EI Analytic User Guide

Current to Version 2.15.3

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Table of Contents

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What is EI-Analytic ?

Erbessd Instruments EI-Analytic is a fully-featured Cloud database service for online Condition Monitoring. The benefits of using a Cloud-based model include:

- **Alarm Notifications**. Real-time notification of machine alarms enables a proactive maintenance approach, avoiding costly unplanned outages.
- **Sharing of data**. Easily share a database with co-workers or third-party analysts to collaborate in the maintenance process.
- **Ubiquitous access**. Any device with a web browser and access to the Internet can connect to EI-Analytic.
- **Useful Dashboards**. A wide variety of customizable dashboards are available, designed for quick summary views of machine health or in-depth display of individual machines.
- **Auto Diagnosis**. Diagnose Manager analyzes vibration signal files from Phantom Expert triaxial or WiSER 3X portable sensors and assigns a percentage probability to the possible root cause(s) of the vibration measured.
- **Machine Learning.** Machine Learning algorithms can be applied to machine databases to determine baselines used to show Severity of Velocity and Acceleration Envelope in dashboards. Email and mobile app notifications can also be configured, based on Machine Learning Severity status.

Logging In

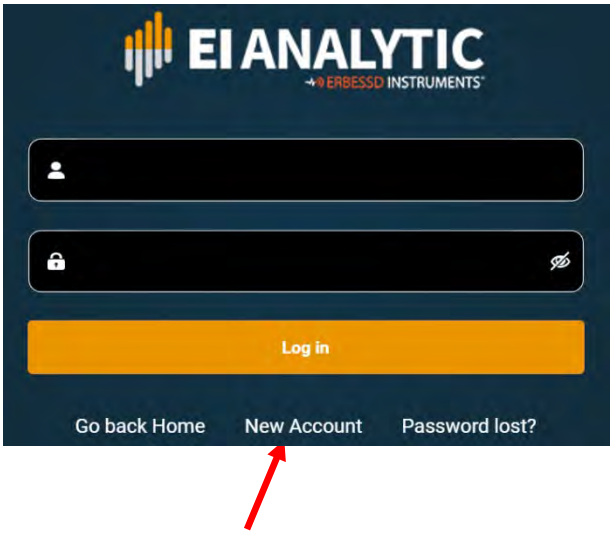
Create an Account

EI-Analytic accounts of up to 1 GB in size can be created free of charge. Databases larger than 1 GB require a paid annual subscription. Sizes range from 10GB to multiple Terabytes. To have a paid subscription service activated, please provide Erbessd Instruments Technical Support your EI-Analytic account Username to info@erbessd-instruments.com.

To create a new account, use the following URL:

https://app.eianalytic.com/

Click on **New Account**:



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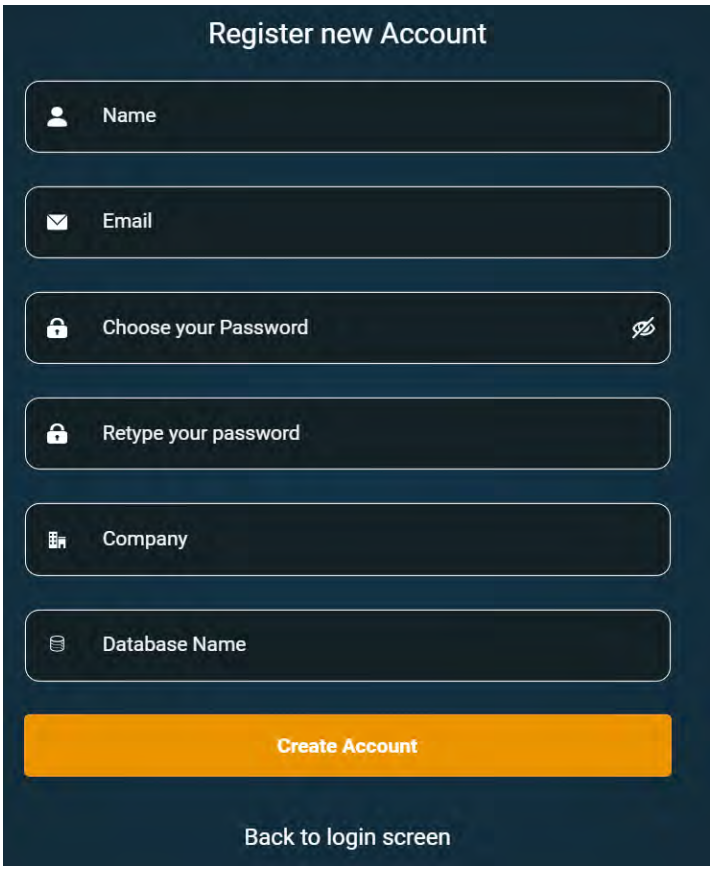
1. Enter a *unique* **Name** for the account.
2. Add the **Email** and **Password** info. The address does not need to be valid, in fact if multiple users will access the account, it would be preferable to create a generic Username in email address format (Ex: user@companyname.com). However, if email notifications are desired when a sensor in the database experiences an alarm condition, an actual email address must be used.
3. Enter a **Company** name – this must be all lowercase letters and/or digits 0-9 . The only special character allowed is an underscore.
4. The **Database Name** must be all lowercase letters and/or digits0-9, with NO spaces. The only special character allowed is an underscore.



Click on **Create Account** to complete the registration.

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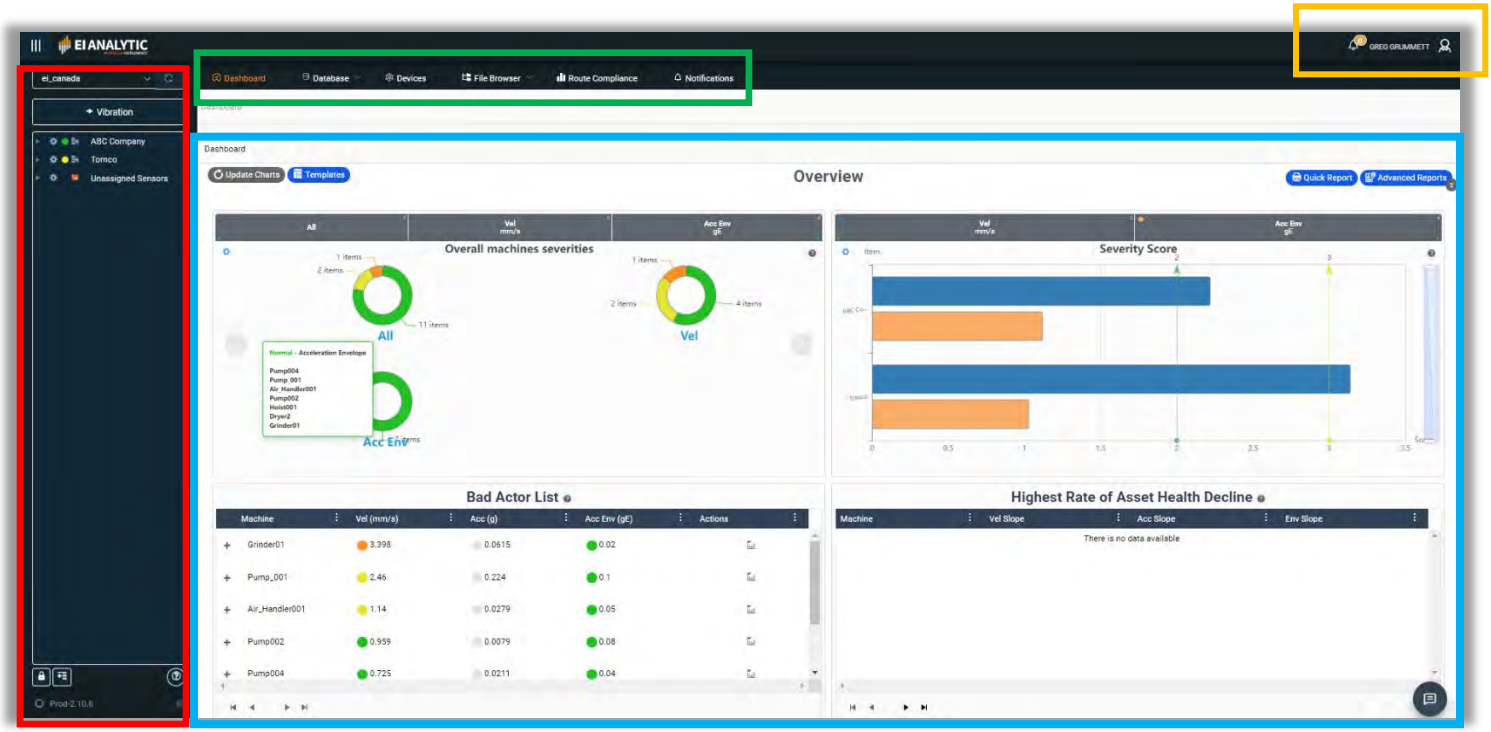
Home Page Layout

The EI-Analytic Home page contains:

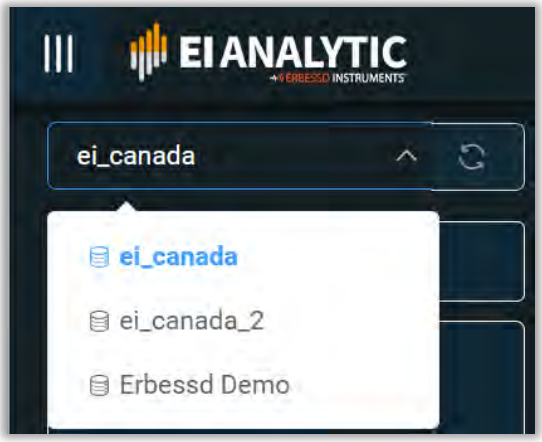
- The Database Area in the left panel .
- Menu Tabs
- The **Main Dashboard** - an overview of all Companies in the selected Database.
- Account Menu with a Notification icon. The number of current alarms is displayed.



The Database Area

Database Selector

If the Account has access to multiple databases, the Selector drop-down box is used to choose which database to view.



When changes are made on the Database Tree, it will update automatically. Use the Refresh button to refresh the database view manually.

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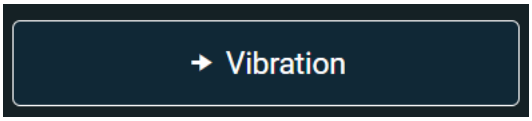
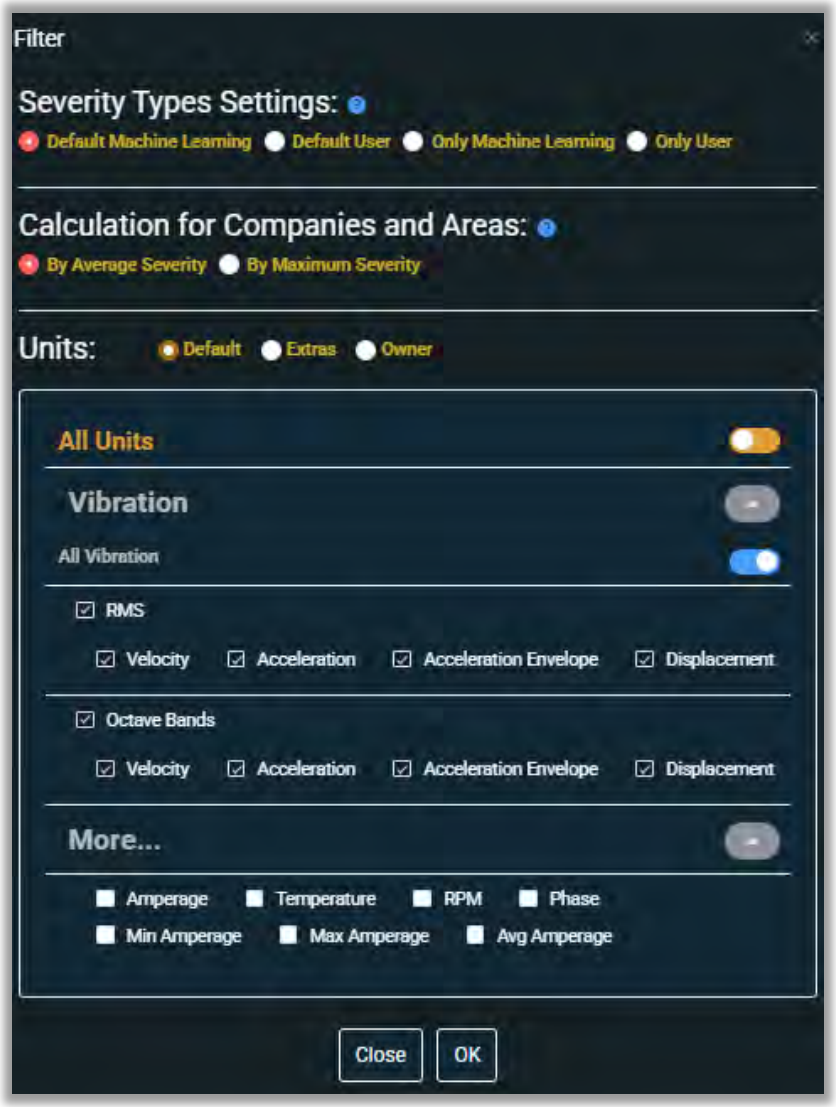
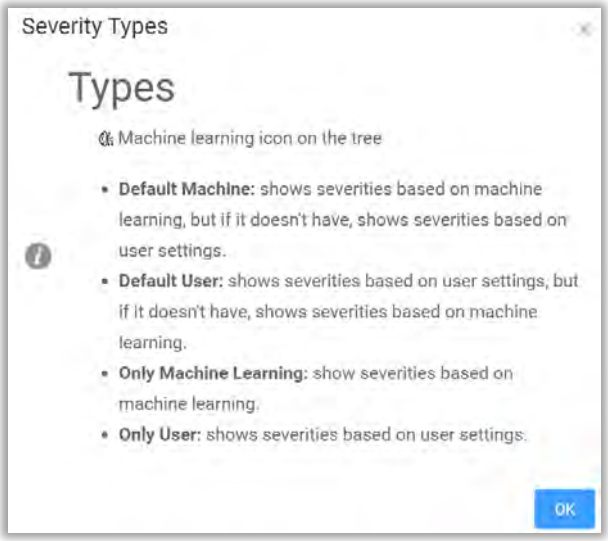
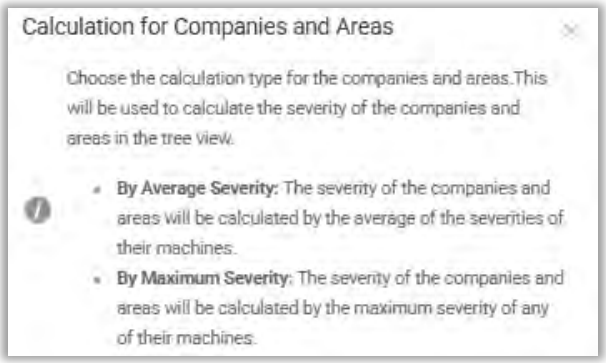
Database Filter

The Filter provides settings for the origin of the colors shown in the Database Tree and which units of vibration are displayed. The default settings are 1) Severity colors are derived from User alarm settings, or Machine Learning settings, if User settings are not configured. and 2) All vibration units.









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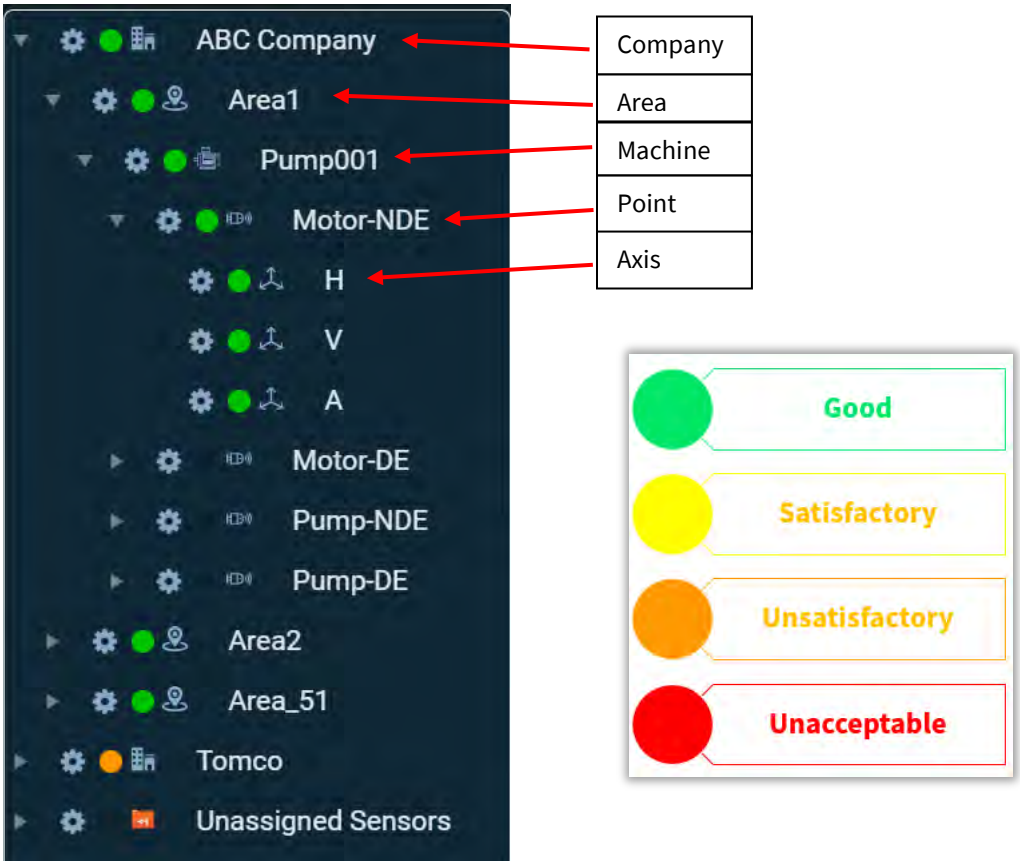
The Data Tree

Database tables are displayed in a standard tree format. Database hierarchy is as follows:

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



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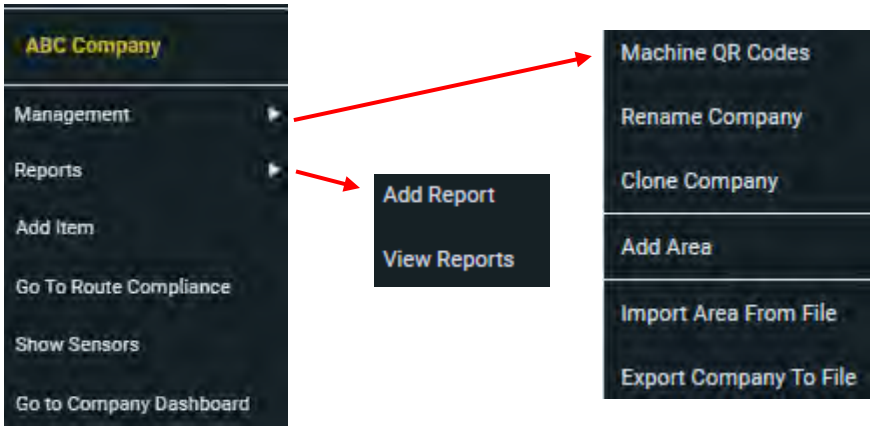
Click the Gear icon beside any entry for more functions.

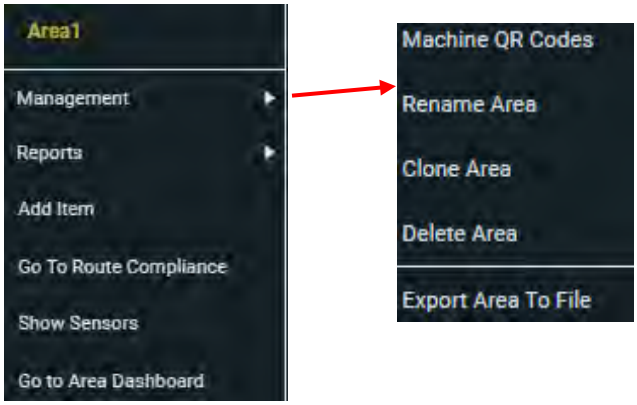
At the **Company** level, there are several options under the **Management** tab.

Reports may be added or viewed

Show Sensors - used to see all assigned Phantom sensors.



The **Area** functions include:



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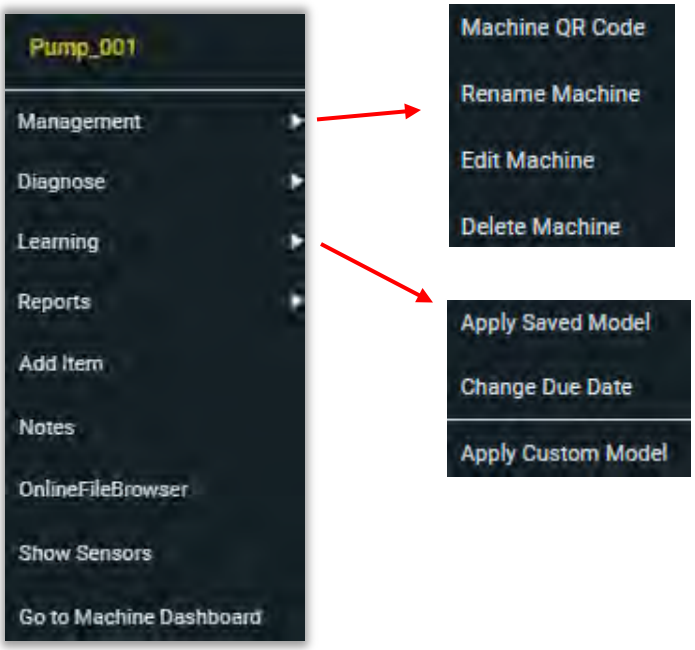
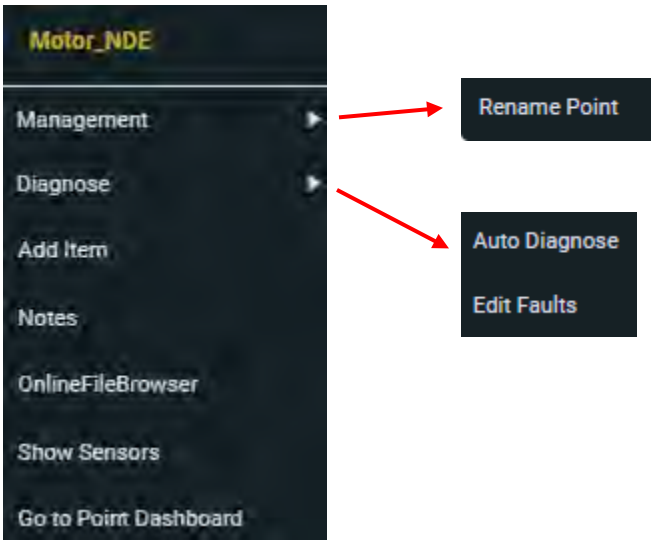
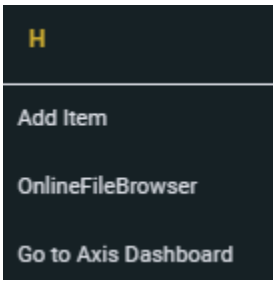
The **Machine** functions allow quick access to common **Management** tasks like **Edit Machine** as well as links to the Diagnose Manager feature, Machine Learning, and the Online File Browser.



The **Point** level functions include:



The **Axis** level:



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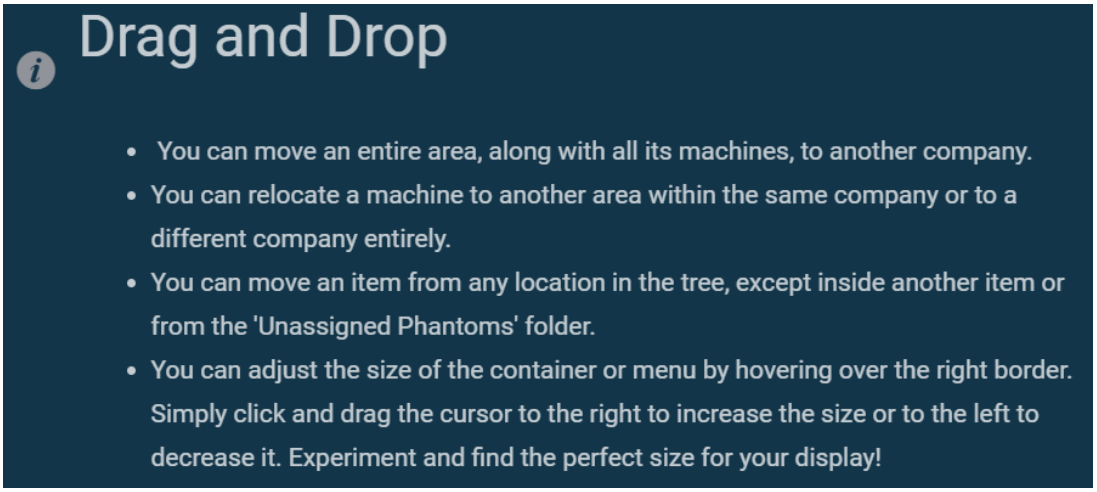
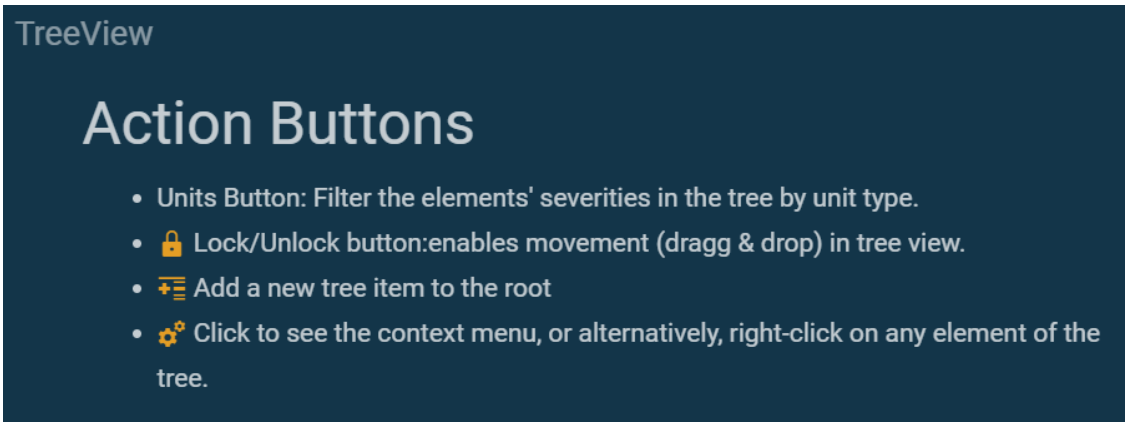
The Data tree supports drag and drop functions:



Additional Action buttons provide the following:



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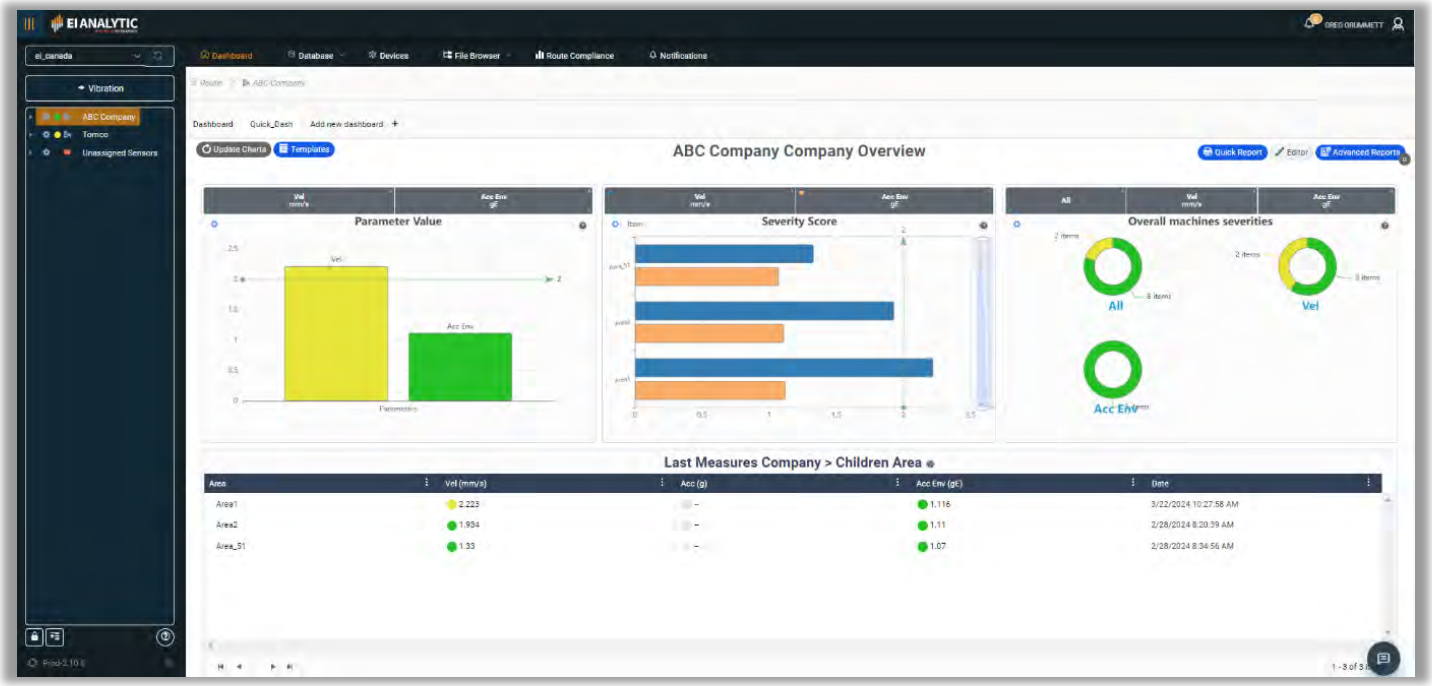
Clicking on any item in the Data Tree changes the Dashboard display. For example, clicking on a Company causes the Company Overview to be displayed. Select any Area, Machine, Point or Axis to see the Overview Dashboard for that item.

There are default Dashboards for each level of the Database, which can be customized. See the *Managing Dashboards* section below for more details.



Main Dashboard Charts

The Main Dashboard contains four **Charts**:

- **Overall machine severities**
- **Severity Score**
- **Highest Rate of Asset Health Decline**
- **Bad Actors List**

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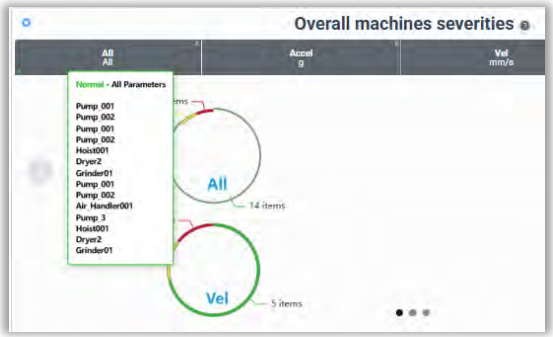
Overall Machine Severities

This Chart contains three pages of information. Page 1 has three circle graphs representing a Severity summary for all **Companies**, **Areas** and **Machines** in the database:

- All – includes Velocity, Acceleration and Acceleration Envelope data combined.
- Vel(ocity)
- Acc Env

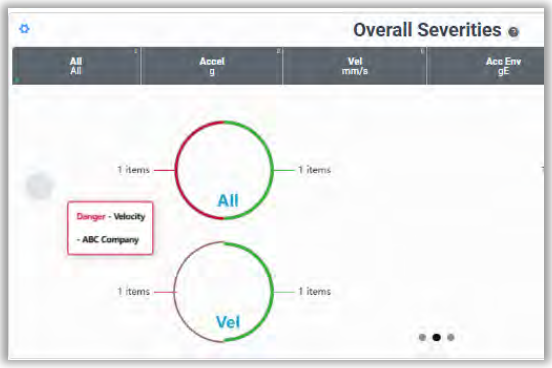


Hovering a mouse over a graph shows a list of machines used to determine the colors.

Click the Right Arrow to advance pages.

Page 2 contains four Charts:

- All – includes Velocity, Acceleration and Acceleration Envelope data combined.
- Vel(ocity)
- Accel(eration)
- Acc Env



Hovering a mouse over a section of a chart shows the severity by Company.

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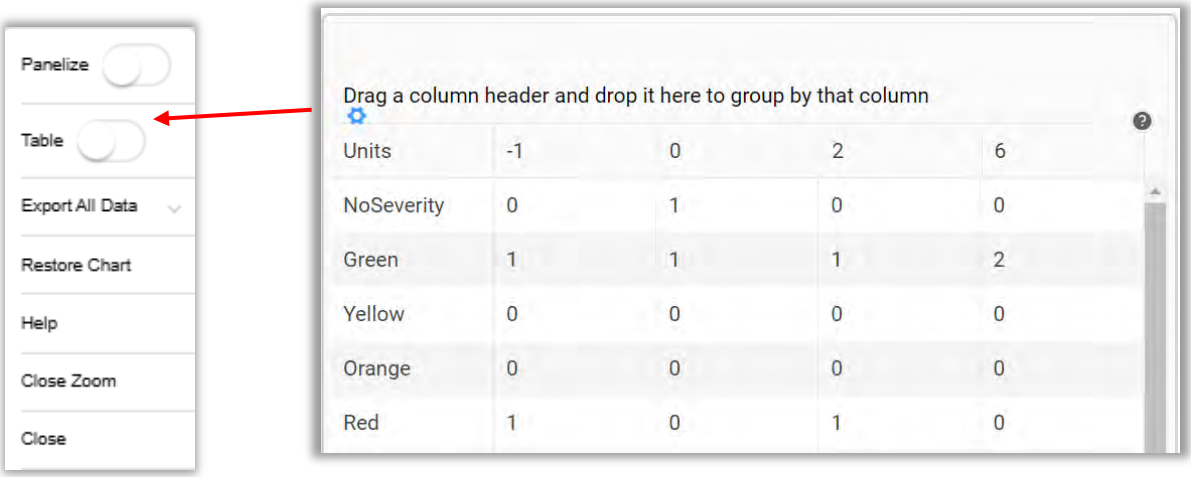
Page 3 contains the same information as shown on page 2, but in bar graph format.

Click on any of the grey boxes to exclude/include the units in the displayed data. Unselected items are shown with a white background.

Tap the Settings  icon at top left of any chart to access options for viewing the data in a table format and exporting.



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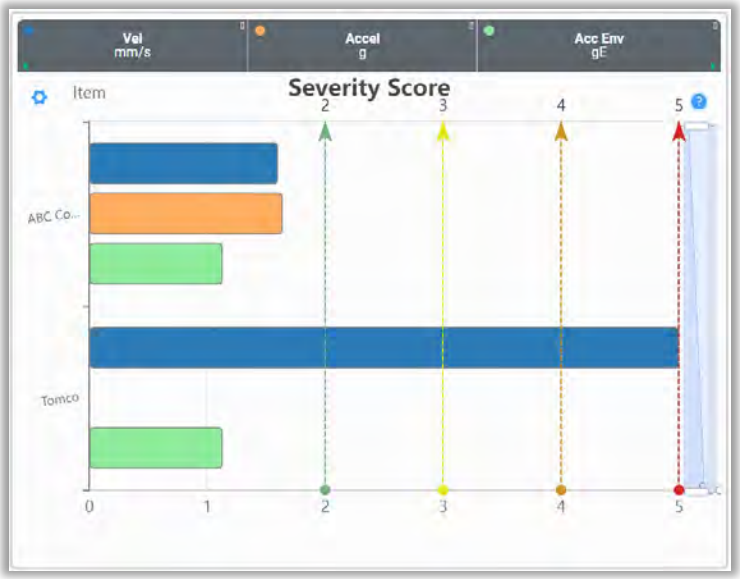
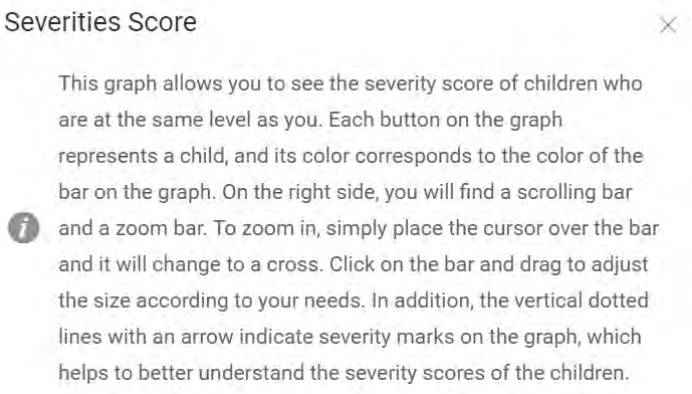
Severity Score

The Severity Score Chart displays a bar graph summary of the **score** calculated for each Area of all Companies. Score is a standardized value derived from different measurement parameters, created to assign a color code to a Company, Area, Machine, Point or Axis for quick visual status indication. For in depth information about **score**, please visit the Erbessd website at:

https://www.erbessd-instruments.com/tutorials/what-is-the-score-how-is-it-calculated





The term “children” is used to describe the database item below a given level. For example, Machines are children of an Area, and Points are children of Machines.

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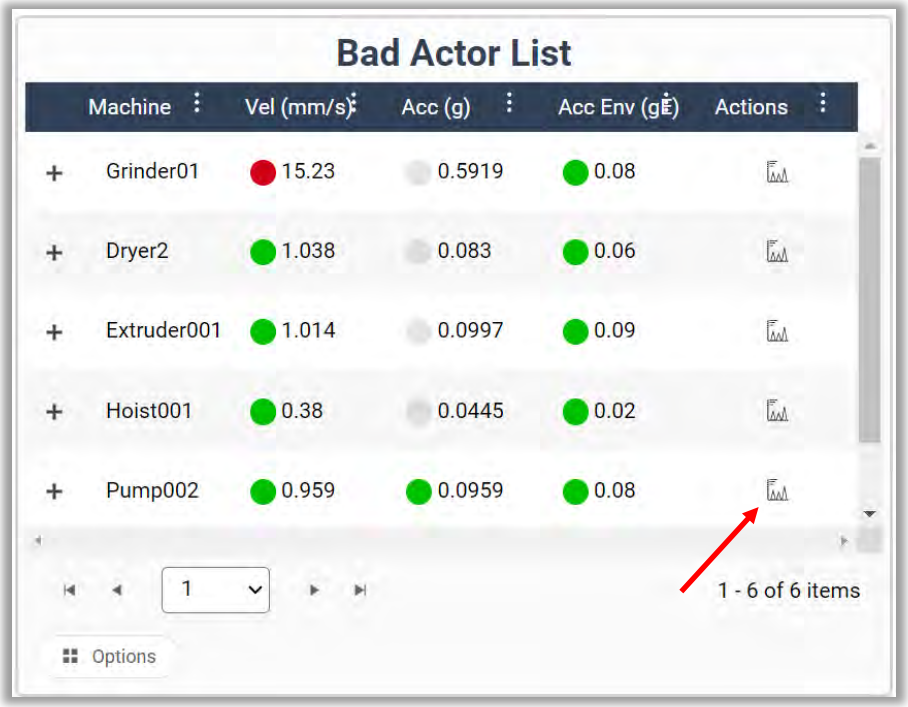
Bad Actor List

As the name describes, this is a list of the machine points with the highest amplitude of velocity, in descending order, by Company.

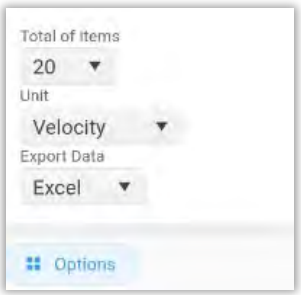
Press the + button beside any Machine name to expand the view to include Points, and further expand to Axis level by pressing + again.

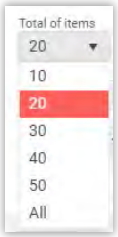


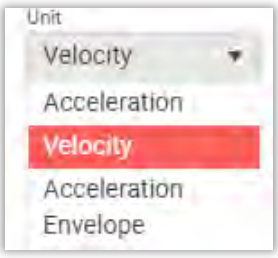
A Go to Diagnose link is provided in the Actions column. See the *Diagnose Manager* section of this guide for more information.

The Options button accesses the settings for :

- the number of items displayed
- the Unit
- Export format







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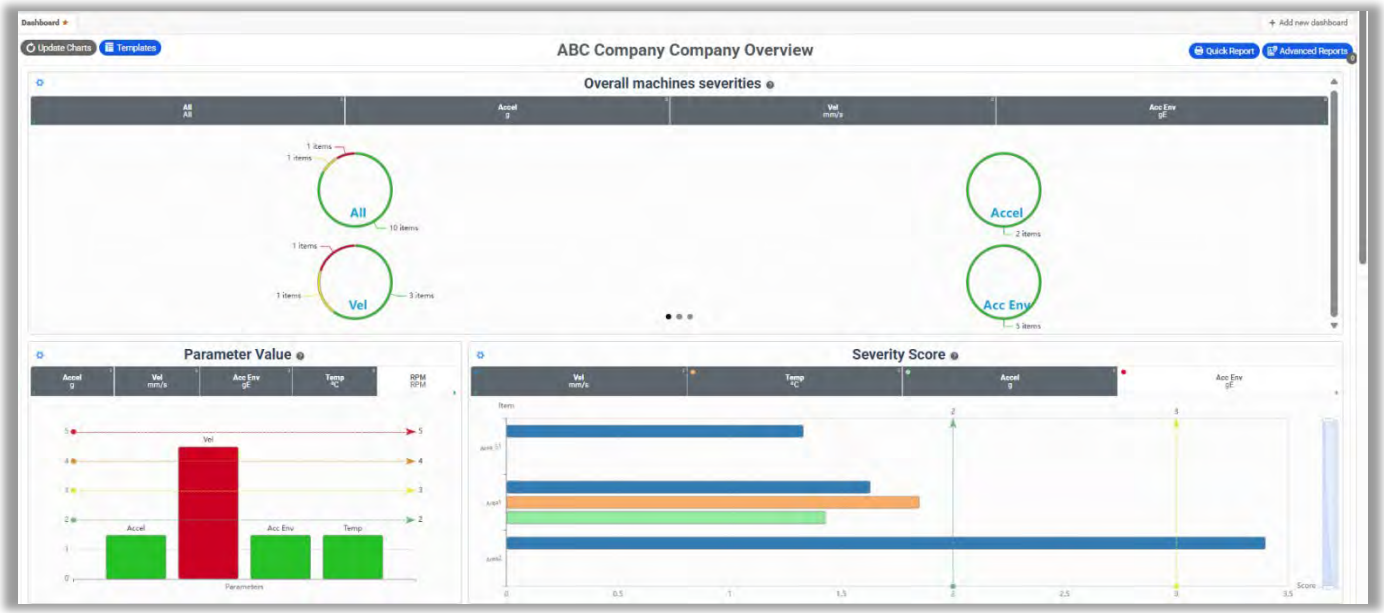
Highest Rate of Asset Health Decline

The slope represents the rate of change of vibration over time. Positive slopes indicate increasing values, and the steepness of the slope reflects the magnitude of the change. Analyzing the slope helps identify trends, patterns, and abnormalities in vibration data, aiding in diagnosing faults or anomalies.

Company Overview Dashboard

Click on a Company in the Data Tree to see the Company level Overview Dashboard. To customize the default dashboard, or create a new Dashboard, see the *Managing Dashboards* section of this guide.



At top is shown the Overall Machine Severities charts followed by additional charts for:

- Parameter value Bar graph
- Severity Score
- Bad Actor List
- Last Measures of Children (Areas)
- Highest Rate of Asset Decline

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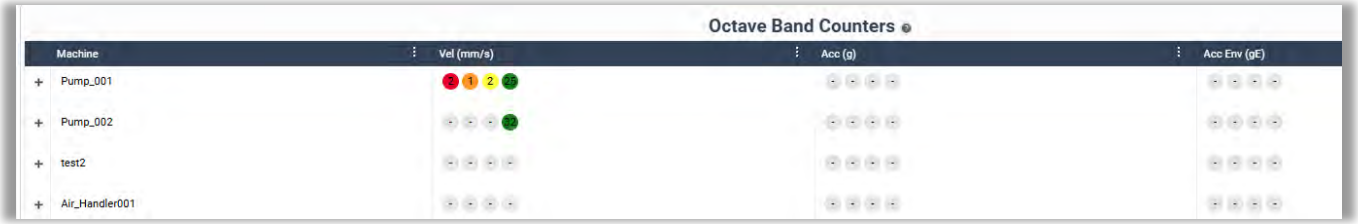
Last Measures

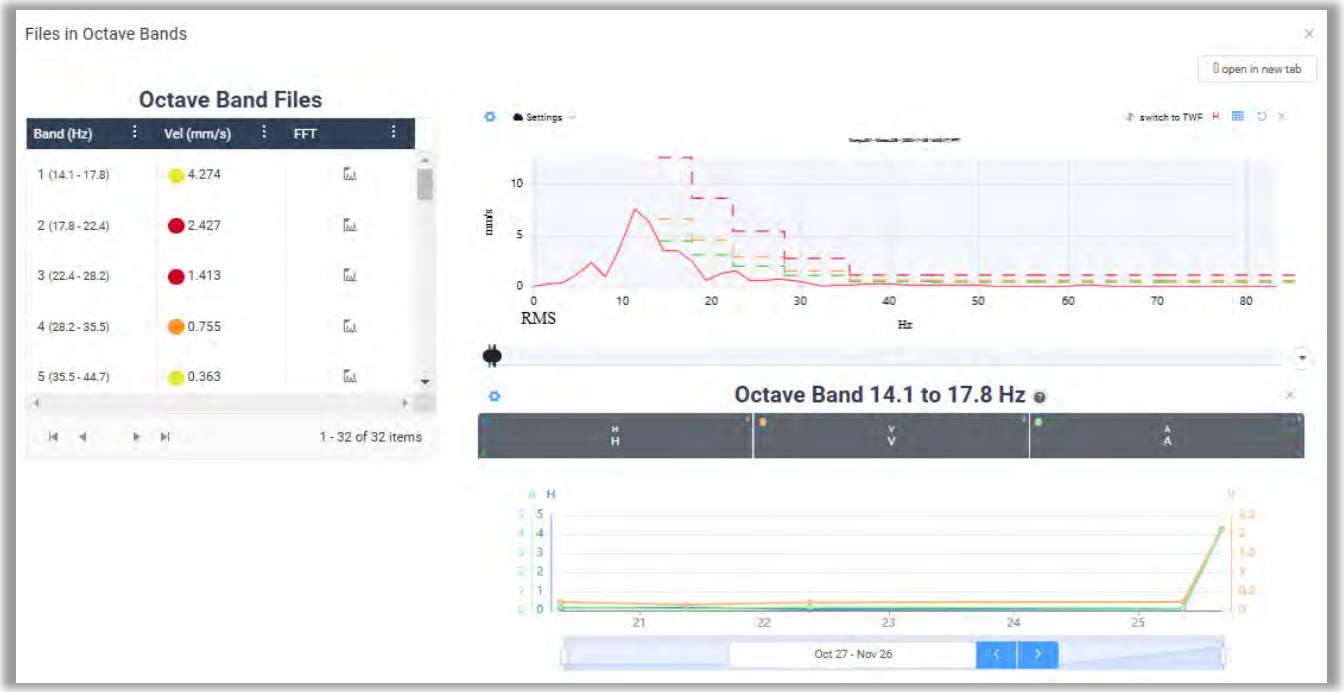
Shows a summary of the last measures for each Area of a Company.

Octave Band Counters

This chart shows the alarmed color counts of the Octave Bands.



Press the + button beside any Machine name to expand the view to include Points, and further expand to Axis level by pressing + again. Clicking on the colored circle opens a more detailed view that includes a list of measurements, the FFT, and a Trend graph for the date range selected.



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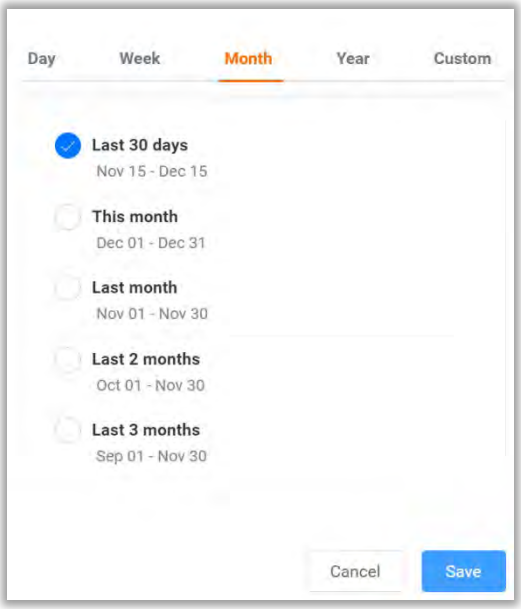
Use the Date Selector to edit the date range, which defauts to the past 30 days.

The blue arrows increase/decrease the date range by one month.

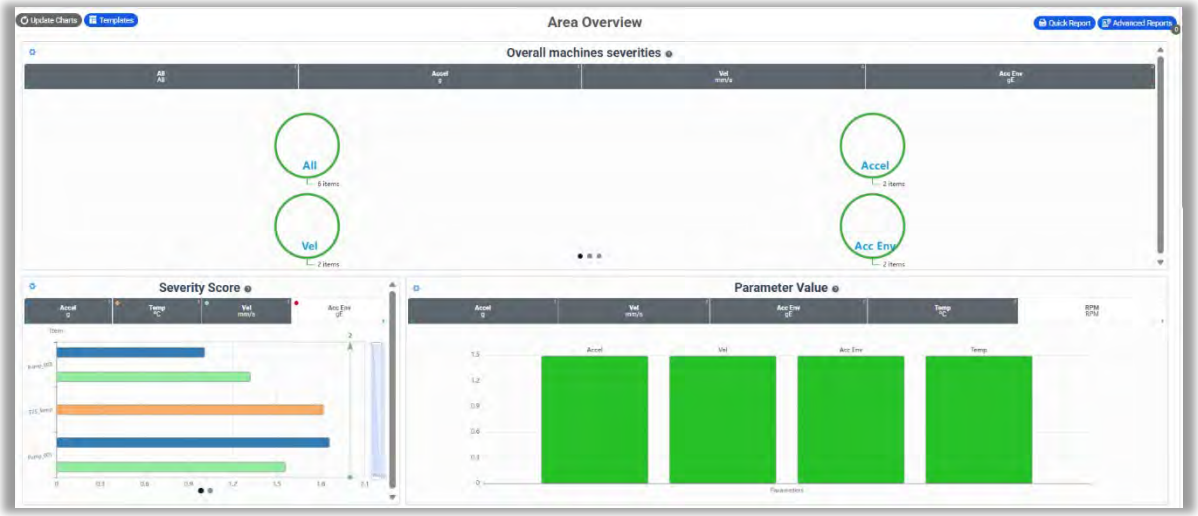
Clicking on the date display opens the Selector tool:



Area Overview Dashboard

The Area Overview Dashboard contains similar charts as the Company Overview. This Dashboard can be changed or new custom Dashboards added, see *Managing Dashboards* section of this guide for more details.

- Overall Machine Severities
- Paramater value Bar graph
- Severity Score
- Bad Actor List
- Highest Rate of Asset Decline
- Octave Band Counters



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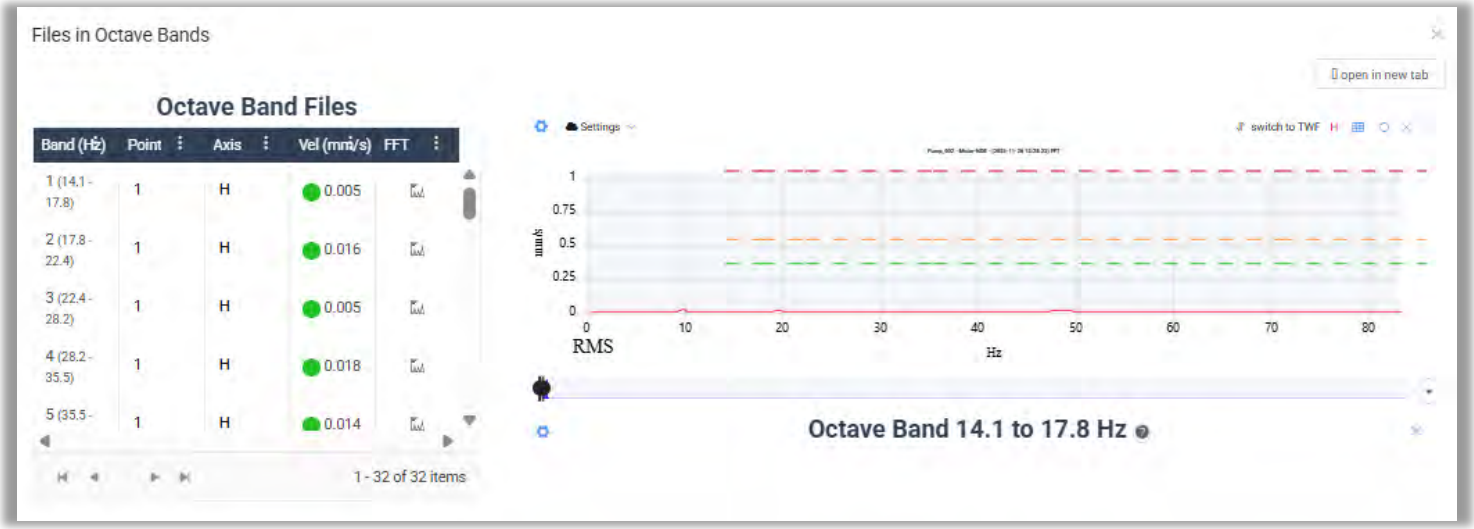
Octave Band Counters

This chart shows the alarmed color counts of the Octave Bands.

Press the + button beside any Machine name to expand the view to include Points, and further expand to Axis level by pressing + again. Clicking on the colored circle opens a more detailed view that includes a list of measurements, the FFT, and a Trend graph for the date range selected.



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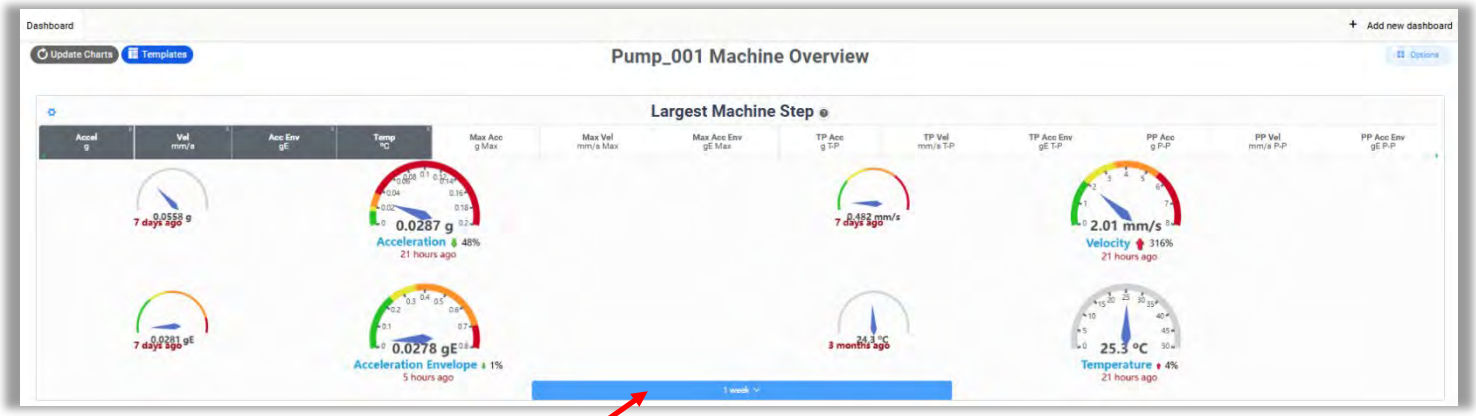
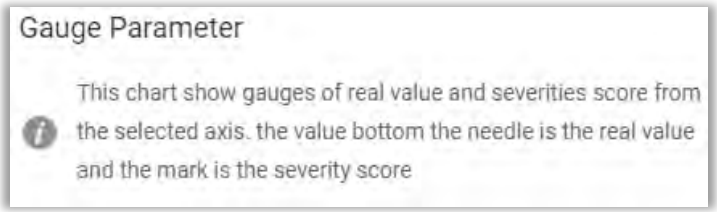
Machine Overview Dashboard

Click on a Machine in the Data Tree to see the Machine Overview dashboard. The default can be changed or new custom Machine Dashboards can be created. See *Managing Dashboards* section of this guide for more details.

The default Machine Overview chart contains analog style gauges and shows data for the past week. To add units such as peak-to-peak acceleration to this chart, edit the **Default Units** tab of the **DB Settings** for the EI-Analytic account.



Click the Date selector to change the range.



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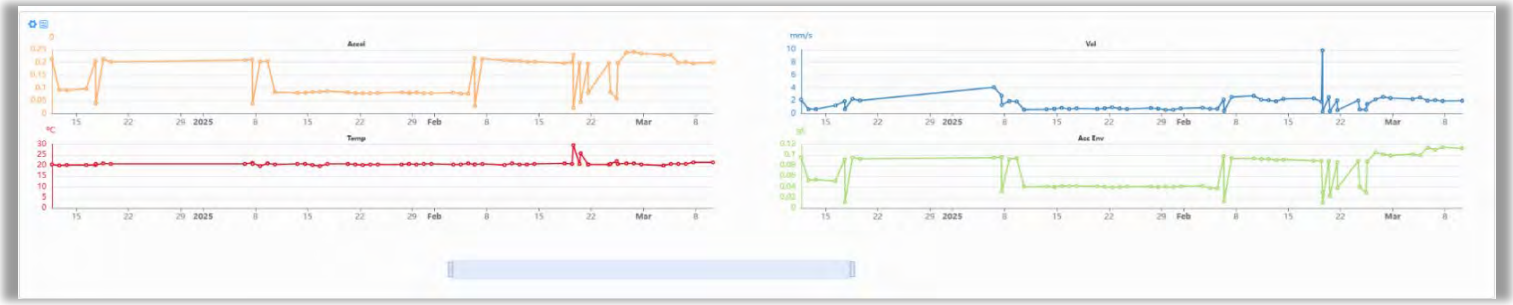
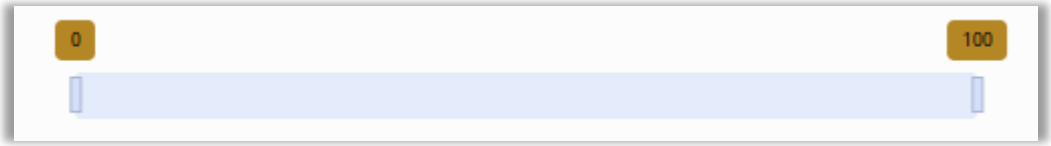
Trends Chart

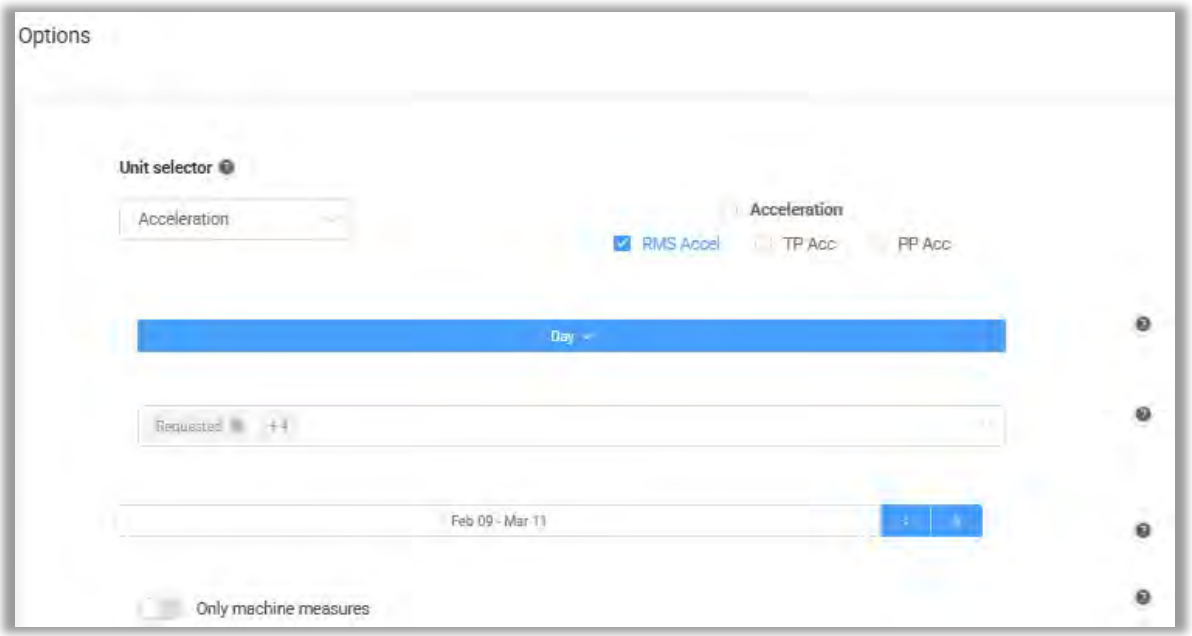
The Trends chart displays separate graphs for Acceleration, Velocity and Acceleration Envelope over time. Temperature(internal)is included by default for Phantom sensor data.



The Range slider at the bottom allows adjustment of the chosen increment (day, month, etc) from 0 to 100 units.



Click the Options button at top left is used to adjust the display parameters.



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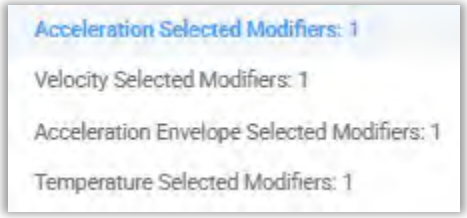
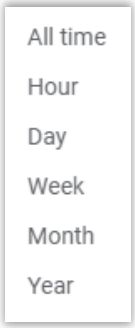
The Unit selector dropdown allows:

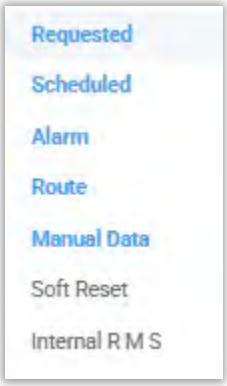


NOTE - Additonal Acceleration and Velocity Modifiers such as peak-to-peak may be added to the Trends Graph. by changing the **Default Trend Units** in the EI-Analytic Account **DB Settings**.See the *DB Settings* section of this guide for details. As shown in the example above, True Peak and Peak-toPeak acceleration units have been previously added.

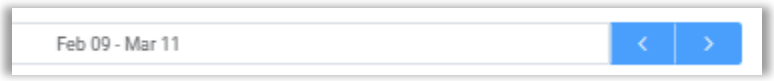
The **Range** can be set to:



The Collection Reason can be set to:



Use the Date selector to change the range of data shown on the Trends graphs:



It defaults to the past 30 days. Click the right/left blue arrows to go back or forward in one month increments.

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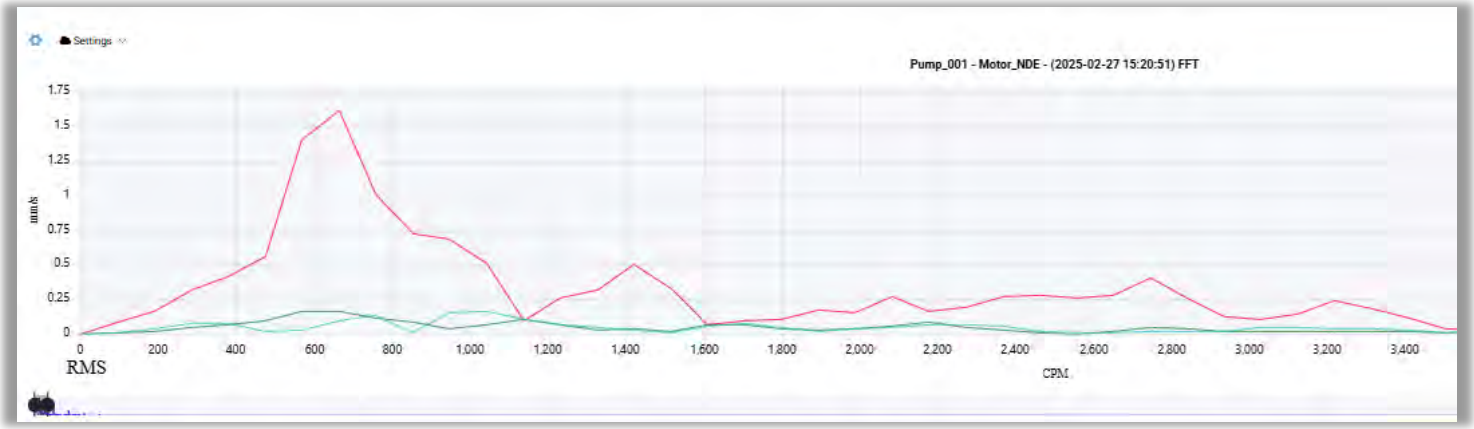
Hover the cursor over any point in a graph to see info for each measurement:

Click on any point in the Trend graph to open the associated FFT in the FFT window:



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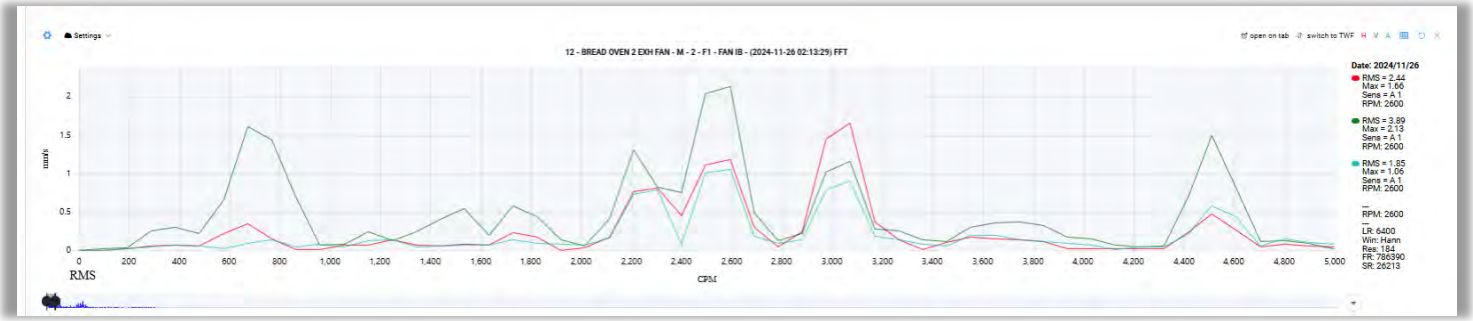
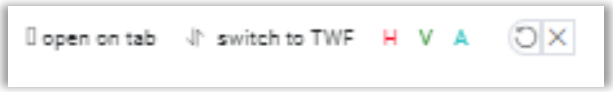
FFT Chart

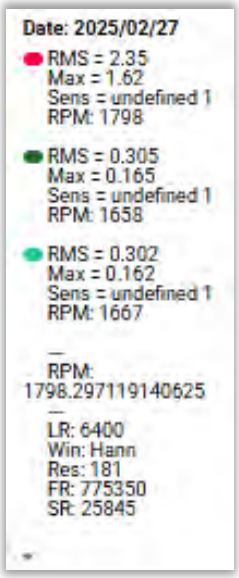
Below the Trends graph is the FFT chart:



On the top right side of the FFT there are several controls:



- **Open on tab** opens the FFT in a new window for full-screen analysis. See the *FFT Tools* section of this guide for details.
- **Switch to TWF** -shows the Time Waveform in place of the FFT.
- **H, V or A** -click to toggle view of each Axis on FFT or TWF.
- -Undo last zoom
- - Reset zoom



To the right of the FFT are the **Legends** containing:

- RMS velocity for each channel(axis)
- Max velocity
- Estimated RPM (based on min/max assigned to Point)
- Number of Lines of Resolution
- Sampling Rate

For more details regarding analysis options and FFT Tools, please refer to the *Visualization Tools* and *FFT Tools* sections of this guide.

Below the FFT are the charts for:

- Overall Severities
- Parameters Severities Score
- Severities Score

For details on these charts, see the *Overview Dashboard* section above.

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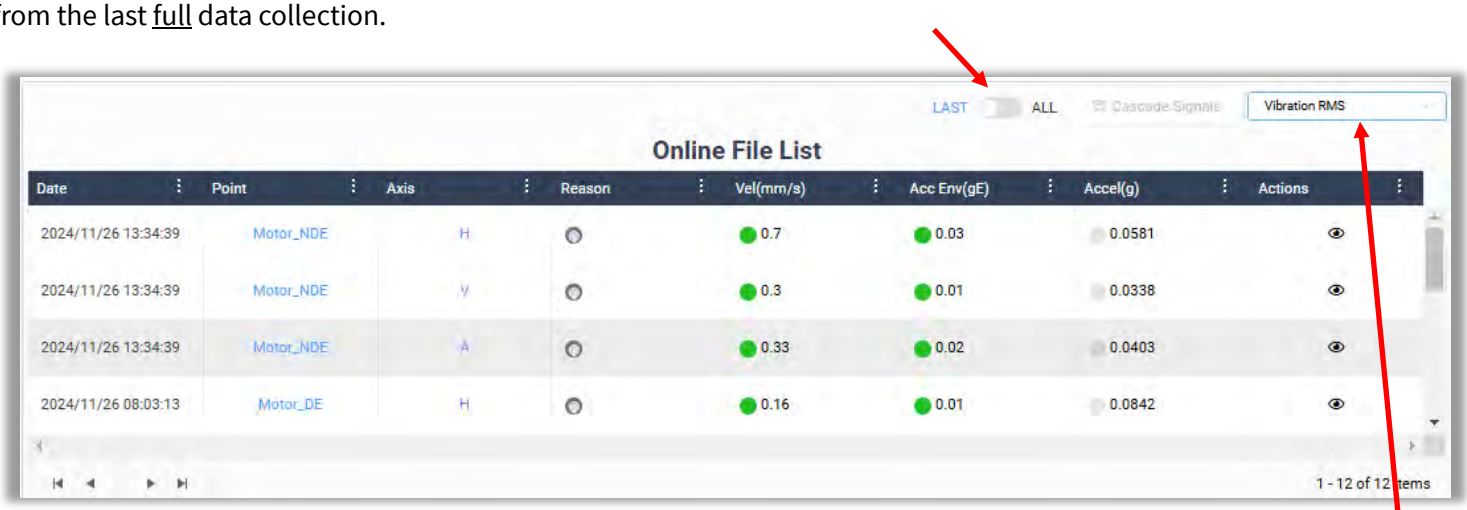
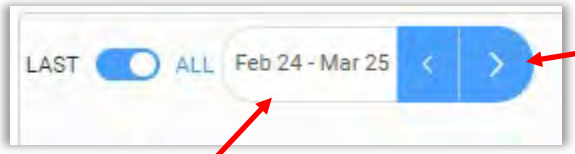
Online File List

Next is the Online File List Chart, which shows the **Last** measurement for all points on the Machine, and can be switched to **All** (Historic**)** view. The values shown in this chart for Acceleration and Acceleration Envelope are shown from the last full data collection.



To change the default view from **Vibration RMS** , select **Vibration modifiers** to show other vibration units such as peak-to-peak or **Temperature** from the drop-down menu at top right.

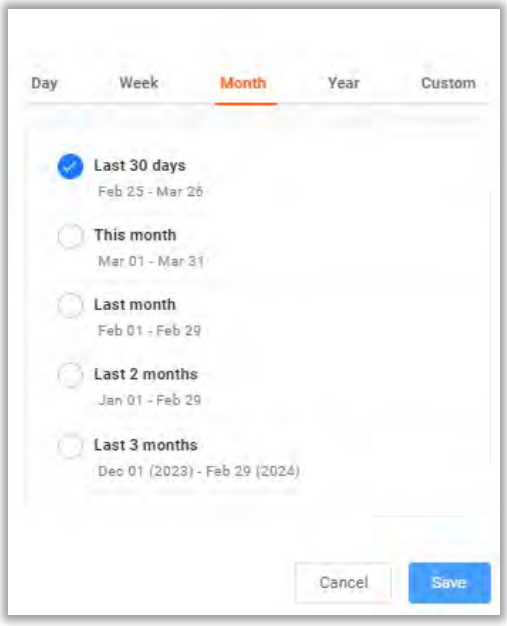
Set the slider to **ALL** to open Historic mode.



Click the blue arrows to go forward or back 30 days

Click here to open the Date Selector

Make a selection and press Save.



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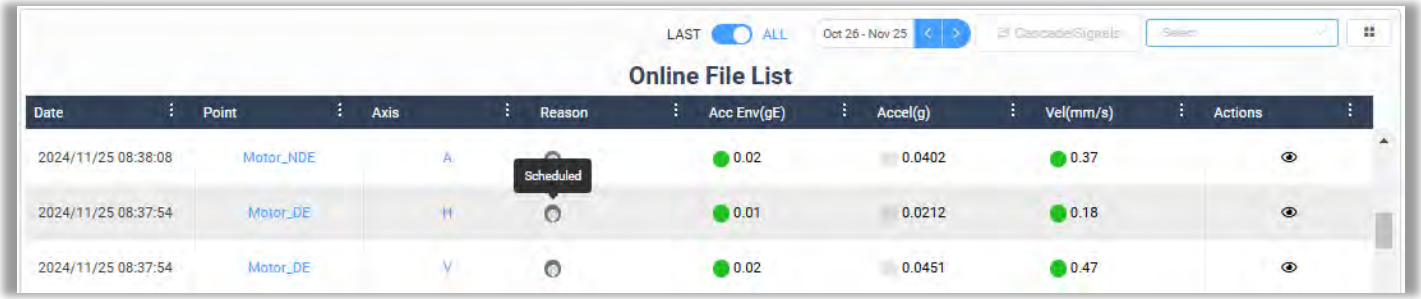
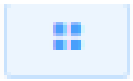
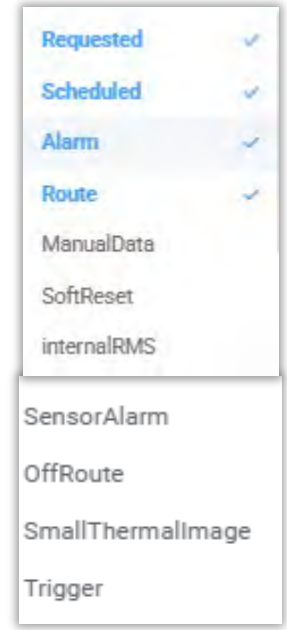
Hovering the cursor over the **Reason** column icon shows the reason for data collection.



To filter the File List by **Reason** , click the Options button.





Several Reasons are shown by default, with additional items available to apply:

Add or remove **Reason** types as desired, for example to see only **Route** data, or only **Scheduled**, etc.

Click the Open File icon  in the Actions column to open the selected signal file in the FFT chart of this dashboard.

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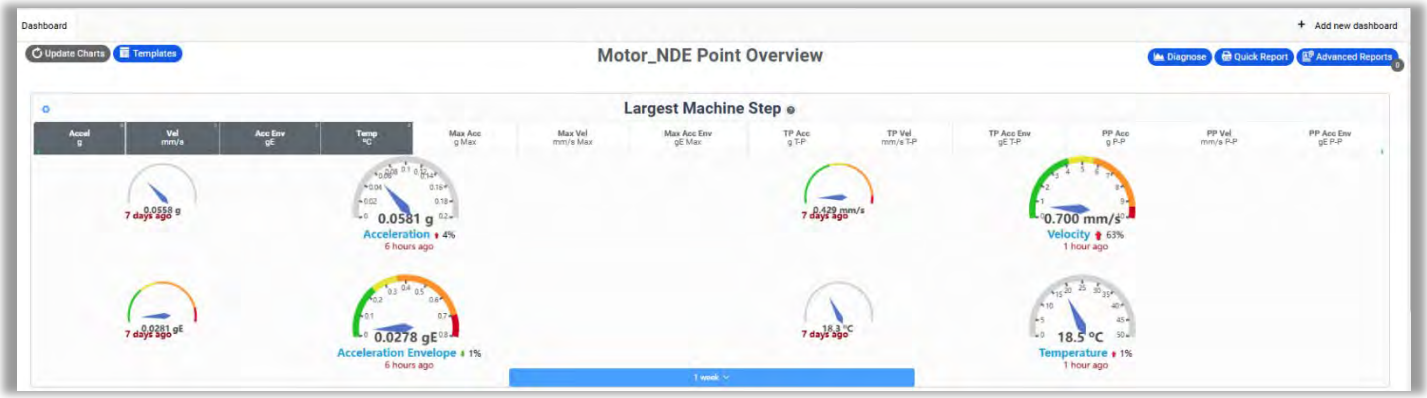
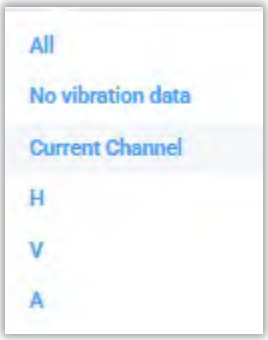
Point Overview Dashboard

Similar to the Machine Overview, the Point level Overview uses analog style gauge charts:



It also includes

- Trend chart, similar to the Machine level Trends chart, the Points level chart contains an Axis filter in the options:



Additional Charts include:

- FFT / TWF
- Parameters Severity Score
- Online File List

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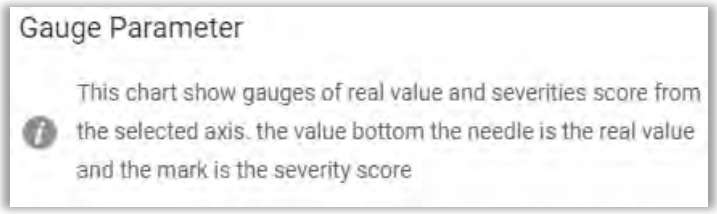
Axis Overview Dashboard

The Axis level dashboard contains the same style overview as the Machine and Point dashboards:

Plus:

- Trend chart
- FFT and TWF
- Real Values chart
- Online File List
- Octave Band Axes



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Octave Band Axes

All 32 Octave bands are listed, sorted with the bands of highest vibration(peak) shown first.

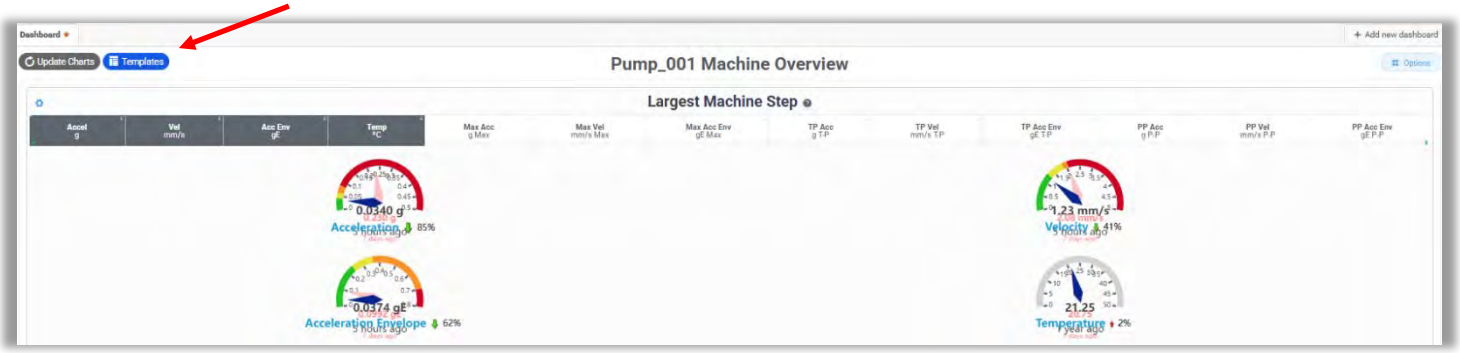
Managing Dashboards

Dashboard views for each level of the database (except the Root level) can be managed in two ways:

1. Edit the ***default*** template for each level. The modified template can be assigned to one or <u>all</u> items at that level of database.
2. Add **new** dashboards.

Edit a Default Dashboard Template

Click on any level of the database tree to open the default Dashboard template. As an example, below is the default **Machine** level dashboard. Press the Templates button



The Machine level templates palette will open.

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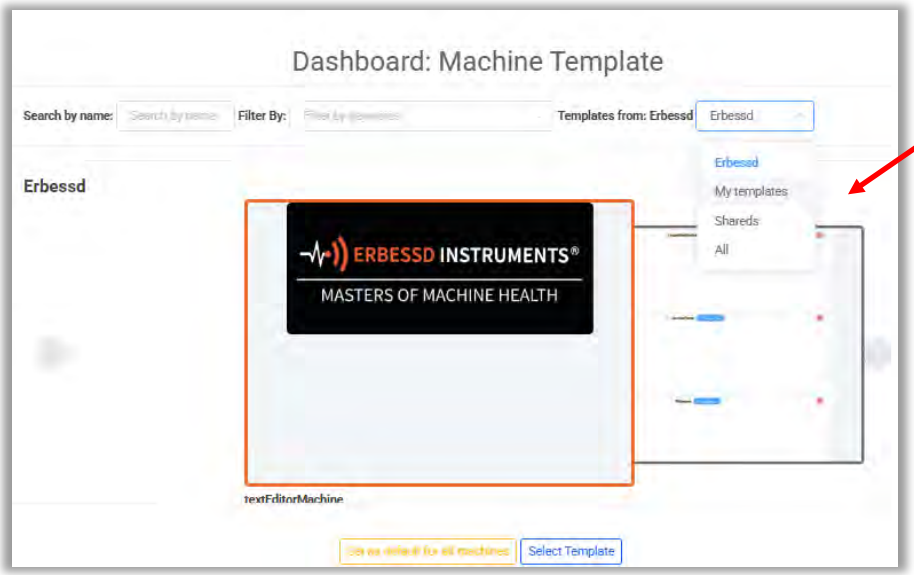
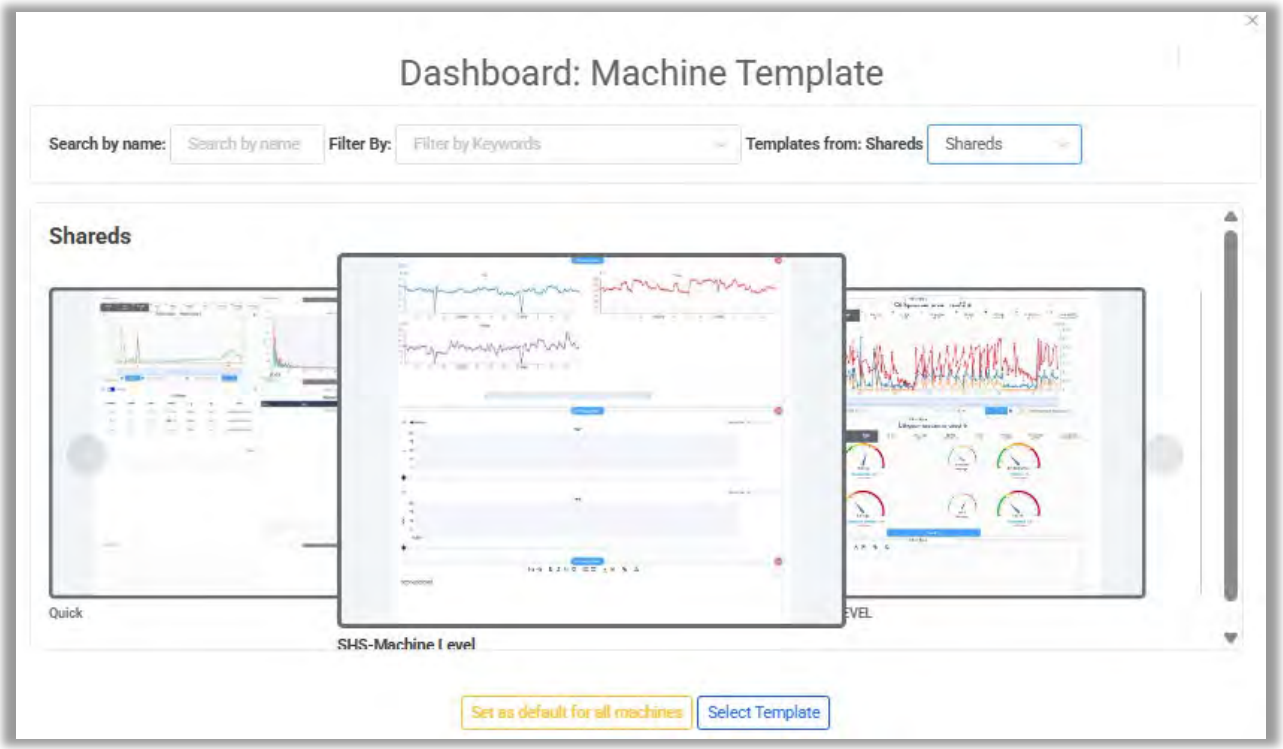


Templates are sorted by category.

Shared Templates are those created by owner of other databases that are shared with your account, example:.



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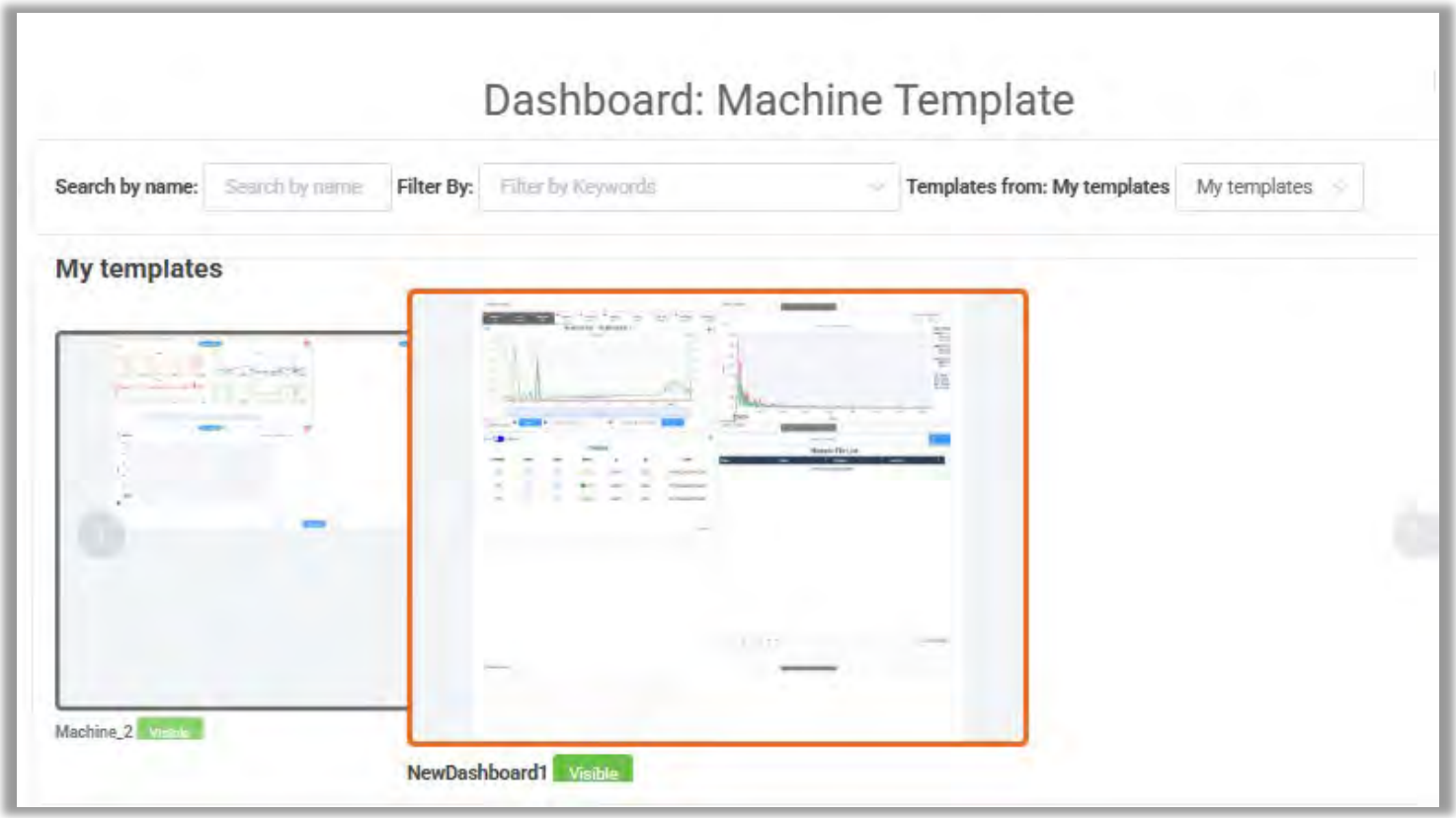
My Templates are those you have created using the Templates manager, example:



Choose a template and either click on Select Template to apply it to only the Machine selected from the data tree.
To apply it to all Machines, click: Set as default for all machines

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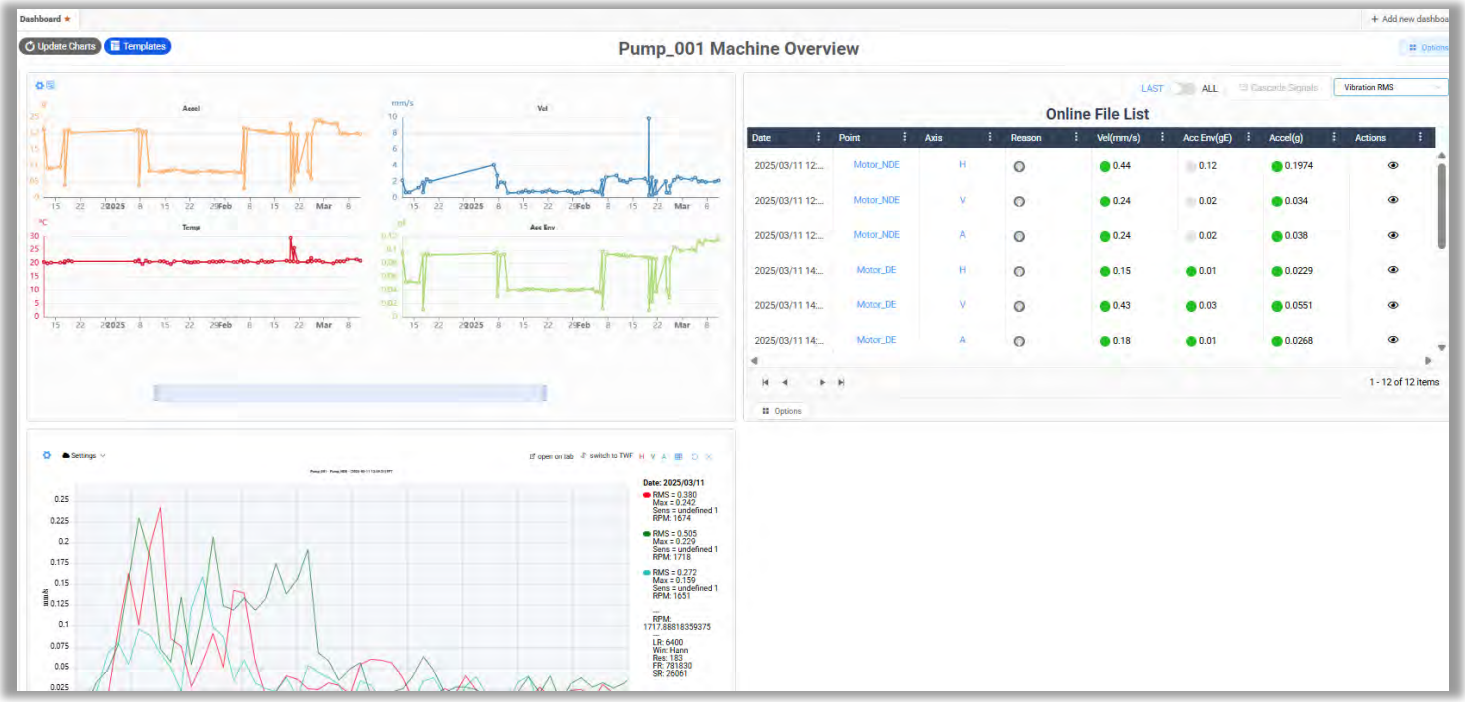
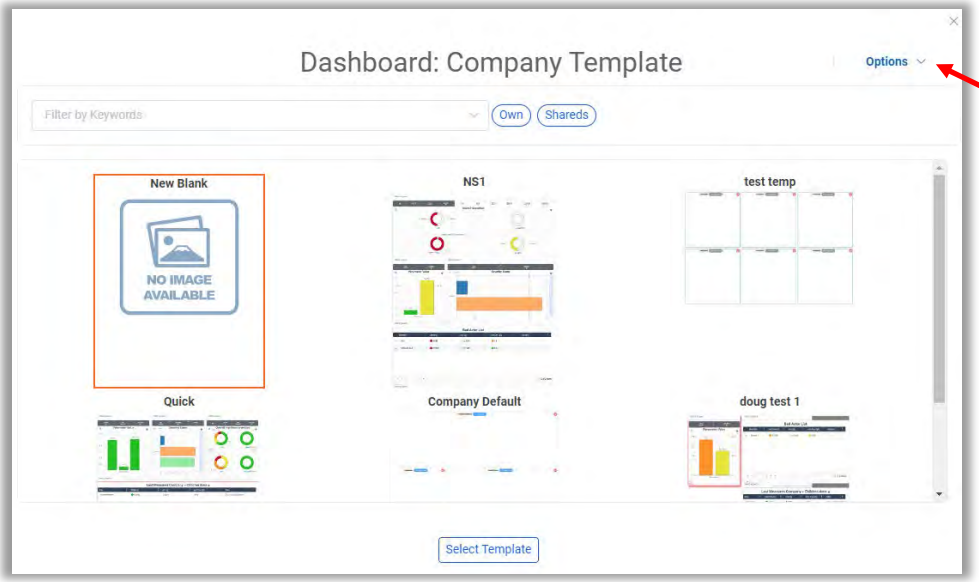
The modified Dashboard will now be displayed. In this example, **Machine_2** was chosen as the template to use.



The same process can be followed to choose different template Dashboard views for Area, Machine, Point and Axis .

NOTE – if you change a default template and wish to revert back to the Erbessd default:



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Add a Dashboard

When multiple Dashboards are created, switching between them is easy, just click on the dashboard of choice.

Highlighting the star defines which dashboard to open by default.

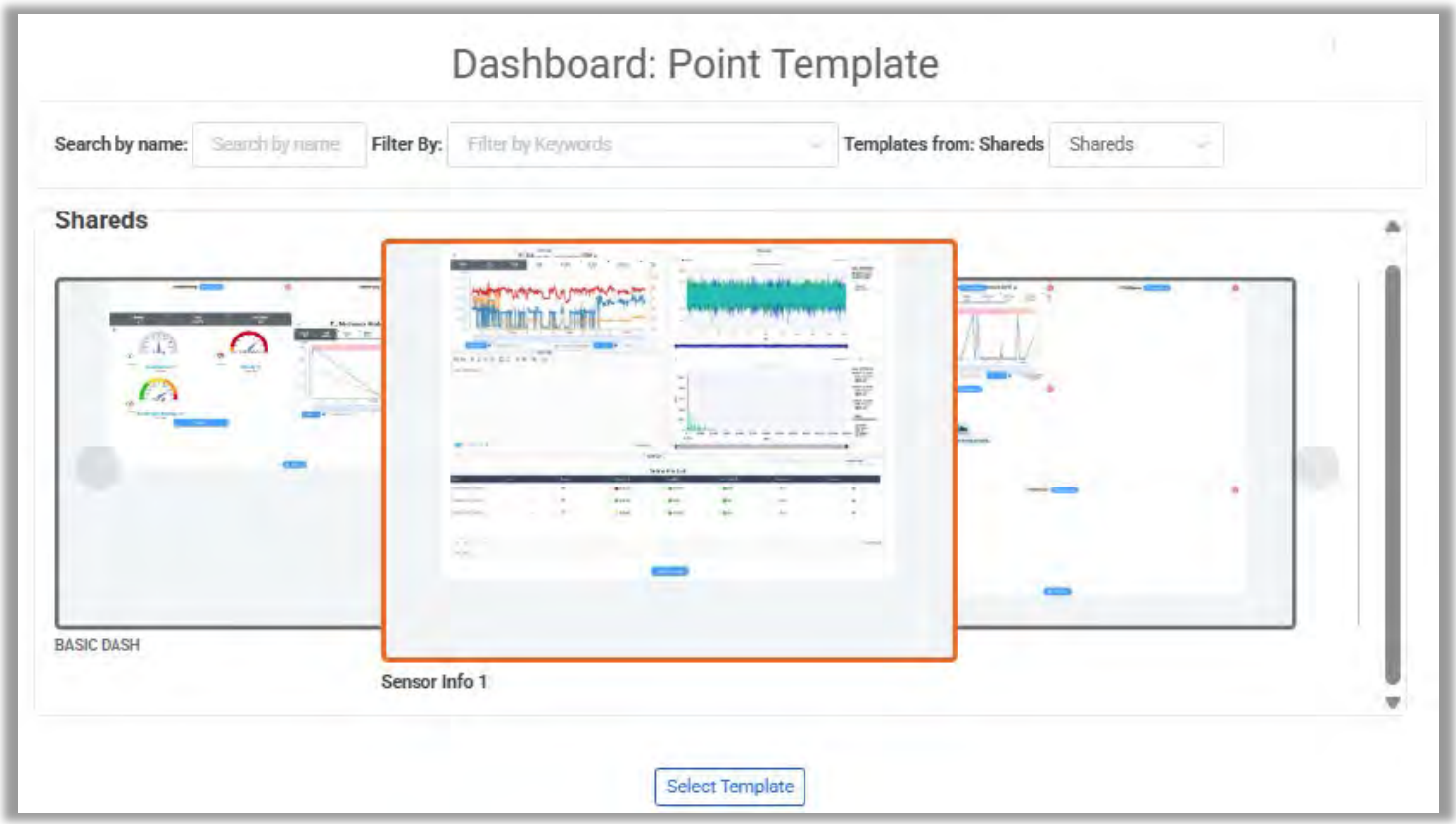
To add a new dashboard, first ensure the desired level is selected in the Data tree, then click on **Add new dashboard**.

Assign a name and click **Add.**

Then select from the palette of **Templates**. **Note** -Templates can be created by any EI-Analytic user and **shared** with other accounts with whom your database is *shared*, made public (shared with all EIA accounts)or saved as "**Own**".

Templates consist of **Charts** that are built using Chart Builder, see *Templates Dashboard Manager* section of this guide for details regarding building custom Charts and Templates.

In this example, a template was chosen from the *Shared* folder called **Sensor Info 1**:



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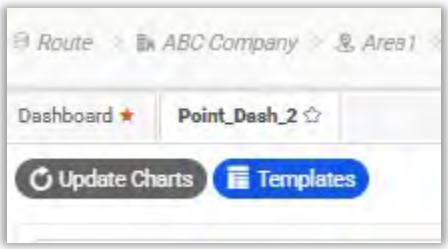
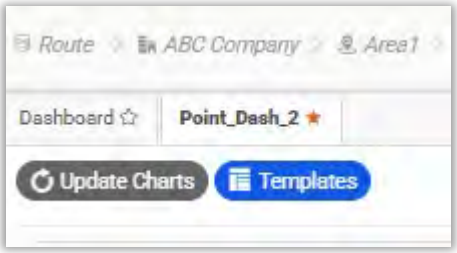
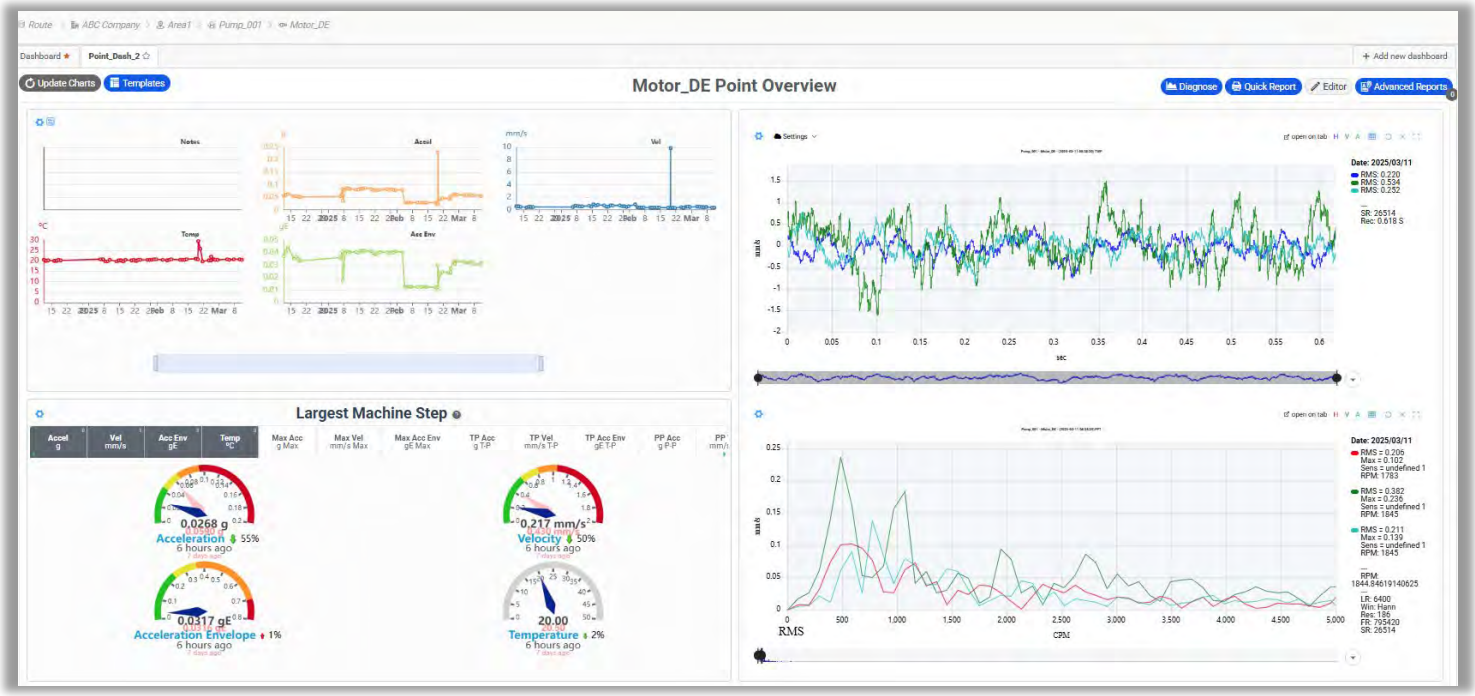
After clicking **Select Template**, you will be asked if you want to make this template the default (starred).

The added Dashboard is now visible as aTab:

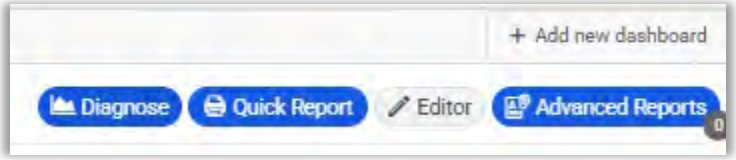


To make it the Main tab, click its star





An **Editor** button will now appear on the right side of the screen:



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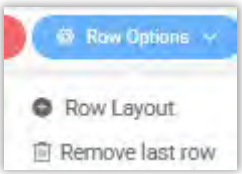
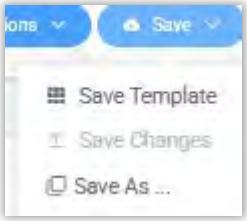
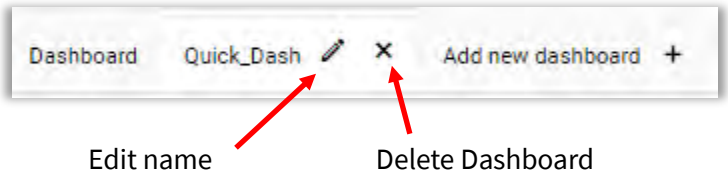
The Editor allows you to change or remove charts from the dashboard, add or remove rows and save this dashboard to other Machine Points (save as):





The **Editor** also allows:



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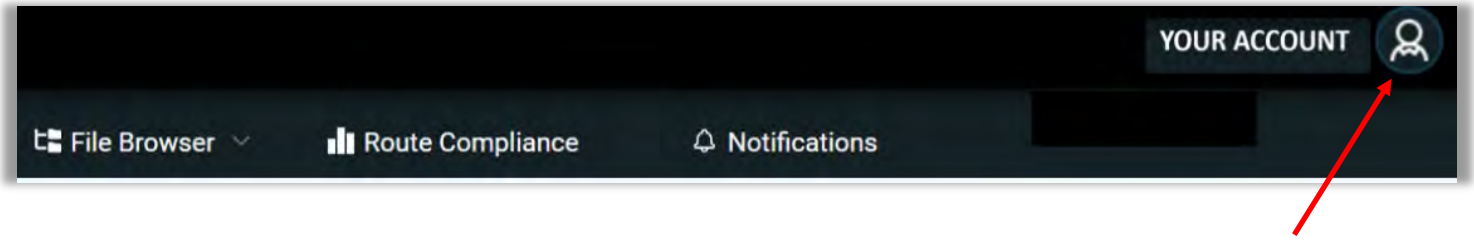
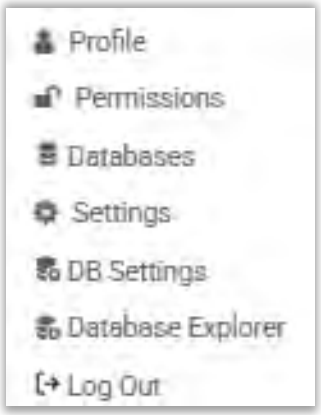
Account Settings

To access the Account settings, click on the Account icon located at the top right of the Home screen:



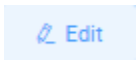
Profile

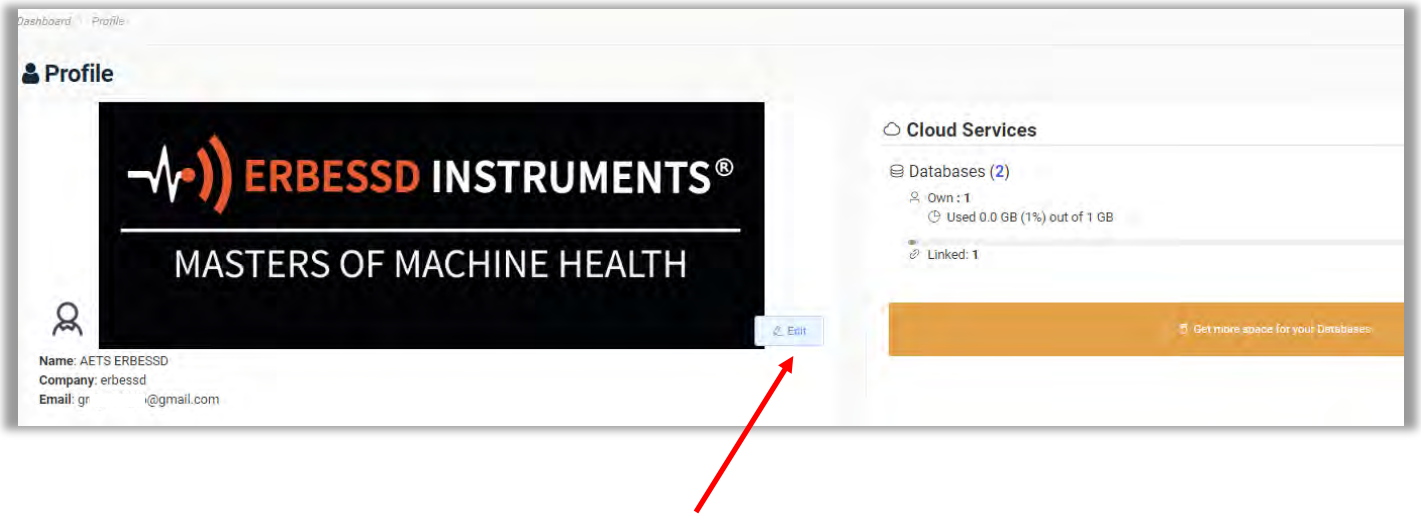
This item displays the account information, including the databases owned and shared with other accounts.



The **Get more space for your Databases** button links to the **Databases** page – see below.

Click on the Edit button to change the password, account name, Company or Email address.





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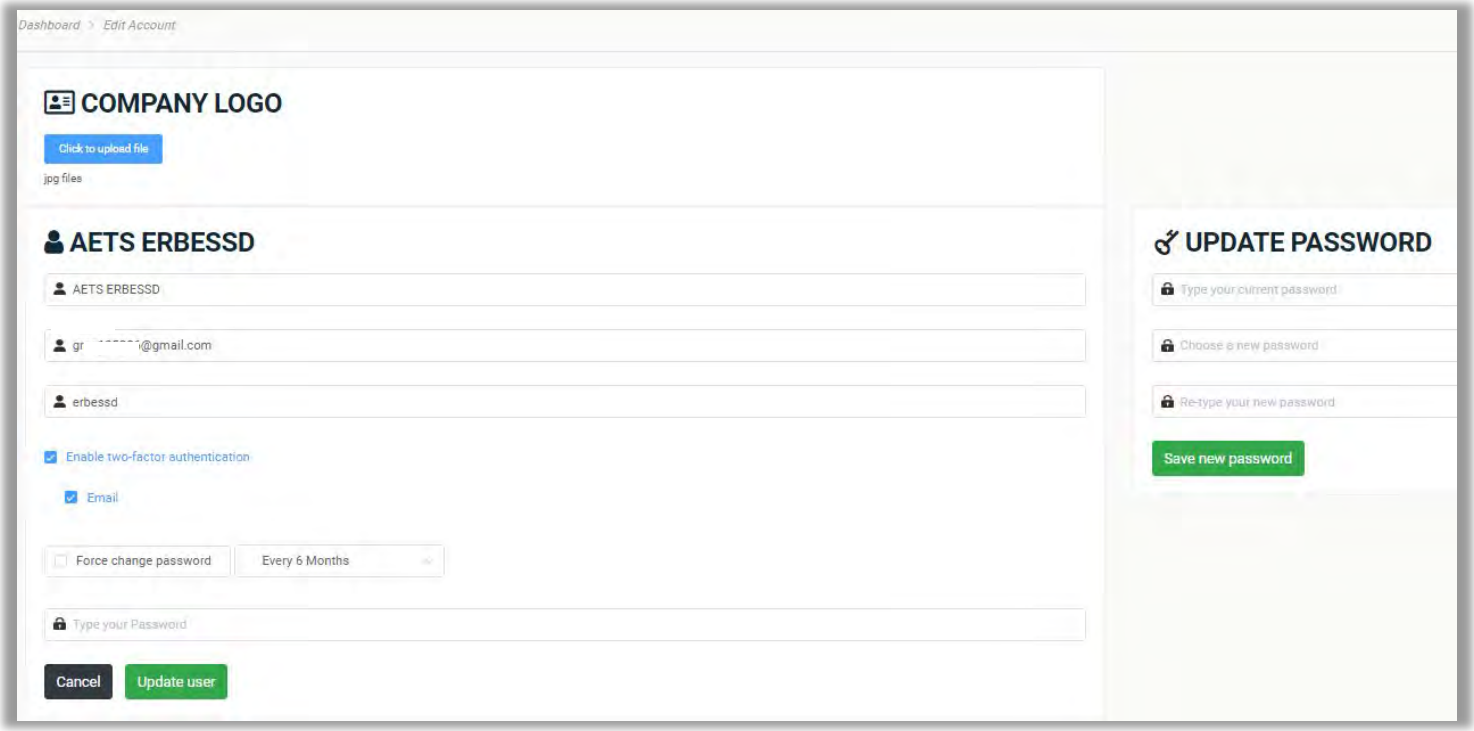

Two factor Authentication via Email and Forced password change can be enabled as options.

Permissions

See User Access Permissions section below for details.

Databases

Provides the management of databases within the account, categorized as ***Own*** and ***Shared***.

The currently used capacity is shown for each owned database.**Note** -changes in capacity are calculated and updated nightly at 2 AM (GMT-6)

Database settings may also be directly accessed from the home EI-Analytic page at the bottom of the Data Tree:

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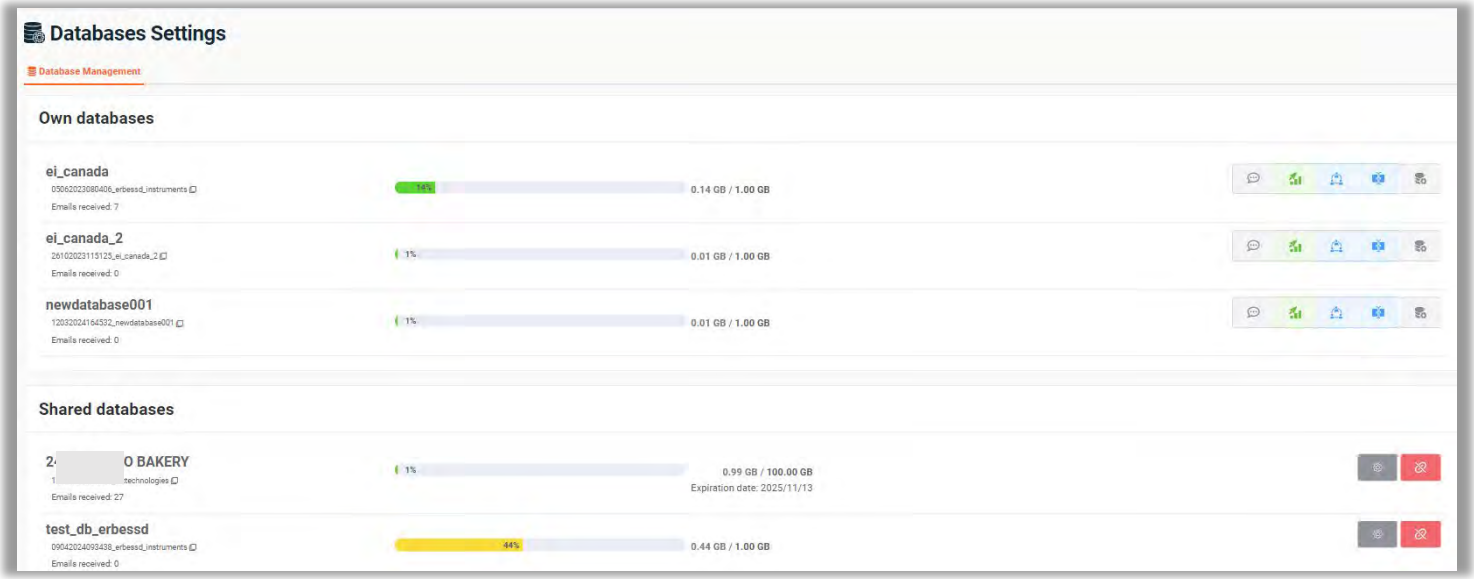
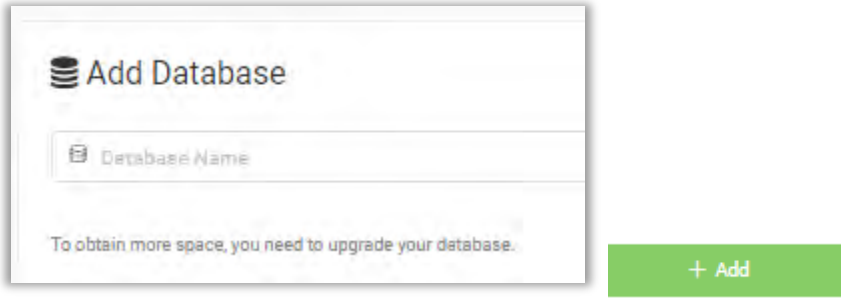
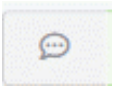


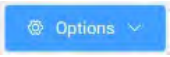
To add another free 1Gb database, enter a unique name under **Add Database** and press **Add**.



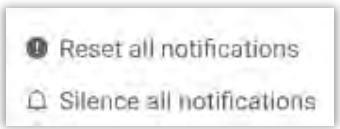
For ***Owned*** databases, the following functions are available:



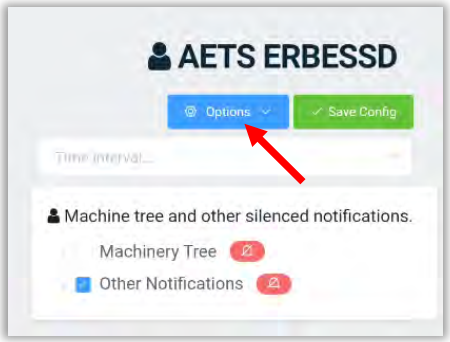
- Configure User notifications for **Owned** databases:



The Options are:



Select the Time Interval drop-down box to choose the length of time to silence notifications:



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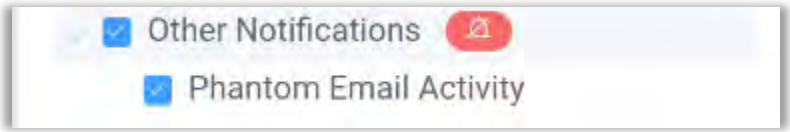
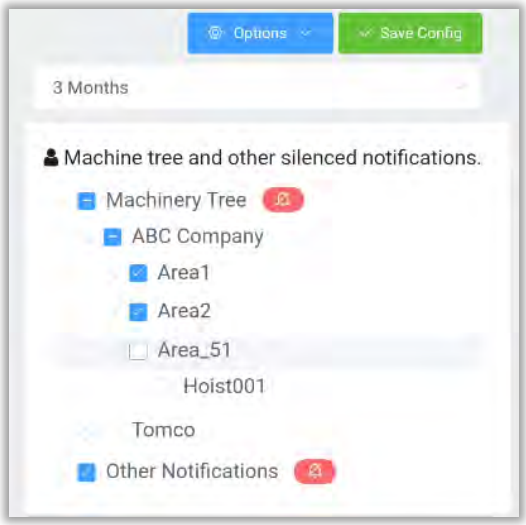
This account's email address will **not** receive notifications for the selected machines (silenced).

Other Notifications include Phantom Email Activity. Check this to silence notifications regarding Phantom sensor activity (if a sensor is out of communication with a gateway for example).



Press  to complete changes.



Upgrade – Click here to begin the upgrade process to obtain more storage space in EI-Analytic.

Share -Use this option to share a database with another EI-Analytic account.

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Enter the e-mail address of the account and press **Grant access.**

For each user you can set the:

Access Permissions

Notifications

Machinery Tree access

See below for more details.

Use the **Delete** button to remove a user from the database. **Caution** - the button will delete a user immediately, with no chance to abort the action. Use carefully!

Rename -Rename a database. Caution – database names must be unique. Duplicate database names can cause major problems and may result in loss of data. **Only use lower case letters and numerals.** The underscore symbol is the only permitted special character.

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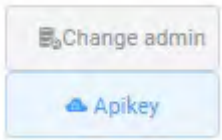
DB Admin -Allows changing the database owner email address and/or setting up an API Key



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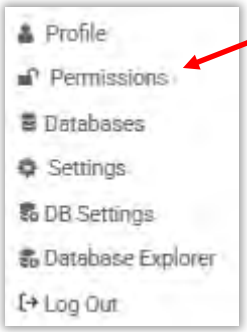
User Access Permissions

The User Permissions configuration may now also be accessed from the Profile menu:

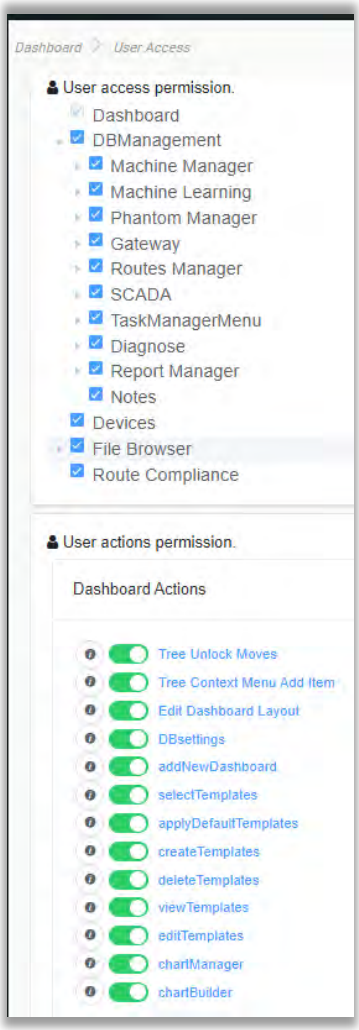


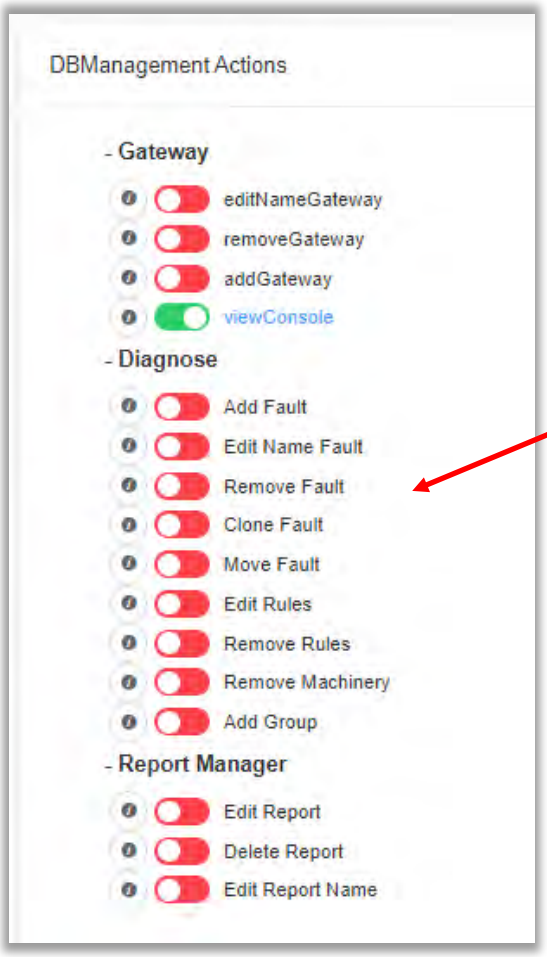
Use the checkboxes to control which categories are accessible by this user.

By default, any allowed user can access the Dashboard. However, each Dashboard action listed must be enabled/disabled by using the sliders. (all disabled by default)

Press Save to keep any changes.

Press Default permissions to reset all values to default.





Allow this user to view the Gateway Admin Console(s)

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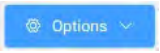
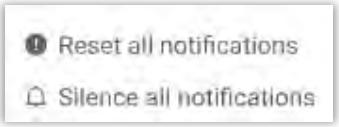
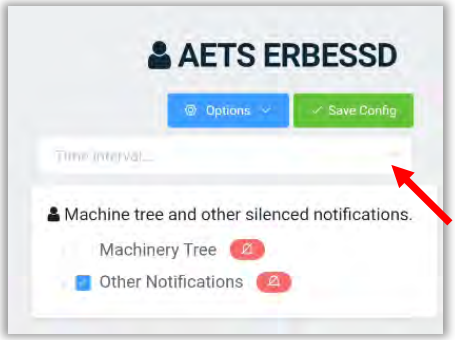
Configure Notifications

The  button controls notifications for *Shared* databases:



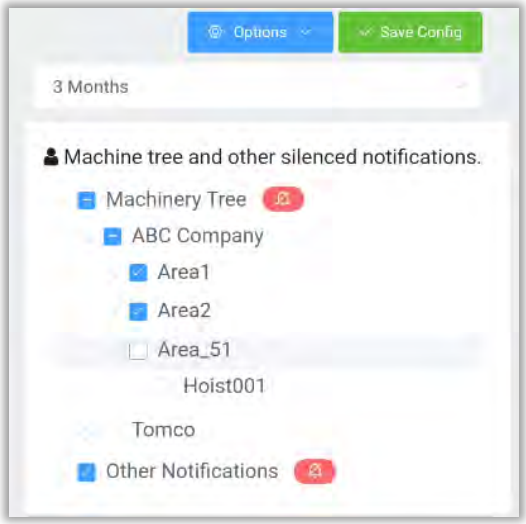
The Options are:



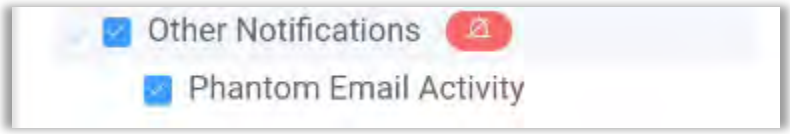


Select the Time Interval drop-down box to choose the length of time to silence notifications:

This user's email address will **not** receive notifications for the selected machines (silenced).



Other Notifications include Phantom Email Activity. Check this to silence notifications regarding Phantom sensor activity (if a sensor is out of communication with a gateway for example).



Press  to save any changes.

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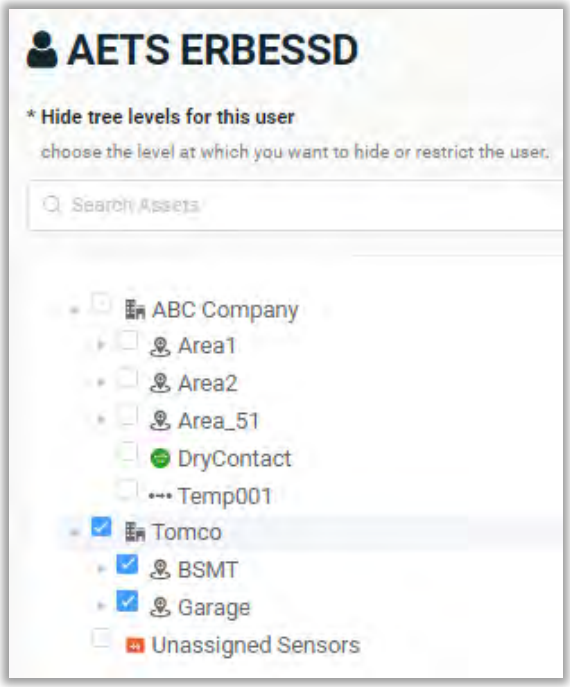
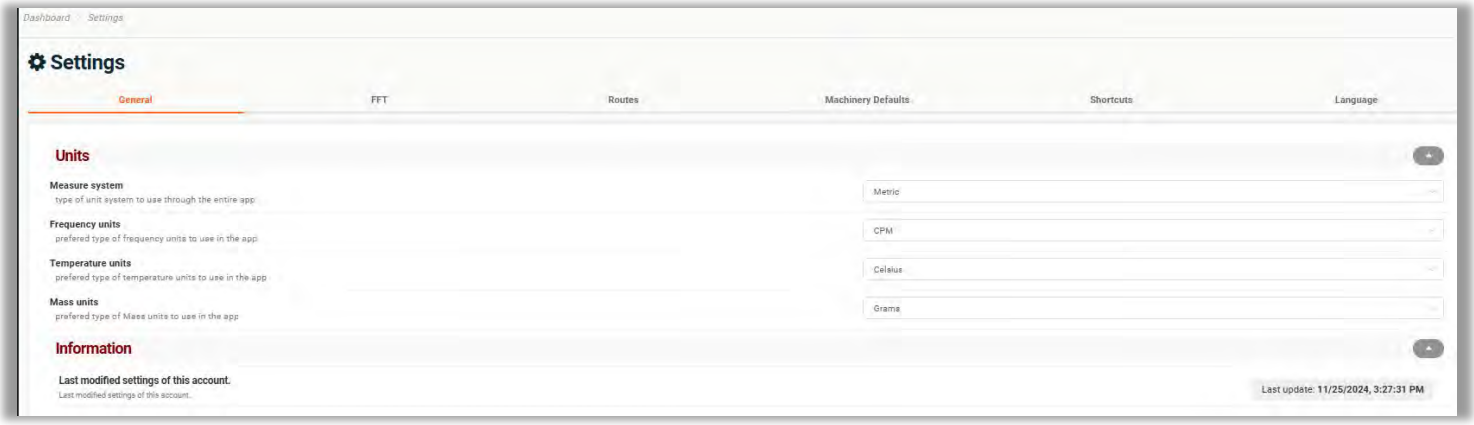
The  button is used to allow/restrict access to items in the Machinery tree by user.

Checked items will be hidden for this user.



Settings

The Settings menu has six tabs, the first is **General** - Set the default **Units** (Metric/Imperial, CPM/HZ, etc.) to be used for this EI-Analytic Account.



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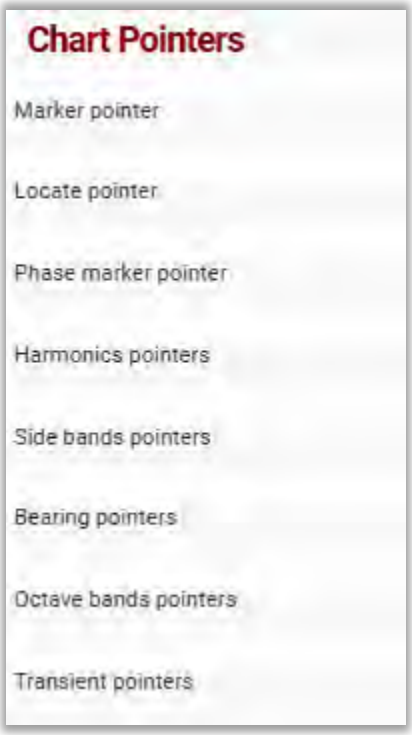
- **FFT** – Configure the defaults for viewing an FFT or a TWF, including zoom level, units and others.

Chart Pointers may be modified for the following:



Each type of pointer has a default *type*: e.g.

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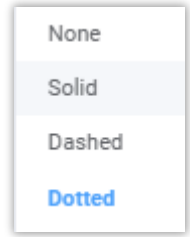
The color of the pointer and type of line can also be modified:



The pointer can be toggled on/off and the length can be adjusted.

Velocity RMS Range controls the Min/Max range for RMS velocity calculations:

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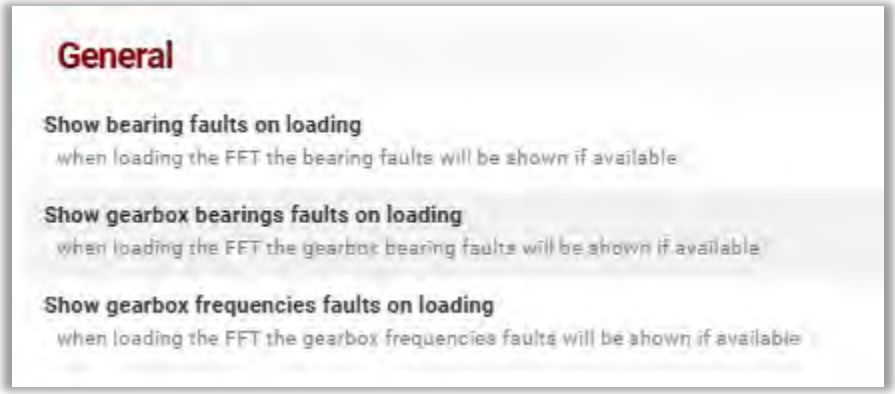
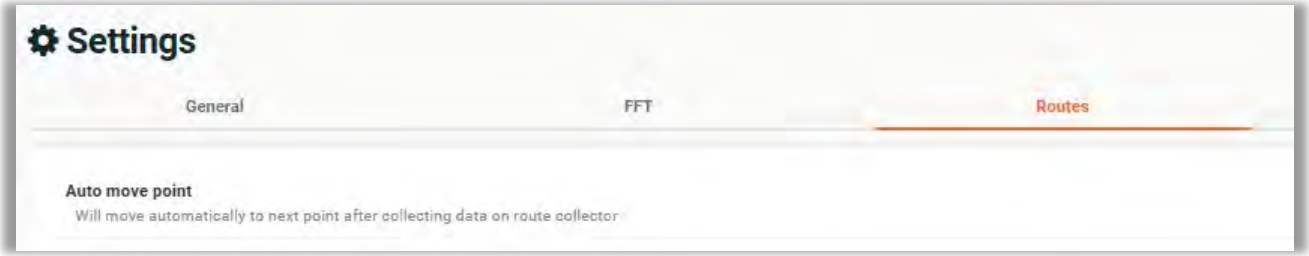
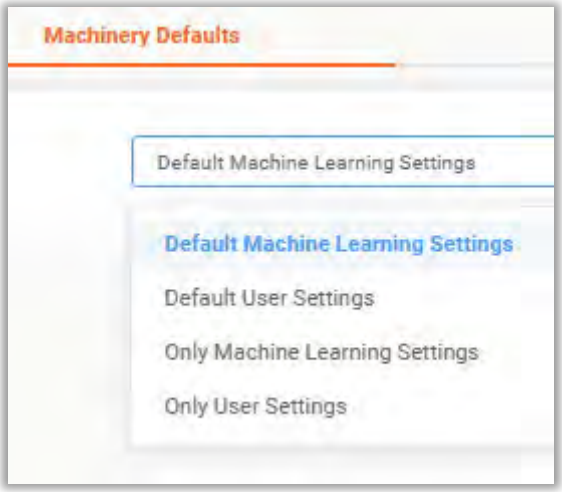
The **General** section contains options for loading FFT's :

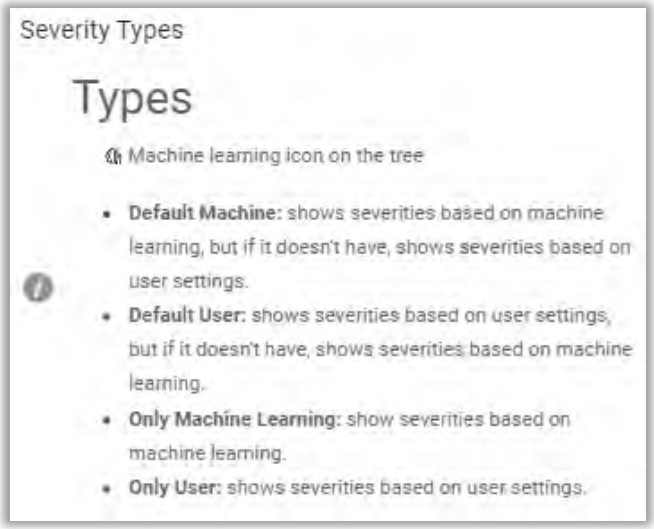


- The **Routes** tab contains only one parameter which applies to Routed data collections. (defaults to ON).



- The **Machinery Defaults** tab defines which *Severity Type* is the default:





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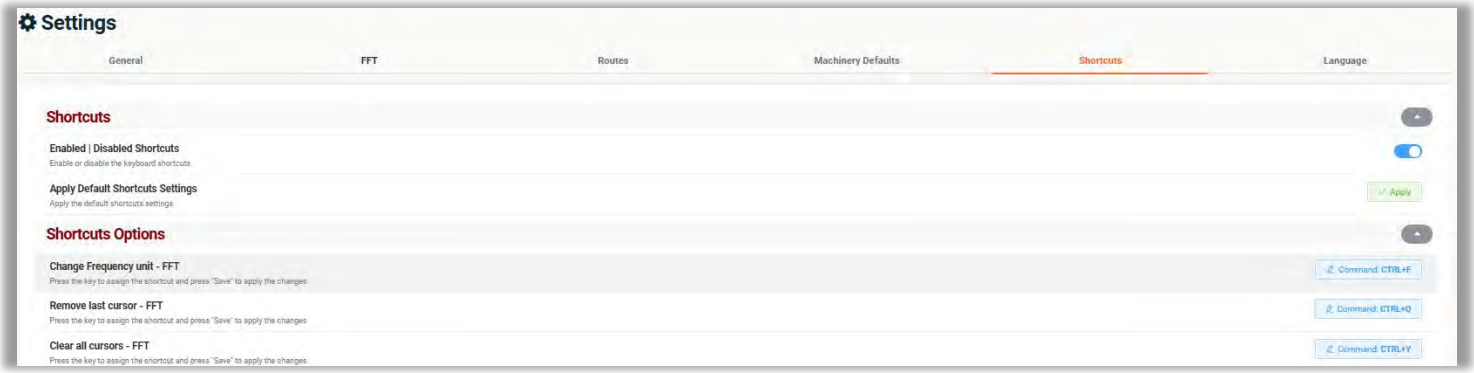
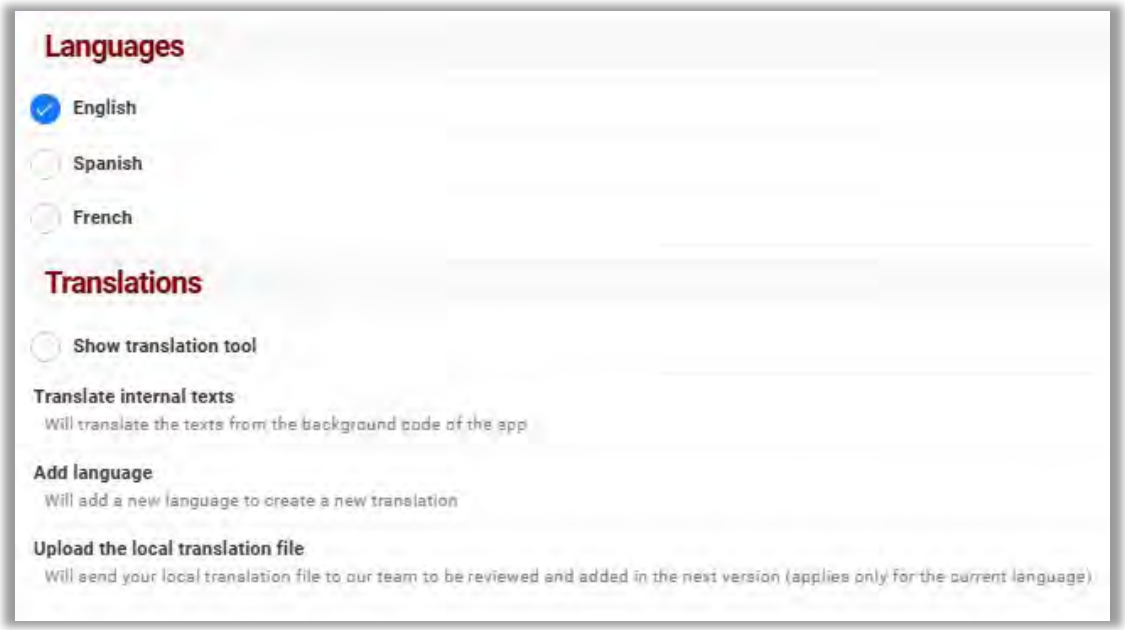
- **Shortcuts** allow use and customization of keyboard shortcuts:



To edit any shortcut, click on the associated blue box:

- **Languages** are selected here:



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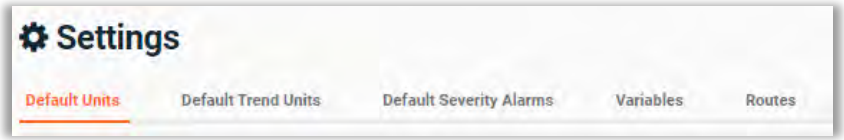
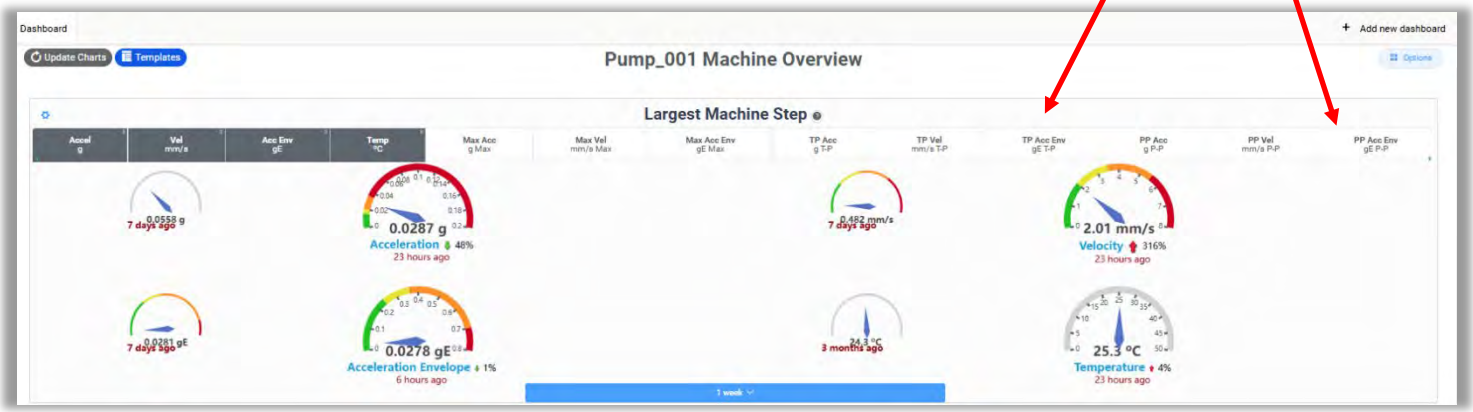
DB Settings

This page has five Tabs:



Default Units

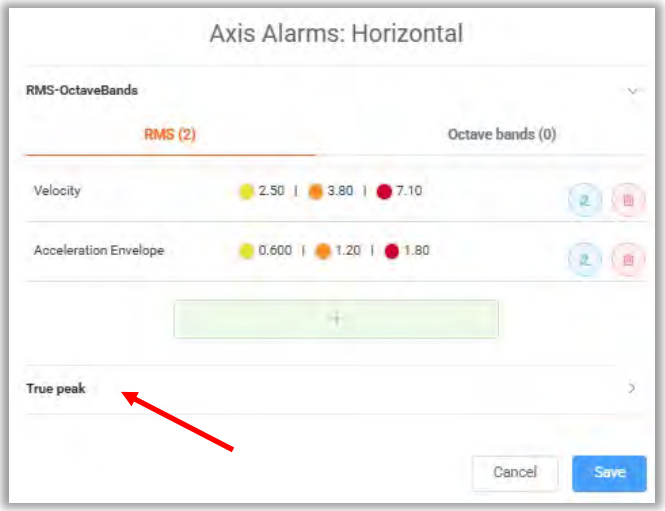
Select which Units are available in the Overview Charts in addition to the defaults, e.g. add Peak-to-Peak , True Peak, etc. These appear as tabs at the top of charts:



Note these settings are also used when creating a Task for a Machine or Point. See the *Task Manager* section of this guide for more info.

In addition, once a unit is selected it will become available for severity alarm creation.

Example, if True Peak is activated, then a True Peak severity alarm may now be crerated in the Machine form:



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Use the sliders to select which units are available . Note that all units are calculated by software for all machines, even if they are not selected.

For Acceleration, Velocity, and Acceleration Envelope, the default is RMS only:

In Acceleration Envelope, the calculation method may be changed from RMS to peak-to-peak.

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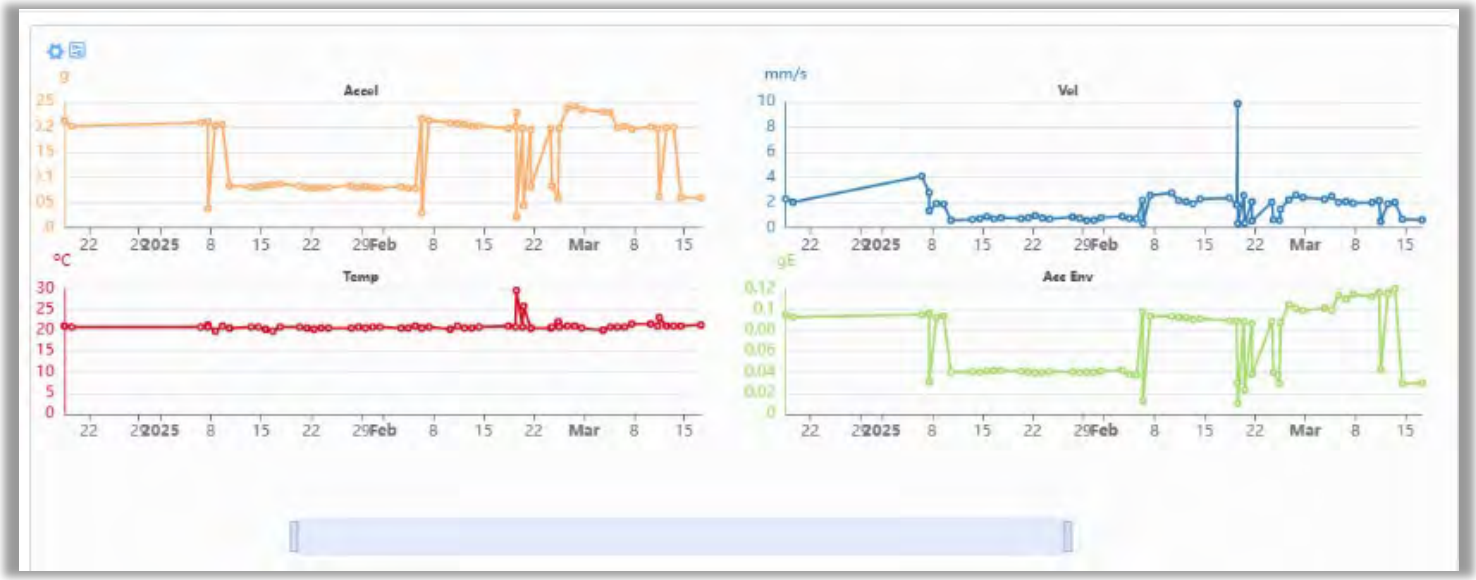
Default Trend Units

Select which Units are available in the Trend Charts Options in addition to the defaults, e.g. add Max Acceleration, Peak-to-Peak Acceleration, True Peak, etc:



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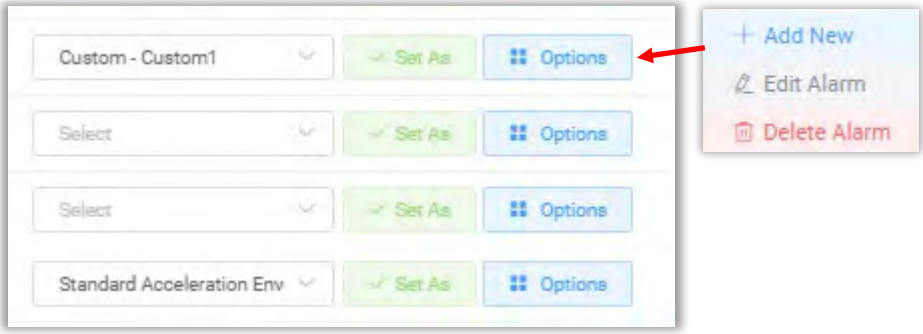
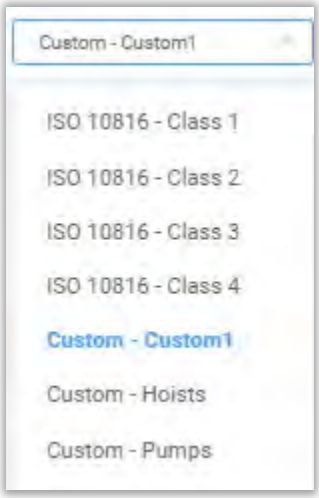
Default Severity Alarms

These settings control the color of the icons displayed in Dashboard Charts and/or the Data Tree.

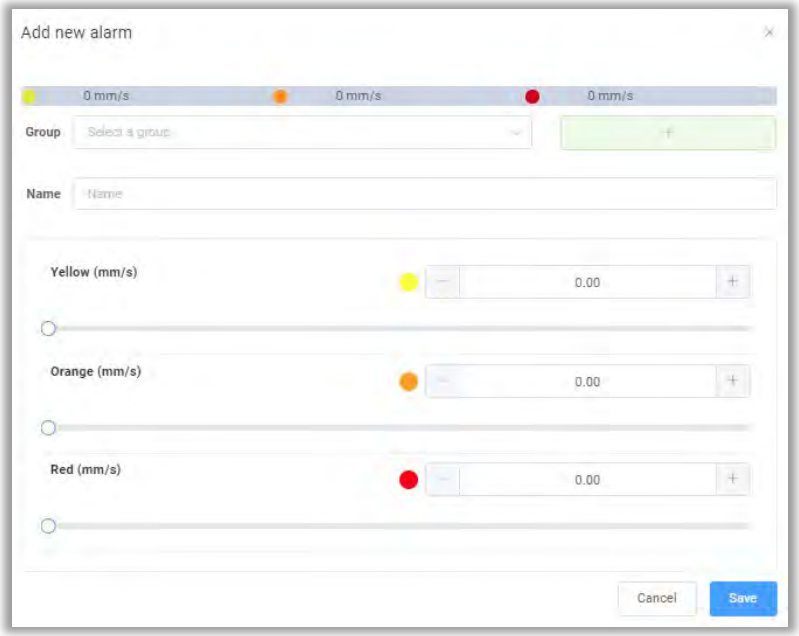


By default only Velocity and Acceleration Envelope **RMS** alarms are configured on machine points in the database. If alarms were added previously for Acceleration and/or Displacement, they will be available to configure as well.

The default RMS Velocity alarms are the ISO Class 2 values. Custom Alarm sets can be created and applied as needed. In this example alarm sets have been created for pumps, hoists, etc. The current default is Custom1.



When adding a new alarm set, add a new **Group** or select a previously-created Group, and assign a **Name**.



Use the sliders, the + and – buttons, or edit the box contents directly, then press **Save**.

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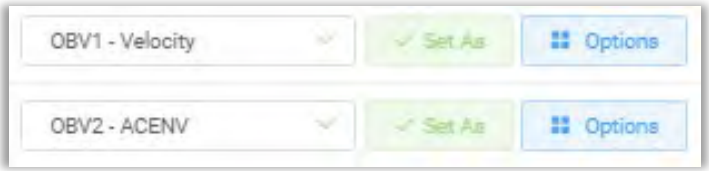
This alarm set will now be available to assign to machine point axes, by name.

Any alarm set can be assigned as the *Default* by selecting **Set As** 

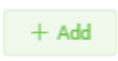
No default Octave Band Severity alarms exist when adding machine points, they must be added if desired. If previously created Octave Band alarm sets have been configured (through the Machine>Add or Machine>Edit functions), they can be set as the Defaults here.



Temperature and Amperage are pre-configured. Custom severity alarms can be created for any variable.

To create a Custom Alarm, click on Add new:

Choose a variable (there is a long list):

Then press 

to set the alarm values.

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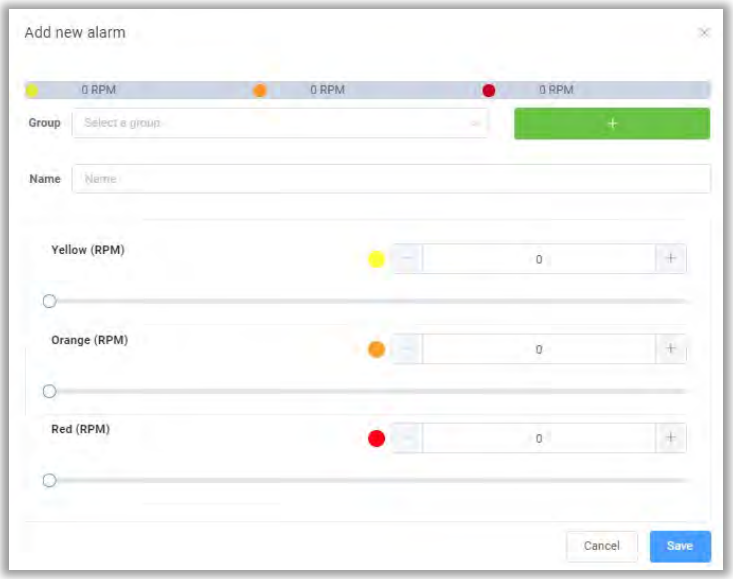
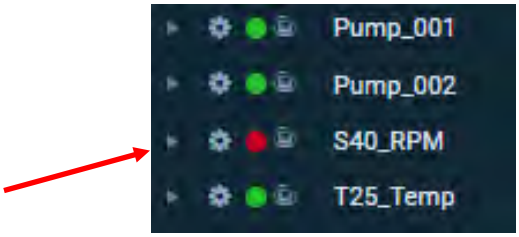
For example, to set an RPM alarm for a Phantom S40 speed sensor, select RPM from the drop-down:



Add a new **Group** or select a previously created Group, and assign a **Name** to this Alarm set.

Set the alarm values for Yellow, Orange and Red and press Save.



This Alarm can now be applied to a Phantom Speed sensor; assigned to a Machine or Point. E.g. If a separate machine is created just for the RPM sensor, the Data tree icon will show the color once new data is received .

Variables

Accesses the Variables and Function settings. Variables can be created and used with Functions when applied to Phantom data. Typically these are related to specialty Phantoms such as Current or RPM. Many are used with GPIO Phantom sensors (4-20 mA or 0-10 Volt). Functions may also be applied to custom Items that are configured in the database. See *Adding Custom Database Items* section of this guide for more information.

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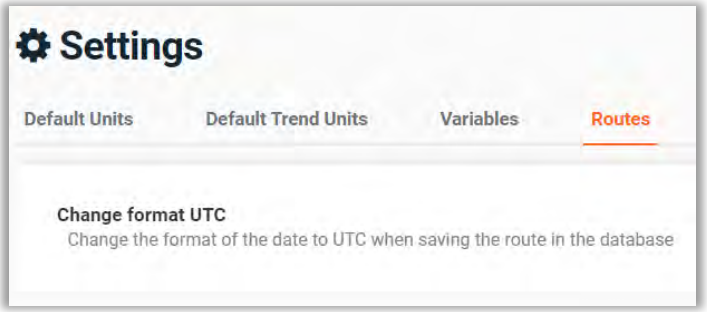
Routes

This tab has one option used to change the date format:



Database Explorer

Caution! The Database Explorer is for advanced users. This tool supports custom queries - created to view the contents of specific database tables. Knowledge of SQL database queries is required!

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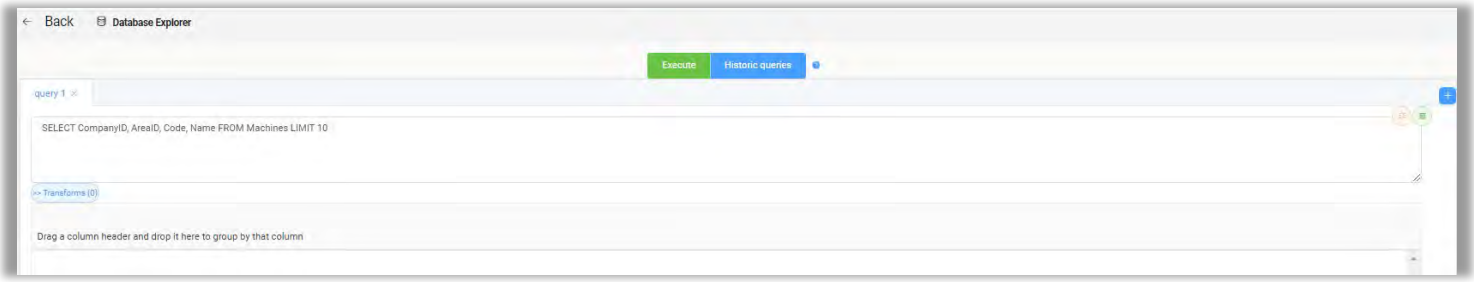
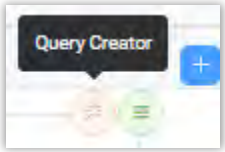
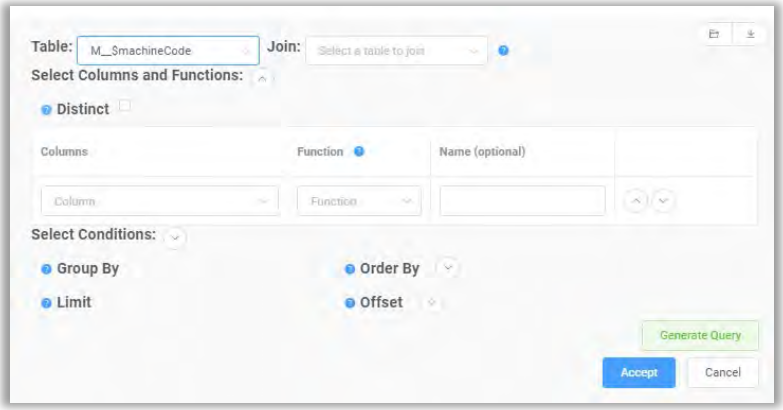


To begin, click on the Query Creator button on the right side of the screen:



Contextual help is provided to guide use of the tool to create a Query.



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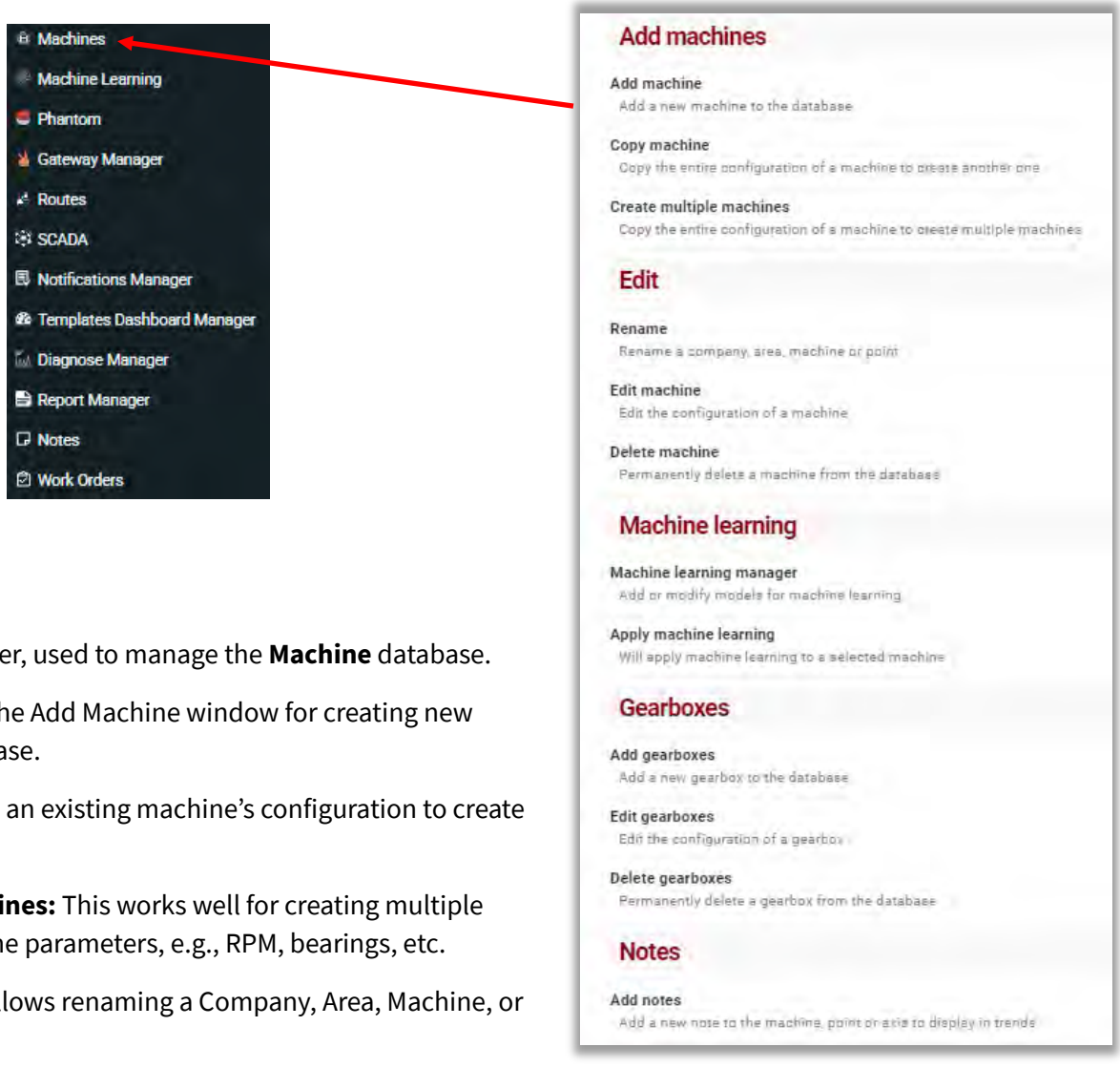
The Database Menu

The database menu is located on the Home screen and contains the following options:



Machines

Opens Machine Manager, used to manage the **Machine** database.

Add Machine: Opens the Add Machine window for creating new machines in the database.

Copy Machine: Copies an existing machine's configuration to create a new one.

Create Multiple machines: This works well for creating multiple machines with the same parameters, e.g., RPM, bearings, etc.

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

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

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

Machine Learning Manager: Opens the Machine Learning window to add or edit machine learning models**.** See *Machine Learning* section of this guide for more details.

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

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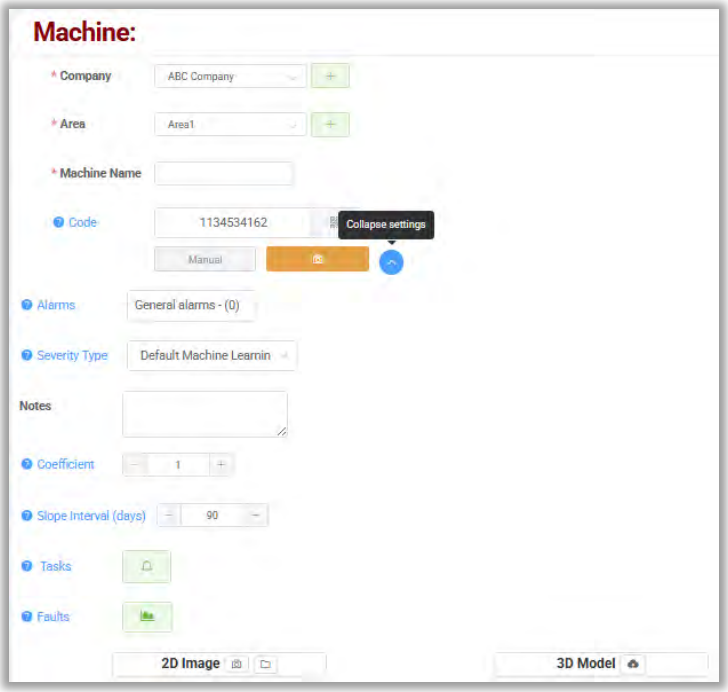
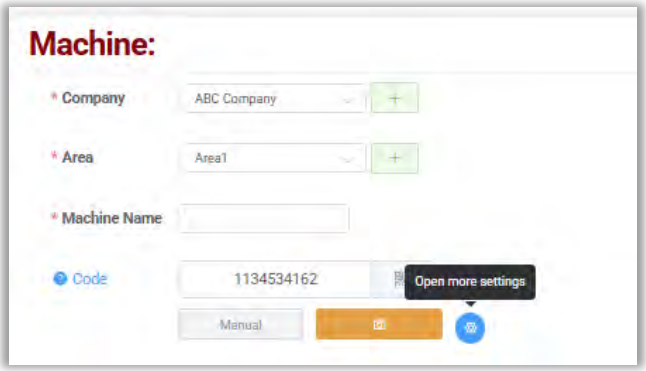
Gearbox Add/Edit/Delete: Opens the Gearbox window to allow management of gearboxes in the database.

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

Adding a Machine





The **Add Machine** screen has two sections, the Machine panel and the Points panel.

The **Machine** panel contains fields for:

- **Company**: The company who owns the machine. Select from the drop-down or add a new Company with the + button.
- **Area**: The production area, building or location within a Company in which the machine is located. A new Area can be added by using the add button.
- **Machine Name**: The machine name or ID number. **NOTE**: the only special character permitted in the name field is an underscore.
- **2D Image**: Optional 2D image of the machine may be uploaded to the database for reports. Click the photo button to capture an image using the device's camera.
- **3D Model**: 3D ODS models can be selected from the database. External 3D models in .3ds, .xaml, or .obj formats can also be imported to EI-Analytic.
- **Alarms**: General alarms may be configured here for non-vibration Phantom sensors such as Temperature, Speed, Current, etc. These types of sensors may be administered at the Machine level **or** the Point level in the database. If created at the Machine level, the corresponding alarms should be configured here, if created at the Point level, configure alarms in the Points panel **Extras** field as described in the next section.

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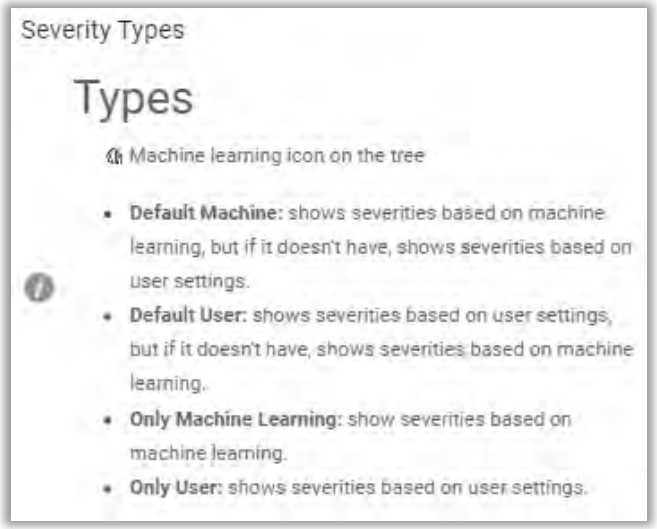

- **Severity Type**: The choice is used to determine the severity color (red, yellow, orange, green) of the icons in the data tree. For this Machine.
- **Notes**: Text field for documenting additional machine information.
- **Coefficient**: The machine maintenance priority or criticality for severity trending on a 1-10 scale (1 for critical machines, 10 for non-essential machines).
- **Slope Interval**: The time period of data to be considered for machine severity calculations.
- **Code:** EI-Analytic automatically generates a unique code(number) that can be used to identify a machine. Click the View button to see a unique QR code for scanning purposes. A Manual code may also be entered, or an image created via a device's camera.
- **Task:** Opens the Tasks window. **NOTE**- This feature is only available with an EI-Analytic cloud database subscription; it is not currently supported when using local databases. Task Manager provides notifications via email and/or push notifications to the WiserVibe App, based on configurable thresholds for velocity, acceleration, etc., for a given machine.
- **Faults:** Open the Diagnose Manager. See *Diagnose Manager* section of this guide for more information.

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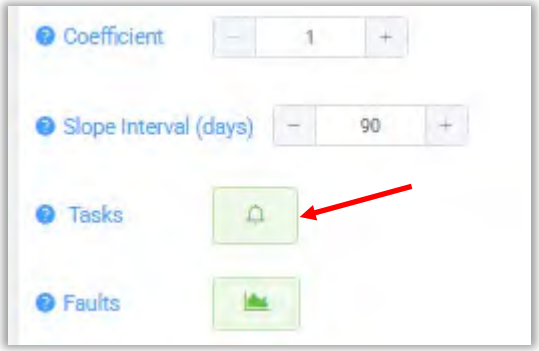
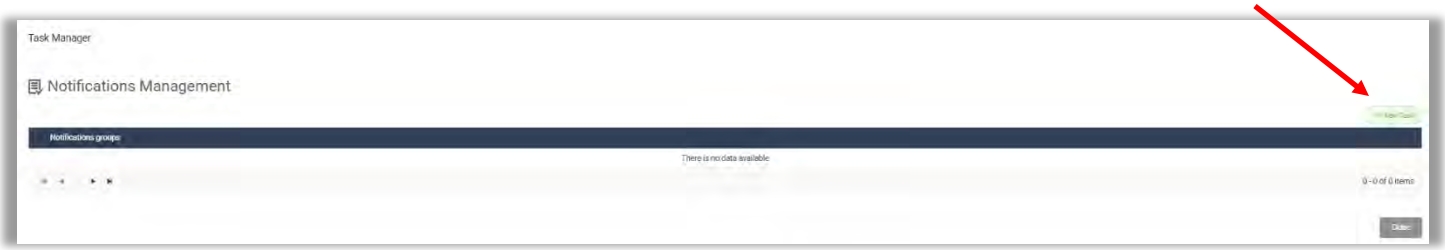
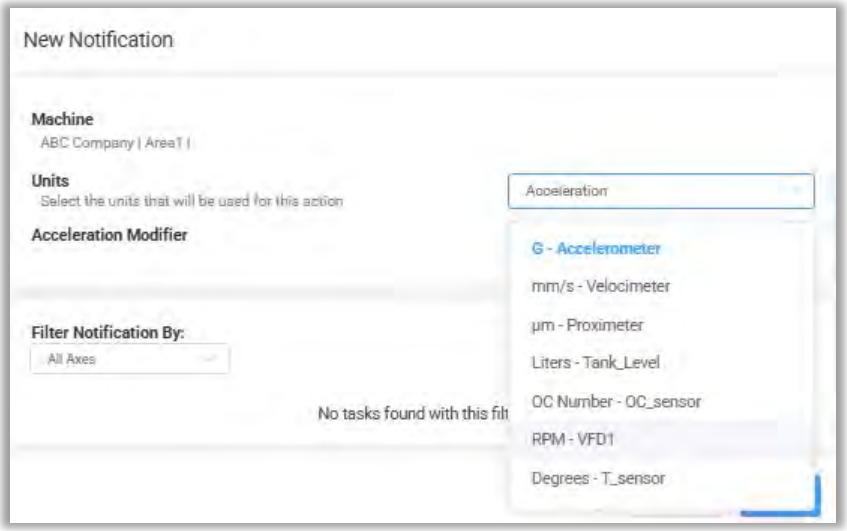
Setting Tasks for Machines

Tasks can be created to notify users of Machine health changes via email and/or push notifications to the Wiser Vibe mobile App. A free or paid subscription to an EI-Analytic database is required for this feature to operate.

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







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

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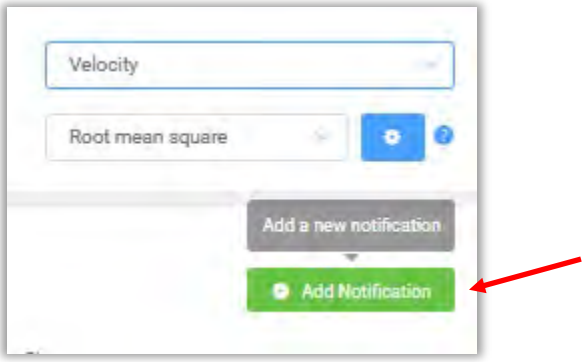
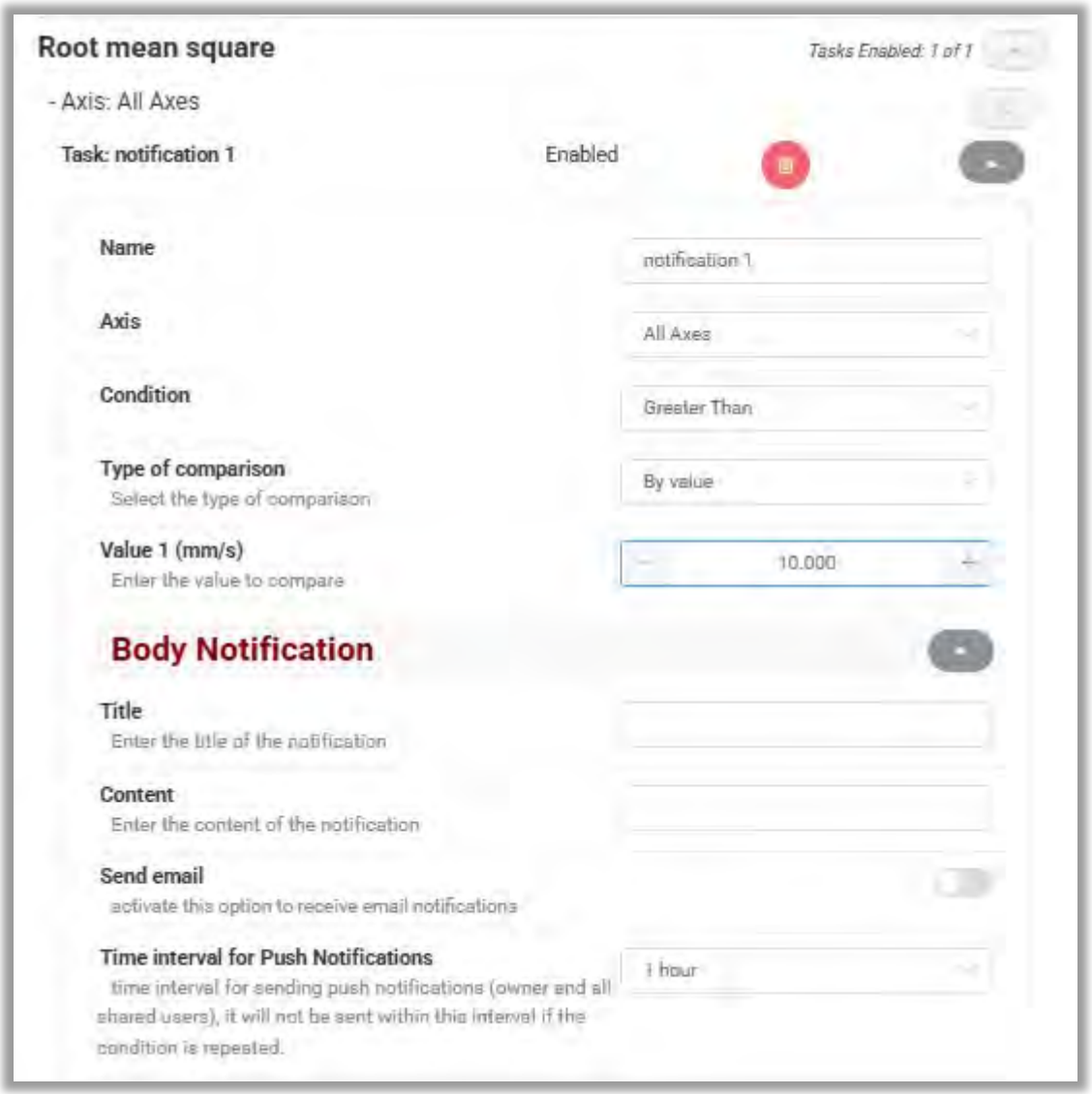
Then click the Add Notification button to open the **Tasks** window.





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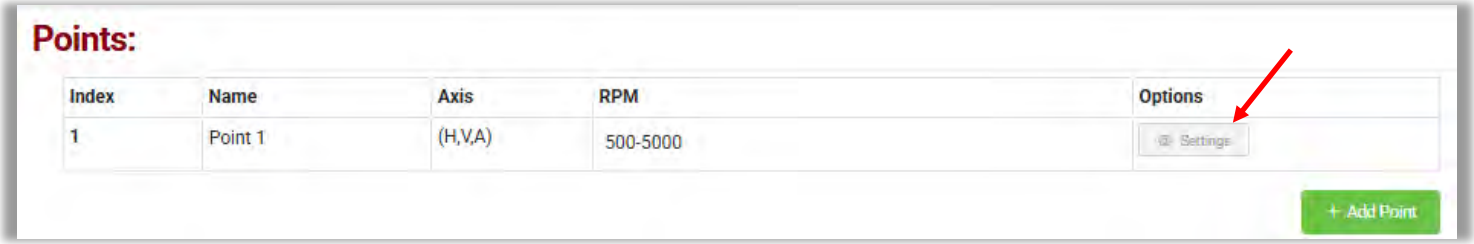
- Assign a name for this Task.
- Choose which Axes will cause Notification.
- Depending on the Units chosen, the Units drop-down box will contain an appropriate list for selection. For example , if velocity is chosen, then RMS, Min, Max, Crest Factor, Peak to Peak, etc., will be included.
- Conditions include Equal to, Less than, Greater than, etc.
- Value is set for the chosen Units and Condition, such as the example above where the velocity Max Greater than 10 mm/s will cause Notification to be sent.
- Assign a title for the email Notification.
- Information entered in the Content field populates into the Subject line of the email.
- Check the Send email green slider to enable email Notification.
- Time Interval for Push Notifications allows setting a buffer to prevent repeat notifications from being sent. If the condition repeats during the assigned time window, no notification will be sent.

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

Configuring Point 1 on a Machine

Point 1 is created by default in a separate panel. Every machine has a minimum of 1 point, although it is not used when non-vibration Phantom sensors are assigned at the machine level. Click on the **Settings** button to open the dialog box.



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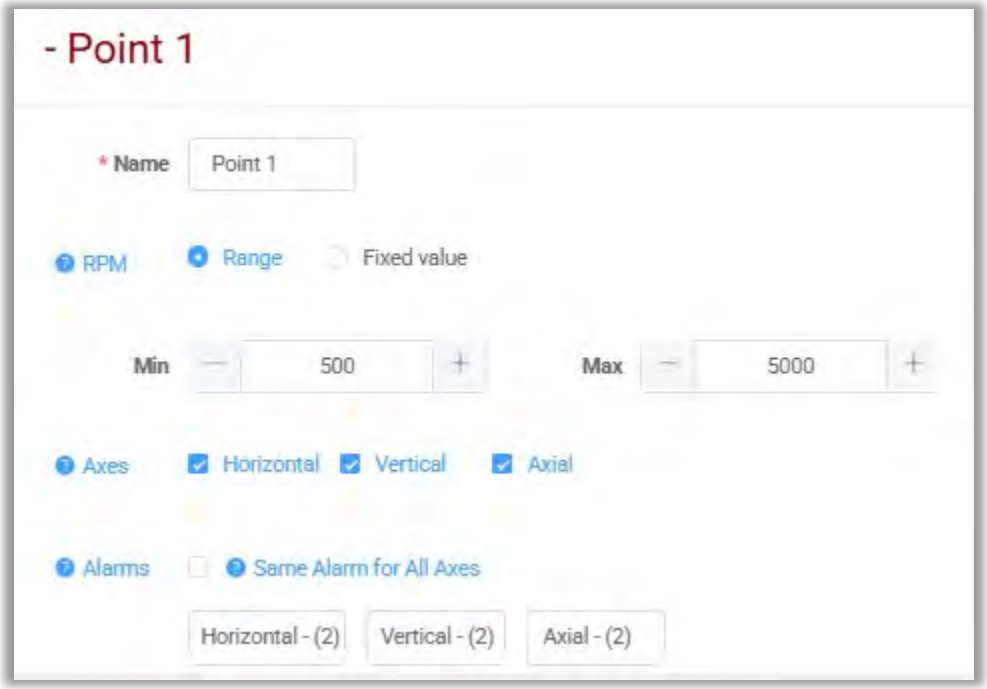
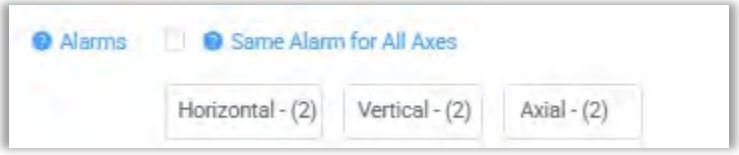


- **Name**: Use a naming convention for points that works for you. Names like MOB (motor outboard) or NDE (non-driven end) are commonly used. Only underscores are permitted as a special character in the name field, spaces are OK.
- **RPM**: Enter a fixed value or the Min and Max RPM Range values for the machine point. An accurate RPM range is required for Acceleration Envelope calculation and identifying the machine's running speed.
- **Axes**: Defaults to triaxial, adjust as necessary.

Alarms

These fields are used to set **Axis**-level severity alarms that determine the color displayed in the data tree. Click on Horizontal, Vertical or Axial to set the alarms for each axis. This opens the Alarm config window.



You can set the same alarm values for each axis by selecting the radio button.

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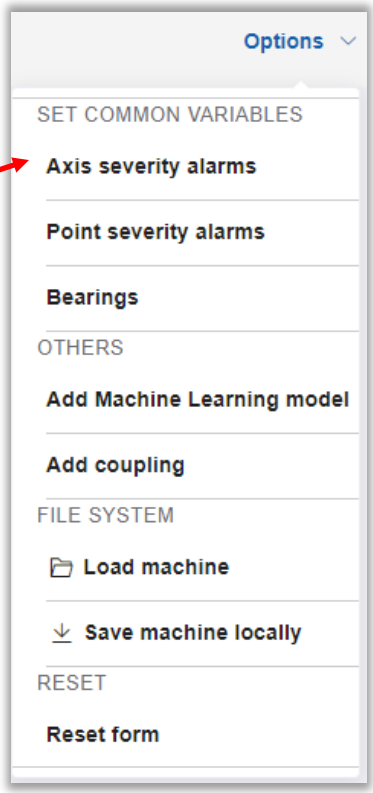
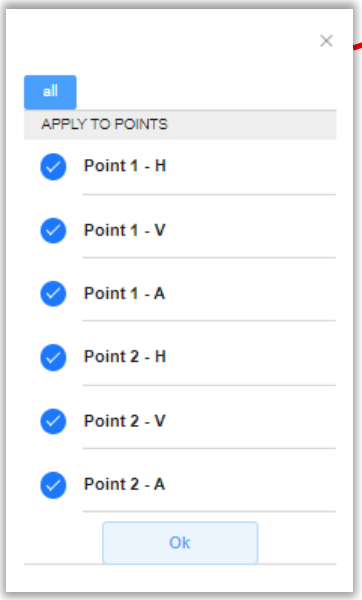
When adding a Machine, if you want to set the alarm values <u>for multiple axes</u>, open the **Options** Menu at top right of the Add Machine screen:

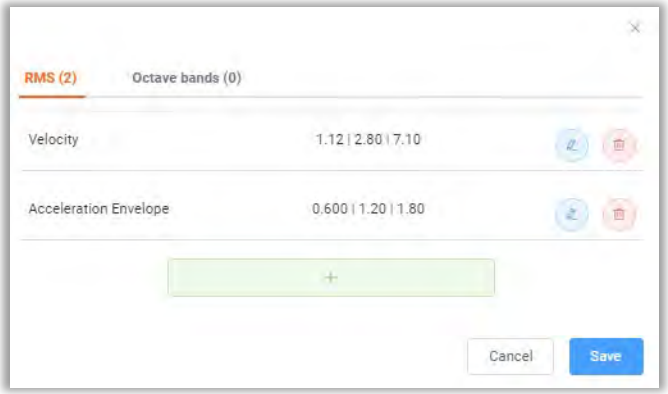
Click **Axis severity alarms**.

Apply to specific Axes or click OK for all (default).

The alarm config window will open.







By default, velocity and Acceleration Envolope alarms are created for every Point.Velocity uses ISO 10816 Class 2 standards. Acceleration Envelope alarms are also based on Standard Envelope alarm Class 2 standards.

Click on the Edit button to change the settings.

This opens the Alarm Settings window.

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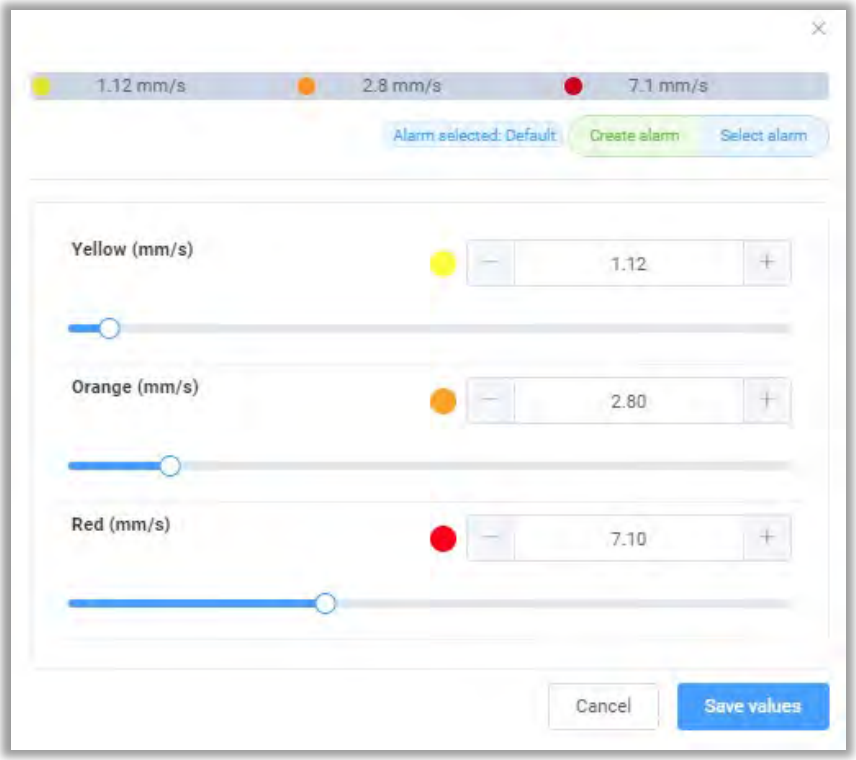


Previously created alarms can be applied by pressing Select alarm.

Select alarm

Change values by using the blue sliders, or by directly editing each box, or use the **+** and **–** buttons to adjust. Once set, the alarm values can be saved with two options:

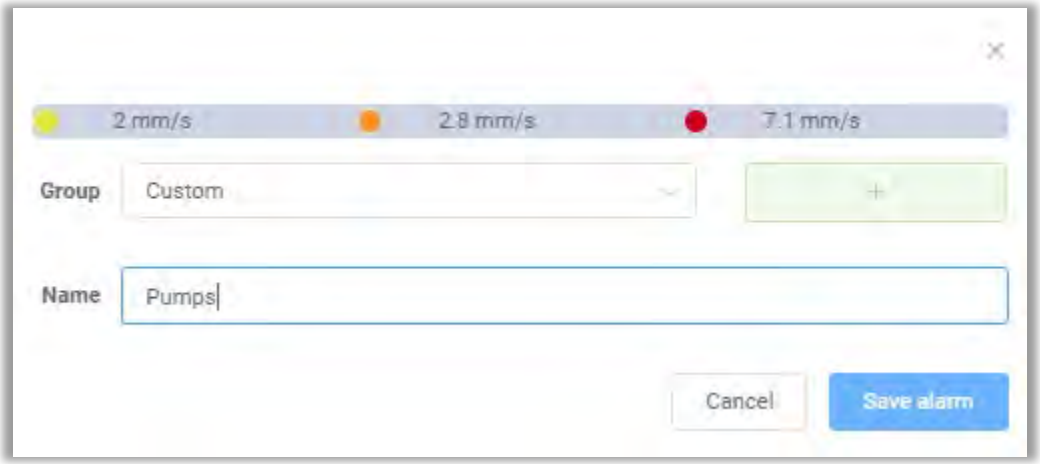
1. To apply these values to all selected Axes, press Save Values.

Save values

2. To create a new alarm that can be assigned to any Axis, press Create alarm.

Create alarm

To create a new Alarm, press Create alarm



Enter a **Group** and assign a **Name**, then press **Save alarm**.

To assign an alarm, press Select alarm

The saved alarms are accessed via the drop-down box.

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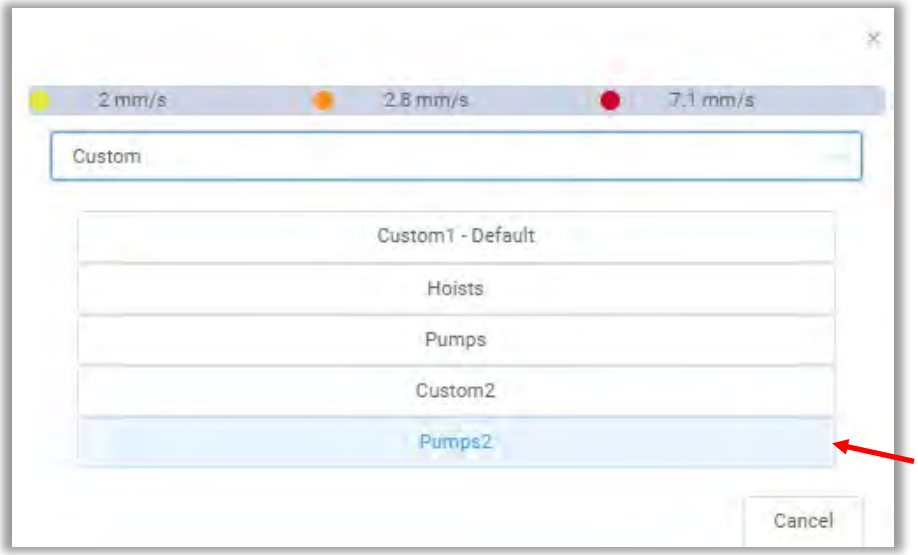
As shown, the ISO Class 2 alarms are the defaults. Select the Group and alarm Name – example Pumps2:



The settings screen reopens and shows the selected alarm.(Pumps2)

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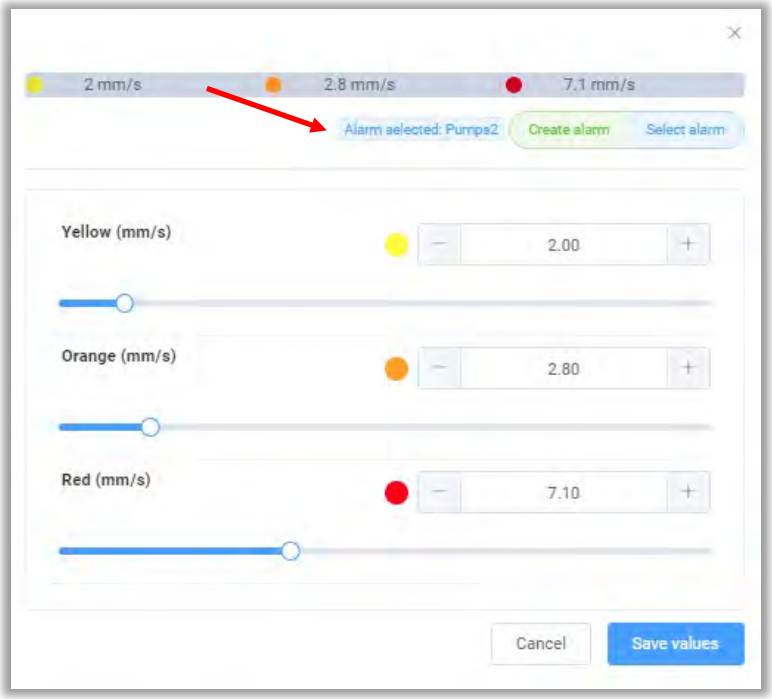
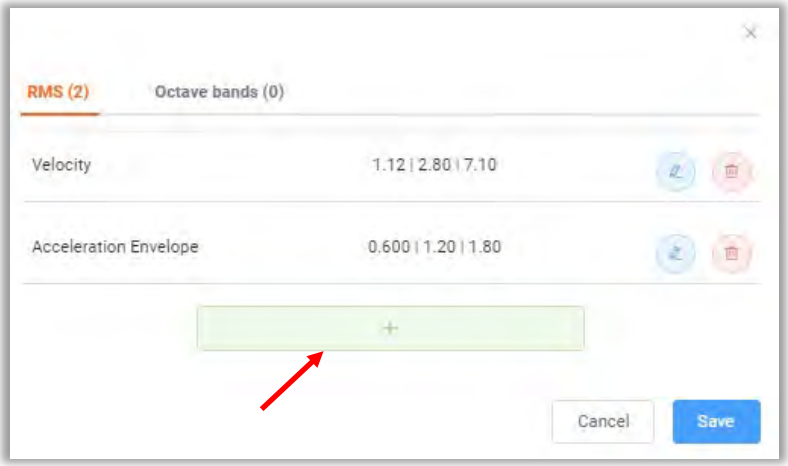


Press **Save values** to complete the changes.

By default, there are two parameters assigned for RMS alarms - Velocity and Acceleration Envelope.

Click on the large green **Add** button to add RMS alarms for Acceleration and/or Displacement.

Click on **Octave Bands** to add Velocity and/or Acceleration Envelope alarms.



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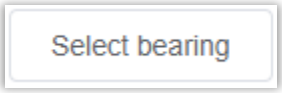
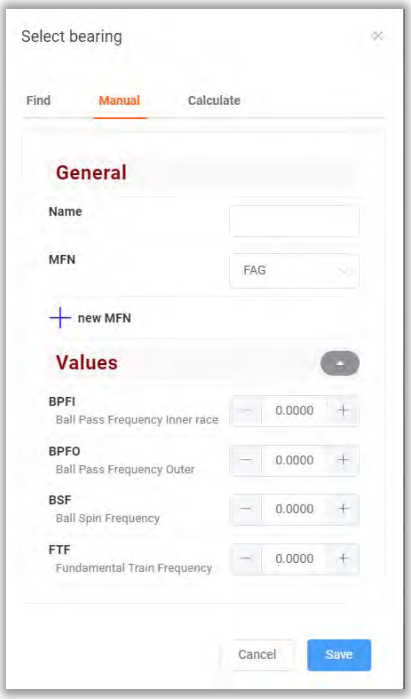
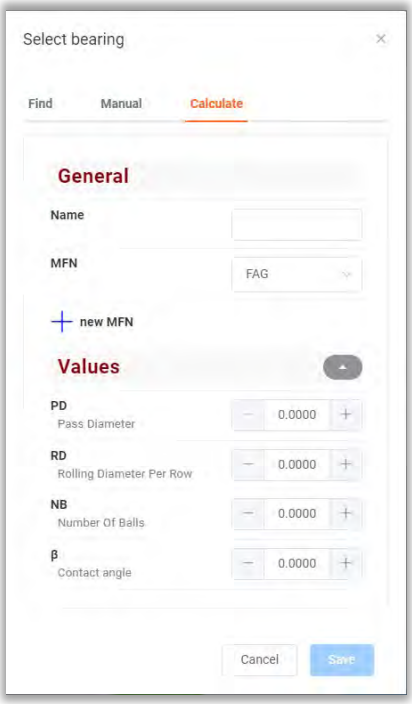
Adding Bearings

The Select Bearing button opens the Bearing window.



EI-Analytic 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.

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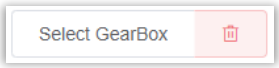
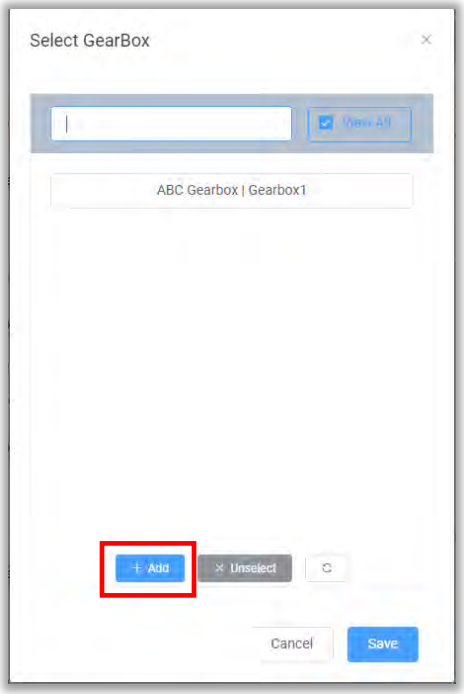
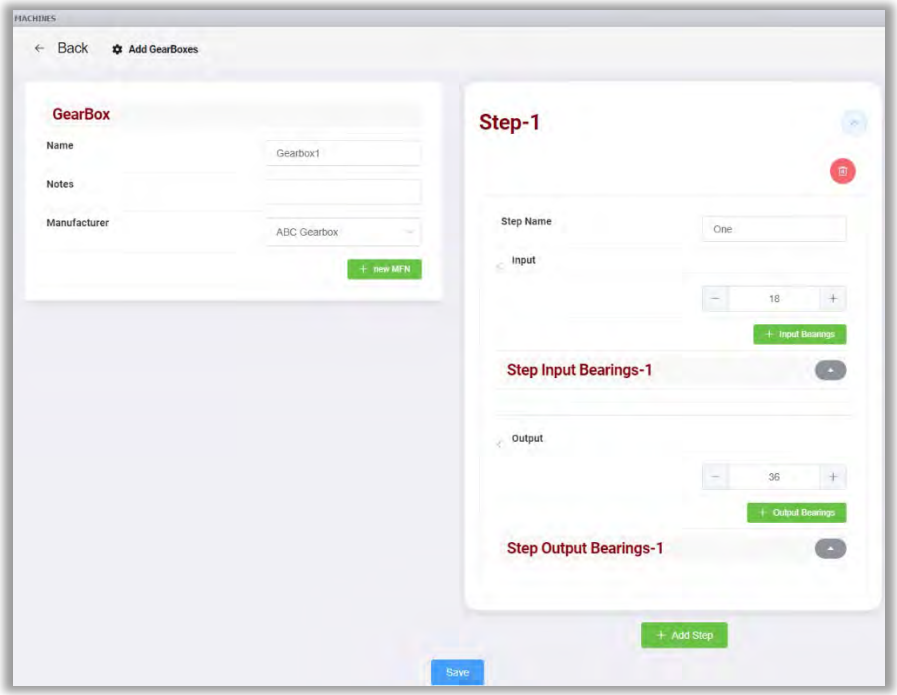
Adding a Gear Box

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

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

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

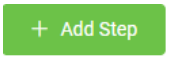




- **Name**: Enter the name of the new gearbox.
- **Notes**: Add any desired notes.
- **Manufacturer**: Select from previously configured list or Click  on the button to configure a new Manufacturer.

- **Step Name:** Add the step name to the Step-1 panel.
- **Input**: Enter the number of teeth.
- **Input Bearings**: A bearing configuration may be added by  selecting the button.

- **Output**: Enter the number of teeth.
- **Output Bearings**: Add an output bearing, if desired.

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

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

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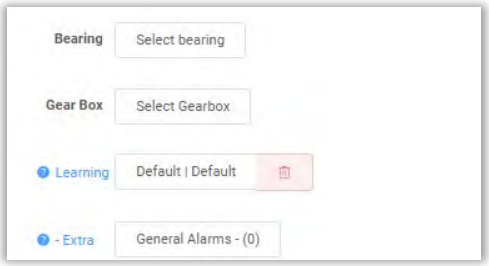
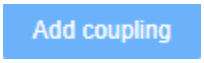
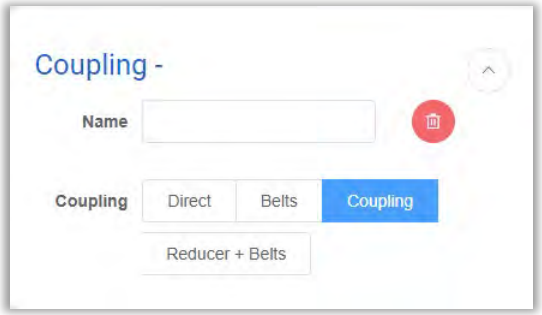
Point 1 continued:



- **Learning:** The Machine Learning feature uses algorithms to analyze historical data and determine the colors shown in the Data Tree for Company/Area/Machine/Point/Axis. It can also be used to provide email notification regarding the health status of a machine point. See the *Machine Learning* section of this guide for more details.
- **Extras**: In addition to vibration data, Extra Values such as Temperature, RPM and Amperage may be documented. Extra Values may be assigned at the Machine level, or at a Measurement Point. Click on the General Alarms button to set alarms for sensors that are assigned at the point level. These point level alarms have no relation to the Axis alarms previously described.

Adding a Coupling

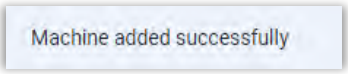
To add a Coupling, click the Add coupling button. 



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

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

After adding all machine points, click on Save. 

A confirmation message will be flashed at the top of the screen. 

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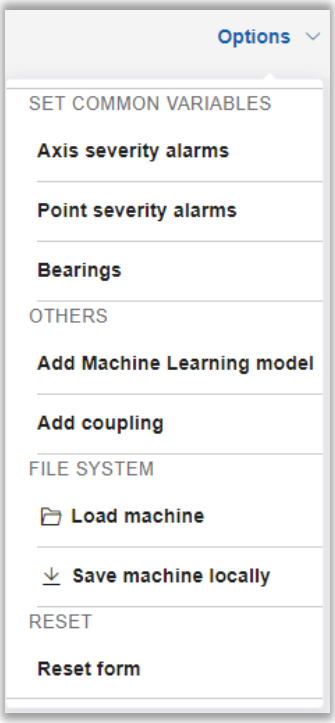

Note: The **Options** Menu is located at the top right of the Add Machine screen.

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

It also allows applying **Axis Severity alarms , Point Severity alarms** and **Machine Learning Models** to multiple selected Axes at once, instead of administering them individually.

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

Load machine loads a previously saved machine text file.

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Machine Learning

One of the advanced features available to EI-Analytic subscribers is Machine Learning.

Erbessd uses semi supervised machine learning algorithms, as described in the article authored by Erbessd CEO, Dr. M. David Howard: https://www.erbessd-instruments.com/articles/machine-learning-vibration-analysis/

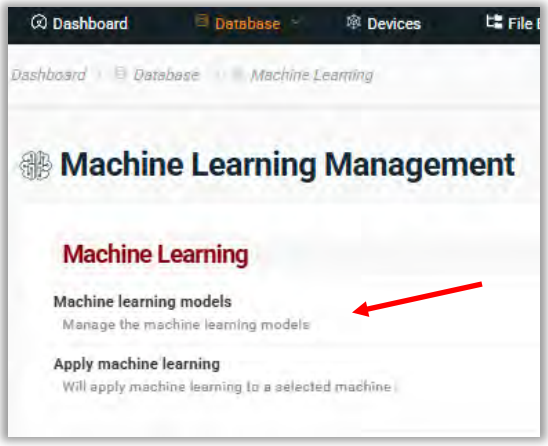
The signal files created by either Erbessd Phantom wireless sensors or those collected by Routed service using a portable data collector such as a Wiser 3X can be used as the data set for the algorithms. Machine learning is applied to a historic period of data collection, for example 30 days, to establish a baseline condition that represents a normal healthly running condition. Machine Learning will use this as a reference for future data collections.

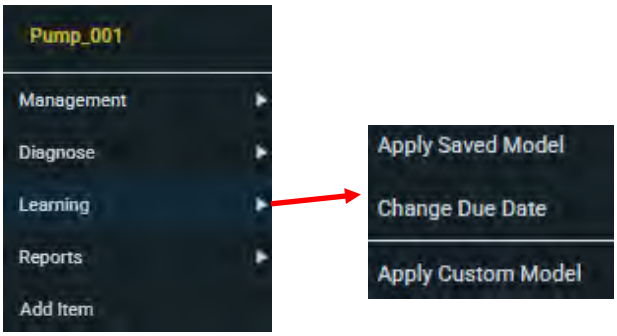
The Machine Learning feature can be used to control the color of the Severity indicators(red, orange, yellow, green) shown in the Data Tree (the left-hand panel in DigiVibeMX and EI-Analytic/WiSER Vibe) for each Company, Area, Machine, Point, and Axis.

Optionally, a notification may be sent via email and/or Push notifications to devices running the WiSER Vibe mobile app.

Configuration

The Machine Learning feature can be administered from the EI-Analytic Database tab or via the tree. It can also be set using the WiserVibe mobile app or Machine Manager (edit machine) in DigivibeMX.





Machine Learning works through **models** that act as templates to be applied at different machine points. Models are organized into groups with a unique names for each.

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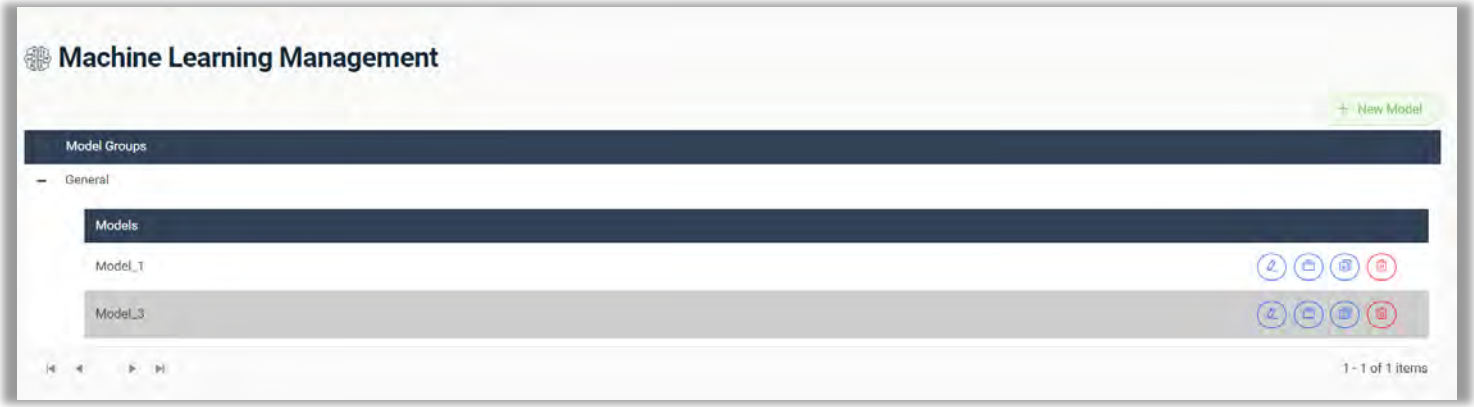
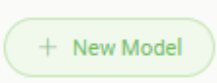
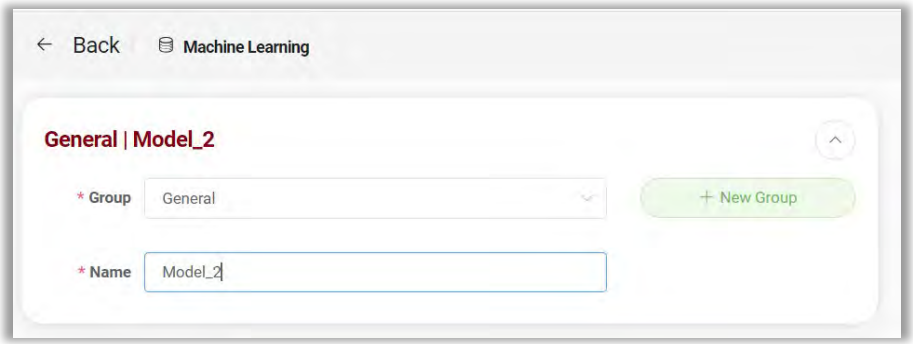


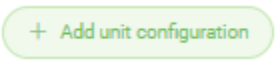
Select **New model** to begin.

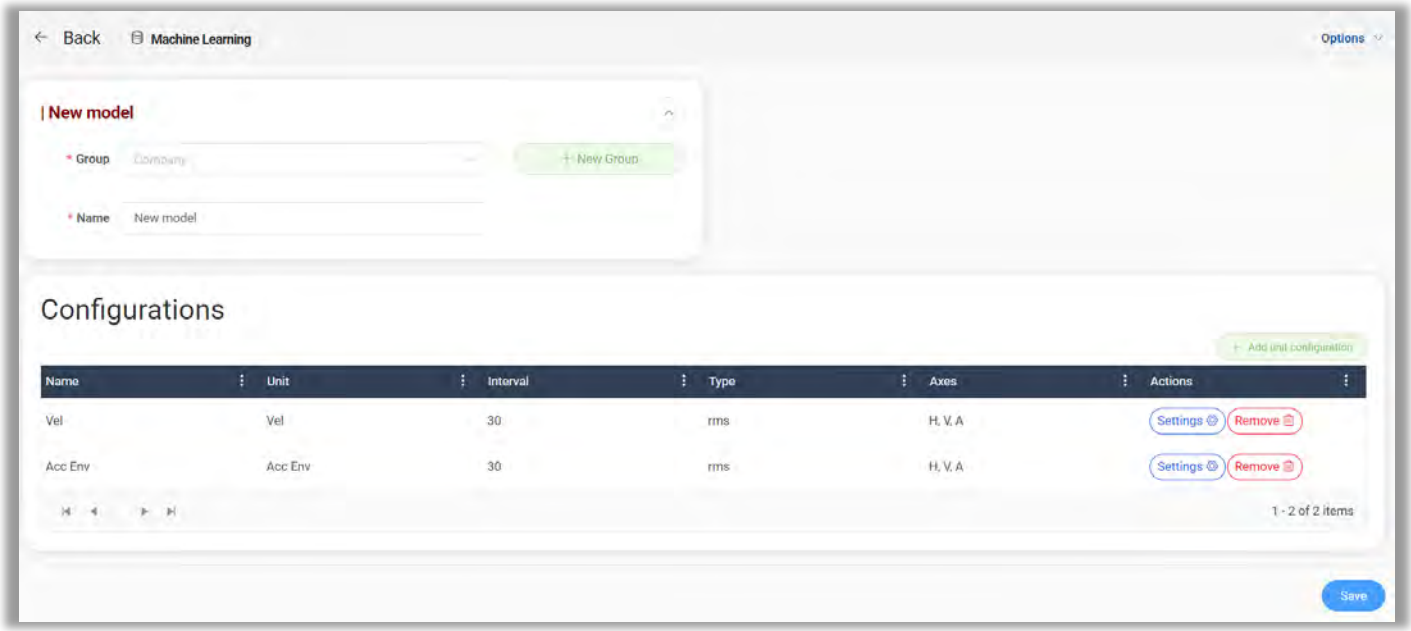


Assign a Group name and a Model name:



In the **Configurations** panel, options for Velocity and Acceleration Envelope are displayed by default. To add another unit, click the green add unit configuration button.





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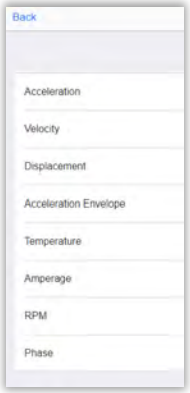
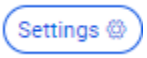
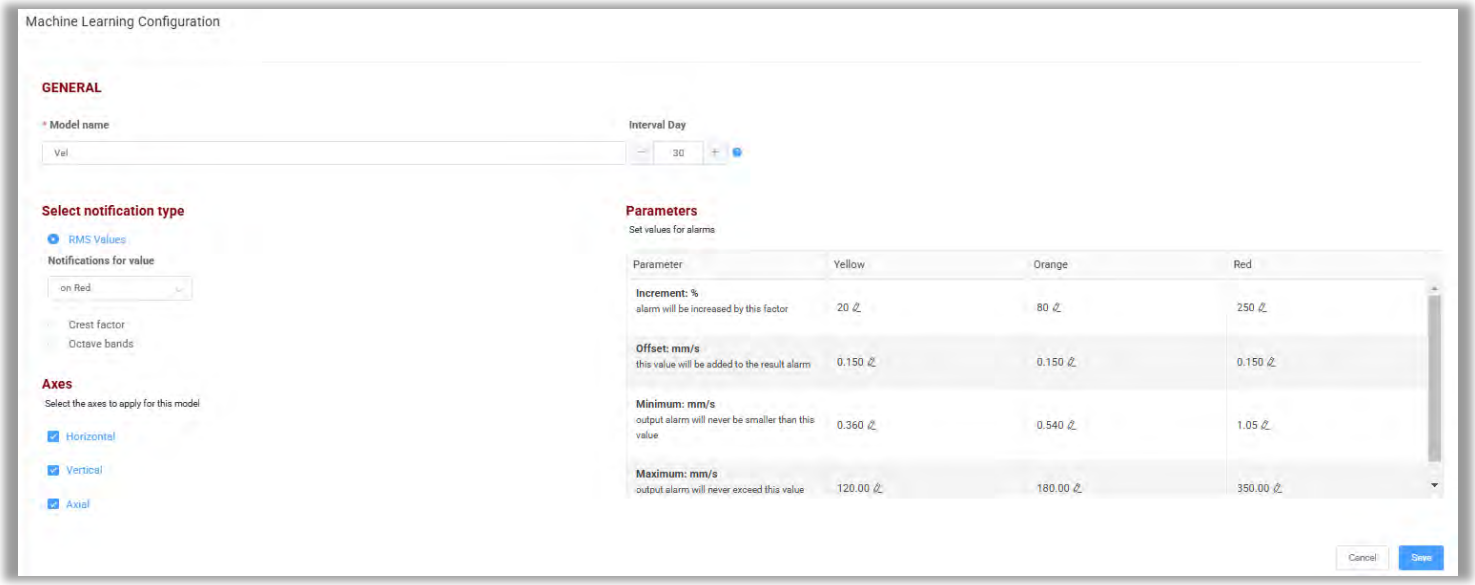
The following is a list of other units for Machine Learning:



To change the settings for a unit, click the Settings button. 



- **Interval (days):** Defaults to 30 days. The larger the interval, the better the accuracy of the Machine Learning algorithm. Enter the number of days or use the slider to set the value.
- **Axes**: Select the axis that will be used by the model(defaults to all 3 axes).

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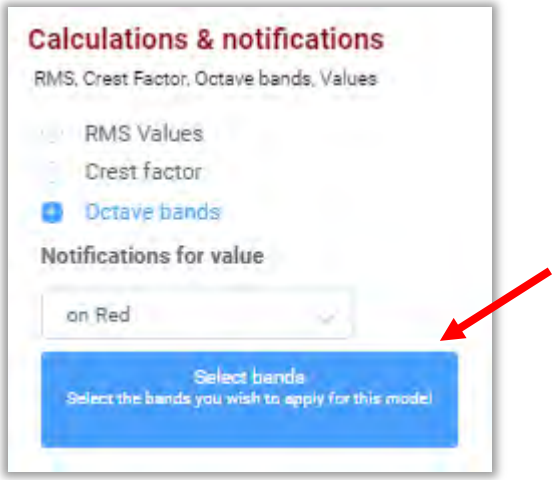
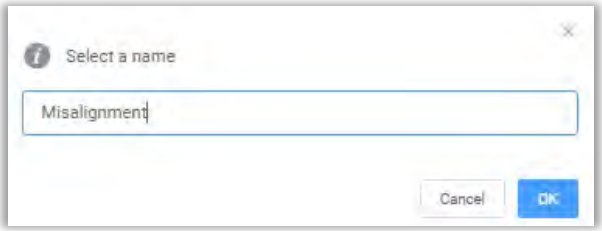
Machine Learning may be configured to alert for **RMS**, **Crest Factor** or **Octave Bands** values. For each of them it is possible to determine whether the notification alert will be sent for the yellow, orange or red color values.

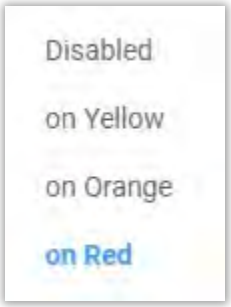
- **RMS values:** Applies to Vibration Amplitude units only.
- **Crest Factor**: Check to use crest factor in calculations, and if notifications are desired.
- **Octave Bands**: Select to use Octave Band information in calculations, and notifications.

For Octave Bands, click on **Select Bands** to assign a **name** to any octave band. As an example, the octave band that contains the frequency of 2x the running speed of a motor may be named “Misalignment”. This name will appear in the email /push notifications.





Notification for value: Select the condition upon which notifications via email and the WiSER Vibe mobile App are sent:



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- **Increment %:** Choose a percentage value that will be applied to the highest measurement found within the selected range of days.

- **Offset:** Add a fixed value(Imperial or Metric units) to be added to the percentage increased in the **Increment%** field. These two values are added together to generate the new severity alarm values that are used to determine the colors in the Data Tree. If Notifications are set, Machine Learning Tasks are automatically created for the Units specified in the Model, e.g. Velocity and Acceleration Envelope.
- **Minimum:** Setting the minimum thresholds for an alarm condition to be reported.
- **Maximum:** Setting the maximum thresholds for an alarm condition to be reported.

Click on  to finish adding the model.

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Once a Model is created, the following buttons apply:

Edit Model - make changes to existing models.

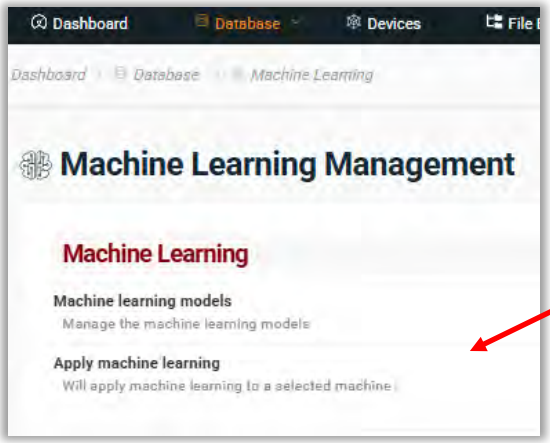
Apply Model to one or more machines.

Copy – use an existing Model as a template to create a new one.

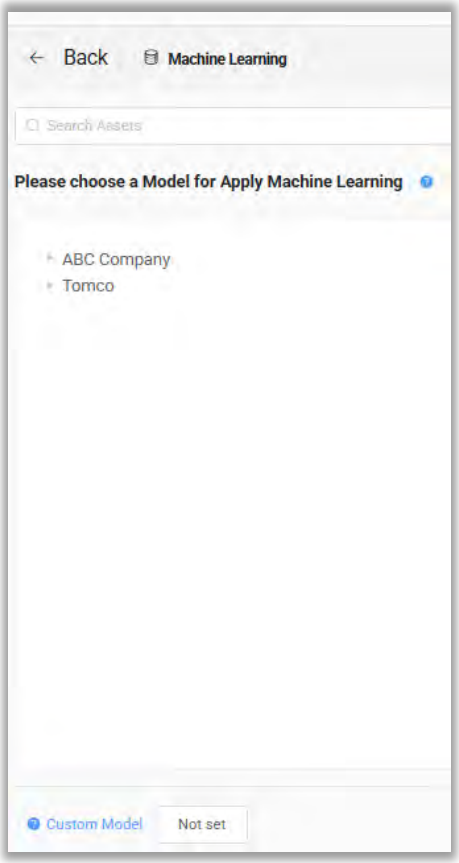
Delete Model deletes a Model from your database completely and **permanently.**

Apply Machine Learning Models

Machine Learning Models may be applied to Machine Points in several ways. From EI-Analytic, select **Apply Machine Learning** from the Machine Learning menu.



Click Apply machine learning



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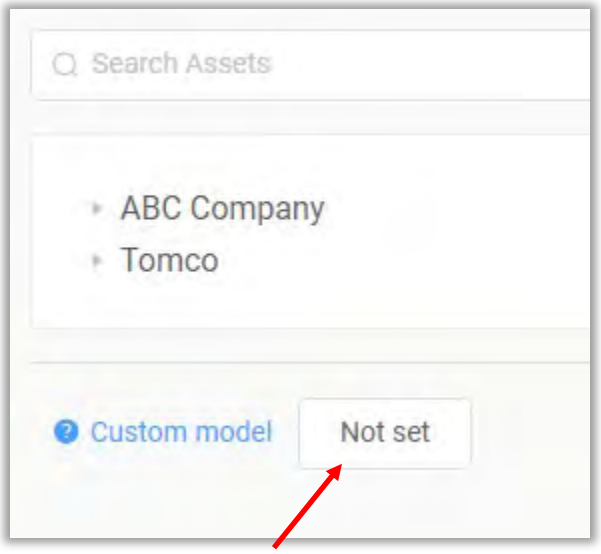
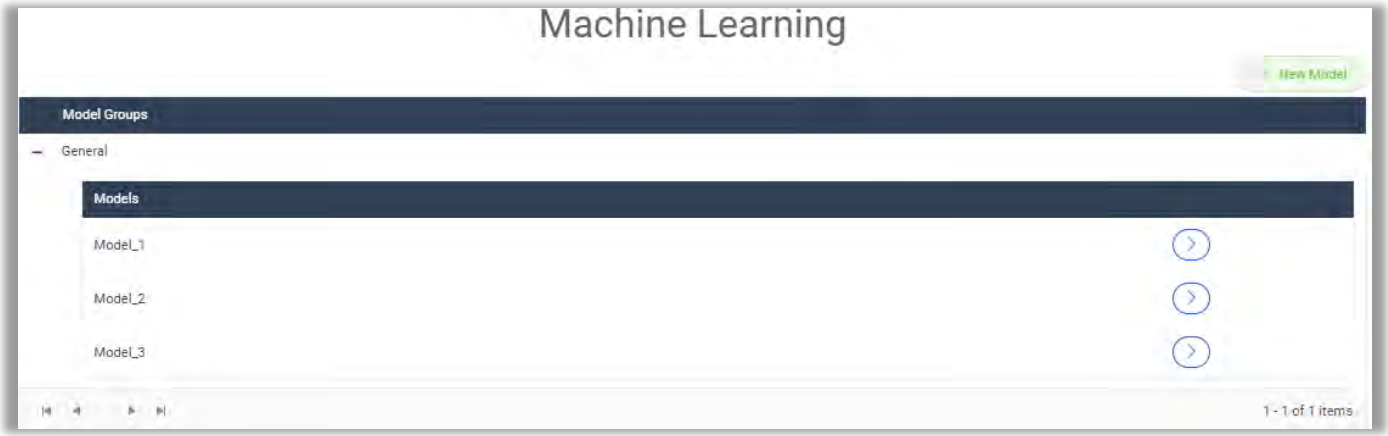
Click on **Not set**



This opens a list of previously created Models to choose from, or create a new Model:



3. If using an existing Model, click on the associated arrow and it will open the Model.
4. Press Select to continue or change the settings to create a Custom Model to be applied.

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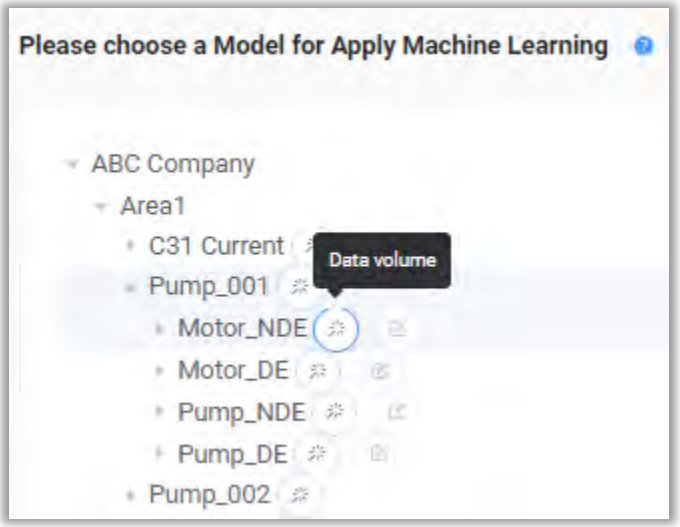
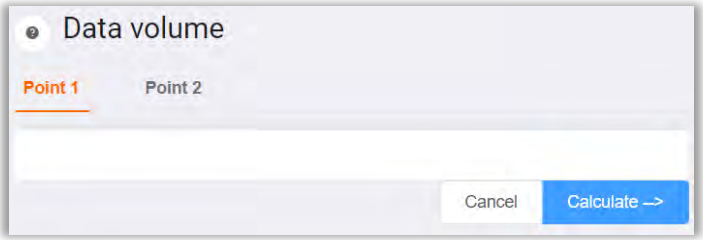
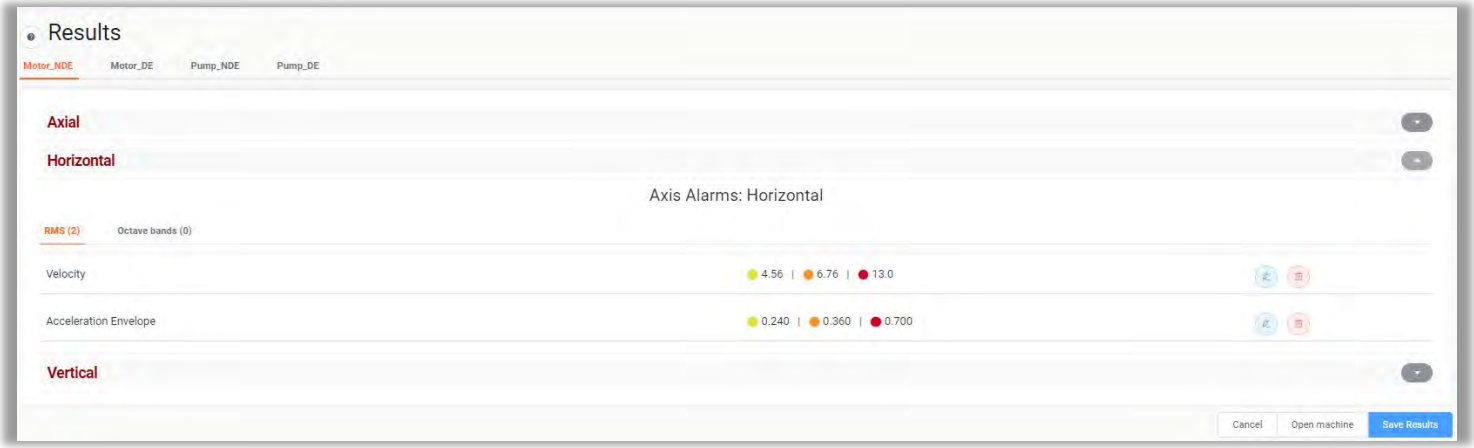
1. The Data tree opens to assign the chosen Model to a Machine :



2. Click the **Data volume** button for all Points, by Machine or select by individual Point. If Machine is selected, choose which Points the Model is to be applied and click Calculate –>



The calculated values are shown, according to the model applied to the point. These values can be modified per axis. In this example the red alarm for velocity is set at 13 mm/s, based on a 250% increase in the Model for the highest amplitude found in the 30 days of data, as specified.



3. Once you are satisfied with the severity alarm values, click Save Results

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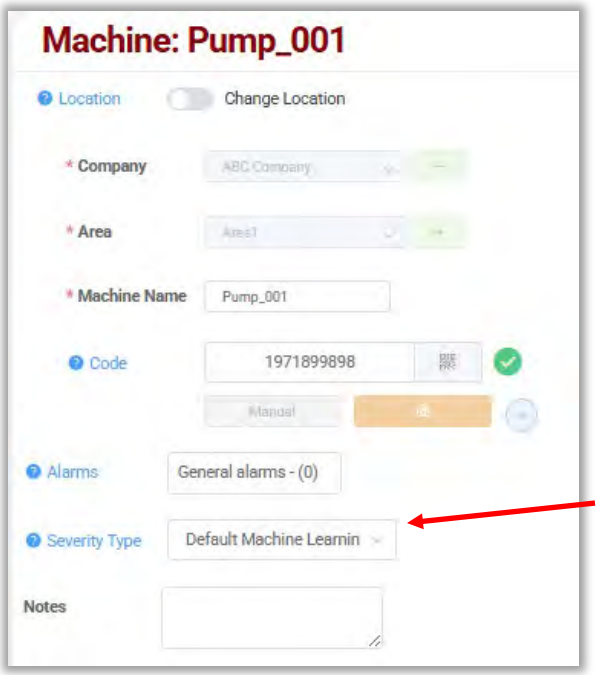
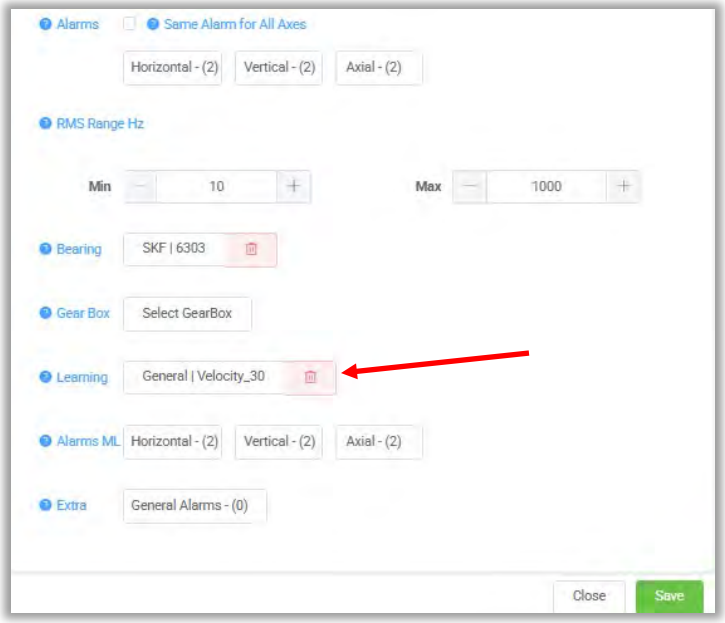
You will see several messages flashed at the top of the screen indicating that Machine Learning Tasks have been created. See the *Task & Notification Management* section of this guide for more details.

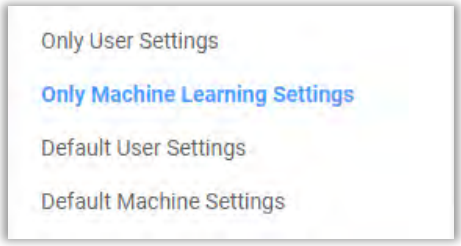
Machine Learning models can be confirmed or changed in Machine Manager(on the Points panel). Use **Edit Machine** to begin.





Open the first Machine Point Settings. The Learning field shows the Model applied to this Point.

Ensure the **Severity Type**field for this Machine is set to either “Default Machine Settings” or“Only Machine Learning Settings”. This field controls the color of the Severity indicators(red, orange, yellow, green) shown in the Data Tree in DigiVibeMX and EI-Analytic) for each Machine, Point, and Axis.



A Model may be deleted from any Machine Point by clicking on the delete button beside the Learning field.

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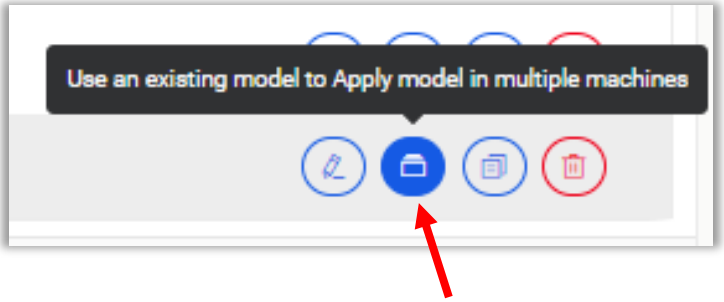
Another method to apply a Machine Learning Model to a machine point is:

1. Open the Machine Learning Mangement window from the Database Menu
2. Select the Model that is to be applied and click the Apply button:



Pick the Company, Area and Machine from the drop-downs, then select the Points

Press **Paste** to save.

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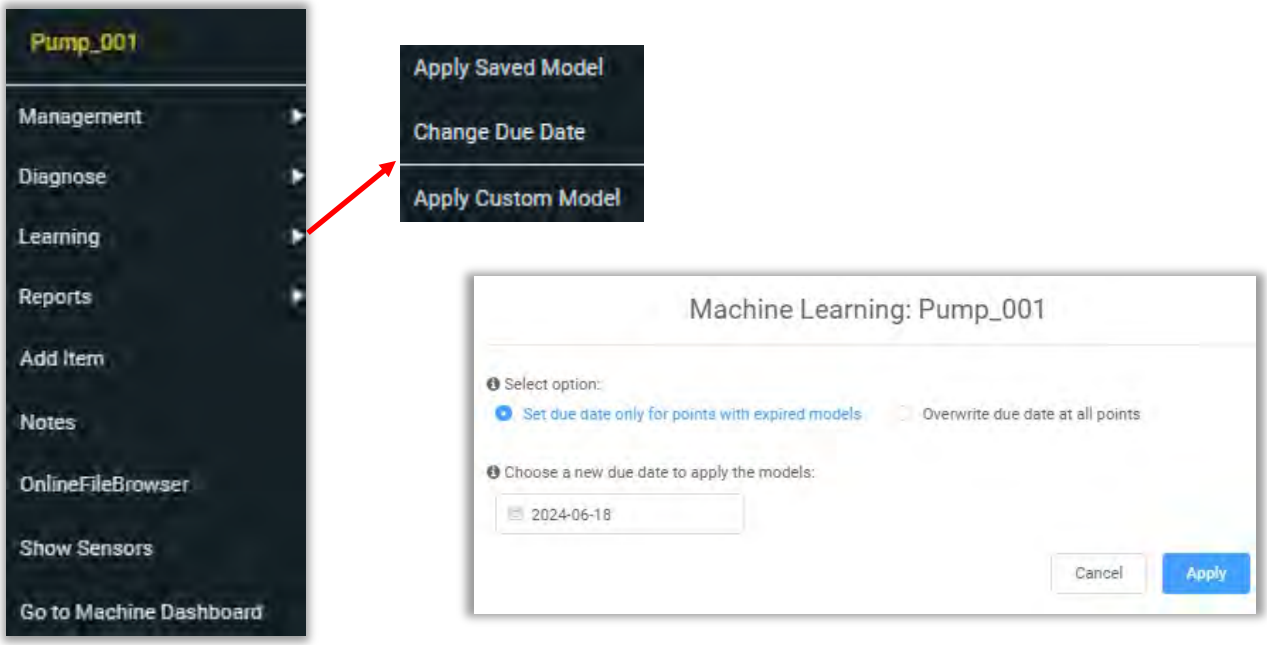
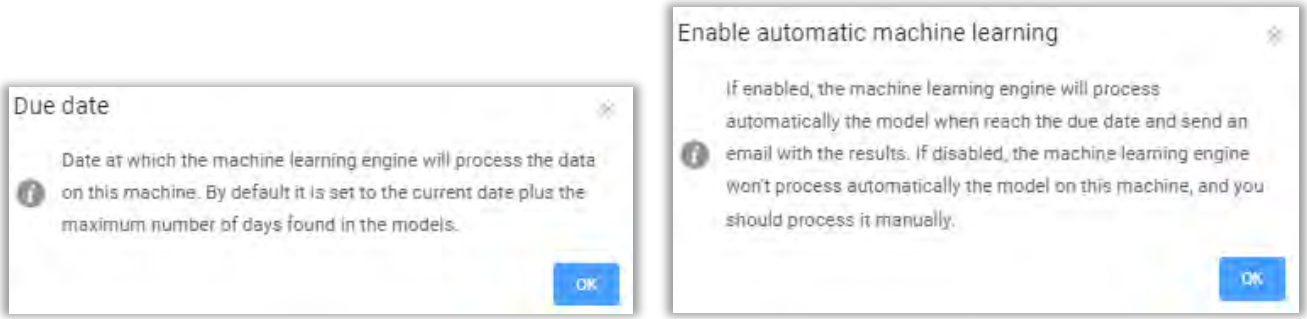
Setting the Due Date

In the EI-Analytic Data tree, Machine Learning options can be accessed by right clicking on a machine.



Select **Change Due Date** to set the processing date:



Set the desired Due date .

As noted, if you set the Due Date to the following day from the present and the number of days assigned to the Model is 30, a report will be sent the next day using data from the past 30 days (if it exists).

If you set the due date to 30 days from the present date, a report will be created at that time for the next 30 days.

Alternately, the Due Date can be set from the Edit Machine form.

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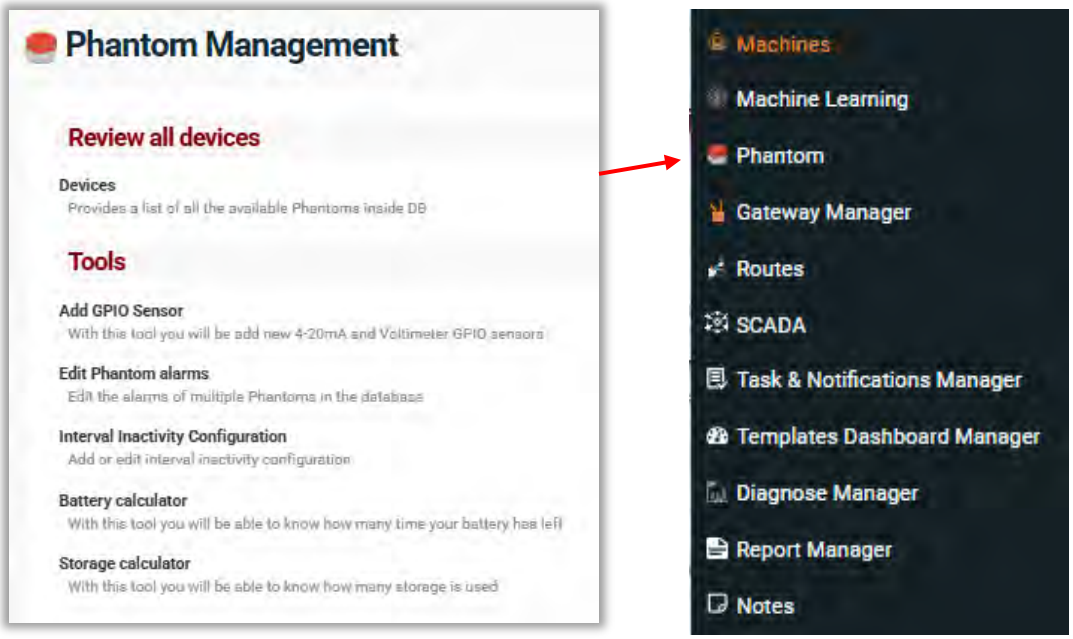
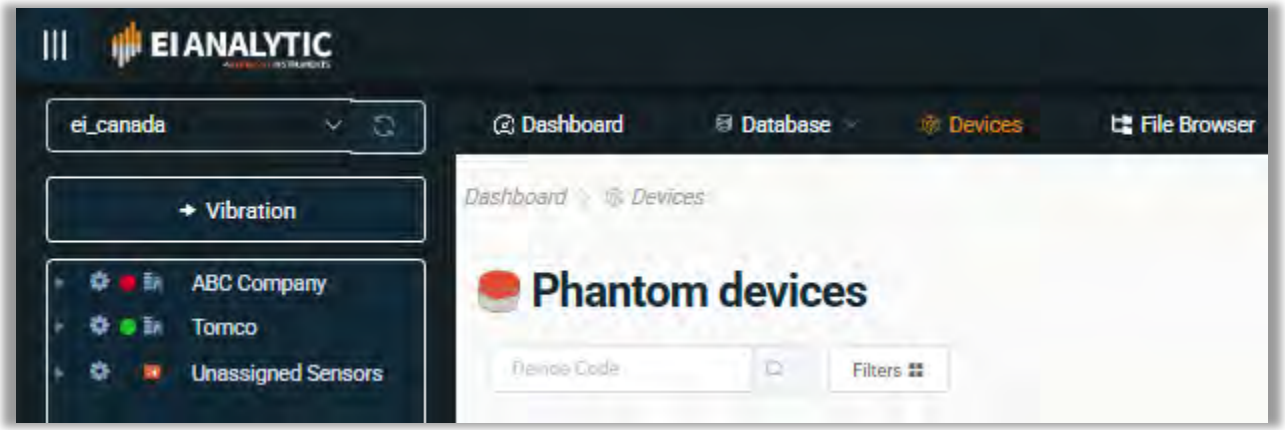
Phantom

Opens the **Phantom Management** window. For complete details regarding Erbessd's Phantom wireless condition monitoring solution, see the *Phantom Setup Guide V5*.



Devices

The Devices tab allows management of Phantom sensors;



See the *Devices* section of this guide for more details.

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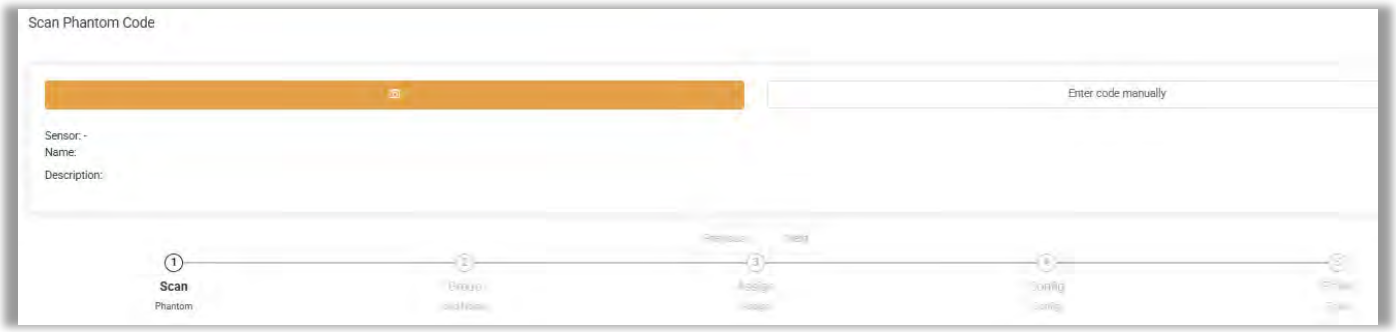
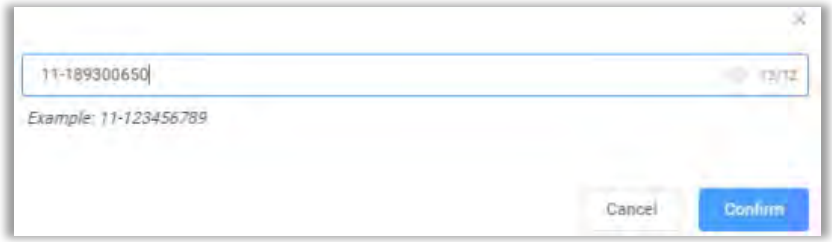
Adding Phantoms

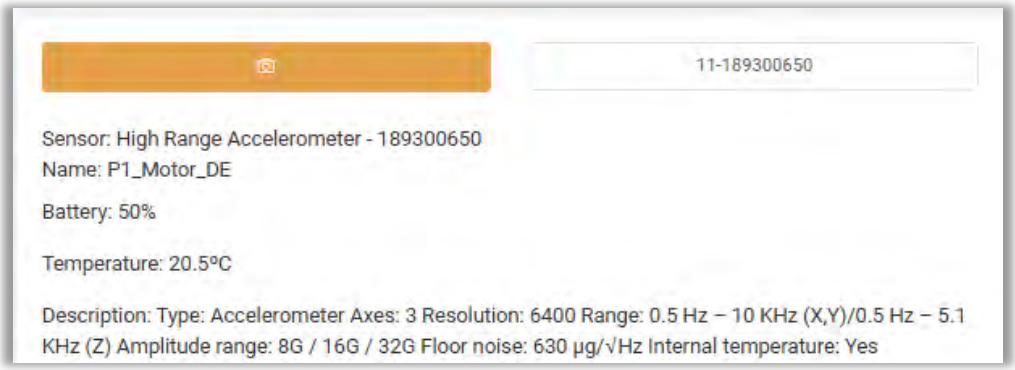
1. Click the **New Phantom** button in the Devices screen:



2. Either scan the QR code of the sensor using the device's camera, or click **Enter code manually**, which opens a new screen:



3. Enter the 11-digit code and click **Confirm.** Technical info is then displayed for the sensor, based on the Phantom code provided.



4. Verify the type of sensor is correct and click **Next**.

Note -If the sensor is already in use, a message will appear indicating the machine and point to which it is assigned (if in the same database). For other errors encountered at this step, contact Erbessd Tech support for assistance. (see the last chapter of this document for details)

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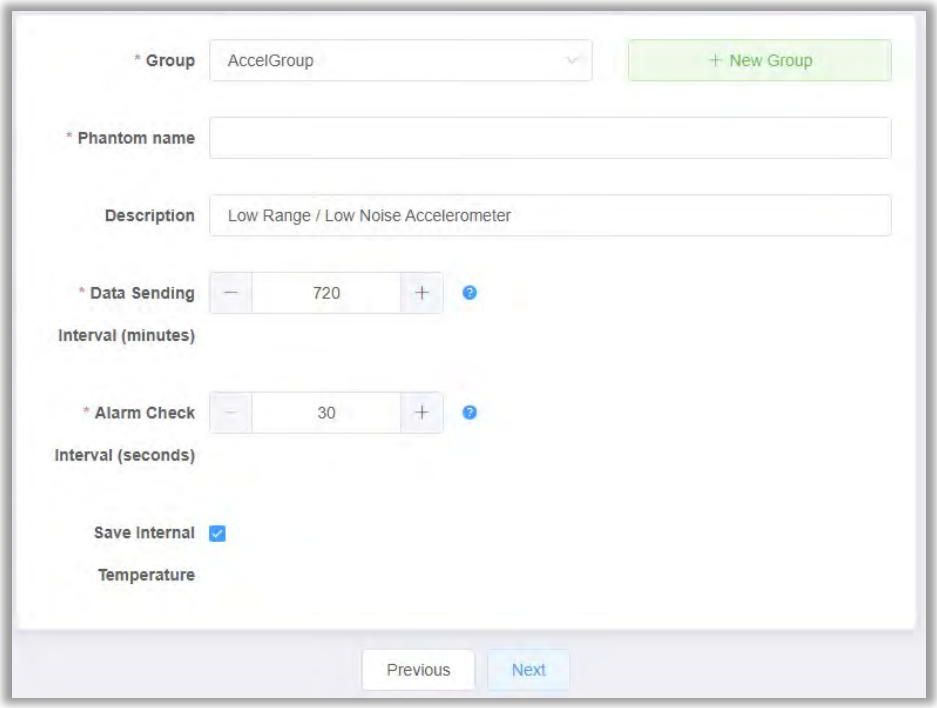
5. Configure the **Group** and **Name** screen.

*Fields with a red asterisk are required entries.

Phantoms are configured in Groups (you can administer them all in one group). Enter a **Group** name. For example, if a machine has 4 Phantoms assigned, the Group name may be the same as the Machine name. It is NOT recommended to use special characters other than the underscore in the Group name or Phantom name fields.

- The **Phantom name** should indicate the location of the sensor or anything else meaningful to distinguish it when all devices are listed. An example might be "Pump001NDE".
- The **Description** field is auto-populated according to the type of sensor being added.
- **Data Sending Interval (minutes)**** (For Gateway v1 ONLY!) is the time between Full data collections (RMS data interval is configured separately). The default is 720 mins (12 hr). The minimum interval for Phantom vibration sensors is 10 minutes. The maximum is 1440 minutes (24 hrs). For Gateway 2.0, data collection options for vibration sensors are configured via the Gateway Admin Console. See the next section for details.
- **Alarm Check Interval (seconds)****(For Gateway v1 ONLY!) This is the time between alarm checks performed by the sensor. For Gateway 2.0, the **Sensor Update** interval serves as the Alarm check interval.
- **Save Internal Temperature:** Uncheck if the internal sensor temperature is not required as part of the RMS data sent by the sensor.



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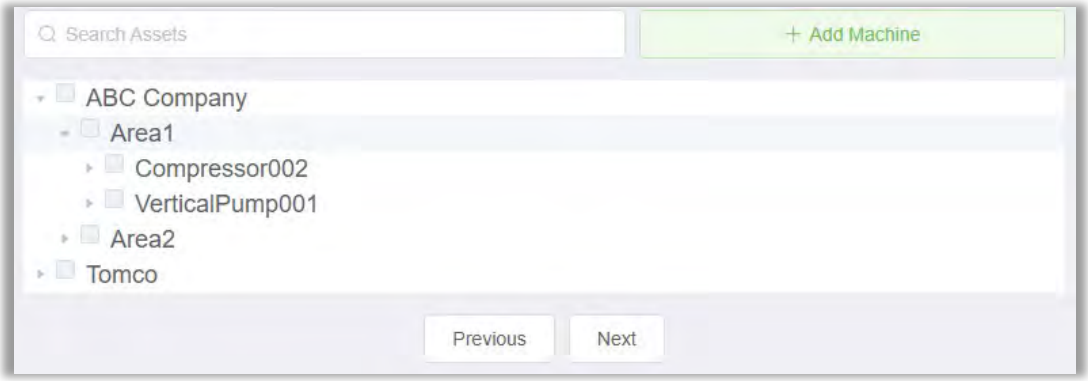
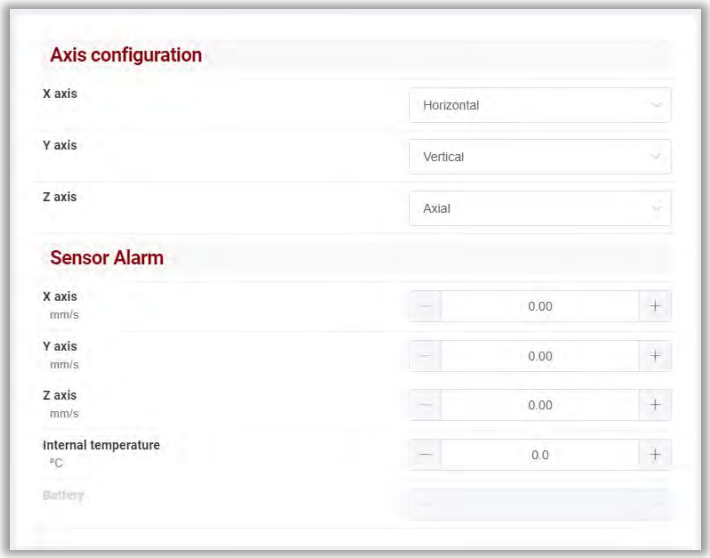
6. Click **Next** to open the Assignment screen. Expand the Company>Area>Machine tree and select the Point where this Phantom sensor is to be installed. There is also an option to create a new Machine at this step, by clicking the **Add Machine** button. Points with previously assigned Phantoms cannot be selected.



7. Press **Next** to open the Configuration screen:
8. Check and adjust, if necessary, the sensor **Axis configuration** . All Expert Phantoms have the axis orientation marked on top: The default setting is top-mount. For side mounting, invert X and Y axes.



9. In the **Sensor Alarm** section, set values of RMS velocity for each axis as a threshold for Notification via email and push notification to Wiser Vibe app.

Click **Next** and the summary page is dsplayed.

Click **Save Phantom** to complete.

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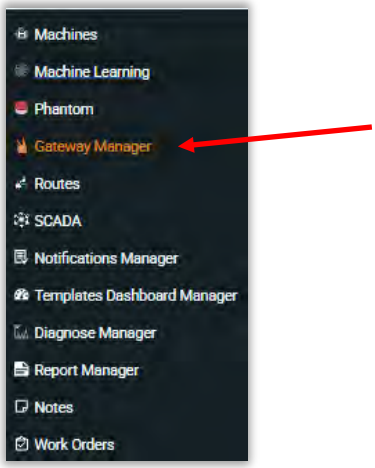
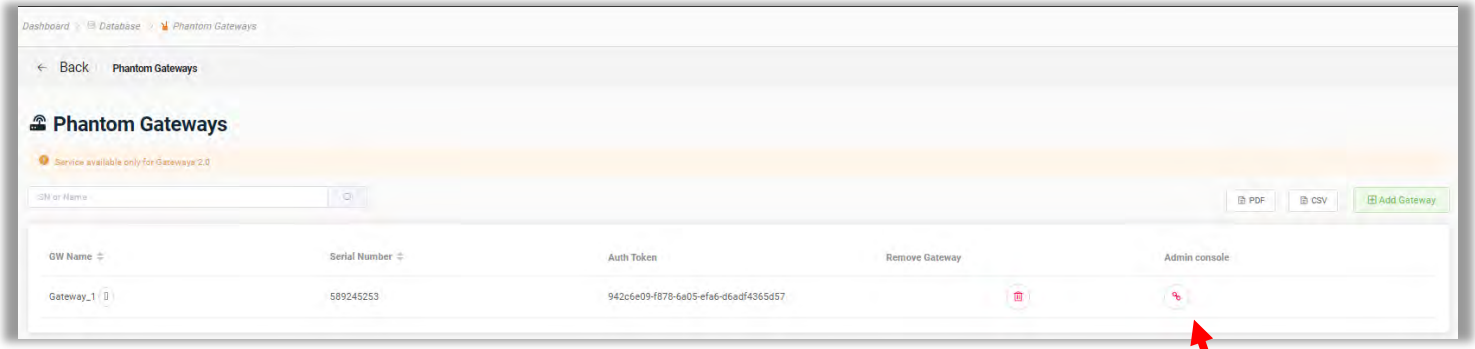
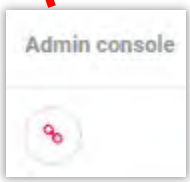
Gateway Manager



Click **Gateway Manager** to review or add/registered Phantom Gateways. The list is searchable and exportable.



The Admin Console for each Gateway can be accessed securely from this page. See the *Phantom Setup Guide V5*. For complete details.



Note – if you share a database with another user, the ability to use the Gateway Admin Console is controlled by permissions in the User Access settings for that account. See the *User Access Permissions* section of this guide for more details.

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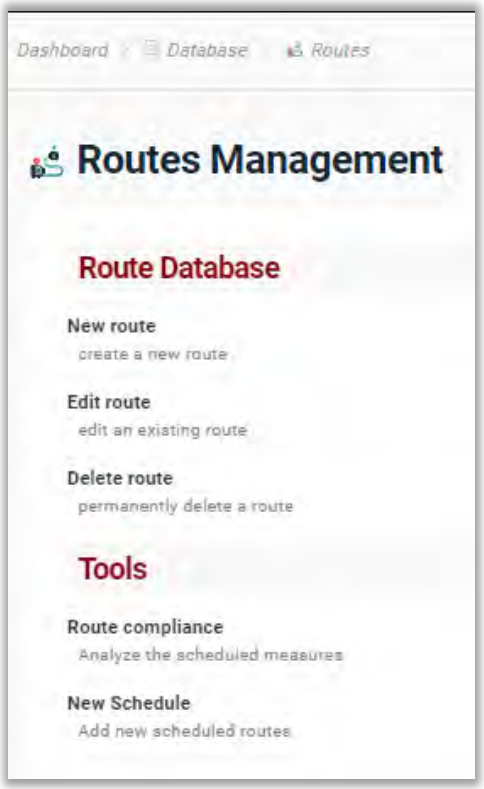
Routes

Opens the Routes Management window

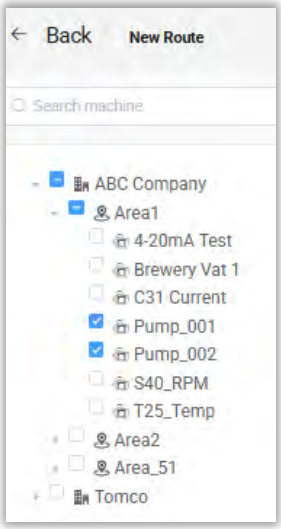
New Routes may be added, existing Routes edited or deleted.

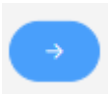


Add a Route

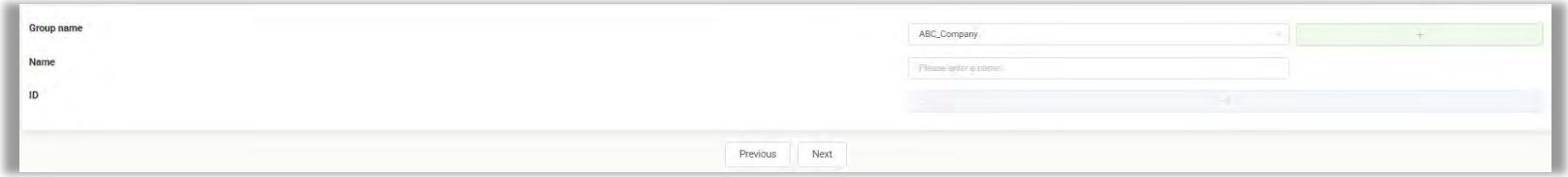
Click **New route**.

Select the Company, Area and Machines:



Click the Next button 

Select a Group or add a new Group, then assign a **Name** to the new Route and press **Next**.



The Machines included in the Route are then displayed:

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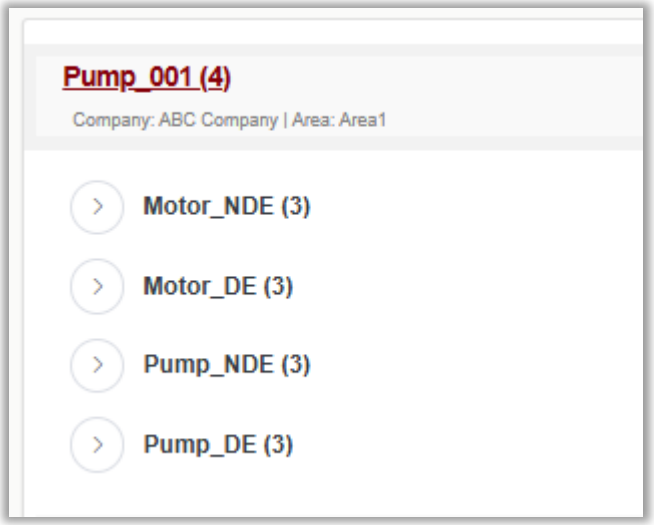
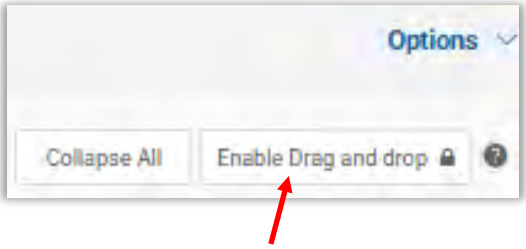
Click the Machine Name to expand:



The order of Machines or Points can be altered by clicking on an icon and dragging it to another spot on the list.

To enable or disable the ability to drag and drop Machines or Points, click the button at top right.



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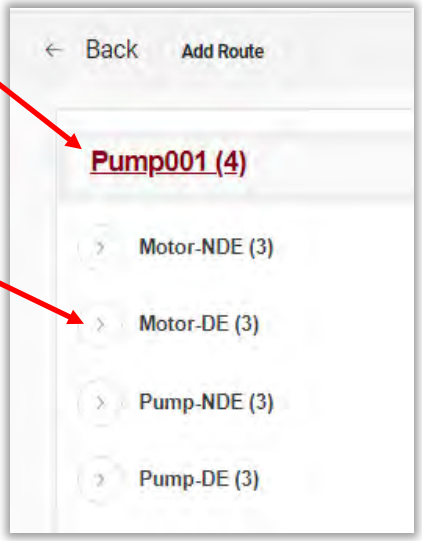
E.g. click and drag **Pump_001 (4)** to move a whole Machine.

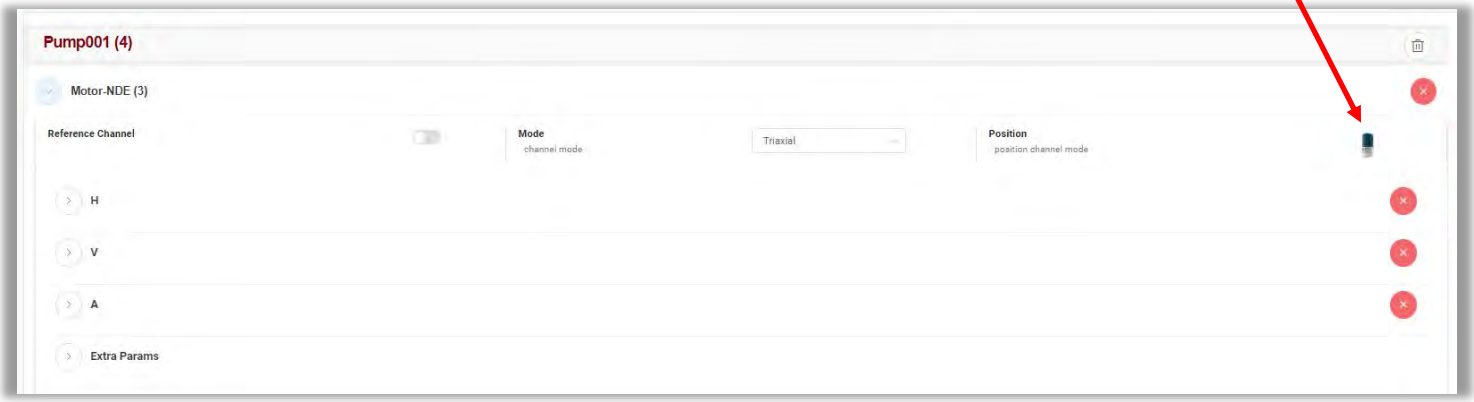
Click and drag › to move a Point .



Click the Right arrow › to expand the Point for **Settings**:

- Reference Channel on/off
- Mode -single axis or triaxial
- Sensor Position

Sensor Position selector



Points or individual Axes may be removed from the Route by clicking the × button.

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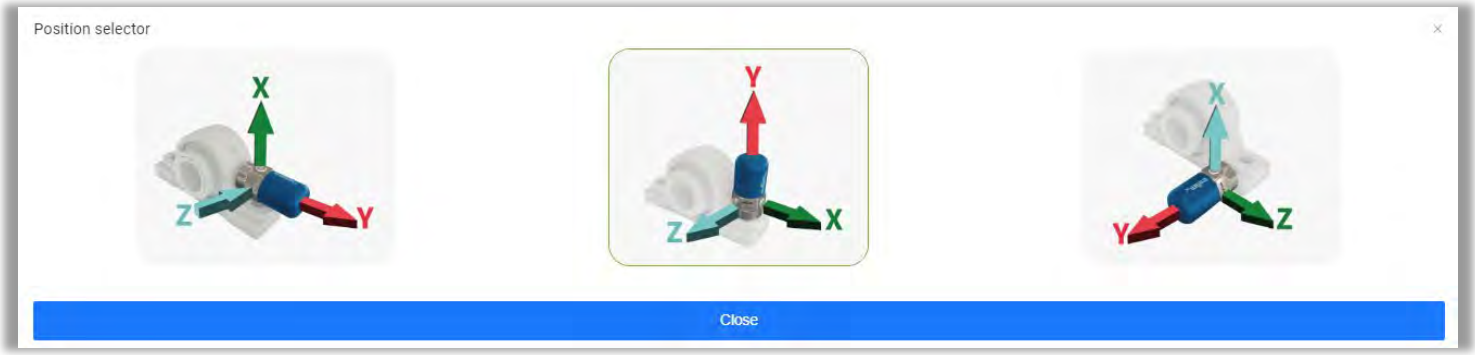
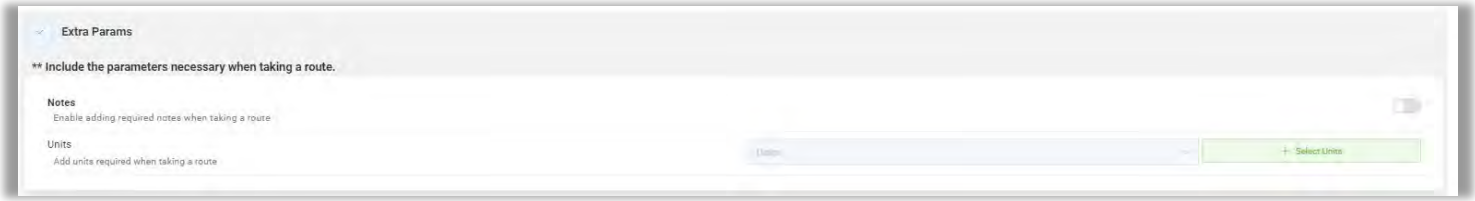
Click the WiSER 3X icon to set the position selector:



Press the Right arrow to expand the Axis **Settings** for:

- Reference Channel on/off
- Lines of resolution. The recording time is displayed based on selection.
- Averages
- Overlap
- Synchronous averages
- Sync to Frequency (Hz)

The **Extra Parameters** feature allows the manual logging of paramaters observed while conducting the Route. As an example, an ambient air temperature reading may be desired at the time the vibration data is collected. An expansive list of parameters is available by clicking the right arrow beside **Extra Params**.



Select which parameters are to be logged during the Route and if they are Mandatory by clicking

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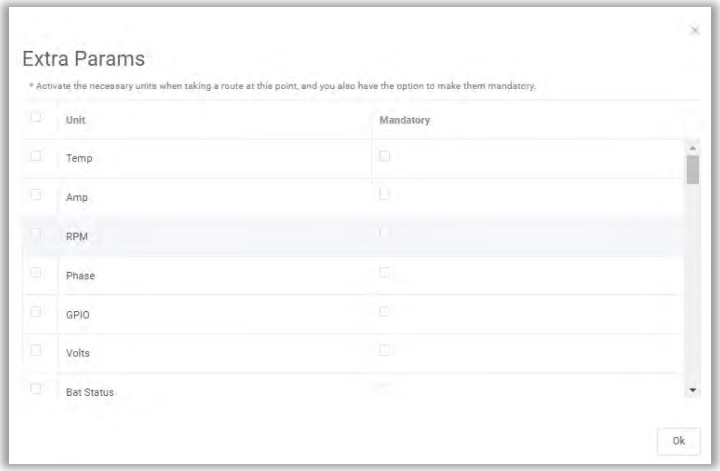

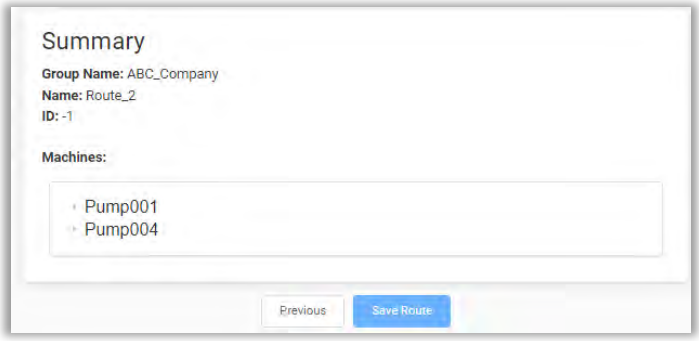

Click **OK** when finished.

Press **Next** to continue. A summary is displayed. If OK, click **Save Route**.

Route Compliance

Whenever a new Route is created, an option is presented to create a *schedule* for the Route to track how often the measurements are taken.

The presence of data in the database determines the state of compliance, divided into 3 types:

Not taken Monitored Overdue

The graphic shows the compliance percentege of each route, for the current month and three previous months.

Select  to choose how many months you want to see on the graph.

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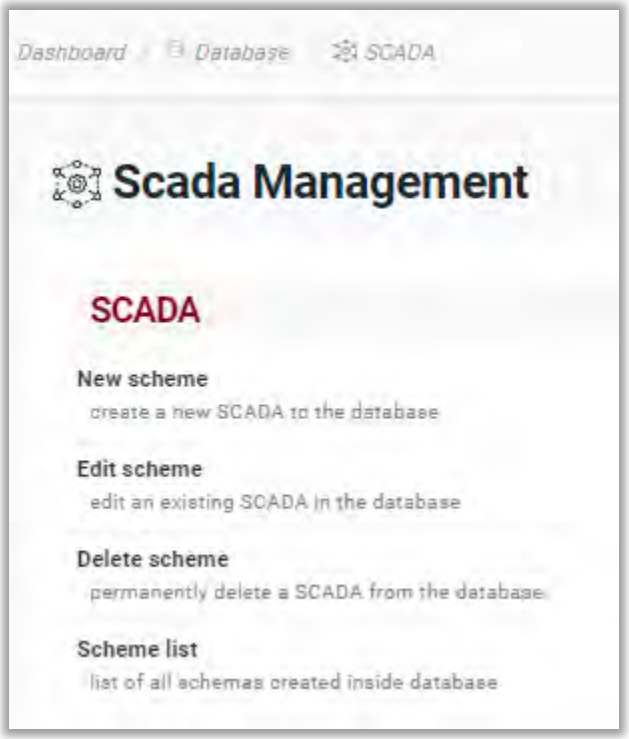
SCADA

The EI-Analytic Supervisory Control and Data Acquisition(SCADA) tool allows the monitoring of a machine's data in a fast, easy way, using a graphic interface. For complete instruction regarding the configuration and use of the SCADA tool, please visit the Erbessd website at :

https://www.erbessd-instruments.com/tutorials/how-to-create-an-scada-scheme/



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Notification Manager

Notifications are available for EI-Analytic cloud data service accounts. Email and Push notifications can be configured to be sent when certain configurable conditions of a Machine, Phantom Sensor or Item are met.

This feature is not available when a local database is used.

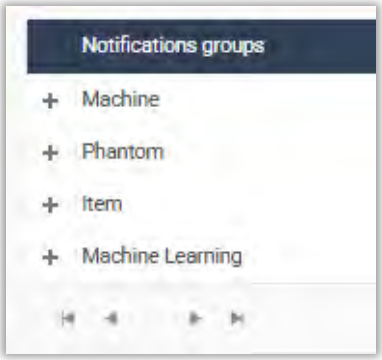
Note -With EI-Analytic accounts, Phantom V10/V11 sensors natively support email/push notifications for RMS Velocity alarms, however for other vibration parameters such as RMS Acceleration, only Tasks can provide notifications.

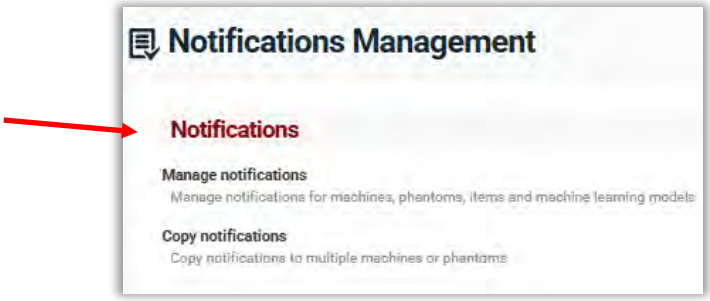
For non-vibration Phantom sensors this is the only method to receive email/push notifications

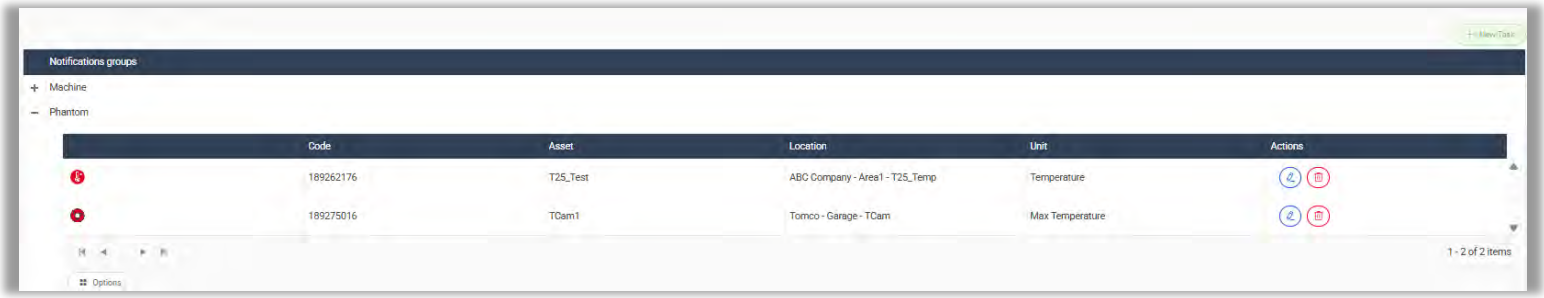
Tasks are assigned by Machine, Phantom,or to custom *Items* added to the database.

Machine Learning Tasks are created automatically when a Learning Model is applied to a Machine Point.

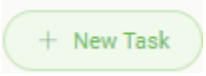
Expand a Notification group to see existing Tasks:







Press the New Task button at top right to create a new task.



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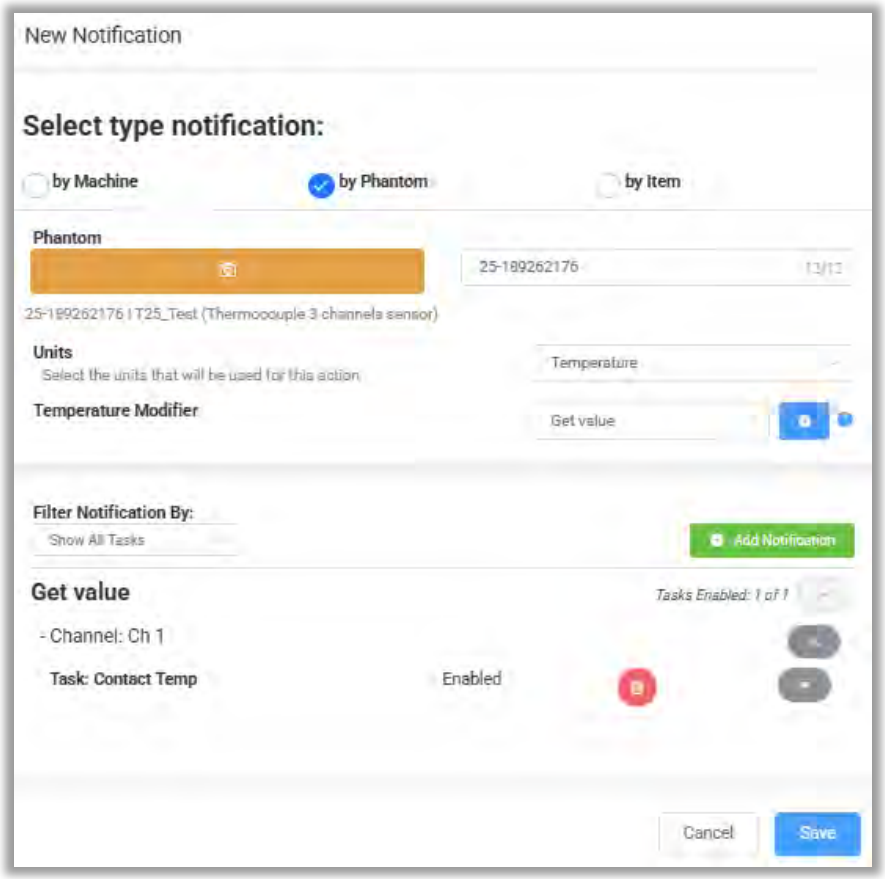
For Machine tasks, select the Machine. For Phantom tasks, enter the Phantom serial number, for an Item add the Item name. In this example, a Task is added to report alarms for a Phantom T25 temperature sensor (thermocouple).



Either scan the QR code on the sensor or enter the serial number.

The **Units** drop-down field will show all available options, based on the Phantom Code entered. **Note** - As per the on-screen tip, If you want to use any unit modifier other than RMS for vibration sensors, you must edit the DB Settings of the EI-Analytic account. E.g., you want to receive notification based on a peak-to-peak value instead of RMS.

To do so, click the Enable Modifiers button. 

To continue setting the Task, press the Add Notification button. 

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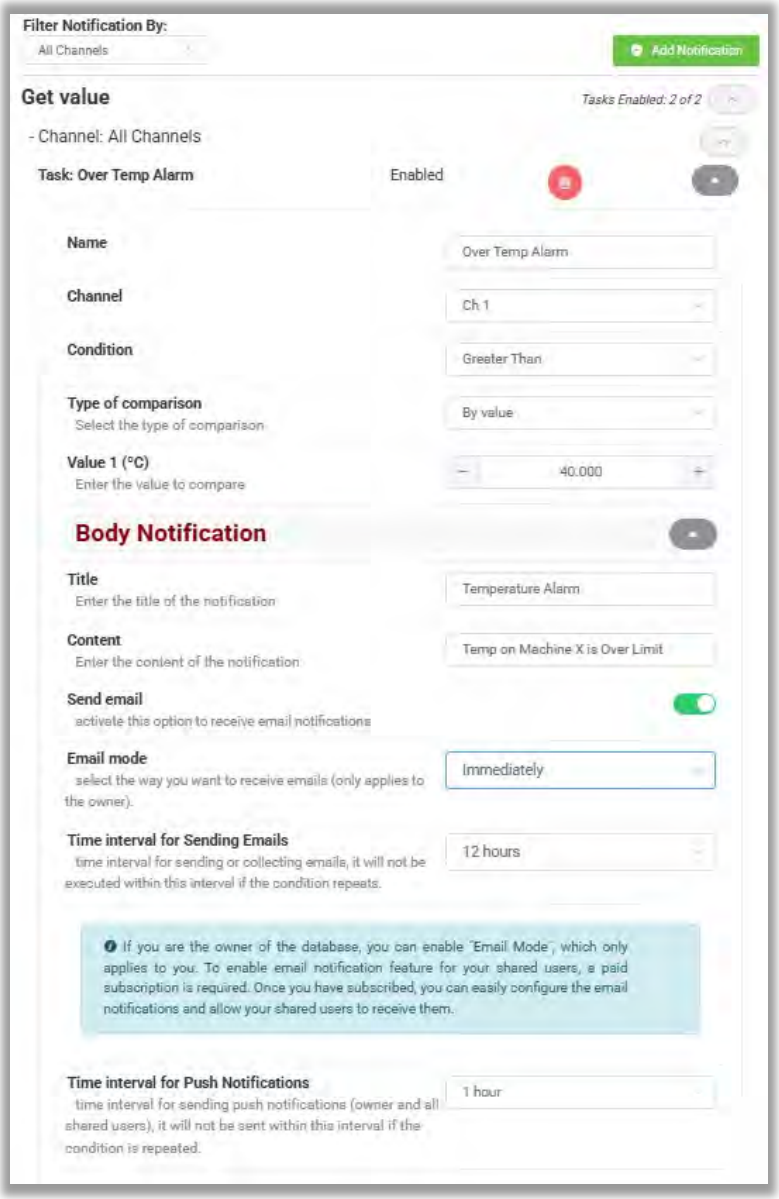
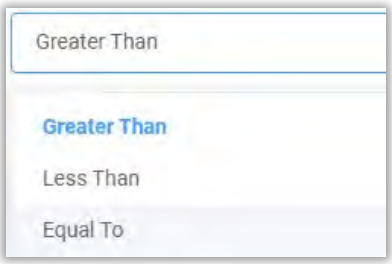


1. Start by assigning the Task a **Name**.
2. Select the Channel (1-4 for a temp sensor).
3. Choose a **Condition**



4. Set the **Value.** Note the Units shown on the left of the screen**.** Here temp is selected, so the units shown is C, based on account settings (Imperial or Metric).
5. Add the **Title** (displayed in the Task Name field of the email), and the **Content** (shown in the Message field in the email)to identify which machine/point has experienced an alarm.
6. The **Send email** slider provides a quick enable/disable option.
7. **Email mode** allows a choice between Batch and Immediately. Batch emails are sent daily (usually between 9 and 10 AM EST).This way, if your notification is not considered to be critical, an alarm is sent only once a day.
8. The **Time interval** provides a buffer between notifications to avoid unnecessary emails. Push notifications to WiSER Vibe mobile app users likewise has a configurable **Time interval**.
9. Click **Save** to complete the Task addition.

The Task Management page now shows the new Task, it can be easily edited or deleted.

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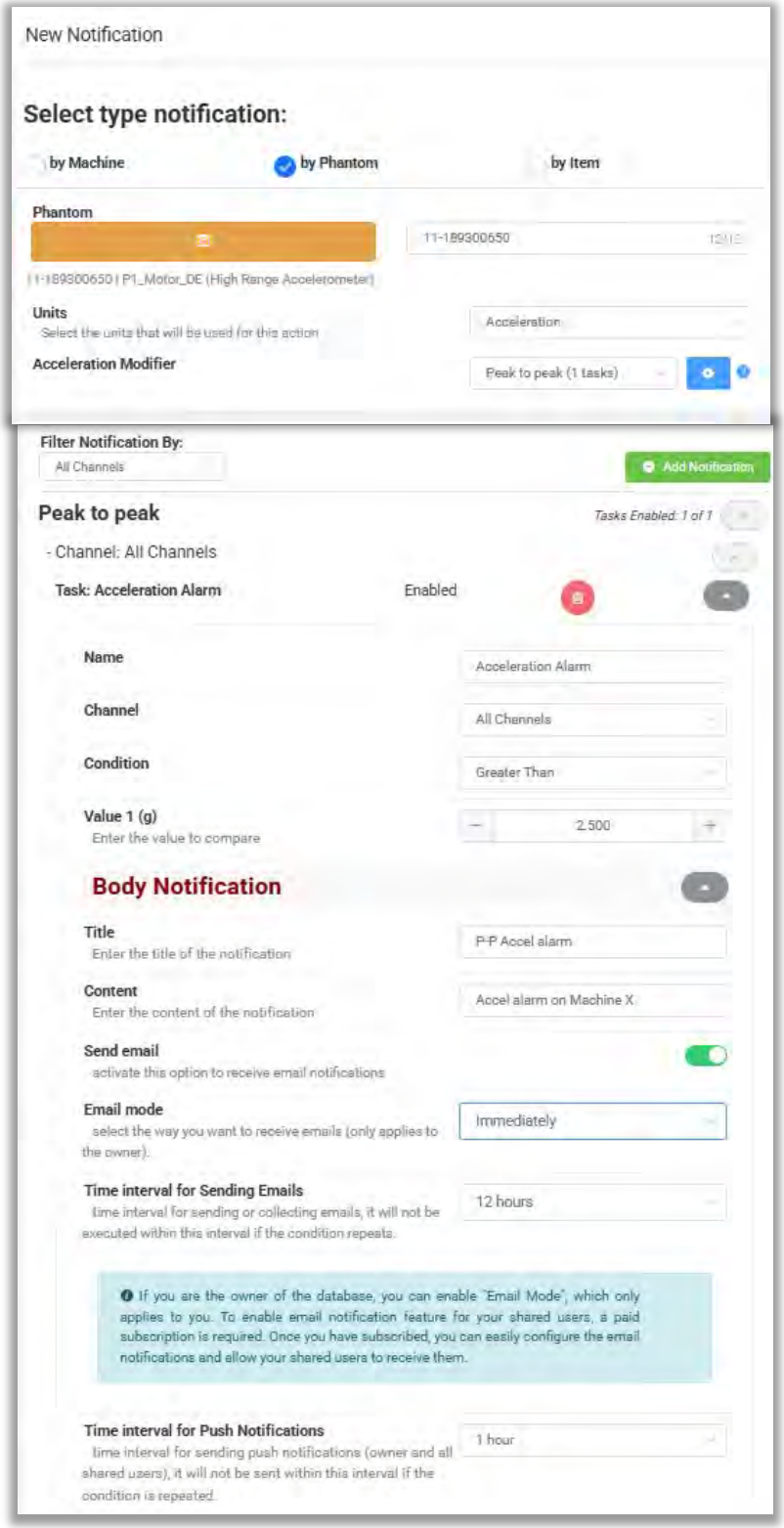
Example 2 – set a Task to report an Peak-to-Peak Acceleration alarm for a V11 vibration sensor.

A reported value over 2.5 g on any axis will cause a Notification to be sent:



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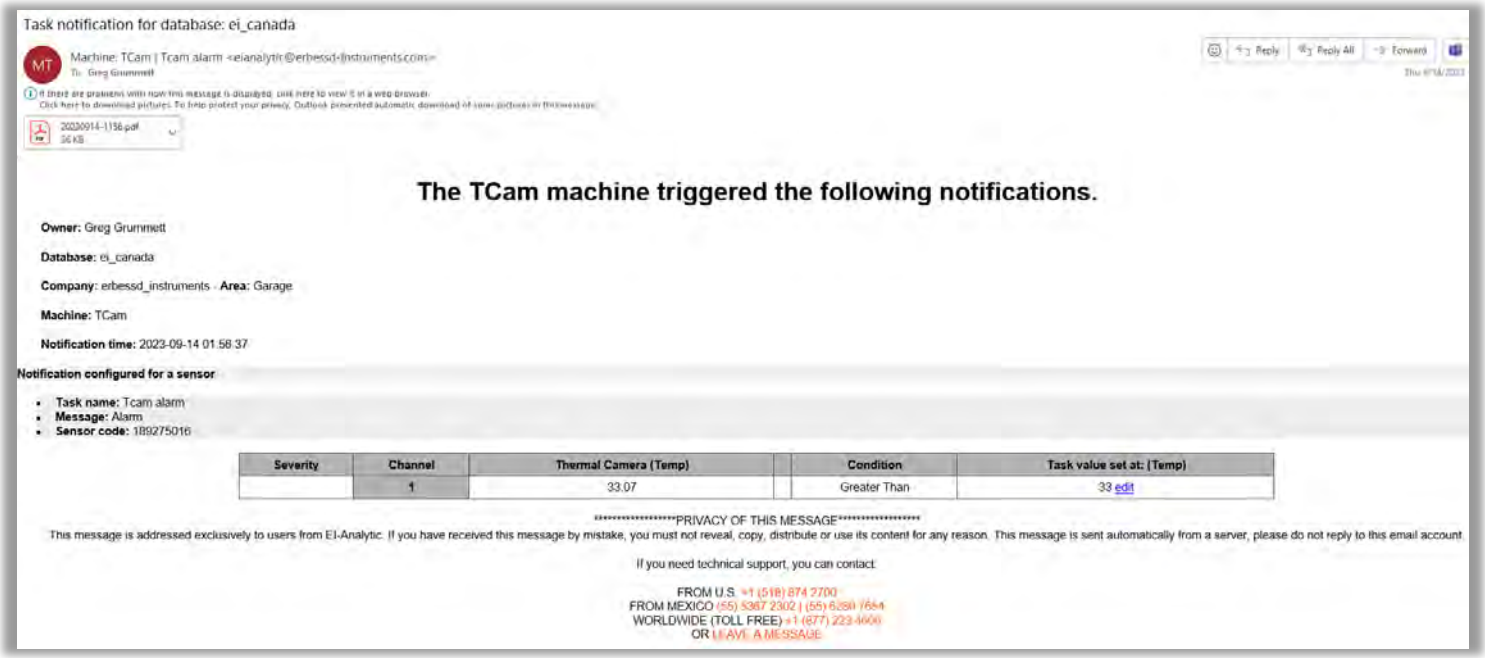
Below is an example email notification received for a Task assigned to a Phantom Thermographic camera.



Task notification for database: ei_canada

Machine: TCam | Tcam alarm <eianalytic@erbessd-instruments.com>

The TCam machine triggered the following notifications.

Owner: Greg Grummett

Database: ei_canada

Company: erbessd_instruments - **Area:** Garage

Machine: TCam

Notification time: 2023-09-14 01:58:37

Notification configured for a sensor

- **Task name:** Tcam alarm
- **Message:** Alarm
- **Sensor code:** 189275016

Severity	Channel	Thermal Camera (Temp)		Condition	Task value set at: (Temp)
	1	33.07		Greater Than	33 edit

**********PRIVACY OF THIS MESSAGE**********

This message is addressed exclusively to users from EI-Analytic. If you have received this message by mistake, you must not reveal, copy, distribute or use its content for any reason. This message is sent automatically from a server, please do not reply to this email account

If you need technical support, you can contact:

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Templates Dashboard Manager

Used to manage Charts and Templates shown on Dashboards.

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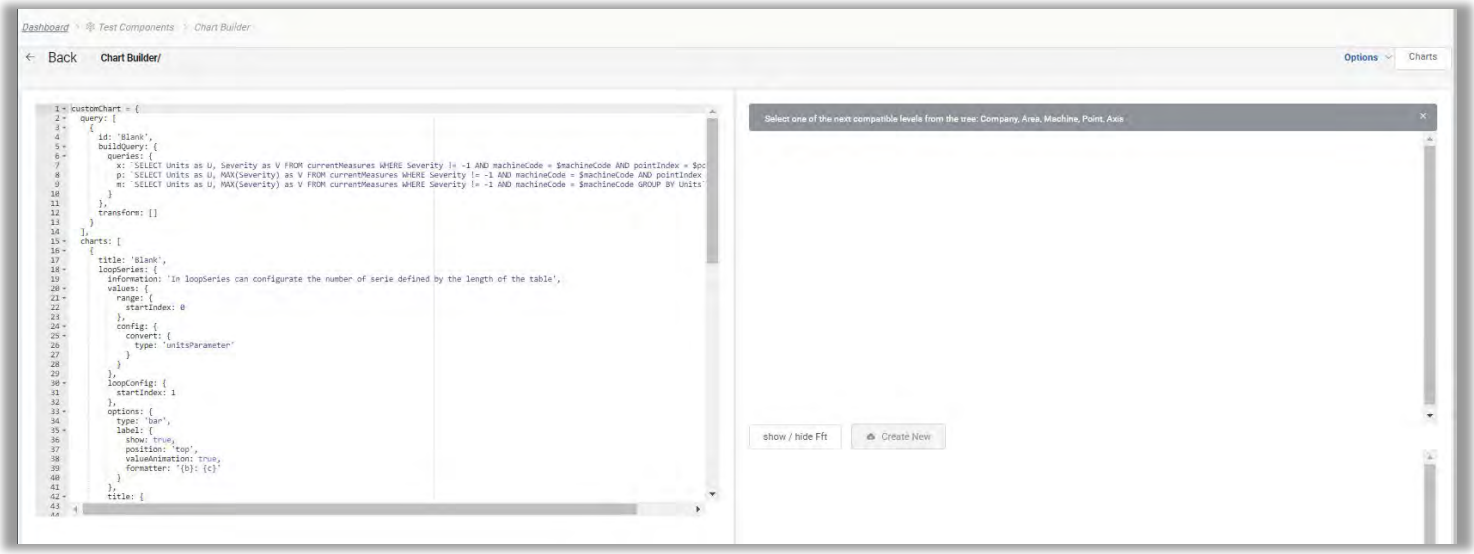
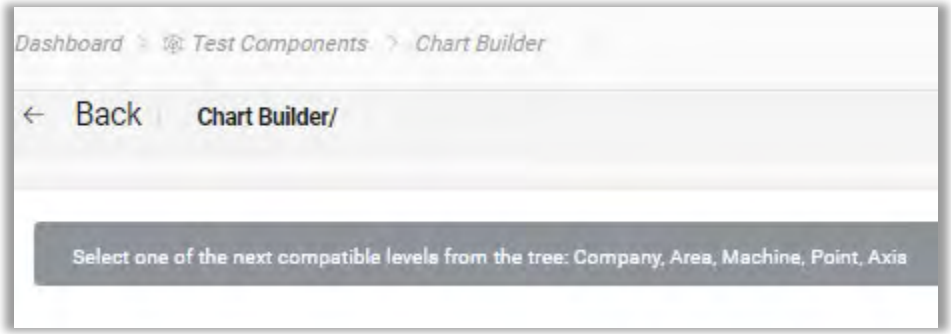
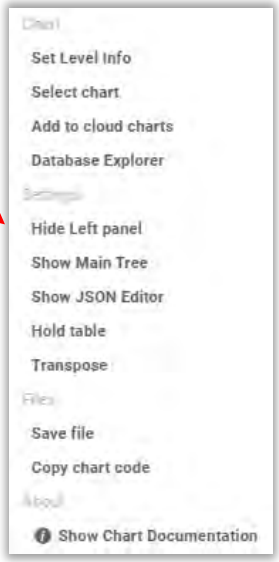
Chart Builder

This tool is used to create **new** or **customize** an existing chart for use in Dashboards.



If you do not wish to see the underlying code for your chart, click the **Options** drop-down menu, then **Hide Left panel**





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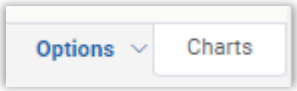
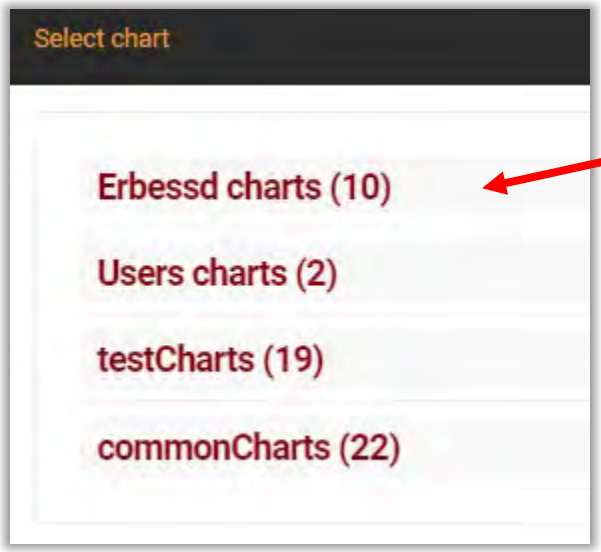
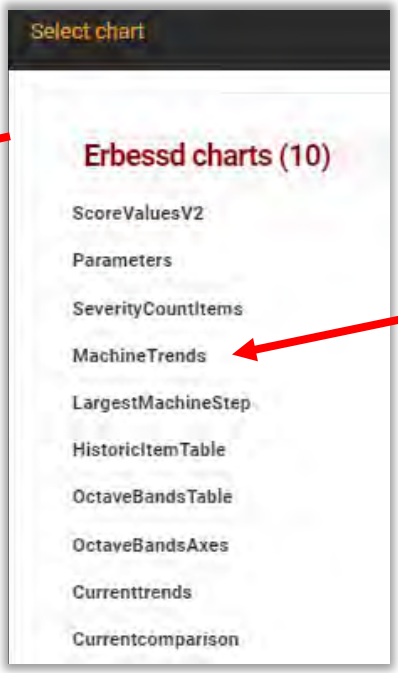
1. Choose the level for the new chart by selecting it from the data tree. Example, click on a Machine.
2. Select **Charts** on the right side of the screen:



Currently, there are over 50 charts to choose from - in 4 categories.





Example

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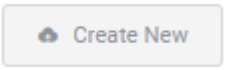
As an example, select a Machine from the tree , then click on **Charts** and **MachineTrends** from the Erbessd charts folder as shown above. The JSON code for the chosen chart is displayed in the Left pane (if open). This can be modified to suit individual needs by JSON programmers.

To modify this chart, change the JSON code, then click on 

Assign an ID Name and optionally label tags that can be searched.

The Chart can be made public by using the slider.

The JSON programming code is shown in the **new config** box, and a small preview of the chart is shown at bottom right.

When finished, click **Save**.

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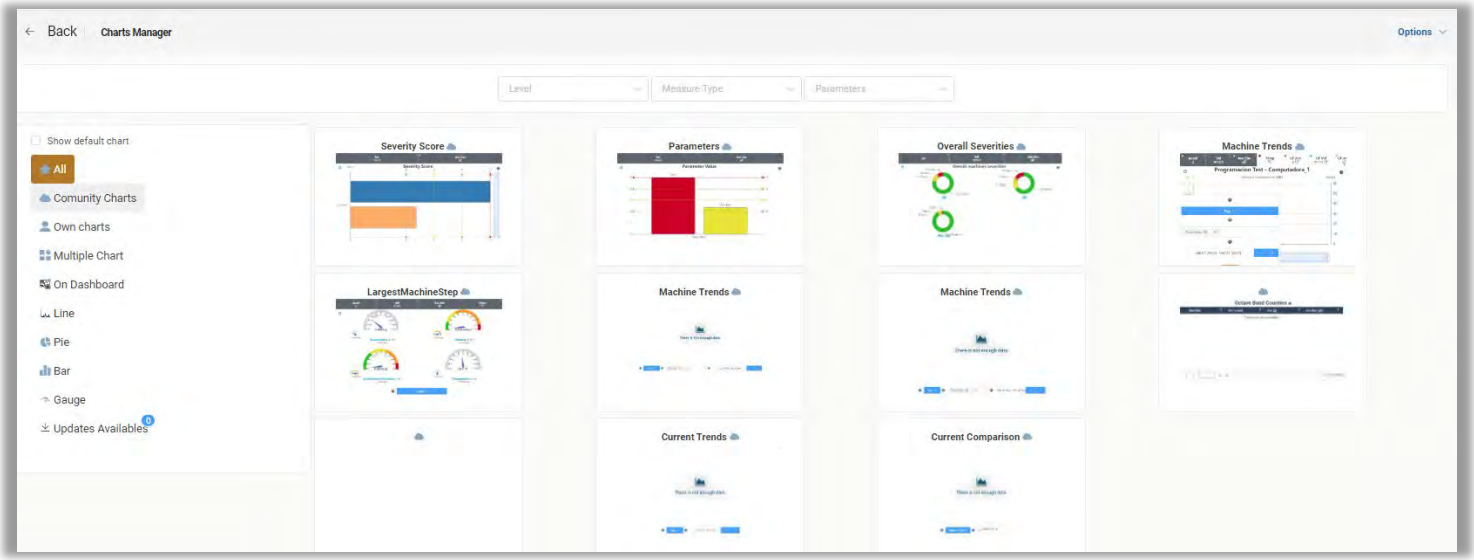
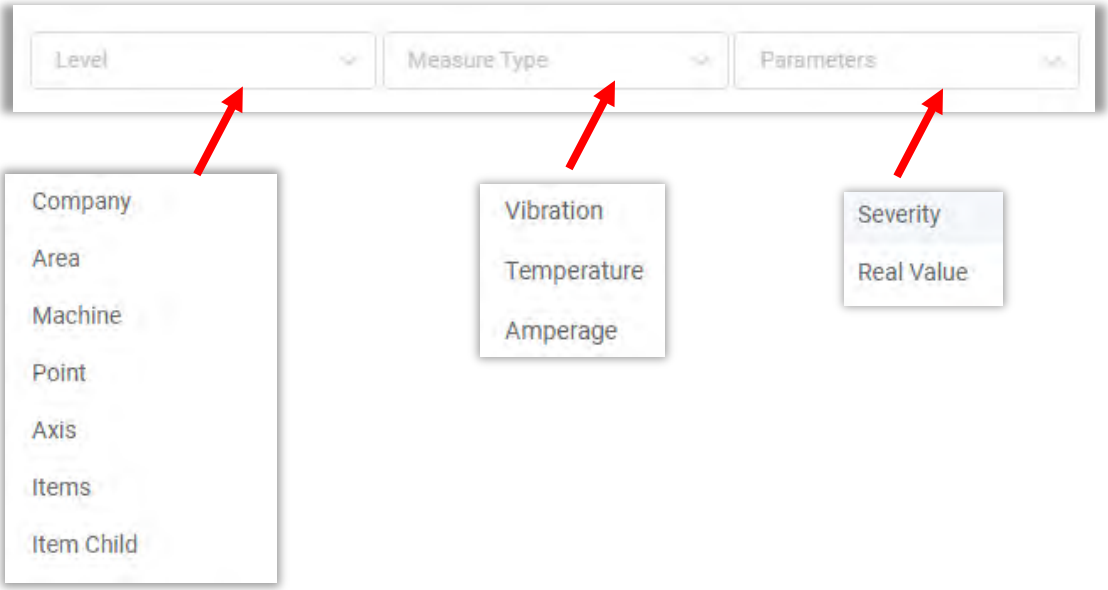
Chart Manager

This tool is used to preview a chart using data from the tree, and to assign charts to the various levels of database to make them available to be added to a Template using the *Templates Editor* tool.



Available Charts are displayed by Level, and **optionally** by Measure type and Parameters from the drop-down menus:



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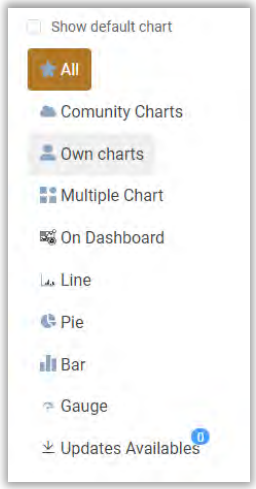
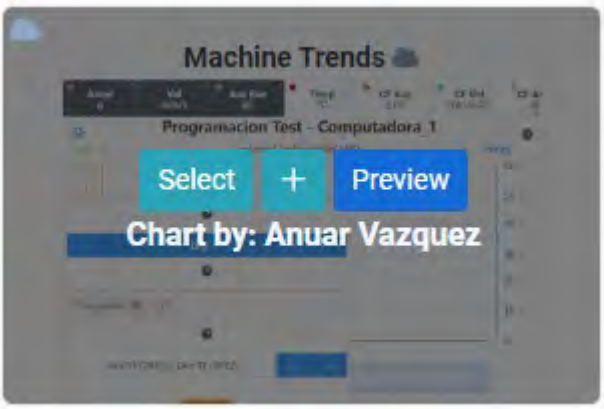
Charts can also be sorted by using the filters on the left side of the screen:



Hover the cursor over any chart, and options appear:



Preview allows this chart to be displayed using data from a selected database item from the Tree. In this example, a Machine level chart for Machine Trends is previewed with data from a specific Machine(Hoist001).

Select adds the chart to the list of charts to be applied, if multiple charts are to be added at the same time.

If only one chart is added, or to upload all selected charts, press the + button.

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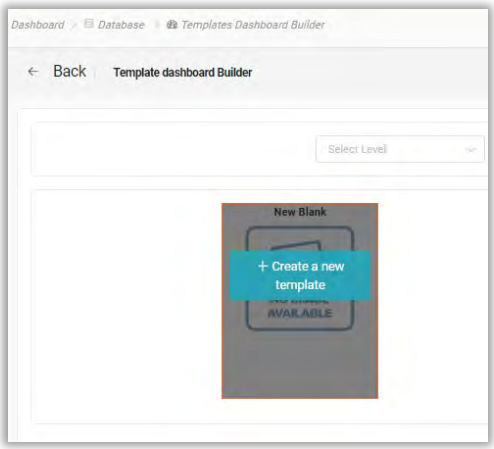
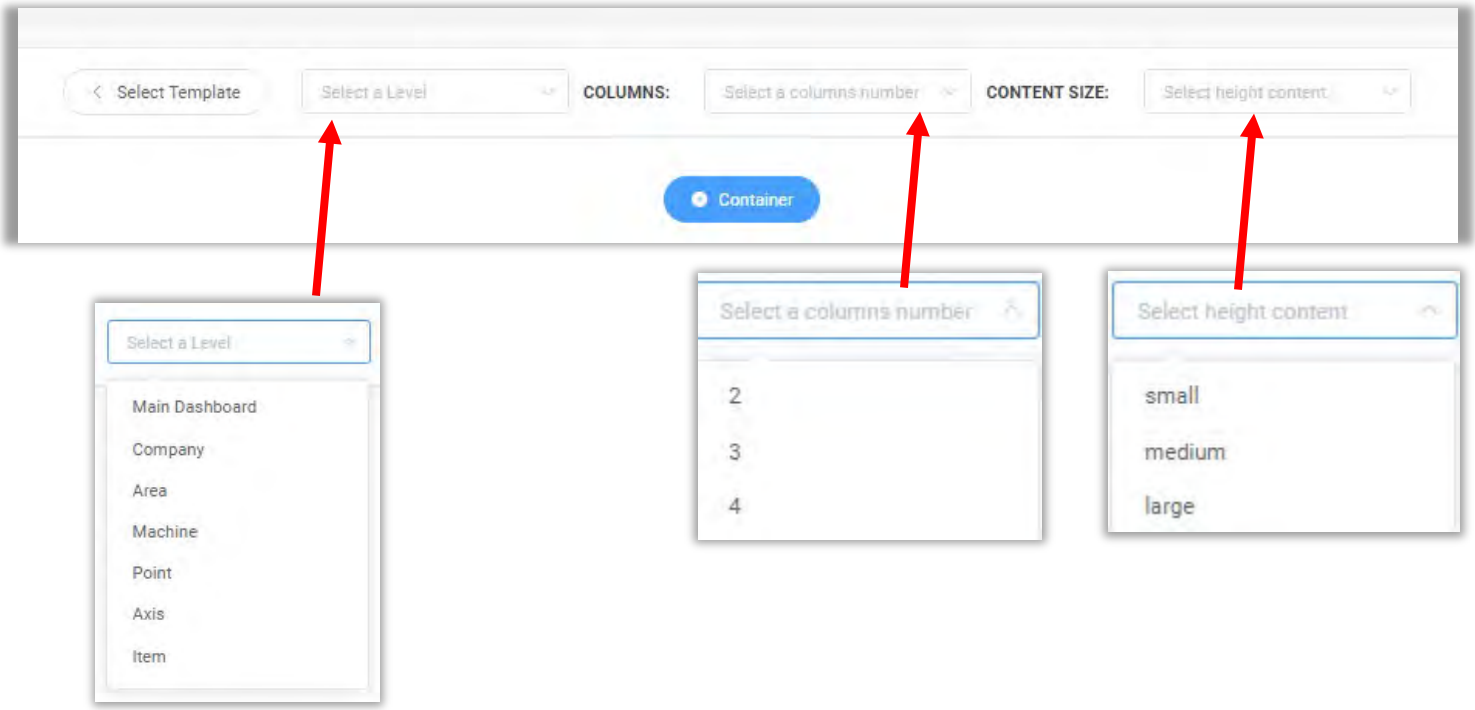
Template Dashboard Builder

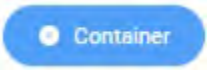
Used to build a new Template.

Hover the cursor over the **New Blank** box and click on **Create a new template** to open the Template Dashboard Builder Tool.



Select a **level** from the drop-down menu and set the number of **Columns** and **Size.**



Click the Add Container button. 

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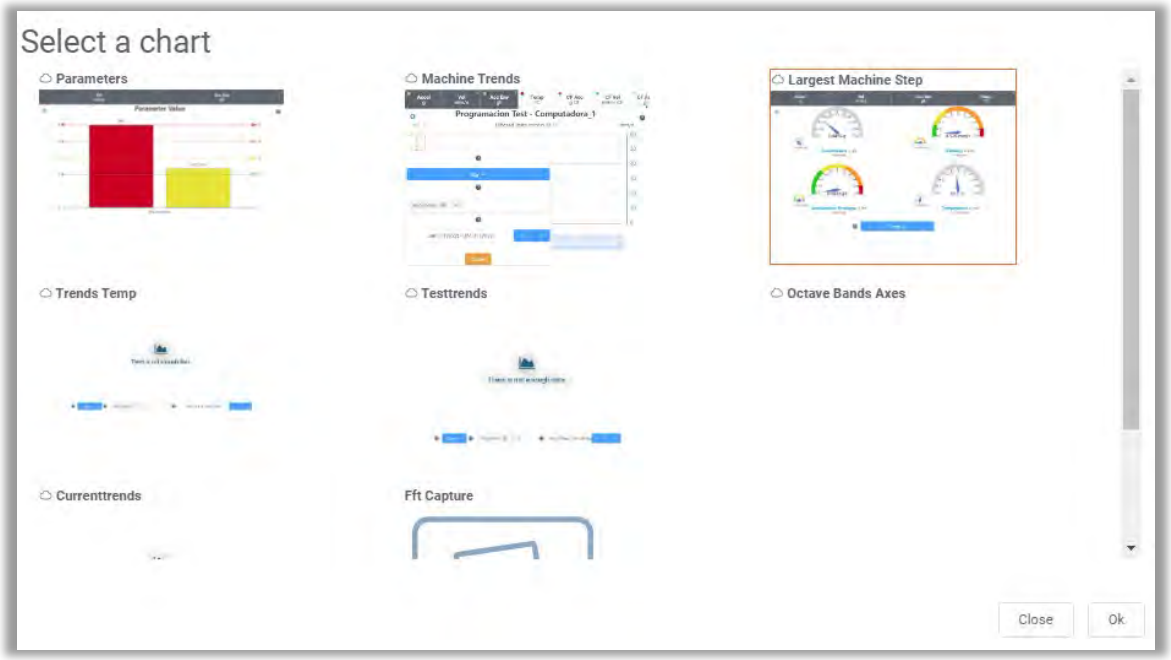
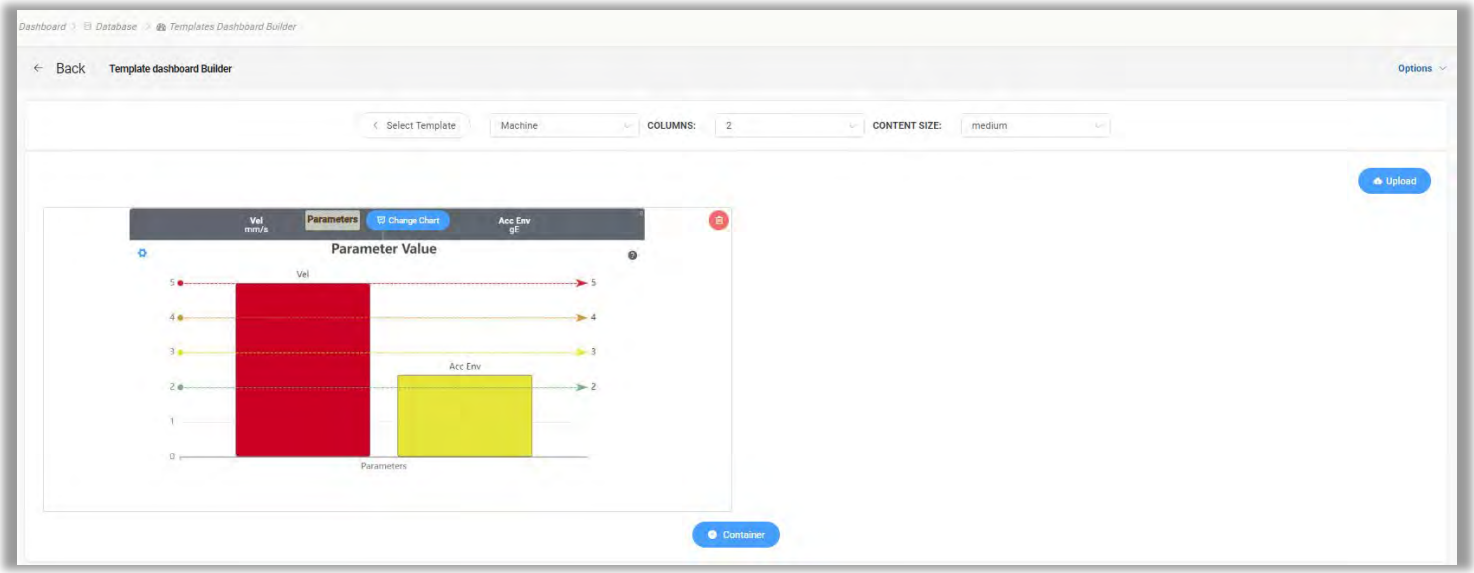
Now click on **Change Chart**.



Select a chart from the list, and press **OK** It will be placed on the template according to the number of columns and content size settings.



Press Container again to add another chart.

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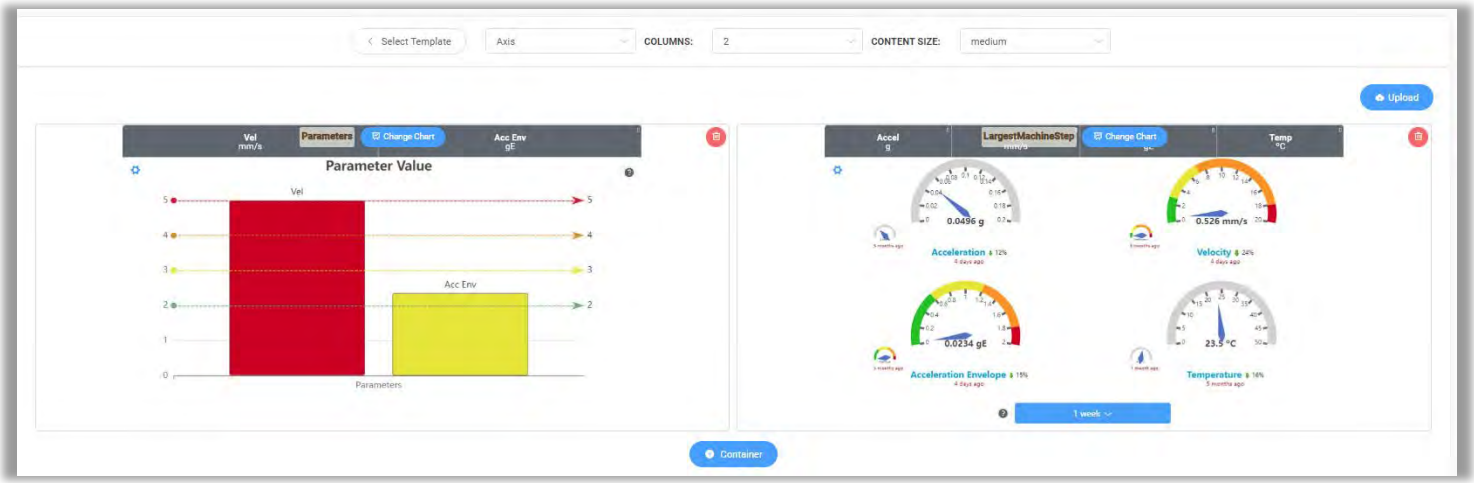
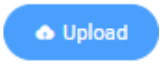
Select the chart and press **OK**.

The new chart will be placed on top of the existing chart. Drag it to the right of the screen. The charts may be dragged into any new position using a mouse.



This can be repeated for 3 or 4 column templates.

When finished, click 

The Template will be uploaded to Erbessd Instruments for review before it can be made public. This is to ensure the integrity of all Public Templates.

Once reviewed and passed, the Template will appear in the list of available Templates.

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Diagnose Manager

Diagnose Manager is an EI-Analytic feature that analyzes vibration signal files from Phantom Expert triaxial or WiSER 3X portable sensors and assigns a percentage probability to the possible root cause(s) of the vibration measured.

This tool calculates the probability of the following types of failure(Faults), based on a set of parameters(Rules), including the specific configuration of a Machine and its Points:

- Static Imbalance
- Couple Imbalance
- Dynamic Imbalance
- Parallel Misalignment
- Angular Misalignment
- Bent Shaft
- Bearing Fault: Stage 2, 3, 4.
- Cocked bearing
- Bearing Looseness

For each parameter, certain conditions must be met to a greater or lesser extent, which is reflected in the Diagnostic evaluation.

Diagnose Manager also allows the creation of Custom Faults and associated Rules that can be applied to the machine database. See below for more details.

Links to Diagnose Manager have been added to many screens in EI-Analytic. In the Machine Tree, right-click on any Machine or Point, and an **Auto Diagnose** option is now available. Machine and Point views, as well as the Bad Actor List all now have links to the Diagnose feature.

The **Diagnose Management** screen has three functions:

- **Diagnose Builder** – used to create custom rules for diagnostics
- **Diagnose Tools** - Load a machine for diagnostics using defaults or custom values.
- **Delete Faults** – used to remove faults or rules.

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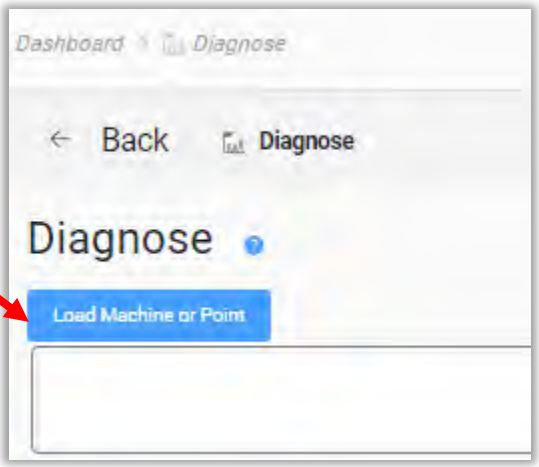
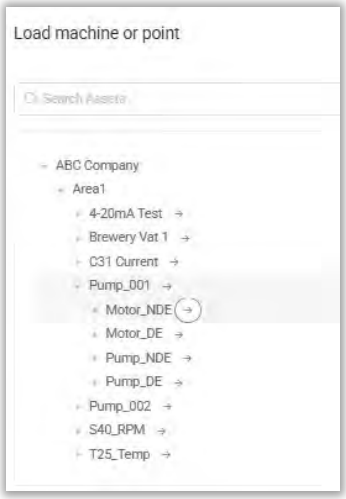
Diagnose Tools

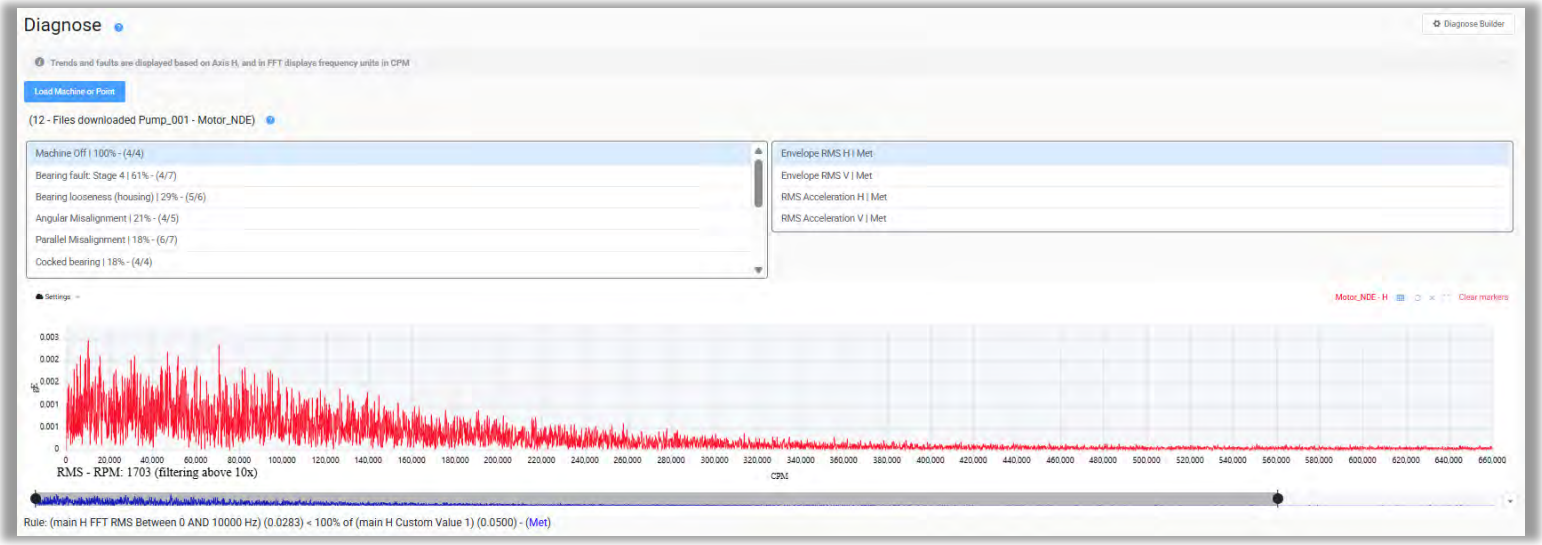
The Diagnose Tools screen is used to load a Machine Point for analysis and displays the results:

Press the Load Machine or Point button to open the Machine Tree, then select a Machine or Point for analysis:





When opened, a graph with data for the past 30 days is displayed.



The Dignosis for the machine point is highlighted. In this example it was correctly dignosed as **Machine off** condition, based on the rules.

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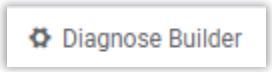
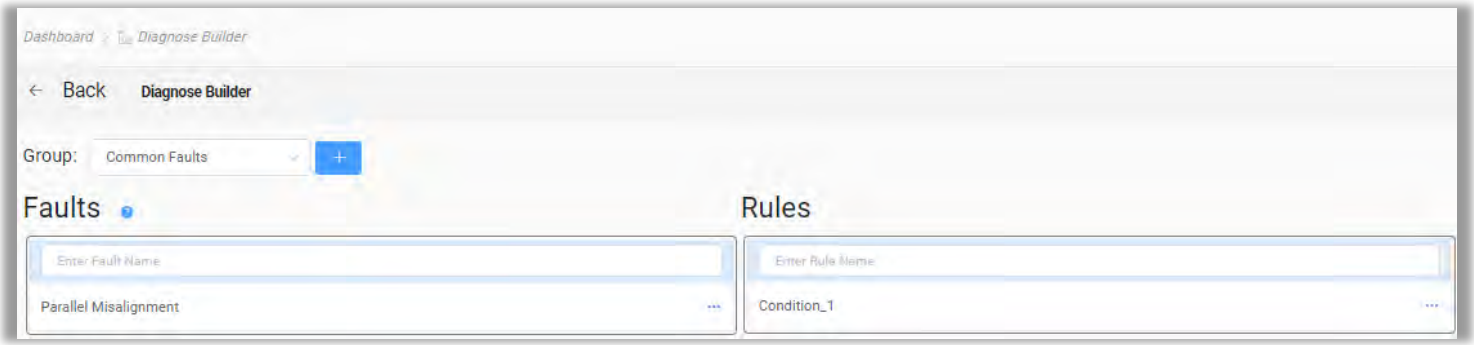
Diagnostic results are listed by Machine Point. **Note** -The **H** axis is always used for trends and fault diagnosis.

A list of faults and their probability are shown, based on analysis. The Rules used are listed in the right panel. Click a Rule to see the results in the FFT, with more detail displayed at the bottom of the screen, including the default operators and values used.

The FFT can easily be zoomed by using the slider tool at the bottom.

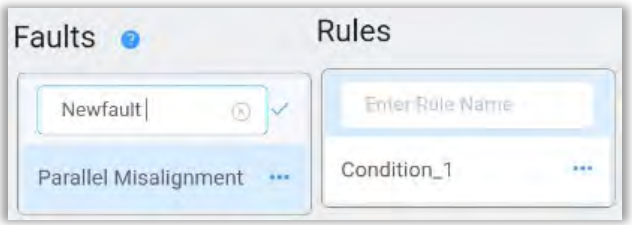
Using Diagnose Builder

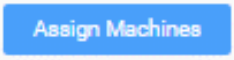
To create custom faults, use the Diagnose builder button on the main Diagnose screen. 



Create a **Group** name for custom Faults by clicking the blue add  button.

- **Faults and Rules**: Name the Fault and the Rule for the first condition to met. Click the checkmark when finished.



- Now select which Machine and Points to apply the Rule using the  button.

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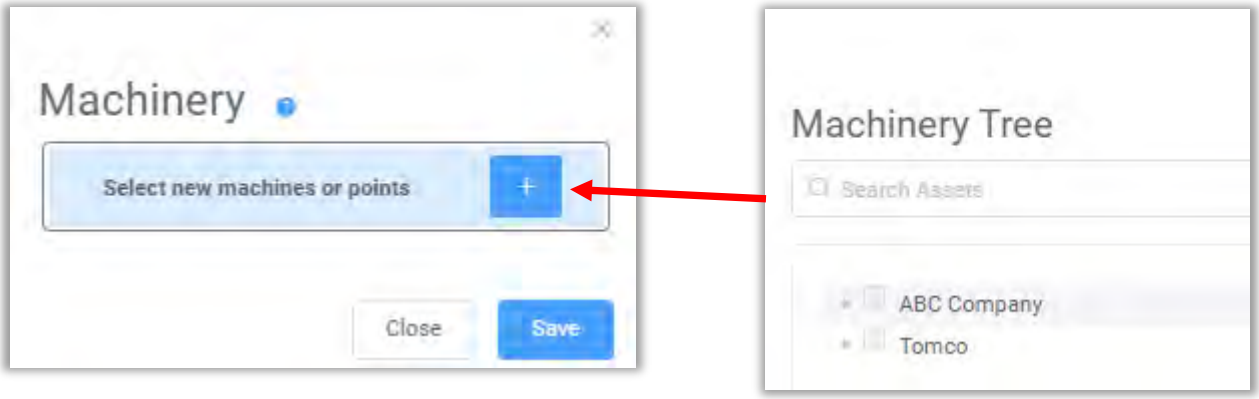
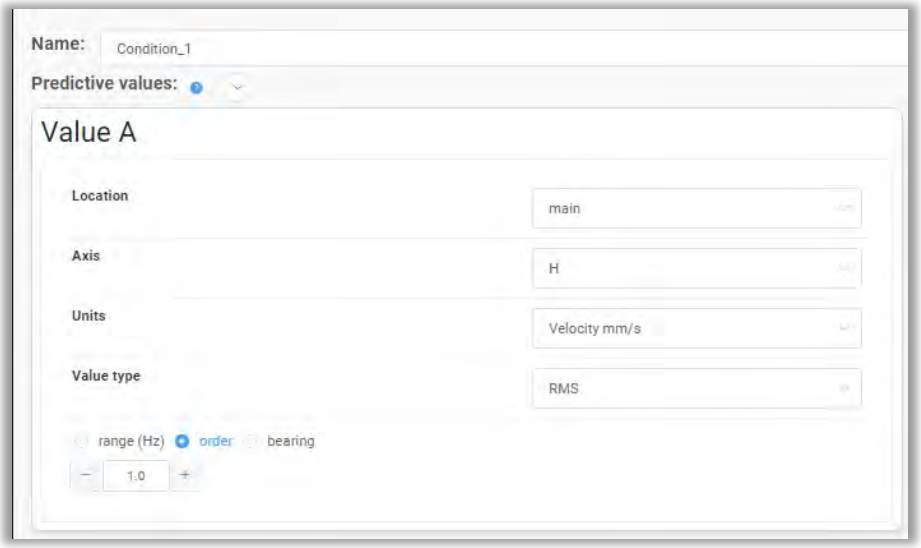


Click **Close** and then continue with the Rule:



Name and ID: The Name will be used for user reference and ID is used internally to identify the rule.

- **Value A and B** - The equation is composed of two values; both values are taken as reference for comparison and must be configured.
  - **Location –** set to one of three options: 1**)** the point to be analyzed, 2) the complement to compare with, or 3) the coupling between them.
  - **Axis** – Select the axis for the Point to be diagnosed.(the default rules always use the H axis)
  - **Units** – Choose the preferred units.
  - **Value type** - Value of the signal that will be taken as a reference.
  - **Range** – Set the range of frequencies to analyze.
  - **Order** - Select the number of orders.
  - **Bearings** - Choose one or more bearing frequency faults. In case of multiple selections, the highest value will be used.
- **Operator** - used for comparing Value A and Value B. (equal to, greater than, etc)

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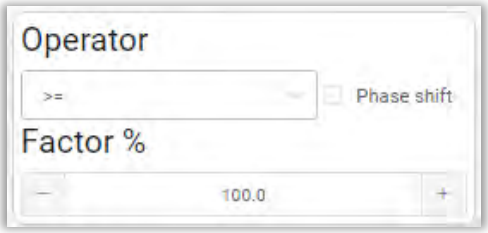
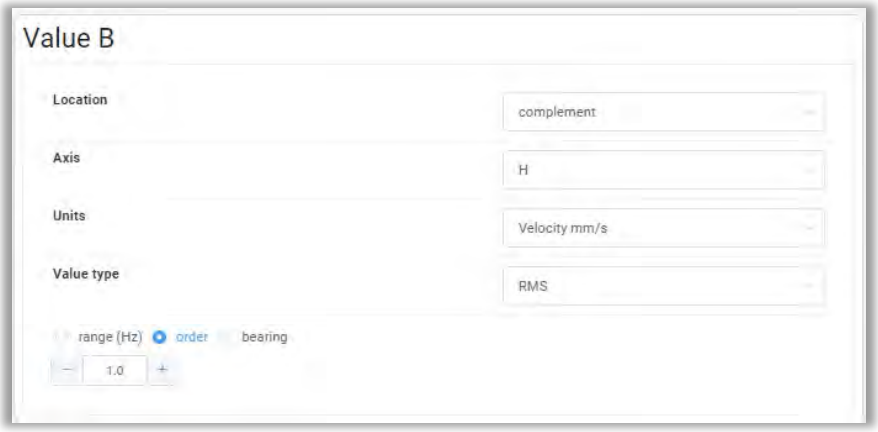
- **Factor %** - This is a "weighting" factor applied to the result of the comparison of Value A and B. The higher the percentage, the more absolute the comparison between A and B must be to meet the Rule.

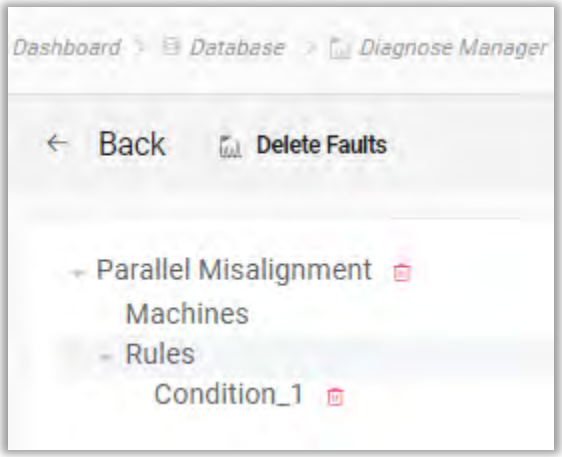




Press Save to complete the custom Fault and Rule configuration.

Delete Faults

Used to delete Custom Faults or Rules



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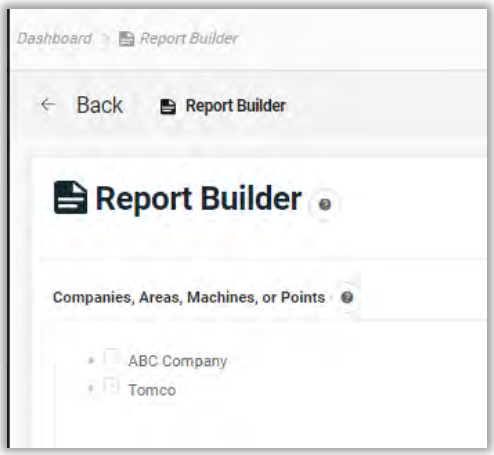
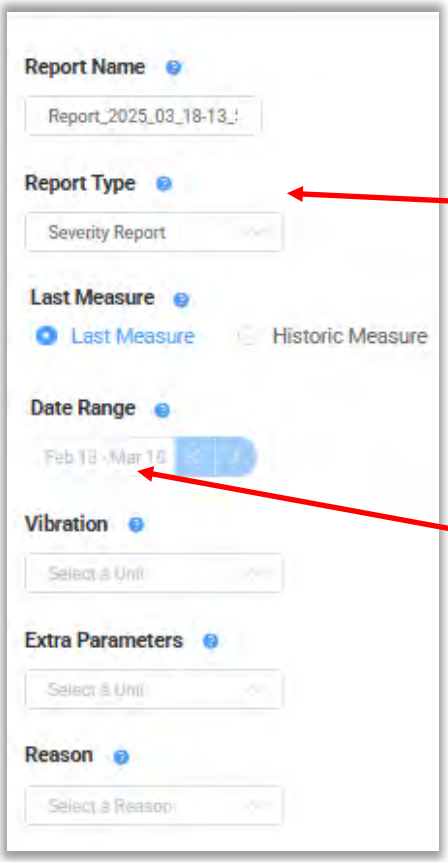
Report Manager

This tool is used to **Add** or **Edit** custom Reports.



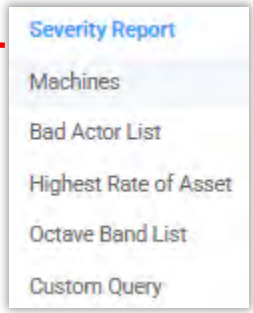
To create a report, open the Report Builder.

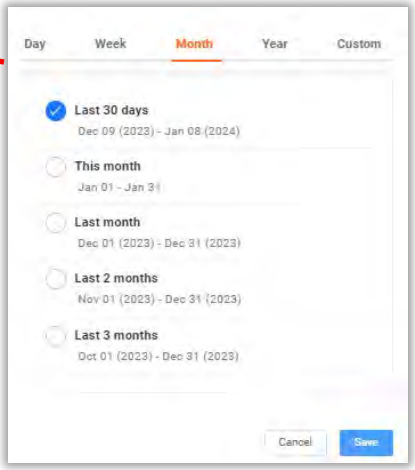
Identify which Company, Area, Machine, Point, Axis is the target of the report.



Select the Report Type from the drop-down menu.

Adjust the Date Range as needed. The blue arrows change the date by one month, or click the date box to open the selector tool.





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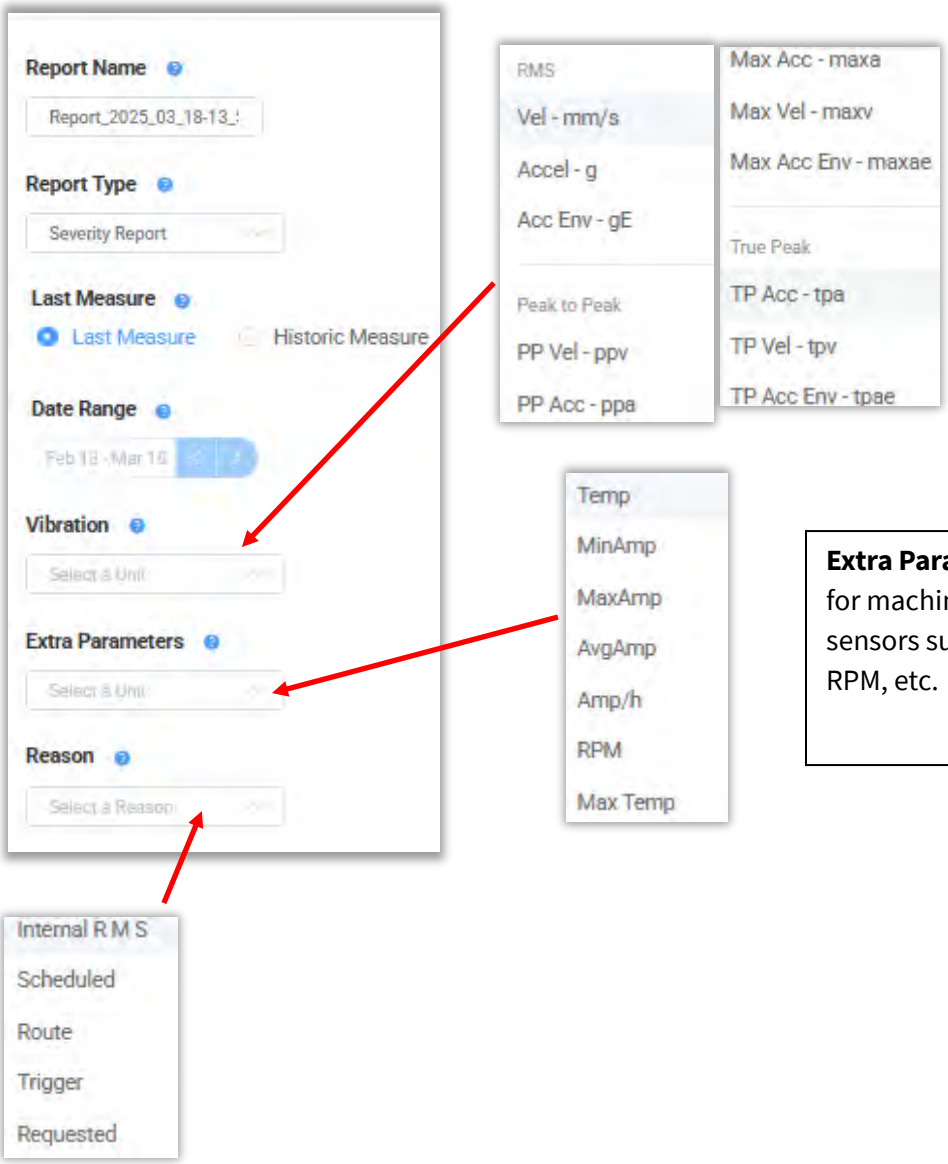

Vibration Units are selectable based on the **Report Type**. Additional units like True peak are available if they have been activated in the DB Settings of the EIA account.

Extra Parameters can also be chosen for machines. Built for non-vibration sensors such as temperature, current, RPM, etc.

You may also specify a **Reason** for data collection as a filter for the Report.

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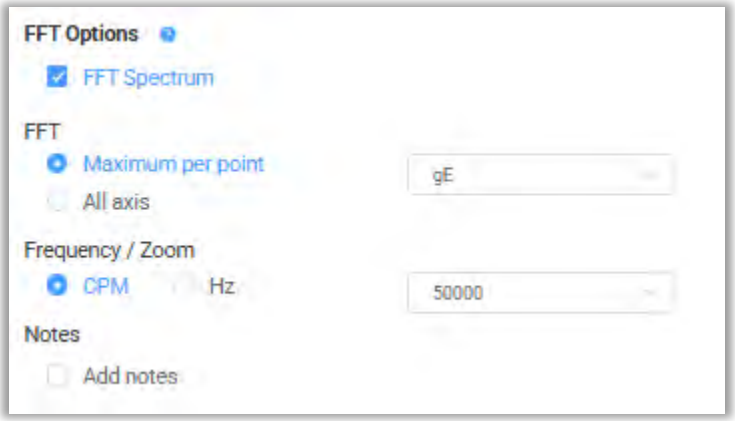


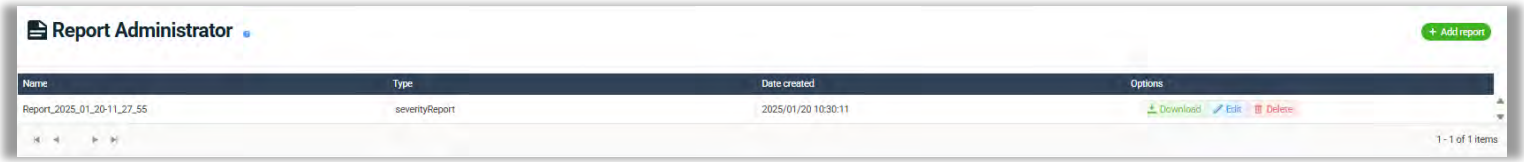
The FFT Spectrum may be included /excluded in the Report. Options for Max/point or All axes, the units for frequency, and the zoom level are available. The option to add any Notes recorded for the Machine/point may also be included.

Click on Save Report to complete the process. 

The Reports icon on the Dashboard will now show the number of available reports. 

To download, edit or delete a report, click on **Report Administrator**.

All existing reports are listed on this screen.



Each report has a Download, Edit and Delete button.

Click on **Download** to save copy of the report in PDF format to the computer's default download location for web files.

Click on **Edit** to open the report editor to make changes. 

When completed, press **Save Changes** first, then **Close Editor**.

A new report may also be added here by selecting the **Add Report** button. 

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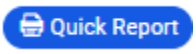
Quick Report

A new feature is available on each Dashboard to generate a Quick Report. A report may be generated for the Overall view in addition to an individual Company, Area, Machine, Point or Axis view.

Navigate to the Dashboard view for which a report is desired and click the Quick Report button. 

Select the report parameters and press Get Quick Report. 

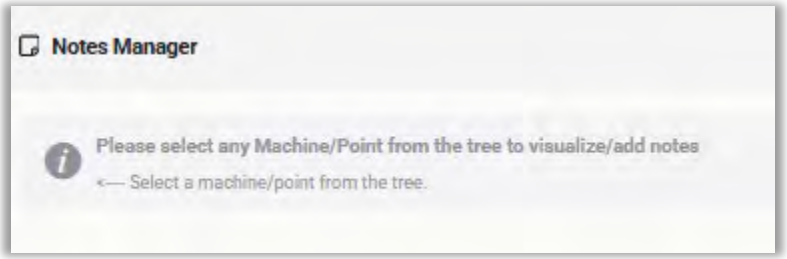
The resulting PDF file will be automatically downloaded to the default location for your web browser's download files .

Notes

Notes may be added as part of a Routed data collection or added using Notes Manager.

The **Tool Tip** portion of Notes are displayed in the Trends graphs. Notes may also be included in Reports and in custom Charts built using Chart Builder..

Click any Machine or Point in the Data tree to open or add Notes.



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Notes are displayed by Date:

Click to Add a Note:

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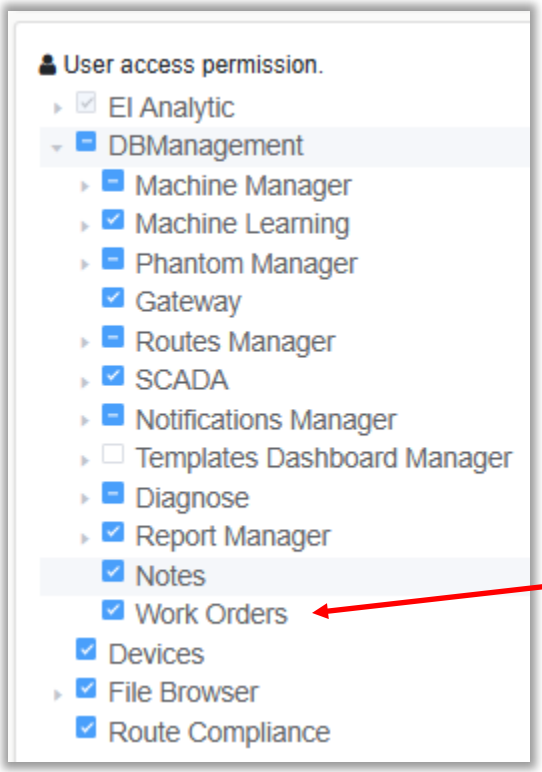
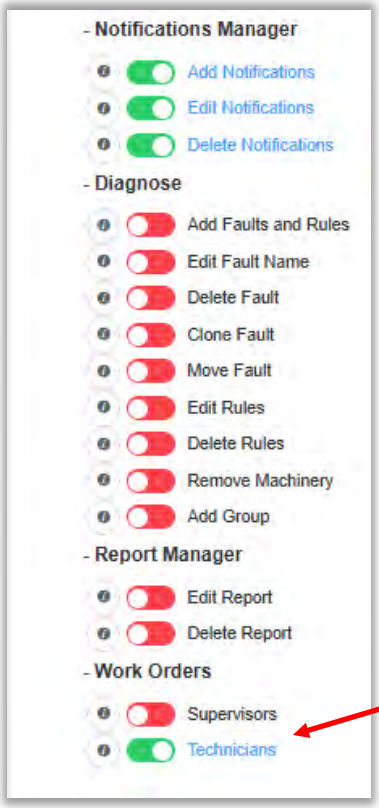
Work Orders

The Work Orders feature allow creation of work orders that are sent to Supervisors and/or Technicians via email.

Supervisor and Technician email adddresses are identified by EIA accounts with whom you have shared your *own* database

In the Permissions settings for the EIA accounts that are designated for Supervisor or Technician, you must enable the following:





Check one, you cannot choose both

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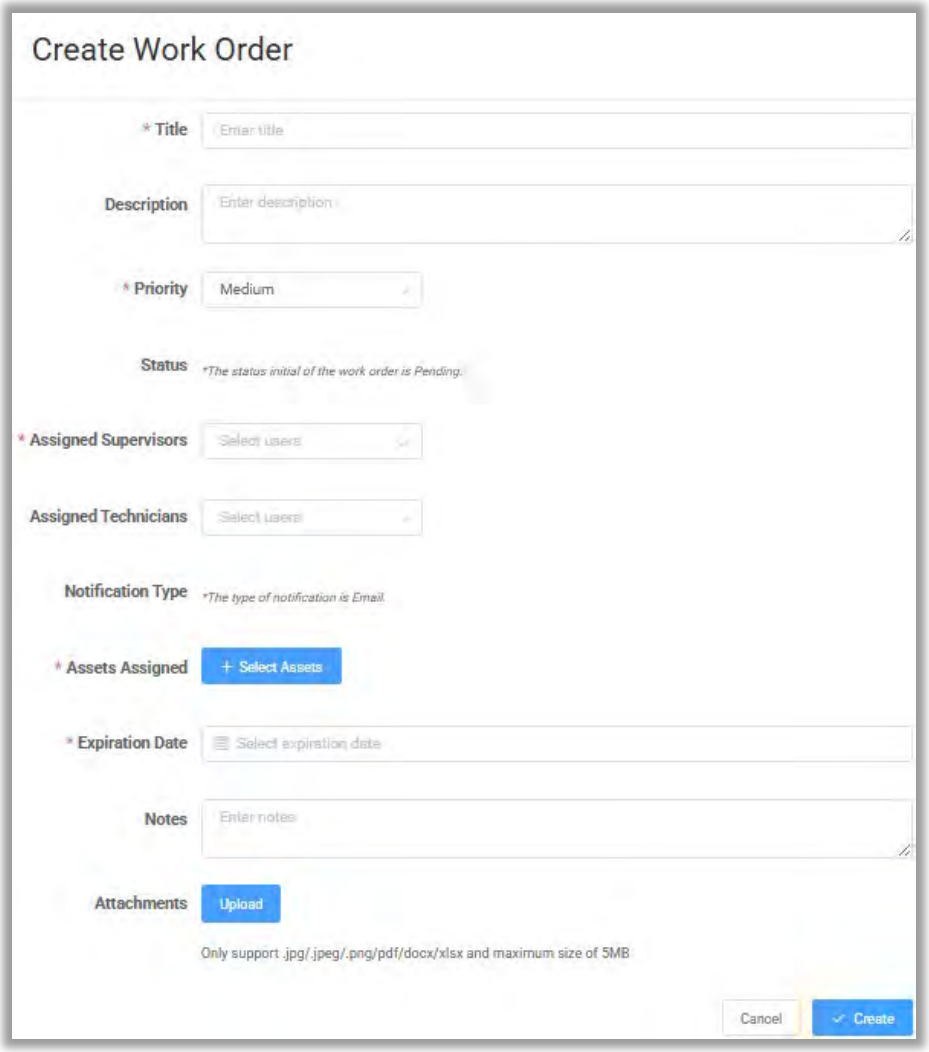
Click New Work Order to begin:



The fields are self-explanatory. Only previously configured EIA accounts with the correct Permissions will be available in the Supervisor and Technician drop-down boxes. If both are selected, both will receive an email when the work order is created.

Select the Assets and an Expiration Date.

Attachments up to 5MB can be included using the Upload button.

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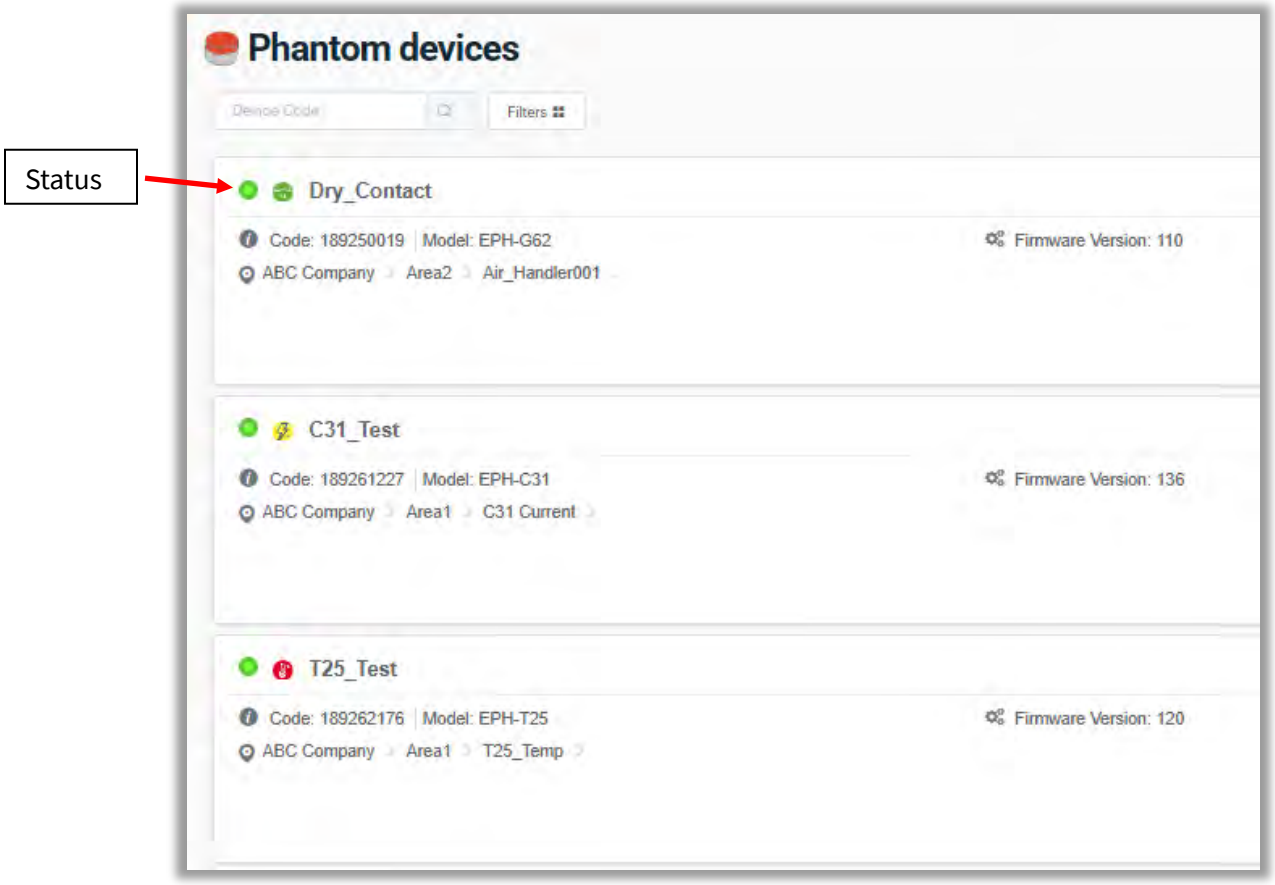
Devices

The Devices tab is used to display amd manage Phantom sensors assigned to the database.

TIP - Click on any Machine or Point in the Data Tree to only see the Devices(Phantoms) assigned to that Machine/Point.



The following information is displayed for each sensor in the database:

- **Status:** Shows a Green or Red icon to indicate communication status between sensor and database.
- **Name:** Shows the name of the sensor created in the Phantom database.
- **Code:** Shows the serial number of the sensor
- **Model:** Shows the Device Type name. E.g. EPH-V11
- **Firmware**: Shows the installed firmware version.
- **Location:** Indicates the Company/Area/Machine?point/Axis where the sensor is assigned.

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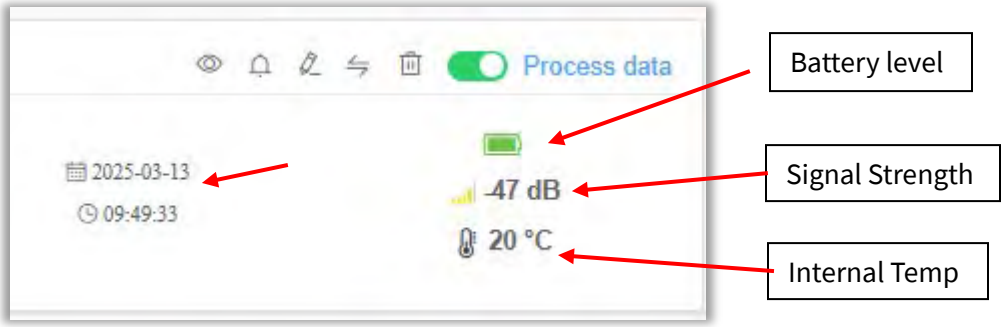
- **Last update:** Shows the date/time of most recent Sensor Update transmission or full recording file.
- **Temperature:** Shows the internal temperature of the sensor. NOTE: This temperature value is for the internal circuit temperature of the sensor – not room temperature or surface temperature where installed.
- **Signal Strength:** Shows the signal strength between sensor and gateway in dBm. (-50 to -75 is Good, -76 to -90 is OK and less than -90dBm is considered Poor).
- **Battery Level:** Shows the remaining battery percentage:

	Gen 1 1/6D 3.6v	Gen 2 CR2032 3V	Gen 3 CR2477 3V	2XAA lithium(3V)
Green	3.2+	2.5+	2.7+	3+
Yellow	2.8 - 3.2	2.3 - 2.5	2.4 - 2.7	2.8 - 3
Red	< 2.8	< 2.3	< 2.4	< 2.8

-



Devices tools

The date and time of the last Sensor Update (includes RMS velocity for vibration sensors) are displayed for each sensor.

Devices Sensor Toolbar Icons include:

Sensor Alarm Log

Tasks for this sensor – see *Notifications* section of this guide for more details.

Edit Sensor config – change settings for this sensor.

Replace Phantom – exchange one Phantom for another (same model only, e.g., V11E for V11E)

Delete sensor. - Provide serial number to confirm deletion.

A sensor may be disabled from processing data by using the slider. For example, a machine has been taken out of service for a period of time, and any data collected by this sensor is unwanted.

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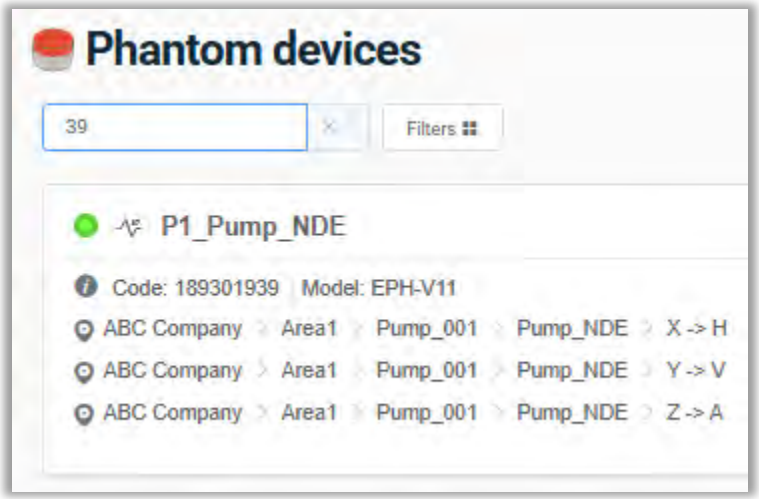
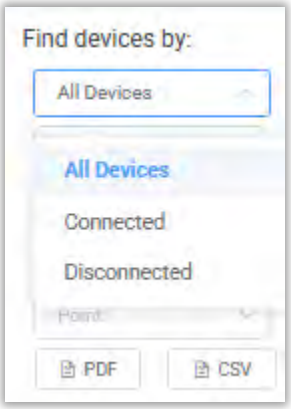
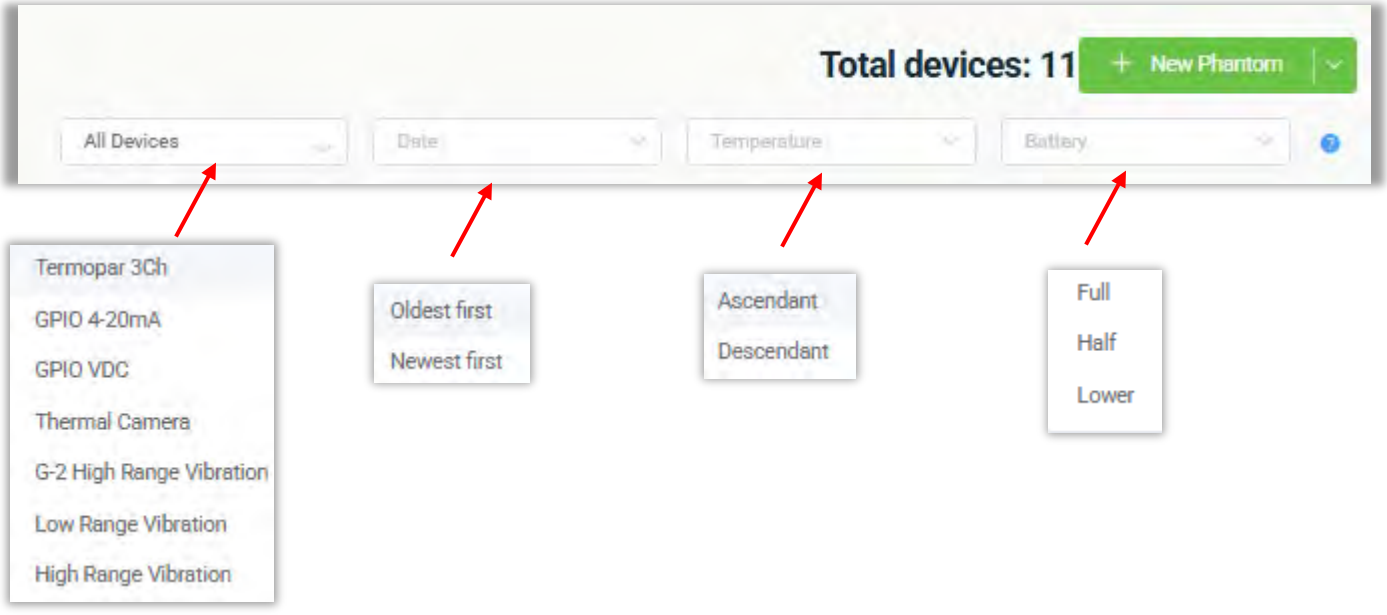
- Sensors can be searched using “fuzzy search” by entering a value in the search window. Example:
- Phantom code 18931939 was found by searching on the last two digits of its code.
- Use the Filters option for more ways to search:





- Devices may also be searched by type:



- The display can be sorted by Date, Temperature or Battery level as well.

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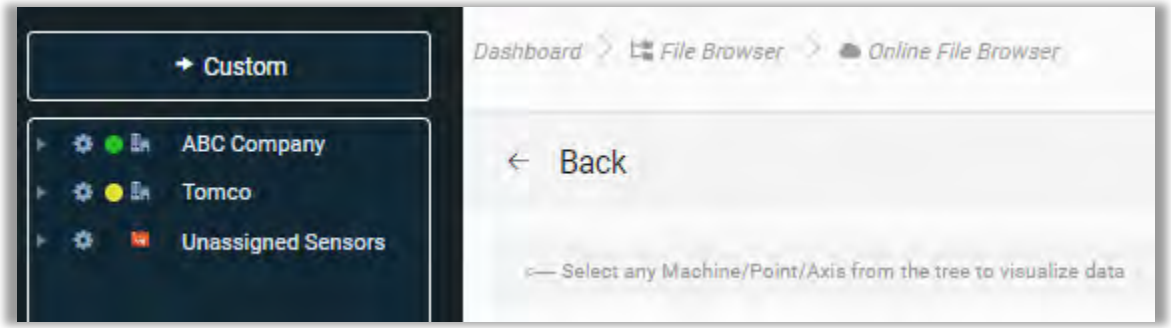
File Browser

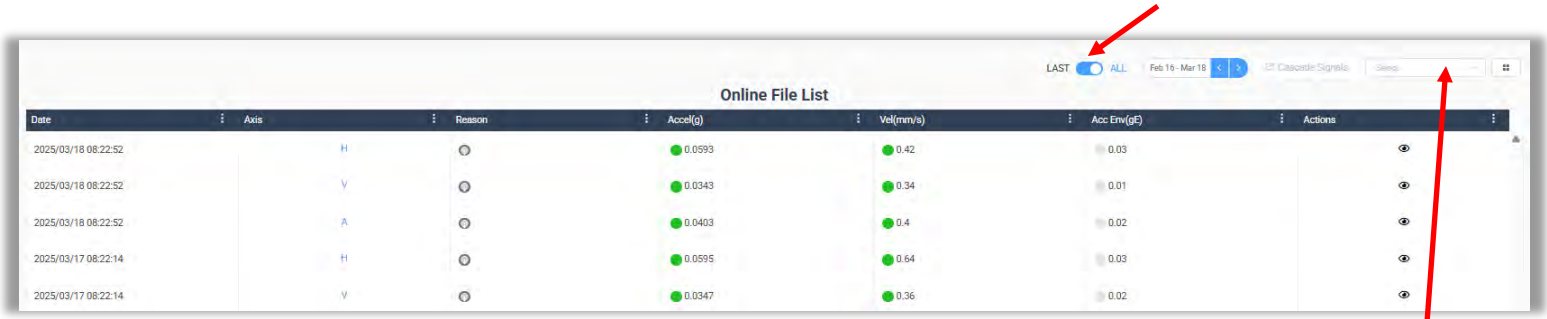
Online File Browser

The Online File Browser provides access to all sensor data stored in the EI-Analytic cloud database, sorted by date.

Select any Machine, Point or Axis from the Data Tree to open the Online File List chart:



If a Machine is chosen, the Online File List shows the **Last** measurement for all points on the Machine, and can be switched to **All** (Historic**)** view. The values shown in this chart for Acceleration and Acceleration Envelope are shown from the last full data collection.



At the Point level you can change the default view from **Vibration RMS** to **Vibration modifiers** to show other vibration units such as peak-to-peak or **Temperature** using the drop-down menu at top right.

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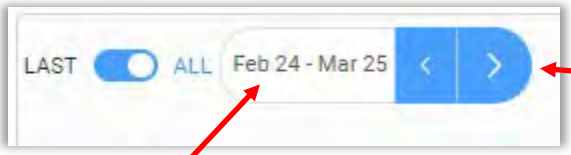
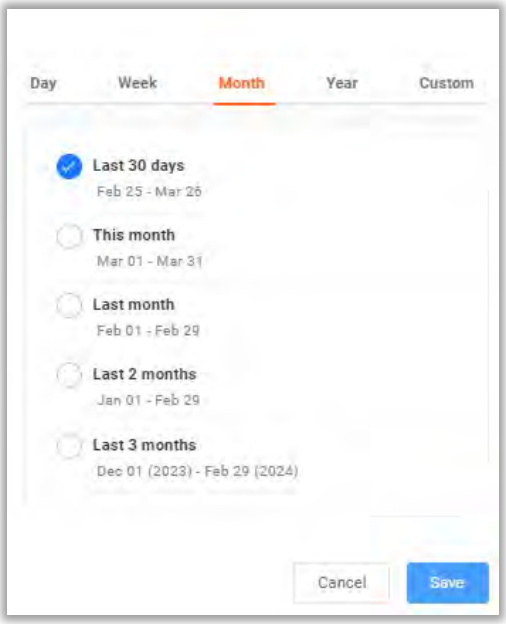
Set the slider to **ALL** at top left to open Historic mode.



Click the blue arrows to go forward or back 30 days

Click here to open the Date Selector

Make a selection and press Save.



Hovering the cursor over the **Reason** column icon shows the reason for data collection.

To filter the File List by **Reason** , click the Options button.

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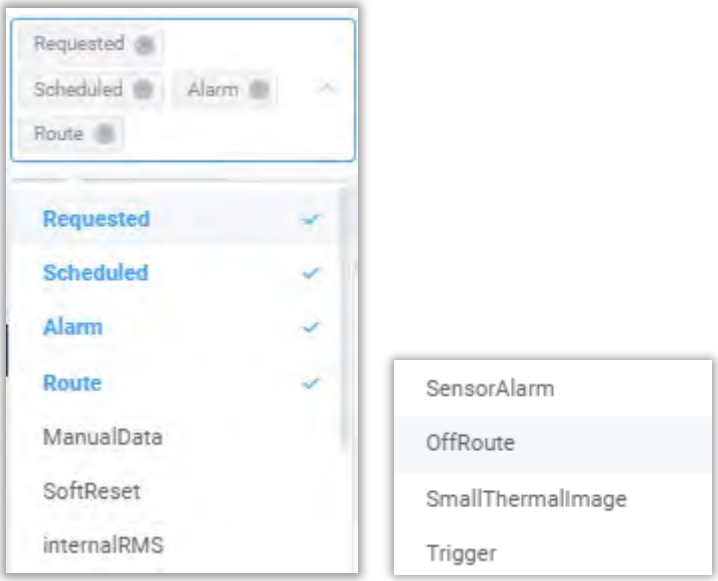
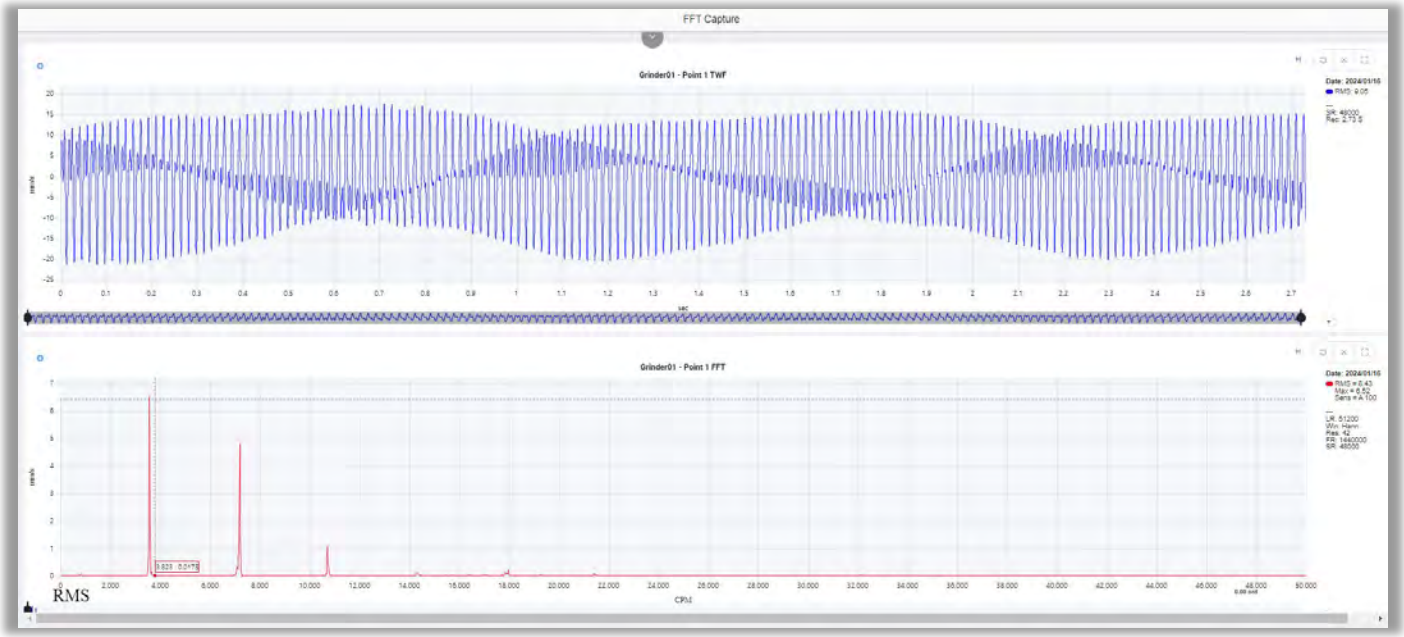
Several Reasons are shown by default, with additional items available to apply:



Add or remove **Reason** types as desired, for example to see only **Route** data, or only **Scheduled**, etc.

Click the **Open File** icon in the Actions column to open the selected signal file in the Time Waveform (TWF) and Fast Fourier Transform (FFT) charts.



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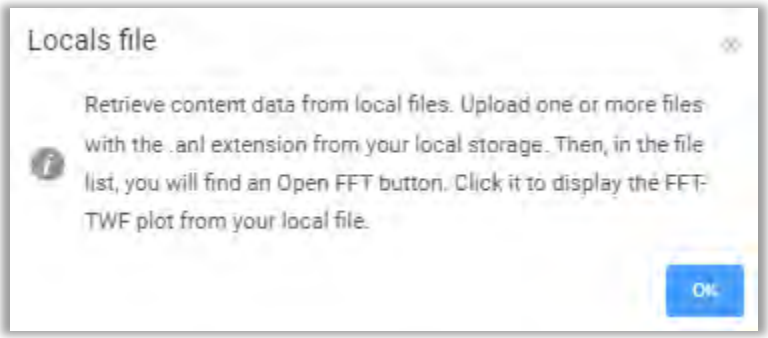
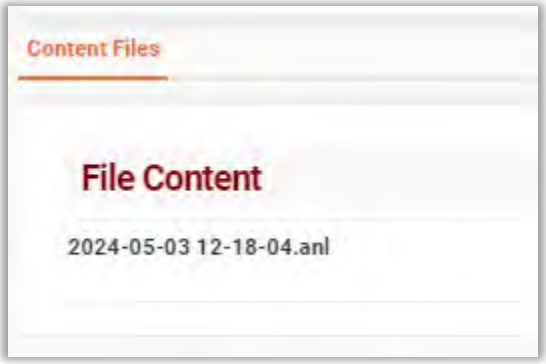
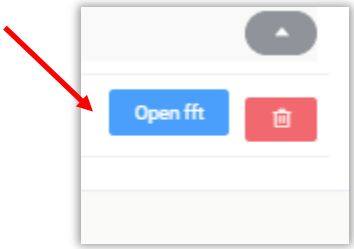
Local File Browser

Use this option to upload signal files (.anl file extension only) and view/analyze the TWF anf FFT.

Press **click to upload** to browse for the .anl file(s) to upload.







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Visualization Tools

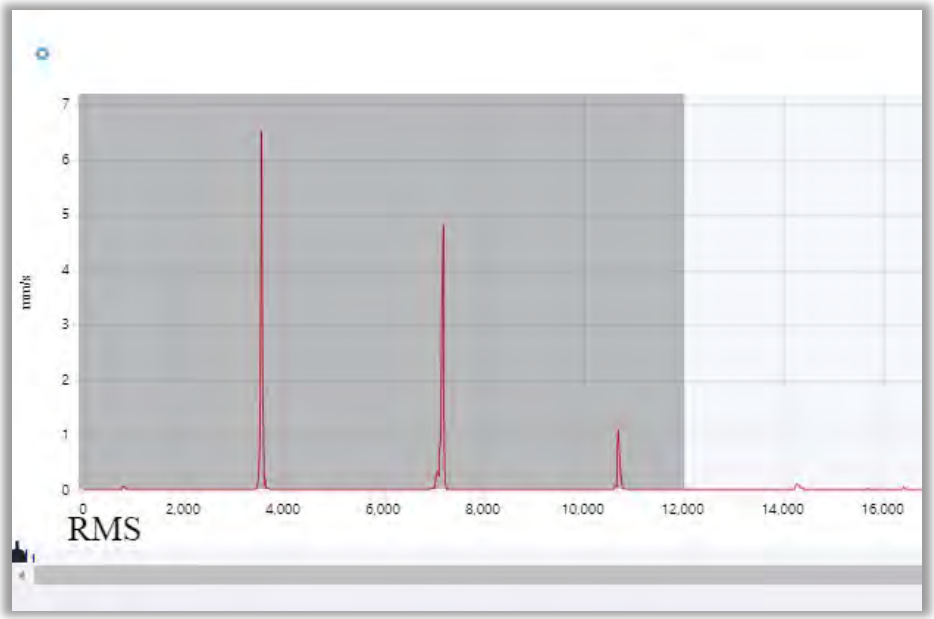
There are several tools available to help with analysis of TWF and FFT graphs:

Horizontal and Vertical zoom

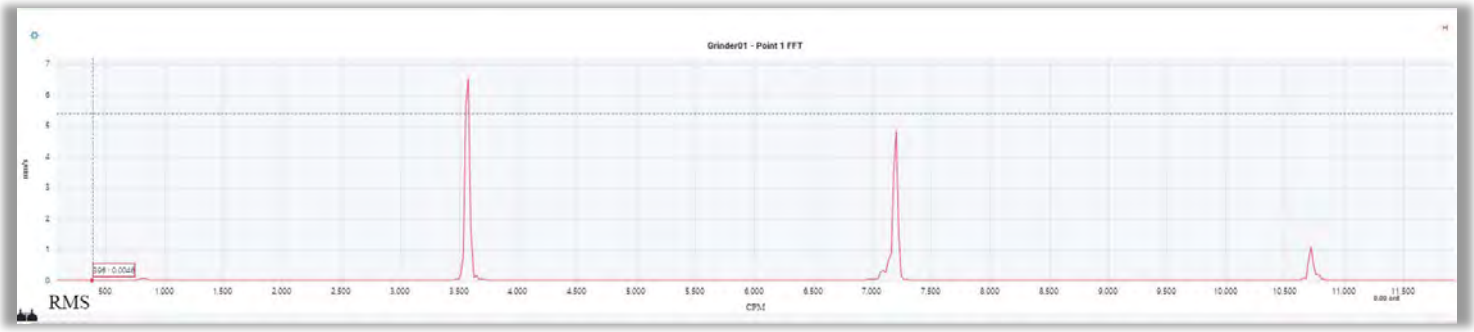
Horizontal or vertical zoom is supported by drawing with the cursor. Use a mouse or trackpad to click, hold and drag over the area of the signal you want to enlarge. The zoom bar below the TWF and FFTcan also be used to zoom horizontally on the graph, however you cannot use this bar to zoom vertically.

Horizontal zoom:

Drag the cursor over the area to zoom, it will be highlighted in grey :



Enlarged view:



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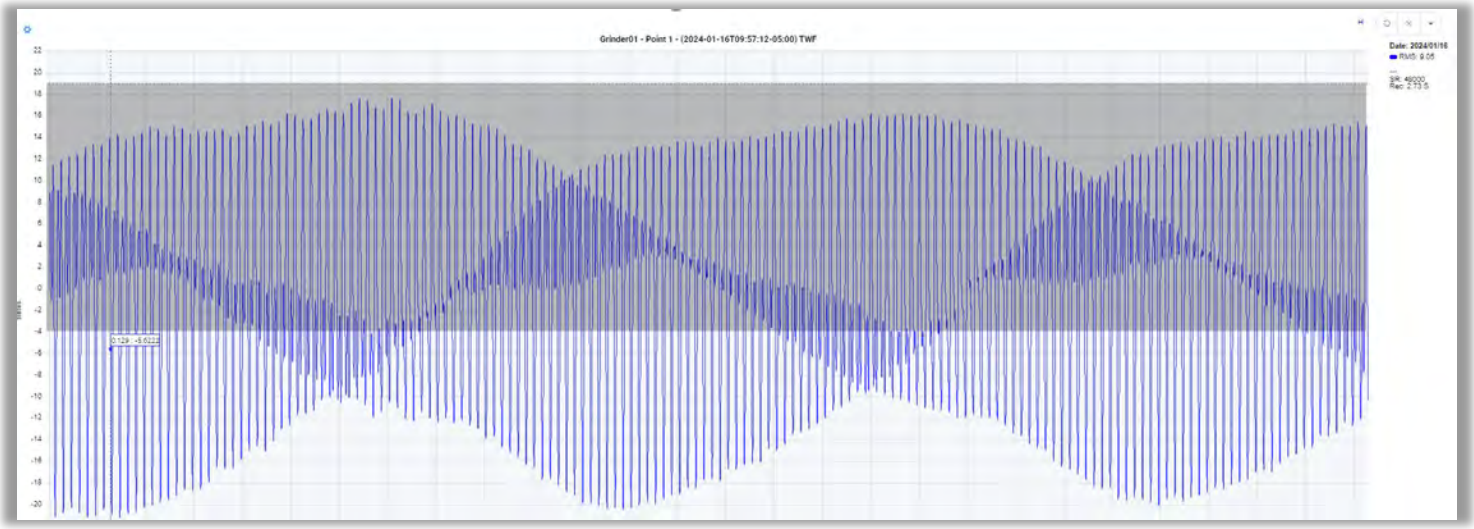
Vertical Zoom:

Use a mouse or trackpad to select the vertical area to zoom:



Undo Zoom

The Undo tool found at top right of TWF and FFT graphs, deletes the last zoom that was made, vertical or horizontal.

Delete Zoom

The deletes the zoom on the graphic, returning to the default setting.

Expand TWF & FFT

Use to toggle the TWF, or FFT graph from split screen to full screen mode.

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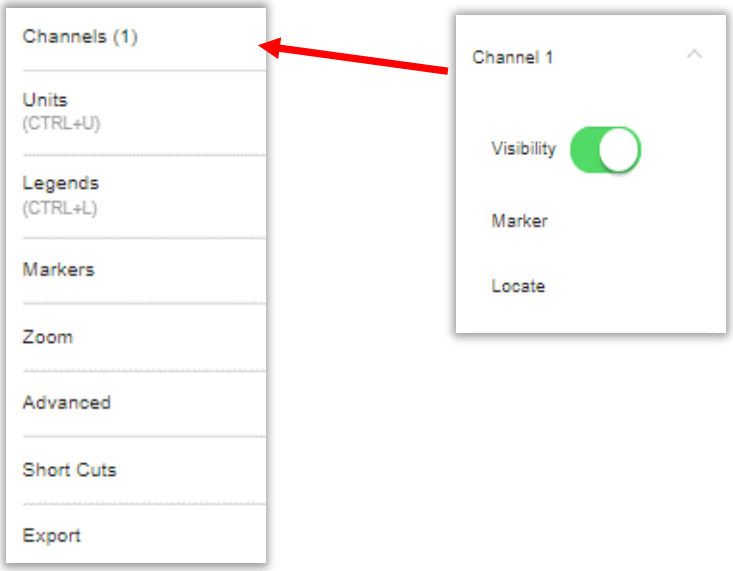
TWF Tools

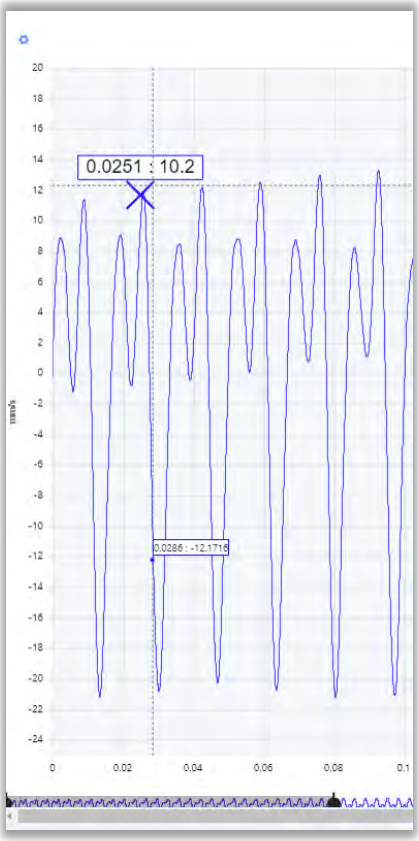
Press the settings button at the upper left corner of the graph to access the TWF tools.



Channels

For the selected channel (axis), there are three options:

- **Visibility** – This option toggles the visibility of the selected channel to on or off.
- **Marker** – Allows placement of Markers on this channel (axis). Roll the **cursor** over the graph and click to place a marker or use the bar below to move the marker.



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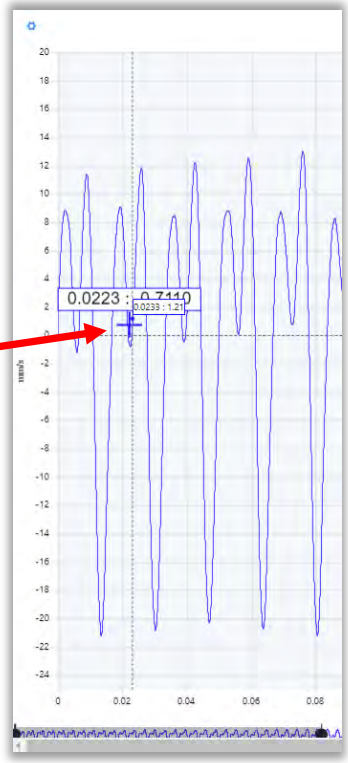
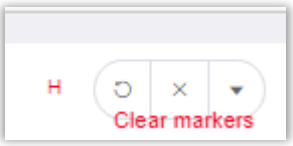
- **Locate** – This feature works the same way as a Marker, however, it only allows location on a measured point on the graph while Markers can be placed between points. When the cursor is moved, it will automatically look for the nearest measured point.



When a marker or locate is added, they can be cleared by clicking on Clear Markers at top right of the screen.

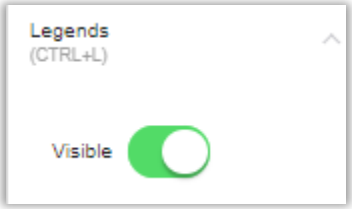


Units

Select the units displayed on the TWF graph.

Legends

Toggles the visibility of the Legends on or off.



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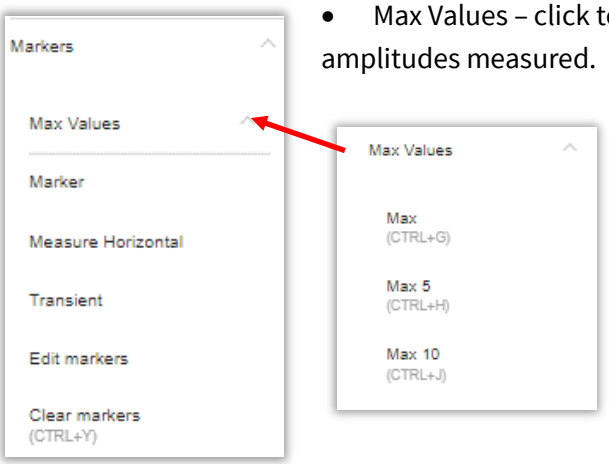
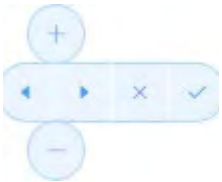
Markers



- Max Values – click to expand. Auto-apply markers to the Max 10, Max 5 or the Max amplitudes measured.

- **Marker –** Place a marker on the channel of your choice as described above.
- **Measure Horizontal** – measure the time between two points on the TWF.
- **Transient** - Draw transient points on the TWF. First locate the fundamental frequency (**F**) on the TWF with the marker bar, and press  to confirm the position, or  to cancel. Then move the first transient (**t1**) with the bottom bar. The rest of the transients will be placed equidistant to **t1** to the right, the distance between them is the same distance from **F** to **t1**. Select  to add/remove a transient. Use the  to cancel and  to confirm the process.

Use the arrows to move the current position to the immediate right/left transient.



- **Clear markers** delete all markers previously added.

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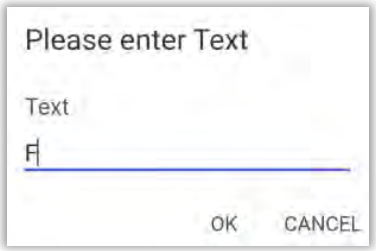
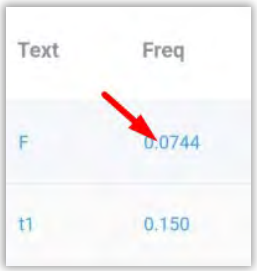
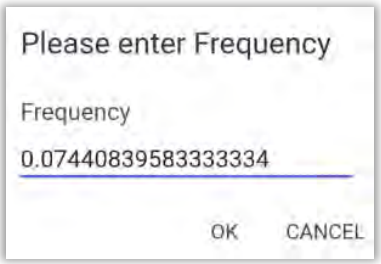
Edit markers

Used to edit previously added markers. The name of the marker is displayed In the ***Text*** column. The ***Freq*** column shows the frequency at which the marker is placed. Lastly, each marker can be deleted using the button.



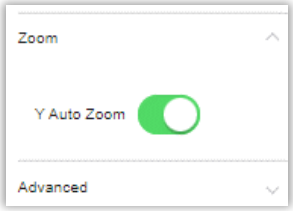




Click the numerical value of the frequency and/or the name of a marker to modify.

Zoom

For a TWF, the Y Axis defaults to Auto Zoom mode, which can be deactivated by using the slider:



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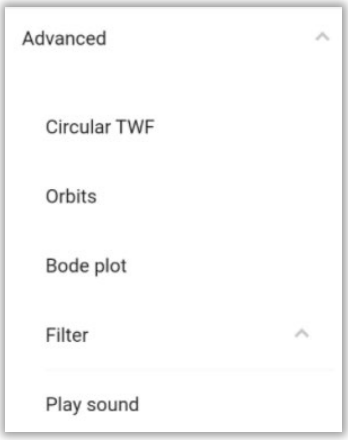
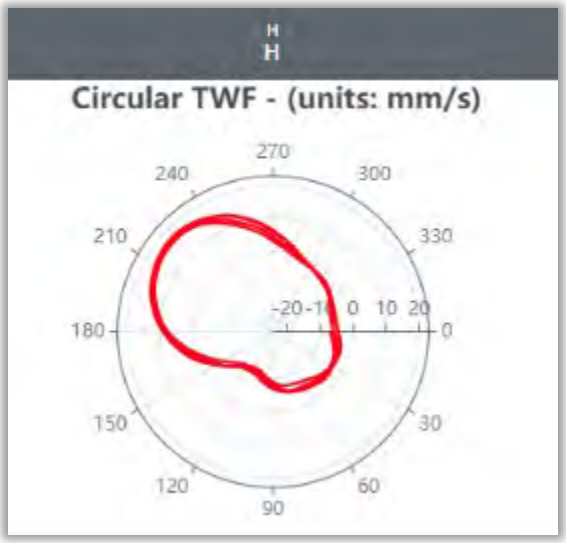
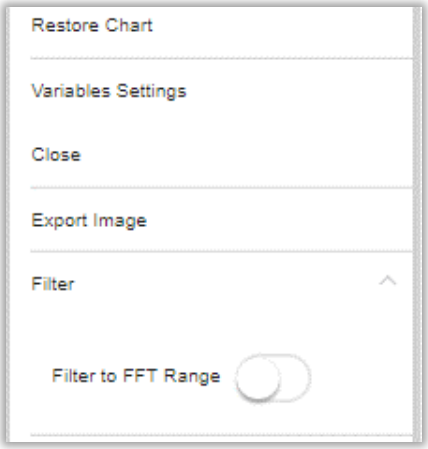
Advanced TWF Tools



The **Advanced** section contains five options:

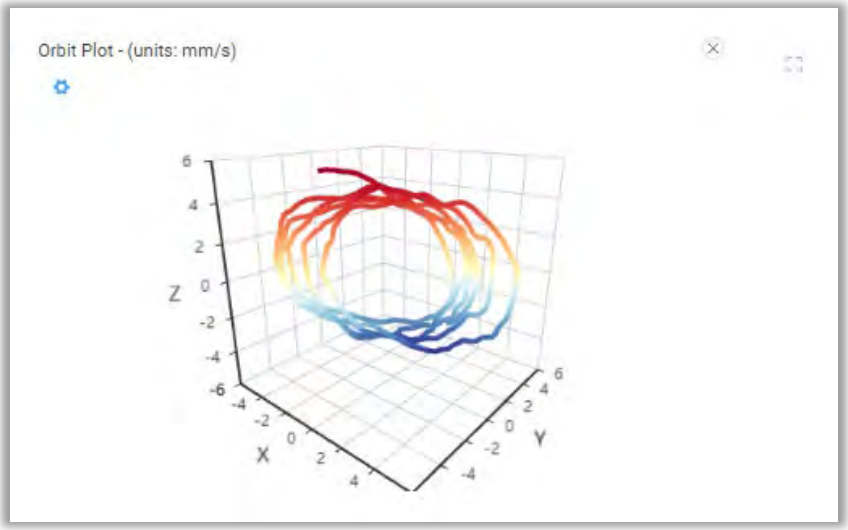
- **Circular TWF** - Select this tool to display a graph at the bottom of the analysis screen. **Note**: The units of the graph are the same as those of the TWF. Only works when in split-screen mode.





An optional filter may be applied so the graph only uses data within the range used in the FFT. Tap on ⚙ to add the filter.

- **Orbits** – Opens an Orbit plot in a new window. At least 2 channels of vibration must be open in the TWF or FFT to construct the plot.



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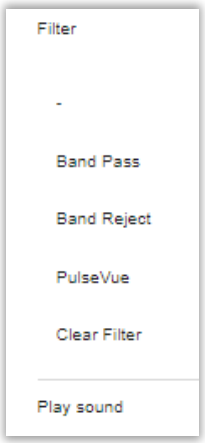
- **Bode Plot** – Opens the Bode Plot window. The Bode Diagram is a coast-down or run-up test that integrates vibration and RPM measured by a tachometer or RPM sensor. This test calculates the FFT and the phase related to the RPM signal at each time interval.

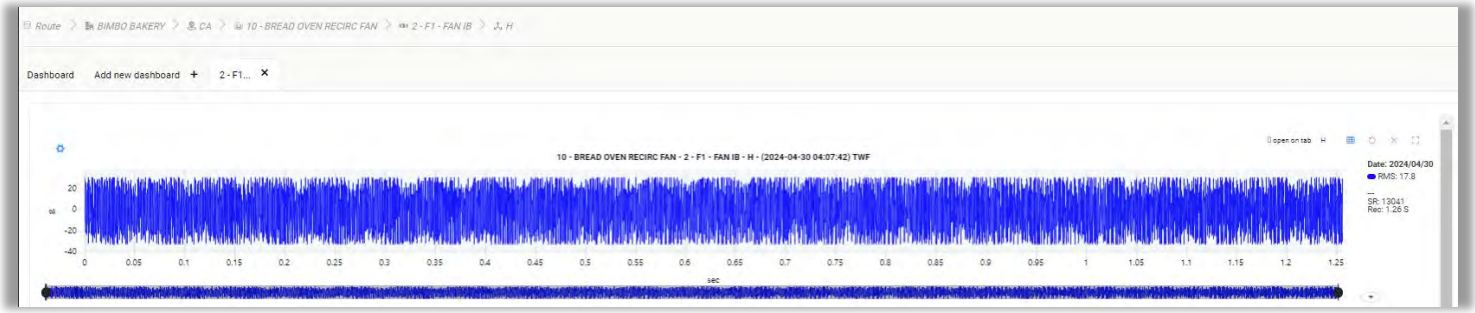


- **Filter** –
  - **Band Pass** - Applies a band-pass filter to the signal.
  - **Band Reject** - Applies a band-stop filter to the signal.
  - **PulseVue** -Applies a PulseVue filter to the signal - see below.
  - **Clear Filter** - Removes any filters previously applied to the graph.
  - **Play Sound** -plays back the recorded vibration using the device's speaker.
- **Export** - Export the TWF or FFT as an image or CSV file.

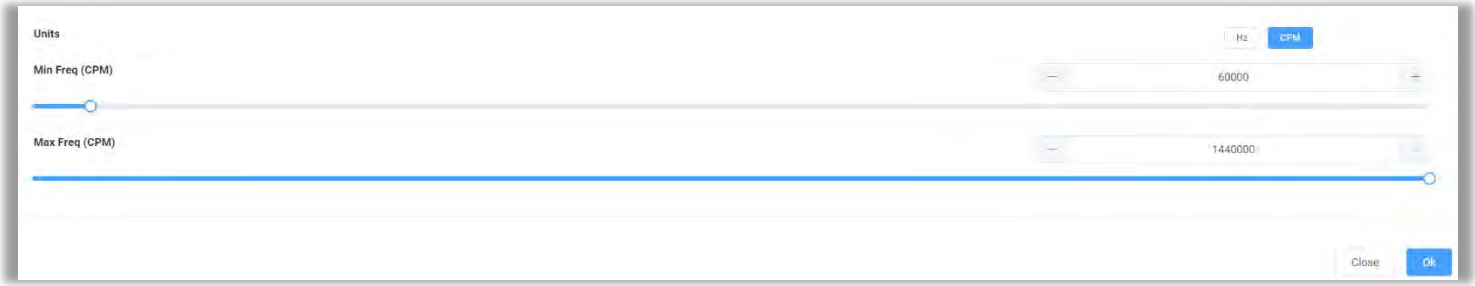
PulseVue Filter

The PulseVue filter is used to aid in analyzing high frequency pulses such as those created by damaged gear teeth in a gearbox or damaged races or rolling elements of a bearing.

To apply the PulseVue filter, open a signal file and view the Time waveform in G's.



Click on **PulseVue** from the Options>Advanced menu to open the range selector:



The range defaults from Min 1000Hz to Max. Set as desired in CPM or HZ and press OK.

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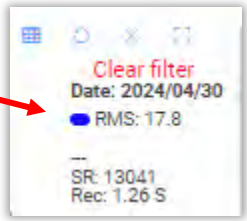
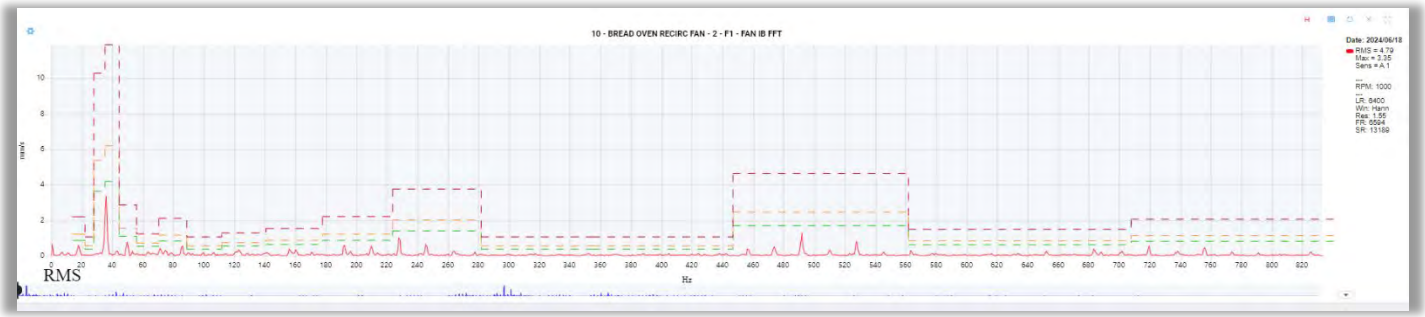
The PulseVue filter inverts all negative signals to positive, then the acceleration RMS is calculated.

The RMS value is trendable to determine asset health.

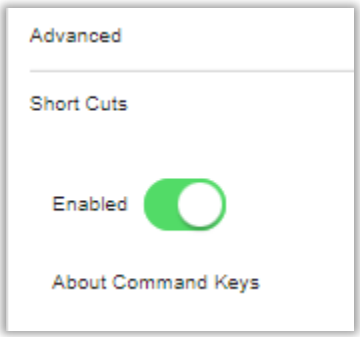


Acceleration Envelope alarms may now also be set, based on the filtered data.



Shortcuts

Keyboard shortcuts are now available, and enabled by default. They can be disabled here:



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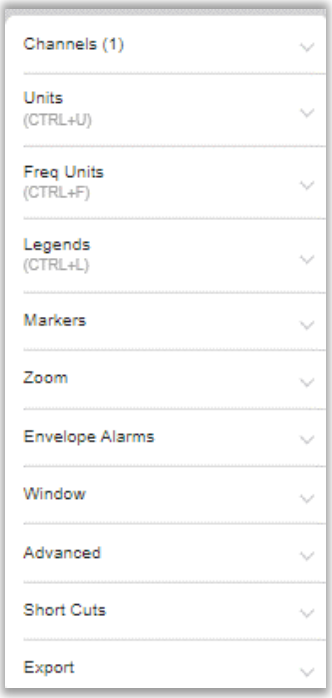
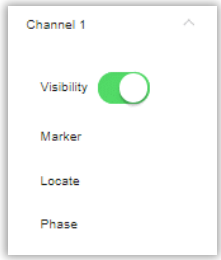
FFT Tools

To access the FFT tools menu, click on . in the upper left corner of the FFT graph.

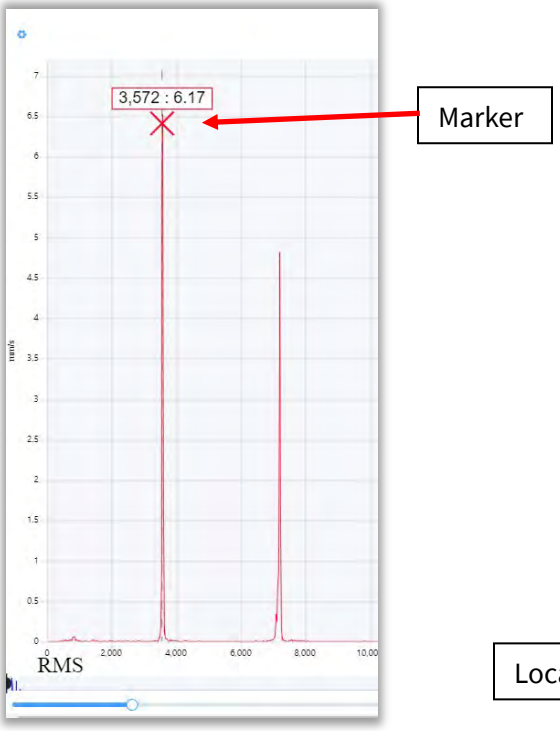


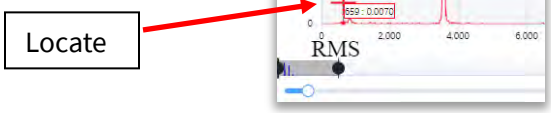
Channels

For the selected channel (axis), there are 4 options:



- **Visibility** – This option toggles the visibility of the selected channel to on or off.
- **Marker** – Allows placement of Markers on this channel. Use the **cursor** to place the marker on the graph or use the bar below to move the marker. Tap on to confirm and save the marker, or to cancel.
- **Locate** – This feature works the same way as a Marker, however, it only allows location on a measured point on the graph while Markers can be placed between points. When the cursor is moved, it will automatically look for the nearest measured point.





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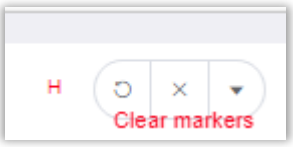
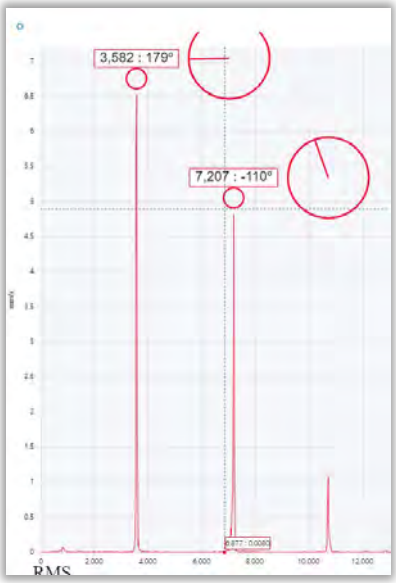
When a marker or locate is added, they can be cleared by clicking on Clear Markers at top right of the screen.



- **Phase** - Moving the cursor along a channel displays the frequency value with its phase, at the analysis points. Select ✕ to cancel and ✓ to confirm and place the marker.

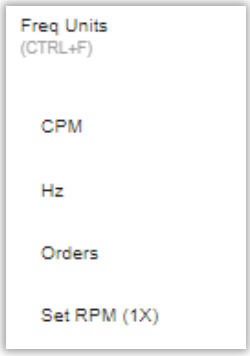


Units

Select the **units** to display on the Y axis of the FFT (inches/s, mm/s, g's, etc.).

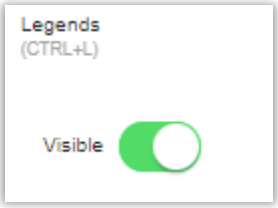
Freq Units

Sets the frequency units shown on the X axis on the FFT.



Legends

Toggles the visibility of the Legends on or off. Note this can be set as default using the



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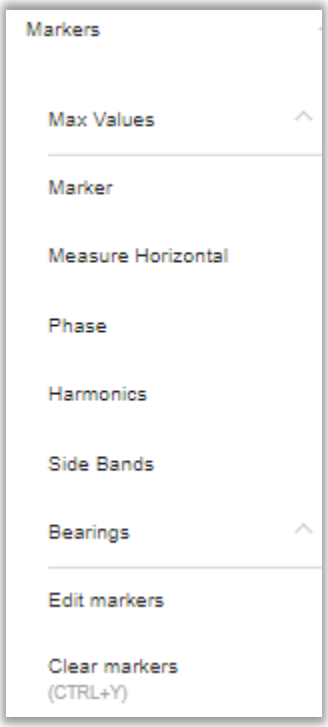
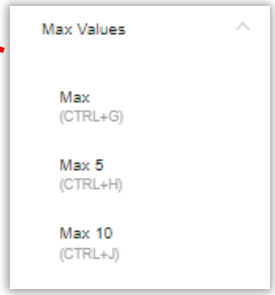
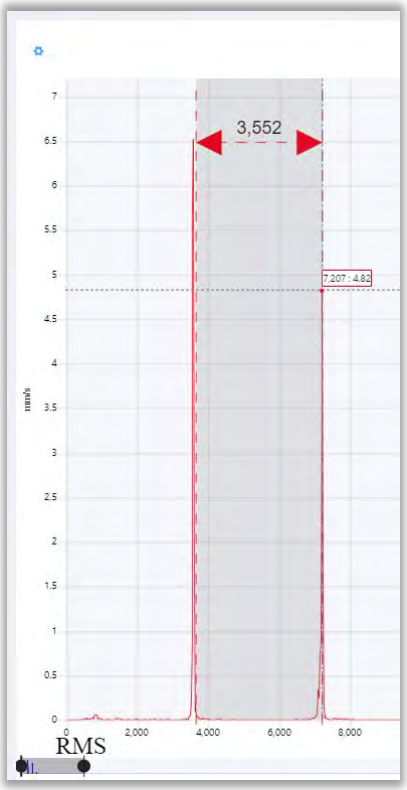
Markers



- **Max Values** – click to expand. Auto-apply markers to the Max 10, Max 5 or the Max amplitudes measured.



- **Marker** - Use the cursor to place a marker anywhere on the graph or use the lower bar. Select ✕ to cancel and ✓ to confirm and place the marker.
- **Measure Horizontal** -Click anywhere on the FFT to set the starting point, then drag to expand and show the desired distance.



- **Phase** – Same as shown on previous page.

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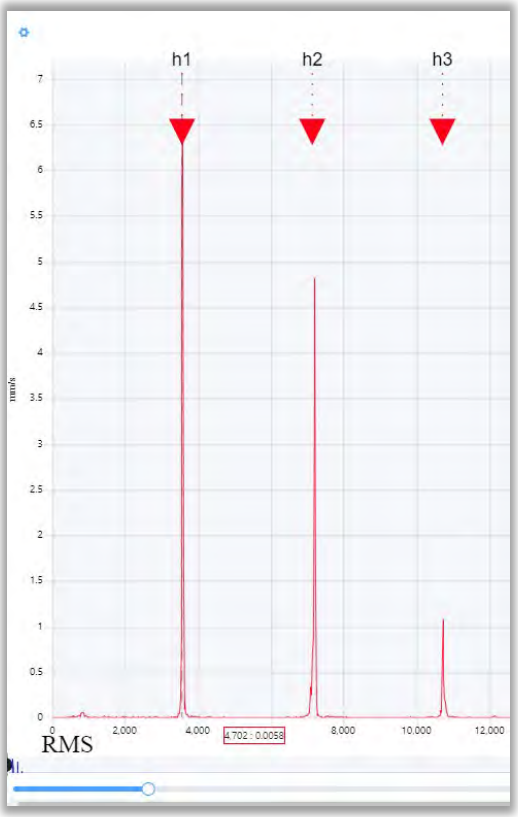
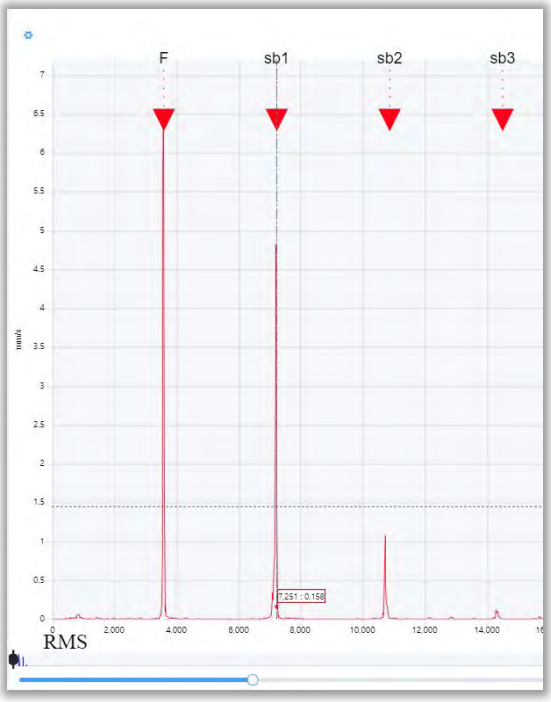
- **Harmonics** – Calculate and display harmonics on the FFT. Moving the first harmonic (**h1**) on the FFT will cause all other harmonics to be placed equidistant to **h1** on the right. The distance between them is the same as the distance between 0 and **h1**. Select + − to add/delete a harmonic point. Tap on × to cancel and ✓ to confirm and place the harmonics.



- **Side Bands** –- Displays side bands on the FFT. Locate the fundamental frequency (**F**) on the FFT, then move the first side band (**sb1**) with the lower bar. The other side bands will be placed equidistant to **F,** 5 to the right and 5 to the left. The distance between them is the same as the distance between **F** and **sb1.** Select + − to add/delete a side band. Tap on × to cancel and ✓ to confirm and place the side bands.



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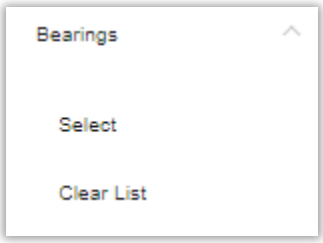
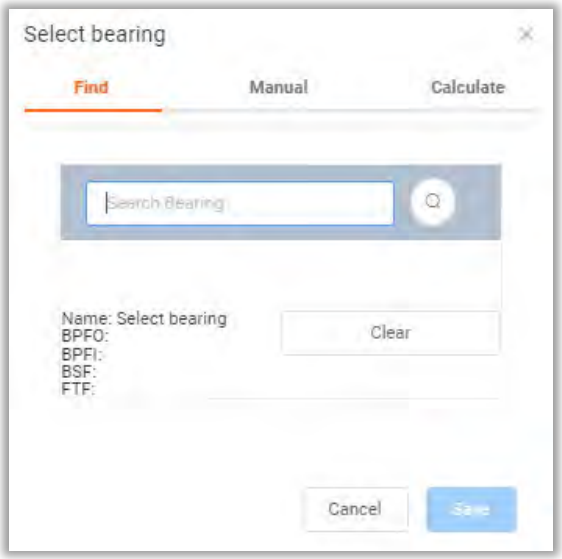
- **Bearings** – Select the bearing type for this machine point if not already configured. See *Adding Bearings* on page 53 of this guide for details.

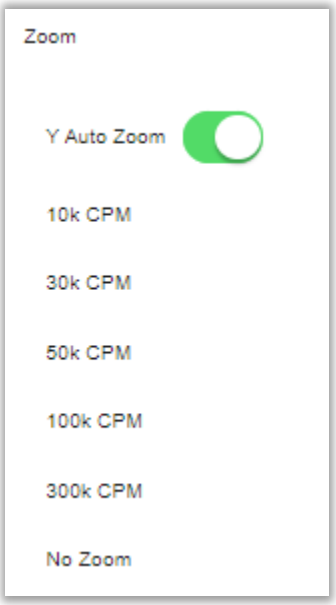




- **Clear Markers** – Erases all markers

Zoom

Choose the maximum frequency displayed on the FFT. The Auto Zoom slider allows the FFT y axis to be adjusted to show the peak amplitude.



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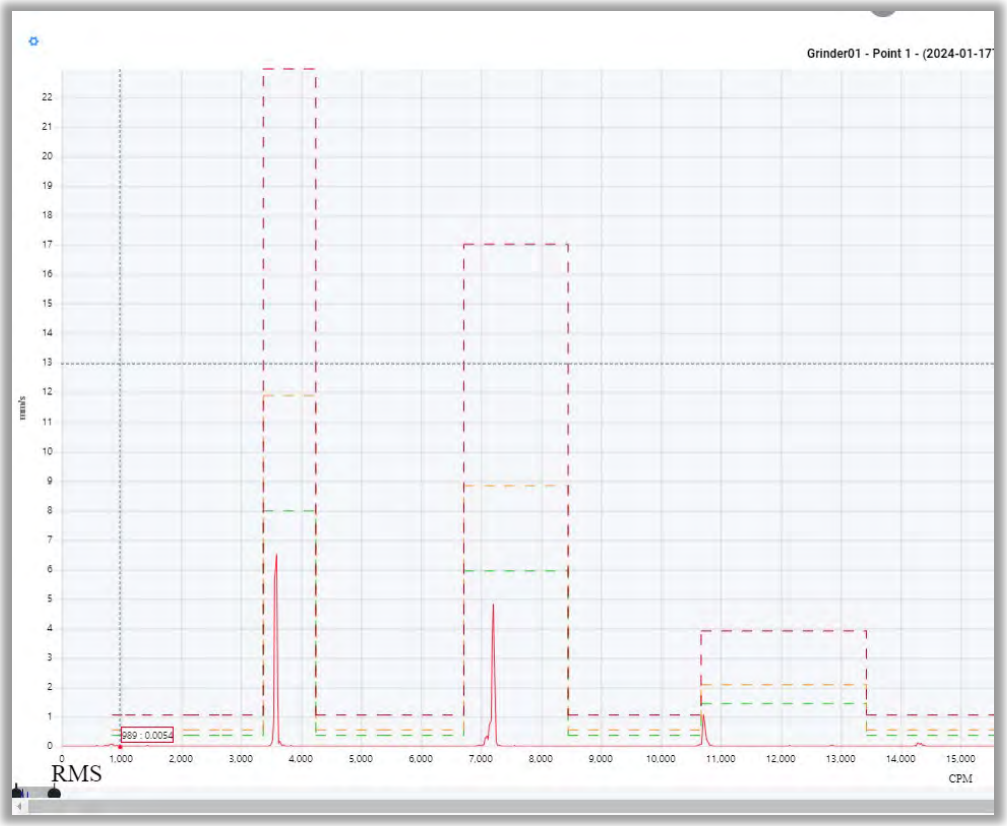
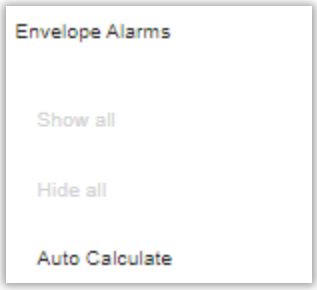
Envelope Alarms

Previously configured Envelope Alarms can be shown on the FFT using **Show all** or **Hide all**

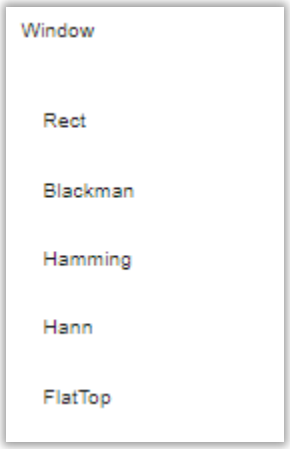
The **Auto Calculate** function will place red, yellow and green envelope alarms on the FFT, based on the measured signal.





Window

Select the windowing function to be used for the FFT. The default is Hann (Hanning) with four other choices:



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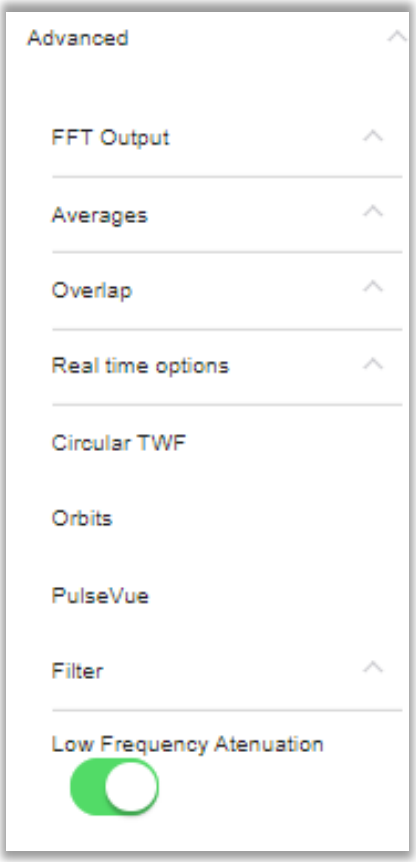
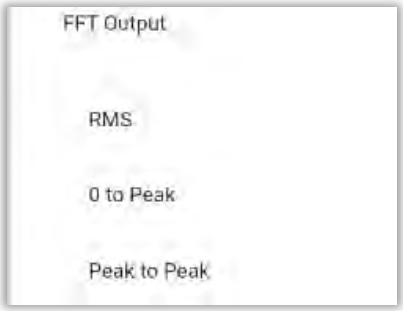
Advanced

The Advanced menu contains:



- **FFT Output** - default is RMS:



- **Averages** – From 1 to 10, default is 1:

- **Overlap** – Select percentage, default is 0%:

- **Real Time Options** – Used when live recording:
- **Circular TWF** – see TWF Tools section.
- **Orbits** – see TWF Tools section.

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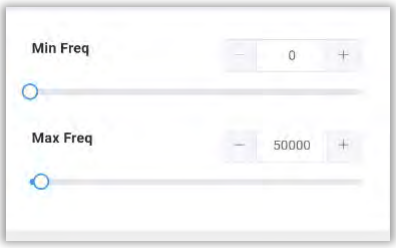
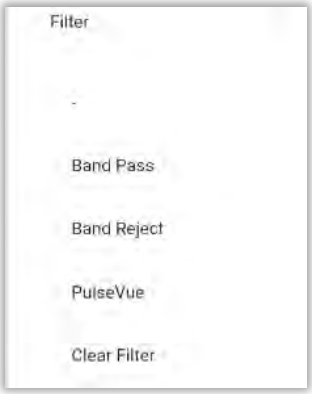
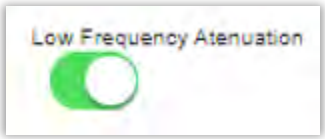
- **PulseVue** -opens a pop-up to set the Min/Max frequencies for the Pulse filter to be applied to the FFT. Use Clear filter to undo the filter



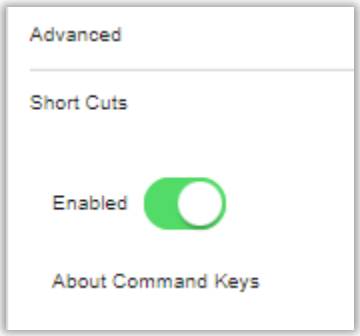
- **Filter** – offers the ability to apply a Band Pass or Band Reject filter in addition to the PulseVue, previously described.
- **Low Frequency Attenuation** - activates/deactivates the attenuation of frequencies below 11 Hz when rendering the FFT.

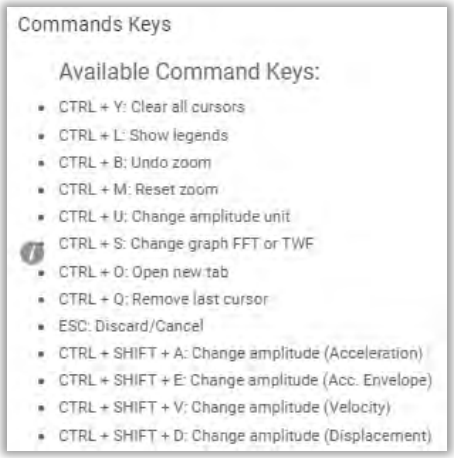




Shortcuts

Keyboard shortcuts are now available and enabled by default. They can be disabled here:





Export

Allows the export of the currently open signal file using two different formats, CSV, or Image file. **Note** – the exported file will be placed into the default download folder of the browser.

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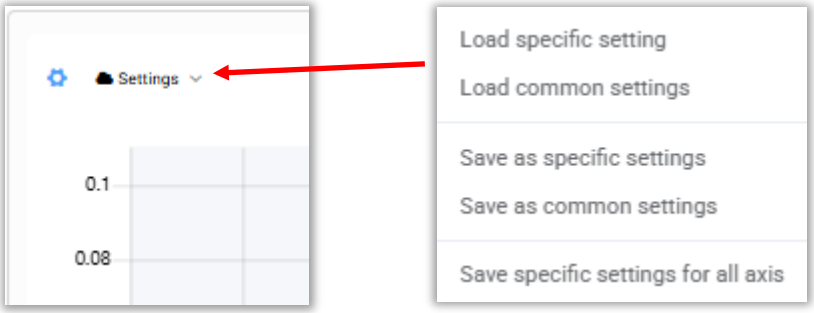
TWF/FFT Settings

Beside the Options menu at top left of the TWF or FFT is the Settings menu:



Save as specific is used to assign settings to the individual signal file being analyzed. If you open the file after saving, and select **Load Specific** setting, the saved settings will be applied.

Save as common allows the settings to be used on any axis of the machine point being analyzed. Open any axis on the same machine point and select **Load Common** settings to apply the saved parameters.

If you have set a **Specific** setting for a given axis and want to then apply it to the other two axes on the machine point, select **Save Specific settings for all**.

Route Compliance

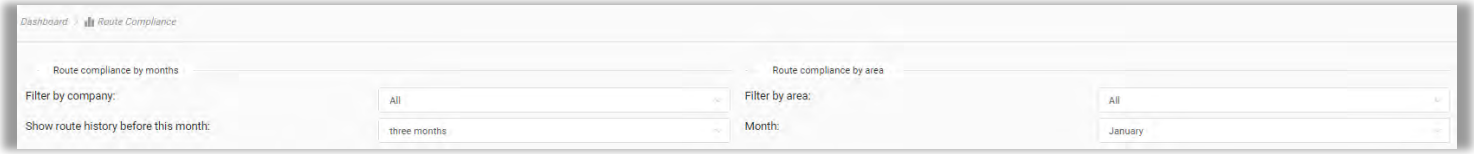
Whenever a new Route is created, an option is presented to create a *schedule* for the Route to track how often measurements are taken.

The presence of data in the database determines the state of compliance, divided into 3 types:

Not taken Monitored Overdue

The graphic shows the compliance percentege of each route, for the current month and three months previous.

Select  to choose how many months you want to see on the graph.



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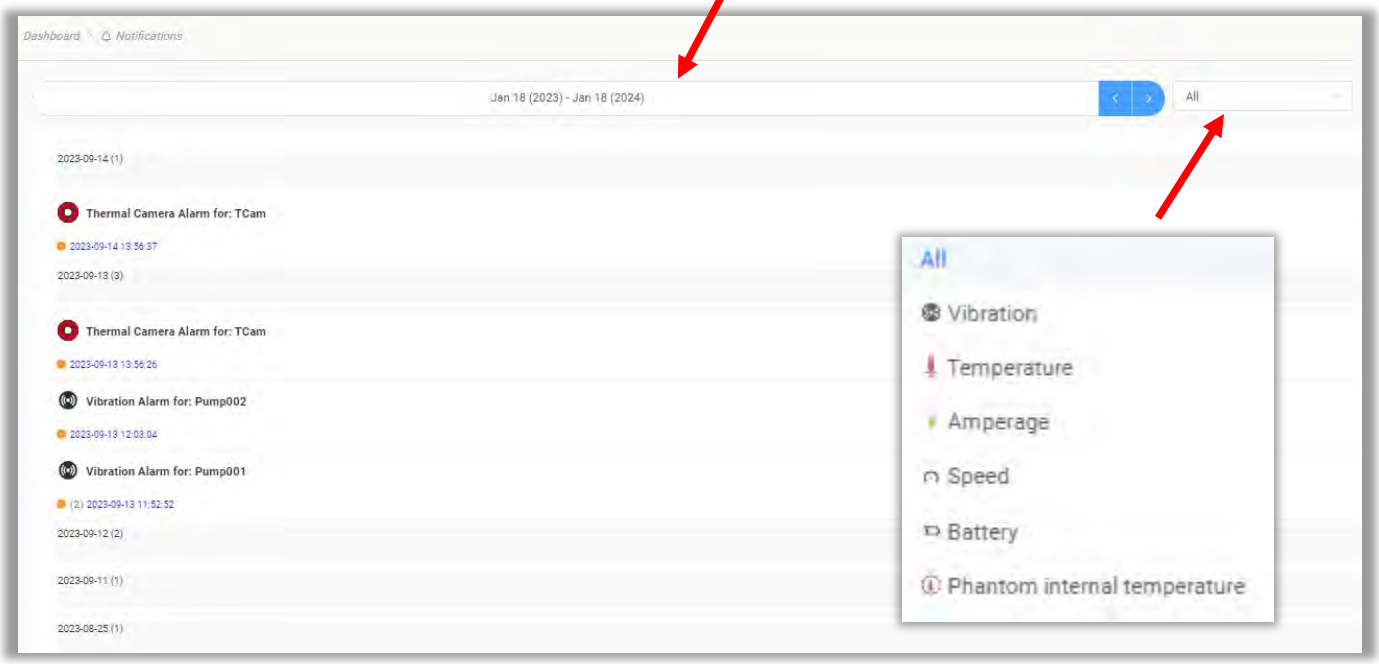
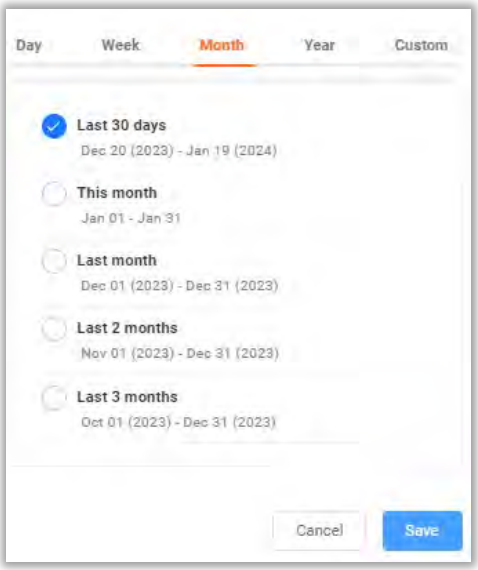
Notifications

Notificationss from the past 30 days are shown by default. Click the Date field or use the blue arrows to change the date range by one month increments.

Filtering by **type** can be done using the drop-down box:



Choices range from Day to Year, or set a Custom date.



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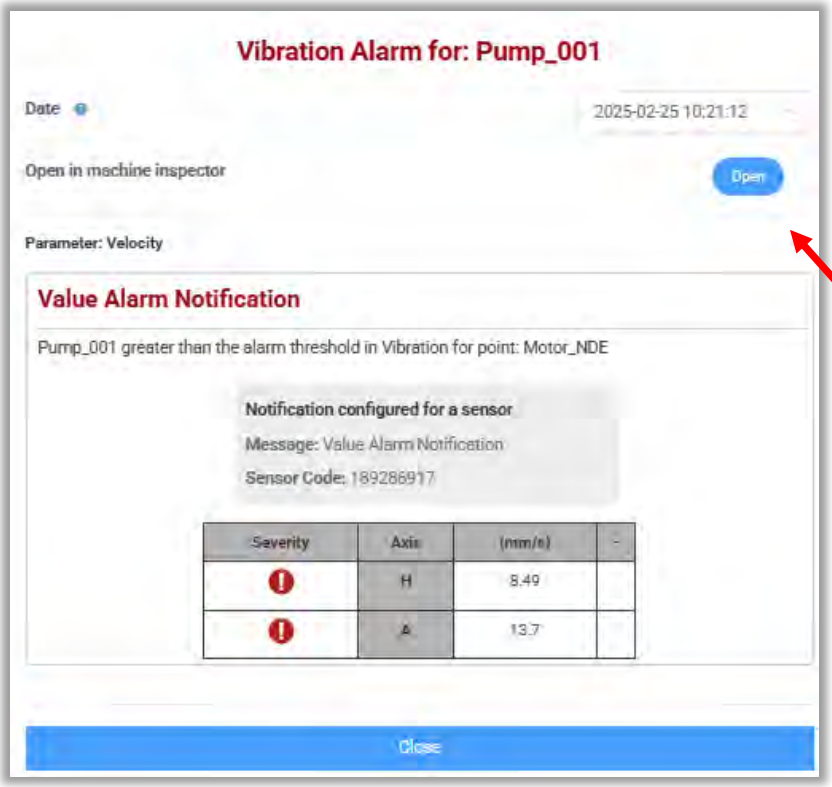
Click on a notification to see the details:



- Date/time
- Machine name
- Sensor code
- Reason for notification
- Values measured

Click Open to display the **Machine Overview.**

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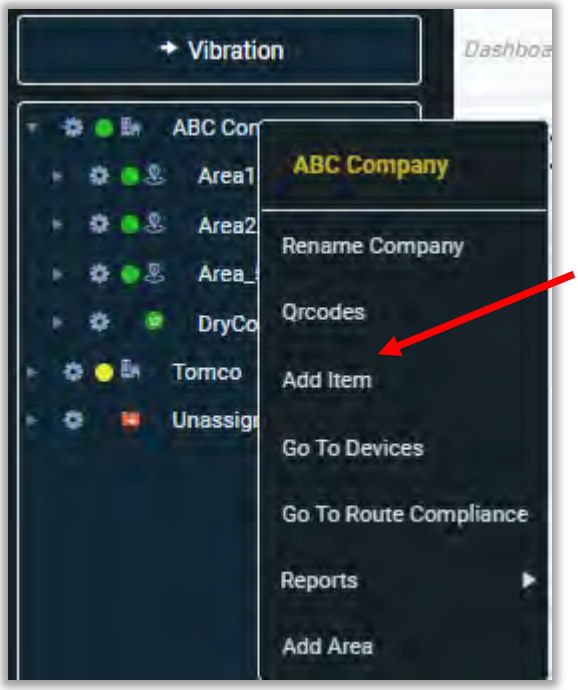
Adding Custom Database Items

EI-Analytic supports creating custom *Items* at various levels of a database. These *items* appear on the Database Tree at the assigned level as an icon.

As an example, An *item* can be created to represent an individual Phantom Specialty sensor. These non-vibration Phantom sensors output values to the database, but are not shown on the Data Tree with a colored icon to reflect an alarm condition. Historically, these Phantoms have been assigned to a Machine or a machine Point. Custom *Items* may be added to the database at the root, Company, Area, Machine or Point level of the database. Clicking on an *item* in the Data Tree provides direct access to trended data from the sensor.

As an example, the following steps were used to add an *item* to represent a T25 Temperature Phantom. Selecting this new item from the Data Tree will display the trended data from the sensor.

Step 1 - Right-mouse click on the desired level of the database tree and select **Add Item.** In the example, an *item* is to be added to ABC Company.



This opens a config window:

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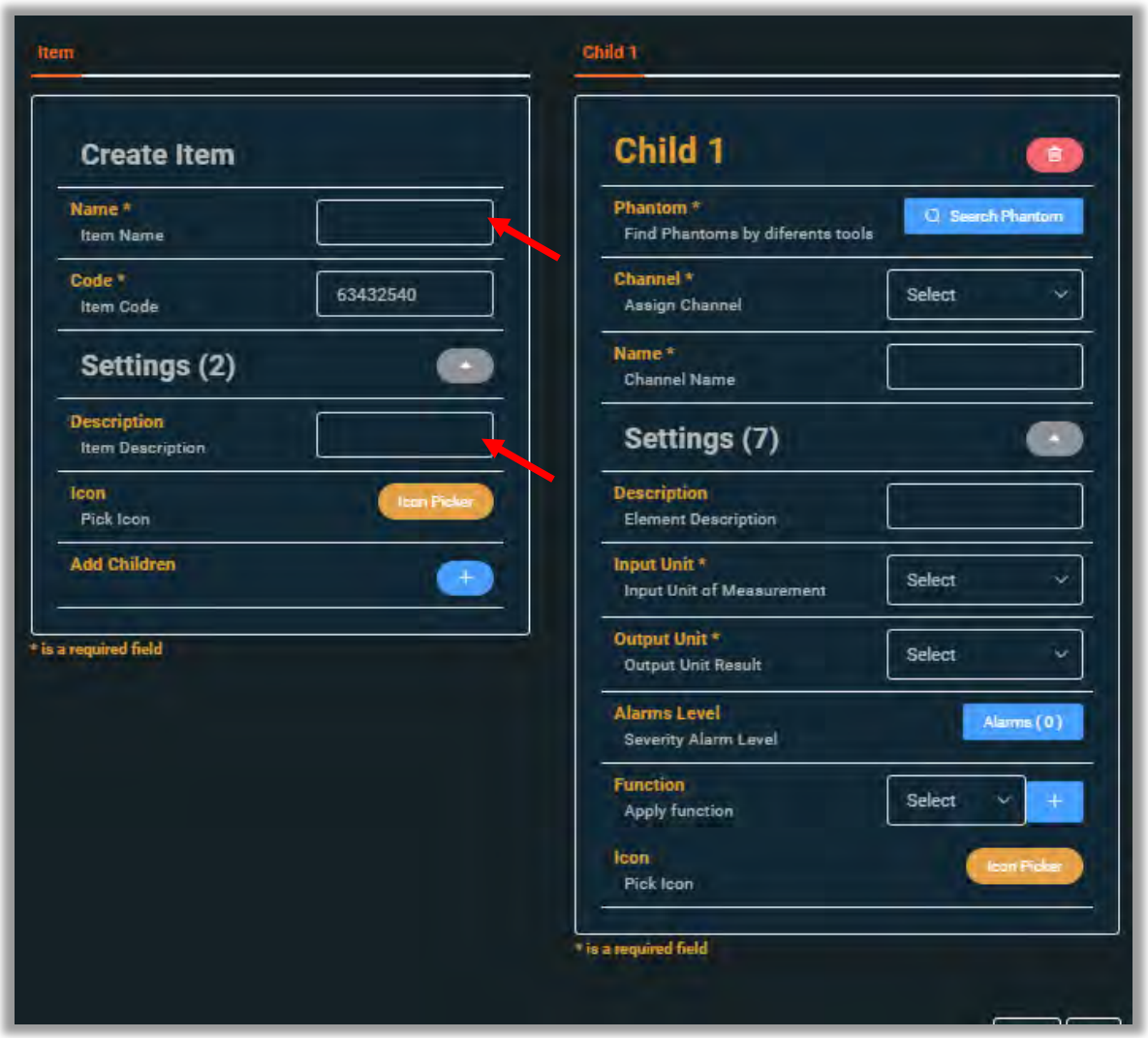
Step 2 – In the **Item** panel, choose a **Name** that will appear on the data tree, and an Item **Description**.

Step 3 -Click on Icon Picker to assign an icon appropriate to the type of sensor.



Step 4 – In the **Child 1** panel, press Search Phantom to assign a specific Phantom sensor to this item.

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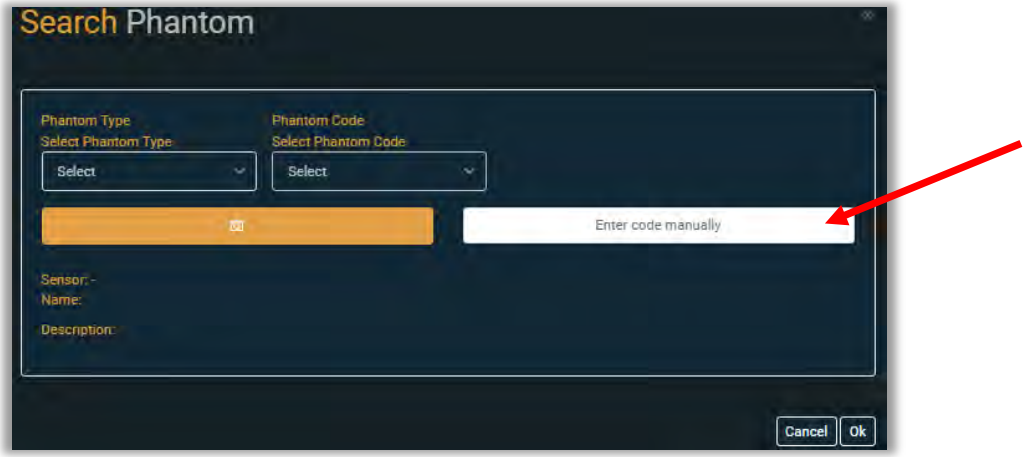

Step 5 – Press **Enter code manually**

Enter the Phantom code and press **Confirm**.

The screen will update with the sensor info:

Press **OK**.

Note – if the Phantom is already assigned in the database, a warning message will be displayed indicating the machine point to which it is assigned.

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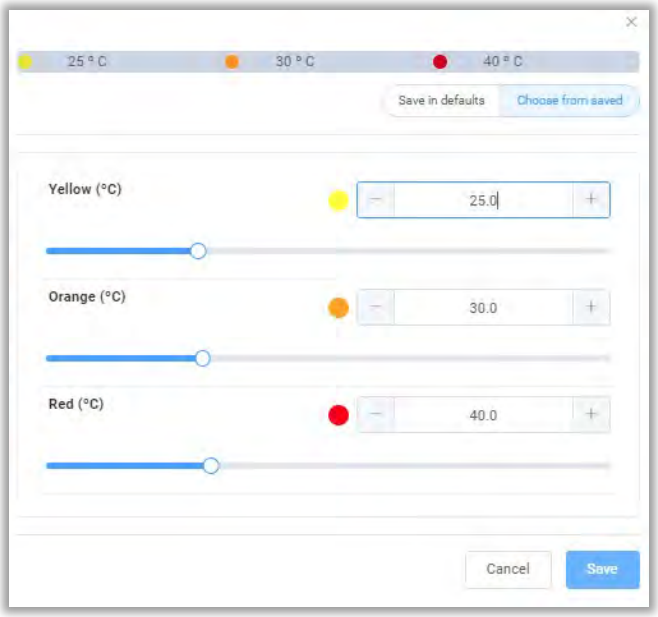
Step 6 – Assign the **Channel**(1-4) of the sensor to be used, and give the channel a **Name**.

Enter an Element Description, Input Unit, and Output Unit (often the same setting).

Step 7 – Set **alarms** by pressing Alarms (0)

and **Save** when finished.



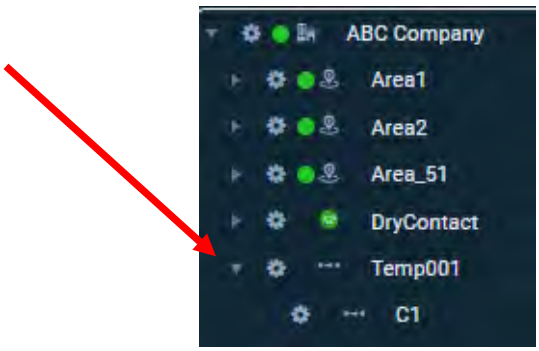
This determines the color shown with the icon on the data tree.

Optionally, a **Function** may be applied to the data received from this item.

A previously created Function can be assigned from the drop-down menu, or click + to add a new Function. See *Adding Variables and Functions* below.

Step 8 - Press Add to complete the addition of this *item*.

Check the Data Tree to see the new item:



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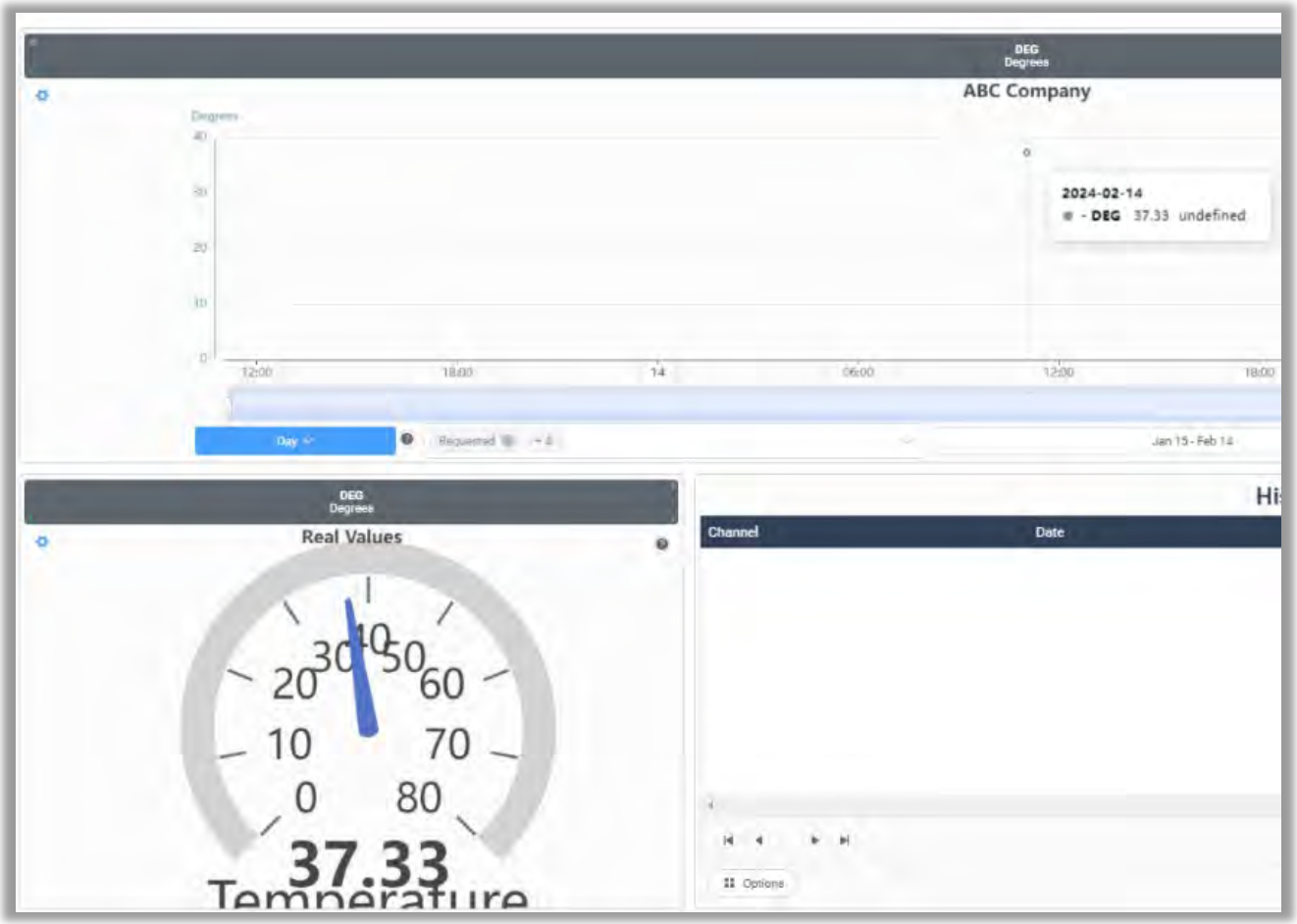
Click on the *item* channel **C1** to see the default template, which contains a trend graph and a Real Values chart.



Adding Variables and Functions

The add button opens the DB Settings Variables and Functions screen:

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Press the up/down arrow at right to expand/collapse either Variables or Functions.

Examples of manually configured **Variables** are included by default, named Cost of KW/H and Cost of KW/H Night.

Other examples above are **Oil_Condition** and **TempC**. The value should be left at 0 if the data from a Phantom sensor is used as the variable. In this case, a T25 Temperature Phantom is configured in the *item* Child 1. The input unit is set to temperature in C. The latest value reported from the sensor is stored in this variable, e.g. 32 for 32 degrees C.

The Oil_Condition number is reported by an EPH-G61 4-20mA Phantom, and populates the value of that variable.

Variables need to be defined here first, before they can be used in a **Function**.

A variable can easliy be created by clicking the button.

Only the name needs to be added:

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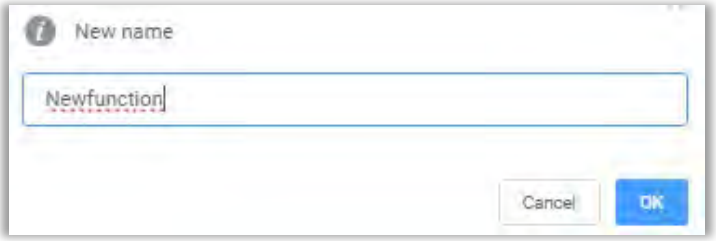
In the **Functions** section, example functions are included by default. The first calculates the value of Kw/h of electricity used , the second calculates the amount used at night. In both cases, the data received from an EPH-C31 Current Phantom sensor will provide the $(V) number for use in the function.

In our example, the **Convert to F** function converts Celsius to Fahrenheit by using a simple math formula.

Click the Add function button to create and test a function: 



Assign a name and press OK.

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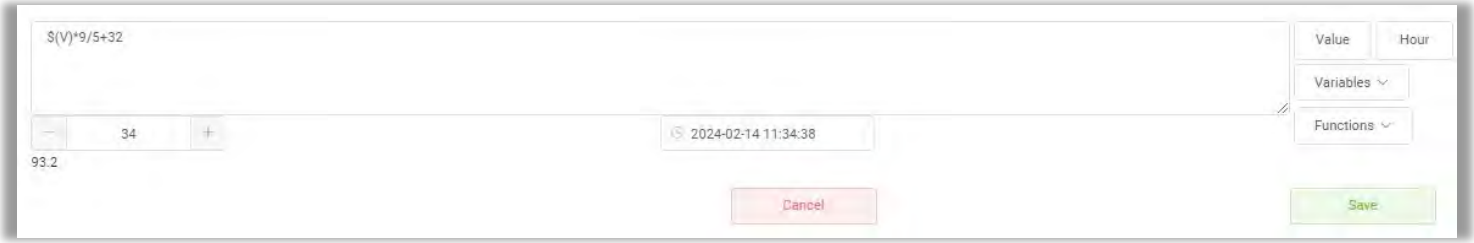
The **Function Tester** window will open:

Replace the default code with your new function. Example - the **Convert to F** formula:

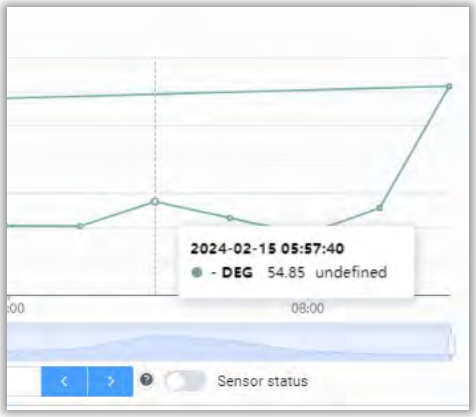


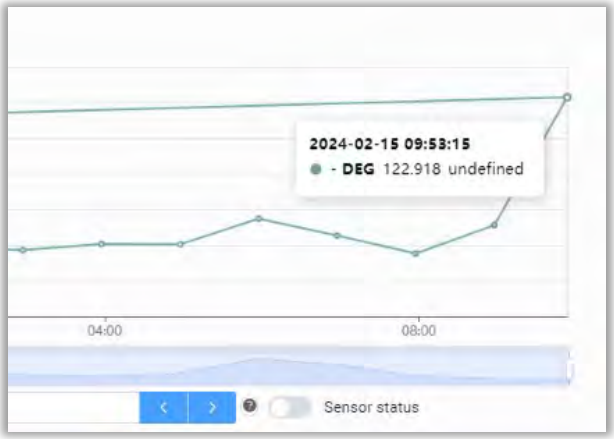
By setting the value of $(V) in the **Test Data** box, the result is displayed in the **Result** field. Use this to ensure the function is working as desired. The example shows the value 34 results in 93.2. (C to F)

Preset buttons on the right can be used to add code to the function.

Press **Save** when completed.

With no Function applied, the value in the Trend graph is shown in Celsius, since the account settings are Metric.





After applying the **Convert to F** function to this item, the temperature is now displayed in Fahrenheit for subsequent measurements.

All other temperature values for other machines/points will still be shown in C.

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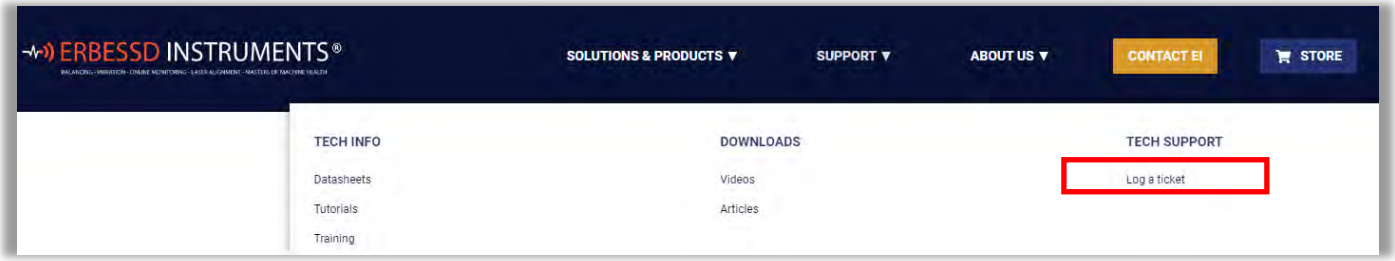
Technical Support

If at any point this guide does not answer your questions or resolve an issue, please contact Erbessd Instruments technical support using any of the following methods:

1. Visit our website and leave us a support ticket, to report minor software/firmware/device functionality concerns. Go to www.erbessd-instruments.com. From the **Support** menu, select Log A Ticket. Or initiate a Live Chat.



2. For more urgent assistance, contact our support team by email at: support@erbessd-instruments.com

3. For the most immediate **emergency** assistance, contact us by phone at +1 877-223-4606 (International Toll Free)

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