

DATASHEET

VSX

3-IN-1 CONDITION MONITORING SENSOR
FOR VARIABLE SPEED ROTATING EQUIPMENT



THREE SENSORS IN ONE



TEMPERATURE



TRI-AXIAL VIBRATION



MAGNETIC FIELD

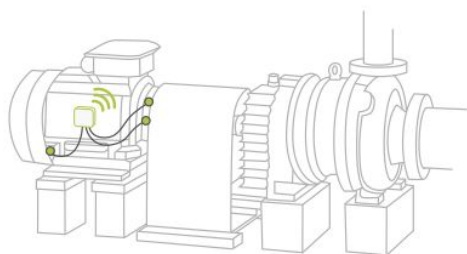
CONTINUOUS CONDITION MONITORING

for variable speed rotating equipment

The VSX is the first 3-in-1, wired sensor that measures triaxial vibration, surface temperature and running speed, providing a holistic approach to condition monitoring of variable speed, spared or batch assets.

Plug the VSX sensor into the Petasense Transmitter (Tx), connect to WiFi and start monitoring the health of your assets from anywhere.

The Petasense **ARO Cloud** uses machine learning algorithms, coupled with a comprehensive library of assets and failure modes, to continuously assess asset health. **Web and Mobile Apps** allow you to monitor your assets remotely and receive actionable insights through real-time notifications.



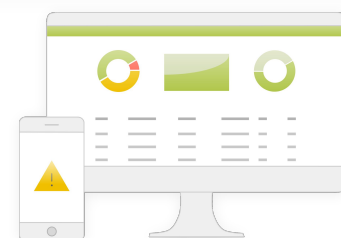
VSX + TRANSMITTER

Mount the VSX and plug into the Transmitter to send asset condition data over WiFi*



ARO CLOUD

Predict asset health and optimize performance using machine learning



WEB + MOBILE APPS

Visualize asset health data receive actionable insights with real-time notifications

*VSX plugs into the Petasense Transmitter and requires an active subscription to the Petasense ARO Cloud.

PERFORMANCE MEETS SIMPLICITY



MONITOR VARIABLE SPEED, SPARED AND BATCH EQUIPMENT

Integrated magnetometer provides simultaneous measurements to collect running speed, vibration and temperature. This solves a challenging problem of trending readings for variable speed or intermittently operating assets.

COLLECT MEANINGFUL AND FREQUENT DATA

Collect data on flexible intervals, from every 10 minutes to once per day. Speed detection enables smart measurements such as:

- **Event-based measurements**
Taken only when asset is on and/or operating at a specific running speed, enabling consistent trending
- **Coordinated measurements**
All sensors on asset train to take synchronous measurement

DETECT ISSUES EARLIER

High bandwidth, triaxial vibration sensor with 5,500 Hz frequency response in all 3 axes and up to 8000 lines of resolution.

Detect:

- Misalignment
- Imbalance
- Gearbox defects
- Looseness
- Cavitation
- Early stage bearing wear

NO BATTERY CHANGE OUTS

Powered by the Petasense Transmitter, the VSX sensor provides easy deployment without worrying about battery replacement.

FLEXIBLE DEPLOYMENT

Data is transmitted over standard WiFi, with no additional hardware or proprietary network required. Mix-and-match with other Petasense sensors to monitor any asset from a single software.

NEVER LOSE YOUR DATA

If the wireless network goes down, onboard storage prevents data loss. Data gets automatically transmitted once the connection is re-established.

VIBRATION SENSOR

Number of Axes	Tri-axial
Frequency Response	2 to 5,500 Hz (+/- 3 dB)
Measurement Range	+/- 25g
Sensitivity	50 mV/g
Output Interface	IEPE (Analog)
Transverse Sensitivity	< 10%
Sensing Element	Ceramic
Operating Temperature	-40°C to 85°C (-40°F to 185°F)

TEMPERATURE SENSOR

Measurement Range	-40°C to 85°C (-40°F to 185°F)
Accuracy	+/- 1°C between 0-70°C
Output	PWM digital

MAGNETIC FIELD SENSOR

RPM Range	60 RPM to 9000 RPM
Accuracy	+/- 1 RPM
Magnetic Field Range	+/- 8 Gauss
Frequency	32 KHz
Output	IEPE (Analog)
Axis	Uniaxial

POWER

Accel. + Temperature	IEPE 0.5 mA to 8 mA only
Magneto	IEPE 0.5 mA to 8 mA for signal + DC power (9-24V)

PHYSICAL - DEVICE

Dimensions	Height 26.3 mm Width 38 mm Length 50 mm (63 mm including connector)
Weight	200 g
Mounting	Captive Screw: ¼" - 28 UNF (Mounting Pad Recommended) Mounting torque: 8 Nm (5.9 ft. lbs.)
Material	Stainless Steel 304
Connector	8-Pin M12, Side-exit Connector

PHYSICAL - CABLE

Connector	M12 A-Coded 8-Pin Socket Molded, Straight-exit Connector
Length	3 options: 16' (5m), 32' (10m), 64' (15m)
Connection	Screw On
Materials	TPU (<i>Jacket</i>), Thermoplastic Elastomer (<i>Connector cover</i>), Brass/Gold (<i>Contact</i>), Stainless Steel (<i>Coupling Nut</i>)
Cable Diameter	0.23" (6mm)

ENVIRONMENTAL

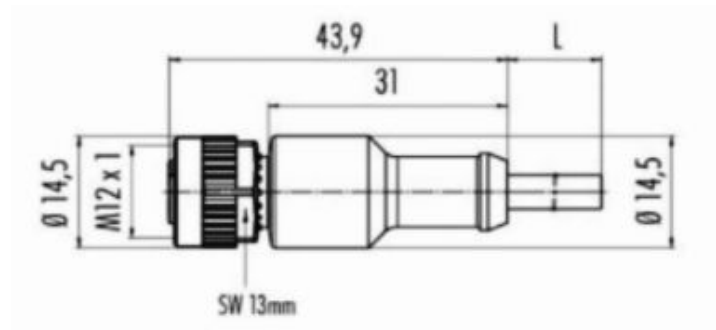
Operating Temperature Range	VSX: -40 to 85°C (-40 to 185°F) Cable: -25 to 120°C (-13 to 248°F)
Storage Temperature	< 85°C (185°F) without battery
Shock Resistance	2 meter fall, 16 g continuous vibration
Certifications	VSX: IP68, CE, RoHS compliant Cable: IP69K, CE, UL

ORDERING INFORMATION*

Device SKU	PETA-SNSR-VSX
Cable SKUs	CMCP608M-XX (Specify Cable Length) -05 5 Meter (16') -10 10 Meter (32') -20 20 Meter (64')
Mounting Pad SKU	CMCP200E (Epoxy Mounted)

* Contact sales@petasense.com to place an order

VSX CABLE SCHEMATICS



- Pin 1: Ch 1 Signal (X)
- Pin 2: Ch 2 Signal (Y)
- Pin 3: Ch 3 Signal (Z)
- Pin 4: Magnetometer Signal
- Pin 5: Temperature Signal
- Pin 6: Magnetometer Power
- Pin 7: Common
- Pin 8: Future Use