



PILLER

Power Systems



CLEANSOURCE® XT MMS

380/400/415V - 50/60Hz MODULAR UPS SYSTEMS



40%
TCO Savings



12x
Less Likely
to Fail

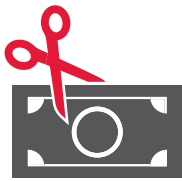


9x
Less Carbon
Emissions

CLEANSOURCE® XT MMS

MODULAR UPS SYSTEMS

CLEANSOURCE® XT Modular UPS System offers a wide range of modular and redundant backup power systems from 225kW to 1800kW. 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® XT MMS a clear alternative to modular static UPS systems reliant on battery storage. The XT 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



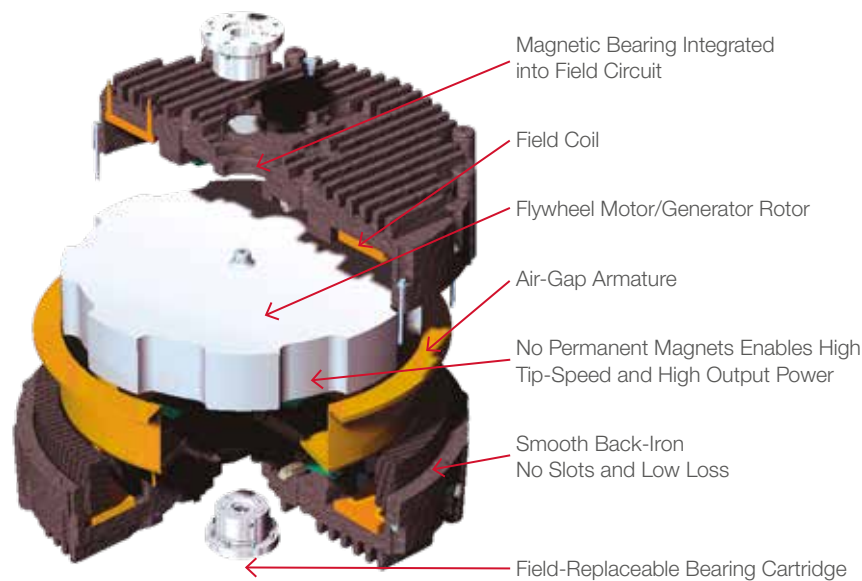
12x
Less Likely to Fail



9x
Less Carbon Emissions

- Permanent energy storage
- Up to 98% energy efficient
- Less expensive to install and commission
- Most reliable energy storage system
- Minimize risk and disruption from maintenance and replacement
- 90% less carbon used in UPS manufacture
- Over 40% less carbon emitted over 15 years

FLYWHEEL TECHNOLOGY



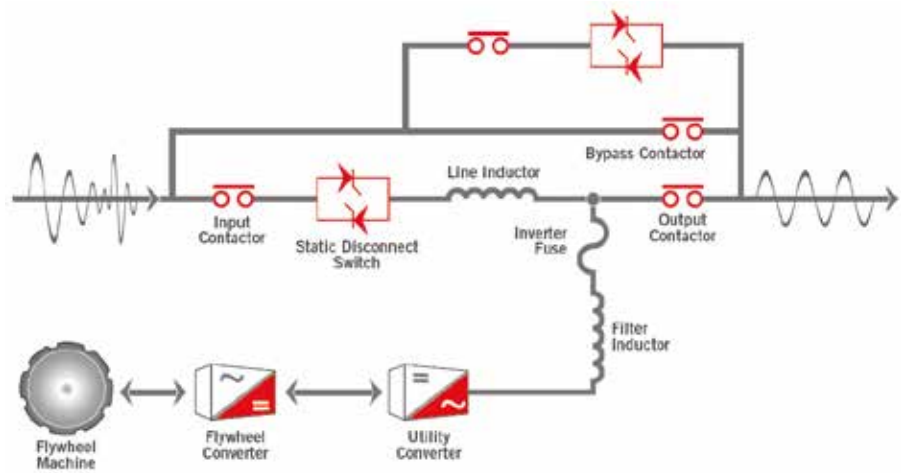
High density, high efficiency design

KEY BENEFITS AND FEATURES

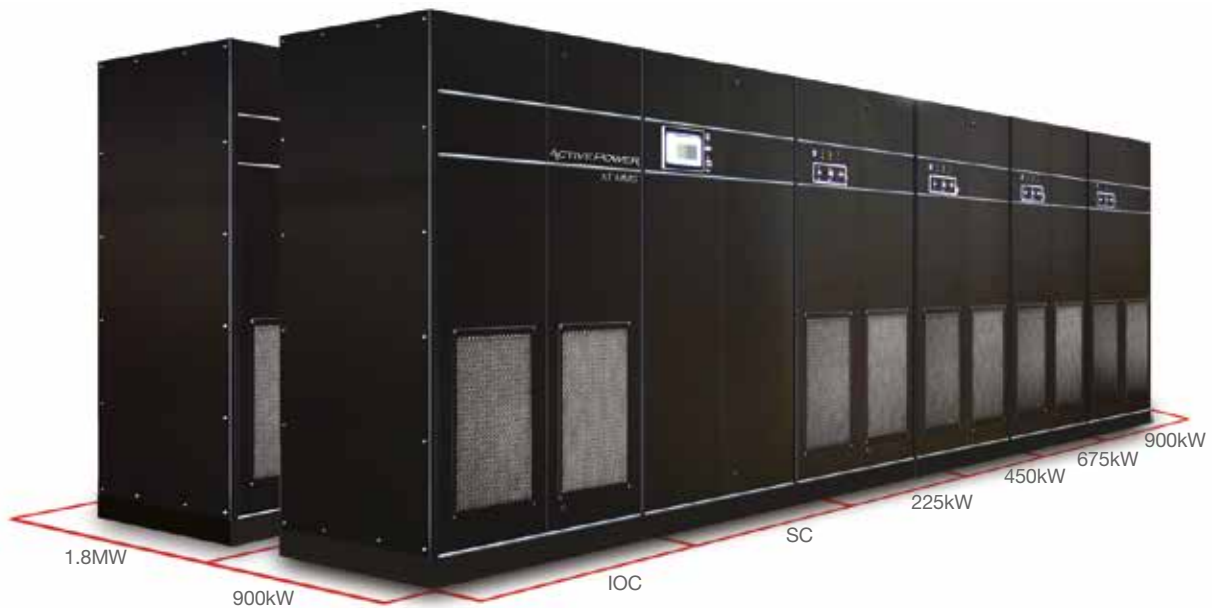
- Extended Ride-through up to 2 minutes
- Up to 98% efficient
- Half the space of legacy battery based UPS
- Field expandable
- Redundant fans and control power units
- Lower cooling requirements
- Lower maintenance and service
- Cost-effective installation
- Color LCD touch-screen display
- Remote monitoring
- Built-in power factor correction
- Generator compatibility
- Dual input and integrated maintenance bypass option
- Seismic provisions – consult factory
- 20-year design life
- 225kW building blocks expandable to 1.8MW

PARALLEL ONLINE ARCHITECTURE

The CLEANSOURCE® XT 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® XT MMS G and Z series UPS 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 225kW modules with built in wireway. In total, 8 modules can operate in a single system, providing up to 1800kW of high efficiency, batteryfree UPS power.

- CLEANSOURCE® XT MMS G Series UPS can be configured up to 450kW N+1
- CLEANSOURCE® XT MMS Z Series UPS can be configured up to 1800kW

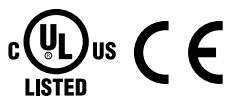
CLEANSOURCE® XT MMS PRODUCT LINE

XT G-Series (225-450kW)

XT Z-Series (225-1800kW)

MODEL	XT225iG		XT450iG		XT225iZ		XT450iZ		XT675iZ		XT900iZ	
RATING (0.9 POWER FACTOR)												
Maximum kVA	250		500		250		500		750		1000	
Maximum kW	225		450		225		450		675		900	
INPUT												
Voltage ¹	380/400/415 VAC 3-phase, 4-wire plus ground				380/400/415 VAC 3-phase, 4-wire plus ground							
Voltage Range ⁴	+10% / -15% (programmable)				+10% / -15% (programmable)							
Frequency	50/60 Hz +/- 10% maximum (programmable) +/- 3% (default)				50/60 Hz +/- 10% maximum (programmable) +/- 3% (default)							
Power Factor	0.99 at rated load and nominal voltage				0.99 at rated load and nominal voltage							
Harmonic Current Distortion												
Linear Load	<2% at 100% load				<2% at 100% load							
Non-Linear Load	<8% at 100% load				<8% at 100% load							
Current - Nominal (380 VAC)	356A		712A		356A		712A		1068A		1423A	
Current - Nominal (400 VAC)	338A		676A		338A		676A		1014A		1352A	
Current - Nominal (415 VAC)	326A		652A		326A		652A		978A		1303A	
Current - Max. Continuous	400A		800A		400A		800A		1200A		1600A	
Current - Max. Non-Continuous	420A		840A		420A		840A		1260A		1680A	
Surge Withstand	Meets IEEE 587/ANSI C62.41				Meets IEEE 587/ANSI C62.41							
Walk-In	1 to 15 seconds (programmable)				1 to 15 seconds (programmable)							
OUTPUT												
Voltage	380/400/415 VAC 3-phase, 4-wire plus ground				380/400/415 VAC 3-phase, 4-wire plus ground							
Voltage regulation												
Steady state	+/-1% for +/-10% input				+/-1% for +/-10% input							
Flywheel mode	+/-1% steady state				+/-1% steady state							
Transient	+/-1% within 50 mSec for 100% load step				+/-1% within 50 mSec for 100% load step							
Voltage distortion ²	<1% linear loads and <5% for 100% non-linear loads				<1% linear loads and <5% for 100% non-linear loads							
Frequency	50/60Hz (mains synchronized) (normal operation +/- 0.2% free running)				50/60Hz (mains synchronized) (normal operation +/- 0.2% free running)							
Slew Rate	Adjustable from 0.2Hz/second to 3.0Hz/second				Adjustable from 0.2Hz/second to 3.0Hz/second							
Current - Nominal (380 VAC)	380A		760A		380A		760A		1140A		1519A	
Current - Nominal (400 VAC)	361A		722A		361A		722A		1083A		1443A	
Current - Nominal (415 VAC)	348A		696A		348A		696A		1043A		1391A	
Overload Capability-Mains Operation	Continuously	10 Min	5 Min	60 Sec	10 Sec	Immediate	Continuously	10 Min	5 Min	60 Sec	10 Sec	Immediate
UPS Efficiency - Online	105%	110%	125%	150%	200%	>200%	105%	110%	125%	150%	200%	>200%
97%												
ENERGY STORAGE												
Type	Integrated Steel Flywheel spinning at 10,000 RPM				Integrated Steel Flywheel spinning at 10,000 RPM							
Flywheel Runtime (% Load)	100%	75%	50%	25%	100%	75%	50%	25%	100%	75%	50%	25%
	27s	36s	52s	94s	27s	36s	52s	94s	27s	36s	52s	94s
Flywheel Recharge Time ³	< 3 min (nominal) at 65 kW				< 3 min (nominal) at 65 kW							
GENERAL												
Internal Maintenance Bypass Panel	Yes (optional)				No (external only)							
N+1 Redundant Module	Yes (optional)				Yes (optional)							
OSHDP Seismic Rated	Consult factory				Consult factory							
ENVIRONMENTAL												
Audible Noise	<80 dBA at 1 meter				<80 dBA at 1 meter							
Operating Temperature	32 to 104° F (0 to 40°C)				32 to 104° F (0 to 40°C)							
Storage Temperature	-13 to 158° F (-25 to 70° C)				-13 to 158° F (-25 to 70° C)							
Humidity	5% to 95% (non-condensing)				5% to 95% (non-condensing)							
Altitude	Up to 3,000 feet (914 meter) / 1.2 C derating for every 1000ft above 3000ft				Up to 3,000 feet (914 meter) / 1.2 C derating for every 1000ft above 3000ft							
Emissions and Immunity	FCC Class A, EN 62040-2				FCC Class A, EN 62040-2							
Heat Rejection - Online	6.9kW / 23,558BTU/Hr		13.9kW / 47,457BTU/Hr		6.9kW / 23,558BTU/Hr		13.9kW / 47,457BTU/Hr		20.8kW / 71,014BTU/Hr		27.8kW / 94,913BTU/Hr	
PHYSICAL DATA												
Height	78.0 in / 1,981 mm Excl. Wireway. 96.0 in / 2,438 mm Inc. Wireway				78.0 in / 1,981 mm Excl. Wireway. 96.0 in / 2,438 mm Inc. Wireway							
Width	127.0 in / 3,226 mm		170.0 in / 4,318 mm		127.0 in / 3,226 mm		170.0 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		34.0 in / 865 mm		34.0 in / 865 mm	
Weight	6,375 lbs / 2,892 kg		10,875 lbs / 4,933 kg		6,750 lbs / 3,063 kg		11,250 lbs / 5,103 kg		15,750 lbs / 7,144 kg		20,250 lbs / 9,185 kg	
Cable Entry	Top or Bottom				Top or Bottom							
SAFETY	EN 62040-1				EN 62040-1							

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



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