

RBC8000M - MOBILE FREQUENCY CONVERTERS 30, 45, 60 & 90 KVA SOLID STATE 400HZ GROUND POWER UNIT

FREQUENCY CONVERTERS

PRODUCT DESCRIPTION

Red Box Frequency Converters have been developed and manufactured for more than a decade now.

Our policy, has always been to offer the best designed products that are environmentally friendly, simple to use, easy to maintain and exceptionally well manufactured thus meeting our clients requirements as well as complying with all standards and legislation.

These units use high frequency IGBT Technology (rectifier and inverter) to guarantee a sinewave input with low THDi (1.5%) and unit power factor (PF=1), perfect for civil airports and military applications as we guarantee a minimum impact on the mains or other power sources upstream. The RBC8000M's highly reliable, very efficient and easy to operate and maintain. Our GPU use double conversion technology with an integrated inverter output transformer to ensure galvanic isolation of the load.



Highly Efficient and Fully Compliant GPU

- CE Mark Certified (IEC 61000-6-4:2006+AMD2010 - Electromagnetic compatibility (EMC). Part 6-2: Generic standards - immunity for industrial environments; Low Voltage Directive (LVD) 2014/35/EU
- State of the art semiconductor technology (IGBT) guarantee Unity Power
- Factor and Low Input Harmonics (THDi <1.5%)
- High efficiency (up to 95% efficiency)
- Voltage compensation (Load Dependent or via Remote Feedback)
- No break power transfer compatibility (NBPT)
- User friendly control panel
- Data logging
- IP54 enclosures for outdoor use in extreme environmental conditions
- Green standby function (20W power consumption when GSF is activated)
- Low noise emission (<65dBA@1m)

Power Quality Input

- State of the art semiconductor technology (IGBT) Rectifier
- Power Factor Correction (PF=1)
- 95% efficiency
- 4 quadrant operation (better response of the system and safer operation for NBPT)
- Low input harmonics (<1.5% THDi), to comply with the strictest regulations at any load.

Output

Voltage compensation (Load dependent or via remote).

Feedback - Real plug and play connect GPU to aircraft and voltage compensation is done automatically, no user adjustment required or additional accessories)

- 4 Quadrant Operation (better response of the system and safer operation for NBPT)
- Vector control inverter for better response and higher efficiency.

Efficiency

- Up to 94% -30KVA to 90KVA at load PF= 0.8 to 1.0
- 90% < 30kVA at load PF= 0.8 to 1.0
- Green standby function - losses: 20W
- No load losses <1.5 kW

Models

- RBC8030M - 30 kVA
- RBC8045M - 45 kVA
- RBC8060M - 60 kVA
- RBC8090M - 90 kVA

Protection and Safety

- Enclosure Protection class up to Ip55
- No break power transfer compatibility (NBPT)
- Over/under voltage at output
- Overload designed for:
 - Power stage 150% - Continuous
 - Magnetics 120% - Continuous
 - Regulator overload protections set at:
 - 120% for 600 seconds
 - 150% for 60 seconds
 - 200% for 2 seconds
- Variable fan speed for internal temperature control
- Over temperature protection
- Short circuit proof by electric current limiting and shutdown
- 90% switch interlock
- Neutral voltage supervision
- Broken neutral supervision
- Leakage current supervision

Norms and Standards

- DFS400- Specification for 400Hz aircraft power.
- ISO 6858-1982 - Aircraft - Ground Support electrical supplies -General requirements
- MIL-STD-704F:2004

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FREQUENCY CONVERTERS

- BS 2G 219:1983 - Specification for general requirements for ground support electrical suppliers for aircraft
- SAE ARP 5015A:2003 - Ground Equipment - 400 Hertz ground power performance requirements
- IEC 62040-1:2008 - uninterruptible power systems (UPS). Part 1: General and safety equipment for UPS
- IEC 61558-26:2009 - Safety of transformers, reactors, power supply voltages up to 1100V. Part 2-6 - Particular requirements and tests for safety isolating transformers and power supply units incorporating safety isolating transformers
 - IEC61000-6-4:2006 + AMD1:2010 - Electromagnetic compatibility (EMC). Part 6-4. Generic standards. Emission standard for industrial environments.
 - IEC 61000-6-2:2016 - Electromagnetic compatibility (EMC). Part 6-2. Generic standards - immunity for industrial environments.

Interface and Communications

- Rs232

Miscellaneous

- MTTR: 20 minutes

Optional Features

- Communications
 - Monitoring by web and SNMP
 - MODBUS Rs485
 - MODBUS TC/IP
 - Remote control box
 - Billing System
- Military Interlock

Specifications

Input

- 3 phase 400V/415V AC +15%*
- 45Hz up to 65Hz
- Input current harmonics <1.5% @ 100% load

Output

- 3 phase 200V AC 400Hz +1%*
- Overall Efficiency 87%-94%
- Max. Crest Factor 1.4:1

Rectifier

- Overload Capacity 150% Continuous
- 4 quadrant operation
- AC Voltage Range -25%+10%
- Efficiency 93%-95%
- Inrush Current None
- Overall current limit 120% Continuous

Inverter

- Static regulation 0-100% load +1%
- Dynamic regulation 100% -5% recovering to 1% within 20 ms
- Total harmonic distortion <2% (Linear Load)
- Electronic Limit Overload 120% @600s, 150% @60s; 200% @2s
- Overload capacity (IGBTs) 150% Continuous
- Frequency stability +0.01% Crystal Controlled
- Load Power Factor 0-1
- Efficiency 93%-98%
- Short circuit proof by electric current limiting and shutdown

Environmental Conditions

- Sea level -40°C to +55 °C (@100% load)
- Above 2000m: 35 °C (@100% load)
- Relative Humidity - 10%-100%
- Noise level < 65 dBA @1 meter
- Altitude up to 2500m without de-rating

