



ACTIVE POWER

CLEANSOURCE® UPS MULTI-MODULE SYSTEMS



Predictable, continuous and efficient power systems engineered for organisations 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

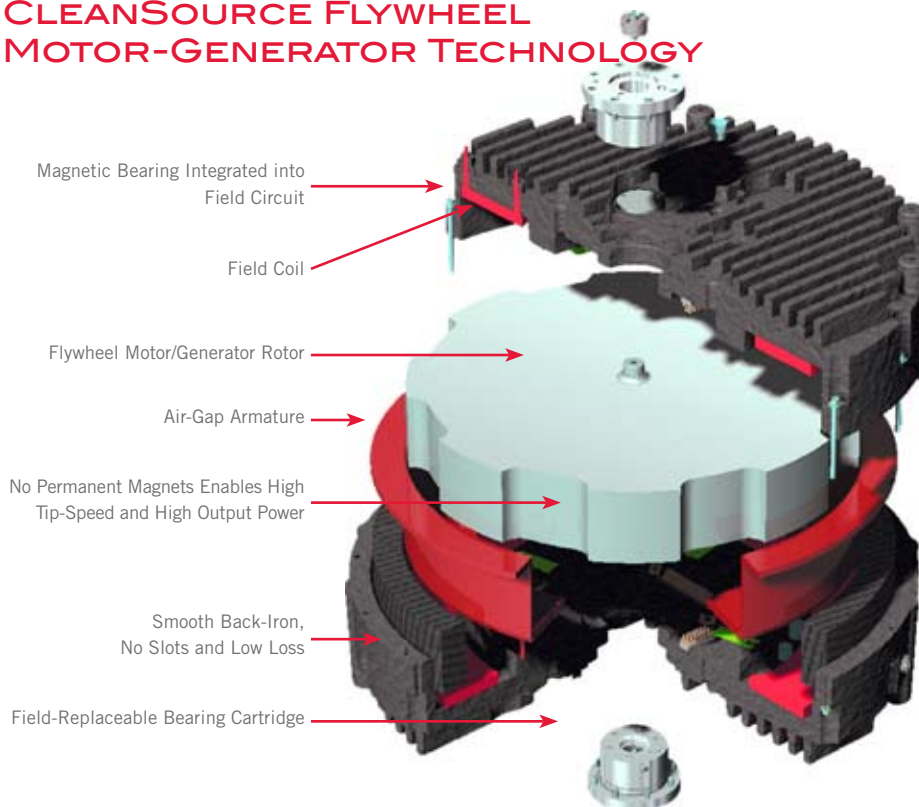
CleanSource UPS is inherently redundant and modular. The systems are expandable to multi-megawatt configurations with paralleling for either capacity or integrated redundancy.

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.



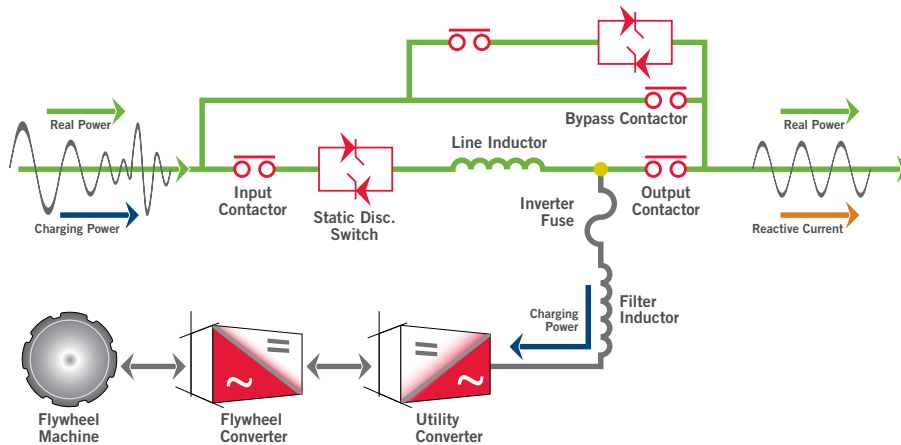
CLEANSOURCE FLYWHEEL MOTOR-GENERATOR TECHNOLOGY



SYSTEM FEATURES

- Rugged, on-line & 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
- 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

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® UPS PRODUCT LINE

Multi-Module Systems 750-Frame

Multi-Module Systems 1000 Z-Frame

MODEL	UPS 250iE	UPS 500i	UPS 750i	UPS 250iEZ	UPS 500iZ	UPS 750iZ	UPS 1000iZ			
RATING										
Maximum kVA	250	500	750	250	500	750	1000			
Maximum kW	225	450	675	225	450	675	900			
INPUT										
Voltage	380/400/415 VAC 3-phase, 4-wire plus ground (from grounded wye source)			380/400/415 VAC 3-phase, 4-wire plus ground (from grounded wye source)						
Voltage Range	+10% / -15% (programmable) +/- 10% at 380 VAC			+10% / -15% (programmable) +/- 10% at 380 VAC						
Frequency ¹	50 Hz +/- 10% maximum (programmable) +/- 3% (default)			50 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 ²	<8% at 100% load			<8% at 100% load						
Current - Nominal (380 VAC)	358	709	1,064	355	709	1,064	1,419			
Current - Nominal (400 VAC)	340	674	1,011	337	674	1,011	1,348			
Current - Nominal (415 VAC)	328	650	974	325	650	974	1,299			
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)						
OUTPUT										
Voltage	380/400/415 VAC 3-phase, 4-wire plus ground			380/400/415 VAC 3-phase, 4-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	<3% linear loads and <5% for 100% non-linear loads			<3% linear loads and <5% for 100% non-linear loads						
Frequency	50Hz (mains synchronised) (normal operation +/- 0.2% free running)			50Hz (mains synchronised) (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 (380 VAC)	380	761	1,141	380	761	1,141	1,521			
Current - Nominal (400 VAC)	361	723	1,084	361	723	1,084	1,445			
Current - Nominal (415 VAC)	348	696	1,045	348	696	1,045	1,393			
Overload Capability-Mains Operation	Continuous	10 Min	2 Min	30 Sec	10 mSec	Continuous	10 Min	2 Min	30 Sec	10 mSec
UPS Efficiency ⁴	Up to 105%	125%	150%	200%	>200%	Up to 105%	125%	150%	200%	>200%
	97%			98%		97%			98%	
Environmental										
Audible Noise	<72 dBA at 1m		<75 dBA at 1m	<72 dBA at 1 meter		<75 dBA at 1m				
Temperature										
Operating	0 to 40° C			0 to 40° C						
Storage	-25 to 70° C			-25 to 70° C						
Humidity	5% to 95% (non-condensing)			5% to 95% (non-condensing)						
Altitude ³	Up to 1,000 metre			Up to 1,000 metre						
Emissions and Immunity	EN 50091-2			EN 50091-2						
Maximum Heat Rejection ⁵										
kW	5.8	11.7	17.5	5.8	11.7	17.5	23.4			
BTU/Hr	19,946	39,893	59,839	19,946	39,893	59,839	79,786			
PHYSICAL DATA										
Height (w/o wireway or DC bus)	1,981 mm	1,981 mm	1,981 mm	1,981 mm	1,981 mm	1,981 mm	1,981 mm			
Width	3,226 mm	4,318 mm	5,410 mm	3,226 mm	4,318 mm	5,410 mm	6,502 mm			
Depth	865 mm	865 mm	865 mm	865 mm	865 mm	865 mm	865 mm			
Weight	3,500 kg	5,570 kg	7,610 kg	3,365 kg	5,435 kg	7,475kg	9,520 kg			
Cable Entry	Top or Bottom			Top or Bottom						
Safety	EN62040-1-1			EN62040-1-1						

¹ 60Hz Available
² EN59001-3
³ Derate operating temperature for higher elevations
⁴ DC energy storage offline
⁵ DC energy storage online



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