



## CLEANSOURCE® PLUS MMS MULTI-MODULE SYSTEM UPS

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250kW TO 2000kW | 400/415V  
FLYWHEEL TECHNOLOGY



# CLEANSOURCE® PLUS MMS MULTI-MODULE SYSTEM UPS

## Overview

CLEANSOURCE® PLUS MMS Modular UPS System offers a wide range of modular and redundant back-up power systems from 250kW to 2000kW.

The built-in flywheel energy storage takes up less than half the footprint of battery-based systems, delivers efficiency up to 98% and lowers total cost of ownership by up to 40% over the life of the product.

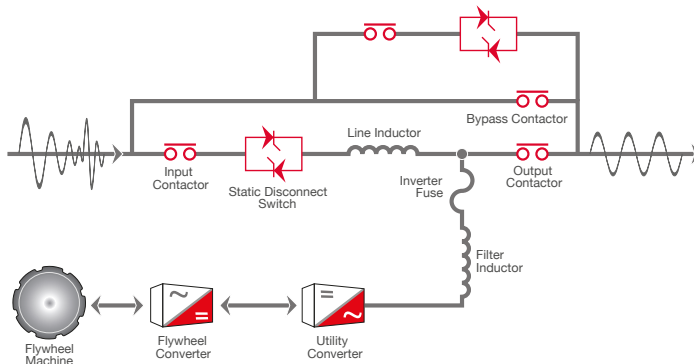
This field-proven technology is based on a highly fault tolerant IGBT architecture designed to protect all critical loads, such as data centers, industrial processes and health care applications. Stored energy will provide ride-through up to 2 minutes depending upon configuration, making the CLEANSOURCE® PLUS MMS a clear alternative to modular static UPS systems reliant on battery storage.

The CLEANSOURCE® PLUS MMS Modular UPS System has more than enough energy storage for diesel starting and synchronization, even when paralleling generating sets. Elimination of batteries saves space and weight, reduces site testing and maintenance and removes the need for routine replacement after a few years of service life.

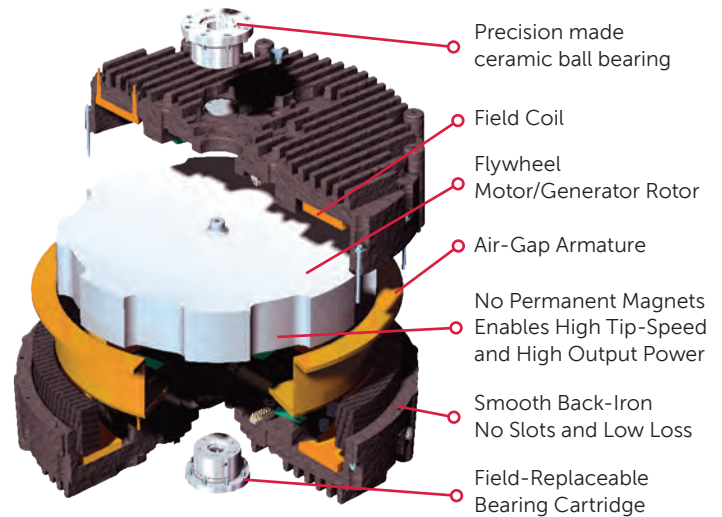
## Parallel Online Architecture

The CLEANSOURCE® PLUS MMS Modular UPS is based on Active Power's Parallel Online Architecture which provides excellent isolation between input and output, while delivering Class 1 voltage regulation and dynamically cancelling effects of non-linear load harmonics.

This topology continuously provides online power protection to your operation, creating a clean sinusoidal output waveform and protecting critical operations against all nine IEEE power disturbances in a power dense, reliable, and energy-efficient package.



## FLYWHEEL TECHNOLOGY



- ▶ STORES 6.2 MJ OF ENERGY
- ▶ UP TO 2 MINS. 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
- ◉ FIELD EXPANDABLE
- ◉ REDUNDANT FANS AND CONTROL POWER UNITS
- ◉ LOWER COOLING REQUIREMENTS
- ◉ LOWER MAINTENANCE AND SERVICE
- ◉ COST-EFFECTIVE INSTALLATION
- ◉ COLOR LCD TOUCH SCREEN DISPLAY
- ◉ REMOTE MONITORING
- ◉ BUILT-IN POWER FACTOR CORRECTION
- ◉ GENERATOR COMPATIBILITY
- ◉ DUAL INPUT AND INTEGRATED MAINTENANCE BYPASS OPTION
- ◉ SEISMIC PROVISIONS – CONSULT FACTORY
- ◉ 20-YEAR DESIGN LIFE
- ◉ 250kW BUILDING BLOCKS EXPANDABLE TO 2000kW

## TCO SAVINGS

LESS EXPENSIVE TO INSTALL  
AND COMMISSION

# 12x

# LESS LIKELY TO FAIL

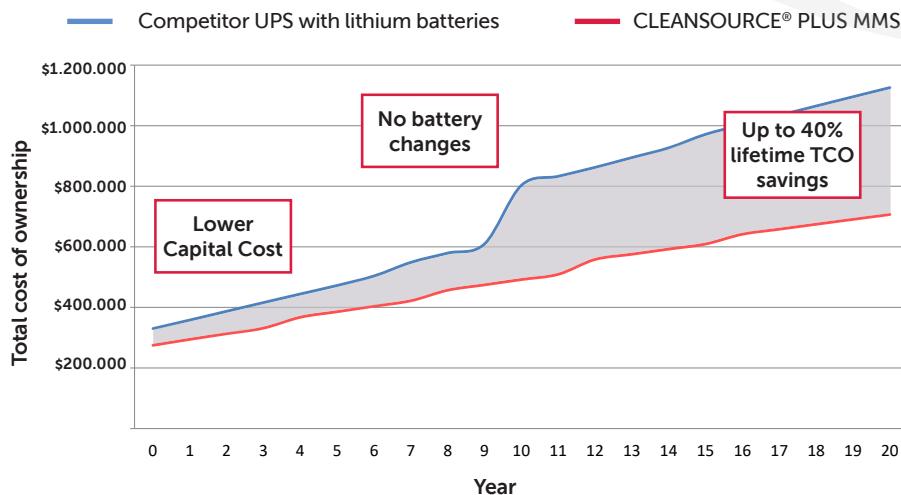
## MINIMIZE RISK AND DISRUPTION FROM MAINTENANCE AND REPLACEMENT

9x

# LESS CARBON EMISSIONS

OVER 40% LESS CARBON  
EMITTED OVER 20 YEARS

Integrated flywheel with 20-year life.



CLEANSOURCE® PLUS MMS UPS are modular and capable of multiple redundancy levels. Customers may readily expand their systems in line with their own growth needs by adding further modules over time. Each system consists of an input/output cabinet (IOC), a system cabinet (SC) and the ability to connect up to four 300kW modules with built-in wireway. In total, 8 modules can operate in a single system, providing up to 2400kW of high efficiency, battery-free UPS power. CLEANSOURCE® PLUS MMS Series UPS can be configured from 250kW up to 2000kW.



250kW TO 2000kW | 400/415V

# PRODUCT SPECIFICATIONS

MODEL		PLUS MMS 250y		PLUS MMS 500y		PLUS MMS 750y		PLUS MMS 1000y	
RATING									
Maximum kVA		275		550		825		1100	
Maximum kW		250		500		750		1000	
INPUT									
Voltage <sup>1</sup>		400/415 VAC 3-phase, 4-wire plus ground (3-wire optional)							
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 <sup>2</sup>	<8% at 100% load							
Current – Nominal (400 VAC)		375A		751A		1014A		1352A	
Current – Nominal (415 VAC)		362A		724A		978A		1303A	
Current – Max. Continuous		450A		900A		1350A		1800A	
Current – Max. Non-Continuous		470A		940A		1410A		1980A	
Surge Withstand		Meets IEEE 587/ANSI C62.41							
Walk-in		1 to 15 seconds (programmable)							
OUTPUT									
Voltage		400/415 VAC 3-phase, 4-wire plus ground (3-wire optional)							
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>2</sup>		<1% linear loads and <5% for 100% non-linear loads							
Frequency		60Hz (mains synchronized) (normal operation +/- 0.2% free running)							
Slew Rate		Adjustable from 0.2Hz/second to 3.0Hz/second							
Current – Nominal (400 VAC)		397A		794A		1191A		1588A	
Current – Nominal (415 VAC)		383A		765A		1148A		1530A	
Overload Capability-Mains Operation				Cont. 105%	10 min <110%	5 min <125%	1 min <150%	10s <200%	lmd. >200%
Efficiency – Energy Storage Online		97.5%							
ENERGY STORAGE									
Type		Integrated Steel Flywheel spinning at 10,000RPM							
Flywheel Run Time (% Load)				100% 24.5s	75% 32s	50% 47s	25% 84s		
Flywheel Recharge Time <sup>3</sup>		< 3 min (nominal) at 65kW							
GENERAL									
Internal Maintenance Bypass Panel		Yes (optional)							
N+1 Redundant Module		Yes (optional)							
OSHPD Seismic Rated		Consult factory							
ENVIRONMENTAL									
Audible Noise		<75 dBA at 1 meter							
Operating Temperature		32 to 104°F (0 to 40°C)							
Storage Temperature		-13 to 158°F (-25 to 70°C)							
Humidity		5% to 95% (non-condensing)							
Altitude		Up to 3,000 feet (914m) / 1.2 C derating for every 1,000ft above 3,000ft							
Emissions and Immunity		FCC Part 15 Class A, EN 62040-2							
Heat Rejection – Online		6.4kW/21,851BTU/Hr		12.8kW/43,701BTU/Hr		20.9kW/71,014BTU/Hr		27.9kW/94,913BTU/Hr	
PHYSICAL DATA									
Height		78.0in/1,981mm Excl. Wireway. 96.0in/2,438mm Inc. Wireway							
Width		127.0in/3,226mm		170in/4,318mm		213.0in/5,410mm		256.0in/6,502mm	
Depth		34.0in/865mm		34.0in/865mm		34.0in/865mm		34.0in/865mm	
Weight		6,750lbs/3,063kg		11,250 lbs/5,103kg		15,750lbs/7,144kg		20,250lbs/9,185kg	
Cable Entry		Top or Bottom							
Safety		UL 1778 Listed. CUL CAN/CSA 22.2 No. 107.1 Listed							

<sup>1</sup> From grounded WYE source. <sup>2</sup> EN 62040-3. <sup>3</sup> kW recharge value is per flywheel.



Active Power Inc. 2128 West Braker Lane, Austin, TX 78758

[activepower.com](http://activepower.com)

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