

Static Frequency Converter

1CT3KB30A



The 1CT3KB30A Static Frequency Converter (SFC) provides a high quality output of 115v 400hz 1 ϕ @ 3000VA from an input of 440v 50/60hz. The integral valve regulated lead acid battery will support the output for 30 minutes in the event of an input supply failure.

The SFC is built into a fabricated steel container and is designed to be deck mounted with top steadies.

Access for maintenance and repair is from the front via a hinged cover that opens to the left.

Louvers pressed outwards from the front and sides of the assembly, provide for fan assisted cooling during normal operation, and natural convection when the Anti Condensation Heaters are operating.

Electrical connections to and from the SFC are made via the top mounted removable gland plate,

The SFC can be provided with a battery monitoring option that continuously monitors the state of the batteries. An alarm is raised if

there is a battery imbalance (due to a short circuit cell) or if there is a hydrogen concentration of >1%.

The 115V 400hz output is of high quality and is achieved by using a crystal controlled inverter with feedback loops that enable the control board to respond rapidly and smoothly to the demands of the output circuits. Closed loop operation reduces line and load regulation of the SFC output.

The built in battery charger will recharge a depleted battery to 80% charge in 8 hours.

Gresham Power Electronics
Gresham House, Telford Road
Salisbury, SP2 7PH, UK
+44 (0)1722 413060
www.greshampower.com
e-mail: sales@greshampower.com

ELECTRICAL CHARACTERISTICS

Input

440 volts 3 phase 3 wire 60Hz in accordance with STANAG 1008 Edition 8

Input kVA (worst case: battery recharge)	4.8 kVA
Input Power (worst case: battery recharge)	4.5 kW
Input Rated Voltage	440V
Input Rated Current	6.5A/phase
Power Factor	>0.93
Inrush Current	<I _{nom}

Option: Anti-condensation heater 115V or 230V

Output

115V, 1 phase, 400Hz, 3kVA, 3kW

Waveform	Sinusoidal
THD (linear load)	<3%
Static voltage regulation	± 1%
Dynamic voltage regulation	± 6%
Frequency stability	± 0.1%

Option: Earth isolation monitor

Load

Output current 26A

Battery

Valve Regulated Sealed Lead Acid.

2 parallel strings of 4 blocks connected in series.

Nominal voltage	48VDC
Autonomy time	30minutes,
Nominal rated capacity	80Ah.
Specified lifetime	7 to 10yrs at 20°C

Recommended normal operating temperature range is 20 to 25°C.
Recharge to 80% from a fully discharged condition within 8 hours.

Option: Battery Monitoring: short circuit cell, hydrogen >1%

Protection

Input fuse protected. Output short circuit and over current protection.
Over voltage, over temperature trips. Battery cut off at the end of discharge, battery overvoltage protection.

Local Controls and Indications.

Supply ON/OFF selector switch, Supply available LED, Output On LED, ACH On LED (with ACH option), Alarm LED, Fault LED, Battery Fault LED (with battery monitoring option)
Meters for output voltage and current.

Remote Indications

Volt -free contacts for General Alarm, Battery CB Open, Battery Discharge, Output Within Limits, Earth Fault (with earth fault monitoring option)

MECHANICAL FEATURES

Enclosure

Fabricated mild steel folded and welded for strength. Deck mounted with top steadies. Lifting eyes are provided.

Dimensions

(O/A) (h x w x d) 1430 x 630 x 500 mm

A clearance of at least 100 mm should be allowed around the unit to allow proper ventilation.

Fixings

4 holes 13Ø for M12 securing bolts. Centres 555 (w) x 356(d) mm
2 holes 13Ø for M12 securing bolts. Centres 564 (w) x 1401(h) mm

Weight 285kg

Finish To user requirement

Cable Entry

Top via gland plate. Aperture 450mm x 120mm
User connections are made to internal rail mounted terminals. Access for the cables is by a gland plate that can be drilled or punched as required for glands.

Ingress Protection Rating

IP23

Cooling

The Static Frequency Converter is designed for natural cooling by convection and louvres of sufficient size are provided for this purpose. Individual cooling fans for power assemblies are provided. Unrestricted airflow should be allowed around the unit.

Maintenance

Front maintenance - Hinged door for access.

Internal wiring

Low fire hazard cross linked polyolefin RADOX 125.

Earth

M10 (x1.5) earth stud is situated adjacent to the gland plate.

ENVIRONMENTAL CHARACTERISTICS

Shock

The equipment is designed to comply to withstand a shock of 15g (25ms half-sine). For installed shock levels in excess of this shock mounts should be fitted.

Vibration

The unit, when 'hard' mounted, is designed to meet shipboard vibration. Typically: 5 to 33Hz +/- 0.125mm

Noise

< 65dbA. @ 1m

Electromagnetic Compatibility

The equipment is designed to comply with the requirements of Def- Stan 59-41. Emissions and susceptibility (Below deck limits)

Ambient Temperature

0°C to + 45°C.

Relative Humidity

10% to 95% non-condensing.

All PCBs have a conformal coating to protect against the effects of condensation.

Ships Motion

The equipment is designed to withstand, without damage or degradation of performance or spillage of fluids, ship motion due to the action of the sea and weather as well as accelerations and velocities deriving from deliberate ship manoeuvres. Typically:

Roll angles	± 30°
Pitch angles	± 10°
Steady list angles	± 15°
Steady trim angles	± 5°



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Metromatics

For further information or pricing, please contact us:

Melbourne 03 9872 4592 Sydney 02 9460 4355
Brisbane 07 3868 4255 Adelaide 08 8343 8516

sales@metromatics.com.au
www.metromatics.com.au