



DRIVEN BY MOTION

ACTIVE POWER

A Division of Piller Power Systems Inc.

CLEANSOURCE® UPS MULTI-MODULE SYSTEMS

G-Series (250 - 500 kW)

Z-Series (250 - 1000 kW)



40%
TCO Savings



12X
Less Likely
to Fail



9X
Less Carbon
Emissions

CLEANSOURCE UPS MULTI-MODULE SYSTEMS

CleanSource UPS Multi-Module System (MMS) offers a wide range of modular and redundant backup power systems from 250 kW to 1000 kW. 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. Active Power's CleanSource UPS MMS can also be expanded into multi-megawatt configurations with paralleling capability for capacity and redundancy.



40%
TCO Savings

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



12x
Less Likely to Fail

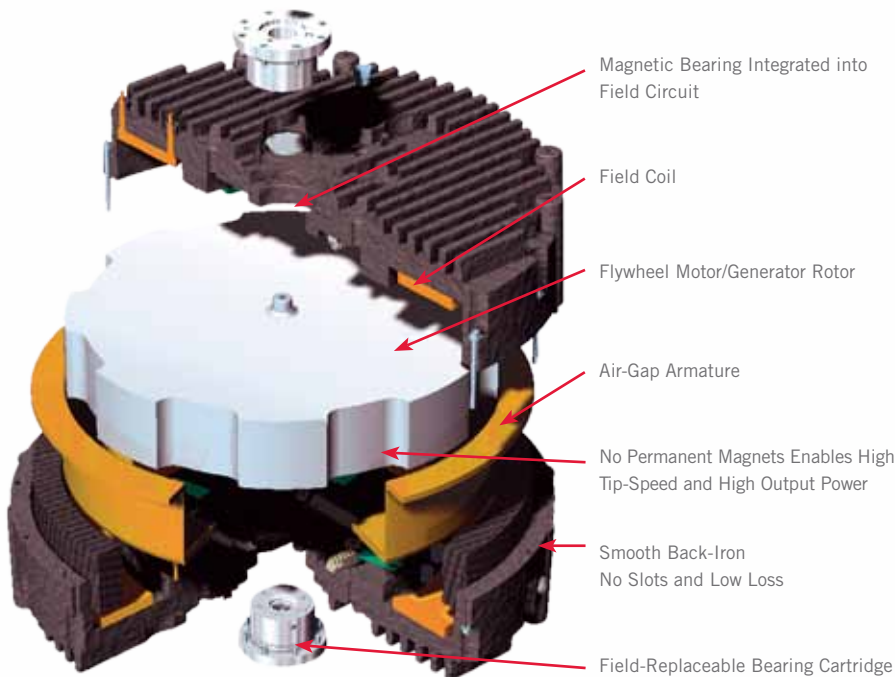
- Most reliable energy storage system
- Minimize risk and disruption from maintenance and replacement



9x
Less Carbon Emissions

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

FLYWHEEL TECHNOLOGY



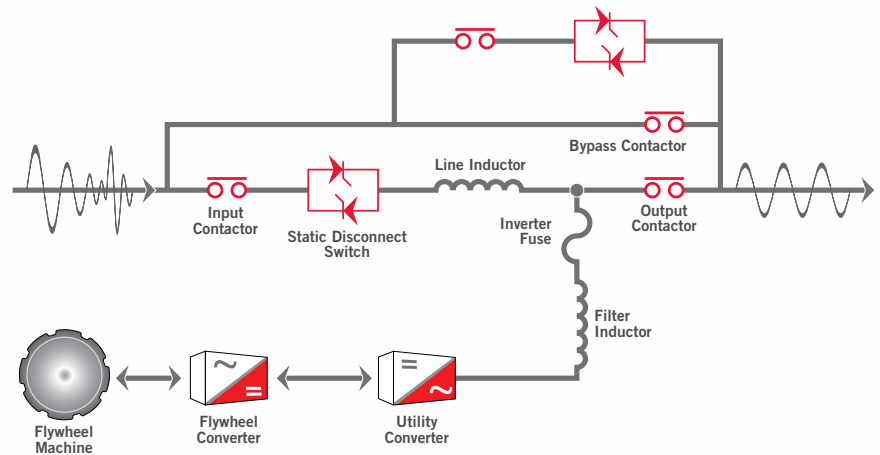
Stores 4.3 MJ of energy • Up to 1 minute of runtime (load dependent)
Wide ambient temperature range – 0°C – 40°C • High density, high efficiency design

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 installation costs
- Less heat rejection
- Lower cooling requirements
- Lower maintenance and service
- Cost-effective installation
- Color LCD touch-screen display
- Remote monitoring capability
- Built-in power factor correction
- Generator compatibility
- Dual input and integrated maintenance
- bypass option
- Seismic provisions (optional)
- 20-year design life

PARALLEL ONLINE ARCHITECTURE

The CleanSource UPS MMS 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 G and Z Series UPS systems are modular and redundant, allowing customers to expand the system as needed to increase power capacity or add redundancy. Each system consists of an input / output cabinet (IOC), a system cabinet (SC), capability to connect up to four 250 kW multi module units (MMU) and built-in top or bottom wireway for cable routing.

- CleanSource G Series UPS can be configured up to 500 kW N+1
- CleanSource Z Series UPS can be configured up to 750 kW N+1 or 1000 kW

CleanSource G or Z Series UPS can also be paralleled to create multi-megawatt deployments for large applications. Up to 7 systems can be paralleled together using Active Power's paralleling hub and network cabling.

CLEANSOURCE® UPS PRODUCT LINE

Multi-Module Systems: G-Series (250-500 kW)

Multi-Module Systems: Z-Series (250-1000 kW)

| MODEL | UPS 300G | | UPS 600G | | UPS 300Z | | UPS 600Z | | UPS 900Z | | UPS 1200Z | |
|--|---|--------|-----------------------|------|---|------------|-----------------------|-------|-----------------------|---------|-----------------------|-----|
| RATING (0.9 POWER FACTOR) | | | | | | | | | | | | |
| Maximum kVA | 278 | | 556 | | 278 | | 556 | | 833 | | 1111 | |
| Maximum kW | 250 | | 500 | | 250 | | 500 | | 750 | | 1000 | |
| INPUT | | | | | | | | | | | | |
| Voltage ¹ | 480 VAC 3-phase, 3-wire plus ground (4-wire optional) | | | | 480 VAC 3-phase, 3-wire plus ground (4-wire optional) | | | | | | | |
| Voltage Range | +10% / -15% (programmable) | | | | +10% / -15% (programmable) | | | | | | | |
| Frequency | 60 Hz +/- 10% maximum (programmable) +/- 3% (default) | | | | 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 | <3% at 100% load | | | | <3% at 100% load | | | | | | | |
| Non-Linear Load | <8% at 100% load | | | | <8% at 100% load | | | | | | | |
| Current - Nominal (480 VAC) | 315A | | 624A | | 315 | | 624 | | 935 | | 1,247 | |
| Current - Max. Continuous | 400A | | 800A | | 400 | | 800 | | 1,200 | | 1,600 | |
| Current - Max. Non-Continuous | 420A | | 840A | | 420 | | 840 | | 1,260 | | 1,680 | |
| 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 | 480 VAC 3-phase, 3-wire plus ground | | | | 480 VAC 3-phase, 3-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 distortion² | | | | | | | | | | | | |
| Frequency | <3% linear loads and <5% for 100% non-linear loads | | | | <3% linear loads and <5% for 100% non-linear loads | | | | | | | |
| Slew Rate | Adjustable from 0.2Hz/second to 3.0Hz/second | | | | Adjustable from 0.2Hz/second to 3.0Hz/second | | | | | | | |
| Current - Nominal (480 VAC) | 335A | | 669A | | 335 | | 669 | | 1,003 | | 1,338 | |
| Overload Capability-Mains Operation | | | | | | | | | | | | |
| | Continuously | 10 Min | 2 Min | 30s | 10 mSec | Continuous | 10 Min | 2 Min | 30 Sec | 10 mSec | | |
| | 105% | 125% | 150% | 200% | >200% | 105% | 125% | 150% | 200% | >200% | | |
| UPS Efficiency ³ | 97% | | 98% | | 97% | | 98% | | 98% | | | |
| ENERGY STORAGE | | | | | | | | | | | | |
| Type | Integrated Steel Flywheel spinning at 7,700 RPM | | | | Integrated Steel Flywheel spinning at 7,700 RPM | | | | | | | |
| Flywheel Runtime (% Load) | 100% | 75% | 50% | 25% | 100% | 75% | 50% | 25% | 100% | 75% | 50% | 25% |
| | 14s | 18s | 27s | 50s | 14s | 18s | 27s | 50s | 14s | 18s | 27s | 50s |
| Flywheel Recharge Time ⁴ | < 2 min (nominal) at 75kW / 3 min (programmable) at 30kW | | | | < 2 min (nominal) at 75kW / 3 min (programmable) at 30kW | | | | | | | |
| GENERAL | | | | | | | | | | | | |
| Parallel Capability | Yes, up to 7 systems | | | | Yes, up to 7 systems | | | | | | | |
| Internal Maintenance Bypass Panel | Yes (optional) | | | | No (external only) | | | | | | | |
| N+1 Redundant Module | Yes (optional) | | | | Yes (optional) | | | | | | | |
| OSHPD Seismic Rated | No | | | | Yes (optional) | | | | | | | |
| ENVIRONMENTAL | | | | | | | | | | | | |
| Audible Noise | <72 dBA at 1 meter | | | | <72 dBA at 1 meter | | <75 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, Subpart J of Part 15/ EN 62040-2 | | | | FCC Class A, Subpart J of Part 15/ EN 62040-2 | | | | | | | |
| Heat Rejection- Online | 8.7kW / 29,612BTU/Hr | | 12.3kW / 41,983BTU/Hr | | 8.7kW / 29,612BTU/Hr | | 12.3kW / 41,983BTU/Hr | | 18.4kW / 62,975BTU/Hr | | 24.6kW / 83,967BTU/Hr | |
| PHYSICAL DATA | | | | | | | | | | | | |
| Height | 96.0 in / 2,438 mm | | 96.0 in / 2,438 mm | | 96.0 in / 2,438 mm | | 96.0 in / 2,438 mm | | 96.0 in / 2,438 mm | | 96.0 in / 2,438 mm | |
| 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 | UL 1778 Listed CUL CAN/CSA 22.2 No. 107.1 Listed | | | | UL 1778 Listed CUL CAN/CSA 22.2 No. 107.1 Listed | | | | | | | |

¹ From grounded WYE source
² EN 62040-3
³ DC energy storage offline
⁴ kW recharge value is per flywheel



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