



Mitsubishi Electric's approach to preventive maintenance lightens the load of data center service engineers

Mitsubishi Electric offers durable solutions that collect and analyze the status of facility and equipment operations, working to act before problems arise to save on maintenance and lifecycle costs.

The world of Information and Communication Technology (ICT) and the need to process enormous amounts of digital data for daily life are impacting the way people work as well as shaping the infrastructure needed to keep up with and manage it all. Businesses from numerous industries are leveraging the Internet of Things (IoT) to digitally transform their businesses, causing a growth in data that are valuable business assets. This increasing dependence on digital infrastructure indicates a greater need for integration of data center information technology (IT) equipment, highlighting the urgency of reducing the increasingly complex lifecycle costs of facilities.



The Sustainable Development Goals (SDGs), announced at a United Nations summit held in 2015, identify areas that the international community needs to address in order to usher in a better, more sustainable world by 2030.¹ As a business with products and services catering to many industries, including power systems and factory automation businesses, Mitsubishi Electric can support data centers with solutions to environmental challenges through products as well as data center systems and maintenance programs that comply with international goals. Besides working on product performance improvements that contribute to saving energy, the company is also actively working to improve functions that reduce product maintenance and identify potential operational issues before they occur.

Highly durable and long-lasting products are the keys to low maintenance

Digital data is managed by IT equipment, and significant losses can arise during breakdowns, which force service engineers to grapple with unscheduled stoppages. The business continuity plan (BCP) determines in advance how to respond to any failures that may occur in the data center. The equipment that continuously supplies power to IT equipment and the air conditioners that mitigate the heat generated by high-power consuming IT equipment are subject to high loads on a daily basis, so the risk of problems occurring must be minimized through planned maintenance. Lifecycle costs play a critical role. Mitsubishi Electric ensures that high durability and long-term reliable use is incorporated into product design. These efforts not only help achieve the goal of increasing product reliability, but also lead to improvements in the streamlining of maintenance activities, thereby bringing down lifecycle costs.

An example is uninterruptible power supply (UPS), a system that serves to backup and keep IT equipment operational during power outages. Long-lasting parts used in the electrolytic capacitors and cooling fans of UPS units help IT equipment last longer and open the way for small-scale power systems to be put in place for higher efficiency.²

In addition, with Mitsubishi Electric's packaged air conditioners for computer rooms, businesses can do away with the need for connecting refrigerant piping to outdoor units. These air conditioners also allow for continuous operation using the normal system when issues arise with the compressors and piping found in the secondary refrigerant circuit, plus enable backup operation using non-malfunctioning compressors within the primary refrigerant circuit, in which its workability is a priority.



Centralize management of linked equipment anticipates issues

For long-term and stable use of equipment, proper operation and maintenance are required, which also affect the lifecycle cost. To address this, Mitsubishi Electric offers solutions that help reduce lifecycle costs by creating a network of the various data center equipment and centralizing the management of the operation status of each unit. Visualization of facilities by linking various facilities in a data center not only improves operational efficiency, but also helps to plan efficient operations that reduce the load on the facilities. This kind of preventive and predictive maintenance improvement is effective in preventing unexpected equipment failures. Supervisory control and data acquisition (SCADA) systems are often deployed to facilitate this linkage. These are systems structured to gather and analyze data from operational status signals transmitted from each piece of equipment, data from sensors installed on devices, and information from warnings and the monitoring system. Mitsubishi Electric's GENESIS64™ is a SCADA software that allows you to graphically design a series of processes such as data recording, alarm notification, and report output using flowcharts.³



Furthermore, among the numerous optional features provided, there is one that displays useful information based on past anomalies to facilitate quick recovery of equipment when similar abnormalities reoccur. As an example of an application to an air conditioning systems, the system analyzes received alarms based on past cases and notifies the user of the action to be taken in order of priority among factors such as clogged fan intake or poor motor brake operation.³

Long service lives and high durability are factors in Mitsubishi Electric's product design that allows for anticipation of potential problems in advance; such factors form the foundation of the company's stance toward manufacturing. With this approach, the company not only contributes to improved reliability of data centers, but also assists with maintaining optimal operation of their facilities, and in doing so, reduce the lifecycle costs of data centers and ease the burden on maintenance engineers.

Notes

- (1) United Nations: "Transforming Our World: The 2030 Agenda for Sustainable Development"
<https://sdgs.un.org/2030agenda>
- (2) Mitsubishi Electric: "Uninterruptible Power Supply and IT Cooling"
<https://vn.mitsubishielectric.com/en/building-solutions/data-center/ups/index.html>
- (3) Iconics: "GENESIS64™ Next Generation in HMI SCADA Automation Software"
<https://iconics.com/Products/GENESIS64>