



OM VERO-VTH-01

Operation Manual

(710-006, 710-106)



VERO-VTH-01 Operation Manual

Revision History

Revision	Change	Document Number	Date	Approval
A	Initial release	710-006 OM	30/06/2022	S. Nichols
B	Added optional mounts	710-006 OM	2/3/2023	CB, NL
C	Added Collect Use Case	710-006 OM	2/14/2025	SN
D	Formatting, headings. Document name/number	OM VERO-VTH-01	3/18/2025	JH, CB, SB
E	Eurofins review updates	OM VERO-VTH-01	4/2/2025	SN, CB
F	revised note on capacitance	OM VERO-VTH-01	4/2/2025	CB
G	Updated product certification information for C1D1 and C2D1	OM VERO-VTH-01	21 Aug 2025	JRH, SN

Printed instructions can be made available by sending an email to customersuccess@assetwatch.com

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1 Product Overview

The AssetWatch, Inc. VERO-VTH-01, also known as the Vero Primary Battery Sensor Module (PB-SM), is a self-contained, maintenance-free, wireless vibration and thermal sensor designed to transduce acceleration and temperature of the surface to which it is attached. It transmits the collected data via a Bluetooth Low Energy (BLE) radio and can be configured through the same communication link. The VERO-VTH-01 is ideally suited for indoor industrial applications and may be used where explosive gases and vapors are present. It is a critical component of the AssetWatch Condition Monitoring Platform known as AssetWatch™.

2 Introduction

2.1 Purpose and Outline of Manual

The purpose of this instruction manual is to provide a product description and practical and important information on the safe use, installation, maintenance and troubleshooting of the VERO-VTH-01 Primary Battery Sensor Module (PB-SM).

This manual consists of eight sections that should be read and understood prior to the deployment of the PB-SM. It is extremely important that the messages contained in these sections are followed closely.

The three sections are provided for reference and understanding of this product and this instruction manual. They are:

- 1. Product Overview**
- 2. Introduction**
- 4. Detailed Product Description**

Particular attention should be paid to the four product application sections, especially limitations of use in some hazardous locations (HazLoc), and to the noted warnings and cautionary notes. These sections are as follows:

- 3. Safety**
- 5. Installation Instructions**
- 6. Maintenance**
- 7. Troubleshooting**

2.2 Limited warranty

AssetWatch warrants that it will perform all Services in accordance with generally accepted practices within its industry and that the Services will meet the requirements set forth in any applicable SOW. Customer shall notify AssetWatch of any breach of this warranty no later than thirty (30) days after delivery of the applicable Services. CUSTOMER'S EXCLUSIVE REMEDY AND ASSETWATCH'S ENTIRE LIABILITY UNDER THIS WARRANTY WILL BE FOR ASSETWATCH TO RE-PERFORM ANY NON-CONFORMING PORTION OF THE SERVICES, OR IF ASSETWATCH CANNOT SO REMEDY THE BREACH, TO REFUND TO CUSTOMER THE PORTION OF THE FEES ATTRIBUTABLE TO SUCH NON-CONFORMING PORTION OF THE SERVICES. ASSETWATCH DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMIT, THE IMPLIED WARRANTIES OF MERCHANTABILITY, TITLE AND FITNESS FOR A

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PARTICULAR PURPOSES, AND DOES NOT GUARANTEE THAT THE USER PLATFORM CANNOT BE COMPROMISED, WILL BE ERROR FREE AND WILL NEVER BE INTERRUPTED.

3 Safety

3.1 Symbols

3.1.1 ISO General Warning

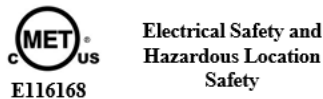
The ISO 7010 –0434B (2004-01) (triangle with an exclamation point) shown below is used on the product label to alert the user to refer to more documentation before proceeding with the installation and operation of this device.



This manual also uses this icon to highlight warnings and cautionary notes, especially associated with the PB-SM usage in potentially explosive environments.

3.1.2 MET Mark

The Metallurgical Laboratory Mark (MET Mark) denotes that the VERO-VTH-01 has been tested and certified by MET for its safety, quality, and performance.



Specifically, the VERO-VTH-01 is compliant with industry standards for safety in ordinary locations, as well as certain hazardous locations, as indicated by MET's control number E116168, noted in compliance report E116168 and summarized in this manual.

3.1.3 FCC Mark

The FCC Mark connotes that the VERO-VTH-01 complies with part 15 of the FCC Rules.



A Supplier's Declaration of Conformity (SDoC) and supporting documentation are available upon request.

3.2 Regulations for Ordinary Locations

The VERO-VTH-01 was evaluated against the following standards and levels of performance (where appropriate) for ordinary locations.

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3.2.1 Product Safety Standards

- UL 61010-1:2012 Ed.3+R:19 Jul 2019: Electrical Equipment for Measurement, Control, and Laboratory Use; Part 1: General Requirements
- CSA C22.2#61010-1-12:2012 Ed.3+U1;U2;A1: Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use Part 1: General Requirements

3.2.2 Electromagnetic Compatibility Standards

- FCC Part 15
- RSS-247 issue 2: 2017
- RSS-Gen issue 5, Amendment 1: 2019
- EN 61326-1: 2013
- EN 61000-6-2: 2007
 - ETSI EN 301 489-1 v2.2.3 (2019)
 - ETSI EN 301 489-3 v2.1.1 (2019)
 - ETSI EN 301 489-17 v3.2.4 (2020)
 - EN 61000-4-3:2006+A1:2008+A2: 2010
 - Stress levels:
 - 10 V/m for 80-1000 MHz
 - V/m for 1400-2700 MHz
 - EN 61000-4-2:
 - Stress level
 - EN 61000-4-8
 - Stress level
- European Directive: R&TTE

3.2.3 Other Standards

- IEC 60529
- IP67
- European Directive: RoHS

3.2.4 Supplier Information

AssetWatch is headquartered at 60 Collegeview Rd, Westerville, OH 43081.

3.2.5 Electrical Ratings

The VERO-VTH-01 is rated for a nominal voltage of 3.6V and a max current of 0.25A. VERO-VTH-01 contains one 2/3AA battery.

3.2.6 United States and Canada

3.2.6.1 *BM833 Federal Communications Commission (FCC) Statement*

The VERO-VTH-01 may contain a Fanstel Corporation model BM833 BLE module and is labeled as:

Contains FCC ID: X8WBM833

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This device also complies with part 15 of the FCC Rules, and its operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The PB-SM has been tested and verified that it complies FCC Part 15 Subpart B limits for unintentional radiators.

3.2.6.2 BM833 Industry Canada (IC) Statement

The VERO-VTH-01 may contain a Fanstel model BM833 BLE module, a license-exempt transmitter/receiver that complies with Innovation, Science and Economic Development Canada's license-exempt RSS. This module has been approved by Industry Canada, and when employed in the product, the label states:

Contains IC ID: 4100A-BM833

Operation is subject to the following two conditions:

- (1) This device may not cause interference; and
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil contient des émetteurs/récepteurs exempts de licence qui sont conformes au RSS exemptés de licence d'Innovation, Sciences et Développement économique Canada. L'opération est soumise aux deux conditions suivantes:

- (1) Cet appareil ne doit pas causer d'interférences
- (2) Cet appareil doit accepter toute interférence, y compris les interférences pouvant provoquer un fonctionnement indésirable de l'appareil.

3.2.6.3 MET Mark C/US

The MET Mark C/US is proof of product compliance to North American safety standards. Authorities Having Jurisdiction (AHJs) and code officials across the United States, Canada, and other countries whose safety standards align with the US and/or Canada accept the MET Listed Mark as proof of product compliance to published industry standards.

3.2.6.4 Other Relevant Product Compliance Information

The Tadiran model TL-5955 lithium cell used to power the PB-SM is an Underwriters Laboratories (UL) recognized component, MH 12193. The battery is soldered directly to the printed circuit board. The positive side of the battery is toward the base (i.e. bottom of the device). The battery must never be replaced in the field. If the battery voltage is low, it must be returned to AssetWatch for service. To start the return process, please send an email customersuccess@assetwatch.com.

3.2.6.4.1 Ingress Protection

VERO-VTH-01 has been tested and verified to ingress protection ratings of IP67.

3.3 Regulations for potentially explosive atmospheres

VERO-VTH-01 is declared to comply with the following list of the standards, including the issue date:

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- UL 60079-0:2019 Ed.7+R:15Apr2020: Explosive Atmospheres – Part 0: Equipment – General Requirements
- UL 60079- 11:2013 Ed.6+R:14Sep2018: Explosive Atmospheres - Part 11: Equipment Protection by Intrinsic Safety "i"
- UL 913 Intrinsically Safe Apparatus for use in Class I, II, III Division 1 Hazardous Locations, Eighth Edition, Dated May 10, 2022
- CSA C22.2#60079- 0:2019 Ed.4: Explosive Atmospheres — Part 0: Equipment — General Requirements
- CSA C22.2#60079-11:2014 Ed.2: Explosive Atmospheres - Part 11: Equipment Protection by Intrinsic Safety "i" (R2018)
- CAN/CSA-C22.2#157-92 Intrinsically Safe and Non-Incendive Equipment for use in Hazardous Locations, Rev June 2003 Reaffirmed 2021

3.4 Approvals for potentially explosive atmospheres

Hazardous Locations marking for North America:

Class I, Zone 0 AEx ia IIC T4 Ga, Ex ia IIC T4 Ga

Class I, Division 1, Groups A, B, C, D, T4

Class II, Division 1, Groups E, F, G, T4

$-40^{\circ}\text{C} \leq T_a \leq +85^{\circ}\text{C}$

3.5 Special Conditions of use in potentially explosive atmospheres



- WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD
- AVERTISSEMENT – DANGER POTENTIEL DE CHARGES ÉLECTROSTATIQUES
- The equipment utilizes external non-metallic materials which pose a potential electrostatic charging hazard. Caution must be used when handling or using cleaning products so there is no static charge build-up. Do not wipe with a dry cloth. Use only water damp cloth and allow to air dry for cleaning device. Do not use or install in high charge areas.
- The equipment is a fixed Installation.
- Special Ambient Temperature Range is specified as such: $-40^{\circ}\text{C} \leq T_a \leq +85^{\circ}\text{C}$
- This product has a capacitance average of 5.7 pF on the base which is in excess of 3pF and may pose electrostatic charging hazard. All metal parts of product must be connected to the ground through $< 1\text{G}\Omega$ impedance or the user must determine the suitability for the specific application.
- This product is designed for Indoor and Outdoor use when in a potentially explosive atmosphere.
- The equipment is not capable of withstanding the 500V insulation test required by Clause 6.3.13 of IEC 60079-11. This shall be considered when installing the equipment.

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4 Detailed Product Description

The Vero Primary Battery Sensor Module (PB-SM) is designed to work in conjunction with AssetWatch's cloud-based Condition Monitoring Platform AssetWatch™. **Error! Reference source not found.** below shows the Vero PB-SM.

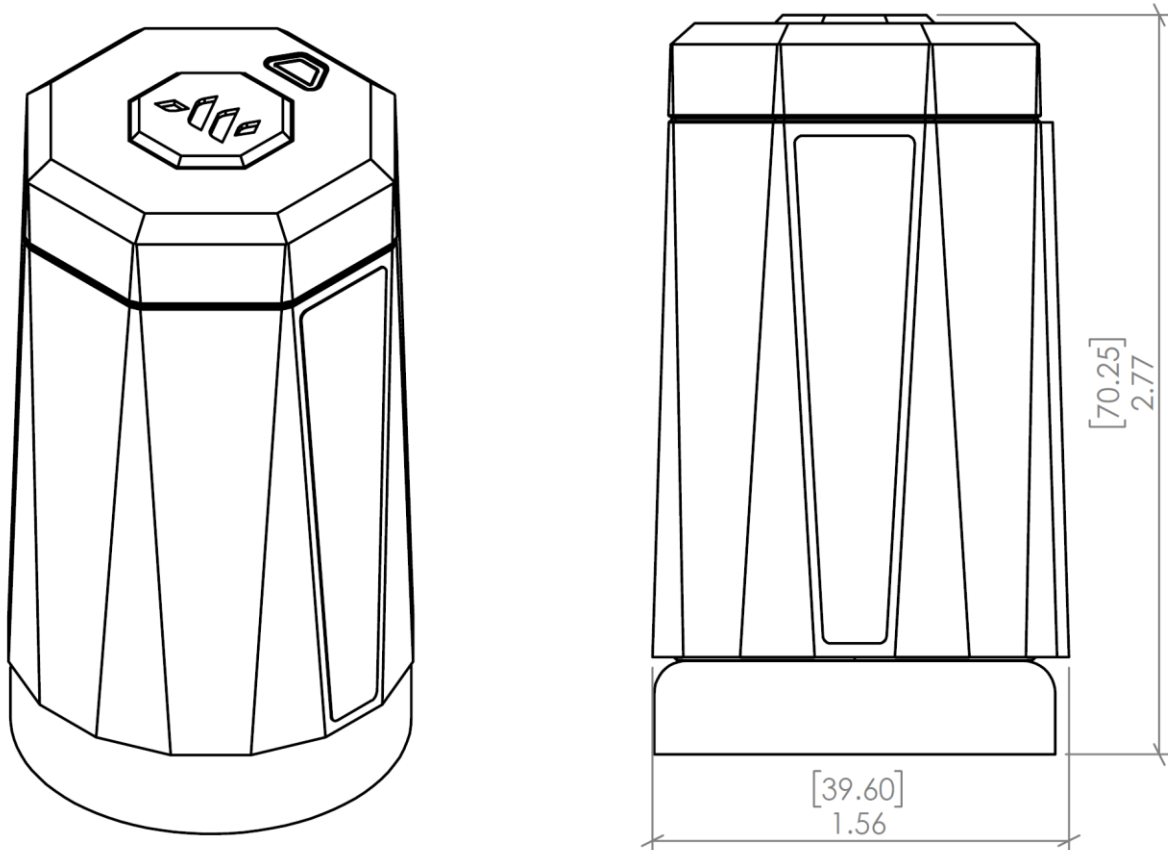


Figure 1: Vero Primary Battery Sensors Module (Model VERO-VTH-01)

Marking Information will include the following:

- AssetWatch, Inc
- Model Number: VERO-VTH-01
- Serial Number (S/N) (each unit is identified by a unique serial number located on the label, which may be used to determine date of manufacture upon request)
- MET Mark and File Number E116168
- CI I, Zn 0 AEx ia IIC T4 Ga, Ex ia IIC T4 Ga
- CI I Div 1 Gr ABCD T4 | CI II Div 1 Gr EFG T4

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- $-40^{\circ}\text{C} \leq T_a \leq +85^{\circ}\text{C}$

The model number VERO-VTH-01 sensor is designed to measure vibration and temperature for industrial rotating equipment like motors, fans, pumps, compressors, etc. The vibration and temperature readings are sent wirelessly, via Bluetooth Low Energy (BLE), to a Vero Hub, which translates the BLE signal to Wi-Fi and sends it to the cloud. The mechanical housing is sealed against environmental factors such as intense water spray and heavy dust/fiber accumulation. The high energy cell coupled with low energy usage electronics assures long field life without the need to replace or recharge the battery.

Error! Reference source not found. below illustrates how the AssetWatch Vero components work together to create a safe and secure environment for our customer's data. First, the PB-SMs communicate to the hub using Bluetooth™ Low Energy (BLE). The BLE protocol is based on the version 4.2 standard and adheres to those security requirements. The Hubs communicate via Wi-Fi (802.11 standards using common security protocols to connect to a cellular hotspot (i.e. Cradlepoint). The Cradlepoint uses cellular/LTE technology to send data directly to the AssetWatch™ cloud without ever touching a customer IT network.

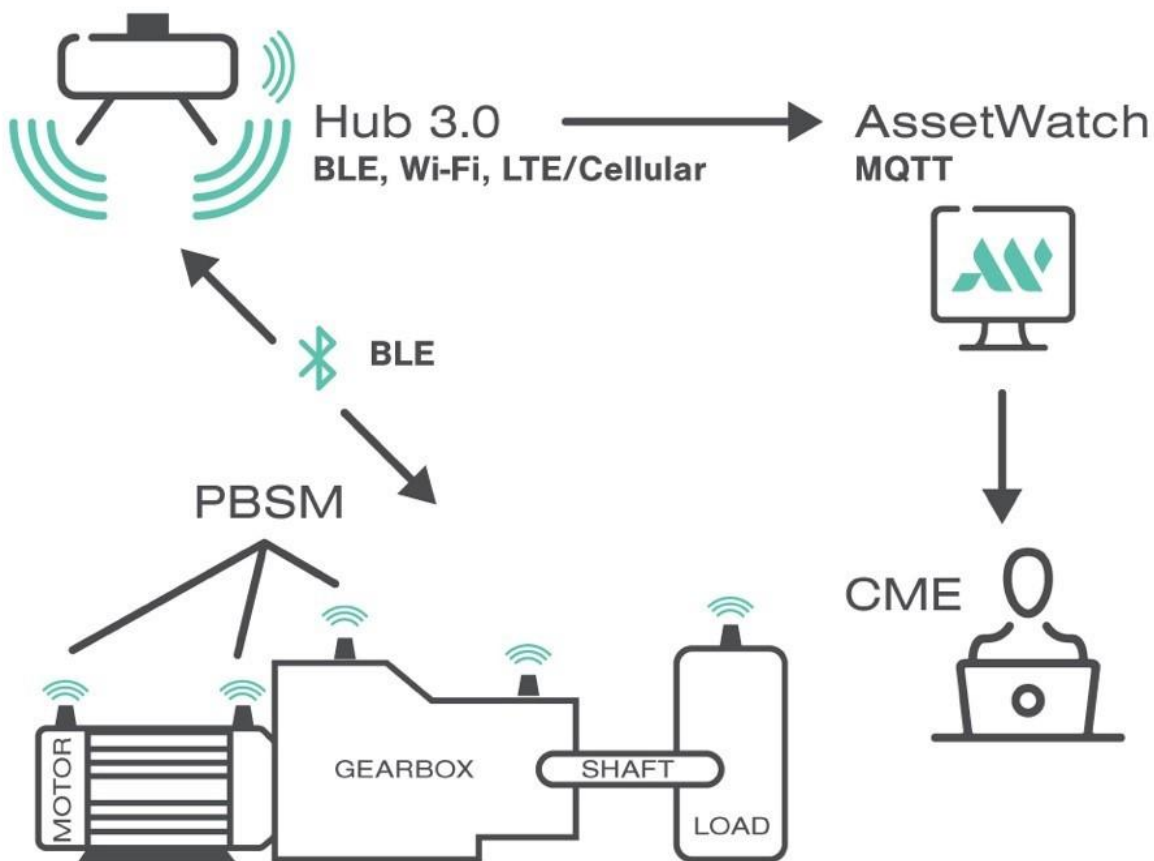


Figure 2: Typical AssetWatch Lab's Vero Communications Overview (No Customer Network Needed)

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The AssetWatch Vero PB-SM monitors the health of customer equipment through the use of accelerometers and temperature sensors. The acceleration and temperature data are sent eight times (typically) per day using MQTT. Each MQTT packet is approximately 100kB of non-customer identifiable raw vibration data and is encrypted in-transit by using TLS. TLS is used to ensure the confidentiality of the application's MQTT protocol. Once the data hits the broker, it's within our secured AWS cloud infrastructure using AWS best practices and standards to ensure security. This data is not accessible or shared outside of the AssetWatch network except for our cloud application AssetWatch™ and APIs which are also deployed within the same AWS cloud infrastructure.

The PB-SM contains a triaxial accelerometer and temperature sensors with the following parameters:

Triaxial Accelerometer

- Mechanical response: (-3dB): 8.2kHz (x), 8.5kHz (y), 5.6kHz(z)
- Measurements: up to +/-64g, 16-bit @ 25.6kHz sample rate

Temperature Sensor

- Operating Range: -40°C to +125°C (-40°F to +257°F)
- Accuracy of +/-1°C

Mechanical Specifications

- Height: 2.8" [70mm]
- Diameter: 1.6" [40mm]
- Weight: 4.8 oz. [124g]
- Mounting Provisions:
 - Magnet (120 lbs. +/- 10% pull force)
 - Magnet with ferrous strike plate (for mounting to non-ferrous substrates)
 - Epoxy mounted stud rigid coupling (¼-28 stud on machined epoxy mount)
 - Threaded stud rigid coupling (¼-28 stud threaded in customer asset)

5 Installation Instructions

5.1 Normal Installations Instructions

5.1.1 Inspection

Inspect for cracks and damage.

5.1.2 Pre-Install Assumptions

- The facility has already been created in AssetWatch™ and has been linked in Salesforce.
- Install team knows locations and names of customer assets and has determined mounting locations for hardware to be installed.
- Cradlepoints have a SIM card installed and Wi-Fi SSID & password are configured.
- Hubs have Wi-Fi SSID & password configured.
- In AssetWatch(TM)™ the following has been completed.
 - 'Facility Status' has been set to 'Live Customer'.

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- 'Facility-wide 15m hub diagnostics' has been enabled.
 - Hubs and Cradlepoints have been assigned to the facility.
- To ensure connectivity to all devices being installed, it is recommended to install hardware for each area in the following order: Cradlepoint, hub, PB-SM.
 - For detailed instructions on Cradlepoint and Hub installations and troubleshooting, please refer to the Hub Operation Manual

5.1.3 PB-SM Installation

1. Use the installation instructions provided for either the mobile app or the web interface.
2. Mount the PB-SM to the customer asset using one of the approved mounting methods.

5.1.3.1 *Standard mount:*

Simply place the PB-SM on the desired location using the supplied magnet. The sensor should be placed on a flat surface as close to the bearing being measured as possible. Surface should be dry, clean and firmly fixed to the asset. If the surface has any contamination on it, please use a scraper, wire brush or wipe it off with a rag to ensure no rust, loose paint or debris is present and then place the sensor on the asset. **Error! Reference source not found.** shows a typical installation. The ridge on the housing faces in axial direction, parallel to shaft.



Figure 3: Typical PB-SM Installation with supplied magnet

The sensors have a correct orientation, which is dictated by the raised edge along the sensor. The raised edge is typically facing towards the same direction as the shaft of a piece of rotating equipment. If it is not, it will be installed with the raised edge facing upwards. Older sensor models will have a barcode on the raised edge and newer models will just have the raised edge. There are photos of every sensor location, and if you are unsure of its correct position, please reach out to your CME or customersuccess@assetwatch.com for a photo of how it should be installed.

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Figure 4: Example Orientation of Older Style PB-SM



Figure 5: Example Orientation of Newer Style PB-SM

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5.1.3.2 *Optional Mount: Magnet with ferrous strike plate*

In cases where the standard magnet is not compatible with the asset (i.e. non-ferrous surfaces, fin spacing, rounded surfaces), magnet strike plates can be used to create a flat ferrous surface for the sensor to be mounted to. Strike plate should be attached to the asset using approved epoxies and bonding process.

Loctite AA330 and Activator 7387 is the recommended epoxy for all field applications.

Follow installation instructions! More epoxy does not mean a stronger bond.

Installation Instructions:

1. Clean and prep strike plate sites on the asset for epoxy. If the surface has any contamination on it, please use a scraper, wire brush or wipe it off with a rag to ensure no rust, loose paint or debris is present. Solvent or degreaser (i.e.: Simple Green) cleaning is best to ensure that no grease or residue remains on the surface. Stainless surfaces should be abraded with sandpaper or green scotch-brite to leave a tooth for best adherence of epoxy.
2. When using Loctite AA330, first apply activator on all surfaces (including strike plate side)
3. Fill threads on strike plate with epoxy for good mechanical grip and to prevent crevices for food service industry.
4. For AA330 the finished bond gap should be 0.02" [0.5mm]. Be sure to use a consistent amount of epoxy, about a dime size epoxy blob per strike plate.
 - 4.1. AA330 makes the strongest bond in a thin even layer, about the thickness of a piece of paper. In practice, relatively less epoxy with a good coating of activator on BOTH the surfaces yields better results than thick, blobby epoxy application.
5. Place the strike plate and epoxy on the asset, being sure to align the notch on the strike plate with the axial direction so it is parallel with the shaft.
6. Wait for the specified setup time for the epoxy to cure. 30 minutes before loading strike plate.
 - 6.1. In practice, it's better to apply the strike plates in an area then come back around to mount the sensors.
 - 6.2. The setup time should be WITHOUT the sensor installed (unless the install location is perfectly flat and level, with gravity working for you). Loading the adhesive by placing the sensor during cure will negatively impact the final bond strength and could cause strike plates to slide out of position.
7. Place the sensor on the strike plate, being sure to align the raised ridge of the housing with the notch on the strike plate.

Photos from epoxy and strike plate testing at our test lab. Note the full coating of activator spray on strike plate and mounting surface, and the thin, even layer of epoxy once set in place.

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The degree of curing on the visible epoxy edge does NOT indicate the bond is fully cured.

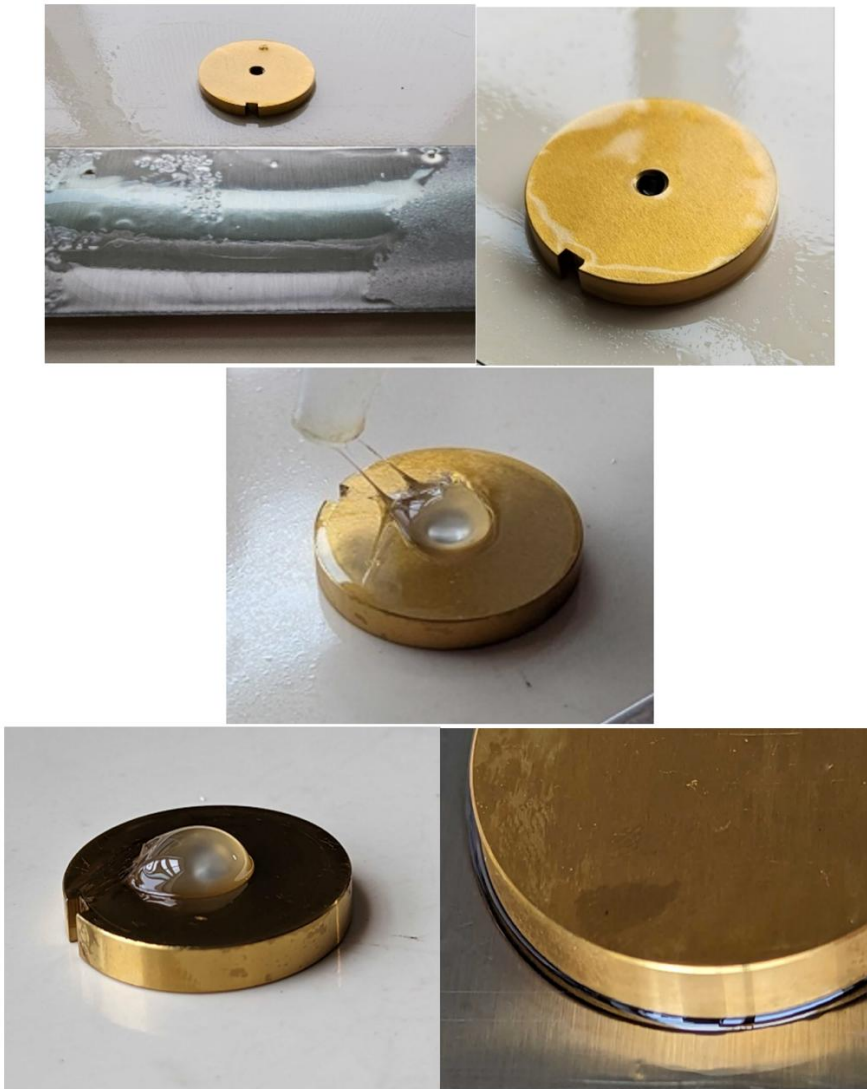


Figure 6: AA330 Epoxy Glue Process

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Figure 7: PB-SM alignment feature with strike plate notch

5.1.3.3 Optional Mount: Magnet strike plate + Threaded stud Mount:

For customers who prefer a threaded stud mount, the magnet may be bypassed with a ¼-28 stainless steel threaded stud and strike plate epoxied to the asset, offering the advantages of a mechanical mount with a pre-threaded hole and predictable strike plate surface.

1. Place a drop of high-strength Loctite 271 onto the threads of a ½" long stainless cup point steel set screw. NOTE: McMaster-Carr PN 92311A560 is a suitable threaded stud for rigid coupling
2. Insert the set screw into the threaded hole of the strike plate. Tighten with a 1/8" allen key. NOTE: The threaded stud should protrude from the strike plate by not more than 3/8"
 - a. Hand tightening without allen key is not sufficient.
3. Clean and prep strike plate sites on the asset for epoxy. If the surface has any contamination on it, please use a scraper, wire brush or wipe it off with a rag to ensure no rust, loose paint or debris is present. Solvent or degreaser (i.e.: Simple Green) cleaning is best to ensure that no grease or residue remains on the surface. Stainless surfaces should be abraded with sandpaper or green scotch-brite to leave a tooth for best adherence of epoxy.
4. For AA330 the finished bond gap should be 0.02" [0.5mm]. Be sure to use a consistent amount of epoxy, about a dime size epoxy blob per strike plate.
 - 7.1. AA330 makes the strongest bond in a thin even layer, about the thickness of a piece of paper. In practice, relatively less epoxy with a good coating of activator on BOTH the surfaces yields better results than thick, blobby epoxy application.
8. Place the strike plate and epoxy on the asset, being sure to align the notch on the strike plate with the axial direction so it is parallel with the shaft.

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9. Wait for the specified setup time for the epoxy to cure. 30 minutes before loading strike plate.
 - 9.1. In practice, it's better to apply the strike plates in an area then come back around to mount the sensors.
 - 9.2. The setup time should be WITHOUT the sensor installed (unless the install location is perfectly flat and level, with gravity working for you). Loading the adhesive by placing the sensor during cure will negatively impact the final bond strength and could cause strike plates to slide out of position.
5. Unthread the magnet screw from the PB-SM using an impact driver and #1 Phillips tip (This will require significant torque to remove the screw)
6. Perform fit check. Stack stainless steel ring shims in between the strike plate and PB-SM so the housing ridge faces in axial direction, parallel to shaft when fully bottomed out on the threaded stud. Note: McMaster-Carr PNs 97022A199, 97022A382, 97022A452 are suitable ring shims.
7. Apply medium strength Loctite 242 to the sensor side of the stud, use a torque of at least 15 in-lbs. (mounting the sensor with equivalent or greater force than the 120 lbs. magnet would have) to ensure rigid coupling and good surface contact between shims. ARTs will need to stack multiple shims to achieve the desired rotation – 0.035" per revolution, or 0.004" shim thickness for 1/8 of a revolution. The goal is to stack as few parts as reasonably possible to achieve sensor alignment with tight, rigid coupling to the asset.

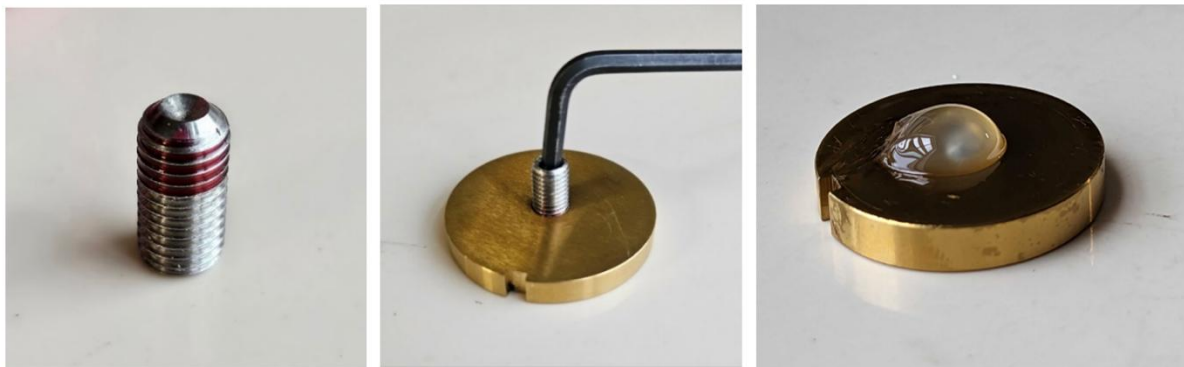


Figure 8: Instructions: Loctite the set screw, tighten with Allen wrench, apply activator and epoxy.

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Figure 9: Instructions: Strike plate with threaded stud installation. Mount Sensor after epoxy is cured 30 Mins.

Note: high-strength permanent Loctite is used on strike plate side with medium-strength removable Loctite on the sensor side to allow the sensor to be uninstalled/replaced. Stud in strike plate side can be done ahead by supply chain, sensor side is done on site after epoxy has cured for the setup time.

5.1.3.4 Drill and Tap Stud Mounting:

AssetWatch does not currently offer services to drill and tap customers' assets. However, we can consult with a customer on the process if they elect to use our sensors with direct stud mounting. A customer reference guide for drilling and tapping an asset including use of a spot facing tool can be found on the Hardware Notion page, or by contacting the respective CSM. Drill and tap mounting (especially use of a spot face tool) requires customer personnel to have the requisite fabrication expertise. AW mounting instructions assume customer has this capability and executes all modifications to their assets.

Once the asset is drilled and tapped with ¼-28 threads to a depth of 0.5" thread engagement with no more than 3/8" sticking out of the asset, the sensor can be mounted as follows:

1. Ensure threaded hole is clean, deburred, clear of debris and machine has not been damaged. Canned air and gentle(!) countersinking burrs will help.
2. Place a drop of high-strength Loctite 271 onto the threads of a 7/8" long ¼-28 cup point stainless steel set screw. NOTE: McMaster-Carr PN 92311A563 is a suitable set screw for rigid coupling.
3. Insert the set screw into the threaded hole on the asset. Ensure visible threads are clean without residue. Allow Loctite to cure before installing sensor.
NOTE: The threaded stud should protrude from the asset by 5/16-3/8"
4. Unthread the magnet screw from the PB-SM using an impact driver and #1 Phillips tip (This will require significant torque to remove the screw)
5. Place a stainless steel oversized washer for ¼" on the set screw as a spacer, if needed. If the asset was spot faced, the spacer may be needed for the sensor to clear edges of the spot face.
NOTE: McMaster-Carr PN 90313A107 is a suitable spacer washer for threaded stud mounting

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6. Stack stainless steel ring shims in between the strike plate and PB-SM so the PN:SN label faces in axial direction, parallel to shaft when fully bottomed out on the threaded stud. Use a torque of at least 15 in-lbs. (mounting the sensor with equivalent or greater force than the 120 lbs. magnet would have) to ensure rigid coupling and good surface contact between shims.

Note: McMaster-Carr PNs 97022A199, 97022A382, 97022A452 are suitable ring shims.

7. ARTs will need to stack multiple shims to achieve the desired rotation – 0.035” per revolution, or 0.004” for 1/8 of a revolution. The goal is to stack as few parts as reasonably possible to achieve sensor alignment with tight, rigid coupling to the asset.

5.1.4 Provision the PB-SM

After installation, provision the sensor according to the instructions provided in the web application of the mobile application. For more detailed instructions, refer to documentation in this internal [link](#). If you are not an AssetWatch employee and need this information, please contact customersuccess@assetwatch.com.

5.1.5 Verification

1. Verify all sensors are online and have sent data to AssetWatch™.
2. Contact Customer Success team and let them know the install is complete!

5.1.6 Additional Resources

- For details about the hardware interfaces mentioned in this guide, refer to the [Version 2.0 Hardware Interfaces](#) document.
- Cradlepoint devices can be managed online with NetCloud at cradlepoint.com.
- If you need to configure the Wi-Fi credentials on a hub, refer to the [Version 2.0 Soft AP Guide](#).

5.2 Collect Mode

Collect mode allows the user to take data (i.e. collect) on assets that do not require continuous monitoring. The hardware is identical, but the firmware used to control the VERO-VTH-01 is slightly different. The firmware allows the PB-SM to communicate with the AssetWatch App via a smartphone. All other mounting and installation processes are identical for this mode.

5.2.1 Collect Process

5.2.1.1 Download the AssetWatch Mobile app



5.2.1.2 Connect Sensors

Link the sensors with the user's mobile device using the in-app instructions. Ensure to use part number 710-106 for this application.

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5.2.1.3 Take a Reading

Place the sensor on the monitoring point using the mounting method described in section 6.1.3. When ready, press the “Collect Reading” button.

5.2.1.4 Submit for Review

When you’ve taken all the Readings, press “close route” at the top right-hand corner of the “Collect Reading” screen. The Route Summary Screen should appear, giving you a breakdown of the readings taken/not taken. Press “Complete Route” and then “Submit” if you are ready to submit to CME for review.

5.3 Installation in Hazardous Locations

The steps for installing VERO-VTH-01 in a potentially explosive environment are the same as for ordinary locations but with the following precautions:



CAUTION – Ensure that the atmosphere where the PB-SM is to be installed contains no potentially explosive materials. The sudden striking of the magnet to the mounting surface could generate a metal-to-metal spark.

6 Maintenance

6.1 Maintenance free

There is no need to open the device at any time. Nonetheless, the following warning is provided:



WARNING – DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT
AVERTISSEMENT – NE PAS OUVRIR EN CAS DE PRESENCE D’ATMOSPHERE EXPLOSIVE

6.2 Cleaning



CAUTION – Care must be taken when handling or cleaning the sensor module so there is no static charge build-up or discharge. Do not wipe off the PB-SM with a dry cloth. Use only water damp cloth and allow to air dry for cleaning device.

6.3 Repair

To customers using the VERO-VTH-01:

Faulty devices or devices otherwise requiring repair should be returned immediately to AssetWatch. There are no user-serviceable parts inside. Please send an email to customersuccess@assetwatch.com to get the return process and replacement service started.

To repair facilities of the VERO-VTH-01:



WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY OF THIS DEVICE.
AVERTISSEMENT: LA SUBSTITUTION DES COMPOSANTS PEUT NUIRE À LA SÉCURITÉ INTRINSÈQUE

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Use only identical or approved parts in the repair of this device.

7 Troubleshooting

7.1 Observed behaviors and what to do

The best way to tell if everything is operating correctly is to observe data reporting at regular intervals in the AssetWatch™ platform. For more detailed troubleshooting instructions, refer to documentation in this internal [link](#). If you are not an AssetWatch employee and need this information, please contact customersuccess@assetwatch.com.

7.2 Instructions for returning to AssetWatch

If users have any problems with PB-SMs not working properly, please send an email to customersuccess@assetwatch.com to get the return process and replacement service started.