

Watchman AIR™

High resolution wireless vibration solution

Advanced, wireless vibration solution with automated diagnostic engine and data quality logic to provide volumetric analysis and repair recommendations.

High resolution for prediction and prescription

Watchman AIR™



Accel 310

- High-resolution, triaxial vibration + temperature sensor
- Self-adaptive, self-healing mesh network

Accel gateway

- SymphonyAI Industrial cloud-ready
- Standard and Industrial options available
- Wi-Fi, LAN, Ethernet, Cellular

Expert automated diagnostics

- 6000+ trained diagnostic rule templates
- 1200+ component-level fault types
- Advanced Vibration AI logic

PredictivePortal

- User-defined alerting and notifications
- Asset health score and business metrics
- Wireless system health and management



Advanced acquisition

The most advanced acquisition technology available to capture high resolution vibration data capable of detecting early component-level faults on machines as slow as 350 RPM and to frequencies detectable to 10kHz. Combined with SymphonyAI Industrial's proprietary Impact Demod algorithms, analysis is on-par with portable collection systems.



Actionable results

Early detection of emergent faults and root cause to prioritized repair recommendations with specific actions, all decision makers can be alerted and involved in decisions that effect plant operations and minimize downtime. Health score, business metrics and other KPIs can be delivered through the web portal or direct to your mobile.



Automation and AI

The world's largest asset data lake and most advanced, trained automated diagnostic engine on the market, provides rapid time to setup and time to achieve accurate results. Over 67 trillion individual vibration data points from 2.25 million machine tests, SymphonyAI Industrial has diagnostic models for over 128,000 specific component faults.



Analysis services

SymphonyAI Industrial's team of over 40 ISO certified vibration analysts, Level 2-4, are available to provide domain expertise and remote condition monitoring of assets with a 24-hour turn-around of serious and extreme faults or urgent requests.

Accel 310™ – Triaxial vibration + temperature sensor

Wireless vibration with actionable diagnostics

Self-adaptive, self-healing mesh network of sensors and gateways keeps costs of gateways and IT infrastructure low while improving the reliability of the system performance.

High-resolution, vibration, temperature, and Impact Demod vibration data capture summary data every hour and diagnostic data once a day.

Is-running triggers captures data only when an asset is in operation.

Data Quality Logic evaluates the how analyzable the diagnostic data is and prevents false indications.

Watchman AIR is capable of handling most rotating assets in a plant, not just simple balance or sub-balance of plant machinery.

Get the right person's attention at the right time with persistence logic and user-defined alerting and notifications.

Getting the right alert at the right time starts with having a well trained AI platform to leverage from the moment you first turn on the sensor, and learns as it keeps all users informed with actionable alerts and notifications.



Hourly data

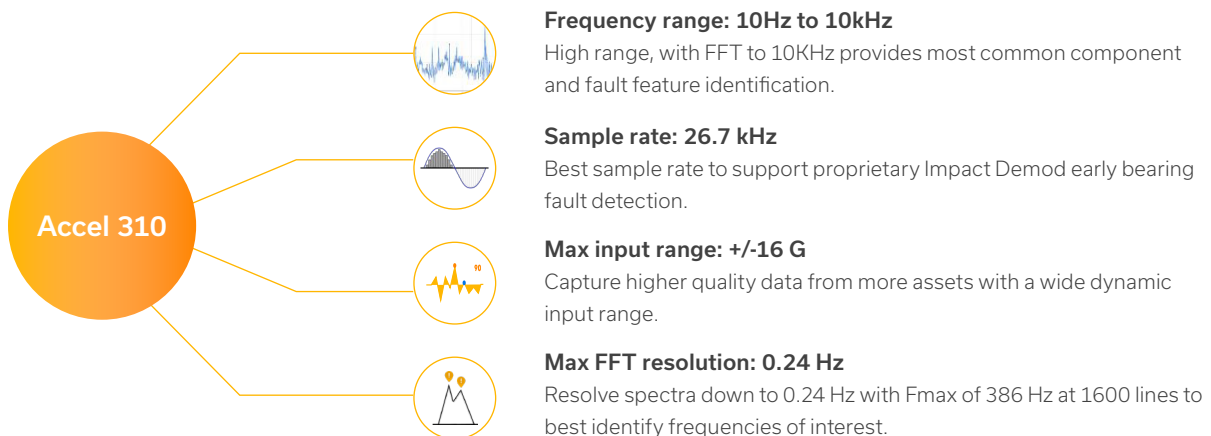


Long battery life



Mesh network

Wireless vibration



Vibration analysis

- 1** **Impact Demod Waveform** and **Impact Demod Peak** for early bearing fault detection and slow speed machines down to 350 RPM.
- 2** Automatically configured to capture best quality vibration data to support the **Expert Automated Diagnostic System** for simple installation and configuration.
- 3** Supports **most common machine assets** such as motors, pumps, fans, blowers, compressors, gearboxes, purifiers.
- 4** **Daily Full diagnostic vibration data** for automated analysis with **hourly summary** vibration and temperature trends.

Accel Gateway

Accel Sensor Gateway forms a mesh network for any number of wireless sensors. Each gateway is pre-configured to support the Eureka AI platform and PredictivePortal and is ready to deploy using a wide range of network connectivity options.

The gateway bridges the sensors to the Eureka AI cloud using multiple communication options, such as **Wi-Fi, ethernet, or integrated cellular.**

Gateways are available in two options: **Standard** for **IP-20** rated environments and **Industrial** which is **IP66/IP67** rated.

Each gateway can communicate with **any number of meshed sensors.** Providing a very flexible deployment throughout a plant floor.



Ethernet, cellular, Wi-Fi



Standard or industrial rated

Technical specifications

Specifications are subject to change and represent hardware full capabilities, subject to asset types, analysis requirements and system configurations.

Accel 310 sensor

Signal processing

- Filtering: Butterworth high, low, band pass
 - Low pass cut off, max.: 13,335Hz
 - High pass cut off, min.: 0.5Hz

Measurement

- Measurement Axis: Triaxial or in-line axis
- Input range, max.: +/-16G
- Flat frequency range: 10-6300Hz (+/-3dB)
- Detectable FFT: 10.4kHz
- Sample rate: 26,667Hz
- Effective resolution: 16bit
- Sample amount, max.:
 - Single axis: 110,592 samples
 - Triaxial: 36,864 samples/axis
 - Up to 4 seconds of data at 26.7kHz
- Bin width: as low as 0.24Hz @ 1600 lines
 - Averages, max: 9
 - Overlap: 0-100%
 - Windowing: Hanning
- Full diagnostic measurement types:
 - High and low-range narrow band spectra
 - Impact demod waveform
 - Raw acceleration

- Summary data measurement types:

- Impact demod peak
- Acceleration and velocity RMS, Pk-Pk, Pk
- Acceleration crest factor
- Surface temperature (mount tip)

Surface temperature

- Temperature measurement: -40 - 105C
- Accuracy/resolution: +/-0.3C / 0.1C

Physical

- Size: 3.09" x 1.1" (78.5 x 28mm)
- Weight: 0.28lbs (129g)
- Battery: 3.6V lithium thionyl chloride
- Expected battery life: greater than 3 years
- Communication: 2.4Ghz Wirepas Mesh
- Mounting: Adhesive pad or stud mount

Environmental Ratings

- Temperature: -40 to +85C
- Enclosure: IP68

Certifications

- CE, FCC, ISED, ATEX II 2 G Ex ib IIC T4 Zone 1 and 2 when -40°C ≤ Ta ≤ +60°C, US/Canada Class 1, Division 2, Groups A, B, C, D, T4 (-40 - 80C)

Accel gateway

Communication

- Connectivity: 2.4GHz Wirepas
- Direct connection: 14 nodes, unlimited meshed nodes
- Number of channels: 40
- Radio bitrate: 1000kbs
- Packet throughput: 150pps
- Routing: De-centralized and automatic
- Channel selection: Adaptive
- Device commissioning: Automatic
- Network: WiFi, Ethernet, Cellular, external modem via USB
- Cellular: LTE-M (AT&T), NB-IOT
- Cloud: Pre-configured, Microsoft Azure integrated with SymphonyAI Industrial Eureka platform and PredictivePortal

Standard gateway

- Size: 3.74" x 0.72 (95 x 18mm)
- Weight: 2.9 oz (82g)

- Power Supply: 5V, 3.6A DC Wall plug (incl.)
- Input: 100-240VAC, 50-60Hz, 0.6A
- Environment rating: IP20

Industrial gateway

- Size: 7.09" x 5.12" x 3.19" (180x130x81 mm)
- Weight: 1lb 6oz. (624g)
- Ambient Temperature: -20 - 50C
- Storage Temperature: -40 - 85C
- Relative Humidity: 20 - 90%
- Flammability: UL 746C 5"
- Impact Resistance (EN 62262): IK08
- Power: Worldwide AC/DC supply (5VDC, 6A), NEMA 1-15, Class II (customer to install)
- Input: 100-240VAC, 50-60Hz, 0.75A
- Environmental: IP66/IP67

Cloud security

- Verified CA certificate and PKI, 128-bit, TLS 1.2

About SymphonyAI Industrial

SymphonyAI Industrial, a SymphonyAI business, is an innovator in industrial insight, accelerating autonomous plant operations. The industry-leading EurekaAI/IoT platform and industrial optimization solutions connect tens of thousands of assets and workflows in manufacturing plants globally and process billions of data points daily, pushing new plateaus in operational intelligence. SymphonyAI Industrial solutions provide high value to users by driving variability out of processes and optimizing operations for throughput, yield, energy efficiency, and sustainability.

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