

Dial in Your Advantage: FR-S 500 EC/ECR

Simple, reliable operation, compact dimensions and improved performance had top priority in the development brief for the new FR-S 500 frequency inverter.

The result is a unit that sets new standards for miniature electric motor drive systems.

Simple, reliable operation

Fast, simple configuration and operation save time and money. The integrated "digital dial" jog shuttle control gives the user direct and much faster access to all key drive parameters than is possible with standard pushbutton solutions.

Ultra-compact design

Mitsubishi Electric has succeeded in reducing the unit dimensions even further, making the FR-S 500 one of the world's smallest frequency inverters in this output class.

Automatic torque boost

The new transistor power module supports an automatic torque boost on demand feature for significantly more stable drive performance.

Network support

In the FR-S 500 ECR the comprehensive functions of the EC series are complemented by a serial port (RS485) installed as standard equipment. This enables communication both with a PC and with a PLC, which can be networked with up to 31 other devices with RS485 interface.



These inverters are available with outputs from 0.2 to 3.7 kW for operation with single-phase 200 to 240 V AC or with three-phase 380 to 480 V AC power supplies (50/60 Hz).

User-friendly configuration

The functions and arrangement of the parameters of the FR-S 500 are matched to those of the other inverters in the FR-A 500 and FR-E 500 series. This means that you can use all frequency inverters from Mitsubishi Electric without having to rethink or change your working style.

World-wide application

- User-selectable positive or negative switching logic
- Conforms with the standards CE, UL, cUL
- Clear text parameter unit (8 languages) optionally available
- Multilingual operating and diagnostics software (optional)

Further standards

- PID control
- Automatic restart after power failures

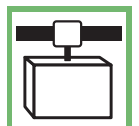
- 15 preset frequencies
- Reliable operation at the current threshold
- Switch-on current limiter
- Soft PWM technology
- User-selectable terminal functions
- DIN tophat rail mounting (option)

Applications

The simple operation of the FR-S 500 makes it ideal for standard applications. It is the right choice for both simple and more demanding drive tasks.

Typical applications include:

- Conveyor belts, chain conveyors, feed belts, transport belts and worm conveyors
- Saws, milling, grinding and drilling machines
- Pumps
- Fans
- Door drives

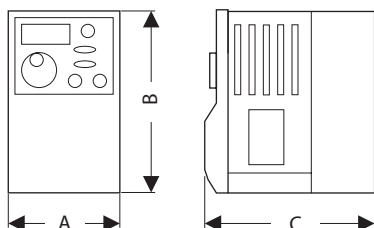


Specifications

Series		FR-S 520 EC/ECR				FR-S 540 EC/ECR				
Type		-0.2 k	-0.4k	-0.75 k	-1.5 k	-0.4 k	-0.75 k	-1.5 k	-2.2 k	-3.7 k
Output										
Applicable motor capacity	kW	0.2	0.4	0.75	1.5	0.4	0.75	1.5	2.2	3.7
Nominal output*	A	1.4	2.5	4.1	7	1.1 (1.2)	2.1 (2.4)	3.5 (3.9)	4.8 (5.3)	7.7 (8.5)
Overload capacity		200 % of output current for 0.5 s; 150 % for 1 min.								
Overload protection		Intelligent output current monitoring								
Output voltage		3phase, 0 V – input voltage, programmable								
Output frequency	Hz	0.5 – 120								
Control method		V/f control / automatic torque boost function								
Modulation method		Sinusoidal PWM, Soft-PWM								
PWM switching frequency	kHz	0.7 – 14.5; programmable								
Brake unit		External brake unit optionally								
Input										
Input voltage		1phase, 200 – 240 V AC (-15 %/+10 %)				3phase, 380 – 480 V AC (-15 %/+10 %)				
Frequency		50 / 60 Hz ±5 %				50 / 60 Hz ±5 %				
Input capacity	kVA	0.9	1.5	2.5	4.4	1.5	2.5	4.5	5.5	9.5
Control inputs										
Reference values		Analog: 0–5 V DC, 0–10 V DC, 4–20 mA; digital: internally or optionally through external parameter unit								
Start signal		Start forward, start reverse								
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 contact								
Logic		Sink and source logic, user-selectable								
Settings and controls (selection)										
Voltage/frequency pattrn		Programmable								
Acceleration/deceleration time		0–999 s, individually programmable								
Current limit		0–200 %, programmable								
Torque boost		Manually in the range of 0 – 15 % or with automatic torque boost control function								
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 values in brackets indicate the values for an ambient temperature up to 40 °C without restriction of PWM.

Dimensions



Series	FR-S 520 EC/ECR			
	0.2 k	0.4 k	0.75 k	1.5 k
A (mm)	68	68	68	108
B (mm)	128	128	128	128
C (mm)	80.5	142.5	162.5	155.5
Weight (kg)	0.6	0.9	1.0	1.5

Series	FR-S 540 EC/ECR				
	0.4 k	0.75 k	1.5 k	2.2 k	3.7 k
A (mm)	108	108	108	108	108
B (mm)	128	128	128	128	128
C (mm)	129.5	129.5	135.5	155.5	165.5
Weight (kg)	1.5	1.5	1.5	1.6	1.7