



VOICE OF THE MACHINE™

# COMPLETE IOT-BASED CONDITION MONITORING AND DIAGNOSTICS SYSTEM

SensoNODE™ Sensors +  
Voice of the Machine™ Software Platforms



SENSORS



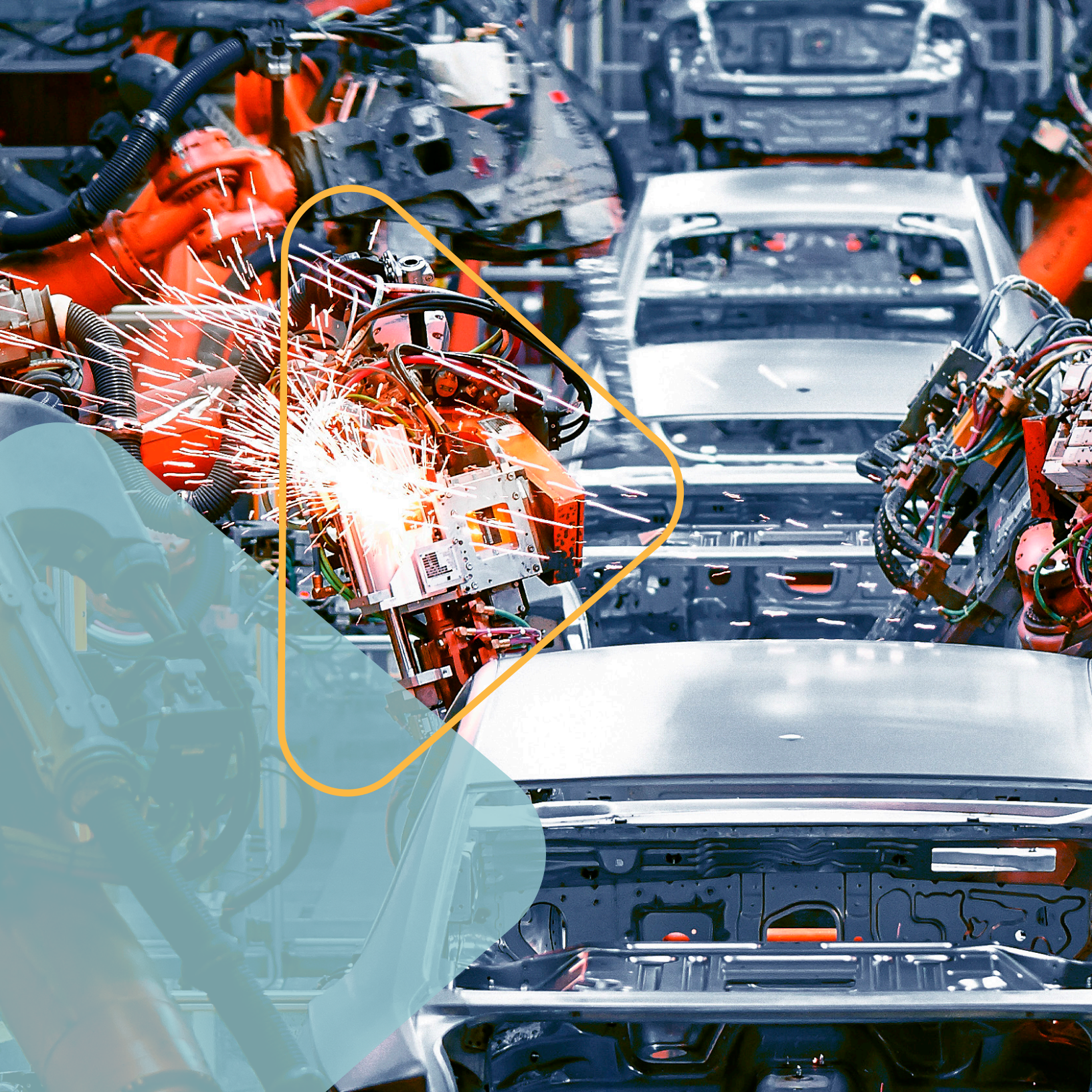
GATEWAY



SOFTWARE



SUPPORT



# SENSORNODE™ SENSORS

## COMPACT, ENERGY-EFFICIENT, & WIRELESS SENSORS



EASY, WIRELESS INSTALLATION + NO EXTERNAL POWER SOURCE REQUIRED + CORROSION RESISTANT CONSTRUCTION + LED INDICATORS AID IN IDENTIFYING SENSOR STATUS + MULTIPLE PORT OPTIONS



### SENSORNODE™ BLUE SENSORS

**Communication Technology:** Bluetooth Low Energy (BLE)

**Software Platform:** Voice of the Machine™ Mobile App

**Interface:** Android and iOS mobile devices

**Data Storage:** Mobile device

**Applications:** Route-based monitoring and diagnostic measurements, mobile vehicle diagnostics, mobile service kits

**Sensor Types:** Humidity, Pressure, Strain, Temperature, Analog Transmitter, Hydraulic Flow kit, Float Level Kit

**Requirements:** BLE, Android or iOS based device



### SENSORNODE™ GOLD SENSORS

**Communication Technology:** 900 MHz Wireless

**Software Platform:** Voice of the Machine Cloud, 3rd party clouds, and 3rd party databases

**Interface:** Optimized for Windows, Linux, and MacOS based hardware. Android and iOS mobile devices.

**Data Storage:** Cloud, database, and local gateway

**Applications:** Continuous condition monitoring at predetermined intervals. Optimized for in-plant, on-premise use.

**Sensor Types:** Current, Pneumatic Flow, Humidity, Level (non-contact), Pressure, Strain, Temperature, Vibration, Analog and Digital Transmitters, Hydraulic Flow Kit, Float Level Kit

**Requirements:** Gateway, Voice of the Machine Software package, network connectivity



### SENSORNODE™ SILVER SENSORS

**Communication Technology:** Cellular

**Software Platform:** Voice of the Machine™ Cloud

**Interface:** Optimized for Windows, Linux, and MacOS based hardware. Android and iOS mobile devices.

**Data Storage:** Cloud

**Applications:** Infrequent continuous measurements. Locations where gateways are impossible or inconvenient. Single sensor implementations.

**Sensor Types:** Pressure

**Requirements:** Voice of the Machine Cloud and cellular service



# GATEWAY SYSTEM

## THE PARKER GATEWAY CONNECTS OUR SENSONODE™ GOLD SENSORS TO THE VOICE OF THE MACHINE™ CLOUD AND EDGE SOFTWARE PLATFORMS.



SENSONODE GOLD SENSORS TALK WITH OUR GATEWAYS TO COLLATE MEASUREMENTS AND SEND THE DATA TO THE DESIRED LOCATION.



### GATEWAY

The gateway receives data from any SensoNODE Gold Sensor, most third-party wired sensors (via a SensoNODE Gold Analog Transmitter), in addition to Operational Technology (OT) networked equipment (e.g. PLCs, CNCs, robots, etc.) via common industrial protocols.

Each gateway can communicate with up to 250 SensoNODE Gold Sensors, has cellular and Ethernet connectivity, and can reduce network traffic by performing local logical functions.



### REPEATER

If desired, a Parker Repeater can be installed to extend the range of the SensoNODE Gold Sensors.

The repeaters operate in parallel, but not in series, with each other. Each repeater can retransmit the measurements for up to 500 sensors. The only requirement is a 120V/60Hz electrical power source.

# VOICE OF THE MACHINE™ SOFTWARE PLATFORMS



## VOICE OF THE MACHINE MOBILE

**Interface:** Android and iOS mobile devices  
**Sensors:** SensoNODE™ Blue  
**Data Storage:** Mobile device  
**Applications:** Route-based monitoring and diagnostic measurements, mobile vehicle diagnostics, mobile service kits  
**Requirements:** BLE, Android or iOS based device



## VOICE OF THE MACHINE CLOUD

**Interface:** Optimized for Windows, Linux, and MacOS based hardware via an internet browser. Android and iOS mobile devices via mobile internet browser.  
**Sensors:** SensoNODE™ Gold and Silver  
**Data Storage:** Cloud  
**Applications:** Continuous condition monitoring at predetermined intervals. Designed for in-plant, on-premise use. Low implementation effort required predictive maintenance; in-plant condition monitoring  
**Requirements:** Parker Gateway, internet connectivity



## VOICE OF THE MACHINE EDGE

**Interface:** Windows, Linux, and MacOS based hardware via an internet browser  
**Sensors:** SensoNODE™ Gold  
**Data Storage:** Database, local gateway  
**Applications:** Continuous condition monitoring at predetermined, adjustable intervals. Designed for in-plant, on-premise use. Connect with OT network equipment  
**Requirements:** Parker Gateway, network connectivity



temperature

vibration

humidity

temperature

humidity

pressure

temperature

current

pressure

temperature

# SUPPORT



As a complete condition monitoring system, we have resources to help identify the best solution for your application, plan your system installation, and help support after you are up and running.



## SERVICE DESK

Knowledge Base

FAQs

<http://solutions.parker.com/loT-Support>

### Sensors

### Data Transmission

### Data Storage

### Data Interface/ Monitoring

### Support



SensoNODE™  
Blue Sensors



Mobile App



VOICE™ MACHINE Mobile App



SensoNODE™  
Gold Sensors



Gateway



Cloud Server



Edge Server



VOICE™ MACHINE Cloud



Customer Enterprise Solution



SensoNODE™  
Silver Sensors



Cellular Network



Cloud Server



VOICE™ MACHINE Cloud





## THE PROCESS

WITH ENDLESS OPTIONS OF SENSORS, SOFTWARE CONFIGURATIONS, AND INTEGRATING BOTH WITH EXISTING INFRASTRUCTURE, WE PARTNER WITH CUSTOMERS TO IDENTIFY THE BEST SOLUTION FOR EACH APPLICATION.



### STEP 1

#### THE DISCUSSION

- + What are your goals?
- + What are your critical assets?
- + What are your key processes?
- + What equipment / processes are experiencing performance issues?
- + Where else will downtime slow production and cause lost revenue?



### STEP 2

#### THE PLAN

Based on the discussion and working with your team, a plan is developed to identify where measurement data will reallocate use of resources and enhance productivity. The plan will include the ideal selection of hardware and software, customer tailored to your application, and how to seamlessly integrate each.





### **STEP 3**

#### THE SITE SURVEY

A technical walk-through of your facility, identifying capital machinery, automation equipment, and production processes, to reaffirm the plan's goals and feasibility. Locations will be chosen for specific equipment and methods devised to fully integrate each component.



### **STEP 4**

#### THE INSTALLATION

A properly sized pilot system will be installed. Your team will be provided the necessary products and guidance to installing the SensoNODE solution. Optimization and troubleshooting will bolster the pilot's value and success. If required, personalized training for your team on the software interface is available, as well as post-installation support.



### **STEP 5**

#### THE SCALING

Once a value proposition has been established, scaling will begin, by fully integrating the SensoNODE solution into your facility's IoT roadmap and execution plans. Data driven manufacturing will lead to your company's cost reduction success through intelligent machine integration.

# THE FACTS ARE IN:

## CONDITION MONITORING FOR PREVENTATIVE AND PREDICTIVE MAINTENANCE IS PROVING SUCCESSFUL



### REACTIVE

FIX IT WHEN IT BREAKS



### PREVENTATIVE

SCHEDULE MAINTENANCE  
JUST IN CASE



### PREDICTIVE

MAINTAIN IT BEFORE IT  
BREAKS

CONDITION MONITORING ENABLES

IoT-based condition monitoring is driving data generation to monitor and analyze performance of machines and processes in manufacturing.

This is leading to improved maintenance practices that are helping maintenance and operations teams identify issues before they escalate to big challenges resulting in shutdowns of machines and production.

By switching from manual maintenance practices and run to failure strategies to more preventative and predictive maintenance tactics, maintenance teams are discovering benefits and better results including:



- + 9% Increased Uptime
- + 12% Decrease Cost
- + 14% Decrease in safety risks
- + 20% Increase asset lifetime



Manufacturing companies that have digitized their processes report an 82% increase in overall efficiency, 49% fewer reported product defects and a 45% increase in customer satisfaction.

\*PWC Report, 2018

- American Society for Quality (ASQ)

# SENSONODE/VOICE OF THE MACHINE STARTER KIT

As the global manufacturing market implementation of condition monitoring for preventative and predictive maintenance products increases year over year, keeping up with competitors and technologies can seem overwhelming.

One solution is test driving Parker's proven system with the SensoNODE/Voice of the Machine Starter Kit



The Starter Kit comes with five SensoNODE Gold Sensors, Gateway, Repeater, and Voice of the Machine Cloud access.

Ask your sales contact for more information.

**BUY NOW**

(Scan with your phone's camera)



# COMPLETE IOT-BASED CONDITION MONITORING AND DIAGNOSTICS SYSTEM

PARKER'S SENSONODE/VOICE OF THE MACHINE™ SOLUTIONS ENSURE  
DATA IS BEING CAPTURED FROM CRITICAL ASSETS OF YOUR OPERATION.

The data is presented in easy-to-use and understand platforms that allow analysis, alerts and sharing between maintenance and operations staff.



- + Identify issues before they escalate
- + Avoid dangerous situations
- + Easy to use technology that is interoperable, secure, and scalable
- + Allows for smarter, more confident decisions
- + Leverage Parker's expertise to employ easy, cost-effective strategies

Contact your Parker Distributor to learn more, set up a meeting or get a price quote.

For general information, visit:

[Parker.com/ConditionMonitoring](http://Parker.com/ConditionMonitoring)

For technical information or questions, visit:

<http://solutions.parker.com/loT-Support>

