

Installation Planning Guide EZDP-2150 Rev B

Erbessd Sensor and Gateway
Configuration for InsightCM™



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Patents

Please send patent information requests to patents@cutsforth.com.

Safety Information

Safety Information [English]

Following is important safety information. For safe installation and operation of this equipment, be sure to read and understand all cautions and warnings.

Safety Conventions



NOTE:

Additional information.



ELECTRICAL DANGER

Indicates an action or specific equipment area that can result in personal injury or death from an electrical hazard if proper precautions are not taken.



CAUTION

Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury or equipment damage.



WARNING

Indicates a hazardous situation that, if not avoided, could result in death or serious injury.



ROTATING PART CAUTION

Indicates possible injury from rotating parts.



DANGER

Indicates a hazardous situation that, if not avoided, will result in death or serious injury.

General Safety Instructions



ELECTRICAL DANGER

Only qualified personnel who recognize shock hazards and are familiar with the safety precautions required to avoid injury should work with Cutsforth products. Among the many considerations are the following:

- Avoid contact with energized circuits.
- Avoid contact with rotating parts.
- Never install any component that appears not to be functioning in a normal manner.



ROTATING PART CAUTION

High-voltage and rotating parts can cause serious or fatal injury. Installation, operation, and maintenance of this product must be performed only by qualified personnel, in accordance with all applicable safety regulations and guidelines.

Consignes de Sécurité [Français]

Les informations qui suivent sont essentielles afin d'assurer la sécurité de l'utilisateur lors de l'installation et de l'opération de l'équipement. Assurez-vous de bien lire et de comprendre tous les avertissements et mises en garde qui suivent.

Conventions de Sécurité



NOTE:

Informations supplémentaires.



RISQUES DE CHOC ÉLECTRIQUE

Indique que l'action ou la partie de l'équipement concernée peut mener à des blessures par électrisation ou à la mort par électrocution si les précautions adéquates ne sont pas prises.



MISE EN GARDE

Indique la présence d'une situation dangereuse qui, si elle n'est pas évitée, pourrait mener à des blessures mineures à modérées ou à des dommages matériels.



AVERTISSEMENT

Indique la présence d'une situation dangereuse qui, si elle n'est pas évitée, pourrait mener à des blessures sévères ou à la mort.



MISE EN GARDE : PIÈCE ROTATIVE

Indique la présence de pièces d'équipement rotatives pouvant causer des blessures.



DANGER

Indique la présence d'une situation dangereuse qui, si elle n'est pas évitée, pourrait mener à des blessures sévères ou à la mort.

Consignes de Sécurité Générales



RISQUES DE CHOC ÉLECTRIQUE

L'utilisation des produits Cutsforth n'est recommandée qu'aux professionnels qualifiés qui savent comment reconnaître la présence de risques de choc électrique ainsi que les consignes de sécurité à suivre pour éviter les blessures liées à ces risques. Lesdites consignes de sécurité incluent, sans s'y limiter :

- Éviter tout contact avec des circuits alimentés;
- Éviter tout contact avec des pièces d'équipement rotatives;
- Ne jamais installer de composante ne paraissant pas fonctionner normalement;



MISE EN GARDE : PIÈCE ROTATIVE

Les pièces d'équipement rotatives et sous haute tension peuvent causer des blessures sévères ou fatales. L'installation, l'opération et la manutention de ce produit ne doivent être faites que par des professionnels qualifiés et en respectant toutes les règles et consignes de sécurité applicables.

1. Configuring Phantom Sensors

This guide describes adding the Erbessd wireless sensors and gateways to InsightCM™.

InsightCM™ supports the following Erbessd Phantom wireless sensors: V10E, V11E, ATX15, ATX16, T20, T25, T70, and S40.

1.1. Sensor Physical Installation Notes

To precisely identify individual sensors and monitored data collection locations, every Phantom sensor is encoded with a unique serial number – which is translated to a QR Code for quick scanning purposes.

The model of the sensor shown in [Figure 1](#) is: EPH-V11E (accelerometer high-sensitivity).



Figure 1. Phantom Expert sensor with serial number

The 2-digit product code for all EPH-V11E sensors is: 11.

The 2-digit product code for all EPH-V10E sensors is: 10.

The unique 9-digit serial number for the sensor pictured is: 189295990.

For InsightCM and Gateway Commissioning, note the sensor serial number and the location on the machine where the sensor is installed.

The Gen 3 Phantom Expert sensors consist of four parts, the base, sensor body, battery, and knurled ring with setscrew (see [Figure 2](#)). The Expert Phantoms are shipped with a Panasonic CR2477 battery. The battery slides out of the holder easily for replacement.



Figure 2. Phantom sensor parts with replaceable battery

All Expert Phantoms have the axis orientation marked on top to align the sensor when installing on the machine point (see Figure 3). This must be administered in software correctly to obtain accurate time waveform data.



Figure 3. Axis orientation marker

In Figure 3 above, the sensor is mounted on the drive end top side of a motor. The X-axis corresponds to the horizontal direction; the Y-axis corresponds to the vertical direction; the Z-axis corresponds to the axial direction. The vibration sensor should be configured as X=Horizontal, Y=Vertical, Z=Axial.

When the sensor is attached to the side of the motor (see Figure 4), the axis orientation is different. For this setting, the configuration is X=Vertical, Y=Horizontal, Z=Axial.



Figure 4. Side motor orientation

Sensors are shipped from the factory in sleep mode. They will not be detected by any Phantom Gateway until they are reset using the provided magnetic key. This will “wake up” the sensor and make it visible to gateways.

After the sensor is installed, and orientation is located, begin “wake up” by placing the magnet on the sensor just left of the LED and hold until the LED illuminates (see [Figure 5](#)). If it does not, move the magnet around the sensor’s radius slowly until it does. Remove the magnet and the LED will stay lit for several seconds, then blink three (3) times and turn off. The sensor is now activated/reset.



Figure 5. Magnetic “wake up” key



IMPORTANT

In addition to the location on the equipment and the serial number of the sensor, make note of the orientation of the sensor to identify the Horizontal, Vertical, and Axial measurement directions.

1.2. Commission Phantom Gateway

Before adding Phantom wireless sensor assets, commission the Phantom Gateway so it connects to InsightCM.

1. Plug an Ethernet-wired connection into the Phantom Gateway.
2. Power on the Gateway.

3. Note the IP address displayed on the Gateway screen.
4. Open a web browser window and access the Gateway IP address.
5. Update the firmware of the Phantom Gateway: (see [Figure 6](#)).
 - Contact Cutsforth support to download the Phantom Gateway firmware officially supported by InsightCM.
 - Manually apply the firmware update on the System tools tab.

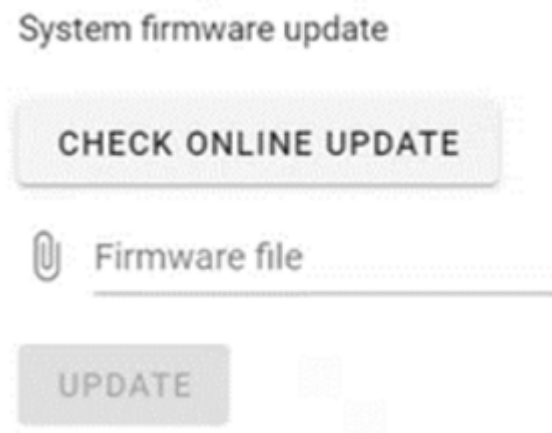


Figure 6. Dialog in the Erbessd gateway web page for updating firmware

6. Pair Phantom Sensors to the Gateway using the gateway web page “Live State” menu. Click the Pair button before configuring the sensor in InsightCM (see [Figure 7](#)).

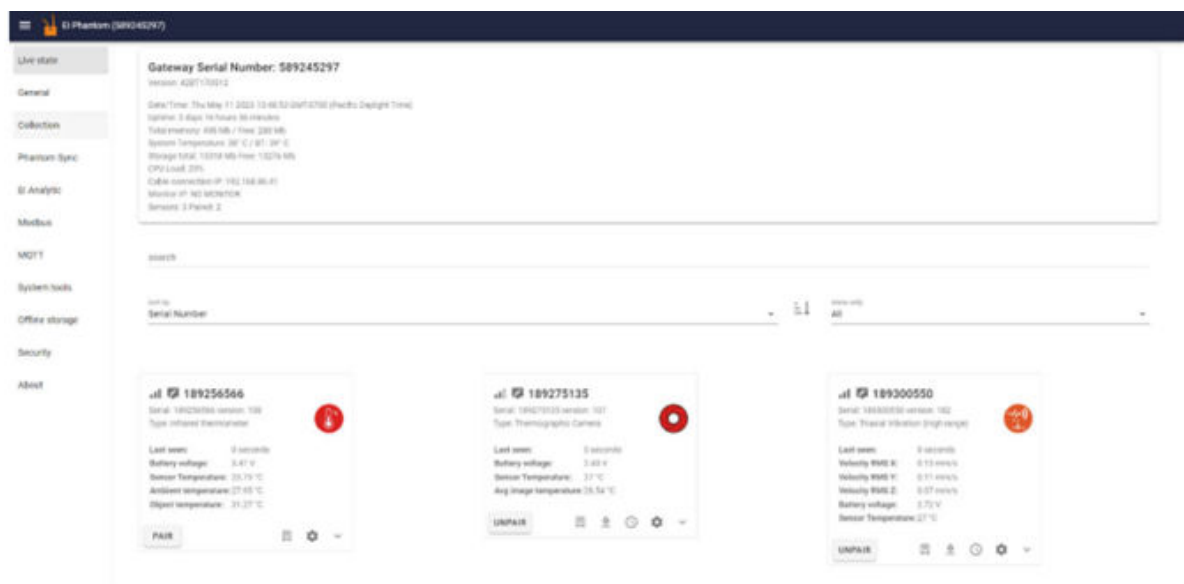


Figure 7. Pairing sensors with the Erbessd “Live State” web page menu

7. Within the General menu of the Erbessd gateway webpage, ensure that “Send data to El Monitor/ PhantomLib” and “Store data offline until manually collected” are both checked (see [Figure 8](#))

Figure 8. Phantom General menu selection dialog

8. Optional: Within the General menu, one has the options to set up a static IP address and enable Wi-Fi (unplug the ethernet-wired connection after Wi-Fi configuration).

1.3. Add Phantom Equipment Sensors

1. Within the InsightCM application, Click the Configuration button (🔧) and ensure that you are on the Asset Configuration page (see Figure 9). If you need to create your equipment in the tree, right-click on the parent for your equipment, select "Add child assets", "General" and "Equipment", and press "OK". Then the "Select Monitors" dialog will appear and select "Vibration" (see Figure 10).

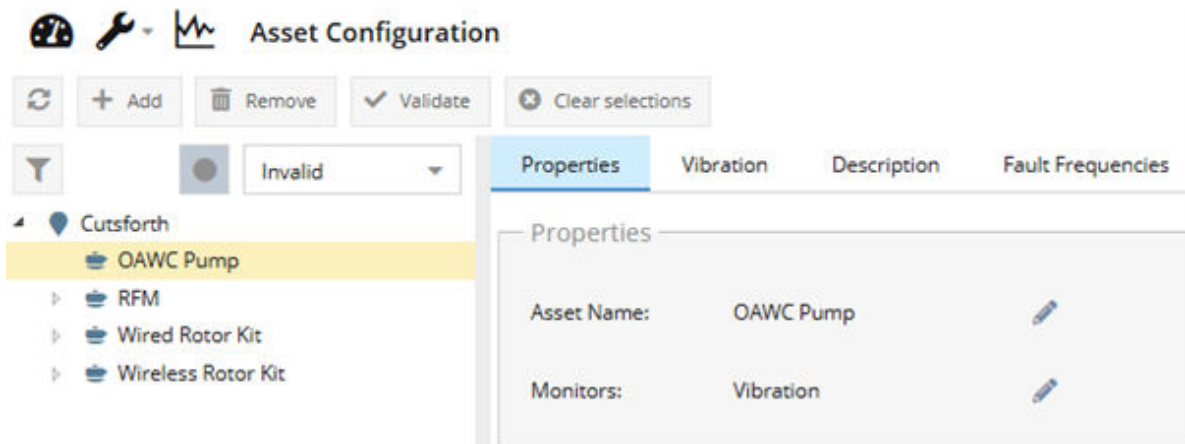


Figure 9. Adding new equipment to the asset hierarchy tree

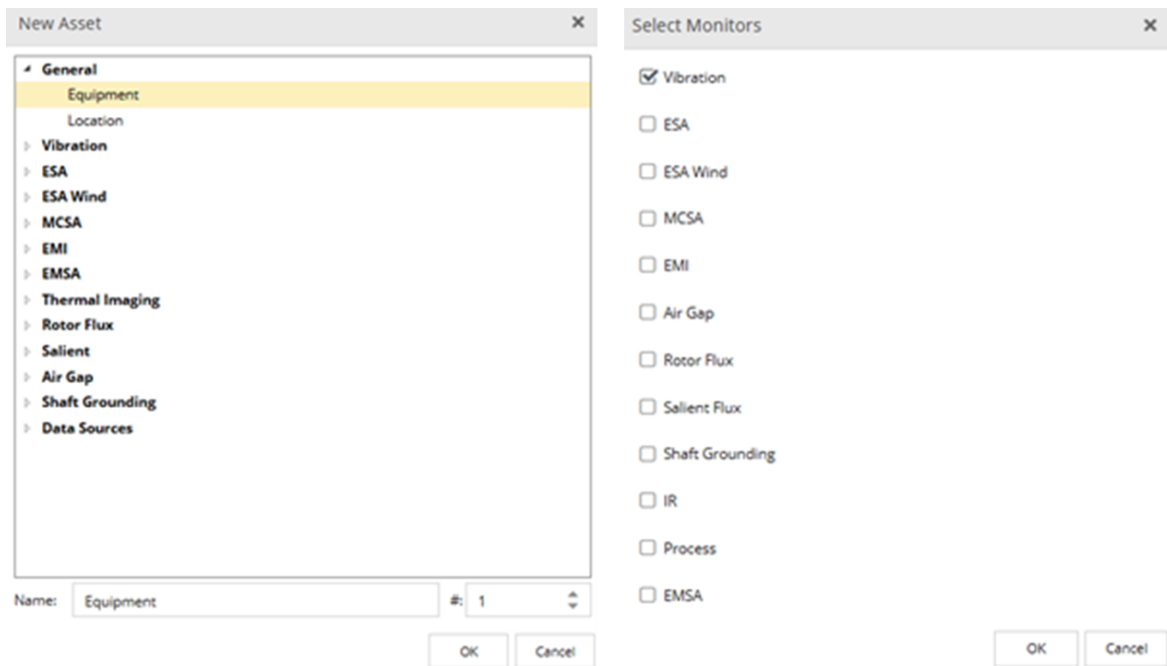


Figure 10. Vibration Monitor Selection

- a. Ensure that the equipment asset is defined and the monitor type is configured as "Wireless (Phantom)" for the Phantom sensor you are adding (see [Figure 11](#)).

The screenshot shows the 'Asset Configuration' window. On the left, a tree view shows 'Cutsforth' expanded, with 'QAWC Pump' selected. Below it are 'RFM', 'Wired Rotor Kit', and 'Wireless Rotor Kit'. The main panel has tabs for 'Properties', 'Vibration', 'Description', and 'Fault Frequencies'. The 'Vibration' tab is active, and within it, the 'Monitor' sub-tab is selected. The 'Type' field is set to 'Wireless (Phantom)'. The 'Speed' section shows 'Speed Type' as 'Fixed Speed' and 'Nominal Speed' as '1800'. At the bottom is an 'Update Configuration' button.

Figure 11. Select the Monitor Type as Wireless Phantom and set the nameplate speed

2. In the right-side configuration panel, select the Sensors tab (see Figure 12).
3. Enter the Gateway IP address in the IP address textbox (see Figure 12).

This screenshot is similar to Figure 11, but the 'Sensors' sub-tab under the 'Vibration' tab is selected. The 'Gateway' section is visible, containing three text input fields: 'IP Address:', 'Password:', and 'Serial Number:'.

Figure 12. Setting the IP address for the Erbessd Gateway in InsightCM

Optionally enter the Gateway password in the textbox (see Figure 12), if the Gateway has a password previously configured using the Security menu on the Gateway configuration web page. To set the Gateway password, use a web browser to access the gateway webpage and select the Security item on the left. Check the "Enable Gateway Console password" box, enter and confirm the password (see Figure 13).

Figure 13. Setting the Gateway password

4. Press the Update Configuration button under the monitor tab (see Figure 14).

Figure 14. Update Configuration button on the Vibration>>Monitor tab

5. In the Sensors tab, click on Discover (see [Figure 15](#)).

Properties	Vibration	Description	Fault Frequencies
Monitor	Sensors	Collection	

Gateway

IP Address:

10.200.141.15

Password:

.....

Serial Number:

589246942

Sensors

+ Add

Remove

|

Discover

Figure 15. Click on the Discover button to find wireless sensors

6. Sensors within range of the Gateway will appear. Select a paired sensor with the serial number for the selected equipment and click OK (see [Figure 16](#)).

Select Sensor			
Sensor Type ↑	Serial Number	Signal Strength	Paired
Digital	189230109		No
HighRangeAccelerometer	189300641		No
HighRangeAccelerometer	189300873		No
HighRangeAccelerometer	189301415		No
HighRangeAccelerometer	189301426		No
HighRangeAccelerometer	189309232		No
HighRangeAccelerometer	189309243		No
HighRangeAccelerometer	189309262		No
HighRangeAccelerometer	189309378		Yes
HighRangeAccelerometer	189314527		No
HighRangeAccelerometer	189314572		No
HighSensitivityAccelerometer	189305431		No
IrCamera	189275140		No
IrCamera	189275202		No
		OK	Cancel

Figure 16. Selecting paired sensors to associate with the equipment

7. Click on the “Add” button and the new sensor nodes will appear in the left asset tree (see Figure 17).

Asset Configuration

Add Remove Validate Clear selections

Invalid

Cutsforth

OAWC Pump

Phantom Vibration (High Range)

RFM

Wired Rotor Kit

Wireless Rotor Kit

Properties

Vibration

Description

Fault Frequencies

Monitor

Sensors

Collection

Gateway

IP Address:

Password:

Serial Number:

Sensors

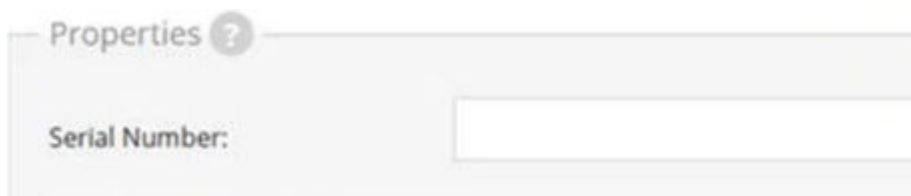
Add Remove Discover

Sensor

Phantom Vibration (High Range)

Figure 17. Sensor appears in the asset tree under the asset where it was discovered or entered

- a. Alternative: Instead of using Discover, users have the option to manually add sensors in the asset tree list first. (Right-click on the asset and add child asset of "Vibration >> Phantom >> Phantom Vibration (High Range)").
 - i. Click Add and select Sensors » Phantom and select the appropriate sensor. Within the right Properties tab enter the Serial Number (see [Figure 18](#)).

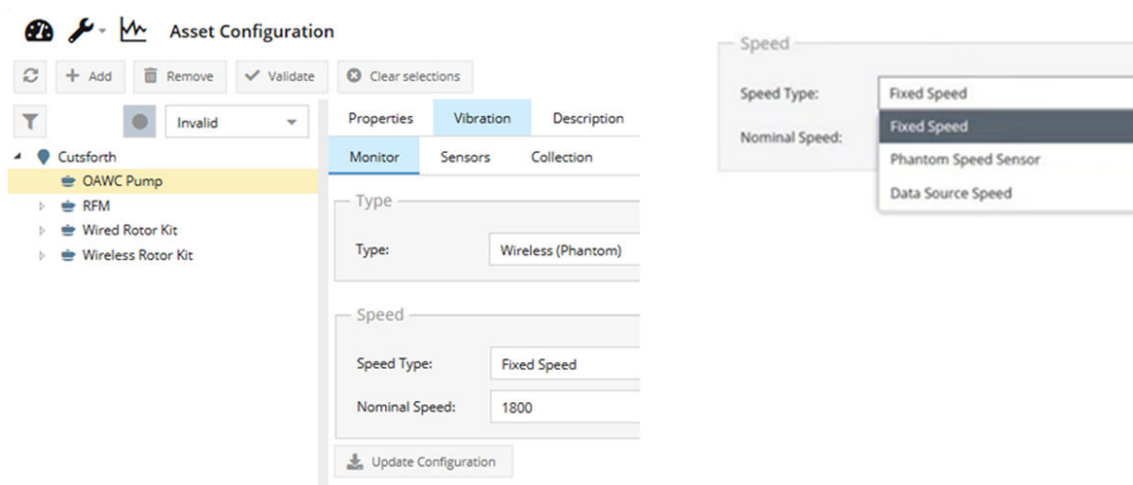


The screenshot shows a 'Properties' tab with a question mark icon. Below the tab name, there is a label 'Serial Number:' followed by a text input field.

Figure 18. Properties tab Serial Number

1.4. Phantom Node Properties

1. Rotating Equipment has three Speed Types available in the Monitor tab: Fixed Speed, Phantom Speed Sensor, and Data Source Speed. In many cases, machines run at a fixed speed (see [Figure 19](#)).



The screenshot shows the 'Asset Configuration' interface. On the left, a tree view shows 'Cutsforth' > 'OAWC Pump' > 'Wireless Rotor Kit'. The main panel has tabs for 'Properties', 'Vibration', and 'Description'. The 'Vibration' tab is active, showing 'Monitor', 'Sensors', and 'Collection' sub-tabs. The 'Monitor' sub-tab is selected, displaying 'Type: Wireless (Phantom)' and 'Speed' settings. The 'Speed' section shows 'Speed Type: Fixed Speed' and 'Nominal Speed: 1800'. A dropdown menu for 'Speed Type' is open, showing options: 'Fixed Speed', 'Fixed Speed', 'Phantom Speed Sensor', and 'Data Source Speed'. An 'Update Configuration' button is at the bottom.

Figure 19. Setting the Speed Type for the Phantom Sensors

2. The Phantom Speed Sensor option uses a wireless speed sensor installed on the asset
3. The Data Source Speed obtains the current asset rotating speed from the configured data historian.
4. Phantom sensors have properties to configure their collection settings (see [Figure 20](#)). Note, these settings may have an impact on sensor battery life.

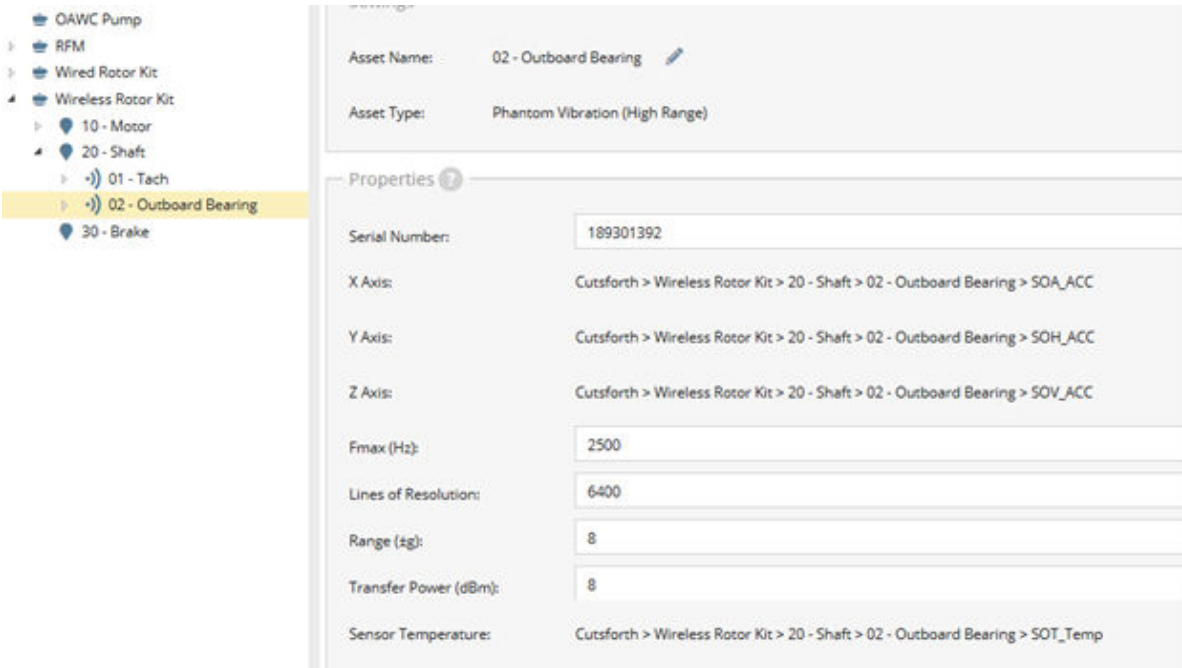


Figure 20. Phantom Sensor Properties

- 5. From the physical installation photograph or notes, map the X, Y, and Z, axis to the Axial (A), Horizontal (H), and Vertical (V) directions.
- 6. The four settings (see Figure 21) have the settings listed to the right.

Options	
Fmax (Hz):	625, 1250, 2500, 5000, or 10000
Lines of Resolution:	6400, or 12,800
Range (±g):	8, 16, or 32
Transfer Power (dBm):	0, 4, or 8

Figure 21. Phantom Wireless Setting Options

Settings that increase battery consumption include high transfer power and high lines of resolution. High transfer power may be necessary if the sensor is far from the gateway. Higher lines of resolution, require a larger data block, increasing data transfer time and consuming more battery life.

2. Acquiring Data for Wireless Devices

When the wireless gateway is online with all endpoints mapped to sensor assets, you can test your wireless device's ability to acquire data. Automatic acquisitions occur periodically, but you can force an acquisition at any time by using Force Trigger.

Complete the following steps to acquire data from one of your endpoints.



NOTE

Acquiring data from all a device's endpoints can create network congestion.

1. Click the Data Viewer () button on the top left of the screen.
2. Expand one of the wirelessly monitored equipment assets, select a sensor asset, and then select one of the features. By selecting a feature, you activate the Trend viewer chart (see [Figure 22](#)).

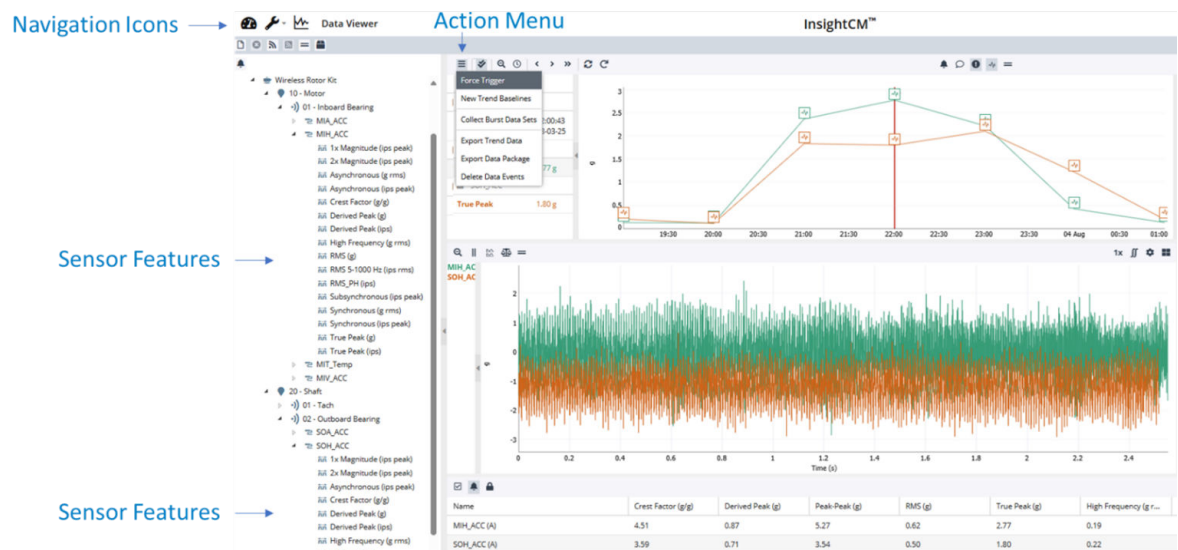


Figure 22. Data Viewer InsightCM page with Navigation, Features, and Action Menu indicated in blue text and arrows

3. In the Trend viewer chart, click the Action menu () and select Force Trigger to acquire data from the endpoint mapped to this equipment asset.
4. Wait several seconds for the acquisition to complete and click the Refresh button () to confirm that your device received new data points. If you force an acquisition for all endpoints, it could take several minutes for the wireless gateway to complete the acquisition.
5. Repeat the force acquisition several times to acquire multiple data sets.

6. Select a feature level asset for a different equipment asset to confirm in the Trend viewer chart not yet populated with new data. Before the data is available, devices must finish performing the acquisition and the InsightCM server must receive and store the data.