

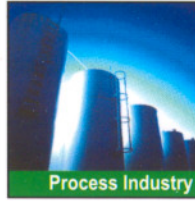
Diesel UPS/CPS systems

Uninterruptible, Continuous and conditioned power supply for mission critical applications

For critical applications, a continuous power supply is a necessity. This is the world of Hitec Power Protection. Our challenge is to provide customers with a solution for their power quality problems before any losses occur.

As a global supplier of uninterruptible power supply (UPS) systems, Hitec Power Protection has become an Industry leader in providing power quality solutions to mission critical Infrastructures and processes. Our commitment to excellence has created an unmatched reputation and allows companies to partner with us more easily for their long term and ongoing power solution.

From data centers to semiconductor fabrication, from telecommunication sites to processing plants, Hitec Power Protection ensures that these types of processes and Infrastructures maintain their power reliability from the shortest interruption to even the longest power outages.



Process Industry



Semiconductor



Data center



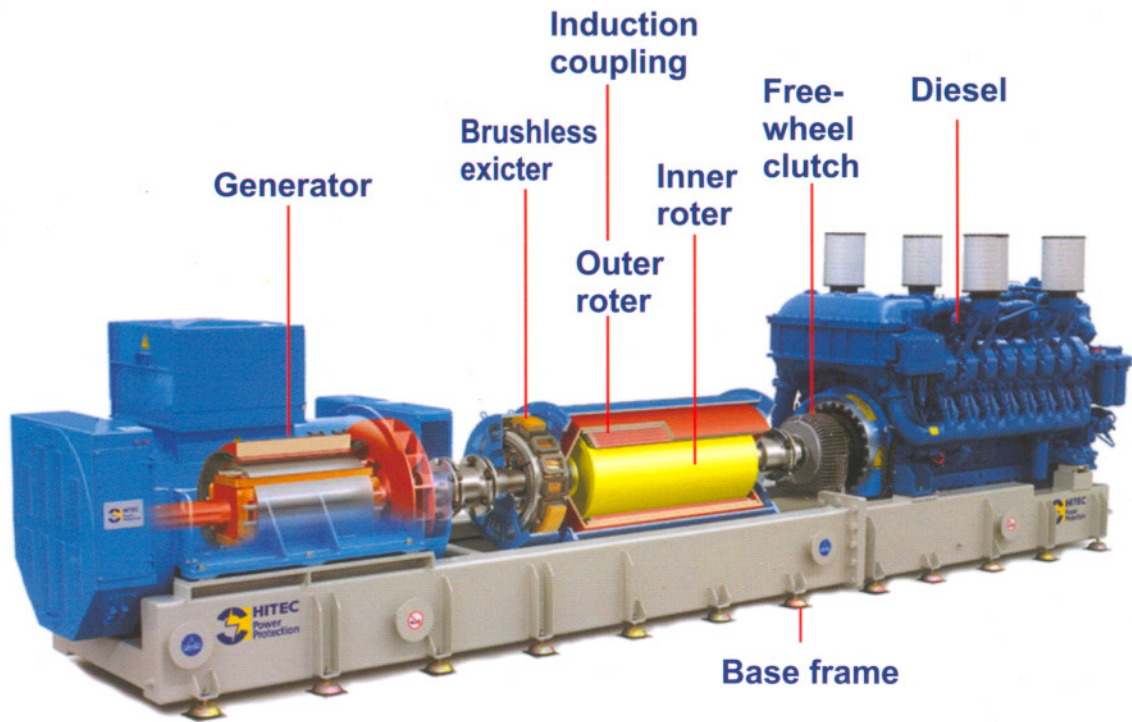
Aviation



Telecom



Other



In utility mode, the GENERATOR acts as a synchronous condenser (no-load over-excited AC motor) That maintains the speed of the outer rotor (red) of the induction coupling. It supplies reactive power to the load and works together with the reactor as an active filter. In the event of a utility power failure the generator first driven by the induction coupling, then by the diesel engine, supplies power to the critical load.

The DIESEL ENGINE sits idle in utility mode. The engine is pre-heated and pre-lubricated to assure a fast and reliable start. Once utility power fails or falls outside of its tolerance, the diesel is issued a start command and ramps up to full speed and power.

In the meantime the induction coupling supplies the needed power to the critical load. Total transfer time is approximately 5...10 seconds.

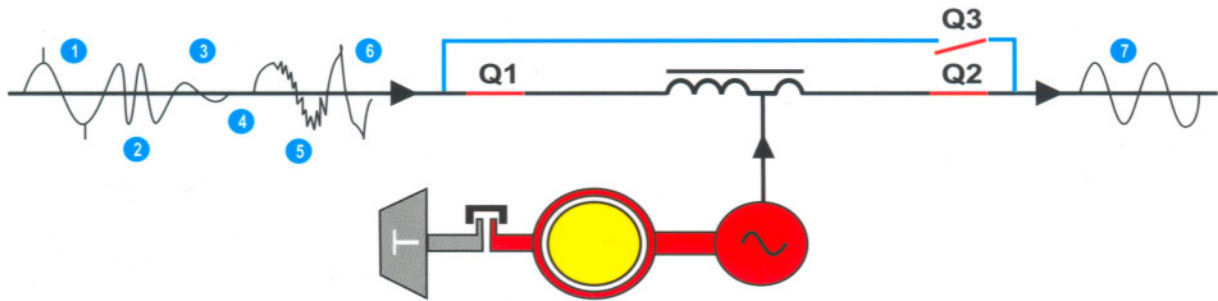
The FREE-WHEEL CLUTCH is the mechanical interface between the induction coupling/generator and the diesel engine. The clutch allows the shaft of

the induction coupling to rotate, while the diesel engine is at standstill.

When the diesel engine starts and the speed of the diesel engine reaches the speed of the induction coupling/generator, the clutch engages automatically and the diesel engine starts to drive the induction coupling/generator. As a result, the diesel engine starts and ramps up completely without load. This ensures a fast and reliable start.

The INDUCTION COUPLING is Hitec Power Protection's distinctive concept and is the heart of the UPS/CPS. The outer rotor (red) contains a two-pole three-phase winding that accelerates the free-spinning inner rotor (yellow) during utility mode. When utility fails, the UPS/CPS retrieves power from the kinetic energy of the inner rotor by energizing the DC winding of the outer rotor. The amount of energy available from the inner rotor is more than adequate to bridge the time required for the diesel engine to start and ramp up to full speed and power.

A HITEC UPS/CPS ACTS AS A FILTER FOR ALL SORTS OF UTILITY DISTURBANCES



- 1 Voltage Peaks
- 2 Frequency variations
- 3 Brown-outs/voltage drops
- 4 Black-outs/outages
- 5 Radio frequency interferences
- 6 Harmonic distortions
- 7 Continuous quality power

FEATURES & BENEFITS

- **BATTERY - FREE SOLUTION**
 - No re-investments every 3-5 years for new batteries
 - No need for a dedicated climate controlled battery room
 - Reduced floor space requirements
 - No battery disposal costs every 3-5 years (chemical waste!)
 - No need for costly spill containment systems
- **UPS/CPS=STATIC UPS+STANDBY GENERATOR**
 - Fewer components thus inherently more reliable design
 - Higher MTBF and availability figures
 - Lower installation and commissioning costs
 - Smaller overall dimensions and floor space requirements
 - Simplicity; easier to operate and maintain
- **LINE - INTERACTIVE WITHOUT POWER ELECTRONICS**
 - No double energy conversion; higher efficiency
 - No power conversion; higher MTBF and availability figures
 - No generation of harmonic currents / voltages
 - Long technical lifetime compared to systems with power electronics
- **REACTOR + GENERATOR = ACTIVE FILTER**
 - High short circuit output capacity. The system does not need to go to by-pass (use the utility) to clear an output fault
 - Reactive output power supplied by generator(pf > 0.98)
 - Dips and spikes on the utility voltage are blocked
 - Compensation of prolonged deviations of the utility voltage
 - Filtering of utility borne harmonic voltages
 - Filtering of load side borne harmonic currents

ADVANTAGES OF THE HITEC DYNAMIC UPS SYSTEM

There are a number of key advantages for incorporating this tried and tested technology within a facility, in summary these are:

- Higher Reliability :** Fewer components and the absence of power electronics within the Hitec Dynamic UPS system provide a proven increase in reliability compared to that of traditional Static UPS arrangements. Typically the Hitec combined Diesel Rotary UPS System will be more than 10 times more reliable than an "equivalent" Static UPS System.
- More Space Efficient:** Fewer components within the Hitec Dynamic UPS system means that space savings of typically 50% can be achieved over "equivalent" Static UPS installation.
- Higher Efficiency:** The Hitec Dynamic UPS system achieves efficiencies of typically 97%. This higher efficiency over static UPS arrangements, typically in excess of 5%, translates into major reductions in running costs over the life of the equipment.
- Lower Service Costs :** Hitec achieves lower service costs through the availability of a single source maintenance contract encompassing all the equipment within the Dynamic UPS system. This replaces the dual maintenance requirement for the diesel generator and UPS/battery of a "comparable" Static UPS System.

AVAILABLE RATINGS

Hitec DRUPS Module is available in 500 KVA / 1000 KVA / 1500 KVA / 2000 KVA ratings (Single module). Multiple single modules can be connected in Parallel for High Power requirements in various configurations suiting customer requirements.

TECHNICAL SPECIFICATIONS

<p>Input: Input voltage: LV 380...480 V 50 Hz MV Up to 24 kV 50 Hz Voltage tolerance: +/- 10% Power factor: > 0.98</p> <p>Output: Output voltage: LV 380...480 V 50 Hz MV Up to 24 kV 50 Hz Voltage deviation: +/- 1% Voltage asymmetry: < 2% Harmonic distortion: < 3.5% (with linear load) (with linear load) Harmonic filtering: > 95% (in both directions) Frequency deviation: < 0.5% ... 2.5%</p>	<p>Short circuit current: Up to 14x Nominal Current</p> <p>Nominal power factor: 0.8</p> <p>System: Efficiency: Up to 97% Crest factor: ≥ 3 RFI level: Class A (EN 55.011)</p> <p>Other: Color scheme: RAL 7032 (Light Grey): Base frame & panels RAL 5012 (Blue): Induction coupling & generator Manufacturers'</p> <p>Diesel engine: standard</p> <p>Environmental (standard): Degree of protection: IP21</p>	<p>Operating altitude: (or higher as option) < 150 m above sea level</p> <p>Ambient temperature: 0...40 °C (32 ... 104 °F)</p> <p>Options:</p> <ul style="list-style-type: none"> • Remote monitoring via Internet or modem connection • Other non-standard environmental conditions, power ratings, voltages etc. • Silencing canopies • Medium voltage configurations • Containerized designs • Vibration monitoring • Bearing vibration monitoring
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AUTHORISED DISTRIBUTOR

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