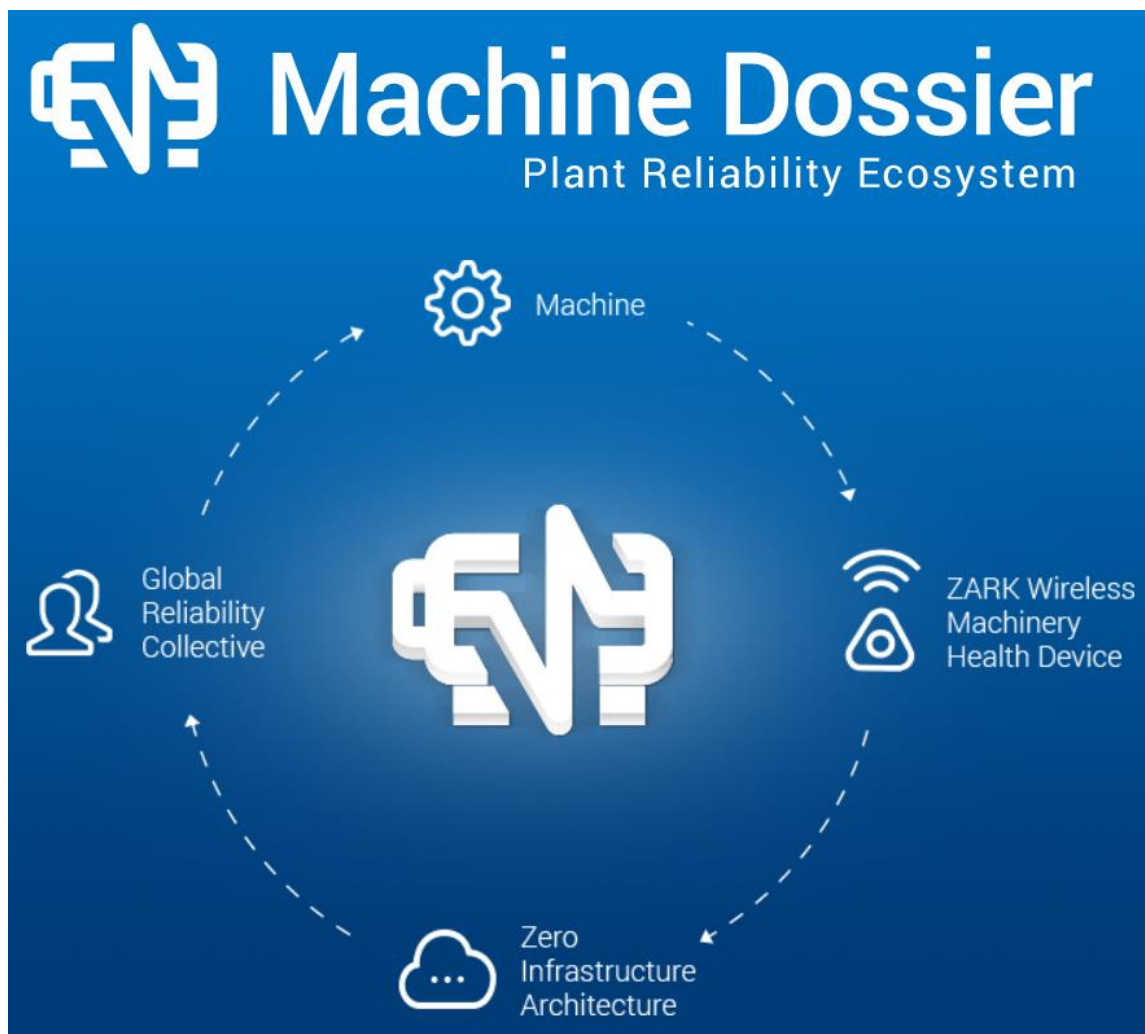




Machine Dossier User Manual



03	9/16/2021		AA	SH	Added additional information for Speed – Threshold setting in section 6.1.1
02	8/4/2021			SH	Added Index and Glossary.
01	8/3/2021			SH	Initial document release.
Rev	Date				Description

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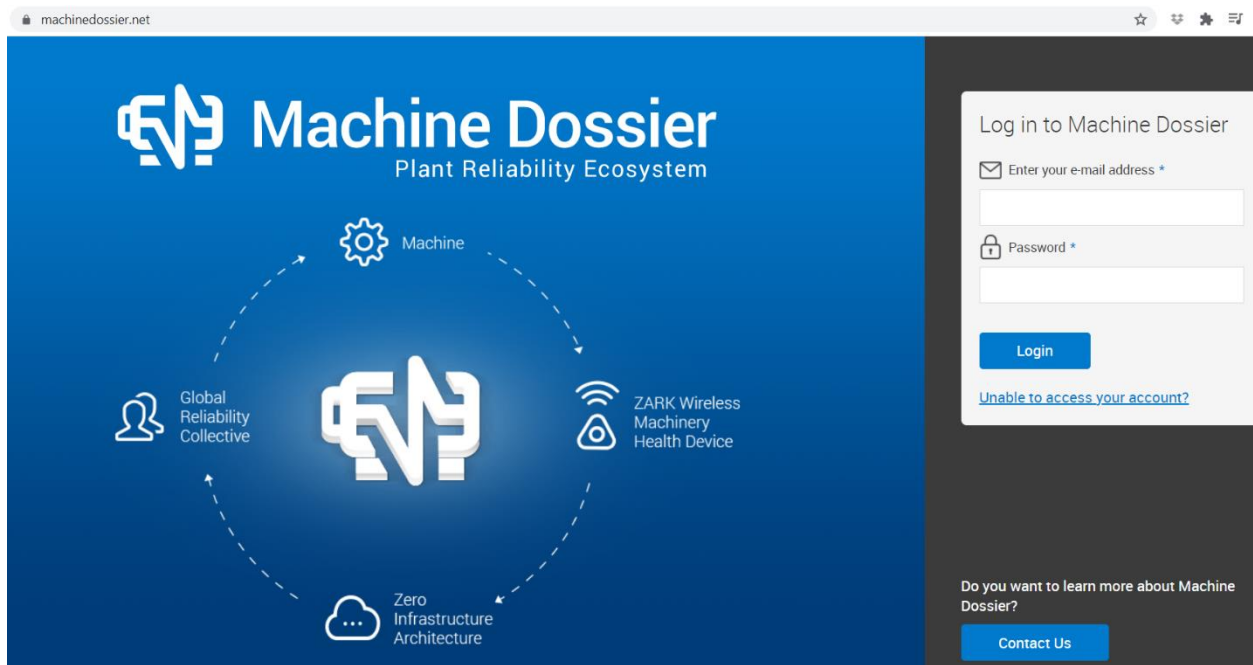
1 INTRODUCTION

Machine Dossier is a zero-infrastructure machine reliability ecosystem. By harmonizing vast human, machine, and data resources, Machine Dossier simplifies reliability.

The purpose of this document is to power the user with the tools necessary to properly, add, remove, and configure new or existing organizations, machines, and channels within Machine Dossier. This is a comprehensive document featuring multiple procedures and walkthroughs.

2 ACCESSING MACHINE DOSSIER

Navigate to machinedossier.net using an internet browser (Google Chrome, Internet Explorer, Safari, etc.). Once the webpage finishes loading, you will see the following login screen:

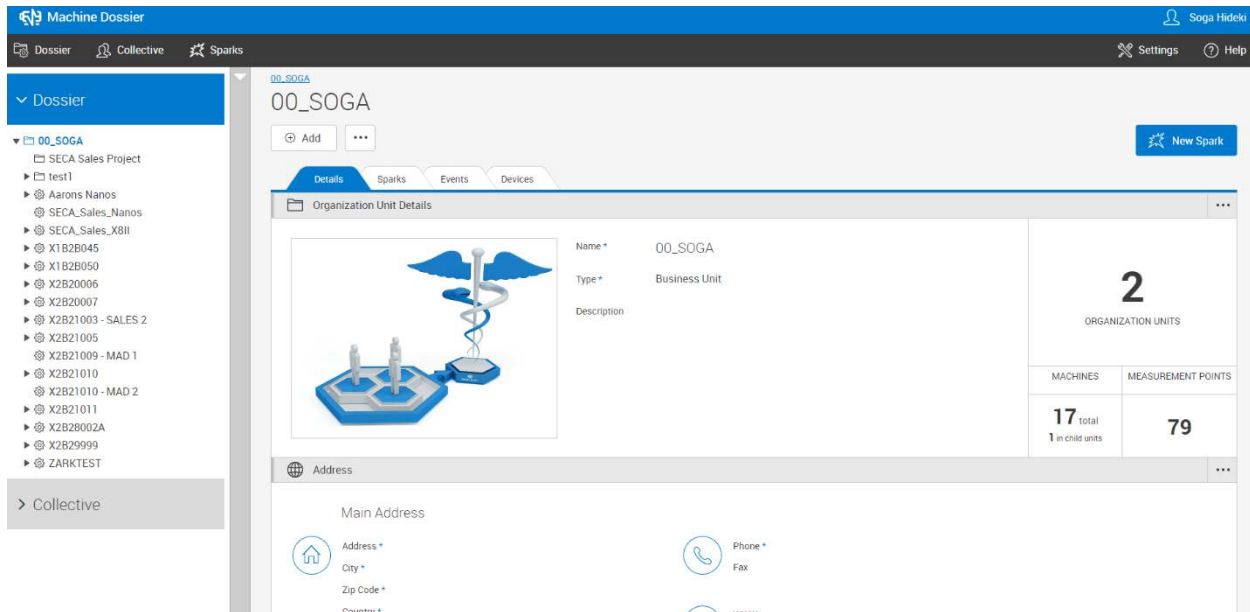


To login to machinedossier.net you will need credentials. If the username and password have not previously been provided, click the “Contact Us” button in the lower right-hand corner of the login screen. This will give you two methods of communication: email or phone. Using one of these two methods, request login credentials.

3 MACHINE DOSSIER INTRODUCTION

This section will provide a quick breakdown of Machine Dossier's layout and where to look for various features once logged in. Subsequent sections will provide additional instruction on functionality, features and usage for each section highlighted below.

Once logged in, the user will see the following home screen layout:



3.1 HOME BUTTON AND USER PROFILE

At the very top of the screen, you will see the Machine Dossier logo to the left and your username to the right.



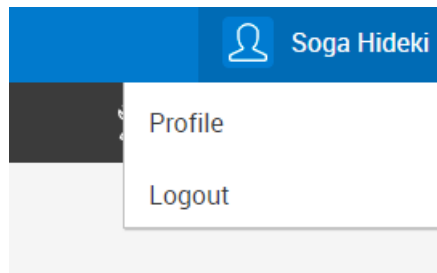
3.1.1 Home Button

Once clicked, the Machine Dossier logo acts as a home button will return the user back to the home screen.



3.1.2 User Profile

If the cursor is placed over the username, a menu will appear:



Profile

This allows the user to see and edit the following information:

Overview – Includes username, location, account statue, email, and phone number.

Summary – User can include a summary describing experience and role for collective to see.

Company Address – Physical address, phone, and email.

Recognition Points – User score, compiled from feedback of other collective members.

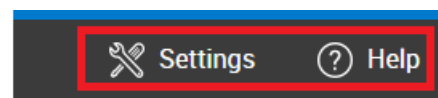
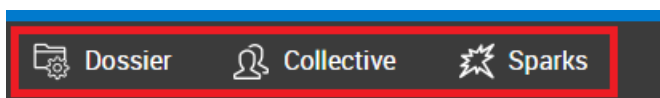
Notification Settings – Ability to turn email and SMS notifications on for certain conditions and events.

Logout

Logs the current user out of machinedossier.net.

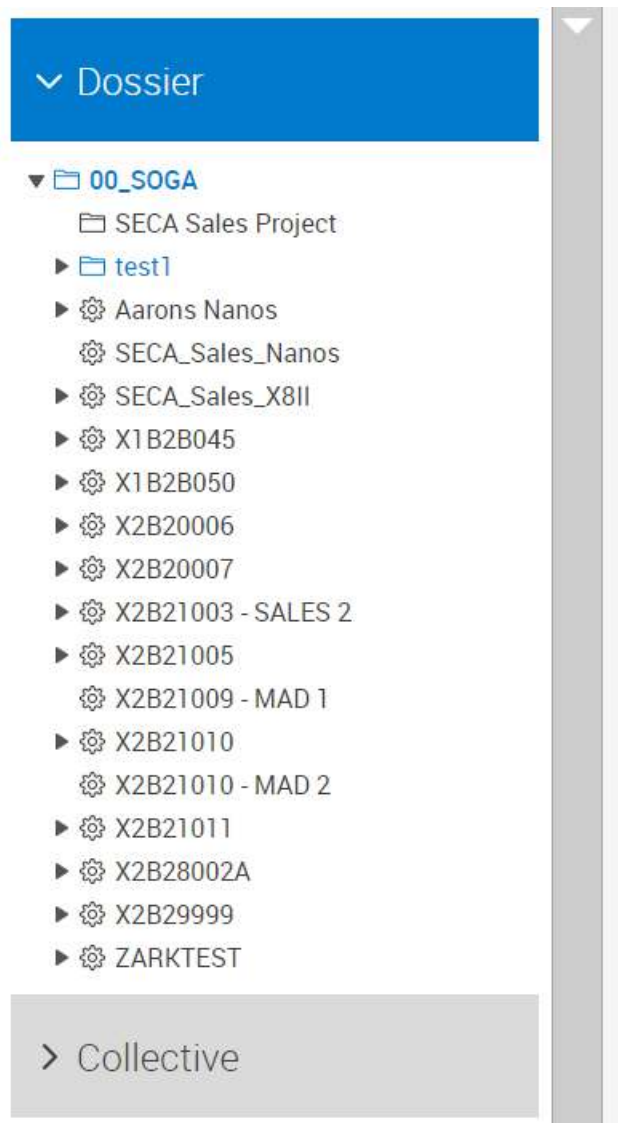
3.2 NAVIGATION BUTTONS

Just below the top blue line containing the home screen and user profile buttons is a dark line containing five (5) navigation buttons: Dossier, Collective, Spark, Settings and Help.



3.2.1 Dossier

Clicking on the Dossier button will expand the “Dossier” drop down menu on the left pane of the screen:

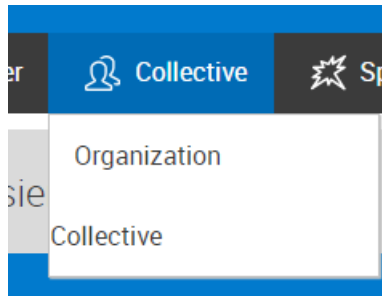


In the example above, the Dossier has an organization unit called “00_SOGA.” Underneath each organization unit will be all the organization units (SECA Sales Project and test1), machines (X1B2B045, X1B2B050, etc.) and measurement points that have been added to the organization unit.

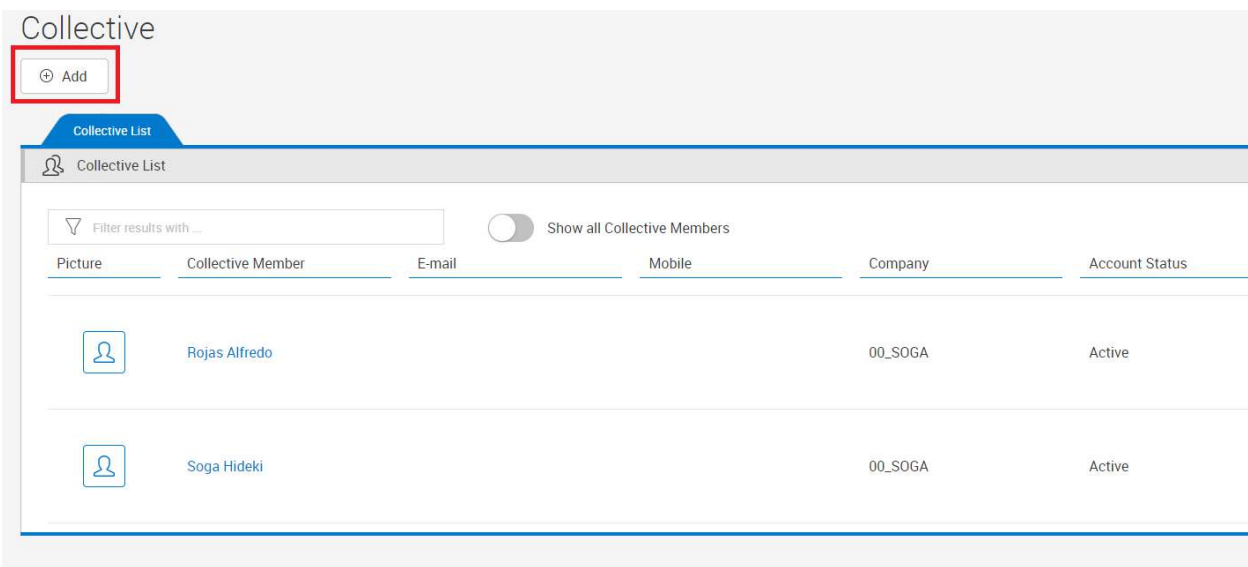
Later in this document a detailed description of how to add organization units, machines, and measurement points to the Dossier will be provided.

3.2.2 Collective

Hovering over the “Collective” button will expand the following menu:

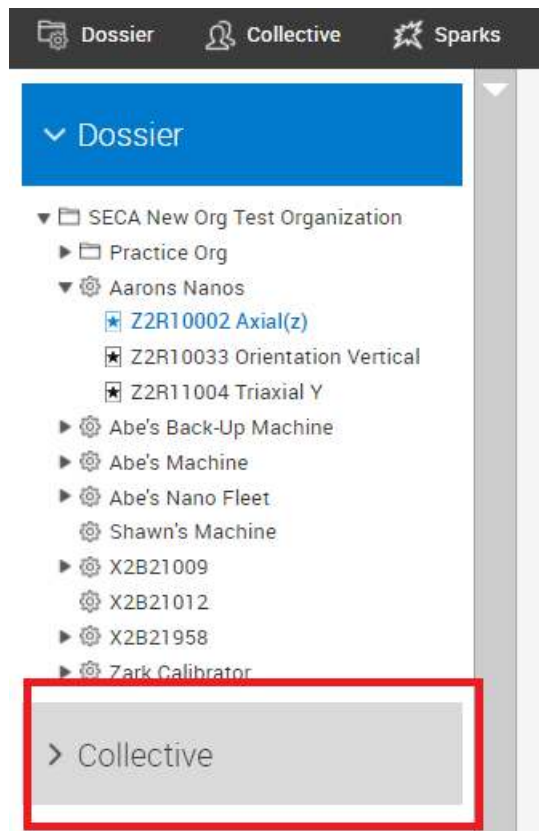


Clicking on “Organization Collective” allows the user to see all the members of the organizations collective.



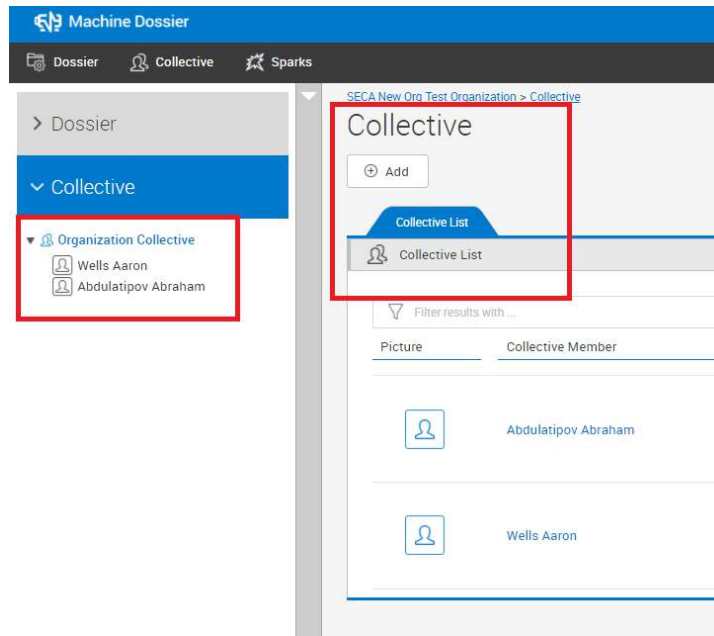
The “Add” button located in the top left can be used to add additional users to the organizations collective list.

The Collective can also be accessed by using the left pane, below the Dossier hierarchy.



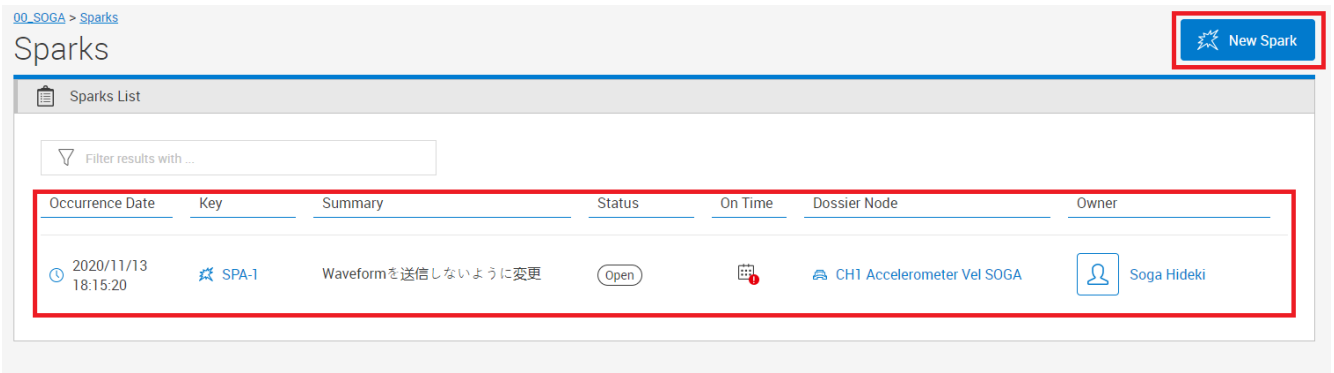
Expanding the Collective in this pane provides the user a list of everyone in the Collective.

Clicking on “Organization Collective” in the Collective hierarchy will open the same collective page in the right-hand pane that was introduced earlier in this section.



3.2.3 Sparks

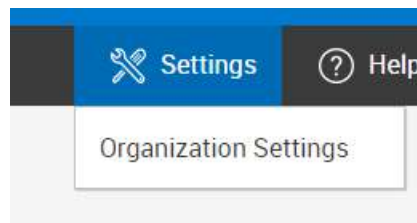
This button allows the user to add new sparks and view existing sparks.



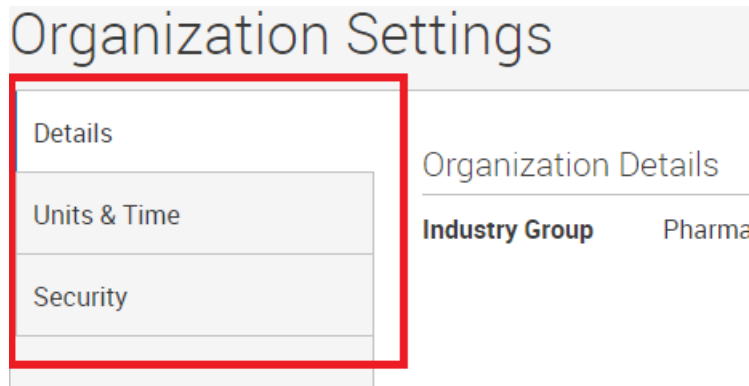
The creation of new sparks and editing and resolving existing sparks will be detailed later in this manual.

3.2.4 Settings

Hovering over the “Settings” button will display the following menu:



Clicking on “Organization Settings” will bring up the following menu:



Details

Gives Organization Details, which highlight the Industry Group of the organization. The Industry Group can be edited by clicking on the “Edit” button in the lower right-hand corner of the screen.

Industry Group is changed via a drop-down menu with pre-loaded industries to choose from.

Units & Time

Used to change the units and precision of measurements taken.

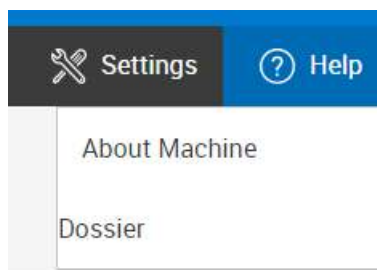
Time zone and date format can also be changed using this page. The “Edit” button is found in the lower right-hand corner.

Security

Used to change the Policy Level from a drop-down menu and to toggle off and on password requirement.

3.2.5 Help

Hovering over the Help button displays the following menu:



Clicking on “About Machine Dossier” will provide you with information about Machine Dossier and a brief Shinkawa company description.

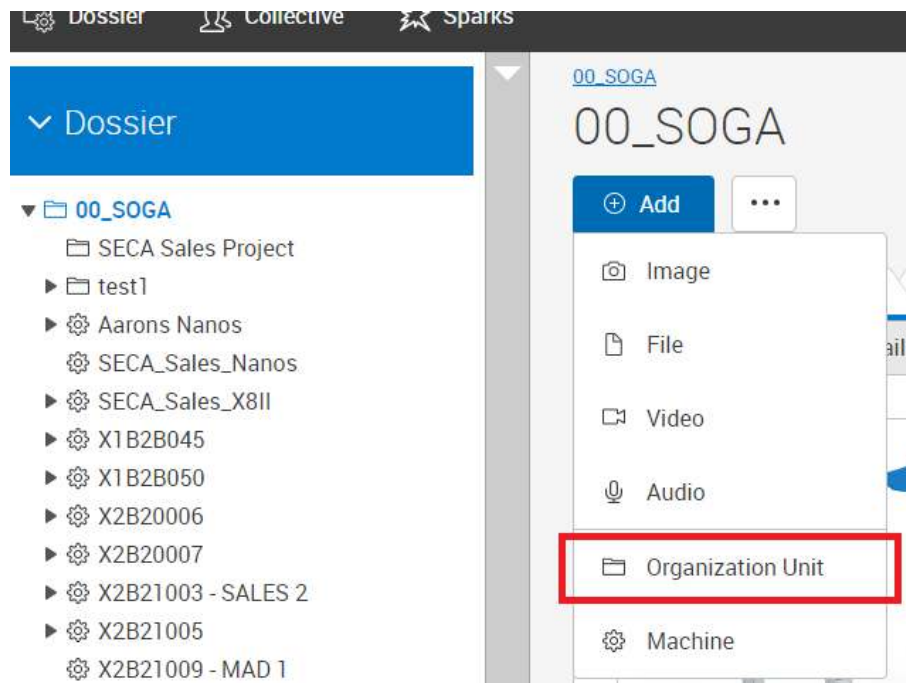
4 ORGANIZATION UNITS

This section will describe how to add, manage, and navigate organization units.

4.1 ADDING AN ORGANIZATION UNIT

To add an organization unit, you must have the Dossier list expanded (see below) and have an organization selected (00_SOGA in the screenshot below).

Hover over the “Add” button and a menu will pop up allowing you to select “Organization Unit.”



Once selected this will begin the process of adding an Organization Unit underneath the Parent Node. The Details page will open, as shown below.

Details

Cancel

Previous Step

Next Step

Parent Node
00_SOGA

Name *

Type *
Business Unit

Description

* - required field



Cancel

Previous Step

Next Step

Name and Type are required entries, while Description is optional. Once you've entered the Name and Type click "Next Step."

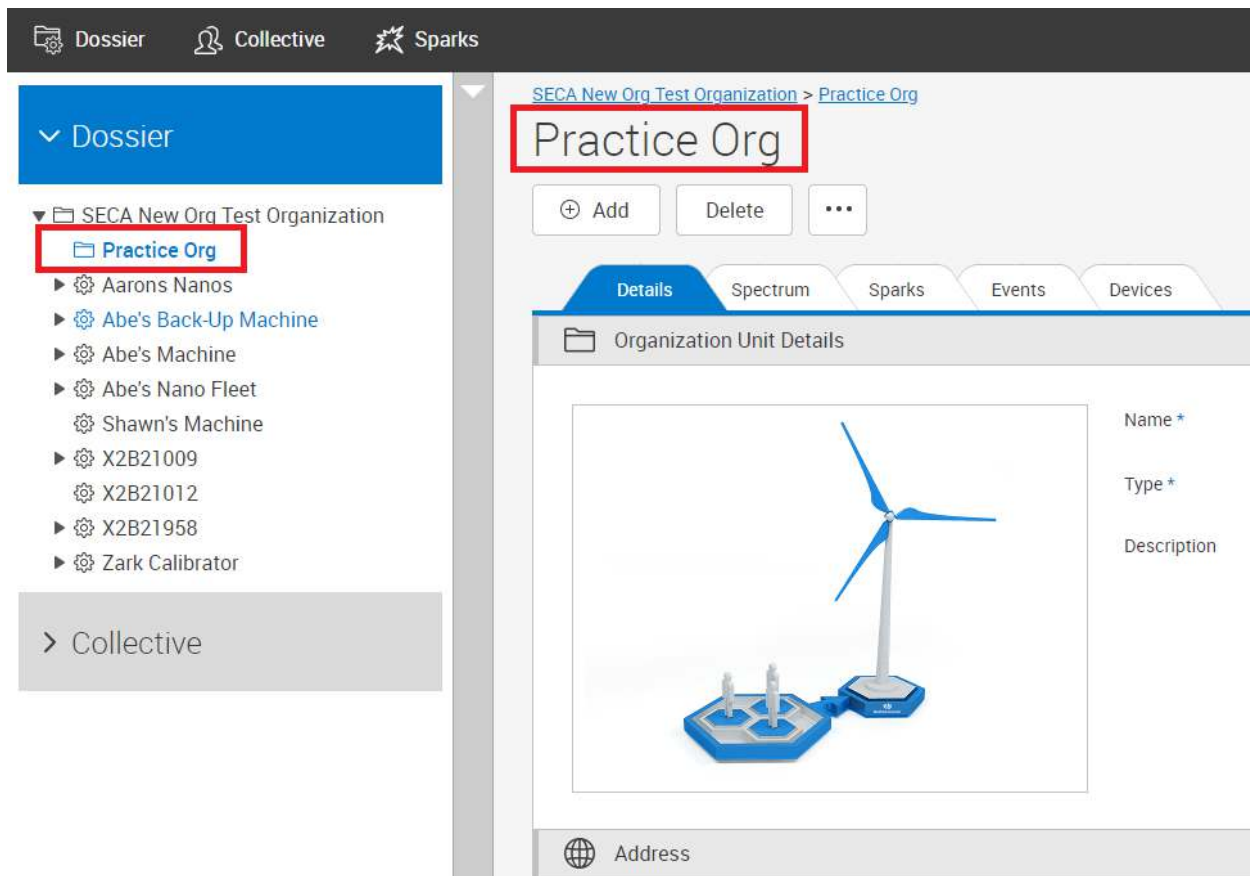
The following page is a summary of what you entered on the Details page. If the summary looks correct, press "Add Organization Unit." If you'd like to go back to the Details page to edit an entry, click "Previous Step."

Once "Add Organization Unit" has been selected, the organization unit will show up underneath the parent node in the Dossier tree on the left of your screen.

4.2 ORGANIZATION UNIT FEATURES

After an Organization Unit has been created, you can select the Organization Unit in the left pane under the Dossier hierarchy by clicking the unit's name.

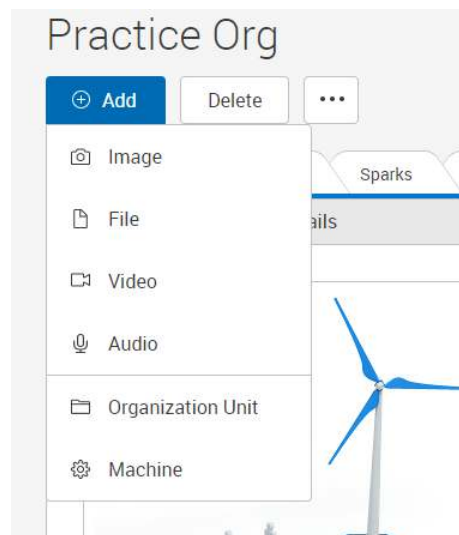
The selected unit's details show up in the right pane of the screen. This can be seen in the screenshot below using the example Organization Unit called "Practice Org."



Below are the features found within an Organization Unit and how they function.

4.2.1 Add

Hovering over the “Add” button in an Organization Unit displays the following list:



Image, File, Video and Audio – When one of these options is selected from the “Add” drop down menu, a dialogue box will open that allows the user to upload an image, file,

video, or audio file, depending on which option is selected. The file will be uploaded as an event that will show up in the “Events” tab found within the Organization Unit. The event will automatically be assigned to the node in which it is being created. For instance, if an image, file, video, or audio file is uploaded under the Practice Org unit it will automatically be assigned to the Practice Org node. The user can specify the Event Name and Event Date Time. Finally, the Event can also be linked to an existing Spark.

Organization Unit – Additional Organization Units can be created underneath an existing unit. Follow the steps found in section 4.1 to add additional Organization Units.

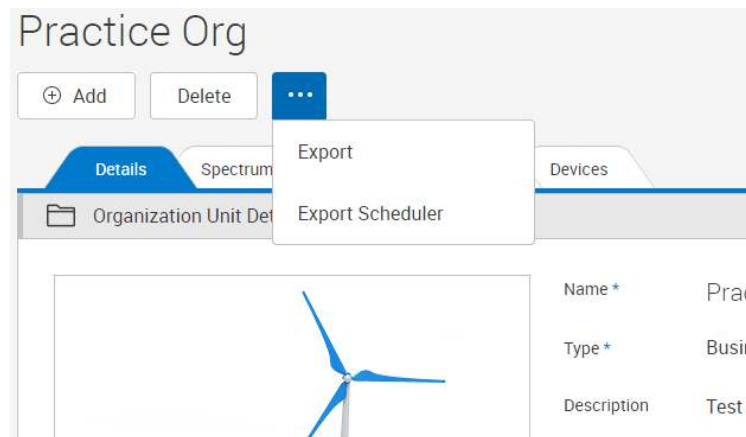
Machine – Machines can be added to an Organization Unit. Additional information on how to add, configure and manage machines can be found in section 5.

4.2.2 Delete

Will delete an Organization Unit. All data linked to the organization unit will be removed.

4.2.3 Export/Export Scheduler

Hovering over the three dots button will bring up a menu with Export and Export Scheduler.



These features allow the user to export data for a specified period. Data exported can be customized to include the following measurements:

- Overall and Spectrum Values – Velocity, Acceleration, Voltage, Strain, Speed, Temperature, etc.
- CIV Values – CIV Maximum Acceleration and Velocity
- Waveform Data

If Export Scheduler is chosen, an “Export every” option will be present. This allows customization of an automatically generated export for a specified time interval in weeks, days, or hours.

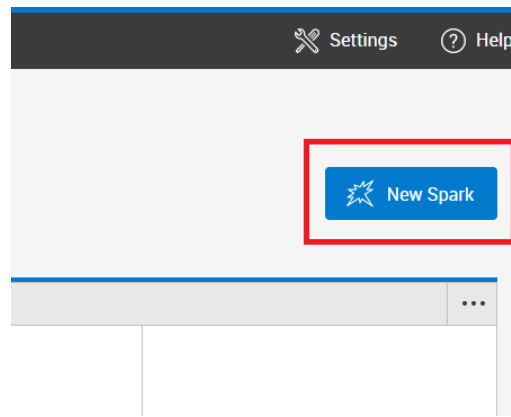
Once the period and values have been selected, you can choose an export format from the drop-down menu. Export file support includes: .MDE, .xml and .csv files.

After the period is specified, values and file format are chosen, click “Order Data Export.” This will export all the selected data underneath the node in which the export was initiated.

*NOTE: Export and Export Scheduler is a paid functionality. To activate this service please contact SECA customer service.

4.2.4 New Spark

To add a new Spark, click on the “New Spark” button located underneath the Settings and Help button on the right side of the window.



A Details screen will open with the following inputs:

Dossier Element – This will automatically populate with the node under which the Spark is being created.

Summary – Required input that will serve as the title of the Spark.

Spark Owner – Collective member that will be responsible for resolving the spark. Anyone in the Collective can be chosen, not just the creator of the Spark.

Spark Team – Collective members responsible for review and resolution of the Spark.

Priority – Drop down menu that allows the user to give the Spark a level of urgency.

Occurrence Date – Date which the event occurred that prompted the Spark.

Spark Start Date – Date which the Spark was first created.

Spark End Date – Date of resolution of the Spark.

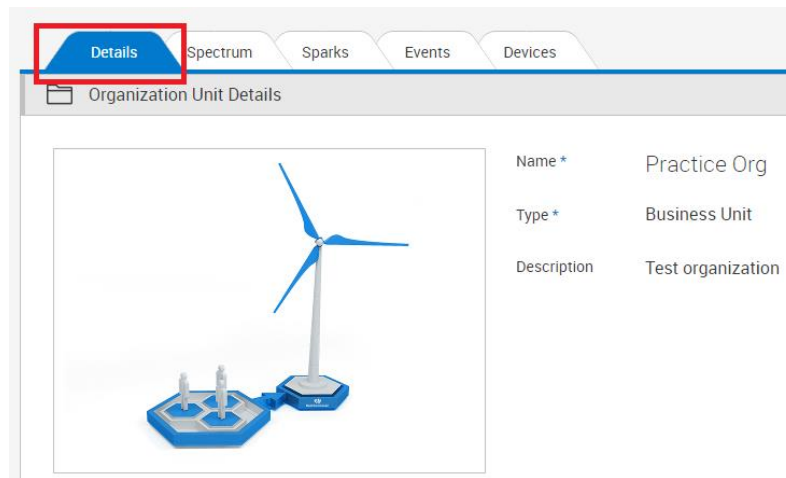
Description – Details of the Spark. The Spark creator should be as detailed as possible so the Spark Team and Owner can understand why the Spark was created and determine steps to resolve the Spark.

Expected Solution – Steps and ideas to resolve the Spark by the Spark Owner and/or Team.

Once all the required information is entered, click “Next Step.” The following screen is a summary of the inputs from the Details screen. If all the entries are correct, clicking “Add New Spark” will create the Spark and an alert will be sent to the Owner and Team.

4.2.5 Details

Underneath the “Add,” “Delete,” and three dots button is a row of tabs that give additional information on the Organization Unit. The first tab in this row is “Details.”

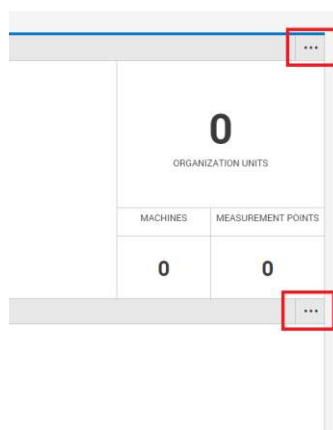


This tab gives an overall highlight of the Organization Unit and is separated into two sections:

Organization Unit Details - Includes the Name, Type, Description, and a summary of the quantity of Organization Units, Machines and Measurement Points found within the unit.

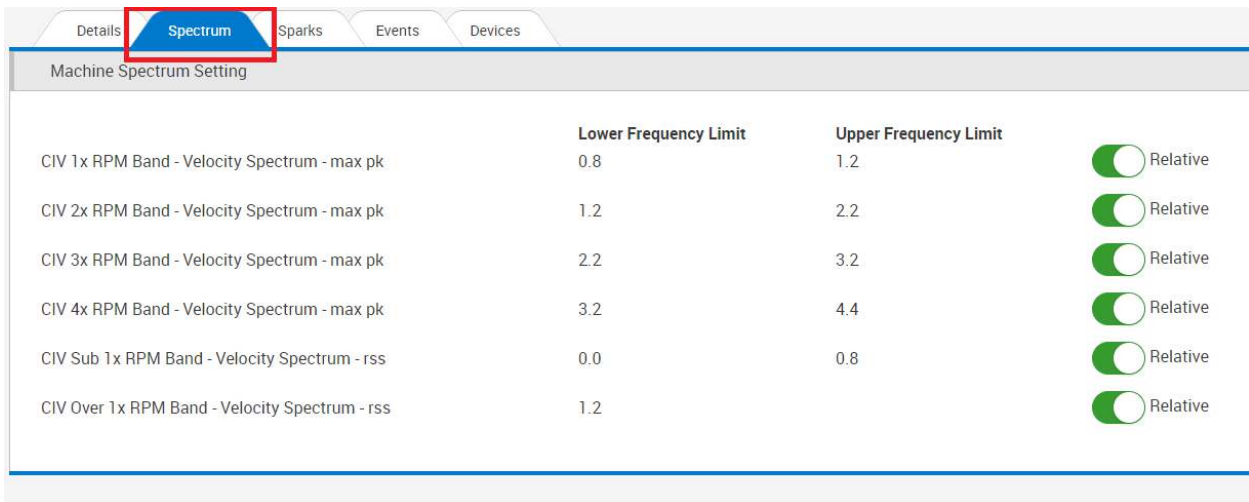
Address – Addresses for Main, Billing and Shipping.

Both sections can be edited by using the three dots button found in the upper right-hand corner of each section:



4.2.6 Spectrum

The spectrum tab is found between the Details and Sparks tabs and can be used to adjust Machine Spectrum Settings.



	Lower Frequency Limit	Upper Frequency Limit	
CIV 1x RPM Band - Velocity Spectrum - max pk	0.8	1.2	☒ Relative
CIV 2x RPM Band - Velocity Spectrum - max pk	1.2	2.2	☒ Relative
CIV 3x RPM Band - Velocity Spectrum - max pk	2.2	3.2	☒ Relative
CIV 4x RPM Band - Velocity Spectrum - max pk	3.2	4.4	☒ Relative
CIV Sub 1x RPM Band - Velocity Spectrum - rss	0.0	0.8	☒ Relative
CIV Over 1x RPM Band - Velocity Spectrum - rss	1.2		☒ Relative

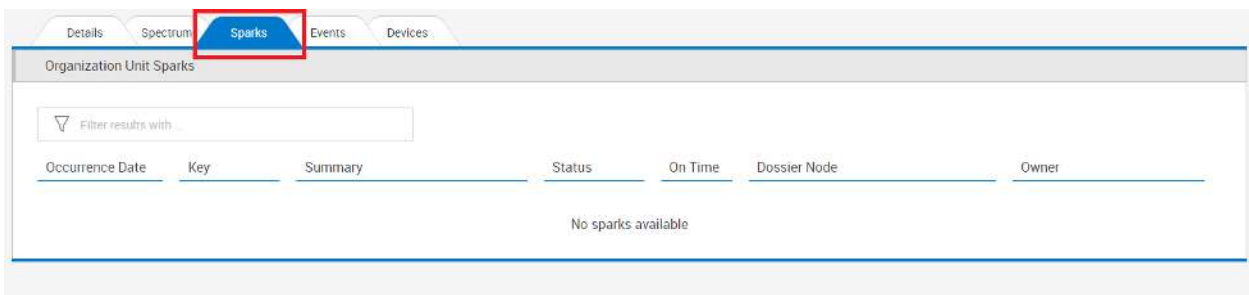
Placing the cursor over the three dots button in the upper right-hand corner of this tab and clicking “Edit” allows the user to edit the Machine Spectrum Settings.

Lower and Upper Frequency Limits can be set according to the requirements of the organization and relative and absolute values can be toggled for each spectrum setting.

4.2.7 Sparks

The Sparks tab displays a list of all Sparks created within the Organization Unit. It summarizes every Spark, showing Occurrence Date, Key, Summary, Status, On Time, Dossier Node and Owner of the Spark.

For additional detail on how to create a Spark, see the section 4.2.4 on adding a New Spark.



Occurrence Date	Key	Summary	Status	On Time	Dossier Node	Owner
No sparks available						

4.2.8 Events

Much like the Sparks tab, the Events tab also gives a summary of all the events that have been created within an Organization Unit. Events can be added using the “Add” button.

Details

Spectrum

Sparks

Events

Devices

Organization Unit Events

Filter results with ...

Date	Type	Event Title	Dossier Node	Spark	User
🕒 07/28/2021 11:37:58 AM		Practice Image 1	📁 Practice Org		 Wells Aaron

For information on how to add an Event, see section 4.2.1.

4.2.9 Devices

The device tab gives a summary of all devices within the Organization Unit. It is separated into two different sections: Devices Summary and Devices List.

Details

Sparks

Events

Devices

Devices Summary

55

Device

64

Measurement Point

0

Alert in 24 Hours

69

Action Required

ZARK	X8	X8(II)	NANO	ZARK Ring	X8	X8(II)	NANO	WARNING	ALARM	High/Low Temperature	Low Battery	Communication Issue	Operating Condition
0	0	4	51	2	0	11	51	0	0	0	0	3	66

Devices List

Devices Summary

Shown in the image above, this is a summary of all the devices, measurement points, alerts, and actions found within the Organization Unit.

Devices List

On the left side of this section is a list of all the Machine's and Measurement Point's in the Organization Unit.

Devices List

SN	Location	Battery	Communication	Last Measurement	Condition
Z2R10002	Aarons Nanos > Z2R10002 Axial(z)			07/29/2021 03:28:25 PM	
Z2R10031	Abe's Machine > Z2R10031			07/13/2021 02:59:26 PM	
Z2R10033	Aarons Nanos > Z2R10033 Orientation Vertical			07/29/2021 03:16:43 PM	
Z2R10042	Abe's Machine > Z2R10042			07/13/2021 03:02:26 PM	
Z2R11004	Aarons Nanos > Z2R11004 Triaxial Y			07/29/2021 03:14:16 PM	
Z2R11012	Abe's Machine > Z2R11012			07/13/2021 03:02:35 PM	

Device Details

Z2R10002

Location

Aarons Nanos > Z2R10002 Axial(z)

Battery

0 / 4000

Device Temperature

72°F

Communication

Last Measurement

07/29/2021 03:28:25 PM

Measurement Firmware

2.0.9

Bootloader Firmware

1.0.0

The list can be sorted by SN, Location, Battery, Communication, Last Measurement or Condition by clicking one of these properties at the top of the list.

If you select a device from the list in the left pane, additional information for that device will show up in the right pane.

Devices List

SN	Location	Battery	Communication	Last Measurement	Condition
Z2R10002	Aarons Nanos > Z2R10002 Axial(z)			07/29/2021 03:28:25 PM	
Z2R10031	Abe's Machine > Z2R10031			07/13/2021 02:59:26 PM	
Z2R10033	Aarons Nanos > Z2R10033 Orientation Vertical			07/29/2021 03:16:43 PM	
Z2R10042	Abe's Machine > Z2R10042			07/13/2021 03:02:26 PM	
Z2R11004	Aarons Nanos > Z2R11004 Triaxial Y			07/29/2021 03:14:16 PM	
Z2R11012	Abe's Machine > Z2R11012			07/13/2021 03:02:35 PM	

Device Details

Z2R10002

Location

Aarons Nanos > Z2R10002 Axial(z)

Battery

0 / 4000

Device Temperature

72°F

Communication

Last Measurement

07/29/2021 03:28:25 PM

Measurement Firmware

2.0.9

Bootloader Firmware

1.0.0

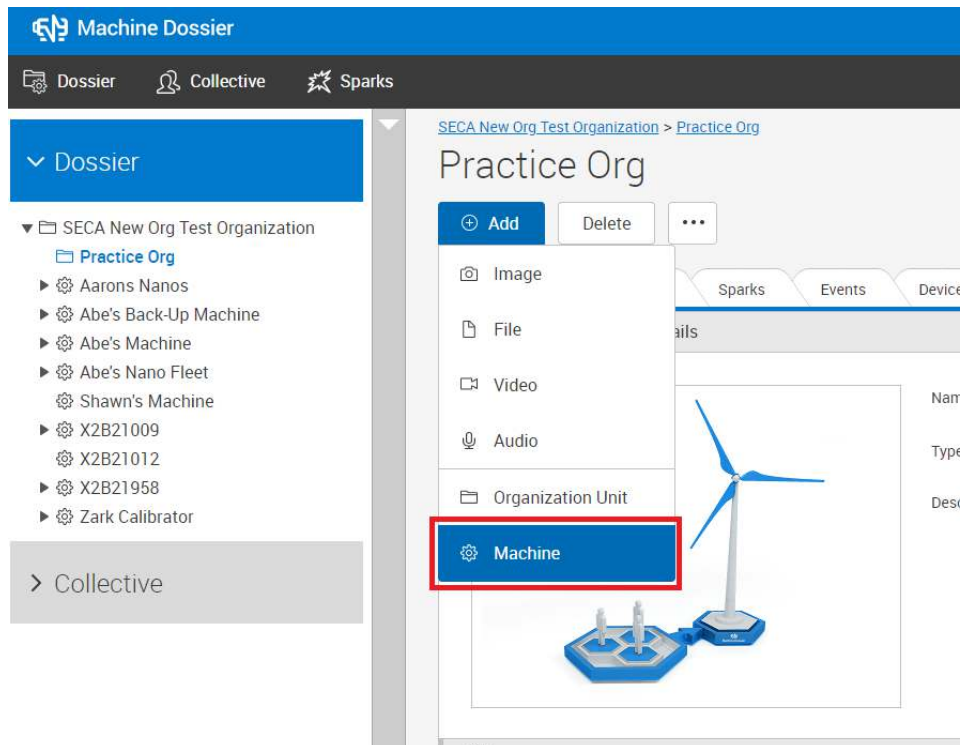
In the above example, Z2R10002 has been selected and its details can be seen on the right side of the screen.

5 MACHINES

This section will describe how to add, manage, and navigate machines.

5.1 ADDING A MACHINE

Within an Organization Unit, the user may want to add a new machine. This is done by navigating to the Organization Unit and clicking “Machine” under the “Add” dropdown. Each channel, no matter how similar, must be configured manually.



The user is presented with a screen detailing more information about the machine being added. All the green fields below are required to ensure that the machine being configured can be located and differentiated from others. The make, model, year, type, size, and speed are all pertaining to the machine and do not impact the way measurements are gathered. After completing the fields in this page, click “Next Step”.

Details

Cancel

Previous Step

Next Step

Parent Node

X8II Family

Machine Name *

Test Machine

Type *

Pump

Size *

Medium 15-75kW / 20-100hp

Manufacturer *

Test

Model *

Test

RPM *

6000

Manufacturing Year

2020

Description

This is a test machine used for demonstration purposes only.

* - required field



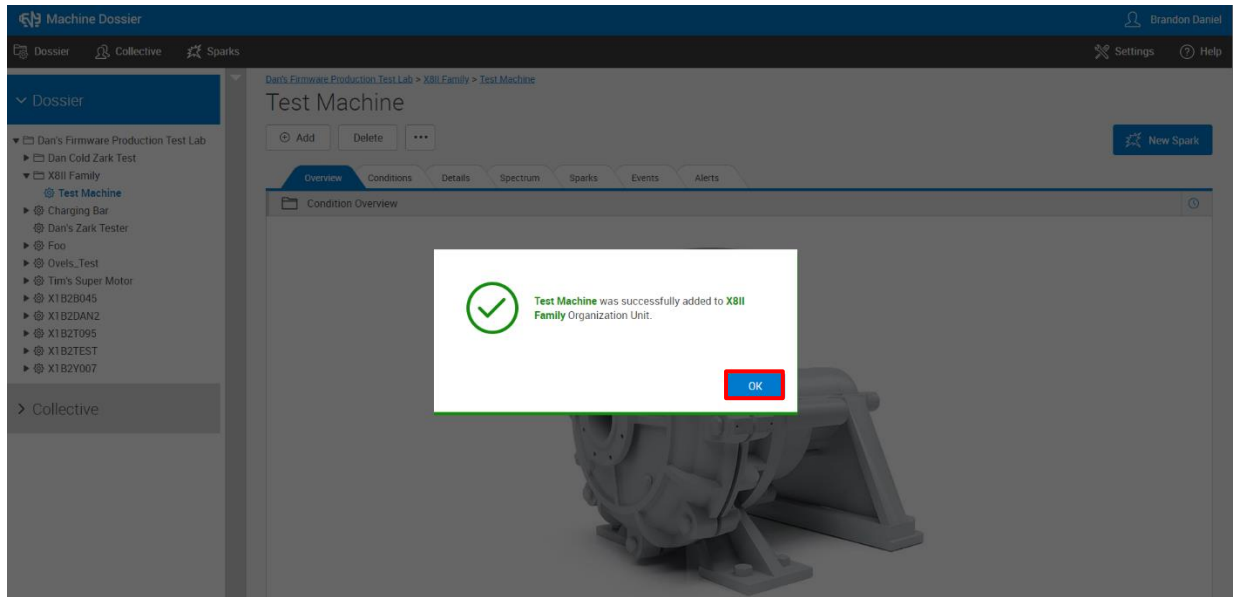
Cancel

Previous Step

Next Step

A Summary page of all inputs from the Details page is presented, allowing the user to confirm all the details about the new machine. Click “Add Machine” to officially register the device as a machine in Machine Dossier.

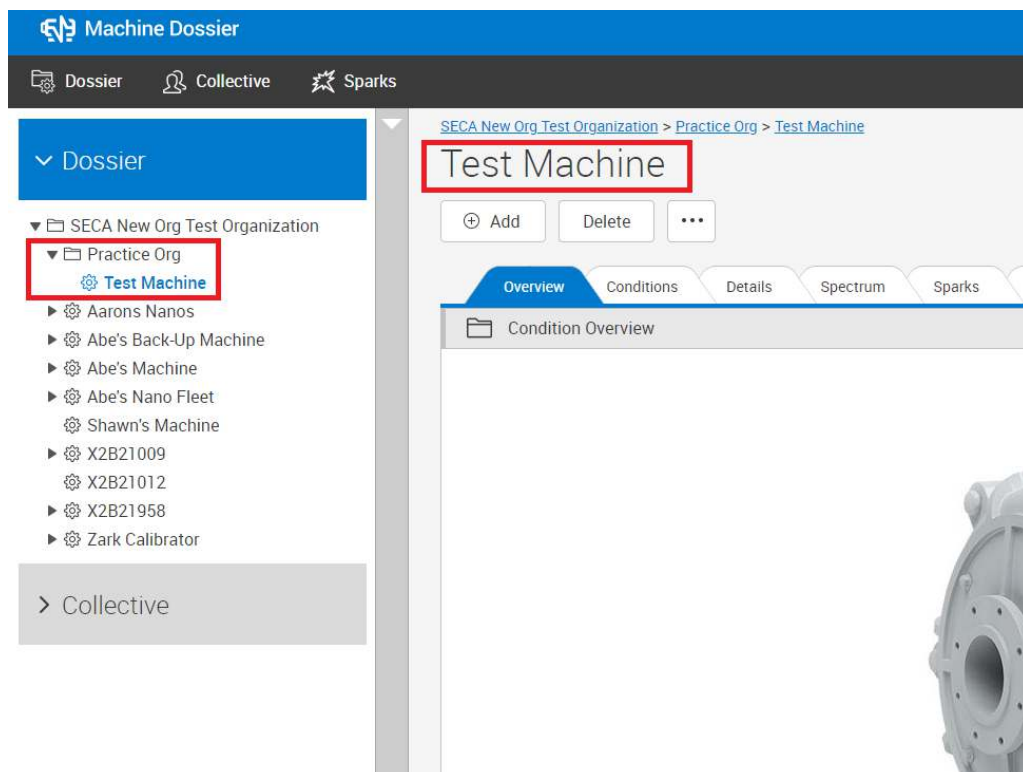
Clicking “OK” on the confirmation box opens access to all the features surrounding the added machine.



5.2 MACHINE FEATURES

After a Machine has been added, you can select the Machine in the left pane using the Dossier hierarchy.

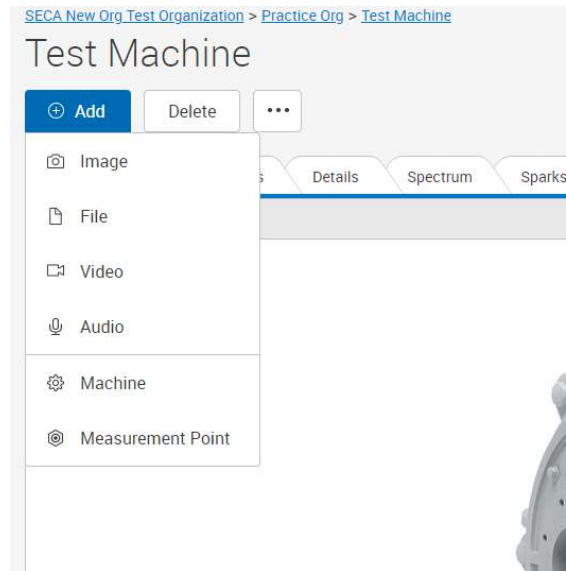
The selected Machine's details show up in the right pane of the screen. This can be seen in the screenshot below using the example Machine called "Test Machine."



Below are the features found within a Machine and how they function.

5.2.1 Add

Hovering over the “Add” button displays the following list:



Image, File, Video and Audio – When one of these options is selected from the “Add” drop down menu, a dialogue box will open that allows the user to upload an image, file, video, or audio file, depending on which option is selected. The file will be uploaded as an event and will show up in the “Events” tab found within the Machine. The event will automatically be assigned to the node in which it is being created. For instance, if an image, file, video, or audio file is uploaded under Test Machine it will automatically be assigned to the Test Machine’s node. The user can specify the Event Name and Event Date Time. Finally, the Event can also be linked to an existing Spark.

Machine – Additional Machines can be created underneath an existing Machine. Follow the steps found in section 5.1 to add additional Machines.

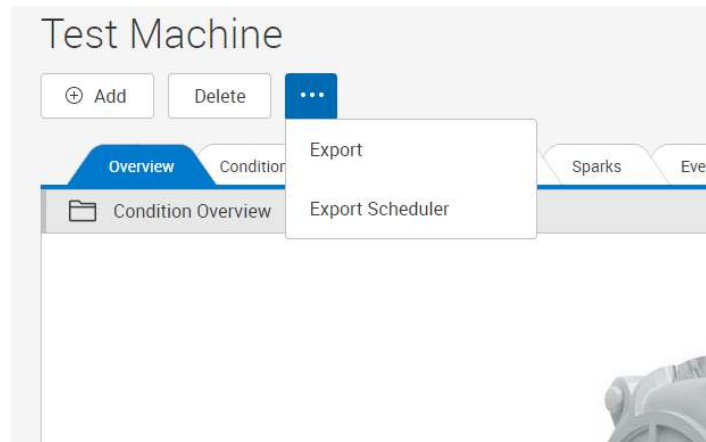
Measurement Point – Measurement points can be added to a Machine. Additional information on how to add, configure and manage measurement points can be found in section 6.1.

5.2.2 Delete

Will delete a Machine. All data linked to the Machine will be removed.

5.2.3 Export/Export Scheduler

Hovering over the three dots button will bring up a menu with Export and Export Scheduler.



These features allow the user to export data for a specified period. Data exported can be customized to include the following measurements:

- Overall and Spectrum Values – Velocity, Acceleration, Voltage, Strain, Speed, Temperature, etc.
- CIV Values – CIV Maximum Acceleration and Velocity
- Waveform Data

If Export Scheduler is chosen, an “Export every” option will be present. This allows customization of an automatically generated export for a specified time interval in weeks, days, or hours.

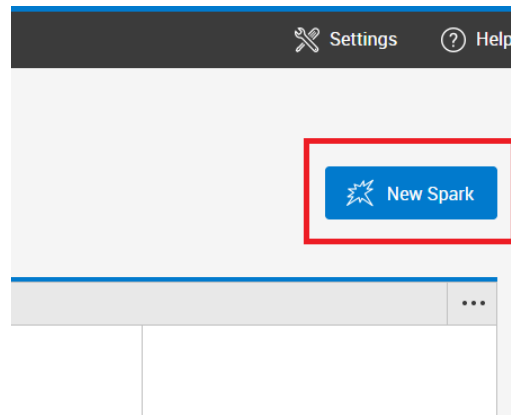
Once the period and values have been selected, you can choose an export format from the drop-down menu. Export file support includes: .MDE, .xml and .csv files.

After the period is specified, values and file format are chosen, click “Order Data Export.” This will export all the selected data underneath the node in which the export was initiated.

*NOTE: Export and Export Scheduler is a paid functionality. To activate this service please contact SECA customer service.

5.2.4 New Spark

To add a new Spark, click on the “New Spark” button located underneath the Settings and Help button on the right side of the window.



A Details screen will open with the following inputs:

Dossier Element – This will automatically populate with the node under which the Spark is being created.

Summary – Required input that will serve as the title of the Spark.

Spark Owner – Collective member that will be responsible for resolving the spark. Anyone in the Collective can be chosen, not just the creator of the Spark.

Spark Team – Collective members responsible for review and resolution of the Spark.

Priority – Drop down menu that allows the user to give the Spark a level of urgency.

Occurrence Date – Date which the event occurred that prompted the Spark.

Spark Start Date – Date which the Spark was first created.

Spark End Date – Date of resolution of the Spark.

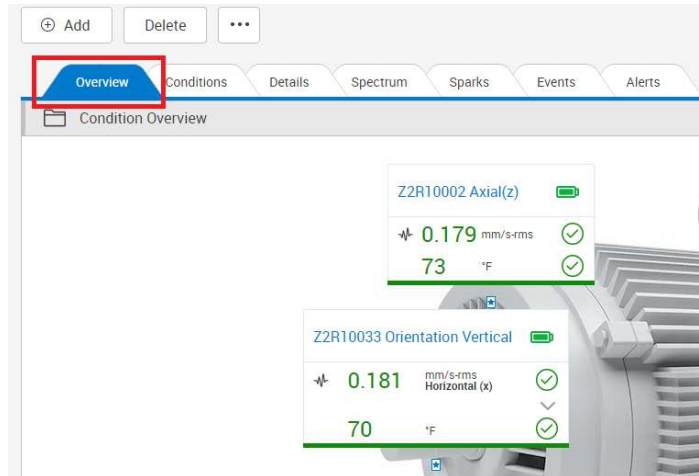
Description – Details of the Spark. The Spark creator should be as detailed as possible so the Spark Team and Owner can understand why the Spark was created and determine steps to resolve the Spark.

Expected Solution – Steps and ideas to resolve the Spark by the Spark Owner and/or Team.

Once all the required information is entered, click “Next Step.” The following screen is a summary of the inputs from the Details screen. If all the entries are correct, clicking “Add New Spark” will create the Spark and an alert will be sent to the Owner and Team.

5.2.5 Overview

Underneath the “Add,” “Delete,” and three dots button is a row of tabs that give additional information about the Machine. The first tab in this row is “Overview.”

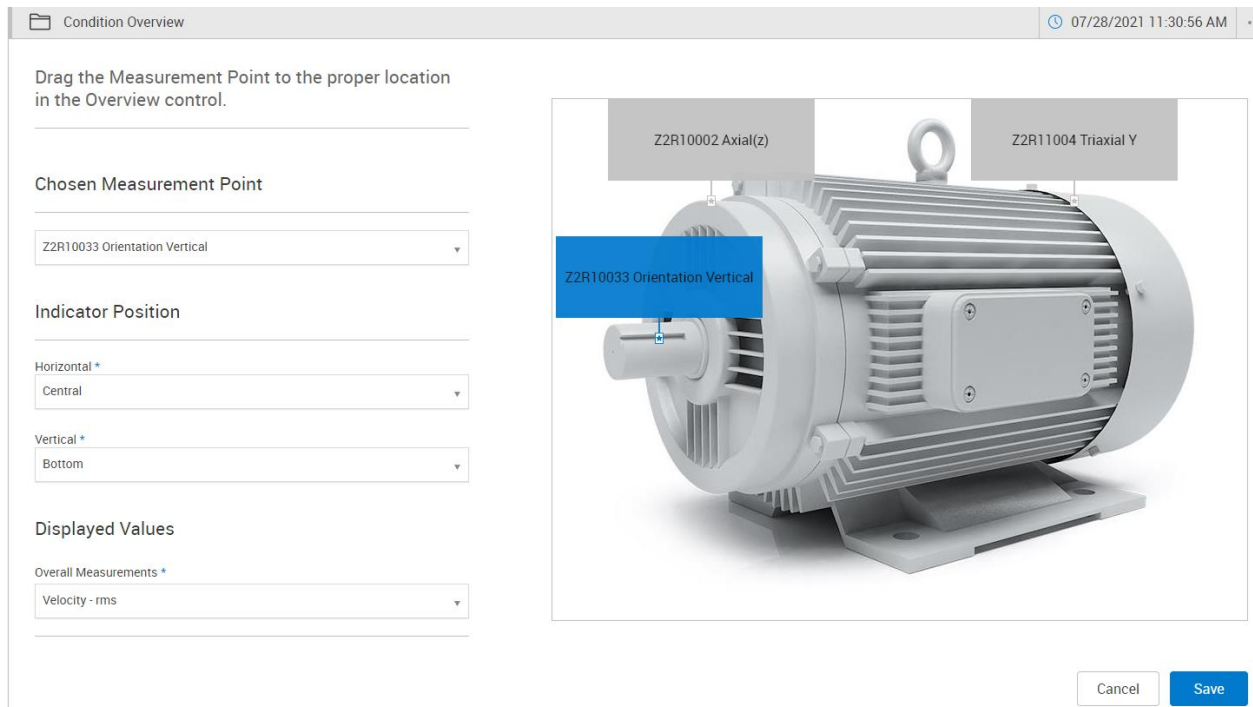


This tab gives an overall highlight of the Machine and is separated into two sections:

Condition Overview – This is a visual representation of the machine and all the attached measurement points. Each measurement point will contain some pertinent measurement data.

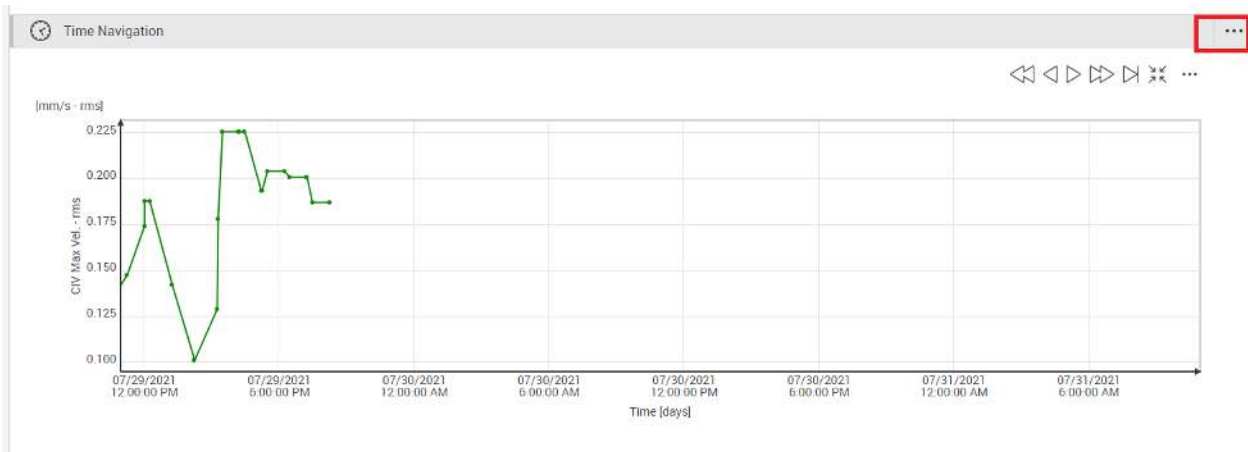


In the upper right-hand corner of the Condition Overview Menu, there is a three dots button. Hovering over this button will allow for customization of the Condition Overview area for the selected Machine.



Configuring allows you to move the measurement point, change indicator positioning and choose what values to display.

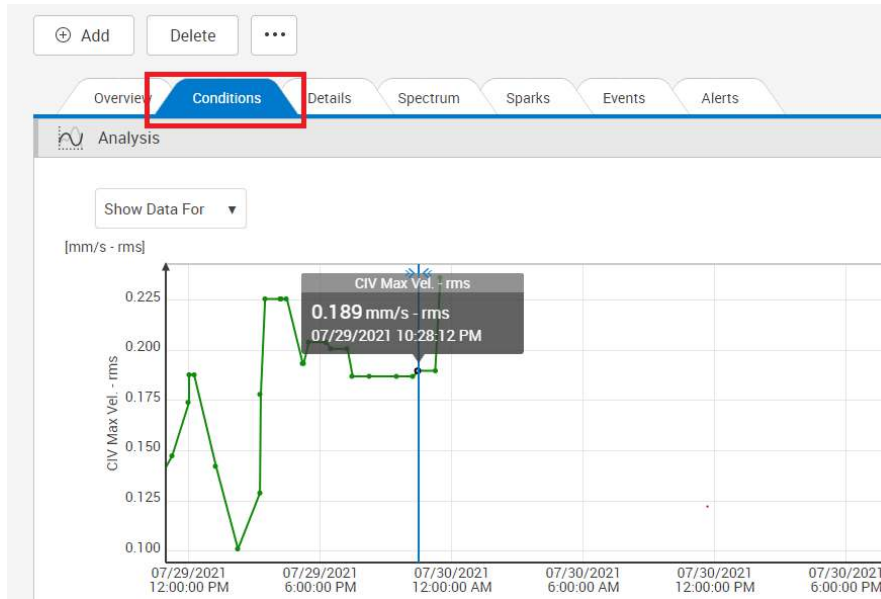
Time Navigation – Graphical representation of chosen value vs time.



Once again, hovering over the three dots button in the upper right-hand corner allows for configuration of this section. The user can choose which value to plot on the Y-axis from a drop-down menu.

5.2.6 Conditions

The Conditions tab is separated into two sections: Analysis and Time Navigation. See section 5.2.5 for a detailed description of the Time Navigation section.

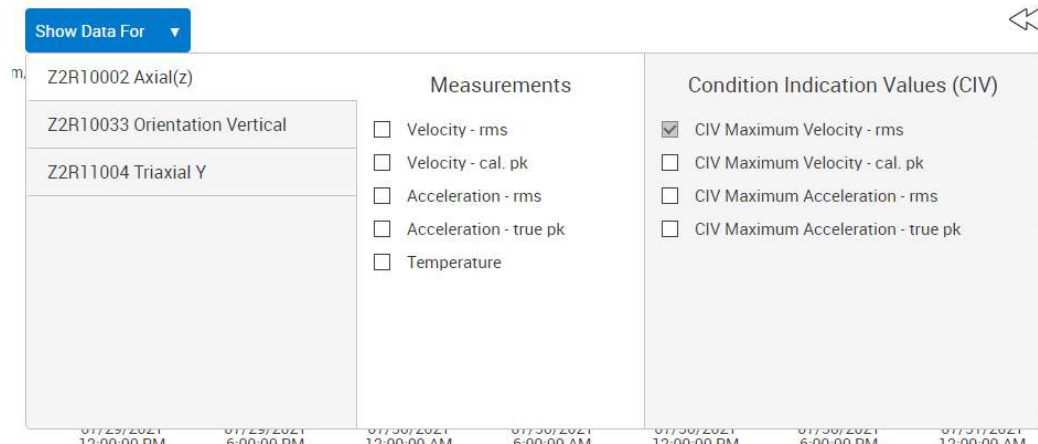


Analysis

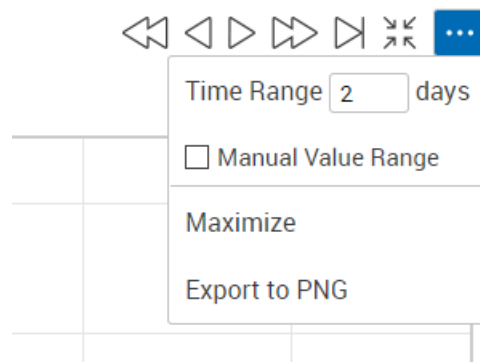
The analysis section gives the user the ability to review the data of each measurement point attached to the machine. On the right side of this section, there are three different tabs representing relevant data: Trend, Measurement Points and Condition Indication Values.



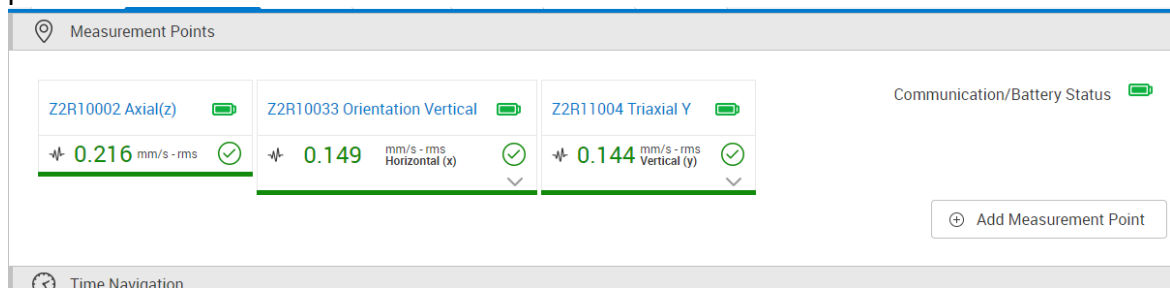
- **Trend** – This tab shows a plot of selected data vs time.
 - **Show Data For** – Drop-down menu that allows the user to swap between different measurement points attached to the machine and choose which data to plot vs time.



- **Three Dots Button** – Allows the user to change the time range, maximize the plot to full screen and export a .png of the plot.



- **Measurement Points** – Graphical view of all measurement points attached to Machine with S/N, Battery Status and some relevant data displayed for each point.



- **Add Measurement Point** – This button allows the user to add additional measurement points. See section 6.1 for how to add measurement points.
- **Condition Indication Values** – Acceleration and velocity data for each measurement point are displayed here as well as operating condition and the last date these values were calculated.

Condition Indication Values				07/29/2021 10:28:12 PM
CIV Name	Value	Operating Condition	Calculation Date	
CIV Maximum Acceleration - rms	154.81 mm/s ² -rms	Good	07/29/2021 10:28:12 PM	Trend
CIV Maximum Acceleration - true pk	610.01 mm/s ² -true pk	Good	07/29/2021 10:28:12 PM	Measurement Points
CIV Maximum Velocity - cal. pk	0.268 mm/s-cal. pk	Good	07/29/2021 10:28:12 PM	Condition Indication Values
CIV Maximum Velocity - rms	0.189 mm/s-rms	Good	07/29/2021 10:28:12 PM	

5.2.7 Details

The Details tab provides an overall highlight of the Machine and is separated into two sections: Machine Details and Measurement Configuration.

The screenshot shows the 'Details' tab selected in the top navigation bar. Below the navigation bar, the 'Machine Details' section is highlighted with a red box. It contains a motor image and the following fields:

- Machine Name *: Aarons Nanos
- Organization Unit *: SECA New Org Test Organization
- Manufacturer *: My Manufacturer
- Model *: My Model
- RPM *: 6000
- Manufacturing Year: (empty)
- Description: Machine to hold various nano's.

Below the 'Machine Details' section, the 'Measurement Configuration' section is highlighted with a red box. It contains two sub-sections:

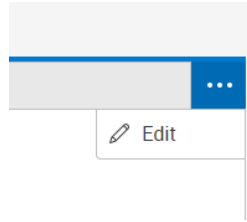
- Machine Setup:**
 - Type *: Motor
 - Size *: Medium 15-75kW / 20-100hp
 - RPM *: 6000
- Measurement Schedule:**
 - Measurement every *: 1 hour
 - Synchronize all measurement points: ☒

Machine Details - Includes the Machine Name, Organization Unit, Manufacturer, Model, RPM, Manufacturing Year and Description of the Machine.

Measurement Configuration – Has information about Machine Setup (Type, Size and RPM) and Measurement Schedule.

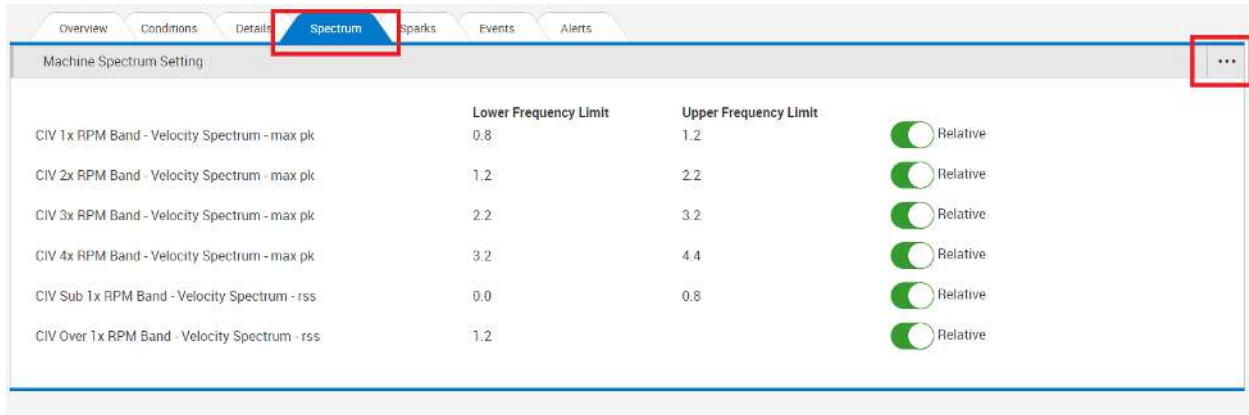
Allotted time measurement intervals range from 1 minute to 1 day. Be careful to select the correct interval range, anything under 1 hour can be taxing on the system, especially in an environment where many machines and measurement points are installed. Upon selecting a measurement rate, the user can specify if they want to synchronize data points. This means that if connecting to MD is halted, the X8 saves and gathers measurement points, and will send them in chronological order when connection is restored. After making necessary changes, click "Save".

Both Machine Details and Measurement Configuration sections can be edited by hovering over the three dots in the upper right-hand corner of each section and clicking "Edit."



5.2.8 Spectrum

The spectrum tab can be used to adjust Machine Spectrum Settings.



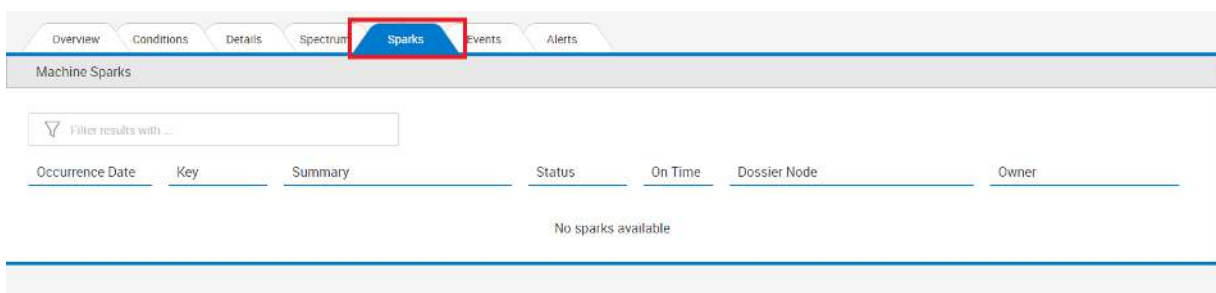
Placing the cursor over the three dots button in the upper right-hand corner of this tab allows the user to edit the Machine Spectrum Settings.

Lower and Upper Frequency Limits can be set according to the requirements of the user and relative and absolute values can be toggled for each spectrum setting.

5.2.9 Sparks

The Sparks tab displays a list of all Sparks created for the Machine. It summarizes every Spark, showing Occurrence Date, Key, Summary, Status, On Time, Dossier Node and Owner of the Spark.

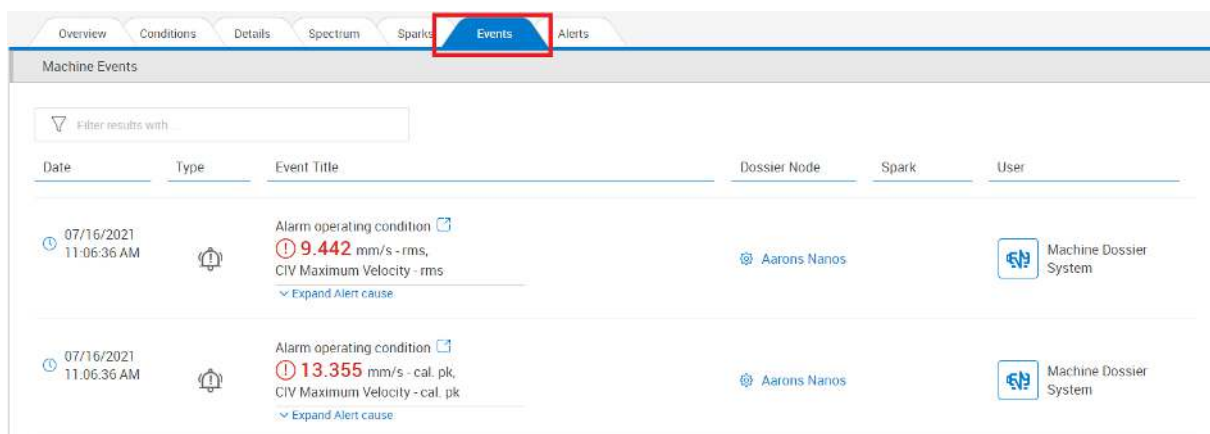
For additional detail on how to create a Spark, see the section 5.2.4 on adding a New Spark.



5.2.10 Events

Much like the Sparks tab, the Events tab also gives a summary of all the events that have been created and triggered on a Machine.

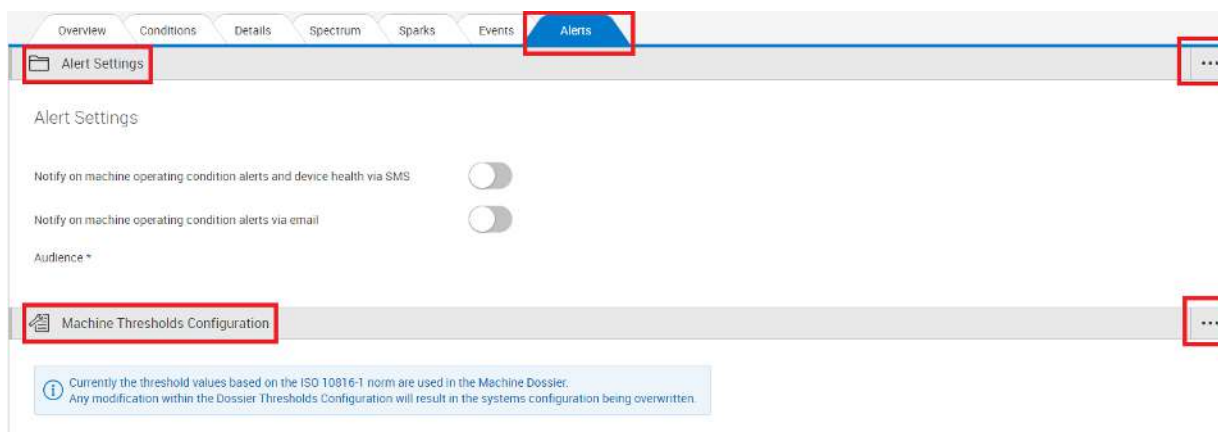
Events can be added manually via the Add button, see section 5.2.1 for more information on how to do this. Events can also be triggered automatically by creating alarm and warning thresholds in the Alerts tab, which will be discussed further in section 5.2.11.



Date	Type	Event Title	Dossier Node	Spark	User
07/16/2021 11:06:36 AM		Alarm operating condition   9.442 mm/s - rms, CIV Maximum Velocity - rms Expand Alert cause	 Aarons Nanos		 Machine Dossier System
07/16/2021 11:06:36 AM		Alarm operating condition   13.355 mm/s - cal. pk, CIV Maximum Velocity - cal. pk Expand Alert cause	 Aarons Nanos		 Machine Dossier System

5.2.11 Alerts

The Alerts tab is split into two separate sections: Alert Settings and Machine Thresholds Configuration.



Alert Settings

Alert Settings

Notify on machine operating condition alerts and device health via SMS ☐

Notify on machine operating condition alerts via email ☐

Audience *

Machine Thresholds Configuration

Currently the threshold values based on the ISO 10816-1 norm are used in the Machine Dossier.
Any modification within the Dossier Thresholds Configuration will result in the systems configuration being overwritten.

Alert Settings

Alerts can be sent via SMS or email, depending on preference. They can also be toggled off altogether. If Alerts are toggled on, members of the Collective can be chosen to receive the alerts from the Audience drop down menu.

To toggle alerts off or on and to change the Audience, hover over the three dots button in the upper right-hand corner of the Alert Settings section and click “Edit.”

Machine Thresholds Configuration

Below are the measurement point threshold properties that are currently supported:

- CIV Maximum Velocity – rms
- CIV Maximum Velocity – cal. pk
- CIV Maximum Acceleration – rms
- CIV Maximum Acceleration – true pk
- Battery Status
- Temperature

Threshold operating conditions are set up so that the collective can get alerts when warning or alarm thresholds are met. In general, most properties are pre-set to contain the following editable operating conditions:

- Off – Usually set to 0, as this is when the device is in sleep or powered down.
- Good Threshold – Denotes when the device is running and within normal parameters.
- Warning Threshold – Measurement either exceeds or is very close to limits of normal operating parameters.
- Alarm Threshold – Measurement exceeds normal operating parameters, maintenance should occur. In the case of battery status, the battery of the device should be replaced, or potentially the device itself.

An example of the threshold configurations can be seen below. Please note this screenshot is only for a single axis device, a multi-axis device will have three columns of “Set Threshold Value,” one for each axis.

CIV Maximum Velocity - cal. pk	
Operating Condition	Set Threshold Value
 Off	0.000 mm/s - cal. pk
 Good Threshold	0.141 mm/s - cal. pk
 Warning Threshold	3.960 mm/s - cal. pk
 Alarm Threshold	10.041 mm/s - cal. pk

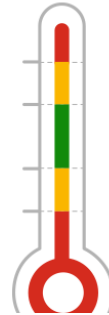
CIV Maximum Acceleration - rms	
Operating Condition	Set Threshold Value
 Off	0.00 mm/s ² - rms
 Good Threshold	62.83 mm/s ² - rms
 Warning Threshold	500000.00 mm/s ² - rms
 Alarm Threshold	500000.00 mm/s ² - rms

Battery Status

Operating Condition	System Threshold Value
 Warning Threshold	25 %
 Alarm Threshold	10 %

Temperature

Operating Condition	System Threshold Value	
	Discharging Status	Charging Status
 Upper Alarm Threshold	140 °F	113 °F
 Upper Warning Threshold	131 °F	108 °F
 Lower Warning Threshold	5 °F	37 °F
 Lower Alarm Threshold	-4 °F	32 °F



To edit the threshold settings, hover over the three dots button in the upper right-hand corner of the Machine Thresholds Configuration section and click “Edit.”

6 MEASUREMENT POINTS

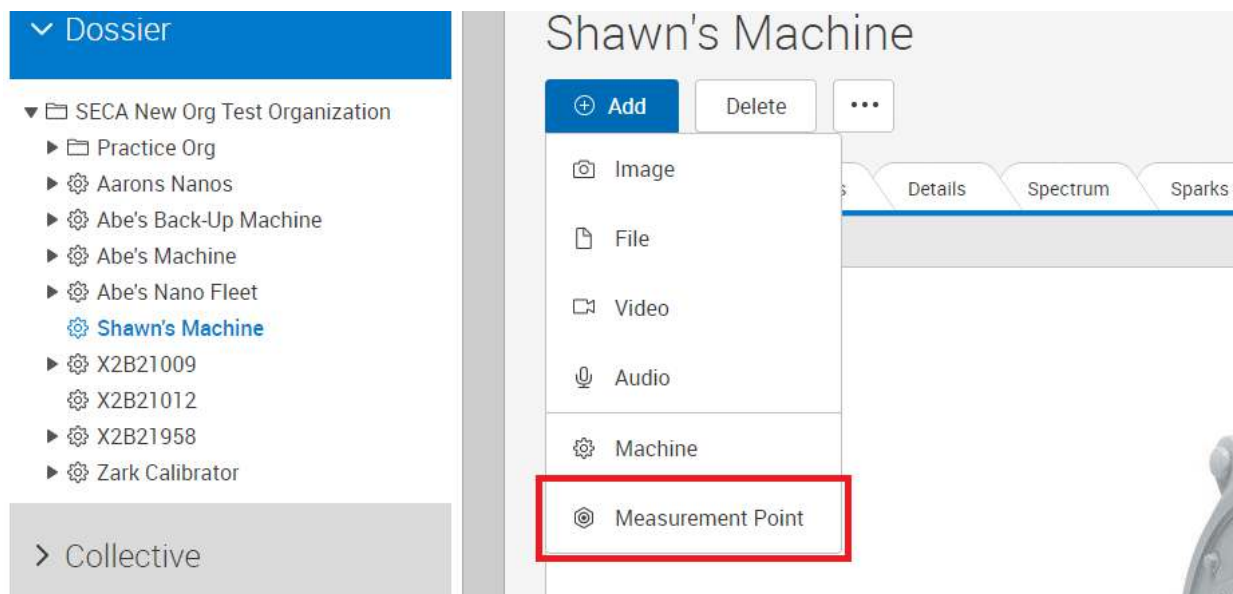
This section will describe how to add, manage, and navigate measurement points.

6.1 ADDING MEASUREMENT POINTS

This section will walk the user through the process of creating measurement points in MD. Currently there are three different measurement point types supported: wired via the ZARK X8/X8II, ZARK NANO and ZARK. The ZARK NANO and ZARK units are both wireless devices.

6.1.1 ZARK X8/X8II

To properly configure a wired measurement point connected to a ZARK X8/X8II navigate to the desired machine in the Dossier tree and on the “Add” dropdown, click “Measurement Point”.



When presented with the Device Selection screen, select “ZARK X8/X8(II).”

Device Selection

Cancel



ZARK X8 / X8(II)



ZARK Nano



ZARK

Cancel

A wired measurement point can be named anything but ensure that it can be distinguished from other points in the future.

Add Details

Cancel

Machine

Test Machine

Name *

Accelerometer - Channel 1

Orientation Preview



To ensure the measurement point is properly configured, and sends data to the desired machine, locate the serial number on the machine and then click “Add New ZARK X8”.

Add Details

Cancel

Previous Step

Next Step

Machine

Test Machine

Name *

Accelerometer - Channel 1

ZARK X8 SN

X1B2B045

x

Add New ZARK X8

Orientation Preview



Type in the serial number when presented with the “Add ZARK X8 device”. The serial number of the X8/X8II is located on a sticker on the top housing of the unit, as seen below on an X8II unit.



The description box allows the user to make notes regarding the machine's serial number. Click “Add” when completed.

Add ZARK X8 Device

SN *

X2B21011

Description

Accelerometer

* - required field

Cancel Add

Adding the correct serial number and ensuring the measurement point is linked to the desired machine, is critical for accurate data collection. If the machine has been used before in another organization unit, or if the machine had recently been deleted, there may be some errors that result when adding a new SN. The user must reach out to support for better assistance if such a problem arises.

Test Machine

Name *

Accelerometer - Channel 1

ZARK X8 SN

X1B2TEST

X1B2B045

Add New ZARK X8

Orientation Preview



Once the SN is properly added to the machine, selecting the dropdown list will display the serial number that had just been configured. If the serial number does not show, attempt to reconfigure the previous step, and contact support if this problem persists.

Name *

Accelerometer - Channel 1

ZARK X8 SN

X1B2B045

×

Add New ZARK X8

Channel ID

DYN_CH1

DYN_CH1

Sensor Power

IEPE

Orientation Preview



The Channel ID is the identification of a channel in an X8/X8II machine. It is what makes the newly configured measurement point unique. The identification of the channel is held by individual channels; therefore, two channels cannot be misidentified as one. The user can see this occur when adding multiple channels and noting that the Channel IDs from the drop-down marker begin to disappear as more channels are created.

Sensor Power

IEPE

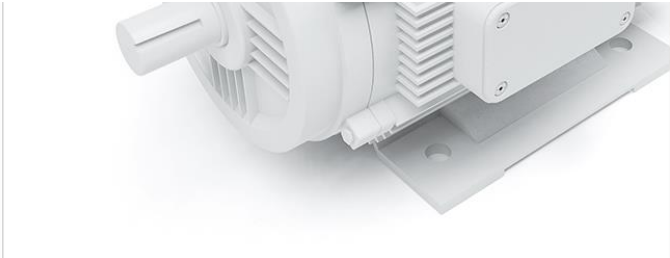
IEPE

None/EXTERNAL

Vertical (y)

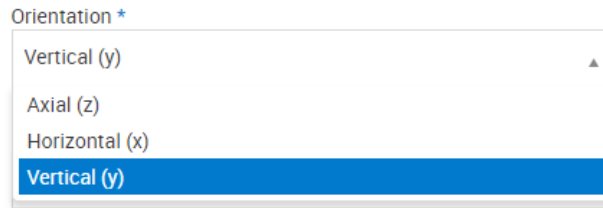
Spectrum Resolution *

3200

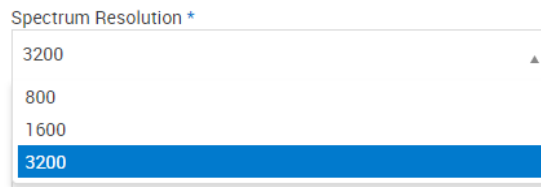


When adding new channels, the user has access to sensor power. Some sensors need power to amplify the current that is produced when detecting motion. In the case of accelerometers, sensors contain piezoelectric crystals that generate current when experiencing stress. This generated current must be amplified so that data can be easily analyzed. By default, all the X8/X8II terminals come with IEPE power switches, but they are turned off. Unless the probe requires external power, IEPE switches can be located as a row of black buttons on the green termination panel. To switch an IEPE to an ON

position, the user must carefully lift the brown button vertically, exposing two pins. Then, the user can move that IEPE button one pin up, switching it to the ON position.



A sensor can be mounted on a machine, positioned in one of three ways; vertical (y), horizontal (x), and axial (z). This is trivial and the position of the probe on the machine must be perfectly aligned with the assigned orientation to obtain accurate results.



When spectra are collected, they can have certain Lines of Resolutions. Just like a TV, a spectrum can also have a resolution, the higher the resolution, more things can be distinguished from one another. However, having a higher line of resolution is taxing on a machine as it would force it to collect large amounts of data, which can take a long time and cost a lot of space. In general, 3200 Lines of Resolution is the default parameter when configuring a new channel. However, if the user is collecting data that does not need extreme clarity, lower lines of resolution may better suit their interests.



The max frequency also goes hand in hand with the lines of resolution. Higher frequency and lower lines of resolution would result in low resolution data where some peaks at certain frequencies would be merged. This is not a good thing for users who are looking for accurate, precise results. Therefore, the user must carefully select these settings depending on the set-up of the instrument and the data that is being collected. The default value Machine Dossier assigns to all probes are 3200 lines of resolution (LOR) and 3000 Hz.

At the time of writing, Machine Dossier supports six types of sensors: accelerometers, proximity sensors, strain sensors, Voltage (VDC), temperature sensors, and the Generic

(VAC) sensor. The choice selected from the drop-down below list entirely depends on what the user has directly connected to the machine.

Sensor Type *

- Accelerometer
- Accelerometer**
- Proximity Sensor
- Strain Sensor
- Voltage(VDC)
- Temperature Sensor
- Generic(VAC)
- 100 mV/g

Most sensors have an option where the user can change the sensitivity of the probe. The sensitivity is how the probe responds to measurements. When vibration is being measured, physical movements are converted to current. This occurs when the current generated from the sensor becomes amplified, and the sensitivity dictates how much amplification occurs. The higher the selected sensitivity, the larger the amplitude peak will be in Machine Dossier. The choice is entirely up to the user depending on the type of measurements being taken. The default value in Machine Dossier is 100 mV/g.

Measurement Type *

Acceleration and Velocity

Sensitivity *

- 100 mV/g
- 10 mV/g
- 50 mV/g
- 100 mV/g**
- 500 mV/g

When configuring a channel, the user can specify if and when spectrums and waveforms are sent to Machine Dossier. A vibration spectrum is a range of amplitudes in a frequency. Typically, a measurement point is sent to MD when the user specifies a certain boundary of measurement. However, the user can specify when a spectrum is sent to MD. Having a spectrum and a waveform can help the user better diagnose the machine that a sensor is measuring. Asking MD to send spectra and waveform data is taxing and unnecessary to do for every measurement. Therefore, these parameters are typically set to Never, but they get sent to MD when measurements are in alarm.

Send Spectrum *

Acceleration Never

Send Raw Waveform *

Never

Adding a machine to MD requires the user to specify the Machine RPM. However, speed can still be calculated if the user knows how many pulses per revolution there are when the machine completes one rotation. Typically, speed calculations are not used with accelerometers, DC sensors, and temperature sensors, therefore this value is always set to 0 when configuring those sensors to prevent the calculation of speed. However, when working with Eddie probes, the exact speed of the machine can be calculated by orienting the speed probe to register grooves in the machine. There will be a certain number of pulses, which the user can specify in MD for the right calculations to take place.

Speed - Pulses per Revolution *

0



For value 0 Speed Measurements will not be taken, and fixed Machine RPM will be used

Speed – Threshold is used to detect the spike when the voltage level, as you traverse the wave from left to right, goes from below the trigger percentage to above the trigger percentage.

Speed - Threshold *

50%

10%

20%

30%

40%

50%

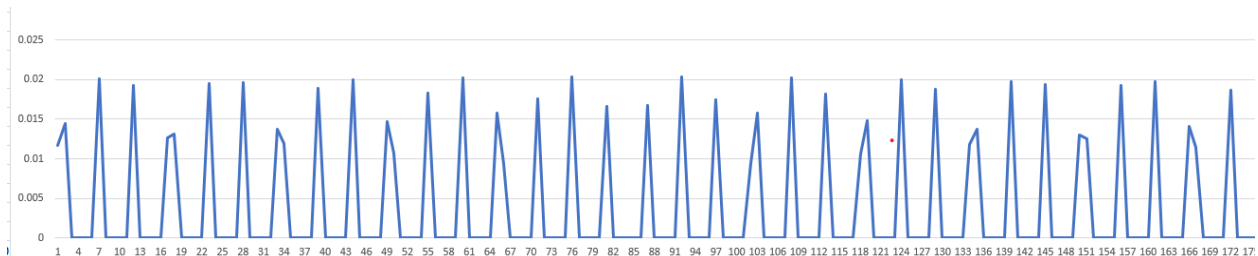
60%

70%

80%

90%

As the waveform moves from left to right, spikes in the waveform can vary in magnitude, seen in the example waveform below. The Speed – Threshold setting allows the user to choose a percentage below the maximum spike value to capture every relevant waveform spike needed to calculate speed accurately.



Generally, the user knows the run speed of the machine, and this can be compared against the speed calculation. If the speed calculation is higher than the machine's run speed the user may want to increase the Speed – Threshold percentage, and vice versa if the machine's speed is lower.

When configuring a channel, a low pass and a high pass filter can be set. Filters help set a range of frequencies that a user can configure. Doing so allows the user to specify a boundary of interest. By default, the boundary is set to a low pass filter of 1000 Hz, meaning that nothing above a 1000 Hz will be recorded. On the other hand, a high pass filter of 10 Hz, the default, indicates that there will be no amplitude peaks less than 10 Hz.

LP Filter *

1000 Hz ▼

HP Filter *

10 Hz ▼

6.1.1.1 Sensor Type – Accelerometer

To configure an Accelerometer, it must be selected from the drop-down list by clicking under the “Sensor Type”. Every other field on the Add Details screen can be changed following the preferences and requirements of the user. Once completed, click “Next Step”. For more information regarding entries in the Add Details screen below, see section 6.1.1.

Add Details

[Cancel](#)[Previous Step](#)[Next Step](#)

Machine

Test Machine

Name *

Accelerometer - Channel 1

ZARK X8 SN

X1B2B045

x

Add New ZARK X8

Channel ID

DYN_CH1

x

Sensor Power

IEPE

Orientation *

Vertical (y)

Spectrum Resolution *

3200

Fmax *

3000 Hz

Sensor Type *

Accelerometer

Measurement Type *

Acceleration and Velocity

Sensitivity *

100 mV/g

Send Spectrum *

Velocity

Only For Alarm

Send Raw Waveform *

Never

Speed - Pulses per Revolution *

0



Speed - Threshold *

50%

LP Filter *

1000 Hz

HP Filter *

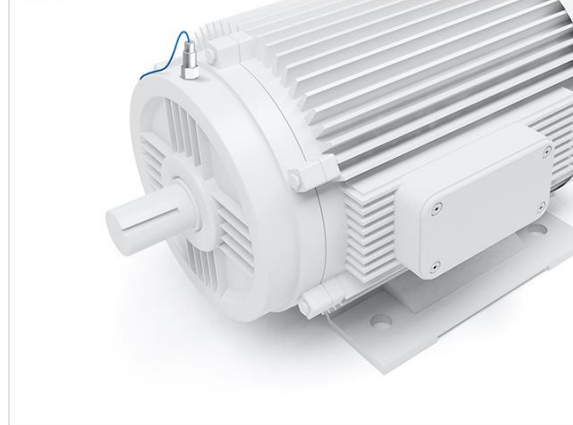
10 Hz

Description

This is a channel configured as an accelerometer. It is for testing purposes only.

* - required field

Orientation Preview

[Cancel](#)[Previous Step](#)[Next Step](#)

A Choose Location window will open, allowing the user to pinpoint a location for the measurement point. Outlined in red, the field can be dragged around the image of the machine, to make it easier on the user when distinguishing between channels. Indicator position and displayed values can be changed as well but can also be reconfigured later. Once a desired position is identified, click “Next Step”.

Choose Location

Cancel Previous Step Next Step

Drag the Measurement Point to the proper location in the Overview control.

Indicator Position

Horizontal *
Central

Vertical *
Bottom

Displayed Values

Overall Measurements *
Velocity - rms

New Measurement Point

Cancel Previous Step Next Step

A Summary window will appear confirming all entries from the previous screen. Once confirmed, click “Add Measurement Point”.

Summary

Cancel

Previous Step

Add Measurement Point

Name

Accelerometer - Channel 1
at Test Machine

ZARK X8 SN

X1B2B045

Channel ID

DYN_CH1

Sensor Power

IEPE

Orientation *

Vertical (y)

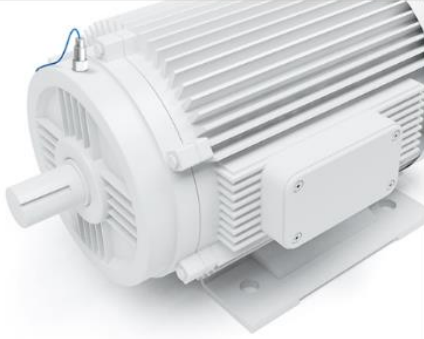
Overall Measurement *

Velocity - rms

Description

This is a channel configured as an accelerometer. It is for testing purposes only.

Orientation Preview

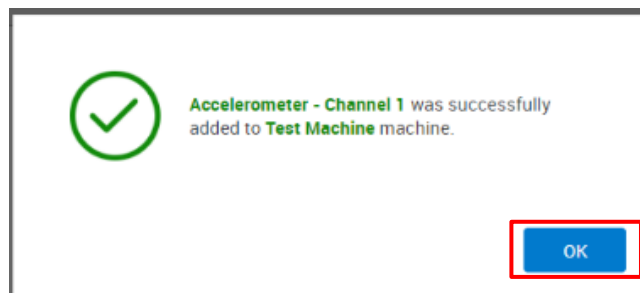


Cancel

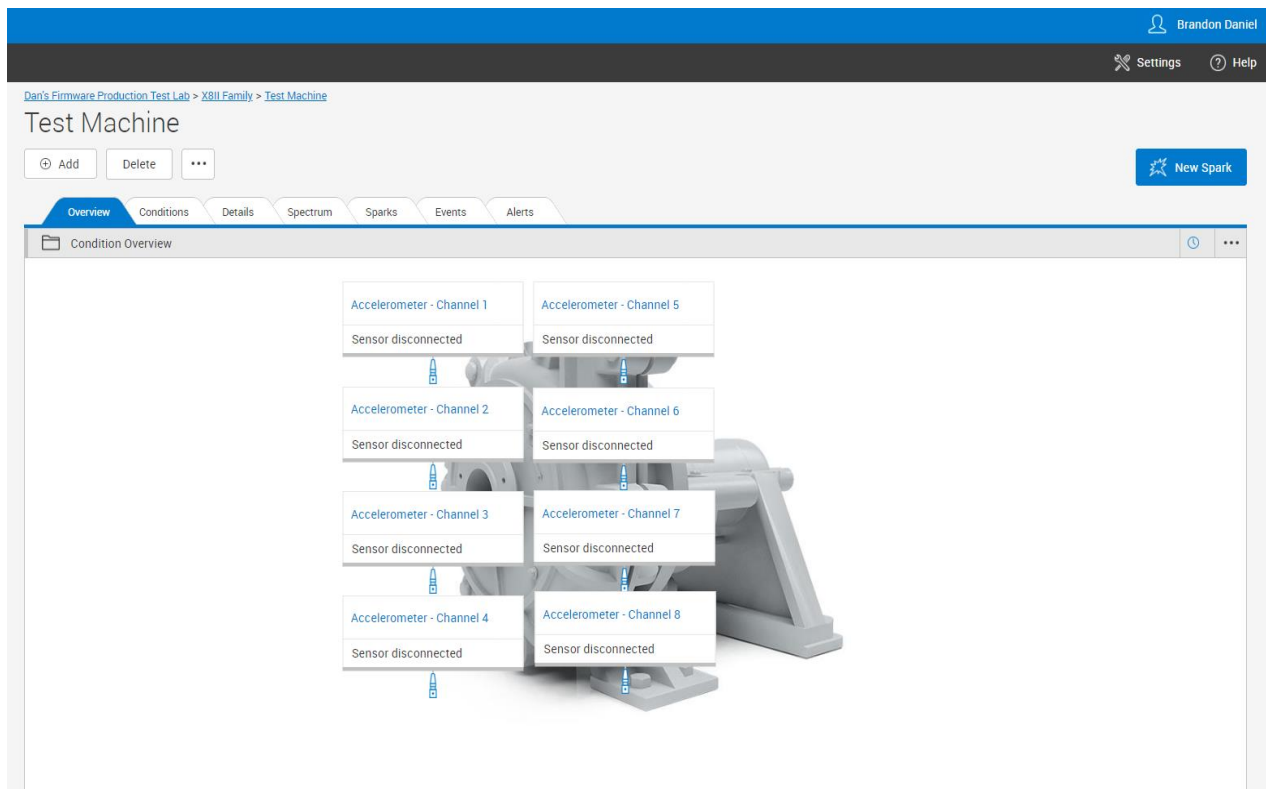
Previous Step

Add Measurement Point

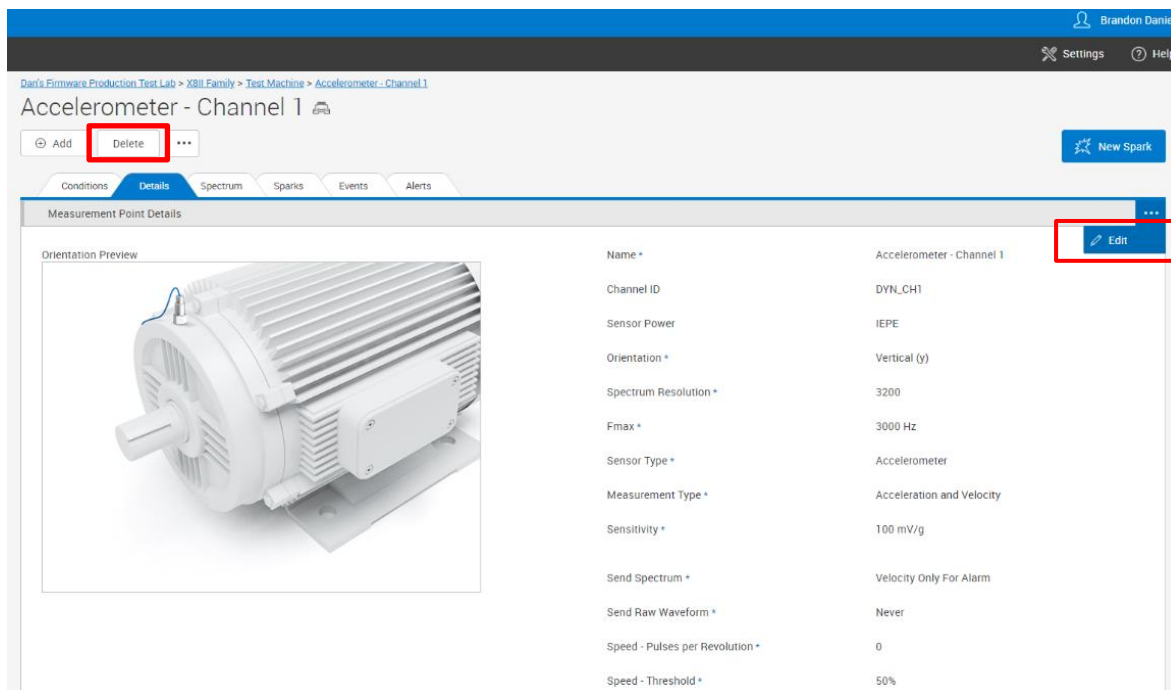
A confirmation box pops up in the middle of the screen notifying the user that a new channel has been identified.



Repeating the steps above 7 more times, the window below shows 8 accelerometer channels configured to the machine. Clicking on a channel brings up more details about the measurement point: spectra, events, configurations, etc.



If the user chooses to do so, they may navigate to the “Details” tab and under the three dots to the right of the window, they may click “Edit” to make any changes to a configured channel. Doing so will NOT delete previous data. If a user wished to change the probe type of a certain channel, they must click the “Delete” button outlined in red.



Clicking the “Edit” button brings up a screen that allows the user to make changes to the configurations of a channel. Changes can be made according to the preferences or requirements of the user. Once the desired changes have been made, the user must click “Save”. For more information about the properties screenshot below, please see section 6.1.1.

The screenshot displays the 'Accelerometer - Channel 1' configuration interface. It features a top navigation bar with tabs for Conditions, Details (selected), Spectrum, Sparks, Events, and Alerts. Below the tabs is a 'Measurement Point Details' section. On the left, there is an 'Orientation Preview' showing a 3D model of a motor. The main area contains a list of configuration fields:

- Name: Accelerometer - Channel 1
- ZARK X8 SN: X1B2B045
- Channel ID: DYN_CH1
- Sensor Power: IEPE
- Orientation: Vertical (y)
- Spectrum Resolution: 3200
- Fmax: 3000 Hz
- Sensor Type: Accelerometer
- Measurement Type: Acceleration and Velocity
- Sensitivity: 100 mV/g
- Send Spectrum: Velocity
- Send Raw Waveform: Never
- Speed - Pulses per Revolution: 0
- Speed - Threshold: 50%
- LP Filter: 1000 Hz
- HP Filter: 10 Hz
- Description: This is a channel configured as an accelerometer. It is for testing purposes only.

At the bottom right, there are 'Cancel' and 'Save' buttons. The 'Save' button is highlighted with a red box.

6.1.1.2 Sensor Type – Proximity Sensor (Eddy Probe)

Another type of sensor supported by Machine Dossier is a Proximity Sensor (Eddie Probe).

To configure an Eddie Probe, it must be selected as a Proximity Sensor from the drop-down list by clicking under the “Sensor Type.” Every other field can be changed following the preferences and requirements of the user. Once completed, click “Next Step”. For more information about the inputs in the screen below, please see section 6.1.1.

Add Details

Cancel

Previous Step

Next Step

Machine

Test Machine

Name *

Eddie Probe - Channel 1

ZARK X8 SN

X1B2B045

x

Add New ZARK X8

Channel ID

DYN_CH1

x

Sensor Power

IEPE

Orientation *

Vertical (y)

Spectrum Resolution *

3200

Fmax *

3000 Hz

Sensor Type *

Proximity Sensor

Measurement Type *

Displacement

Sensitivity *

☒ 7.874

mV/μm

☐ 200

mV/mil

Send Spectrum *

Never

Send Raw Waveform *

Never

Speed - Pulses per Revolution *

0

i

Speed - Threshold *

50%

LP Filter *

1000 Hz

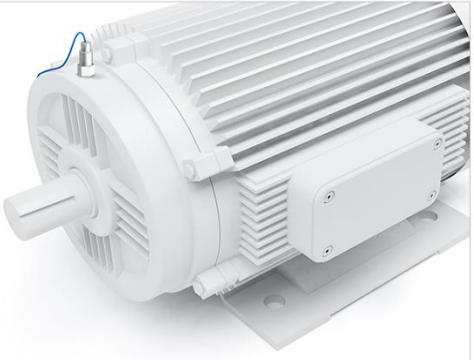
HP Filter *

10 Hz

Description

* - required field

Orientation Preview



Cancel

Previous Step

Next Step

A Choose Location window will open, allowing the user to pinpoint a location for the measurement point. Outlined in red, the field can be dragged around the image of the machine, to make it easier on the user when distinguishing between channels. Indicator position and displayed values can be changed as well but can also be reconfigured later. Once a desired position is identified, click “Next Step”.

Choose Location

Drag the Measurement Point to the proper location in the Overview control.

Indicator Position

Horizontal *
Central

Vertical *
Bottom

Displayed Values

Overall Measurements *
Velocity - rms

Next Step

A Summary window will appear confirming all entries from the previous screen. Once confirmed, click “Add Measurement Point”.

Summary

Name
Eddie Probe - Channel 1
at Test Machine

ZARK X8 SN
X1B2B045

Channel ID
DYN_CH1

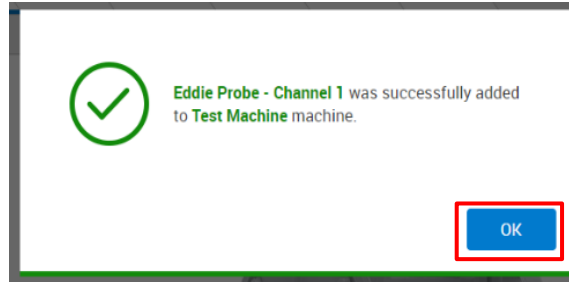
Sensor Power
IEPE

Orientation *
Vertical (y)

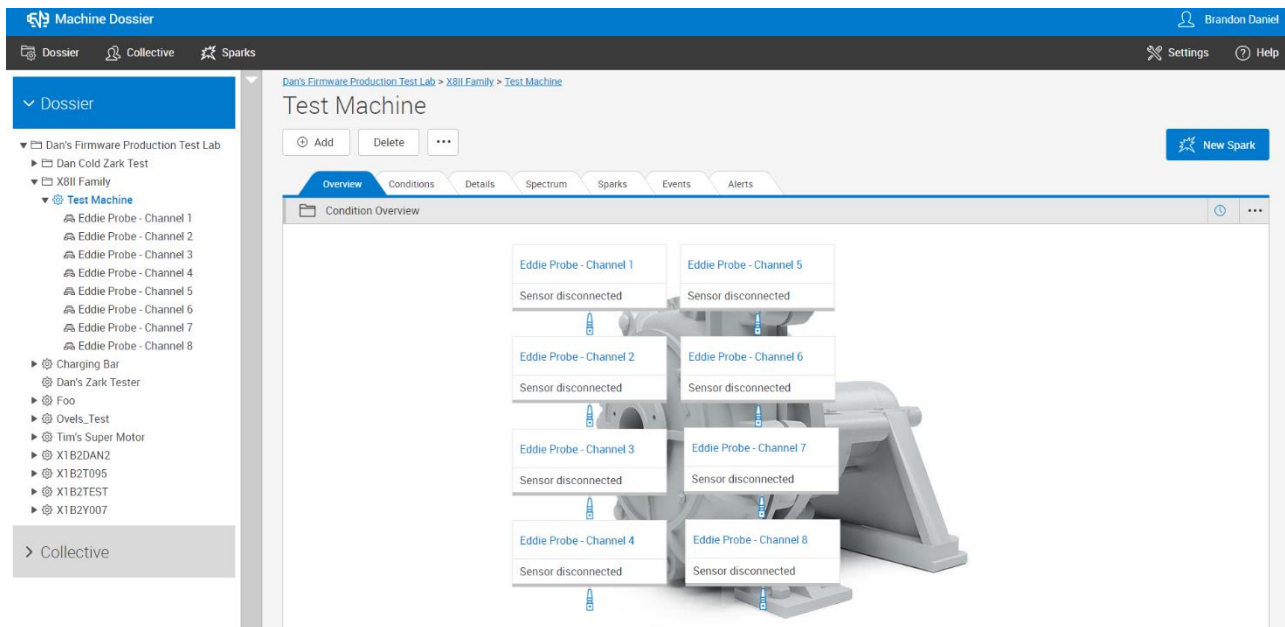
Overall Measurement *
Displacement - rms

Add Measurement Point

A confirmation box pops up in the middle of the screen notifying the user that a new channel has been identified.



Repeating the steps above 7 more times, the window below shows 8 Eddie Probes configured to the machine. Clicking on a channel brings up more details about the measurement point: spectra, events, configurations, etc.



If the user chooses to do so, they may navigate to the “Details” tab and under the three dots to the right of the window, they may click “Edit” to make any changes to a configured channel. Doing so will NOT delete previous data. If a user wished to change the probe type of a certain channel, they must click the “Delete” button outlined in red.

The screenshot shows the 'Machine Dossier' web application interface. The left sidebar contains a tree view of the machine hierarchy, including 'Dan's Firmware Production Test Lab', 'Dan Cold Zark Test', 'X8II Family', and 'Test Machine'. The main content area displays the configuration for 'Eddie Probe - Channel 1'. At the top, there are buttons for 'Add', 'Delete', and a menu icon. The 'Delete' button is highlighted with a red box. Below these buttons are tabs for 'Conditions', 'Details', 'Spectrum', 'Sparks', 'Events', and 'Alerts'. The 'Details' tab is active, showing 'Measurement Point Details'. On the left of the details section is an 'Orientation Preview' image of a motor. On the right is a table of configuration parameters. The 'Edit' button in the top right corner of the details section is also highlighted with a red box.

Parameter	Value
Name *	Eddie Probe - Channel 1
Channel ID	DYN_CH1
Sensor Power	IEPE
Orientation *	Vertical (y)
Spectrum Resolution *	3200
Fmax *	3000 Hz
Sensor Type *	Proximity Sensor
Measurement Type *	Displacement
Sensitivity *	7.874mV/μm 200 mV/mil
Send Spectrum *	Never

Clicking the “Edit” button brings up a screen that allows the user to make changes to the configurations of a channel. Changes can be made according to the preferences or requirements of the user. Once the desired changes have been made, the user must click “Save”.

Brandon Daniel
Settings
Help

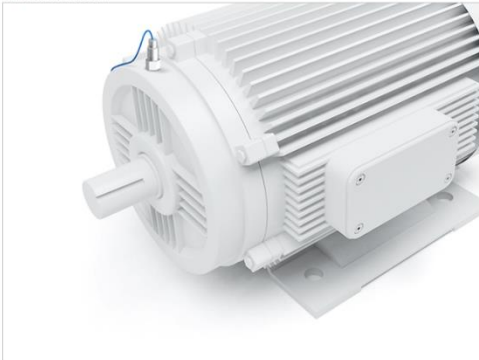
Dan's Firmware Production Test Lab > X811 Family > Test Machine > Eddie Probe - Channel 1

Eddie Probe - Channel 1

Add
Delete
...
New Spark

Conditions
Details
Spectrum
Sparks
Events
Alerts

Measurement Point Details

Orientation Preview


Name *

Eddie Probe - Channel 1

ZARK X8 SN

X1B2B045 x Add New ZARK X8

Channel ID

DYN_CH1

Sensor Power

IEPE

Orientation *

Vertical (y)

Spectrum Resolution *

3200

Fmax *

3000 Hz

Sensor Type *

Proximity Sensor

Measurement Type *

Displacement

☐ 7.874 mV/μm
☐ 200 mV/mil

Sensitivity *

200 mV/mil

Send Spectrum *

Never

Send Raw Waveform *

Never

Speed - Pulses per Revolution *

0

Speed - Threshold *

50%

LP Filter *

1000 Hz

HP Filter *

10 Hz

Description

* - required field

Cancel
Save

6.1.1.3 Sensor Type – Voltage (VDC)

Another type of sensor supported by Machine Dossier are simple DC voltage sensors (VDC).

To configure a channel to record DC voltage, it must be selected as a Voltage (VDC) from the drop-down list by clicking under the “Sensor Type”. Every other field can be changed following the preferences and requirements of the user. The units displayed, commonly Volts (V), can be set to any field by the user. If the machine is low voltage, use (mV), and set the parameters accordingly. However, if the user is using Volts (V), set point 1 and point 2 to 1V and 5V, respectively. Doing so will allow the user to gather

measurement points and record the voltage of the machine directly. Once completed, click “Next Step”. For more information about the entries in the screen below, please see section 6.1.1.

Add Details

CancelPrevious StepNext Step

Machine

Test Machine

Name *
Simple Voltage - Channel 1

ZARK X8 SN
X1B2B045 x vAdd New ZARK X8

Channel ID
DYN_CH1 x v

Sensor Power
IEPE v

Orientation *
Vertical (y) v

Spectrum Resolution *
3200 v

Fmax *
3000 Hz v

Sensor Type *
Voltage(VDC) v

Measurement Type *
Voltage

Unit for display *
V

Engineering Scaling
Point1 *
1 V 1 V

Point2 *
5 V 5 V

Speed - Pulses per Revolution *
0 i

Speed - Threshold *
50% v

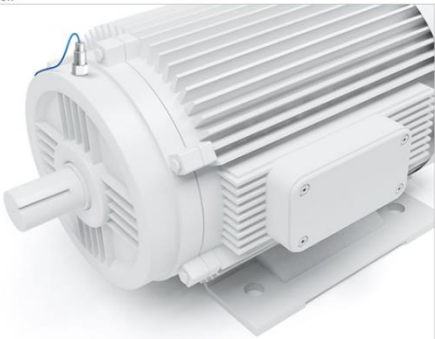
LP Filter *
1000 Hz v

HP Filter *
10 Hz v

Description

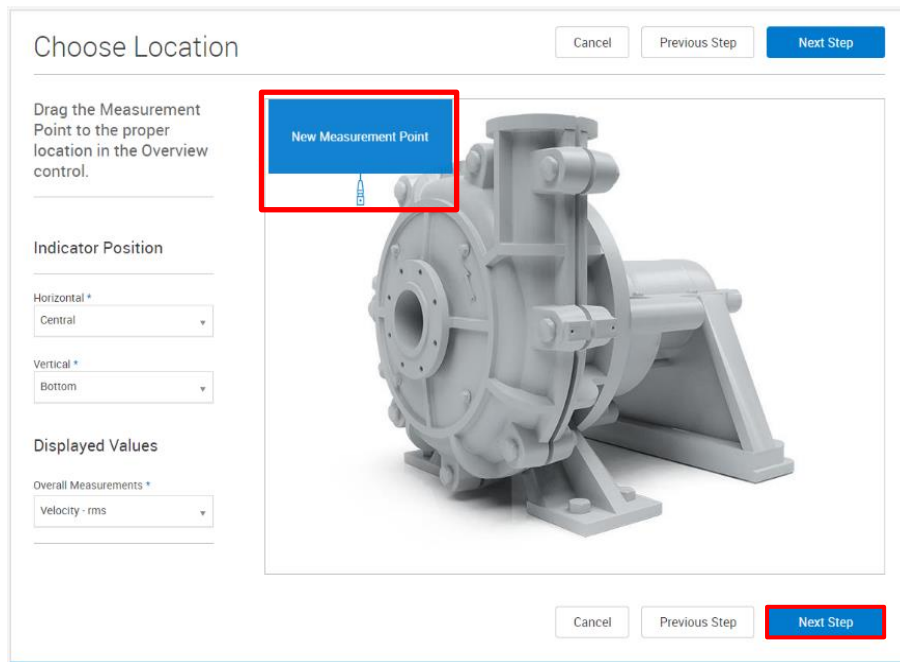
* - required field

Orientation Preview



CancelPrevious StepNext Step

A Choose Location window will open, allowing the user to pinpoint a location for the measurement point. Outlined in red, the field can be dragged around the image of the machine, to make it easier on the user when distinguishing between channels. Indicator position and displayed values can be changed as well but can also be reconfigured later. Once a desired position is identified, click “Next Step”.



A Summary window will appear confirming all entries from the previous screen. Once confirmed, click “Add Measurement Point”.

Summary

Cancel

Previous Step

Add Measurement Point

Name

Simple Voltage - Channel 1

at Test Machine

ZARK X8 SN

X1B2B045

Channel ID

DYN_CH1

Sensor Power

IEPE

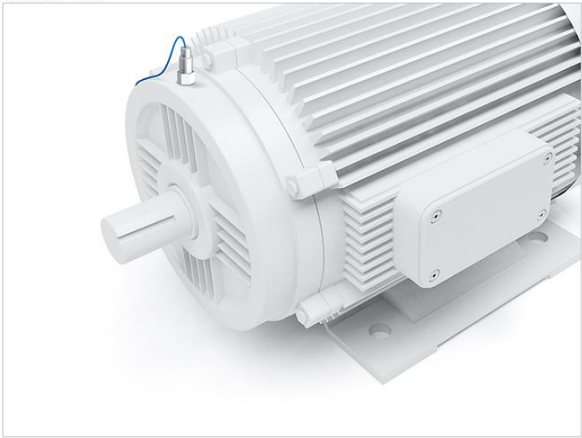
Orientation *

Vertical (y)

Overall Measurement *

Voltage

Orientation Preview

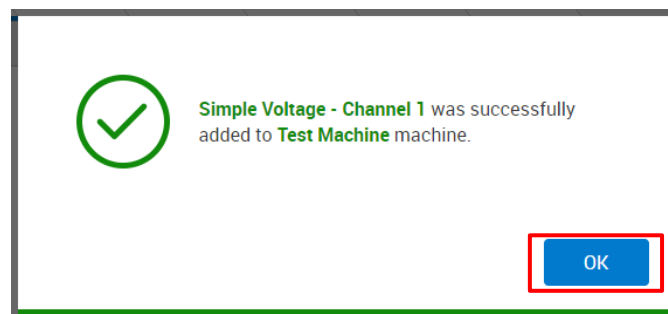


Cancel

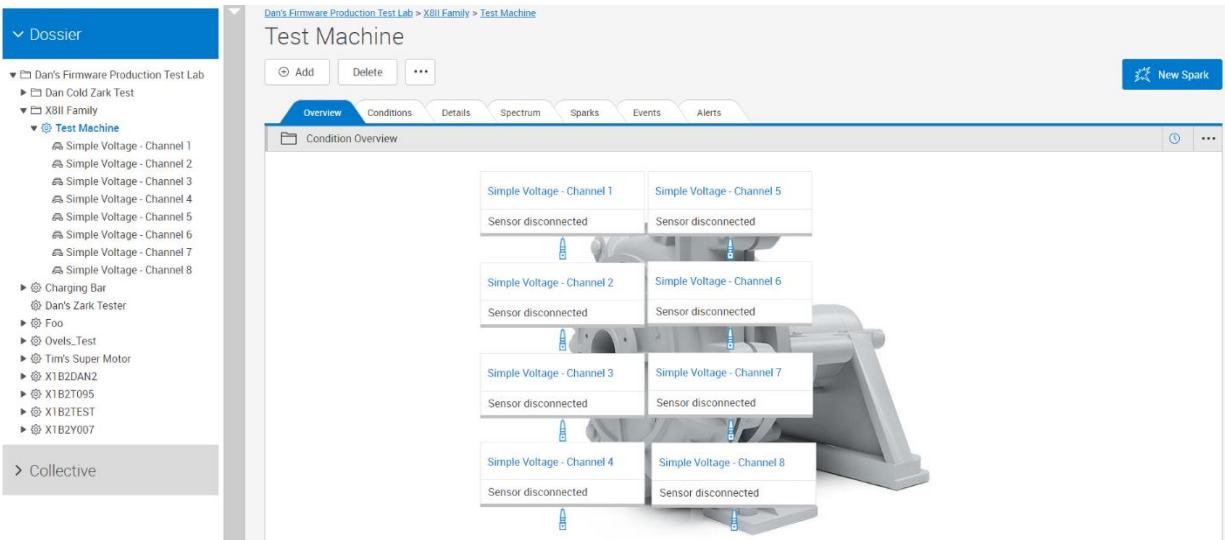
Previous Step

Add Measurement Point

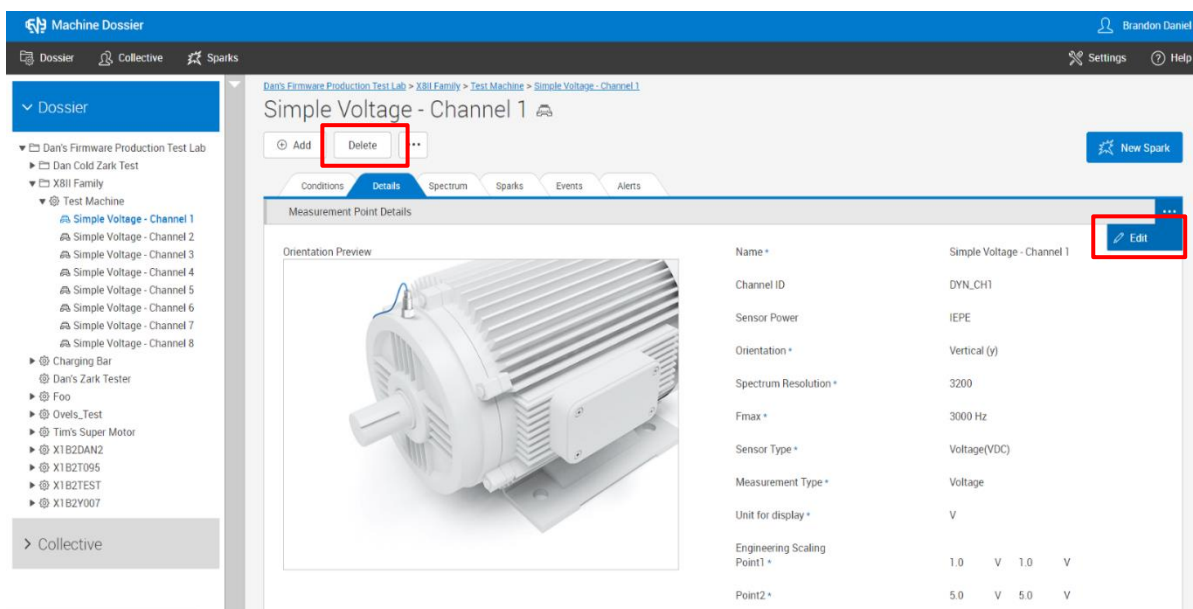
A confirmation box pops up indicating that a new channel has been configured. Click “Ok” to confirm and finalize changes.



Repeating the steps above 7 more times, the window below shows 8 simple voltage sensors configured to the machine. Clicking on a channel brings up more details about the measurement point: spectra, events, configurations, etc.



If the user chooses to do so, they may navigate to the “Details” tab and under the three dots to the right of the window, they may click “Edit” to make any changes to a configured channel. Doing so will NOT delete previous data. If a user wished to change the probe type of a certain channel, they must click the “Delete” button outlined in red.



Clicking the “Edit” button brings up a screen that allows the user to make changes to the configurations of a channel. Changes can be made according to the preferences or requirements of the user. Once the desired changes have been made, the user must click “Save”.

displayed to the expectation of the user, configure the channel afterwards. Click “Next Step” when finished.

Add Details

CancelPrevious StepNext Step

Machine

Test Machine

Name *
Temperature - Channel 1

ZARK X8 SN
X1B2B045 x Add New ZARK X8

Channel ID
DYN_CH1 x

Sensor Power
IEPE

Orientation *
Vertical (y)

Spectrum Resolution *
3200

Fmax *
3000 Hz

Sensor Type *
Temperature Sensor

Measurement Type *
Temperature

Sensitivity *
10 mV/°C

Base Value for 32 °F *
0 mV

Speed - Pulses per Revolution *
0 ⓘ

Speed - Threshold *
50%

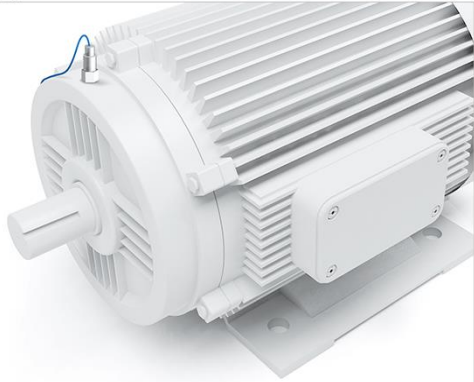
LP Filter *
1000 Hz

HP Filter *
10 Hz

Description

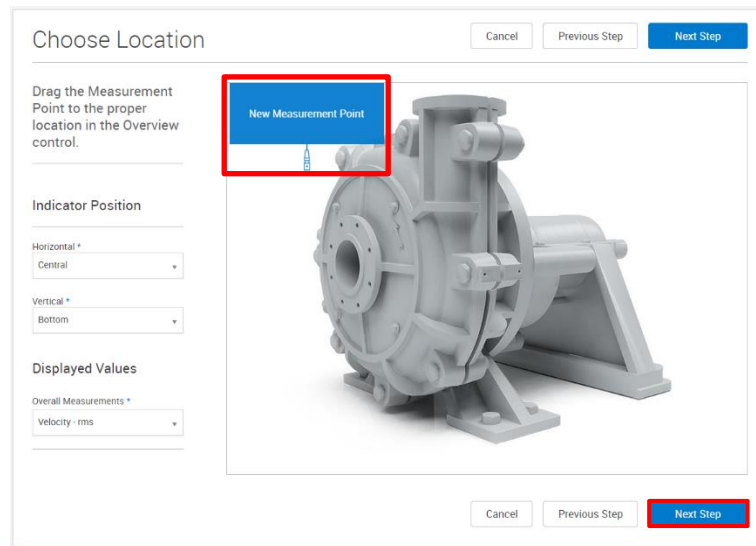
* - required field

Orientation Preview

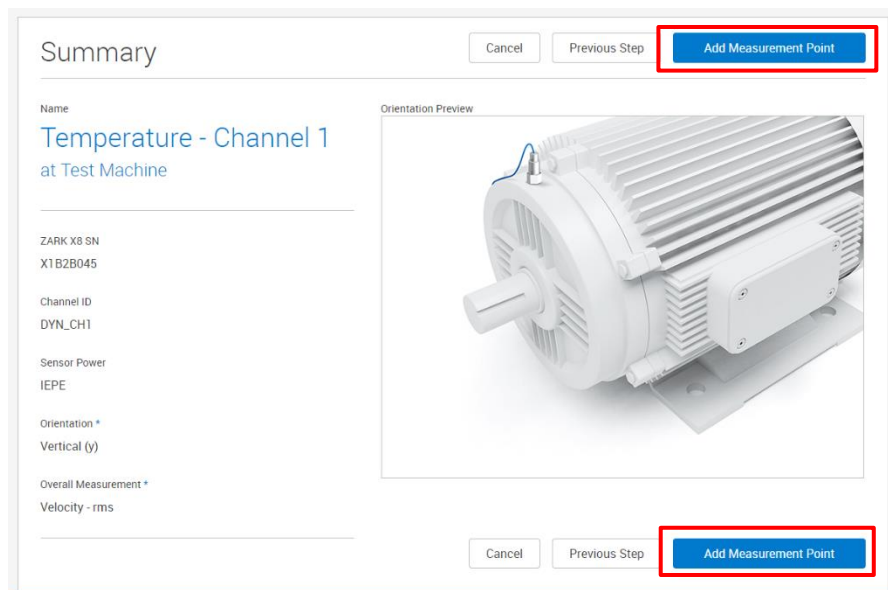


CancelPrevious StepNext Step

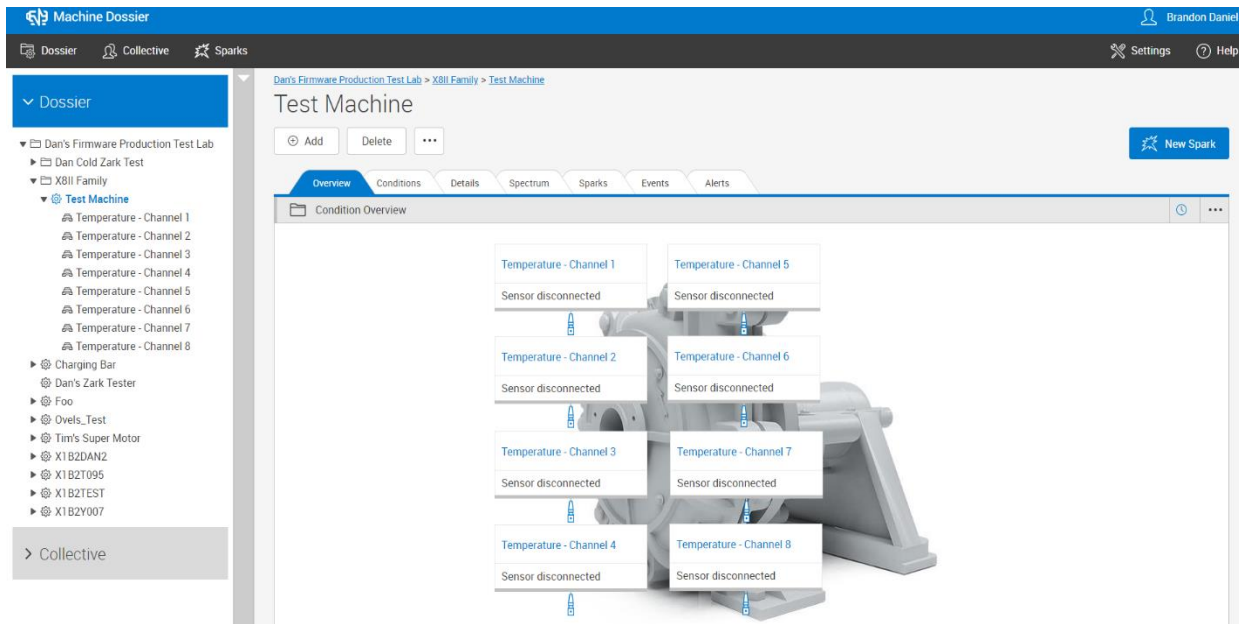
The following page allows the user to position the measurement point on a machine. The red field can be moved, and the user may specify an ideal position on the machine. Indicator positions and the vertical configurations can also be moved to best fit the user's needs. Note that making changes in this screen will not impact the way measurements are recorded. Once completed, click "Next Step".



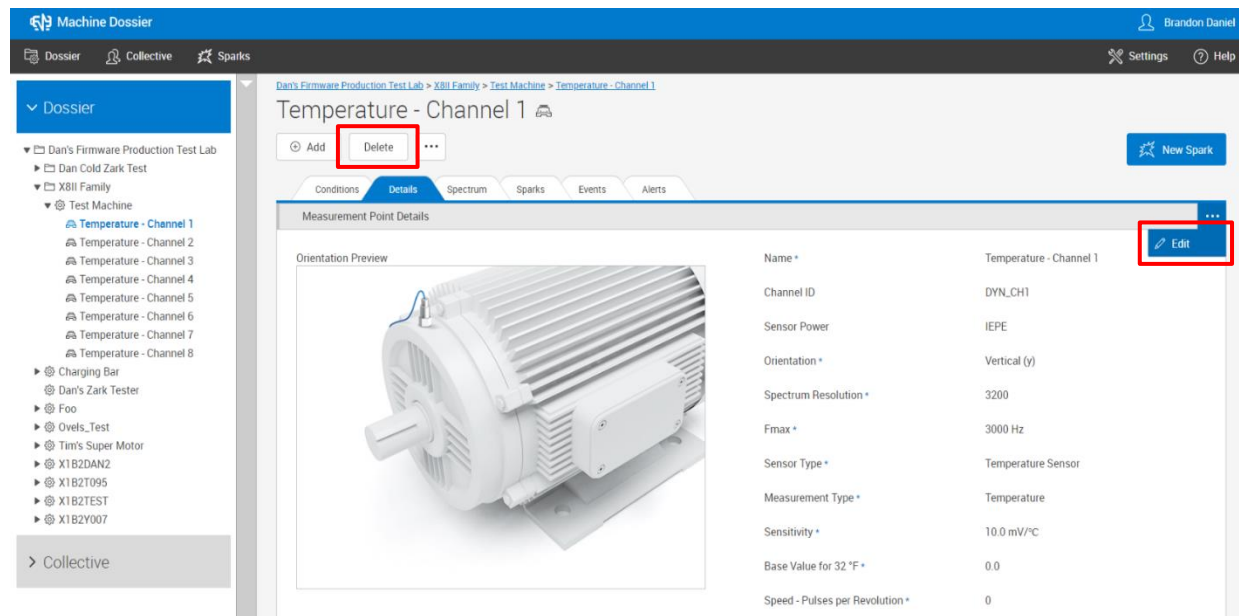
A summary window of all changes displays everything that was configured by the user. If every detail seems correct, click "Add Measurement Point".



Repeating the steps above 7 more times, the window below shows 8 temperature sensors configured to the machine. Clicking on a channel brings up more details about the measurement point: spectra, events, configurations, etc.



If the user chooses to do so, they may navigate to the “Details” tab and under the three dots to the right of the window, they may click “Edit” to make any changes to a configured channel. Doing so will NOT delete previous data. If a user wished to change the probe type of a certain channel, they must click the “Delete” button outlined in red.



Clicking the “Edit” button brings up a screen that allows the user to make changes to the configurations of a channel. Changes can be made according to the preferences or requirements of the user. Once the desired changes have been made, the user must click “Save”.

Machine Dossier

Brandon Daniel

Dossier Collective Sparks

Settings Help

▼ Dossier

- ▼ Dan's Firmware Production Test Lab
 - ▼ Dan Cold Zark Test
 - ▼ XBII Family
 - ▼ Test Machine
 - Temperature - Channel 1
 - Temperature - Channel 2
 - Temperature - Channel 3
 - Temperature - Channel 4
 - Temperature - Channel 5
 - Temperature - Channel 6
 - Temperature - Channel 7
 - Temperature - Channel 8
 - Charging Bar
 - Dan's Zark Tester
 - Foo
 - Ovels_Test
 - Tim's Super Motor
 - X1B2DAN2
 - X1B2T095
 - X1B2TEST
 - X1B2Y007

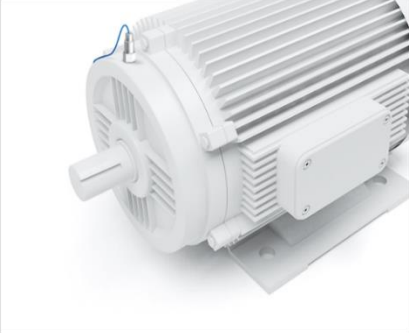
- Collective

Temperature - Channel 1

Conditions Details Spectrum Sparks Events Alerts

Measurement Point Details

Orientation Preview



Name * Temperature - Channel 1

ZARK X8 SN X1B2B045 x Add New ZARK X8

Channel ID DYN_CH1

Sensor Power IEPE

Orientation * Vertical (y)

Spectrum Resolution * 3200

Fmax * 3000 Hz

Sensor Type * Temperature Sensor

Measurement Type * Temperature

Sensitivity * 10.0 mV/°C

Base Value for 32 °F * 0.0 mV

Speed - Pulses per Revolution * 0

Speed - Threshold * 50%

LP Filter * 1000 Hz

HP Filter * 10 Hz

Description

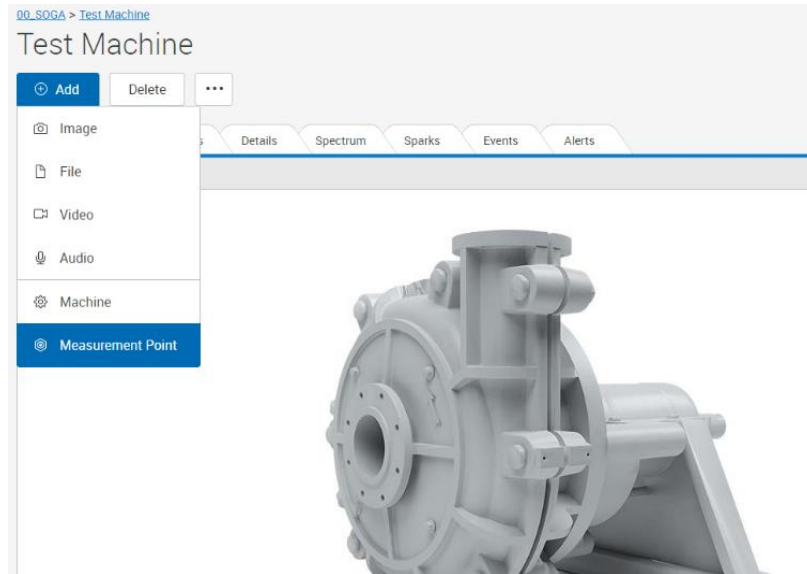
* - required field

Cancel Save

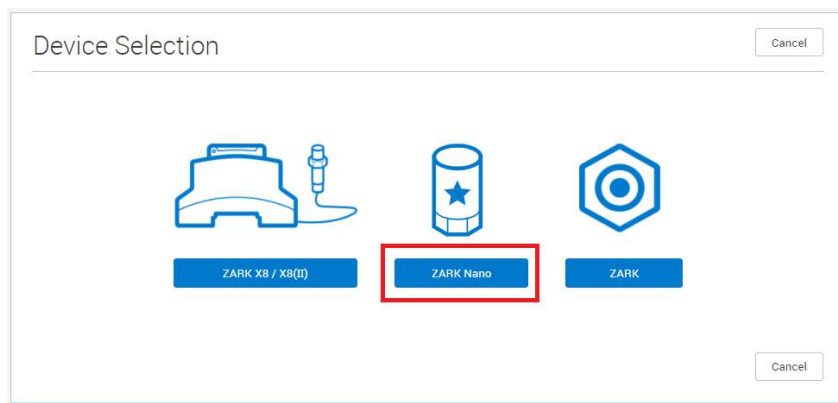
6.1.2 ZARK NANO

The purpose of this section is to outline the steps necessary to properly add a NANO measurement point in MD.

Assuming that a machine has already been properly added to Staging, hover over the "Add" button and click "Measurement Point".



In the menu that appears afterwards, select “ZARK Nano”.



The Add Details menu is where the user can make specific configurations to the NANO. The “Name” field can be anything, but the NANO SN should match the assigned SN of the NANO. The serial number (SN) of the NANO is located on the physical device, on a sticker wrapped around the blue cover. The “sensor orientation” allows the user to specify which axis will be displayed once the unit begins to send measurements. The “Spectrum Resolution” field allows the user to select how much detail they would like to see in the spectra for the NANO. The spectra and the waveform plots can also be specified in this page. Filters can also be configured here. Once complete, click “Next Step”.

Add Details

[Cancel](#)[Previous Step](#)[Next Step](#)

Machine

Test Machine

Name *

Z2R1XXXX

ZARK nano SN

Z2R1XXXX

Sensor Orientation *

Vertical (y)

Enable 3-Axis Measurements



Spectrum Resolution *

3200

Fmax *

2000 Hz

Send Velocity Spectrum *

Never

Send Time Waveform *

Never

LP Filter *

2000 Hz

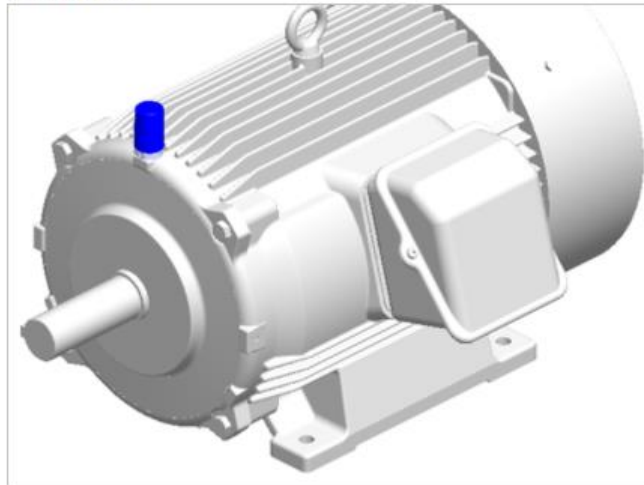
HP Filter *

5 Hz

Description

* - required field

Orientation Preview

[Cancel](#)[Previous Step](#)[Next Step](#)

On the Choose Location menu, the user can move the “New Measurement Point” to where they desire. The position and orientation of the measurement point along with the unit displayed can also be configured here. Keep in mind that all these changes are not permanent and measurement point can be edited later. Click “Next Step” when finished.

Choose Location

[Cancel](#)[Previous Step](#)[Next Step](#)

Drag the Measurement Point to the proper location in the Overview control.

Indicator Position

Horizontal *

Central

Vertical *

Bottom

Displayed Values

Overall Measurements *

Velocity - rms

[Cancel](#)[Previous Step](#)[Next Step](#)

The summary page shows all the configurations for the new measurement point. Click “Add Measurement Point” after reviewing the details.

Summary

[Cancel](#)[Previous Step](#)[Add Measurement Point](#)

Name

Z2R1XXXX
at Test Machine

Sensor Orientation *

Vertical (y)

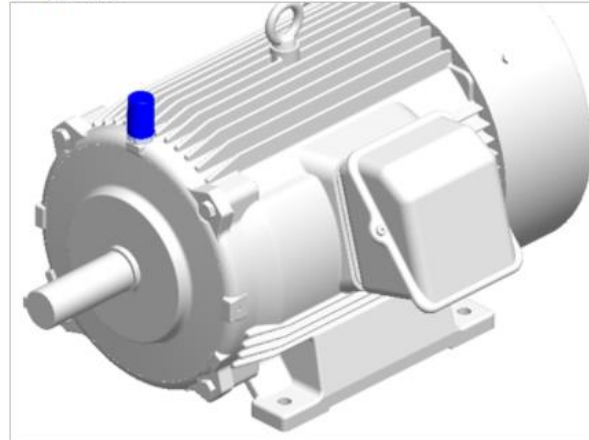
ZARK nano SN

Z2R1XXXX

Overall Measurement *

Velocity - rms

Orientation Preview

[Cancel](#)[Previous Step](#)[Add Measurement Point](#)

A message will pop up saying that a new measurement was configured. Verify the serial number of the unit and click “Ok.”



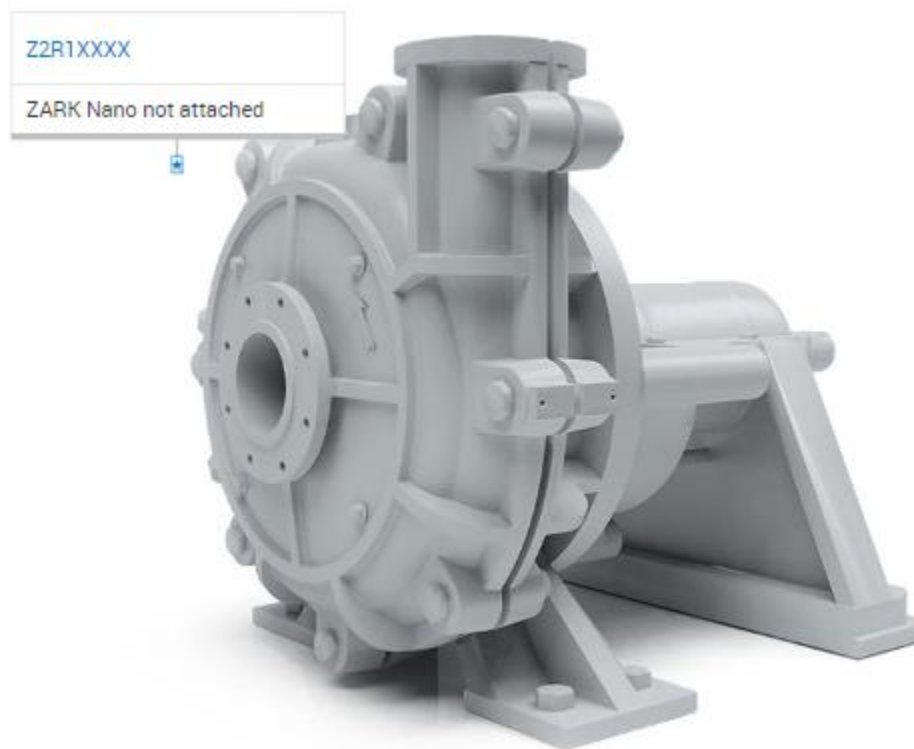
Z2R1XXXX was successfully added to Test Machine machine.



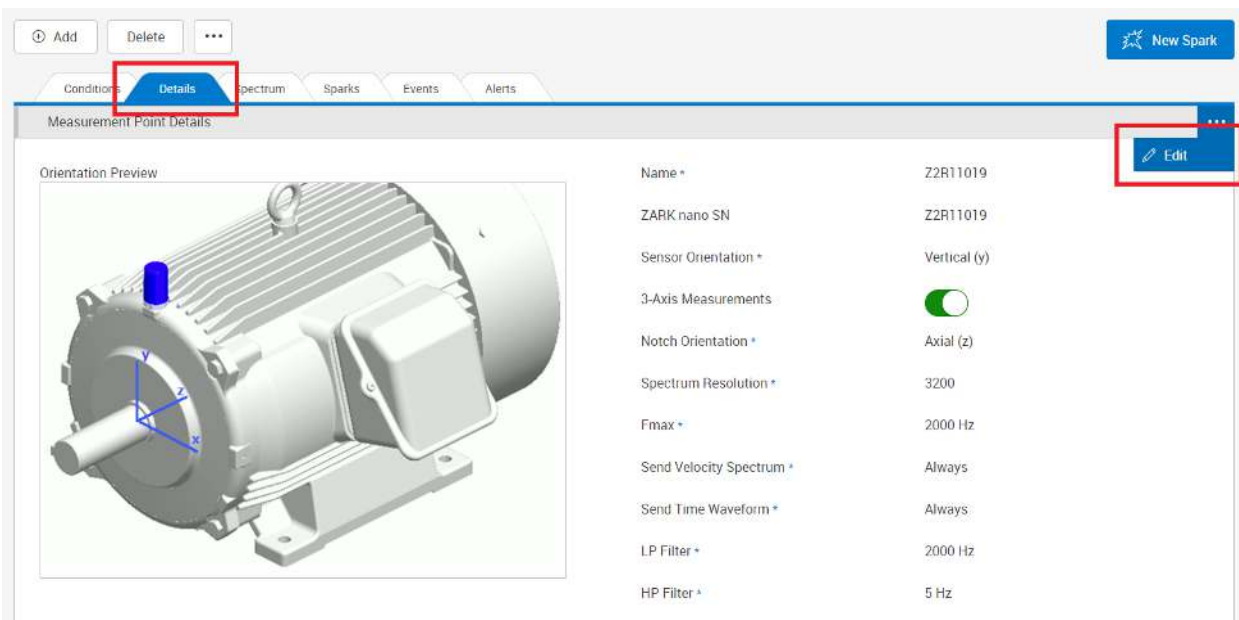
Tap the sensor to verify the connectivity

OK

This is what the measurement point will look like after the user has successfully added it to the machine.



If the user chooses to do so, they may navigate to the “Details” tab and under the three dots to the right of the window, they may click “Edit” to make any changes to a configured channel. Doing so will NOT delete previous data. If a user wished to change the NANO of a certain channel, they must click the “Delete” button.



Clicking the “Edit” button brings up a screen that allows the user to make changes to the configurations of a NANO. Changes can be made according to the preferences or requirements of the user.

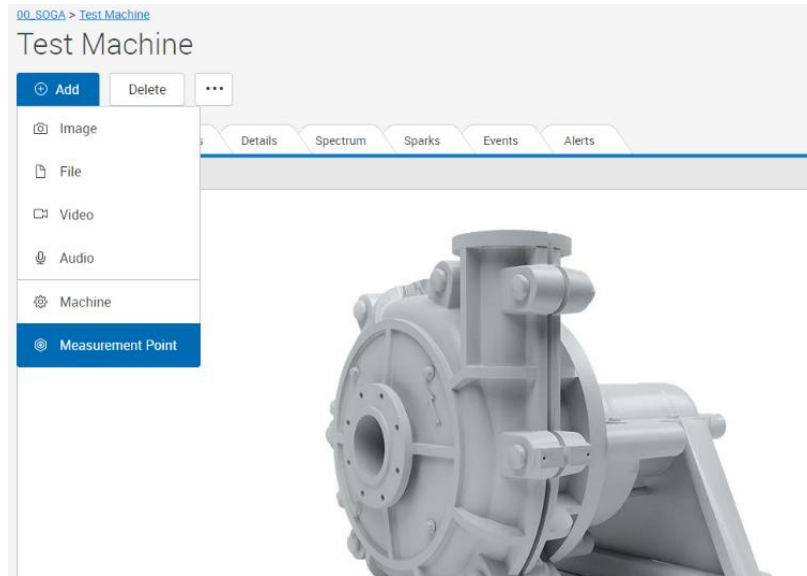


One field to take note of is “Notch Orientation.” The “Notch” is found on one of the faces of the metal hex base and can be seen in the image above. This face will be used to orient the unit in the correct Z or X direction, depending on user preference. Once the desired changes have been made, the user must click “Save.”

6.1.3 ZARK

The purpose of this section is to outline the steps necessary to properly add a ZARK measurement point in MD.

Assuming that a machine has already been properly added to Staging, hover over the “Add” button and click “Measurement Point”.



In the menu that appears afterwards, select “ZARK.”



The next screen will be Add Details, which is where the user will enter all the relevant information to add a ZARK measurement point. The “Name” field can be anything, but the RING ID should match the assigned SN of the magnetic hex base in which the ZARK unit will be installed. The RING ID of the hex base is located on the physical device, as seen in the image below.



“Sensor orientation” allows the user to specify which axis will be displayed once the unit begins to send measurements. The “Spectrum Resolution” field allows the user to select how much detail they would like to see in the spectra for the ZARK. Fmax is locked at 3100 Hz when entering a ZARK unit. Once complete, click “Next Step”.

Add Details

[Cancel](#)[Previous Step](#)[Next Step](#)

Machine

Test Machine

Name *

Practice Zark

Ring ID

C1R1003

Sensor Orientation *

Vertical (y)

Enable 3-Axis Measurements



Spectrum Resolution *

800

Fmax *

3100 Hz

Description

Practice Zark

* - required field

Orientation Preview

[Cancel](#)[Previous Step](#)[Next Step](#)

In the Choose Location menu, the user can move the “New Measurement Point” to where they desire. The position and orientation of the measurement point along with the unit displayed can also be configured here. Keep in mind that all these changes are not permanent and measurement point can be edited later. Click “Next Step” when finished.

Choose Location

Cancel

Previous Step

Next Step

Drag the Measurement Point to the proper location in the Overview control.

Indicator Position

Horizontal *

Central

Vertical *

Bottom

Displayed Values

Overall Measurements *

Velocity - rms

New Measurement Point

another Zark



Cancel

Previous Step

Next Step

The summary page shows all the configurations for the new measurement point. Click “Add Measurement Point” after reviewing the details.

Summary

Cancel

Previous Step

Add Measurement Point

Name

C1R1003

at Zark Calibrator

Sensor Orientation *

Vertical (y)

QR Code Orientation *

Axial (z)

Ring ID

C1R10003

Overall Measurement *

Velocity - rms

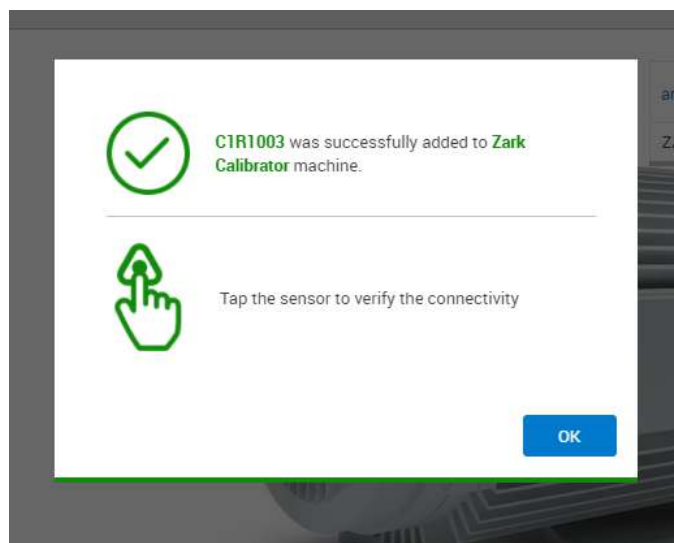
Orientation Preview

Cancel

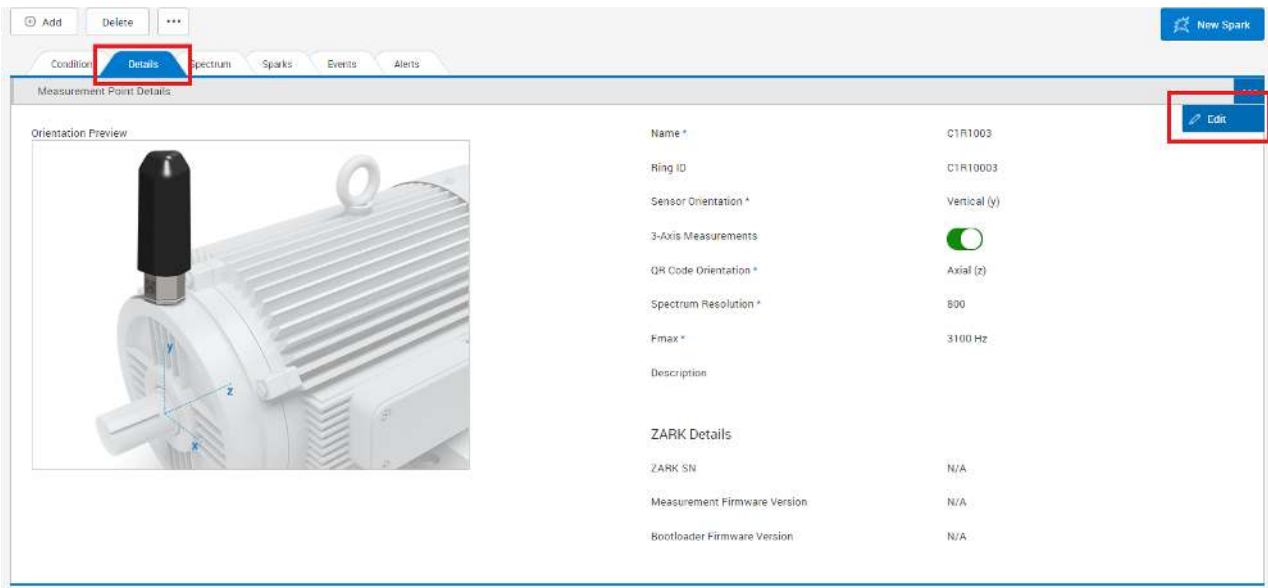
Previous Step

Add Measurement Point

A message will pop up saying that a new measurement was configured. Verify the serial number of the unit and click “Ok.”



If the user chooses to do so, they may navigate to the “Details” tab and under the three dots to the right of the window, they may click “Edit” to make any changes to a configured channel. Doing so will NOT delete previous data. If a user wished to change the ZARK of a certain channel, they must click the “Delete” button.



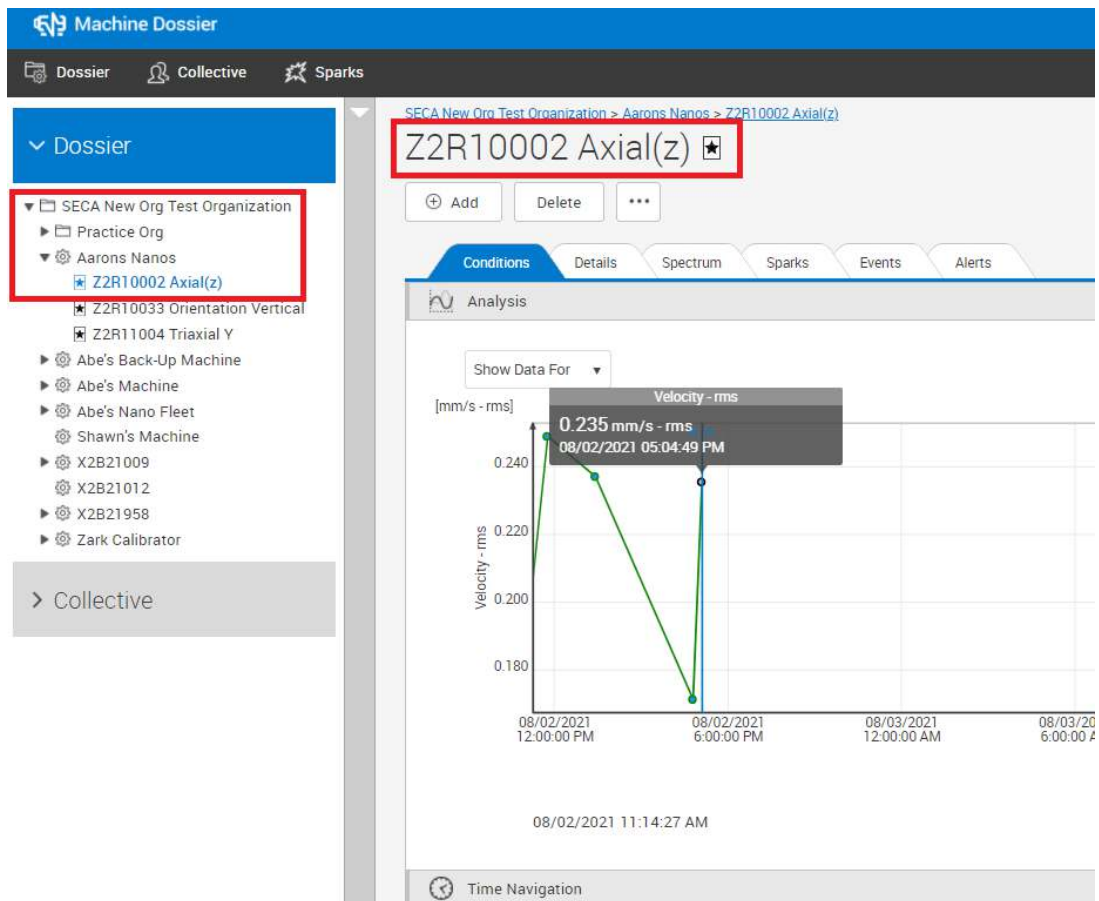
Clicking the “Edit” button brings up a screen that allows the user to make changes to the configurations of a ZARK. Changes can be made according to the preferences or requirements of the user.

One field to take note of is QR Code Orientation. The QR code is found on the same face of the magnetic hex base as the serial number. This face will also be used to orient the unit in the correct Z or X direction, depending on user preference. Once the desired changes have been made, the user must click “Save.”

6.2 MEASUREMENT POINT FEATURES

After a measurement point has been created, the user can use the Dossier hierarchy in the left pane to expand the Organization Unit and find the Machine that the measurement point was created under.

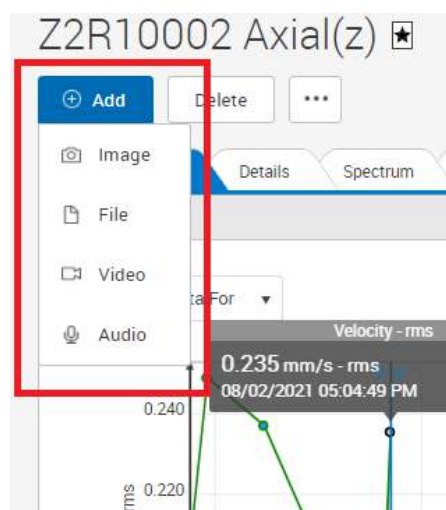
The selected measurement point’s details show up in the right pane of the screen. This can be seen in the screenshot below.



Below are the features found within a measurement point and how they function.

6.2.1 Add

Hovering over the “Add” button displays the following list:



Image, File, Video and Audio – When one of these options is selected from the “Add” drop down menu, a dialogue box will open that allows the user to upload an image, file,

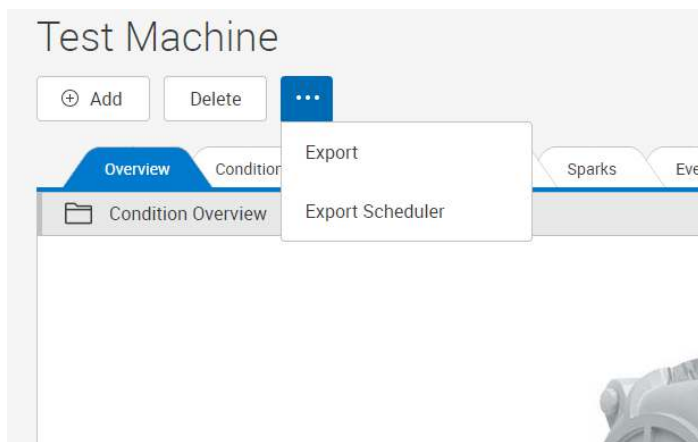
video, or audio file, depending on which option is selected. The file will be uploaded as an event and will show up in the “Events” tab. The event will automatically be assigned to the node in which it is being created. For instance, if an image, file, video, or audio file is uploaded under Z2R10002 Axial(z) it will automatically be assigned to that measurement point’s node. The user can specify the Event Name and Event Date Time. Finally, the Event can also be linked to an existing Spark.

6.2.2 Delete

Will delete a measurement point. All data linked to the measurement point will be removed.

6.2.3 Export/Export Scheduler

Hovering over the three dots button will bring up a menu with Export and Export Scheduler.



These features allow the user to export data for a specified period. Data exported can be customized to include the following measurements:

- Overall and Spectrum Values – Velocity, Acceleration, Voltage, Strain, Speed, Temperature, etc.
- CIV Values – CIV Maximum Acceleration and Velocity
- Waveform Data

If Export Scheduler is chosen, an “Export every” option will be present. This allows customization of an automatically generated export for a specified time interval in weeks, days, or hours.

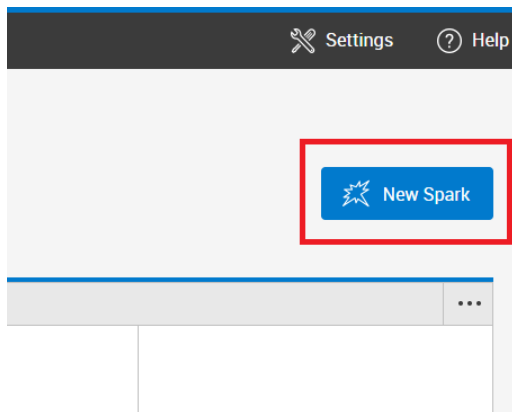
Once the period and values have been selected, you can choose an export format from the drop-down menu. Export file support includes: .MDE, .xml and .csv files.

After the period is specified, values and file format are chosen, click “Order Data Export.” This will export all the selected data underneath the node in which the export was initiated.

*NOTE: Export and Export Scheduler is a paid functionality. To activate this service please contact SECA customer service.

6.2.4 New Spark

To add a new Spark, click on the “New Spark” button located underneath the Settings and Help button on the right side of the window.



A Details screen will open with the following inputs:

Dossier Element – This will automatically populate with the node under which the Spark is being created.

Summary – Required input that will serve as the title of the Spark.

Spark Owner – Collective member that will be responsible for resolving the spark. Anyone in the Collective can be chosen, not just the creator of the Spark.

Spark Team – Collective members responsible for review and resolution of the Spark.

Priority – Drop down menu that allows the user to give the Spark a level of urgency.

Occurrence Date – Date which the event occurred that prompted the Spark.

Spark Start Date – Date which the Spark was first created.

Spark End Date – Date of resolution of the Spark.

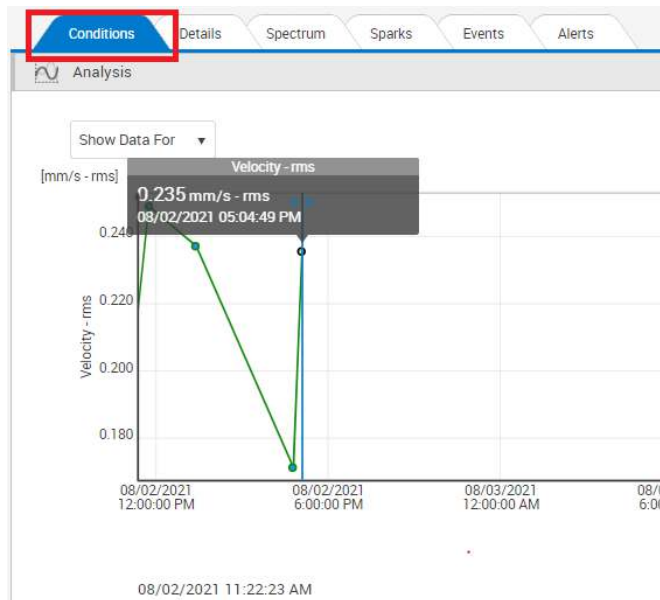
Description – Details of the Spark. The Spark creator should be as detailed as possible so the Spark Team and Owner can understand why the Spark was created and determine steps to resolve the Spark.

Expected Solution – Steps and ideas to resolve the Spark by the Spark Owner and/or Team.

Once all the required information is entered, click “Next Step.” The following screen is a summary of the inputs from the Details screen. If all the entries are correct, clicking “Add New Spark” will create the Spark and an alert will be sent to the Owner and Team.

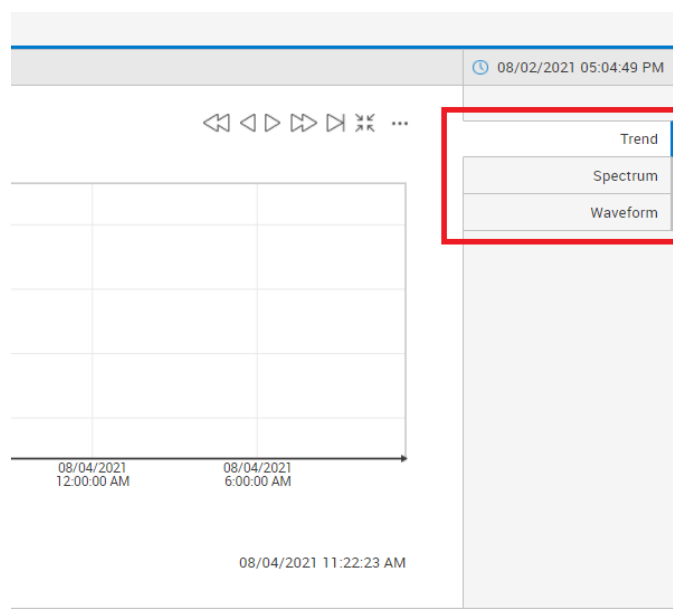
6.2.5 Conditions

The Conditions tab is separated into two sections: Analysis and Time Navigation. See section 5.2.5 for a detailed description of the Time Navigation section.

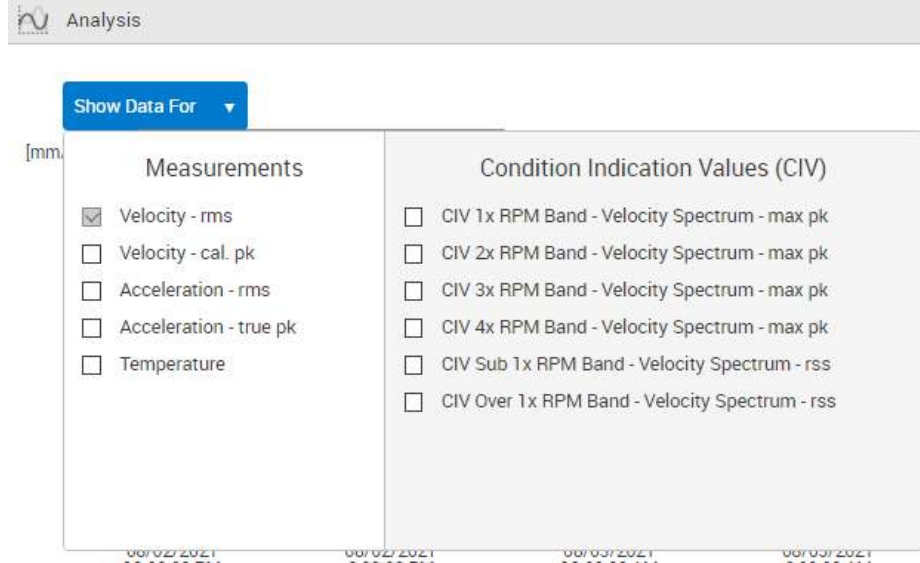


Analysis

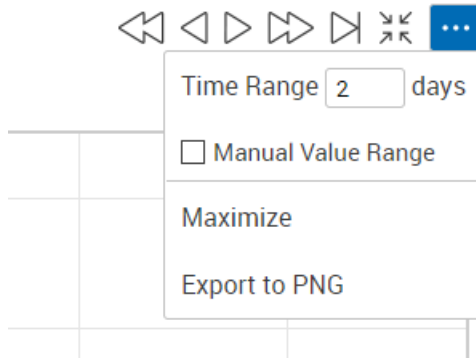
The analysis section gives the user the ability to review the data the selected measurement point. On the right side of this section, there are three different tabs representing three different methods of viewing data: Trend, Spectrum and Waveform.



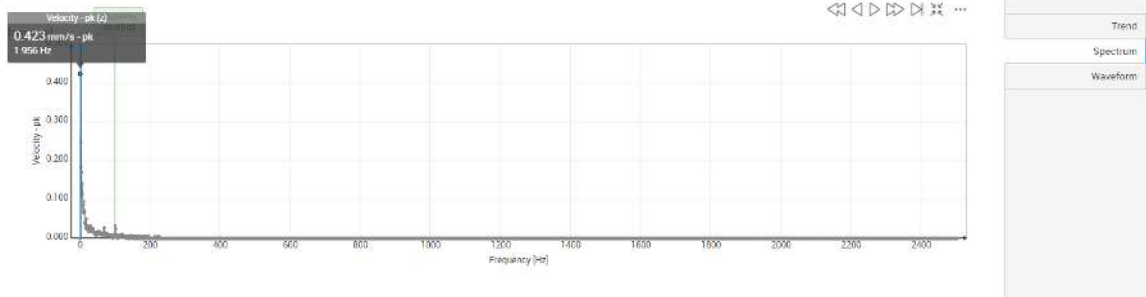
- **Trend** – This tab shows a plot of selected data vs time.
 - **Show Data For** – Drop-down menu that allows the user to swap between different measurement values and choose which data to plot vs time. Available measurements may vary slightly depending on type of measurement point (Wired, ZARK NANO or ZARK).



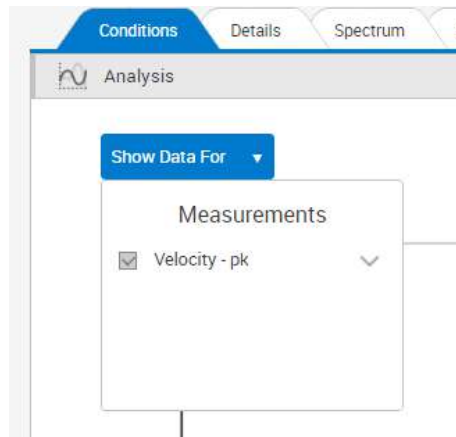
- **Three Dots Button** – Allows the user to change the time range, maximize the plot to full screen and export a .png of the plot.



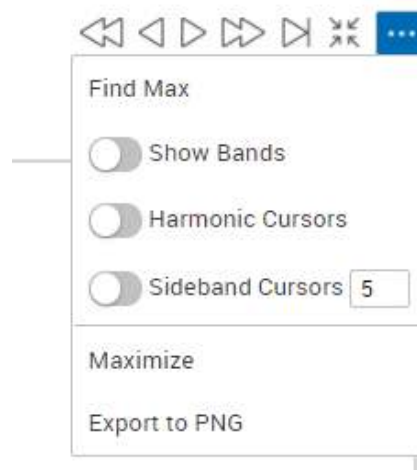
- **Spectrum** – Plot of velocity (pk) vs frequency (Hz).



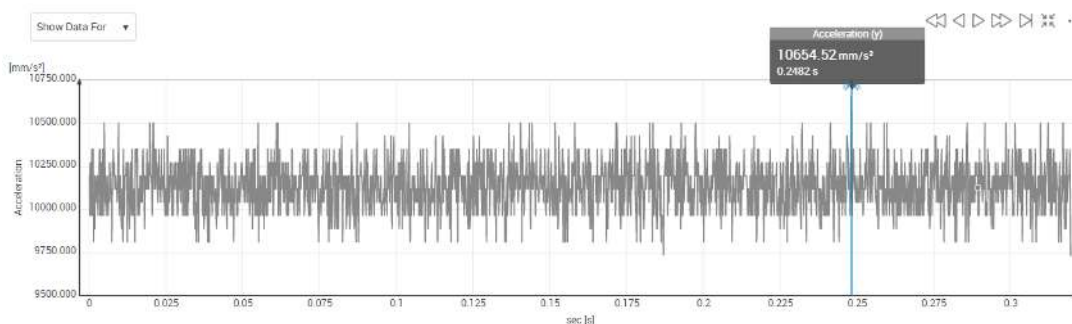
- **Show Data For** – This drop-down menu displays only for certain measurement points, and only has one option available when it is present, Velocity - pk.



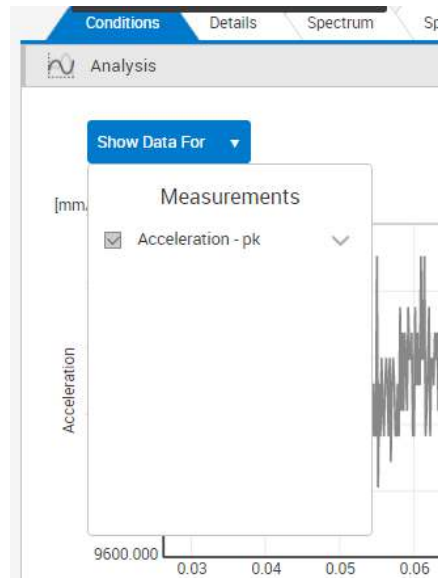
- **Three Dots Button** – Allows the user to toggle Show Bands, Harmonic Cursors and Sideband Cursors. Also allows the user to maximize the plot to full screen and export a .png of the plot.



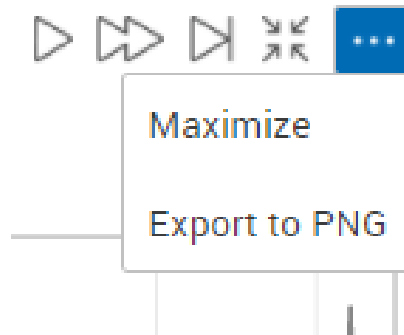
- **Waveform** – Plot of acceleration vs time.



- **Show Data For** – This drop-down menu displays only for certain measurement points, and only has one option available when it is present, Acceleration - pk.



- **Three Dots Button** – Allows the user to maximize the plot to full screen and export a .png of the plot.



6.2.6 Details

The Details tab provides a summary of all the information that the user input while initially configuring the measurement point. The information found in this tab varies between the different types of measurement points that can be added in MD (ZARK X8/X8II, ZARK NANO and ZARK). Below are two screenshots of what this tab looks like for a ZARK NANO.

Z2R10002 Axial(z) ★

⊕ Add Delete ...

Conditions

Details

Spectrum

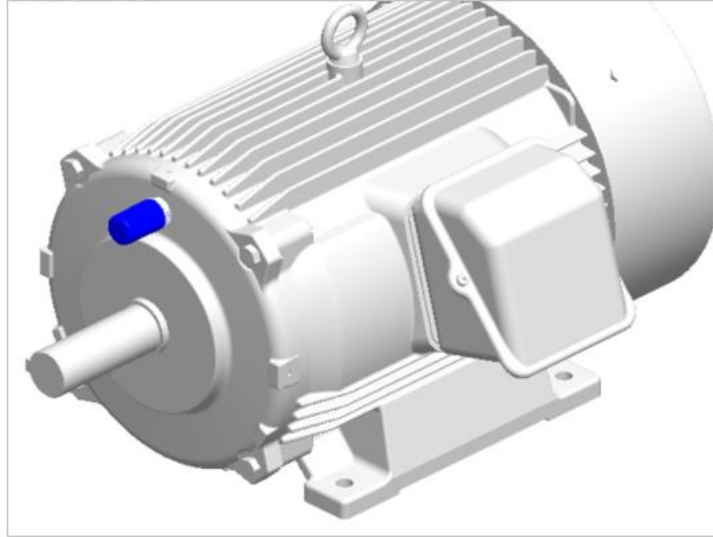
Sparks

Events

Alerts

Measurement Point Details

Orientation Preview



Name *	Z2R10002 Axial(z)
ZARK nano SN	Z2R10002
Sensor Orientation *	Axial (z)
3-Axis Measurements	☐
Spectrum Resolution *	3200
Fmax *	2000 Hz
Send Velocity Spectrum *	Always
Send Time Waveform *	Only For Alarm
LP Filter *	2000 Hz
HP Filter *	5 Hz
Description	
ZARK NANO Details	
HUB SN	X2B21958
Measurement Firmware Version	2.0.9
Bootloader Firmware Version	1.0.0

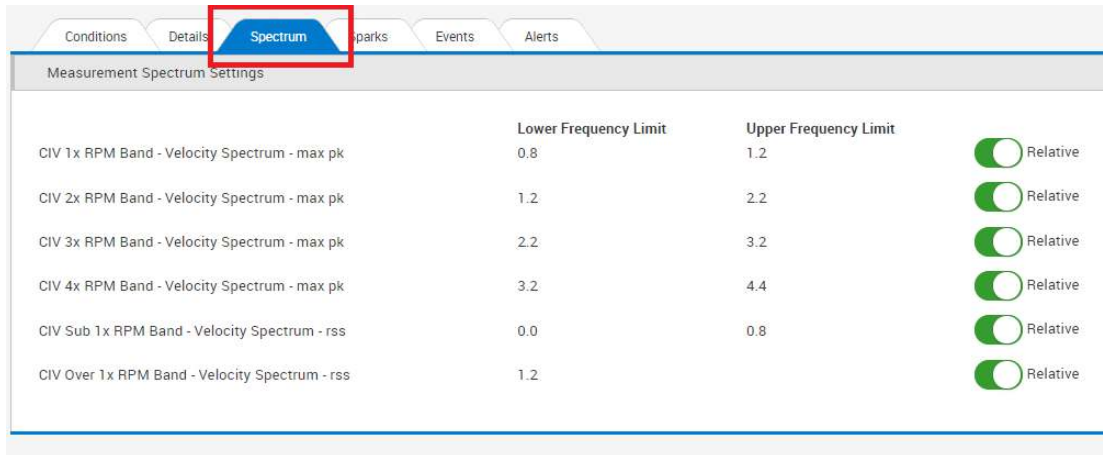
The second image above lists the details of the measurement point, which can be edited by hovering over the three dots button in the upper right-hand corner and clicking “Edit.” In this specific example, the ZARK NANO Details at the bottom of this screen aren’t editable and instead are automatically populated by MD once it establishes communication with the NANO device.

For additional information on the Details tab, refer to sections 6.1.1, 6.1.2 and 6.1.3. At the bottom of each section further information can be found specific to that type of measurement point.

- ZARK X8/X8II – Section 6.1.1
- ZARK NANO – Section 6.1.2
- ZARK – Section 6.1.3

6.2.7 Spectrum

The spectrum tab can be used to adjust Measurement Spectrum Settings.



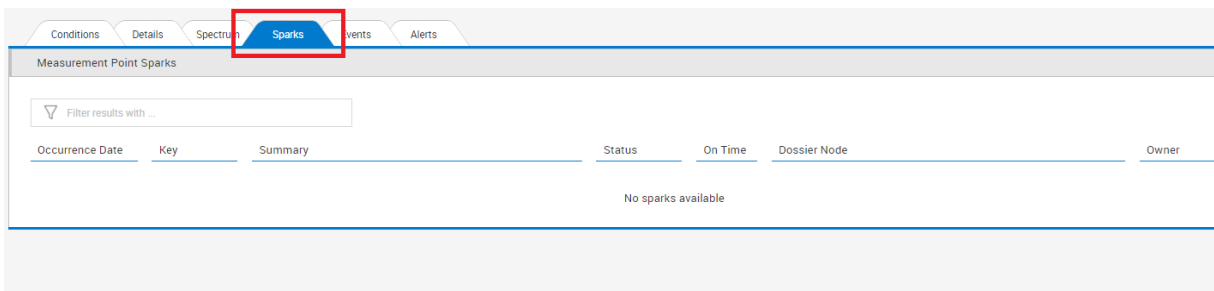
Placing the cursor over the three dots button in the upper right-hand corner of this tab allows the user to edit the Machine Spectrum Settings.

Lower and Upper Frequency Limits can be set according to the requirements of the user and relative and absolute values can be toggled for each spectrum setting.

6.2.8 Sparks

The Sparks tab displays a list of all Sparks created for the measurement point. It summarizes every Spark, showing Occurrence Date, Key, Summary, Status, On Time, Dossier Node and Owner of the Spark.

For additional detail on how to create a Spark, see the section 6.2.4 on adding a New Spark.



6.2.9 Events

Much like the Sparks tab, the Events tab also gives a summary of all the events that have been created and triggered on a measurement point.

Events can be added manually via the Add button, see section 6.2.1 for more information on how to do this. Events can also be triggered automatically by creating alarm and warning thresholds in the Alerts tab, which will be discussed further in section 6.2.10.

Add

Delete

...

Conditions

Details

Spectrum

Sparks

Events

Alerts

Measurement Point Events

▼

Filter results with ...

Date	Type	Event Title	Dossier Node	Spark	User
07/16/2021 11:06:36 AM		Alarm operating condition ⌚ 9.442 mm/s - rms, Velocity - rms	Z2R10002 Axial(z)		M S
07/16/2021 11:06:36 AM		Alarm operating condition ⌚ 13.355 mm/s - cal. pk, Velocity - cal. pk	Z2R10002 Axial(z)		M S
05/21/2021 10:38:44 PM		Warning operating condition ⌚ 4.223 mm/s - max pk.	Z2R10002 Axial(z)		M S

6.2.10 Alerts

The Alerts tab is used to set measurement point thresholds. Threshold settings can be different depending on how the measurement point was configured. While the threshold properties are the same, the values can expand depending on how many axes the measurement point is set up to support.

Conditions

Details

Spectrum

Sparks

Event

Alerts

Measurement Point Thresholds Configuration

Currently the threshold values based on the ISO 10816-1 norm are used in the Machine Dossier.
Any modification within the Dossier Thresholds Configuration will result in the systems configuration being overwritten.

Velocity - rms

Operating Condition	Set Threshold Value
Off	0.000 mm/s - rms
Good Threshold	0.100 mm/s - rms
Warning Threshold	2.800 mm/s - rms
Alarm Threshold	7.100 mm/s - rms

Velocity - cal. pk

Below are the measurement point threshold properties that are currently supported:

- Velocity – rms
- Velocity – ca. pk
- Acceleration – rms
- Acceleration – true pk
- Speed
- CIV 1x RPM Band – Velocity Spectrum – max pk

- CIV 2x RPM Band – Velocity Spectrum – max pk
- CIV 3x RPM Band – Velocity Spectrum – max pk
- CIV 4x RPM Band – Velocity Spectrum – max pk
- CIV Sub 1x RPM Band – Velocity Spectrum – rss
- CIV Over 1x RPM Band – Velocity Spectrum – rss
- Battery Status
- Temperature

The properties above might vary depending on the type of measurement point being configured.

Threshold operating conditions are set up so that the collective can get alerts when warning or alarm thresholds are met. In general, most properties are pre-set to contain the following editable operating conditions:

- Off – Usually set to 0, as this is when the device is in sleep or powered down.
- Good Threshold – Denotes when the device is running and within normal parameters.
- Warning Threshold – Measurement either exceeds or is very close to limits of normal operating parameters.
- Alarm Threshold – Measurement exceeds normal operating parameters, maintenance should occur. In the case of battery status, the battery of the device should be replaced, or potentially the device itself.

An example of the threshold configurations can be seen below. Please note this screenshot is only for a single axis device, a multi-axis device will have three columns of “Set Threshold Value,” one for each axis.

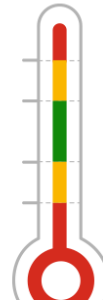
CIV Maximum Velocity - cal. pk	
Operating Condition	Set Threshold Value
 Off	0.000 mm/s - cal. pk
 Good Threshold	0.141 mm/s - cal. pk
 Warning Threshold	3.960 mm/s - cal. pk
 Alarm Threshold	10.041 mm/s - cal. pk
CIV Maximum Acceleration - rms	
Operating Condition	Set Threshold Value
 Off	0.00 mm/s ² - rms
 Good Threshold	62.83 mm/s ² - rms
 Warning Threshold	500000.00 mm/s ² - rms
 Alarm Threshold	500000.00 mm/s ² - rms

Battery Status

Operating Condition	System Threshold Value
 Warning Threshold	25 %
 Alarm Threshold	10 %

Temperature

Operating Condition	System Threshold Value	
	Discharging Status	Charging Status
 Upper Alarm Threshold	140 °F	113 °F
 Upper Warning Threshold	131 °F	108 °F
 Lower Warning Threshold	5 °F	37 °F
 Lower Alarm Threshold	-4 °F	32 °F



To edit the threshold settings, hover over the three dots button in the upper right-hand corner of the Machine Thresholds Configuration section and click “Edit.” This allows the user to customize the threshold properties values.

7 GLOSSARY

Channel: Used to differentiate measurement points attached to a machine. Each measurement point will be assigned a unique Channel ID when they are added to MD.

Collective: Group of users given access to view and edit components within an organization. Collective members can create organization units, machines, measurement points, events, and Spark's. They can also interact with other collective members.

Devices: Machines and Measurement Points within an organization.

Events: Found within Organization Units, Machines and Measurement points these can be uploaded manually via the "Add" menu or can be automatically triggered by threshold settings.

Machine: Any piece of industrial equipment that is added to MD. After a machine is added, users can choose to add measurement points at specified locations to monitor performance for maintenance and troubleshooting.

Measurement Point: Physical device found on a machine to monitor performance and collect data. Once a measurement point is installed, it can communicate with MD to track performance and alert the collective once any threshold parameters have been met or exceeded.

Notch: Found on the ZARK NANO device, this is used to orient the device in the Z or X direction during installation.

Organization Unit: Top level Dossier hierarchy folder that is created by a collective user to contain the organizations machines and measurement points. Examples of real-world Organization Unit's would be an

installation site, plant or maybe an entire business.

Parent Node: Level above which the Organization Unit, Machine or Measurement Point is being added in the Dossier hierarchy. Will automatically be populated when adding one of the aforementioned entities.

RING ID: Found on the metal hex base used with the ZARK product. It is located just below the QR Code found on one of the flat hex faces. This ID is critical for creating a ZARK measurement point in MD and is used to differentiate measurement points.

Spark: An alert created by a collective member that highlights a specific event and time in which the event occurred. These alerts can be sent to collective members for potential solutions.

Three Dots Buttons: These are found throughout MD and are most often used to edit or change information found in a particular section.

Thresholds: Customized values that can function as alerts. Thresholds can be set for certain performance parameters in the Alerts tab found within Machines and Measurement Points. These thresholds can be setup to alert the user via SMS or email when a warning or alarm value is met or exceeded.

ZARK: Wireless condition monitoring device that is coupled with a specific metal hex base and RING ID during physical installation on a machine. These devices are capable of monitoring parameters such as: velocity, acceleration, and temperature.

ZARK NANO: Wireless condition monitoring device attached to a machine. These devices are capable of monitoring

parameters such as: velocity, acceleration, and temperature.

ZARK X8/X8II: Wired condition monitoring device that is directly connected to an X8 or X8II unit. Examples of these devices

are: accelerometers, proximity sensors, DC voltage sensors and temperature sensors.

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