Unlocking Semi-Autonomous Plants

World's most user-validated Prescriptive AI

Product Name: **vSense 3XTRPM**

Product Version: **Version 1**

The **"vSense 3XTRPM"** is mounted on the Asset surface for data acquisition.

KEY FEATURES

- All-in-One Monitoring Unit – Combines 3-axis vibration, temperature, and RPM sensing in one compact module.
- Compact- Easily fits inside tight industrial spaces.
- Light weight – Minimal mechanical load, ideal for rotating components, small machines, or drones.
- Enhanced data Accuracy
- Integrated Temperature Sensor – Enables real-time thermal condition monitoring of industrial equipment
- Predictive Maintenance Capable – Simultaneous tracking of thermal, mechanical, and rotational anomalies
- High-Fidelity Piezoelectric Vibration Sensing:
  - Z-axis bandwidth up to 8 kHz for detailed vertical vibration analysis
  - X & Y axes up to 3.5 kHz, suitable for lateral fault detection.
- Integrated Magnetic Flux Sensor: Non invasive measurement of RPM via magnetic field change
- Operating Temperature -20° C to 120° C
- g Range: +/-80g
- Sensitivity: 100mV/g
- Hermetically Sealed
- SS 316 Enclosure
- Capable to have Frequency range / Bandwidth of accelerometer (VSense 3XTRPM)
  - Z axis: 0.33 Hz to 8KHz
  - X & Y axis: 0.33Hz to 3.5KHz

EQUIPMENT & ENVIRONMENTAL SUITABILITY

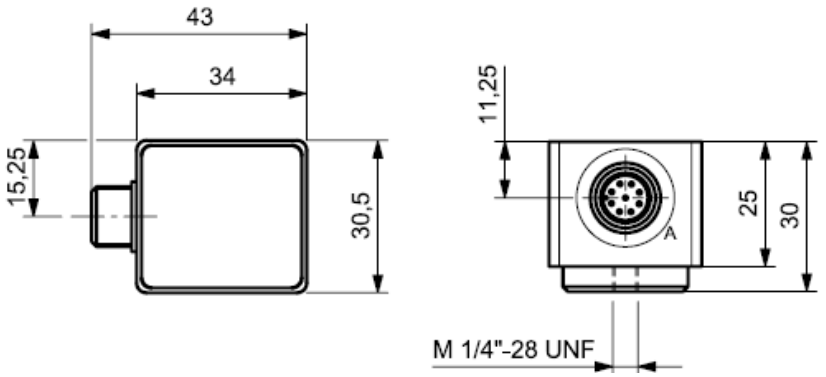
Equipment with transient load patterns, operating between Revolution Per Minute (RPM) of 20 RPM to 12000 RPM such as:

- Steam Fans
- Corrosive Environment Pumps (SAP/PAP)
- Ventilation Fans
- High Speed Motors
- High Speed Compressors

ASSET FAILURE MODES COVERED

- Bearing Defects
- Gear Defects
- Rotating Looseness
- Structural Looseness
- Unbalance
- Angular Misalignment
- Pump Flow issues
- Parallel Misalignment

(All dimensions in mm)



Dimensions
L=34 mm, W=32 mm, H=29 mm

Weight
135 grams

Vibration Sensing & Processing	
Parameter Monitored	Triaxial Vibration, Asset temperature & Motor RPM
Vibration Sensor	Triaxial accelerometer (with Temperature Sensor & RPM Sensor)
Asset RPM that can be analysed*	20 RPM to 12000 RPM
Sensitivity	100 mV/g ± 10% nominal at 160 Hz at 24°c
Frequency range (VSense 3XTRPM)	• Z axis: 0.33 Hz to 8KHz (+/- 10%) • X & Y axis: 0.33 Hz to 3.5 KHz (+/- 10%)
Configuration Range (In PlantOS Platform)	• F_{max}: 325 Hz to 2.5 kHz • F_{min}: 0.2 Hz to 10Hz • LOR: 100 to 12800 (LOR = Lines of Resolution)
g-range	± 80g
Linearity	Less than 10 %
Mounting	**Recommended:** Stud Mounting (1/4_28 UNF)/Glue Mounting **Recommended Glue**: Adhesive LOCTITE AA 326 and Activator LOCTITE SF7649. **Note**: Firmly Mount on flat surface (spot face surface may be needed to be produced and cable anchored to the sensor body)
Mechanical	
Case Material	Stainless Steel 316
Sensing Element/Construction	PZT/Shear
Vibration Pad Mounting Torque	8 Nm
Screened Cable Assembly	• 24 AWG silver plated copper, FEP cable, 9Pin connector to VSense 3XTRPM end. • Temperature: 180°C, Screen isolated from connector, 9 core shielded.
Standard Cable Length	10 meters (Customized cable length from 15 meters to 30 meters on prior request)
Sensor Connector	9 Pin Hermetically Sealed SS connector
Electrical	
Excitation Voltage	24 Volts DC (considering EqSense 3XT Wi-Fi)
Constant Current	4 mA
Bias Voltage	9 to 12.5 Volts DC
Settling Time	2 seconds
Isolation	Vibration Pad Base isolated
Environmental	
Asset contact temperature range (vSense 3XTRPM withstands this temperature)	-20° C to 120° C
Temperature measurement range	-20° C to 120° C
Sealing	IP68