

The logo for 'newave' features the word in a lowercase, sans-serif font. The 'new' is in brown and 'ave' is in teal. A teal swoosh underline starts under the 'n', goes under the 'e', and then loops back under the 'a' and 'v'.

newave

Conceptpower DPA™

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Safe-Swap Modular UPS Systems

For Continous Power Protection Availability

The rapid growth of data centers with mission critical applications that are fundamentally immune to planned and unplanned downtime have increased the demand for continuous availability, flexibility, serviceability and performance.

Decentralized Parallel Architecture for mission-critical applications

Newave's newest modular UPS design Conceptpower DPA™ (Distributed Parallel Architecture) with unique SAFE-SWAP-MODULES (SSM) addresses all the availability concerns related to power protection of mission critical applications.

The move to high power density blade servers has caused a shift in the performance of advanced power protection systems.

High power density, high efficiency and no power derating with leading loads have become the key features of modern UPS Systems.

DPA™



Conceptpower DPA™ highlights at a glance



- High power density (200kW per rack)
For floor space saving;
- DPA with Safe-Swap Modules (SSM)
For premium power protection availability;
- Low Total Cost of Ownership (TCO)
Cost saving during entire life-cycle;
- Flexibility / Scalability
Ease of power upgrade, pay as you grow;
- Enhanced Serviceability
Rapid fault recovery;
- Link to Newavewatch
Instantaneous fault recognition.



Modular

Safe-Swap

Watch

Continuous Power Protection Availability

How to achieve highest power protection availability levels

Have you identified the level of consequential loss of your operation in the event of an outage? Understanding the risk level and translating it into power protection availability requirements is essential. For more than a decade Newave has been designing high availability and resilient power protection concepts to help IT and facility managers to easily tailor their power protection systems to meet highest availability requirements.

High power protection availability is achieved by combining the double conversion technology (high reliability), advanced redundant parallel architecture (high availability) and safe-swap-modular technique (premium availability).

To maintain the premium availability in time and hence achieve **CONTINUOUS POWER PROTECTION AVAILABILITY**, Newave has designed **NEWAVEWATCH™** an advanced, maintenance based, Remote Monitoring and Management System.

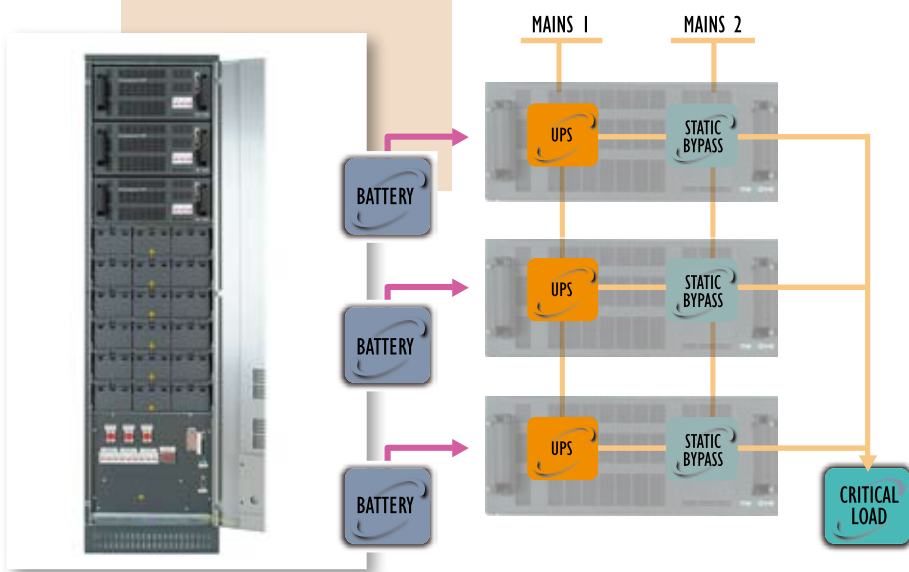
What is Decentralized Parallel Architecture (DPA)?

NEWAVE'S Decentralized Parallel Architecture (DPA)™ is based on independent safe-swap-modules that include virtually the entire UPS hardware and software and hence eliminating all common parts which are potential single points of failures. A Safe-Swap DPA-Module includes distributed CPU'S, distributed control panels, distributed power units and distributed static bypass switches. The batteries are separately configured for each module.

Modular

Premium Availability: DPA with Safe-Swap Modules

To achieve near-zero downtime and avoid very costly consequences of disruption of mission critical applications, advanced Decentralized Parallel Architectures providing high availability must be employed. NEWAVE'S, new second generation modular **CONCEPTPOWER DPA™** is based on a unique safe-swap technique to provide premium availability.



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Safe-Swap

What is Safe Swap Modularity (SSM)?

When adding or replacing modules in a power protection system that supplies a mission critical application it is of paramount importance to understand how safe it is to perform this very delicate operation ?

A Module is Safe-Swappable if:

- It is hot-swappable, meaning hot insertion or hot removal of modules from a host system by means of plugs or connectors without removing the power to the load
- It is replaceable without transferring the load to raw mains (true Hot-Swap, no downtime, no risk)

- It is designed for easy and safe swapping (secure module isolation from rest of the system), meaning the replacement or scaling is achieved without any risk of manipulation errors that may cause damage to the module, system or even cause a load crash.



NEWAVE'S unique Safe-Swap-Modular Technique is a true hot-swap-modular concept that allows easy (plug-and-play) scaling and/or replacing of modules whilst the load continues to be supplied by safe UPS power. The load must not be transferred to unreliable raw mains or even be interrupted. This is unique and perfectly responds to today's data centre requirements where planned computer shutdowns are becoming a rarity.

Watch

Newavewatch

A common misconception of a UPS is that it is a "commission-and-forget" solution. UPS units are complex equipment and however well designed and manufactured they are they require regular maintenance and monitoring in order to maintain the highest availability of your power protection system and hence not allow to compromise the uptime of mission-critical applications.

To ensure early recognition of anomalies and short recovery times NEWAVE has developed an advanced Remote Monitoring and Management System NEWAVEWATCH™ to tackle the anomalies at an early stage and before

they cause more important consequences or even downtimes of mission critical applications. NEWAVEWATCH™ has a unique redundant communication option by means of modem, GSM or through the internet.

WATCH represents the integration of an effective UPS management and service that should be regarded as an essential element of a power protection solution. Mission critical systems require constant availability of the power protection infrastructure. Continuous monitoring in the form of NEWAVEWATCH™ is an affordable insurance policy designed to detect and warn of problems before they become a crisis.

NEWAVE's expert engineers at the Master (Switzerland) or Local Service Centre are always at hand to help diagnose and resolve problems, quickly and efficiently.





Why is TCO so important?

UPS systems operate 24h a day and 365 days a year and during more than 10 years.

The Total Cost of Ownership (TCO) of a UPS System during its lifecycle is typically a multiple of the initial investment cost of the UPS system.

The major impact on TCO have following parameters:

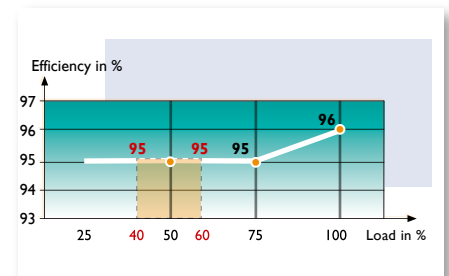
- UPS efficiency at partial/full load;
- Cooling system efficiency;
- Rightsizing the system power over time;
- Adding power without need of additional floor space;
- Input PF and THDi.

Energy

Low losses at partial loads will result in major energy savings

The major impact on the life-cycle cost of a UPS system is generated by the operating losses. The emitted heat in data centres must be evacuated by appropriate cooling systems that also generate losses and hence increase the overall operating losses.

In redundant UPS configurations single modules operate at partial loads typically at 40-60% of the rated UPS power. CONCEPTPOWER DPA™ with its unique Energy Saving Inverter Switching (ESIS) technique has been designed to provide high efficiencies at partial and at rated loads. The diagram below shows CONCEPTPOWER DPA™ flat efficiency curve with high efficiencies even at very low partial loads.



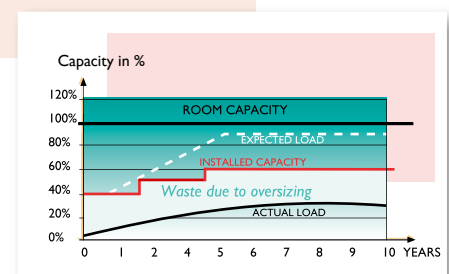
Rightsizing of the Power Protection System Over Time

Thanks to the ability of true modular UPS systems to easily scale power, it is possible to add power as the data centre power requirements grow. This eliminates the high initial investment cost of purchasing power capacity that is not required at the stage of installation and hence it helps avoid waste due to over sizing. In addition, the correct sizing of the power protection system during the entire life-cycle helps keep the total cost of ownership low.

The unique CONCEPTPOWER DPA™ modular design with safe swap modules guarantees safe power upgrading without the need of removing the power nor transferring the load to raw mains. Power capacity can be added up to 200kW (250kVA) in one single rack without increasing the foot-print. If the power requirements grow above 200kW an additional rack can be added to provide up to 400kW (500kVA) power.



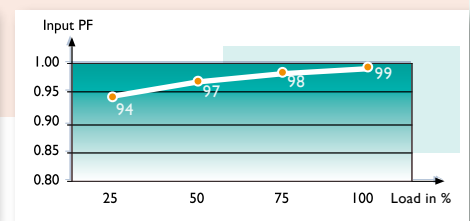
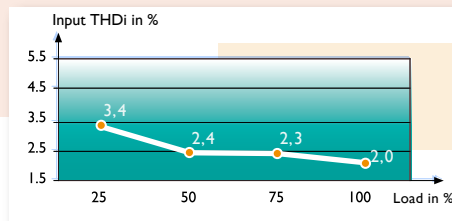
Pay as you grow...



Low input THDi and near unity PF results major installations savings

CONCEPTPOWER DPA™ Advanced Booster Technology (ABT) generates a near unity input power factor and reduces the input THDi to values <3% even at partial loads. The low THDi generated by the UPS, avoids expensive over sizing of gen-sets that are often used as backup for longer outages.

The near unity input power factor at partial and full load reduces input cable and fuses sizes.



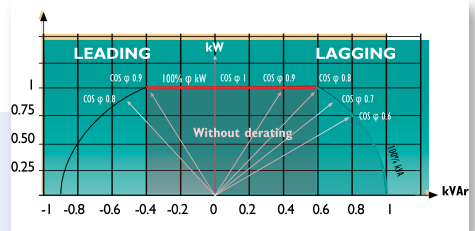
Space

DPA was designed to reduce material contents

Thanks to the advanced transformer-less design the modules are very compact in size and weight. Up to 5 modules can be accommodated into a single space-saving rack reaching highest power density of up to 340kW /m². Blade servers have leading power factors and therefore require adequate UPS power.

CONCEPTPOWER DPA™ provides full rated power in the range of 0.9-leading to 0.8-lagging power factors. Thus saving valuable data centre floor space.

The reduction of the material contents results in saving of natural resources and decreases the environmental impact.



In addition, the compact size of the modular CONCEPTPOWER DPA™ saves packaging weight and decreases substantially energy consumption in transport to customers.

Recycling

DPA was designed to use materials to reduce environmental impact

NEWAVE works with suppliers to identify materials that will reduce the environmental footprint of NEWAVE products and that of our customers. Materials innovation at NEWAVE is reducing the environmental impact of materials we select or already use for NEWAVE products. This innovation often aligns with our objective of reducing materials and recycling costs.

NEWAVE considers the following aspects of materials innovation:

- Substituting materials when there are concerns due to their potential effects on people and the environment
- Eliminating materials of concern from our products
- Lowering product weight and size to decrease resource use and reduce environmental impacts throughout the product life cycle

Technical specifications

CONCEPTPOWER DPA		CLASSIC DPA-25	TRIPLE DPA-75	UPGRADE DPA-125	CBAT-DPA-120
FRAMES		CLASSIC DPA-50	TRIPLE DPA-150	UPGRADE DPA-250	CBAT-DPA-200
					
Frame Configuration		Max. 1 module (8-40kW)	3 modules (8-40kW)	5 modules (8-40kW)	
8-100KW	Maximum batteries	200 x 7/9Ah batteries	180 x 7/9Ah batteries	no batteries,	200 x 24Ah/28Ah
24-200KW	built-in UPS	280 x 7/9Ah batteries	300 x 7/9Ah batteries	external cabinet needed	
Max. Power per rack		kVA 50	150	250	
8-100KW	Dimensions (WxHxD)	mm 550x1650x780	550x1975x780	550x1975x780	730x1975x800
8-100KW	Frame Weight + modules	kg 224 up to 233	292 up to 319	280 up to 325	150
24-200KW	Dimensions (WxHxD)	mm 730x1650x800	890x1975x800	730x1975x800	1200x1975x800
24-200KW	Frame Weight + modules	kg 300 up to 310	340 up to 370	440 up to 490	250

SAFE-SWAP MODULES 3-PHASE INPUT / 3-PHASE OUTPUT

								
Modular Parallel Configuration			Up to 5 modules					
	kW	8	12	16	20	24	32	40
	kVA	10	15	20	25	30	40	45
Weight	Kg	24	24	33	33	50	57	60
Dimensions	Mm	483 x 225 x 700			663 x 225 x 720			

INPUT

Nominal Voltage	V	3x380/220V+N, 3x400V/230V+N, 3x415/240V+N
Input Frequency	Hz	35 – 70
Power factor		PF=0.99 @ 100 % load
Input Distortion THDI		Sine-wave THDI = 2% @ 100% load

OUTPUT

Output Voltage	V	3x380/220V or 3x400/230V or 3x415/240V
Output Frequency	Hz	50 or 60
Output Voltage Distortion		With Linear Load < +/- 2%; With Non-linear Load (EN62040-3:2001) < +/- 4%
Bypass operation		At Nominal Input voltage of 3x400 V +/- 15 % or 190 V to 264 V ph-N
Overload Capability on Inverter	%	125 % load for 10 min. / 150 % load for 60 sec.
Crest Factor		3:1

EFFICIENCY

Efficiency AC-AC at 100%/75%/50%/25% load (cosphi 1.0)	%	96 / 95 / 95 / 95
Eco-Mode efficiency at 100% load	%	98

ENVIRONMENT

Storage Temperature	°C	-25 - +70
Operation temperature	°C	0 – 40
Max. altitude (above see level)	m	1000m (3300ft) without de-rating (max. 3000m – 10000ft)

STANDARDS

Safety	EN 62040-1-1:2003, EN 60950-1:2001/11:2004
Electromagnetic Compatibility	EN 50091-2:1995, EN61000-3-2:2000, EN6100-3-3:1995/A1:2001, EN61000-6-2:2001, EN61000-6-4:2001
Performance	EN62040-3:2001
Product Certification	CE – GOST by TÜV
Degree of protection	IP 20

Options

- >> Modem/Ethernet card or Modem/ GSM card for Newavewatch™ Management Software
- >> SNMP card & WaveMon Management Software , Modbus Protocol
- >> External Battery Cabinets
- >> Parallel bus for additional frames
- >> In/output Transformer for special voltages
- >> Battery Chargers
- >> Temp. sensor for battery temp. control

Communications

- >> Power Management Display (PMD) for each module
- >> 2x Serial ports RS232 (SMART PORTS) Sub-D9 2 per system frame and 1x on each module
- >> 1 x USB
- >> Customer Interfaces : Inputs (X1): 1 temp. sensor; 2 operations; EMERGENCY OFF (Normally closed), GEN-ON (Normally open); 2 programmable Customer's Inputs (Normally open)
- >> 10x Customer Interfaces : Outputs (DRY PORT) X2 , X3, X4 (voltage free contacts)
- >> Slot for SNMP
- >> Slot for Newavewatch

Newave Recognitions



The following are just some of the companies using the products and services of Newave SA:

Acer
AEG SVS
American British Racing
American Express
Ansar Almojahedin
Asea Brown Boveri
AXA Insurance
Bank Vontobel AG
Barclays Bank
Basijian Institute
Basler Versicherung
BBC (British Broadcasting Corp.)
Belgorodenergo
Benning
Betty Barclay
Biz Basel
BNFL (British Nuclear Fuels Ltd.)
British Airport Authority (BAA)
British Council
British Telecom
Cable and Wireless
Cambridge University
Caterpillar
Central Bank of Russian Federation
Cepsa

Coca Cola
Core Telecom
Correos de España
Credit Suisse
Dachser
Danfoss
Deutsche Bank
Deutsche Post
Fujitsu
Gestamp Corporation
Glaxo Smith Kline
Henkel
Hewlett Packard
Hilti
Hilton
Honeywell
Hyatt
IBERIA
IBM
Intel
Iran Insurance
Karafarin Bank
Lekkerland
Lloyds TSB
LuK

LUKOIL
Meridien
Meteorological Office
Metropolitana Lisboa
Mobile TeleSystems (MTS)
Mobistar
Motorola
NATs (National Air Traffic control)
Nestlé
Novartis
Nuffield Hospitals
Oracle Corporation
OSCE Kosova
Oxford University
Paulaner
Procter & Gamble
Rabo Bank
Radio Televisión Española
REPSOL-YPF
Ritz
Rohde & Schwarz
ROS Telecom
Royal Bank of Scotland
Royal Scandinavia
Russian Railways

SBB Zürich
Scottish Power
Sheraton
Siemens Schweiz AG
Swiss Reinsurance
TCI (Telecommunication of IRAN)
Technion
Tedjarat Bank
United Bank of Switzerland(UBS)
Vneshtorgbank
Vodafone
Williams
Winterthur-Assurance p.a. wincasa
Zürcher Kantonalbank

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