



CLEANSOURCE® HD HIGH DENSITY UPS

625kW | 380/400/415V
FLYWHEEL TECHNOLOGY



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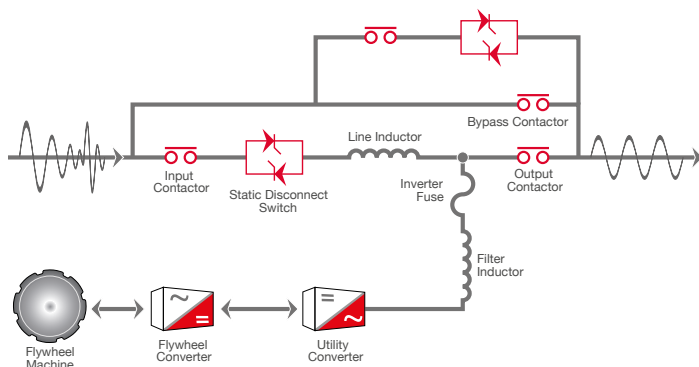
Overview

Active Power's CLEANSOURCE® HD delivers 40% TCO savings, is 12 times less likely to fail, and reduces your impact on the environment by 90%. Based on a field-proven design, our flywheel UPS is a perfect fit for today's mission-critical applications in data centers, health care facilities, and industrial and manufacturing sites.

Parallel Online Architecture

The CLEANSOURCE® HD is rated at 625kVA/625kW. Up to 7 UPS systems can be paralleled for redundancy or capacity, supporting over 4.3MW of back-up power in a single paralleled system.

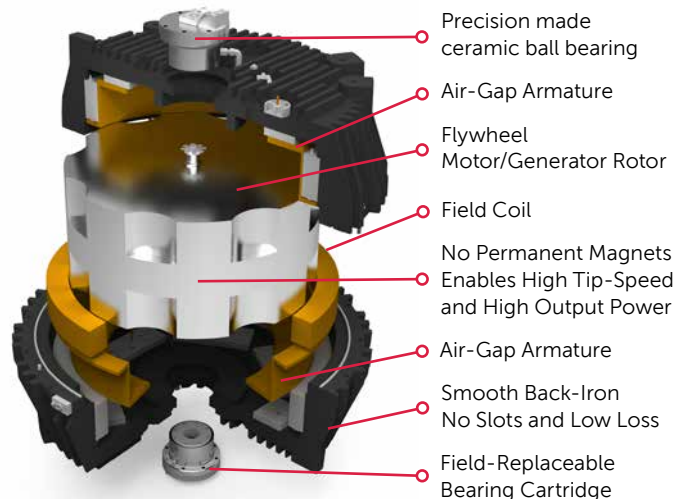
Active Power's Parallel Online Architecture provides excellent isolation between input and output, while delivering a clean sinusoidal waveform to critical loads. CLEANSOURCE® HD UPS is able to protect against all nine IEEE power disturbances, such as voltage fluctuations, harmonics and complete power outage.



Service and Maintenance

Active Power has designed the CLEANSOURCE® HD with ease of maintenance in mind to ensure your critical power infrastructure operates with the utmost reliability. CLEANSOURCE® HD requires one simple and non-invasive annual maintenance. A streamlined maintenance schedule both restores your UPS to factory-like condition and reduces downtime during its operating life, thereby improving the availability of your operation.

FLYWHEEL TECHNOLOGY



- ▶ STORES 10.2 MJ OF ENERGY
- ▶ UP TO 1 MINUTE OF RUN-TIME (LOAD DEPENDENT)
- ▶ WIDE OPERATING TEMPERATURE RANGE FROM 0°C TO 40°C
- ▶ HIGH DENSITY, HIGH EFFICIENCY DESIGN

KEY BENEFITS AND FEATURES

- UP TO 98% EFFICIENT
- HALF THE SPACE OF LEGACY BATTERY-BASED UPS
- LOWER INSTALLATION COSTS
- LESS HEAT REJECTION
- LOWER COOLING REQUIREMENTS
- LOWER MAINTENANCE AND SERVICE
- COST-EFFECTIVE INSTALLATION
- GENERATOR COMPATIBILITY
- 20-YEAR DESIGN LIFE

40%

TCO SAVINGS

PERMANENT ENERGY STORAGE

UP TO 98% ENERGY-EFFICIENT

LESS EXPENSIVE TO INSTALL
AND COMMISSION

12x

LESS LIKELY TO FAIL

MOST RELIABLE ENERGY
STORAGE SYSTEM

MINIMISE RISK AND DISRUPTION
FROM MAINTENANCE
AND REPLACEMENT

9x

LESS CARBON EMISSIONS

90% LESS CARBON USED
IN UPS MANUFACTURE

OVER 40% LESS CARBON
EMITTED OVER 15 YEARS

CLEANSOURCE® HD combines a competitive initial cost with lower ongoing operational expense – up to 40% lower than traditional UPS over 15 years. The result is a dramatic TCO benefit for your application, with net savings.

► SUPERIOR ENERGY EFFICIENCY

Over 96% efficient at 40% load.

► REDUCED COOLING NEEDS

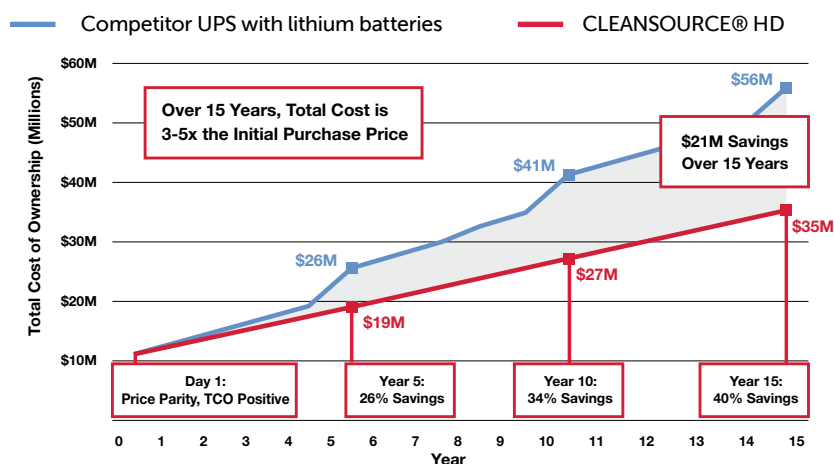
No need for dedicated cooling for batteries

► LOWER MAINTENANCE REQUIREMENTS

Routine annual check-up and bearing change every third year.

► NO BATTERY CHANGES

Integrated flywheel with 20-year life.



Proven to be 12 times less likely to fail than a battery-based system, the integrated flywheel energy storage of the CLEANSOURCE® HD UPS makes it inherently reliable, delivering predictable, consistent back-up power. The flywheel is constantly spinning, storing kinetic energy and ready to assume the load in case of a power outage. By contrast, battery failures are the leading cause of UPS load loss and system downtime.

CLEANSOURCE® HD UPS is the smart and responsible choice for the environment, saving thousands of tons of carbon from being emitted. The integrated flywheel permanent energy storage uses up to 90% less embedded carbon to manufacture versus lead-acid batteries. CLEANSOURCE® UPS high efficiency and lower cooling requirements contribute to lower power consumption and reducing operational carbon emissions by 40% over the life of the product. In comparison with lead-acid batteries, flywheels last up to 20 years, are not toxic, take up 50% less space and require less maintenance.

625kW | 380/400/415V

PRODUCT SPECIFICATIONS

RATING			
Maximum kVA		625	
Maximum kW		625	
INPUT			
Voltage ¹		380/400/415 VAC 3-phase, 4-wire plus ground	
Voltage Range ²		+10% / -15% at 400/415V (programmable)	
Frequency		50/60Hz +/- 10% maximum (programmable) +/- 3% (default)	
Power Factor		0.99 at rated load and nominal voltage	
Harmonic Current Distortion	Linear load	<2% at 100% load	
	Non-linear ³	<5% at 100% load	
Current – Nominal (380 VAC)		990A	
Current – Nominal (400 VAC)		940A	
Current – Nominal (415 VAC)		906A	
Current – Maximum		1200A	
Surge Withstand		Meets IEEE 587/ANSI C62.41	
Walk-in		1 to 15 seconds (programmable)	
Internal Back Feed Protection		Yes	
OUTPUT			
Voltage		380/400/415 VAC 3-phase, 4-wire plus ground	
Voltage Regulation	Steady State	+/-1% for +/-10% input	
	Flywheel Mode	+/-1% steady state	
	Transient	+/-1% within 50 mSec for 100% load step	
Voltage Distortion ³		<1% linear loads and <5% for 100% non-linear loads	
Inverter		PWM with IGBT switching	
Frequency		50/60Hz (mains synchronized) (normal operation +/- 0.2% free running)	
Load Power Factor Range		0.7 lagging / 0.9 leading without derating	
Slew Rate		Adjustable from 0.2Hz/second to 3.0Hz/second	
Current – Nominal (380 VAC)		951A	
Current – Nominal (400 VAC)		903A	
Current – Nominal (415 VAC)		871A	
Overload Capability-Mains Operation		Cont:	105%
		10 min:	<110%
		5 min:	<125%
		1 min:	<150%
		10s:	<200%
		Immediate:	>200%
UPS Efficiency ⁴		96.5% @ 50% load - up to 98% @ 100% load	
ENERGY STORAGE			
Type		Integrated Steel Flywheel spinning at 7,700RPM	
Flywheel Run Time (% Load)		100%:	16s
		75%:	21s
		50%:	31s
		25%:	58s
Flywheel Recharge Time		< 2 min (nominal) at 175kW 3 min (programmable) at 100kW	

GENERAL DATA		
Parallel Capability		Yes, up to 7 systems
Internal Static Bypass		Included
Control Panel		10-inch Colour Touch Screen Graphical Display
Withstand Capability ⁵		65kA
Remote Monitoring		Yes (optional)
External Customer Contacts		8 Input and 8 Outputs (programmable)
ENVIRONMENTAL		
Audible Noise		<83dBA at 1 metre
Temperature	Operating	32 to 104°F (0 to 40°C)
	Storage	-13 to 158°F (-25 to 70°C)
Humidity		5% to 95% (non-condensing)
Altitude ⁴		Up to 1,000m 1.2°C derating for every 300m above 1000m
Emissions and Immunity		EN 62040-2
Heat Rejection – Online		19.78kW / 67,522 BTU/hr
PHYSICAL DATA		
Height		80in/2,032mm
Width		132.0in/3,353mm
Depth		39in/991mm
Weight		12,718lbs/5,769kg
Cable Entry		Top or Bottom
Safety		EN 62040-1-1
ADDITIONAL OPTIONS		
3-wire Input		
Dual Input		
Remote SNMP/MODBUS Monitoring		
CSView - Real time Monitoring		
GenSTART - Generator Start Power		
Remote EPO		
Floorstand Kit		
Remote Status Panel		
SYSTEM FEATURES		
Online and Fault-Tolerant UPS		
Predictable Flywheel Energy Storage		
20-year Design Life		
Wide Operating Temperature Range		
Quick Recharge Time		
Low Maintenance and Service		
Comprehensive Service and Support		
Multi-vendor Generator and Switchgear Compatibility		
Simple and Cost Effective Installation		
No Hazardous Waste Material		
Field Proven Reliability		

¹ From grounded WYE source

² +/-10% at 380VAC

³ EN 62040-3

⁴ DC energy storage offline

⁵ Design per UL891



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