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 lightweight 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 rateing (@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
# ED-M Series™

## 1kVA to 2.4kVA

ED Series Rackmount Frequency & Phase Converters, UPS  
400 Hz Isolated Input

<table>
<thead>
<tr>
<th>Model Number</th>
<th>ED4-1000RM-3/1-4-M</th>
<th>ED4-1500RM-3/1-4-M</th>
<th>ED4-2000RM-3/1-4-M</th>
<th>ED4-2400RM-3/1-4-M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal VA</td>
<td>1000</td>
<td>1500</td>
<td>2000</td>
<td>2400</td>
</tr>
</tbody>
</table>

### Electrical Input
- **Nominal AC Voltage**: 115/200 Vac 3Ø (±20%) or 120/208 Vac 3Ø (±20%)
- **Current**: 3.6A (per phase)  
- **Frequency**: 350-450 Hz
- **Isolation**: Three-Phase Galvanic
- **Power Factor**: > 0.87pf

### Electrical Output
- **Watts**: 700  
- **Current (@ 0.7pf load)**: 8.3A  
- **Non-Linear Repetitive Peak**: 20A  
- **AC Voltage (Specify at the time of order)**: 115 Vac or 120 Vac (nominal)
- **Frequency**: -4-M Models = 400 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**: Enersys Cyclon X Cells wide temperature batteries (rated -60ºC to +80ºC operational)
- **Back Up Time (typ.)**:
  - **1SH**: 13  
  - **2SH**: 32  
  - **8.5**: 16  
  - **4.4**: 12  
  - **3.5**: 10
- **Transfer Time**:
  - Line Fails/Recovers: 0 ms

### Environmental
- **Temperature**: Operational -20ºC to 60ºC (-4ºF to 140ºF), Storage -40ºC to 60ºC (-40ºF to 140ºF)
- **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 (H x W x D)**: 3.48 x 17.13 x 20.06 (88.4 x 435.2 x 509.6)
- **Battery Banks**: EDBR-1SH-M = 60 (27.3), EDBR-2SH-M = 90 (40.9)
- **Weight**: 45 (16.88) lbs (kg)

Specifications subject to change without notice.