



## CLEANSOURCE® HD HIGH DENSITY UPS

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675kW | 480V

FLYWHEEL TECHNOLOGY



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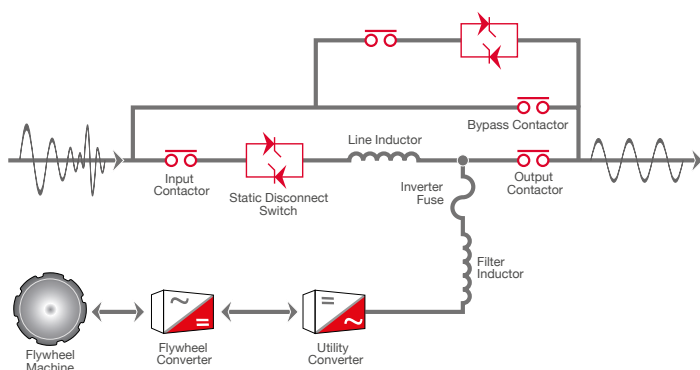
## Overview

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 750kVA/675kW. Up to 7 UPS systems can be paralleled for redundancy or capacity, supporting over 4.725MW of back-up power in a single paralleled system.

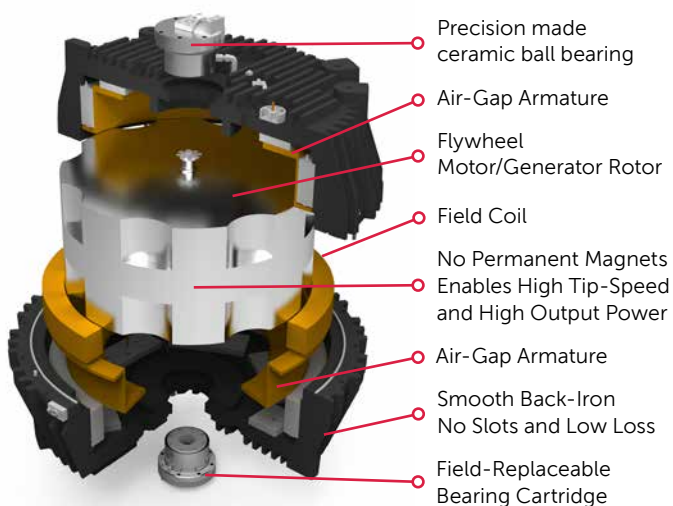
Active Power's Parallel Online Architecture provides excellent isolation between input and output, while delivering a clean sinusoidal waveform to critical loads. CLEANSOURCE® HD UPS is able to protect against all 9 IEEE power disturbances, such as voltage fluctuations, harmonics and complete power outage.



## 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 32°F TO 104°F
- ▶ 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

MINIMIZE 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

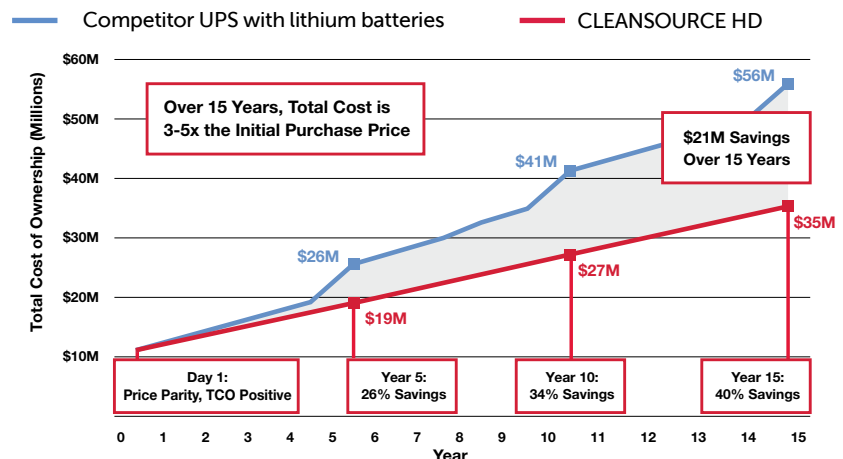
No need for dedicated cooling for batteries

### ► 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.

675kW | 480V

# PRODUCT SPECIFICATIONS

RATING		
Maximum kVA		750
Maximum kW		675
INPUT		
Voltage <sup>3</sup>		480 VAC 3-phase, 3-wire plus ground
Voltage Range		+10% / -15% (programmable)
Frequency		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 <sup>1</sup>	<5% at 100% load
Current – Nominal (480 VAC)		846A
Current – Maximum		1050A
Surge Withstand		Meets IEEE 587/ANSI C62.41
Walk-in		1 to 15 seconds (programmable)
Internal Back Feed Protection		Yes
OUTPUT		
Voltage		480 VAC 3-phase, 3-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 <sup>1</sup>		<1% linear loads and <5% for 100% non-linear loads
Inverter		PWM with IGBT switching
Frequency		60Hz (mains synchronized) (normal operation +/- 0.2% free running)
Slew Rate		Adjustable from 0.2Hz/second to 3.0Hz/second
Current – Nominal (480 VAC)		903A
Overload Capability-Mains Operation		Cont: 105%
		10 min: <110%
		5 min: <125%
		1 min: <150%
		10s: <200%
		Immediate: >200%
UPS Efficiency <sup>2</sup>		96.5% @ 50% load up to 98% @ 100% load
ENERGY STORAGE		
Type		Integrated Steel Flywheel spinning at 7,700RPM
Flywheel Run Time (% Load)	100%:	15s
	75%:	20s
	50%:	29s
	25%:	56s
Flywheel Recharge Time		< 2 min (nominal) at 175kW 3 min (programmable) at 100kW

<sup>1</sup>EN 62040-3

<sup>2</sup>DC energy storage offline

<sup>3</sup>From grounded WYE source

<sup>4</sup>Design per UL891

<sup>5</sup>100% load (675kW)

GENERAL DATA		
Parallel Capability		Yes, up to 7 systems = 4.725MW
Internal Static Bypass		Included
Control Panel		10-inch Color Touch Screen Graphical Display
Withstand Capability <sup>4</sup>		65kA
Remote Monitoring		Yes (optional)
External Customer Contacts		8 Input and 8 Outputs (programmable)
ENVIRONMENTAL		
Audible Noise		<83dBA at 1 meter
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 <sup>4</sup>		Up to 3,000 feet (914m) / 1.2 C derating for every 1,000ft above 3,000ft
Emissions and Immunity		FCC Class A Sub-Part 15 J of Part 15/N EN 62040-2
Heat Rejection – Online <sup>5</sup>		19.10kW/65,210 BTU/Hr
PHYSICAL DATA		
Height		80in/2,032mm
Width		132.0in/3,353mm
Depth		39in/991mm
Weight		10,971lbs/4,976kg
Cable Entry		Top or Bottom
Safety		UL 1778 Listed. CUL CAN/CSA 22.2 No. 107.1 Listed
ADDITIONAL OPTIONS		
4-wire Input		
Dual Input		
High Resistance Ground (HRG)		
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		



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