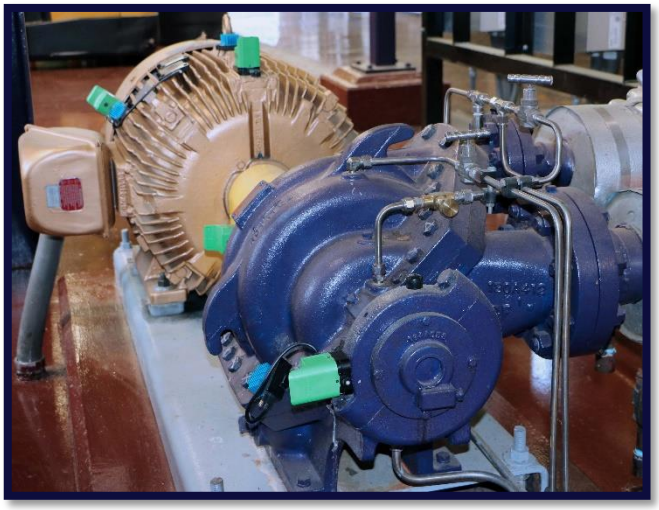
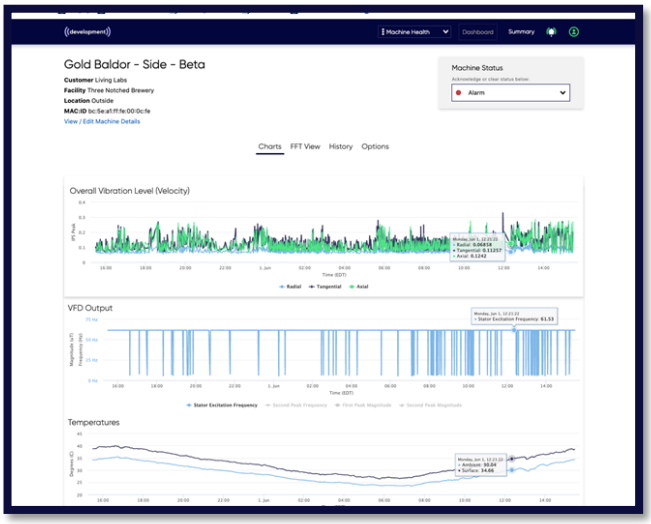
Machine Health Monitoring (MHM)

Continuous Insight on all Rotating Equipment with Everactive Batteryless, Wireless Sensors



Everactive batteryless sensors continuously stream data to the cloud, providing a 24/7 alarming service for early-warning fault detection.



Features

Monitored Parameters

- Overall vibration levels (velocity) for each axis (radial, tangential, axial)
- Fundamental operating frequencies for each axis, ranging from 6Hz – 1,000Hz
- Magnitudes of the 9 highest peaks
- VFD output (stator excitation frequency)
- Machine surface temperature
- Ambient temperature

Intended Use

- Motors
- Pumps
- Fans
- Compressors
- Gear boxes

Evercloud User Interface

- Real-time interactive data display & charts for all monitored parameters
- User configurable threshold alarms
- Email alerts and summary dashboard status based on threshold settings
- Spectrum charts for 9 highest velocity peaks (via FFT processing at the edge)
- Simple Eversensor pairing & provisioning

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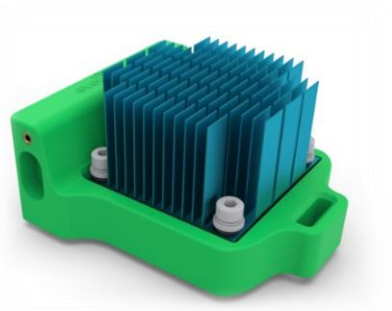
Specifications

Eversensor

Data Measurement & Transmission	
Measurement interval	Configurable, default every 60 seconds
Transmission interval	
Vibration (overall velocity values)	
Frequency range	6Hz – 1,000Hz
Amplitude range	Auto range: +/- 2g, 4g, 8g, 16g
Sample rate	3,200Hz
Temperature	
Measurement range	-40°F to 185°F (-40°C to 85°C)
Accuracy	+/- 3.6°F (2°C)
VFD Output (stator excitation frequency)	
Frequency range	6Hz – 400Hz
Sample rate	800Hz
Power	
Thermoelectric generator	Min. 15°F (8°C) Δ btwn surface & ambient
Indoor photovoltaic	Min. 200 Lux
Outdoor photovoltaic	Min. 200 Lux
Energy storage	8 hrs. @ 60s sample rate, no power source
Wireless Communication (Eversensor ↔ Evergateway)	
Protocol	Evernet, proprietary sub-GHz link
Range (non-line-of-sight)	Up to 820 ft. (250m)
Range (line-of-sight)	Up to ½ mile (1km)
Mechanical	
Ingress protection class	IP66
Hazardous location	Class I, Division 2
Operating temperature (Eversensor)	-40°F to 185°F (-40°C to 85°C)
Operating temperature (TEG)	-40°F to 167°F (-40°C to 75°C)
Storage temperature	-40°F to 185°F (-40°C to 85°C)
Vibration resistance	10-60Hz @ 0.69mm 60-3,200Hz @ 5.0g
Shock & impact resistance	100g @ 6mS
Dimensions (Eversensor)	2.4" x 1.88" x 3.2" (61mm x 48mm x 81mm)
Dimensions (TEG Harvester)	3.4" x 2.3" x 1.38" (87mm x 58mm x 35mm)
Dimensions (PV Harvester)	3.4" x 2.8" x 0.5" (86mm x 72mm x 14mm)
Weight (Eversensor)	0.39 lbs. (180g)
Mounting	Magnet, stud, or epoxy
Material	PC-PET / Aluminum

Eversensor (above) connects to harvesting source (below, thermoelectric generator) via a USB-C cable.



Evergateway

Power Supply Options	
AC main power	AC Input 85-264V~, 0.35A/115V 0.25A/230V, 47-63 Hz
Power-over-Ethernet	Compliant with IEEE 802.3af
Wireless Communication	
Protocol to Eversensor	Evernet, proprietary sub-GHz link
Protocol to Evercloud	LTE, Wi-Fi, or Ethernet
Data transmission interval	Configurable, default every 60 seconds
Range (non-line-of-sight)	Up to 820 ft. (250m)
Range (line-of-sight)	Up to ½ mile (1km)
Mechanical	
Ingress protection class	IP66
Hazardous location	Class I, Division 2 with added enclosure
Operating temperature	-22°F to 158°F (-30°C to 70°C)
Storage temperature	-40°F to 185°F (-40°C to 85°C)
Vibration resistance	10-60Hz @ 0.44mm 60-3200Hz @ 3.0g
Shock & impact resistance	100g @ 6ms
Dimensions	10.5" x 8.7" x 5.3" (267mm x 221mm x 133mm)
Weight	5.8 lb. (2.64 kg)
Mounting	Mounting tabs
Material	Polycarbonate