News Release

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Nissin Electric Co., Ltd.

Development of Accumulated Dust Detection Sensor that Makes Electric Equipment Maintenance Operation Smarter and More Intelligent by Visualizing Dust Accumulation in Equipment

Nissin Electric Co., Ltd. has developed a “accumulated dust detection sensor” as part of its multiple environment sensor series. This new sensor, which will be released in March 2020, enables the visualization of dust accumulation in the installation environment of electric equipment to facilitate the prevention of dust-related equipment failures, such as insulation failures and functional failures. This product significantly contributes to the realization of smart and intelligent maintenance operation for electric equipment.

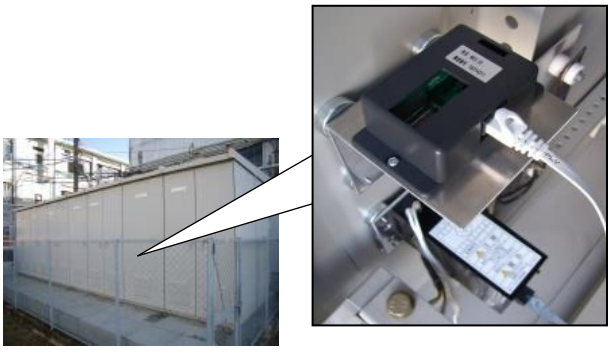
In March 2015, we launched a series of multiple environment sensors MES-01/12/13 which enable recording and remote monitoring of environmental data as well as automatic control of air conditioning in industrial facilities, such as plants, switchgears, and electric rooms. This series has acquired a good reputation as ideal devices for monitoring an equipment environment. The cumulative shipments for this series are expected to reach 2,000 units by the end of this fiscal year (FY2019).

In recent years in Japan, an ongoing labor shortage due to the declining birthrate and aging population makes it difficult for facility managers to secure the human resources required for electric equipment maintenance. Consequently, maintenance work for electric equipment is increasingly required to be conducted at more appropriate timing with less manpower. Usually, electric equipment is regularly checked by maintenance workers as a preventive measure against equipment failures, and at this time, they are always required to remove accumulated dust inside the equipment, which could cause insulation failures or functional failures (cleaning).

To automatically detect the risks of dust-related equipment failures, such as insulation failures due to dust accumulation in the installation environment and functional failures due to dust accumulation on moving parts, such as breakers, we have developed a accumulated dust detection sensor as a new product in the multiple environment sensor series. This product makes it possible for maintenance workers to conduct cleaning at appropriate timing by sensing both the degree of dust accumulation in the equipment, regardless of dust type, and the insulation resistance of the equipment. In addition, we aim to build a “smart system” for more efficient maintenance operation by using this product in combination with conventional multiple environment sensors to monitor the trends in multiple data.

Our target sales for this product in FY2020 are over ¥10 million. We will continue to improve our lineup of multiple environment sensors and to develop diagnostic technologies so that we can contribute to the building of more intelligent maintenance operation systems for electric equipment.

Accumulated dust detection sensor



Accumulated dust detection sensor installed in equipment

[Features of the accumulated dust detection sensor]

1. Visualization of the degree of dust accumulation and reduction in insulation resistance by measuring them in different ways (new function)
   The degree of dust accumulation is measured using an optical method, while a decrease in insulation resistance is measured with a dedicated electric pole. The optical method is our original technology (patent pending).
2. Remote monitoring function (a function common to the products of the multiple environment sensor series)
   A communication function enables automatic collection of measured data and remote monitoring. Two models are available for different communication methods: wired communication and wireless communication.
3. Data logging (a function common to the products of the multiple environment sensor series)
   Maximum 40,000 data (four-years' worth of data in the case of logging once every hour) can be recorded in the built-in memory. Recorded data can be transferred through a USB terminal, and therefore this product can be also used as a stand-alone device.
4. Simple installation
   Both the sensor body and the sensor head are light and compact. The sensor body can be installed to a DIN rail. Also, it can be easily installed and replaced by connecting and disconnecting the general-purpose socket. The sensor head can be easily replaced by disconnecting and connecting the connector.

[Specifications]

External dimensions & Weight: (1) Sensor body: W50 x H78 x D100 mm (excluding projecting parts), 250 g or below
(2) Sensor head: W51 x H30 x D91 mm, 200 g or below

Control power: AC 85 to 264 V, 47 to 63Hz

Measured items: Degree of dust accumulation/Insulation resistance/Temperature

Communication method: MES-32 (wired communication type): RS-485
MES-33 (wireless communication type): 920MHz band multi-hop wireless system

Operation temperature range: 0 to 50°C