

The Next Inverter Generation: FR-A 540

With the next generation of frequency inverters MITSUBISHI ELECTRIC provides high tech on a broad basis. The FR-A 540 EC is the ideal inverter for very demanding drive applications requiring maximum torque and outstanding smooth running performance. Its comprehensive functions also give this unit a high level of flexibility.

In extension to the FR-A 540 EC with motor capacity ratings from 0.4 – 55 kW the new FR-A 540 L EC for the upper motor capacity ratings for up to 280 kW is now available.

Miniaturisation

Space savings always help to cut costs by reducing the necessary dimensions of the switchgear cabinets, and thus a further reduction in device sizes was one of the primary objectives in the development of the FR-A 540 EC line.

Networking

An RS-485 interface is fitted as standard equipment for operation in interconnected factory systems. Up to 32 inverters can be networked with this port.

Open communications with standardised industry bus systems (e.g. Profibus/DP for Europe, Device Net for the USA and CC link for asia) can also be implemented very easily with plug-in adapter boards. This makes it possible to integrate the frequency inverter in complete automation concepts.



These inverters are available with motor capacity ratings from 0.4 – 280 kW and are designed for 3-phase power supplies from 380 – 480 V (50/60 Hz).

Output frequency range 0.2 – 400 Hz.

Key benefits

- Outstanding speed stability with “on-line auto tuning”
- “Soft PWM” for reduced motor noise
- Controlled deceleration in case of power failures (power down breaking)
- Worldwide compatibility thanks to:
 - Conformity to CE, UL and cUL standards
 - Choice of positive or negative switching logic
 - Extended input voltage range
 - Multi-lingual control unit (8 languages at present)
- Communications capabilities (Profibus/DP, Device Net, CC-Link)

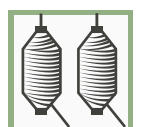
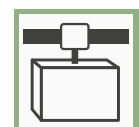
Broad range of applications

The new functions make it possible to use the FR-A 540 in applications that were formerly the exclusive domain of specialised inverter designs.

In fact, with this new inverter you can even handle the kind of applications that normally require DC drive systems or 3-phase AC drive systems with vector current control.

Here are just a few examples of the potential uses of the versatile FR-A 540:

- Lifting gear
- Elevators and lifts
- Crane drives
- Textiles machines
- Several positioning drives
- Machine tools



For enhanced user-friendliness: Optional FR-PU04 control unit with plain text LC display and numeric keypad.



Simple operation

In the standard version, all frequency inverters in this range are supplied with the FR-DU04 control unit. This unit makes operation of the inverter very easy, with clear displays of operating parameters and error messages. It can be mounted directly on the unit or connected with a cable for remote installation.

The integrated copy function makes it possible to transfer complete parameter sets to other inverters quickly and

easily, significantly reducing setup times for larger installations.

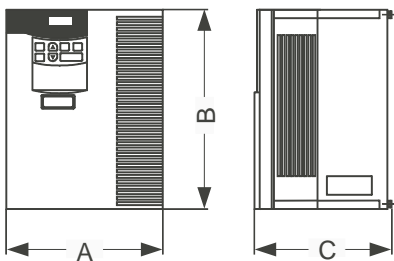
Alternatively, you can also use the optional FR-PU04 control unit, which features a long-life LC display.

The FR-PU04 also has a numeric keypad for direct entry of parameter values and a multilingual user interface with a choice of eight different languages.

Specifications

Series	FR-A 540 EC															FR-A 540 L EC						
	0.4 k	0.75 k	1.5 k	2.2 k	3.7 k	5.5 k	7.5 k	11 k	15 k	18.5 k	22 k	30 k	37 k	45 k	55 k	75 k	90 k	110 k	132 k	160 k	220 k	280 k
Type																						
Motor capacity	kW																					
Nominal output M=const.	A																					
Nominal output M~n ²	A																					
Overload capacity	200 % of output current for 0.5 s; 150 % for 1 min.																					
Output voltage	3 phase, 0 V – input voltage																					
Output frequency range	Hz																					
Modulation method	Sinusoidal PWM, Soft PWM																					
PWM switching frequency	0.7 – 14.5 kHz, fully adjustable															0.7 – 2.5 kHz, fully adjustable						
Power supply	3 phase, 380 – 480 V AC, -15 % / +10 %																					
Input frequency	50 / 60 Hz ±5 %																					
Rated input power	kVA																					
Control method	Extended vector control with automatic motor parameter adjustment (on-line autotuning) or V/f control																					

Dimensions



FR-A 540 EC	0.4 k	0.75 k	1.5 k	2.2 k	3.7 k	5.5 k	7.5 k	11 k	15 k	18.5 k	22 k	30 k	37 k	45 k	55 k
A (mm)	150	150	150	150	150	220	220	250	250	250	250	340	450	450	450
B (mm)	260	260	260	260	260	260	260	400	400	400	400	550	550	550	550
C (mm)	140	140	140	140	140	170	170	190	190	190	190	195	250	250	250
Weight (kg)	3.5	3.5	3.5	3.5	3.5	6	6	13	13	13	13	24	35	35	36

FR-A 540 L EC	75 k	90 k	110 k	132 k	160 k	220 k	280 k
A (mm)	480	480	480	498	498	680	790
B (mm)	740	740	740	1010	1010	1010	1330
C (mm)	360	360	360	380	380	380	440
Weight (kg)	75	75	75	120	120	220	235