

FACTORY AUTOMATION

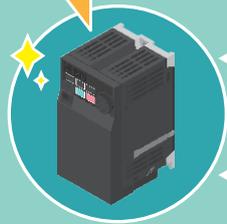
E800 NEWS Vol. 02
Application examples



Inverters in our lives

Inverters are used for various important applications in our lives

Merits



Energy-saving effect

- Less power is required as the motor rotation speed is decreased compared to commercial power supply operation.

Optimal operation

- The soft start/stop functions can reduce mechanical impact/vibration.
- Variable-speed operation at a desired speed enables optimal operation.



Farm and cowshed

Ventilator, dust collector, feed water pump, etc.



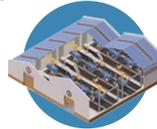
Sewage treatment plant, waste disposal plant, gas station, and airport

Pump, car wash, baggage conveyor, waste crane, etc.



Commercial facility, shopping district, and laundromat

Ventilation in underground parking lot, multi-story parking lot, building air conditioning, water-cooling pump for a showcase, cooling tower, ventilator, industrial washing machine, etc.



Manufacturing factory

Food/automotive production line (conveyor), crane, packaging machine, etc.



Useful functions for each of the design, operation, and maintenance processes of systems

Design

Manufacturing factory (smart factory)



Multi-protocols^{*1}

Various types of communication networks are available as the inverter supports protocols of major global industrial Ethernet networks.

Two standard Ethernet ports^{*1}

Supporting line topology and star topology^{*2} enables suitable connection for the system.

Multi-story parking lot



Enhanced product line

The product line of three-phase 200/400 V class inverters now includes up to 22K models. Compact inverters enable the most suitable layout in less space.

Increased magnetic excitation deceleration, built-in brake transistor^{*3}

Enhanced regenerative function reduces time required for deceleration, contributing to tact time reduction.

Food production line



PM sensorless vector control

This control method enables accurate transfer of glass or PET bottles to the filling position, which streamlines the production.

Operation

Crane



Wireless access

Even if inverters are located in a high place, narrow area, or other hard-to-reach place, wireless access^{*4} enables adjustments of inverter parameters, monitoring, and life diagnosis checks.

Automotive production line



Functional safety

The inverter is compliant with ISO 13849-1 and IEC 61508. This can reduce the initial safety certification cost and time for maintenance or tooling, and ensure operators' safety.

Water-cooling pump for a showcase, ventilator, ventilation in underground parking lot



Driving an induction motor or PM motor

Using a Mitsubishi Electric induction motor (SF-PR) or PM motor can reduce electricity charges, lowering the running cost.

Maintenance

Sewage treatment plant



Environmental impact diagnosis function^{*5}

Signs of inverter damage caused by corrosive gas can be identified. Optimal preventive maintenance contributes to system downtime reduction.

Load characteristics fault detection function

When filter clogging or an abnormal load occurs, the inverter outputs a warning or shuts off the output to prevent system damage. Real-time monitoring enables early system fault detection.

Other applications



AI fault diagnosis^{*6}

AI technology integrated in the engineering software FR Configurator2 helps identify the cause of a fault of the inverter. The fastest troubleshooting procedure contributes to downtime reduction.

USB power supply

With the power supplied from the computer (USB bus power connection), parameters can be set using FR Configurator2 while the main circuit power supply is OFF.

For details, refer to the following documents.



Mitsubishi Electric FR-E800 Inverter Catalog
Document number:
L(NA)06131ENG



E800 NEWS Vol. 01 Utilizing Ethernet
Document number:
L(NA)06137ENG



*1: For details, refer to E800 NEWS Vol. 01.

*2: Ring topology will be supported later. For PROFINET, only line topology and star topology are supported.

*3: For 200 V class 0.1K and 0.2K models, brake transistors are not built in.

*4: A wireless LAN access point is required.

*5: The function is available for coated models (-60/-06) only.

*6: The applicable alarms are overcurrent trip and overvoltage trip. (Other alarms will be applicable later.)

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MITSUBISHI ELECTRIC CORPORATION
HEAD OFFICE: TOKYO BLDG., 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN