

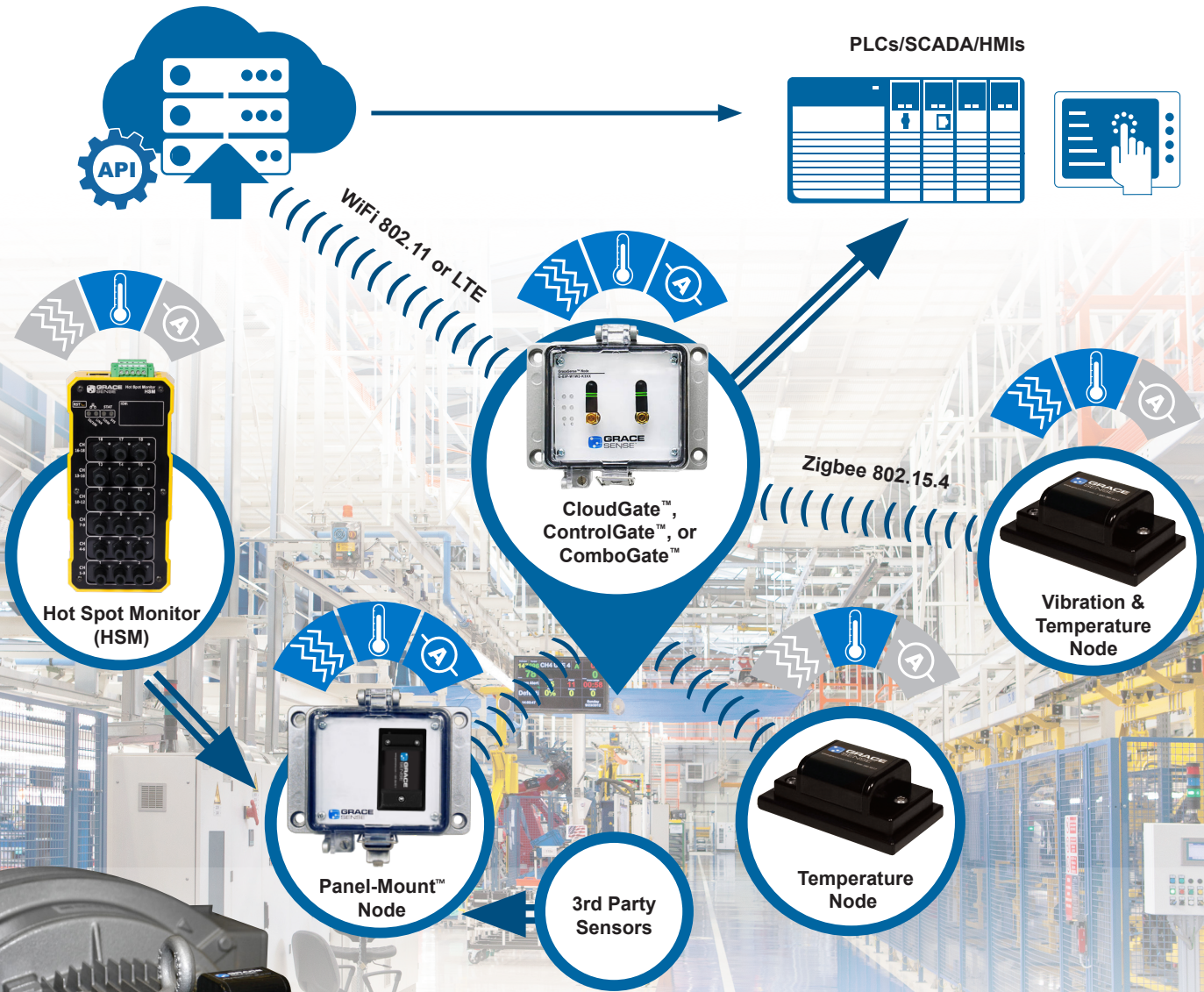
# GRACESENSE™ PREDICTIVE MAINTENANCE SYSTEM

*Act on Intelligent Insights: Gain predictive visibility into equipment health with early warning notifications.*



Simple. Powerful. Safe. Secure. The Predictive Maintenance System provides a complete end-to-end solution with wireless asset condition monitoring, alarming, and advanced analytics to improve productivity and eliminate downtime.

GraceSense™ Cloud or On-Premises



The IIoT centric Predictive Maintenance System insightfully monitors vibration and temperature to predict the health on any rotating equipment. Wireless communication and multiple Node mounting options ensure quick deployment across your plant-wide applications. Vibration and Temperature Nodes are designed to provide actionable alarms for rotating equipment and feature easy to replace batteries that deliver 3-5 years of life (dependent on use).

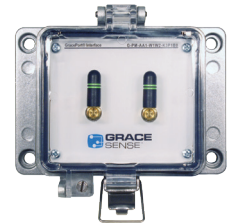
### Vibration & Temperature Node Configurations

- G-FM-VBT1: This node has an 800 Hz bandwidth (1600 Hz sampling rate) which is sufficient for tackling vibration monitoring application for faults that show up in sub-synchronous through late stage bearing faults.
- G-FM-VBT2: This node is specifically designed for applications that require early stage bearing wear detection, gearbox applications, certain pump/fan applications, and for harmonic monitoring, with a 4600 Hz bandwidth in the X and Y, and 2200 Hz bandwidth in the Z (with up to 25.6k Hz sampling capability).



### CloudGate & ControlGate Communication Protocols

- IEEE 802.15.4 with 30m Line of Sight
- WiFi, LTE (CloudGate configuration)
- EtherNet/IP™, MODBUS TCP/IP (ControlGate configuration)



### Maintenance Hub Capabilities

- Multiple alert levels per channel
- Virtual channels that mathematically combine data from multiple sensors in real time
- Performing statistical calculations on sensing channels and displaying their values on the dashboard



### GraceSense™ Hot Spot Monitor

*Find Faults Before They Find You: Early hot spot detection alarms you to increased and harmful temperature ranges in critical assets.*

The Hot Spot Monitor identifies potential hot spots to enable users to predict failures in electrical switchgear (up to 80kV). This stationary device is typically mounted on a din rail and utilizes a non-conductive polymer optical fiber cabling system that monitors temperatures from -40°F to 248°F. The optical fibers come standard in 10 or 15 meter lengths and include simple and secure connections through a ring style lug. The Hot Spot Monitor tracks and stores real time temperatures up to 18 connection points as little as once each day or as much as once each minute and never requires calibration.



#### Hot Spot Monitor Benefits

- Open door thermography exposes personnel to high incident energy. Load, line, field terminations and shipping split connections are critical to monitor and all points are not visible through IR windows so doors must be opened.
- The Hot Spot Monitor will measure temperatures at your busiest times for trends not typically captured with semi-annual thermography.
- Communicate with your existing BMS via Modbus RTU, Modbus TCP/IP, or Ethernet IP and gather information remotely.
- Identifying faults before they occur saves money when unplanned outages, service interruptions, and equipment failures are avoided.