



for a greener tomorrow

FACTORY AUTOMATION

# FR-A800

Frequency inverters



- Higher production quality by three times faster response mode
- Advanced energy saving functions reduce production costs
- Long term recording of machine conditions by USB trace function
- Built in Ethernet interface available at - E2 Version

# Leading drive performance: the FR-A800



Perfect for crane applications due to built-in 100 % ED Break chopper up to 55 k



Fast processors due to short response times.

## Excellent control performance and response level

Designed for unparalleled drive precision, speed control, simple startup, and versatility, Mitsubishi Electric has developed a new generation of drive technology: the remarkable FR-A800.

This new drive series is the successor of the highly successful FR-A700 series. It is equipped with the new state-of-the-art high-speed processor by Mitsubishi Electric. With better than ever control performance and response level, safe and accurate operation is assured in a diverse range of applications.

Some of the outstanding features are the integrated USB port for programming and parameter copying, an easy-to-read control panel, optimum power usage and energy saving functions, improved system safety, three expansion slots for a range of option and supported network cards.

With its impressive versatility to meet equipment system needs ranging from machining and molding to winding, the FR-A800 is an extremely economical and highly-versatile solution for a wide range of applications.

The FR-A800 Series is fully backwards compatible with the FR-A700 series. Parameters can be easily copied by FR Configurator2. In order to match the former machine response time, the input/output signals of the FR-A800 can be delayed.

## Powerful features and intelligent functions

### Real Sensorless Vector Control

The Real Sensorless Vector control provides high-precision, fast-response speed control in open loop. Combined with offline auto tuning, a maximum of 200 % torque can be generated from 0.2 Hz to 400 Hz.

### Perfect autotuning of PM and IM motors

Based on the new autotuning method, even Permanent Magnet motors can be used with ease.

### Absolute positioning & built-in PLC function

By using the built-in absolute positioning function and the built-in high level PLC function, a complete machine can be managed by a stand alone drive. Sensorless positioning is possible with IPM Motors.



Positioning is one out of many scopes.

### Optimum excitation control

Optimum control of the excitation current maximizes motor efficiency for additional energy savings. As an example, an approximately 15 % increase in efficiency is obtained at a motor load torque of 10 % compared to conventional V/F control.

### High flexibility by built-in PLC

The FR-A800 is easy to program with Mitsubishi Electric standard PLC software, which is available in FR Configurator2. It is also possible to combine the PLC program with the Real time clock of the LU-08 operation panel.

### Energy saving by 24 V control power supply

By connecting an external 24 V DC control power supply, the system can be operated even when the main power supply is turned off. Furthermore parameters can be set and network communication can be maintained with this power supply which facilitates safe maintenance. More energy saving can be achieved by using the automatic "stand by" function which switches off the drive main power supply. Capacitors and other devices are offline, so heat loss is reduced.

### Improved system safety

The FR-A800 series has a two channel emergency stop for safe shutdown. This ensures safe operation in compliance with the European Machinery Directive without installation of another contactor. The FR-A800 thus conforms to the EN ISO13849-1/PLd cat. 3, EN 61508 and EN 61800-5-2 SIL2 standards.

### Easy operation

The operation panel with the one touch Digital Dial allows direct access to all



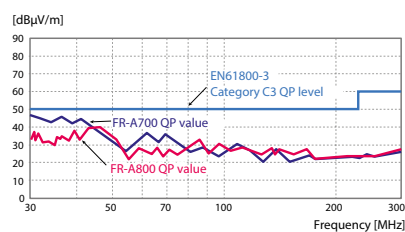
FR-LU08 as full text display with up to fifteen language and real time clock.

important parameters. Select the operation panel ideal for your needs. Choose either a LU operation panel with an LCD screen offering enhanced display functionality and a clock function, or a more economical DU operation panel with a 5-digit, 12-segment display.

The FR-A800 series also allows the connection of a Mitsubishi Electric graphical operation terminal (GOT). Communication parameters for the HMI connection are automatically set as a batch. The GOT provides operators with an easy-to-follow and intuitively high resolution display and facilitates easy operation via a touch panel.

### Comprehensive noise countermeasures

The drive's built-in EMC filter ensures full compliance with European EMC Directive standards (EN 61800-3 2nd environment category C3), so separate certification is not required for the drive. The newly developed drive technology and power supply technology significantly reduce electromagnetic noise.



Comprehensive noise countermeasures

### Energy saving functions

Take advantage of the energy saving function, that suits your application. You can for example reduce power consumption in the standby mode by using the cooling fan ON/OFF control. During operation optimum excitation control or returning regenerative motor energy to other drives helps to save energy. The impressive energy savings can be displayed on the energy monitor.

### More energy savings with PM motors

The FR-A800 series enables factory energy savings, which can be achieved by replacing current induction motors with permanent magnet motors (PM motors). A PM motor is very efficient because

the current does not flow to the rotor, so there is no secondary copper loss. There is also magnetic flux generated by permanent magnets, so less current is required to drive a motor.

### Various network compatibility

The drive can be controlled and monitored by a controller via network. For the major network protocols such as CC-Link IE Field, CC-Link, Profibus DP/DPV1, Profinet/EtherNet IP/EtherCat and SSCNETIII/H as well as DeviceNet™ and LONWORKS communication options are available. RS485 communication (Mitsubishi Electric drive protocol, Modbus\*-RTU protocol) is supported as standard.

The FR-A800-E2 version provides a built in Ethernet port, supporting Modbus® TCP, CC-Link IE Field Basic and Web-server, to allow easy and cost effective connection to PLC or FR-Configurator Setup SW.



### Easy maintenance

To reduce the wiring check time, only a cover has to be removed for accessing the target wiring area. The administration of different drives has become much more simple, because serial numbers of drives can be retrieved via communication.

### Easy set-up

Users can comfortably setup the drives with the Setup-Software FR Configurator2. The easy plug-and-play connection to USB terminal is equipped as standard. Parameters can be simply copied to commercial USB memory devices.

### Long life components

The cooling fans and the built-in capacitors have an estimated lifespan of 10 years. By using the ON/OFF control function, the service life of the fans can be even further extended.

