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ACTIVE POWER®

A Division of Piller Power Systems Inc.

CLEANSOURCE® HD675 UPS

40%
TCO Savings

12x
Less Likely to Fail

9x
Less Carbon Emissions

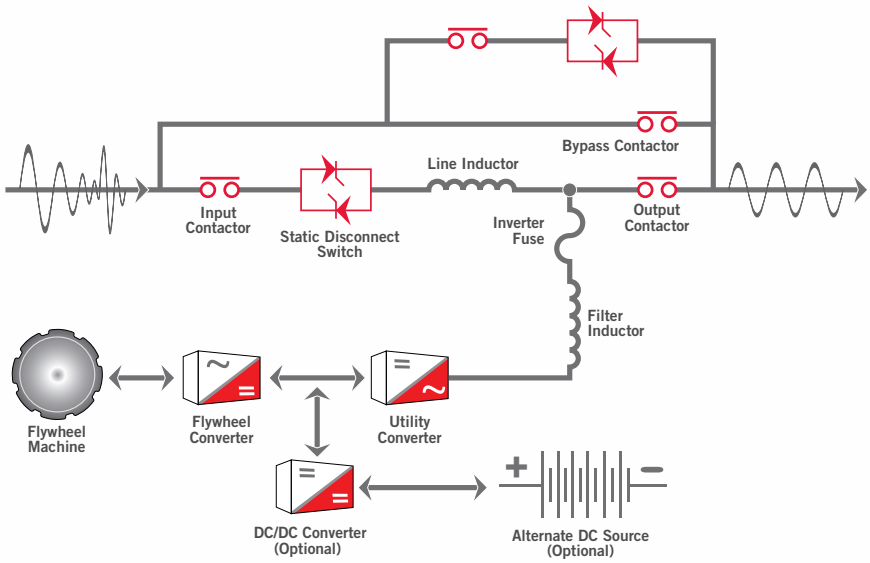
CleanSource HD675 UPS

Active Power's CleanSource HD675 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.

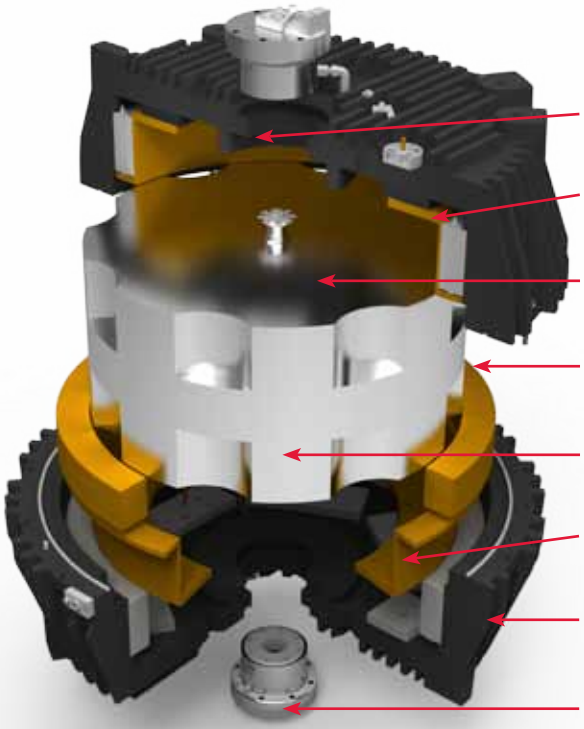
Parallel Online Architecture

The CleanSource HD675 is rated at 750 kVA / 675 kW. Up to 7 UPS systems can be paralleled for redundancy or capacity, supporting over 4.725 MW of backup 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 HD675 UPS is able to protect against all 9 IEEE power disturbances, such as voltage fluctuations, harmonics and complete power outage.



Flywheel Technology



Stores 10.5 MJ of energy • Up to 1 minute of runtime (load dependent)
Wide ambient temperature range – 0°C – 40°C • High density, high efficiency design

Extended Runtime

For applications requiring additional power backup time before switching over to a generator source, CleanSource HD675 can be configured with an Extended Runtime option. This system is composed of Flywheel and standard Valve Regulated Lead Acid (VRLA) Batteries supporting up to 15min of additional runtime. The flywheel is able to eliminate short duration battery discharges, a primary factor in battery degradation.

Service & Maintenance

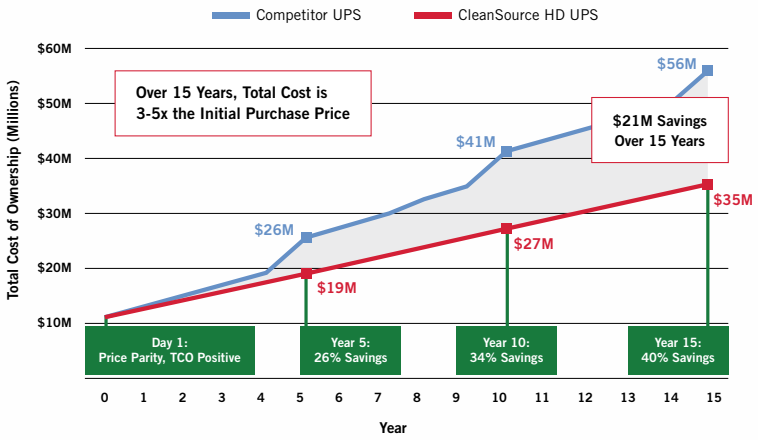
Active Power has designed the CleanSource HD675 with ease of maintenance in mind to ensure your critical power infrastructure operates with the utmost reliability. CleanSource HD675 requires one simple and non-invasive annual maintenance. A streamlined maintenance schedule both restores your UPS to factory-like condition and reduces downtime during its operating life, thereby improving the availability of your operation.

An UNMATCHED Combination

40% TCO Savings

CleanSource HD675 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 to you from day 1 of operation.

- 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



12x Less Likely to Fail

Proven to be 12 times less likely to fail than a battery based system, the integrated flywheel energy storage of the CleanSource HD675 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.

> **"With a dynamic electromechanical system like CleanSource HD, demand failures are highly unlikely. With the flywheel spinning, any changes affecting system health are detected and repairable prior to an outage occurring. Conversely, a battery based system is an electrochemical process and exhibits non-detectable failures even with monitoring and routine maintenance."**
>
> Steve Fairfax | President, MTechnology, Inc.

9x Less Carbon Emissions

CleanSource HD675 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 the product. In comparison to lead-acid batteries, flywheels last up to 20 years, are not toxic, take up 50% less space and require less maintenance.

Active Power CleanSource HD675 UPS

RATING	
Maximum kVA	750
Maximum kW	675

INPUT	
Voltage[1]	480 VAC 3-phase, 3-wire plus ground
Voltage Range	+10% / -15% (programmable)
Frequency	60 Hz +/- 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 Load[2]	<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 Backfeed 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[2]	<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)					
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 (480 VAC)	903A					
Overload Capability-Mains Operation	Cont.	10 min	5 min	1 min	10s	Immediate
	105%	<110%	<125%	<150%	<200%	>200%
UPS Efficiency[3]	96.5% @ 50% load up to 98% @ 100% load					

ENERGY STORAGE				
Type	Integrated Steel Flywheel spinning at 7,700 RPM			
Flywheel Runtime (% Load)	100%	75%	50%	25%
	15s	20s	29s	59s
Flywheel Recharge Time	< 2 min (nominal) at 175kW 3 min (programmable) at 100kW			
Extended Runtime Option	Up to 15 min with VRLA Batteries			

GENERAL	
Parallel Capability	Yes, up to 7 systems = 4.725MW
Internal Static Bypass	Included
Control Panel	10-inch Color Touchscreen Graphical Display
Withstand Capability[4]	65kA
Remote Monitoring	Yes (optional)
External Customer Contacts	8 Input and 8 Outputs (programmable)

ENVIRONMENTAL	
Audible Noise	<83 dBA 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[4]	Up to 3,000 feet (914 meter) 1.2°C derating for every 1000ft above 3000ft
Emissions and Immunity	FCC Class A, Subpart J of Part 15/ EN 62040-2
Heat Rejection - Online[5]	19.10kW / 65,210 BTU/h

PHYSICAL DATA	
Height	80 in (2,032 mm)
Width	132 in (3,353 mm)
Depth	39 in (991 mm)
Weight	10,971 lbs (4,976 kg)
Cable Entry	Top or Bottom

SAFETY
UL 1778 listed CUL CAN/CSA 22.2 No. 107.1

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
Extended Runtime Cabinet

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] EN 62040-3
[3] DC energy storage offline
[4] Design per UL891
[5] 100% load (675kW)

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