



ED-M Series™ Frequency / Phase Converter & UPS

Military 3kVA to 5kVA Split-Phase Input Models



ED-M Series



Optional Battery Bank

Unique Frequency/Phase Conversion and Power Conditioning Capabilities

Falcon's ED-M Series™ Frequency/ Phase Converter with optional UPS capability has been specifically designed for use in harsh mobile military applications. Yet it provides a reliable computer-grade output suitable for powering sensitive equipment.

The ED accepts 208/120 or 240/120Vac split-phase power from dirty utility, generator or aircraft sources and cleans it by converting the AC to a regulated DC. This is then fed into a robust PWM continuous-duty inverter. The inverter stage regenerates new, regulated, single-phase, computer-grade power of the desired frequency. Optional battery modules may be connected to supply on-line UPS and battery backup capability.

This double-conversion approach eliminates voltage transients, sags, surges and the frequency stability problems often encountered from ground-based and aircraft generator systems, as well as third-world utility sources.

The ED-M facilitates the connection of single-phase equipment to split-phase sources while maintaining a balanced power draw from the individual phases. This eliminates excessive harmonics, generator overheating and the nuisance tripping of circuit breakers.

Superior output power quality is assured with $\pm 3\%$ voltage regulation and a pure sinewave harmonic distortion of less than 3%. Frequency regulation is maintained at $\pm 1\%$. The output specifications are held over the entire input voltage and frequency range, no load to full load.

COTS Availability and a Rugged, Military Deployment-Ready Design

To accommodate field, mobile and aircraft installations, the ED-M Series has been designed to meet the shock and vibration requirements of RTCA/DO160, Zone A and the Munson Road Test.

Light Weight and Small Size is Ideal for Aircraft, Mobile and Shelter Usage

With a weight of 85 pounds, the ED-M is one-third the weight of other products. Its compact 4U rackmount form factor allows for easy integration into aircraft, ground-based mobile and shelter applications.

Aircraft - The ED-M converts 115/200 Vac, 400Hz three-phase aircraft "Wild Power" to computer-grade 120Vac, 60Hz, single-phase power. It provides an easy solution to powering land-based systems from fixed-wing and rotary aircraft 400Hz power.

Mobile - Originally designed for use with HMMWV three-phase and split-phase output generator systems, the ED-M is ideally suited for mobile implementation and survivability. It has been theater-proven powering communication systems on board the HMMWV. Models are also available for use with generators having a single-phase output.

Shelters - Due to its light weight and small size, the ED is the perfect solution for powering sensitive, computer-based equipment from the small generators typically incorporated into mobile and land-based shelters.

Optional On-line UPS Capability - With the addition of optional 2U height external battery modules, no-break battery backup capability can be added to the ED-M unit. This flexibility provides a reliable source of backup power when local utility or generator power is not available without the extra weight of an additional UPS. It assures that mission-critical equipment being powered by the ED will remain fully functional during mandatory generator down times.

Advanced Features:

- * Military grade design and construction
- * Double-conversion frequency and phase conversion having computer-grade output power
- * Split-phase input with a single-phase sinewave output solves phase balancing problems
- * Converts 45- 450Hz input power to fixed frequency 50, 60 or 400Hz output
- * Wide input voltage range with $\pm 3\%$ output voltage regulation
- * Basic rectifier input greatly increases reliability in harsh power environments
- * Optional battery banks are available to provide battery backup capability

Falcon Electric, Inc.
5116 Azusa Canyon Road
Irwindale, CA 91706
Toll-Free: 800.842.6940
Fax: 626.962.7720
Email: sales@falconups.com
www.falconups.com

ED Series Rackmount Frequency & Phase Converter, UPS

Model Numbers	ED4-3000RM-SP/1-4-M ED4-3000RM-SP/1-5-M ED4-3000RM-SP/1-6-M	ED4-4000RM-SP/1-4-M ED4-4000RM-SP/1-5-M ED4-4000RM-SP/1-6-M	ED4-5000RM-SP/1-4-M ED4-5000RM-SP/1-5-M ED4-5000RM-SP/1-6-M
Nominal VA	3000	4000	5000
Electrical Input			
AC Voltage	240/120Vac Split-Phase, +/-10%, Three Wire Plus Ground		
Current-Amps (per leg)	12.5	16.7	20.9
Frequency Range	47Hz - 450Hz		
Power Factor	>0.8pf @ 2100W		
Galvanic Isolation	None		
Electrical Output			
AC Voltage	120 Vac 1Ø, ± 3% Single-Phase		
Frequency	-4 = 400Hz, -5 = 50Hz, -6 = 60Hz (±1Hz)		
Watts	2100	2800	3500
Current-Amps (0.7pf Load)	25	33	42
Non – Linear Repetitive Peak (Amps)	60	80	100
Total Harmonic Distortion	< 3% @ 100% Linear Load, < 5% @ 100% Non-Linear Load		
Overload	120% for 30 Seconds		
Dynamic Response	± 5% RMS for 100% Step Load Change, 1ms Recovery Time		
Output Protection	Short Circuit, Over-temperature and Overload		
Optional Battery			
Battery Type Supported	Valve Regulated Sealed Lead-Acid (VRLA)		
Bus Voltage	61Vdc to 81Vdc		
Battery Charger	4A Internal		
Electrical Connections			
Input	(1) MS3452W24-10P (Located on the front panel)		
Output	(1) MS3452W22-22S (Located on the front panel)		
Optional Battery	(1) MS3102A18-11P (Located on the front panel)		
Environmental			
Operating Temperature	-20°C to +50°C		
Storage Temperature	-20°C to +60°C		
Humidity	10% to 95% Non – Condensing		
Operating Altitude	10,000 Feet		
Cooling	200CFM Fan		
Air Flow	Front to Back		
Audible Noise	60dBA @ 1.5 Meters		
Controls and Indicators			
LEDs	Utility Present, Summary Alarm, Inverter On		
Audible Alarms	Utility Interrupt, Inverter Failure, Overload		
Communications	(2) RS-232 Ports (RX, TX & Gnd. Signal line only, Falcon Protocol) Supports connection of the Falcon external USHA SNMP/HTTP Agent		
Standards Compliance			
MIL-STD-810	F(3) DOD Test Method for Environmental Engineering Considerations and Lab Tests		
ANSI/ESD S20.20	2007, Protection of Electrical and Electronic Parts, Assemblies and Equipment		
IPC-A-610	Acceptability of Electronic Assemblies		
EIA/IPC J-STD-001	Requirements for Soldered Electrical and Electronic Assemblies		
Shock & Vibration	Munson Road Test		
Mechanical			
Converter Dimensions	H x W x D inches (mm)	6.97 x 16.87 x 21.19 (177.1 x 428.5 x 538.3) 4U Rackmount	
Converter Weight	lb. (kg)	85 (38.6)	
Mounting	Rackmount Front Panel & Slide Rail Mounting Holes		

©2012 Falcon® Electric, Inc. All rights reserved. Falcon® and the Falcon Electric logo are registered trademarks of Falcon Electric, Inc. All other brand names and trademarks are the property of their respective owners. The information and specifications stated in this document are subject to change without notice. MD44054 Rev. NR 03-21-2012



Falcon Electric, Inc. - 5116 Azusa Canyon Rd. - Irwindale, CA 91706 - 800.842.6940 - Fax 626.962.7720

www.falconups.com - email: sales@falconups.com