FLUKE Reliability

TECHNICAL DATA

VIBGUARD® IIoT

High-performance, online condition monitoring

PRÜFTECHNIK

FEATURES AND BENEFITS

- Measures vibration regularly to track and trend asset status
- Enables a maintenance schedule that adjusts to the actual needs of your assets
- Protects against unexpected downtime
- Saves money on machine labor and lowering the risk of failure
- Reduces the use of spare parts, such as bearings, couplings, or sealings

Introducing VibGuard IIoT

To ensure you have the most up-to-date information about the status or health of critical assets, you need a connected, Industrial Internet of Things (IIoT) system. VibGuard IIoT is the leading industry solution for highly reliable, online condition monitoring of critical assets or facilities. Even complex assets within hard-to-reach or hazardous locations can be monitored 24/7.

Because machine vibration may have many potential sources, the VibGuard IIoT collects a variety of parameters to characterize and localize the root cause with precision and specificity. With its integrated, internationally-recognized MQTT protocol standard, the VibGuard IIoT is designed to be used in an IIoT-enhanced maintenance and reliability program.

Use VibGuard IIoT as:

A. A stand-alone solution for single assets or
B. A comprehensive solution for complex assets or facilities or
C. An integrated solution as part of an inherent machine control system

VibGuard IIoT is paired with OmniTrend Center software, delivering accurate condition monitoring data, analysis, and reporting. VibGuard IIoT data can also be viewed to see high-level trending on OmniTrend Asset View in addition to the full analytical functionality of OmniTrend Center. However you use it, VibGuard IIoT is a strong addition to any predictive maintenance (PdM) program.

Why vibration measurement is so crucial

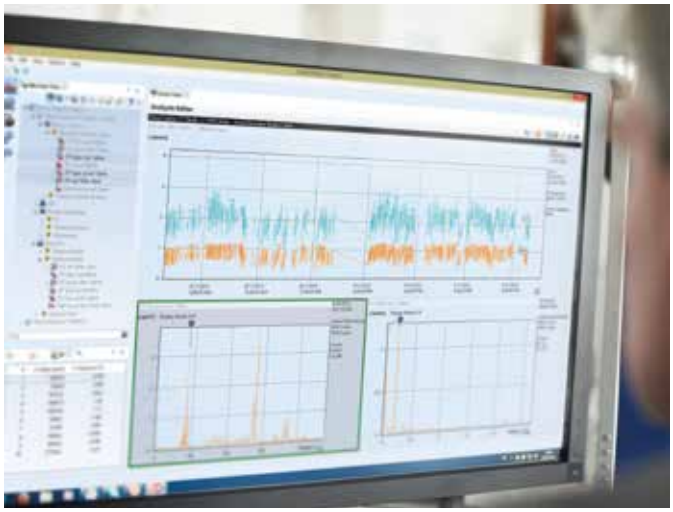
Excess machine vibration reduces machine performance and longevity. With the VibGuard IIoT, you can extend machine life and improve workplace safety by using online condition monitoring in hazardous areas.

Make machine vibration visible

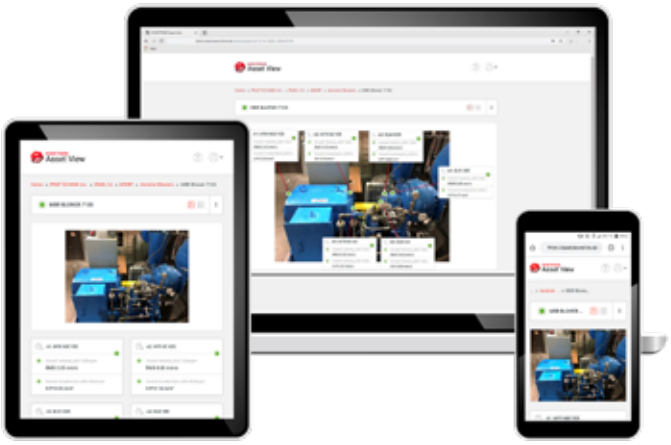
Machine vibration has many root causes including broken sealings, worn-out bearings, misalignment, thermal growth, and lubrication issues, among others. VibGuard IIoT monitors asset condition 24/7, providing up to two measurements per second per each channel. It factors in various parameters to detect machine vibration that is out of tolerance and determine the root cause.

Measured parameters include:

- Time signals
- Overall values
- FFT spectra
- Cepstrum
- Shock pulse
- Orbits / kinetic wave path
- Tacho pulse
- Temperature
- Torque



VibGuard IIoT sends measurements to OmniTrend Center software where teams can visualize, evaluate, trend, and store all incoming data. It is compatible with ethernet (TCP/IP), Modbus (TCP/RTU), and MQTT interfaces.



OMNITREND CENTER and OMNITREND ASSET VIEW

OmniTrend Center software is the analysis and reporting platform. The graphical user interface enables you to set up the machine settings and sensor customizations, configure all VibGuard IIoT measurement parameters, and obtain a full report detailing the asset's recent and current status.

Extend your range of actions and keep an eye on assets with OmniTrend Asset View companion software. The mobile-friendly software displays an up-to-date, comprehensive dashboard showing the current status of connected assets. With its traffic-light color codes, you can quickly visualize and prioritize asset maintenance. OmniTrend Asset View supports all online browsers.

Best practice scenarios for using the VibGuard IIoT

VibGuard IIoT can be used universally throughout industries, environments, and applications. The following list is not comprehensive but covers some of the best practice scenarios. VibGuard can, and should, also be considered for all industries and applications not listed.

Industries

- Automotive
- Cement
- Chemical
- Converting
- Food and beverage
- Marine (onshore/offshore)
- Mining and drilling
- Oil and gas
- Petrochemical
- Pharmaceutical
- Power generation
- Pulp and paper
- Steel and alloy production
- Wind

Applications

- Blowers and fans
- Cable cars and ski lifts
- Cement mills
- Conveyors
- Cranes
- Critical motor pump
- Elevators
- Escalators
- Gearboxes
- Hydrogenerators
- Machine-tools
- Mining drills
- Paper mills
- Steel mills
- Machine control support
- Test benches
- Thrusters
- Wind turbines (offshore)

Let the experts do the job

Machine data analysis is a job best suited for experts only. Prüftechnik trains specialists worldwide (ISO CAT I–IV training) and offers services to analyze machine data and advise on specific issues. Our ISO CAT I–IV specialists provide decades of knowledge and global machine vibration experience.

Keep it simple: Use the VibGuard IIoT to collect machine data and the Prüftechnik Service Center to deliver the analysis.

Plug-and-play system

Once the VibGuard IIoT system is up and running, you can immediately begin trending all incoming data using OmniTrend Center. The accuracy and reliability of machine data enables experts to adapt and prioritize maintenance schedules. Using our solutions, teams can:

- Extended machine life
- Reduce costs associated with team efforts or spare parts
- Increased uptime and productivity
- Decentralized monitoring capabilities

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VIBGUARD IIoT

System module - VIB 7.8xx						
	VIB 7.800	VIB 7.810	VIB 7.811	VIB 7.815	VIB 7.820	VIB 7.825
INPUTS AND OUTPUTS						
Analog IN	20 synchronous channels: 16 x vibration, 4 x process parameter		16 syn. ch.: 12x Vib. 4 x Process	20 synchronous channels: 16 x vibration, 4 x process parameter		
Signal type, Ch. variations	16 x U, 4 x U/I	16 x U (IEPE), 4 x U/I	12 x U (IEPE), 4 x U/I	8 x U (IEPE) + 8 x U, 4 x U/I	16 x I (CLD), 4 x U/I U/I	8 x I (CLD) + 8 x U, 4 x
Sensor type	Sensor w/ current or voltage output, Displacement sensor	IEPE-type sensor, Sensor w/ current or voltage output, Displacement sensor			CLD-type sensor, Sensor w/ current or voltage output, Displacement sensor	
Digital IN	4 optocoupler inputs 0-30V, Threshold 3V					
Tacho-Puls IN	2 frequency inputs ±30V DC and AC. Threshold ±30V DC (default 2.5V)					
Digital OUT	3 relay changeover contacts, 30VDC/30VAC/2A					
System OK OUT	Relais NC, 30VDC/30VAC/2A					
Ethernet	Data rate: 100 MBit, half duplex					
Serial ports	2x RS232, 115200 baud					
Services	Modbus-TCP, Modbus RTU (RS232)					
LED indicators	20x Analog-IN (VIB 7.811: 16x Analog-IN), 1x System, 2x Status, 2x Ethernet, 4x Digital-IN, 2x Tacho-IN					
MEASUREMENT						
Dynamic range	110 dB @ 24 bit					
Sampling rate	131 kHz / 50 kHz band width					
FFT lines	6400 (Standard), 102400 (Analysis)					
Meas. range, process channels	± 24V or 4-20 mA, ±20mA					
Meas. range, vibration channels	± 24V	---	---	± 24V	---	± 24V
GENERAL						
Ambient temperature	Operation: -20°C ... +70°C (-4°F ... + 158°F) Storage: -40°C ... +80°C (-40°F ... + 176°F)					
Relative humidity	max. 95 % (at 25°C [77°F], no condensation)					
System supply	24±6 VDC / 0.5 A					
Sensor supply	Current (CLD = Current Linedrive), Voltage (IEPE)					
Memory capacity	Flash: 2 GB (expandable), RAM: 128 MB					
Case material	Aluminum					
Weight	approx. 1.2 kg (2.65 lb)					
Env. protection	IP 20					

General specifications		
Power supply	Voltage	100V ... 240V 1-phase / -10% ... +10% / 50Hz ... 60Hz
	Current draw including system module	max 1.3A
	Overvoltage category	II
	Protection class	I
Protective housing	Ambient temperature	-20°C ... +60°C [-4°F ... +140°F]
	Relative humidity	max. 95% (25 °C [77°F], no condensation)
	Altitude	max. 2000 m [6562 ft.]
	Installation site	Indoor installation (no direct sunlight)
	Mounting	Single housing wall-mounted, screw connections downwards
	Protection class	IP 66
	Weight	13 kg [458,6 oz] (VIB 7.8xx SDH)

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