

Nissin Electric Starts Selling New Stand-alone Corrosion Detection Sensor as Part of the Multiple Environment Sensor Lineup

— Achieving inexpensive long-term detection by using proprietary optical detection technology —

Nissin Electric Co., Ltd. has started selling a corrosion detection sensor as a stand-alone product in March 2022 to visualize the risk of failure caused by corrosive gas (hydrogen sulfide) in the installation environment of electrical equipment as part of its multiple environment sensor lineup.

This is a business activity that contributes to one of the six growth strategies in the Nissin Electric Group Medium-to-Long-Term Business Plan VISION2025, “Adoption of DX to products and business.”—

Recently, efforts have been made to use sensing data to optimize equipment maintenance and reduce the labor required as a measure to cope with the shortage of personnel engaged in electrical safety in the future.

Nissin Electric has been upgrading its lineup of multiple environment sensors, which visualize the installation environment of electrical equipment, such as substation equipment, in stages. The MES-42/43, multiple environment sensor (corrosion/communication) designed to detect the risk of failure caused by corrosive gas, has been built into Nissin Electric’s electrical equipment for waterworks since April 2021. Nissin Electric has now decided to sell this sensor for wider use as sufficient findings about its effective judgment of the risk of corrosion have been accumulated based on the field data.

This product uses the company’s proprietary optical detection technology (patent pending). A set comprising the sensor body and sensor head is relatively inexpensive (about 150,000 yen) and achieves long-term detection. For this sensor, the number of modes to determine and display the risk of corrosion has been increased from two to four based on the field data. The accuracy has also been improved. Multiple environment sensors allow remote monitoring through a general-purpose gateway via wired or wireless connection. They are capable of integrated management and monitoring of different types of sensing data by combining products in the lineup. The product to be released is designed to enable linkage of corrosion data. This will increase the convenience of using sensing data in equipment maintenance.

In 2021, the MES-52/53 multiple environment sensor (general purpose) was added to the lineup. Its ability to measure humidity and temperature has been improved compared to that of conventional products. Nissin Electric aims to achieve a revenue of 100 million yen for FY2022 from multiple environment sensors, including these two products.

Nissin Electric remains committed to upgrading sensor functionality, contribute to increasing the efficiency of equipment maintenance by using IoT, and further increasing safety and security for customers.

1. MES-42/43 multiple environment sensor (corrosion/communication)

This product comprises of the sensor body and the sensor head, which consists of a light source, reflector, and photosensor. The reflector is made from silver, which has the property of being corroded and discolored by hydrogen sulfide contained in corrosive gas. The risk of corrosion is detected by sensing changes in the reflectance of the light source caused by discoloration using a photosensor.

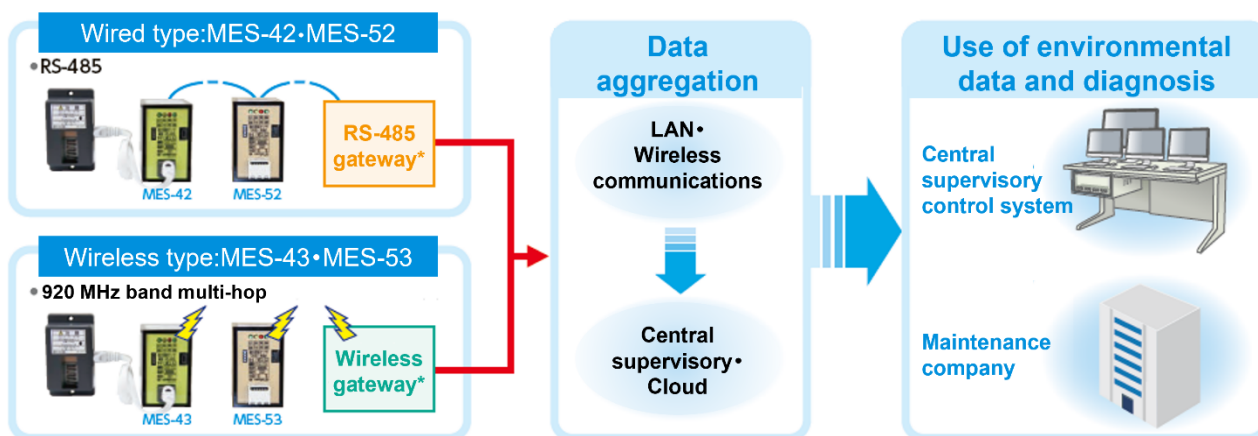
For electrical equipment installed in an environment where hydrogen sulfide is likely to be generated, measures are implemented to reduce concentration of hydrogen sulfide in order to prevent failure caused by corrosion of printed wiring boards used for built-in components, such as sequencers. The product makes it possible to diagnose the validity and continuity of measures and judge the timing to replace life-limited parts (including filters), which are built into reduction units. This helps prevent deterioration and failure caused by corrosion. The product also helps optimize the timing to replace life-limited parts.



2. MES-52/53 multiple environment sensor (general purpose)

High-performance digital sensors are used as the temperature and humidity sensors. The measurement range and accuracy have been improved compared to those of a conventional product (MES-12/13). The structure is designed to enable simple replacement of the sensor substrate only, making it possible to replace the substrate when the performance deteriorates.

For components built into electrical equipment, high and low temperatures cause malfunction and reduce the service life. High humidity causes deterioration in insulation and leads to rust development. This product helps achieve secure operation of electrical equipment by accurately measuring the installation environment and allowing the implementation of appropriate measures and maintenance based on data.



* A gateway is required separately for remote monitoring.

<Common functions of the series> Remote monitoring configuration (image)

■ Overview of specifications

	MES-42/43 (corrosion/communication)		MES-52/53 (general purpose)
	Sensor body	Sensor head	
Outside Dimensions (excluding protrusions)	W50×H78×D100mm	W51×H30 ×D91mm	W50×H78×D100mm
Weight	250g or below	200g or below	250g or below
Control Power Source	AC 85 to 264 V, 47 to 63Hz / DC80~143V		
Measurement Item	Hydrogen sulfide concentration estimation/ Equipment failure risk (four-mode display)/temperature		Temperature/humidity/insulation resistance/vibration
Data Logging (built-in memory)	Up to 40,000 datasets (equivalent to 4 years based on logging once/hour)		Up to 32,000 datasets (equivalent to 3.5 years [same as on left])
Communication Protocol	Wired type: RS-485/Wireless type: 920 MHz band multi-hop		
Temperature Range in which performance is guaranteed	0 to 50°C		

The Nissin Electric Group has been stepping up its efforts to promote the SDGs through its business operations. This accomplishment is related to the following goals among the 17 SDGs.

9. Industry, Innovation and Infrastructure