



**The reliability and quality of public power supply sometimes is not sufficient for the growing number of consumer. Voltage peaks from the grid and sags or total cut offs may have serious effects as production breakdown, data losses, loss of earnings and worst of all lethal ones.**

To the areas where sags and cut-offs may have serious effects especially count:

- Data processing centers
- Semiconductor manufactures
- Telecommunication
- Airports
- Hospitals
- Food processing companies
- Chemical industry
- Plastic technology
- Computer controlled industrial systems
- And so on

Looking at the increasing degree of automation and computerization today it is more important than ever to have an absolute uninterrupted power supply with very tight tolerances for to ensure the vital processes of a company.

A operation safe powersupply system often means much more than to supply the quality requested from the local grid supplier.

## Why UPS?

### 1) You save money

Cut offs with a duration of only some miliseconds can cause serious cost problems in many modern business sectors as plastic industry, data processing centers, semiconductor industry, airports and hospitals.

### 2) You avoid production losses!

The growing part of automation in modern economic processes demands more than ever a high quality and a guaranteed uninterruptable power supply to avoid production cut offs.

### 3) You are independend from external influences!

A high-quality powersupply system today means normally more than the quality of supply a local grid provider can offer in the sign of deregulation.

## Advantages of HITZINGER UPS-Systems

### ... extremely available

- High quality of system components
- Maintenance/service possible during operation
- Choke with natural cooling with integrated harmonic filter
- Torque limiter for flywheel for short circuit (NBDD)
- Dieselenignes, common acceptance, with local services all over the world

### ... reliable

- Optimized, exact surveillance of cut offs by our own development
- Own-developed PLC control system POWERCON with LC Display unit and membrane keypad
- Remote surveillance and monitoring (optional)
- Simple handling
- Robust (environmental)
- High dynamic overload capability
- Redundant operation possible
- Uninterruptable crossover for maintenance works
- 100% load taking-over
- all components are of brushless technology
- EMC Certification acc EN 300386-2
- HITZINGER UPS systems are in operation for more than 20 years without complaints
- Lifetime of clutch facing > 15 years
- Bearing lifetime (empiric values) >10 years

### ... economic

- Optimized quality of system components
- Low losses
- Low maintenance costs by automatic regreasing system
- Short maintenance time
- MTBF value > = 1 Mio hrs.
- High lifetime of all moving parts and components.
- High efficiency of the alternator
- Improvement of power factor.

### ... maintenance friendly

- Power switches on telescopic rails
- Main components easy of access
- Remote diagnosis via modem (optional)
- Automatic grease supply system
- Bearing of KIN module are easy of access
- Brushless technology in all system components
- Training program for user in situ

### Maintenance preconditions

#### NBDD

- NBDD needs no special maintenance except the annual diesel engine service
- Efforts or costs of maintenance = 0 (except the annual diesel engine service)

#### NBDK

- NBDK, needs service every two years; effort (except the annual diesel engine service ) is less than 6 hours per year.
- 24 hours call in readiness 365 days a year

## DD-UPS-COUPLING CHOKE

In DDUPS system the coupling choke is used for connecting the incoming grid with the UPS Quality output supply. The choke allows higher voltage differences between the two AC systems by reactive currents for both directions, independent from the influence of active power. The special design of the choke guarantees a high degree of decoupling of both directions between input and output.

The output voltage and the input current are completely independent from each other. With the coupling choke all harmonics and transients between input and output can be avoided. Harmonics of the output current are not transferred to the input grid. The input current only consists of the sinus of the basic wave which is necessary for power transmission. Also harmonics and transients of the input voltage show absolutely no effects to the quality of the output voltage.

The independence of the output voltage is achieved by the calculated combination of the high resistive characteristic of the coupling choke to the harmonic currents and synchronous machine windings with in a special design and a selective damper cage, which is a short circuit to these harmonics and so a reflexion to the input grid is avoided.

The coupling choke guarantees:

- static and transient voltage decoupling of the input grid and the UPS collecting bar.
- Harmonics filter
- Input load balance independent from 100% asymmetric output load
- Input power factor improvement  $> 0,98$  from 0 - 100% load at nominal voltage

At short circuit at the input side the current flow to the grid is limited to  $<200\%$  of the nominal current by the choke until the the input is disconnected. During this transient process the voltage of UPS collecting bar and the critical load are held upright by the choke. At these transient process the feedback current to the supply grid is only inductive, so the whole stored kinetic energy can be used for the critical load.