

The Compact All-Rounder: FR-E 500 EC

With the FR-E 500 EC - newly developed by MITSUBISHI ELECTRIC an inverter is at your disposal that - due to its diversity and its compact dimensions solves your individual drive tasks at an optimum.

Reduced Motor Noise

In addition to conventional functions for the noise reduction MITSUBISHI ELECTRIC developed the "Soft-PWM" function that further decreases unwelcome motor noise and electromagnetic interferences.

Networking

All models of the FR-E 500 EC series provide an RS 485 serial interface as standard equipment.

Through this interface multi-drop networks with up to 32 inverters can be established.

The communication speed is 19500 bps. Furthermore, the inverters can be integrated in world-standard industry bus systems like Profibus DP.

EMC Compatibility

In order to comply with the EMC directives specially adjusted compact noise filters ("footprint" type) were developed for all performance ranges.

For the single-phase inverter FR-E 520S EC built-on filters are available in addition. These can easily be installed to a prepared compartment in the back of the inverter. Additional space or a larger shape are no longer required.



The inverters are available for capacity ranges from 0.4 to 2.2 kW (1-phase) and from 0.4 to 7.5 kW (3-phase).

The output frequency ranges from 0.2 to 400 Hz.

Further Standards

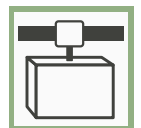
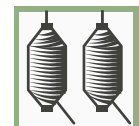
- World-wide application through:
 - Compliance with the standards CE, UL, cUL
 - Extended input voltage range
 - User-selectable sink or source logic
 - Optional multilingual parameter unit (8 languages)
- PID controller
Due to the integrated PID controller the inverter for example can be used for temperature control without further effort.
- Extended capacity range
For the 400 V class inverters with up to 7.5 kW are available.
- Inrush current limiter
All inverters are equipped with an inrush current limiter protecting the contacts of the switching units connected in series.

Application Ranges

The compact FR-E 500 EC inverters support a large variety of applications.

Typical application ranges are:

- Textiles processing machines like spinning machines, looms
- Material transport systems like conveyors, chain conveyors, screw conveyors
- Door and gate drive systems
- Machines for working metal, stone, wood, and plastic
- Palletisers, material handling machines
- Fan and pump drives

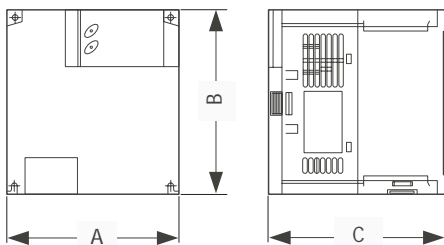


Specifications

Series	FR-E 520 S EC				FR-E 540 EC						
Type	-0.4 k	-0.75 k	-1.5 k	-2.2 k	-0.4 k	-0.75 k	-1.5 k	-2.2 k	-3.7 k	-5.5 k	-7.5 k
Output											
Applicable motor capacity	kW										
Nominal output*	A										
Overload capacity	200 % of output current for 0.5 s; 150 % for 1 min.										
Overload protection	Intelligent output current monitoring										
Output voltage	3-phase, 0 V – input voltage, programmable										
Output frequency	Hz										
Control method	Self-adaptive extended vector control (offline auto tuning) or V/f control										
Modulation method	Sinusoidal PWM, Soft-PWM										
PWM switching frequency	kHz										
Brake unit	Integrated brake transistor, brake resistor is connected externally, optional external brake unit										
Power supply											
Input voltage	1-phase, 200 – 240 V AC (-15 %/+10 %)				3-phase, 380 – 480 V AC (-15 %/+10 %)						
Frequency	50 / 60 Hz ±5 %				50 / 60 Hz ±5 %						
Input capacity	kVA										
Control inputs											
Reference values	Analog: 0–5 V DC, 0–10 V DC, 4–20 mA; Digital: optionally through parameter unit FR-PA02-02 or through RS485										
Start signal	Start forward, start reverse, controller inhibit (automatically and self retaining)										
Alarm reset	External reset after activation of a protective function										
Preset speeds	15 speeds can be preset digitally										
Second parameter set	Activated by contact										
Jog mode	Activated by keyboard										
Logic	Sink and source logic, user-selectable, PC terminal for control with external 24 V signal										
Settings and controls (selection)											
Voltage/frequency pattern	Programmable										
Acceleration/deceleration times	0; 0.1–3.600 s, individually programmable										
Current limit	0–200 %, programmable										
Torque boost	Manually in the range of 0 – 30 %										
Electronic motor protection	Current rating programmable										
EMC / environment											
EMC emissions	EN50081 when using an external compact filters in a configuration in compliance with EMC requirements										
Protection class	IP 20										
Ambient temperature	-10 °C to +50 °C										

* The current values in brackets show the rated output current for PWM switching frequencies > 2 kHz.

Dimensions



Type	FR-E 520 S EC				FR-E 540 EC						
	0.4 k	0.75 k	1.5 k	2.2 k	0.4 k	0.75 k	1.5 k	2.2 k	3.7 k	5.5 k	7.5 k
A (mm)	140	140	140	140	140	140	140	140	140	220	220
B (mm)	150	150	150	150	150	150	150	150	150	150	150
C (mm)	136	136	156	156	116	116	136	136	136	148	148
Weight (kg)	1.9	1.9	2.0	2.0	1.8	1.8	2.0	2.0	2.1	3.8	3.8