ME1 Static Frequency Converter

Three Phase Output 3.2kW - 32kW 1:1

The ME1 series of Static Frequency Converters consists of a wide range of single and three phase input systems with a single phase output. Custom built systems to meet specific requirements are our speciality, the ME1's modular microprocessor based design makes it incredibly flexible and thus easy to meet almost any build requirement.

Manufactured in the UK.

System Operation	The Power Factor Corrected Rectifier converts the single or three phase mains supply into DC, the PWM inverter then switches the DC back to AC at the desired frequency and voltage, the output transformer provides galvanic isolation which isolates the input and output from each other.

Specifications

Enclosure	High quality steel enclosure finished in RAL7032 powder coating Cable entry is at the rear for NA, NB and NC enclosures and top cable entry on the SD enclosure, all systems have removable gland/back plates to allow for simple installation IP rating for standard enclosures is IP21 (higher IP ratings available) Castors are provided on systems supplied in NA, NB and NC enclosures to allow good manoeuvrability during installation. A plinth on systems supplied in SD enclosures allows good manoeuvrability with forklift or pallet truck during installation, cabinets are sized to fit through standard doors. Plinth colour RAL7011 The SD enclosure is supplied with a key locked front door with the option of double key locks available for units with restricted security access

System	NA	NB	NC	SD
Dimensions (H x W x D)	870 x 350 x 700	870 x 450 x 850	980 x 530 x 850	1800 x 820 x 620

Sizes subject to change without notice

Rectifier	Power Factor Corrected, microprocessor controlled rectifier, this means that the current drawn from the mains is in phase with the voltage (0.99pF @ full load). In simple terms it means that you pay less money on your electric bill to achieve the same result as a non-power factor corrected rectifier, it also means less distortion of your mains supply. Single and three phase input available Protection against DC over-voltage, input mains low and mains surges e.g. Surges caused by lightning. Battery charging facility for systems with optional battery backup
Inverter	High Frequency microprocessor controlled pulse width modulation (PWM) IGBT inverter High quality sinewave output Galvanic isolation with grounded neutral High efficiency Reliable, proven design
Remote Monitoring circuits	Volt free contacts
Datalogger	200 Alarm records, optional printer is available for hardcopy printout.
Display	Consists of 4 x 20 character LCD Dot-matrix with five indicating lights (LED's), ten scrolling / command buttons and audible alarm which sounds whenever there is a problem.

LCD Digital Meter readings (top two lines)	Inverter: Volts AC / Amps / KVA / % Load / Frequency Rectifier: Volts AC / Frequency DC: Volts DC Environment: Ambient Temperature General: Time / Date
LCD Scrolling Alarms / Status Text (lower two lines)	Rectifier Mains Fail DC Over-voltage Overload Short-circuit Over-temperature Inverter Under-voltage Inverter IGBT saturation fault Inverter Peak current fault Power Supply fault

System and Installation considerations

Room ventilation	Adequate ventilation should be provided to disperse any heat dissipated by the unit. The system will generate a small amount of heat during standby operation but as load is added a greater amount of heat will be generated, as guide, 100W of heat will be generated for every 1000W of load.
Environment	All systems use forced cooling to extract heat from the enclosure, therefore it is important that the room is kept dry and free from dirt & dust
Correct rating of system	All loads should be checked for actual power consumption and then summed to determine the actual load on the system. Spare capacity should be allowed for future growth. Some loads demand a high inrush current; air-conditioning systems, compressors and motors are some of the most common, ten times inrush currents are common with these types of loads so it is very important that these are allowed for when sizing the system

System ratings

Selection table

System Typ	Input	Output	Watts/VA Rating	Current@230V	Current @115V	Enclosure
ME1-3.2k	Single	Single	3.2K	13.9A	27.8A	NA
ME1-4.8	Single	Single	4.8K	20.8A	41.7A	NA
ME1-4.8k	Three	Single	4.8K	20.8A	41.7A	NB
ME1-6.4k	Single	Single	6.4K	27.8A	55.6A	NA
ME1-6.4k	Three	Single	6.4K	27.8A	55.6A	NB
ME1-8.0k	Single	Single	8.0K	34.7A	69.5A	NB
ME1-8.0k	Three	Single	8.0K	34.7A	69.5A	NB
ME1-10k	Single	Single	10K	43.4A	86.9A	NB
ME1-10k	Three	Single	10K	43.4A	86.9A	NB
ME1-12k	Single	Single	12K	52.1A	104.3A	NC
ME1-12k	Three	Single	12K	52.1A	104.3A	NC
ME1-16k	Single	Single	16K	69.5A	139.1A	NC
ME1-16k	Three	Single	16K	69.5A	139.1A	NC
ME1-20k	Single	Single	20K	86.9A	173.9A	SD
ME1-20k	Three	Single	20K	86.9A	173.9A	SD
ME1 24k	Single	Single	24K	104.3A	208.6A	SD
ME1-24k	Three	Single	24K	104.3A	208.6A	SD
ME1-32k	Three	Single	32K	139.1A	278.2A	SD

Note: Sizes subject to change without notice

Optional Factory Fitted Features	
Internally fitted options	Built in distribution: Single or double pole output circuit breakers can be fitted internally to eliminate the need for an external distribution board. Maximum number of outlets is 10 for single pole and 5 for double pole
	Printer: An impact printer is available for hardcopy printout of Datalogger
	RS232 Port: For remote monitoring Software via RS232
	SNMP Adapter: For remote monitoring of system via LAN
	AC output Earth Leakage protection: Can be set to 30/100/300mA depending on application
	Battery backup (SFC + UPS): Valve Regulated Lead Acid (VRLA), 10 Year life at 20° celcius and complies with BS EN60896-2
	Rectifier input display: Amps / KVA / % Load
	High IP rating: Maximum IP55
Remote Mounted Options	RAP & EPO: Remote alarm panel which can be connected up to 100 meters away by 4 core cable for remote monitoring of system. Consists of LED display with audible alarm and silence button; it also provides a remote EPO (emergency power off) which turns the inverter off
	RAP with RAR: Same as above but with added relays for volt free monitoring as well
Technical Data	
Enclosure	Type: Floor standing on castors/plinth.
	Degree of protection: IP21/23 (IP55 available)
	Finish: Textured, epoxy/polyester powder paint, colour RAL 7032
	Cable entry: Rear/Top
	Terminals: DIN Rail mounted or direct into EMC filter, screw clamp type
Rectifier – Power Factor Corrected	Mains Supply Voltage: 230/400VAC +-10% Single or Three Phase (other voltages available on request)
	Mains Supply Frequency: 50 or 60Hz +-5% (other frequencies available on request - 16-440Hz)
	Power Factor: 0.99pF at full load
	Input Protection: MCB to BS EN60898
	Fusegear: gR to IEC 60269-1 and -4, DIN VDE 0636-23
	Protections: DC over-voltage protection, mains low protection and input surge protection
	Technology: Full wave controlled thyristor / diode bridge with IGBT power factor correction – microprocessor controlled
Inverter	Voltage: 110/115/120 or 220/230/240VAC Single Phase (other voltages available on request)
	Voltage Regulation: Static +-1%, Dynamic +-6%
	Voltage Waveform: Sinusoidal
	Frequency: 50, 60 or 400Hz +-0.1% (other frequencies available on request - 16-850Hz)
	Distortion (THD): <3% into linear load
	Load Power Factor: 0.3 lag to 0.3 lead
	Crest Factor: 3:1
	Overload (KVA): 120% continuous 121% for 2 minutes, 160% for 5 seconds without reduction in output voltage
	Efficiency: 90-93% depending on system
	Protections: Electronic overload / short circuit, over-temperature, inverter over/under-voltage and low voltage shutdown
	Technology: High frequency, pulse width modulated IGBT with isolation transformer
General	Noise Level: <55dBA @ 1 metre
	Maximum Relative Air Humidity: 90%, non-condensing
	Maximum Altitude: 1000m Above sea level before de-rating
	Max/Min Temperature: 0-40° celcius
Standards	BS EN 50091-1 (Safety)
	BS EN 50091-2 (EMC)
	BS EN 61000-3-4 (Harmonics)

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