Artificial Intelligence

TDK introduces edgeRX: The future of industrial machine health monitoring

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TDK Corporation (TSE: 6762) is excited to launch the TDK SensEI edgeRX, which represents a significant leap forward in industrial maintenance, bringing cutting-edge innovation to the forefront of machine health monitoring.

edgeRX is an advanced machine health monitoring platform that leverages the power of AI on edge sensor devices. By integrating advanced AI algorithms, edge computing, and powerful sensor devices, edgeRX provides real-time machine health monitoring, predictive maintenance insights, and actionable alerts directly on machines.

edgeRX is a comprehensive, out-of-the-box solution which eliminates the need for extensive setup or specialized integration, allowing reliability engineers, maintenance technicians, and plant managers to quickly deploy and benefit from advanced machine monitoring capabilities. By proactively identifying potential issues before they escalate. edgeRX maximizes uptime, reduces maintenance costs, and enhances overall operational efficiency, making it an indispensable tool in modern manufacturing environments.

Supported by TDK's extensive history in sensors and components, TDK is well-positioned to build and enhance the edgeRX platform, ensuring best-in-class performance and reliability. With decades of innovation and expertise, TDK Corporation has been a global leader in electronic components, sensors, batteries, and materials technology. TDK's rich legacy of pioneering advancements in these fields provides a strong foundation for the development of cutting-edge solutions like edgeRX.

Key features of edgeRX include:

- **Complete Platform:** Advanced sensors, gateway, dashboard, and AI are all included
- **Easy Data Collection:** A highly adaptable system that collects data automatically
- **Smart Detection:** Multi-class automated operation label detection
- **Accurate Monitoring:** Advanced methods that classify and detect any issues in an operation
- **Customizable Alerts:** Adjustable sensitivity parameters such as anomaly detection frequency
- **Quick Response:** Fast and efficient methods to take immediate action when needed
- **Continuous Monitoring:** Real-time tracking identifies, predicts, and prevents degradation/failure
- **Smooth Integration:** Seamless data collection, model development, and deployment

The current state of machine health monitoring is rapidly advancing beyond legacy CbM (Condition Based Monitoring) toward PdM (Predictive Maintenance). PdM leverages advanced technologies such as AI, IoT, and sensor fusion to monitor the health of equipment in real-time, providing predictive insights that lead to reduced downtime and higher production output. According to recent reports, the market size for PdM is growing rapidly and is projected to reach USD +13 billion in 2025 with a CAGR (Compound Annual Growth Rate) of +35% over the next 5 years. This growth is fueled by advancements in technology, adoption of AI, and Industry 4.0 acceleration.

"When we decided to launch TDK SensEI mid-2024, edgeRX is exactly the type of innovative product that we envisioned the team bringing to market. We believe edgeRX marks a pivotal moment in the manufacturing industry as edgeRX is the perfect product to solve everyday maintenance related issues with easy to implement AI" stated Noboru Saito, President, and CEO of TDK Corporation.

"Maintaining optimal machine health is crucial in industrial manufacturing operations to keep maintenance costs low and production output high. AI is a crucial ingredient to achieve optimal machine health, however manufacturers have historically struggled to implement AI," said Sandeep Pandya, CEO, TDK SensEI, a TDK group company. "The edgeRX platform offers an out-of-the-box experience to solve the AI challenge and accelerate manufactures ability to achieve optimal machine health. Which is why we're so excited to announce edgeRX to the industrial world."

Glossary

- **Edge Computing:** A technology that processes data close to where it is generated (at the "edge" of the network), reducing latency and bandwidth usage compared to cloud computing
- **PdM (Predictive Maintenance):** A maintenance strategy that uses data analysis and predictive algorithms to anticipate equipment failures before they occur, allowing for timely maintenance and minimizing downtime
- **CbM (Condition-Based Monitoring):** A monitoring technique that continuously assesses the condition of equipment using real-time data, enabling maintenance decisions based on the actual health of the machinery rather than on predetermined schedules

Main Applications

- Industrial IoT for manufacturing
- Condition-based monitoring, predictive maintenance, prescriptive maintenance
- Enterprise Machine Learning and Advanced Analytics platform

Main Features and Benefits

- **Real-Time Monitoring:** Provides continuous oversight of machine health, allowing for immediate detection of potential issues and minimizing downtime
- **Predictive Maintenance Insights:** Uses advanced AI algorithms to predict maintenance needs before failures occur, reducing unexpected breakdowns and maintenance costs
- **Actionable Alerts:** Sends real-time notifications and alerts to reliability engineers and plant managers, enabling swift and informed decision-making
- **Comprehensive Out-of-the-Box Solution:** Eliminates the need for extensive setup or specialized integration, allowing for quick and hassle-free deployment of the monitoring system
- **Seamless Integration:** Integrates smoothly with existing systems, ensuring a streamlined process from data collection to model development and deployment, enhancing overall operational efficiency

About TDK Corporation

TDK Corporation is a world leader in electronic solutions for the smart society based in Tokyo, Japan. Built on a foundation of material sciences mastery, TDK welcomes societal transformation by resolutely remaining at the forefront of technological evolution and deliberately "Attracting Tomorrow." It was established in 1935 to commercialize ferrite, a key material in electronic and magnetic products. TDK's comprehensive, innovation-driven portfolio features passive components such as ceramic, aluminum electrolytic and film capacitors, as well as magnetics, high-frequency, and piezo and protection devices. The product spectrum also includes sensors and sensor systems such as temperature and pressure, magnetic, and MEMS sensors. In addition, TDK provides power supplies and energy devices, magnetic heads and more. These products are marketed under the product brands TDK, EPCOS, InvenSense, Micronas, Tronics and TDK-Lambda. TDK focuses on demanding markets in automotive, industrial and consumer electronics, and information and communication technology. The company has a network of design and manufacturing locations and sales offices in Asia, Europe, and in North and South America. In fiscal 2024, TDK posted total sales of USD 14.6 billion and employed about 101,000 people worldwide.

About TDK SensEI

TDK SensEI *(**Sens**or **E**dge **I**ntelligence)*focuses on developing smart platform solutions that integrate TDK's advanced sensor systems, sophisticated software design, and machine learning expertise. These platforms bring

together our hardware components—ranging from motion, magnetic, microphone, and current sensors to temperature and battery/energy harvesting solutions—with our software and edge AI technologies. The result is a powerful fusion of hardware and intelligence that creates actionable insights, enabling predictive maintenance and performance optimization.

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Contacts for regional media

Region	Contact		Phone	Mail
Global	Mr. Kyle ARNOLD	TDK U.S.A. San Jose, CA, USA	+1 704 779-0627	Kyle.Arnold@tdk.com
North America	Mr. Michael JOHNSTON	TDK Sensei U.S.A San Jose, CA	+1 408 348-8325	Michael.Johnston@tdk.com
Japan	Mr. Katsumi HOASHI	TDK Sensei Japan Chiba, Japan	+81 47-378-9954	Katsumi.Hoashi@tdk.com
China	Mr. Jie BING	TDK Sensei China Shanghai, China	+186 2196-1973	Jie.Bing@tdk.com