

Fluke 3562 Screening Vibration Sensor

Wireless vibration sensors for machine health screening



'SET IT AND FORGET IT'

The Fluke 3562 Screening Vibration Sensor system combines a technologically advanced sensor and cloud software program to provide continuous, maintenance-free monitoring for motors and driven equipment. This low-maintenance solution requires minimal upkeep, enabling maintenance teams to "set it and forget it" and focus on other tasks.

The system helps ensure four essential components of a reliability program:

1. Improved uptime with lower costs;
2. Data collected from a broad array of assets and machine types;
3. Integration of answers on a common platform shared with everyone on the team;
4. Support from condition-based maintenance (CBM) experts to help you start, implement, and maintain your new program.

Most machines in your plant are not production-critical

For maintenance leaders and teams seeking an accurate and easy way to maintain a condition monitoring system for Tier II-III assets, the Fluke 3562 Screening Vibration Sensor system delivers always-on screening of semi-critical and important machines.

Vibration is one of the earliest indicators of potential asset failure, but it can often be hard to measure regularly. Using wireless vibration sensors affixed to a machine, teams can screen asset data to determine whether they are functioning correctly or if an inspection is necessary. The sensors provide early warning of incipient failures via alarms and alert notifications to enable efficient deployment of team resources to address issues prior to plant downtime.

The Fluke 3562 sensors are powered by an energy harvester — either a thermoelectric (TEG) harvester or photovoltaic (PV) harvester, or both. The harvesters eliminate the need for batteries throughout the sensors' life. The system can also be attached to an asset in several ways via magnets, screws, and epoxy.

When affixed to a machine, each sensor sends data to the Fluke 3504 wireless Gateway. The gateway, in turn, transmits the data to the cloud via LTE (cellular), Ethernet or Wi-Fi. Vibration overall trends and FFT charts display the data, using user-generated parameters in the associated Live-Asset™ Portal software.

A complete solution that features not only hardware and software but also service, the Fluke 3562 system extends one-on-one onboarding help from Fluke Reliability engineers to your maintenance teams. Our experts will help guide you past obstacles to a successful start-up, implementation, and sustainment on your new condition-based maintenance (CBM) program.

Key benefits at a glance:

• Long-range sensor-to-gateway communication

An ultra-penetrating sub-GHz radio signal allows the Fluke 3562 sensors — powered by the Everactive® Edge self-powered circuit and networking technology — to communicate with a gateway over extremely long distances, requiring fewer gateways throughout a facility.

• Batteryless operation

The 3562 vibration sensors utilize power generated from a machine and its environment through the connected TEG harvester or PV harvester instead of batteries, allowing the system to deliver virtually continuous operation. This minimizes upkeep by eliminating the time and cost of battery replacement.

• Powerful monitoring capabilities

The Live-Asset™ Portal software application enables users to trend both overall values and magnitudes of the nine highest spectral peaks, and temperature. With this capability, users can determine the machine's health and decide which actions should be taken.

• Scalable triple-network solution

Extend always-on monitoring broadly across your plant or portfolio of facilities without having to make infrastructure changes by leveraging the ability to connect up to 1,000 Fluke 3562 sensors per gateway and the gateway's triple network connection capabilities — LTE, Wi-Fi, Ethernet, or a hybrid of all three.

Live-Asset™ Portal

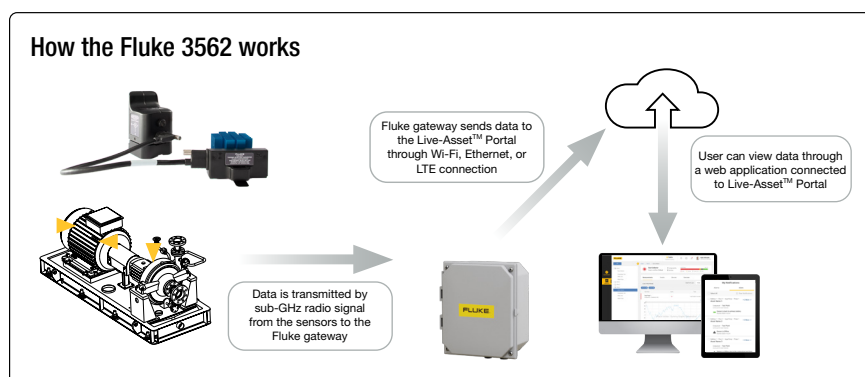
Monitored parameters

Measurements are taken at user-defined intervals (60-second default, 30-second minimum) across the following parameters:

- Overall vibration levels (velocity) for each axis (horizontal, vertical, axial)
- Fundamental operating frequencies for each axis, ranging from 6Hz – 1,000Hz
- Magnitudes of the nine highest FFT peaks
- VFD output (stator excitation frequency)
- Machine surface temperature
- Ambient temperature and humidity
- Sensor-stored power level

Key software features

- **Dashboard:** Displays the overall condition of assets from associated devices with summary-level data shown by location.
- **Visualized Measurements:** Monitor assets at a glance by visualizing overall vibration and temperature.
- **Vibration Trending Graphs:** Graphing that supports user's analysis, with access to measured parameters including trend charts and FFT charts showing the nine highest peak FFT results.
- **Thresholds and Event Notifications:** Users can set custom-threshold alarms on overall vibration levels. Warning notifications are received via email and/or through the Live-Asset™ Portal.
- **Overview of Asset Event History and associated devices:** Users can add and edit asset information and review the history of monitored changes and associate device information in the Live-Asset™ Portal.

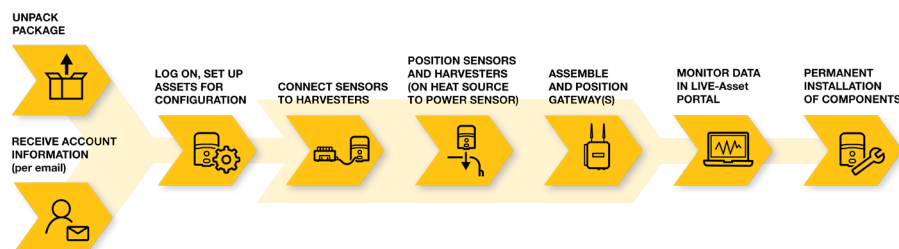


Simple steps for program success

1. Survey your plant and order initial system components

A little planning and preparation will help you smoothly install the Fluke 3562 Screening Vibration Sensor system. By following the steps in our Deployment Planning Guide, you'll learn how to select your machines and sensor and gateway locations and about your network connectivity options.

2. Follow this simple process for a successful setup



3. Monitor your success and grow the program to cover more assets

Document your saves to get buy-in and support from managers to purchase components for the next implementation phase. This process to start small and grow is a proven method to implement a new program successfully. Remember to use Fluke 3562 Screening Vibration Sensor system and Fluke 3563 Analysis Sensor system to build a complete condition-based monitoring program.

4. Sustain the reliability program over the years to come

Reliability is a journey, not a destination. Ensure that you continue to document saves and accomplishments and report to upper management so that they will not forget the reason for your success. We need to remind everyone that reliability is an investment in the future, not a cost of doing business.

Fluke 3562 Screening Vibration Sensor

Data Measurement & Transmission

Measurement interval	Configurable, default is every 60 seconds
Transmission interval	Configurable, default is every 60 seconds

Vibration (overall vibration values)

Frequency range	6 Hz – 1,000 Hz
Amplitude range	Autorange: +/- 2g, (X, Y, Z) 4g, 16g
Sampling frequency	3,200 Hz

Temperature

Measurement range	-40°C to 85°C (-40°F to 185°F)
Accuracy	+/-2°C (3.6°F)

Power

Thermoelectric generator	Minimum -9°C (15°F) difference between surface and ambient
Indoor photovoltaic	Minimum 200 Lux
Outdoor photovoltaic	Minimum 200 Lux
Energy storage	8 hours @ 60second sample rate, no power source

Wireless communication (sensor to gateway)

Protocol	Proprietary sub-GHz link
Range (non-line of sight)	Up to 250 m (820 ft), depending on environment
Range (line of sight)	Up to 1 Km (1/2 mile), depending on environment

Mechanical

Ingress protection class	IP66
Hazardous location	Class 1, Division 2
Temperature sensor	Operation: -40°C to 85°C (-40°F to 185°F) Storage: -40°C to 85°C (-40°F to 185°F)
Temperature TEG harvester	Operation: -40°C to 75°C (-40°F to 167°F)
Temperature PV harvester	Operation: -10°C to 60°C (14°F to 140°F) Storage: -20°C to 70°C (-4°F to 158°F)
Vibration resistance	10-60Hz @ 0.69mm 60-3,200Hz @ 5.0g
Shock & impact resistance	100g @ 6 mS
Dimensions (sensor)	Approx. 53 x 48 x 81 mm (2.1" x 1.88" x 3.2")
Dimensions (TEG harvester)	Approx. 74 x 58 x 36 mm (2.9" x 2.3" x 1.4")
Dimensions (PV harvester)	Approx. 86 x 71 x 13 mm (3.4" x 2.8" x 0.5")
Weight (sensor)	Approx. 180 g (0.39 pounds)
Mounting	Magnet, screw, or epoxy
Material	PC-PET / Aluminum

Fluke 3504 Gateway

Power supply options

AC main power	AC input 85-264 VAC, 0.35A/115V, 0.25A / 230V, 47-63 Hz
Power-over-Ethernet	Compliant with IEEE 802.3af

Wireless communication

Protocol to gateway	Proprietary sub-GHz link
Protocol to cloud	WIFI: IEEE 802.11 ac/a/b/g/n LTE Ethernet: 10/100/1000 Mbits/s
Number of connectable sensors	Up to 1000

Mechanical

Ingress protection class	IP66
Temperature	Operation: -30°C to 70°C (-22°F to 158°F) Storage: -40°C to 85°C (-40°F to 185°F)
Vibration resistance	10-60Hz @ 0.44mm 60-3,200Hz @ 3.0g
Shock & impact resistance	100g @ 6 mS
Dimensions	Approx. 267 x 221 x 133 mm (10.5" x 8.7" x 5.3")
Weight	Approx. 2.64 kg (5.8 pounds)
Mounting	Mounting tabs
Material	Polycarbonate

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Solution-driven technology in the new Fluke 3562 Screening Vibration Sensor system

The Fluke 3562 Screening Vibration Sensor solution helps teams cover many machines and machine types with its batteryless sensors, long-range radio capability and cloud-based software.

The Fluke 3562 Screening Vibration Sensor has some unique features that give it powerful capabilities.

It has an ultra-long life, an ultra-long range, and it is an ultra-scalable solution.

Using real-time knowledge of asset health, teams can focus their time, effort, and money on the machines that need attention rather than on the machines operating normally. With easy implementation and minimal upkeep, these sensors help maximize plant uptime and increase maintenance program efficiencies.

Unique features in the Fluke 3562 solution

Here are just a few of the features that make the Fluke 3562 Screening Vibration Sensor system peerless:

- **Ultra-penetrating sub-GHz radio signal: Monitor more machines more efficiently.**
The long wavelength and sub-GHz radio communication allow the 3562 to communicate with a gateway over long distances up to 800 ft. away even through many common obstructions in industrial plants. This means fewer gateways are required throughout a facility. The longer, stronger signal reaches more machines in more places.
- **Ultra-long life: Perpetual operation and minimal upkeep.**
The 3562 vibration sensors utilize power generated from a machine and its environment through a Thermoelectric (TEG) harvester or Photovoltaic (PV) harvester rather than batteries, to deliver constant vibration monitoring, while eliminating the time and cost of battery replacement. The batteryless, wireless system is easy to install and maintain, so maintenance teams can "set it and forget it" and focus on other tasks.
- **Ultra-scalable solution: Widespread coverage across a plant or portfolio of facilities.**
Extend vibration monitoring to a broader number of machines and machine types. The Fluke 3562 is geared for a wide application across a facility, bringing the majority of a facility's machines under a condition monitoring program's umbrella. As many as 1,000 sensors can be connected to a gateway.

In addition, the 3562 system operates on the LIVE-Asset™ Portal, the same software platform used by the Fluke 3563 Analysis Vibration Sensor system, meaning maintenance teams can monitor their assets from a single dashboard.

The benefits of condition monitoring

Using condition monitoring (CM), maintenance teams can reduce unplanned downtime while effectively prioritizing their time, money, and resources. Condition monitoring improves uptime while reducing maintenance and operation costs.

The Fluke 3562 solution captures data continuously, notifying maintenance teams of trends and changes that necessitate closer inspection and potential action to protect a machine. With early warnings of potential malfunctions, faults can be pinpointed, and corrective action can be taken before failure occurs.

The Fluke 3562 Screening Vibration Sensor system is a critical tool within the industry's most comprehensive condition monitoring solution set. Combining the 3562 with the Fluke 3563 Analysis Vibration Sensor system creates a robust condition monitoring program across a single plant or portfolio of facilities. When vibration monitoring can be done at scale, teams can optimize their maintenance and reliability.



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