



CLEANSOURCE[®] PLUS MMS
380/400/415V - Modular UPS Systems



40 %
TCO Savings



12 x
Less likely to fail



9 x
Less carbon emissions

50Hz | 300 - 2400 kW | 380/400/415V

CLEANSOURCE® PLUS MMS

Modular UPS Systems

Overview

CLEANSOURCE® PLUS MMS Modular UPS System offers a wide range of modular and redundant backup power systems from 300kW to 2400kW. 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 healthcare applications. Stored energy will provide ride-through up to 2 minutes depending upon configuration, making the CLEANOURCE® PLUS MMS a clear alternative to modular static UPS systems reliant on battery storage. The CLEANOURCE® 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.



40%
TCO Savings

- ✓ Permanent energy storage
- ✓ Up to 98% energy efficient
- ✓ Less expensive to install and commission



12x
Less Likely to Fail

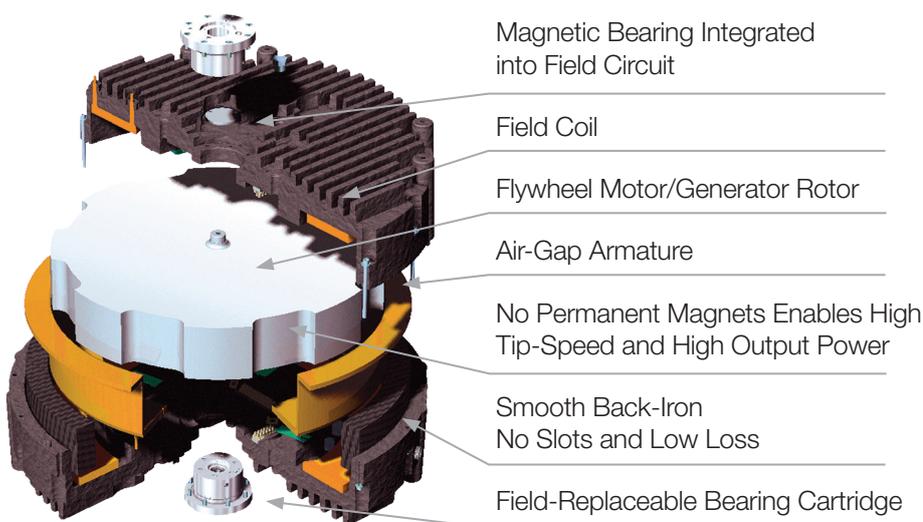
- ✓ Most reliable energy storage system
- ✓ Minimize risk and disruption from maintenance and replacement



9x
Less Carbon Emissions

- ✓ 90% less carbon used in UPS manufacture
- ✓ Over 40% less carbon emitted over 15 years

Flywheel Technology

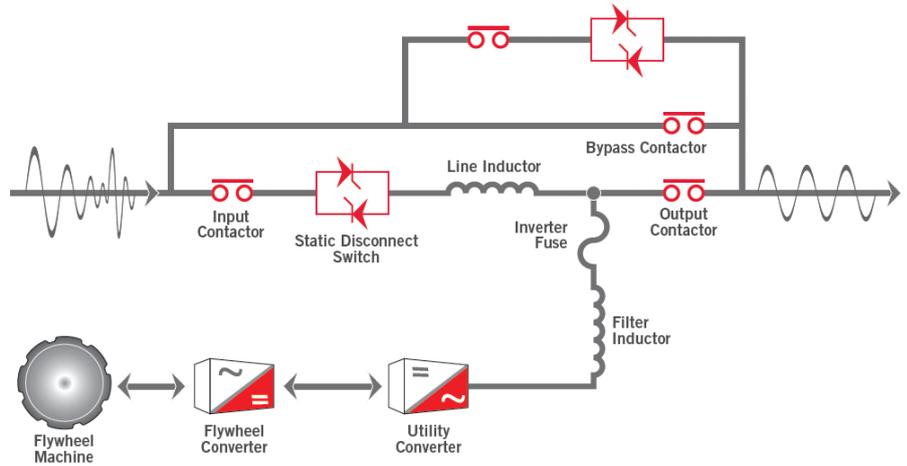


Key Benefits and Features

- ✓ Extended Ride-through up to 2 minutes
- ✓ 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
- ✓ 300kW building blocks expandable to 2400 kW

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.



Modular & Scalable Architecture

CLEANSOURCE® PLUS MMS systems are modular and capable of multiple redundancy levels (N+1, N+2, ...). 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 up to 2400kW

50Hz | 300 - 2400 kW | 380/400/415V

PLUS MMS (300-2400kW)

MODEL	PLUS MMS 300i		PLUS MMS 600i		PLUS MMS 900i		PLUS MMS 1200i	
RATING								
Maximum kVA	333		667		1000		1333	
Maximum kW	300		600		900		1200	
INPUT								
Voltage ¹	380/400/415 VAC 3-phase, 4-wire plus ground							
Voltage Range ³	+10% / -15% (programmable)							
Frequency	50/60 Hz +/- 10% maximum (programmable), +/- 3% (default)							
Power Factor	0.99 at rated load and nominal voltage							
Harmonic Current	Linear Load	<2% at 100% load						
Distortion	Non-Linear ²	<8% at 100% load						
Current - Nominal (380 VAC)	472A	944A	1417A	1889A				
Current - Nominal (400 VAC)	449A	897A	1346A	1794A				
Current - Nominal (415 VAC)	432A	865A	1297A	1730A				
Current - Max. Continuous	530A	1060A	1590A	2120A				
Current - Max. Non-Continuous	560A	1120A	1680A	2240A				
Surge Withstand	Meets IEEE 587/ANSI C62.41							
Walk-In	1 to 15 seconds (programmable)							
OUTPUT								
Voltage	380/400/415 VAC 3-phase, 4-wire plus ground							
Voltage regulation	Steady state ₃	+/-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							
Frequency	50/60 Hz (mains synchronized) (normal operation +/- 0.2% free running)							
Slew Rate	Adjustable from 0.2Hz/second to 3.0Hz/second							
Current - Nominal (380 VAC)	506A	1013A	1519A	2026A				
Current - Nominal (400 VAC)	481A	962A	1443A	1925A				
Current - Nominal (415 VAC)	464A	927A	1391A	1855A				
Overload Capability-Mains Operation	Cont. 10 min 5 min 1 min 10s lmd. 105% <110% <125% <150% <200% >200%							
Efficiency - energy storage online	97.5%							
ENERGY STORAGE								
Type	Integrated Steel Flywheel spinning at 10,000 RPM							
Flywheel Runtime (% Load)	100% 75% 50% 25% 20s 27s 40s 81s							
Flywheel Recharge Time ⁴	< 3 min (nominal) at 65 kW							
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 1000ft above 3000ft							
Emissions and Immunity	EN 62040-2							
Heat Rejection - Online	7.7kW / 26,289BTU/Hr	15.4kW / 52,578BTU/Hr	23.1kW / 78,867BTU/Hr	30.8kW / 105,156BTU/Hr				
PHYSICAL DATA								
Height	78.0in / 1,981mm Excl. Wireway. 96.0in / 2,438mm Inc. Wireway							
Width	127.0 in / 3,226 mm	170 in / 4,318 mm	213.0 in / 5,410 mm	256.0 in / 6,502 mm				
Depth	34.0 in / 865 mm	34.0 in / 865 mm	34.0 in / 865 mm	34.0 in / 865 mm				
Weight	6,750 lbs / 3,063 kg	11,250 lbs / 5,103 kg	15,750 lbs / 7,144 kg	20,250 lbs / 9185 kg				
Cable Entry	Top or Bottom							
Safety	EN 62040-1							

¹ From grounded WYE source. ² EN 62040-3. ³ +/-10% AT 380 VAC. ⁴ kW recharge value is per flywheel.



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