



Compagnia Tecnica Motori S.p.A.

BATTERY FREE UPS SYSTEMS

ACTIVE POWER



CleanSource HD 625



SYSTEM FEATURES

- Rugged, on-line & fault-tolerant UPS
- Highly efficient UPS architecture
- Handles multi-load characteristics
- Cost-effective lifecycle cost
- Modular, scalable and redundant architecture
- Predictable flywheel energy storage
- 20-year design life
- Low service and maintenance
- Smallest available footprint
- Rapid recharge time
- Predictive failure analysis
- Wide operating temperature range
- Remote and local monitoring
- Fault compartmentalization
- Simple and cost-effective installation
- Field-proven reliability
- No hazardous waste material

MEETING BUSINESS DEMANDS

- Highest operational efficiency
- Unobtrusive preventative maintenance
- 24/7 on-line performance monitoring
- Operational reporting system
- Fully expandable
- Smallest system footprint
- Paralleling and synchronizing ability as standard
- Fast acting bypass
- Unity input power factor
- Sinusoidal input current

Flywheel Technology

Replaceable Bearing

Field Windings

Steel Flywheel,
Motor-generator Rotor

Armature Windings

Operates in Vacuum



■ Lower TCO

The CleanSource UPS enable our solutions to have a competitive first cost, reduced installation and setup costs, and significantly reduced operating expenses due to higher energy efficiency and permanent energy storage. All told our solution will reduce TCO up to 40%, over the life of the critical power system, compared to a design using battery based UPSs.

■ 90% Less Environmental Impact

Flywheel's higher energy efficiency and permanent energy storage, make the CleanSource UPS solution the green one. Flywheel will use 90% less carbon during manufacture than traditional batteries. CleanSource UPS is up to 98% energy efficient, reducing the ongoing carbon emissions and resulting pollution generated from wasting electricity. And because it has permanent energy storage there are no toxic chemical batteries in your facility, nor the need to install, remove, and recycle thousands of kilograms of batteries multiple times over the system's life.



■ 12x Less Likely to Fail

The integrated flywheel energy storage at the core of the CleanSource UPS makes it inherently reliable, delivering predictable, consistent backup power. The normal state of CleanSource UPS is with the flywheel spinning constantly, storing kinetic energy. When called upon during a utility outage, the flywheel is ready to assume the load. By contrast, battery failures are the leading cause of UPS load loss and system downtime, because failures are inherently difficult to predict. A study by Mtechnology, Inc. showed that the CleanSource 750HD UPS is 12 times less likely to fail compared to a traditional UPS with batteries, dramatically improving the overall reliability of the critical power system.

■ A Great Fit

Flywheels are a better fit for your facility than battery based solutions. Our compact footprint and high ambient operating range (up to 40°C) enable you to install it in locations where other systems can't be – such as directly on your factory floor. And our low maintenance requirements keep you up and running longer and reduce disruption and risk.



Critical Power Solutions

CTM's integrated continuous power systems are specifically designed to handle the demands of high tech facilities requiring the highest power quality available. Diesel UPS Systems provide an ideal solution for maximising up time, useable floor space and operational efficiency.

Designed to offer a highly flexible architecture to your constantly changing environment, CTM's Diesel UPS Systems are available in a series of standard formats and are constructed to be fully modular, enabling you to expand your infrastructure on demand.

Space saving, unobtrusive and unmatched in efficiency; ready and waiting to respond to the unexpected.

Our Diesel UPS Systems use Active Power's flywheel based kinetic energy storage and is fully digitally integrated with high performance diesel engines to offer class leading performance.

Our systems are highly flexible and can power your facilities from 225kW to multi-Mega Watt, expanding in affordable and easily managed steps. This modular product provides the ability to scale for power and redundancy independent of engine configuration so you can choose redundancy levels to suit your requirements.

Engine power can be utilised to tailor fit load requirements. The solution offers a high degree of permutations for engine configuration to suit modular expansion, mains synchronization, peak lopping and exporting of power to the utility.

Every CTM Diesel UPS System incorporates a redundant engine starting system to complement the engine starter batteries. The device named "GenSTART" guarantees maximum starting power with 1725 cold cranking amps and is directly supplied from the Clean Source UPS.

"GenSTART" is completely maintenance free and can start the system even if the starter batteries are disconnected or damaged, a further demonstration of the attention to detail that has gone into the design of this highly reliable continuous power system.

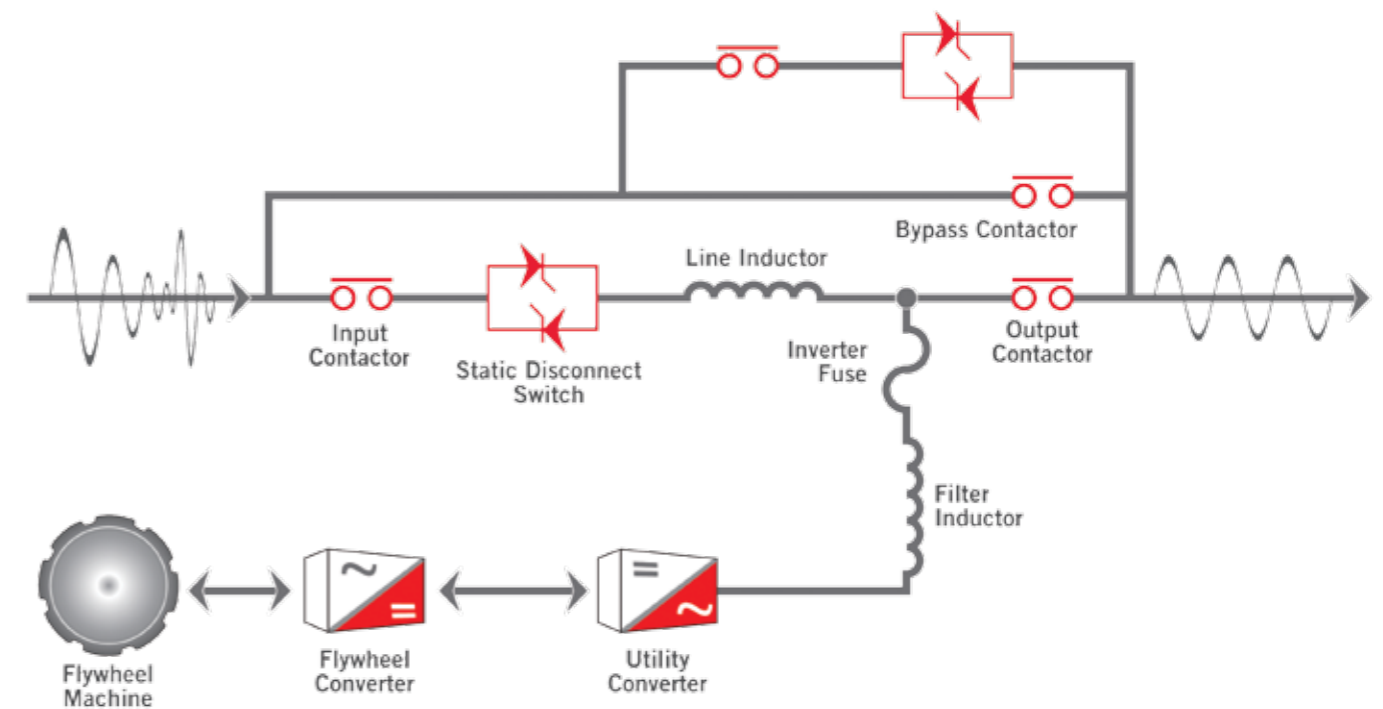
DATA CENTERS



Critical Power Solutions

CleanSource UPS

Schematic diagram



INDUSTRIAL & MANUFACTURING



HEALTHCARE



Compagnia Tecnica Motori S.p.A.

Since 1958



Power box

Containerised systems

Short on space? Want to maximise revenue generating floor-space within your facility? Need a fully operational system fast?

CTM can build you the most compact, complete power system available. Your pre-fabricated plant room will be fully designed and customised to your specifications and filled-out with your choice of engine, switchgear and architectural finishes.

Off site manufacturing and testing ensures minimal disruption to your site with rapid on site installation and commissioning.

These measures ensure a seamless power transfer for powering up. The component options are endless and the containerised system can be positioned in any number of areas around your site e.g. the roof, redundant loading bays, secure compounds, even parking areas.

Need to relocate? This system can be disconnected, transported to a new site, and be fully operational in a matter of hours.

Simple, streamlined and cost effective power delivery

With Diesel UPS System your standards are ours. It is the first solution that includes your complete, individual requirements for switchgear incorporated into a streamlined, space saving package. We assess your needs and design an integrated system that includes but is not limited to: fixed pattern or withdrawable circuit breakers, PLC control, distribution, pan assemblies and power distribution units. Switchgear is connected to the UPS system via busbar arrangement giving an attractive, clean-line, space saving solution.



Compagnia Tecnica Motori S.p.A.

Since 1958

Technical data CleanSource UPS

Model	SINGLE MODULE SYSTEM			MULTI MODULE SYSTEM		
	CS 250i	CS 625 HD	CS 250iz	CS 500iz	CS 750 iz	CS 1000iz
Rated Power	250 kVA 225 kW	625 kVA 625 kW	250 kVA 225 kW	500 kVA 450 kW	750 kVA 675 kW	1000 kVA 900 kW
Redundancy N+1 ¹	NO	NO	YES	YES	YES	YES
Parallellability	NO	YES	YES	YES	YES	YES
Number of Fly Wheels	1	1	1	2	3	4

INPUT						
Rated Voltage	380/400/415 Vac 3 Ph +N					
Voltage Range	+ 10% / -15% (programmable) ± 10% @ 380 Vac					
Frequency ²	50 Hz ± 10% maX (programmable) ±3% (default)					
Power factor	0,99 @ rated load and nominal voltage					
Harmonic Current Distortion (THD)						
Linear Load	< 3% @ 100% load	< 2% @ 100% load	< 3% @ 100% load			
Non-Linear Load ³	< 8% @ 100% load	< 5% @ 100% load	< 8% @ 100% load			
Current @ 400 Vac	337 A	940 A	337 A	674 A	1.011 A	1.348 A
Current Max. non continuous	420 A	1200 A	420 A	840 A	1.260 A	1.680 A
Surge Withstand	Meets IEEE 587/ANSI C62.41					
Avviamento progressivo	1 a 15 secondi (programmabile)					

OUTPUT						
Rated Voltage	380/400/415 Vac 3 Ph + N					
Voltage Accuracy						
Steady State	± 1% per ±10% input					
Flywheel mode	± 1%					
Transient	± 1% within 50 ms for 100% load step					
Voltage Distortion	< 3% Linear Load	< 1% Linear Load	< 3% Linear Load			
	< 5% @ 100% non linear Load					
Frequency	50 Hz (Mains Synchronized Normal Operation) ± 0,2% (Free Running)					
Slew rate	Adjustable from 0,2 to 3,0 Hz/s					
Current – Nominal @ 400 Vac	361 A	903 A	361 A	723 A	1.084 A	1.445 A
Overload capability	Continuous up to 105% 5 min up to 125% 30 s. up to 200%	Continuous up to 105% 5 min up to 125% 10 s. up to 200%	Continuous up to 105% 5 min. up to 125% 30 s. up to 200%			
Efficiency ⁴	97,6%	97%	97,4%	97,8%	98%	98%
Backup Time						
@ 100% Load	15 s	16 s	14 s			
@ 75% Load	20 s	21 s	19 s			
@ 50% Load	30 s	31 s	28 s			
@ 25% Load	56 s	58 s	52 s			

ENVIRONMENTAL						
Audible Noise	<72 dBA @ 1m	<83 dBA @ 1m	<75 dBA @ 1m			
Operating Temperature	0° C to 40° C					
Storage Temperature	- 25° C to +70° C					
Humidity	5% to 95% (non condensing)					
Emissions and Immunity	EN 50091-2					
Maximum Heat Rejection	5,84 kW	19,78 kW	5,8 kW	11,7 kW	17,5 kW	23,4 kW
Air Flow m ³ /h	2.400 m ³ /h	10.500 m ³ /h	1.800 m ³ /h	3.000 m ³ /h	4.200 m ³ /h	5.400 m ³ /h
Cable Entry	Top / Bottom					
Safety	EN 62040-1-1					

PHYSICAL DATA (control switchboard cabinet excluded)						
Height (w/o wireway kit)	1.981 mm	2.032 mm	1.981 mm			
Width	1.641 mm	3.353 mm	3.225 mm	4.318 mm	5.410 mm	6.502 mm
Depth	865 mm	991 mm	865 mm			
Weight	2.500 kg	5.375 kg	3.365 kg	5.435 kg	7.475 kg	9.520 kg

¹ Adding one more fly wheel module - ² 60 Hz Available - ³ EN59001-3 - ⁴ DC Energy storage off-line

energy at work



Since 1958

Compagnia Tecnica Motori S.p.A.

Compagnia Tecnica Motori Spa 
Via Magellano, 1
20090 Cesano Boscone (Milano)

Tel. +39-0245058.1
Fax +39-0245058.260 / 262
ctm@ctm.it



www.ctm.it