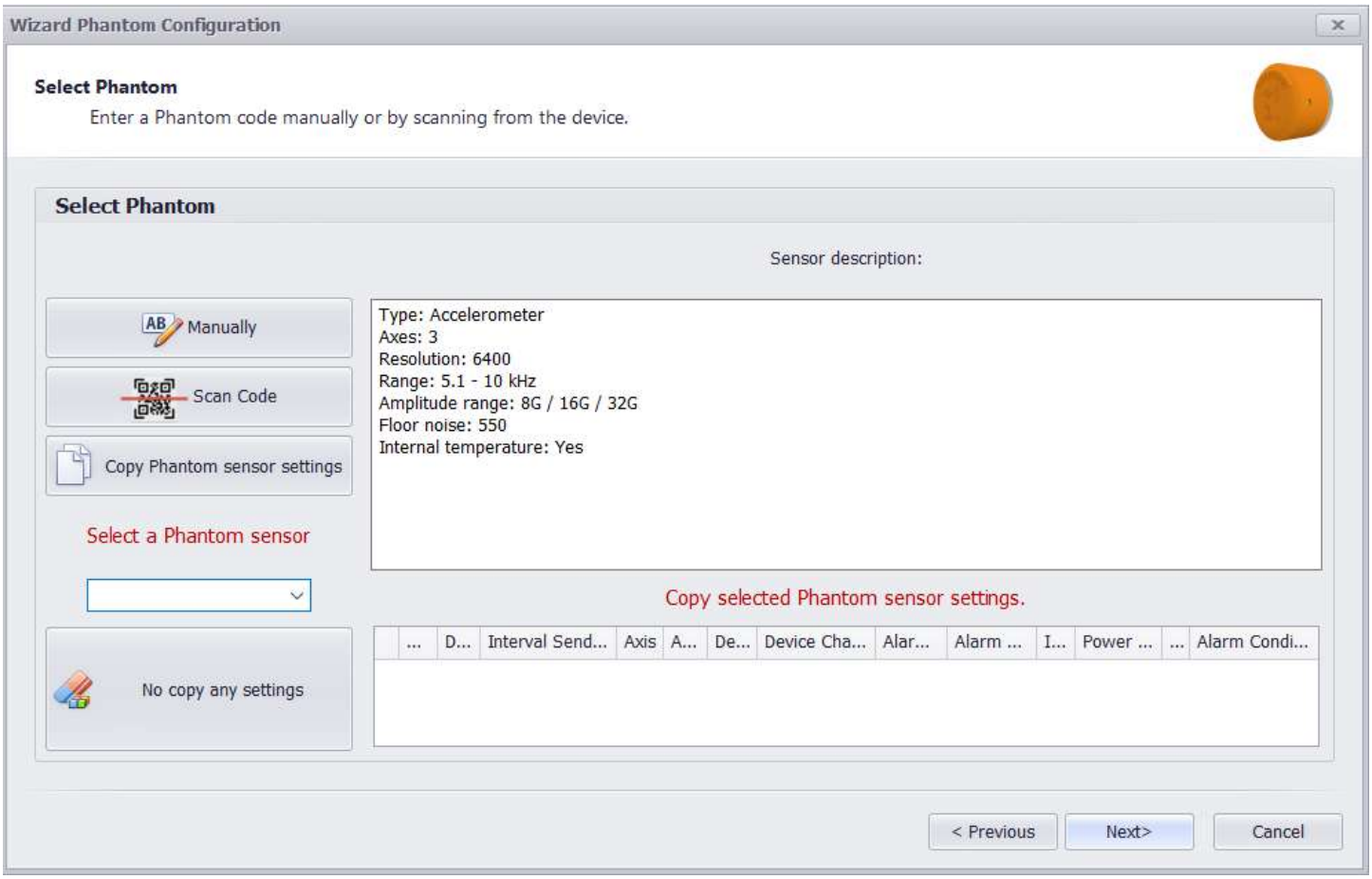
Phantom Menu Tools

This menu includes many of the necessary tools to set, visualize and create alarms for the Phantom devices.

Phantom Tools

Wizard

Phantom tool that allows a step by step configuration for the sensors. Click the Wizard button to open the Wizard main window and click Next to open the Phantom Configuration:

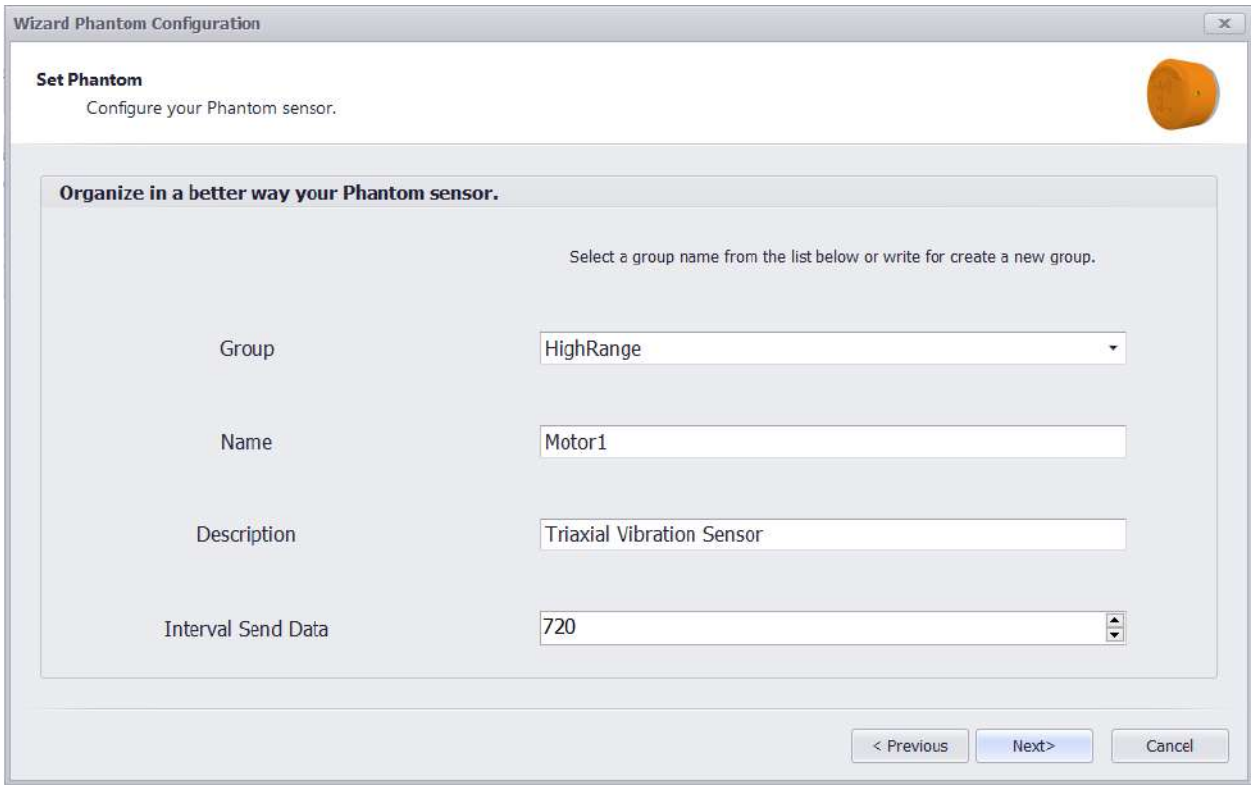


In this window you will be able to register one sensor at a time. You have two options:

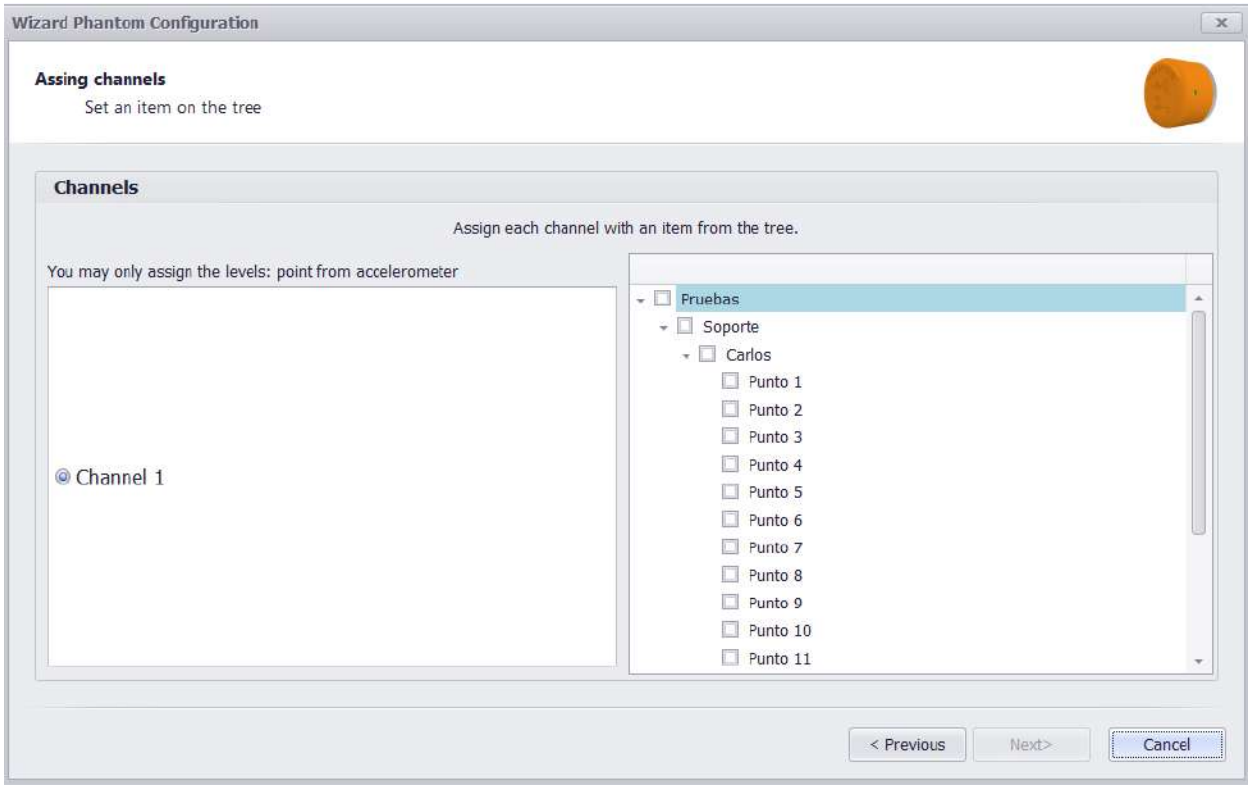
- **Manually:** Allows you to add the sensor with the serial number (including the prefix).
- **Scan Code:** Allows you to add the sensor with the QR code printed on the label.
- **Copy Phantom Sensor Settings:** Allows you to copy the exact same configuration of another Phantom sensor.

Once the sensor is added, you will observe a description regarding its type. Then click “Next”.

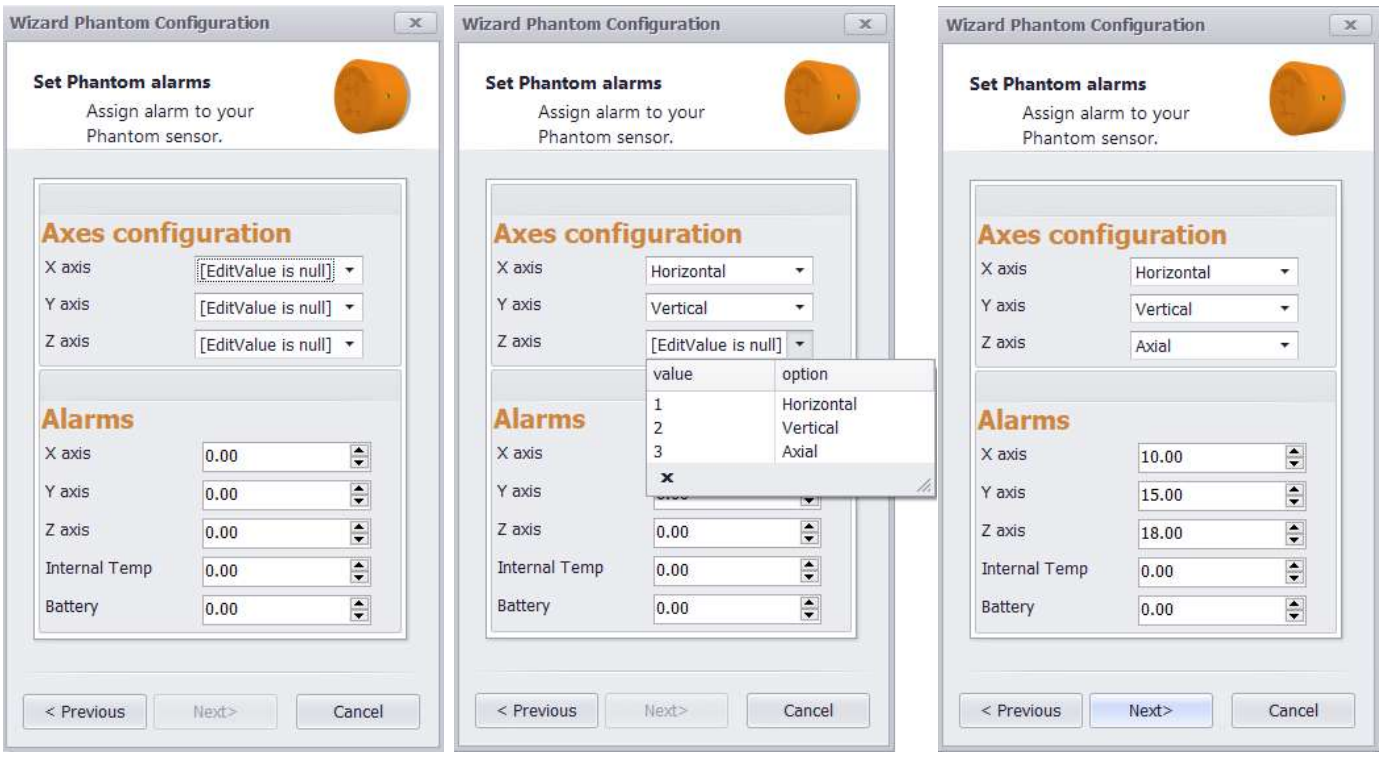
In the next screen you have the option to create a group where the sensors will be organized or you can choose between a previously created group. You can also assign a name and a description for the sensor. In the last option you can define the “Interval send data” (if applicable) for the added sensor. Once that all of your configuration are as desired, click “Next”.



The next screen allows you to assign the sensor to an specific machine point; you can choose between two available point that has not been previously chosen for the same type of sensor that you are adding.



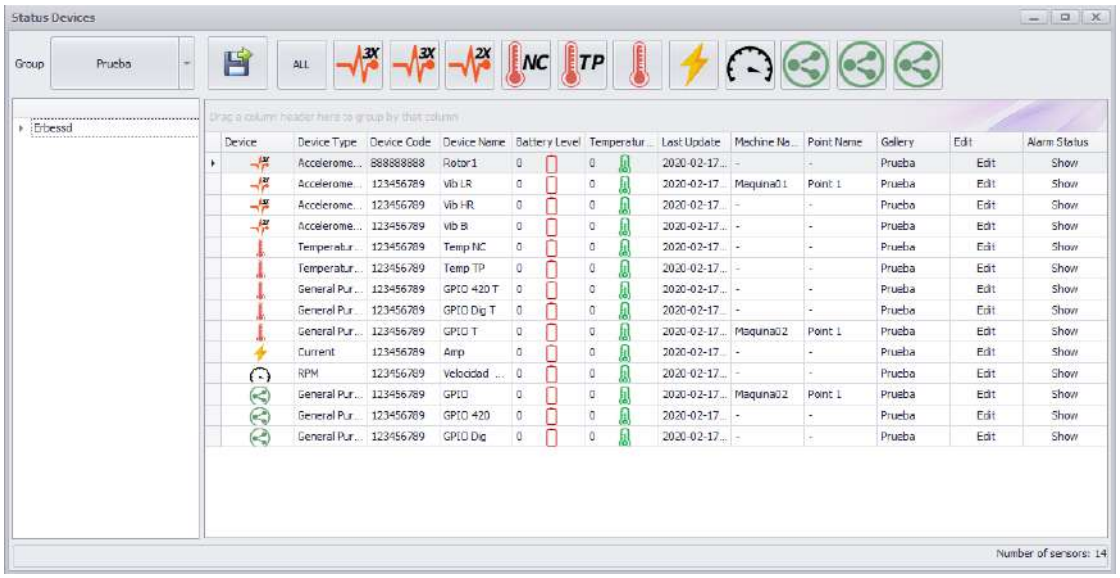
In the next you can set basic configurations depending on the sensor you are currently adding, in this case you can choose the axis orientation of your triaxial sensor, however, you can also choose the value of your current clamps, etc. The next section of this windows you're able to set up the alarmas depending on the parameter you are going to measure with the sensor, also you can define alarms for battey leven and internal temperature. This values can be changed later.



When the sensor is completely set with the desired configurations, click "Next". The final window will pop up where you will see a summary of the information of the sensor you just configured. Click "Finish" and the Wizard will close.

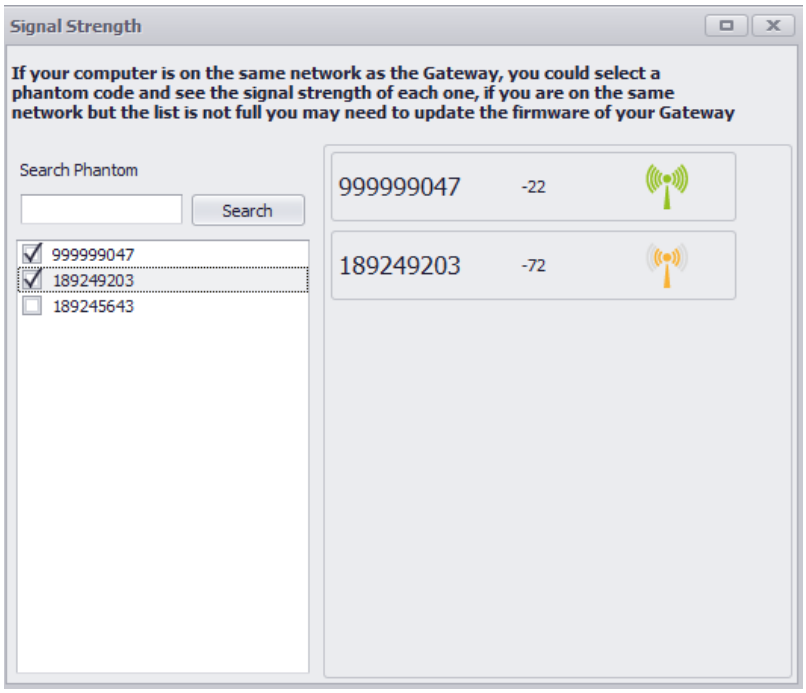
Status

Tool that shows and overview of the sensors added to the database. The window shows name, type, sensor temperature, battery, assigned machine, etc.



Signal Strength

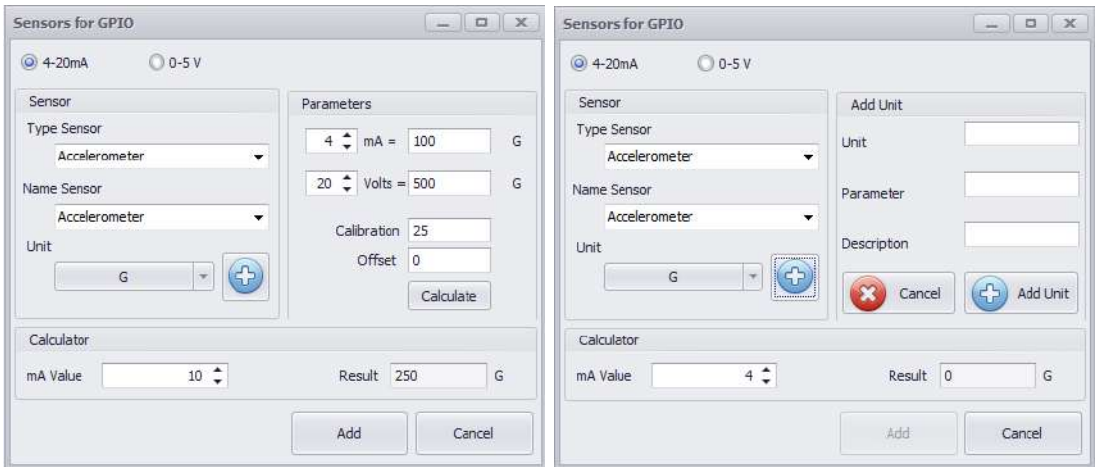
The Signal Strenght option shows the quality of the connection for the Phantom device detected by the Gateway. Clicking the icon will display a wizard with the list of sensors and their checkbox. Selecting any of these (it can be more than one) will show the signal value of each individual sensor or sensors expressed in decibels, where a signal closer to 0 will be a stronger signal.



Set Up Tools

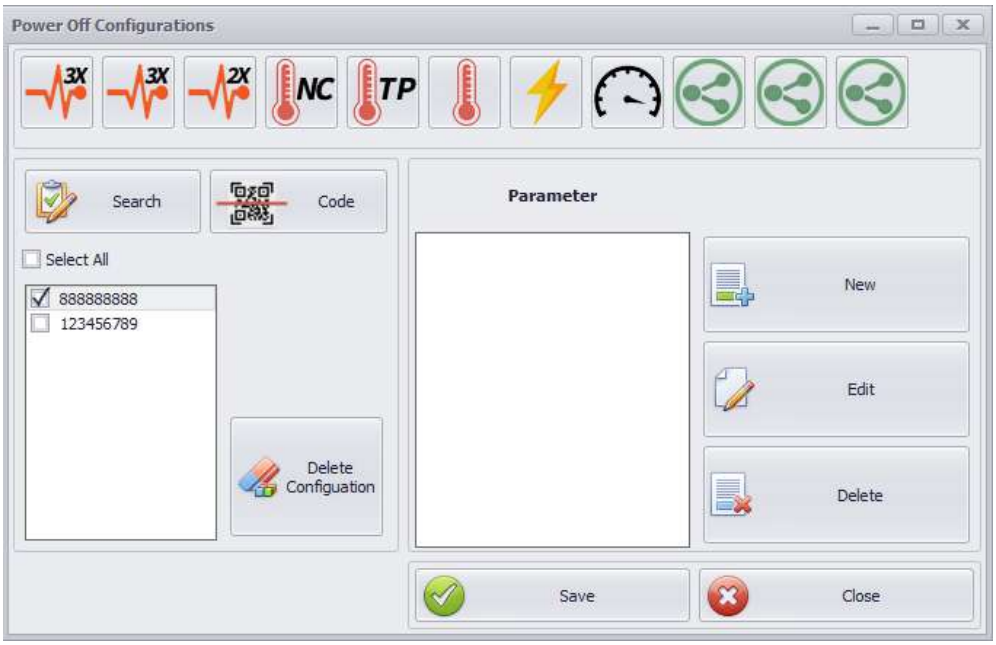
Add GPIO Sensor

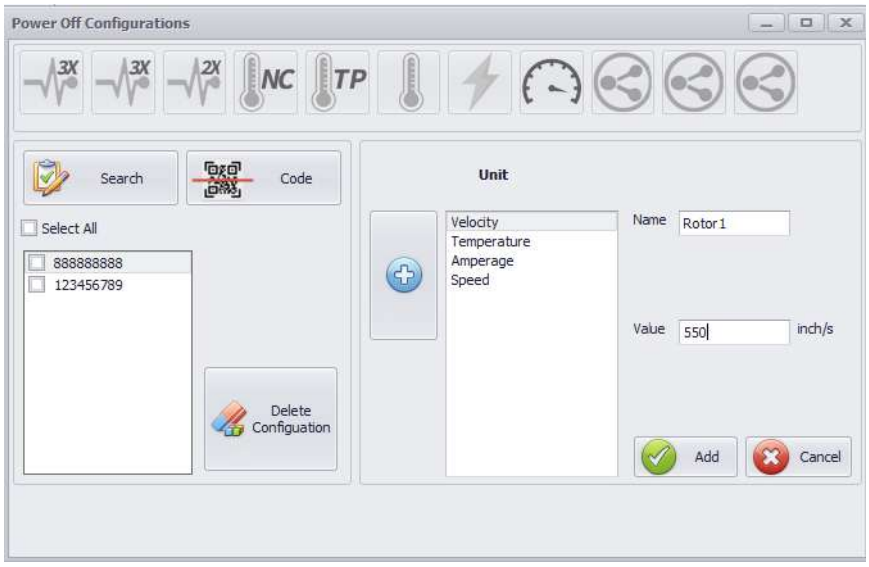
It´s a useful tool to collect data through GPIO sensors, you can set up the 4mA to 20mA and de 0V to 5V sensors. It allows personalized units configuration with parameters defined by the user. With the blue plus sign it's possible to access to that option.



Power Off Configurations

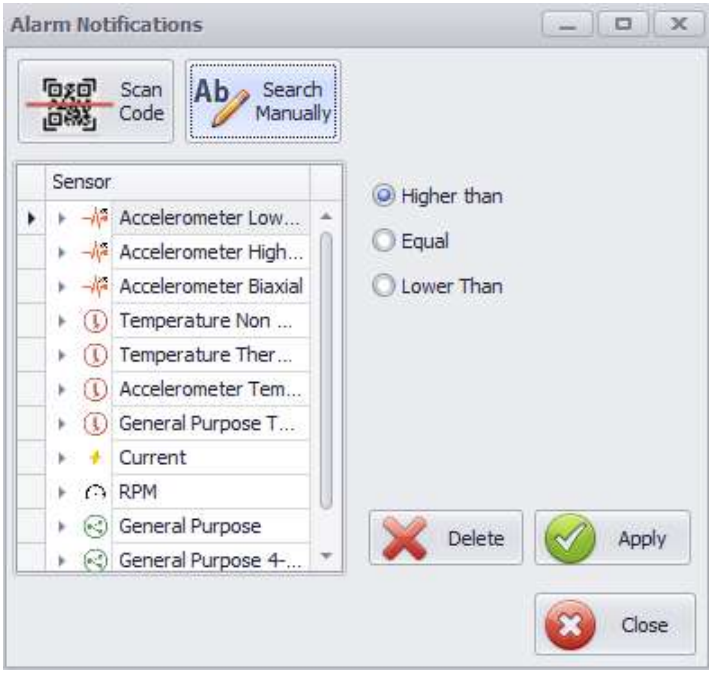
With this tool it's possible to choose under what circumstances the sensors are required to be active. The New button allows to create the power off parameters of the sensors selected from the list. The blue plus sign allows to create a personalized unit. Once that the power off parameters are set, clck Save and the settings will be assigned to the sensor.





Alarm Notifications

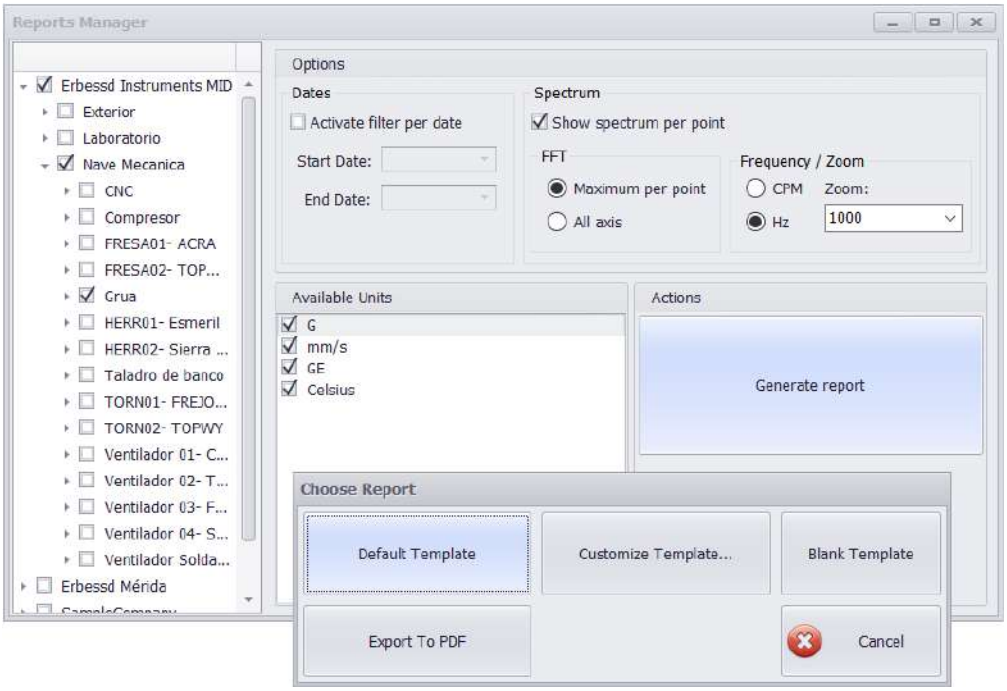
With this window it's possible to choose minimum alarm values for sensors that are assigned to a machine. The alarm options to choose are Higher tha, Equal to and Lower than for the values defined in the axis boxes.



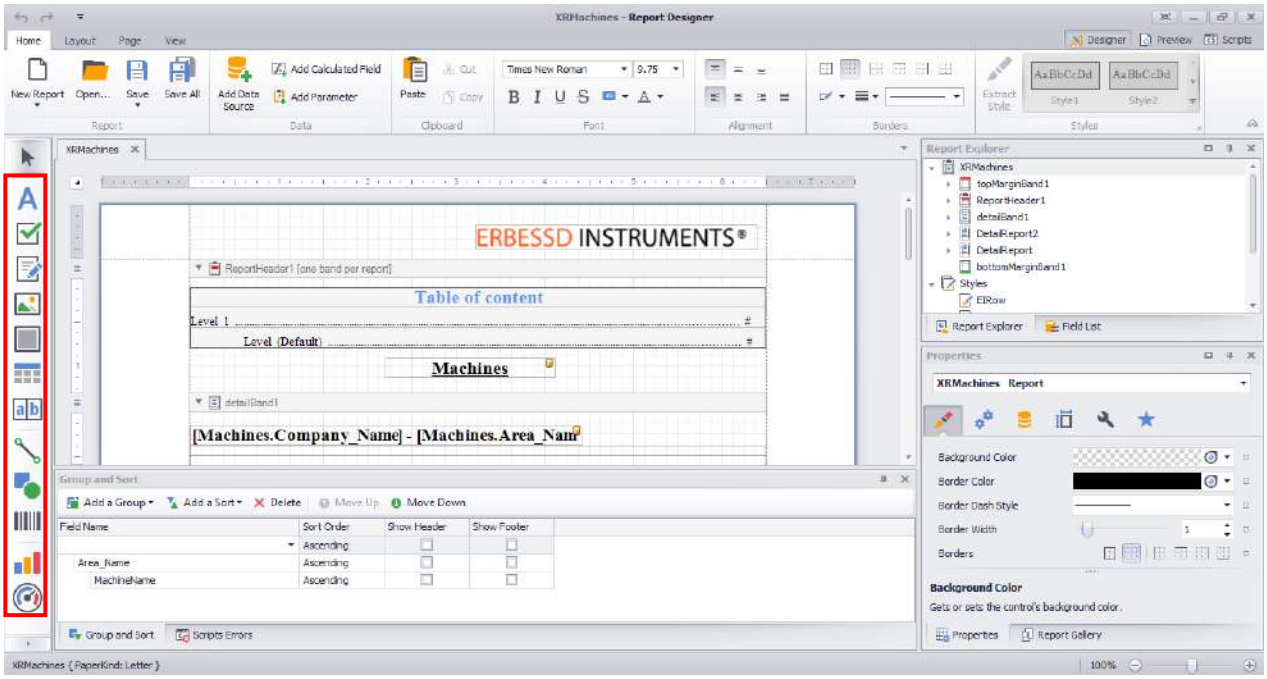
Note: The Vibration and GPIO sensor can measure both their designated parameters and temperature as well. The alarms for the temperature are set separately and you can find a subsection in the alarm setup named "Accelerometer Temperature" and "General Purpose temperature" whichever the case.

Reports (M30, M20, M10)

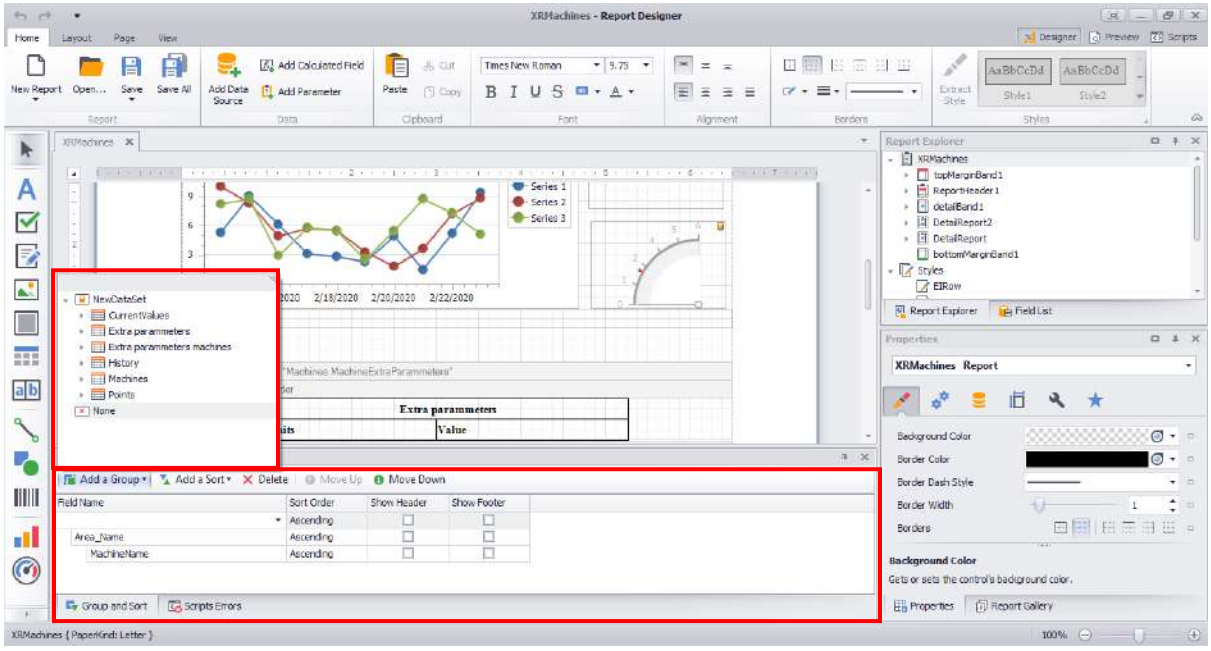
To create reports on DigivibeMX® software, click on the New Report button from the Star Menu. Immediately will open the Report Manager Window, here you can select the Machines and the Points on which the report will be generated. Also it is possible to choose the preferred units for the values of the report and you can select to show a spectrum per point.



Once that the selected options are correct, click on the Machine button to open the EI Report Designer. The EI Report Designer allows to modify the content of the report through various tools. The left panel includes tools to add visual elements to the report such as text boxes, images, shapes, forms, graphs, etc.



The lower panel includes the necessary tools to manage the data shown in the report. Clicking the Add Group and Add Sort buttons allows to select the required data form the dropdown menu. This data con also be Deleted or change the level or priority with the Move Up and Move Down buttons.



The EI Report Designer includes tools menu that allows to customize the report. The Home menu includes the tools:

- **Report Tools:** It allows to manage the save options of the report or to open a previous report.
- **Data Tools:** It allows to add analysis parameters an also a database source to select the data needed to generate the report.
- **Clipboard Tool**: Copy, cutting and pasting tools to add external or internal elements.
- **Font Tool:** Basic tools for the report text style.
- **Alignment Tool**: Allows to modify the text order of the report.
- **Borders Tool:** Allows to create bold borders on the report cells.
- **Style Tools:** Allows to choose a predefined style text between the lists of styles of the system.

The Design Menu includes the tools:

- **Alignment Tools:** Allows to modify of the graph data from its center.
- **Layout Tools:** Allows to modify and manage the quantity and space of the rows and columns of a chart.
- **Page Tools:** Organizes elements of the report and allows overlapping them.
- **Snapping Tools:** It allows to snap elements from the report on the grid lines.

The Page Menu includes the tools:

- **Page Setup Tools:** Allows basic editing of the report page-
- **Appearance Tools:** Allows changing the color of the page and adding a watermark.

The View Menu includes the tools:

- **Show Tools:** Changes the report to a printing view.
- **Zoom Tools:** Changes the zoom of the report pages.
- **View Tools:** Changes the available windows of the Report Designer.

Product Registration

DigivibeMX® is a registered trademark and therefore requires an activation via the internet that can be made using the "Registry" 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. These updates are published on the Erbessd Instruments® page and are free to all users of Erbessd Instruments within the installed version.

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