5 kW inverter for heavy loads
The new Mass Sine 24/5000 is designed to run heavy loads with high peak power requirements. This new product replaces the Mass 24/2500 twin inverter configuration and the Dakar Sine 24/5000. The Mass Sine 24/5000 is a one-box design which makes installation easier while less room is needed. The Mass Sine 24/5000 can be integrated into any power system: marine, mobile, photovoltaic or industrial. The optional MasterSwitch transfer switch ensures AC source selection occurs automatically. Analogue and advanced digital control panels can be supplied as an option.

Technology described
Weight and size are restricted as a result of the IGBT based switch mode technology. Another advantage is the extremely low no load power consumption: only 6 Watt at 'on' position. Audible noise is negligible (no buzzing transformers) as is the heat dissipation due to the extremely high efficiency of 92% (peak). The inverter is capable of delivering a peak load of 9000 VA. The inverter is fitted with a dual 24V DC PC minus and plus connection. Output voltages: 230V 50/60Hz (selectable by software / specify when ordering). US versions available Spring 2005.

Inverters for 10-15 kW
For larger electrical installations with heavy (simultaneous) loads, a 10 or 15 kW inverter system is available - consisting of high power DC to DC converters converting the DC voltage of one or more banks into a high DC voltage. A newly developed switch mode Mass sine wave inverter converts this DC voltage into a smooth single phase AC sine wave voltage for various loads.

Main advantages of this heavy duty compact inverter system:
- Modular design with only three or four compact cabinets.
- Only 35 kg weight for 10 kW sine wave power due to modern switch mode concept.
- Surge power over 200% allowing inductive loads to start up smoothly.
- Multiple DC connections for DC power modules allow standard battery cables.
- 90% system efficiency (peak).
- 4 to 20 mA industrial control loop.
- Fuse tripping capabilities ensuring maximum system reliability.

All Mass Sine high power inverters provide a single phase 230V AC at 50/60 Hz (selectable by software). By installing a one-to-three phase frequency drive (VFD-rating up to 10HP feasible!) three phase power can be obtained from the single phase inverter source. A soft start to top off the surge power is included with the frequency drive. This is a practical way to operate hydraulic power packs for example, without the need to run a generator.

Single phase frequency converter
Mastervolt is able to supply a 15 kVA frequency converter which is based on the 15 kVA sine wave inverter concept. Brief specifications:
- Weight: 150 kg.
- Input: 115-200V AC 50/60Hz or 230-400V AC 50/60Hz.
- Output: 230V AC 50/60Hz single phase, selectable by software.
- Compact design.
THE POWER TO BE INDEPENDENT

Cabinet type Mass Sine 24/5000
Dimensions: hxw.x. 475.5 x 318 x 254 mm, IP23
Mounting holes: 405 x 294 mm
Carton dimensions: hxw.x. 650 x 500 x 490 mm
Type of packing: carton recyclable
Weight excl. packing: 19 kg
Shipping weight: 23 kg

Cabinet type Mass Sine DC/AC inverter module 10 or 15 kVA
Dimensions: hxw.x. 463 x 318 x 250 mm, IP23
Mounting holes: 450 x 294 mm
Carton dimensions: hxw.x. 650 x 500 x 490 mm
Type of packing: carton recyclable
Weight excl. packing: 18 kg
Shipping weight: 20 kg

Cabinet type Mass DC/DC power module (for 10 and 15 kVA inverter)
Dimensions: hxw.x. 463 x 318 x 170 mm, IP23
Mounting holes: 450 x 284 mm
Carton dimensions: hxw.x. 650 x 500 x 490 mm
Type of packing: carton recyclable
Weight excl. packing: 12 kg
Shipping weight: 14.1 kg

TECHNICAL SPECIFICATIONS

Models 24/5 kVA 24/10 kVA 24/15 kVA
Table no. 24095100 24026000 24027000
Technology applied modular high frequency switched mode sine wave inverter, based on IGBT technology. Galvanic insulation between AC output and battery input.

Battery voltage nominal 24 Volt 24 Volt 24 Volt
Switch off voltage low battery 19 Volt 19 Volt 19 Volt
Switch on voltage low battery 22 Volt 22 Volt 22 Volt
Switch off voltage high battery 32 Volt 32 Volt 32 Volt
Switch on voltage high battery 30 Volt 30 Volt 30 Volt
Max. allowable ripple on DC 5% RMS 5% RMS 5% RMS
Input current (nominal load) 2x 120A 4x 120A 6x 120A
No load power consumption:
• off mode < 1 W < 1 W < 1 W
• high energy mode 6W 150W 150W
DC fuse required 2x 160A slow blow 4x 160A slow blow 6x 160A slow blow
Min. DC cable size 4x 50 mm², M8 bolts 8x 50 mm², M8 bolts 12x 50 mm², M8 bolts
Output voltage* 230 Volt, ± 5% 230 Volt, ± 5% 230 Volt, ± 5%
Output waveform true sine true sine true sine
Distortion THD < 5% max, 2.5% typ. < 5% max, 2.5% typ. < 5% max, 2.5% typ.
Frequency 50 Hz, ± 0.01 Hz 50 Hz, ± 0.01 Hz 50 Hz, ± 0.01 Hz
Set by software (consult distributor) 60 Hz, ± 0.01 Hz 60 Hz, ± 0.01 Hz 60 Hz, ± 0.01 Hz
Cooling mixture convention / variable speed fan
Wire system: 1ph, 3 wire 1ph, 3 wire 1ph, 3 wire
P30 power Tamb = 25°C, cos phi 1 5 kVA 10 kVA 15 kVA
Nominal power Tamb = 40°C, cos phi 1 4 kVA 8 kVA 13 kVA
Maximal peak load 9 kVA 20 kVA 30 kVA
Cos phi all power factors allowed
Efficiency nominal 85% 90% 90%
Peak efficiency 92% 90% 90%
Remote indication per cabinet: ‘on’ and ‘failure’, led which indicates: overload alarm, low battery shut down, temperature shut down
Remote control yes, on/off, status leds on, failure by RJ12 connection
Alarm contact n.o. - c - n.c. common alarm, alarm DC/DC 1, alarm DC/DC 2, alarm DC/DC 3
Enclosure aluminium IP23, wall mounting (bulkhead)
Colour RAL 5021 marine blue / RAL 7037 grey / RAL 9006 silver grey

* 117V/60Hz version with 4 kVA nominal power at 25°C ambient available early 2005.

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