Vibration Meter Profile Definition for Rest API

Monnit Corporation

Contents

Overview

Monnit® wireless vibration meters measure g-force on 3 axis, then determine speed and frequency for seismic activity and assembly line monitoring. A variety of settings are customizable using the iMonnit® Rest API. Values for the vibration meter(s) will be stored on the iMonnit database. However, a number of actions or "endpoints" are adjustable through the API/UI. This document will primarily focus on the "SensorSetCalibration" and "SensorSetThreshold" endpoints.

All sensor profiles have different numerical application identifiers (ApplicationID). This list of application identifiers can be reviewed by calling the "GetApplicationID" endpoint. It can be found under the Lookup Section of the API page.

There are two main categories of sensor profiles; measurement sensors and trigger sensors. Vibration Meters fall into the measurement category. Values for sensors can be individually adjusted, but understanding the Base API Url makes it easier to configure multiple sensors at one time.

It is recommended that developers have a general understanding of Monnit sensor's Standard and Aware States to implement configuration changes to the iMonnit Rest API. Sensor profiles report in two states:

The **Standard State** provides the sensor with the longest available battery life while performing its required activity.

The **Aware State** allows the sensor to utilize more power if needed when certain conditions are met. These conditions will typically coincide with the application the sensor is being used to monitor.

For example: While monitoring the vibration for an assembly line, you might want to set a specific range or threshold you want readings to be between. This would be the standard state of the sensor. If the preset maximum threshold for vibration is eclipsed, an immediate response is sent by the meter to your network. That is an alert state. Configuring the profile specific values allows you control over how (and when) the aware state is triggered.

Base API Url Explained

The Monnit Rest API End-Point commands may be accessed by going to the following link: https://www.imonnit.com/api.

The base API Url should follow the proceeding format:

Protocol://Host/ResponseType/Method/AuthorizationToken?Parameters

The online API only supports https for 256 bit ssl encryption or http for non-encrypted communication and is hosted by iMonnit. Response type must be xml or json. The method will be the method to call and the AuthorizationToken identifies you to the server.

Authentication

An Authorization Token is required for the base url. To get you token, find "GetAuthToken" in the Authentication Section. Authorization Tokens are created using your iMonnit username and password. Entering these in the fields under **Get Auth Token** and selecting the button will return the token. The Logon Result will return the message: "Success." This will remain active until your iMonnit password is changed.

Check your authorization token by selecting the "Logon" option and replacing the authorization token in the example with your token. You may also choose to update or reset your password in this section.

Vibration Meter Configurations

There are two categories of sensors. Trigger sensors generally have fewer required values and are easier to configure. These do not utilize the threshold portion of the sensor configurations so the API call to configure those values in the Sensor section will not be covered. There are a variety of sensor endpoints that can be adjusted on the Rest API. Sensor Set Calibration is the most complex.

Sensor Set Calibration Endpoint

In the "SensorSetCalibration" endpoint there are a number of parameters open for modification. The Measurement category requires all fields be filled in order to proceed. It is recommended that you call the "SensorGetCalibration" endpoint and begin filling in fields with the existing value. Then move on to adjusting fields necessary for your adjustments. In the following list of parameters, the starred (*) fields are fields that are forwarded to the Measurement category of sensors.

Sensor Set Calibration Parameter List:

Parameter Name	Parameter Type	Parameter Description
sensorID:	Integer	Unique identifier of the sensor
*calibration1:	64 bit Integer	Value used to store calibration values on sensors.
*calibration2:	64 bit Integer	Value used to store calibration values on sensors.
*calibration3:	64 bit Integer	Value used to store calibration values on sensors.
*calibration4:	64 bit Integer	Value used to store calibration values on sensors.
eventDetectionType:	Integer	Type of event detected
eventDetectionCount:	Integer	Number of events required to trigger

eventDetectionPeriod:	Integer	Time window for event count to be reached
rearmTime:	Integer	Time before event can be triggered again
biStable:	Integer	Direction of event
*pushProfileConfig1:	boolean	Set the configuration page to be pushed to the sensor
*pushProfileConfig2:	boolean	Set the configuration page to be pushed to the sensor
*pushAutoCalibrateCommand:	boolean	Set the auto calibrate command to be pushed to the sensor

Calibration 1 – 4: Field used to hold calibration or other configurable parameters used by the sensor firmware to acquire accurate readings and or control sensor state.

Event Detection Type: Determines which value the sensor will report as its aware state. There are three supported options (True/False/Change). “Change” means that if the reading is different than the previous reading, it will be marked aware.

Event Detection Count: This field is utilized with the Event Detection Period parameter to create a software filter to adjust sensitivity and prevent false readings. This is the number of readings the processor must reach within the detection period before it is qualified as an actual event.

Event Detection Period: This field is utilized with the Event Detection Count parameter to create a software filter to adjust sensitivity and prevent false readings. This is the time window the processor uses to observe readings before it is qualified as an actual event.

Rearm Time: Once an event is set, this is the amount of time in seconds the sensor is deactivated to prevent unintended jitter from qualifying as multiple events.

Bi-Stable: Sets if the observed reading is bi-stable or not. The sensor is set a certain way. (0=Not Bi-Stable, 1=Bi-stable).

Push Profile Config 1 and 2: Determines if the values saved are sent to the sensor. In almost every case when you make changes you will need to set this to true. The only exception would be if you are working between multiple systems, such as iMonnit portal and iMonnit Enterprise. If you are moving a sensor from one platform to the other, it may be useful to set these values in the new platform to match the old platform without needing them to be sent to the sensor. In measurement sensors this field determines if the Threshold page will be sent to the sensor or not.

Push Auto Calibrate Command: Sets a specific Action Control Command to the sensor often used to calibrate the sensor. There is no general use of this field it is always profile specific and not used in all profiles.

Default Values

Calibration 1: 0

Calibration 2: 60

Calibration 3: 2

Calibration 4: 4

Event Detection: -2147483648

Event Detection Count: -2147483648

Event Detection Period: -2147483648

Rearm Time: 0

Bistable: -2147483648

Push Profile Config 1 and 2: False

Push Auto Calibrate Command: False

Example

The following example will configure the vibration meter threshold calibration to default levels. Because this profile will modify these values internally when performing a calibration, it is not advised to manually modify these values except to set back to default values if required.

Calibration 1: 0

Calibration 2: 60

Calibration 3: 2

Calibration 4: 4

Event Detection: -2147483648

Event Detection Count: -2147483648

Event Detection Period: -2147483648

Rearm Time: 0

Bistable: -2147483648

Push Profile Config 1 and 2: False

Push Auto Calibrate Command: False

Assumptions for example:

SensorID = 1234

AuthToken = ABCDEFG

https://www.imonnit.com/xml/SensorSetCalibration/ABCDEFG=?sensorID=1234&calibration1=0&calibration2=60&calibration3=-2&calibration4=4&eventDetectionType=-2147483648&eventDetectionCount=-2147483648&eventDetectionPeriod=-2147483648&rearmTime=0&biStable=-2147483648&pushProfileConfig1=false&pushProfileConfig2=false&pushAutoCalibrateCommand=false