

## vSensPro

# Wireless 3-Axis Vibration & Temperature Sensor

## User Manual





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## 1. Introduction

### Safety Messages

Instructions in this manual may require special precautions to ensure the safety of the personnel performing the operations. Please refer to the safety messages preceded by symbols shown below before performing an operation. The installation of vSensPro Wireless 3-Axis Vibration and Temperature Sensor should be carried out by qualified professionals only.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



This symbol marks operations that need to be handled with care and performed only by qualified professionals. Failure to take precautions can cause damage to the device, property, or personnel.

## Overview

This user manual is applicable for vSensPro, a wireless 3-axis vibration and temperature sensor. This manual can be used to install, operate, and maintain the device. This device is used to monitor the 3 axis vibration and temperature of industrial machines. It has an in-built radio, 3-axis MEMS based vibration sensor and a digital temperature sensor.

## 2. Product Specifications

The specifications of vSensPro is shown in the Table 1.

<i>Parameters/Features</i>	<i>Rating / Description</i>
<i>Accelerometer Sampling Frequency**</i>	Up to 25600 Hz
<i>Mechanical Bandwidth**</i>	Up to 8600 Hz
<i>Accelerometer Range**</i>	±8g, ±16g, ±32g, ±64g
<i>Accelerometer Sensitivity**</i>	0.2 mg to 1.95 mg
<i>Temperature Accuracy</i>	±2°C
<i>Temperature Sensitivity</i>	±1°C
<i>Battery Type</i>	Lithium Thionyl Chloride, 9 Ah
<i>Battery Life</i>	5 Years*
<i>Operating Temperature</i>	-40°C to 85°C
<i>Storage Temperature</i>	-40°C to 85°C
<i>Wireless Type</i>	Bluetooth Low Energy 2405 MHz to 2480 MHz
<i>Wireless Range</i>	30 m (Line of Sight)
<i>Dimensions (H x L x W)</i>	70mm x 42mm x 42mm

Table 1



\* Under standard configuration, battery life will be affected with any additional customization.

\*\*Configurable.

### 3. Installation

This section details out the mounting procedure for sensor on to the machine and the procedure for inserting or replacing a battery in the device.

The X, Y and Z vibration axis of the device are as shown below in Figure 1.

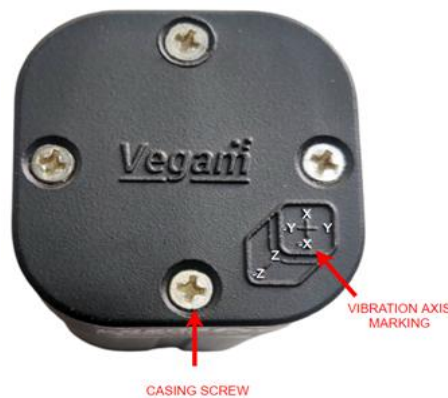


Figure 1



Do not cause any strong mechanical impact to the device housing before, during or after installation.



Ensure the casing screws are tightened completely before starting the installation process. Failure to do so may cause harm and unexpected behavior.



Before performing any action on the mounting surface or machine, please ensure the environment is safe for human operation and only qualified personnel are operating.



If the equipment is used in a manner not specified by the manufacturer or contrary to the instructions in this manual, the protection provided by the equipment may be impaired.

## Mounting Mechanism

### Step 1:

Identify the position to be mounted on the machine. The device will need a surface area of 42 mm x 42 mm to be mounted. Clean the identified position by removing chipped paint, dust, and grease from the surface. Any plant-approved cleaner along with wire brush or similar material can be used to clean the surface.

### Step 2:

Using a strong industrial adhesive bonding agent such as Loctite HY 4070, apply the gel on to the mounting base accessory. Spread the gel evenly on to the mounting base and place the base on to the cleaned mounting surface. Press and hold firmly against the mounting surface for 60 seconds.

### Step 3:

Using a strong industrial adhesive bonding agent such as Loctite HY 4070, apply the gel on to device base. Spread the gel evenly on to the device base and place it on to the mounting base attached to the machine surface. Press and hold firmly against the mounting base for 60 seconds.

## Battery Assembly



Please ensure battery insertion/replacement is carried out in a safe environment by qualified personnel only.



While inserting the battery, please ensure they are inserted in the correct polarity as shown on battery and device.

The steps will describes the steps to be followed for assembling the battery into the casing.

vSensPro is powered from type C, 3.6V Lithium Thionyl Chloride battery. The battery is as shown in Figure 2.



Figure 2

**Step 1:**

Remove the four screws from the top cover as shown in Figure 3.



Figure 3

**Step 2:**

Open the top cover from the enclosure and pop the top board carefully and move it to the side. Please make sure that you do not pull on the top board. Please refer Figure 4.



Figure 4

**Step 3:**

Insert the battery in the casing as shown in the Figure 5. Please ensure that their polarity is correct, the positive polarity comes at the top.



Figure 5



**Step 4:**

Place the top board back on top of the battery as shown in the Figure 6.



Figure 6

**Step 5:**

Put the top cover of the casing and fix the screws tightly as shown in Figure 7.



Figure 7

## 4. Operation

The operation and deployment architecture of vSensPro is shown in the Figure 8. vGateway connects with multiple vSensPro to collect the data either intermittently every burst interval or continuously depending on the operating mode. The data collected by the vGateway can be sent to any server/cloud network via Wifi or Ethernet. vGateway publishes the data on to a MQTT broker and this data can be further used for visualizations, alerts and analytics. The user can enable the sensor and get the required data from sensor by following the manual of applicable vGateway.

Please contact your Vegam representative for further assistance on setting up the device.

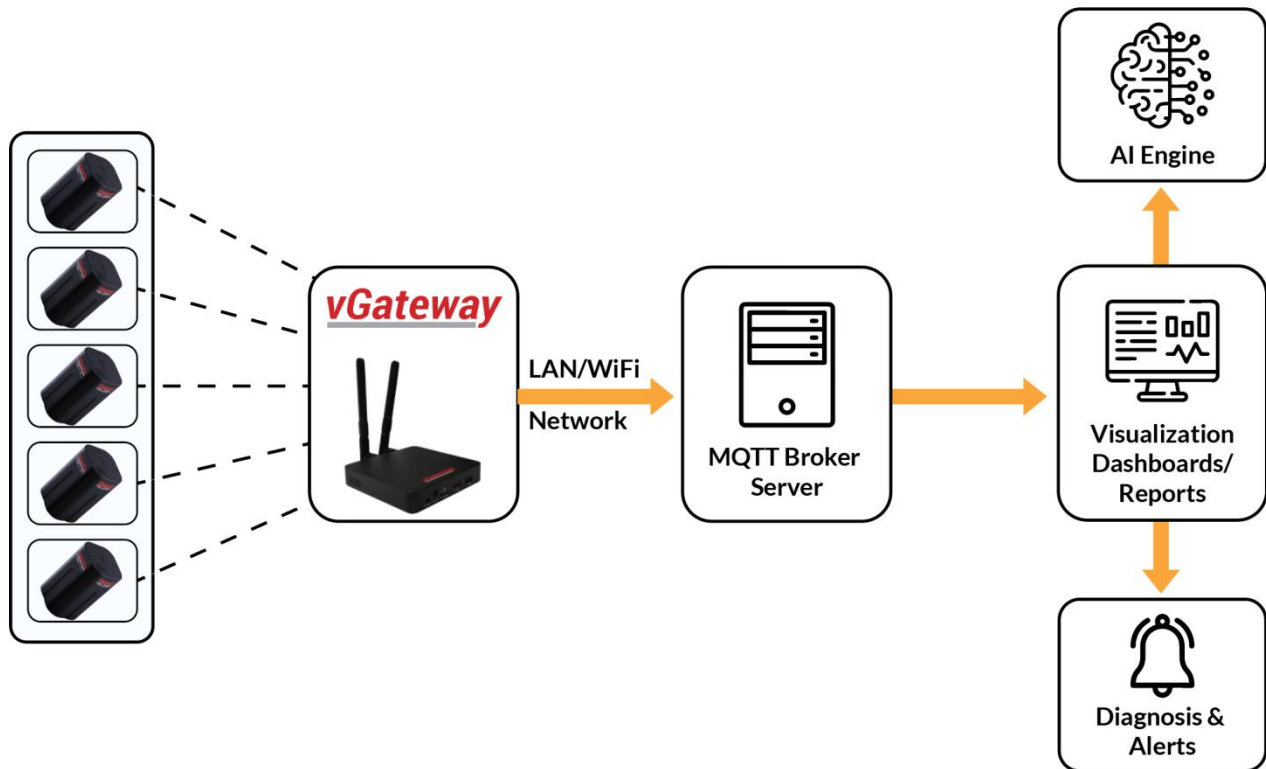


Figure 8



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### **Federal Communication Commission Interference Statement**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

**FCC Caution:** To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

### **FCC Radiation Exposure Statement**

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. The antennas used for this transmitter must be installed to provide a separation distance of at least 20 from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

This device complies with Part 15 of the FCC Rules. 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.