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Mitsubishi Electric Turkey Delivers Energy Efficiency in Industry with Advanced Inverter Solutions

Gözde Güçyeter, Inverter & LVS Product Manager at Mitsubishi Electric Turkey Factory Automation Systems, stated that with inverter solutions featuring advanced functions, they support businesses in increasing energy efficiency, reducing costs, and improving their operational processes.

1. Can you provide information about Mitsubishi Electric inverter solutions and services?

For many years, Mitsubishi Electric has been offering innovative, open, flexible, and reliable drive solutions worldwide, tailored to the specific needs of different markets and customers. As a key component of Mitsubishi Electric Factory Automation Systems, inverters provide significant advantages across a wide range of applications—from commercial uses to heavy industrial applications—thanks to their cost-effectiveness, reliability, functionality, and flexibility. Mitsubishi Electric inverters offer advanced functions to help maximize energy savings while improving energy efficiency. Our versatile inverters stand out for their compatibility with both PM and IM motors and their support for various communication protocols. In addition, our panel-mounted inverter solutions can be adapted to the specific requirements of facilities and help simplify installation. Compared to traditional grid-based electricity usage, they deliver significant energy savings and help reduce system operating costs. In the inverter category, Mitsubishi Electric serves customers with a broad range of product families—FR-A800, FR-F800, FR-E800, and FR-D700—suitable for different scales and application areas.

In addition to ease of use and compliance with safety standards, these inverters support multiple communication protocols. The use of predictive/preventive maintenance functions and inverter diagnostic functions makes equipment maintenance more effective and helps reduce equipment failures and operational downtime. Furthermore, by connecting to main IT systems in real time via IoT (Internet of Things), they enable centralized or remote monitoring of operations. This helps improve production efficiency and increase operational continuity.

As Mitsubishi Electric Factory Automation Systems, we also make a significant contribution to energy efficiency and reduced operating costs with our inverters that feature advanced functions capable of controlling PM motors. With the built-in power regeneration function available in our FR-A741 series inverters, our drives deliver high-performance operation in systems. The regenerative inverter feeds regenerative and braking energy directly back to the power supply, enabling energy savings within the system. By eliminating the need for braking resistors, it also reduces heat generation inside control panels. Featuring advanced technology and high performance in a compact design, the FR-A741 inverter contributes to the high performance of machinery that generates regenerative torque, such as elevators, centrifugal separators, various testing machines, and winding machines.

Our FR-E800 series inverters also support our proprietary MAISART (Mitsubishi Electric's AI creates the State-of-the-ART in technology) technology, which helps companies gain greater benefits from artificial intelligence. This function enables rapid troubleshooting procedures without requiring special skills, contributing to reduced downtime. MAISART technology provides users with both intelligent engineering tools that simplify new task definitions and predictive maintenance functions that support continuous production.

2. **What product range do you offer as Mitsubishi Electric? What features do the inverters in your portfolio provide to facilitate maintenance and fault detection, and how do these features contribute to business processes?**

As Mitsubishi Electric Factory Automation Systems, we can supply all automation equipment required for business processes. Accordingly, different product groups from the same brand—such as PLCs, servos, inverters, HMIs, robots, and industrial switchgear—operate in harmony with each other as core components of assembly cells. In addition, through the e-F@ctory concept, Mitsubishi Electric products can be easily integrated with third-party products and systems such as vision sensors, sensors, and pneumatics.

Mitsubishi Electric also differentiates itself in the industry with its inverter solutions. Our advanced functions—playing a critical role in ensuring uninterrupted operation in inverter-based systems—contribute to smooth system performance, facilitate organized maintenance processes, and enable rapid fault detection.

Proactive maintenance and fault detection
The advanced maintenance and fault detection functions available in Mitsubishi Electric inverters help ensure continuous and efficient business operations. The life check function analyzes the remaining service life of critical components, identifying parts that need replacement and enabling scheduled maintenance. This helps minimize unexpected failures and supports continuous system operation. The maintenance timer informs users when maintenance should be performed, simplifying planned maintenance processes and contributing to long service life and reliable operation. The trace function allows monitoring of the inverter's operating status and recording data to a USB memory device, simplifying fault analysis and enabling rapid fault identification, thereby reducing downtime and improving business continuity.

Long service life with corrosion warning system
The corrosion warning system available in our FR-E800 series inverters monitors the damaging effects of hydrogen sulfide and other corrosive gases in the air on the inverter. By alerting users to improve environmental conditions, this system helps reduce downtime caused by corrosive gases, supporting smooth operation at optimal performance levels and reducing maintenance requirements.

Remote access and control convenience

The FR Configurator Mobile application enables remote access in systems equipped with wireless communication devices. This application allows easy monitoring of inverter parameters and simplifies maintenance processes. Remote access accelerates maintenance and fault detection procedures, contributing to increased system efficiency.

Protection of mechanical structures
The intelligent load detection function intervenes in mechanisms that operate outside the operating–torque curve in order to protect mechanical structures, helping prevent failures and extend system life. The inlet pressure control function intervenes in operation when insufficient input is detected, preventing mechanical damage and supporting dry-run detection to protect mechanical components.

These features simplify maintenance and fault detection processes for Mitsubishi Electric inverters, enabling increased operational efficiency and uninterrupted operation. By ensuring rapid fault detection and resolution, systems can operate continuously and overall operational efficiency can be enhanced.

3. Which markets and segments do you primarily address with this product group?

As Mitsubishi Electric, we offer high-performance, high-quality inverters specifically designed for industrial processes and commercial applications, providing solutions across a wide power range from 0.1 kW to 1.5 MW. These solutions serve businesses in various industries such as automotive, food, compressors, cranes, iron and steel, and mining. We primarily receive demand from companies operating in sectors such as geothermal energy, mining, metal processing, compressors, and automotive.