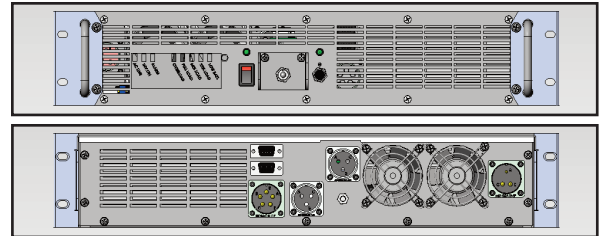




Uninterruptible Power Systems & Power Conversion Products

ED-M Series Military 1kVA to 2.4kVA Rackmount Frequency & Phase Converters

Isolated 400Hz, Three-Phase Input, Single-Phase Output
Eliminates Phase Imbalance and Associated Harmonics
50, 60 or 400Hz Operation and Frequency Conversion
Superior Output Voltage Regulation
Dual RS-232 Ports Support Remote Monitoring
Pure Sinewave Output
True Double Conversion Design
Wide Operating Temperature Range
Military Rugged, Lightweight Rackmount Design
External Battery Bank for On-line UPS Operation



Unique Three-Phase to Single-Phase Converters

The ED-M Frequency and Phase Converter with UPS option offers a unique set of capabilities in a compact and light-weight package.

The Ideal Solution to Phase Imbalance Problems

Phase imbalance occurs when single-phase equipment with various current ratings are connected to the individual phases of a three-phase source. Other three-phase equipment connected to the same power system may experience problems as a result. Phase imbalance can result in high or excessive third order harmonics, nuisance tripping of circuit breakers and destructive over-heating.

The ED-M solves this problem by operating from 400Hz, three-phase power, and converting it to a DC voltage. The DC voltage is then filtered and regulated and directed into the Pulse Width Modulated (PWM) inverter stage, where a new single-phase sinewave output is created.

Using this topology, current is drawn equally from all three phases, while the ED supplies clean, regulated single-phase power to the critical load. The ED's low output impedance enables it to start up and power difficult loads with high instantaneous current demands.

The Ideal Solution to Difficult Power Problems

The patented ED Series double conversion design protects against the following power quality problems:

- * **Brownouts, surges, spikes & high voltage transients**
- * **Generator voltage and frequency drift**
- * **Momentary and sustained power outages**
- * **Noise and harmonics**

The Ideal Frequency Converter Solution

The ED's output frequency can be factory configured to 50, 60 or 400Hz. The frequency can be independent of the incoming utility frequency. Due to this unique flexibility, the ED may be used in a wide range of military applications, where frequency conversion is required.

The Ideal On-line UPS Solution

The external battery bank is connected to the ED-M Rackmount Frequency and Phase Converter, adding on-line UPS functionality. An internal 400ma battery charger and external battery connector are standard on every unit.

This standard model ships with maintenance-free, VRLA batteries. The batteries have a 10-year rating (@20°C) and a wide operational temperature range of -60°C to +80°C.

Dual RS-232 Communications Ports

The unit supports concurrent RS-232 based remote monitoring via two independent RS-232 ports. The monitoring communications protocol is available from Falcon upon request.

Ideal for applications such as:

Military Computer Grade Shelter Power
Offshore Platforms
Shipboard Systems
Robotics
Automated Manufacturing
Test Equipment Benches
Precision Motor Speed Application
Mobile Office/Labs
Communications/Microwave

MD44051 Rev. NR

ED-M Series™

1kVA to 2.4kVA

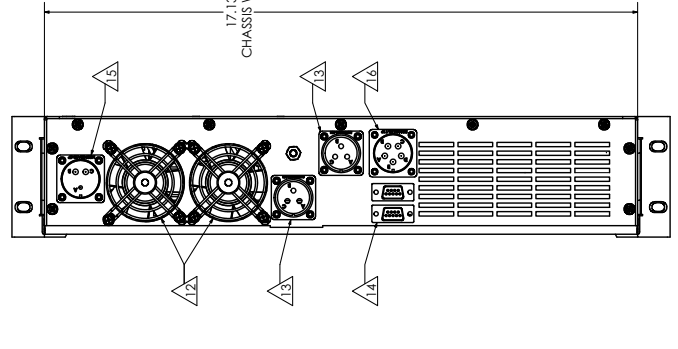
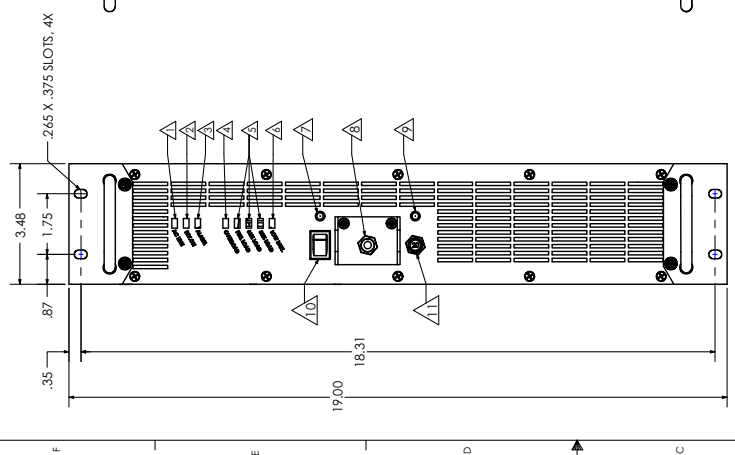
ED Series Rackmount Frequency & Phase Converters, UPS

400 Hz Isolated Input

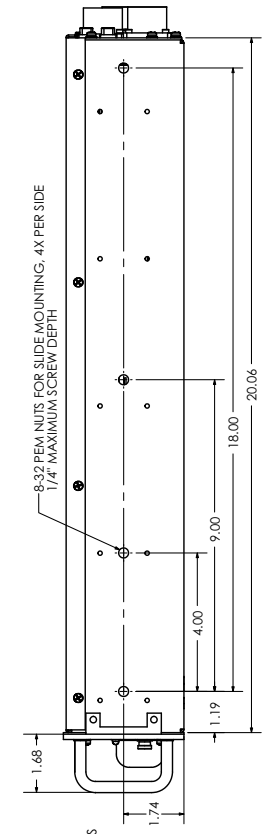
Model Number	ED4-1000RM-3/1-4-M ED4-1000RM-3/1-5-M ED4-1000RM-3/1-6-M	ED4-1500RM-3/1-4-M ED4-1500RM-3/1-5-M ED4-1500RM-3/1-6-M	ED4-2000RM-3/1-4-M ED4-2000RM-3/1-5-M ED4-2000RM-3/1-6-M	ED4-2400RM-3/1-4-M ED4-2400RM-3/1-5-M ED4-2400RM-3/1-6-M
Nominal VA	1000	1500	2000	2400
Electrical Input				
Nominal AC Voltage	115/200 Vac 3Ø (±20%) or 120/208 Vac 3Ø (±20%)			
Current Amps	3.6A (per phase)	5.2A (per phase)	7.5A (per phase)	8.5A (per phase)
Frequency	350-450 Hz			
Isolation	Three-Phase Galvanic			
Power Factor	>0.87pf			
Electrical Output				
Watts	700	1050	1400	1680
Current (@ 0.7pf load)	8.3A	12.5A	16.7A	20A
Non-Linear Repetitive Peak Amps	20A	30A	40A	48A
AC Voltage (Specify at the time of order)	115 Vac or 120 Vac (nominal)			
Frequency	-4-M Models = 400 Hz ±1% -5-M Models = 50 Hz ±1% -6-M Models = 60 Hz ±1%			
Voltage Regulation	±3%			
Dynamic Response	± 5% RMS for 100% Step Load Change, 1ms Recovery Time			
Harmonic Distortion	< 3% @ 100% Linear Load, < 5% @ 100% Non-Linear Load			
Overload	200% for 0.5 Seconds, 120% for 30 Seconds			
Crest Ratio	3:1			
Ride Through Without Batteries	100ms (typical)			
Optional Battery Backup Support				
DC Bus Voltage	72 Vdc			
Battery Charger Current	400 ma			
Battery Bank Models	EDBR-1SH-M EDBR-2SH-M			
Battery Type	Energys Cyclon X Cells wide temperature batteries (rated -60°C to +80°C operational)			
Back Up Time (typ.)	-1SH -2SH	13 32	8.5 18	4.4 12
3.5 10				
Transfer Time				
Line Fails/Recovers	0 ms			
Electrical Connections				
Input	(1 ea.) AMPHENOL# MS3102A18-11P, 12 AWG Pins			
Output	(2 ea.) AMPHENOL# MS 3102A16-10S, 12 AWG SOCKETS			
Optional Battery Bank	(1 ea.) AMPHENOL# MS3102E18-5P, 12 AWG SOCKETS			
Environmental				
Temperature	Operational -20°C to 60°C (-4°F to 140°F) Storage -40°C to 60°C (-40°F to 140°F)			
Humidity	10% to 95% Non – Condensing			
Altitude	Operational - 10,000 Feet Transportation - 40,000 Feet			
Cooling	Low Velocity Forced Air Fans			
Audible Noise (@ 1.5 Meters)	54dBA			
Controls & Indicators				
LED Display	Sequenced - Load Level / Battery Level Single - Utility Present, Summary Alarm, Inverter On, Output On, Charger Off			
Audible Alarms	Utility Interrupt, Inverter Failure, Overload			
Controls	UPS On/Off, Input & Output Circuit Breakers			
Communications	Two RS-232 ports located on the UPS rear panel			
Mechanical				
Dimensions UPS inches (mm)	3.48 x 17.13 x 20.06 (88.4 x 435.2 x 509.6)			
H x W x D Battery Banks	3.48 x 16.9 x 20.46 (88.4 x 429.3 x 519.7)			
Weight lbs. (kg) UPS Battery Bank Options	45 (15.88) EDBR-1SH-M = 60 (27.3) EDBR-2SH-M = 90 (40.9)			

Specifications subject to change without notice.

REV	DATE	DESCRIPTION	BY	CHKD



- △ A/C PRESENT LED INDICATOR
- △ INVERTER ON LED INDICATOR
- △ ALARM LED INDICATOR
- △ OVERLOAD LED INDICATOR
- △ LOAD LEVEL LED INDICATORS
- △ LOW BATTERY LED INDICATOR
- △ POWER ON LED INDICATOR
- △ INPUT CIRCUIT BREAKER
- △ OUTPUT POWER ON LED INDICATOR
- △ SYSTEM OFF/ON SWITCH
- △ OUTPUT CIRCUIT BREAKER
- △ COOLING FANS
- △ OUTPUT RECEPTACLES
- △ COMMUNICATION PORTS
- △ DC INPUT CONNECTOR
- △ SYSTEM INPUT INLET



- SYSTEM INPUT INLET:
AMPHENOL # MS3102A18-1P, 12 AWG PINS, 5X
- POSITION A PHASE A
- POSITION B PHASE B
- POSITION C NEUTRAL
- POSITION E CHASSIS GROUND
- OUTPUT RECEPTACLES, 3X
AMPHENOL #MS 3102A16-10S, 12 AWG SOCKETS, 3X
- A= LINE, 120 VAC
- B= INVERTER
- C= CHASSIS GROUND
- DC INPUT CONNECTOR:
AMPHENOL # MS3102E18-5P, 12 AWG SOCKETS, 2X, 16 AWG, 1X
- A= 16 AWG CABLE GROUND
- B= POSITIVE
- C= NEGATIVE

- NOTES:
1. USE GENERAL DEVICES SLIDES # CLB-203-20.
 2. AIR FLOW POSITION, POINT TO BACK OR BACK TO FRONT.
 3. WEIGHT APPROXIMATELY 145 LB.

DATE	REVISED	BY	CHKD

UNAPPROVED	APPROVED	DATE

DESIGNER	DRAWN	CHECKED	DATE

REV	DATE	DESCRIPTION

REV	DATE	DESCRIPTION

REV	DATE	DESCRIPTION

REV	DATE	DESCRIPTION

REV	DATE	DESCRIPTION

FALCON ELECTRIC INC.
5118 ASHUA CANTON RD. BURNABEE, CA
ED4-2400RM-3/1-X-M
TDB4177