CATALOGUE

UPS and Critical Power Solutions

POWER CONVERSION

OCTOBER 2022

When **energy** matters

socomec
Innovative Power Solutions

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Ensuring the energy performance of electrical installations, wherever it is critical

100 years
OF SHARED ENERGY
1922 — 2022

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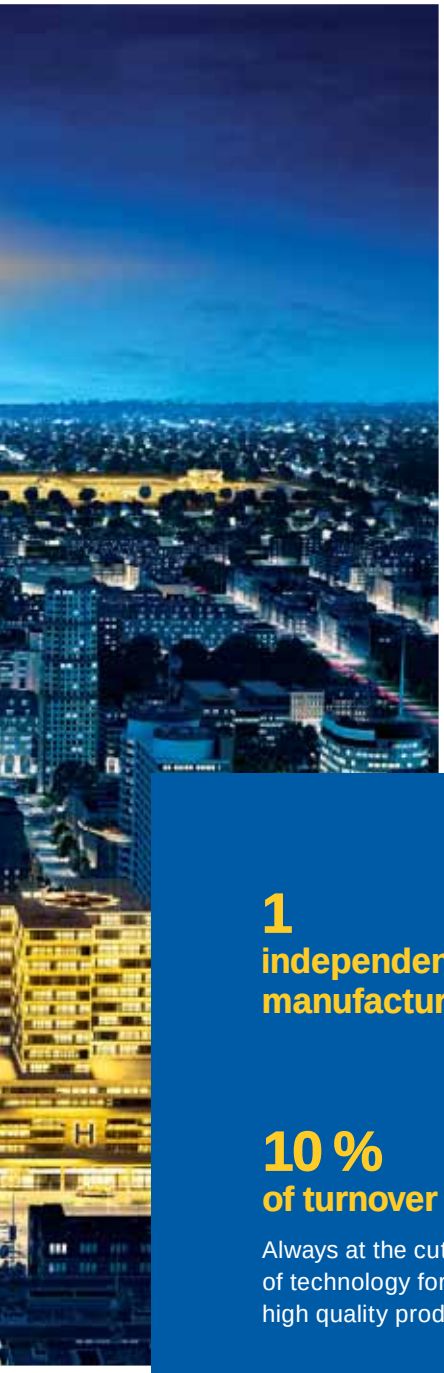


SYDV 514

For almost 100 years, Socomec has continued to design and manufacture its core products in Europe. Notably solutions for its primary mission: the availability, control and safety of low voltage electrical networks.

As an independent manufacturer, the group is committed to constant innovation to improve the energy performance of electrical installations in infrastructures as well as industrial and commercial sites. Throughout its history, Socomec has constantly anticipated market changes by developing cutting-edge technologies, providing solutions that are adapted to customer requirements and fully in keeping with international standards. “Optimising the performance of your system throughout its life cycle” - this is the commitment carried out every day by the Socomec teams around the world, wherever your business is located.

1
independent manufacturer

3,500 m²
of test platforms

One of the leading independent power testing labs in Europe

10 %
of turnover invested in R&D

Always at the cutting-edge of technology for innovative, high quality products

110,000
on-site interventions per year

Nearly 400 experts in commissioning, technical audit, consultancy and maintenance

Your energy, our expertise

SITE 1105

Power switching

Managing power and protecting people, equipment and installations

Active in the industrial switching market since its foundation in 1922, Socomec is today an undisputed leader in the field of low voltage switchgear, providing expert solutions that ensure:

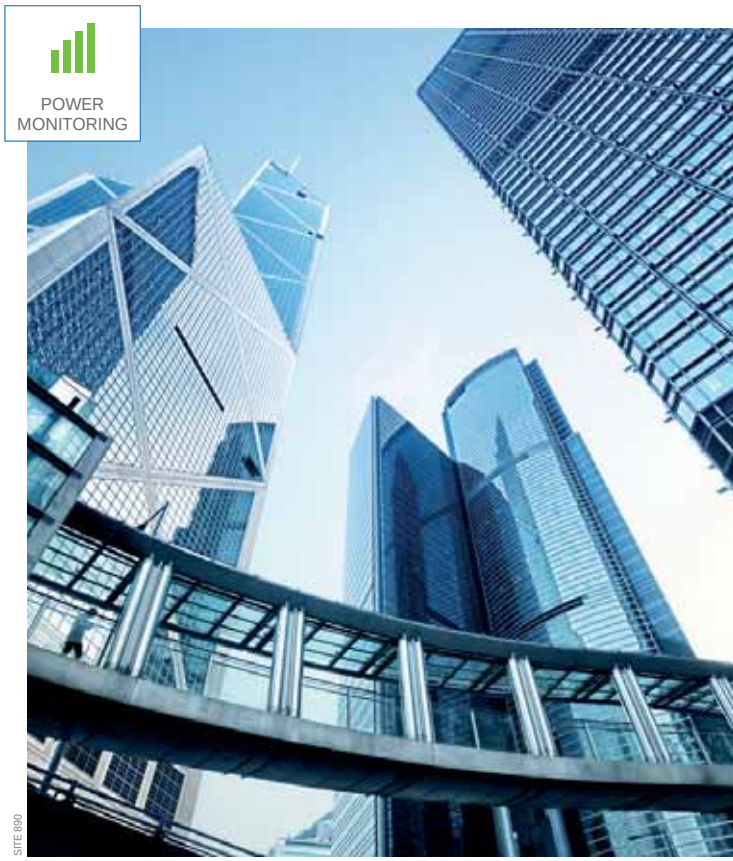
- isolation and on load breaking for the most demanding switching applications,
- continuity of the power supply to electrical facilities via manual remotely operated or automatic transfer switching equipment,
- protection of persons and assets via fusebased and other specialist solutions.

Power monitoring

Improving energy performance and monitoring installations

Socomec solutions - from current sensors to power meters and from IOT to energy management software - are driven by experts in energy performance. They meet the requirements of facility managers and operators of commercial, industrial and critical buildings to enable and facilitate:

- the measurement of energy consumption, the identification of sources of excess consumption and the generation of awareness amongst occupants as to their impact,
- the utilisation of the best available tariffs, utility bill checks and the accurate distribution of energy billing between consumer entities,
- the limitation of reactive energy and avoidance of associated tariff penalties,
- capacity management and the evolution of the electrical installation,
- improvements to power availability by monitoring and detecting insulation faults.



SITE 890

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SITE 857

Power conversion

Ensuring the availability and storage of high quality power

With its wide range of continuously evolving products, solutions and services, Socomec are recognised experts in the cutting-edge technologies used for ensuring the highest availability of the electrical power supply to critical facilities and buildings, including:

- static uninterruptible power supplies (UPS) for high-quality power free of distortions and interruptions occurring on the primary power supply,
- changeover of static, high availability sources for transferring the supply to an operational back-up source,
- permanent monitoring of the electrical facilities to prevent failures and reduce operating losses,
- energy storage for ensuring the proper energy mix of buildings and for stabilisation of the power grid.

Expert services

Enabling available, safe and efficient energy

Socomec is committed to delivering a wide range of value-added services to ensure the reliability and optimisation of end-users' equipment:

- prevention and service operations to lower the risks and enhance the efficiency of operations, for high-quality power free of distortions and interruptions occurring on the primary power supply,
- measurement and analysis of a wide range of electrical parameters leading to recommendations for improving the site's power quality,
- optimisation of the total cost of ownership and support for a safe transition when migrating from an old to a new generation of equipment,
- consultancy, deployment and training from the project engineering stage through to final procurement,
- performance assessment of the electrical installation throughout the life cycle of the products via analysis of data transmitted by connected devices.

APPLI 759

Your partner in expert services

Socomec is committed to delivering a wide range of value-added services to ensure the reliability and optimisation of end-users' equipment during its life cycle

- Prevention and service operations to reduce risk and enhance equipment efficiency.
- Measurement and analysis of a wide range of electrical parameters leading to recommendations for power quality improvement.
- Consultancy, deployment and training from the project engineering stage to the final procurement stage.

Specialists - at your service

Our Services team comprises qualified engineers whose mission is to ensure the correct operation of your equipment. We offer a comprehensive support service package which gives you complete peace of mind: commissioning, on-site testing, preventive maintenance visits, 24-hour call out and rapid on-site repairs, original spare parts, power quality and energy efficiency audits, consultancy, design and implementation of installation modifications and updates.

Our Services team is the most reliable partner when it comes to advising you on the maintenance of Socomec equipment and providing resolution to any problems in accordance with current environmental standards and procedures.

Professional tools

Our Services team is provided with the latest essential equipment including:

- Personal Protective Equipment (protective goggles, helmet, insulated gloves, fireproof jacket, safety shoes, earplugs…),
- laptop embedded with all software required to optimise equipment performance,
- measuring equipment calibrated annually by our metrology department (multimeter, digital scope, current clamps, infra-red camera, power analyser).

Reports

An exhaustive report is generated for each intervention (including commissioning, preventive maintenance and troubleshooting) which is then automatically sent to the customer and synchronised with our systems.

Remote diagnostics

In case of any anomaly, an automatic notification is sent to a local call centre for proactive online troubleshooting.

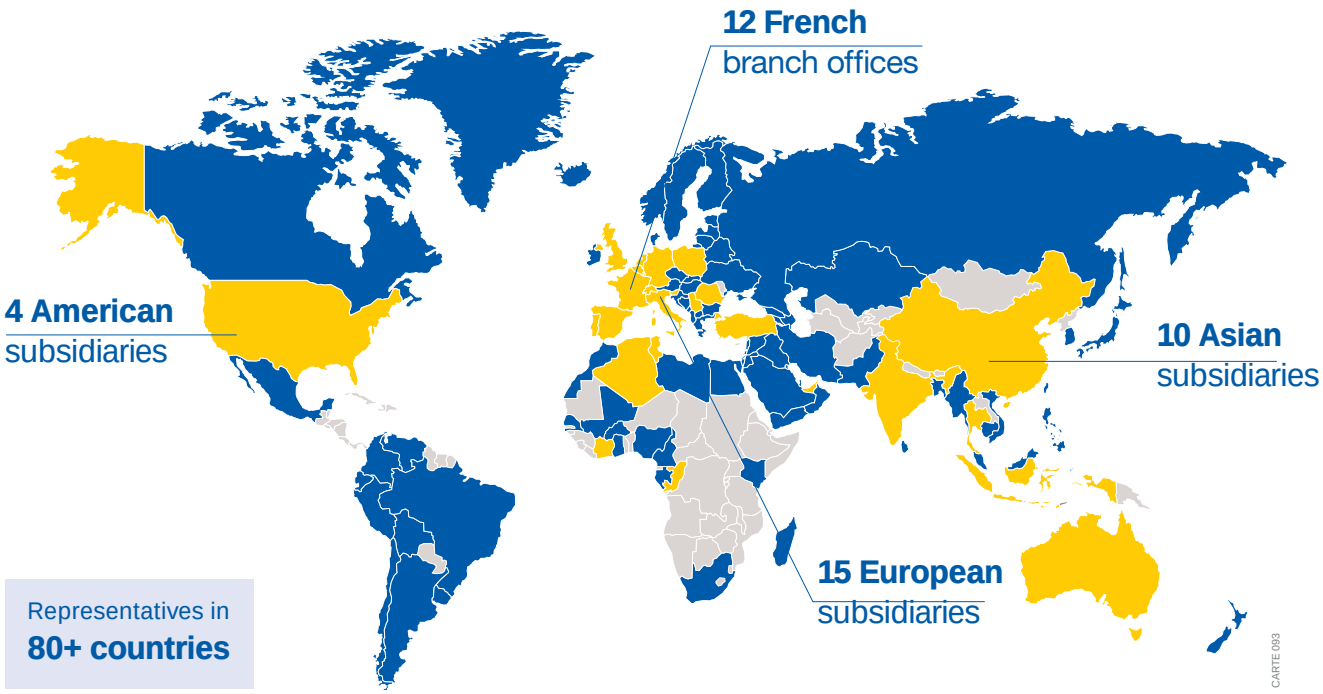
Availability of original spare parts

The various original parts and components that we stock guarantee that any faulty equipment can be rapidly brought back online, whilst maintaining its original performance and reliability.

Key figures

Nearly 400 Socomec experts - supported by 200 engineers and technicians from across our distributor network - can provide the solutions to your specific needs.

- Subsidiaries
- Distributors
- Contact us



On-site service management

110,000
service operations per year (mainly preventive visits)

98 %
Service Level Agreement compliance rate

Technical hotline network

25+
languages spoken

3
advanced technical support centres

110,000+
incoming calls handled per year

Certified expertise

8,000
hours of technical training undertaken every year (product, methodology and safety)

Expert in power conversion

maximising power quality and availability

3 levels of protection

according to your criticality

Prime | Superior | Ultimate

Socomec at the forefront of innovation

European design and production
Socomec's products are designed and developed by our talented team of in-house engineers with their real depth and wide knowledge in power electronics and digital controls. Our expertise in manufacturing - combined with the use of only the highest quality components in the most efficient production and testing processes – means that when it comes to reliability our products are unrivaled.

Socomec factories join the digital world
Since 2014, Socomec has been investing to bring its manufacturing facilities in line with industry 4.0 standards. Beyond lean manufacturing, the digitalisation of production means that we can ensure the delivery of a competitive offering with continuously improving service levels whilst also supporting the creation of more personalised products.

Factory Acceptance Test (FAT)
The FAT service is available to all customers who want to audit their order before it leaves the factory. With the support of Socomec Platform Engineers and dedicated infrastructure, several live product tests are available, including:

- standard tests to verify product performance,
- custom tests according to your precise requirements.

ELITE UPS: a mark of efficiency

Socomec, as CEMEP UPS manufacturer member, has signed a Code of Conduct put forward by the Joint Research Centre of the European Commission (JRC), to ensure the protection of critical applications and processes ensuring 24/7 continuous high quality supply. The JRC commits to mitigating energy losses and gas emissions caused by UPS equipment, therefore maximising UPS efficiency.

3 levels of UPS protection to keep your business up and running

PRIME

Trustworthy power
Reliable and cost effective UPS to assure operational continuity.

SUPERIOR

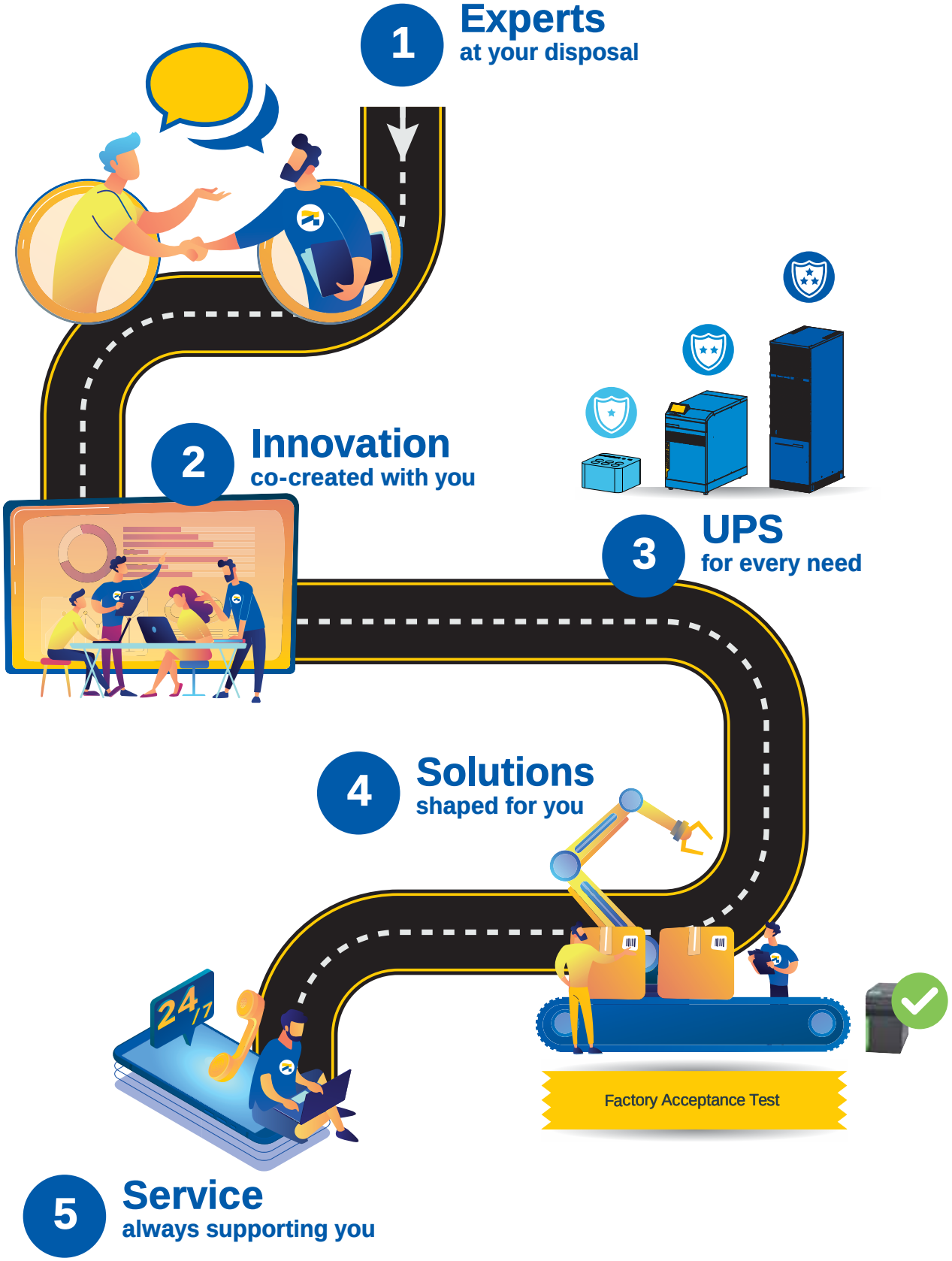
Unrivalled power performance
Best in class & certified UPS performance to optimise usage and Total Cost of Ownership (TCO).

ULTIMATE

Fault tolerant power without compromise
Ultimate UPS with fully redundant architecture for maximum availability, minimum MTTR and risk free maintenance.

Supporting your projects

anytime, anywhere, every time



Connected services

Digital platforms for UPS selection, installation and operation

Selection

UPS selector

Choose the ideal UPS solution
for your application
- today and tomorrow
- from 600 VA to 120 kVA

Installation

eWIRE

eWIRE application provides clear and comprehensive guidance via your mobile phone for an easy and foolproof UPS installation activity

App Store Google Play

Maintenance

SoLink

SoLink is the Socomec 24/7 Remote Monitoring Service connecting your UPS to the nearest Socomec Service Centre

Design

eRULER

eRULER specifies the key electrical and physical parameters to prepare and size the UPS installation

Operation

SoLive UPS

SoLive UPS is a mobile application to monitor the UPS:
- Overview of all installed units
- Real-time alarm and notification
- Dashboard with operating parameters

App Store Google Play

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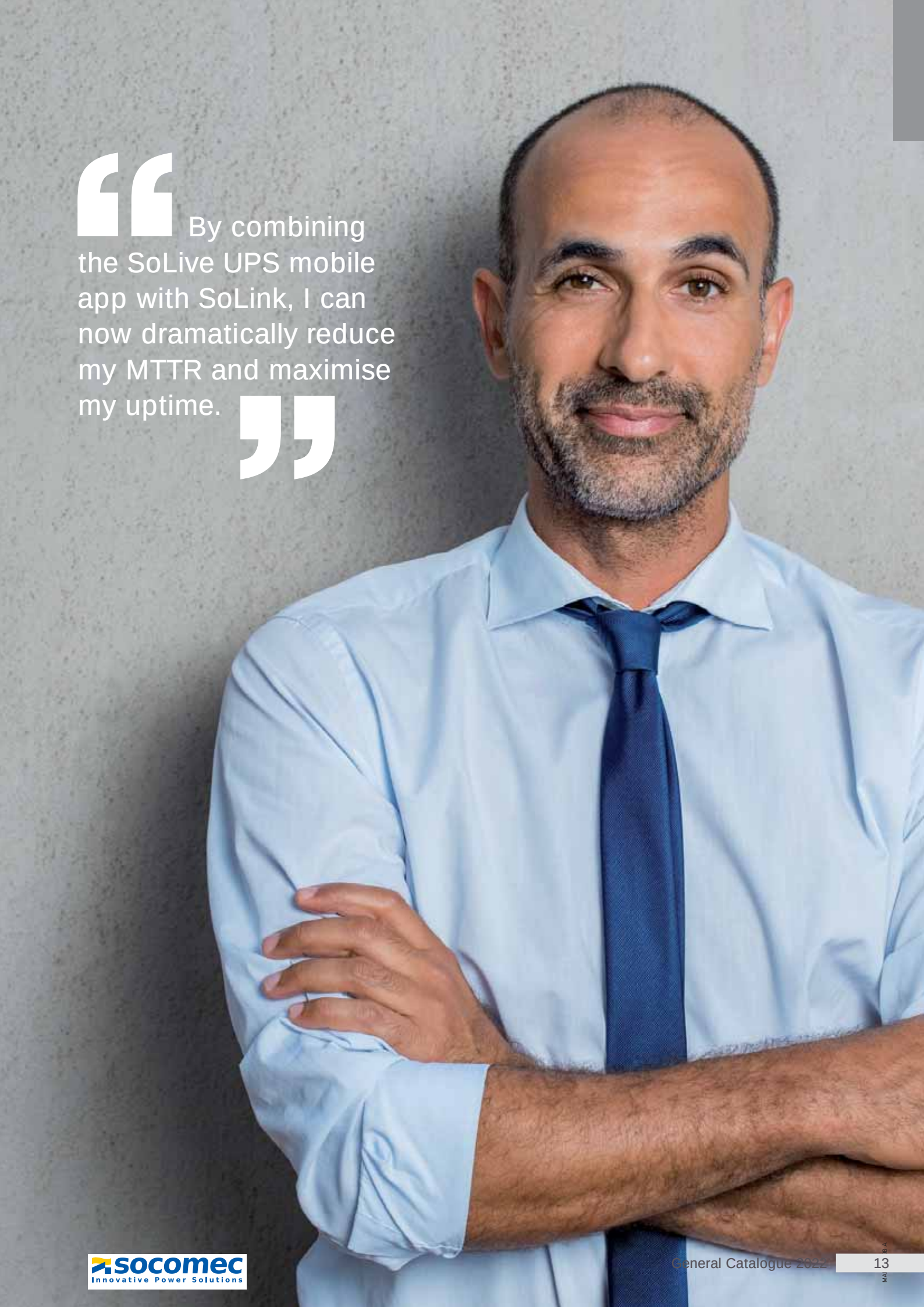
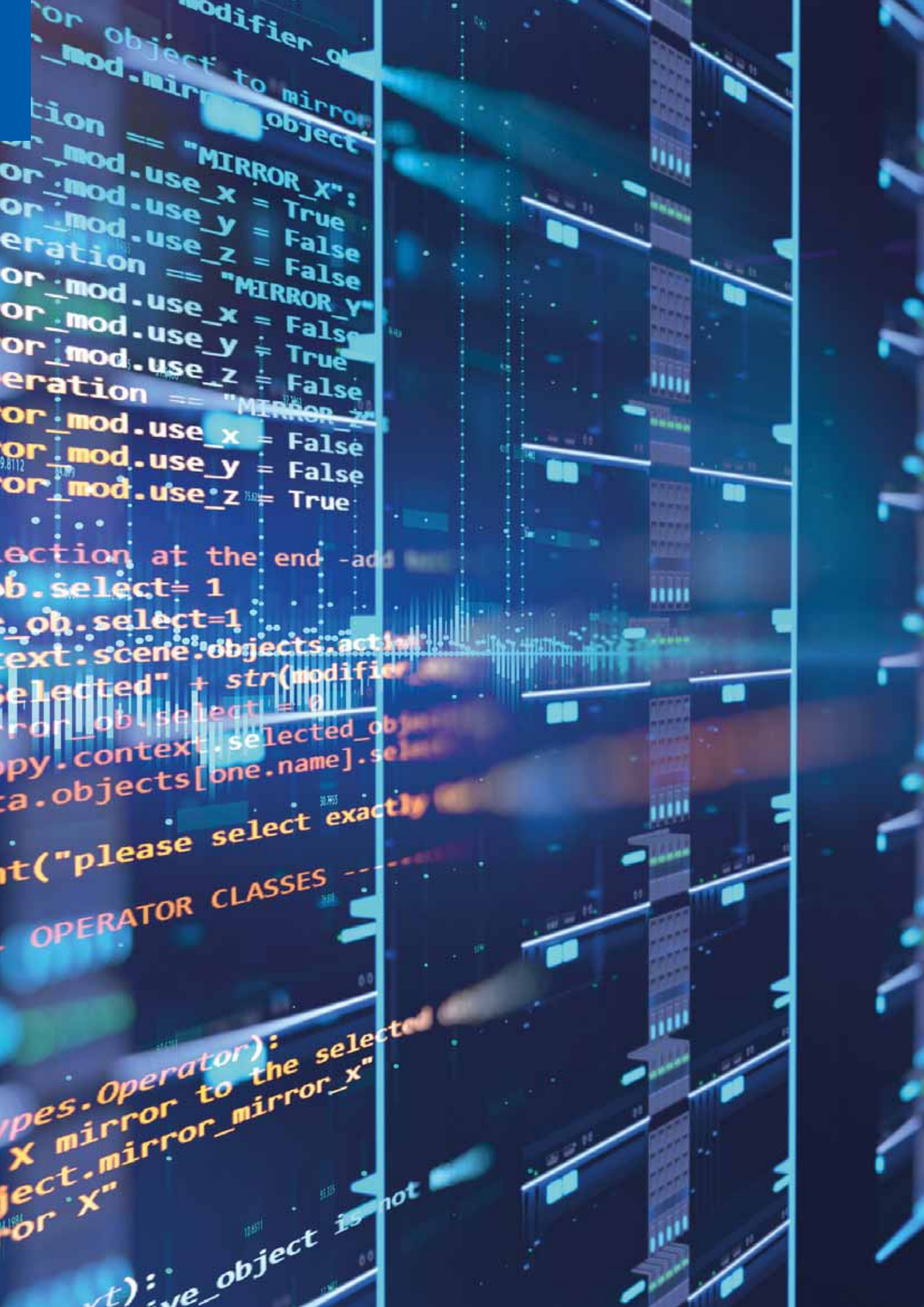

By combining the SoLive UPS mobile app with SoLink, I can now dramatically reduce my MTTR and maximise my uptime.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OPERATOR CLASSES

Ultimate

UPS - Modular solutions

MODULYS XS
2,5 to 20 kVA
p. 16

MODULYS RM GP
25 to 75 kVA/kW
p. 20

MODULYS GP
25 to 600 kVA/kW
p. 24

MODULYS XL
200 to 4800 kVA/kW
p. 30

STS - Static Transfer System

STATYS
Hot Swap 19" rack system
32 to 100 A
p. 34

STATYS
Cabinet
200 to 1600 A
p. 34

STATYS
Integrable Chassis (OEM)
200 to 1800 A
p. 34

Fault-tolerant power without compromise

Modular and redundant solutions strongly designed to anticipate an event and predict a fault in order to ensure maximum availability.

MODULYS XS

The ultimate modularity for the most critical environments
from 2.5 to 20 kVA/kW

View our video to discover more

Designed with no single point of failure, the MODULYS XS offers high availability and redundant power supply to very critical applications.
With its flexible modularity providing seamless and risk-free power scalability up to 20 kW, the MODULYS XS range is the ideal solution for unscheduled site upgrades or incremental power evolutions. The installed power can be increased up to 20 kW by adding hot-swap plug-in power modules for incremental steps of either 2.5 kW or 5 kW.

Fully modular system

- Pluggable and hot-swapped power module with system's self-setting during installation.
- All the modules can be swapped without switching to external manual bypass.
- Hot swappable battery module designed to be installed with power module in the same UPS enclosure.

'Forever Young' concept

- Eliminates end-of-life criticality.
- Module compatibility guaranteed for 20+ years.
- Allows for the implementation of future module technology.

Totally redundant design

- N+1, N+X redundancy level.
- Totally independent power modules to avoid any single point of failure.
- Real selective module disconnection with galvanic separation.
- Distributed parallel control.

Enhanced serviceability performance

- Fast & safe maintenance based on hot-swap modules.
- Designed for concurrent maintenance.

The solution for

- > Small data centres
- > Edge data centres
- > Branch office
- > Computer networks
- > Telecom & media nodes
- > Light industrial applications
- > Transportation control/signals

Strong points

- > Fully modular system
- > Totally redundant design
- > 'Forever Young' concept
- > Enhanced serviceability performance

Compliance with standards

- > IEC 62040-1
- > IEC 62040-2
- > EN 50581
- > IEC 63000

Certifications and attestations

MODULYS XS is certified by TÜV SÜD with regard to product safety (EN 62040-1)

RoHS COMPLIANT

EU CODE OF CONDUCT ELITE UPS

Advantages

PF 1

kW = kVA

Li-Ion

Ready for Li-Ion battery

1 000 000 HOURS MTBF

SoLive UPS

App Store

Google Play

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Standard electrical features

- Dual input mains.
- Built-in backfeed protection.
- EPO (Emergency Power Off).
- EBS (Expert Battery System) for battery management.
- Tropicalised (Conformal Coating) boards.

Standard communication features

- User-friendly 7" touch-screen multilingual colour graphic display (MC models).
- LCD multilingual graphic dispaly (RM & TC models).
- 2 slots for communication options.
- USB port to download UPS report and log file.
- Ethernet port for service purpose.

Communication options

- Dry-contact interface (configurable voltage-free contacts).
- MODBUS RTU RS485 or MODBUS TCP.
- BACnet/IP interface.
- NET VISION: professional WEB/ SNMP Ethernet interface for secure UPS monitoring and remote automatic shutdown.
- IoT gateway for Socomec cloud services and SoLive UPS mobile app.
- Remote touch-screen panel.

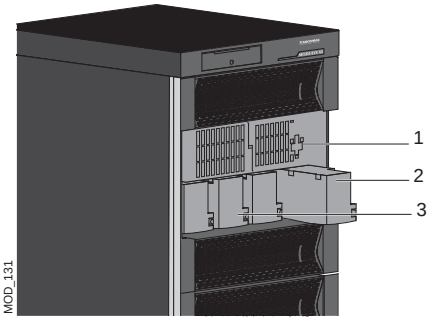
Remote monitoring and cloud services

- SoLink: Socomec 24/7 remote monitoring service connecting your installation to the nearest Socomec Service Centre.
- SoLive UPS: mobile app enabling the monitoring of the UPS systems from a smartphone.

Technical data

MODULYS XS							
UPS SYSTEM							
Model		MC		RM		TC	
Slot		9	6	4	3	3	
Power (Sn)		up to 20 kVA		up to 15 kVA			
Power (Pn)		up to 20 kW		up to 15 kW			
Power factor		1					
Number of power modules		4		3			
Input/Output		X/1					
Redundant configuration		N+x					
INPUT							
Rated voltage		230 V 1ph+N (±20%), 400 V 3ph+N (±20%)					
Frequency		50/60 Hz ±10%					
Power factor		> 0.99					
OUTPUT							
Voltage		230 V (1ph) ± 3% (can be set 208/220/240 V)					
Frequency		50/60 Hz ±2% (±0.1% in battery mode)					
Overload		110% for 1 minutes, 130% for 10 seconds, 200% for 5 cycles					
BYPASS							
Voltage		rated output voltage ±15%					
Frequency		50/60 Hz ±2% (configurable for GenSet compatibility)					
EFFICIENCY							
Online double conversion mode		up to 92.8%					
ENVIRONMENT							
Ambient temperature		0 to 40 °C (15 to 25 °C for maximum battery life)					
Relative humidity		0 to 95% without condensation					
Maximum altitudine		2000 m without derating					
UPS CABINET							
Display		7" touch		3.5"			
Dimensions (mm)	W	550	550	449	449	600	
	D	635	635	570	570	600	
	H	1460	1060	708	575	1400	
Weight (kg) (empty cabinet)		120	90	50	44	140	
Colour		RAL 7016					
Degree of protection		IP20					
STANDARDS							
Safety		IEC 62040-1: 2017 (CB Report)					
EMC		IEC 62040-2: 2005					
Product declaration		CE, RCM (E2376), UKCA, EAC					

Unit dimensions and weights



1. Plug-in Power Module
2. Plug-in Battery Module
3. Plug-in Battery Pack

	POWER MODULES	
Power (kVA/kW)	2.5	5
Input/Output	1/1	X/1
Dimensions (mm) W x D x H	446x475x131	446x475x131
Weight (kg)	14	18

	BATTERY MODULE
Battery voltage	48 V
Dimensions (mm) W x D x H	446x475x131
Weight (kg)	10

	BATTERY PACK
Type	sealed lead-acid (normal-life & long-life)
Battery voltage	48 V
Weight (kg)	9

MODULYS XS

Single-phase UPS

from 2.5 to 20 kVA/kW

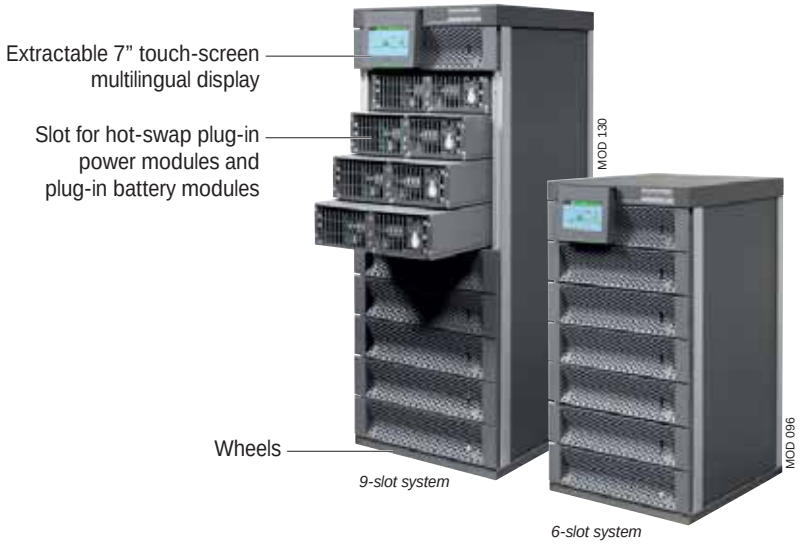
MODULYS XS MC: for critical IT & non-IT applications

Total resilience

- Electronics-free (failure-free) cabinet.
- Totally independent and self-sufficient power modules.
- No centralised control for parallel and load sharing management.

Maximum availability

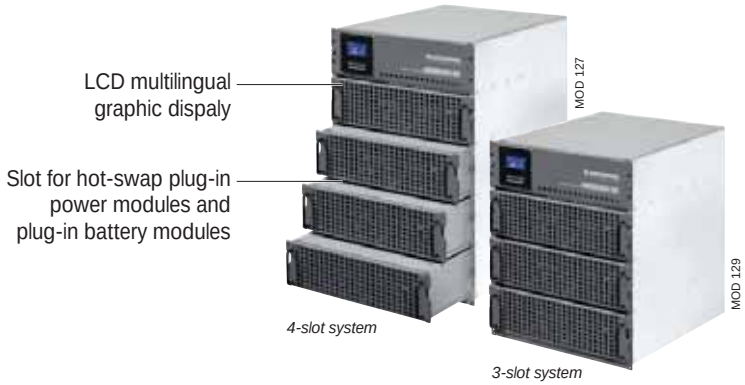
- Fast recovery of lost redundancy thanks to minimum MTTR (Mean Time To Repair).
- No risk of downtime during power upgrading and maintenance.
- No risk of failure propagation.



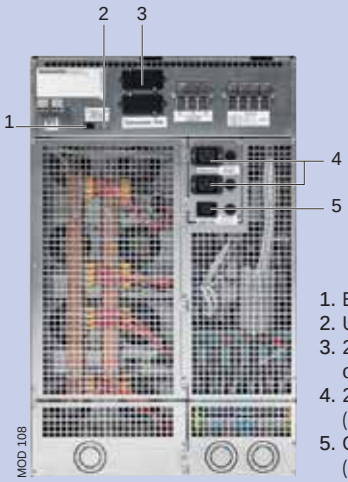
MODULYS XS RM: for integration in 19" rack cabinets

Easy to integrate

- Specifically designed for integration in 19" standard rack cabinets.
- Adjustable rails and mounting accessories.
- Easy to manage, integrate and customise.
- Flexible simplified cabling



Compact sub-rack enclosure



1. Ethernet port
2. USB port
3. 2 slots for communication options
4. 2 full power output sockets (IEC 320)
5. Output socket for Power Share (IEC 320)

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MODULYS XS TC: for long autonomy requirement

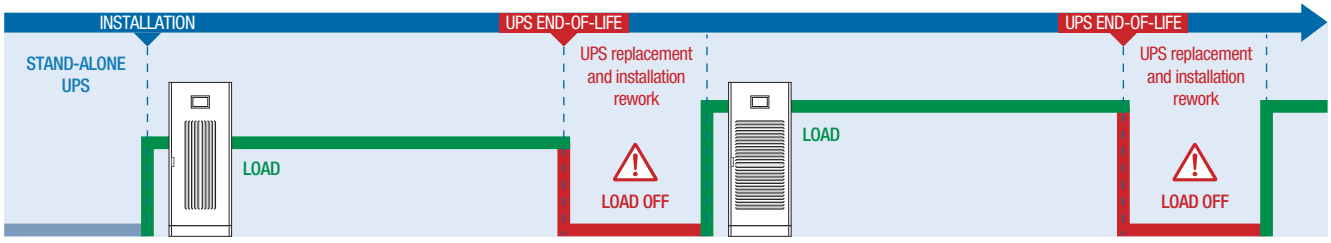
Fast recharge, long backup time

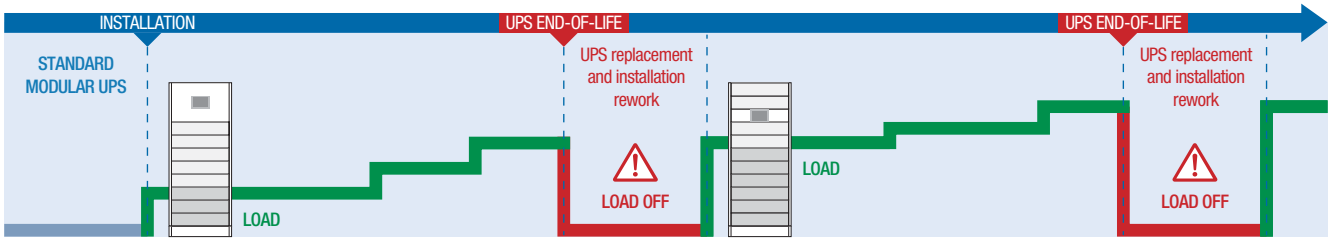
- Specially designed for:
  - telecommunication applications,
  - installation in remote unmanned places,
  - standard long-life batteries,
  - robust metallic enclosures.

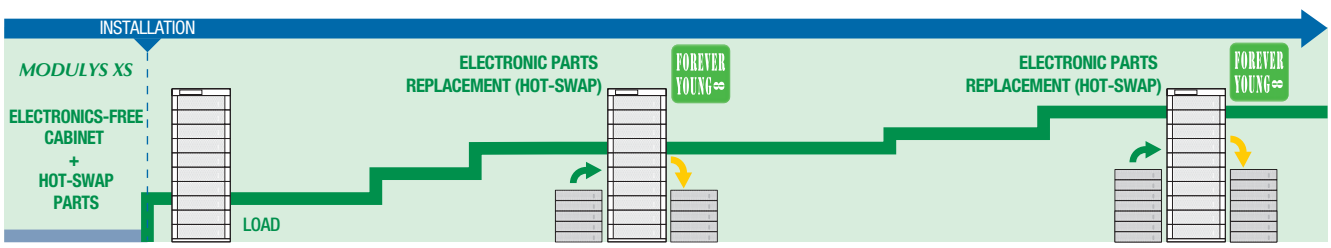
3-slot system

MODULYS XS "Forever Young" concept

- It eliminates issues surrounding the criticality of the UPS system's end-of-life.
- It is based on:
  - a modular, electronics-free UPS cabinet - thus failure-free and with no ageing,
  - plug-in components - quick and easy to replace avoiding ageing issues.
- It allows the life-cycle of the MODULYS XS to be extended via periodic hot-swap replacement of power modules and other electronic parts before they start to age and wear out.
- Each renewal:
  - ensures a new start for the MODULYS XS system's life-cycle,
  - avoids all the problems and risks associated with substituting the UPS,
  - provides an always up-to-date system, as the new parts will incorporate the latest technology.







MODULYS RM GP

Rack-mounted modular UPS system
from 25 to 75 kVA/kW

Full rack integration

- Designed for easy and no-risk integration in 19” rack cabinets.
- Total compatibility with any 19” standard rack cabinet.
- High power density.
- Easy to manage, integrate and customise.
- Flexible simplified cabling.

Overall cost optimisation

- Time saving integration process.
- No risk of cost and budget overruns.
- Compact solution saving valuable space.
- Simplified logistics.
- Easy integration: avoids costly set-up and reworking.

Totally redundant design

- N+1 redundancy level.
- Designed for no single point of failure.
- No centralised parallel control.
- Totally independent power modules.

Automatic firmware alignment

- Without human intervention.
- Completely risk free.
- Load protected in inverter mode.

Enhanced serviceability performance

- Power module automatic firmware alignment.
- Fast & safe maintenance based on hot-swap parts (power modules, bypass, electronic boards, batteries).
- Ready for concurrent maintenance.
- Load fully protected in double conversion mode (VFI) during power module replacement.
- 3-colour LED bar for quick and easy detection of the power module status.
- Battery can be hot-swapped without shutting down the connected equipment.
- Totally front access operation.

‘Forever Young’ concept

- Exclusive life cycle extension programme.
- Eliminates end-of-life criticality.
- Based on an electronics-free sub-rack enclosure + a set of plug-in parts.
- Module compatibility guaranteed for 20+ years.
- Allows for the implementation of future module technology.
- Company declaration of 20-year compatibility.

The solution for

- > Integration in 19” standard rack cabinets
- > Computer rooms
- > Data centers
- > Edge Computing
- > Banks
- > Healthcare facilities
- > Insurance
- > Telecom
- > Infrastructures

Certifications and attestations

Green Power 2.0 MODULYS RM GP module is certified by TÜV SÜD with regard to product safety (EN 62040-1).

Green Power 2.0 MODULYS module efficiency & performance are tested and verified by TÜV SÜD.

SERMA TECHNOLOGIES

1 000 000 HOURS MTBF

Green Power 2.0 MODULYS RM GP module MTBF is calculated and verified 1,000,000 hours by SERMA TECHNOLOGIES (IEC 62380).

RoHS COMPLIANT

EU CODE OF CONDUCT ELITE UPS

Advantages

HOT-SWAP

HIGH POWER DENSITY

Highest rack-mounted UPS power density on the market

PF 1

automatic firmware alignment

96.5% EFFICIENCY

High efficiency minimises energy consumption and reduces energy costs

Li-Ion

Ready for Li-Ion battery. Ultra-fast recharge function

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Standard electrical features

- Dual input mains.
- Internal maintenance bypass.
- Backfeed protection: detection circuit.
- EBS (Expert Battery System) for battery management.
- Auto battery test.
- Battery temperature sensor.

Electrical options

- 19" 4U battery rack.
- External battery cabinet.
- High capacity battery charger.

Standard communication features

- User-friendly 7" touch-screen multilingual colour graphic display.
- 2 slots for communication options.
- USB port to download UPS report and log file.
- Ethernet port for service purpose.
- Commissioning wizard.

Communication options

- Dry-contact interface (configurable voltage-free contacts).
- MODBUS RTU RS485 or MODBUS TCP.
- BACnet/IP interface.
- NET VISION: professional WEB/SNMP Ethernet interface for secure UPS monitoring and remote automatic shutdown.
- REMOTE VIEW PRO supervision software.
- IoT gateway for Socomec cloud services and SoLive UPS mobile app.
- Remote touch-screen panel.

Remote monitoring and cloud services

- SoLink: Socomec 24/7 remote monitoring service connecting your installation to the nearest Socomec Service Centre.
- SoLive UPS: mobile app enabling the monitoring of the UPS systems from a smartphone.

Total resilience

- Electronics-free (failure-free) sub-rack enclosure.
- Totally independent and self-sufficient modules.
- Real module selective disconnection (automatic inverter bypass with galvanic separation).
- No centralised control for parallel and load sharing management.
- Totally segregated, fully sized and centralised auxiliary mains bypass.
- Configurable N+1 redundancy (power & battery).
- No single point of failure.
- Redundant parallel bus connection (ring configuration).

Optimum reliability

- Power module designed for superior robustness verified by an independent body (MTBF > 1,000,000 hr).
- Hybrid bypass architecture with distributed module's bypass and centralised mains bypass for ultimate reliability and robustness.
- Highly robust bypass (MTBF > 10,000,000 hr)
- Acid leak-proof modular battery box.

Maximum availability

- Fast recovery of lost redundancy thanks to minimum MTTR (Mean Time To Repair).
- No risk of downtime during power upgrading and maintenance.
- No risk of failure propagation.

Technical data

	MODULYS RM GP	
Model	9U	15U
Number of power modules	1 to 2 x 25 kW	1 to 4(1) x 25 kW
Configuration	N, N+1 redundant	
Power (Sn)	25 to 50 kVA	25 to 75 kVA
Power (Pn)	25 to 50 kW	25 to 75 kW
Input / output	3 / 3	
INPUT		
Voltage	400 V 3ph+N (340 V to 480 V)	
Frequency	50 / 60 Hz ±10 %	
Power factor / THDI	> 0.99 / < 1.5 %	
OUTPUT		
Voltage	380 / 400 / 415 V ±1 % 3ph+N	
Frequency	50 / 60 Hz ±0.1 %	
Voltage distortion	< 1 % (linear load), < 3 % (non-linear load according to IEC 62040-3)	
Short-circuit current	up to 3 x In	
Overload	125 % for 10 minutes, 150 % for 1 minute	
Crest factor	3:1	
HOT-SWAP BYPASS		
Voltage	Rated output voltage ±15 % (configurable from 10 % to 20 %)	
Frequency	50 / 60 Hz ±2 % (configurable for GenSet compatibility)	
Weight	7 kg	7.5 kg
EFFICIENCY (TÜV SÜD VERIFIED)		
Online double conversion mode	up to 96.5 %	
ENVIRONMENT		
Ambient temperature	0 °C to 40 °C (15 to 25 °C for maximum battery life)	
Relative humidity	0 to 95 % without condensation	
Maximum altitude	1000 m without derating (3000 m max)	
Acoustic level at 1 m	< 53 dBA	
UPS RACK		
Dimensions W x D x H	442 mm x 920 mm x 9 U	442 mm x 920 mm x 15 U
Weight (empty cabinet)	36 kg	42 kg
Degree of protection	IP20	
HOT-SWAP POWER MODULE		
Height	3U	
Weight	34 kg	
Type	Hot plug-in / Hot-swappable	
MTBF	> 1000000 hours (calculated and verified)	
HOT-SWAP BATTERY RACK		
Type	Acid leak-proof - Long Life batteries	
Protection	Independent protection for each battery string	
Dimensions W x D x H	442 mm x 890 mm x 4 U	
Weight (empty rack)	15 kg	
STANDARDS		
Safety	EN 62040-1, EN 60950-1	
EMC	EN 62040-2 Class C2	
Performance	EN 62040-3 (VFI-SS-111)	
Product declaration	CE, RCM (E2376), EAC, UKCA	

(1) 4th module is for redundancy.

Our dedicated Expert Services for UPS

We offer services to ensure your UPS highest availability:

> Commissioning
> On-site intervention
> Preventive maintenance visits
> 24-hour call out and rapid on-site repairs
> Maintenance packages
> Training
> Remote monitoring service

www.socomec.com/services

MODULYS RM GP

Three-phase UPS

from 25 to 75 kVA/kW

The benefit of a system designed for 19” rack integration

Easy to integrate

- Specifically designed for integration in 19” standard rack cabinets.
- Adjustable rails and mounting accessories.
- High power density (>6 kW/U).
- Low weight for easy integration.
- Pre-cabled system for simplified connections.
- Flexible cabling management for top, bottom and mixed top / bottom entry cable.
- Integrated cables organiser for tidy connections.
- Low power dissipation (<40 W per supplied kW).

No-risk integration

- Assured compatibility with any 19” standard rack cabinet.
- Pre-engineered and lab-tested parts assuring total system reliability.
- Automatic self-configuration power modules.
- No risk of design oversize due to project data uncertainty thanks to power module scalability.

Easy to customise

- Complete set of pre-engineered and pre-tested parts to meet any customer need:
  - modular Power Modules,
  - special power modules with extra battery charger for extremely long BUT,
  - plug-in J-BUS communication board for BMS integration,
  - plug-in SNMP board for UPS monitoring and shutdown management,
  - plug-in programmable dry-contact board,
  - environmental sensors,
  - blank panels (covers for empty slots),
  - rack-mounted battery modules,
  - external battery cabinet,
  - isolation transformer,
  - bypass redundant cooling.

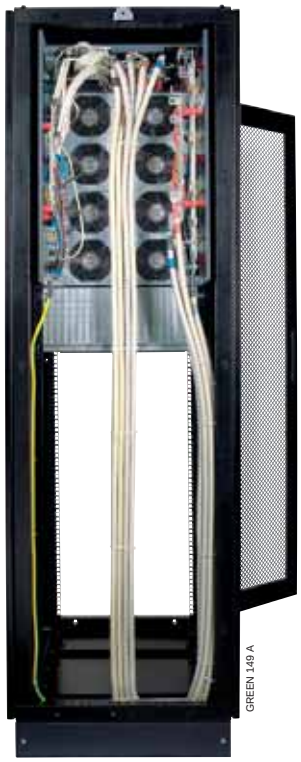
Easy to manage

- Full documentation package including schematics, integration instructions, technical sheets, etc.
- Factory-set configurations for easy model selection.
- Full set of pre-engineered options for easy product customisation.

Pre-cabled system for simplified connections

> Designed for complete integration in any 19” standard rack cabinet.

Example of integration (3x25 kW).
Only 15 U of rack space occupied: space-saving design leaving free space for other rack-mounted devices. One empty slot in the MODULYS RM GP sub-rack remains available for power upgrade or redundancy.



Rear view (before adding rear protective cover). Flexible cabling management for easy connections and tidier cabling.

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Overall cost optimisation

- Compact sub-rack enclosure saving valuable cabinet rack space.
- 2 sub-rack enclosure models for optimum sizing.
- Best-in-class €/kW ratio thanks to high power density and PF=1.
- Cost-optimised solution for minimum initial investment.
- Plug & Play and self-configuration power modules for easy and time saving system set up.
- Pre-engineered and lab-tested parts for easy and time saving customisation.
- Repeatable and standardised architecture for time saving design and know-how capitalisation.

Simplified logistics

- Fewer standardised parts for easy ordering.
- Parts always in stock for fast procurement.
- Fewer parts covering a wide range of configurations, power, back-up time and options.
- Once integrated in the 19" rack cabinet, MODULYS RM GP can be safely shipped with the power modules plugged in.

Compact 15U sub-rack enclosure

> Designed for complete integration in any 19" standard rack cabinet.

Pre-cabled rack with maintenance bypass

M4-R-075-82B0	15U rack, 4 slots
M4-R-050-82B0	9U rack, 2 slots

Plug-in boards

CP-OP-ADC+SL	Programmable IN / OUT dry contact + serial link
CP-OP-MODTCP	MODBUS TCP interface
NET-VISION6CARD	NET VISION card, WEB / SNMP interface IPV4 / IPV6

Other options

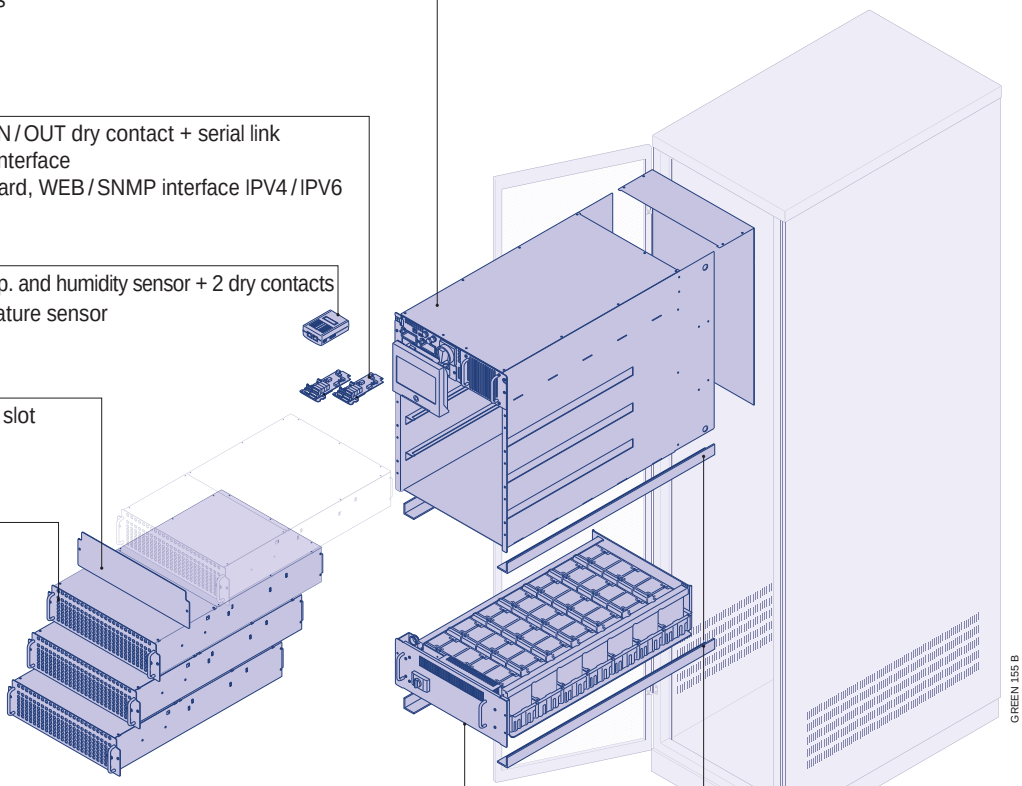
NET-VISION-EMD	Environment temp. and humidity sensor + 2 dry contacts
MAS-OP-TEMP	External temperature sensor

Blank panel

M4-RI-OP-SSC	Cover for empty slot

Power module - 25 kW

M4-RI-25



4U battery rack

M4-BR-009L	With 42 x 9Ah batteries, fuse and switch
M4-BR-009L-B	Empty, for 42 x 9Ah batteries including interconnections, fuses and switch

Mounting accessories

M4-RI-OP-RAIL	Adjustable rails for rack mounting support

MODULYS GP

Unique, fully modular and redundant solution
from 25 to 600 kVA/kW

View our video to discover more

With its flexible modularity providing seamless and risk-free power scalability up to 600 kW, the MODULYS GP range is the ideal solution for unscheduled site upgrades or incremental power evolutions. The installed power can be increased up to 600 kW by adding hot-swap plug-in power modules for incremental steps of 25 kW.
Designed with no single point of failure, the MODULYS GP offers all the advantages of the Green Power 2.0 technology.

Fully modular system

- Plug-in power module.
- Plug-in battery module.
- Plug-in auxiliary mains bypass module.
- Top or bottom connection.
- Top-air exhaust module.

Totally redundant design

- N+1, N+x redundancy level.
- Designed for no single point of failure.
- No centralised parallel control.
- Totally independent power modules.
- Redundant parallel bus connection (ring configuration)

Automatic firmware alignment

- No human intervention.
- Completely risk free.
- Load protected in inverter mode.

Enhanced serviceability performance

- Power module automatic firmware alignment.
- Fast & safe maintenance based on hot-swap parts (power modules, auxiliary mains bypass, electronic boards).
- Load fully protected in double conversion mode (VFI) during power module replacement.
- 3-colour LED bar for quick and easy detection of the power module status.
- Battery can be hot-swapped without shutting down the connected equipment.
- Ready for concurrent maintenance.

‘Forever Young’ concept

- Exclusive life cycle extension programme.
- Eliminates end-of-life criticality.
- Based on an electronics-free cabinet + a set of plug-in parts.
- Module compatibility guaranteed for 20+ years.
- Allows for the implementation of future module technology.
- Company declaration of 20-year compatibility.

The solution for

- > Computer rooms
- > Dacentres
- > Banks
- > Healthcare facilities
- > Insurance
- > Telecom
- > Transport

Advantages

- > Ensures absolute business continuity
- > Aligns capacity to business demand
- > Optimises costs over the full life cycle

Certifications and attestations

Green Power 2.0 MODULYS GP is certified by TÜV SÜD with regard to product safety (EN 62040-1).
Green Power 2.0 MODULYS GP efficiency & performance are tested and verified by TÜV SÜD

SERMA TECHNOLOGIES

1 000 000 HOURS MTBF

Green Power 2.0 MODULYS GP power module MTBF is calculated and verified higher than 1,000,000 hours by SERMA TECHNOLOGIES (IEC 62380)

MODULYS GP has been tested by CESI in compliance with the standard test procedure for the seismic qualification of electrical cabinets. MODULYS GP has successfully passed severe tests to verify its resistance to withstand Zone 4 seismic events.

RoHS COMPLIANT

EU CODE OF CONDUCT ELITE UPS

Advantages

3 LEVEL TECHNOLOGY

96% .5 EFFICIENCY

PF 1

HOT-SWAP

Li-Ion

Ready for Li-Ion battery

automatic firmware alignment

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Standard electrical features

- Dual input mains.
- Internal maintenance auxiliary mains bypass.
- Backfeed protection: detection circuit.
- EBS (Expert Battery System) for battery management.
- Auto battery test.
- Battery temperature sensor.
- Energy saver mode.

Electrical options

- External battery cabinet.
- High capacity battery charger.
- ACS synchronisation system.
- Internal backfeed isolation device.
- Gen-set compatibility (via dry-contact interface).

Standard communication features

- User-friendly 7" touch-screen multilingual colour graphic display.
- 2 slots for communication options.
- USB port to download UPS report and log file
- Ethernet port for service purpose
- Commissioning wizard

Communication options

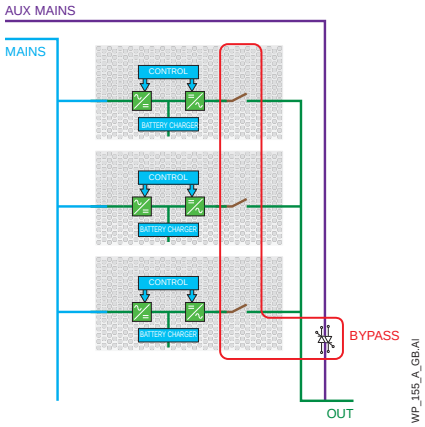
- Dry-contact interface (configurable voltage-free contacts).
- MODBUS RTU RS485 or MODBUS.
- BACnet/IP interface.
- NET VISION: professional WEB/SNMP Ethernet interface for secure UPS monitoring and remote automatic shutdown.
- REMOTE VIEW PRO supervision software.
- IoT gateway for Socomec cloud services and SoLive UPS mobile app.
- Remote touch-screen panel.

Remote monitoring and cloud services

- SoLink: Socomec 24/7 remote monitoring service connecting your installation to the nearest Socomec Service Centre.
- SoLive UPS: mobile app enabling the monitoring of the UPS systems from a smartphone.

Hybrid bypass architecture

- Distributed Inverter bypasses in parallel to segregated centralized Aux Mains bypass creating a redundant solution.



Technical data

	MODULYS GP UPS SYSTEM		
Power (Sn)	25 to 200 kVA	25 to 400 kVA	25 to 600 kVA
Power (Pn)	25 to 200 kW	25 to 400 kW	25 to 600 kW
Number of power modules	1 to 8	1 to 16	1 to 24
Input / output	3/3		
Redundant configuration	N+x		
INPUT			
Voltage	400 V 3ph+N (340 V to 480 V)		
Frequency	50/60 Hz ±10%		
Power factor / THDI	> 0.99 / < 1.5%		
OUTPUT			
Power factor	1 (according to IEC/EN 62040-3)		
Voltage	380/400/415 V ±1% 3ph+N		
Frequency	50/60 Hz ±0.1%		
Voltage distortion	< 1% (linear load), < 3% (non-linear load according to IEC 62040-3)		
Short-circuit current	up to 3 x In		
Overload	125% for 10 minutes, 150% for 1 minute		
Crest factor	3:1		
BYPASS			
Voltage	rated output voltage ±15% (configurable with from 10% to 20%)		
Frequency	50/60 Hz ±2% (configurable for GenSet compatibility)		
EFFICIENCY (TÜV SÜD VERIFIED)			
Online double conversion mode	up to 96.5%		
ENVIRONMENT			
Ambient temperature	0 °C to 40 °C (15 to 25 °C for maximum battery life)		
Relative humidity	0 to 95% without condensation		
Maximum altitude	1000 m without derating (3000 m max)		
Acoustic level at 1 m	< 55 dBA		
SYSTEM CABINET			
Width	600 mm	2 x 600 mm (combinable system) 2010 mm (fully integrated solution)	3 x 600 mm (combinable system) 2610 mm (fully integrated solution)
Depth	890 mm		
Height	1975 mm		
Weight (empty cabinet)	210 kg	2 x 210 kg (combinable system) 780 kg (fully integrated solution)	3 x 210 kg (combinable system) 1010 kg (fully integrated solution)
Degree of protection	IP20		
STANDARDS			
Safety	IEC/EN 62040-1, AS 62040.1.1, AS 62040.1.2		
EMC	IEC/EN 62040-2 Class C2, AS 62040.2		
Performance	VFI-SS-111 - IEC/EN 62040-3, AS 62040.3		
Seismic compliance	Uniform Building Code UBC:1997, IEC 60068-2-57:2013		
Environmental	IEC/EN 62040-4		
Product declaration	CE, RCM (E2376), EAC, UKCA		
POWER MODULE			
Height	3U		
Weight	34 kg		
Type	Hot plug-in / Hot-swappable		
MTBF	> 1 000 000 hours (calculated and verified)		

Best practice award

Frost & Sullivan has has awarded SOCOMEC with its prize for Innovation & Excellence in Developing Scalable, Best-in-Class Products and Solutions.

SOCOMEC's vast expertise and technological know-how in modular UPS solutions have enabled it to develop a new modular, three-phase UPS that employs the latest cutting-edge technology combined in a unique design and architecture.

Our dedicated Expert Services for UPS

We offer services to ensure your UPS highest availability:

> Commissioning
> On-site intervention
> Preventive maintenance visits
> 24-hour call out and rapid on-site repairs
> Maintenance packages
> Training
> Remote monitoring service

www.socomec.com/services

MODULYS GP

Three-phase UPS

from 25 to 600 kVA/kW

The benefit of a fully modular system

Easy to manage

- Totally modular system for power scaling or for quickly adapting to business changes.
- Standardised system and modules covering a wide range of power and back-up times.
- Repeatable and standardised scalable architecture for time-saving design for different configuration & architecture requirements.

Pay as you need

- No prior expenditure for unpredictable future extensions in power and back-up time.
- Space saving thanks to reduced footprint and front access.
- Eliminates installation rework costs when new capacity is required from IT physical infrastructure.
- No risk of design oversizing due to project data uncertainty.

Everything front-access

- Connections, switches, manual bypass, auxiliary mains static bypass, power modules and all the electric parts have front-access.
- Total footprint is not increased as rear extra clearance for maintenance is not needed.
- Easy, quick, comfortable, safe and risk-free installation and maintenance.
- More reliable system.

The benefit of a totally redundant design

Total resilience

- Electronics-free (failure-free) cabinet.
- Totally independent and self-sufficient modules.
- Real module selective disconnection (automatic inverter bypass with galvanic separation).
- No centralised control for parallel and load sharing management.
- Totally segregated, fully sized and centralised auxiliary mains bypass.
- Configurable N+1 to N+x redundancy (power & battery).
- No single point of failure.
- Redundant parallel bus connection (ring configuration).

Optimum reliability

- Power module designed for superior robustness proved by an independent body (MTBF > 1,000,000 hr).
- Hybrid bypass architecture with distributed module's bypass and centralised mains bypass for ultimate reliability and robustness.
- Highly robust auxiliary mains bypass (MTBF > 10,000,000 hr).
- Acid leak-proof modular battery box.

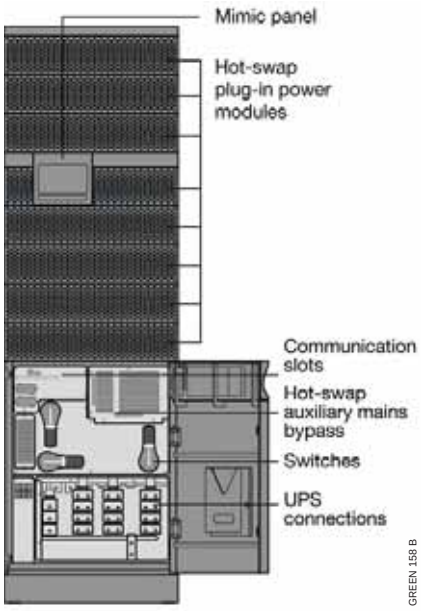
Maximum availability

- Fast recovery of lost redundancy thanks to minimum MTTR (Mean Time To Repair).
- No risk of downtime during power upgrading and maintenance.
- No risk of failure propagation.

Cost-effective redundancy

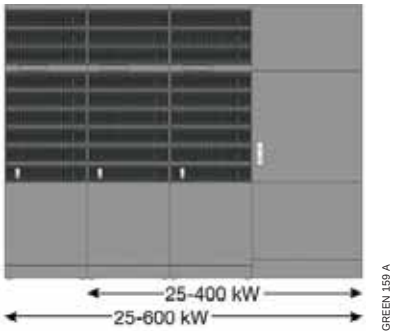
- No need to duplicate the system hardware to get redundancy.
- Redundancy achievable simply by adding one more power and battery module.
- Redundancy can be easily combined with power scalability.
- Upgrading and/or power module replacement can be done by simple plug-in without any commands to the system.

A flexible modular UPS system



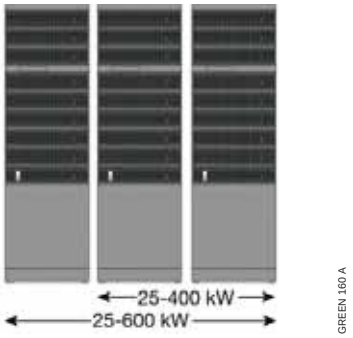
25-200 kW

Fully integrated solution



- UPS system cabinets + coupling cabinet + base plates.
- It allows a complete, simple and very reliable installation, with unique IN/OUT and fully sized manual bypass.
- Innovative base plates simplify the installation and allow a tidy and segregated cabling for higher system reliability.

Combinable system



It allows the creation of a system when:

- an external coupling cabinet is already present (i.e. in case of replacement of an existing UPS),
- a coupling cabinet with a special configuration is required and it has to be developed specifically,
- the UPS system cabinets cannot be installed side-by-side.

View our video to discover more

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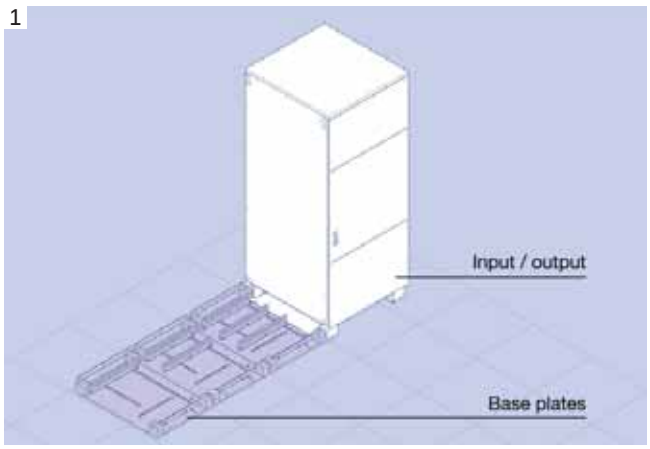
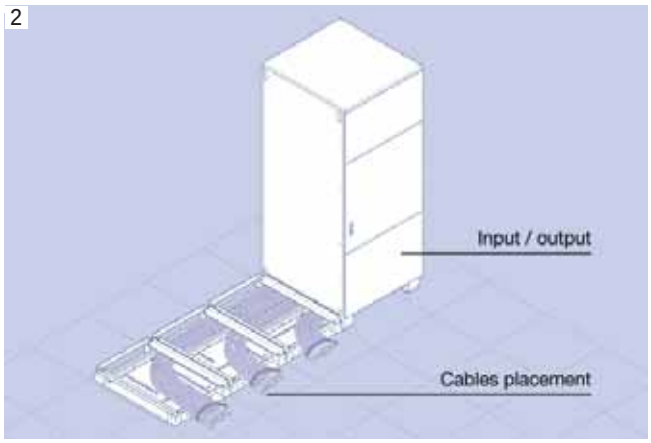
Fully integrated solution: easy and safe installation

1



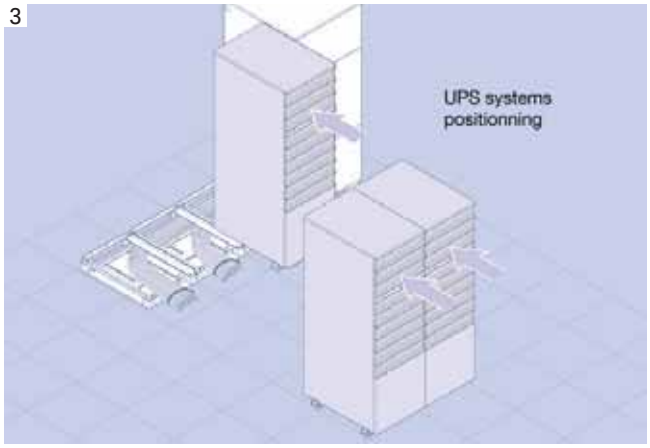
Innovative base plates simplify the installation.

2



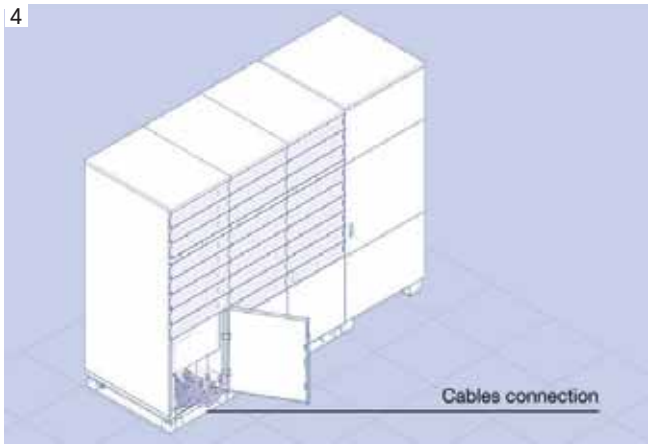
Safe, reliable and time-saving cabling management.

3



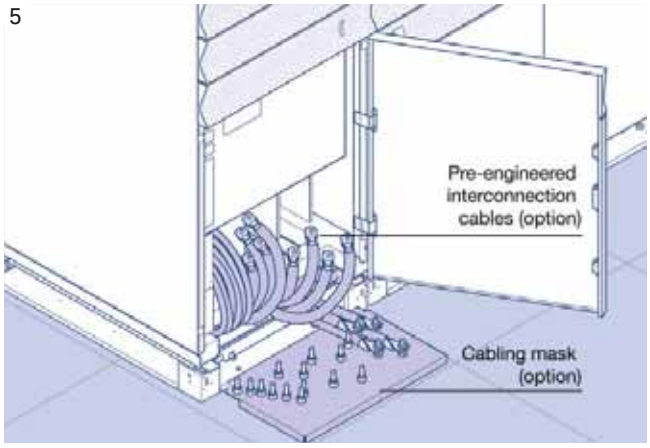
Cabinets are easy to move (no pallet truck required), position and assemble.

4



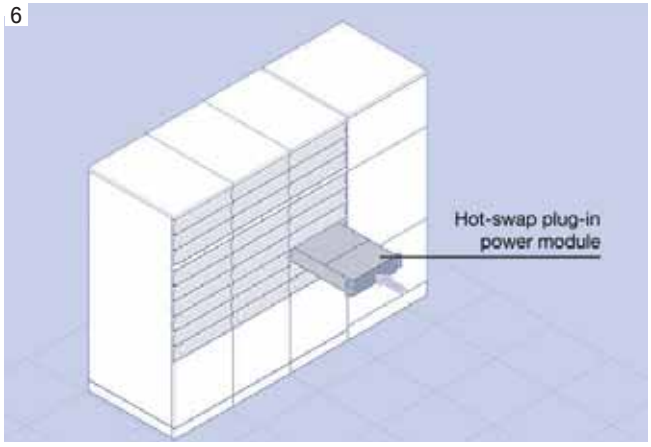
Easy cabling for a tidy and reliable solution.

5



Simplified cable positioning and risk-free connections.

6



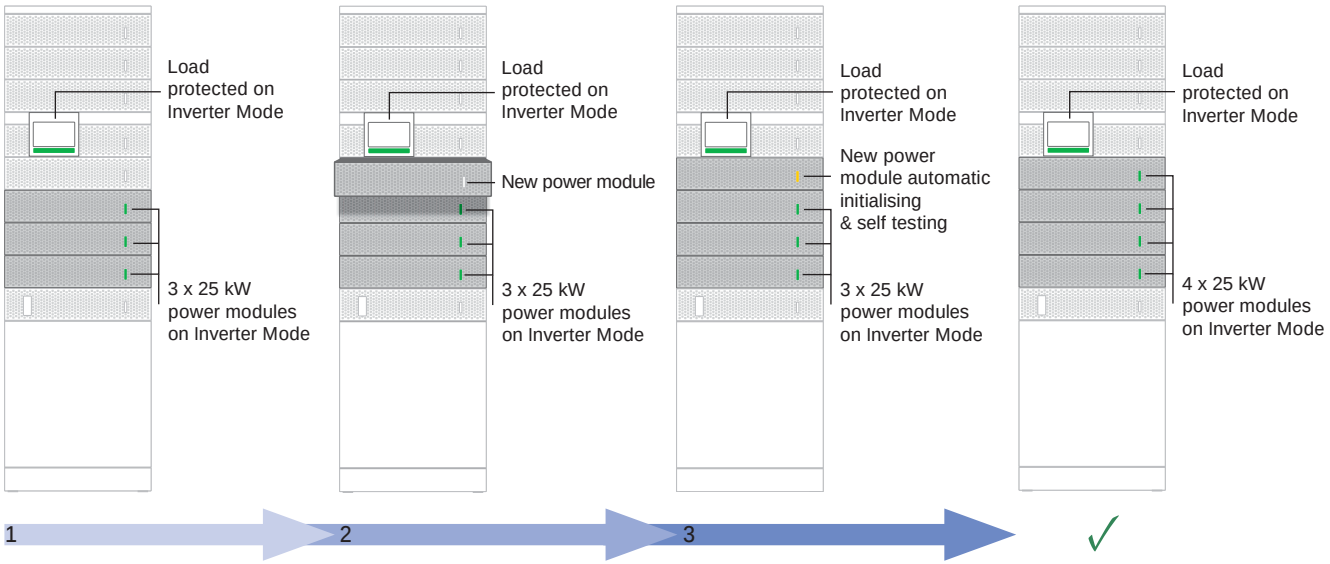
Automatic self-configuring & self testing hot-swap plug-in power modules.

Seamless and risk-free scalability & upgrading

- MODULYS GP protects critical loads in all conditions, including power upgrading and maintenance procedures.
- No risk of human error and downtime.

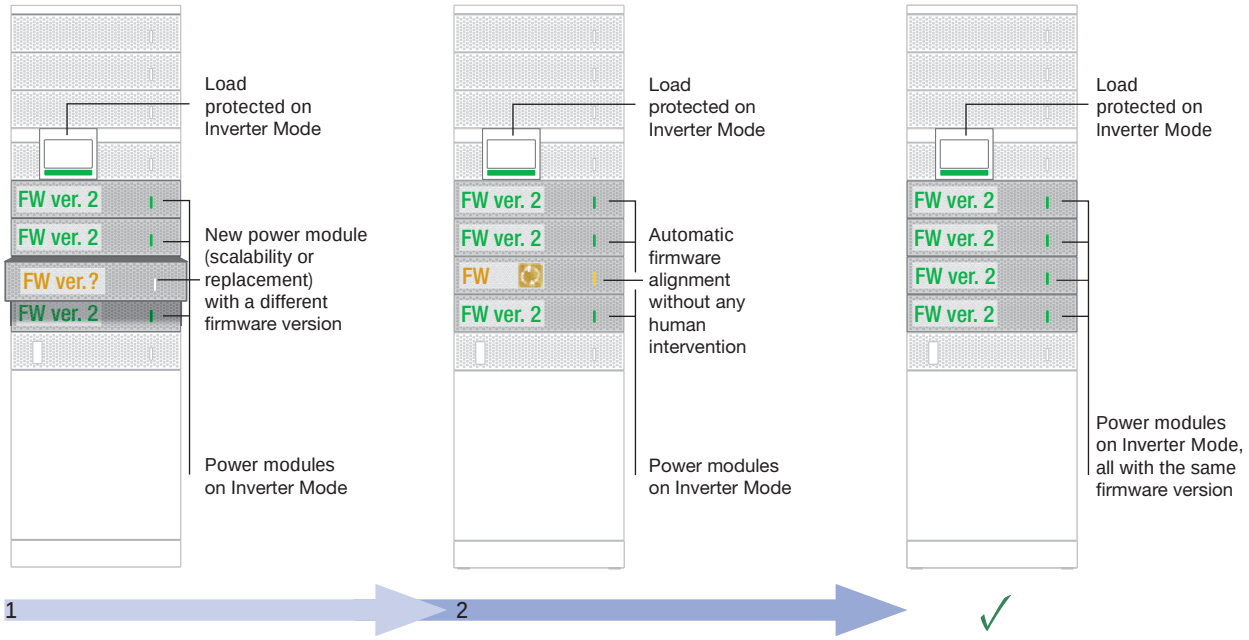
On-line power scalability

- MODULYS GP allows you to increase power scalability and redundancy while keeping the load protected on inverter mode simply by plugging-in a new power module and waiting for its automatic self-configuration, without any human intervention.



Power module automatic firmware alignment

- Even the power module firmware alignment is totally risk free.
- When a new power module is plugged in, the system checks what firmware version is embedded and if it is different automatically aligns it to one of the other modules. The load is protected at all times while running on inverter mode.



On-line global firmware update

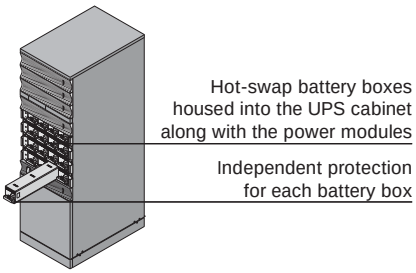
- It is also possible to upgrade the global firmware without switching to bypass to keep the load protected on Inverter mode.
- Automatic procedure for a risk-free firmware upgrade.

Flexible and modular back-up times

MODULYS GP offers modular solutions to meet all your requirements for back-up times (whether a few minutes or several hours) without compromising flexibility and scalability.

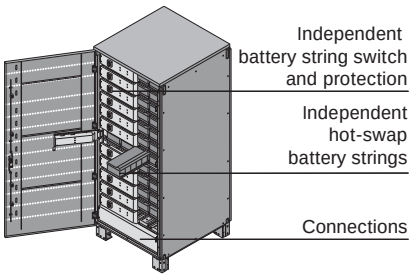
Internal hot swap battery

- Designed for short back-up time.
- Long-Life batteries available as standard.
- Compact solution with a small footprint.



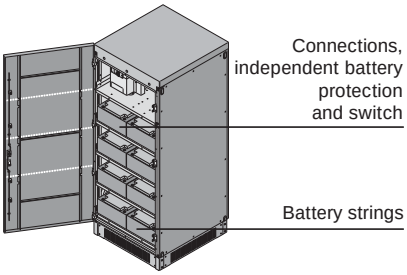
Modular hot-swap battery cabinets

- Designed for medium and long back-up times.
- Long-Life batteries available as standard.
- Vertical and horizontal modularity ensuring flexible back-up times.



Modular battery cabinet

- Designed for long back-up times.
- Long-Life batteries available as standard.
- Horizontal modularity ensuring flexible back-up times.

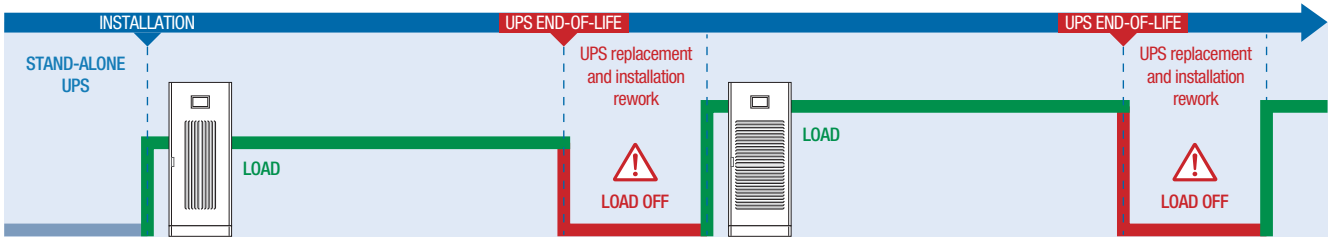


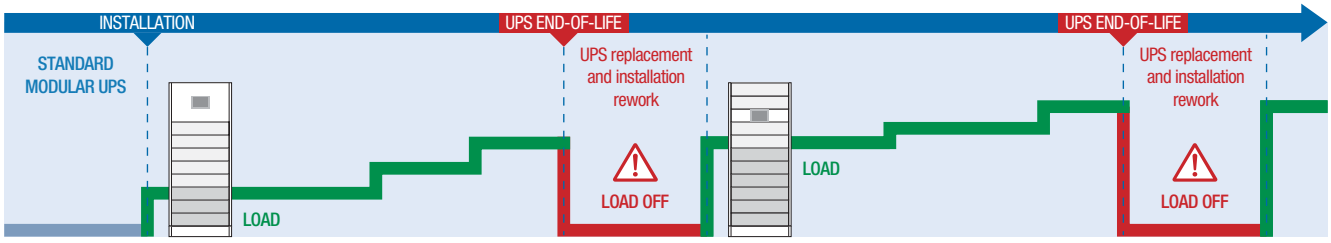
MODULYS GP "Forever Young" concept

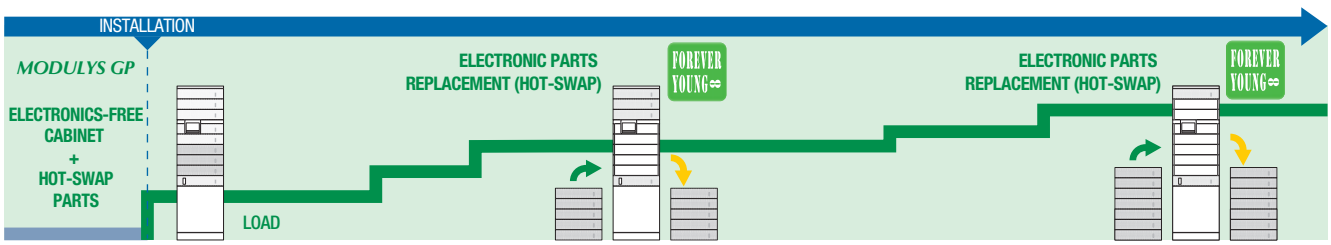
- MODULYS GP excels not only in efficiency, flexibility, capacity management and sustainability - five aspects that are crucial for optimum performance.
- It employs an exclusive concept called 'Forever Young' which allows the life-cycle extension of MODULYS GP and eliminates the criticality of system end-of-life.
- It also keeps the system open for the implementation of future technology improvements without modifying the infrastructure.

The 'Forever Young' concept:

- Is based on electronics-free (failure-free) cabinets where the components that are subject to ageing are all plug-in and therefore quick and easy to replace.
- Allows life-cycle extension via periodic replacement of power modules before they start ageing.
- Provides an always up-to-date system that uses the latest technology.
- Assures power modules and spare part compatibility and availability for more than 20 years.







MODULYS XL

The ultimate modularity for the most critical environments
from 200 to 4800 kVA/kW

The MODULYS XL is a modular UPS based on 200 kW power modules. The power of a single UPS unit can be increased up to 1200 kW and the system can include up to 4 units in parallel.

The innovative MODULYS XL concept allows for the constant protection of the load in online mode, whether to respond to load growth or to manage all aspects of the system's lifecycle, in a secure way and with impressive rapidity.

Associated with a variety of adapted Services, the MODULYS XL provides unprecedented availability and flexibility to fulfil the requirements of today's highly critical applications.

3 standard bricks for your very own system

- UPS configurations based on 3 standard bricks for a simplified installation process.
- Repeatable and standardised assets to meet different configuration and architectural requirements.
- An adjustable number of empty power slots to match different scalability and redundancy needs.
- Complete UPS customisation without modifying the core standardised bricks.
- Quality, simplicity of construction and ease of operation.

5-minute plug-in

- Power module addition or removal in only 5 minutes by one person.
- Simple and safe power module plug-in: no power or communication bus cabling required.
- Load fully protected in double conversion mode during the power extension or module swap.
- Hot-scale and swap process in incremental steps of 200 kW to reduce time and optimise costs.
- Automatic power module self-configuration and testing before connection.
- Firmware auto-alignment.
- No installation rework when a new capacity is required.
- Off-powered connection of the power module to prevent electrical arcing upon plug-in and plug-out.

Safe and easy deployment

- Specifically engineered to eliminate unexpected installation errors.
- Easy power slot positioning and perfect alignment including on uneven floors.
- Power slots with pre-engineered built-in bus bars for quick, easy and clean interconnections.
- A full frontal access installation so the UPS can be installed against a wall.
- The power slots set up during the installation stage are ready for future hot plug-in power modules.
- Safe and easy power module handling.
- Full system heat-run test capability during commissioning without the need for an external load bench.

Concurrent and risk-free maintenance

- Concurrent maintenance of all components.
- Safe power module maintenance - outside of the running system.
- Both the power modules and the static bypass can be maintained while the load remains fully protected in double conversion mode.
- No in-situ maintenance, service or repair that may jeopardise the running system.
- Fully extractable power modules and subassemblies and complete access to all components, reducing the MTTR.
- Built-in means to perform an exhaustive pre-test after the module's maintenance.

The solution for

> Data centres
> Buildings
> Industry

Strong points

> 3 standard bricks for your very own system
> 5-minute plug-in
> Safe and easy deployment
> Concurrent and risk-free maintenance

Compliance with standards

> IEC 62040-1
> IEC 62040-2
> IEC 62040-3
> IEC 62040-4

Certifications and attestations

EU CODE OF CONDUCT ELITE UPS

Advantages

97% EFFICIENCY

PF 1

3 LEVEL TECHNOLOGY

Li-Ion

Ready for Li-Ion battery

Best practice award

Frost & Sullivan has has awarded SOCOMEC with its prize for Innovation & Excellence in Developing Scalable, Best-in-Class Products and Solutions.

SoLive UPS

App Store Google Play

socomec Innovative Power Solutions

Flexible UPS architecture

- Hot-scalable power capability.
- Adjustable redundancy level.
- Common or separated rectifier and bypass mains.
- Compatible with different energy storage technologies (e.g. Li-Ion, Ni-Cd...).

Standard electrical features

- Separated inputs (rectifier, bypass).
- Top or bottom cable entry.
- Backfeed protection: detection circuit.
- Redundant bypass cooling.
- Distributed batteries (1 per module).
- Battery temperature sensor.
- Module heat-run test(3).
- Full system heat run test(3).
- 63 A three-phase plug.

Electrical options

- Input, output and maintenance bypass switches.
- 3-wire bypass and output distribution kit.
- PEN kit for TN-C grounding system.
- 4-wire rectifier (neutral connection kit).
- Shared batteries (1, 2 or 3 per unit).
- Enhanced battery charger.
- Battery tripping kit.
- Unit parallelisation kit.
- Redundant electronic power supplies.
- BCR (Battery Capacity Re-injection).
- ACS synchronisation system.
- Cold start.
- Top roof.

Standard communication features

- User-friendly 7" touch-screen multilingual colour graphic display (Power Hub).
- Tricolour display with a number indicating the Power Module status (Power Slot)
- 2 slots for communication options.
- USB port to download the UPS reports and log files.
- Ethernet port for service purposes.

Communication options

- Dry-contact interface (configurable, voltage-free contacts).
- MODBUS RTU RS485 or MODBUS TCP.
- PROFIBUS / PROFINET gateway.
- BACnet/IP interface.
- NET VISION: professional WEB/SNMP Ethernet interface for secure UPS monitoring and remote automatic shutdown.
- REMOTE VIEW PRO supervision software
- IoT gateway for Socomec cloud services and the SoLive UPS mobile app.
- Remote touch-screen panel.
- Additional Com-slot extension.

Remote monitoring and cloud services

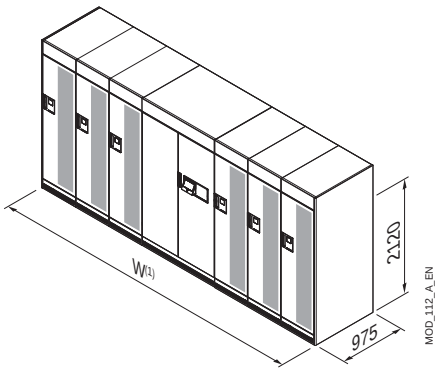
- SoLink: Socomec's 24/7 remote monitoring service connecting your installation to the nearest Socomec Service Centre.
- SoLive UPS: a mobile app to monitor all your UPS systems from a smartphone.

Technical data

	MODULYS XL
UPS UNIT	
Power Module rated power	200 kVA/kW
Unit rated power	200 to 1200 kVA/kW
Number of Power Modules	1 to 6
Number of Power Slots	1 to 6
Number of Units per System	up to 4 units in parallel
Redundant configuration	N+x
RECTIFIER INPUT	
Voltage	400 V 3ph (200 to 480 V(1))
Frequency	50/60 Hz ±5 Hz
Power factor/THDI	>0.99 / <2.5%(2)
OUTPUT	
Power factor	1 (according to IEC/EN 62040-3)
Voltage	400 V 3ph+N (380/415 V configurable)
Frequency	50/60 Hz (configurable) ±0.01 Hz - free-running
Voltage distortion (Ph/Ph)	ThdU ≤ 1.5% (linear load)
BYPASS	
Voltage	Rated output voltage ±15% (configurable)
Frequency	rated output frequency ±5 Hz (configurable for Genset compatibility)
POWER HUB	
Dimensions W x D x H	1200 x 975 x 2120 mm
Weight	750 kg
POWER SLOT	
Dimensions W x D x H	550 x 975 x 2120 mm
Weight	130 kg
POWER MODULE	
Dimensions W x D x H	500 x 950 x 1940 mm
Weight	450 kg
Type	Hot plug-in / Hot-swappable
MTBF	1,000,000 hrs
Online efficiency (double conversion mode)	up to 97%
ENVIRONMENT	
Operating ambient temperature	from 0 °C to +40 °C
Relative humidity	0-95 % without condensation
Maximum altitude	1000 m without derating
Acoustic level at 1 m	<75 dBA
Short-circuit withstanding (Icw)	100 kA - Symmetrical
STANDARDS	
Safety	IEC/EN 62040-1
EMC	IEC/EN 62040-2
Performance	IEC/EN 62040-3
Environmental	IEC/EN 62040-4
Product declaration	CE, EAC, UKCA

(1) Conditions apply.
(2) At full rated voltage; with input THDV <1%
(3) Without dummy load bench.

Unit dimensions and weights



	Unit			
Number of Power Slots	3	4	5	6
Maximum power (kVA/kW)	600	800	1000	1200
Width(1) (mm)	2890	3440	3990	4540
Weight(2) (kg)	2500	3100	3650	4250

(1) Width includes left and right side panels.
(2) Weight for the unit fully equipped with power modules.

MODULYS XL

Three-phase UPS

from 200 to 4800 kVA/kW

A modular UPS system designed for simplicity

The flexibility of a tailored solution combined with the advantages of standardised assets: MODULYS XL can be fine-tuned to the precise requirements of any electrical infrastructure. This approach saves time and money during both the project design and its deployment – with the option to pay as you go.

Power HUB

Power HUB for the UPS Unit

- Up to 1200 kVA/kW.
- Input, output and battery connections to the UPS unit.
- Remote communication interfaces.
- User interface.
- Full rated centralized static bypass.
- 63 A three-phase plug for advanced maintenance services.

Power SLOT

Power SLOT

- For 200 kVA/kW plug-in Power Module
- Pre-engineered built-in bus bars interconnection between the Power Hub and the others Power Slots.
- Pre-connected communication bus.

Power MODULE

Power MODULE

- Rated for 200 kVA/kW permanent operating.
- Single and full rated rectifier, inverter and battery charger.
- Double conversion side bypass.
- Selective disconnection (contactors and fuses) at input and output stages.
- Local battery disconnection switch.
- Patented plug-in system (power and control) to connect to the Unit.

Flexible power & scalability

- A flexible combination of power slots to address different needs.
- Installation of the power slots at the initial stage allows for quick and safe scalability.
- A power increase to meet changing capacity demands.
- The load is fully protected in double conversion mode during power extensions and maintenance.

		3 POWER SLOTS	4 POWER SLOTS	5 POWER SLOTS	6 POWER SLOTS
Power slots installed and pre-connected at the initial stage	Hot-scalability up to…	600 kVA/kW (N) 400 kVA/kW (N+1)	800 kVA/kW (N) 600 kVA/kW (N+1)	1000 kVA/kW (N) 800 kVA/kW (N+1)	1200 kVA/kW (N) 1000 kVA/kW (N+1)
Power slots can be easily added later (in off-line mode)	Scalability up to…	Up to 1200 kVA/kW (N) Up to 1000 kVA/kW (N+1)			

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Innovative Power Solutions

Ultimate resilience

A granularity of 200 kW

- Perfect balance between MTBF and intrinsic redundancy.
- Reduced losses in available power due to missing modules.
- Minimised number of potential problems and associated maintenance costs compared to solutions with an excessive numbers of modules.

No single point of failure

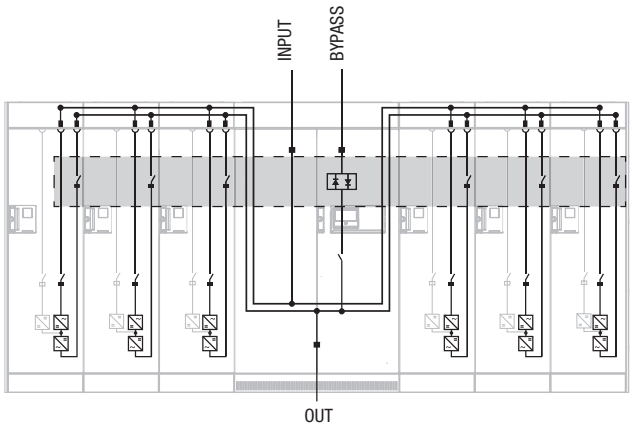
- The control system is not centralised to eliminate the typical weak point of some modular UPS systems.
- Like for monolithic UPSs, the Power Modules and the static bypass operate on a peer-to-peer basis to avoid any single point of failure and to ensure the maximum system availability.

Clean installation

- The MODULYS XL pre-engineered power and control interconnections make for an extremely clean UPS system – essential for guaranteeing maximum availability.

The right granularity and no single point of failure at system level

- 200 kVA/kW power module built by single and full rated power converters.
- Totally independent and self-sufficient power modules.
- Hybrid bypass: fully sized (up to 1200 kVA) centralised static bypass - together with distributed modules bypasses.
- Real power module selective disconnection (input and output controlled galvanic disconnectors).
- Straightforward interconnections resulting in a clean installation.
- Mechanical segregation between each of the sub-asset building the UPS unit.

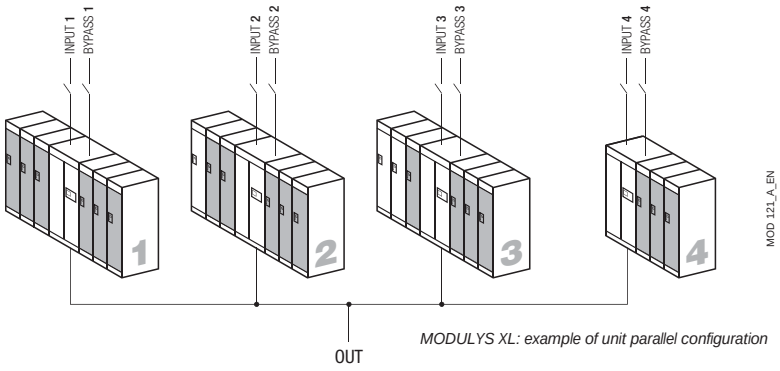


MODULYS XL hybrid bypass architecture:
- *no single point of failure.*
- *mechanical segregation between the bypasses.*
- *no fault propagation.*

Flexible parallel configurations

To provide maximal flexibility and guaranty system availability when maintaining a single power module, the MODULYS XL units can be parallelised without restriction on the number of installed power slots or power modules.

- Parallel configuration up to 4 units.
- Free unit(s) configuration.
- Free number of power modules at each unit level.



MODULYS XL: example of unit parallel configuration

Move to a permanent uptime mode with an innovative service approach

The availability of your critical application restored in a few minutes.

To maximise your MTTR, in a matter of minutes, an emergency power module – located near your premises – can be used to replace another one.

Fast and safe maintenance operation

MODULYS XL is engineered for quick and simplified module plug-in without being in bypass mode - avoiding load downtime risk.

First time fix rate

The power module is repaired while disconnected from the live UPS system, thus maintaining the critical load safely supplied. The online repair guide and full power warm-up test provide reliable and certified results.

24/7 monitoring(1)

In the event of any type of anomaly, the system will instantly notify the nearest Socomec Service Centre and an engineer will be dispatched immediately along with any spare parts that may be needed.

(1) After subscribing to a Socomec Maintenance Contract with SoLink option.

STATYS

Redundant design for power availability and site maintainability
from 32 to 1800 A

STATYS provides

- High reliability - internal redundant design to ensure service continuity.
- Flexibility and adaptability to various types of applications.
- Compact design: saves up to 40% of valuable space.
- Easy and secured maintenance.
- Operational security and ease of use. Remote data access in real time and from any location.
- Full support and service.

Static Transfer Switch: user benefits

Supplied by two independent alternate sources, STATYS increases the overall electrical infrasrtucture availability during abnormal events and programmed maintenance.

- Provides redundant power supply to mission critical loads to increase global uptime of the supplied system.
- Increases the power supply availability by choosing the best power supply quality.
- Provides plant segmentation and prevents fault propagation.
- Allows easy extension and easy infrastructure design, ensuring high availability of the power supply to critical applications.
- Facilitates and secures the maintenance or the modifications of the overall electrical installation (source, distribution, switchboard) while the load is kept supplied.

STATYS also provides protection against:

- Main power source outage.
- Failures in the upstream power distribution system.
- Failures caused by faulty equipment supplied by the same source.
- Operator errors.

Flexibility

STATYS offers a wide range of single-phase and three-phase systems that suits all types of applications and power supply systems.

Dual or single cord servers, linear or non-linear loads, IT or electromechanics are just some of the load types that STATYS can supply. Wherever a smart power source is needed, whether for existing or new electrical plants, STATYS can be easily installed and efficiently supply the load.

It is available in:

- 2 wires and 2 poles switching, to be connected between phase/neutral or phase/phase.
- 3 wires arrangement without neutral,
  - for reduced cable costs,
  - for local zoning of the applications by using insulating transformers,
- 4 wires three-phase arrangement with neutral, with or without neutral pole switching,

STATYS offers:

- Flexible digital control capacity that can adapt to any operational or electrical environment conditions,
- Capability to manage synchronised and non-synchronised sources according to load specificity,
- Advanced Transformer Switching Management (ATSM). If the upstream network has no distributed neutral cable, two upstream transformers or one downstream transformer can be added to create a neutral reference point at the output. For the downstream solution, STATYS, thanks to ATSM, correctly manages the switching to limit inrush current and avoid the risk of spurious breakers.

The solution for

- > Finance, banking and insurance
- > Healthcare sector
- > Telecom & Broadcasting
- > Industry
- > Power generation plants
- > Transport

Advantages

Our dedicated Expert Services for UPS

We offer services to ensure your UPS highest availability:

- > Commissioning
- > On-site intervention
- > Preventive maintenance visits
- > 24-hour call out and rapid on-site repairs
- > Maintenance packages
- > Training

www.socomec.com/services

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Innovative Power Solutions

High reliability - Internal redundant design

Main features:

- Redundant control system using double microprocessor control boards.
- Dual redundant power supplies for control boards.
- Individual control board with redundant power supply for each SCR path.
- Integrates an "auto-hold" feature to ensure load continuity in case of internal failure.
- Redundant cooling with fan failure monitoring.
- Real-time SCR fault sensing.
- Separation of main functions to prevent internal fault propagation.
- Robust internal field communication bus.
- Internal monitoring of sensors to ensure maximum system reliability.

Compact design

- Small footprint and compact units.
- Adjacent or back to back mounting.
- Integrable chassis version for optimal implementation into switchboards.
- Front access for easy maintenance.
- Compact Hot Swap 19" rack system.

Standard features

- A smart and flexible transfer system that can be configured according to the type of load.
- Synchronised and non-synchronised sources compatibility (configurable synchronisation tolerance and switching management).
- Fuse-free or fuse-protected design.
- Output fault current sensing.
- Internal CAN Bus.
- Double maintenance bypass.
- Neutral oversizing for non-linear loads compatibility.
- Embedded Inputs, output and maintenance bypass switches (cabinet version).

Standard communication features

- LCD or user-friendly 7" touch-screen multilingual graphic colour display.
- Slots for communication options.
- Dry-contact interface (configurable voltage-free contacts).
- Ethernet interface for STS monitoring via WEB pages.
- MODBUS TCP.
- Full digital configuration and setting.

Options

- Dry-contact interface (configurable voltage-free contacts).
- MODBUS RTU RS485.
- PROFIBUS / PROFINET gateway.
- REMOTE VIEW PRO supervision software.

Technical data

STATYS	19" rack - hot swap -1ph		19'' rack - hot swap -3ph		Cabinet - integrable chassis (OEM)										
Rating [A]	32	63	63	100	200	300	400	600	630	800	1000	1250	1400	1600	1800
ELECTRICAL SPECIFICATIONS															
Rated voltage	120-127/220 240/254 V		208-220/380-415/440 V												
Voltage tolerance	± 10% (configurable)														
Non-synchronized sources management	configurable up to +/- 180														
Frequency	50 Hz or 60 Hz (± 5 Hz (configurable)														
Number of phases	ph+N or ph-ph (+ PE)		3ph+N or 3ph (+ PE)												
Number of poles switching	2-pole switching		3 or 4-pole switching												
Maintenance bypass (cabinet version)	interlocked and secured														
Overload	150% for 2 minutes - 110% for 60 minutes[1]														
Efficiency	99%														
Admissible power factor	no restrictions														
ENVIRONMENT															
Operating ambient temperature	from 0°C up to 40°C														
Relative humidity	95%														
Maximum altitude	1000 m a.s.l. without derating														
Acoustic level at 1 m (ISO 3746)	<45 dBA				≤ 60 dBA							≤ 84 dBA			
STANDARDS															
Safety	IEC 62310, IEC 60529, AS 62310, AS 60529														
EMC	C2 category (IEC 62310-2, AS 62310.2)														
Product declaration	CE, RCM (E2376), UKCA														

(1) for 630 A only : 150% for 1 minute - 105% for 60 minutes

Dimensions

Model		Range (A)	Width (mm)	Depth (mm)	Height (mm)
1 phase	19" Rack	32 - 63	483 (19")	747	89 (2U)
3 phases		63 - 100	483 (19")	648	400 (9U)
	Integrable Chassis (OEM)	200	400	586	765
		300 - 400	600	586	765
		600 - 630	800	586	765
		800 - 1000	1000	950[1]	1930
		1250 - 1800	910	815	1955
	Cabinet	200	500	600[1]	1930
		300 - 400	700	600[1]	1930
		600 - 630	900	600[1]	1930
		800 - 1000	1400	950[1]	1930
		1250 - 1600	2010	815	1955

(1) Depth does not include handles (+40 mm)


EXIT
1. Safety
2. Availability
3. Efficiency
3b

Superior

UPS - Single-phase

NETYS RT
1100 to 11000 VA
p. 38

NETYS RT-M
1100 to 3300 VA
p. 42

UPS - Three-phase

MASTERYS GP4 RK
10 to 40 kVA/kW
p. 44

MASTERYS GP4
10 to 160 kVA/kW
p. 46

DELPHYS GP
160 to 1000 kVA/kW
p. 48

DELPHYS XL
1200 kVA/kW
p. 50

UPS - Transformer-based

MASTERYS IP+
10 to 80 kVA
p. 52

DELPHYS MX
250 to 900 kVA
p. 54

STS - Transfer System

STATYS XS
16 and 32 A
p. 56

Unrivalled power performance

Best-in-class solutions with certified performance, tailored to optimise the usage for a profitable Total Cost of Ownership (TCO).

NETYS RT

Total protection on rack or tower
from 1100 to 11000 VA

gamme_854.psd

The solution for

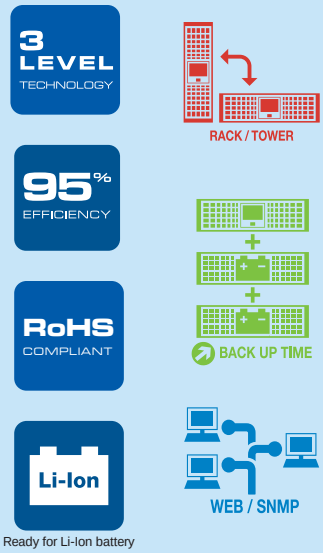
- Servers and networking devices
- VoIP communication systems
- Structured cabling systems
- Video surveillance systems
- Control systems
- Switching
- Edge data centres

Compliance with standards

- IEC 62040-1
- IEC 62040-2
- IEC 62040-3

Certifications and attestations

Advantages



Ready for Li-Ion battery

Simple to install

- No configuration necessary on first startup.
- Space and time saving 'tower-to-rack' conversion mode.
- Compact footprint (tower mode).
- High density rack enclosure saving valuable cabinet rack space.

High protection and availability

- Online double conversion technology with sinusoidal waveform, completely filters out all disturbances from / to the mains power supply and ensures maximum protection of the utility.
- Wide tolerance of the input voltage reduces switchovers to battery mode, prolonging battery life.
- Possibility of 1+1 parallel and redundant configuration to maximise the availability of critical utilities (up to 22 kVA).
- Hot-swap plug-in manual bypass.

Certified performance

- Performance tested and verified by independent laboratory.
- Full performance up to 40 °C without derating.

Easy to use

- Clear and uncluttered multilanguage LCD display.
- Wide range of communication protocols for integration into LAN networks or Building Management Systems.
- IoT ready device for access to connected services.
- Load segmentation function to prioritize loads and manage critical situations.

Extended and flexible back-up time

- Hot-swap modular battery extension (EBM) to meet all back-up time requirements, even after installation.
- Battery ageing detection function.
- Fast recharge - even for very long back-up time.
- Li-Ion battery technology-ready.

System features

- Rail kit.
- Embedded dry-contact interface (5-11 kVA).
- Input mains switch breaker (5-11 kVA).
- Connection for battery extension modules.
- Port for parallel operation (5-11 kVA).
- Power off the UPS remotely.
- Internal temperature sensor.

System options

- UPS models with tropicalised (Conformal Coating) boards.
- Hot-swap battery extension modules.
- Hot-swap manual bypass.
- 1+1 parallel module (5-11 kVA).

Standard communication features

- 1 slot for communication options.
- USB port for UPS management.
- MODBUS RTU (RS232).
- RS485 for Li-ion battery BMS.
- LOCAL VIEW software for local UPS monitoring and shutdown for Windows, Linux and MAC Osx.

Communication options

- Dry-contact card.
- NET VISION: professional WEB/SNMP, ethernet interface for UPS monitoring and remote automatic shutdown (MODBUS TCP).
- RT-VISION: WEB/SNMP interface for UPS monitoring and management.
- Environmental Monitoring Device (EMD).
- REMOTE VIEW PRO supervision software.

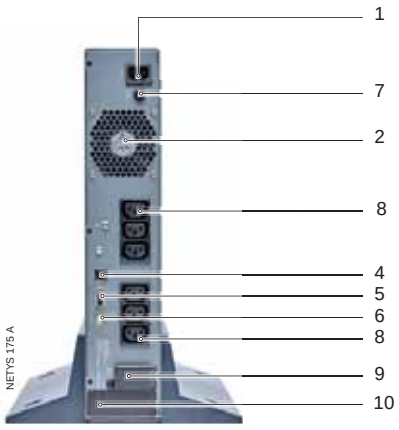
Technical data

NETYS RT								
Model	NRT2-U1100	NRT2-U1700	NRT2-U2200	NRT2-U3300	NRT3-5000K	NRT3-7000K	NRT3-9000K	NRT3-11000K
Sn	1100 VA	1700 VA	2200 VA	3300 VA	5000 VA	7000 VA	9000 VA	11000 VA
Pn	900 W	1350 W	1800 W	2700 W	5000 W	6000 W	8000 W	10000 W
Architecture	online double conversion VFI with input PFC and automatic bypass							
Parallel redundant function	-	-	-	-	1+1	1+1	1+1	1+1
INPUT								
Voltage	230 V (1ph) 120÷280 V; (175÷280 V @100% load)				230 V (1ph) 100÷280 V; (175÷280 V @100% load)			
Frequency	50/60 Hz +/-10% (Auto-Selectable)				40/70 Hz (50/60 Hz +/-10% Auto-Selectable)			
Power factor / THDi	>0.99 / <5%				>0.99 / <3%			
Input socket	IEC 320-C14 (10 A)	IEC 320-C20 (16 A)			terminals			
OUTPUT								
Voltage	230 V (1ph) selectable 200 / 208 / 220 / 240 V - 50 or 60 Hz ± 2% (± 0.05 Hz in battery mode)							
Power factor	0.9 @ 1 kVA	0.9 @ 1.5 kVA	0.9 @ 2 kVA	0.9 @ 3 kVA	1 @ 5 kVA	1 @ 6 kVA	1 @ 8 kVA	1 @ 10 kVA
Efficiency	up to 93% online mode				up to 95,5% online mode			
Overload capability	up to 105% continuously; 125% x 3 min; 150% x 30 sec				up to 105% continuously; 125% x 2 min; 150% x 30 sec			
Output connections	6 x IEC 320-C13 (10 A)	6 x IEC 320-C13 (10 A) + 1 x IEC 320-C19 (16 A)			terminals			
BATTERY								
Standard autonomy(1)	7	11	8	9	13	8	12	9
Voltage	24 VDC	48 VDC	48 VDC	72 VDC	192 VDC	192 VDC	240 VDC	240 VDC
Recharge time	< 3 hr to recover 90% capacity				< 6 hr to recover 90% capacity			
COMMUNICATION								
Mimic panel	LCD with graphical icons				LCD with menu available in 10 languages			
RS232 MODBUS protocol	•	•	•	•	•	•	•	•
USB port	•	•	•	•	•	•	•	•
WEB/SNMP (Ethernet RJ45 port)	option	option	option	option	option	option	option	option
COMM slot	•	•	•	•	•	•	•	•
Dry contacts	option	option	option	option	•	•	•	•
EPO input	•	•	•	•	•	•	•	•
Parallel port	-	-	-	-	•	•	•	•
STANDARDS								
Safety	IEC/EN 62040-1, AS 62040.1.1, AS 62040.1.2							
EMC	IEC/EN 62040-2, AS 62040.2							
Performance	IEC/EN 62040-3 (efficiency tested by an external independent body)							
Product declaration(2)	CE, RCM (E2376), UKCA							
ENVIRONMENT								
Operating ambient temperature	from 0 °C to +40 °C (up to 45 °C (3))							
Storage temperature range	from -15 °C to +55 °C (from 15 °C to 25 °C for best battery life)							
Relative Humidity	5-95% non-condensing							
Noise level (ISO 3746)	< 45 dBA	< 50 dBA			< 55 dBA			
UPS CABINET								
UPS size std (W x D x H)	89x332x440 mm	89x430x440 mm	89x430x440 mm	89x608x440 mm	178x565x440 mm	178x565x440 mm	220x650x440 mm	220x650x440 mm
UPS size RACK	2U	2U	2U	2U	2U+2U	2U+2U	2U+3U	2U+3U
UPS weight std	13 kg	18 kg	19 kg	30 kg	11 + 39 kg	12 + 39 kg	16 + 67 kg	17 + 67 kg
IP rating	IP20							
EXTERNAL BATTERY MODULE (EBM)								
EBM size (W x D x H)	89x332x440 mm	89x430x440 mm	89x430x440 mm	89x608x440 mm	89x565x440 mm	89x565x440 mm	131x650x440 mm	131x650x440 mm
EBM RACK	2U	2U	2U	2U	2U	2U	3U	3U
EBM weight	16 kg	29 kg	29 kg	43 kg	39 kg	39 kg	67 kg	67 kg

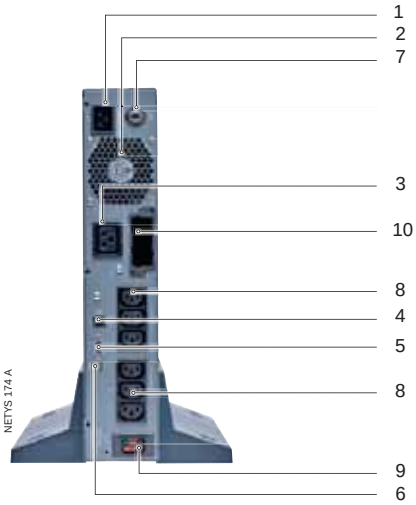
(1) @75% of rated load PF 0.7. (2) BIS compliance for 5000 VA and 7000 VA models. (3) Conditions apply.

NETYS RT
Single-phase UPS
from 1100 to 11000 VA

Connections

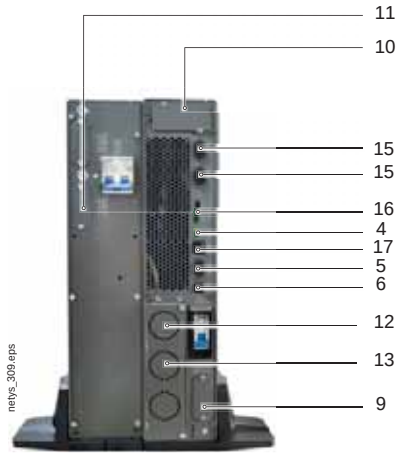


1100 VA

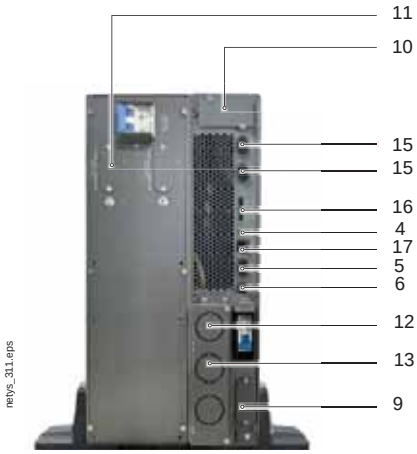


1700 VA - 2200 VA - 3300 VA

1. Mains input socket (IEC 320)
2. Fan
3. Output socket (full power)
4. Input to power off the UPS remotely
5. RS232 interface (MODBUS protocol)
6. USB port
7. Input protection
8. Output sockets (IEC 320 - 10 A)
9. Connector for external battery extension
10. Slot for optional communication boards
11. Battery extension connector
12. Output terminals
13. Input terminals
14. Input switch
15. Parallel port connector
16. Dry contact interface
17. RS485 for Li-ion battery BMS

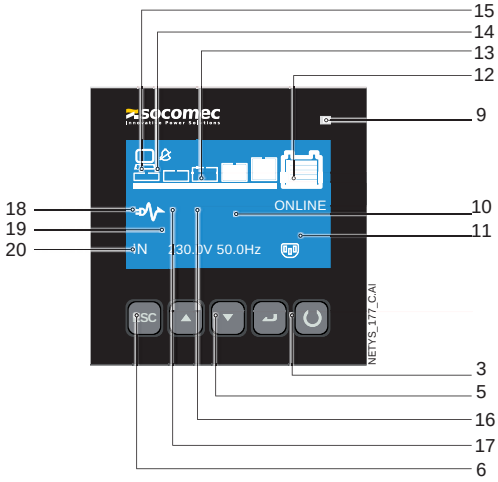


5000 VA - 7000 VA + battery



9000 VA - 11000 VA + battery

Control panel



1. Yellow LED lit. Operation in bypass mode
2. Green LED lit. Mains healthy
3. OFF button
4. Green LED lit. Normal operation (inverter in-line)
5. ON / TEST and buzzer override button
6. Navigator button
7. Alphanumeric LCD display
8. Green LED lit. Status of the load
9. Load status
10. Configuration
11. Programmable outlets
12. Battery status
13. Load level (5 steps)
14. Buzzer off
15. Load present
16. Battery fault / Replace the battery
17. General alarm
18. Overload
19. Input and output values
20. Normal mode / Battery mode (flashing)

NETYS RT Hot-Swap

NETYS RT hot-swap models: 7000 VA (4U rack) and 11000 VA (5U rack).

The plug-in manual bypass, available for NETYS RT hot-swap models, allows the easy replacement of the UPS without powering down critical systems during maintenance operations.

Power Distribution Unit with 10 A and 16 A IEC multiple sockets. Load segment control function to prioritise the supply of the most critical loads.

Front access hot-swap battery pack for a safe and fast replacement.


netys_318.psd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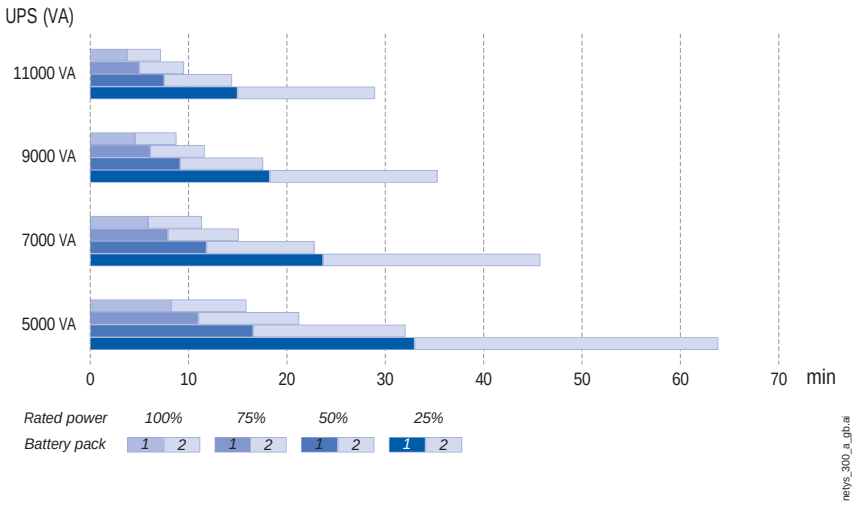
netys_316.psd

NETYS RT Hot-Swap		
Model	NRT3-7000 MBP	NRT3-11000 MBP
Sn	7000 VA	11000 VA
Pn	6000 W	10000 W
Plug-in manual baypass	•	•
Hot-swap battery packs	•	•
UPS size (W x D x H)	178x665x440 mm	220x750x440 mm
UPS size RACK	4U	5U
UPS weight	54 kg	85 kg

NETYS RT - Li-Ion battery UPS

The Li-Ion Battery solution, available for NETYS RT 5-11 kVA, provides higher back-up power density and much longer battery life than traditional lead-acid batteries. The Li-Ion Battery solution is equipped with an embedded interactive BMS (Battery Monitoring System) that provides accurate and individual cell monitoring and coordinates the recharging profile with the UPS to maximise the back-up power availability.



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NETYS RT-M

Solution for marine applications
from 1100 to 3300 VA

The solution for

> Steering systems
> Bridge systems
> Radar systems
> Control systems
> Video surveillance systems

Certifications and attestations

High availability in marine environments

The marine industry calls for reliable equipment which is able to supply applications operating in harsh environments.

In such a context, power outages cause extremely serious problems to critical equipment for the navigation system, and communication and engine controls, which leads to costs increasing. In line with the company's commitment to develop innovative solutions to ensure availability, improve energy efficiency and reduce costs, SOCOMEC has introduced NETYS RT-M, high-performance UPS DNV GL standard certified.

Easy to use

- Easy configurable frequency converter operation (50 Hz, 60 Hz).
- No configuration necessary on first startup.
- Wide range of communication protocols (including TCP/IP and SNMP) for integration into LAN networks or building management systems (BMS).

Meets practical needs

- Online double conversion technology with sinusoidal waveform, to completely filter out all disturbances from / to the mains power supply and to ensure maximum protection of the equipment.
- Optional battery extension modules (EBM) to meet wide back-up time requirements, even after installation.
- Clear and uncluttered LCD interface, with buzzers that immediately indicate the operating status of the UPS, even for less specialist users.

Standard electrical features

- Built-in backfeed protection.
- Protection against atmospheric phenomena (NTP) for telephone/ADSL modems.
- RJ11 connection for Emergency Power Off (EPO).
- Connection for battery extension modules.

Electrical options

- Battery extension modules.

Standard communication features

- 1 slot for communication options.
- RT-VISION: professional WEB/SNMP interface for UPS monitoring and shutdown management of several operating systems (5000-11000 VA).
- USB port for UPS management based on HID protocol.
- MODBUS RTU (RS232).
- LOCAL VIEW software for local UPS monitoring and shutdown for Windows, Linux and MAC Osx.

Communication options

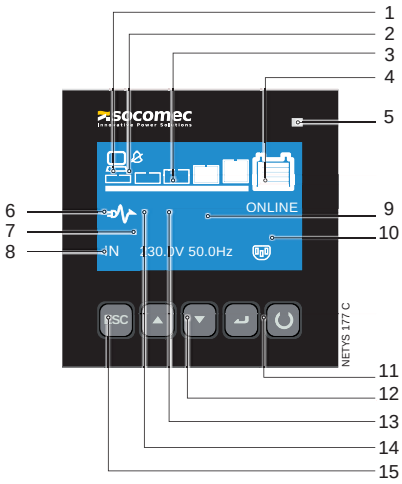
- Dry-contact interface.
- RT-VISION: professional WEB/SNMP interface for UPS monitoring and shutdown management of several operating systems (1100-3300 VA).
- Environmental Monitoring Device (EMD).
- REMOTE VIEW PRO supervision software.

Technical data

	NETYS RT-M			
Model	NRT2-U1100C	NRT2-U1700C	NRT2-U2200C	NRT2-U3300C
Sn	1100 VA	1700 VA	2200 VA	3300 VA
Pn	900 W	1350 W	1800 W	2700 W
Architecture	on-line double conversion VFI with input PFC and automatic bypass			
INPUT				
Rated voltage	230 V (1ph)			
Voltage tolerance	175÷280 V; up to 120 V @70% load			
Rated frequency	50/60 Hz			
Frequency tolerance	± 10% (Auto-Selectable)			
Power factor / THDI	> 0.99 / < 5%			
OUTPUT				
Rated voltage	230 V (1ph)			
Voltage tolerance	selectable 200/208/220/240 V			
Rated frequency	50 or 60 Hz			
Frequency tolerance	± 2% (± 0.05 Hz in battery mode)			
Power factor	0.9 @ 1000 VA	0.9 @ 1500 VA	0.9 @ 2000 VA	0.9 @ 3000 VA
Efficiency	up to 93% online mode			
Overload capability	up to 105% continuously; 125% for 3 min; 150% for 30 s			
Connections	6 x IEC 320-C13 (10 A)	6 x IEC 320-C13 (10 A) + 1 x IEC 320-C19 (16 A)		
BATTERY				
Standard autonomy(1)	8 min	12 min	8 min	10 min
Voltage	24 VDC	48 VDC		72 VDC
Recharge time	< 6 hours to recover 90% capacity			
COMMUNICATION				
Interfaces	RS232 (DB9 port) MODBUS protocol, USB HID protocol			
Ethernet	WEB / SNMP (Ethernet RJ45 port) - option			
COMM slots	1 available as standard			
Dry contacts card	option			
EPO input	RJ11 port			
ENVIRONMENT				
Operating ambient temperature	from 0 °C up to +40 °C (from 15 °C to 25 °C for maximum battery life) Temperature class A according to DNV GL			
Relative humidity	5-95% non-condensing			
Maximum altitude	1000 m without derating (max. 3000 m)			
Noise level (ISO 3746)	< 45 dBA	< 50 dBA		
UPS CABINET				
Dimensions W x D x H	89 x 333 x 440 mm	89 x 430 x 440 mm		89 x 608 x 440 mm
Dimensions RACK U	2U			
Weight	13 kg	18 kg	19 kg	30 kg
Degree of protection	IP20			
EBM - EXTERNAL BATTERY MODULE				
Dimensions W x D x H	89 x 333 x 440 mm	89 x 430 x 440 mm		89 x 608 x 440 mm
Dimensions RACK U	2U			
Weight	16 kg	29 kg		43 kg
STANDARDS				
Safety	IEC/EN 62040-1, AS 62040.1.1, AS 62040.1.2			
EMC	IEC/EN 62040-2, AS 62040.2			
Performance	IEC/EN 62040-3 (efficiency tested by an external independent body)			
Maritime certification	Applicable tests according to Class Guideline DNVGL-CG-0339, Edition November 2015 and EN 62040-1:2008/A1:2013.			
Product declaration	CE, RCM (E2376), UKCA			

(1) @ 75% of rated load PF 0.7.

Control panel



1. Load present
2. Buzzer off
3. Load level (5 steps)
4. Battery status
5. Load status
6. Overload
7. Input value
8. Normal mode / Battery mode (flashing)
9. Configuration
10. Programmable outlets
11. OFF button
12. ON / TEST and buzzer override button
13. Battery fault / Replace the battery
14. General alarm
15. Navigator button

MASTERYS GP4 RK

Tailored protection for Edge computing
from 10 to 40 kVA/kW

Whilst organisations are outsourcing to colocation and cloud service providers, they are also investing heavily in local Edge computing to meet new and evolving requirements: data security, analytics, maintaining control of mission-critical applications, IoT development programmes and augmented reality experience.

Certified performance

- Full performance up to 40 °C without derating.
- Energy savings - without compromise: 96.5% efficiency in VFI.
- Up to 99% efficiency in “ECO” mode.
- Performance tested and verified by TÜV SÜD.

Embedded digital technology

- IoT-ready device for access to connected services .
- SoLive UPS mobile app for remote control and anomaly notification.
- Easy integration in LAN/WAN and virtual environments.
- Safe guided repair procedure.

Engineered for easy integration

- Fits within existing 19” cabinet.
- Lithium battery option.
- Fast recharge - even for very long back-up time.

Front access maintenance

- Easy maintenance - innovative brick swap architecture.
- Power brick replacement without rack disconnection.
- Minimized risk of human error.
- Rapid repairs: 5 time faster than legacy UPS.

The solution for

> Edge data centres
> Banks
> Telecom & media infrastructure

Certifications and attestations

The *MASTERYS GP4* series is certified by TÜV SÜD with regard to product safety (EN 62040-1).

Advantages

3 LEVEL TECHNOLOGY
96.5% EFFICIENCY
PF 1
kW = kVA
RoHS COMPLIANT
Li-Ion

Ready for Li-Ion battery

Designed for availability

> MTBF VFI*: 500,000 hrs

** Officially attested.*

SoLive UPS

App Store
Google Play

Expert Services

www.socomec.com/services

socomec Innovative Power Solutions

System features

- Dual input mains.
- Internal maintenance bypass switch.
- Input mains switch breaker.
- Output switch breaker.
- Auxiliary mains switch breaker.
- Backfeed protection: detection circuit.
- Full compatibility with generators.

Standard communication features

- 3.5” multilanguage graphic display.
- 2 slots for communication options.
- USB port for downloading UPS report and log file.
- Ethernet port for service purposes.

System options

- 3-phase input without neutral.
- Internal backfeed isolation device.
- Common mains coupling bars.
- TN-C grounding system.
- ACS synchronisation system.

Communication options

- Dry-contact interface (configurable voltage-free contacts).
- MODBUS RTU RS485 or TCP.
- PROFIBUS / PROFINET gateway.
- BACnet/IP interface.
- NET VISION: professional WEB/SNMP Ethernet interface for secure UPS monitoring and remote automatic shutdown.
- REMOTE VIEW PRO supervision software
- IoT gateway for Socomec cloud services and SoLive UPS mobile app.
- Remote touch-screen panel.

Technical data

	MASTERYS GP4 RK				
Sn [kVA]	10	15	20	30	40
Pn [kW]	10	15	20	30	40
Input / output 3/1	•	•	•	-	-
Input / output 3/3	•	•	•	•	•
Parallel configuration	up to 6 units				
INPUT					
Rated voltage	400 V 3ph+N				
Voltage tolerance	240 V to 480 V				
Rated frequency	50/60 Hz ± 10%				
OUTPUT					
Power factor	1 (according to IEC / EN 62040-3)				
Rated voltage	1ph + N: 230 V (can be configured 220/240 V) 3ph + N: 400 V (can be configured 380/415 V)				
Rated frequency	50/60 Hz				
EFFICIENCY (TÜV SÜD VERIFIED)					
Double conversion VFI mode	up to 96.5%				
Eco Mode	up to 99%				
BATTERY					
Technologies	VRLA, NiCd, Li-Ion Battery				
Battery type	normal life - long life				
Configuration	external separated or shared				
RELIABILITY (MTBF)					
MTBF (VFI)	> 500,000 hrs (attested)				
MTBF (UPS)	> 12,000,000 hrs (attested)				
ENVIRONMENT					
Operating ambient temperature	full performance up to +40 °C (without specific conditions)				
UPS CABINET					
19” rack height	7U				
Dimensions W x D x H (mm)	442 x 820 x 305				
Weight	79 kg max(1)				
Display	3.5”				
Backup battery	external batteries				
Battery type	normal life - long life				
Degree of protection	IP20				
Colours	RAL 7016				
ADVANCED SERVICE PERFORMANCE					
Life extension	service programme to avoid end of life				
Quick repair	5 times less MTTR than legacy UPS by removable front access parts				
STANDARDS					
Safety	IEC/EN 62040-1				
EMC	IEC/EN 62040-2				
Performance	IEC/EN 62040-3				
Environmental	full compliance with the RoHS EU directive				
Seismic compliance	on demand, in accordance with the Uniform Building Code UBC-1997 Zone 4				
Product declaration	CE, EAC, UKCA				

(1) According to the model.

Remote monitoring and cloud services

- SoLink: Socomec 24/7 remote monitoring service connecting your installation to the nearest Socomec Service Centre.
- SoLive UPS: mobile app enabling the monitoring of the UPS systems from a smartphone.

MASTERYS GP4

Superior reliability and performance
from 10 to 160 kVA/kW

The solution for

- Small & medium-sized data centres
- Banks
- Medical facilities
- Medical devices
- Telecom & media infrastructure
- Transport
- Control rooms

Certifications and attestations

The *MASTERYS GP4* series is certified by TÜV SÜD with regard to product safety (EN 62040-1).

Seismic resistent
The *MASTERYS GP4* units have successfully passed severe tests to verify their resistance to withstand Zone 4 seismic events.

Advantages

3 LEVEL TECHNOLOGY · 96.5% EFFICIENCY · PF 1 · RoHS COMPLIANT · Li-Ion

Ready for Li-Ion battery

eWIRE

QRCODE 219 A GB

SoLive UPS

Superior design and reliability

- Oversized design margin: reliability first.
- Certified seismic resistance.
- Superior and officially attested MTBF.
- Long product life expectancy.

Unrivalled serviceability

- Innovative maintenance thanks to brick architecture.
- Rapid repairs: 5 times faster than legacy UPS.
- Totally front access maintenance.

Embedded digital technology

- IoT ready device for access to connected services.
- eWIRE mobile app for AR guided installation and reporting.
- SoLive UPS mobile app for remote control and anomaly notification.
- Easy integration in LAN/WAN and virtual environments.

Certified performance

- Full performance up to 40 °C without derating and without specific conditions.
- Energy savings - without compromise: 96.5% efficiency in VFI.
- Up to 99% efficiency in “ECO” mode.
- Performance tested and verified by TÜV SÜD.

User and environmentally friendly

- Ergonomics designed to simplify usage.
- Ready for upcoming eco-regulations.
- RoHS compliant.
- Halogen-free cables.
- 25+ languages available on the mimic panel.

Extended and flexible back-up time

- High density internal battery engineering reduces footprint significantly.
- Internal battery up to 80 kW included.
- Fast recharge - even for very long back-up time.
- Li-Ion battery technology-ready.

System features

- Dual input mains.
- Internal maintenance bypass switch.
- Input mains switch breaker.
- Output switch breaker.
- Auxiliary mains switch breaker.
- Backfeed protection: detection circuit.
- Full compatibility with generators.
- Normal and long-life battery up to 80 kW.
- Distributed or shared battery for energy storage optimization on parallel systems.

Remote monitoring and cloud services

- SoLink: Socomec 24/7 remote monitoring service connecting your installation to the nearest Socomec Service Centre.
- SoLive UPS: mobile app enabling the monitoring of the UPS systems from a smartphone.

Standard communication features

- User-friendly 7" touch screen with multilingual colour graphic display (60-160 kVA/kW).
- 2 slots for communication options.
- USB port for downloading UPS report and log file.
- Ethernet port for service purposes.

System options

- 3-phase input without neutral.
- Internal backfeed isolation device.
- Common mains coupling bars.
- TN-C grounding system.
- ACS synchronization system.
- IP21 degree of protection.
- Top cabling kit.
- Top ventilation kit.
- Redundant bypass fan.
- Seismic bracing kit.

Communication options

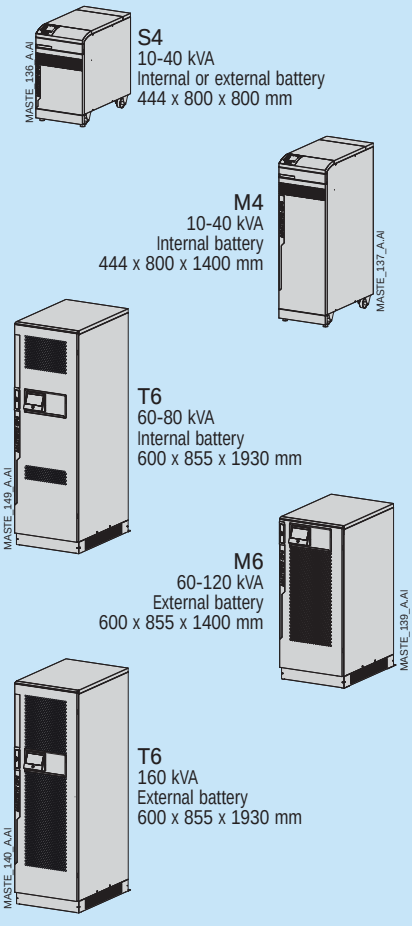
- Dry-contact interface (configurable voltage-free contacts).
- MODBUS RTU RS485 or TCP.
- PROFIBUS gateway.
- BACnet/IP interface.
- NET VISION: professional WEB/SNMP Ethernet interface for secure UPS monitoring and remote automatic shutdown.
- REMOTE VIEW PRO supervision software.
- IoT gateway for Socomec cloud services and SoLive UPS mobile app.
- Remote touch-screen panel.
- User-friendly 7" touch screen with multilingual colour graphic display (10-40 kVA/kW).

Designed for availability

> MTBF VFI*: 350,000 hrs

** Officially attested.*

UPS dimensions (WxDxH)



Technical data

	MASTERYS GP4									
Sn [kVA]	10	15	20	30	40	60	80	100	120	160
Pn [kW]	10	15	20	30	40	60	80	100	120	160
Input / output 3/1	•	•	•	-	-	-	-	-	-	-
Input / output 3/3	•	•	•	•	•	•	•	•	•	•
Parallel configuration	up to 6 units									
INPUT										
Rated voltage	400 V 3ph+N (3 wire input also available on demand)									
Voltage tolerance	240 V to 480 V									
Rated frequency	50/60 Hz ± 10%									
OUTPUT										
Power factor	1 (according to IEC / EN 62040-3)									
Rated voltage	1ph + N: 230 V (can be configured 220/240 V) 3ph + N: 400 V (can be configured 380/415 V)									
Rated frequency	50/60 Hz									
EFFICIENCY (TÜV SÜD VERIFIED)										
Double conversion VFI mode	up to 96.5%									
Eco Mode	up to 99%									
BATTERIES										
Technologies	VRLA, NiCd, Li-Ion Battery									
INTERNAL BACK-UP TIME (MINUTES)(1)										
S4	31	19	13	7	5	-				
M4	90	57	40	24	17	-				
T6	-					11	8	-		
ENVIRONMENT										
Operating ambient temperature	full performance up to +40 °C									
UPS CABINET										
Weight	depends on the number of batteries installed - contact us									
Degree of protection	IP20 (IP21 on demand)									
Colours	RAL 7016									
ADVANCED SERVICE PERFORMANCE										
Life extension	service programme to avoid end of life									
Quick repair	5 times less MTTR than legacy UPS by removable front access parts									
STANDARDS										
Safety	IEC/EN 62040-1									
EMC	IEC/EN 62040-2									
Performance	EN 62040-3									
Environmental	full compliance with the RoHS EU directive									
Seismic compliance	on demand, in accordance with the Uniform Building Code UBC-1997 Zone 4									
Product declaration	CE, EAC, UKCA									

(1) @80% of rated load PF 1.

DELPHYS GP

High-efficiency protection without compromise
from 160 to 1000 kVA/kW

Energy saving + Full rated power = reduced TCO

Energy saving: high efficiency without compromise

- Offers the highest efficiency in the market using VFI – Double Conversion Mode, the only UPS working-mode that assures total load protection against all mains quality problems.
- Ultra high efficiency output independently tested and verified by an international certification organization in a wide range of load and voltage operating condition.
- Ultra high efficiency in VFI mode is provided by an innovative topology (3-Level technology) that has been developed for all the Green Power 2.0 UPS ranges.

Full rated power: kW=kVA

- No power downgrading when supplying the latest generation of servers (leading or unity power factor).
- Real full power, according to IEC 62040: kW=kVA (unity power factor design) means 25% more active power available compared to legacy UPS.
- Suitable also for leading power factor loads down to 0.9 without apparent power derating.

Significant cost-saving (TCO)

- Maximum energy saving thanks to 96% efficiency in true double conversion mode: 50% saving on energy losses compared to legacy UPS gives significant savings in energy bill.
- Up to 99% efficiency with FAST ECOMODE.
- UPS "self-paying" with energy saving.
- Energy Saver mode for global efficiency improvement on parallel systems.
- kW=kVA means maximum power available with the same UPS rating: no overdesign cost and therefore less €/kW.
- Upstream infrastructure cost optimization (sources and distribution), thanks to high performance IGBT rectifier.
- Extended battery life and performance:
  - long life battery,
  - very wide input voltage and frequency acceptance, without battery use.
- EBS (Expert Battery System) charging management improves battery service life.
- BCR (Battery Capacity Re-injection) removes the constraints of using an additional load bank for the battery discharge test: it consists in re-injecting the energy stored in the batteries to other applications.

The solution for

- > Data centres
- > Telecommunications
- > Healthcare sector
- > Service sector
- > Infrastructure
- > Industrial applications

Certifications and attestations

BUREAU VERITAS
DELPHYS GP is attested by Bureau Veritas

VIRLAB
DELPHYS GP 160, 200 and 500 kVA/kW are seismic certified by Virlab

EU CODE OF CONDUCT ELITE UPS

Advantages

3 LEVEL TECHNOLOGY

96% EFFICIENCY

PF 1

kW = kVA

Li-Ion
Ready for Li-Ion battery

INNOVATION
Battery Capacity Re-injection

Our dedicated Expert Services for UPS

We offer services to ensure your UPS highest availability:

- > Commissioning
- > On-site intervention
- > Preventive maintenance visits
- > 24-hour call out and rapid on-site repairs
- > Maintenance packages
- > Training

www.socomec.com/services

socomec Innovative Power Solutions

Parallel systems

To fulfil the most demanding needs for power supply availability, flexibility and the installation to be upgraded.

- Modular parallel configurations up to 4 MW, development without constraint.
- Distributed or centralized bypass flexibility to ensure a perfect compatibility with the electrical infrastructure.
- Twin channel architecture with Static Transfer Systems.
- Distributed or shared battery for energy storage optimization on parallel systems.

Standard electrical features

- Integrated maintenance bypass for single unit (and 1+1 system).
- Backfeed protection: detection circuit.
- EBS (Expert Battery System) for battery management.
- Redundant cooling.
- Battery temperature sensor.

Electrical options

- Seperated or common input mains.
- External maintenance bypass.
- Extended battery charger capability.
- Shared battery.
- Compatible with different battery technologies (e.g. Li-Ion, Ni-Cd…).
- Galvanic isolation transformer.
- Backfeed isolation device.
- ACS synchronisation system.
- BCR (Battery Capacity Re-injection).
- FAST ECOMODE.

Technical data

		DELPHYS GP								
Sn [kVA]		160	200	250	300	400	500	600	800	1000
Pn [kW]		160	200	250	300	400	500	600	800	1000
Input / output		3/3								
Parallel configuration		up to 4 MW								
INPUT										
Rated voltage		400 V 3ph								
Voltage tolerance		200 V to 480 V (1)								
Rated frequency		50/60 Hz								
Frequency tolerance		± 10 Hz								
Power factor / THDI		> 0.99 / < 2.5% (3)								
OUTPUT										
Power factor		1 (according to IEC/EN 62040-3)								
Rated voltage		3ph + N 400 V								
Voltage tolerance static load		±1% dynamic load in accordance with VFI-SS-111								
Rated frequency		50/60 Hz								
Frequency tolerance		± 2% (configurable for GenSet compatibility)								
Total output voltage distortion linear load		ThdU < 1.5%								
Total output voltage distortion non-linear load (IEC 62040-3)		ThdU < 3%								
Short-circuit current(2)		up to 3.4 x In								
BYPASS										
Rated voltage		rated output voltage								
Voltage tolerance		± 15% (configurable from 10% to 20%)								
Rated frequency		50/60 Hz								
Frequency tolerance		± 2% (configurable for GenSet compatibility)								
EFFICIENCY										
Online mode @ 40% of load		up to 96%								
Online mode @ 75% of load		up to 96%								
Online mode @ 100% of load		up to 96%								
Fast EcoMode		up to 99%								
ENVIRONMENT										
Operating ambient temperature		from 0 °C up to +40 (1) °C (from 15 °C to 25 °C for maximum battery life)								
Relative humidity		0% - 95% without condensation								
Maximum altitude		1000 m without derating (max. 3000 m)								
Acoustic level at 1 m (ISO 3746)		< 65 dBA	< 67 dBA	< 70 dBA			< 72 dBA		< 74 dBA	
UPS CABINET										
Dimensions	W	700 mm		1000 mm		1400 mm	1600 mm	2800 mm	3510 mm	3910 mm
	D	800 mm		950 mm		800 mm	950 mm	950 mm		
	H	1930 mm						2060 mm		
Weight		470 kg	490 kg	850 kg	900 kg	1000 kg	1500 kg	2300 kg	2800 kg	3850 kg
Degree of protection		IP20 (other IP as option)								
Colours		cabinet: RAL 7012, door: silver grey								
STANDARDS										
Safety		IEC/EN 62040-1, AS 62040.1.1, AS 62040.1.2								
EMC		IEC/EN 62040-2, AS 62040.2								
Performance		IEC/EN 62040-3, AS 62040.3								
Seismic compliance(4)		Uniform Building Code UBC-1997, EN 60068-3-3/1993 (seismic), EN 60068-2-6/2008 (sinusoidal), EN 60068-2-47/2005 (mounting).								
Product declaration		CE, RCM (E2376), UKCA								

(1) Conditions apply. (2) Worst condition (Auxiliary Mains not available). (3) With input THDV < 1%. (4) 160, 200 and 500 kVA/kW models.

Standard communication features

- User-friendly 7" touch-screen multilingual colour graphic display.
- 2 slots for communication options.
- USB port to download UPS report and log file.
- Ethernet port for service purpose.

Communication options

- Dry-contact interface (configurable voltage-free contacts).
- MODBUS RTU RS485 or MODBUS TCP.
- PROFIBUS / PROFINET gateway.
- BACnet/IP interface.
- NET VISION: professional WEB/SNMP Ethernet interface for secure UPS monitoring and remote automatic shutdown.
- REMOTE VIEW PRO supervision software.
- IoT gateway for Socomec cloud services and SoLive UPS mobile app.
- Remote touch-screen panel.
- Additional Com-slot extension.

Remote monitoring and cloud services

- SoLink: Socomec 24/7 remote monitoring service connecting your installation to the nearest Socomec Service Centre.
- SoLive UPS: mobile app enabling the monitoring of the UPS systems from a smartphone.

DELPHYS XL

High Power UPS

1200 kVA/kW

Delphys XL is a highly compact UPS with best in class efficiency offering inherent redundancy and allowing by design, fast & safe maintenance operation. A fully resilient UPS architecture eliminating traditional single points of failure.

Flexible integration with an optimised footprint

- 1200 kVA/kW packed into a compact and optimised design.
- Highly flexible connection to your electrical environment.
- Easy and fast deployment of the entire UPS system.
- Up to 70% space saving when combined with lithium-ion batteries.
- Advanced on-site testing features to certify commissioning.

Best in class energy management & savings

- 99% efficiency with our Smart Conversion Mode.
- 97% VFI mode as standard.
- «Hot stand-by» for higher system efficiency under low load conditions.
- Multiple advanced operating and testing mode to minimise TCO.
- Ready for grid support functionalities.

Critical chain interoperability

- Designed to fit any data centre power distribution architecture.
- Advanced functionalities to ensure Genset stability upon restart or significant variation in loads.
- Designed to coordinate perfectly with our downstream connected STS.
- Supports even the most challenging load.

Unmatched resiliency to maximise availability

- UPS architecture eliminates single point of failure related to traditional monolithic UPS.
- Fault tolerant concept provides double conversion mode redundancy up to 80% of the rated power.
- Self-sufficient power bricks with advanced selective disconnection.
- Based on our field proven high power XL platform.
- Limited number of power converters - each designed to eliminate potential fault propagation for best MTBF.
- Powerful and robust static bypass.

Easy and safe maintenance supporting low MTTR

- Reduced MTTR supported by cold-extractible power bricks.
- No cabling operation required to slide-out a power brick.
- Front access to all components.
- Safe servicing thanks to “hands outside” maintenance.
- Maintenance station with embedded operating power brick as a spare.
- Option to test the UPS and batteries without load when carrying out maintenance activities.

The solution for

> Data centres
> Buildings
> Industrial processes

Strong points

> Space-saving design
> Intrinsic redundancy
> 99% efficiency
> Extractible bricks
> MTTR < 30min
> Power brick as a spare

Compliance with standards

> EN/IEC 62040-1
> EN/IEC 62040-2
> EN/IEC 62040-3
> EN/IEC 62040-4

Certifications and attestations

EU CODE OF CONDUCT ELITE UPS

Advantages

99% smart conversion

97% EFFICIENCY

PF 1

kW = kVA

SoLive UPS

App Store

Google Play

socomec Innovative Power Solutions

UPS flexibility

- Common or separate rectifier and mains bypass.
- Top and bottom cable entry or bus bar flanges.
- Multiple DC connection capability
- Compatible with different energy storage technologies (e.g. Li-Ion, VRLA, Ni-Cd...).

Standard electrical features

- Intrinsic redundancy with selective fault disconnection.
- Redundant cooling.
- Unit heat run test - without dummy load bench.
- External breakers position management.
- Energy saver mode.
- Battery temperature sensor.
- Rails and trolley for power brick extraction or cold-swap.

Electrical options

- Input, output and maintenance bypass switches.
- PEN kit for TN-C grounding system.
- Reinforced battery charger.
- Battery protection tripping kit.
- Smart conversion mode.
- BCR (Battery Capacity Re-injection).
- Redundant electronic power supplies.
- ACS synchronisation system.
- Cold start.
- Maintenance station with spare power conversion brick.
- Advanced genset management.

Standard communication features

- User-friendly 7" touch-screen multilingual colour graphic display.
- USB port to download UPS reports and log files.
- Ethernet port for service purposes.

Communication options

- Dry-contact interface (configurable voltage free contacts).
- MODBUS RTU RS485 or TCP.
- PROFIBUS / PROFINET gateway.
- BACnet/IP interface.
- NET VISION: professional WEB/ SNMP Ethernet interface for secure UPS monitoring and remote automatic shutdown.
- NET VISION EMD: Environment.
- Temperature and humidity sensor with 2 inputs.
- Remote View Pro supervision software.
- Remote touch-screen panel.

Remote monitoring and cloud services

- SoLink: Socomec 24/7 remote monitoring service connecting your installation to the nearest Socomec Service Centre.
- SoLive UPS: mobile app enabling the monitoring of the UPS systems from a smartphone.

Technical data

		DELPHYS XL
Sn [kVA]		1200
Pn [kW]		1200
Number of units in parallel		up to 4 units
INPUT		
Rated voltage		380/400/415 V
Voltage		400 V 3ph (200 to 480 V(1))
Rated frequency		50/60 Hz + 5 hz
Power factor / THDI		> 0.99 / < 2.5%
OUTPUT		
Power factor		1 (according to IEC/EN 62040-3)
Rated voltage		400 V 3ph+N (380/415 V configurable)
Rated frequency		50/60 Hz (configurable) ±0.01 Hz - free-running
Voltage distortion (Ph/Ph)		ThdU < 1.5%
BYPASS		
Rated voltage		+ 15% (configurable)
Rated frequency		+ 5% (configurable for genset compatibility)
EFFICIENCY		
Efficiency in double conversion (VFI)		up to 97%
Efficiency in Smart conversion mode		up to 99%
ENVIRONMENT		
Operating ambient temperature		0 to +50 °C (1) under ≤ 95% condensation free RH
Cooling airflow		Frontal inlet / Top outlet
Maximum altitude		1000 m without derating
Acoustic level at 1 m		< 75 dBA
Short-circuit withstand (Icw)		100 kA - Symmetrical (without internal fuses)
UPS CABINET		
Dimensions	W	3000 mm
	D	1000 mm
	H	2005 mm
Weight		3200 kg
Degree of protection		IP20 (Top grid IP30)
STANDARDS		
Safety		IEC/EN 62040-1
EMC		IEC/EN 62040-2
Performance		IEC/EN 62040-3
Environmental		IEC/EN 62040-4
Product declaration		CE

(1) Conditions apply. (2) Depth not including doors handles (+ 30 mm).

MASTERYS IP+

Robust, highly reliable protection for harsh environments
from 10 to 80 kVA

The solution for

> Industrial processes
> Services
> Medical

Certifications and attestations

The *MASTERYS IP+* series is certified by TÜV SÜD with regard to product safety (EN 62040-1).

Advantages

AVAILABLE IP52 MODELS

Our dedicated Expert Services for UPS

We offer services to ensure your UPS highest availability:

> Commissioning
> On-site intervention
> Preventive maintenance visits
> 24-hour call out and rapid on-site repairs
> Maintenance packages
> Training

www.socomec.com/services

Designed for the most demanding applications

- Designed to protect industrial processes.
- A compact solution with isolation transformer and integrated batteries.
- Robust enclosure (2 mm thick heavy steel structure).
- Floor anchoring (to prevent tilting).
- Standard IP31 protection degree.
- Dust and water splash resistant enclosure (IP52) with easy replaceable dust filters (option).
- Operation at temperature up to 50 °C.
- Wide input voltage tolerance from -40 % up to +20 % of nominal voltage.
- Double EMC immunity compared to UPS international standard IEC 62040-2.
- Double overvoltage protection.

Process continuity

- Frontal access for input/output cabling, spares replacement and preventative maintenance.
- Scalable power and high availability (using redundancy), with the facility to parallel up to 6 units.

Easy integration into industrial networks

- Input power factor > 0.99 and input current harmonic distortion < 3% thanks to IGBT rectifier.
- Compatible with Open Vented Lead Acid, Valve Regulated Lead Acid (VRLA) and Nickel Cadmium batteries.
- User-friendly multilingual interface with graphic display.
- Flexible communication boards for every industrial communication need: dry contacts, MODBUS, PROFIBUS, etc.
- Fully compatible with generator sets.
- K-rated galvanic isolation transformer embedded.
- Adaptation to typical industrial voltages (input and output).

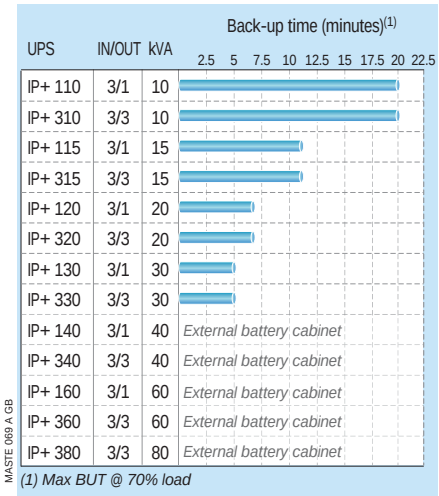
For industrial loads

- 100 % non-linear loads.
- 100 % unbalanced loads.
- 100 % "6-pulse" loads (motor speed drivers, welding equipment, power supplies…).
- Motors, lamps, capacitive loads.

Standard electrical features

- Dual input mains.
- Internal maintenance bypass.
- Backfeed protection: detection circuit.
- EBS (Expert Battery System) for battery management.

UPS and batteries



(1) Max BUT @ 70% load

Electrical options

- Long-life batteries.
- External battery cabinet (degree of protection up to IP32).
- External temperature sensor.
- Additional battery chargers.
- Additional transformer.
- Parallel kit.
- Cold start.
- ACS synchronization system.
- Neutral creation kit for mains without neutral.
- Tropicalization and anti-corrosion protection for electrical boards.

Standard communication features

- Multilanguage graphic display.
- MODBUS RTU.
- Dry-contact interface (configurable voltage-free contacts).
- Ethernet interface for UPS monitoring via WEB pages.

Communication options

- 2 slots for communication options.
- MODBUS RTU RS485 or MODBUS TCP.
- PROFIBUS gateway.
- BACnet/IP interface.
- NET VISION: professional WEB/SNMP Ethernet interface for secure UPS monitoring and remote automatic shutdown.
- REMOTE VIEW PRO supervision software
- IoT gateway for Socomec cloud services and SoLive UPS mobile app.

Remote monitoring and cloud services

- SoLink: Socomec 24/7 remote monitoring service connecting your installation to the nearest Socomec Service Centre.
- SoLive UPS: mobile app enabling the monitoring of the UPS systems from a smartphone.

Technical data

	MASTERYS IP+ 10-80						
Sn [kVA]	10	15	20	30	40	60	80
Pn [kW] - 3/1	9	13.5	18	27	32	48	-
Pn [kW] - 3/3	9	13.5	18	27	36	48	64
Parallel configuration(1)	up to 6 units						
INPUT							
Rated voltage	400 V						
Voltage tolerance	± 20%(2) (up to -40% @ 50% of rated power)						
Rated frequency	50/60 Hz						
Frequency tolerance	± 10%						
Power factor / THDI(3)	0.99 / < 3%						
OUTPUT							
Rated voltage	1ph + N: 230 V (can be configured 220/240 V) 3ph + N: 400 V (380/415 V configurable)						
Voltage tolerance	± 1%						
Rated frequency	50/60 Hz						
Frequency tolerance	± 2% (configurable from 1% to 8% with generating set)						
Total output voltage distortion - linear load	< 1%						
Total output voltage distortion - non-linear load	< 5%						
Overload	125% for 10 minutes, 150% for 1 minute(2)						
Crest factor	3:1 (complying with IEC 62040-3)						
BYPASS							
Rated voltage	1ph + N: 230 V, 3ph + N: 400 V						
Voltage tolerance	± 15% (configurable from 10% to 20% with generating set)						
Rated frequency	50/60 Hz						
Frequency tolerance	± 2% (configurable from 1% to 8% with generating set)						
ENVIRONMENT							
Operating ambient temperature	from 0 °C up to +50 °C(2) (from 15 °C to 25 °C for maximum battery life)						
Relative humidity	0% - 95% without condensation						
Maximum altitude	1000 m without derating (max. 3000 m)						
Acoustic level at 1 m (ISO 3746)	< 52 dBA			< 55 dBA		< 65 dBA	
UPS CABINET							
Dimensions (3/1) W x D x H	600 x 800 x 1400 mm				1000 x 835 x 1400 mm		-
Dimensions (3/3) W x D x H	600 x 800 x 1400 mm					1000 x 835 x 1400 mm	
Weight (3/1)	230 kg	250 kg	270 kg	330 kg	490 kg	540 kg	-
Weight (3/3)	230 kg	250 kg	270 kg	320 kg	370 kg	500 kg	550 kg
Degree of protection (according to IEC 60529)	IP31 and IP52				IP31		
Colours	RAL 7012						
STANDARDS							
Safety	IEC/EN 62040-1, AS 62040.1.1, AS 62040.1.2						
EMC	IEC/EN 62040-2, AS 62040.2						
Performance	IEC/EN 62040-3, AS 62040.3						
Product declaration	CE, RCM (E2376), UKCA						

(1) With transformer on input/bypass side. - (2) Conditions apply.
(3) At source THDV < 2 % and nominal load.

DELPHYS MX

Flexible transformer-based solution for resilient architectures
from 250 to 900 kVA

Optimum load protection

- Permanent operation in VFI mode (online double conversion).
- The inverter isolation transformer provides galvanic separation both between the DC current and the load and between the two sources.
- Output voltage precision under all load conditions.
- High overload capacity to withstand abnormal load conditions.
- Easy maintainability reduces MTTR thanks to pull-out sub-assemblies and front access to all components.
- Fault-tolerant architecture with built-in redundant components.

Flexible and easily upgradable

- Robust and reliable paralleling mode.
- Distributed or centralised bypass ensures perfect compatibility with any electrical infrastructure.
- Hot-plug capability simplifies extension or redundancy while keeping high quality power.
- The transformer based topology is adapted to all kinds of electrical installations.

Minimised Total Cost of Ownership

- High efficiency in VFI mode, including the transformer.
- High power density: its small footprint saves space on your premises.
- The high and constant input power factor helps limit the dimensions of your upstream network infrastructure.
- Mains connection of the rectifier requires only 3 cables (no neutral).
- High short-circuit capacity simplifies downstream protective devices.

The solution for

- > Industry
- > Processes
- > Infrastructure
- > IT applications
- > Healthcare

Certifications and attestations

BUREAU VERITAS

DELPHYS MX series is attested by Bureau Veritas.

Advantages

TRANSFORMER BASED UPS

Our dedicated Expert Services for UPS

We offer services to ensure your UPS highest availability:

- > Commissioning
- > On-site intervention
- > Preventive maintenance visits
- > 24-hour call out and rapid on-site repairs
- > Maintenance packages
- > Training

www.socomec.com/services

socomec
Innovative Power Solutions

Standard communication features

- Dry-contact interface (configurable voltage-free contacts)
- 3 slots for communication options

Parallel systems

- Distributed or centralized bypass for parallel architecture up to 6 units.
- Redundant systems ("1+1" and "n+1").
- "2n" architecture with Static Transfer Systems.

Standard electrical features

- Slots for 3 communication cards.
- Backfeed protection: detection circuit.
- Standard interface:
  - 3 inputs (emergency stop, generating set, battery protection),
  - 4 outputs (general alarm, back-up, bypass, preventative maintenance needs).

Electrical options

- EBS (Expert Battery System)(2).
- ACS synchronisation system for 2n architecture.
- Redundant electronic power supplies.
- Hot plug option (increase the power keeping the load supplied in double conversion).

Mechanical options

- Reinforced IP protection up to IP52.
- Dust filters.
- Fan redundancy with failure detection.
- Top entry connection.

Communication options

- User-friendly touch-screen multilingual color graphic display.
- Dry-contact interface (configurable voltage-free contacts).
- MODBUS RTU RS485 or MODBUS TCP.
- PROFIBUS / PROFINET gateway.
- BACnet/IP interface.
- NET VISION: professional WEB/SNMP Ethernet interface for secure UPS monitoring and remote automatic shutdown.
- REMOTE VIEW PRO supervision software
- IoT gateway for Socomec cloud services and SoLive UPS mobile app.
- Additional Com-slot extension.

Remote monitoring and cloud services

- SoLink: Socomec 24/7 remote monitoring service connecting your installation to the nearest Socomec Service Centre.
- SoLive UPS: mobile app enabling the monitoring of the UPS systems from a smartphone.

Technical data

	DELPHYS MX					
Sn [kVA]	250	300	400	500	800	900
Pn [kW](1)	225	270	360	450	720	810
Input / output	3/3					
Parallel configuration	up to 6 units					
INPUT						
Rated voltage(2)	380 V - 400 V - 415 V					
Voltage tolerance	340 to 460 V				360 to 460 V	
Rated frequency	50/60 Hz					
Frequency tolerance	± 5 Hz					
Power factor / THDI	0.93 / < 4.5%				0.94 / < 5%	
OUTPUT						
Rated voltage	380 V - 400 V - 415 V					
Voltage tolerance	< 1 % (static load), ± 2 % in 5 ms (dynamic load conditions from 0 to 100 %)					
Rated frequency	50/60 Hz					
Frequency tolerance	± 0.2%					
Total output voltage distortion - linear load	ThdU <2%					
Total output voltage distortion - non-linear load (IEC 62043-3)	ThdU < 3.2 %		ThdU < 2.5%			
Short-circuit current	Up to 4,4 In					
Overload	150% for 1 minute, 125% for 10 minutes					
Crest factor	3:1					
Admissible power factor without derating	inductive up to 0.9 leading					
BYPASS						
Rated voltage	380 V - 400 V - 415 V					
Voltage tolerance	± 10%					
Rated frequency	50/60 Hz					
Frequency tolerance	± 2% (configurable for GenSet compatibility)					
EFFICIENCY						
Online mode	up to 93.5%					
Eco Mode	98%					
ENVIRONMENT						
Operating ambient temperature	from 0 °C up to +35 °C (from 15 °C to 25 °C for maximum battery life)					
Relative humidity	0 % - 95 % without condensation					
Maximum altitude	1000 m without derating (max. 3000 m)					
Acoustic level at 1 m (ISO 3746)(3)	≤ 70 dBA			≤ 72 dBA	≤ 75 dBA	
UPS CABINET						
Dimensions W x D x H	1600 x 995 x 1930 mm				3200 x 995 x 2210 mm	
Weight	2500 kg		2800 kg	3300 kg	5900 kg	
Degree of protection	IP20					
Colours	RAL 9006					
STANDARDS						
Safety	IEC/EN 62041-1, AS 62040.1.1, AS 62040.1.2					
EMC	IEC/EN 62040-2, AS 62040.2					
Performance	IEC/EN 62040-3, AS 62040.3					
Product declaration	CE, RCM (E2376), UKCA					

*(1) Conditions apply. (2) **DELPHYS** MX 250-500: others on demand. (3) As per power range.*

STATYS XS

Reliable transfer system for redundant power supply

16 and 32 A - Rack mounted

The solution for

> Rack servers
> IT networking
> Hubs & routers

Advantages

NON-STOP

19"

HOT-SWAP

Certifications and attestations

RoHS COMPLIANT

Ensured power continuity

- Provides redundant power supply to single-corded IT equipment.
- Powered by two independent sources.
- A competitive alternative to redundant power supply (dual-corded) in the equipment cabinet in terms of price and features.
- Fast transfer time without source overlapping (ITIC curve compliant).
- Maintenance-free equipment.

Easy rack integration

- Easy installation in 19" rack cabinets.
- Compact enclosure saving valuable cabinet rack space.
- Plug and Play devices pre-configured according to Socomec's STS field experience.
- Easy and quick connection of the loads via multiple IEC 320 outlets.
- Integrated backfeed protection device for even easier electrical integration.

Hot-swappable version

- Easy extraction and replacement of controle and power unit without load interruption.
- Reduced MTTR.
- Front mounted double bypass protected against miss manipulation.
- Flexible load conection via fully rated terminal (up to 35 mm²) or locking IEC sockets.

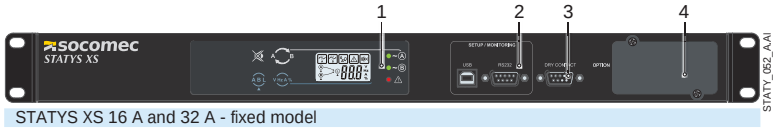
Agility and ease of use

- Front panel with LCD display for intuitive control and easy management.
- Source selection from the front panel without modifying the cabling.
- Automatic and manual transfer.
- Synchronised and non-synchronised sources management.
- LCD display of all input and output values.
- Configuration tool for easy customisation of rated voltage, monitoring parameters/ tolerances, functionalities and operation.

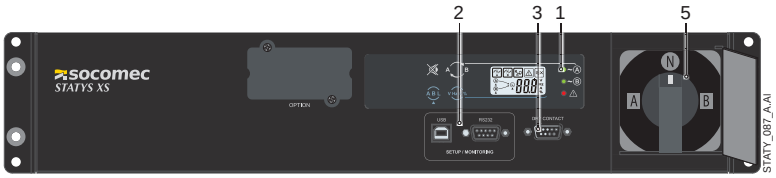
Flexible remote management

- Remote management via LAN networks (SNMP).
- Real-time monitoring (RS485).
- Configurable dry contacts communication port via local setup connection port.
- USB port & RS232 port for STATYS XS local monitoring.

Front view



STATYS XS 16 A and 32 A - fixed model

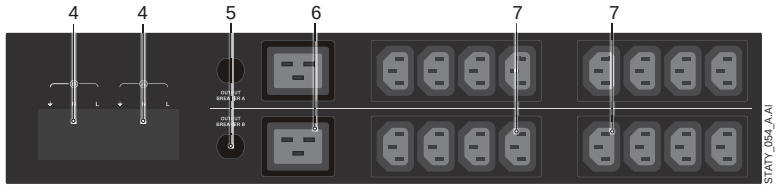


STATYS XS 32 A - hot-swap model

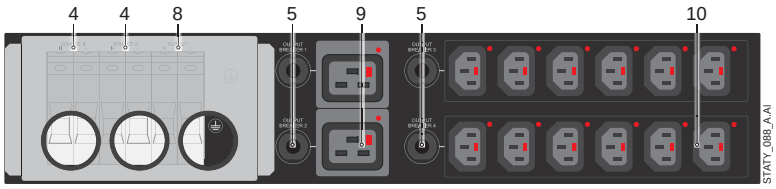
1. Control and monitoring panel
2. Setup connection ports
3. Dry contacts port
4. Slot for RS485 or SNMP board
5. Front-mounted bypass

Connections

STATYS XS 16 A - fixed model



STATYS XS 32 A - fixed model



STATYS XS 32 A - hot-swap model

1. Source input sockets (2x IEC 320-C20)
2. 16 A output socket (IEC 320-C19)
3. 10 A output sockets (2x 4x IEC 320-C13)
4. Source input terminals
5. Output protections
6. 16 A output sockets (2x IEC 320-C19)
7. 10 A output sockets (2x 8x IEC 320-C13)
8. Source output terminals
9. 16 A locking output sockets (2x IEC 320-C19)
10. 10 A locking output sockets (2x 6x IEC 320-C13)

Technical data

	STATYS XS		
Model	16 A - fixed model	32 A - fixed model	32 A - hot-swap model
INPUT / OUTPUT			
Rated current	16 A (configurable 10 to 16 A)	32 A (configurable 20 to 32 A)	32 A (configurable 16 to 32 A)
Rated voltage	200 / 208 / 220 / 230 / 240 V		
Voltage tolerance	± 10% (configurable)		
Rated frequency	50/60 Hz		
Frequency tolerance	± 10% (configurable)		
Transfer time	ITIC curve compliant		
Admitted overload	125% for 1 minute, 150% for 30 seconds		
CONNECTIONS			
Input	2 x IEC C20 (16 A)	Terminal 1x 6P (10 mm²)	Terminal 1x4P (up to 35 mm²)
Output	1 x IEC C19 (16 A), 8 x IEC C13 (10 A)	2 x IEC C19 (16 A), 16 x IEC C13 (10 A)	2 x locking IEC C19 (16 A), 12 x locking IEC C13 (10 A), terminal 1 x 2P (up to 35 mm²)
COMMUNICATION AND USER INTERFACES			
Display	LCD display		
Standard communication features	slot for optional communication board, 5 dry contacts (voltage-free, configurable), setup connection port for configuration tool		
Communication options	SNMP card, RS485 card		
ENVIRONMENT			
Operating ambient temperature	up to +40 °C		
Relative humidity	5% to 90% without condensation		
Acoustic level at 1 m (ISO 3746)	< 25 dBA		
MECHANICAL SPECIFICATIONS			
Dimensions W x D x H	440 (19") x 285 x 44 mm (1U)	440 (19") x 360 x 88 mm (2U)	440 (19") x 420 x 88 mm (2U)
Weight	4 kg	6 kg	9 kg
STANDARDS			
Directives	2014/35/UE, 2014/30/UE		
Standards	IEC60950-1, CEI/EN 62310-2		
Environmental	WEEE, ROHS		
Product declaration	CE		


TANNOY
TANNOY
时尚、智能家居控制体验中心

Prime

Single-phase UPS

NETYS PL
600 to 800 VA
p. 60

NETYS PE
600 to 2000 VA
p. 62

NETYS PR
Mini Tower
1000 to 2000 VA
p. 64

NETYS PR
Rack/Tower
1700 to 3300 VA
p. 66

NETYS PR
Rack 1U
1000 and 1500 VA
p. 68

OFYS RT
1 to 6 kVA
p. 70

ITYS
1 to 10 kVA
p. 72

ITYS ES
1000 to 3000 kVA
p.74

Three-phase UPS

MASTERYS BC+ FLEX
10 to 40 kVA
p. 76

MASTERYS BC+
10 to 160 kVA
p. 78

DELPHYS BC
200 to 300 kVA
p. 80

Transformer-based UPS

DELPHYS MP Elite+
80 to 200 kVA
p. 82

Emergency CPSS

ITYS EM+
2 and 6 kVA
p. 84

MASTERYS EM+
10 to 120 kVA
p. 86

DELPHYS EM
160 to 200 kVA
p. 88

Trustworthy power

UPS and AC/DC solutions providing a reliable and cost effective protection to assure operational power continuity.

NETYS PL

User-friendly multi-socket protection
600 and 800 VA

NETYS PL
600 VA

NETYS PL
800 VA

GAMME 255

The solution for

> PC: LCD or CRT monitors, scanners, printers, etc.
> Cash registers
> Interactive terminals

Technology

> VFD "offline"

Certifications and attestations

RoHS COMPLIANT

An innovative solution and superior design

- Compact and practical pluggable power protection integrating a larger number of sockets adapted to computer and IT peripherals in small office and home office environments, facilitating connection and tidier cabling.
- Modern design suitable for positioning over/under the desk or floor installations.
- Complementary USB port on the top for recharging mobile devices (e.g. phones, MP3, etc.).

Adapted protection to meet all your needs

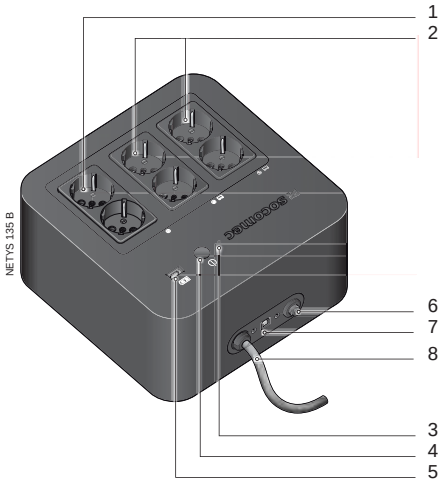
- 6 output sockets (British, French or German/Italian standards) for easy distribution directly to your applications:
  - 4 sockets protected against power cuts and overvoltages, aimed at your most sensitive applications (professional desk top systems, workstation and monitors). The back-up time (up to 30 minutes) enables standard PC tasks and configuration to be saved.
  - 2 sockets protected against overvoltage alone for use with less critical applications and high absorption consumers (e.g. laser printers).

Easy to use

- Operating mode indicated by means of the smart LED indicator lights.
- Easy battery maintenance and replacement.
- Integrated mains input cable on the side, allowing all six sockets to be used.

socomec Innovative Power Solutions

Connections



1. Filtered output sockets
2. Inverter output sockets
3. LED
4. On/Off button
5. USB port to charge mobile devices
6. Fuse
7. USB serial port
8. Mains input cable

Technical data

	NETYS PL					
Model	NPL-0600-B	NPL-0600-D	NPL-0600-F	NPL-0800-B	NPL-0800-D	NPL-0800-F
Sn	600 VA			800 VA		
Pn	360 W			480 W		
Power (surge)	1200 VA					
Input / output	1/1					
INPUT						
Rated voltage	230 V					
Voltage tolerance	180 ÷ 270 V					
Rated frequency	50/60 Hz with automatic selection					
Mains connection	Cable with plug					
OUTPUT						
Rated voltage	230 V ±10%					
Rated frequency	50/60 Hz ±1%					
Wave form	Step wave					
Protection	Overload, significant discharge and short circuit					
Sockets	4 sockets for UPS and surge protection, 2 sockets for surge protection					
Socket standard	British	German/Italian	French	British	German/Italian	French
BATTERIES						
Type	Sealed lead-acid maintenance free - expected life 3/5 years					
Back-up time(1)	15 min			20 min		
COMMUNICATION						
Interfaces	USB					
Local communication software	Local View					
UPS CABINET						
Dimensions W x D x H	220 x 220 x 123 mm					
Weight	3.6 kg			4.1 kg		
Colour	Black			White		
STANDARDS						
Safety	IEC/EN 62040-1, AS 62040.1.1, AS 62040.1.2					
EMC	IEC/EN 62040-2, AS 62040.2					
Product declaration	CE, RCM (E2376), UKCA					

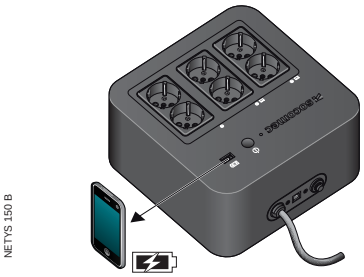
(1) PC + 17" LCD monitor.

Socket types

French socket	German/Italian socket	British socket

Standard electrical features

- USB port to charge mobile devices



Standard communication features

- USB port for UPS management based on HID protocol.
- LOCAL VIEW software for local UPS monitoring and shutdown for Windows, Linux and MAC Osx.

NETYS PE

Practical and cost-effective protection
from 600 to 2000 VA

NETYS PE
600/650/850 VA

NETYS PE
1000 VA

NETYS PE
1500/2000 VA

The solution for

- CAD, graphic workstations
- Multimedia workstations and peripherals
- LCD screens and monitors
- POS (Points Of Sales)

Technology

- VI “line interactive” with AVR, step wave

Certifications and attestations

RoHS COMPLIANT

Ideal and cost-effective protection for SOHO or POS applications

- Adapted to protect IT applications in home, office and retail environments.
- A complete range of six models to adapt the power to the equipment’s consumption or to required back-up time.

Easy to use

- Control panel with graphical icons LCD/LEDs allowing the operating mode to be easily monitored.

A solution for network power cuts and voltage fluctuations

- The integrated AVR function (Automatic Voltage Regulation) stabilizes the output voltage and avoids the switching to Battery Mode operation, therefore saving the battery to support critical power cut events.

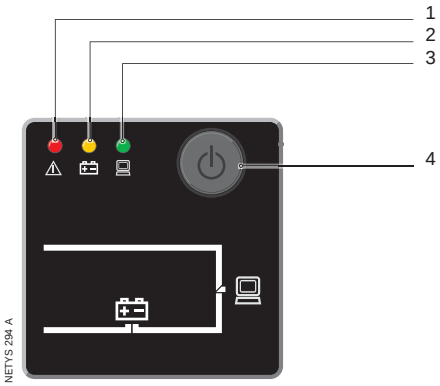
Simplified connection

- Several IEC 320 sockets (IT standard) simplify the connectivity to computer and IT peripherals.

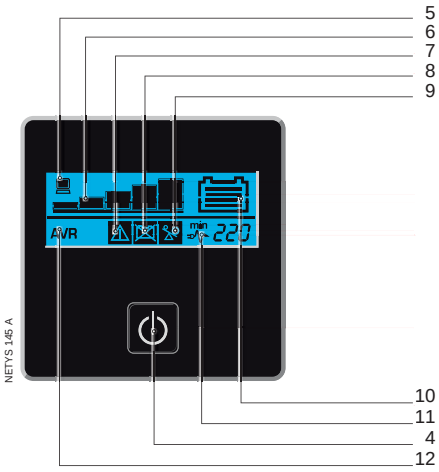
Protection for your data line

- Integrated NTP protection for LAN/ADSL connection against the risk of data line overvoltage.

Control panel



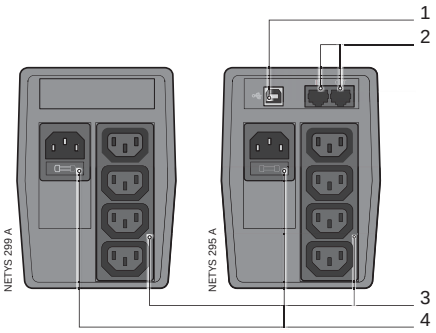
600 / 650 / 850 VA



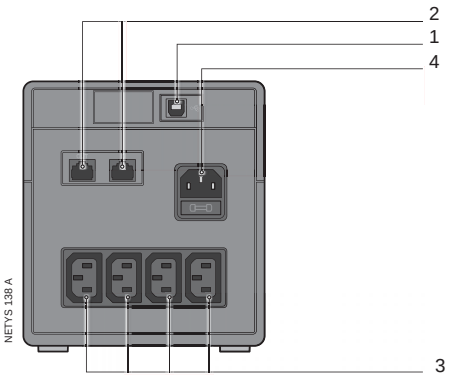
1000 / 1500 / 2000 VA

1. Alarm
2. Operation with battery
3. Normal operation
4. On / Off
5. Load present
6. Load level (5 steps)
7. General Alarm
8. Battery fault / Replace the battery
9. Overload
10. Battery capacity
11. Normal mode / Battery mode (flashing)
12. Automatic Voltage / Regulation active

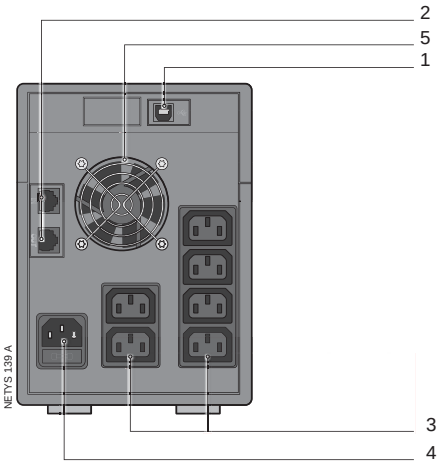
Connections



600 VA | 650 / 850 VA



1000 VA



1500 / 2000 VA

1. USB serial port
2. NTP data line suppressor
3. UPS output sockets
4. Input socket and fuse
5. Fan / air vents

Technical data

	NETYS PE					
Model	NPE-B600	NPE-0650	NPE-0850	NPE-1000-LCD	NPE-1500-LCD	NPE-2000-LCD
Sn	600 VA	650 VA	850 VA	1000 VA	1500 VA	2000 VA
Pn	360 W	360 W	480 W	600 W	900 W	1200 W
Input / output	1/1					
INPUT						
Rated voltage	230 V					
Voltage tolerance	170 - 280 V					
Rated frequency	50/60 Hz with automatic selection					
Mains connection	IEC320 socket					
OUTPUT						
Automatic Voltage Regulation (AVR)	•	•	•	•	•	•
Rated voltage (Battery Mode)	230 V ±10%					
Rated frequency	50/60 Hz ±1%					
Wave form	Step wave					
Protection	Overload, significant discharge and short circuit					
Connections	4 x IEC 320 (C13)(1)				6 x IEC 320 (C13)(1)	
BATTERIES						
Type	Sealed lead-acid maintenance free - expected life 3/5 years					
Back-up time (2)	15 min	15 min	20 min	45 min	55 min	60 min
COMMUNICATION						
Interfaces	-	USB				
Local communication software	-	Local View				
Data Line protection	-	NTP data line suppressor				
UPS CABINET						
Dimensions W x D x H	100 x 300 x 145 mm			145 x 345 x 165 mm	145 x 390 x 205 mm	
Weight	5.0 kg	5.2 kg	6.0 kg	9.7 kg	11.2 kg	12 kg
STANDARDS						
Safety	IEC/EN 62040-1, AS 62040.1.1, AS 62040.1.2					
EMC	IEC/EN 62040-2, AS 62040.2					
Product declaration	CE, RCM (E2376), UKCA					

(1) Australian standard sockets on Netys PE models specific for Australia.
(2) PC + 17" LCD monitor.

Standard communication features

- USB port for UPS management based on HID protocol.
- LOCAL VIEW software for local UPS monitoring and shutdown for Windows, Linux and MAC Osx.

NETYS PR

Space saving reliable protection
from 1000 to 2000 VA - Mini Tower

NETYS PR
1000 VA

NETYS PR
1500/2000 VA

The solution for

- Professional and IT equipment
- Servers and networking devices
- CAD / graphic workstations with monitors and peripherals
- Control systems

Technology

- VI "line interactive" with AVR, sine wave

Certifications and attestations

RoHS COMPLIANT

Professional line interactive UPS

- Ideal solution for protecting small servers and high performance CAD or graphic workstations.
- Assures service continuity to critical applications.
- Designed for professional applications: the sinevawe inverter technology assures full compatibility with any kind of load and power supply.
- Minitower case to easily fit close to the IT load to be supplied and protected.

A solution for network power cuts and voltage fluctuations

- The integrated AVR function (Automatic Voltage Regulation) stabilizes the output voltage and avoids the switching to Battery Mode operation, therefore saving the battery to support critical power cut events.

Easy to use

- Control panel with graphical icons LCD allowing the operating mode to be easily monitored.

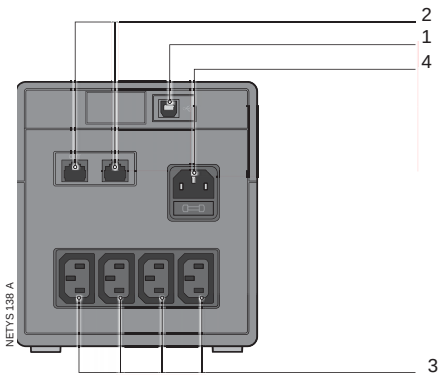
Simplified connection

- Several IEC 320 sockets (IT standard) simplify the connectivity to computer and IT peripherals.

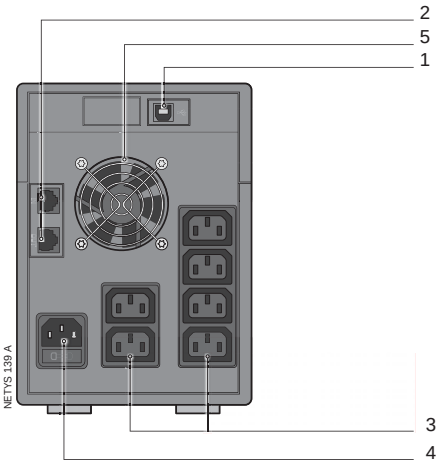
Protection for your data line

- Integrated NTP protection for LAN/ADSL connection against the risk of data line overvoltage.

Connections



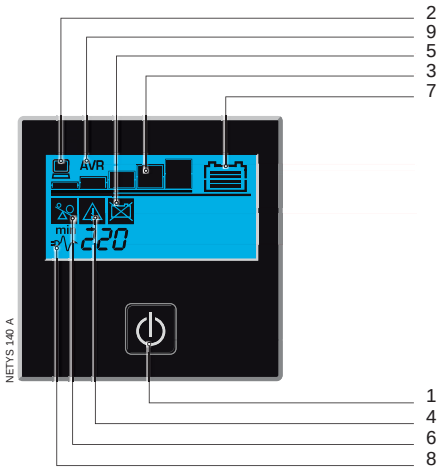
1000 VA



1500 / 2000 VA

1. USB serial port
2. NTP data line suppressor
3. UPS output sockets
4. Input socket and fuse
5. Fan / air vents

Control panel



1. On / Off
2. Load present
3. Load level (5 steps)
4. General Alarm
5. Battery fault / Replace the battery
6. Overload
7. Battery capacity
8. Normal mode / Battery mode (flashing)
9. Automatic Voltage / Regulation active

Technical data

	NETYS PR Mini Tower		
Model	NPR-1000-MT	NPR-1500-MT	NPR-2000-MT
Sn	1000 VA	1500 VA	2000 VA
Pn	700 W	1050 W	1400 W
Input / output	1/1		
INPUT			
Rated voltage	230 V		
Voltage tolerance	170 - 280 V		
Rated frequency	50/60 Hz with automatic selection		
Mains connection	IEC320 socket		
OUTPUT			
Automatic Voltage Regulation (AVR)	•	•	•
Rated voltage	230 V ±10%		
Rated frequency	50/60 Hz ±1%		
Wave form	Sine wave		
Protection	Overload, significant discharge and short circuit		
Connections	4 x IEC 320 (C13)	6 x IEC 320 (C13)	
BATTERIES			
Type	Sealed lead-acid maintenance free - expected life 3/5 years		
Back-up time (1)	45 min	55 min	60 min
COMMUNICATION			
Interfaces	USB		
Local communication software	Local View		
Data Line protection	NTP data line suppressor		
UPS CABINET			
Dimensions W x D x H	145 x 345 x 165 mm	145 x 390 x 205 mm	
Weight	9.2 kg	12.3 kg	13.2 kg
STANDARDS			
Safety	IEC/EN 62040-1, AS 62040.1.1, AS 62040.1.2		
EMC	IEC/EN 62040-2, AS 62040.2		
Product declaration	CE, RCM (E2376), UKCAE		

(1) PC + 17" LCD monitor.

Standard communication features

- USB port for UPS management based on HID protocol.
- LOCAL VIEW software for local UPS monitoring and shutdown for Windows, Linux and MAC Osx.

NETYS PR

High performance protection on rack or tower
from 1700 to 3300 VA - Rack/Tower

The solution for

> Professional and IT equipment
> Servers and networking devices
> CAD / graphic workstations with monitors and peripherals
> Control systems

Technology

> VI "line interactive" with AVR, sine wave

Certifications and attestations

RoHS COMPLIANT

A secure and professional supply continuity

- Ideal solution for protecting small servers, networking devices and peripherals.
- Assures service continuity to critical applications.
- Designed for professional applications: the sinevawe inverter technology assures full compatibility with any kind of load and power supply.

Tailored to IT networking

- The space and time-saving tower/rack conversion option means it can be installed easily either in tower mode or inside standard 19" rack cabinets depending on the user's needs.

Simple to install

- No configuration needed on first startup.
- Compact footprint (2U/89 mm) for installation in rack cabinets.
- Attractive design for visible installation in offices.
- USB port and HID protocol as standard for direct interfacing with Windows® systems, without the need for additional specialist software.

Protection for your data line

- Integrated NTP protection for LAN/ADSL connection against the risk of data line overvoltage.

Meets practical needs

- Optional battery extension modules (EBM) to meet all back-up time requirements, even after installation.
- Clear and uncluttered LCD interface, with buzzers that immediately indicate the operating status of the UPS, even for less specialist users.
- Simplified maintenance and Battery 'hot swap', without closing down other applications.

Easy to use and to integrate

- Wide range of communication protocols available in options (including JBUS, TCP/IP and SNMP) for integration into LAN networks or building management systems (BMS).
- Easy connections to the applications (depending on power) via 8 or 8+1 IEC 320 (IT standard) sockets.
- Load segmentation function to prioritize loads and manage critical situations.
- EPO (Emergency Power Off) emergency stop.
- RS232 advanced connections for the management of the power supply and local/ remote shutdown of applications.

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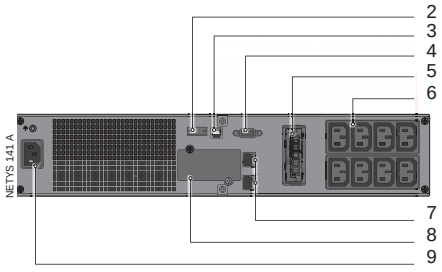
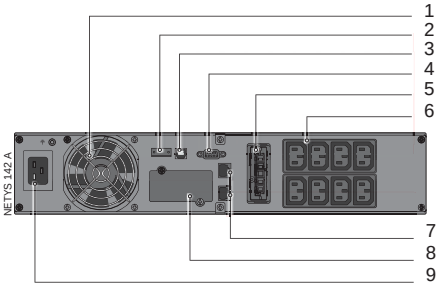
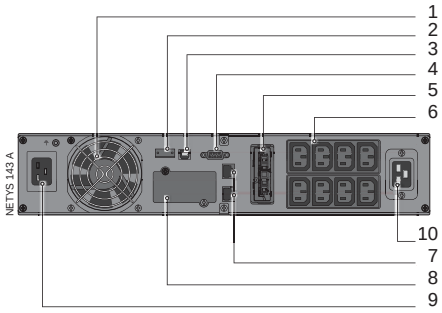
Connections



1700 VA



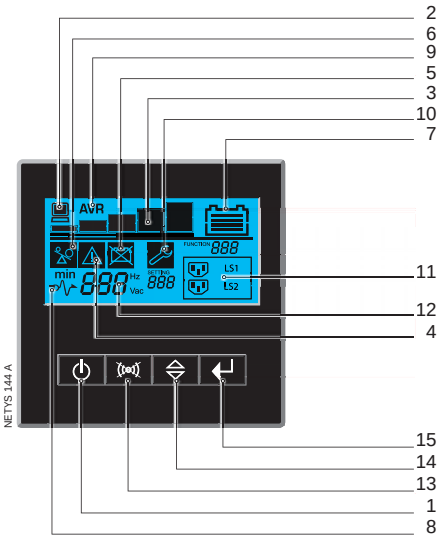
2200 VA



3300 VA

1. Fan / air vents
2. EPO Emergency Power Off
3. USB serial port
4. RS232 serial port
5. Connector for external battery extension
6. UPS output sockets (2 segments)
7. NTP protections (RJ45)
8. Slot for optional communication boards
9. Input socket
10. UPS full power output socket

Control panel



1. On / Off
2. Load present
3. Load level (5 steps)
4. General Alarm
5. Battery fault / Replace the battery
6. Overload
7. Battery capacity
8. Normal mode / Battery mode (flashing)
9. Automatic Voltage / Regulation active
10. Configuration
11. Programmable outlets
12. Input value
13. UPS test / Buzzer off
14. Navigator button
15. Enter

Technical data

	NETYS PR Rack/Tower		
Model	NPR-1700-RT	NPR-2200-RT	NPR-3300-RT
Sn	1700 VA	2200 VA	3300 VA
Pn	1350 W	1800 W	2700 W
Input / output	1/1		
INPUT			
Rated voltage	230 V		
Voltage tolerance	161 V ±4% (selecting wide mode) -276 V ±4%		
Rated frequency	50/60 Hz with automatic selection		
Mains connection	IEC320-C14 (10 A)	IEC320-C20 (16 A)	
OUTPUT			
Automatic Voltage Regulation (AVR)	The AVR increases (boost 1) the output voltage by 14% when the input voltage drops below 90% of the nominal value. The AVR decreases (bucks) the output voltage by 12% when the input voltage rises above 106% of the nominal value.		
Rated voltage	230 V ±5%		
Rated frequency	50/60 Hz ±0.1%		
Power factor	0.9 @ 1500 VA	0.9 @ 2000 VA	0.9 @ 3000 VA
Wave form	Sine wave		
Protection	Normal Mode: overload (110% for 3 minutes) Battery Mode: overload (110% for 30 seconds); shortcircuit protected		
Connections	8 (10 A) x IEC 320		8 (10 A) x IEC 320 1 (16 A) x IEC 320
BATTERIES			
Type	Sealed lead-acid maintenance free - expected life 3/5 years		
Back-up time (1)	6 min	8 min	6 min
COMMUNICATION			
Interfaces	RS232 - USB		
Ethernet adapter	NET VISION (TCP/IP & SNMP) optional card		
Local communication software	Local View		
Data line protection	NTP data line suppressor: RJ45 10 Base T		
UPS CABINET			
Dimensions W x D x H	440 x 436 x 87 mm	440 x 608 x 87 mm	
Weight	18 kg	28.2 kg	31.5 kg
STANDARDS			
Safety	IEC/EN 62040-1, AS 62040.1.1, AS 62040.1.2		
EMC	IEC/EN 62040-2, AS 62040.2		
Product declaration	CE, RCM (E2376), UKCA		

(1) @ 75% of load.

Standard communication features

- 1 slot for communication options.
- USB port for UPS management based on HID protocol.
- MODBUS RTU (RS232).
- LOCAL VIEW software for local UPS monitoring and shutdown for Windows, Linux and MAC Osx.

Communication options

- Dry-contact interface.
- NET VISION: professional WEB/SNMP Ethernet interface for secure UPS monitoring and remote automatic shutdown.
- Environmental Monitoring Device (EMD).
- REMOTE VIEW PRO supervision software.
- Rails.

Battery extensions

NETYS PR	+ 1 (NPR-B1700-RT)	+ 2 (NPR-B1700-RT)
1700 VA	22 min	42 min

NETYS PR	+ 1 (NPR-B3300-RT)	+ 2 (NPR-B3300-RT)
2200 VA	37 min	72 min
3300 VA	22 min	43 min

NETYS PR

High density, compact power protection on rack

1000 and 1500 VA - Rack 1U

The solution for

- Professional and IT equipment
- Servers and networking devices
- CAD / graphic workstations with monitors and peripherals
- Control systems

Technology

- VI “line interactive” with AVR, sine wave

Certifications and attestations

RoHS COMPLIANT

A professional UPS

- Designed for professional environments, protection against power cuts and over voltage is ensured by Line Interactive technology with Automatic Voltage Regulation (AVR).

An installation adapted to the networking environment

- NETYS PR rack provides high power density (1U - 45 mm) which conserves valuable space in the rack for other equipment.
- Can be easily installed in 19” and 23” Rack cabinets, depending on the user’s needs. The UPS is provided with rails and mounting accessories.

Adapted connections

- Easy connections to the applications via 4 IEC 320 (IT standard) sockets.

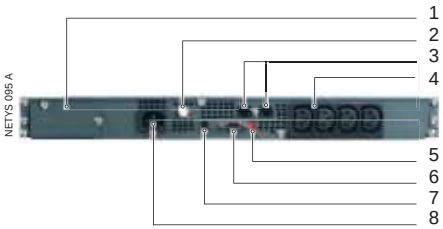
Data line protection

- With RJ45 connector.

Communication with the computer system

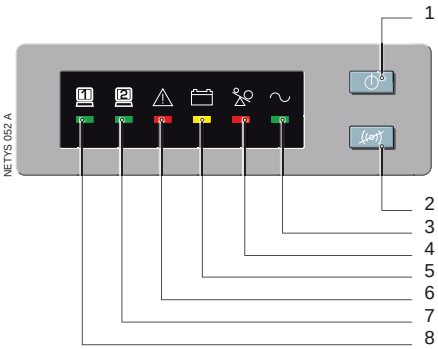
- RS232 or USB advanced connections for the management of the power supply and local / remote shutdown of applications.
- Advanced diagnostics and remote control via various protocols and user environments: JBUS, HID, SNMP, TCP/IP.

Connections



1. Slot for optional communication boards
2. Input protection
3. Network Transient Protector
4. Output sockets (IEC 320 10 A)
5. DIP switches
6. RS232 serial port
7. USB Port
8. Main input socket (IEC 320)

Control panel



1. ON-OFF button
2. Test / Alarm reset button
3. Power ON
4. Overload
5. Battery mode
6. Service
7. Load segment 2
8. Load segment 1

Battery Hot-swap

- Battery can be hot-swapped without having to shut down the connected equipment.
- Battery can be replaced from the front without removing and disconnecting the UPS.
- Battery check system and replacement indicator.

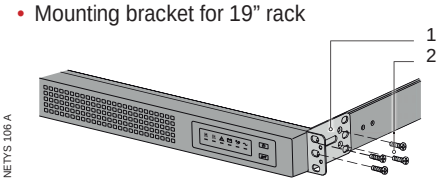
Technical data

	NETYS PR Rack 1U	
Model	NET1000-PR-1U	NET1500-PR-1U
Sn	1000 VA	1500 VA
Pn	670 W	1000 W
Input / output	1/1	
INPUT		
Rated voltage	230 V (default), 220 V, 230 V, 240 V selectable	
Rated frequency	50/60 Hz auto-sensing	
OUTPUT		
Rated voltage	230 V	
Rated frequency	50/60 Hz	
Sockets	4 x IEC 320 (10 A)	
Data line protection	NTP data line suppressor: RJ45 10 Base T	
BATTERIES		
Type	sealed lead-acid maintenance free - expected life 3/5 years	
Back-up time (1)	12 min	
COMMUNICATION		
Interfaces	RS232 - USB	
Local communication software	Local View	
UPS CABINET		
Dimensions W x D x H	440 x 578 x 44.5 mm	
Weight	21 kg	23 kg
STANDARDS		
Safety	IEC/EN 62040-1, AS 62040.1.1, AS 62040.1.2	
EMC	IEC/EN 62040-2, AS 62040.2	
Product declaration	CE, RCM (E2376), UKCA	

(1) PC + 15" LCD monitor.

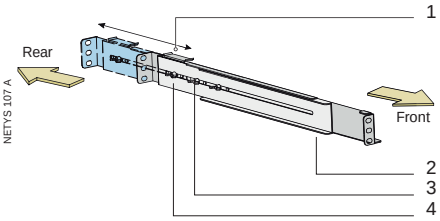
Included

- Mounting bracket for 19" rack



1. Mounting bracket
2. M3 x 6 bracket screws

- Adjustable rails



1. Rear Hold-Down Bracket
2. Rail assembly
3. Assembly Wing Nuts
4. Wing nut for rear Hold-down bracket

Standard communication features

- 1 slot for communication options.
- USB port for UPS management based on HID protocol.
- MODBUS RTU (RS232).
- LOCAL VIEW software for local UPS monitoring and shutdown for Windows, Linux and MAC Osx.

Communication options

- Dry-contact interface.
- NET VISION: professional WEB/SNMP Ethernet interface for secure UPS monitoring and remote automatic shutdown.
- Environmental Monitoring Device (EMD).
- REMOTE VIEW PRO supervision software.

OFYS RT

Reliable protection for critical equipment
from 1 to 6 kVA

OFYS RT is a single-phase UPS range designed to protect professional IT infrastructures, ensuring cost competitive solutions that meet both requirements of power reliability and installation flexibility.

Fast and easy installation

- No configuration needed on first startup.
- Compact footprint (2U/89 mm) for installation in rack cabinets.
- Space saving and flexible “tower-to-rack” conversion mode.
- Easy connections to the applications via IEC 320 sockets or terminals.

Easy to use

- Clear and uncluttered LCD interface with buzzers that immediately indicates the operating status of the UPS, even for less specialist users.
- The communication package provides connection via USB, with optional relay board card and SNMP interfaces.

Reliable power protection

- Double conversion technology guarantees voltage and frequency stability whatever the mains condition.
- Wide tolerance of the input voltage limits the number of switchovers to battery mode, prolonging the battery life.
- In the event of a power failure, the service continuity is guaranteed by the inverter powered by rechargeable batteries.
- The automatic bypass takes over immediately in the event of overloads or faults, ensuring continuous power supply to the loads.

The solution for

> Small computer rooms
> Servers and networking
> VoIP communication systems
> Structured cabling systems
> Video surveillance systems

Compliance with standards

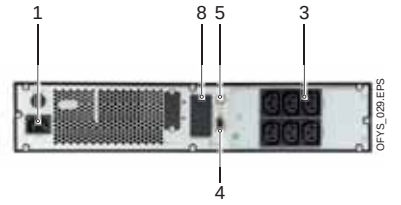
> IEC 62040-1
> IEC 62040-2
> IEC 62040-3

Certifications and attestations

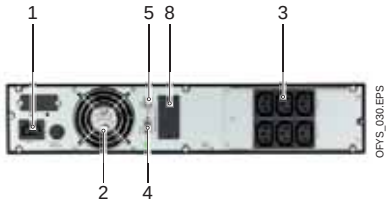
Advantages

RACK / TOWER

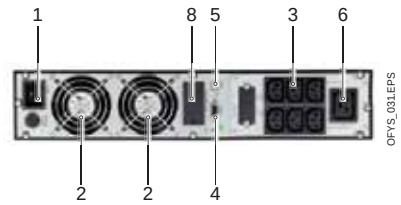
Connections



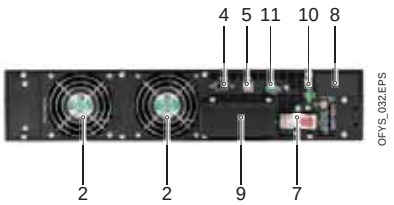
1 kVA



2 kVA



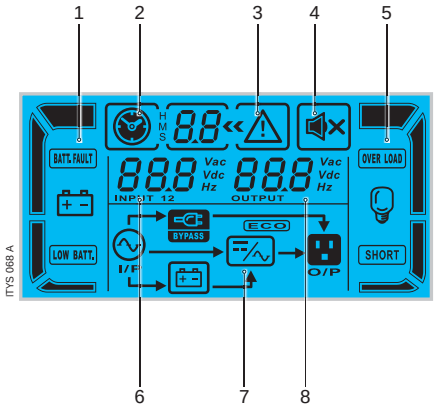
3 kVA



6 kVA

1. Mains input socket
2. Fan
3. Output socket
4. RS232 interface
5. USB port
6. Output sockets (full power)
7. Input protection
8. Slot for optional communication boards
9. Input and output terminals
10. External maintenance bypass port
11. EPO (Emergency Power Off)

Control panel



1. Battery level/Battery Status
2. Backup time info
3. General Alarm
4. Buzzer off
5. Load level / Load status
6. Input value
7. UPS mode
8. Output value

Technical data

	OFYS RT			
Model	U1000	U2000	U3000	U6000
Sn	1000 VA	2000 VA	3000 VA	6000 VA
Pn	900 W	1800 W	2700 W	6000 W
Input / output	1/1			
Architecture	online double conversion VFI with input PFC and automatic bypass			
INPUT				
Rated voltage	208/220/230/240 V			
Voltage tolerance	180÷280 VAC (100% load); 120÷300 VAC (50% load)			176÷300 VAC ± 3% (100% load); 110÷300 VAC ± 3% (50% load)
Frequency	50/60 Hz with automatic selection			
Mains connection	IEC 320 (10 A)		IEC 320 (16 A)	terminals
OUTPUT				
Rated voltage	208/220/230/240 V			
Frequency	50/60 Hz ± 8 % (± 0.1% in battery mode)			
Overload capability	<105% continuously; <130% for 30 sec; <150% for 3 sec; >150% immediate off			<110% for 10min; <130% for 1 min; >130% for 1 sec
Connections	6 x IEC 320 (10 A)		6 x IEC 320 (10 A) 1 x IEC 320 (16 A)	terminals
COMMUNICATION				
Interfaces	RS232 - USB			
Local communication software	Local View			
ENVIRONMENT				
Operating ambient temperature	from 0 °C to +40 °C (from 15 °C to 25 °C for optimal battery life)			
Storage temperature	from -15 °C to +50 °C (from 15 °C to 25 °C for optimal battery life)			
Relative humidity	20-90% non-condensing			0 - 95% no condensing
Noise level	< 50 dB			< 55 dB
UPS CABINET				
Dimensions W x D x H	438 x 310 x 89 mm	438 x 410 x 89 mm	438 x 630 x 89 mm	438 x 610 x 89 mm
Weight	10.8 kg	18.2 kg	29.3 kg	17 kg
EXTERNAL BATTERY MODULE				
Model	-		OFYS-RT-B192V2U(1)	OFYS-RT-B240V3U
Dimensions W x D x H	-		438 x 688 x 89 mm	438 x 610 x 133 mm
Weight	-		48 kg	65 kg
STANDARDS				
Safety	EN 62040-1			
EMC	EN 62040-2			
Performance	EN 62040-3			
Product certification	CE; RCM (E2376), UKCA			

(1) @80% of rated load.

Standard communication features

- 1 slot for communication options.
- LOCAL VIEW software for local UPS monitoring and shutdown for Windows, Linux and MAC Osx.
- LCD interface for UPS monitoring.

Communication options

- Relay board card for UPS remote diagnostic.
- WEB/SNMP interface for UPS monitoring and management.

Electrical options

- Rail kit.
- Hot-swap manual bypass (MBP-1U-IEC).

ITYS

Reliable and versatile power protection
from 1 to 10 kVA

Robust and easy to install

- Compact tower UPS system saves space in the operating environment.
- Quick and simple installation: no configuration necessary on first startup.
- Easy connections via sockets or terminals.
- Wide input voltage tolerance limits the switchovers to battery mode prolonging the battery life.
- Wide operating ambient temperature up to 45° C.
- Single and three-phase input with automatic configuration (8-10 kVA).

High protection and availability

- True online double conversion technology (VFI) assures high availability and total load protection.
- Compatible with different applications, operating environments and generator sets.
- Automatic bypass supplies the loads in the event of overloads or faults.
- Manual bypass for periodic or emergency maintenance.
- Standard Over Voltage Control Device (OVCD) protects the UPS and the load from dangerous mains peak-voltages.

Certified product

- Safety compliance certified by TÜV.
- Performance tested and verified by third independent laboratory.

Wide battery configurability

- Modular battery extension flexibility enables limitless autonomy configuration.
- Hot-swap modular battery extension increases back-up times even after installation according to the load criticality to be supplied.
- Modular battery extension enables models with integrated powerful battery charger:
  - ensure constant and reliable operation using external high capacity batteries.
  - provide power supply continuity during long outages.
  - assure a fast recharging.

The solution for

> Professional workstations
> Server and corporate networks
> Control room
> Industrial automation
> Security systems
> Telecom systems

Compliance with standards

> IEC 62040-1
> IEC 62040-2
> IEC 62040-3

Certifications and attestations

Autonomy configurations (1/1 models)

> Flexible autonomy

UPS with internal batteries (standard model)

Modular battery extension with 1 or 2 strings

> Extendable autonomy

UPS without internal batteries and with powerful battery charger

N+1 modular battery extension with 1 or 2 strings

> Long autonomy

UPS without internal batteries and with powerful battery charger

External battery cabinet

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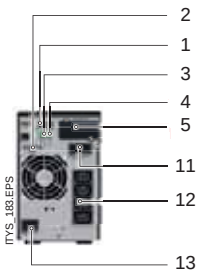
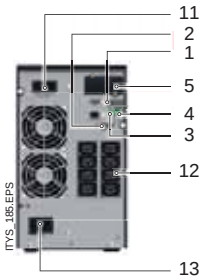
Connections

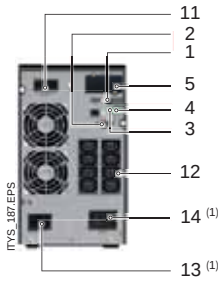
Output Connections		1 kVA	2 kVA	3 kVA	6 kVA	10 kVA
IEC Standard		4x (C13)	8x	8x (C13) + 1x (C19)	terminals	terminals
AU Standard		2x	4x + 1x IEC (C19)	4x + 1x IEC (C19)	terminals	terminals



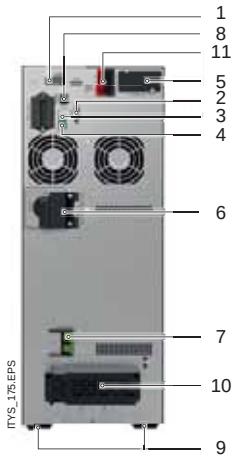
ITYS 1 kVA



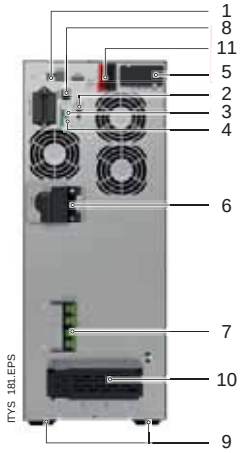
ITYS 2 kVA



ITYS 3 kVA



ITYS 6 - 10 kVA - 1/1



ITYS 8.5 - 10 kVA - 1/1 or 3/1

1. USB serial port
2. RS232 serial port
3. Power off the UPS remotely.
4. Dry contact interface
5. Slot for optional communication boards
6. Manual bypass
7. Input protection (thermal breaker)
8. Battery detection
9. Wheels
10. Input and output terminal board
11. Connection for modular battery extension
12. Output sockets
13. Input socket
14. Output socket

(1) Input and output terminal (3 kVA - model without internal batteries)

Technical data

		ITYS - UPS						
Model	IEC standard	ITY3-TW010B	ITY3-TW020B	ITY3-TW030B	ITY3-TW060B	ITY3-TW100B	ITY3-TW108B	ITY3-TW110B
	AU standard	ITY3-TW010B-AU	ITY3-TW020B-AU	ITY3-TW030B-AU				
Sn/Pn		1000 VA/W	2000 VA/W	3000 VA/W	6000 VA/W	10000 VA/W	8500 VA/W	10000 VA/W
Input / output		1 / 1					1/1 or 3/1	
INPUT								
Rated voltage		230 V (1/1) 110÷300 V; (160÷300 V @100% load)			230 V (1/1) 110÷276 V; (160÷276 V @100% load)		400 V (3/1), 230 V (1/1)	
Rated frequency		40-70 Hz (50/60 Hz +/-5% Auto-Selectable)						
Power factor		>0,99						
OUTPUT								
Rated voltage		220 / 230 / 240 V (± 1 %)						
Rated frequency		50/60 Hz (± 0.1 Hz in battery mode)						
Overload		up to 105% continuously; 125% x 3 min; 150% x 30 sec			up to 105% continuously; 125% x 10 min; 150% x 30 sec			
Crest factor		3:1						
BATTERIES								
Type		sealed lead-acid maintenance free - expected life 3 / 5 years						
Voltage		36 V DC	72 V DC		192 V DC			
Back-up time[1][2]		12 min	16 min	9 min	11 min	7 min	9 min	7 min
Battery charger[3]		8 A			12 A			-
COMMUNICATION								
Interfaces		RS232 - USB - Dry contact						
Ethernet adapter		NET VISION (TCP / IP & SNMP) optional card						
Local communication software		Local View						
EFFICIENCY								
Online mode		up to 93 %			up to 95 %			
ENVIRONMENT								
Ambient service temperature		from 0 °C to +40 °C (up to 45 °C [4])						
Relative humidity		< 95 % non-condensing						
Maximum altitude		1000 m without de-rating						
Noise level at 1 m		< 50 dBA			< 55 dBA			
UPS CABINET								
Dimensions W x D x H (mm)		145 x 404 x 224	192 x 428 x 322		225 x 416 x 589			
Weight [2]		14.4 kg	26 kg		53 kg	61 kg	58 kg	61 kg
Weight [3]		8 kg	11 kg		13.5 kg	15.8 kg	-	
Degree of protection		IP20						
EXTERNAL BATTERY MODULE (EBM)								
EBM size (W x D x H)		145x404x224	192x428x322		225x416x589			
EBM 1 string (kg)		11	23.3		55.2			
EBM 2 strings (kg)		17.3	38.3		95.2			
STANDARDS								
Safety		IEC/EN 62040-1, AS 62040.1.1, AS 62040.1.2						
EMC		IEC/EN 62040-2, AS 62040.2						
Performance		IEC/EN 62040-3 (efficiency tested by an external independent body)						
Product declaration		CE, RCM (E2376), UKCA						

(1) @75 % of rated load (models with internal batteries) PF 0.7.
(2) Models with internal batteries.
(3) Models without batteries.
(4) Conditions apply.

Standard communication features

- 1 slot for communication options.
- USB port for UPS management based on HID protocol.
- MODBUS RTU (RS232).
- LOCAL VIEW software for local UPS monitoring and shutdown for Windows, Linux and MAC Osx.
- Clear and uncluttered LCD interface for easy UPS monitoring, even for less specialist users.

System features

- Embedded dry-contact interface.
- Input mains switch breaker.
- Connection for battery extension modules.
- Power off the UPS remotely.
- Internal temperature sensor.

Communication options

- Dry-contact card.
- NET VISION: professional WEB/SNMP Ethernet interface for secure UPS monitoring and remote automatic shutdown.
- Environmental Monitoring Device (EMD).
- REMOTE VIEW PRO supervision software.

ITYS ES

Solution for electrical substations

from 1000 to 3000 VA - Electrical Substation

GAMME_850.PSD

High protection and high availability

- The ITYS ES series is a range of compact UPS systems available in 1000, 2000 and 3000 VA models with on-line double conversion technology (VFI) with sinusoidal absorption.
- ITYS ES guarantees permanent regulation of the output voltage and frequency. This technology is compatible with all IT and industrial applications and operating environments, installations with generator sets included.
- Wide tolerance on input voltage ensures that switchovers to battery mode are infrequent, significantly prolonging battery lifetime.
- Wide operating ambient temperature up to 45°C.
- Standard Over Voltage Control Device (OVCD) protects the UPS and the load from dangerous mains peak-voltages.
- UPS models with tropicalised (Conformal Coating) boards.

Straightforward to install and easy to use

- The UPS is shipped ready for connection with internal batteries connected and charged.
- ITYS ES, with the manual bypass option is easy to install without any special plant engineering preparation, as it is equipped with built-in thermal protection.
- The LCD monitoring/control panel and a buzzer make the equipment extremely easy and intuitive to use. The graphic indicating the power distribution path shows at a glance whether or not the system is working as it should.
- Battery efficiency can be tested via the control panel or using dedicated software.

Operating efficiency and versatility

- The versatility of these models makes them suitable for protecting critical devices in the industrial field.
- The standard equipment and communication accessories have been specially designed to satisfy the typical needs of installation or use in transformer cabins (i.e. tropicalized boards).
- In situations where automatic power management procedures are required, the communication software can be used to programme scheduled start-up and shutdown times.
- Restarting the UPS from the battery to power the DG before closing the main isolator.

The solution for

> Control devices
> Electric lines

Compliance with standards

> IEC 62040-1
> IEC 62040-2
> IEC 62040-3

Certifications and attestations

Tech info

The CEI 016 STANDARD for auxiliary cabin equipment requires an uninterrupted power supply to the control circuits for the General Protection and Medium Voltage Switch.

The control circuits for the General Protection, Medium Voltage Switch and coil must be powered by the same auxiliary voltage when there is no power. The power supply must be guaranteed for a back-up time of 1 hour, either by the UPS or by buffer batteries.

The Medium Voltage Switch must be powered up by skilled personnel if out of service for a long time due to maintenance or failure.

It is necessary to power the General Protection before closing the Medium Voltage Switch.

The required protection comprises:

- Mains power cuts due to poor maintenance of the user's system.
- Inappropriate tripping of the Medium Voltage Switch because of faults in the trip circuit.
- Alert signalling if the Medium Voltage Switch trips due to a power failure (system with regular maintenance).

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UPS - Technical data

	ITYS ES		
Model	ITY3-TW010B-ES	ITY3-TW020B-ES	ITY3-TW030K-ES
Sn [VA]	1000	2000	3000
Pn [W]	1000	2000	3000
Input / output	1/1		
INPUT			
Rated voltage	230 V (1ph) 110÷300 V; (160÷300 V @100% load)		
Rated frequency	40-70Hz (50/60 Hz +/-5% Auto-Selectable)		
Power factor	>0,99		
OUTPUT			
Rated voltage	220 / 230 / 240 V (± 1 %)		
Rated frequency	50/60 Hz (± 0.1 Hz in battery mode)		
Overload	up to 105% continuously; 125% x 3 min; 150% x 30 sec		
Crest factor	3:1		
Connections	4 x IEC 320 (C13)	8 x IEC 320 (C13)	8 x IEC 320 (C13) + 1 (C19)
BATTERIES			
Type	sealed lead-acid maintenance free - expected lifetime 3-5 years		
Back-up time(1)	12 minutes	16 minutes	23 minutes
Sized for a back-up time of	108 minutes @ 50 W	130 minutes @ 150 W	156 minutes @ 300 W
Back-up time(2) + switching back on	60 minutes @ 50 W	60 minutes @ 150 W	60 minutes @ 300 W
Battery test	•	•	•
COMMUNICATION			
Interfaces	RS232 - USB - Dry contact		
Ethernet adapter	NET VISION (TCP / IP & SNMP) optional card		
Local communication software	Local View		
EFFICIENCY			
Online mode	up to 93%		
ENVIRONMENT			
Ambient service temperature	from 0 °C to +40 °C (up to 45 °C (4))		
Relative humidity	< 95 % non-condensing		
Maximum altitude	1000 m without de-rating		
Noise level at 1 m	< 50 dBA		
UPS			
Dimensions W x D x H	145 x 404 x 224 mm	192 x 428 x 322 mm	384 x 428 x 322 mm
Weight	14,4 kg	26 kg	49,3 kg
Degree of protection	IP20		
COMPLIANCE WITH STANDARDS			
Safety	IEC/EN 62040-1, AS 62040.1.1, AS 62040.1.2		
EMC	IEC/EN 62040-2, AS 62040.2		
Product declaration	CE, RCM (E2376), UKCA		
	ITYS ES - Manual bypass (3)		
Sn [VA]	1000	2000	3000
INPUT			
Type of terminals	CBD6		
Wire size	6 mm² max		
BYPASS			
Switching positions	1: UPS - 2: MAINS		
Switching time	6 ms max		
LOAD OUTPUT			
Type of terminals	CBD6		
Wire size	6 mm² max		
UPS SUPPLY OUTPUT			
Type of socket	IEC 320 10 A		IEC 320 16 A
SURGE ARRESTORS (on request)			
Type	"L" in compliance with CEI EN 61643-11		
L/N pulse current	40 kA (8/20) max		
VAC N/GND	255 V max		
VAC L/N	320 V max		

(1) @75 % of rated load (models with internal batteries) PF 0.7.
(2) Factory setting: back-up time limited to 60 minutes to permit subsequent restarting with battery.
(3) Upon request.
(4) Conditions apply.

Standard communication features

- Embedded dry-contact interface.
- Input mains switch breaker.
- Power off the UPS remotely.
- Internal temperature sensor.
- 1 slot for communication options.
- USB port for UPS management based on HID protocol.
- MODBUS RTU (RS232).
- LOCAL VIEW software for local UPS monitoring and shutdown for Windows, Linux and MAC Osx.
- Clear and uncluttered LCD interface for easy UPS monitoring, even for less specialist users.

Communication options

- Dry-contact card.
- NET VISION: professional WEB/SNMP Ethernet interface for secure UPS monitoring and remote automatic shutdown.
- Environmental Monitoring Device (EMD).
- REMOTE VIEW PRO supervision software.

Manual bypass (option)

- Specially designed for ITYS ES, the manual bypass option enables:
- simplified installation: connection to the system is made with industrial grade terminals, while connection to the UPS is via the pre-wired plug and socket supplied.
- easy maintenance and uninterrupted operation: thanks to the manual bypass isolator it is possible to service or replace the UPS while maintaining the power supply to the devices downstream in complete safety for the operator. This operation has been specially devised to be simple to carry out, even in an emergency.
- increased level of equipment immunity to surge voltages, typical for this type of application, thanks to suitable surge arrestors included in addition to standard UPS protection.

MASTERYS BC+ FLEX

A system that fits every space
from 10 to 40 kVA

A flexible and cost-effective solution

- The Flex model eliminates space and installation restrictions with the «3-in-1» solution.
- Equipped with an output and manual bypass breaker in standard mode.
- Mimic panel can be rotated to enable the information displayed to be read easily.
- High recharging current option for very long back-up time.

Fast and easy installation

- Easy to configure for retrofit in existing installations.
- Free eRULER online sizing tool to get dimensions and electrical information in advance before installation.
- Quickly get online product documentation by simply inputting the Serial Number

User and environmentally friendly

- 25+ languages available in the mimic panel.
- Ergonomics designed to simplify usage.
- Anticipates eco-regulations and is RoHS compliant.

Example of top-mounted installation.

The solution for

- SME IT networking / computer rooms
- Building automation
- Payment systems
- Public sector
- Security control

Certifications and attestations

La gamme ***MASTERYS BC+ FLEX*** est certifiée par TÜV SÜD concernant la sécurité (norme EN 62040-1).

Avantages

95% EFFICIENCY

PF 0.9

RoHS COMPLIANT

Expert Services

www.socomec.com/services

SoLive UPS

App Store

Google Play

socomec Innovative Power Solutions

Maximum versatility

Free-standing
Adaptable to the available space

Wall-mounted
Zero floor space

Top-mounted
Easy built-in solution

Technical data

	MASTERYS BC+ FLEX				
Sn [kVA]	10	15	20	30	40
Pn [kW]	9	13.5	18	27	36
Input / output 3/1	•	•	•	–	–
Input / output 3/3	•	•	•	•	•
Parallel configuration	up to 6 units				
INPUT					
Rated voltage	3ph + N: 400 V (can be configured 380/415 V)				
Voltage tolerance	240 V to 480 V				
Rated frequency	50/60 Hz ± 10%				
OUTPUT					
Power factor	0.9 (according to IEC / EN 62040-3)				
Rated voltage	1ph + N: 230 V (can be configured 220/240 V) 3ph + N: 400 V (can be configured 380/415 V)				
Rated frequency	50/60 Hz				
EFFICIENCY (TÜV SÜD VERIFIED)					
Double conversion VFI mode	up to 95 %				
Eco Mode	up to 99 %				
BATTERY					
Technologies	VRLA, NiCd				
Battery type	Normal life				
Configuration	External batteries				
ENVIRONMENT					
Operating ambient temperature	up to +40 °C (2)				
UPS CABINET					
Dimensions W x D x H (mm)	442 x 830 x 305				
Weight	79 kg max(1)				
Display	3.5”				
Degree of protection	IP20 (IP21 on demand)				
Colours	metallised grey E150HVR				
STANDARDS					
Safety	IEC/EN 62040-1				
EMC	IEC/EN 62040-2				
Performance	IEC/EN 62040-3				
Environmental	full compliance with the RoHS EU directive				
Product declaration	CE, EAC, UKCA				

(1) According to the model. (2) Conditions apply.

System features

- Dual input mains (30-40 kVA).
- Internal maintenance bypass switch.
- Output switch breaker.
- Auxiliary mains switch breaker.
- Backfeed protection: detection circuit.
- Full compatibility with generators.
- Internal normal-life batteries.

Standard communication features

- 3.5” multilanguage graphic display.
- 2 slots for communication options.
- USB port for downloading log file.
- Ethernet port for service purposes.

System options

- 3-phase input without neutral.
- Internal backfeed isolation device.
- Common mains coupling bars.
- TN-C grounding system.
- ACS synchronisation system.
- High capacity battery charger.
- Free-standing kit.
- Top-mounted kit.

Communication options

- Dry-contact interface (configurable voltage-free contacts).
- MODBUS RTU RS485 or TCP.
- PROFIBUS / PROFINET gateway.
- BACnet/IP interface.
- NET VISION: professional WEB/SNMP Ethernet interface for secure UPS monitoring and remote automatic shutdown.
- REMOTE VIEW PRO supervision software.
- IoT Gateway for Socomec cloud services and SoLive UPS mobile app.
- Remote touch-screen panel.

Remote monitoring and cloud services

- SoLink: Socomec 24/7 remote monitoring service connecting your installation to the nearest Socomec Service Centre.
- SoLive UPS: mobile app enabling the monitoring of the UPS systems from a smartphone.

MASTERYS BC+

Designed for easy integration and use
from 10 to 160 kVA

The solution for

- SME IT networking / computer rooms
- Control rooms
- Emergency service
- Payment systems
- Public sector
- Security control

Certifications and attestations

The ***MASTERYS BC+*** series is certified by TÜV SÜD with regard to product safety (EN 62040-1).

Advantages

95% EFFICIENCY

RoHS COMPLIANT

eWIRE

eWIRE

Download on the App Store

Google Play

QRCODE 219 A GB

SoLive UPS

App Store

Google Play

Expert Services

www.socomec.com/services

A flexible and cost-effective solution

- A compact range of standard product references with a variety of add-on options to adapt to every customer's site.
- Easy to configure for retrofit in existing installations.
- Equipped with manual bypass breaker in standard mode.

Long back-up time engineered-in

- Several optimised choices for standard internal battery configuration.
- Increased internal battery density for reduced footprint and simplified installation.
- Internal basic back-up time available up 80 kVA, without additional external battery cabinet.
- High recharging current option for very long back-up time.

Embedded digital technology

- Digital Native UPS generation.
- IoT ready device for access to connected services.
- Easy integration in LAN/WAN and virtual environments.

Fast and easy installation

- A wide range of UPS from 10 to 160 kVA with the same performance and functionality.
- Free eRULER online sizing tool to get dimensions and electrical information in advance before installation.
- Tutored UPS installation with eWIRE mobile app.
- Quickly get online product documentation by simply inputting the Serial Number.

Fast delivery

- "Fast track manufacturing" option available for urgent projects or last-minute requirements.
- Fast delivery even for highly customised configurations thanks to easily combined options.

User and environmentally friendly

- 25+ languages available in the mimic panel.
- Ergonomics designed to simplify usage.
- Anticipates eco-regulations and is RoHS compliant.
- Units provided with wheels for easy positioning.

System features

- Dual input mains (above 30 kVA).
- Internal maintenance bypass switch.
- Output switch breaker.
- Auxiliary mains switch breaker.
- Backfeed protection: detection circuit.
- Full compatibility with generators.
- Internal normal-life batteries up to 80 kVA.

Remote monitoring and cloud services

- SoLink: Socomec 24/7 remote monitoring service connecting your installation to the nearest Socomec Service Centre.
- SoLive UPS: mobile app enabling the monitoring of the UPS systems from a smartphone.

Standard communication features

- 3.5" multilanguage graphic display.
- 2 slots for communication options.
- USB port for downloading log file.
- Ethernet port for service purposes.

Communication options

- Dry-contact interface (configurable voltage-free contacts).
- MODBUS RTU RS485 or TCP.
- PROFIBUS gateway.
- BACnet/IP interface.
- NET VISION: professional WEB/SNMP Ethernet interface for secure UPS monitoring and remote automatic shutdown.
- REMOTE VIEW PRO supervision software.
- IoT Gateway for Socomec cloud services and SoLive UPS mobile app.
- Remote touch-screen panel.

System options

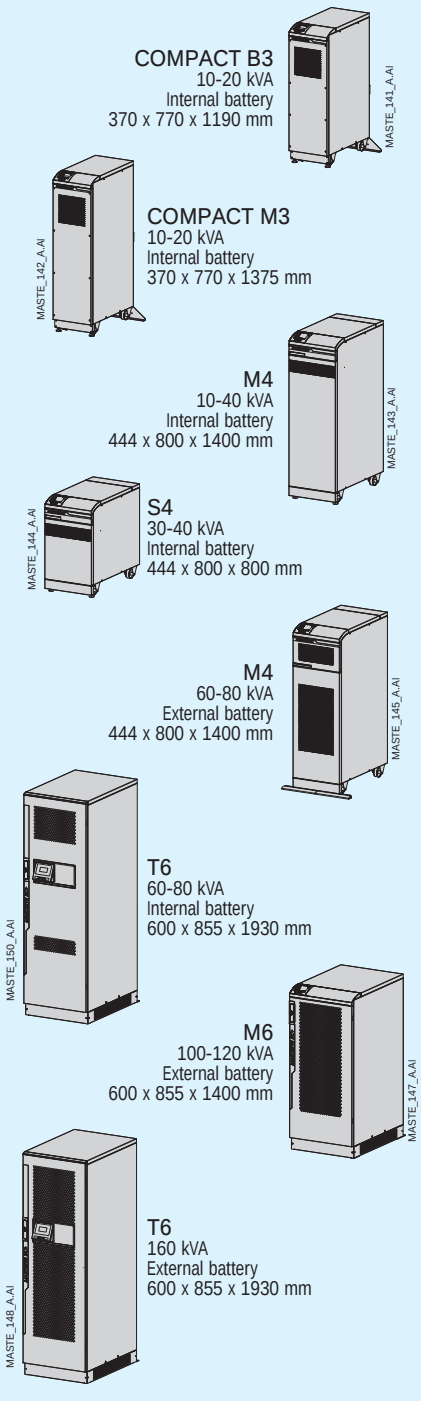
- 3-phase input without neutral.
- Internal backfeed isolation device.
- Common mains coupling bars.
- TN-C grounding system.
- ACS synchronisation system.
- IP21 degree of protection.
- Long life internal batteries up to 80 kVA.
- High capacity battery charger.

Technical data

	MASTERYS BC+									
Sn [kVA]	10	15	20	30	40	60	80	100	120	160
Pn [kW]	10(1)	15(1)	20(1)	27	36	54	72	90	108	144
Input / output 3/1	•	•	•	-	-	-	-	-	-	-
Input / output 3/3	•	•	•	•	•	•	•	•	•	•
Parallel configuration	up to 6 units									
INPUT										
Rated voltage	400 V 3ph+N (3 wire input also available on demand)									
Voltage tolerance	240 V to 480 V									
Rated frequency	50/60 Hz ± 10%									
OUTPUT										
Rated voltage	1ph + N: 230 V (can be configured 220/240 V) 3ph + N: 400 V (can be configured 380/415 V)									
Rated frequency	50/60 Hz									
EFFICIENCY										
Double conversion VFI mode	up to 95%									
Eco Mode	up to 99%									
BATTERY										
Technologies	VRLA, NiCd									
INTERNAL BACK-UP TIME (MINUTES)(2)										
COMPACT B3	22	13	9	-						
COMPACT M3	35	22	15	-						
M4	101	66	46	28	20	-				
S4	-			9	6	-				
T6	-					13	9	-		
ENVIRONMENT										
Operating ambient temperature	up to +35 °C									
UPS CABINET										
Weight	depends on the number of batteries installed - contact us									
Degree of protection	IP20 (IP21 on demand)									
Colours	metallised grey E150HVR									
STANDARDS										
Safety	IEC/EN 62040-1									
EMC	IEC/EN 62040-2									
Performance	EN 62040-3									
Environmental	full compliance with the RoHS EU directive									
Product declaration	CE, EAC, UKCA									

(1) PF 0.9 for long autonomy models S4 and M4.
(2) @80% of rated power with load PF 0.9.

UPS dimensions (WxDxH)



DELPHYS BC

Reliable, simple and ready-to-use power protection
from 200 to 300 kVA

The solution for

- Server rooms
- Service sector
- Infrastructure
- Healthcare sector
- Light industrial applications

Certifications and attestations

Our dedicated Expert Services for UPS

We offer services to ensure your UPS highest availability:

- Commissioning
- On-site intervention
- Preventive maintenance visits
- 24-hour call out and rapid on-site repairs
- Maintenance packages
- Training

www.socomec.com/services

A complete, cost-effective solution

- Online double conversion mode with an output power factor of 0.9 providing 12% more active power compare to UPS with a power factor of 0.8.
- Dual input mains allows you to manage independent power sources.
- Increased system availability placing two UPS in parallel for 1+1 redundancy.
- Internal manual bypass for easy maintenance without power interruption (1+1 configuration).
- Multilanguage display.

Tailored to your environment

- Saves space with a reduced footprint and optimized cabinet size.
- Low noise level.
- Compact, lightweight and easy to install.
- No neutral required on rectifier input.
- Two-wire battery connection (only +/-).
- Extended battery life and performance with exclusive EBS battery charging management for increased battery life.

Standard electrical features

- Dual input mains.
- Integrated maintenance bypass.
- Backfeed protection: detection circuit.
- EBS (Expert Battery System) for battery management.

Electrical options

- External battery cabinet.
- External temperature sensor.
- Additional battery chargers.
- Shared battery.
- Galvanic isolation transformer.
- Parallel kit.
- ACS synchronization system.

Standard communication features

- User-friendly 7" touch-screen multilingual colour graphic display.
- 2 slots for communication options.
- USB port to download UPS report and log file.

Communication options

- Dry-contact interface. (configurable voltage-free contacts).
- MODBUS RTU RS485 or MODBUS TCP.
- PROFIBUS / PROFINET gateway.
- BACnet/IP interface.
- NET VISION: professional WEB/SNMP Ethernet interface for secure UPS monitoring and remote automatic shutdown.
- REMOTE VIEW PRO supervision software.
- IoT gateway for Socomec cloud services and SoLive UPS mobile app.
- Remote touch-screen panel.
- Additional Com-slot extension.

Remote monitoring and cloud services

- SoLink: Socomec 24/7 remote monitoring service connecting your installation to the nearest Socomec Service Centre.
- SoLive UPS: mobile app enabling the monitoring of the UPS systems from a smartphone.

Technical data

	DELPHYS BC	
Sn [kVA]	200	300
Pn [kW]	180	270
Parallel configuration	up to 6 units	
INPUT		
Rated voltage	400 V 3ph	
Voltage tolerance	240 V to 480 V(1)	
Rated frequency	50/60 Hz ± 10%	
Power factor / THDI	0.99 / < 3%	
OUTPUT		
Rated voltage	400 V	
Voltage tolerance	static load ±1% dynamic load in accordance with VFI-SS-111	
Rated frequency	50/60 Hz	
Frequency tolerance	± 2% (configurable from 1% to 8%)	
Crest factor	3:1	
BYPASS		
Rated voltage	rated output voltage	
Voltage tolerance	± 15% (configurable with from 10% to 20%)	
Rated frequency	50/60 Hz	
Frequency tolerance	± 2% (configurable for Genset compatibility)	
EFFICIENCY		
Online mode @ 100% of load	up to 95%	
ENVIRONMENT		
Operating ambient temperature	from 0 °C up to +40(2) °C (from 15 °C to 25 °C for maximum battery life)	
Relative humidity	0% - 95% without condensation	
Maximum altitude	1000 m without derating (max. 3000 m)	
Acoustic level at 1 m (ISO 3746)	< 68 dBA	< 71 dBA
UPS CABINET		
Dimensions W x D x H	700 x 800 x 1930 mm	1000 x 950 x 1930 mm
Weight	500 kg	830 kg
Degree of protection	IP20	
Colours	RAL 7012, silver grey frontal door	
STANDARDS		
Safety	IEC/EN 62040-1, AS 62040.1.1, AS 62040.1.2	
EMC	IEC/EN 62040-2, AS 62040.2	
Performance	IEC/EN 62040-3, AS 62040.3	
Product declaration	CE, RCM (E2376), UKCA	

(1) Conditions apply.

DELPHYS MP Elite+

Resilient transformer-based power protection
from 80 to 200 kVA

DEPYS 121 B 1 CAT

The solution for

- Industry
- Processes
- Infrastructure
- Healthcare
- Service sector
- Telecommunications

Advantages

CLEAN RECTIFIER

TRANSFORMER BASED UPS

Our dedicated Expert Services for UPS

We offer services to ensure your UPS highest availability:

- Commissioning
- On-site intervention
- Preventive maintenance visits
- 24-hour call out and rapid on-site repairs
- Maintenance packages
- Training

www.socomec.com/services

High quality power supply

- Permanent operation in VFI mode (online double conversion).
- Output voltage precision under all load conditions.
- High overload capability to withstand abnormal load conditions.
- A very high short-circuit current capacity which facilitates the selection of protective devices for selectivity in the downstream distribution.
- An isolation transformer installed on the inverter output to ensure complete galvanic isolation between DC circuit and load output. This insulation also provides a separation between the two inputs when they are supplied by different sources.
- Sinusoidal ThdU output voltage < 2 % with linear loads and < 4 % with non-linear loads.

High availability

- Field-proven technology.
- Fault-tolerant architecture with redundancy of basic functions, such as the ventilation system.
- Easy maintainability reduces MTTR thanks to pull-out sub-assemblies and front access all components.
- Accurate diagnostics guarantee power supply to the load.
- Cascade failure prevention for parallel systems.
- Mechanical & electrical robustness for industrial environments.
- Soft start capability (ramp up) of the IGBT inverter allows a good operation even with a genset.
- Specifically designed to be adapted to different industrial environment: high IP protection options, high peak current capability, long back up time…

Cost-effective equipment

- The "clean" IGBT rectifier allows:
  - a high efficiency,
  - a high and constant input power factor,
  - a low THDi.

  These characteristics help to limit the dimensions of upstream network infrastructure.
- Possibility to create new neutral system without additional losses (extra transformer required on by-pass line only).
- High short-circuit capability simplifies downstream protective devices.
- High power density: its small footprint saves space on your premises.
- Mains connection of the rectifier requires only 3 cables (no neutral).
- Battery connection to UPS requires only 2 cables.

User-friendly operation

- A control panel with graphic display for more ergonomic operation.
- An array of "com-slot" plug-in communication interfaces, for upgrading your operating requirements evolution.

Simplified maintenance

- An advanced diagnostic system.
- A remote access device connected to the remote maintenance centre.
- Easy access to subassemblies and components, facilitating tests and reducing maintenance time (MTTR)

Standard communication features

- Dry-contact interface (configurable voltage-free contacts)
- 3 slots for communication options

Parallel systems

- Distributed or centralized bypass for parallel architecture up to 6 units.
- Redundant systems ("1+1" and "n+1").
- "2n" architecture with Static Transfer Systems.

Standard electrical features

- Backfeed protection: detection circuit.
- Standard interface:
  - 3 inputs (emergency stop, generating set, battery protection),
  - 4 outputs (general alarm, back-up, bypass, preventative maintenance needs).

Electrical options

- EBS (Expert Battery System)(2).
- ACS synchronisation system for 2n architecture.
- Redundant electronic power supplies.
- Hot plug option (increase the power keeping the load supplied in double conversion).
- Long back up time rectifier.

Mechanical options

- Reinforced IP protection degree.
- Dust filters.
- Fan redundancy with failure detection.
- Top entry connection.
- Reinforced IP protection up to IP52.

Communication options

- User-friendly touch-screen multilingual color graphic display.
- MODBUS RTU RS485 or MODBUS TCP.
- PROFIBUS / PROFINET gateway.
- BACnet/IP interface.
- NET VISION: professional WEB/ SNMP Ethernet interface for secure UPS monitoring and remote automatic shutdown.
- REMOTE VIEW PRO supervision software.
- IoT gateway for Socomec cloud services and SoLive UPS mobile app.
- Additional Com-slot extension.

Remote monitoring and cloud services

- SoLink: Socomec 24/7 remote monitoring service connecting your installation to the nearest Socomec Service Centre
- SoLive UPS: mobile app enabling the monitoring of the UPS systems from a smartphone

Technical data

	DELPHYS MP Elite+				
Sn [kVA]	80	100	120	160	200
Pn [kW]	72	90	108	144	180
Input / output	3/3				
Parallel configuration	up to 6 units (distributed or centralised bypass)				
INPUT					
Rated voltage	380 V - 400 V - 415 V(1)				
Voltage tolerance	342 to 460 V(2)				
Rated frequency	50/60 Hz				
Frequency tolerance	45 to 65 Hz				
Power factor / THDI	0.99 constant / 2.5 % without filter				
OUTPUT					
Rated voltage	380 V - 400 V - 415 V (configurable)(1)				
Voltage tolerance	< 1 % (static load), ± 2 % in 5 ms (dynamic load conditions from 0 to 100 %)				
Rated frequency	50/60 Hz				
Frequency tolerance	± 0.2%				
Total output voltage distortion - linear load	ThdU <2%				
Total output voltage distortion - non-linear load	ThdU <4%				
Short-circuit current on inverter (100ms)	Up to 3.5 In				
Overload	Up to 150 % for 1 minute, 125 % for 10 minutes(2)				
Crest factor	3:1				
BYPASS					
Rated voltage	380 V - 400 V - 415 V				
Voltage tolerance	± 10% (selectable)				
Rated frequency	50/60 Hz				
Frequency tolerance	± 2% (configurable for GenSet compatibility)				
Short-circuit current on by-pass (20ms)	Up to 24 In				
EFFICIENCY					
Online mode	93.5%				
Eco Mode	98%				
ENVIRONMENT					
Operating ambient temperature	from 0 °C up to +40 °C(2) (from 15 °C to 25 °C for maximum battery life)				
Relative humidity	0 % - 95 % without condensation				
Maximum altitude	1000 m without derating (max. 3000 m)				
Acoustic level at 1 m (ISO 3746)	65 dBA		67 dBA		
UPS CABINET					
Dimensions W x D x H	1000 x 800 x 1930 mm				
Weight	740 kg	860 kg		1020 kg	
Degree of protection	IP20 (other IP as option)				
Colours	RAL 9006				
STANDARDS					
Safety	IEC/EN 62040-1, AS 62040.1.1, AS 62040.1.2				
EMC	IEC/EN 62040-2, AS 62040.2				
Product declaration	CE, RCM (E2376), UKCA				

(1) Others on demand. (2) Conditions apply.

ITYS EM+

Secure power supply for single-phase emergency systems

2 and 6 kVA

The EMergency CPSS range (Emergency Central Power Supply System) has been designed to answer your needs in terms of power supply for your safety system. All our Emergency products are compliant with standard EN 50171.

EN 50171 compliant

- IP20 enclosure compliant with EN 60598-1.
- Fast battery charge: 80% in 12 hours.
- Battery protection against damage due to a polarity inversion.
- Battery protection against deep discharge.
- Long-life battery with 10-year life expectancy (only for 6 kVA).
- Designed to withstand 120% of the nominal charge during the entire back-up period.

Robust with high availability

- True online double conversion technology (VFI) assures high availability and total load protection in any environmental conditions.
- Reliable solution in a wide operating ambient temperature up to 45 °C.
- Standard Over Voltage Control Device (OVCD) protects the UPS and the load from dangerous mains peak-voltages.

Flexible autonomy

- Modular battery extension flexibility enables limitless autonomy configuration.
- Hot-swap modular battery extension increases back-up - even after installation - according to the load criticality to be supplied.
- UPS with powerful battery charger for modular battery extension to:
  - ensure constant and reliable operation using external high capacity batteries.
  - provide power supply continuity during long outages.
  - ensure a fast recharging.

Easy and error-free installation

- Quick and simple installation: no configuration necessary on first startup.
- Compact tower UPS system saves space in the operating environment.
- Installation according to the load criticality to be supplied.

The solution for

> Schools and universities
> Shopping centres
> Cinemas and theatres
> Museums
> Public buildings
> Office buildings

Compliance with standards

> EN 50171

Certifications and attestations

EU CODE OF CONDUCT ELITE UPS

Our dedicated Expert Services for UPS

We offer services to ensure your UPS' highest availability:

> Commissioning
> On-site intervention
> Preventive maintenance visits
> 24-hour call out and rapid on-site repairs
> Maintenance packages
> Training

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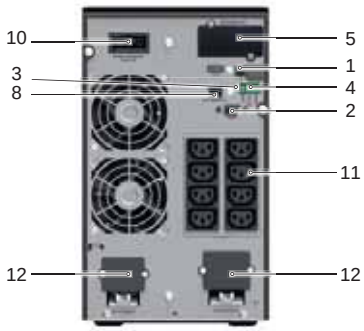
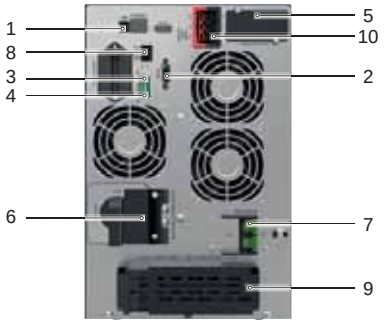
socomec Innovative Power Solutions

Connections



2 kVA



6 kVA

1. USB serial port
2. RS232 serial port
3. Power off the UPS remotely
4. Dry-contact interface
5. Slot for optional communication boards
6. Manual bypass
7. Input protection (thermal breaker)
8. Battery detection
9. Input and output terminal board
10. Connection for modular battery extension
11. Output sockets
12. Input and output terminal

Technical data

	ITYS EM+	
Model	ITY3-EM020LB-K	ITY3-EM060LB-K
Sn (kVA)	2	6
Pn (kW)	2	6
Pn according to EN 50171 (kW)	1.5	5
Inverter max withstand power EN 50171 (kW)	2	6
Input / output	1/1	
INPUT		
Rated voltage	230 V (1ph+N)	
Voltage tolerance	160 V to 300 V	160 V to 276 V
Rated frequency	50/60 Hz	
Frequency tolerance	± 2%	
Power factor / THDI	> 0.98% / < 5% > 0.99	
OUTPUT		
Rated voltage	220/230/240 V	
Voltage tolerance	± 1%	
Rated frequency	50/60 Hz	
Frequency tolerance	± 0.1%	
Overload UPS designed @ Pn	110% for 5 min. 130% for 5 sec	
Crest factor	3:1	
UPS CABINET		
Dimensions W x D x H	192x428x322 mm	225x416x354 mm
Weight	11 kg	13.5 kg
Protection degree	IP20 (EN 50171)	
Acoustic level (dBA) 1m (ISO 3756)	< 52	
BATTERY		
Type	VRLA with 5-year life expectancy	VRLA with 10-year life expectancy
Charging capability	80% of back-up time in 12h	
STANDARDS		
CPSS	EN 50171	
Safety	EN 62040-1	
EMC	EN 62040-2	
Performace	EN 62040-3	
Product certification	CE, UKCA	

System features

- Embedded dry-contact interface.
- Input mains switch breaker.
- Connection for battery extension modules.
- Power off the UPS remotely.
- Internal temperature sensor.

Standard communication features

- 1 slot for communication options.
- Dry-contact card according to EN 50171.
- USB port for UPS management based on HID protocol.
- MODBUS RTU (RS232).
- LOCAL VIEW software for local UPS monitoring and shutdown for Windows, Linux and MAC OSX.
- Clear and uncluttered LCD interface for easy UPS monitoring, even for less specialist users.

EM 038 A

Communication option

- NET VISION: professional WEB/ SNMP Ethernet interface for secure UPS monitoring and remote automatic shutdown.
- Environmental Monitoring Device (EMD).
- REMOTE VIEW PRO supervision software.

MASTERYS EM+

Reliable central power supply system
from 10 to 120 kVA

The EMergency CPSS range (Emergency Central Power Supply System) has been designed to answer your needs in terms of power supply for your safety system. All our Emergency products are compliant with standard
EN 50171.

EN 50171 compliant

- IP20 enclosure compliant with EN 60598-1.
- Fast battery charge: 80% in 12 hours.
- Battery protection against damage due to a polarity inversion.
- Battery protection against deep discharge.
- Long-life battery with 10-year life expectancy.
- Designed to withstand 120% of the nominal charge during the entire back-up period.

Easy and error-free installation

- All-in-one solution: for internal batteries configurations (10/15/20 kVA), the UPS and batteries are in the same cabinet (only 1 cabinet to connect).
- Simplified connections: the connections are carried out in the factory and the batteries are pre-tested and ready to work.

Simplified maintenance

- Innovative maintenance thanks to brick swap architecture that limits the MTTR - the repairs are 5 times faster than legacy UPS.
- Totally front access maintenance for quick and easy repairs.
- Standard Over Voltage Control Device (OVCD) protects the UPS and the load from dangerous mains peak-voltages.

Ready to be connected

- IoT ready device for access to connected services.
- Real time UPS monitoring thanks to the SoLive App:
  - current UPS status,
  - alarm history,
  - battery level,
  - UPS temperature,
  - battery back-up time in minutes.
- SoLink 24/7: remote monitoring connected service is a permanent connection between the CPSS and the nearest Socomec Service Centre.

The solution for

> Airports
> Railways and bus stations
> Schools and universities
> Hospitals
> Shopping centres
> Cinemas and theatres
> Museums
> Public buildings
> Office buildings
> Hotels

Compliance with standards

> EN 50171

Certifications and attestations

EU CODE OF CONDUCT ELITE UPS

Our dedicated Expert Services for UPS

We offer services to ensure your UPS' highest availability:

> Commissioning
> On-site intervention
> Preventive maintenance visits
> 24-hour call out and rapid on-site repairs
> Maintenance packages
> Training

www.socomec.com/services

socomec Innovative Power Solutions

System features

- Dual input mains.
- Internal maintenance bypass switch.
- Input mains switch breaker.
- Output switch breaker.
- Auxiliary mains switch breaker.
- Backfeed protection: detection circuit.
- Full compatibility with generators.
- Long-life battery.

Standard communication features

- 3.5” multilanguage graphic display.
- 2 slots for communication options.
- USB port for downloading UPS report and log file.
- Ethernet port for service purposes.

Communication option

- Dry-contact interface (according to EN 50171).
- MODBUS RTU RS485 or TCP.
- PROFIBUS gateway.
- BACnet/IP interface.
- NET VISION: professional WEB/ SNMP Ethernet interface for secure UPS monitoring and remote automatic shutdown.
- REMOTE VIEW PRO supervision software.
- IoT gateway for Socomec cloud services and SoLive UPS mobile app.
- Remote touch-screen panel.

System options

- Internal backfeed isolation device.
- Common mains coupling bars.
- ACS synchronization system.
- IP21 degree of protection.

Remote monitoring and cloud services

- SoLink: Socomec 24/7 remote monitoring service connecting your installation to the nearest Socomec Service Centre.
- SoLive UPS: mobile app enabling the monitoring of the UPS systems from a smartphone.

Technical data

	MASTERYS EM+							
Sn (kVA)	10	15	20	25	30	40	80	120
Pn (kW)	10	15	20	25	27	36	72	108
Pn according to EN 50171 (kW)	10	15	20	25	27	36	72	108
Inverter max withstand power EN 50171 (kW)	12	18	24	30	32.4	43.2	86.4	129.6
Input / output	3/1 3/3		3/3					
INPUT								
Rated voltage	400 V (3ph+N)							
Voltage tolerance	3ph + N 400 Vac (-15/+20%) up to -40% @ 70% of nominal load		3ph + N 400 Vac (-10/+20%) up to -40% @ 70% of nominal load					
Rated frequency	50/60 Hz							
Frequency tolerance	45 ÷ 66 Hz							
Power factor / THDI	> 0.98% / < 3% > 0.99							
OUTPUT								
Rated voltage	220/230/240 V (1ph+N) 380/400/415 V (3ph+N)		380/400/415 V (3ph+N)					
Voltage tolerance	Static: ±1% Dynamic: VFI-SS-111 (EN62040-3) compliant							
Rated frequency	50/60 Hz							
Frequency tolerance	±0.01% (on mains power failure)							
Overload UPS designed @ Pn	125% for 10 min. 150% for 1 min							
Crest factor	3:1							
UPS CABINET								
Dimensions W x D x H	444x800x1400 mm						600x850x1400 mm	
Weight	without batteries 89 kg with internal batteries 333/430/527/624 (2/3/4/5 shelf) kg			89 kg		95 kg	186 kg	240 kg
Protection degree	IP20 (EN 50171)							
Acoustic level (dBA) 1m (ISO 3756)	< 43					< 49	59	63
BATTERY								
Type	VRLA with 10-year life expectancy							
Charging capability	80% of back-up time in 12h							
STANDARDS								
CPSS	EN 50171							
Safety	EN 62040-1							
EMC	EN 62040-2							
Performace	EN 62040-3							
Product certification	CE, UKCA							

DELPHYS EM

Secure power supply for emergency systems

160 and 200 kVA

The EMergency CPSS range (Emergency Central Power Supply System) has been designed to answer your needs in terms of power supply for your safety system.
All our EMergency products are compliant with standard EN 50171.

The EMergency CPSS products are intended to ensure energy supply to emergency escape lighting in the event of mains supply failure.
Depending on the local legislation, it may be suitable for energizing other essential safety equipment, such as:

- Electric circuits of automatic fire extinguishing installations.
- Paging systems and signaling safety installations.
- Smoke extraction equipment.
- Carbon monoxide warning systems.
- Special safety installations related to specific buildings, e.g. high-risk areas.

The wide range is suitable for all standard needs. For non-standard requests, our team of experts is on hand to adapt the products to your needs.

The solution for

> Airports
> Railways and bus stations
> Schools and universities
> Hospitals
> Shopping centers
> Cinemas and theatres
> Museums
> Public buildings
> Office buildings
> Hotels

Compliance with standards

EM EN 50171

Certifications and attestations

Our dedicated Expert Services for UPS

We offer services to ensure your UPS highest availability:

> Commissioning
> On-site intervention
> Preventive maintenance visits
> 24-hour call out and rapid on-site repairs
> Maintenance packages
> Training

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Standard features

- IP20 metal enclosure compliant with EN60598-1.
- Battery charging: 80% in 12 hours.
- Battery protection against the damage due to a polarity inversion.
- Battery protection against deep discharge.
- Long-life battery with 10-year life expectancy.
- Designed to withstand 120% of the nominal charge during the entire back-up period.
- Specific dry contacts & monitoring for EMergency system.

Options

- Transformer embedded in the UPS enclosure (contact us for further information).
- Connection to downstream IT earthing system.
- Eco mode to reach up to 98% efficiency.
- Other types of battery available.

Standard communication features

- User-friendly 7" touch-screen multilingual colour graphic display.
- Slots for communication options.
- Dry-contact interface (configurable voltage-free contacts).

Communication options

- Dry-contact interface (configurable voltage-free contacts).
- MODBUS RTU RS485 or MODBUS TCP.
- NET VISION: professional WEB/SNMP Ethernet interface for secure UPS monitoring and remote automatic shutdown.
- REMOTE VIEW PRO supervision software.

Technical data

	DELPHYS EM	
Sn (kVA)	160	200
Pn (kW)	144	180
Pn according to EN 50171 (kW)	120	150
Input / output	3/3	
INPUT		
Rated voltage	400 V 3ph	
Voltage tolerance(1)	240 V to 480 V(1)	
Rated frequency	50/60 Hz	
Frequency tolerance	± 10%	
Power factor / THDI	0.99 / < 3%	
OUTPUT		
Rated voltage	400 V	
Voltage tolerance	static load ±1 % dynamic load in accordance with VFI-SS-111	
Rated frequency	50/60 Hz	
Frequency tolerance	± 2 % (configurable from 1 % to 8 %)	
Overload UPS designed @ Pn	110% for 10 min, 135% for 1 min	
Crest factor	3:1	
UPS CABINET		
Dimensions W x D x H	700 x 800 x 1930 mm	
Weight	480 kg	500 kg
Protection degree	IP20 (EN 50171)	
Acoustic level 1m (ISO 3756)	< 68 dBA	
BATTERY		
Type	VRLA with 10-year life expectancy (optional in external cabinet)	
Charging capabillity	80% of back-up time in 12h	
STANDARDS		
CPSS	EN 50171	
Safety	EN 62040-1	
EMC	EN 62040-2	
Performace	EN 62040-3	
Product certification	CE	

(1) Condition apply


socomec
Green Power 2.0
UPS

Complementary solutions

Back-up storage

Communication and connectivity

Innovative back-up storage solutions for UPS systems, Power Distribution Units to distribute electricity to servers and IT equipment, communication and connectivity solutions for system management and data integrity.

Battery storage systems

Batteries

These are electrochemical devices that store energy chemically and convert it into electricity.

Their use with UPS systems involves several batteries being connected in series (string) to reach the DC stage voltage required by the UPS. Strings are often connected in parallel to increase runtime in the event of a mains outage and/or for redundancy.

Batteries can be installed within the UPS (normally for small UPS systems) or assembled in external cabinets or on shelving. The batteries available for use with UPS systems include:

- Normal/long life VRLA batteries with flame-retardant containers.
- Long life open-vented lead batteries with flame-retardant containers.
- Long life nickel-cadmium (NiCd) batteries for special applications.
- Lithium-ion (Li-ion) batteries with integrated monitoring and equalisation system.

VRLA batteries

VRLA (Valve Regulated Lead Acid) batteries are lead batteries with a sealed safety valve container for releasing excess gas in the event of internal overpressure.

Their development was aimed at limiting the emission of hydrogen into the atmosphere and to avoid the use of liquid electrolyte. The liquid electrolyte is replaced by gel electrolyte (GEL technology) or absorbed inside the separators (AGM technology) to prevent acid leaking.

Sealed batteries do not allow for water to be added to the electrolyte, therefore the evaporation of the water contained in the electrolyte, due for example to high room temperatures or internal heating as a result of charging/discharging cycles, decreases their lifetime.

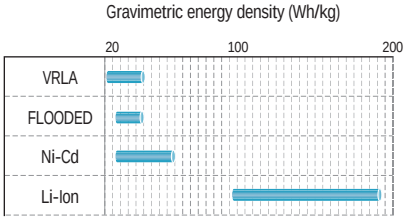
Open-vented lead batteries

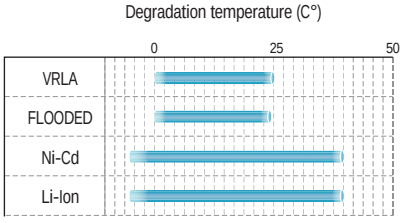
These batteries are made with lead-based electrodes and immersed in a liquid electrolyte comprising water and sulphuric acid. They have an expected lifetime of 15-20 years and statistically are very reliable until at least halfway through their lifetime. Subsequently, a cell short circuit may occur, causing a slight reduction in the runtime but this does not cause a critical situation. Using a liquid electrolyte has some disadvantages, such as shelf installation instead of cabinets to enable electrolyte top-ups and regular inspections, and requires a suitably ventilated dedicated room for reasons of safety.

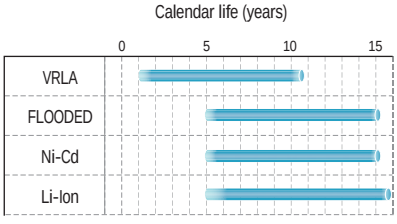
Nickel-Cadmium batteries

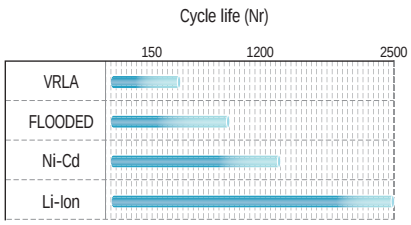
NiCd technology uses alkaline liquid electrolyte and is especially robust and reliable. These batteries are designed to operate in difficult environmental conditions and support demanding work cycles (frequent charging/discharging), and are usually installed in dedicated rooms on shelving that enables the electrolyte to be topped up.

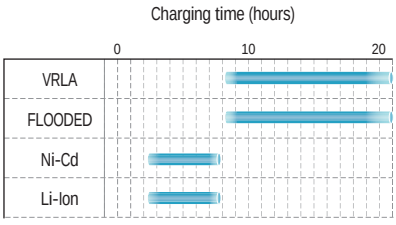
As Cadmium is toxic the use of this type of battery is limited. Furthermore, the requirement for regular complete discharge cycles restricts the number of possible applications with UPS systems.











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Lithium-ion batteries

The Lithium-Ion battery (or Li-Ion battery or LIB), introduced commercially in 1991, has three main components: the positive and negative electrodes and the electrolyte.

The negative electrode (anode) is primarily composed of graphite. A Li-Titanate anode (which can be combined with any other cathode) has also been developed for better safety and battery performance, but with a significantly lower energy density.

The positive electrode (cathode) is composed of a metal oxide.

The Lithium-Cobalt oxide (LCO) offers a higher energy density but presents safety risks, especially when damaged. This chemical composition is widely used in consumer electronics.

The lithium iron phosphate (LFP), the lithium manganese oxide (LMO) and the lithium nickel manganese cobalt oxide (NMC) batteries offer a lower energy density, but are inherently safer.

The electrolyte is composed of a lithium salt in an organic solvent.

The rapid evolution of the Lithium-Ion battery technology over the last decade - due to its wide use in many markets such as electric vehicles, Energy Storage Systems and consumer electronics - has provided several advantages, such as energy efficiency, environmental friendliness, and space savings.

These aspects contribute to the reduction of the Total Cost of Ownership of many UPS applications and provide a reliably available back-up power solution in a reduced footprint, with an extended life time and reduced maintenance.

Ensuring permanent power supply for business continuity whilst reducing the Total Cost of Ownership is a main concern for any critical infrastructure.

Li-Ion batteries bring significant advantages in UPS applications, including the considerable reduction in weight and floor space for the same runtime, the possibility of recharging them quickly, and their long cyclic and calendar lifetime.

VRLA battery cabinets

The value of your back-up time
from 10 to 900 kVA

Complementary pages

> DELPHYS BC
> DELPHYS GP
> DELPHYS EF
> DELPHYS MP Elite+
> DELPHYS MX
> MASTERYS BC+
> MASTERYS BC+ FLEX
> MASTERYS GP4
> MASTERYS GP4 RACK
> MASTERYS IP+
> MASTERYS EM+
> MODULYS GP
> MOLDULYS RM GP
> MODULYS XS
> MODULYS XL

Total protection during downtime

- Designed to satisfy and respect safety protection standards.
- The right size of protection device tailored to your power rating.
- Robust cabinet.
- Normal and long-life batteries.
- Compatible with different battery brands.
- Chemical safety means shelves protected against corrosion of H_2SO_4 that can cause risks of electric shock and short circuit (fire).
- Designed according to the specific UPS model for easy connections, correct recharge current and appropriate discharge rating to optimize battery life.
- Modular hot-swap battery cabinets with string protection and individual string disconnection.

Easy installation and maintenance

- Frontal switch/breaker protection.
- Frontal input output connections.
- Easy battery replacement.
- Suitable for rigid cables and cable-glands.
- Suitable for tripping coil contact (on request).
- Height aligned with UPS.

Electrical protection coordination for your safety

Battery protection is essential for safety.

We perform tests in our laboratories under abnormal conditions (i.e. short-circuit) to guarantee the maximum safety for the installation.

As batteries can cause fire if the protection is not adequate, we test all battery protections in real operating conditions.

- Switch/Breaker with fuse.
- Magnetothermal MCCB.

The protective devices are sized according to the UPS and to the battery short-circuit current.

Technical data

Standard degree of protection	IP20 (according to IEC 60529)
Optional degree of protection	IP32(1)
Operating temperature	0÷40 °C (+15 ÷ +25 °C recommended for long battery life(1))
Ambient storage and transport temperature	-5 °C ÷ +40 °C max (reccomended: 25 °C)
Relative humidity (condensation-free)	up to 95%
Product declaration	CE

(1) Versions with a higher degree of protection and versions with a wider operating temperature range are available on request.

Please contact SOCOMEC for specific battery brands and custom solutions.

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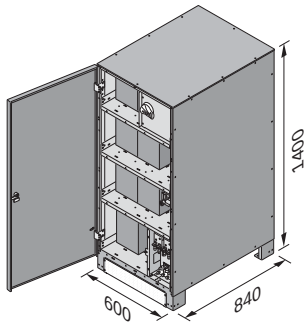
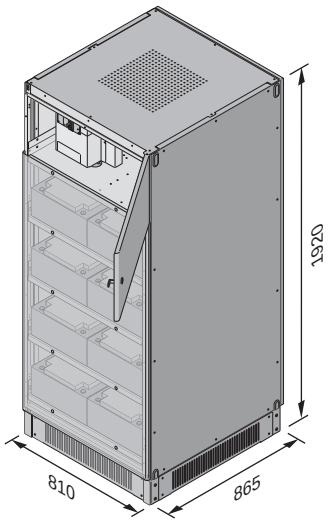
Dimensions(1)

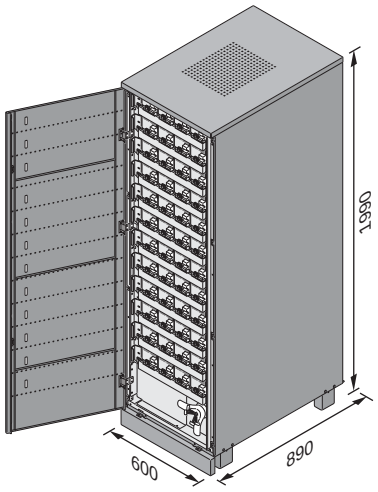
Small Masterys battery cabinet



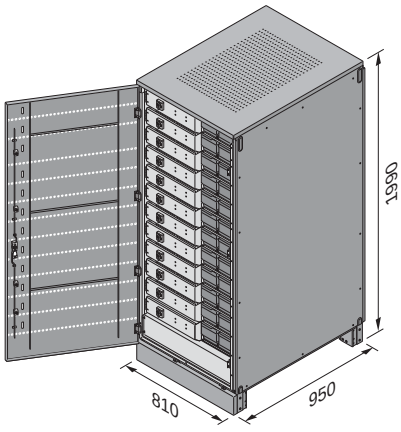
Masterys and Delphys battery cabinet



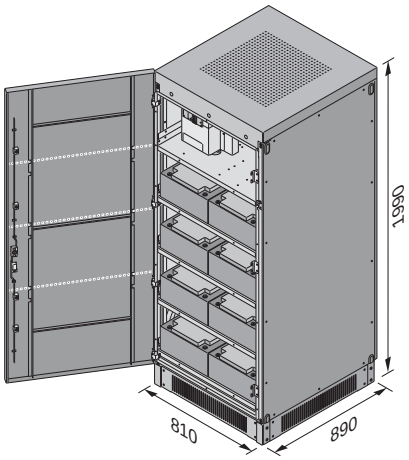
Modular hot-swap battery cabinet - small capacity



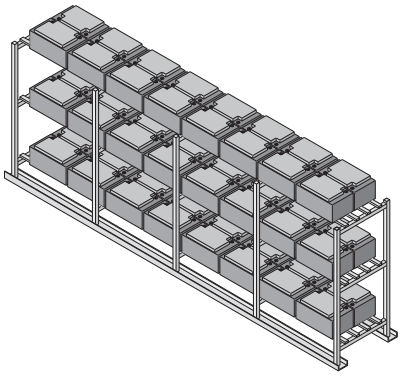
Modular hot-swap battery cabinet - medium capacity



Modular battery cabinet - large capacity



Battery Rack



(1) The dimensions specified refer to standard battery cabinets.
Custom solutions are available on request. Please check with your local sales office.

W-BMS

Wireless Battery Monitoring System for VRLA batteries

COUV 187 A

The battery is a key component in the operation of a UPS

W-BMS, the SOCOMEC Battery Monitoring System, is an effective battery monitoring solution which maximizes the availability of the supply in applications where power continuity is vital.

Because 75% of uninterruptible power supply (back-up power supply) system breakdowns are down to batteries, the reliability of these components is a key feature of your electrical system. Therefore, accurate, detailed monitoring of their operating condition is vital. This actually guarantees maximum continuity of the supply to the system's critical loads, loads which cannot tolerate even a brief interruption let alone a prolonged power cut.

Anticipate malfunctions

W-BMS is a vital tool in the continuous supply of critical systems and performs preventative battery monitoring.

This solution provides the opportunity to eliminate any unscheduled power cut due to battery failure.

Make cost savings

W-BMS enables you to make operating savings by:

- Improving UPS uptime.
- Reducing maintenance operations by 75%.
- Maximizing battery return on investment.
- Anticipating battery malfunctions.
- Guaranteeing the safety of maintenance personnel.

Ensure the continuity and safety of the supply to critical loads

It is vital to always know the operating status of the lead acid batteries supplying critical applications. W-BMS ensures that these are in good condition and will work when you need them. Unlike other battery monitoring systems, W-BMS has been specifically designed to monitor the impedance of the different battery monoblocs every day.
By avoiding the time-consuming and potentially dangerous manual method of testing individual batteries, W-BMS increases the likelihood of identifying a power failure and greatly increases the safety of maintenance personnel.

Technology

> Radio frequency

Technical advantages

> Easy to use
> Easy to set up
> Trend analysis to guard against breakdowns
> Remote monitoring
> Remote alarm notification
> Data acquisition
> Analysis software

The three W-BMS components

> **CU (Control Unit):**
- Collects and stores the DAM and IDAM data.
- Manages the communication with the PC.
- Sends SMS / E-Mail notifications.

> **DAM (Data Acquisition Module):**
- Measures the voltage, the temperature and the internal resistance of each battery.
- Stores the most significant data.

> **IDAM (Current Acquisition Module):**
- Measures the current of either a battery or a string of batteries.
- Stores the most significant data.

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Close battery monitoring

Most battery monitoring systems perform an impedance test once a week or once a month. However, a battery can fail in as little as two days. It is therefore vital that your system monitors your batteries much more frequently.

W-BMS has been designed to monitor the impedance of each of the battery packs or cells 24/7.

Modular design and central monitoring

W-BMS is the only battery monitoring system that can monitor different voltage monoblocs or different types of batteries (for example generator batteries) centrally.

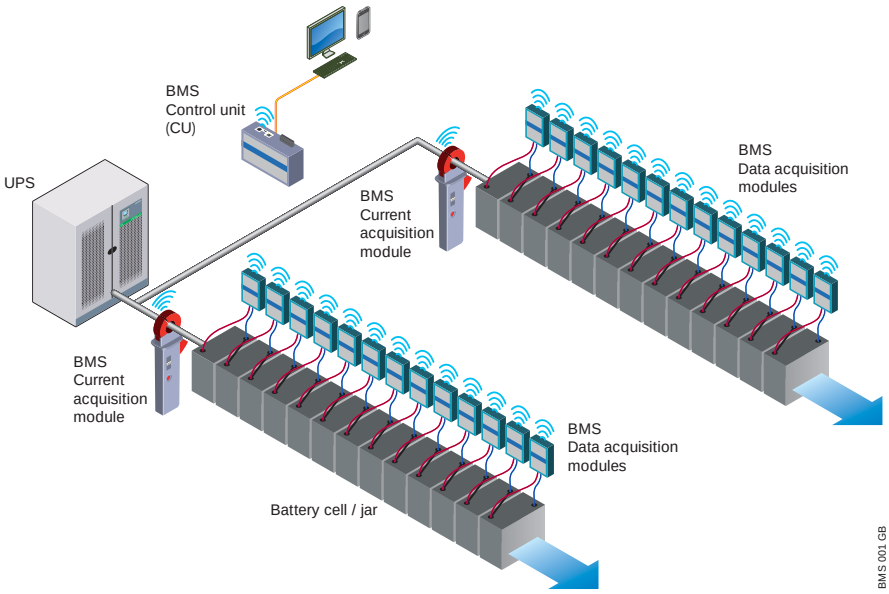
W-BMS is the easiest battery monitoring system to install and maintain.

Scalable and simple

Whether you want to add a battery branch, a part or a building, the W-BMS system offers you a vital modular system to future-proof your system.

With only three main components, expanding your system is easy. No rewiring is required and the components can even be moved to cope with your new architecture. Similarly, you can extend your system to cover your auxiliary batteries (for generator batteries, for example).

W-BMS can be adjusted to cope with any changes and is a flexible, permanent solution. Your return on investment is thus guaranteed.



Control Unit (CU)		
Supply voltage	4.5 ÷ 5.5 VDC (external power supply or USB port)	
Current consumption	500 mA max	
Digital input	2x (opto-isolated)	
Digital output	2x (dry-contact)	
Data storage	microSD card	
Number of battery blocks	up to 1024 (full version), up to 50 (light version)	
Connectivity	Ethernet, Modbus/TCP, USB, GSM (SIM-card not included)	
Data Acquisition Module (DAM)		
Model	L type	H type
Rated voltage	2 VDC	12 VDC
Voltage range	1.5 ÷ 5.5 VDC	5 ÷ 18 VDC
Acoustic level at 1 m (ISO 3746)	80 mA @ 2 VDC	30 mA @ 12 VDC
Measurements	voltage, impedance, temperature	
Battery connection	blade connector (faston), ring or alligator clip	
Current Acquisition Module (IDAM)		
Model	type 1	type 2
Rated current	300 A	600 A
Supply voltage	9 ÷ 18 VDC (external power supply or battery)	
Current consumption	50 mA	
Current range	up to 300 A	up to 600 A

Li-Ion Battery UPS

Compact innovative power protection solution

Based on field proven technology, Socomec's LI-ION BATTERY UPS provides a robust and sustainable solution that offers several advantages over traditional valve-regulated, lead acid batteries.

To maximise the power system's availability and reduce the consequences of battery failure, the LI-ION BATTERY UPS is equipped with an embedded interactive control system that provides accurate and individual cell monitoring.

SITE_906_AEPS

Thanks to its high energy density, the LI-ION BATTERY UPS saves footprint leaving free space for additional IT equipment or additional rooms to accommodate future power upgrades.

Less sensitive to higher temperatures, the LI-ION BATTERY UPS requires less cooling and hence reduces energy costs.

HIGH POWER DENSITY	High power / energy density	»	More space for servers & IT
15 + YEARS	Longer life span	»	Save replacement costs
40 °C	Higher working ambient temperature	»	CAP & OPEX savings
	Short recharge time High cycling capacity	»	Higher UPS availability
WWW	Embedded monitoring	»	Increased reliability
	Eco friendly	»	Suitable for green data centres

The solution for

- Data centres
- IT infrastructures

High sustainability

Socomec is committed to developing solutions that reduce the environmental impact from the design stage and throughout their entire life cycle.

The LI-ION BATTERY UPS energy system is the latest solution designed for helping environmental sustainability:

- No toxic materials.
- REACH / RoHS compliant materials.
- No gas emissions.
- No risk of acid leakage.

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UPS interaction

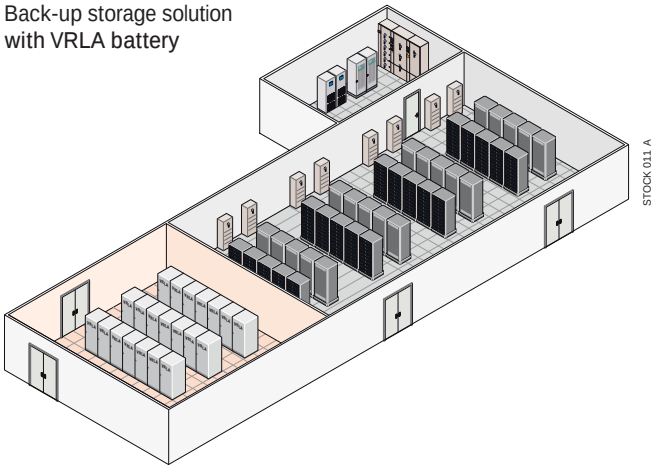
The LI-ION BATTERY UPS solution includes two communication modes depending on the customer's requirements. A basic communication via dry-contacts or an interactive control system to check and manage all the parameters of the Li-Ion cells (temperature, voltage, current, charging status, etc.) and to dynamically adapt how the UPS operates depending on the status of the LI-ION BATTERY.

The UPS interaction guarantees the most reliable performance and improves the system's availability by:

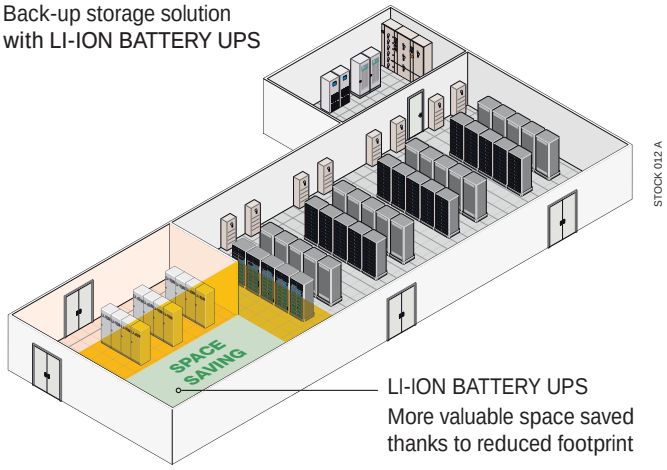
- ensuring a proper control of the LI-ION BATTERY,
- preventing any irreversible overcharge failure,
- performing automatic corrective actions in case of any critical conditions that can affect battery performance.

Footprint comparison with VRLA battery

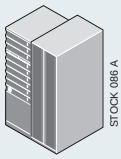
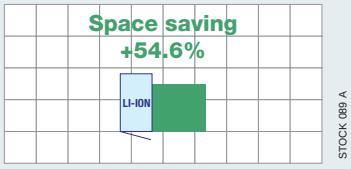
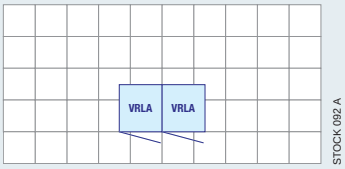
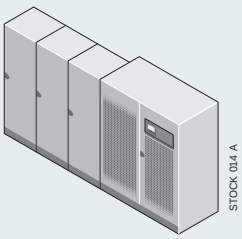
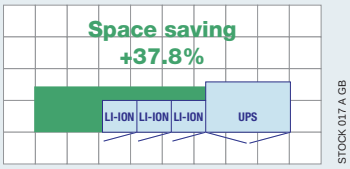
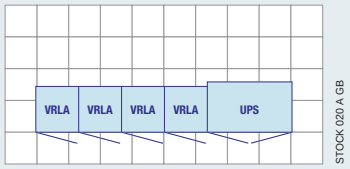
Back-up storage solution
with VRLA battery



Back-up storage solution
with LI-ION BATTERY UPS



LI-ION BATTERY UPS
More valuable space saved
thanks to reduced footprint

LI-ION BATTERY UPS Examples of configurations(1)	Footprint	
	LI-ION BATTERY UPS	VRLA BATTERY
 Power: 200 kW Back-up time: 13 min	 Footprint: **0.95 m²**	 Footprint: 1.96 m²
 Power: 450 kW Back-up time: 9 min	 Footprint: **2.69 m²**	 Footprint: 4.32 m²

(1) Other configurations: please contact us.

Communication and connectivity

The ideal solution for integrated system management and data integrity

Your application	Your need	Our Communication solution
	• Local UPS monitoring • Local PC shutdown management	**LOCAL VIEW** • Local UPS monitoring software. • USB or RS-232 serial port. • Clear, immediate and detailed information on the status of the UPS. • Automatic system shutdown in the event of a prolonged power cut. • Protection from data loss and system damage. • For Microsoft Windows, Linux and MacOS. • Free download from www.socomec.com
	• Remote UPS monitoring • Remote server shutdown management	**NET VISION** • Ethernet interface for remote UPS monitoring and server-based workstations shutdown management via web browser. • Specifically designed for business networks. • Direct interface between the UPS and Ethernet network with no dependence on the server. • Compatible with all networks and most operating systems. • IoT ready for Socomec Cloud Applications • Solive UPS mobile app' compliance.
	• Remote server, hosts and virtual machine shutdown management	**JNC** • Software for controlled network server shutdown. • Shutdown Client installed on the remote server: - warns user during shutdown procedure, - can execute specific script before shutting down the Operating System, - performs Operating System shutdown. • For Microsoft Windows, Linux and MacOS operating systems. • Free download from www.socomec.com
	• UPS and STS supervision	**REMOTE VIEW PRO** • Supervision software dedicated to UPS or STS provided with Ethernet connection and SNMP protocol. • Remote UPS and STS monitoring from any computer connected on the same network, LAN or WAN architecture via web browser. • Compliant with all SOCOMEC UPS and STS and with almost all UPS manufacturers using RFC1628 MIB file. • Compliant with Windows server with Internet Information Service.
	• Communication capability in various environments	**COMMUNICATION INTERFACES** • Compatible with industrial PROFIBUS and PROFINET systems. • Compatible with BACNET BMS monitoring. • MODBUS TCP compliancy for SCADA system.

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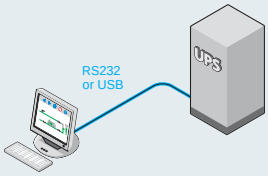
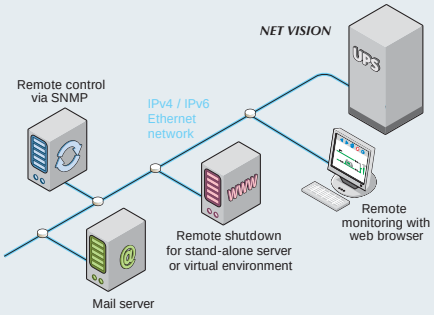
UPS range compatibility

Main features
- Automatic UPS recognition.
- UPS, battery and load monitoring.
- Alarms notification on local screen.
- Battery test control.
- Local PC shutdown + test procedure.
- Measurements and UPS event logs.
- Email notification.
- Automatic updates via Internet.



- NETYS PL
- NETYS PE
- NETYS PR
- NETYS RT
- OFYS RT
- ITYS
- MODULYS

Main features
- Secure network connection.
- Multi-user login.
- Email notification.
- SNMP agent TRAP notification.
- WakeOnLan to restart server.
- Control access protected by firewall.
- NTP to synchronise UPS clock.
- JNC protocol for servers shutdown, in addition to JNC or VIRTUAL-JNC shutdown software.

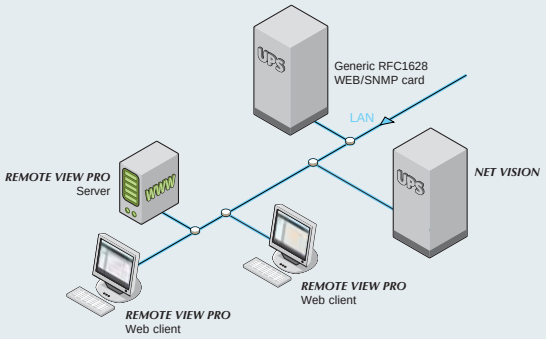


VIRTUAL JNC
- Software for controlled virtual machines and Hosts shutdown.
- Shutdown Client installed on a Windows Virtual Machine:
  - warns user during shutdown procedure,
  - stops Virtual Machines in specific order or time delay,
  - performs Host shutdown.
- For Microsoft Hyper-V, VMware, XenServer and NUTANIX.
- Free download from www.socomec.com

NUTANIX READY AHV

- NETYS PR
- NETYS RT
- OFYS RT
- ITYS
- MODULYS
- MASTERYS
- DELPHYS

Main features
- Browser user interface.
- UPS and STS synoptic display.
- Event and history log.
- Multi-user and Multi-site access.
- Picture or Google map background.
- Reports and email notification.
- License:
  - Free (up to 10 devices)
  - Silver (up to 200 devices)
  - Gold (more than 200 devices)

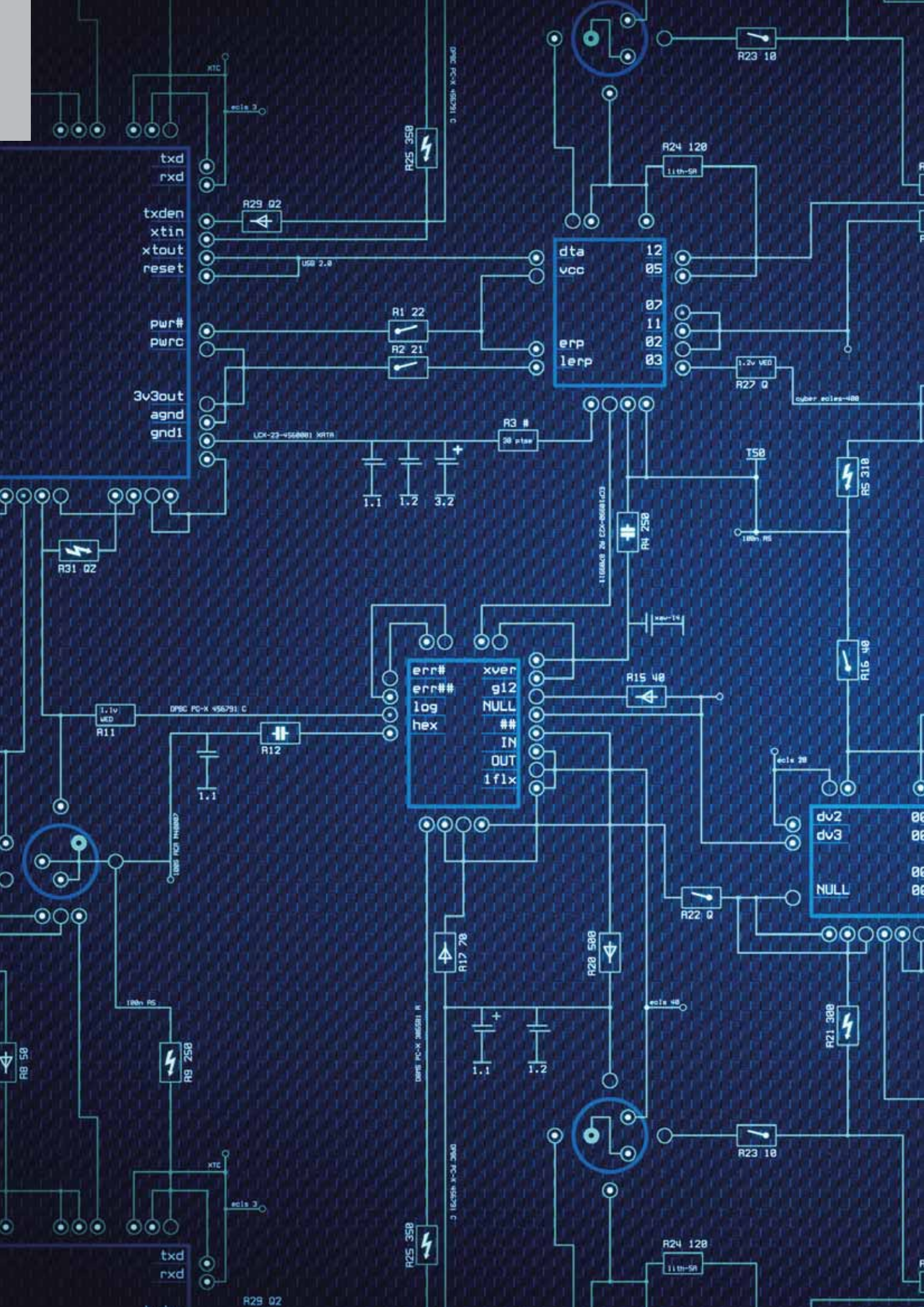


- NETYS PR
- NETYS RT
- ITYS
- MODULYS
- MASTERYS
- DELPHYS
- STATYS

MODBUS TCP and BACnet
Ethernet interface to communicate with BMS systems.
All UPS information can be remotely accessed.

PROFIBUS / RS485 MODBUS RTU
Communicate with PLC or automation systems.
All UPS information can be remotely accessed.

- MODULYS
- MASTERYS
- DELPHYS


txd
rxd
txden
xtin
xtout
reset
pwr#
pwrc
3v3out
agnd
gnd1
R29 Q2
R25 350
R1 22
R2 21
R31 Q2
R3 #
1.1
1.2
3.2
R24 120
dta 12
vcc 05
07
11
erp 02
lerp 03
R27 Q
TS0
R5 310
R4 250
R11
R12
err#
err##
log
hex
xver
g12
NULL
##
IN
OUT
iflx
R15 40
R16 40
R22 Q
dv2
dv3
NULL
R17 70
R20 500
R8 50
R9 250
R21 300
R23 10
R24 120
R25 350
R29 Q2

Technology

Power protection vs. UPS topology

Power quality (PQ) is a significant challenge to those responsible for the management of electrical networks and Data Centre facilities.

The widespread use of and increasing dependence upon electronic equipment - such as information technology equipment, power electronics including programmable logic controllers (PLC) and energy-efficient lighting - have led to a complete transformation in the nature of electrical loads. These loads are both the major root causes of - and the major casualties of – power quality problems. Due to their non-linearity, all these loads cause disturbances in the voltage waveform.

Along with advances in technology, the organisation of the worldwide economy has evolved towards globalisation and the profit margins of many activities have seen a tendency to decrease.

The increased sensitivity of the vast majority of processes (industrial, services and even residential) to PQ problems means that the availability of high quality electric power is a crucial factor in terms of developing competitive advantage across every market sector.

It's widely understood that mission-critical facilities must run continuously, and, of course, that any power interruption, even for a short time, can disrupt business operations and result in significant financial losses.

Although today's Data Centres are all designed with a high level of inherent redundancy in order to minimise downtime, just as important as the mission-critical applications themselves, however, is the quality of the supplied power.

In order to achieve the delivery of consistent, high quality power, it is vital to understand the nature of PQ disturbances and their causes.

What affects the power quality ?

The most common disturbances that adversely affect the power quality are:

- power sags or outages due to network faults,
- short voltage variations due to the connection of heavy loads or the presence of faults in the network,
- distortion of currents and voltages due to non-linear loads present in the system or in the systems of other utilities, etc.
- flicker due to large intermittent loads,
- asymmetry in the supply voltage system.

How to ensure the power quality: the UPS

Modern technology offers various solutions to ensure the power quality; static UPS systems are undoubtedly the most versatile and widely used and can be adopted for a very broad range of power ratings.

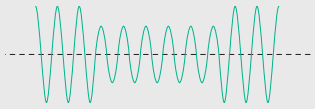
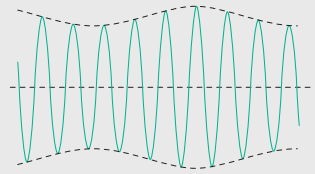
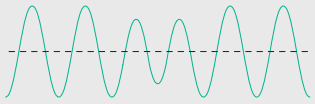
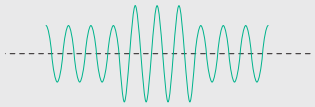
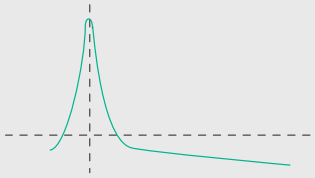
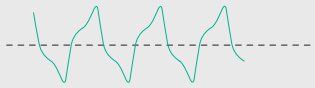
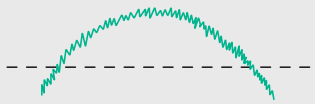
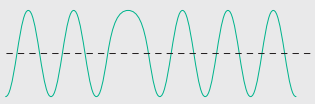
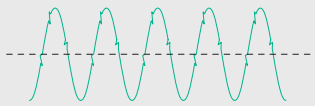
In response to the need to classify the various types of static UPS systems currently available on the market, the standard EN 62040-3 was developed. It distinguishes between three major topologies, according to the internal schemes adopted:

- VFD "offline"
  Voltage and Frequency Dependent - Utilities are normally powered by the mains supply. In the event of power loss the load is automatically switched over to a built-in battery to keep it supplied without interruptions.

- VI "line interactive"
  Voltage Independent - The load is supplied by the mains power supply and protected against under and over voltages by an AVR (Automatic Voltage Regulator) voltage stabilizer. If the mains power is lost, the load is instantaneously powered by the battery.

- VFI "online double conversion"
  Voltage and Frequency Independent - This is the only UPS working-mode that assures total load protection against all possible mains quality problems. The power is converted twice (AC to DC through a rectifier then DC to AC through an inverter) to provide high quality voltage, stable frequency and protection against power grid disturbances. If the mains power is lost, the load is powered exclusively by the battery. The internal bypass supplies the utilities in case of inverter output voltage anomalies.

Power protection vs. UPS topology

Disturbance type	Wave form	Possibles causes	Consequence	UPS topology		
				VFD	VI	VFI
Voltage interruption		Mainly due to opening and automatic re-closure of protection devices to decommission a faulty network section. The main fault causes are insulation failure, lightning and insulator flashover.	Tripping of protection devices, loss of information and malfunction of data processing equipment.	•	•	•
Voltage sag/dip		Faults on the transmission, in distribution network, or in consumer's installation. Start-up loads.	Malfunction of IT equipment, safety systems, or lighting. Loss of data. System shutdown.	•	•	•
Voltage fluctuation		Transmitters (radio), faulty equipment, ineffective grounding, proximity to EMI/ RFI source.	Most consequences are common to under-voltages. System halts, data loss. The visible consequence is the flickering of lighting and screens.	•	•	•
Under voltage		Increase of consumption, voltage reduction to lower the consumption.	System halts, data loss, stop of sensitive equipment	-	•	•
Voltage surge		Atmospheric, surges are due to lightning; Transient, surges are due to insulation faults between phase and earth or rupture of neutral conductor; Switching, surges are due to opening of protection devices, generated by energizing capacitor banks or caused by variations in inductive current.	Data loss, flickering of lighting and screens, stop or damage of sensitive equipment.	-	•	•
Voltage spike/ transient		Lightning, ESD, switching of lines or power factor correction capacitors, utility fault clearing.	Destruction of electronic components, data processing errors or data loss.	-	-	•
Harmonic distortion		Modern sources like all non-linear loads such as power electronics equipment including ASDs, switched mode power supplies, data processing equipment, high efficiency lighting.	Increased probability in occurrence of resonance, neutral overload in 3-phase systems, overheating of all cables and equipment, loss of efficiency in electric machines, electromagnetic interference with communication systems, errors in measures when using average reading meters, nuisance tripping of thermal protections.	-	-	•
Noise		Transmitters (radio), faulty equipment, ineffective grounding, proximity to EMI/ RFI source.	Disturbances on sensitive electronic equipment, usually not destructive. May cause data loss and data processing errors.	-	-	•
Frequency variation		Unstable operating of the generator, unstable frequency of the utility power system.	System halts, data loss.	-	-	•
Notching		Fast switching of power components (diodes, SCR, etc.), rapid variation in the load current (welding machines, motors, lasers, capacitor banks, etc.).	System halts, data loss.	-	-	•

Solution to meet availability and flexible performance

Different configurations make it possible to create architectures to meet the most stringent requirements for availability, flexibility and energy saving and to allow the following:

Easy operation

Given the criticality of applications supplied downstream from the UPS units, maintenance shutdowns are less and less feasible. Various different configurations have been studied specifically to deal with this operational constraint.

Power increases

The upgrading over time of the applications supplied often requires the possibility of increasing UPS power. The configurations offered allow for this requirement so that your initial investment is saved.

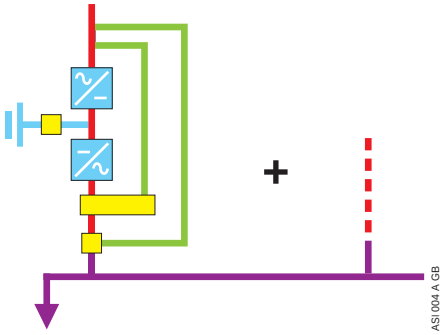
Increases in availability

To increase availability, the addition of a unit in parallel that is surplus to the power requirements of the applications (redundant) will ensure a continuous power supply if an inverter shuts down, without resorting to a bypass.

Stand-alone UPS unit

An upgradeable solution

This architecture is secured by an integrated automatic bypass, which constitutes a first level of redundancy guaranteed by the network. The maintenance bypass function allows maintenance to be carried out without shutting down applications. It can be the first stage of your investment, with the possibility to upgrade, as your requirements change, to a modular parallel architecture to increase power or availability (redundancy).



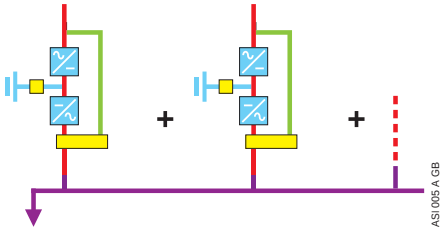
Single unit with bypass or 1+1 redundant configuration

Parallel UPS systems

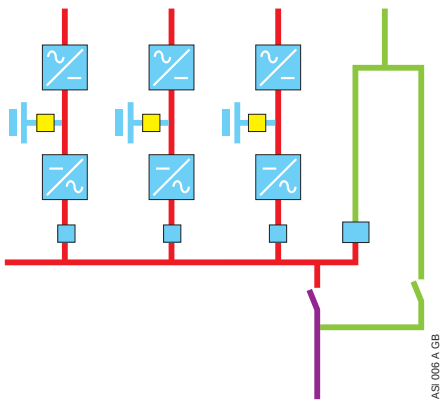
Development without constraint

This is the simplest solution to ensure power supply availability and flexibility in case of unscheduled installation upgrades by means of the parallel configuration of the UPS units, each one incorporating its own bypass. This configuration enables power output to be increased and is suitable for N+1 redundancy. Upgrades can also be performed keeping the load supplied by the system.

For higher agility, parallel UPS systems are also available with a centralised bypass on the auxiliary power source: in this configuration, the static bypass is in parallel of the UPS modules and can be sized according to particular site constrains (short-circuit withstand, selectivity, etc.).



Modular parallel UPS system with distributed bypass



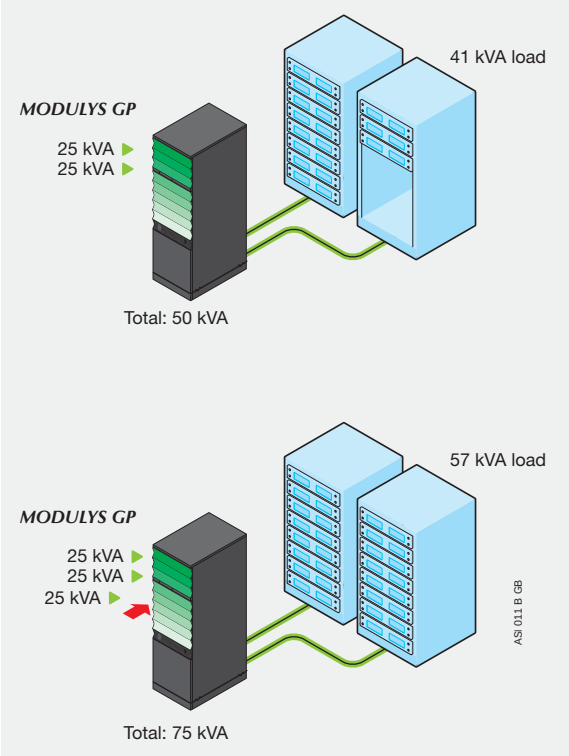
Modular parallel UPS system with centralised bypass

Vertical and horizontal modular system

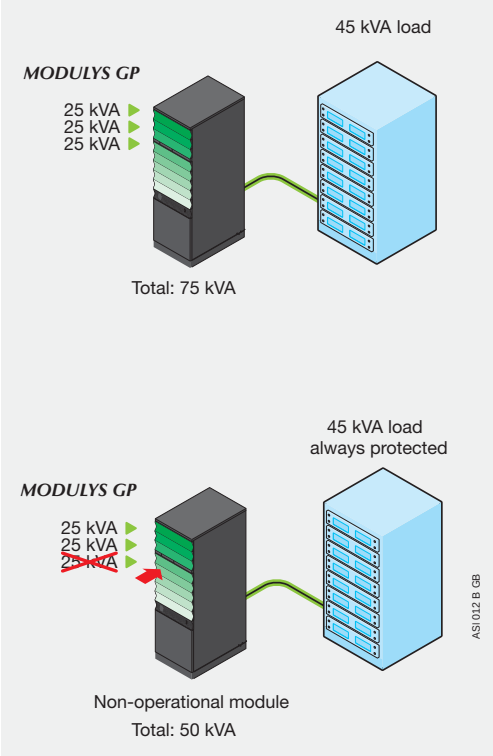
Flexible and completely modular

This is a new, innovative UPS concept that can adapt to all types of growth. Power can be increased by successively adding modules.

The increasing of availability (redundancy) is simply carried out by adding a module to the number required to meet the power requirements for the applications. All the modules are connectible (plug-in). Removal or adding of modules can be carried out with the system running (hot swap) without affecting the general operation of the installation.



Scalable configuration



Scalable redundant configuration

Solution to meet availability and energy saving performance

Green Power 2.0

Energy Saving: high efficiency without compromise.

- Offers the highest efficiency in the market using VFI – Double Conversion Mode, the only UPS working-mode that assures total load protection against all mains quality problems.
- Ultra high efficiency output independently tested and verified by an international certification organization
- Ultra high efficiency output tested and verified in a wide range of load and voltage operating conditions to have the value in the real site conditions.
- Ultra high efficiency in VFI mode is provided by an innovative topology (3-Level technology) that has been developed for all the Green Power 2.0 UPS ranges.

Full-rated power: kW=kVA

- No power downgrading when supplying the latest generation of servers (leading or unity power factor).
- Real full power, according to IEC 62040: kW=kVA (unity power factor design) means 25% more active power available compared to legacy UPS.
- Suitable also for leading power factor loads down to 0.9 without apparent power derating.

Significant cost-saving (TCO)

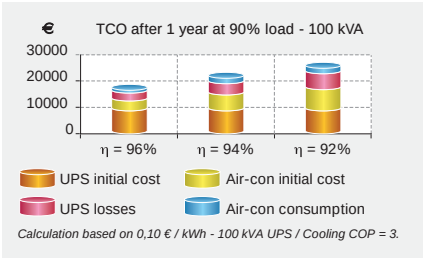
- Maximum energy saving thanks to 96% efficiency in true double conversion mode: 50% saving on energy losses compared to legacy UPS resulting in cheaper energy bills.
- UPS "self-paying" with energy saving.
- Energy Saver mode for global efficiency improvement on parallel systems.
- kW=kVA means maximum power available with the same UPS rating: no overdesign costs and therefore less €/kW.
- Upstream infrastructure cost optimization (sources and distribution), thanks to high performance IGBT rectifier.

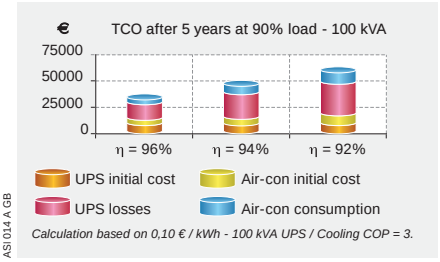
Advantages

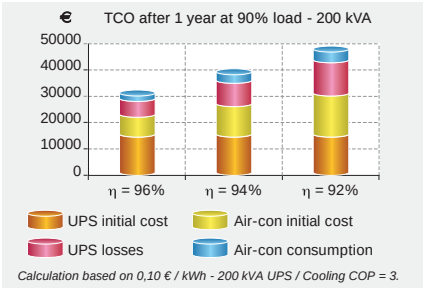
3 LEVEL TECHNOLOGY

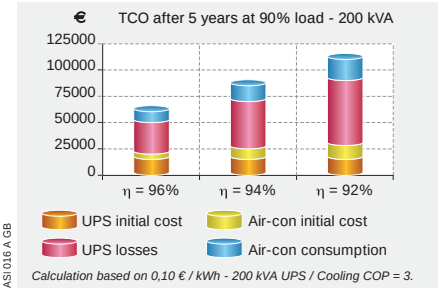
96% EFFICIENCY

kW = kVA









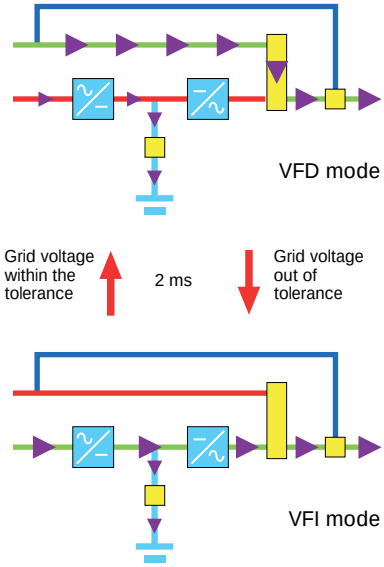
socomec Innovative Power Solutions

Solution to meet availability and energy saving performance

Fast EcoMode

Available as an optional feature for the DELPHYS GP series, FAST EcoMode is an automatic operating mode that optimizes the efficiency depending on the quality of the input voltage (voltage, frequency, harmonic distortion). When the input voltage is within tolerances (value is settable), the load is supplied by the bypass (VFD mode) and the efficiency achieved is 99%. If the voltage becomes out of tolerances, the system instantaneously transfers the load to On-line mode until normal condition recovery

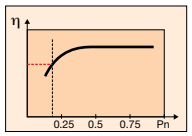
Batteries are permanently maintained under floating charging, maximizing battery lifetime and avoiding periodic restarts of the rectifier.

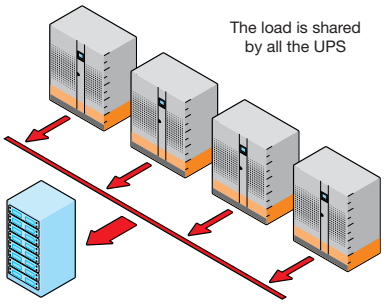


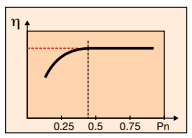
ASI 018 C GB

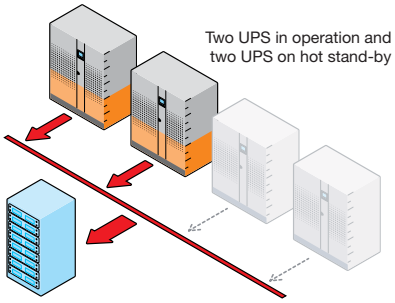
Energy saver

- This function optimizes the efficiency (η) of your UPS in parallel when operating with a partial load.
- Only the UPS needed to supply the energy required by the applications are in operation.
- Redundancy can be ensured by maintaining an additional unit in operation.
- When the power consumed by the applications increases, the UPS units needed to meet the increased power requirements restart instantly.
- This type of operation is perfectly suited to applications subject to frequent variations in power.
- Energy Saver enables the increased efficiency of the whole system to be maintained.









ASI 017 A GB

UPS technologies

Transformer-based and transformerless technologies

The two main UPS technologies available on the market are:

- transformer-based, useful when primary and secondary sources come from different mains with different neutral systems,
- transformerless, which offers the advantages of high efficiencies combined with a low footprint.

Both of these technologies have their advantages and drawbacks. The challenge is to make the right compromise, taking into account site conditions with design constraints such as the footprint, neutral system, efficiency, short-circuit currents and so on. SOCOMEC can provide customers with either technology, depending on the requirement.

A "clean" IGBT rectifier

This eliminates any disturbance on the upstream network (power source and distribution).

- This rectifier technology guarantees the supply of current with an exceptionally low rate of harmonic distortion: THDI < 2.5 %.

A consistent rectifier

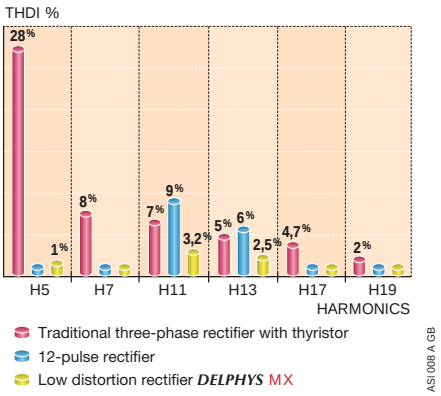
- The performance of the IGBT rectifier is independent of frequency variations that could be produced by the generator set.
- The power factor and THDI at the rectifier input are constant whatever the battery charge status (continuous voltage level) and the load rate of the UPS.

An economical IGBT rectifier

- The power factor upstream of the rectifier is 0.99, reducing by 30% the used kVA compared with conventional technology. The reduction in input current results in a saving in terms of the size of sources, cables and protective devices.
- Rectifier capabilities:
  - low upstream THDI,
  - gradual, timed restarting,
  - possibility of suspending battery recharge when operating with a generator set.
- This allows the impact caused when the generator set is engaged to be reduced, as well as the energy used and the footprint.

DELPHYS MX guarantees optimal compatibility with your low voltage electrical power supply system and, in particular, with your generator sets:

- sinusoidal current at rectifier THDI input: < 4.5 % without filter,
- increased power factor upstream of the rectifier: 0.93 without filter, reducing the current consumed, and therefore the size of cables and protective devices,
- gradual, sequential start-up of the rectifiers in parallel, facilitating take up by the generating set,
- delayed battery recharge when running on generating set to reduce power consumption.



SVM, digital Space Vector Modulation

The SVM (digital Space Vector Modulation), along with the isolation transformer installed on the inverter output, provide:

- perfectly sinusoidal output voltage THDV < 2 % with linear loads and < 3 % with non-linear loads,
- output voltage precision even when the load is completely unbalanced between phases,
- an immediate response to major variations in the load, without deviating the output voltage (± 2% in less than 5 ms),
- a very high short-circuit capacity up to 4 In (Ph / N) allows selectivity,
- a complete galvanic isolation between DC circuit and load output.

SVM, the latest high performance components and IGBT power bridges enable the supply of:

- non-linear loads with high crest factor up to 3,
- active power without derating, for loads with a lagging power factor and up to 0.9 leading.

Static Transfer Systems (STS) for high availability architecture

Static Transfer Systems (STS)

Static Transfer Systems (STS) are intelligent units that transfer the load to an alternative source when the primary source is out of tolerance. This ensures "high availability" of the power supply for sensitive or critical installations.

The purpose of STS devices is to:

- ensure the redundancy of the power supply to critical installations by means of two independent power sources,
- increase power supply reliability for sensitive installations,
- facilitate the design and expansion of installations that guarantee a high-availability power supply,
- increase the overall site flexibility, allowing easy and safe maintenance or source replacement.

STS systems incorporate reliable and proven solid-state switching technologies (SCR), enabling them to perform fast, totally safe automatic or manual switching without interrupting power to the supplied systems.

The use of high-quality components, fault-tolerant architecture, the ability to determine the location of the fault, management of faults and loads with high inrush currents: these are just some of the characteristics that make STS systems the ideal solution for achieving maximum power availability.

STS can also protect against:

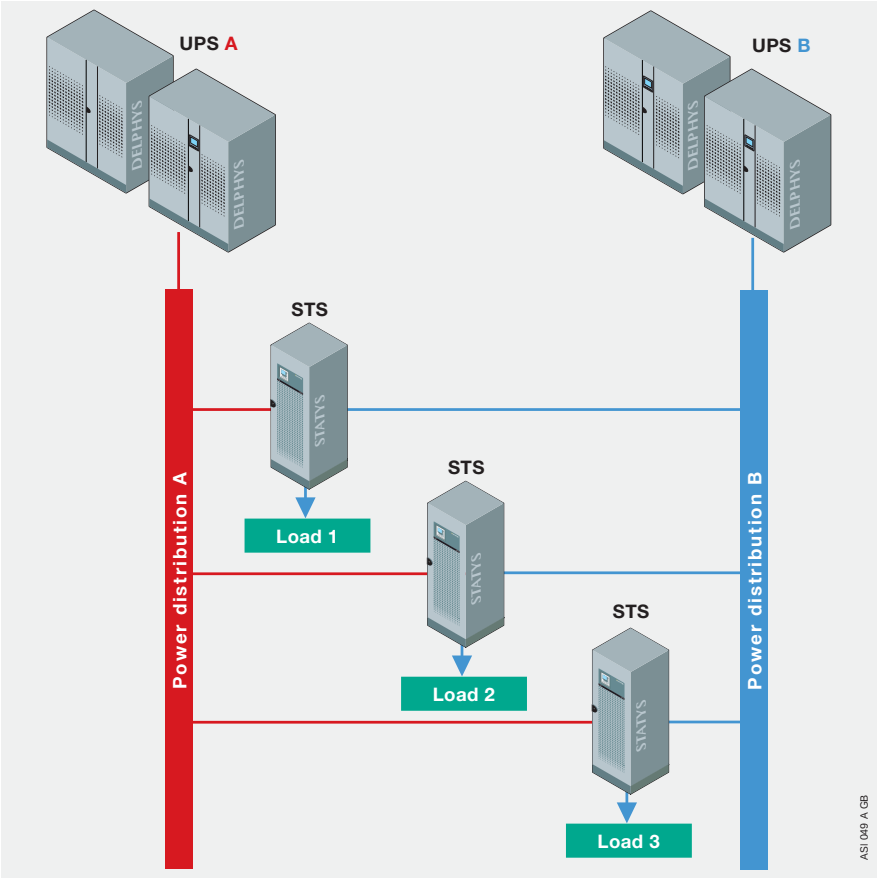
- main power source failure,
- spurious tripping of upstream protective devices,
- mutual disturbances caused by faulty equipment (short-circuit) supplied by the same power source,
- operating errors (circuit opening) occurring in the supply chain.

Static Transfer Systems: some examples of usage

Normally, STS provide redundancy between 2 independent UPS systems.

Each STS is sized according to the load (or set of loads) it protects.

It is advisable to install the STS device as close as possible to the load, so as to ensure redundancy of the upstream distribution and to keep the single fault point (the conductor between STS and load) as short as possible. The use of several STS also provide electrical load segregation.



Static Transfer Systems (STS)

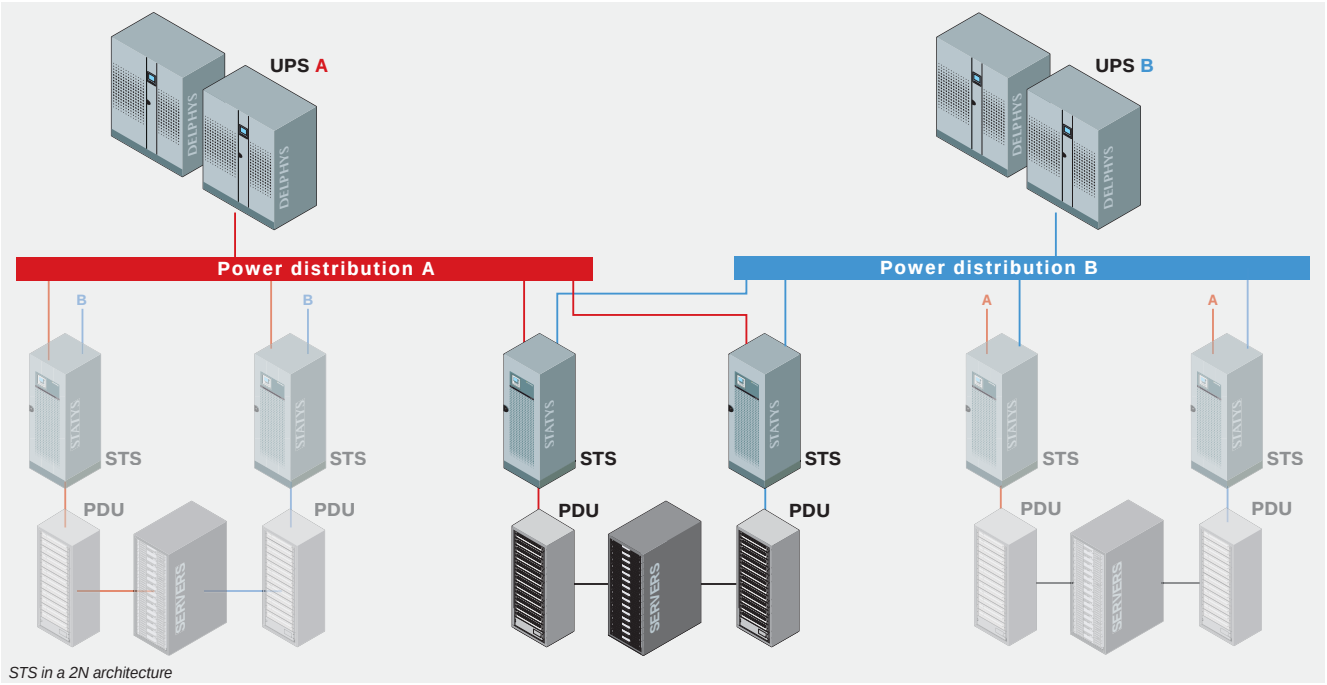
Static Transfer Systems: some examples of usage

Static Transfer Systems ensure high business availability and provides site maintenance agility.

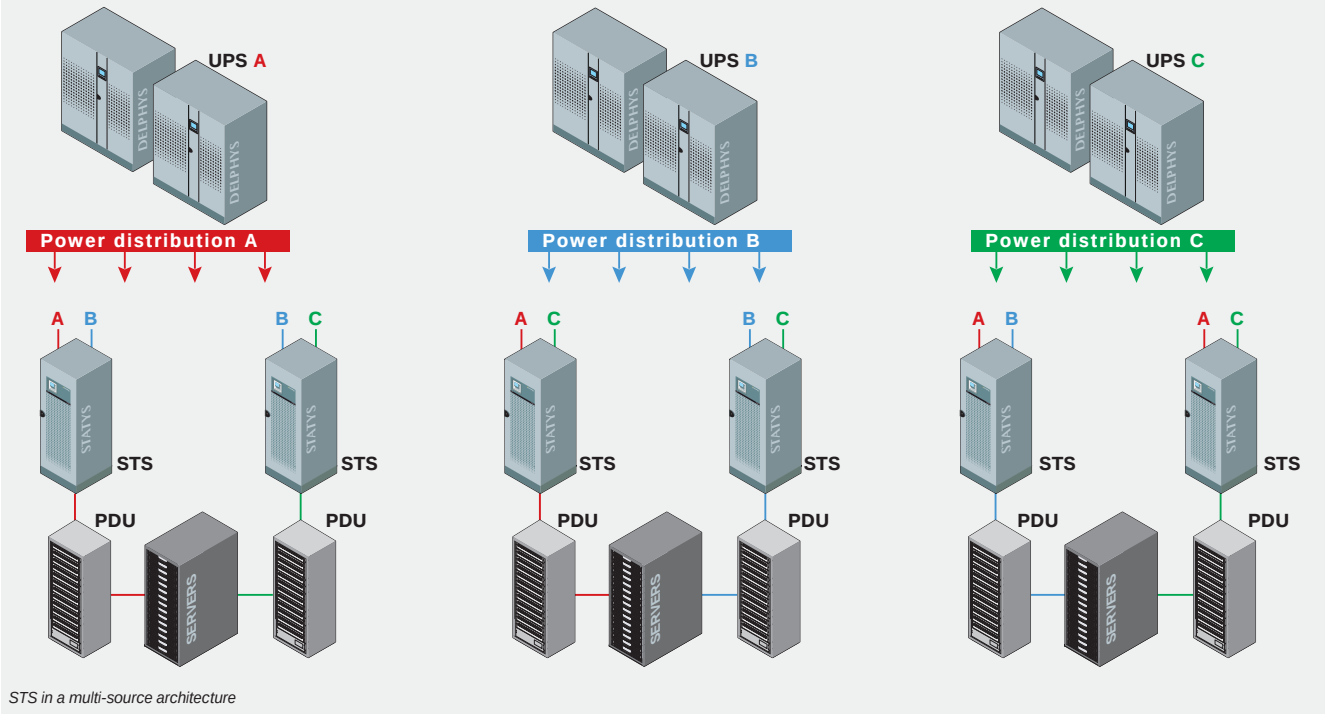
The '2N + STS' architecture ensures the load is always supplied by high power quality on each input, even if one power distribution is down due to critical fault or for long term maintenance (e.g. source replacement or failure of the electrical infrastructure).

The combination of a multi-source architecture and STS connecting the load to two independent sources ensures they are always supplied even if one of them is down. The critical facility therefore benefits from very high fault tolerance.

In both example, the STS can be centralised (one high STS rating for each power distribution switchboard) or distributed (close to each server room, row, rack, etc.). The choice of either solution depends on the installation to be protected and on the expected availability or the requested level of maintainability.



STS in a 2N architecture



STS in a multi-source architecture

Back-up storage

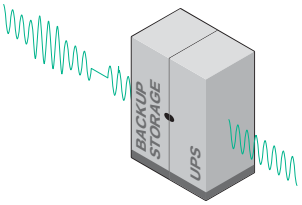
Why have back-up energy?

The energy storage stage within a UPS system is a key element, as its purpose is to provide the load with immediate power when the main power supply is unavailable.

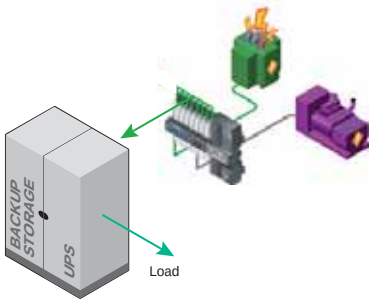
The choice and sizing of the energy storage systemis based on various factors such as load characteristics, quality of the power supply network, the electrical infrastructure where the UPS is installed, and the environmental characteristics of the technical room.

In UPS applications energy storage is used for two main reasons:

Power quality: to support the UPS system when the mains network values fall outside the maximum acceptable UPS values, while the mains network is unavailable or until the load is switched off in a controlled manner.



Power bridging: to give the system upstream of the UPS time to switch between the mains network and the back-up power system, this being in most cases a generator.



Power and energy

When the main power supply is unavailable the storage system provides the UPS with the necessary energy. This can take place in two ways depending on the specific application:

- 'Power' type applications - the UPS is provided with a large quantity of power for a limited period of time e.g. power bridging applications or where the main supply is affected by micro interruptions. Back-up storage systems optimised for power-type applications can be discharged with high power, recharged very quickly, and generally perform well under cyclic operating conditions (frequent charging/discharging).
- 'Energy' type applications - the UPS is provided with power for an extended period of time e.g. when the main supply is unavailable for longer than one minute.

Sizing and Total Cost of Ownership

Various factors must be taken into account when choosing an energy storage system in order to optimise the total cost of ownership and achieve the best technical solution. The differentiating factors to consider with back-up storage technologies include:

- Purchasing costs vs budget.
- Dimensions and weight.
- Expected equipment lifetime and number of charge/discharge cycles.
- Environmental conditions.
- Characteristics of the power supply network (frequency/duration of unavailability etc.).
- Safety to be guaranteed in the technical room.
- Maintenance requirements.

Expert Battery System: protecting your battery investment

Expert Battery System (EBS) technology is a system which manages the battery charger.

It responds to the working temperature to preserve battery life and reduce operating costs by:

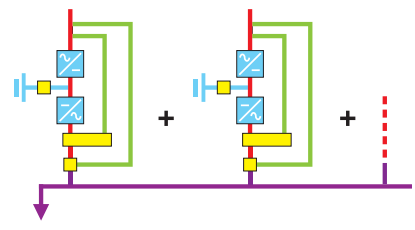
- charging according to an algorithm which adapts to the environment and the condition of the battery,
- eliminating overloading effects due to permanent floating voltage, which accelerates the corrosion of the positive plates and causes the separators to dry out,
- isolating the DC battery bus, (independent charger function). Premature ageing, caused by residual ripple from the inverter bridge is eliminated.

Tests carried out by SOCOMEC on several brands of batteries, together with years of experience, show that battery life can be enhanced by up to 30% with the use of EBS compared to a traditional battery management system.

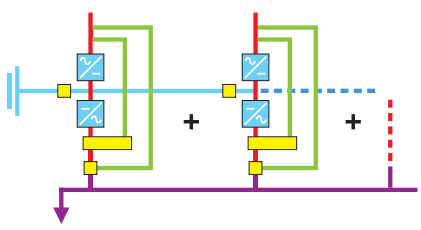
Shared battery: optimisation of battery size for parallel systems

Available with distributed batteries, DELPHYS GP allows you to optimise battery size thanks to shared battery operation. This reduces the overall system footprint, the weight of the required batteries, the battery monitoring system, the amount of wiring needed and amount of lead.

Associated with an appropriate connection design (fuses and coupling switches), this solution also allows you to increase the availability of the battery set and UPS units in case of internal fault.



Distributed battery



Shared battery

Different back-up storage for UPS systems

The battery is an electrochemical energy storage system able to generate a difference in potential that can make an electric current circulate in a circuit until the energy is exhausted.

Batteries can be divided into two categories:

- Primary: batteries which, once exhausted, cannot be recharged and returned to their initial state of charge (non-rechargeable batteries)
- Secondary: these batteries, also known as accumulators, can be recharged and returned to their initial state of charge. They are recharged with a battery charger which should have suitable characteristics to charge the specific battery technology.

Battery parameters and definitions

- Capacity (C): the mean current expressed in Ah which the battery supplies in a complete discharge carried out over a precise period of time. For example, C indicates the current supplied by the battery in case of discharge in 1 hour, C/5 the current in case of discharge in 5 hours, C/10 in case of discharge in 10 hours, etc.
- The rated capacity depends on the battery technology: for example, the rated capacity for lead-acid batteries is C/10, while that for NiCd batteries is C/5.
- Energy density: the amount of energy stored per unit of volume or weight expressed in Ah/kg or Wh/kg.
- Depth of Discharge (DoD): the fraction of the capacity (or of energy) taken from the battery during the discharge phase. Expressed as a % of the capacity, it is calculated using the following formula:

$$DoD = \frac{\text{Discharged capacity}}{\text{Rated capacity}}$$

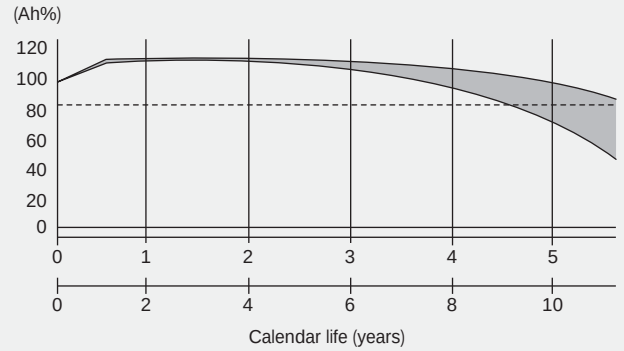
- State of Charge (SoC): the fraction of the capacity (or of energy) remaining in a battery. Expressed as a % of the capacity, it is calculated using the following formula:

$$SoC = \frac{\text{Remaining capacity}}{\text{Rated capacity}} = 1 - DoD$$

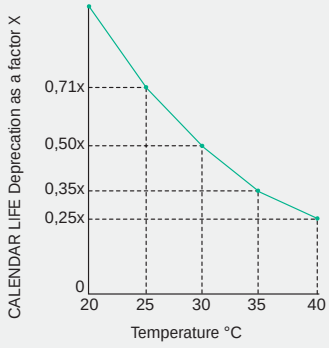
$$DoD + SoC = 100\%$$

- Calendar Life: the time after which the battery, regularly charged and kept at a controlled temperature, reduces its initial rated capacity to 80%. Normally, battery manufacturers talk about the "expected life", as this is an estimate obtained from laboratory tests. Battery service life is an important parameter for comparing various battery technologies.
- Cycle Life: the number of charge and discharge cycles at controlled temperature that the battery can withstand before the rated capacity is reduced to 80% of the initial value. The cycle life is very sensitive to temperature and to the depth of charge, to the extent that it is declared at a specific DoD value.
- Actual life: the battery service life in real conditions of use. This depends on the Calendar life, the Cycle life, the ambient temperature and the type of charge and discharge.
- Self-discharge: the percentage of charge capacity lost by the battery when not used (e.g. during storage in the warehouse). The parameter is linked to the type of battery and also depends highly on temperature (when the temperature increases, the self-discharge percentage increases).
- Internal impedance: this is composed of an inductive, a capacitive and a resistive part. It impedes the passage of current, increasing heat generation in the discharge phase. The most important part of the impedance to be monitored is the resistive part, as it indicates the state of health of the battery and on possible deterioration in progress. The internal resistance is influenced by various factors, the most important of which is temperature. The typical impedance values change according to the battery technology and capacity.

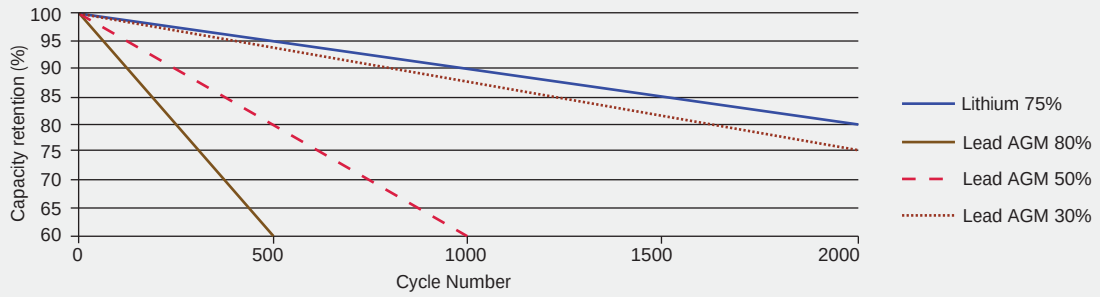
Lead battery calendar life floating at 20 °C



Lead battery calendar life *vs.* temperature (Eurobat)



Moderate climate, Cycle Life comparison



socomec Innovative Power Solutions

Different back-up storage for UPS systems

Lead acid battery (LA)

Lead acid batteries are the most used battery type for stationary applications. Expected life for this kind of batteries is from 3 to 12 years according to Eurobat classification. Cycle life is usually poor even if certain of these batteries have good levels of performance in cycling applications. Lead acid batteries offer a mature and well-researched technology at low cost. There are many types of lead acid batteries available, e.g. vented and sealed housing versions (called valve-regulated lead acid batteries, VRLA, requiring less maintenance). VRLA batteries can be AGM (absorbed glass material, where the electrolyte is absorbed in a fiber glass) or GEL type (where the electrolyte is a gel used in higher temperature environments and in specific applications). One disadvantage of lead acid batteries is usable capacity decrease when high power is discharged. For example, if a battery is discharged in one hour, only about 50% to 70% of the rated capacity is available. Other drawbacks are lower energy density (lead has heavy specific weight) and the use of lead, a hazardous material prohibited or restricted in specific environments and applications. Advantages are a favorable cost/performance ratio, easy recyclability and a simple charging technology.

Nickel cadmium battery (NiCd)

Compared to lead acid batteries, NiCd batteries have a higher power density, a slightly greater energy density and the number of cycles is higher. NiCd batteries are relatively rugged, are the only batteries capable of performing well even at low temperatures in the range from -20 °C to -40 °C, and their life expectancy is still good even at high temperature, so they are used in warm countries and in applications where high temperature is a constraint. Large battery systems using vented NiCd batteries operate on a scale similar to lead acid batteries. NiCd are normally vented so they need be stacked vertically with good ventilation, and they cannot be transported in a charging condition (electrolyte is shipped separately).

Lithium-ion battery (Li-ion)

Li-ion batteries have high gravimetric energy density, meaning that a Li-ion battery solution is lighter and needs less floor space compared to LA or NiCd batteries. For Li-ion batteries the calendar life (over 10 years) and cycle life (thousands of cycles) are very good even at high temperatures. Give that the round-trip efficiency is high and with no oversizing for short back-up time (typical for UPS applications), it can be seen that Li-ion technology has several technical advantages. Most of the metal oxide electrodes are thermally unstable and can decompose at elevated temperatures, releasing oxygen which can lead to a thermal runaway. To minimize this risk, Li-ion batteries connected in series to obtain a voltage compatible to the UPS range are equipped with a monitoring unit to avoid over-charging and over-discharging. A voltage balance circuit is also installed to monitor the voltage level of each individual cell and prevent voltage deviations among them.

Supercapacitors / Ultracapacitors

There are a number of different technologies that fall under the name ‘supercapacitors’ or ‘ultracapacitors’. The 2 main technologies are:

- Symmetric Electrical Double Layer Capacitors (Symmetric EDLC), where activated carbon is used for both electrodes. The charge mechanism is purely electrostatic: no charge moves across the electrode/electrolyte interface.

- Asymmetric Electrical Double Layer Capacitors (Asymmetric EDLC) where a battery electrode is used for one of the electrodes. The battery electrode has a large capacity in comparison to the carbon electrode, so that its voltage does not change significantly with charge. This allows a higher overall cell voltage.

Supercapacitors deliver quick bursts of energy during peak power demands, then quickly store energy; their extremely low internal resistance enables a very fast discharge and recharge with unbeatable high round-trip efficiency. In addition, they usually do not use hazardous materials, and they have very low self-discharging so use little current when in floating mode (which means less energy consumption for the UPS) and can go for long periods without being recharged.

Lithium-ion capacitors (LIC)

The capacitor is a hybrid between a battery and a capacitor (asymmetric EDLC). The Li-ion capacitor comprises an activated carbon cathode (hence no safety risks due to thermal runaway[1]), an anode of Li-doped carbon and electrolyte containing a Li salt, as in a battery. This hybrid construction creates a capacitor which yields the best performance features of batteries and capacitors. The hybrid battery construction offers many advantages. These include high energy density and high voltage, the benefit being when connected in series, up to a 1/3 fewer LIC cells are needed compared to a conventional EDLC capacitor. Another advantage is the very low level of self-discharging: the LIC can hold 95% of its charge for 3 months. As it takes so little current when in floating mode, the UPS requires less energy consumption and the LIC can go for longer periods without being recharged.

LIC technology also has the added benefits of higher safety levels (no risk of thermal runaway), a high power density and quick charging and discharging. It is also more reliable, with high cycling (its estimated life is 1 million charge/discharge cycles) and resistance to a wide temperature range (-20 °C to 70 °C) that makes it ideal for use in difficult operating environments.

Flywheel

Flywheels store energy in the form of momentum in a spinning mass. An electric motor spins the rotor to a high velocity to charge the flywheel. During discharge, the motor acts as a generator, converting the rotational energy into electricity. The energy stored in a flywheel depends on the mass and on the velocity according to the following equation:

$$E = \frac{1}{2} J \omega^2$$

Where J is the moment of inertia and ω is the angular velocity. Since the energy has quadratic proportion with angular velocity it is very important that the flywheel runs at very high velocity (over 30,000 rpm), for these reasons modern flywheels use magnetic levitation to avoid friction losses and spins under a sealed vacuum. The flywheel does not suffer restrictions due to high temperature (no calendar life reduction), does not have any hydrogen emission during recharging (as in the case of lead-acid batteries), can be recharged in a very short time, has a high-cycling range without reducing its expected life, does not use any use of hazardous materials, and can be installed where space for installation is limited. Flywheels have an output power measured in hundreds of kW and so are ideal for use in high power UPS systems.

Compressed air energy storage (CAES)

In compressed air energy storage, electrical power is used to compress air and store it in a dedicated structure. When power is required, the compressed air is immediately converted to electricity by driving it through a scroll expander, in turn driving an electrical generator. The typical application is for power bridging (to switch mains power to genset power) but not in case of frequent micro interruptions. CAES systems can be parallelized to increase back-up time or to add redundancy. CAES can also be used in harsh environments and their long calendar life is not affected by temperature. When the system is fully charged it does not require any significant energy consumption, increasing the overall efficiency of a traditional battery-based UPS system.

(1) Thermal runaway: a situation under abnormal operating conditions where a battery generates heat at a higher rate than it can dissipate. Thermal runaway can melt the plastic components of the batteries, releasing gas, smoke and acid that can damage adjacent equipment.

Notes

Notes

Notes

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HEAD OFFICE

SOCOMEC GROUP
SAS SOCOMEC capital 10 607 040 €
R.C.S. Strasbourg B 548 500 149
B.P. 60010 - 1, rue de Westhouse
F-67235 Benfeld Cedex
Tel. +33 3 88 57 41 41 - Fax +33 3 88 57 78 78
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