NEW

PRODUCT
FROM MITSUBISHI

E500 SERIES

A NEW BREED OF COMPACT DRIVE

that's
faster
to set up
and go

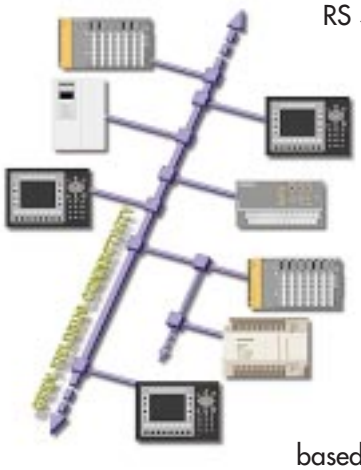
MITSUBISHI
ELECTRIC

Your partner in automation systems

Plug in for instant compatibility

no other compact drive works faster

The exciting and special feature of the E500 is its 'built-in' communications. This drive is one of the first in the market place to have the capability to connect to any of 3 open fieldbuses (DeviceNet, Profibus DP *and* CC-Link) simply by fitting a plug-in option card. With a 19200 Kbaud RS 485 serial comms capability as standard, this allows simple and fast connectivity to other manufacturers' equipment in existing plants.



Connectivity is made even simpler using Mx500 software. This is Windows-based software which enables communication and control between any Mitsubishi 500 Series inverter, from setting parameters automatically to diagnostics functions.

mx500

Yet again Mitsubishi Electric has produced a thoroughbred drive with unrivalled performance. It is not just the functionality of the E500 range that is amazing, it's also the way Mitsubishi has packed it all into such small frame-sizes. Quite simply, this new breed of compact drives brings you more benefits than ever before.

E500 is set to be a winner in its class

a big appetite for hard work

However, don't be fooled by the small size – these drives can tackle the most demanding work load. The flexible, versatile and communication capabilities of the E500 range offer greater speed of set up, greater control, and the ability to easily integrate into a huge range of applications – from food to pharmaceuticals, elevators to HVAC.

packed out wi

- Cassette Filter
- Internal on 200V Version

EMC Compliance

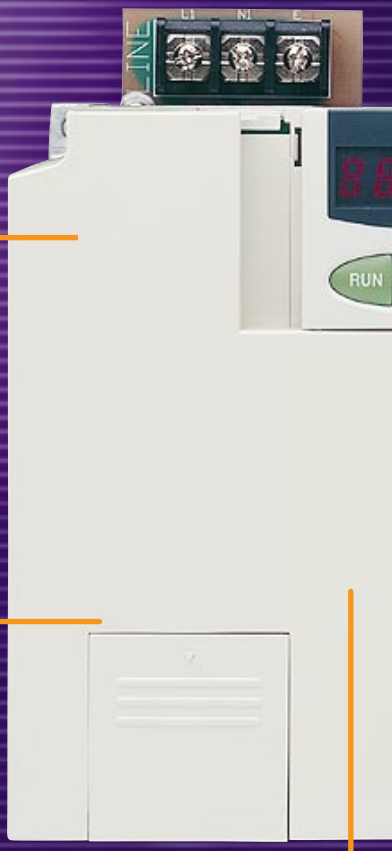
- Soft PWM

Low Operational Noise

- Optional DC Choke

Harmonics

environmentally friendly



- RS485
- CC Link
- Profibus
- DeviceNet
- Sink or Source Logic

easy to integrate

- PID Control
- Digital Pot Control
- Analogue Speed Setting Input
- 15 Preset Speeds

Operational Control

- Programmable I/O
- 15 Preset Speeds can be DC fed from Common DC Bus
- Coasting Motor Restart
- 0-10V Analogue Output

Configurable

high functionality

- Constant Speed
- Acceleration
- Deceleration

- Stall Prevention (150%)
- Zero Current Detection
- High Response Current Limit

Process Protection

- Regenerative Overvoltage Protection
- Fan Breakdown
- Drive Temperature
- EEPROM Parameters Fault
- Inrush Suppression
- High Response Current Limit

Drive

Motor

powerful protection

- External Thermal Relay
- Internal Motor Overcurrent
- Output Ground Fault

th functionality

integrated product range

- Compatible with A500 Series
- High Power Factor Converter
- Brake Unit
- 200 & 400V Versions
- Dual Torque Rating

easy to use

- **Easy Commissioning**
  - Set Up Software
  - Intelligent Accel/Decel
  - Auto Tuning
  - Parameter Copy Facility
- **Easy to Install**
  - Simple Cabling
  - Inrush Suppression
  - Small
  - Programmable I/O
- **Easy to Use**
  - Multiple User Group Parameter Selection
  - Integrated Operator Display
    - Can be Remotely Mounted
    - Full Monitoring
    - Optional FR-PU04 Keypad
    - Run Time Display

easy to maintain

- **Long Life Design**
- **Cassette Fans**
  - On/Off Functionality
  - Quick Change
- **Parameter Copy Facility**
- **Set Up Software**
  - Fault Finding
  - Parameter Update
  - Process Mapping
- **Low Maintenance Requirements**

high accuracy

- **Speed Holding**
  - Slip Compensation
- **Torque**
  - Auto Tuning
  - Sensorless Vector
  - 300% at 3Hz
- **Protection**
  - High Response Current Limited
  - Stall Prevention

SPECIFICATIONS

				FR-E520S-K-EC				FR-E540-K-EC						
Output Rating	Model Reference			0.4	0.75	1.5	2.2	0.4	0.75	1.5	2.2	3.7	5.5	7.5
	Motor capacity(kW) (Note 1)			0.4 (0.75)	0.75 (1.1)	1.5 (2.2)	2.2 (3)	0.4 (0.75)	0.75 (1.1)	1.5 (2.2)	2.2 (3)	3.7 (5.5)	5.5 (7.5)	7.5 (11)
	Rated capacity (kVA) (Note 2)			0.95	1.5	2.7	3.8	1.2	2.0	3.0	4.6	7.2	9.1	13.0
	Rated output current (A)			2.5 (3)	4 (5)	8 (11)	11 (12.8)	1.6 (1.8)	2.6 (3)	4 (6)	6 (7.5)	9 (10.5)	12 (17)	17 (23)
	Overload capacity (Note 1)			150 (120)% for 60 secs, 200 (150)% for 0.5 secs										
	Rated output voltage (Note 4)			Three phase, 200V to 240V 50Hz/60Hz				Three phase, 380V to 480V 50Hz/60Hz						
Power supply	Rated input AC voltage, frequency			Single phase, 200V to 240V 50Hz/60Hz				Three phase, 380V to 480V 50Hz/60Hz						
	Permissible AC voltage fluctuation			Single phase, 170 to 264V 50Hz/60Hz				Three phase, 325V to 528V 50Hz/60Hz						
	Permissible frequency fluctuation			Within ±5%										
	Power supply capacity (kVA) (Note 5)			1.5	2.3	4.0	5.2	1.5	2.5	4.5	5.5	9	12	17
Protective structure				Enclosed type (IP20)										
Cooling system				Self-cooling		Forced air cooling		Self-cooling		Forced air cooling				
Dimensions (mm)			W	140	140	140	140	140	140	140	140	140	220	220
			H	150	150	150	150	150	150	150	150	150	150	150
			D	136	136	166	166	116	116	136	136	136	148	148
Control Specifications	Control system			Soft-PWM control/high carrier frequency PWM control can be selected. V/F control or general-purpose magnetic flux vector control can be selected.										
	Operation functions			Maximum/minimum frequency setting, frequency jump operation, external thermal relay input selection, automatic restart operation after instantaneous power failure, forward/reverse rotation prevention, slip compensation, operation mode selection, offline auto tuning function, PID control, computer link operation (RS-485).										
	Output signals	Operating status		2 open collector output signals can be selected from inverter running, up to frequency, frequency detection, overload alarm, zero current detection, output current detection, PID upper limit, PID lower limit, PID forward/reverse rotation, operation ready, minor fault and alarm, and 1 contact output (230VAC 0.3A, 30VDC 0.3A) can be selected.										
		For meter		1 signal can be selected from output frequency, motor current and output voltage. Analog output (0 to 10VDC).										
	Output frequency range			0.2 to 400Hz (starting frequency variable between 0 and 60Hz)										
	Voltage/frequency characteristic			Base frequency set as required between 0 and 400Hz. Constant torque or variable torque pattern can be selected.										
	Acceleration/deceleration time setting			0.01, 0.1 to 3600 s (acceleration and deceleration can be set individually), linear or S-pattern acceleration/deceleration mode can be selected.										
	Braking torque	Regenerative (Note 3)		0.4K, 100% or more, 0.75K, 1.5K, 2.2K 20% or more				0.4K, 0.75K, 100% or more, 1.5K, 50% or more, 2.2K, 3.7K, 5.5K, 7.5K, 20% or more						
		DC dynamic brake		Operation frequency (0 to 120Hz), operation time (0 to 10 s), operation voltage (0 to 30%) variable.										
	Current stall prevention operation level			Operation current level can be set (0 to 200% variable), presence or absence can be selected.										
	Voltage stall prevention operation level			Operation level is fixed, presence or absence can be selected.										
	Fast-response current limit level			Operation level is fixed, presence or absence can be selected.										
	Input signals	Frequency setting signal	Analog input	0 to 5VDC, 0 to 10VDC, 4 to 20mADC										
			Digital input	Entered from control panel (optional FR-PA02-02).										
		Start signal		Forward and reverse rotation, start signal automatic self-holding input (3-wire input) can be selected.										
		Alarm reset		Used to reset alarm output provided when protective function is activated.										
		Multi-speed selection		Up to 15 speeds can be selected. (Each speed can be set between 0 and 400Hz, running speed can be changed during operation from the control panel.)									Use Pr. 180 to Pr. 183 for selection.	
		Second function selection		Used to select second functions (acceleration time, deceleration time, torque boost, base frequency, electronic overcurrent protection).										
Protective/alarm functions				Overcurrent shut-off (during acceleration, deceleration, constant speed), regenerative overvoltage shut-off, undervoltage (Note 1), instantaneous power failure (Note 1), overload shut-off (electronic overcurrent protection), brake transistor alarm, output short circuit, stall prevention, brake resistor overheat protection, fin overheat, fan failure (Note 4), parameter error, PU disconnection, ground fault over current protection.										
Display	Control panel display	Operating status		Output voltage, output current, set frequency, running.										
		Alarm definition		Alarm definition is displayed when protective function is activated. 4 alarm definitions are stored.										
	LED display			Power application (POWER), Alarm (ALARM).										

Note:
1. Figures in brackets indicate ratings for variable torque loads (e.g. pump and fan)
2. The rated output capacity indicated assumes that the output voltage is 220V/380V.
3. The overload capacity indicated in % is the ratio of the overload current to the inverter's rated output current. For repeated duty, allow time for the inverter and motor to return to or below the temperatures under 100% load.
4. The maximum output voltage does not exceed the power supply voltage. The maximum output voltage may be set as desired below the power supply voltage.
5. The power supply capacity changes with the values of the power supply side inverter impedances (including those of the input reactor and cables). Use the power supply capacity larger than the indicated

THE AUTOMATION NETWORK

ENGLAND

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Hatfield Tel: 01707 275887

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Suffolk Tel: 01284 706239
Huntingdon Tel: 01480 432104

Controls and Drives Ltd CTE
Leicester Tel: 0116 233 9555

BPX & Pneumatic Lines
Dudley Tel: 01384 355455 (BPX)
Tel: 01384 357400 (PL)

BPX Electro Mechanical Co Ltd CTE
Nottingham Tel: 0115 970 4531
Staffs Tel: 01782 564 400
Leeds Tel: 0113 270 5656

Newton Tesla Electric Drives Ltd
Cheshire Tel: 01925 444773

Betech 2000 Ltd
West Yorks Tel: 01274 851105

L C Automation Ltd CTE
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Preston Tel: 01772 334951
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Mullingar, County Westmeath
Tel: 00 353 44 48414

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Automation & Control Engineering Ltd
Churchtown, Dublin
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Electrical Rewinds
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Garland Instrument Services
Nenagh, County Tipperary
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MITSUBISHI ELECTRIC

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CTE = Centres of Technical Excellence

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