

ABB MOTION SERVICES

ABB Ability™ Digital Powertrain condition monitoring for rotating equipment

What's new? PI30

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New features

Quality flags for operational parameters

In trend charts, a bad quality flag icon and its description text appear in Blue color.

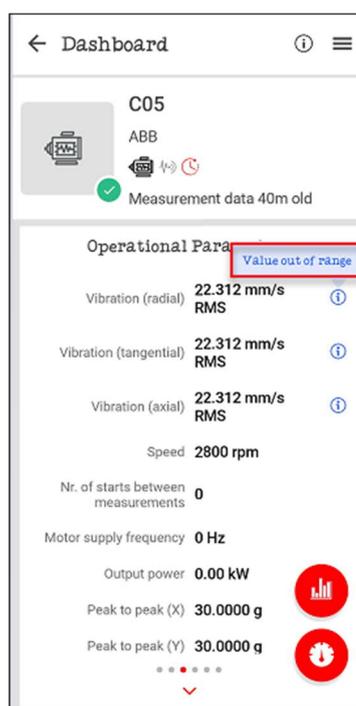
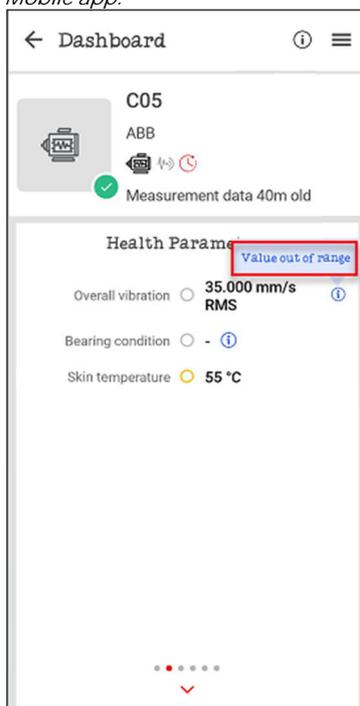
The following quality flags are added:

- Value out of range - The sensor provided value is outside of its possible measurement ranges.
- Value cannot be determined – The measured value cannot be calculated because not all conditions are met. For example, motor is not running.

Portal:



Mobile app:



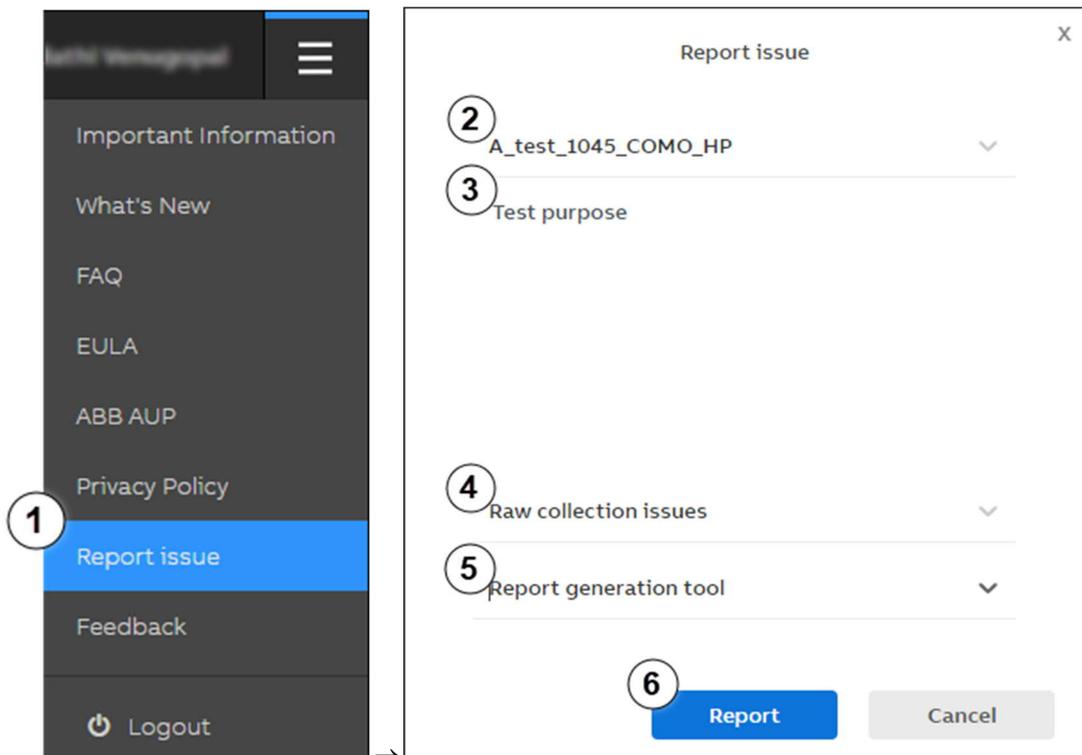
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Reporting an issue is made easy

In Smart Sensor portal, you can log Smart Sensors related issues and directly report them to the support team.

1. From the Hamburger menu, click Report issue.
2. In the Report issue window, select the asset Id.
3. Provide an issue description.
4. Select an issue category.
5. If the issue type field appears, select a type from the list.
6. Click Report, to submit the issue.



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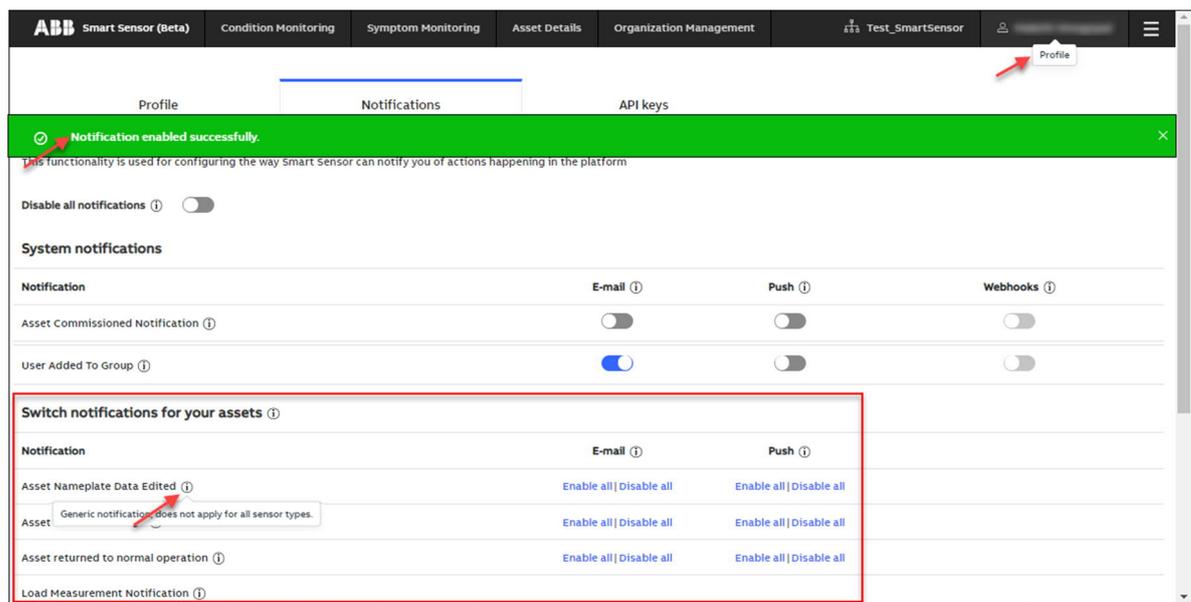
Enable/disable all asset notifications

In Smart Sensor portal, you can enable or disable all notifications for your assets. This action overrules any previous asset level configuration which means that if you commission a new asset to the organization after you have already clicked on the notification switch, to enable notifications for the new sensor, you need to push once more the Enable all button.

Note: The Enable all/Disable all switch applies to assets of the organization that you are currently joined to. If you are a user of more than one organization, you have to join the next organization and enable the notifications for that organization.

1. Go to Profile → Notifications.
2. Under Switch notifications for your assets, against a notification type, click Enable all/Disable all, as needed.

You can read the notification description in the info button next to the notification title.



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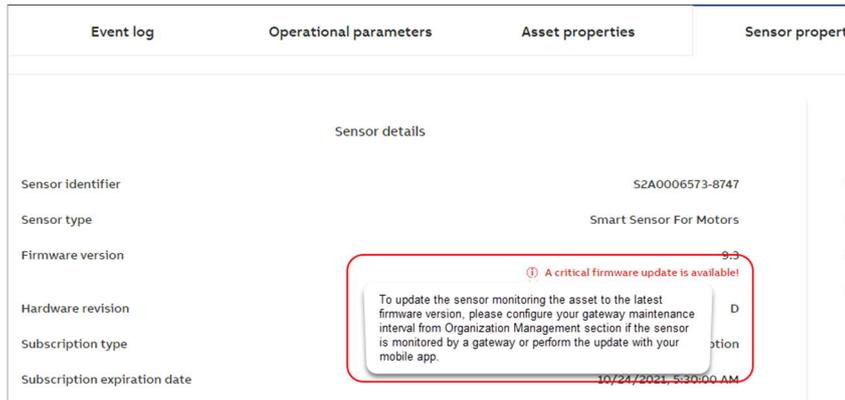
Critical firmware update of Smart Sensor

A notification appears when the sensor has a critical firmware update. This action also prevents from commissioning the sensor without upgrading to the latest version.

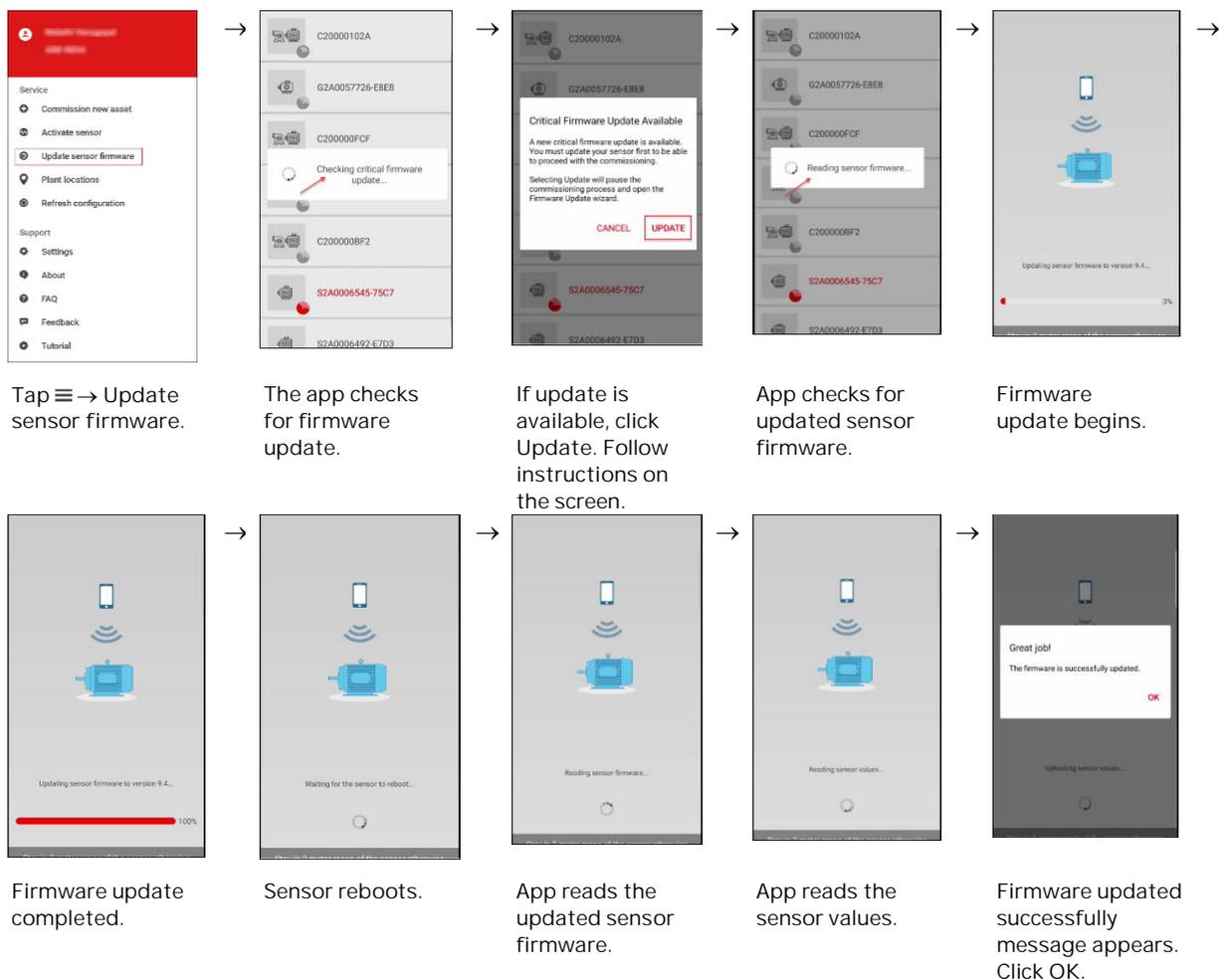
Note: The critical firmware update feature applies only to Smart Sensor for motors and pumps.

- In Smart Sensor portal, go to Asset Details → Sensor properties → Sensor details → Firmware version. The following message appears - "**A critical firmware update is available!**"

The info button shows the message - "*To update the sensor monitoring the asset to the latest firmware version, please configure your gateway maintenance interval from Organization Management section if the sensor is monitored by a gateway or perform the update with your mobile app.*"



- In Smart Sensor mobile app, to update the sensor firmware, make sure that Bluetooth® is on and follow the below steps:

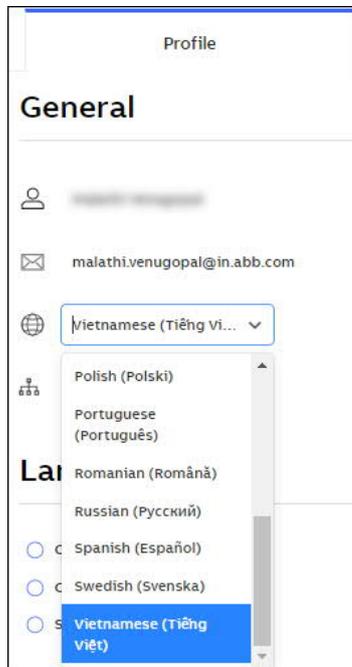


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Vietnamese language support

Smart Sensor portal supports Vietnamese (VI) language.

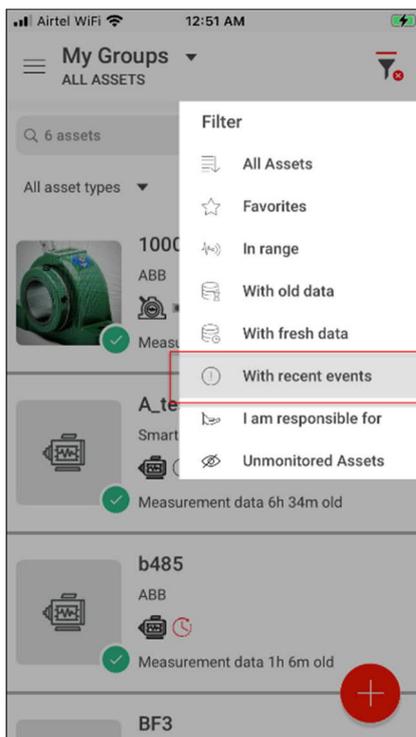
1. Go to Profile → General.
2. In the languages list, select Vietnamese.



Asset filter to view recent events

In Smart Sensor mobile app, the Asset list filter menu includes a new filter item With recent events to filter alerts/alarms opened in the last 24 hours.

Note: The previous filter Needs attention is removed.

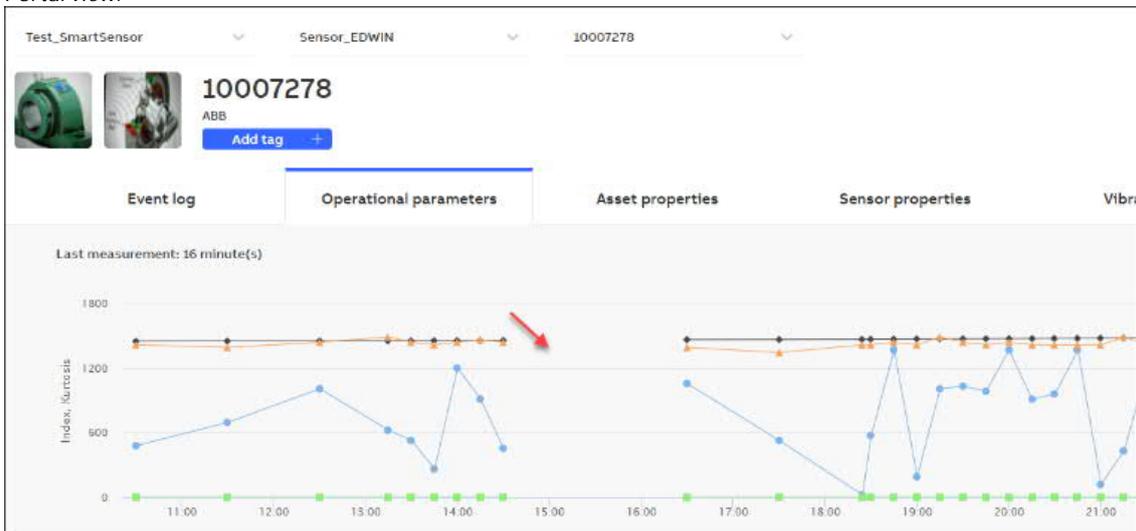


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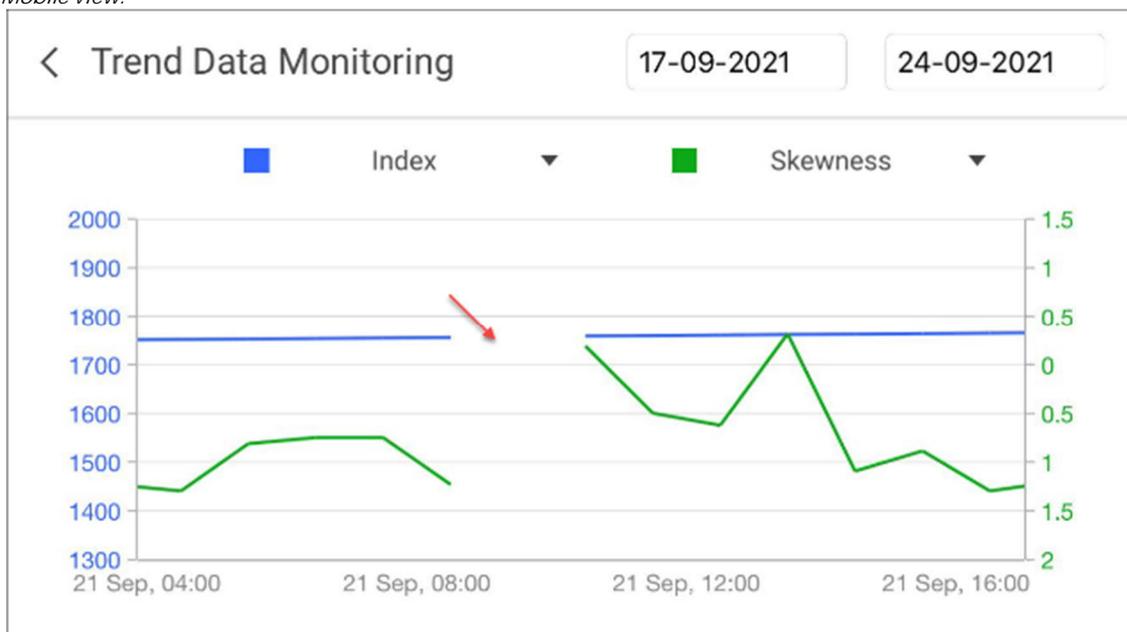
Representation of gaps in graph

Trend charts display gaps to represent either missing data or out of range data (quality flag), instead of the existing interpolated straight lines.

Portal view:



Mobile view:



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Mechanism to display aggregated measurement data points

If there are several measurement data points at a selected interval, the graph may display compressed data points. To provide a timely response of several data points over a large display interval, the average of multiple data points is calculated and plotted on graph.

If you reduce the display interval by zooming or from the chart date picker, the data is re-evaluated, and aggregation level can reach the maximum resolution on a small or suitable interval. Aggregation level is the number of hours at which the average of the data points is calculated.

The table below lists the aggregation levels defined for different time ranges:

Aggregation level (in hours)	Time range (days)	Description
All data points	Up to 30	All data points are displayed.
1	30 ... 60	Average is calculated at an interval of one hour. Note: If measurement interval is one hour, there is no aggregation up to 60 days.
3	60 ... 180	Average is calculated over a 3-hour interval.
6	180 ... 365	Average is calculated over a 6-hour interval.
12	365 ... 730	Average is calculated over a 12-hour interval.
24	More than 730	Average is calculated over a 24-hour interval.

The screens below are examples of the different aggregation levels and time ranges:

Aggregation: 1 hour at less than 60 days

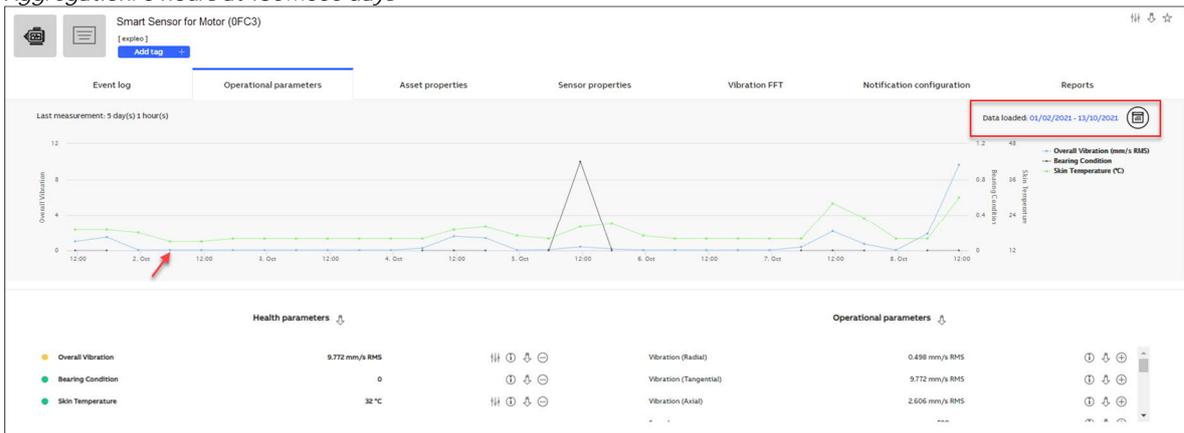


Aggregation: 3 hours at 60...180 days

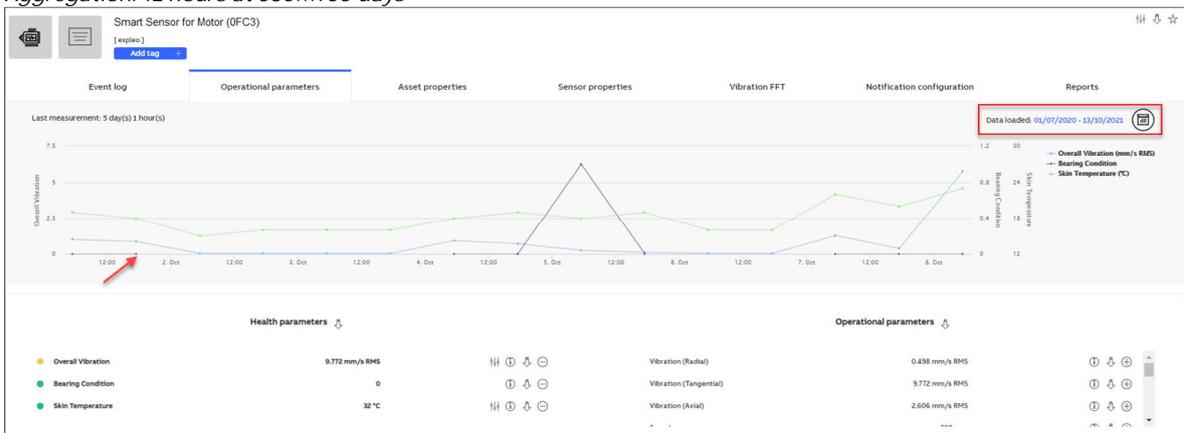


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Aggregation: 6 hours at 180...365 days



Aggregation: 12 hours at 365...730 days



Aggregation: 24 hours at more than 730 days



Known limitations:

- When a high measurement interval is configured (e.g., 12 hours), the graph may display gaps due to the aggregation level. These gaps may not impact the data itself and all data is retrieved and displayed.
- When measurement aggregation is applied to the graph, extreme (minimum/maximum) measurement points within each aggregation interval may not be displayed.

Note: The above known limitations will be addressed in the upcoming releases.

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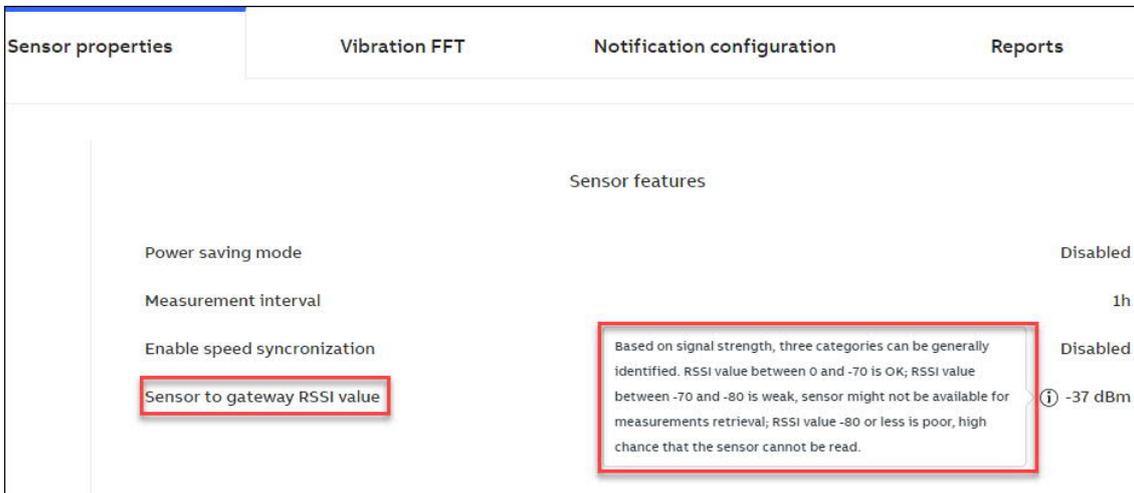
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Enhancements

Sensor to gateway RSSI value description

A tool tip description appears for Sensor to gateway Received Signal Strength Indicator (RSSI) value.

In Smart Sensor portal, go to Asset Details → Sensor properties → Sensor features → Sensor to gateway RSSI value. Click the info button to view the description.

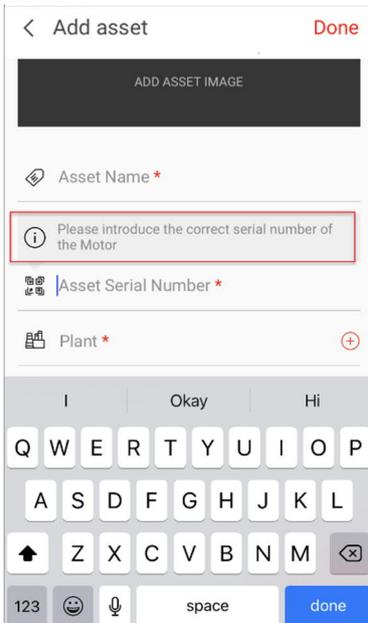


Adding correct asset serial number

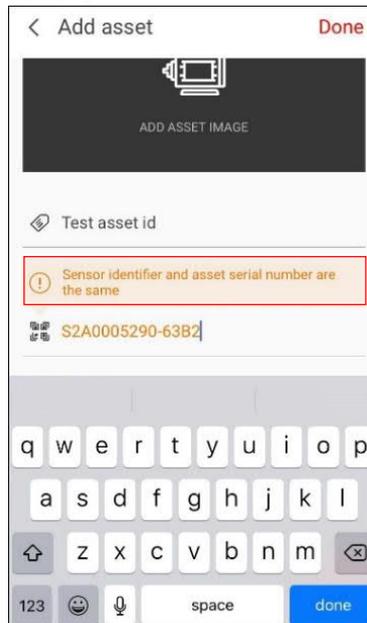
In Smart Sensor mobile app, while commissioning an asset, the app prompts to add correct Asset serial number. For example, if asset type is motor the message appears as - "Please introduce the correct serial number of the Motor". See in screen 1.

If you added the sensor identifier as the Asset Serial Number, the error message appears as - "Sensor identifier and asset serial number are the same". See in screen 2.

Screen 1



Screen 2



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New nameplate parameter for motor connection type

A new nameplate parameter "Connection type" is added to show the motor connection type.

- In Smart Sensor portal, select a motor sensor and asset Id. Go to Asset details → Asset properties → Nominal details and see the Connection type parameter with values "Star" or "Delta".

Portal view:

Asset properties		Sensor properties	Vibration FFT	Notification configuration	Reports
Nominal details					
10028	Motor Standard				IEC
A_test_1045_COMO_HP	Speed				1400.0 rpm
Motor	Speed Control				Fixed Speed
SmartSensor_Test	Voltage				230 V
Test_SmartSensor	Connection type				Delta
1045	Current				10.00 A
testing	Power				350.00 kW
anusha.a1@in.abb.com	Line Frequency				50.0 Hz
	Power Factor				0.50

- In mobile app, go to Nameplate info. In Connection type, tap Add Value and select the connection type as Delta, Star or Unknown/Other.

Mobile app view:

< Nameplate info List
 ADD NAMEPLATE IMAGE
 Connection type * Add Value
 In order to get the best analysis of the magnetic field, you must choose from the menu how the motor-winding is connected when running in normal operation, normally either Star/Y- or Delta/ Δ -connection. Information about the connection is normally shown next to the rated voltage, on the nameplate of the motor. If you are not sure what the connection is, or if your motor is not using ordinary Y or Δ -connection, you should choose "Unknown/Other" in the menu.

< Nameplate info List
 ADD NAMEPLATE IMAGE
 Connection type * Add Value
 Unknown/Other
 Delta
 Star
 In order to get the best analysis of the magnetic field, you must choose from the menu how the motor-winding is connected when running in normal operation, normally either Star/Y- or Delta/ Δ -connection. Information about the connection is normally shown next to the rated voltage, on the nameplate of the motor. If you are not sure what the connection is, or if your motor is not using ordinary Y or Δ -connection, you should choose "Unknown/Other" in the menu.

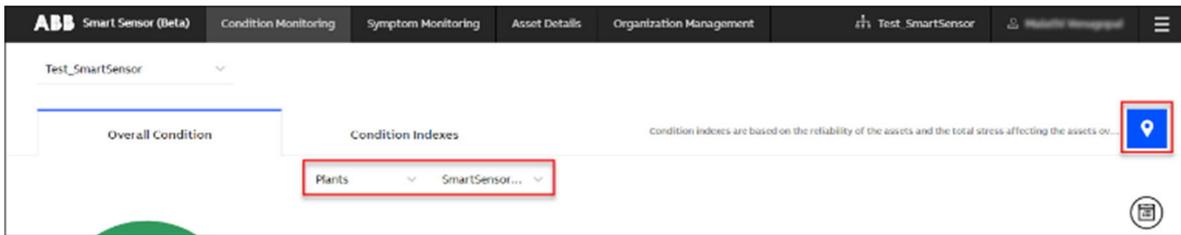
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Industrial areas are highlighted on the map box tile

In Smart Sensor portal, the industrial areas are highlighted in Red.

Go to Condition Monitoring → Overall Condition and select a plant. Click on the  (Map) and look for any industrial plants. Note that industrial plants appear with a red highlight.

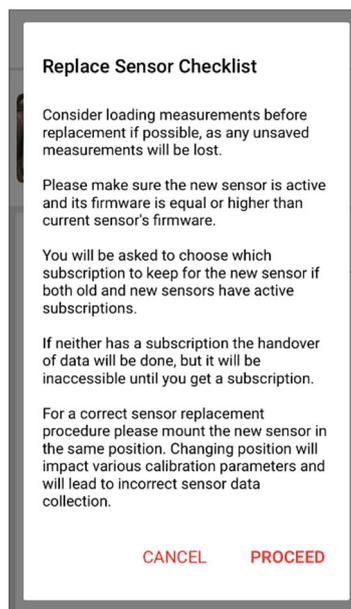
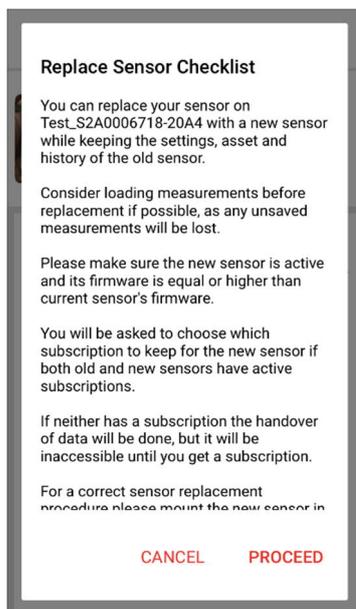


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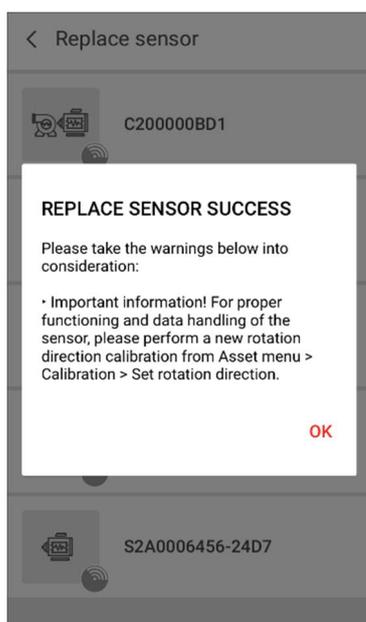
Smart Sensor for Motors: Text for sensor replacement is improved

In Smart Sensor mobile app, a text message appears to confirm the correctness of sensor replacement. The following text messages are added:

- Beginning of sensor replacement:** This text ensures that sensor is mounted correctly - *“You can replace sensor {0} with a new sensor while keeping the settings, asset and history of the old sensor. Consider loading measurements before replacement if possible, as any unsaved measurements will be lost. Please make sure the new sensor is active and its firmware is equal or higher than current sensor’s firmware. You will be asked to choose which subscription to keep for the new sensor if both old and new sensors have active subscriptions. If neither has a subscription the handover of data will be done, but it will be inaccessible until you obtain a subscription. For a correct sensor replacement procedure please mount the new sensor in the same position. Changing position will impact various calibration parameters and will lead to incorrect sensor data collection.”*



- End of sensor replacement:** This text ensures that speed direction calibration is done - *“Important information! For proper functioning and data handling of the sensor, please perform a new rotation direction calibration from Asset menu> Calibration > Set rotation direction.”*



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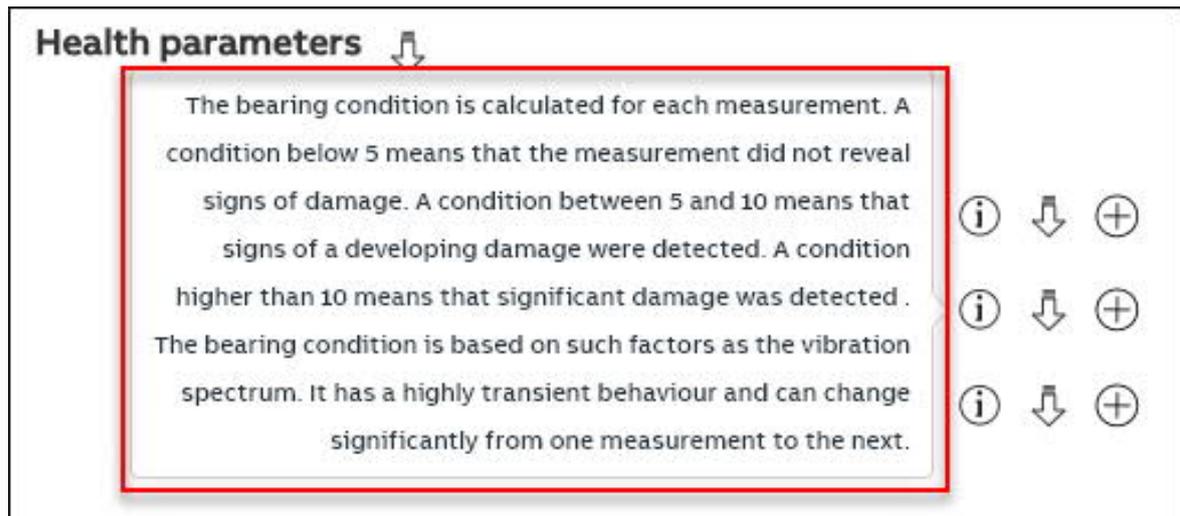
Upper limits of bearing condition measurement

The upper limits of bearing condition measurement are corrected in following sensors: High performance Smart Sensor (generation 2), Smart Sensor for motors and pumps (generation 1), and MACHsense-R.

The modified limits are as follows:

- Bearing condition – 35
- Alarm threshold – 5
- Alert threshold – 10

The info button shows a detailed description of what the limits mean. See an example in the screen below:



FFT calculation using radial component

Fast Furrier Transform (FFT) data is calculated and displayed for Smart Sensor Generation 2 sensor types using the high resolution 3-axis accelerometer spectrum (radial, axial, tangential), instead of the low resolution single-axis spectrum.

Condition index calculations enhanced

Condition index calculations are modified. Values that are beyond the min/max limit are marked as *invalid*. These values are also not considered for any index calculations.

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