

FACTORY AUTOMATION

INVERTERS FOR SYNCHRO- NOUS RELUCTANCE MOTORS

A fresh take on an energy-saving idea



**Automating
the World**

// Maximum energy efficiency

// Future-proofing through compliance with the ErP Directive

// Perfectly compatible with motors from all manufacturers

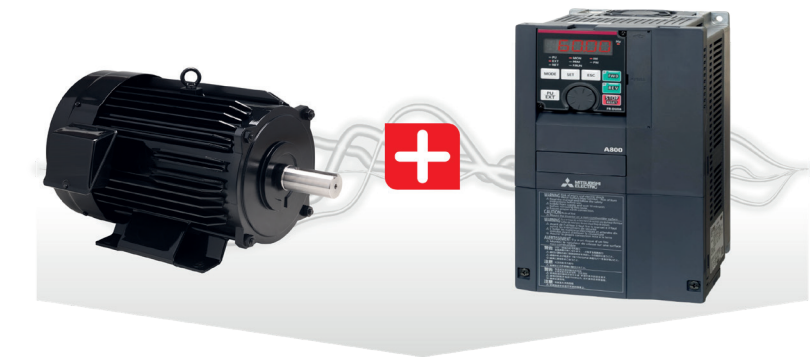
A WINNING TEAM: our inverter and SynRM motor

Rising energy costs and regulatory requirements call for increasingly efficient solutions in drive technology.

With its frequency inverters, Mitsubishi Electric offers an innovative answer. They enable synchronous reluctance motors (SynRM) in the IE5 energy efficiency class to operate with particularly high energy efficiency.

Our inverters are universally applicable and support synchronous reluctance motors from all manufacturers. Extensive tests with renowned motor manufacturers show that our inverters make optimal use of the motors' efficiency.

These drives are ideal for applications requiring high speed accuracy,



as well as for use in pumps, fans and compressors. In particular, the inverters offer practical functions for pump and fan applications. The flying start function enables reliable restarting, while the cleaning function detects contamination in the pump impeller and removes it through targeted changes in the direction of rotation.

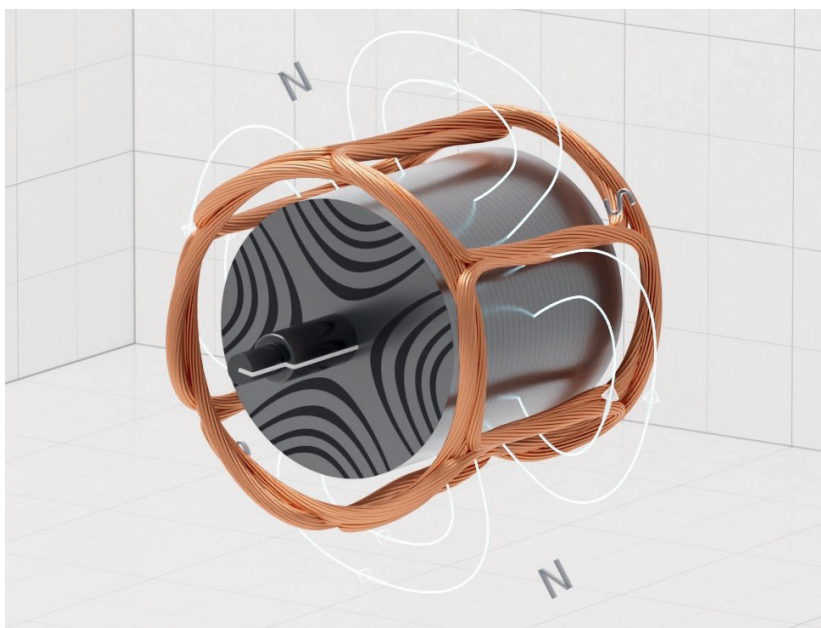
With offices and partners worldwide, you can always find a local contact who provides solutions, support, service and reliable product availability.

Explanation of the technology

A synchronous reluctance motor is an electric motor that operates without permanent magnets or squirrel-cage bars in the rotor. The rotor of a reluctance motor consists solely of individual laminated steel sheets with curved cavities punched into them.

The motor uses differences in magnetic reluctance to generate torque. This type of motor is highly energy-efficient. Compared to an induction motor, no current flows through the rotor, which can reduce rotor heat losses by up to 40%.

Synchronous reluctance technology combines the advantages of permanent magnet motors with the simplicity and maintenance-friendly characteristics of induction motors.



Maximum efficiency: meets the IE5 energy efficiency class

Environmentally friendly: no permanent magnets required

Optimized performance: lower losses and high speeds

FREQUENCY INVERTERS FOR EVERY MOTOR

» FR-A800

Unparalleled drive precision, fast speed control, easy commissioning and maximum flexibility: Mitsubishi Electric has developed a new generation of drive technology, the exceptional FR-A800.

Improved control performance and faster response times ensure safe and precise operation across a wide range of applications.

- // Ideal for heavy-duty drives
- // True sensorless vector control with online/offline auto-tuning function
- // Power range: 0.75–500 kW
- // Integrated C3 EMC filter
- // Integrated 32-bit PLC with 6,000 steps



» FR-F800

The FR-F800 series is specifically designed for pump and fan applications, as well as heating, ventilation and air conditioning (HVAC) systems, helping to significantly improve energy efficiency in these areas.

These energy-saving frequency inverters offer user-friendly and safe commissioning, excellent control management and optional network connectivity.

- // Ideal for pump, compressor and fan applications
- // Suitable for demanding environments thanks to IP55 protection rating
- // Power range: 0.75–630 kW
- // Integrated C3 EMC filter
- // Integrated 32-bit PLC with 6,000 steps



Why choose our frequency inverters?

UNIVERSAL

Our FR-A800 and FR-F800 series frequency inverters are equipped with specially developed firmware that enables them to operate synchronous reluctance motors from various manufacturers.

MORE EFFICIENT

Extensive testing with renowned synchronous reluctance motor manufacturers has confirmed that our frequency inverters can fully leverage the efficiency of synchronous reluctance motors.

GLOBAL

With offices and partners around the world, you always have a local contact by your side, providing solutions, support, service and reliable product availability from local stock.

Contact

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Further documents



To the product overview on our website!

[Click here!](#)



More information about our SynRM-compatible frequency inverters!

[Click here!](#)



The e-F@ctory concept from Mitsubishi Electric uses both FA and IT technologies to reduce the total costs of development, production and maintenance, with the goal of achieving manufacturing that is "one step ahead of its time." It is supported by e-F@ctory Alliance partners who bring together software, devices and system integration to create the optimal e-F@ctory architecture tailored to the needs and investment plans of end customers.



Automating the World

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