



# ACTIVE POWER

## CLEANSOURCE® UPS MULTI-MODULE SYSTEMS



Predictable, continuous and efficient power systems engineered for organizations with zero tolerance for downtime.



# ACTIVE POWER CLEANSOURCE®

## SYSTEMS & COMPONENTS

### Turnkey Systems

You can rely on Active Power for a complete critical power protection system, including a UPS designed and built to your specifications with switchgear incorporated into a streamlined, space-saving package. The switchgear is connected internally to the UPS, providing an attractive, space-efficient solution.



### GenSTART™

We can help you source and integrate any critical power system component from engine systems to switchgear and everything in between, including Active Power's GenSTART starting module.



## SERVICE & MONITORING

Active Power provides expert assessment, implementation, maintenance and support during every phase of your critical power system deployment and operation. CleanCare maintenance programs, ranging from basic Bronze to leave-it-all-to-us Platinum, provide complete lifecycle support for your Active Power solution.

Active Power also provides a variety of system visibility and management tools to improve your awareness of power-related events and ultimately increase your power system reliability.

Active Power's proprietary CleanSource View™ (CSView) monitoring and control software enables real-time system visibility from virtually anywhere.



## intelligently EFFICIENT

### COMPACT FOOTPRINT

Active Power systems protect twice the power in half the space. The flywheel takes up less than half the footprint of a legacy battery-based system leaving additional room for revenue-generating equipment.

### LOWER TOTAL COST OF OWNERSHIP

Up to 98% efficiency and simple and predictable operation - only available in flywheel energy storage systems - provides for a low maintenance schedule. You get a life-cycle cost without expensive surprises.

## inherently RELIABLE

### FIELD PROVEN

With more than 2,000 flywheels operating in systems deployed on six continents in some of the world's harshest conditions, CleanSource UPS has been proven over and over again.

### FAULT TOLERANT UPS

The IGBT based UPS architecture provides for a rugged and highly fault tolerant system that stands up to the toughest load and utility grid conditions.

### MODULAR AND REDUNDANT

CleanSource UPS is inherently redundant and modular. The systems are expandable to multi-megawatt configurations with paralleling for either capacity or integrated redundancy.

## economically GREEN

CleanSource UPS is the most energy efficient UPS in the world - both environmentally friendly and delivered to your economic advantage. When you lose less energy you use less energy, saving money on power bills and reducing your carbon footprint.

## FACTORY INSTALLED EQUIPMENT

### Standard

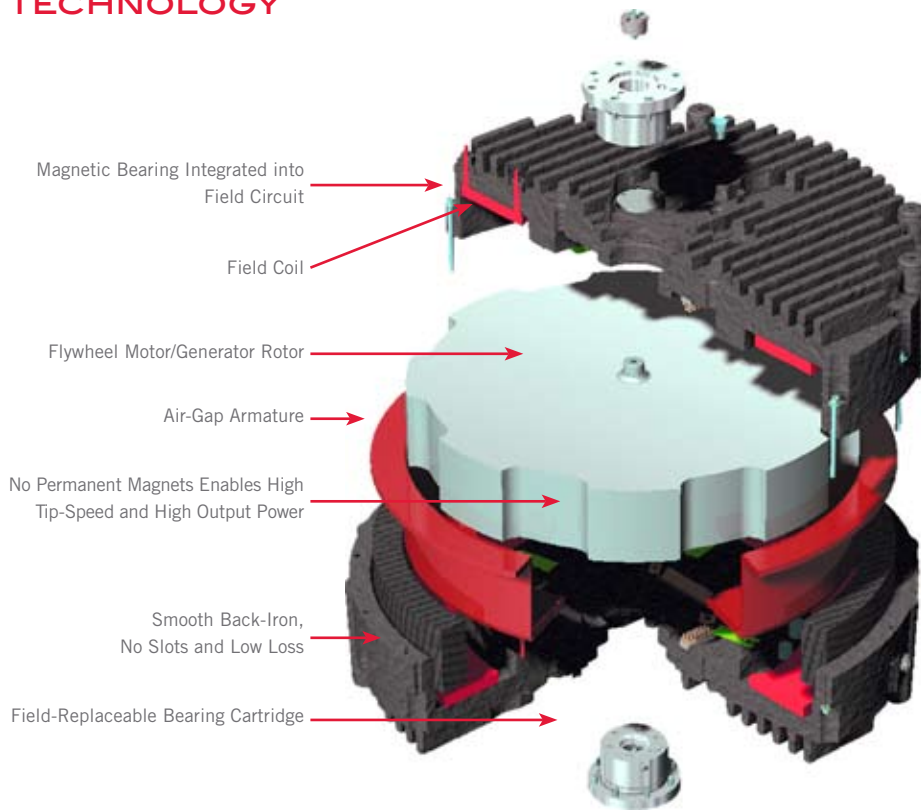
- CSView™ – advanced real-time monitoring
- IGBT-based UPS technology
- Superior power conditioning
- Flywheel energy storage
- High-speed voltage regulation
- High overload capacity
- Static bypass circuit
- Redundant cooling fans
- Redundant control power
- Power factor correction
- Intelligent self-diagnostics
- Serial connections
- Back-feed protection
- Harmonic cancellation

### Optional

- Remote SNMP/MODBUS monitoring capability
- Remote status panel
- Seismic provisions
- Separate bypass input
- Redundant flywheel and UPS
- External synchronization input
- GenSTART™ Generator Start Power



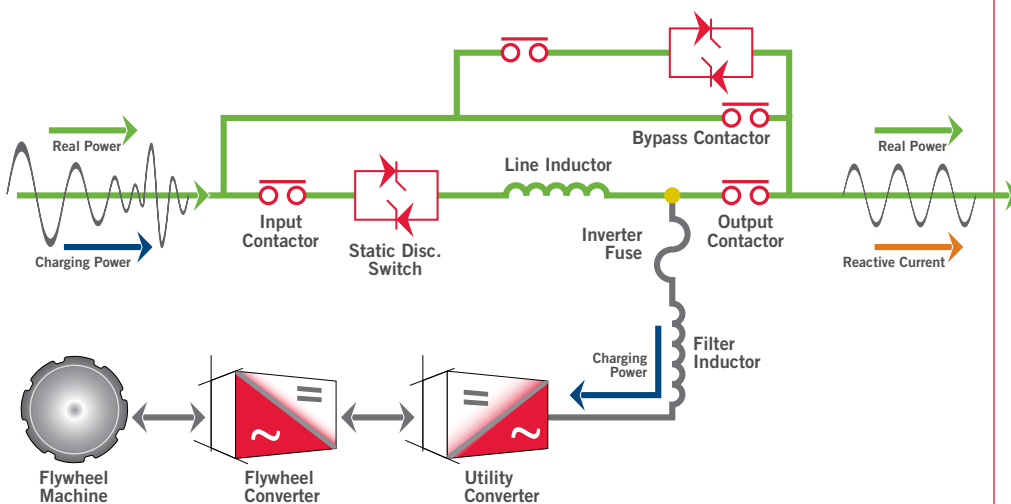
## CLEANSOURCE FLYWHEEL MOTOR-GENERATOR TECHNOLOGY



## SYSTEM FEATURES

- Rugged, on-line and fault-tolerant UPS
- Most efficient UPS architecture
- Handles multi-load characteristics
- Cost-effective lifecycle cost
- Modular, scalable and redundant architecture
- Predictable flywheel energy storage
- 20-year design life
- Low service and maintenance
- Smallest available footprint
- Rapid recharge time
- Predictive failure analysis
- Wide operating temperature range
- Remote and local monitoring
- Fault compartmentalization
- Simple and cost-effective installation
- Multi-vendor generator and switchgear compatibility
- Field-proven reliability
- No hazardous waste material

## PARALLEL ONLINE ARCHITECTURE



## STANDARD RIDE-THROUGH TIMES

100%	14 seconds
75%	19 seconds
50%	28 seconds
25%	52 seconds

# CLEANSOURCE® UPS PRODUCT LINE

## Multi-Module Systems 900-Frame

## Multi-Module Systems 1200 Z-Frame

MODEL	UPS 300E			UPS 600			UPS 900			UPS 300EZ		UPS 600Z		UPS 900Z		UPS 1200Z								
<b>RATING</b>																								
Maximum kVA	300			600			900			300		600		900		1200								
Maximum kW	240			480			720			240		480		720		960								
<b>INPUT</b>																								
Voltage <sup>1</sup>	480 VAC 3-phase, 3-wire plus ground (4-wire optional)									480 VAC 3-phase, 3-wire plus ground (4-wire optional)														
Voltage Range	+10% / -15% (programmable)									+10% / -15% (programmable)														
Frequency	60 Hz +/- 10% maximum (programmable) +/- 3% (default)									60 Hz +/- 10% maximum (programmable) +/- 3% (default)														
Power Factor	0.99 at rated load and nominal voltage									0.99 at rated load and nominal voltage														
Harmonic Current Distortion																								
Linear Load	<3% at 100% load									<3% at 100% load														
Non-Linear Load	<8% at 100% load									<8% at 100% load														
Current - Nominal (480 VAC)	302			599			898			302		599		898		1,198								
Current - Max. Continuous	400			800			1,200			400		800		1,200		1,600								
Current - Max. Non-Continuous	420			840			1,260			420		840		1,260		1,680								
Surge Withstand	Meets IEEE 587/ANSI C62.41									Meets IEEE 587/ANSI C62.41														
Walk-In	1 to 15 seconds (programmable)									1 to 15 seconds (programmable)														
<b>OUTPUT</b>																								
Voltage <sup>1</sup>	480 VAC 3-phase, 3-wire plus ground									480 VAC 3-phase, 3-wire plus ground														
Voltage regulation																								
Steady state	+/-1% for +/-10% input									+/-1% for +/-10% input														
Flywheel mode	+/-1% steady state									+/-1% steady state														
Transient	+/-1% within 50 mSec for 100% load step									+/-1% within 50 mSec for 100% load step														
Voltage distortion <sup>2</sup>	<3% linear loads and <5% for 100% non-linear loads <sup>2</sup>									<3% linear loads and <5% for 100% non-linear loads <sup>2</sup>														
Frequency	60Hz (mains synchronized) (normal operation +/- 0.2% free running)									60Hz (mains synchronized) (normal operation +/- 0.2% free running)														
Slew Rate	Adjustable from 0.2Hz/second to 3.0Hz/second									Adjustable from 0.2Hz/second to 3.0Hz/second														
Current - Nominal (480 VAC)	361			723			1,084			361		723		1,084		1,445								
Overload Capability-Mains Operation	Continuous	10 Min	2 Min	30 Sec	10 mSec				Continuous	10 Min	2 Min	30 Sec	10 mSec											
	Up to 105%	125%	150%	200%	>200%				Up to 105%	125%	150%	200%	>200%											
UPS Efficiency <sup>4</sup>	97%			98%						97%		98%												
<b>Environmental</b>																								
Audible Noise	<72 dBA at 1 meter						<75 dBA at 1m						<72 dBA at 1 meter						<75 dBA at 1 meter					
Temperature																								
Operating	32 to 104° F 0 to 40° C									32 to 104° F 0 to 40° C														
Storage	-13 to 158° F -25 to 70° C									-13 to 158° F -25 to 70° C														
Humidity	5% to 95% (non-condensing)									5% to 95% (non-condensing)														
Altitude <sup>3</sup>	Up to 3,000 feet Up to 914 meter									Up to 3,000 feet Up to 914 meter														
Emissions and Immunity	FCC Class A, Subpart J of Part 15/ EN 50091-2									FCC Class A, Subpart J of Part 15/ EN 50091-2														
Heat Rejection- Online <sup>5</sup>																								
kW	8.7			12.3			18.4			8.7		12.3		18.4		24.6								
BTU/Hr	29,612			41,983			62,975			29,612		41,983		62,975		83,967								
<b>PHYSICAL DATA</b>																								
Height	96.0 in 2,438 mm			96.0 in 2,438 mm			96.0 in 2,438 mm			96.0 in 2,438 mm		96.0 in 2,438 mm		96.0 in 2,438 mm		96.0 in 2,438 mm								
Width	127.0 in 3,226 mm			170.0 in 4,318 mm			213.0 in 5,410 mm			127.0 in 3,226 mm		170.0 in 4,318 mm		213.0 in 5,410 mm		256.0 in 6,502 mm								
Depth	34.0 in 865 mm			34.0 in 865 mm			34.0 in 865 mm			34.0 in 865 mm		34.0 in 865 mm		34.0 in 865 mm		34.0 in 865 mm								
Weight	7,050 lbs 3,199 kg			11,550 lbs 5,241 kg			16,050 lbs 7,282 kg			6,750 lbs 3,063 kg		11,250 lbs 5,103 kg		15,750 lbs 7,144 kg		20,250 lbs 9,185 kg								
Cable Entry	Top or Bottom									Top or Bottom														
Safety	UL 1778 Listed CUL CAN/CSA 22.2 No. 107.1 Listed									UL 1778 Listed CUL CAN/CSA 22.2 No. 107.1 Listed														

- <sup>1</sup> Optional 4-wire
- <sup>2</sup> EN59001-3
- <sup>3</sup> Derate operating temperature for higher elevations
- <sup>4</sup> DC energy storage offline
- <sup>5</sup> DC energy storage online



World Headquarters EMEA • Active Power Solutions Ltd. (UK)  
 2128 W. Braker Lane, BK12 • Austin, Texas 78758-4028  
 Unit 4A • Lauriston Business Park • Pitchill • Evesham  
 Tel: 877.BUY.ACPW • Fax: 512.836.4511  
 Worcestershire WR118SN • United Kingdom  
 Tel: +44 1386 870 006 • Fax: +44 1386 870 806  
 sales@activepower.com  
 emea@activepower.com



www.activepower.com

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