MACHINE HEALTH MONITORING SOLUTIONS: HARDWARE

GraceSense™ Machine Health Monitoring Solutions deliver powerful industrial hardware engineered to tackle your most demanding industrial challenges. By delivering best-in-class data acquisition, our hardware provides insights that enable you to identify potential problems before they occur. Experience significant value through enhanced efficiency, reduced downtime, and protecting your investments with precise and reliable equipment health monitoring.

VBTx Sensors and Advanced Defect Classification

Our **VBTx vibration and temperature sensors** provide data acquisition by continuously monitoring vibration and temperature data to detect early signs of equipment issues. Designed as wireless sensors for remote or harsh environments, they feature magnetic mounting for simple installation and an extended battery life of up to 10 years at sampling rates of once per hour.

Our integrated **defect classification system** elevates VBTx vibration analysis by identifying and diagnosing mechanical issues such as misalignments and bearing wear early in their development cycle. The Maintenance Hub vibration analysis toolset presents banded FFT data in a format familiar to vibration analysts.

The system goes a step further by tying alarms and alerts directly to other vibration characteristics such as direction, frequency, and phase to classify defects. Understanding these issues in real-time allows maintenance teams to make better, data-driven decisions, targeting repairs before minor concerns develop into major failures. Potential defects include:

- Unbalance
- Mechanical Looseness (Types A, B, and C)
- Misalignment (Offset, Angular, and Belt Drive Misalignment)
- Bent Shaft
- Bearing Faults (Inner Race, Outer Race, Cage, and Spin Fault)
- Gear Faults (Gear Tooth Fault and Gear Meshing)

- Eccentricity
- Blade Passing
- Rotor Bar Passing
- Overhung Unbalance
- Cocked Bearing (Inner Race and Outer Race)
- Natural Frequency

Wireless I/O Portals

Our **wireless I/O portals** enable complex asset monitoring by seamlessly integrating with third-party sensors, allowing you to monitor virtually any equipment or process. Supporting diverse industry-standard input types —including 0-10V, 4-20mA, and RTDs—these portals transform wired sensors into wireless devices.

Eliminate the need for extensive cabling by placing wireless I/O portals closer to your monitored equipment, enabling seamless data transmission from point A to point B.

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Their adaptable configuration supports various inputs and transducers, enhancing compatibility and flexibility across different industrial setups. This allows you to wirelessly gather the data you need, increasing efficiency and expanding your monitoring capabilities.

Gateways

Our **gateway solutions** act as central communication hubs, collecting data from sensors and I/O portals and pushing it to wherever you need it—whether that's the cloud, your PLC, or both. They ensure seamless data transmission and integration, providing real-time insights that empower you to perform advanced data analysis, trigger work orders via your CMMS, and streamline maintenance operations.

CloudGate™ enables advanced data analysis and defect classification in the cloud via the Maintenance Hub, offering real-time data access and management through Wi-Fi or LTE connections for optimized remote monitoring.

ControlGate™ allows you to display alarms on your HMIs and digital signage by directly integrating on-site control systems like PLCs and SCADA using EtherNet/IP™ and Modbus TCP/IP protocols, ensuring instant data responsiveness and streamlined operations. For Rockwell Automation controllers, our native Add-On Profile (AOP) makes integration a breeze.

ComboGate™ combines CloudGate™ and ControlGate™ functionalities, enabling advanced data analysis in the cloud via the Maintenance Hub with defect classification while simultaneously experiencing the benefit of data to the plant floor.

Rugged, Reliable, and Ready for Any Environment

GraceSense™ hardware is **easy to deploy, scalable, and engineered for flexibility i**n industrial environments. Built for durability and reliability, our solutions withstand the most demanding conditions. Our VBTx sensors, gateways, and portals are rated up to IP69K, making them ideal for high-pressure, high-temperature washdown environments.

Grace Guarantee

Experience the benefits firsthand with our **GraceSense™ starter kit**. Backed by our Grace Guarantee, your investment is entirely risk-free: love it or return it within 90 days for a full hardware refund. This money-back promise ensures a seamless and confident transition from trial to full partnership, making your initial commitment worry-free.

Ready to transform your equipment's health and boost operational efficiency? Let's chat!

Email: **Sales@GraceTechnologies.com**
Phone: **1.800.280.9517**