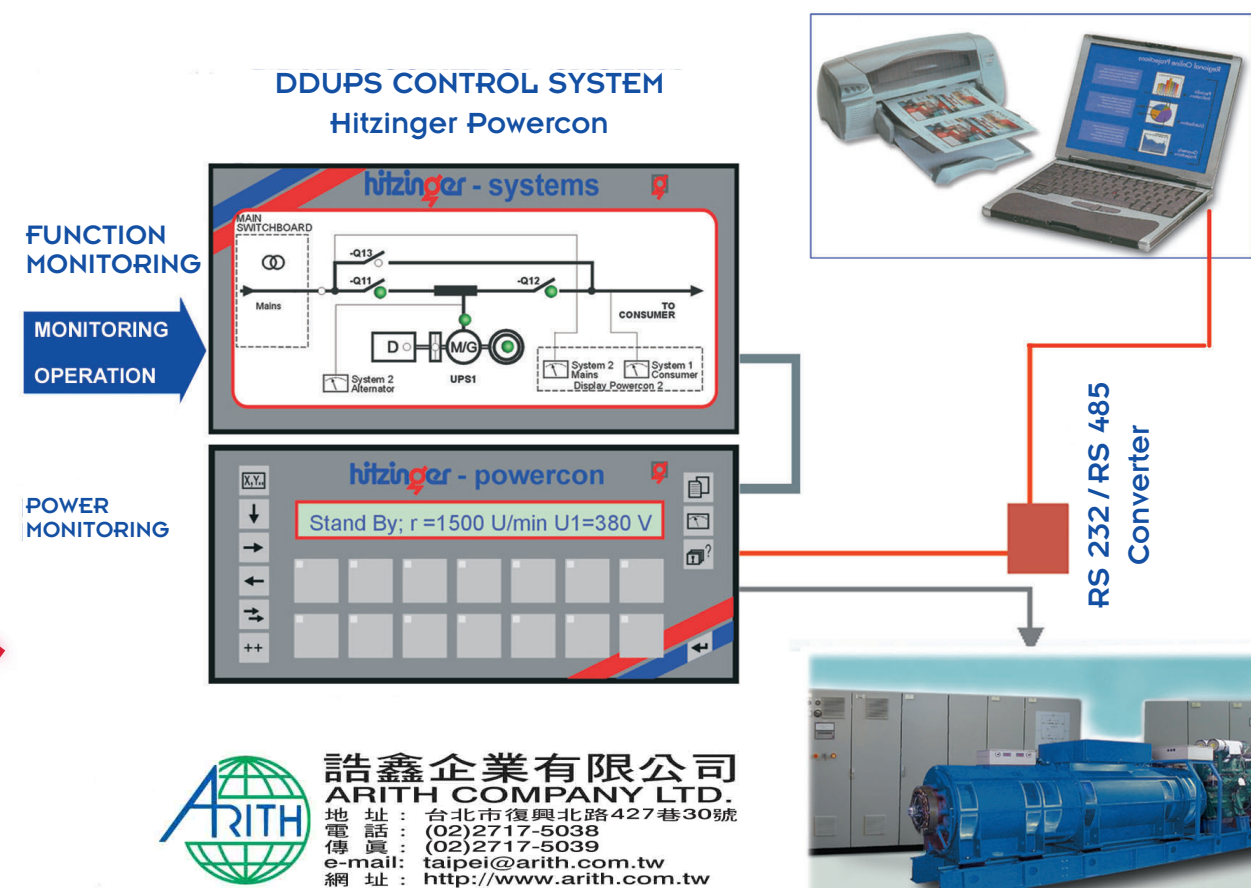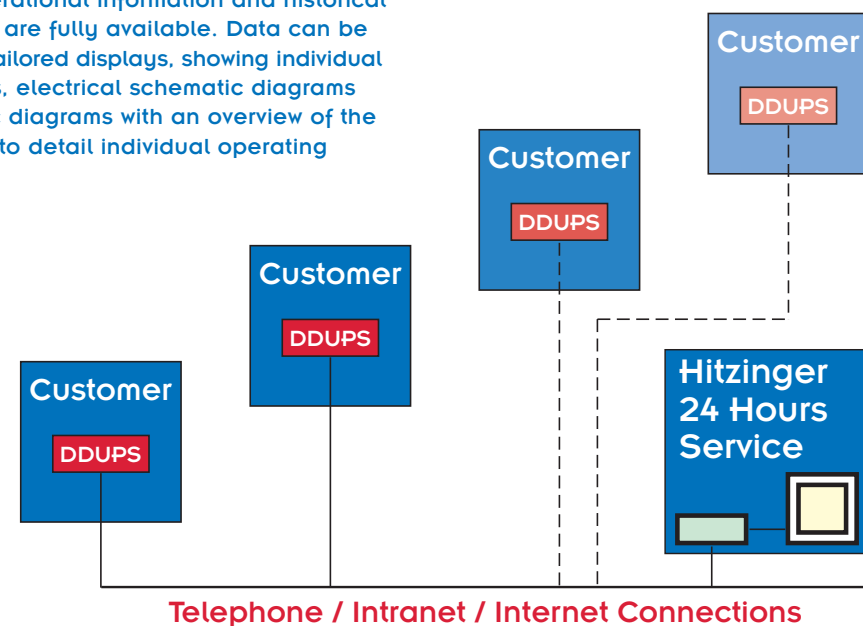## HITZINGER MONITORING AND DIAGNOSIS SYSTEM FOR CENTRAL OPERATION AND MONITORING

Hitzinger offers complete information software package for monitoring and control of the power supply systems through serial interfaces over a network, intranet or remote connectivity via modem links etc.

1. Real-time Operational information and historical data & events are fully available. Data can be presented in tailored displays, showing individual building plans, electrical schematic diagrams and / or mimic diagrams with an overview of the system tiered to detail individual operating elements.

2. The Hitzinger Powercon will provide tailored current or historical data reports for event logging and allows future operation requirements to be forecast by trend analysis of loads etc. The software is an efficient tool, simply and easy to handle, even for the non-expert.

Customer
DDUPS

Customer
DDUPS

Customer
DDUPS

Customer
DDUPS

Hitzinger
24 Hours
Service

Telephone / Intranet / Internet Connections

DDUPS CONTROL SYSTEM
Hitzinger Powercon

FUNCTION MONITORING

MONITORING

OPERATION

POWER MONITORING

hitzinger - systems

hitzinger - powercon
Stand By; r =1500 U/min U1=380 V

RS 232 / RS 485 Converter

諾鑫企業有限公司
ARITH COMPANY LTD.
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hitzinger

DDUPS UNITS: A PERFECT RESULT OF HITZINGER KNOW HOW
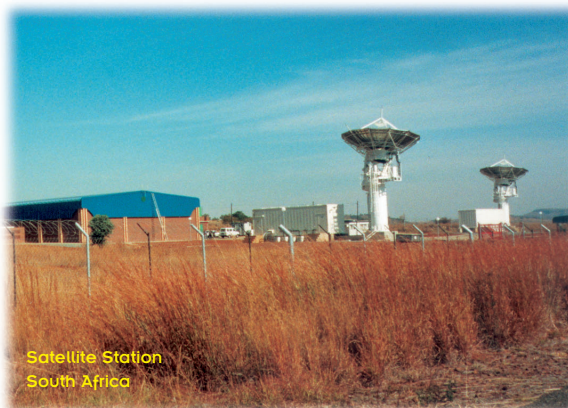
SERVICE & SUPPORT

ENGINEERING

Hitzinger has more than 20 years experience in the field of engineering, installation and commissioning of turnkey DDUPS projects.

MAINTENANCE

24 hours a day, 365 days a year

Excellent after sales service is an essential requirement for the reliable DDUPS-Systems operation and prolonged lifetime. HITZINGER technicians are at customers disposal throughout the world.

COSTUMER FOCUS

Our success can only be measured by that of our customers.

True understanding of a customer and his needs combined with experience and a global view allows us to engineer innovative and unique power solutions.

Expertly conceived, uniquely tailored and efficiently executed – a mutual success.

PROBLEM-SOLVING COMPETENCE

A clear product vision and continuous research brings cutting edge technological developments all requirements for global competitiveness.

HITZINGER offers through its products extensive know-how and expertise of a multi-disciplined team

This innovative thinking, creativity and effective project management is our key to create professional customer solutions.

Satellite Station
South Africa

Spunbondline
Manufacturer
Reifenhäuser, Germany

SELECTED REFERENCES:

TELKOM Pretoria, South Africa
1st SILICON Kuching, Malaysia
New Athens International Airport, Greece
Salzburg International Airport, Austria
General Hospital Graz, Austria
Site Agriculture Manila, Philippines
Veterans Hospital Taipei, Taiwan
Piaget Geneva, Switzerland

Highest quality standards are guaranteed by the use of ISO 9001 Quality assurance system. Hitzinger DDUPS systems operate worldwide guaranteeing power quality to sensitive loads

UPS ALTERNATORS CONVERTERS AIRPORT EQUIPMENT DIESEL GENERATORS

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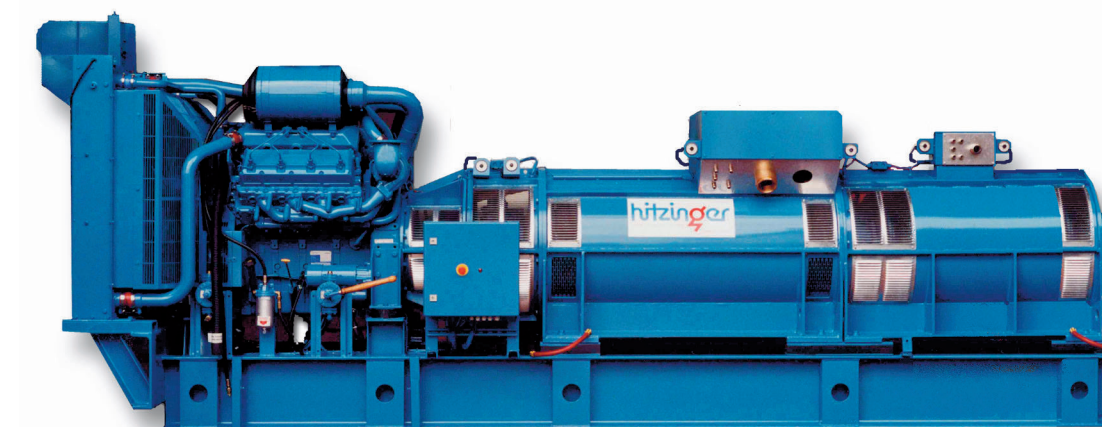
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DYNAMIC DIESEL UNINTERRUPTED POWER SUPPLY SYSTEMS

http://www.hitzinger.at

UNINTERRUPTED POWER SUPPLY SYSTEMS

hitzinger

INTRODUCTION

The reliability and quality of the public electricity supply is insufficient for growing numbers of consumers. Mains surges, sags and black outs however small can cause disruption, having serious consequences with loss of production / data / reputation / revenue even life. Such areas where faulty power supplies result in serious breakdown and consequential loss include:

- Data processing centres
- Semi conductor production plants
- Telecommunication
- Airports
- Hospitals
- Food Processing plants
- Chemical Industry
- Plastics-technology
- Computer controlled Industrial plants etc.

The increasing degree of automation and computerisation, demand more than ever, an absolute reliable and uninterrupted close tolerance power supply for today's mission critical processes.
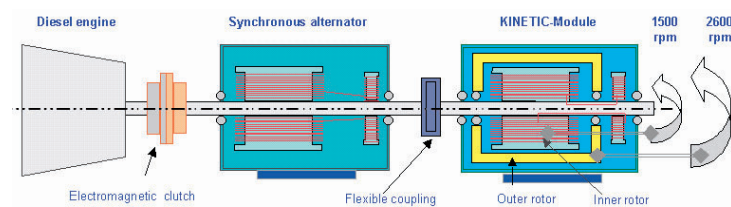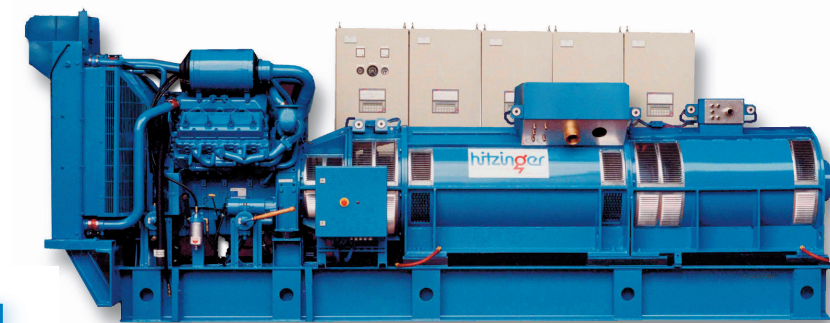
A reliable power supply system often means a lot more than the quality provided by the local electricity board .
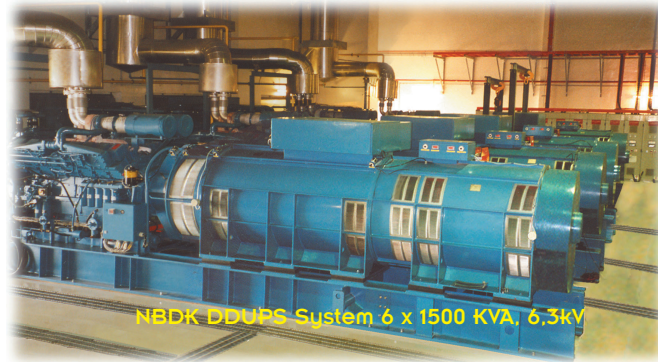
Hitzingers Two DDUPS Systems

System NBDD: DDUPS with Flywheel for a frequency accuracy < 5 %

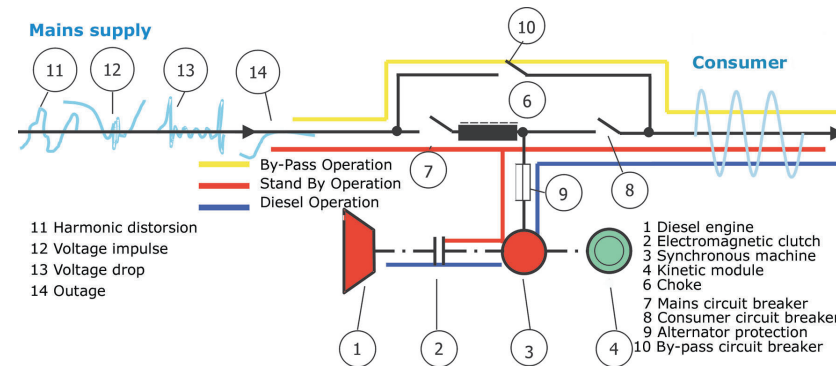System NBDK: DDUPS with Kinetic Energy Storage Module for frequency accuracy < 1 %

These systems provide extremely high availability and reliability in case of mains failure and high efficiency during stand-by operation because of carefully design and individual components selection. Our well-proven resilient control system assures our costumers, that malfunction and operator error is impossible. Therefore operation of the UPS systems does not require specialised personnel.

NBDK DDUPS System 6 x 1500 KVA, 6.3kV

Schematic Diagram NBDK System

Mains supply
By-Pass Operation
Stand By Operation
Diesel Operation
Consumer

11 Harmonic distorsion
12 Voltage impulse
13 Voltage drop
14 Outage

1 Diesel engine
2 Electromagnetic clutch
3 Synchronous machine
4 Kinetic module
6 Choke
7 Mains circuit breaker
8 Consumer circuit breaker
9 Alternator protection
10 By-pass circuit breaker

The KINETIC- Storage Module KIN

Simplified description of function:

The Kinetic Energy Storage Module (KIN) consists of two rotating parts – the inner rotor and the outer rotor.
The outer rotor equipped with a squirrel cage, rotates at approximately 2600 rpm and runs freely on the shaft of the inner rotor.
The inner rotor equipped with a DC winding rotates at synchronous speed (1500rpm) coupled via flexible coupling to the Hitzinger high performance synchronous alternator.
In case of mains failure the magnetic field of the inner rotor brakes the outer rotor and keeps the speed of the synchronous alternator constantly via electronic control unit.

Diesel engine | Synchronous alternator | KINETIC-Module | 1500 rpm | 2600 rpm

Electromagnetic clutch | Flexible coupling | Outer rotor | Inner rotor

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NBDD DDUPS UPS System 325 KVA

NBDD DDUPS-System 600 KVA
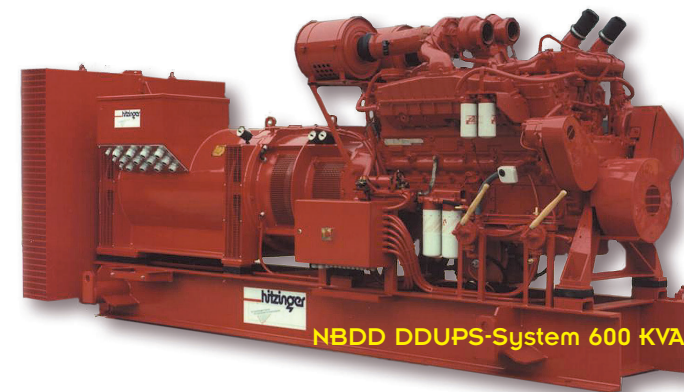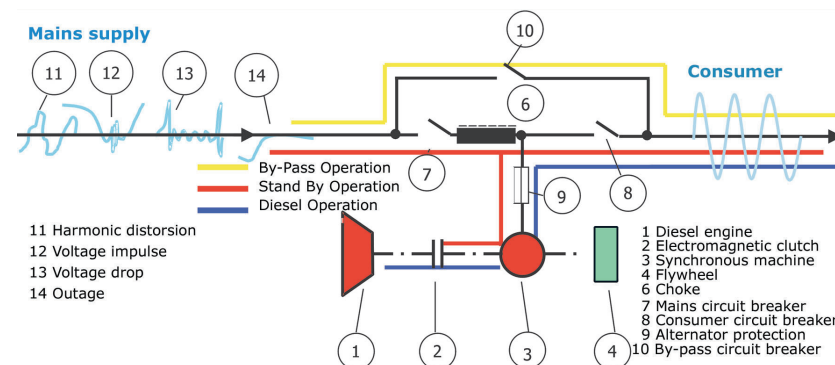
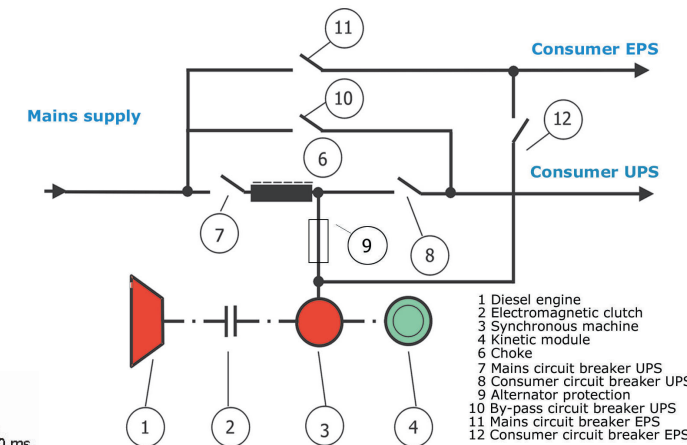### Dynamic Diesel UPS System Features

- rating: up to 2200 kVA
- voltage: up to 11 kV
- dual output units
- MTBF value: > 1M hours
- availability : > 99.9999 %
- low MTTR value
- low maintenance costs
- high choke quality
- high overload capacity
- efficiency up to 96 %
- electromagnetic clutch
- power factor improvement
- optimum mains failure supervision
- In house developed control system
- brushless design, no slip rings
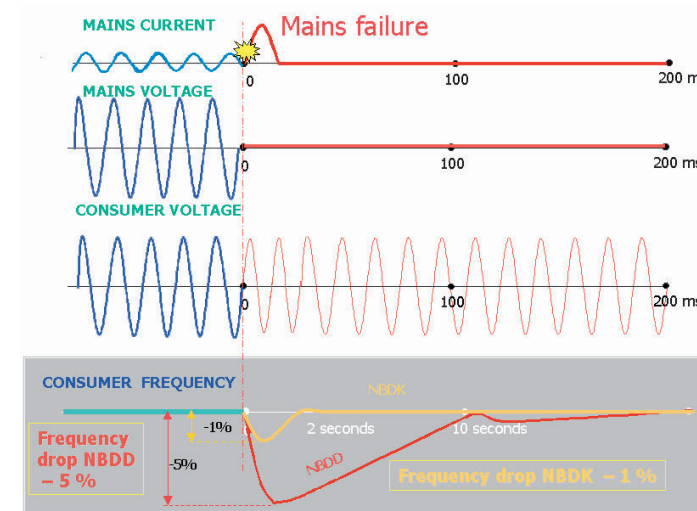- reduced plant room footprint

Schematic Diagram NBDD System

Mains supply
By-Pass Operation
Stand By Operation
Diesel Operation
Consumer

11 Harmonic distorsion
12 Voltage impulse
13 Voltage drop
14 Outage

1 Diesel engine
2 Electromagnetic clutch
3 Synchronous machine
4 Flywheel
6 Choke
7 Mains circuit breaker
8 Consumer circuit breaker
9 Alternator protection
10 By-pass circuit breaker

Schematic Diagram - NBDK Dual Output System

Mains supply
Consumer EPS
Consumer UPS

1 Diesel engine
2 Electromagnetic clutch
3 Synchronous machine
4 Kinetic module
6 Choke
7 Mains circuit breaker UPS
8 Consumer circuit breaker UPS
9 Alternator protection
10 By-pass circuit breaker UPS
11 Mains circuit breaker EPS
12 Consumer circuit breaker EPS

Voltage & Frequency Diagramm NBDD & NBDK System

MAINS CURRENT
Mains failure
0   100   200 ms

MAINS VOLTAGE
0   100   200 ms

CONSUMER VOLTAGE
0   100   200 ms

CONSUMER FREQUENCY
Frequency drop NBDD ~ 5 %
-1%
-5%
2 seconds
10 seconds
NBDD
Frequency drop NBDK ~ 1 %

Maximum availability and reliability:

The reliability of Hitzinger DDUPS systems is the result of product philosophy with the use of a minimum number of system components having an optimum quality standard.
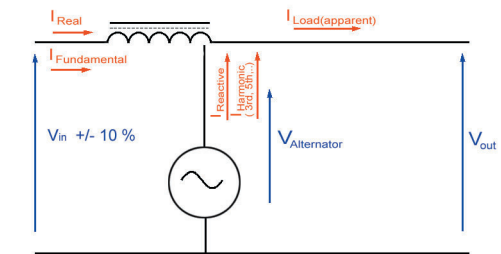

TÜV CERT
EN ISO 9001

DDUPS COUPLING CHOKE

Within a Diesel UPS System the coupling choke connects the input grid supply with the UPS high quality output supply. It allows large voltage differences between both AC systems by means of reactive currents for any direction, independent of the active power flow. The special design of the choke provides a high degree of de-coupling in both directions between the input and the output.

The output voltage and input current are completely independent of each other. It is possible with the coupling choke to prevent all the harmonics and transient events between input and output. Harmonics in the output current are not transmitted to the input side. The input current consists only of the sinusoidal fundamental waveform required for power transfer. Likewise, harmonics and transients in the input voltage have no effect on the quality of the output voltage.

The output voltage independence is achieved through the calculated combination of the coupling choke high impedance characteristics to harmonic currents and the special design synchronous machine windings and selective damper cage representing a short circuit to these harmonics preventing reflection to the mains supply.

The Coupling choke provides:
- Static and transient voltage decoupling of the input mains and the UPS bus
- Harmonic filtering
- Input load leveling irrespective of 100% unbalanced output load
- Input Power factor correction > 0.98 from 0 – 100% load at nominal voltage

I_{Real}
$I_{Load(apparent)}$
$I_{Fundamental}$
V_{in} +/- 10 %
$V_{Alternator}$
V_{out}

In the event of input short circuit the current flow towards the grid network is limited by the choke to < 200% I nominal until the input is disconnected. During this transient situation the coupling choke maintains the UPS bus voltage and the critical load. During this transient the current feed back to the mains is wholly reactive, ensuring all the kinetic stored energy can be fully utilised for the critical load.

NBDK DDUPS 800 KVA