



DPA UPSCALE™

THE MULTI-MASTER TECHNOLOGY



DPA UPSCALE™

THE NEW APPROACH TO PROTECTING CRITICAL APPLICATIONS AND THE ENVIRONMENT



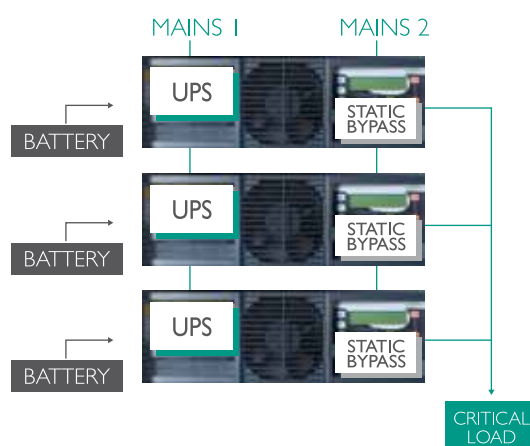
The three major concerns of IT and facility managers when assessing the life-cycle cost of their power protection infrastructure are availability, flexibility and total cost of ownership (TCO). Thanks to many years of experience and leadership in designing modular power protection solutions, Newave's newest three-phase UPS solution DPA UPScale simultaneously addresses all three concerns. The DPA UPScale design is based on Newave's unique and proven Decentralized Parallel Architecture (DPA) that has been developed specifically to respond to stringent life-cycle cost requirements with the lowest environmental impact.

DPA – Maximum availability

Parallel architecture limited only to modular design does not guarantee the highest power protection for critical applications. The success of a parallel modular system depends largely on the design of the parallel architecture and on the level of intelligence of the individual modules. Modular systems based on DPA – as opposed to Centralized Parallel Architectures (CPA) – are free of single points of failure and maximise system uptime.

Newave's modular DPA UPScale is built of self-contained modules that include the entire UPS hardware and software; hence, it eliminates all the common parts which are potential single points of failure. A DPA module includes distributed CPUs, distributed control panels, distributed power units and distributed static bypass switches. Even the batteries are separately configured for each module, which makes the parallel system fully and truly redundant.

The DPA parallel technology is based on the Multi-Master Technology and the Majority Decision-Making Principle. The Multi-Master Technology minimises the cross-currents between the modules and ensures equal load-sharing of the individual modules at all times. In the unlikely event of a master module fault, the next module will become master and the system will continue to share the load perfectly. In the case of an external event such as a short circuit or a mains failure, the Majority Decision-Making Principle comes into operation. Every individual module will detect the event and then decide which source (inverter, mains or



battery) is the safest. Based on the majority decision of the modules, the correct action is taken. The optimum parallel UPS solution is only possible with systems that provide a Multi-Master Architecture and are based on the Majority Decision-Making Principle, such as the DPA from Newave.

DPA – High level of flexibility

Critical applications continuously change their power requirements, which often increase with time. Managing those changes is a challenge for UPS manufacturers when designing a truly scalable UPS where modules can be added without transferring the load to unreliable raw mains. UPS systems based on DPA allow for incremental expansions whilst ensuring redundancy at all times. DPA permits the infrastructure size to be scaled to align with present IT requirements. It is possible to start with just a few modules and add to them as required in an easy and safe way.

True safe-swap and safe-scale modularity enables the safe replacement or insertion of UPS modules into the UPS system without the need to transfer the critical load onto raw mains or to remove power from the critical load. The ability to safe-swap modules significantly reduces the system's mean time to repair (MTTR) and simplifies system upgrades. Thanks to the unique compact design and low weight (10 kW = 18.6 kg, 20 kW = 21.5 kg) of the DPA UPScale modules, inserting additional modules or replacing existing ones during operation is easy and can be performed by a single technician.



DPA – Lowest total cost of ownership

Saving costs and optimising capital deployment are top priorities, and IT facility managers must make effective investments to increase the efficiency of their IT systems. An infrastructure that uses cost-effective and flexible modular power protection solutions with significantly lower operating costs will create competitive advantages in the medium term. The DPA UPScale offers the lowest cost of ownership of any UPS system by offering energy efficiency, scalable flexibility and highest availability due to true redundancy and easy serviceability.



SMART CUSTOMISATION WITH TWO DIFFERENT DESIGN SOLUTIONS: STANDARD & RACK-INDEPENDENT



In order to satisfy a wide range of application needs, the DPA UPScale has been designed in two versions:

- DPA UPScale ST (Standard) for applications that require a standard power protection solution including frame, UPS, battery and communication
- DPA UPScale RI (Rack-Independent) including UPS, battery and communication which can be integrated into any 19" rack in industrial, telecom or other applications

The main features of the DPA UPScale ST and RI:

- Intelligent, self-contained modules
- Modules of low weight (10kW = 18.6kg; 20kW = 21.5kg)
- Total compatibility with any installation (irrespective of PF)
- Excellent input performance
- PF > 0.99
- THDi < 3%
- AC-AC Efficiency 95.5%
- Transformerless
- Online double conversion technology

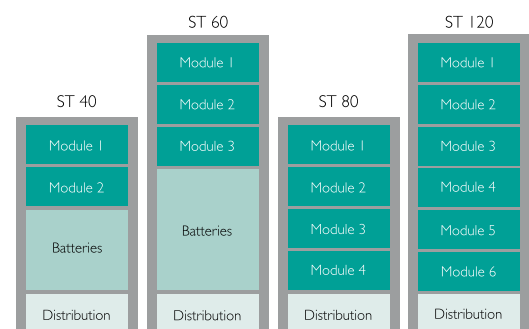
DPA UPScale ST: the compact all-rounder

Designed for high-density computing environments, the DPA UPScale ST delivers power protection from 10 kW to 120 kW (1 to 6 modules) in a single industry-standard 19" frame. The powerful configuration offers a solution with maximum power density of 272 kW/m². Its flexible design provides a "pay as you grow" model, ideal in situations where requirements change quickly and unpredictably. The DPA UPScale enables cost reduction through the best-in-class efficiency performance, fast and efficient implementation and extremely low overall operating costs.

The DPA UPScale ST is specially designed for space-saving flexibility. Space limitations are often a challenge, especially in areas where the real estate prices are very high. Consequently, the small footprint may be a major decision-making criterion when it comes to choosing the appropriate power protection system.

System architecture with the DPA UPScale ST

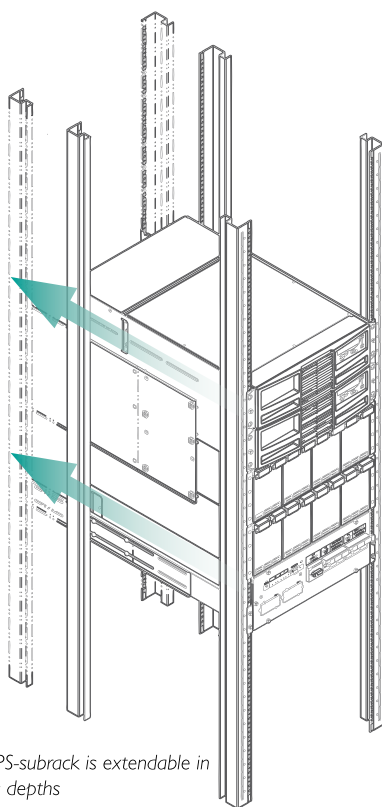
The DPA UPScale ST can be deployed in a variety of system architectures to support the specific requirements of your IT infrastructure. The ST 40 and ST 60 types are suitable for applications with low run-times, limited space and no extension requirements. For larger autonomies and incremental future growth, ST 80 and ST 120 are the best choice.



DPA UPScale RI: the “individual concept”

The rack-independent DPA UPScale RI (subrack) is designed to be the most versatile UPS on the market and provides the best technical and commercial solutions to meet individual power protection needs. The rack-independent solution is a standard product which can be integrated into any 19" rack.

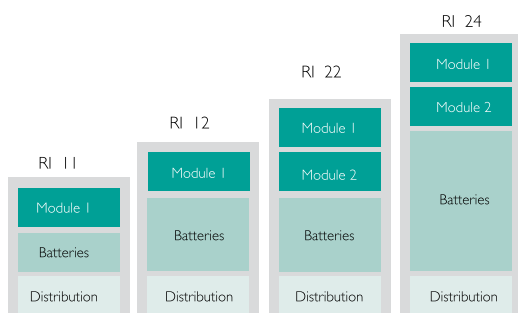
When customized solutions are required, the multi-purpose DPA UPScale RI simplifies the engineering and deployment of UPS systems. The subracks can be integrated into any 19" cabinet, independent of the rack's manufacturer. The versatile UPS-subrack satisfies many design requirements and is easily extendable in depth to suit various enclosure sizes. The core elements consist of best-in-class hardware and software that respond to diverse customer applications and changing business needs.



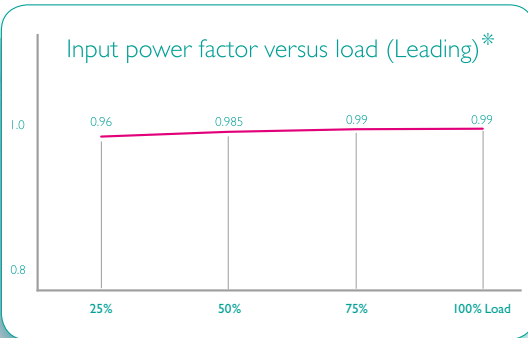
The UPS-subrack is extendable in various depths

System architecture with the DPA UPScale RI

The DPA UPScale RI is available with 10 or 20 kW modules in a building-block fashion and permits efficient manufacture of individual solutions to meet the industry's wide range of requirements. The compact modular architecture allows for a large range of product variants and significantly reduces the effort of adjusting for tailored solutions. The DPA UPScale RI is available in four configurations. The system architecture offers a high flexibility when it comes to deploying and re-deploying a framed unit in a cabinet, such as in the case of system refurbishment.

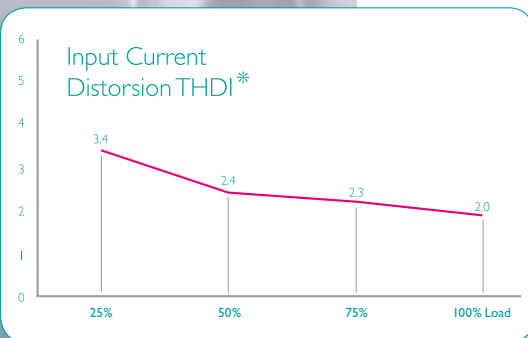


WHEN YOU THINK ENERGY AND ENVIRONMENT, THINK NEWAVE



Environmentally friendly power protection

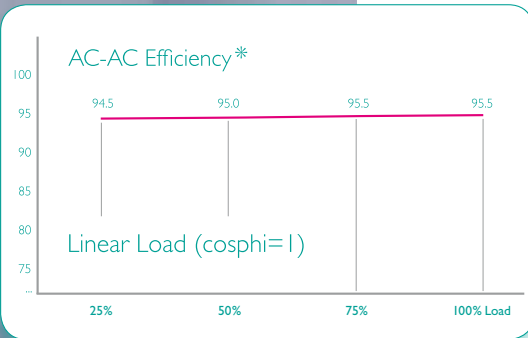
Newave has led the way to sustainable power protection from the outset. Our power protection solutions help IT professionals execute a comprehensive energy-efficient strategy, drive more performance in a smaller energy footprint and enable them to add new capacity to existing facilities while holding the line on power consumption.



Energy - Highly efficient and accurately sized UPS systems save energy costs

DPA UPScale generates a near unity input power factor at partial and full load and reduces the required size of the input cable and fuses, thereby reducing the materials (and costs) associated with the system's electrical installation.

Class leading input current total harmonic distortion (THDi) of <3% virtually eliminates harmonic pollution of the mains supply.



As a result of the transformer-less architecture, DPA UPScale achieves optimum efficiency values, allowing energy savings and reducing the need for air conditioning. It has excellent efficiency in every working condition (even at partial loads) providing great benefits for the customers.

Space - Valuable floor space saved by compact module design

With their advanced transformer-less design, Newave modules are extremely compact in size and weight. As a result, highly valuable floor space can be saved in any data centre by using this design. The compact size of the modular UPS systems furthermore reduces packaging weight and decreases energy consumption when transporting the systems to the customers' locations.

Recycling - Innovation in materials

Newave aims to continuously improve the different materials used in its products, and to allow for environmental friendly, yet cost efficient recycling of any waste material. For that purpose, the company works closely with its suppliers and manufacturing partners to identify and test new materials and recycling methods. As an example, Newave's service offerings include battery maintenance and non-polluting disposal of old batteries, or a complete dismantling and non-polluting disposal of old UPS systems.

TECHNICAL SPECIFICATIONS*

DPA UPScale ST: 10 – 120 kW (rack-based products)

DPA UPScale ST	ST 40	ST 60	ST 80	ST 120
UPS-modules, pcs	2	3	4	6
Inbuilt Batteries	Yes	Yes	No	No
Output Power max.	40 kW	60 kW	80 kW	120 kW
Dimensions (WxHxD)	550x1135 x770 mm	550x1975 x770 mm	550x1135 x770 mm	550x1975 x770mm
Weight with all modules	up to 136 kg	up to 238 kg	up to 169 kg	up to 263 kg

Input Characteristics

Nominal Input Voltage	3x380/220V+N, 3 x 400/230V+N, 3x415/240V+N
Input Frequency	35 – 70 Hz
Input Power Factor	0,99 @ 100 % load.
Input Distortion THDi	< 3 % @ 100 % load (sinewave)

Output Characteristics

Rated Output Voltage:	3x380/220V+N, 3 x 400/230V+N, 3x415/240V+N
Frequency	50 or 60 Hz
Overloading Capability	125 % / 10 min or 150 % / 60 sec.
Crest Factor	3 : 1

Efficiency

Load 100%	Up to 95.5 %
Eco-Mode at 100% Load	98 %

Communications

Modular Level	Module integrated Display (PMD)
Frame Level	USB, RS-232, potential-free contacts(5)

Certifications

Safety	IEC/EN 62040-1.1, IEC/EN 60950-1
Electromagnetic Comp. (EMC)	IEC/EN 62040-2, IEC/EN 61000-3-2, IEC/EN 61000-3-3, IEC/EN 61000-6-2
Performance	IEC/EN 62040-3
Product Certification	CE
Enclosure	IP 20

DPA UPScale RI: 10 – 40 kW (rack-independent products)

DPA UPScale RI	RI 11	RI 12	RI 22	RI 24
UPS-modules	1	1	2	2
Batteries blocks	40	80	80	160
Output Power max.	20 kW	20 kW	40 kW	40 kW
Dimensions (WxHxD)	448x487 x735 mm (11 HU)	448x665 x735 mm (15 HU)	448x798 x735 mm (18 HU)	448x1153 x735 mm (26 HU)
Weight without modules and batteries	40 Kg	56 kg	66 Kg	93 kg

Modules M 10 or M 20

Nominal Output Power @ cosphi = 1	10 kW or 20 kW
Topology	True double conversion on-line
Parallel configuration	True modularity Distributed Parallel Architecture DPA™
Weight	18.6 kg or 21.5 kg
Dimensions, WxHxD	488 x 132 x 540 mm (3 HU)

COMMUNICATION EQUIPMENT

Standard

- RS 232 serial smart port
- 2 interface slots (for SNMP and NewaveWatch™)
- USB
- Gen set interface
- Remote shut down
- Temperature Sensor for Battery Control (Sensor optional)
- 5 potential free contacts
- 12Vdc output

Options

- Remote panel (on request)
- Shutdown software
- SNMP card
- SNMP manager
- NewaveWatch™ (remote monitoring solutions to provide an added level of security for critical assets)

ELECTRICAL EQUIPMENT

Standard

- Maintenance bypass
- Single or dual feed input

Options

- Extended battery autonomy
- Isolation transformer
- Integrated backfeed protection
- Temperature Sensor Probe

* Specifications are subject to change without notice.



Newave Group Companies

Newave Energy Holding SA

Via Luserte Sud 9
CH-6572 Quartino
T +41 (0) 91 850 29 29
F +41 (0) 91 840 12 54
info@newavenergy.com
www.newavenergy.com

Head Office: Operations, Sales & Marketing

Newave SA

Via Luserte Sud 9
CH-6572 Quartino
T +41 (0) 91 850 29 29
F +41 (0) 91 840 12 54
info@newavenergy.com
www.newavenergy.com

Subsidiaries

Austria

Newave Österreich GmbH
Laxenburgerstrasse 252
A-1230 Wien
T +43 (1) 710 96 70 0
F +43 (1) 710 96 70 12
info@newaveups.at
www.newaveups.at

Finland

Newave Finland OY
Niittyläntie 2
FI-00620 Helsinki
T +358 (0) 10 421 9400
info@newaveups.fi
www.newaveups.fi

Germany

Newave USV Systeme GmbH
Summerside Ave. C 207
Baden Airpark
D-77836 Rheinmünster
T +49 (0) 7229 1866 0
F +49 (0) 7229 1866 33
zentrale@newave-usv.de
www.newave-usv.de

Hong Kong & China

Newave Energy Hong Kong Ltd
Room 2506, West Tower,
Shun Tak Centre
HK-168-200 Connaught Road Central
T +31 642 215 512
sales-china@newave.com.cn
www.newave.com.cn

with branch office in China:

Newave Energy (Jiangmen) Limited
9/F Kawa House, 49 Jiangshe Road,
Jiangmen, Guangdong, China
Postal Code: 529000
T +86 750 368 0239
F +86 750 368 0229
sales-china@newave.com.cn
www.newave.com.cn

India

Newave Energy India Pvt. Ltd.
818/819 Corporate Avenue,
Sonawala Road, Goregaon East,
Mumbai 400 0063
T +91 (22) 4266 5151
F +91 (22) 4266 5141
rajesh.shah@newavenergy.in
www.newaveups.com

Italy

NEWAVE Italia
Via Vincenzo Ussani, 90
I-00151 Roma
T +39 (0) 687 451 674
T +39 (0) 665 31 316
F +39 (0) 665 31 306
info@newavenergy.it
www.newaveups.it

Latin America

Newave South America LTDA
Rua Clodomiro Amazonas No. 1422
Suite 68
BR-04537-002 - São Paulo
T +55 (11) 3045 0809
F +55 (11) 3045 0764
info@newavesam.com
www.newaveups.com

Spain

Newave España SA
Arturo Soria 329 I D
ES-28033 Madrid
T +34 (91) 768 22 22
F +34 (91) 383 21 50
newave@newave.es
www.newave.es

Switzerland

Newave Energy AG
Industriestrasse 5
CH-5432 Neuenhof
T +41 (0) 56 416 01 01
F +41 (0) 56 416 01 00
info@newavenergy.ch
www.newavenergy.ch

with branch office in Biel:

Am Wald 36
CH-2504 Biel
T +41 (0) 32 366 60 30
F +41 (0) 32 366 60 35
info@newavenergy.ch
www.newavenergy.ch

The Netherlands

Newave UPS Systems BV
Stephensonweg 9
NL-4207 HA Gorinchem
T +31 (0) 183 64 6474
F +31 (0) 183 62 3540
info@newaveups.nl
www.newaveups.nl

Newave Certifications & Recognitions

