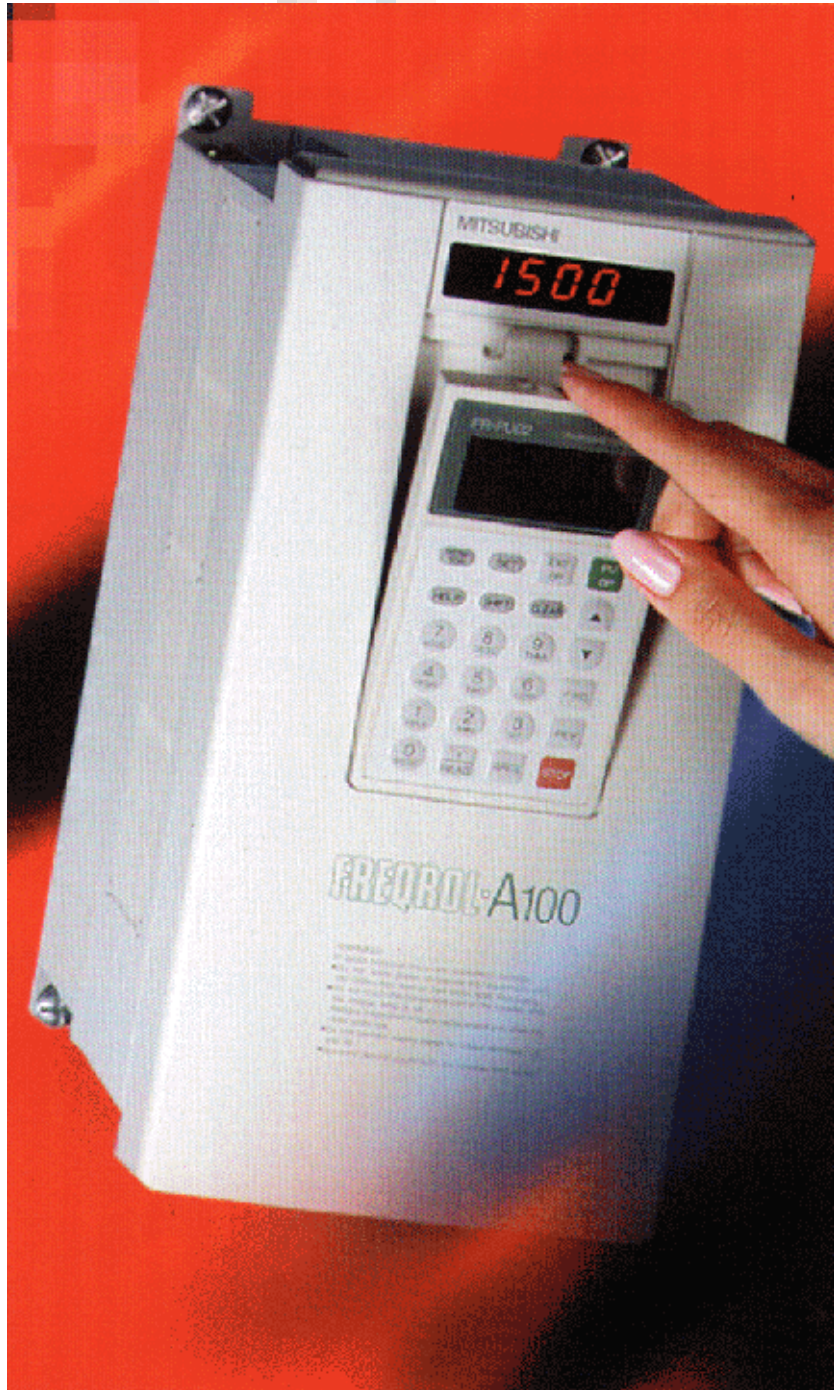




AC DRIVES
0.75-150kW
A140E 3 PHASE
INVERTERS



Your partner in industrial
automation systems

A140E - More than a touch of class

The A140E inverter range has been developed based on intensive customer research. Incredibly sophisticated, the whole design concept means that A140E is far and away the easiest drive to apply, install and use.

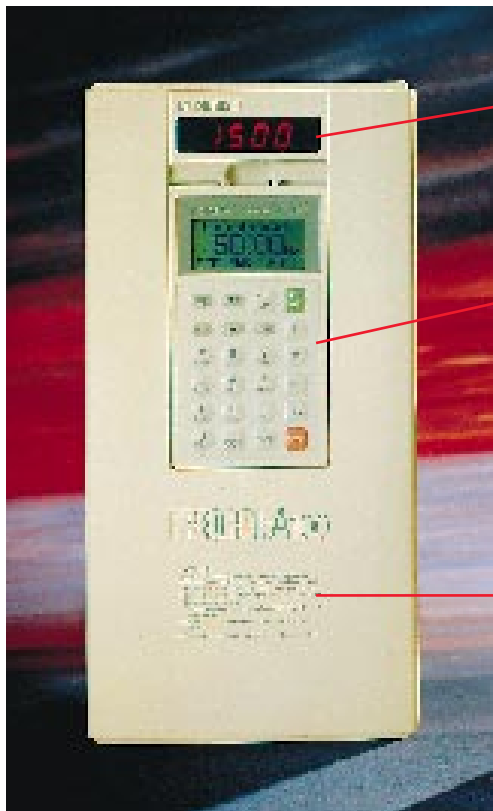
- ◆ The most compact drives in their class.
- ◆ Interactive keypad permits very simple set up and diagnosis in real language, not just codes.
- ◆ Self learning feature slashes commissioning time by defining the right parameters and setting itself up automatically for an individual load.

Perfectly adapted to HVAC and most other pump/fan loads, the A140E can also be used for lighter constant torque

applications, and sets new levels of performance flexibility and control.

Up to 55kW, the range uses 3rd generation intelligent power modules as output devices, and coupled with the 32 bit SDP to control things, reliability - a Mitsubishi trademark - is at an all time high. 2nd generation IGBT's are used from 75 - 150kW.

A140E's most important control feature is the standard fitting of AEOS - Automatic Energy Optimising System. This self learning function reduces the amount of power consumed by the motor to the minimum needed.



Built-in 4 digit, 7 segment display. Shows 1 from 15 data types.

Intelligent and interactive parameter unit is a word first (optional). It offers graphic display/main display level meter, as well as clear text.

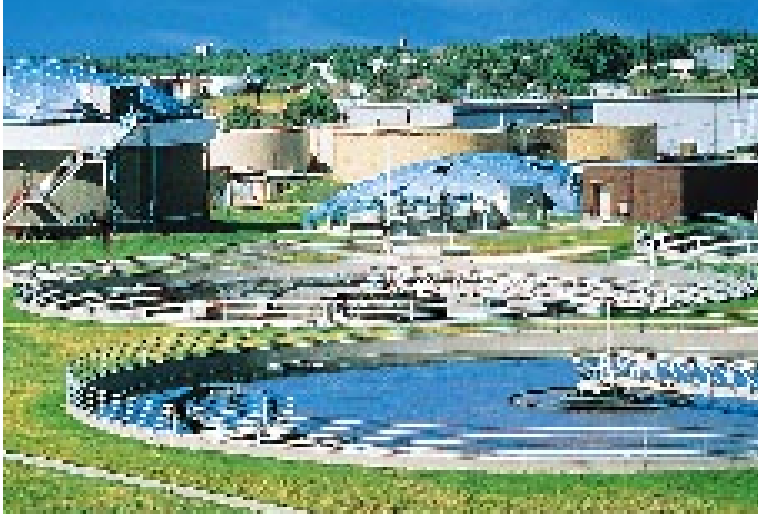
Elegant design, based on small footprint, thanks to I.P.M.s, SMD's and DSP control.



Reasons For Choosing and Using A140E...

Major features

- ◆ **Automatic Energy Saving** feature continuously tunes inverter output to match the connected load. Useful for most applications.
- ◆ **Intelligent, self learning** start/stop system established fastest start and stop automatically, irrespective of load - vastly reducing set up times for unknown applications.
- ◆ **Super low acoustic noise** silent, dynamic motor control achieved with 14.5kHz switching frequency.
- ◆ **Auto Re-Synchronisation** coasting restart, reducing waiting times for starting large inertias after power failure.
- ◆ **Digital Potentiometer** simply close a contact to accelerate or decelerate the drive - greatly simplifies the interface with Factory Automation controls.
- ◆ **Small footprint Design** reducing panel areas dimensions considerably.



Internal Inverter Options

A140E can be used with a comprehensive range of internal options, extending the versatility of the drive. Only one option can be fitted, but each option has multiple functions.



For FR-A140E

- ◆ **EPA** Encoder feedback, 12 bit input, analogue outputs, positioning
- ◆ **EPB** Encoder feedback, RS422/485 computer link
- ◆ **EPC** Melsec Net Mini computer link (fibre optic), Encoder Feedback
- ◆ **EPE** Programmable relay outputs, Digital input, extended analogue output
- ◆ **EPG** RS422/485 computer link, Programmable relay outputs, Load meter, Internal Voltage Source
- ◆ **EPH** Programmable relay outputs, PI control, Pulse Train Input, internal voltage source

For MT-A140E

- ◆ **T-OPT-20**
Digital Input, Relay Outputs, Extended Analogue Outputs, Encoder Feedback, 12 bit A/D converter
- ◆ **T-OPT-21** RS422/485 computer link, Encoder Feedback
- ◆ **T-OPT-22** Melsec Net Mini computer link (fibre optic), Encoder Feedback

External Options

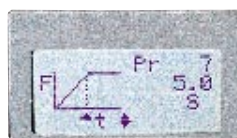
We have developed a range of high specification, options designed to meet a very wide range of applications. Use of these options will dictate separate connection and panel mounting.

EMC - A range of RFI filters and solutions are available to enable the A140E to meet (the toughest levels of emissions and immunity required by) the EMC Directive 89/336/EEC.

*Harmonics - Installation of input/output and DC link reactors, to reduce supply and motor current harmonics. All of these options are designed for panel mounting. Please select carefully and contact your local Mitsubishi representative for engineering and sales support.

Parameter Unit (option)

A140E is fully compatible with the unique INTERACTIVE parameter unit - PUO2E-1. PUO2E-1 is like no other keypad, having clear text, graphic displays and troubleshooting as well as 8 fault alarm history built in to its capability. Parameter default values, terminal status as well as hours run meter all are combined in a new easy to use format. The PUO2E-1 can be mounted externally, linked to the A140 via a 1, 3 or 5m cable option suitable for cubicle control.



Specifications

	FR-A140E-EC												MT-A140E-02E1														
	0.75K	1.5K	2.2K	3.7K	5.5K	7.5K	11K	15K	18.5K	22K	30K	37K	45K	55K	75	110	150										
Motor Capacity (kW) *1	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	110	220										
Capacity (KVA)	1.5	2.7	3.7	5.7	8.3	12.2	17.5	22.1	26.7	32.8	43.4	53.3	64.8	80.08	110	165	220										
Output Current (A)	2	3.5	4.8	7.5	11.5	16	23	29	35	43	57	70	85	106	144	216	288										
OUTPUT	120%																										
Overload Current (60 secs)	150%																										
Overload Current (0.5 secs)	380 - 460 V 50/60Hz																										
Voltage *2	10 - 15% Average from base frequency (motor loss dependent)																										
Overhauling/Braking Torque	Three Phase 380V - 460 V 50/60 Hz																										
Input Voltage Frequency	Three Phase 323V - 506V 50/60 Hz																										
Voltage Fluctuation	300	300	300	300	300	300	300	300	400	400	450	550	550	700	880	880	880										
Height	150	150	150	150	220	220	220	220	250	250	300	340	450	480	484	484	484										
Width	170	170	170	170	170	170	190	190	190	190	195	195	250	250	250	393	393										
Depth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	200	200	190										
D.C. Link Choke	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	270	290										
Dimensions (standard) for MT-A140E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	285	300	320									
Protective Structure	Chassis Type (IP00)																										
Weight (kg) *3	4	4	4	4	4.5	4.5	8.2	8.2	16	16	20	32	32	54	54	72	97	103									
RFI Filter Type	SF1197			SF1174B			SF1175			SF1176			SF1177			SF1178			SF1179			IDF3180			IDF3340		
Control Specifications	Operational Specification																										
Control System/ Switching Frequency	Sine-wave PWM control 14.5kHz (1kHz > 55kw)																										
Output Frequency	0.2 to 120 Hz/400 Hz *4																										
Frequency Setting/ Switching Frequency	Analogue: 0.015Hz/60Hz 12 bits 0 to 10V (MT-A:10 bit) 11 bits 0 to 5V (MT-A:9 bit)																										
Frequency Accuracy	Digital: 0.01 Hz/60 Hz Within 0.2% of maximum frequency/analogue input																										
Voltage/Frequency Characteristic	Base frequency set 0 - 120 Hz/400 Hz *4 Constant/Variable Torque *5																										
Torque Boost	Manual/Automatic (MT-A has sensorless vector control)																										
Acceleration/ Deceleration Time	0 to 3600 seconds (independently set)																										
DC Injection Brake	Frequency 0 to 120 Hz, time 0 to 10 secs, voltage 0 to 30%																										
Stall Prevention *5	Current Limit - 0 to 150%																										
EC Directives *6	EMC Directive 89/336/EEC (with filter shown) LVD Directive 73 /23 /EEC																										
Environment	Ambient Temperature Humidity Storage Temperature Vibration Atmosphere																										
	-10° C to 50° C 90% RH Non condensing -20°C to 65°C 0.69 G or less No corrosive gases, oil, mist, dust or dirt																										
*Notes	<ol style="list-style-type: none"> 1. Ratings shown are for variable torque loads 2. Maximum output voltage can be sent by user 3. For drives larger than 55KW, weight includes standard d.c. link choke 4. MT-A140E inverters can operate up to 400 Hz 5. For constant torque settings, drive should be derated by 1-frame size. If in doubt consult your distributor <p>6.1 Correct installation is important to achieve Directive compliance. See instruction manual and EMC Guideline booklet ref.- BCN-A21041-202-B (E)</p> <p>6.2 FR-A140E drives meet EN55022 (residential emissions), MT-A140E drives meet EN55011 (residential emissions)</p> <p>6.3 Drives are designed to PREN50178 for LVD compliance</p>																										
Operational functions	<ul style="list-style-type: none"> • Maximum / minimum frequency settings • External thermal relay input selection • Automatic restart operation after inverter switch / instantaneous power failure • Forward / Reverse rotation prevention 																										
Operation Status and Indications	<ul style="list-style-type: none"> • Drive Running • Output • Motor rpm • Electronic Overload • Load Meter • Peak O/P Current 																										
Protective Alarm Functions	<ul style="list-style-type: none"> • Overcurrent (3 types) • Transistor Overheat • Motor Overheat • Overvoltage (3 types) • Heatsink Overheat • Pr. Unit Disconnect • Short Circuit O/P • Overload • External thermal relay • Memory error • Ground Fault • Inst. power failure • Strall prevention • Processor Error • Undervoltage • Option failure 																										



Technology For Life

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