



Uninterruptible Power Systems & Power Conversion Products

ED Series™ 1.5kVA - 2.4kVA (400Hz Input) 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
Pure Sinewave Output
True Double Conversion Design
Wide Operating Temperature Range
Lightweight Rackmount Design
External Battery Bank Options for On-line UPS Operation



Unique Three-Phase to Single-Phase Converters

The ED Series Frequency and Phase Converter 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 Series 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 domestic, international and military applications, where frequency conversion is required.

The Ideal On-line UPS Solution

Optional external battery banks can be connected to the ED Series Rackmount Frequency and Phase Converter, adding On-line UPS functionality. An internal 400ma battery charger and external battery connector are standard on every unit, allowing it to be upgraded in the field.

Two battery options are available. The standard model ships with standard temperature range, maintenance-free, VRLA batteries. Optional extended life, wide temperature range (-65°C-+80°C) batteries are also available.

Ideal for applications such as:

Military & Aerospace
Off Shore Platforms
Shipboard Systems
Robotics
Automated Manufacturing
Test Equipment Benches
Precision Motor Speed Application
Mobile Office/Labs
Communications/Microwave

ED Series™ UVS PLUS 1.5kVA to 2.4kVA

ED Series Rackmount Frequency & Phase Converters - Isolated 400Hz Input

Model Numbers	ED4-1500RM-3/1-4 ED4-1500RM-3/1-5 ED4-1500RM-3/1-6	ED4-2000RM-3/1-4 ED4-2000RM-3/1-5 ED4-2000RM-3/1-6	ED4-2400RM-3/1-4 ED4-2400RM-3/1-5 ED4-2400RM-3/1-6
Nominal VA	1500	2000	2400

Electrical Input

AC Voltage, +10% -20%	115/200 Vac 3Ø		
Current-Amps	5.2	7.5	8.5
Frequency Range	350-450Hz		
Isolation	Galvanic		

Electrical Output

AC Voltage, ± 3%	115 Vac		
Frequency	(-4 models) 400Hz ±1% (-5 models) 50Hz ±1% (-6 models) 60Hz ±1%		
Watts -5 & -6 models, 50 & 60Hz -4 models, 400Hz	1050 892	1400 1190	1680 1428
Current-Amps -5 & -6 models, 50 & 60Hz -4 models, 400Hz	12.5 10.6	16.7 14.2	20 17
Non – Linear Repetitive Peak (Amps) -5 & -6 models, 50 & 60Hz -4 models, 400Hz	30 21.3	40 28.4	48 34
Total Harmonic Distortion	< 3% @ 100% Linear Load, < 5% @ 100% Non –Linear Load		
Overload	200% for 0.5 Seconds, 120% for 30 Seconds		
Dynamic Response	± 5% RMS for 100% Step Load Change, 1ms Recovery Time		
Output Protection	Short Circuit and Overload		
Ride Through (without batteries)	100ms		
Optional Battery Back -up	8 minutes	10 minutes	7 minutes

Electrical Connections

Input	CPC23-7
Output	CPC17-3

Environmental

Operating Temperature	0° C to 50° C (32° F to 122° F)
Storage Temperature	-40° C to +60° C
Humidity	10% to 95% Non – Condensing
Operating Altitude	10,000 Feet
Transportation Altitude	40,000 Feet
Cooling	Low Velocity Forced Air Fans
Audible Noise @ 1.5 Meters	54dBA

Controls and Indicators

Sequenced LEDs	Load Level / Battery Level
Single LED	Utility Present, Summary Alarm, Inverter On
Audible Alarms	Utility Interrupt, Inverter Failure, Overload
Communications	Dry Contact Closures on Utility Loss via 9 Pin "D" Connector

Mechanical

Dimensions H x W x D inches (mm)	3.5 x 17.1 x 20.2 (88.9 x 435.1 x 512.6)
Weight lb. (kg)	45 lbs (20.41)

Optional Battery Enclosure Specifications

Model	EDBR1S7-2.4KUR
Standard Battery	(6) pieces of Yuasa NP7 -12FR, VRLA, 12V, 7AH (-15°C to +50°C) Design life: 3-5 years @ 20°C (68°F)
Optional Battery	(36) pieces of Hawker Cyclon, VRLA, 2.5V, 8AH (-65°C to +80°C) Design life: 15 years @ 20°C (68°F)
Dimensions H x W x D inches (mm)	3.5 x 17.13 x 20.18 (88.9 x 435.1 x 512.6)
Weight lb. (kg)	68 lbs (30.84)

