

New inverter class for demanding applications

Ratingen, Germany 10th November, 2020

The latest FR-E800 inverter series offers multiple networks and high performance predictive maintenance through AI and built-in corrosive gas alert

A highly flexible, compact inverter series with multiple built-in networks, including TSN (Time Sensitive Networking), has been released by Mitsubishi Electric to support the needs of smart factories. Industries including machine building and automotive, as well as food & beverage, life sciences and water treatment will benefit from the control capabilities. Using AI, the FR-E800 reduces downtime with its extended predictive maintenance capabilities featuring the world's first¹ corrosive gas alert system². The inverters also achieve high performance control of induction and permanent magnet motors to Safety Integrity Level (SIL) 3 PLe.

The FR-E800 series offers increased flexibility by incorporating multiple communications without the need for option cards. Major industrial Ethernet networks are supported as standard, including CC-Link IE TSN. Network flexibility is also increased with two Ethernet ports which support line, ring and star topologies.

Enhancing predictive maintenance, the inverter features the industry's first corrosive gas environment detection circuit. In conjunction with Mitsubishi Electric's drives AI diagnostic technology, this helps to reduce overall downtime by allowing early identification and resolution of fault causes without the need for specialist skills.

To maintain safety and productivity, the inverter achieves SIL2 Pld and 3 PLe. Safety functionality is featured as standard without the need for an encoder and includes Safe Torque Off (STO), Safe Stop 1 (SS1), Safe Brake Control (SBC) and Safe Speed Monitor (SSM).

Enhanced, customised control is provided by the built-in PLC functionality which is configured via the FR-Configurator2 software. Multiple inverters can be controlled by a single master, removing the cost of an external PLC. The FR E800's autotune can be used for Surface Permanent Magnet (SPM), Interior Permanent Magnet (IPM) and in future, synchronous reluctance motors and offering maximum flexibility by reducing spares stock holding. Control modes including closed loop vector control (with encoder), real

¹ According to Mitsubishi Electric research as of September 10, 2019

² Patent pending. Relevant press release dated September 4, 2019:

"Mitsubishi Electric Develops World's First Metal Corrosion Sensor Designed for Mounting on Printed Circuit Boards"

<https://www.MitsubishiElectric.com/news/2019/0904.html>

sensorless vector control (without encoder) and positioning without sensors are supported.

With scalable power for application diversity, the [FR-E800 series](#) has output from 0.1 kW to 7.5 kW extending to 22 kW (normal duty) / 30kW (light duty) in future, supporting 200V single/three phase, 400 and 575 V three-phase.

Image Captions:



[Source: Mitsubishi Electric Europe B.V.]

Image Source: The latest Mitsubishi Electric FR-E800 inverter series offers highly flexible, compact inverters with multiple, built-in communications, including TSN, suited for a wide range of applications including Automotive, Food & Beverage and Water and Wastewater.

About Mitsubishi Electric

With nearly 100 years of experience in providing reliable, high-quality products, Mitsubishi Electric Corporation is a recognized world leader in the manufacture, marketing and sales of electrical and electronic equipment used in information processing and communications, space development and satellite communications, consumer electronics, industrial technology, energy, mobility and building technology, as well as heating, cooling and air-conditioning technology.

Embracing the spirit of its corporate statement, Changes for the Better, and its environmental statement, Eco Changes, Mitsubishi Electric endeavours to be a global, leading green company, enriching society with technology.

With around 146,500 employees the company recorded consolidated group sales of 40.9 billion US Dollar* in the fiscal year ended March 31, 2020.

Our sales offices, research & development centres and manufacturing plants are located in over 30 countries.

Factory Automation EMEA

Mitsubishi Electric Europe B.V., Factory Automation EMEA has its European headquarters in Ratingen near Dusseldorf, Germany. It is a part of Mitsubishi Electric Europe B.V. that has been represented in Germany since 1978, a wholly owned subsidiary of Mitsubishi Electric Corporation, Japan.

The role of Factory Automation EMEA is to manage sales, service and support across its network of local branches and distributors throughout the EMEA region.

* At an exchange rate of 109 yen to the US dollar, the rate given by the Tokyo Foreign Exchange Market on March 31, 2020

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