CATALOGUE

UPS and Critical Power Solutions

2013

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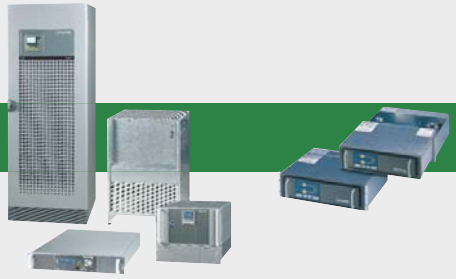
Innovative Power Solutions

Choose the right solution

	Guaranteeing the availability of applications, providing energy cost-savings and reducing your carbon footprint	Meeting critical application requirements in industrial environments
Uninterruptible Power Supply (UPS)	 *MODULYS Green Power* *Green Power 2.0* *Smart PowerPort*	 *DELPHYS MP elite* *DELPHYS MX* *MASTERYS IP+* *CPSS Emergency*
Static Transfer Systems (STS)	 *STATYS* *IT SWITCH*	
Rectifiers		 *SHARYS IP*
Energy Storage	 *Flywheel* *BHC Universal* *BHC Interactive*	 *BHC Universal*
Communication and Connectivity	  	
Commissioning, Inspection and Maintenance		

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Contents

Guaranteeing the power supply quality to critical loads

MASTERYS BC
DELPHYS BC

NET VISON
VIRTUAL JNC
REMOTE VIEW
MODBUS TCP
DRY CONTACT
SNMP/WEB

CIM maintenance contracts
24/7 real-time monitoring service
CIM Thermo
CIM Rent

SOCOMEC: an independent manufacturer

the benefit of a specialist

Founded in 1922, SOCOMEC is an industrial group with a workforce of 3200 people. Our core business - the availability, control and safety of low voltage electrical networks with increased focus on our customers' power performance.

CORPO 308 A

The culture of independence

The SOCOMEC Group's independence ensures control over its own decision-making, respecting the values advocated by its own family shareholders and shared by its employees.

With around 30 subsidiaries located on all five continents, SOCOMEC pursues international development by targeting industrial and service applications where the quality of its expertise makes all the difference.

The spirit of innovation

As undisputed specialists in UPS systems, mains supply changeover, power conversion and measurement, SOCOMEC dedicates nearly 10% of its turnover to R&D. As a result the Group can achieve its ambition of always being one technological step ahead.

The vision of a specialist

As a manufacturer with complete control over its technological processes, SOCOMEC is quite unlike the more general providers. The Group is constantly improving its fields of expertise in order to offer its clients increasingly customized, appropriate solutions.

A flexible manufacturing structure

Backed by two European centres of excellence (France and Italy), the Group also benefits from competitive production sites such as Tunisia and locations in the major emerging markets (India and China).

These sites have all implemented a system of continuous improvement based on Lean Management principles, and are therefore in a position to provide high levels of quality, and meet the deadlines and cost requirements expected by customers.

The focus on service

Our manufacturer's expertise naturally extends to a complete range of services designed to facilitate the research, implementation and operation of our solutions. Our service teams have built their reputation on reassuring guidance, flexible skills and reactivity.

Responsible growth

As a Group which is open to all cultures and firmly committed to human values, SOCOMEC promotes employee initiative and commitment. Working relationships are based on the idea of partnerships and respect for shared ethics. Through the company's commitment to achieving harmonious, lasting development, SOCOMEC fully embraces its responsibilities not only towards its shareholders, employees, customers and partners, but also towards society as a whole and its environment.

SOCOMEC has been a signatory to the Global Compact since 2003.

ENERGY SPECIALIST SINCE 1922

THE GLOBAL COMPACT WE SUPPORT

For a high quality power supply

innovative power solutions

The SOCOMEC UPS product range covers all needs for a high quality, faultless electrical power supply.
Our UPS, as well as our secure power supplies, static transfer systems, harmonic equalizers, rectifiers and DC/AC and AC/DC converters, comprise the most complete ranges in the world and cover a very wide range of applications for every sector of the market.

A key requirement

High quality energy supply at any moment is vital in many fields such as IT, industry and infrastructure applications. It is even mission-critical for many medical applications. SOCOMEC UPS has over 40 years of experience at your disposal.

Product solutions that meet requirements

Underpinned by significant R&D resources, our product offer continually evolves as a consequence of our contact with customers.
To ensure the highest availability, we provide the latest UPS technology combined either with traditional batteries or with other innovative energy storage systems.
Our solutions have the approval of some of the most stringently demanding users: Telecom companies worldwide, Ministries of Defence, nuclear industry operators...

Recognised expertise

Prestigious accolades have been presented in recognition of the company's ability to meet the needs and product demands of its customers. Among others:

- customer Service Excellence (2004),
- product Innovation (2006),
- best Practice Award for "European Energy & Power Systems Product Line Strategy" (2009),
- European UPS new product innovation award (2011).

Always focused on customer needs

Our sales and after-sales network means we are always there for you. Our partner-customers recognise the quality of our products, availability and flexibility in meeting requirements and commitment.

Continuing innovation

The facts speak for themselves:

- first French manufacturer to offer static power supplies (1968),
- first UPS designed with PWM technology (1980),
- first UPS range in the world using IGBT technology (1990),
- first modular, scalable and redundant UPS system (2000),
- first to integrate hybrid components (2001),
- first 200 kVA UPS with IGBT rectifier (2003),
- new battery charging design (2004),
- dynamic energy storage system (flywheel) (2006),
- first UPS with 96% efficiency in true online double conversion mode (2007),
- most compact STS 19" rack hot-swappable (2009),
- most compact 900 kVA UPS (2010),
- first complete UPS range (10-2400 kVA) with 3-level technology, 96% efficiency and power factor 1 (2012).

THE GLOBAL COMPACT
WE SUPPORT

SOCOMEC joined the United Nations **"Global Compact"** in 2003 to tackle the social and environmental challenge of globalization.

AFAQ ISO 14001

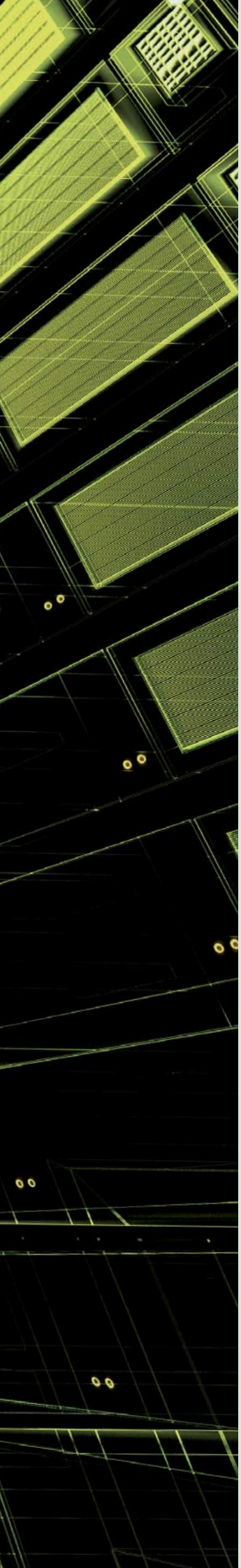
ISO 14001 This international standard recognizes SOCOMEC's determination on pursuing its commitment to preserve the environment.

the green grid™ member

The Green Grid™ is an organization committed to improving the resource efficiency of data centres and business computing ecosystems.

CODE OF CONDUCT DATA CENTRES

As Endorser on the **European Code of Conduct** for Data Centres, SOCOMEC UPS is committed to implementing energy efficient solutions in new data centres whilst respecting the life cycle, cost-effectiveness and the performance availability of the system.



Guaranteeing the availability of applications, providing energy cost-savings and reducing your carbon footprint.

Optimized solutions for virtualized data centers

MODULYS Green Power
Three-phase UPS
20 to 360 kVA
p.8

Improved output of critical applications

Green Power 2.0
Three-phase UPS
10 to 120 kVA
p.12

160 to 500 kVA
p.14

Rapid implementation of 'plug & play' power supply solution

Smart PowerPort
UPS power infrastructure in container
100 kW to 2.4 MW
p.16

Rapid implementation of 'high-availability' architecture

STATYS
Single and three-phase STS
32 to 4000 A
p.18

IT SWITCH
Single-phase electronic transfer systems
16 to 20 A
p.20

Longer battery service life

BHC Universal and ***BHC Interactive***
Battery Health Check
p.22

Implementation of a dynamic energy storage solution

Flywheel
Dynamic Energy Storage Systems
80 to 900 kVA
p.24

MODULYS Green Power

from 20 to 360 kVA

a modular, scalable UPS solution for the latest virtual data centres

Three-phase UPS

The solution for

- Virtualised data centres
- IT Networks / Infrastructures
- Mission critical applications

Certifications

MODULYS Green Power efficiency is verified by TÜV SÜD.

MODULYS Green Power is certified by NEMKO with regard to product safety (EN 62040-1).

Advantages

96% EFFICIENCY

Designed for continual change

- Dynamic power infrastructure able to closely align power capacity required by rapidly growing ICT businesses.
- Fully modular architecture based on power and battery modules.
- Less complexity for system deployment with repeatable hot pluggable and hot swap modules.

Change management without affecting availability

- No risk of downtime to upgrade power capacity or battery capacity.
- Superior availability during normal operation and even under maintenance by using redundant and independent components.
- Self-diagnosis both at module and system levels, remote monitoring and alert capability to manage operational parameters in real time and decide when an upgrade is necessary.

Performance optimisation while changing

- Power granularity to deploy the right number of modules and get all the necessary power protection at the right time.
- Extensive upgradability to maintain maximum power quality and manage costs simultaneously.
- Reduced complexity, enhanced serviceability, and responsiveness in the case of module failure for a very low MTTR (Mean Time To Repair).

Energy savings and granularity of investment

- Modularity and energy efficiency design meet the new ROI (Return Of Investment) metrics perfectly, based on TCO that incorporates initial investment, full lifecycle infrastructures and facility costs.
- Energy efficiency means reduced energy losses, electricity operation costs, heat dissipation, cooling resources required and operational costs, resulting in significantly lower energy bills.
- Modularity minimises capital and expenses: no prior expenditure required for spare capacity or additional installation costs for future extensions.

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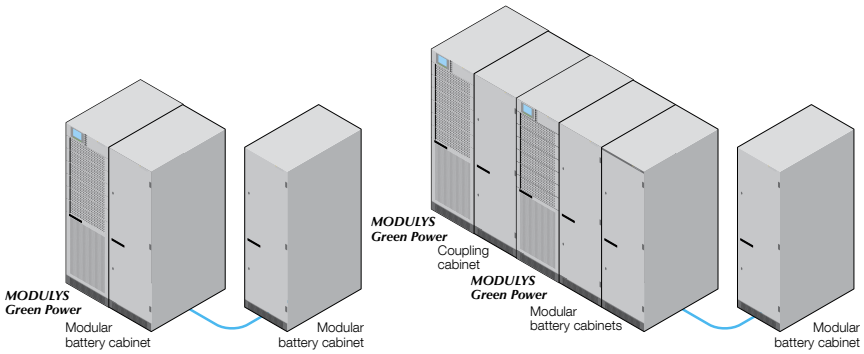
Configurations



GREEN 091 A

Technical data

	MODULYS Green Power																	
Number of modules	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Sn [kVA] - module	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360
Pn [kW] - module(3)	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288	306	324
Input/output	3/3																	
Redundant configuration	N+x																	
INPUT																		
Rated voltage	400 V																	
Voltage tolerance	-25 % + 20 % (up to -50 % at 70 % Pn)																	
Rated frequency	50/60 Hz																	
Frequency tolerance	± 10%																	
Power factor / THDI(1)	0.99 / < 3%																	
OUTPUT																		
Rated voltage	400 V (380/415 configurable)																	
Voltage tolerance	± 1%																	
Rated frequency	50/60 Hz (selectable)																	
Frequency tolerance	± 0.05% (on mains power failure)																	
Voltage distortion	< 1 %																	
Overload(2)	125% for 10 minutes, 150% for 1 minute																	
Crest factor	3:1																	
BYPASS																		
Rated voltage	400 V (380/415 configurable)																	
Voltage tolerance	± 15% (configurable from 8% to 15%)																	
Rated frequency	50/60 Hz (selectable)																	
Frequency tolerance	± 1 Hz (configurable from 0.5 to 5 Hz)																	
MODULE																		
Battery charging current	1.2 - 5 A																	
Efficiency - On-line mode	up to 96 %																	
Efficiency - Eco Mode	up to 98 %																	
Weight	30 kg																	
ENVIRONMENT																		
Operating ambient temperature	from 0 °C up to +40 °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)	60-66 dBA																	
Required cooling capacity	440 ÷ 8960 m³/h																	
Dissipated power	1000 ÷ 18140 W																	
Dissipated power	3400 ÷ 61900 BTU/h																	
UPS CABINET																		
Dimensions W x D x H	520 x 975 x 1695 mm						520 x 975 x 1695 mm						520 x 975 x 1695 mm					
Weight (empty cabinet)	200 kg						200 kg						200 kg					
Degree of protection	IP20																	
Colours	cabinet: RAL 7012, front bottom base: RAL 7016																	
STANDARDS																		
Safety	EN 62040-1 (NEMKO certified), EN 60950-1																	
EMC	EN 62040-2																	
Performance	EN 62040-3 [VFI-SS-111]																	
Product declaration	CE																	

(1) For source THDV < 2% and nominal load. - (2) From inverter. - (3) @ 25 °C.

Module installation

Standard electrical features

- Dual input mains.
- Internal maintanance bypass.
- Parallel kit.
- Battery charger.
- External modular battery cabinet.
- Long life batteries.

Electrical options

- External maintanance bypass up to 360 kVA.
- Relay card.

Standard communication features

- Embedded LAN connection: professional WEB/SNMP interface for UPS monitoring and shutdown management of several operating systems.
- Dry-contact interface.

Communication options

- MODBUS/JBUS RTU

Battery cabinets - Technical data

MODULAR BATTERY CABINET	
DIMENSIONS AND WEIGHT	
Dimensions W x D x H	600 x 900 x 1695 mm
Weight (empty cabinet)	161 kg
Weight (battery string)	121 kg

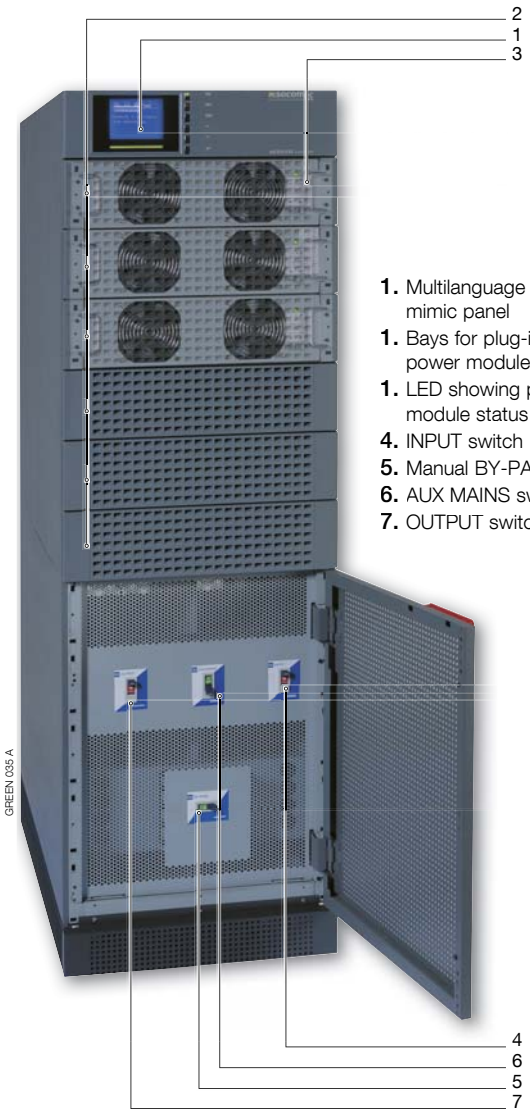
HIGH CAPACITY BATTERY CABINET	
Dimensions W x D x H	600 x 900 x 1695 mm
Weight	599 kg

MODULYS *Green Power*

from 20 to 360 kVA

Three-phase UPS

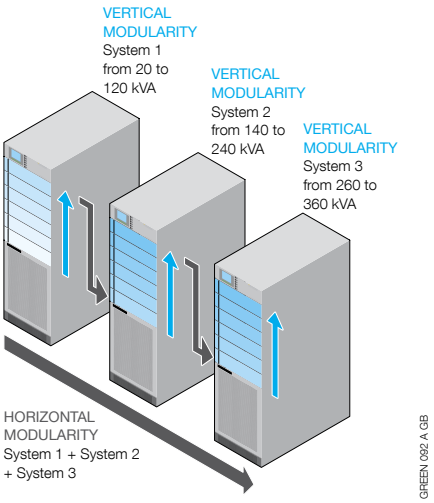
Totally modular for the best modular UPS system



1. Multilanguage LCD graphic mimic panel
1. Bays for plug-in hot swap power modules
1. LED showing power module status
4. INPUT switch
5. Manual BY-PASS switch
6. AUX MAINS switch
7. OUTPUT switch

Power scalability up to 360 kVA

MODULYS GREEN POWER suits perfectly, either with unscheduled site upgrades or upgrading in successive steps, thanks to its modularity.



Availability

- **Redundant N+1** architecture based on parallelable plug-in power modules providing full power supply to load even if a module fails.
- **No single point of failure** thanks to built-in redundant system design: redundant power supply, charger, etc.
- **Reduced MTTR**: power system remains in online mode and a module can be easily replaced or added in a few minutes without compromising load protection.
- Self-configuration ensures agility while changing, and **maximum availability** during maintenance operations (load not transferred to by-pass mode).
- Built-in fan speed control and individual fan efficiency check.
- **Dual input feed** (Mains and Aux Mains) guarantees maximum availability of emergency bypass line.

Flexibility

- MODULYS GREEN POWER vertical and horizontal modularity easily and quickly supports the **wide range of evolving load requirements.**
- Repeatable and standardised scalable architecture based on **real hot pluggable power modules.**
- **Vertical modularity** for power scalability up to 120 kVA by simply plugging a power module into the system.
- **Horizontal modularity** for scalability up to 360 kVA by coupling three modular systems.
- **Power granularity** to meet detailed **power on demand** for incremental steps of 20 kVA.

Total Cost of Ownership (TCO)

- Modularity and power granularity make it possible to invest only **for the functionality required in the short-term,** and to plug in new capacity or functionality when the time is right.
- **Savings in operational costs and energy bills** by combining the maximum level of protection (true online double conversion) with verified 96 % efficiency.
- Vertical modularity maintains a **small footprint** while system power capacity increases.
- **Fast deployment** thanks to the vertical modular architecture. Fast power increase without any new electrical work.
- High efficiency minimises heating and **cooling requirements,** reduces air conditioning investments, and cuts related energy bills.

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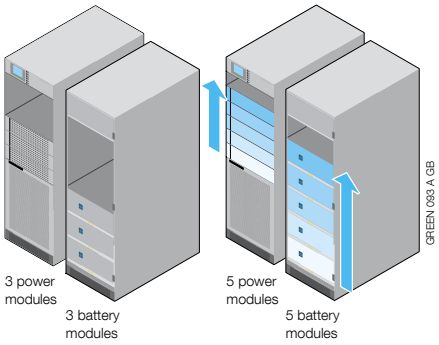
Totally modular for the best modular battery solution

1. Six bays for battery hosting
2. Four hot swap battery packs for each string
3. Battery protection for each string

Scalable battery solutions

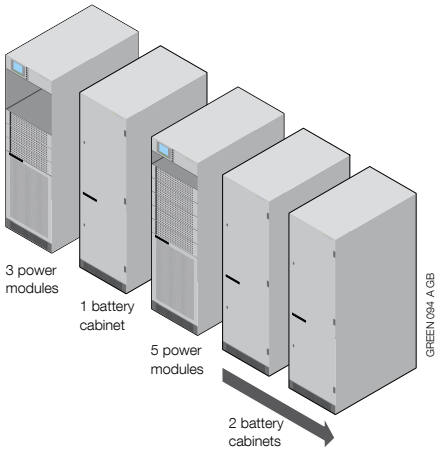
- Vertical modularity

Maintains equivalent autonomy while power increases with the modular battery cabinet.
Autonomy range: from 10 to 60 minutes.



- Horizontal modularity

Provides very high and scalable autonomy with the high capacity battery cabinet.
Autonomy range: up to 120 minutes.



Availability

- Battery system based on **independent strings** connected in parallel to maximise system availability.
- Individual battery string protection for safe running, installation and maintenance of the battery system, and **to ensure continuous back-up protection.**
- **Long-life battery** provided as standard, to increase quality and reliability.
- On-going maintenance of each battery string is performed from the front, with **MTTR reduction** as result.
- **Hot swap battery pack solution** allows back-up time increases according to power requirements, without switching off the battery cabinet.

Flexibility

- **Scalable battery strings** (up to 6) to maintain equivalent autonomy while power increases.
- **Preset for** on-site fast **autonomy extension** without any electrical system modification.
- Battery scalability based on unique **battery packs** (up to 24).
- **Powerful battery charger** integrated within each power module to enable long autonomy (up to 120 minutes).

Total Cost of Ownership (TCO)

- **Standard long-life battery** technology improves system reliability, maximises return on investment and reduces maintenance costs associated with expected battery life.
- A standard temperature sensor optimises the battery recharging parameters according to environment temperature **to extend battery life and investment.**
- Vertical modularity in a **small footprint battery cabinet** allows an increase in back-up without occupying further space on the site.
- **Shared battery bus** architecture minimises battery investment without compromising availability.

Green Power 2.0

MASTERYS GP from 10 to 120 kVA/kW

ultra high energy efficiency and maximum power availability

The solution for

- Data centres
- Telecommunications
- Service sector
- IT-Networks / Infrastructures

Certifications

The *Green Power 2.0* series is certified by TÜV SÜD with regard to product safety (EN 62040-1).

Advantages

3 LEVEL TECHNOLOGY

96% EFFICIENCY

kW = kVA

Better performance than the EU Code of Conduct on efficiency of AC UPS

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 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 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.
- 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.
- Battery configuration can be optimized, thanks to a very wide DC range.
- 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.

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Standard electrical features

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

Electrical options

- External maintanance bypass.
- External battery cabinet.
- Additional battery chargers.
- Galvanic isolation transformer.
- Parallel kit.
- ACS synchronization system.

Standard communication features

- User-friendly multilingual interface with color graphic display.
- Commissioning wizard.
- 2 slots for communication options.
- MODBUS TCP.
- MODBUS/JBUS RTU.
- Embedded LAN interface (web pages, email).

Communication options

- Remote mimic panel.
- Dry-contact interface.
- PROFIBUS.
- BACnet/IP interface.
- NET VISION: professional WEB/SNMP interface for UPS monitoring and shutdown management of several operating systems.

Remote monitoring service

- Remote mobile and web-based surveillance service connected 24/7 to your local Socomec Service Centre.

Technical data

		MASTERYS GP								
Sn [kVA]		10	15	20	30	40	60	80	100	120
Pn [kW]		10	15	20	30	40	60	80	100	120
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(1)								
Rated frequency		50/60 Hz ± 10%								
Power factor / THDI		> 0.99 / < 2.5%								
OUTPUT										
Rated voltage		1ph + N: 230 V (can be configured 220/240 V) 3ph + N: 400 V (can be configured 380/415 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		< 1%								
Total output voltage distortion - non-linear load		< 3%								
Overload		125% for 10 minutes, 150% for 1 minute (1)								
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%								
EFFICIENCY (TÜV SÜD verified)										
Online mode @ 50 % of load		up to 96%								
Online mode @ 75 % of load		up to 96%								
Online mode @ 100 % of load		up to 96%								
Eco Mode		up to 98%								
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)		< 52 dBA			< 55 dBA		< 60 dBA		< 65 dBA	
UPS CABINET										
Dimensions	W	444 mm					600 mm		700 mm	
	D	795 mm					800 mm			
	H	800 mm		1000 mm		1400 mm			1930 mm	
Weight		190 kg	195 kg		315 kg	320 kg	180 kg	200 kg	380 kg	460 kg
Degree of protection		IP20								
Colours		RAL 7012								
STANDARDS										
Safety		EN 62040-1 (TÜV SÜD certified), EN 60950-1								
EMC		EN 62040-2								
Performance		EN 62040-3 (VFI-SS-111)								
Product declaration		CE								

(1) Conditions apply.

Green Power 2.0

DELPHYS GP from 160 to 500 kVA/kW

ultra high energy efficiency and maximum power availability up to 4 MW

The solution for

- Data centres
- Telecommunications
- Service sector
- IT Networks / Infrastructures

Attestations

BUREAU VERITAS

Green Power 2.0 is attested by Bureau Veritas

Advantages

3 LEVEL TECHNOLOGY

96% EFFICIENCY

kW = kVA

Flywheel COMPATIBLE

Better performance than the EU Code of Conduct on efficiency of AC UPS

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 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.
- BHC INTERACTIVE: Accurate battery monitoring with UPS interactivity for even more prolonged service life.

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

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

Electrical options

- External maintenance bypass.
- Extended battery charger capability.
- Shared battery.
- Flywheel compatible.
- Galvanic isolation transformer.
- Backfeed isolation device.
- ACS synchronisation system.
- BHC INTERACTIVE.
- FAST ECOMODE.

Standard communication features

- User-friendly multilingual interface with graphic display.
- 2 slots for communication options.
- RS232 serial port for modem.
- Ethernet connection (WEB/SNMP/MODBUS TCP/email).
- USB port for event log access.

Communication options

- Advanced server shutdown options for stand-alone and virtual servers.
- 4 additional slots for communication options.
- ADC interface (configurable voltage-free contacts).
- MODBUS/JBUS RTU.
- BACnet/IP interface.
- SMS alert.

Remote monitoring service

- Remote mobile and web-based surveillance service connected 24/7 to your local Socomec Service Centre.

Technical data

		DELPHYS GP					
Sn [kVA]		160	200	250	320	400	500
Pn [kW]		160	200	250	320	400	500
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% (2)					
OUTPUT							
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 62043-3)		ThdU < 3%					
Short-circuit current		up to 3.4 x In					
Overload		125% for 10 minutes, 150% for 1 minute (1)					
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 @ 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 10 °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	< 68 dBA	< 70 dBA	< 72 dBA
UPS CABINET							
Dimensions	W	700 mm		1000 mm	1400 mm		1600 mm
	D	800 mm		950 mm	800 mm		950 mm
	H	1930 mm					
Weight		470 kg	490 kg	850 kg	980 kg	1000 kg	1500 kg
Degree of protection		IP20 (other IP as option)					
Colours		cabinet: RAL 7012, door: silver grey					
STANDARDS							
Safety		EN 62040-1, EN 60950-1					
EMC		EN 62040-2					
Performance		EN 62040-3 (VFI-SS-111)					
Product declaration		CE					

(1) Conditions apply. (2) With input THDV < 1%.

Smart PowerPort

from 100 kW to 2.4 MW

a fast deployable global solution
to power your mission critical applications

UPS power infrastructure in container

The solution for

- Data centres
- Telecommunications
- Pharmaceutical and petrochemical plants
- Transportation
- Critical applications

Flexible high efficiency solution designed for:

- **permanent applications**, such as site power extensions or relocations, containerised data centres, building power and industrial infrastructure,
- **temporary use**, such as disaster recovery or site reconfiguration.

Industrialized turnkey solution

- Pre-packaged comprehensive UPS power infrastructure.
- Fully tested turnkey solution.
- Flexible design for step-by-step expansion.
- Highest protection grade at lowest industry power consumption.
- Lower PuE(1) reducing carbon footprint (power and cooling)
- Immediate upgrade and fast ROI due to deployment 2 to 4 times faster than traditional mortar solutions.
- Easy to relocate.
- No construction permit required.
- Property cost savings.

A comprehensive infrastructure

SMART POWERPORT is available in two different power configurations:

- **20' high cube container** from 100 kW to 450 kW per unit,
- **40' high cube container** up to 1000 kW per unit.

SMART POWERPORT is a complete environment infrastructure incorporating:

- high efficiency 'green power' UPS system,
- storage (batteries and/or flywheel),
- input and output distribution panel,
- cooling system,
- fire protection,
- battery monitoring,
- access control.

(1) PuE (Power Usage Effectiveness) is a metric used to determine the energy efficiency of a data centre by dividing the amount of power entering a data centre by the power used to run the computer infrastructure within it.

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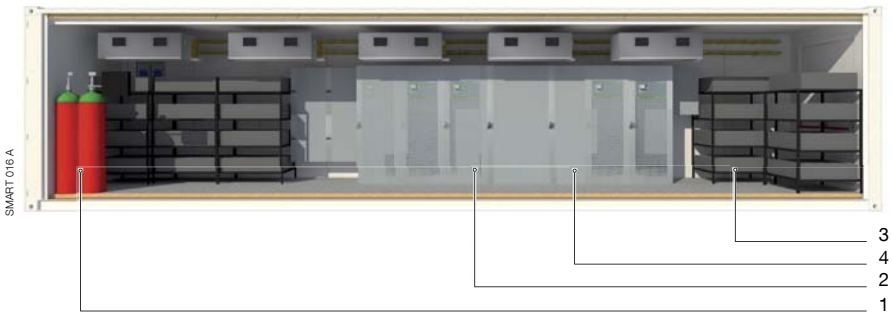
40’ container - Example of internal arrangement



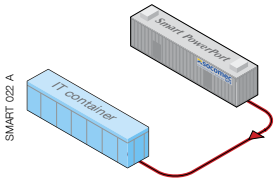
1. Fire protection
2. UPS
3. Batteries and/or ***Flywheel***
4. Input/Output switchboard

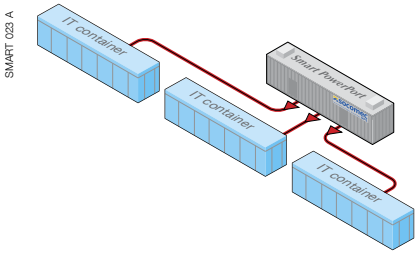
Range

UPS model	UPS Power	Max output power	***Smart PowerPort***	***Smart PowerPort*** Configuration
Green Power 2.0	1 UPS x 200 kVA	200 kW / 200 kVA	20’ high cube	single room
Green Power 2.0	2 UPS x 200 kVA	400 kW / 400 kVA		
Green Power 2.0	1 UPS x 400 kVA	400 kW / 400 kVA		
Delphys MX	1 UPS x 300 kVA	270 kW / 300 kVA		
Delphys MX	1 UPS x 400 kVA	360 kW / 400 kVA		
Delphys MX	1 UPS x 500 kVA	450 kW / 500 kVA		
Green Power 2.0	3 UPS x 200 kVA	600 kW / 600 kVA	40’ high cube	single room
Green Power 2.0	5 UPS x 200 kVA	1000 kW / 1000 kVA		
Green Power 2.0	4+1 UPS x 200 kVA	800 kW / 800 kVA		
Delphys MX	2 UPS x 500 kVA	900 kW / 1000 kVA		
Green Power 2.0	2 x (2 UPS x 200 kVA)	2 x (400 kW / 400 kVA)		double room
Green Power 2.0	2 x (1 UPS x 400 kVA)	2 x (400 kW / 400 kVA)		

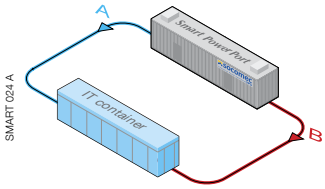
Examples of applications

- Single supply

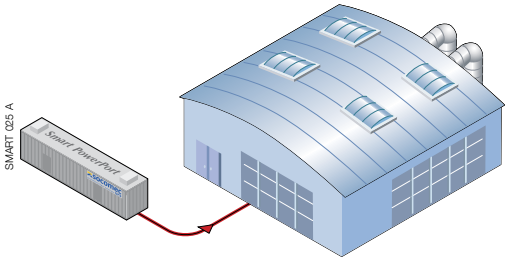




- Dual supply



- Building power infrastructure



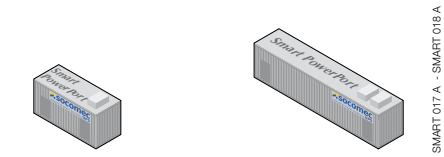
Enclosure technical specifications

- 20’ and 40’ high cube container for indoor and outdoor applications.
- Industry standard cooling system.
- EN-1047 compliant (TÜV and SGS certified).
- Water and flood protection: IPx5.
- Thermal insulation: 0.42 W/m^2 K.
- Fire protection: 120 minutes.
- Dust protection.
- Emergency Power Off (EPO).
- Vandalism and intrusion protection.
- Electromagnetic protection: 20 dBA.
- Acoustic insulation: 33 dBA.

Options

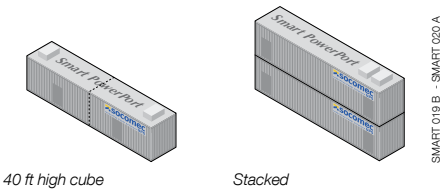
- Row curtains.
- Fire detection and extinguishing system.
- Humidifier.
- Lighting (400 lux).
- Access control system.
- BHC UNIVERSAL and BHC INTERACTIVE battery monitoring systems.
- PuE metering system.
- Sealed non-combustible cable glands.
- Special isolated double and single doors (TÜV certified EN 1047).

Size and configurations



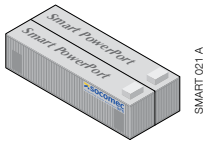
20 ft high cube single room

40 ft high cube single room



40 ft high cube double rooms

Stacked containers



Side by side containers

STATYS

from 32 to 4000 A

protection for your critical applications

Single-phase and three-phase STS

The solution for

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

STATYS provides

- High reliability - internal redundant design. Flexibility and adaptability to various types of applications.
- Compact design: saves up to 40% of valuable space.
- 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:

- provides redundant power supply to mission critical loads,
- increases the power supply availability by choosing the best power supply quality
- prevents fault propagation,
- allows easy extension and easy infrastructure design, ensuring high availability of the power supply to critical applications,
- facilitates installation and maintenance procedures.

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 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:

- 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,
- 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.

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High reliability - Internal redundant design

STATYS increases the overall availability of the system during abnormal events and programmed maintenance. It allows plant segmentation and intelligent fault management, therefore increasing the global uptime of the supplied system.

Other features include:

- 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,
- 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,
- 24/7/365 real-time remote monitoring.

Compact design

STATYS has a very compact design reducing significantly its operational footprint. It saves highly valuable floor space and reduces space requirement in the PDU.

STATYS has been designed to save space and for easy maintenance:

- small footprint and compact units,
- adjacent or back to back mounting,
- front access for easy maintenance procedures,
- compact Hot Swap 19" rack system (the smallest on the market).

Remote data access in real time and from any location

Its advanced communication capabilities make STATYS easily integrable in the existing monitoring and control infrastructures.

STATYS fulfils LAN connectivity prerequisites and plug and play modular communication Com Slot for:

- remote connection for monitoring
- remote maintenance
- customer's Building Management System (BMS) integration

Standard features

- Smart commutation system configurable according to the load.
- Fuse-free or fuse-protected design.
- Output fault sensing.
- Internal CAN Bus.
- Double maintenance bypass.
- Neutral oversizing for non-linear loads compatibility

Standard communication features

- Ethernet network connection.
- I/O dry contacts interfaces.
- Flexible Com Slots.
- LCD and Graphic Mimic Panel.
- Full digital configuration and setting.

Options

- Additional dry contacts interface board.
- RS232/485 serial port interface board.
- PROFIBUS interface.
- Devicenet interface.
- Automatic maintenance bypass interlock.
- Voltage adaptation.

Technical data

STATYS	*19" rack - hot swap*				*Cabinet - integrable chassis (OEM)*				
Size [A]	32	63	63	100	200	300	400	600	from 800 to 4000
ELECTRICAL SPECIFICATIONS									
Rated voltage	120-127 / 220-240 / 254 V		208-220 / 380-415 / 440 V						
Voltage tolerance	± 10%								
Number of phases	ph+N or ph-ph (+ PE)		3ph+N or 3ph (+ PE)						
Rated frequency	50 Hz or 60 Hz								
Frequency tolerance	± 5 Hz (configurable)								
Number of poles switching	2-pole switching		3 or 4-pole switching						
Neutral system	compatible with all earthing systems								
Maintenance bypass	interlocked and secured								
Overload	150% for 2 minutes - 110% for 60 minutes								
Efficiency	99%								
Admissible power factor	no restrictions								
ENVIRONMENT									
Operating ambient temperature	0-40 °C								
Relative humidity	95%								
Maximum altitude	1000 m a.s.l. without derating								
Cooling	forced ventilation								
Acoustic level at 1 m (ISO 3746)	<45 dBA				≤ 60 dBA				contact us
MECHANICAL SPECIFICATIONS									
19" rack - Dimensions W x D x H	483 x 747 x 89 mm		483 x 648 x 400 mm		-	-	-	-	-
19" rack - Weight	26 kg		58 kg		-	-	-	-	-
Cabinet - Dimensions W x D x H	-	-	-	-	500 x 600 x 1930 mm(2)	700 x 600 x 1930 mm(2)		900 x 600 x 1930 mm(2)	contact us
Cabinet - Weight	-	-	-	-	195 kg	270 kg		345 kg	contact us
Integrable chassis (OEM) - Dimensions W x D x H	-	-	-	-	400 x 586 x 765 mm	600 x 586 x 765 mm		800 x 586 x 765 mm	contact us
Integrable chassis (OEM) - Weight	-	-	-	-	70 kg	105 kg		130 kg	contact us
Degree of protection	IP31				IP20				
Colours	Grey semi gloss								
STANDARDS									
Performance and safety	IEC 62310, EN 50022, IEC 60364-4, IEC 60950, IEC 60529, IEC 60439-1								
EMC	C2 category (IEC 62310-2)								
Protection class	CB or PC class								

(1) Depth does not include handles (+40 mm). Total height corresponds to 3U for fixed part and 6U for the Hot Swap module. - (2) Depth does not include handles (+40 mm).

IT SWITCH

from 16 to 20 A single-phase

a secure power supply close to your applications

The solution for

- Data centres
- Processes
- Telecommunications
- Air traffic control

Continuity of service for critical applications

- Located as close as possible to the application, the IT SWITCH allows a highly accessible architecture.
- It protects against:
  - main power source outage,
  - spurious tripping of upstream protection,
  - the result of mutual interference caused by faults in the applications (e.g.: short-circuit) being supplied from the same source.

A secure power supply adapted to your equipment

- IT SWITCH has been designed to be easily installed near sensitive applications, to fit into 19" racks.
- Different versions: fixed or swappable to meet all your power availability requirements.

Easy site operation

- Easy changing of the preferred supply path without modifying the cabling.
- Switching from one path to another, carried out by the operator and secured by the IT SWITCH automatic controls and protections.

User-friendly operation

- IT SWITCH is fitted with a control panel that is easy to operate and guarantees safe operation.
- The communication software allows easy operation of the different equipment on-site.

Operating principle

IT SWITCH is an automatic transfer system between two sources. It is digitally controlled by microcontrollers to transfer the loads instantly, without disruption and without overlapping the sources.

Automatic transfer

The detection of a failure in the preferred source triggers the automatic and instantaneous transfer to the alternate source without disturbing the supply to the load.
The "break before make" transfer is carried out without overlapping in order to prevent interference between the sources.

Manual control

The IT SWITCH manual control allows the operator to transfer the loads securely to one of the sources in order to carry out maintenance operations.

Choosing the preferred source

The operator chooses a preferred source for each IT SWITCH.

The parameters of each source and of the supply to the loads are permanently monitored.

Separating loads

The system inhibits the transfer in the event of a fault in the equipment supplied downstream. This discrimination avoids the faulty current being transferred onto the other source so as not to disturb other users.

"Hot Swap" power units

The extractable version of the IT SWITCH HA increases system availability. The hot swappable plug-in unit means the control and power unit can be taken out without interrupting the supply to the applications.

The fixed chassis is equipped with a double maintenance bypass, which guarantees simple and totally secure operation.

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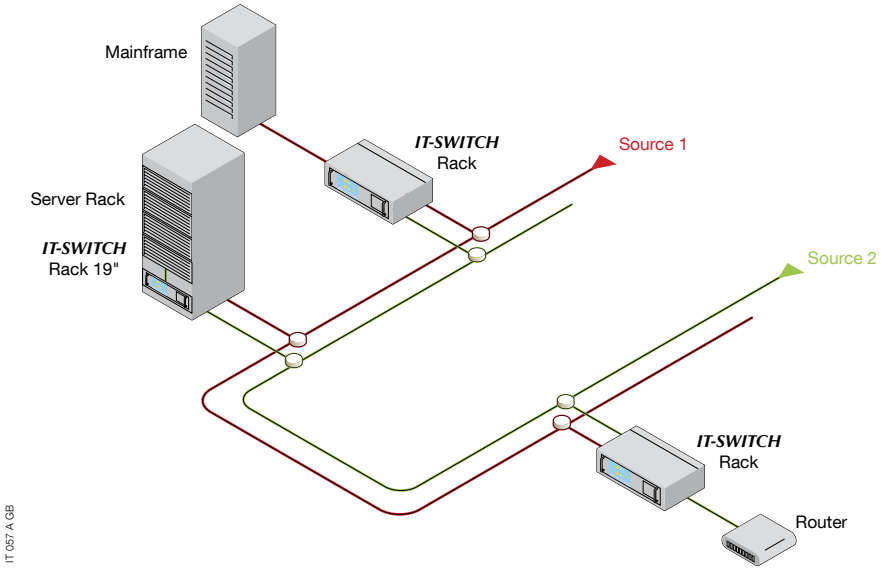
Installation and operation

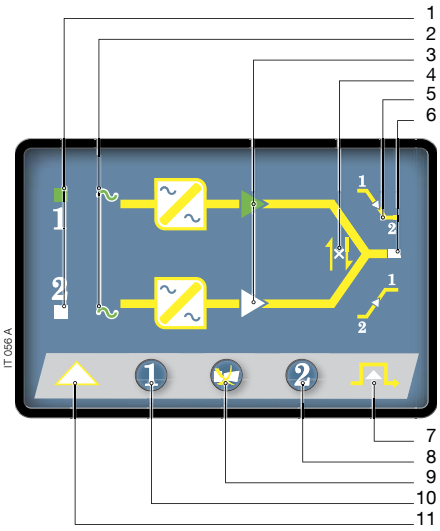
IT SWITCH HA (High Availability) is especially suited to sensitive applications thanks to its advanced transfer parameter controls: source synchronisation, power quality adaptation, operating modes and downstream fault current.

IT-SWITCH HA-E swappable version (High Availability) offers an additional “hot swap” function which enables users to perform maintenance procedures without shutting down the loads.

Distributed redundancy



Command and control mimic panel



1. Preferred source (1 or 2)
2. Input voltage source 1 or 2 within tolerances
3. Load on source 1 or 2
4. Transfer not possible
5. Transfer blocked
6. Imminent stop
7. Maintenance bypass on (hot swap version)
8. Manual transfer to source 2
9. Alarm reset & preferred source selection
10. Manual transfer to source 1
11. General alarm

Technical data

	IT SWITCH	
Model	HA 19" rack	HA-E 19” extractable rack
ELECTRICAL SPECIFICATIONS		
Rated voltage	single-phase 100/120/220/230/240 V	
Input voltage tolerance	adjustable (factory setting ±15 %)	
Rated frequency	50 or 60 Hz	
Frequency tolerance	±10% adjustable	
Rated current	16 A	16 A - 20 A
Short-circuit current	20/15 In(1)	
Crest factor	up to 4	
MAINTENANCE BYPASS		
Changeover switch	bipolar (phase/neutral)	
Transfer mode	synchronous/asynchronous “break before make”	
CONNECTIONS		
Input and output on terminal blocks	-	•
Input and output on IEC 16 A sockets	•	•
ENVIRONMENT		
Operating ambient temperature	0 to 40 °C	
Cooling	Natural	
MECHANICAL SPECIFICATIONS		
Dimensions W x D x H	446(2) x 310 x 131 mm	449(2) x 400 x 133 mm
Weight	8.5 kg	14 kg
Degree of protection	IP21	
STANDARDS		
EMC	EN 50022 class B/class A(1)	

1) Depending on model. - (2) 484 mm with fixing squares

Standard transfer features

- Preferred source selection.
- Automatic transfer.
- Manual transfer.
- Changeover without source overlap.
- Synchronous and asynchronous changeover (fully adaptable transfer modes).
- Transfer lock on downstream fault.
- Lock on repetitive transfers automatic restart setting.

Standard mechanical features

- 19” rack.

Standard communication features

- Command and control mimic panel.
- Dry contacts for information transfer.
- RS 485 JBUS serial port.
- Data log.

Maintenance

- “Hot swap” pull out module (model HA-E).
- Maintenance Bypass (model HA-E).

BHC Universal and *BHC Interactive*

battery monitoring system for battery lifetime availability and optimization

The solution for

> Battery health check

Safeguarding the battery

The battery is a key element in UPS operation. As the load is the most critical factor, battery system availability and efficiency are essential to avoid shutdown.

To meet both requirements fully, SOCOMEC has developed BHC UNIVERSAL (Battery Health Check), a stand-alone battery monitoring system that provides permanent monitoring of the battery system and simplifies maintenance (either preventative or curative).

When connected to a SOCOMEC UPS, it becomes BHC INTERACTIVE and interacts proactively with the battery charger, to optimize battery lifetime and availability.

A reliable battery system

BHC UNIVERSAL continually provides accurate diagnosis of the battery's condition and generates warning messages.

- **Continual battery scanning and analysis:** one BHC UNIVERSAL box can monitor up to 7 batteries of 6 strings. It scans the current per string, block voltages and ambient temperatures every 10 seconds, collecting data continually and performing accurate analysis for a complete diagnostic forecast of batteries, battery strings and battery blocks.
- **Local data monitoring:** thanks to the graphic touch screen and general status bar, BHC UNIVERSAL allows a clear and ergonomic view of each battery diagnostic (i.e. condition, discharge, measurements, alerts, statistics, event log/data, battery information). Information is displayed as coloured tables and can be easily sorted to display pertinent information.
- **Remote data monitoring:** BHC UNIVERSAL can be connected to a LAN network allowing access to all functionalities and displaying information from a remote workstation.
- **Warning alerts:** depending on the battery condition analysis, BHC UNIVERSAL automatically generates different alert levels (i.e. block preventive alerts, battery string preventive alerts, battery alerts, etc.). Alerts are displayed on the touch screen and sent to the user via notification and programmable dry contacts, allowing the scheduling of preventive maintenance to optimize availability.

More efficient maintenance

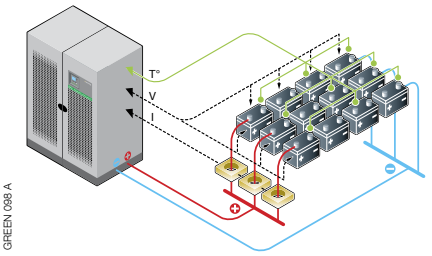
BHC UNIVERSAL helps maintenance engineers and technicians to plan and prepare targeted preventative and curative maintenance operations.

- **Locate weak blocks: BHC UNIVERSAL** analyses the battery operating condition/ status of each battery block or cell and highlights possible failures. Faulty blocks are shown in orange or red depending on criticality. Detection and location of weak blocks allow efficient preventive maintenance scheduling, reduces maintenance costs and avoid operation breakdown due to major internal battery failure.
- **Track battery life: BHC UNIVERSAL** logs data in an internal database that stores more than 2 years of measurements. Voltages, currents and temperatures are continuously logged in 10-minute steps, while battery and block diagnostics, alerts, statistics, event data and maintenance dates are stored every 10 seconds during discharge.
- **Maintenance planning: BHC UNIVERSAL** provides full database access (measurements, diagnostics, discharges, event data, etc.) to plan maintenance operations and to optimize battery availability.

  Database samples can be extracted and managed on a spreadsheet to create graphs or reports.

  For example, battery conditions between two dates can easily be compared, to prepare a list of blocks that need to be replaced, or to check string currents during discharge.

Continual battery scanning and analysis

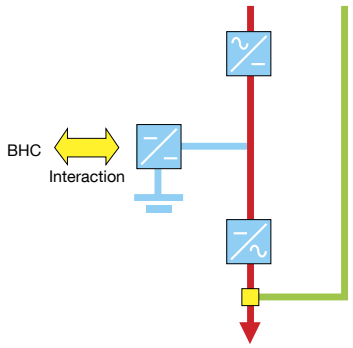


GREEN 098 A

BHC Interactive, to optimize battery lifetime

Including all the features of **BHC UNIVERSAL**, **BHC INTERACTIVE** operates directly with the UPS battery recharging system (EBS). It optimizes battery capacity and maximizes battery life and return on investment.

- **Increase charger precision:** the UPS charger is able to adapt the recharge parameters according to all the information collected by **BHC INTERACTIVE**. Such corrective actions aim to standardise cell behaviour to improve battery lifetime and availability.
- **Automatic battery testing:** when required, **BHC INTERACTIVE** and the UPS perform an automatic battery test. The UPS calibrates slow, safe discharge while **BHC INTERACTIVE** collects data and analyses cell blocks.
- **Proactive measures:** when a block starts to weaken, **BHC INTERACTIVE** and the UPS perform an automatic procedure to recover the block before it is totally unusable, and to enhance global battery capacity.



BHC 006 A

Warning alerts

BHC 007 A

BHC 006 A

Technical data

	BHC Universal	*BHC Interactive*
UPS COMPATIBILITY		
Green Power 2.0 100-120	yes	no
Green Power 2.0 160-400	yes	yes
Delphys MX 250-900	yes	yes
Other Socomec UPS	yes	no
Non-Socomec UPS	yes	no
MEASUREMENTS		
Voltage per string	per 12 V blocks	
Current per string	yes	
Battery ambient temperature	1 per string of 8 battery blocks	
BATTERY		
Battery type	VRLA	
Number of batteries per BHC box	up to 8	up to 7
Number of strings per battery	1 to 6	
Number of battery blocs per string	48 max.	
CORE CONTROLLER		
Detection and localisation of failures	per block (12 V)	
Interaction with the UPS	no	yes
Connectivity	connected to LAN	connected to UPS and to LAN
BHC BOX		
Dimensions W x D x H	400 x 250 x 600 mm	
Weight	17 kg	

Flywheel

from 80 to 900 kVA

Battery-free power supply for UPS systems

The solution for

- Data centres
- Service sectors
- Industry
- Telecommunications
- Medical applications

Complementary pages

- Green Power 2.0, *page 14*
- DELPHYS MP elite, *page 28*
- DELPHYS MX, *page 30*

Reliable power to keep critical functions operational

- FLYWHEEL, a dynamic energy storage solution removes restrictions linked to traditional battery use.
- The FLYWHEEL system provides a high level of availability for DELPHYS MP elite, DELPHYS MX and GREEN POWER 2.0 160-500 kVA Uninterruptible Power Supply units.

The FLYWHEEL advantages

Dynamic energy storage technology with even more technical advantages:

- outstanding reliability,
- reduced maintenance,
- simplified maintenance,
- long service life (> 20 years),
- max. power in min. volume,
- less floor space < 0.58 m^2,
- high efficiency 99.4 %,
- May be used when battery use is impossible because of critical operating conditions (i.e. high ambient temperatures).
- self-diagnostics,
- rapid recharging (typically 12 minutes),
- adjustable voltage and current parameters,
- silent operation,
- simple operation,
- cabinet on castors for ease of installation,
- no load restrictions on ground,
- installation requiring no structural work,
- cable access via bottom section,
- simplified connections,
- units coupled in parallel to increase power and back-up time,
- front access for maintenance,
- environmentally-friendly.

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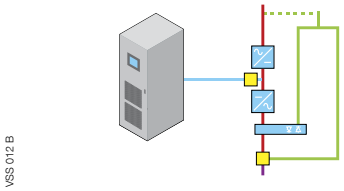
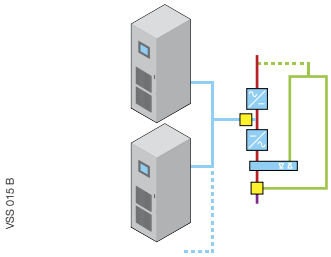
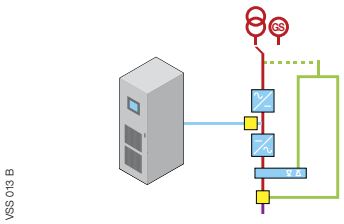
Various configurations

- Ideal solution for frequent short outages.

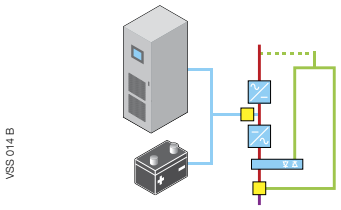

VSS 012 B


VSS 015 B

- Load supplied until the GenSet starts.


VSS 013 B

- To increase battery life in the event of frequent short outages.


VSS 014 B

FLYWHEEL: a battery-free solution

	Flywheel	Battery
Operating costs		
Energy consumption	few watts for minutes	few watts for hours
Maintenance	reduced	high
Ventilation - Air conditioning	not applicable	maintaining ambient temperature increases operating costs
Service life	> 20 years	periodical part replacements
Back-up time availability		
Reliability	high	need for constant monitoring
Availability status	continuous	actual back-up time difficult to ascertain
Life cycle (number of discharges)	no impact on service life	reduces service life
Ambient temperature	no impact up to 40 °C	service life time is reduced when temperature is > 20 °C
Recharge time (BUT recovery)	very low (100 % in 12 minutes)	very high (80 % in 8 hours)

Technical data

	Flywheel
ELECTRICAL SPECIFICATIONS	
Rated unit power	up to: 300 kW
Rated input voltage	400 to 630 Vdc
Rated output voltage	400 to 600 Vdc (adjustable)
Output voltage control	± 1%
Ripple factor	< 2%
ENVIRONMENT	
Operating ambient temperature	0 °C to + 40 °C
Cooling	Forced ventilation
Maximum altitude	up to 1500 m without derating
Acoustic level at 1 m (ISO 3746)	< 68 dBA
UPS CABINET	
Dimensions W x D x H	762 x 762 x 1872 mm
Weight	826 kg
Degree of protection	IP20
Colours	RAL 7012
STANDARDS	
Conformity	CEE 2004/108 EMC directive, CEE 98/037 Machine directive, EN 61000-2-4 EMC emission, EN 61000-2-2 EMC immunity, EN 60204-1 Machine safety, EN/ISO 12100-1 basic terminology, EN/ISO 12100-2 technical principles, OSHPD Seismic certified

Operating principle

- Uses a very high-speed, rotating flywheel.
- Combined flywheel, shaft and generator.
- The rotating assembly is held up by electromagnetic, with no contact with other parts.
- Less maintenance: the internal system vacuum eliminates friction.
- The flywheel-driven generator supplies energy to the UPS during a power failure, thus providing continuous power to the load.
- When mains power is restored, the flywheel takes only 7 minutes (configurable) to return to full speed.

Standard equipment

- Control panel with LCD display.
- Integrated MCCB protection.

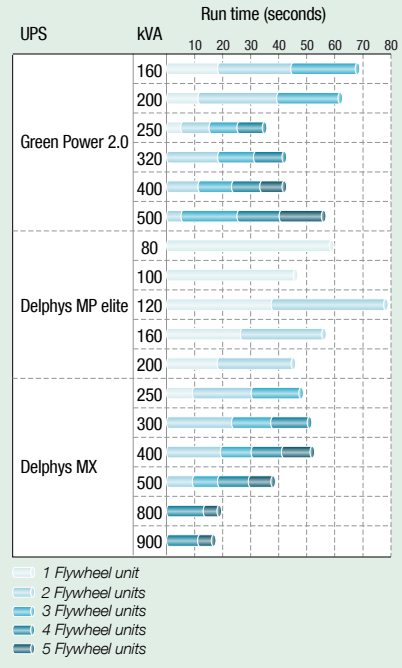
Additional equipment

- Air filter.

Communication options

- Remote management via Data Collection Module (DCM).
- Dry contact interface.

Autonomy versus UPS model



VSS 017 A GB

Meeting critical application requirements in industrial environments.

Fully secured power supply to critical industrial applications

DELPHYS MP elite
Three-phase UPS
80 to 200 kVA
p.28

DELPHYS MX
Three-phase UPS
250 to 900 kVA
p.30

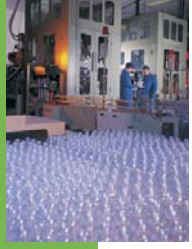
Reliable power supply in harsh operating environments

MASTERYS IP+
Single and three-phase UPS
10 to 80 kVA
p.32

SHARYS IP
Industrial DC Power Station
15 to 200 A
p.34

Secure power supply to emergency lighting and fire systems

CPSS Emergency
Emergency power supplies
3 to 200 kVA
p.38



DELPHYS MP elite

from 80 to 200 kVA

your protection up to 1200 kVA

The solution for

- Industry
- Telecommunications
- Processes

Advantages

Flywheel COMPATIBLE

High quality power supply

- The SVM digital modulation (Space Vector Modulation) fitted to the transformer integrated downstream of the inverter allows supply to your installations with:
  - precise voltage even when the load between phases is completely unbalanced,
  - stable output voltage during significant and quick variations in loads (± 2% in less than 5 ms).
- High output power quality to supply sensitive loads.
- A very high short-circuit capacity which facilitates the selection of protective devices for selectivity in the downstream distribution.
- An isolation transformer is 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.

High availability

- A fault-tolerant architecture with redundancy of basic functions, such as the ventilation system.
- A variety of architectures for parallel operations, to deal with redundancy, management and changes in power output.
- The ideal solution for grouping with generator sets without using an excessively large generator.

Battery availability at all times

- An innovative load algorithm which adapts to the environmental conditions and the condition of the battery to increase its life.
- A highly-developed monitoring system, capable of locating and correcting any problems interacting with the charging device.

Cost-effective equipment

- A “clean” IGBT rectifier. 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. It eliminates any disturbance on the upstream network (transformer, generator set and distribution).
- The cutting rectifier guarantees the supply of current with an exceptionally low rate of harmonic distortion.
- Reduced current consumption thanks to an input power factor of 0.99 without derating, and constant in every situation.

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).

Parallel systems

- Modular parallel up to 6 units, development without constraint.
- Distributed or centralized bypass, progressive development.
- Twin-channel architecture with Static Transfer Systems.

Standard electrical features

- Slots for 7 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).
- Parallel connection up to 6 units.

Electrical options

- BHC UNIVERSAL.
- EBS (Expert Battery System).
- FLYWHEEL compatible.
- ACS synchronisation system.
- Redundant electronic power supplies.

Mechanical options

- Reinforced IP protection degree.
- Ventilation filters.
- Redundant ventilation with failure detection.
- Top entry connection.

Communication options

- GTS (Graphic Touch Screen).
- ADC interface (configurable voltage-free contacts).
- RS232, RS422, RS485 serial port JBUS/MODBUS or PROFIBUS.
- MODBUS TCP interface (JBUS/MODBUS tunneling).
- BACnet/IP interface.
- NET VISION: professional WEB/SNMP interface for UPS monitoring and shutdown management of several operating systems.

Remote monitoring service

- Remote mobile and web-based surveillance service connected 24/7 to your local Socomec Service Centre.

Technical data

	DELPHYS MP elite				
Sn [kVA]	80	100	120	160	200
Pn [kW]	64	80	96	128	160
Input / output	3/3				
Parallel configuration (distributed or centralised bypass)	up to 6 units (distributed or centralised bypass)				
INPUT					
Rated voltage	380 V - 400 V - 415 V(1)				
Voltage tolerance	340 to 460 V				
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	< 2%				
Total output voltage distortion - non-linear load	< 4%				
Short-circuit current	Up to 3.5 In				
Overload	150 % for 1 minute, 125 % for 10 minutes				
Crest factor	3:1				
Power factor without derating	0.9 lagging to 0.9 leading				
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)				
EFFICIENCY					
Online mode	94%				
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)	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 62040-1-2, IEC 60950				
EMC	IEC 62040-2				
Performance	IEC 62040-3				
Product declaration	CE				

(1) Others on demand. - (2) As per power range.

DELPHYS MX

from 250 to 900 kVA

the Mega Power protection up to 5.4 MVA

Three-phase UPS

The solution for

- Industry
- Telecommunications
- Processes

Attestations

BUREAU VERITAS

DELPHYS MX series is attested by Bureau Veritas.

Advantages

Flywheel COMPATIBLE

Lower Total Cost of Ownership

- Minimized running costs, by:
  - very high efficiency of up to 93.5% (VFI mode, including the transformer),
  - 'Energy saver' automatically adapts the number of running units to the real load,
  - free-cooling compatible.
- Reduced footprint.
- Exceptional high power density (the most compact unit of its class): 500 kVA in less 1.6 meters (width) per unit including the bypass.
- PFC "clean input" rectifier (without filters) with a lasting high input power factor whatever the operating conditions.
- Intelligent built-in battery monitoring system interacts with "charging mode" to prolong battery lifetime.
- Leading power factor load compatible without derating.

High reliability and availability

- Internal fault-tolerant architecture with internal redundancies and fan failure localisation.
- Intelligent embedded battery monitoring with failed block localisation and preventative remote alarm.
- Able to withstand an output short-circuit and overload.
- Reliable and robust paralleling mode.
- Multisystem automatic cross synchronisation (ACS) for an optimized use with STS.
- Output isolation transformer to reduce the influence of N-GND (Neutral Line-to-Ground) voltage and load harmonic current on UPS inverter.

Flexible architecture

- Parallel system with modular units.
- Powerful central bypass for power extension or redundancy.
- Tier 3 and Tier 4 compatible.
- Designed for optimal use with STS in downstream network.

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.
- Reduced MTTR thanks to extractible power bridges or fans on "cassette".
- Front accessibility for all components.

Simplified communication

- Easy remote monitoring via web browser or via customer's supervision systems (web, intranet, extranet…).
- Very open connectivity (MODBUS/JBUS, JBUS tunnelling, LAN).

Parallel systems

- To fulfil the most demanding needs for power supply availability, flexibility and the installation to be upgraded.
- Modular parallel up to 6 units, development without constraint.
- Centralized bypass for progressive development.
- Twin channel 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).
- EBS (Expert Battery System).

Standard communication features

- Multilanguage graphic display.
- Slots for 7 communication cards.

Electrical options

- BHC INTERACTIVE.
- EBS (Expert Battery System).
- FLYWHEEL compatible.
- ACS synchronisation system.
- Redundant electronic power supplies.

Mechanical options

- Reinforced IP protection degree.
- Ventilation filters.
- Redundant ventilation with failure detection.
- Top entry connection.

Communication options

- GTS (Graphic Touch Screen).
- ADC interface (configurable voltage-free contacts).
- RS232, RS422, RS485 serial port JBUS/MODBUS or PROFIBUS.
- MODBUS TCP interface (JBUS/MODBUS tunneling).
- BACnet/IP interface.
- NET VISION: professional WEB/SNMP interface for UPS monitoring and shutdown management of several operating systems.
- Alarm notification via SMS.

Remote monitoring service

- Remote mobile and web-based surveillance service connected 24/7 to your local Socomec Service Centre.

Technical data

	DELPHYS MX					
Sn [kVA]	250	300	400	500	800	900
Pn [kW]	225	270	360	450	720	800
Input / output	3/3					
Parallel configuration	up to 6 units					
INPUT						
Rated voltage(1)	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	< 2%					
Total output voltage distortion - non-linear load (IEC 62043-3)	< 4%				< 3%	
Short-circuit current	Up to 4,4 In					
Overload	150% for 1 minute, 125% for 10 minutes					
Crest factor	3:1					
Power factor without derating	0.9 lagging 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)(2)	≤ 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 62040-1; EN 62040-1; IEC 60950-1					
EMC	IEC 62040-2; EN 62040-2					
Performance	IEC 62040-3					
Product declaration	CE					

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

MASTERYS IP+

from 10 to 80 kVA

high reliability in harsh industrial environments

The solution for

- Industrial processes
- Services
- Medical

Certifications

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

Advantages

Available IP52 models

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.

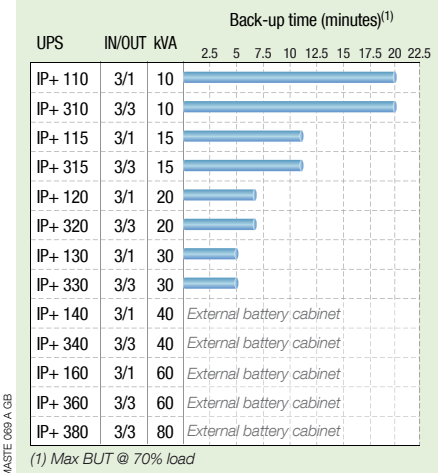
Energy storage option: ultracapacitor

Ultracapacitor could be a suitable battery replacement in special situations where a long back-up time is not required. This solution is targeted specifically to ride-through frequent voltage dips and short power outages, or simply bridge the startup of a generator, or where ambient temperatures could compromise battery lifetime. This would result in a highly reliable energy storage system that would require no maintenance.

Advantages

- Extremely long lifetime: 15 years with virtually unlimited cycling.
- High-reliability – No maintenance.
- Wide temperature range up to 45 °C.
- Ultra rapid charging.
- Battery-free, lead-free and environment-friendly.

UPS and batteries



(1) Max BUT @ 70% load

MASTE 099 A GB

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	IP31 and IP52 (according to IEC 60529)						
Colours	RAL 7012						
STANDARDS							
Safety	EN 62040-1 (TÜV SÜD certified), EN 60950-1						
EMC	EN 62040-2 (2nd Edition)						
Performance	EN 62040-3 [VFI-SS-111]						
Product declaration	CE						

(1) With transformer on input/bypass side. - (2) Conditions apply.
(3) At source THDV < 2 % and nominal 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.
- Dry contact interface.
- MODBUS/JBUS RTU.
- Embedded LAN interface (web pages, email).
- 2 slots for communication options.

Communication options

- Remote mimic panel.
- PROFIBUS.
- MODBUS TCP.
- NET VISION: professional WEB/SNMP interface for UPS monitoring and shutdown management of several operating systems.

Remote monitoring service

- Remote mobile and web-based surveillance service connected 24/7 to your local Socomec Service Centre.

SHARYS IP

from 15 to 200 A

industrial, rugged modular DC power

SHARYS IP Enclosure

SHARYS IP System

The solution for

- Process industry
- Switchgear tripping
- Signalling
- Alarms systems
- Automatisms (PLC, relays, etc)

Certifications

All SHARYS IP (SH-IP) series rectifiers are certified by TÜV SÜD with regard to product safety (EN 61204-7 and EN 60950-1).

The SHARYS IP series have been designed with the objective of reliable DC supply.

Ideally suited for industrial applications, SHARYS IP combines telecom features like modularity, hot swap module replacements, redundancy N+1 and scalability along with a robustly designed frame creating an innovative mix.

Flexible design and a wide range of customization possibilities complete the package and enable the use of SHARYS IP in a wide range of situations.

Upgradeability

- Expandable according to future requirements by adding additional rectifier modules.

Reliability and robustness

- Robust steel frame.
- Degree of protection IP30(1).
- PCB tropicalisation as standard.
- Microprocessor control.
- Intelligent rectifier cooling.
- Battery safe thanks to the end of discharge protection (option).
- Limited thermal stress and longer life of the components.

Total Costs of Ownership (TCO)

- High efficiency up to 93%: low energy consumption, low heat dissipation.
- Sinusoidal current absorption with power factor close to one: low conductor heat dissipation and no plant oversize.
- Easy to install.
- Reduced maintenance costs.
- Process continuity with hot-swap capabilities (replacement of modules without any power interruption).

Easy, user-friendly operation

- Front mimic panel with clear working status indication.
- Digital control and monitoring of the rectifier modules.
- Adapted to be used with different types of battery technologies.
- Wide choice of communication interfaces: Dry contact, Serial interface with JBUS / MODBUS protocol, SNMP, Internet (with NET VISION option).

(1) Contact us for power extension or customization needs

socomec Innovative Power Solutions

Technical data

	SHARYS IP - RECTIFIER MODULE					
Model	24 V 50 A	48 V 15 A	48 V 30 A	48 V 50 A	108 V 20 A	120 V 20 A
INPUT						
Rated voltage	230 V 1ph + N					
Voltage tolerance	±20% @ 100% I_n up to -50% @ 40% I_n					
Frequency	47.5 ÷ 63 Hz					
Power factor	≥ 0.99	≥ 0.98	≥ 0.99	≥ 0.99	≥ 0.99	≥ 0.99
Absorbed current distortion	complies with standard EN 61000-3-2					
Inrush current on insertion	limited by precharge circuit					
OUTPUT						
Rated voltage	24 V	48 V			108 V	120 V
Voltage regulation(1)	21-29 V	42-58 V			95-131 V	105-145 V
Static behaviour V_o	≤ 1%					
Rated current	50 A	15 A	30 A	50 A	20 A	20 A
Permanent current overload with constant power	105% of rated currrent					
Residual ripple (with I_o ≥ 10%)	AC < 50 mV, PP < 100 mV					
Current imbalance in parallel operation	≤ 0,05 I_o					
Dynamic behaviour on load variation (ΔI_o = 50% I_o in the range 10-100% I_o)	$\Delta V_o \leq 4\%$					
EFFICIENCY						
Typical	90%	90%	91%	92%	93%	93%
ISOLATION						
Input/output dielectric rigidity	3 kV (50 Hz for 60 s)					
ENVIRONMENT						
Operating ambient temperature	-5÷45 °C without derating, up to 55 °C with power derating					
Relative humidity	10% to 90%					
Cooling	Forced with intelligent fan speed control					
CONNECTIONS						
Connections	Plug in + locking screw					
RECTIFIER ENCLOSURE						
Degree of protection	IP20					
Colours	RAL 7012					
STANDARDS						
MTBF	≥ 35 years at 25 °C					
Standards	73/23/CEE, 89/336/CEE, EN 61204, EN 61204/A1					
EMC	EN 61204-3 EN 61000-6-4 EN 61000-6-2					
Resistance to vibrations	ASTM D999					
Resistance to falls	ASTM D5276					

Standard electrical features

- Polarity insulated.
- Internal battery fuse protection.
- Fitting for output DC distribution.
- Battery temperature sensor.
- PCB tropicalization.
- IP30 steel cabinet.
- Pallet truck friendly base.

Electrical options

- BLVD battery low voltage disconnector.
- Output distribution.
- Double string battery protection.
- Emergency Power Off (EPO).
- Power Share.
- Coupling kit.
- Earth leakage control.
- Input surge suppressors.
- Battery cabinet.
- Enhanced protection degree.

Standard communication features

- Dry contact interface.
- SHARYS PLUS, advanced digital controller(1).
- MODBUS/JBUS RTU(1).
- 2 slots for communication options(1).

Communication options

- NET VISION for DC systems: professional WEB/SNMP interface for DC system monitoring and shutdown management of several operating systems (1).

(1) System only

	SHARYS IP																			
Model	ENCLOSURE ED						ENCLOSURE EX						SYSTEM IS				SYSTEM IX			
INPUT																				
Rated voltage	230 V 1ph + N						400 V 2ph						230 V 1ph + N, 400 V 3ph + N				400 V 3ph			
Voltage tolerance	± 20% @ 100% P_n up to a -50% @ 40% P_n																			
Frequency	from 47.5 to 63 Hz																			
Input transformer	-						included in standard						-				included in standard			
OUTPUT																				
Rated voltage (V)	24	48			108	120	24	48			108	120	24	48	108	120	24	48	108	120
Rated current (A)	100	30	60	100	40		100	30	60	100	40		200	200	80	80	150	150	60	60
Maximum power (kW)	2.4	1.4	2.9	4.8	4.3	4.8	2.4	1.4	2.9	4.8	4.3	4.8	4.8	9.6	8.6	9.6	3.6	7.2	6.5	14.4
Max number of rectifier	2 modules						2 modules						4 modules				3 modules			
Voltage regulation(1) (V)	21-29	42-58			95-131	105-145	21-29	42-58			95-131	105-145	21-29	42-58	95-131	105-145	21-29	42-58	95-131	105-145
Voltage ripple	50mVrms 100mVpp																			
RECTIFIER CABINET																				
Dimensions W x D x H(2)	600 x 535 x (894 to 1254) mm												600 x 535 x 1900 mm							
Weight(3)	60 to 75 kg												245 kg				305 kg			
Degree of protection	IP30																			
Colours	RAL 7012																			

(1) Output voltage variation depends on the recharging voltage and on the end of the discharging voltage settings (typically 1.13 Vn with mains present and battery charged, 0.90 Vn when batteries are completely discharged). - (2) Height depends on accessories and backup time. - (3) Without batteries.

SHARYS IP

from 15 to 200 A

Rectifiers

Rectifier module

SHARYS RECTIFIER modules use double conversion switching technology. The combination of SMD technology, of digital microprocessor control and of IGBT components result in a highly reliable and efficient rectifier.

- Plug-in “hot-swap”.
- Microprocessor control with CAN-BUS protocol communication
- Parallel connection with active load sharing and selective disconnection of a faulty module.
- PCB conformal coating (tropicalization) as standard.

SHARYS 030 A

	24 V DC	48 V DC	108 V DC	120 V DC
15 A	-	SH-IP-048015	-	-
20 A	-	-	SH-IP-108020	SH-IP-120020
30 A	-	SH-IP-048030	-	-
50 A	SH-IP-024050	SH-IP-048050	-	-

Enclosure

Flexible modular design DC power supply system.

Can include 2 rectifier modules max, suitable for full power application or redundant solution.

Useful in all most common low-medium power applications such as switchgear tripping equipment.

ED - Max 2 rectifier modules, redundancy 1+1 or full power

	24 V DC	48 V DC	108 V DC	120 V DC
30 A	-	ED048I030	-	-
40 A	-	-	ED108I040	ED120I040
60 A	-	ED048I060	-	-
100 A	ED024I100	ED048I100	-	-

EX - Max 2 rectifier modules, redundancy 1+1 or full power, integrated input transformer

	24 V DC	48 V DC	108 V DC	120 V DC
30 A	-	EX048I030	-	-
40 A	-	-	EX108I040	EX120I040
60 A	-	EX048I060	-	-
100 A	EX024I100	EX048I100	-	-

System

Complete DC power supply system

This can include up to 4 rectifier modules(1), suitable for N+1 redundant solution.

Useful in medium power applications such as automatic control equipment (PLC, relays, etc.) and process supply.

Thanks to the advanced controller SHARYS PLUS, it is indicated when extended communication possibilities and full setting flexibility are required.

(1) Contact us for power extension or customization

IS - Max 4 rectifier modules, redundancy N+1

	24 V DC	48 V DC	108 V DC	120 V DC
80 A	-	-	IS108I080	IS120I080
200 A	IS024I200	IS048I200	-	-

IX - Max 3 rectifier modules, redundancy N+1, integrated input transformer

	24 V DC	48 V DC	108 V DC	120 V DC
60 A	-	-	IX108I060	IX120I060
150 A	IX024I150	IX048I150	-	-

SHARYS PLUS control module(1)

The SHARYS PLUS advanced control and monitoring module is included as standard on all SHARYS IP SYSTEMS. A 32-digit LCD display provides easy and fast access to all information parameter settings.

- Microprocessor control with CAN-BUS protocol communication and RS232/485 port for external communication.
- Additional easy frontal LEDs indications.
- Plug-in «hot swap» solution, easy to replace.

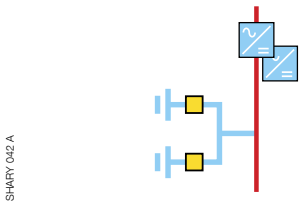
(1) System only.

Typical configurations

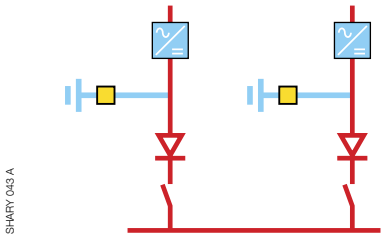
Single


SHARY 041 A

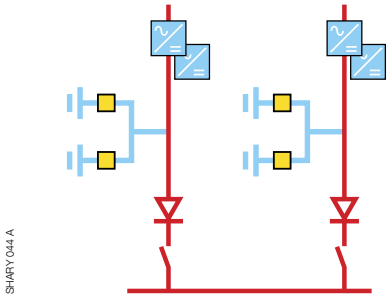
Redundant N+1


SHARY 042 A

Full redundant 1+1


SHARY 043 A

Extended full redundant


SHARY 044 A

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Full battery compatibility

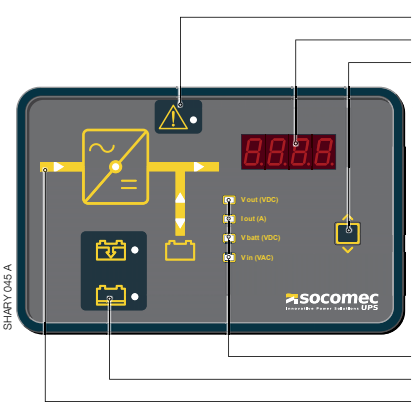
SHARYS IP design is compatible with different battery technologies(1) such as:

- Valve Regulated Lead Acid (VRLA),
- Open Vented Lead Acid,
- Nichel Cadmium.

(1) Please check the compatibility with load supply voltages.

APPLI 146 A

Mimic panel



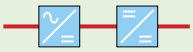
SHARY 045 A

1. Fault alarm
2. Display
3. Status LED
4. Selection button
5. Battery discharge status
6. Power flow indication

Product highlights

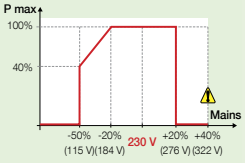
APPLI 496 A

Double conversion IGBT based topology



Unitary input power factor (PF >0.99) and low input THDI

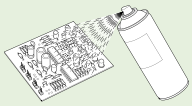
Wide Input Voltage and frequency range. Protection against permanent input overvoltages (up to +40%) and against surges



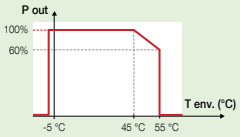
Built-in input output galvanic isolation

Digital microprocessor control and regulation SMD technology

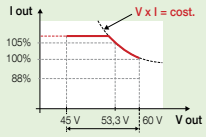
PCB tropicalization



Wide temperature and environment range up to +55 °C ambient temperature



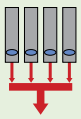
Constant output power



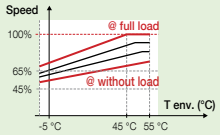
Can bus communication between modules

Hot swappable wireless modules with selective disconnection

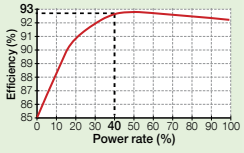
Active load sharing among modules



Speed controlled forced air cooling (temperature-load) Automatic self-test fan failure detection



Optimized efficiency design point



CPSS *Emergency*

from 3 to 200 kVA

a centralized power supply for your emergency systems

MODULYS
3-6 kVA

MASTERYS
10-80 kVA

DELPHYS
80-200 kVA

The solution for

- Airports
- Railways and bus stations
- Schools and universities
- Hospitals
- Shopping centers
- Cinemas and theatres
- Museums

Compliance with standards

- **EM** EN 50171
- **EL** EN 50171 NF C 71815
- **EF** EN 54-4 NF S 61940

CPSS Emergency EM from 3 to 200 kVA

Ensure the power supply to emergency lighting, safety signalling lighting and anti-panic systems.

Designed and manufactured in compliance with standard **EN 50171**:

- metal enclosure compliant with EN 60598-1,
- batteries with 10-year life expectancy,
- minimum backup time: 60 minutes at the end of battery life,
- quick battery charging time: up to 80 % capacity within 12 hours,
- protection against battery polarity inversion,
- deep discharge battery protection,
- specific remote contacts and notifications.

CPSS Emergency EL from 3 to 200 kVA

Ensure the power supply to emergency lighting, safety signalling lighting and anti-panic systems.

Designed and manufactured in compliance with standards **EN 50171** (refer to CPSS Emegency EM specifications) and **NF C 71815**:

- connection to downstream IT systems,
- galvanic isolation transformer,
- permanent isolation controller.

CPSS Emergency EF from 10 to 200 kVA

Supply of smoke control systems, emergency detection and warning units, smoke extraction equipments, carbon monoxide detection system, automatic fire sprinkler systems and fire safety systems.

Designed and manufactured in compliance with standards **EN 54-4** and **NF S 61940**:

- IP 30 metal enclosure compliant with EN 60598-1,
- connection to downstream IT systems,
- galvanic isolation transformer,
- permanent isolation controller,
- batteries with 10-year life expectancy,
- minimum backup time: 90 minutes after the commissioning, 60 minutes after 4 years,
- quick battery charging time: up to 80 % capacity within 12 hours,
- protection against battery polarity inversion,
- deep discharge battery protection,
- specific remote contacts and notifications.

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Innovative Power Solutions

Technical data

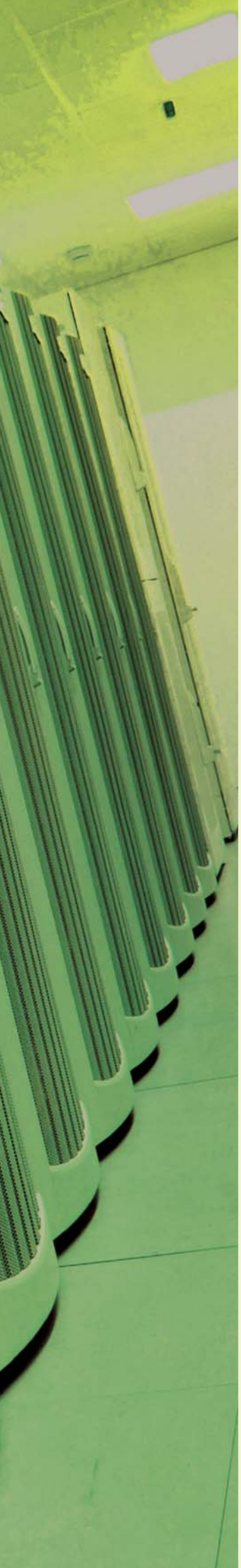
	MODULYS			*MASTERYS*						
Sn [kVA]	3	4.5	6	10	15	20	30	40	60	80
Pn [kW]	2.1	3.2	4.2	9	13.5	18	27	36	48	64
Pn according to EN 50171 [kW]	1.8	2.6	3.5	7.5	11.3	15	22.5	30	40	53.5
Input / output 1/1	•	•	•	-	-	-	-	-	-	-
Input / output 3/1	-	-	-	•	•	•	-	-	-	-
Input / output 3/3	-	-	-	•	•	•	•	•	•	•
INPUT										
Rated voltage	230 V (1ph + N)			400 V (3ph + N)						
Voltage tolerance	± 20%									
Rated frequency	50-60 Hz									
Frequency tolerance	± 10%									
Power factor / THDI	> 0.98 / < 5%			> 0.99 / < 6%						
OUTPUT										
Rated voltage	230 V (1ph + N)			230 V (1ph + N) - 400 V (3ph + N)						
Voltage tolerance	± 3%			± 1%						
Rated frequency	50-60 Hz									
Frequency tolerance	± 0.1%									
Overload	110% for 5 minutes, 130% for 5 sec			125% for 10 minutes, 150% for 1 minute						
Crest factor	3:1									
UPS CABINET										
Dimensions W x D x H	444 x 795 x 1000 mm			444 x 795 x 1400 mm						
Weight	240 kg	330 kg	340 kg	190 kg	195 kg	240 kg	315 kg	415 kg	200 kg	210 kg
Degree of protection (EM-EL models)	IP20									
Degree of protection (EF models)	-			IP30					-	
Acoustic level at 1 m (ISO 3746)	< 52 dBA			< 62 dBA						
STANDARDS (EM-EL MODELS)										
Central Power Supply System (EM-EL models)	EN 50171, NF C 71815									
Central Power Supply System (EF models)	-			EN 54-4, NF S 61940					-	
Safety	EN 62040-1, EN 60950-1									
EMC	EN 62040-2									
Performance	EN 62040-3 (VFI-SS-111)									
Product declaration	CE									

Technical data

	DELPHYS					
Sn [kVA]	80	100	120	160	200	> 200 kVA
Pn [kW]	64	80	96	128	160	
Pn according to EN 50171 [kW]	53.5	67	80	107	134	
Input / output 3/3	•	•	•	•	•	
INPUT						
Rated voltage	380/400/415 V(1)					
Voltage tolerance	± 15%					
Rated frequency	50-60 Hz					
Frequency tolerance	± 5 Hz					
Power factor / THDI	0.99 / < 3% (EM), 0.77/ > 32% (EL/EF)					
OUTPUT						
Rated voltage	380/400/415 V(1)					
Voltage tolerance	± 1%					
Rated frequency	50-60 Hz					
Frequency tolerance	± 0.1%					
Overload	125% for 10 minutes, 150% for 1 minute					
Crest factor	3:1					
UPS CABINET						
Dimensions W x D x H	1000 x 850 x 1930 mm (EM), 800 x 850 x 1930 mm (EL/EF)					
Weight	690 kg (EL/EF)	860 kg		1020 kg (EM), 940 kg (EL/EF)		
Degree of protection	IP20 (EL/EM), IP30 (EF)					
Acoustic level at 1 m (ISO 3746)	< 67 dBA					
STANDARDS(2)						
Central Power Supply System (EL models)	EN 50171, NF C 71815					
Central Power Supply System (EF models)	EN 54-4, NF S 61940					
Safety	EN 62040-1, EN 60950-1					
EMC	EN 62040-2					
Performance	EN 62040-3 (VFI-SS-111)					
Product declaration	CE					

Contact us

(1) Others on demand. (2) Please check the product availability for your country.



Guaranteeing the power supply quality to critical loads.

High quality power supply
for data servers

MASTERYS BC
Three-phase UPS
60 to 120 kVA
p.42

High quality power supply
for data centers

DELPHYS BC
Three-phase UPS
160 to 200 kVA
p.42

Business Critical

MASTERYS BC 60-120 kVA - DELPHYS BC 160-200 kVA

Provide quality power to data servers and data centres

The solution for

MASTERYS BC
> Data servers

DELPHYS BC
> Data centres

Certifications

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

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.
- Multilanguage display.

Tailored to your environment

- Saves space with a reduced footprint and optimized cabinet size.
- Low noise level.
- Flexible battery solutions
- Compact, lightweight and easy to install.
- Extended battery life and performance with exclusive EBS battery charging management for increased battery life.

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Standard electrical features

- Dual input mains
- Internal manual 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 (DELPHYS BC)
- Galvanic isolation transformer.
- Parallel kit.
- ACS synchronization system.

Standard communication features

- MODBUS/JBUS RTU (MASTERYS BC).
- 2 slots for communication options.

Communication options

- Dry-contact interface.
- Remote mimic panel (MASTERYS BC).
- MODBUS TCP.
- MODBUS/JBUS RTU (DELPHYS BC).
- PROFIBUS.
- NET VISION: professional WEB/SNMP interface for UPS monitoring and shutdown management of several operating systems.

Remote monitoring service

- Remote mobile and web-based surveillance service connected 24/7 to your local Socomec Service Centre.

Technical data

	MASTERYS BC				*DELPHYS BC*	
Sn [kVA]	60	80	100	120	160	200
Pn [kW]	54	72	90	108	144	180
Parallel configuration	1+1[1]					
INPUT						
Rated voltage	400 V 3ph + N				400 V 3ph	
Voltage tolerance	240 V to 480 V[2]					
Rated frequency	50/60 Hz ± 10%					
Power factor / THDI	0.99 / < 3%					
OUTPUT						
Rated voltage	400 V (can be configured 380/415 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	125% for 10 minutes, 150% for 1 minute					
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 94%					
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)	< 62 dBA		< 65 dBA		< 68 dBA	
UPS CABINET						
Dimensions W x D x H	444 x 795 x 1400 mm		700 x 800 x 1930 mm			
Weight	180 kg[3]	200 kg[3]	410 kg	430 kg	480 kg	500 kg
Degree of protection	IP20					
Colours	RAL 7012		RAL 7012, silver grey frontal door			
STANDARDS						
Safety	EN 62040-1 (TÜV SÜD certified), EN 60950-1				EN 62040-1, EN 60950-1	
EMC	EN 62040-2					
Performance	EN 62040-3 (VFI-SS-111)					
Product declaration	CE					

(1) The standard model is prepared for a 1+1 redundant system. Upon request, it is possible to have connected up to 6 modules in a parallel system.
(2) Conditions apply. (3) Without batteries.


socomec
UPS
Green Power 2.0

Complementary solutions

Battery cabinets

MASTERYS Battery Cabinets
Battery system
10 to 120 kVA
p.46

Eliminate harmonic current in the distribution network

ATRYS
Harmonic equilizers
15 to 240 A
p.48

Site-specific solutions

Containerized solutions
Tailored infrastructure for critical applications
p.50

MASTERYS Battery Cabinets

from 10 to 120 kVA

the value of your back-up time

Total protection during downtime

- Designed to satisfy and respect safety protection standards (EN 50272-2 and EN 62040-1).
- The right size of protection device tailored to your power rate.
- Robust cabinet also suitable for industrial applications with the IP32 protection degree.
- EBS management.
- Normal and long-life batteries.
- Fitting with different battery brands.
- Battery Health Check monitoring.

Easy installation and maintenance

- Transport and positioning with fork-lift.
- Frontal protection switch/breaker.
- Frontal input output connections (type A cabinet).
- Easy battery replacement.
- Fitting for rigid cables and cable-glands.
- Suitable for tripping coil contact (type B cabinet).
- Height aligned with UPS.

Complementary pages

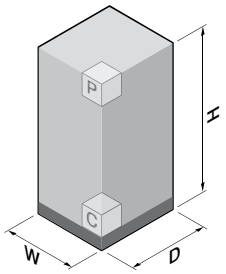
> MASTERYS BC, *page 42*
> GREEN POWER 2.0 10-120 kVA, *page 12*
> MASTERYS IP+, *page 32*
> CPSS Emergency, *page 38*
> BHC Universal and BHC Interactive, *page 22*

Coordination of protection for your safety

Different protection devices tailored to your UPS range:

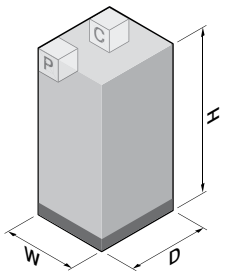
- Switch/Breaker with fuse (type A cabinet)
- Magnetothermal MCCB (type B cabinet)

The size is calculated on the different discharge currents ensuring the proper tripping time.



MASTE 058 A GB

Type A



MASTE 059 A GB

Type B

Key:
C: connections
P: protections

Technical data

Cabinet	type A	type B
Dimensions W x D x H	600 x 835 x 1400 mm	800 x 880 x 1930 mm
Standard degree of protection	IP20 (according to IEC 60529)	
Optional degree of protection	IP32	-
Operating temperature	0÷40 °C (15÷ +25 °C recommended for long battery life)	
Ambient storage and transport temperature	-5 °C ÷ +40 °C max (reccomended: 25 °C)	
Relative humidity (condensation-free)	up to 95%	
Battery recharging	Tambient ≤ 25 °C: every 6 months 25 °C ≤ Tambient ≤ 30 °C: every 4 months 30 °C ≤ Tambient ≤ 35 °C: every 3 months 35 °C ≤ Tambient ≤ 40 °C: every 2 months Tambient > 40 °C: not recommended	

Safety

Conforms to standards	EN 50272-2, EN 62040-1
Product certification	CE

Please contact SOCOMEC for specific battery brands and custom solutions.

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MASTERYS BC

	BC 60		BC 80		BC 100		BC 120	
N° of cabinet	1	2	1	2	1	2	1	2
Cabinet type	A	A/B	A	A	B		B	
Typical BUT (min)(1)	19	60/143	12	42	34	88	28	66
Weight (kg)	788	1690/3480	788	1690	1792	3480	1792	3480

(1) Max BUT @ 70% of the load

Green Power 2.0

	GP 10		GP 15		GP 20		GP 30		GP 40		GP 60		GP 80		GP 100		GP 120	
N° of cabinet	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Cabinet type	A	A/B	A	A/B	A	A/B	A	A/B	A	A/B	A	A/B	A	A/B	B		B	
Typical BUT (min)(1)	210	533/1123	125	361/770	96	262/516	55	160/340	37	113/251	21	71/152	13	46/109	34	88	28	66
Weight (kg)	788	1753/3480	788	1753/3480	788	1753/3480	788	1753/3480	788	1753/3480	847	1753/3480	847	1753/3480	1792	3480	1792	3480

(1) Max BUT @ 70% of the load

MASTERYS IP+

	IP+ 10		IP+ 15		IP+ 20		IP+ 30		IP+ 40		IP+ 60		IP+ 80	
N° of cabinet	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Cabinet type	A	A/B	A	A/B	A	A/B	A	A/B	A	A/B	A	A/B	A	A/B
Typical BUT (min)(1)	207	526/1115	121	351/747	94	257/502	54	157/332	36	112/246	18	59/141	12	42/104
Weight (kg)	788	1753/3480	788	1753/3480	788	1753/3480	788	1753/3480	788	1753/3480	788	1690/3480	788	1690/3480

(1) Max BUT @ 70% of the load

MASTERYS EM

	EM 10		EM 15		EM 20		EM 30		EM 40		EM 60		EM 80	
N° of cabinet	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Cabinet type	A	A/B	A	A/B	A	A/B	A	A/B	A	A/B	A	A/B	A	A/B
Typical BUT (min)(1)	211	536/1127	125	361/770	96	262/516	55	160/340	36	112/246	19	60/143	12	42/105
Weight (kg)	788	1753/3480	788	1753/3480	788	1753/3480	788	1753/3480	788	1753/3480	788	1690/3480	788	1690/3600

(1) Max BUT @ 70% of the load

MASTERYS EL

	EL 10		EL 15		EL 20		EL30		EL 40	
N° of cabinet	1	2	1	2	1	2	1	2	1	2
Cabinet type	A	A/B	A	A/B	A	A/B	A	A/B	A	A/B
Typical BUT (min)(1)	207	526/1115	121	351/747	94	258/505	54	157/332	35	110/242
Weight (kg)	788	1753/3480	788	1753/3480	788	1753/3480	788	1753/3480	788	1753/3480

(1) Max BUT @ 70% of the load

ATRYS

from 15 to 240 A

eliminating harmonic current in your distribution network

The solution for

- Service industries
- Telecommunications
- Businesses

Harmonics: an increasingly widespread phenomenon

- In the field of service industries, electrical pollution problems related to harmonics are increasing significantly.

  The problem is caused by equipment such as: computers, printers, photocopiers, electronic cash registers, fluorescent lighting, discharge lamps, etc.
- These applications draw non sinusoidal current.
- These harmonics, of which the most significant is harmonic 3 (150 Hz for a 50 Hz network) are present in all the supply networks right up to the mains source.
- These homopolar harmonics are added on in the neutral conductor. Therefore it is very common to find installations where the current in the neutral feed is higher than the phase current by 50 to 70%.

Eliminating malfunctions

- ATRYS improves the quality of the voltage wave by reducing the rate of distortion. This enables the equipment to operate in better conditions and consequently increases its life expectancy.

A range of harmonic equalizers

- Eliminates the principal harmonics generated by PCs, servers, printers and discharge lamps, etc.
- Neutralises harmonics as close as possible to the polluting equipment.
- Eliminates the problems associated with the presence of harmonics in the neutral feed: overload, premature ageing, derating of the installations, spurious tripping of protection devices.
- Increases the lifetime of installations.
- Improves the power factor of the installation.
- Reduces the current consumed.
- Reduces the electricity bill.
- Deals with the requirements of all types of electrical network, including those supplied by generating sets.
- Compatible with all neutral systems.
- Easy to install and operate.

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Installation and operation

DIRIS 718 B

- The electrical connection (three-phase + neutral) is achieved by a simple connection, between the upstream line of the distribution panel to be cleaned and the equalizer.
- ATRYS does not require calibration or adjustment.

The addition of a SOCOMEC DIRIS measuring device will provide information on:

- current and voltage harmonics,
- the rate of distortion,
- the current values (phase and neutral),
- the voltages,
- the frequency.

Combining with static transfer switch

Applications located downstream from Load Transfer Modules often generate harmonic distortion.

The integration of ATRYS equalizer into the Load Transfer Modules allows the uninterruptible power supply (supply from two sources) and harmonic distortion suppression functions to be combined.

Technical data

	ATRYS					
Rating	15 A	27 A	54 A	82 A	180 A	240 A
ELECTRICAL SPECIFICATIONS						
Application power	15 kVA	30 kVA	60 kVA	90 kVA	200 kVA	280 kVA
Phase current	23 A	45 A	87 A	130 A	300 A	400 A
Maxi neutral current	45 A	81 A	162 A	245 A	540 A	720 A
Elimination of harmonics (phases H3, H9, H15)	up to 80%					
Elimination of neutral harmonics	up to 85%					
Rated voltage	400 V 3 ph+N					
Voltage tolerance	± 15%					
Rated frequency	50 Hz					
Frequency tolerance	± 6%					
ENVIRONMENT						
Operating ambient temperature	up to 40 °C					
Relative humidity	0-90% without condensation					
ATRYS						
Dimensions W x D x H	550 x 350 x 750 mm			600 x 400 x 1400 mm	800 x 600 x 1930 mm(1)	
Weight	100 kg	110 kg	210 kg	320 kg	690 kg(1)	740 kg(1)
Degree of protection	IP21 (IP32 optional)					
STANDARDS						
Conformity	60439-1					

(1) With CADRYS cabinet design 810 mm x 640 mm, 750 kg.

Containerized solutions

tailored infrastructure for critical applications

CONT 003 A

The solution for

- Specific electrical constraints
- Harsh environments
- EMC constraints
- Restricted access areas

A fully tailored solution

The power solution in container is a complete environment infrastructure installed between the main substation and the plant to be supplied.

It incorporates:

- UPS system,
- storage (batteries and/or flywheel),
- input and output distribution panel,
- cooling system,
- fire protection,
- battery monitoring,
- access control,
- other equipment according to customer's project,
- Configured according to the requirements of national electricity grid.

Specialist support for your projects

SOCOMEC pre-sales support team will help you to define a solution tailored to the installation site, optimising its efficiency, its reliability and your return on investment.
Our engineering team will design, develop and set up the project in collaboration with the customer.

Our technical service will be present during commissioning for a site audit, activation, system configuration and customer training.

The quality of the materials

SOCOMEC has selected partners providing quality materials and manufacturing based in Europe. The materials are designed to withstand critical operating and environmental conditions, and to ensure continuity of operation during the installation's service life.

The electrical sizing of components and thermal adaptation to the premises allow components to operate under favourable conditions and prolonged service life.

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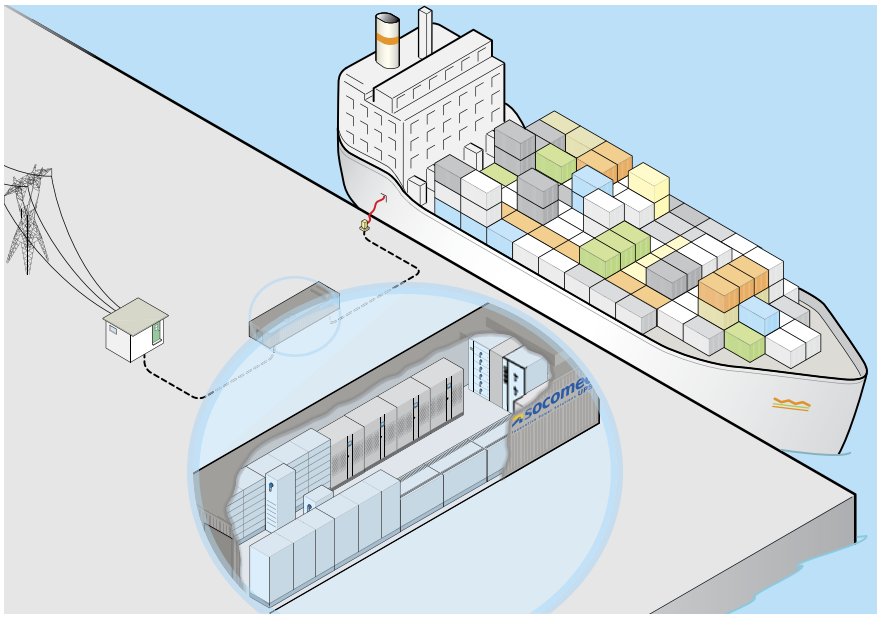
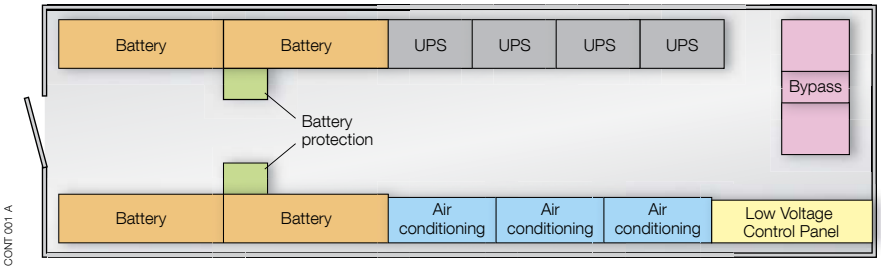
Example of application: shore-to-ship power

- Portable power system to provide electricity to vessels, airplanes, etc. from the grid.
- Factory-assembled or on-site assembling.
- Rapid deployment.
- Fully tested turnkey solution.
- High-efficiency and highly resilient architecture.
- Available in different sizes according to the constraints of the project.



Example of container internal arrangement



An environment-friendly solution

Being active in helping to preserve natural resources, SOCOMEC is fully committed to minimizing the impact on the environment.
By taking the place of the on-board auxiliary engines (e.g. ships in the loading deck), the shore-to-ship power solution in container reduces the polluting emissions produced by vessel diesel engines (CO_2, NO_X, SO_X) and meets EU directives related to the control of emissions while the ships are docked.


socomec
VERTELIS Portal
Socomec
Benfeld

Communication and connectivity

Communication and connectivity

the ideal solution for integrated system management and data integrity

SITE 486 A

The solution for

- Data centre
- Emergency applications
- Offices
- Service industries
- Industry
- Telecommunications
- Medical

A complete range of connectivity and communication

Thanks to the UPS and STS systems, the sensitive load is protected from electrical problems caused by the insufficient reliability of the mains power supply. However, this essential protection often does not guarantee the maximum availability of electrical energy for the load.

SOCOMEC solutions for connectivity and software for monitoring and managing power supplies can inform the user immediately about system status, and implement automatic procedures to control the electrical system and protect the IT load data. The different solutions can be used for an individual PC, servers, data centres, or solutions with a field bus that are typical of process systems.

The communication capacity of UPS systems is typically used to meet the following requirements:

- clear, instant information: critical events for the device and system are communicated clearly and immediately by email (to the user), pop-ups or traps (to the local user and remote administrator).
- guaranteed data integrity: depending on the event it is possible to configure automatic user-defined actions (scripts), and manage automatic and ordered shutdown procedures, for computers, servers or virtual/physical server infrastructure.
- installation monitoring: electrical measurements and system or installation events are logged continually and made available for the user or SOCOMEC service to analyse system/load status. As a result it is possible to assess whether or not the optimum architecture has been chosen, or if intervention is required to increase system reliability.
- device control: for some devices remote control is possible, such as manual management of output sockets or switching of the UPS onto the mains, inverter or stand-by.

IP network solutions

If the UPS powers more than one computer it is advisable for all of the computers to receive alerts and, under critical conditions, for all devices powered by the UPS to be switched off in an orderly, controlled manner, to ensure data integrity.

Remote shutdown is guaranteed by a program known as the “shutdown agent”, which should be installed on all computers that require automatic shutdown. This solution requires a computer network to transmit all messages the UPS exchanges with remote computers.

The UPS can be connected to the IP network via a direct UPS connection to the IP network (if equipped with an IP connection) or equipping the UPS with a network board (if not equipped with an IP connection).

Connection of SOCOMEC devices to the LAN

Product	Embedded LAN	Optional advanced LAN
Modulys Green Power	yes(3)	embedded(3)
Masterys BC	no	Net Vision(3)
Delphys BC	no	Net Vision(3)
Green Power 2.0 10-120	yes(1)(2)	Net Vision(3)
Masterys IP+	yes(1)(2)	Net Vision(3)
Masterys EMergency	yes(1)(2)	Net Vision(3)
Green Power 2.0 160-400	yes(3)	embedded(3)
DELPHYS MP - Delphys MX	no	Net Vision(3)
Statys	yes(2)	embedded(2)
Sharys IP	no	Net Vision(3)

(1) SNMP not supported - (2) Computer shutdown not supported - (3) JNC shutdown client supported via LAN

IP network solutions (direct UPS connection to the LAN)

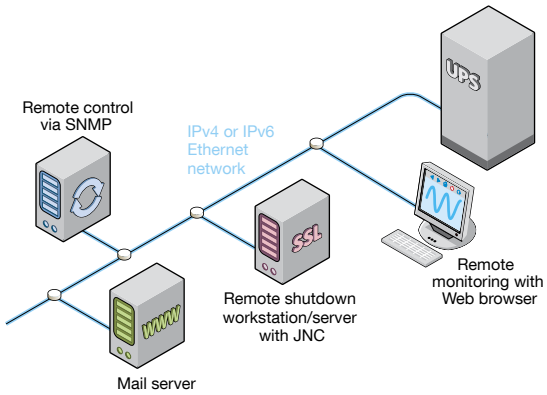
NET VISION is the most common LAN interface for use with SOCOMEC products. It is a communication and management interface designed for business networks. The UPS behaves exactly like a networked peripheral, it can be managed remotely and allows the shutdown of server-based workstations.

NET VISION allows a direct interface between the UPS and LAN network avoiding dependence on the server. It is therefore compatible with all networks and multi-OS since it interacts via the Web browser.

The main specifications and functions are as follows:

- 10 / 100 Mb Ethernet connection (RJ 45),
- UPS monitoring screen via a Web browser,
- remote shutdown of workstations (compatible with JNC Shutdown Client),
- notification of faults via email to up to 8 addresses,
- UPS management via SNMP protocol,
- monitoring of the operating environment (optional EMD temperature and humidity sensor). Configurable alarm trigger, notification via email,

MOD 067 A



LOGIC 017 B GB

IP network solutions (shutdown via network)

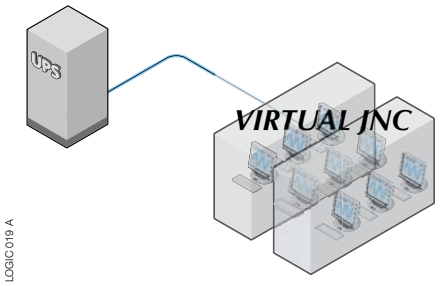
Controlled network server shutdown is managed by the “shutdown client” which, installed on the remote server, enables its shutdown. In addition to the native clients of the NET VISION network adapter (which has its own shutdown clients), it is also possible to use the universal shutdown client JNC.
JNC (JAVA & .NET Shutdown client) is a small software programme that is installed in the remote computers. It shows data and executes commands sent by some LAN interfaces via the LAN. It has been developed by SOCOMEC on a JRE and .NET platform.

Operating system	O.S. version
Microsoft™	Windows® 2000 SP4 or later
	Windows® Xp Sp2 or later
	Windows® 2003 / 2003 R2 Server (32 / 64 bit)
	Windows® 2008 Server (32 / 64 bit)
	Windows® 2012 Server
	Windows® Vista (32 / 64 bit)
	Windows® 7 (32 / 64 bit)
	Windows® 8
IBM	AIX 4.3.3 or later (RS6000-PowerPC)
	OS 400 V4R5 or later
SUN	SOLARIS 8 or later (SPARC / x86)
HP	HP-UX 10.20 or later
NOVELL	NETWARE 5.x or later
Linux	All versions distributed (32 bit)
Apple	Mac OS X® 10.6 or later

The virtual system solutions

Server virtualisation, which makes it possible to exploit the advantages of IT infrastructure consolidation, is becoming increasingly widespread. As a result, the correct management of virtual machines in the event of a fault with the electric power supply system is an increasingly common requirement. VIRTUAL JNC is the SOCOMEC solution especially for virtual systems. It fully supports virtual machine shutdown, by acting on the physical server to correctly shutdown all virtual machines running on that server.

On VMware systems it is possible to manage virtual machine shutdown order (defining shutdown type, sequential or staggered) and systems with more than one ESX host (also in a cluster configuration), in a simple, efficient manner. VIRTUAL JNC is compatible with all SOCOMEC UPS systems that support shutdown management via LAN. VIRTUAL JNC is compatible with VMware vCenter™.



LOGIC 019 A

Operating system	O.S. version	Libraries required / Version	Virtual JNC
VMware	ESXi 3.5 / ESXi (V-Sphere) 4/5	N / D	•
Microsoft™	Virtual Server 2005 RL	.NET Framework 2.0 or later	•
		.NET J# Framework 2.0	•

Centralized monitoring solution

Central UPS supervision

On installations that use various UPS systems, the network administrator (or system administrator) can request a simultaneous view of all UPS systems from a single console. In general, devices are monitored with BMS (Building Management Systems) programs which use JBUS/MODBUS protocol to communicate with devices to be monitored, or with NMS (Network Management Systems) programs, which use SNMP protocol for data exchange with devices to be monitored.

In the industrial environment it is also common using the PROFIBUS protocol to communicate with centralized control and automation systems. These protocols are supported by SOCOMEC products and can therefore be interfaced with monitoring programs.

	JBUS or MODBUS protocol Centralized Technical Management	SNMP (1)	PROFIBUS DP (1)	MODBUS TCP (1)
MODULYS Green Power	•	•	-	-
MASTERYS	•	•	•	•
Green Power 2.0	•	•	•	•
DELPHYS	•	•	•	•

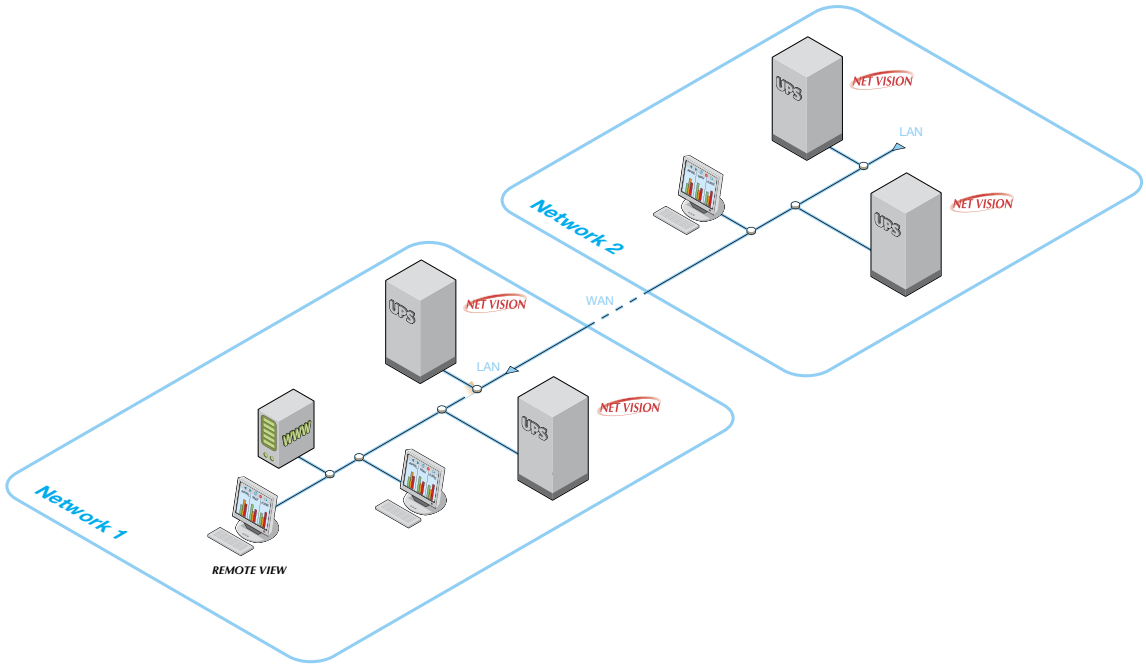
(1) The protocols above can be either embedded in some UPS/PDU or optional. Contact SOCOMEC for further information.

REMOTE VIEW

In addition to the mentioned protocols, another Socomec monitoring solution is REMOTE VIEW, a central monitoring program for UPS systems over an IP network, which is simpler and less expensive than the complex NMS platforms.

REMOTE VIEW is an application able to monitor simultaneously up to 1024 devices equipped with NET VISION card or box through the LAN or the Internet. Users are provided with tree-view (hierarchy structure can have up to 8 levels) and list-view. When an alarm is triggered in one or other monitored UPS, (trap event), the icon that represents the UPS will change colour according to the severity level, sending an email to several addressees which have been set in program configuration dialogue window. If the program is running in the background, a pop-up message appears. Input and output voltages, battery capacity and load percentage are continuously monitored by REMOTE VIEW program. Plant supervisors and technicians can monitor all the UPS in the same program window.

REMOTE VIEW runs on Windows® 2000/2003/2008 (R2)/XP/VISTA/7 with administrator rights.



SYDIV 013 A GB

Communication interfaces

Software

Management solutions

LCD remote access panel

DIGYS 060 A

Remote access panel

This remote control with graphic display allows the UPS to be controlled and the main operational data to be displayed.

Communication with the user can take place in various languages, including Russian and Chinese.

It is possible to:

- display the system's operating status,
- check the UPS status,
- view the data log.

Dry contact interface

Total compatibility

The dry contact interface enables the control of up to three digital inputs and four outputs for information processing:

- 3 insulated inputs (external contacts):
  - emergency stop devices (ESD),
  - operation with generating set,
  - battery protection status.
- 4 change-over contact outputs:
  - general alarm,
  - backup operation,
  - bypass operation,
  - preventive maintenance request.

These are fully configurable. Depending on the range, several ADC cards can be fitted to the UPS.

MASTE 013 B

Serial port interface

Communication via RS232, RS422, RS485

Several UPS have RS232 and/or RS485 with JBUS/MODBUS protocol embedded.

Should the UPS need an isolated RS485 port, an additional interface card can be used.

- The serial connection interface makes it possible to communicate with BMS systems (Building Management Systems) using JBUS/MODBUS or PROFIBUS protocols (on request).
- All UPS information can be remotely accessed:
  - status, measurements (V, A, kVA, t°…) alarms, controls.

LOGIC 022 A

MODBUS TCP interface

Transferring the MODBUS-TCP protocol

The interface is directly connected on the network via RJ45 connector (10 / 100Mb Ethernet connection).

MOD 067 A

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SNMP/WEB interface

Communication via LAN

NET VISION RT VISON and some embedded LAN connections support SNMP to be monitored by remote NMS.

LOGIC 020 A

RT VISION

LOGIC 020 A

NET VISION

EMD

Environment Module Device

EMD is a device to be used in conjunction with some LAN interfaces and provides the following features:

- temperature and humidity measurements + dry contact inputs,
- alarm thresholds configurable via Web browser,
- notification of environmental alarm via email and SNMP traps.

EMD device for ***NET VISION***

EMD device for ***MODULYS Green Power***

BACnet/IP interface

Building automation and control networks

The interface is directly connected on the network via RJ45 connector (10 / 100Mb Ethernet connection).

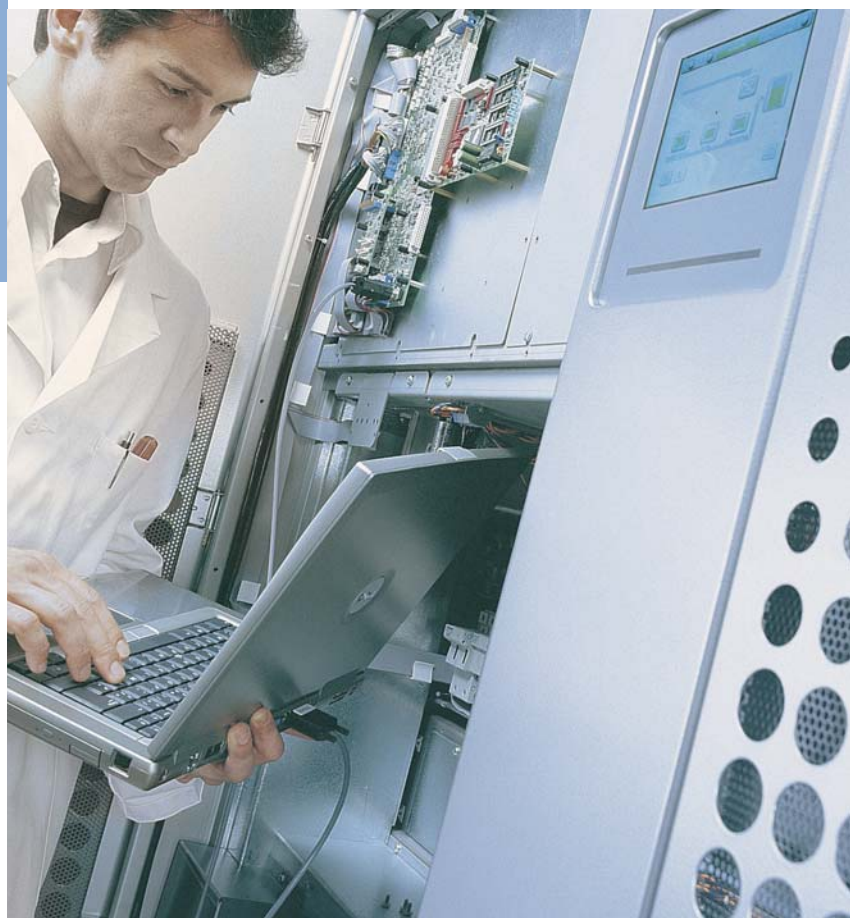
MOD 067 A


79°F
91°F
87.8°F
ε = 1.00
67/66
Location 67

Ensure commissioning, inspection and maintenance of the equipments

CIM

Commissioning Inspection and Maintenance



APPLI 143 A

The solution for

- Service industries
- Industry
- Telecommunications
- Medical
- Etc.

For the availability of your energy needs

- Given the impact a continuous supply has on the availability of your electrical power, the quality of the service is just as important as the quality of the product.

The expertise of a single design, construction and maintenance supplier

- Since 1968, SOCOMEC has been developing products and services which are geared towards the quality and continuity of your high quality energy.
- Our teams provide you with not only an understanding of your needs, but also their expertise in the areas of electronic components, DC circuits, operating logic and industrial IT.

Specialists at your service

- The CIM (Commissioning Inspection and Maintenance) has a strategic presence worldwide, with more than 250 SOCOMEC UPS specialists, maintenance engineers and technicians.

They are available to you for:

- preventive maintenance,
- remedial maintenance,
- 24 hour availability,
- consultancy, design and implementation of installation modifications and updates.

The guarantee of the best service

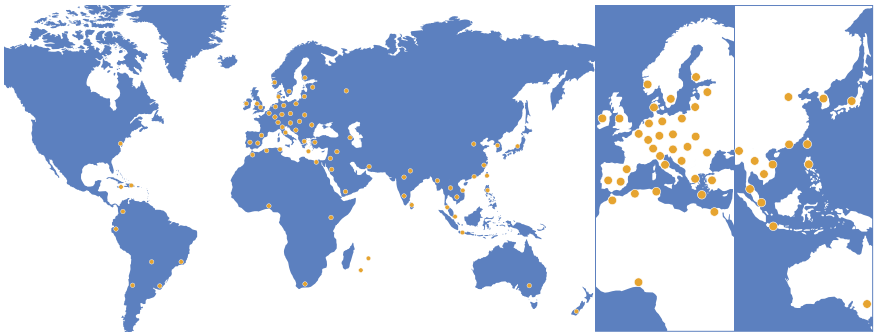
Understanding the need to maintain the availability of high quality energy, we place all the skills of our wide range of specialists at your disposal. Your entire equipment base is managed by the support service information system dedicated to monitoring it.

Availability of 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.

Proximity

Our European and worldwide presence ensures that you will always have specialists close to your site, for a fast and efficient response.



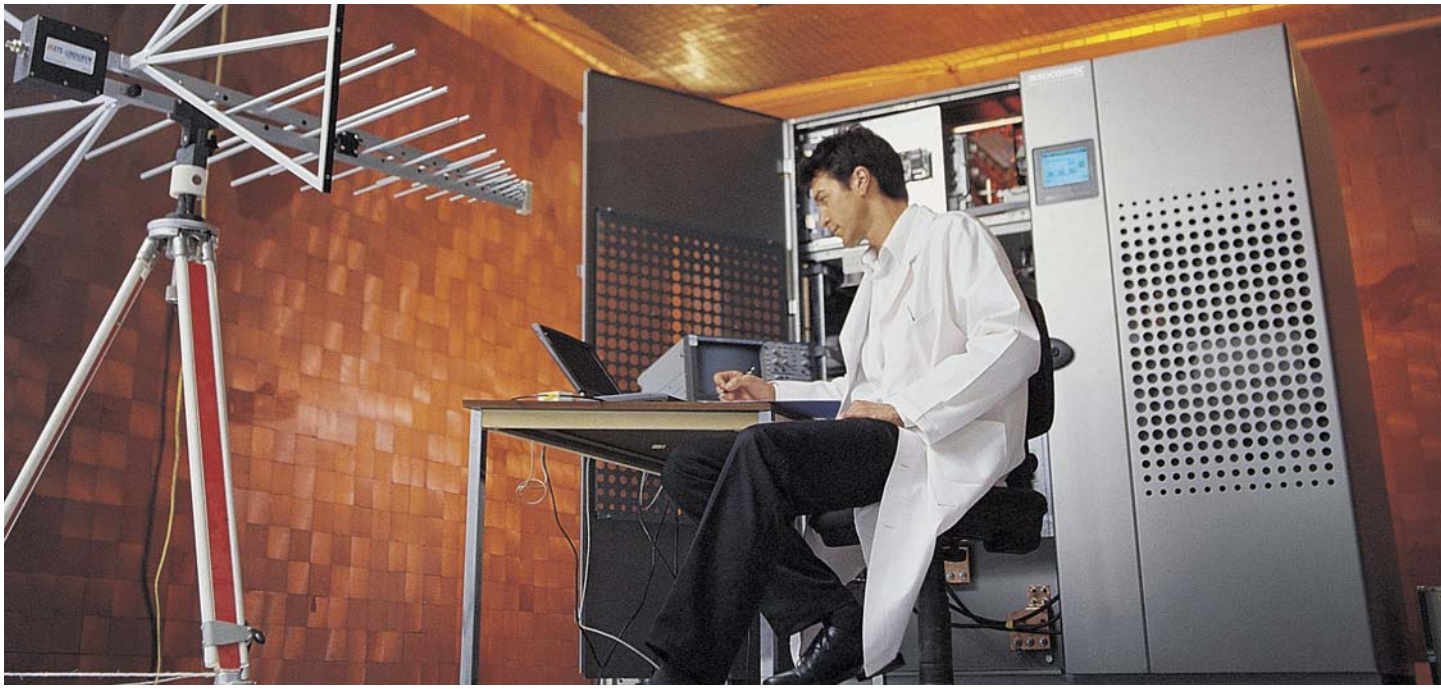
Guaranteed response time

The support service available to you (proximity, specialist personnel, stock of spare parts) means that we can contractually guarantee a response time, even 24-hour availability, compatible with your operating constraints.

Respect for your environment

As a manufacturer, we are committed to protecting the environment and actively participate in the development of legislation and standards related to this issue.

This guarantees that we will always respond to the demands of legislation concerning the disposal of used components and respect recycling procedures.



APPLI 112 B

CIM maintenance contracts(1)

Preventative maintenance
As with all equipment, the security appliances which power your critical systems need to be regularly maintained so that they can function as efficiently as possible.
Preventative maintenance allows you to prevent any malfunctions and extend your equipment life. Consequently, you will also see an improvement in the MTBF (mean time between failures) of your installation.

Periodic visits
Depending on the contract chosen, you will receive periodic visits for:
- mechanical inspection,
- electrical inspection,
- dust removal,
- battery inspection,
- software updating,
- electronics testing,
- environmental checks.

A report will be given to you after each repair.

Corrective maintenance
As an installation gets older, it is more likely to malfunction and require specialist repairs.
Your maintenance contract allows you to benefit from:
- fast, priority repairs,
- a choice of response lead time according to your operational needs: 6-hour or next working day**,
- assistance 24 hours a day, 365 days a year (depending on contract)**,
- guaranteed response times.

A PMV (Preventative Maintenance Visit) report will be given to you after each repair.

Servicing on request
We offer you various services, in addition to contractual benefits, to meet your developing needs throughout the life-cycle of your installations:
- replacement of consumable parts (battery, fan, capacitor),
- moving your equipment,
- industrial emission control,
- UPS leasing,
- implementing ready-to-run installations,
- expert advice and recommendations for your high-quality installation,
- measurements and tests with or without charging bench,
- thermographic inspection of your high quality distribution system,
- harmonics audit,
- additional training sessions for installation operators.

Managing your operating costs
Our different contract packages enable you to pick and choose services to suit your needs (parts, labour, response times), giving you total control of your operating costs with no surprises on your invoice.

Service Hot-line
The CIM hot-line offers priority access to customers with a maintenance contract.
It provides technical support to protect your high-quality power supply equipment.
A specialist team of electricians, electrical engineers and IT engineers is on hand to respond to all your operational queries.

Adapted solutions
We tailor our services around your operating constraints. This means that for each of your contracts, we provide you with adapted solutions to match your expectations.

Our Silver, Gold and Platinum solutions meet your needs by protecting and securing the electrical supply to your sensitive applications (office, automation, servers, data-processing centres, NICT, security…).

CONTRACTS	SILVER	GOLD	PLATINUM	PLATINUM PLUS
MPS - preventative maintenance visit (standard*)	included	included	included	included
Battery check	included	included	included	included
Hardware & Software update	included	included	included	included
Labour and mileage (corrective maintenance)	–	included	included	included
Spare Parts	–	–	included	included
Hot-line availability	working hours	working hours	working hours 24h / 365d	
RTS - Response time to site**	next working day	next working day	next working day 6h**	
Additional MPS	optional	optional	optional	optional
MPW - preventative maintenance within weekend working hours	optional	optional	optional	optional
MPN - preventative maintenance out of normal weekday working hours	optional	optional	optional	optional
Availability: Standard week / RTS: 6h	optional	optional	optional	–
Availability: 24h/365d / RTS:12h	optional	optional	optional	–
Availability: 24h/365d / RTS: 6h	optional	optional	optional	included
T.SERVICE	optional	optional	optional	optional

** during normal working hours.*
*** Please check service coverage for your country.*

(1) Please check the availability for your area.

24/7 real-time monitoring service

What is 24/7 real-time monitoring service?

SOCOMEC 24/7 real-time monitoring service[1] is a remote telephone or web-based surveillance method that ensures a real time diagnosis 24 / 7 / 365. The UPS automatically sends regular reports against fault detection to the Service Centre.

Depending on the monitored parameters the notification can be due to:

- wrong usage – the customer is contacted by a skilled technician and requested to carry out simple actions to prevent worsening,
- existing fault – the customer is informed of the device's state and technicians are promptly sent to visit the site.

The advantages.

- 24 / 7 / 365 monitoring.
- Prevention and early fault detection.
- Reduced human dependence with consequent risk and cost reduction.
- Regular status reports.
- Automatic repairing service activation.
- Remote assistance of skilled technicians.
- In-depth knowledge of the plant.

Who needs it?

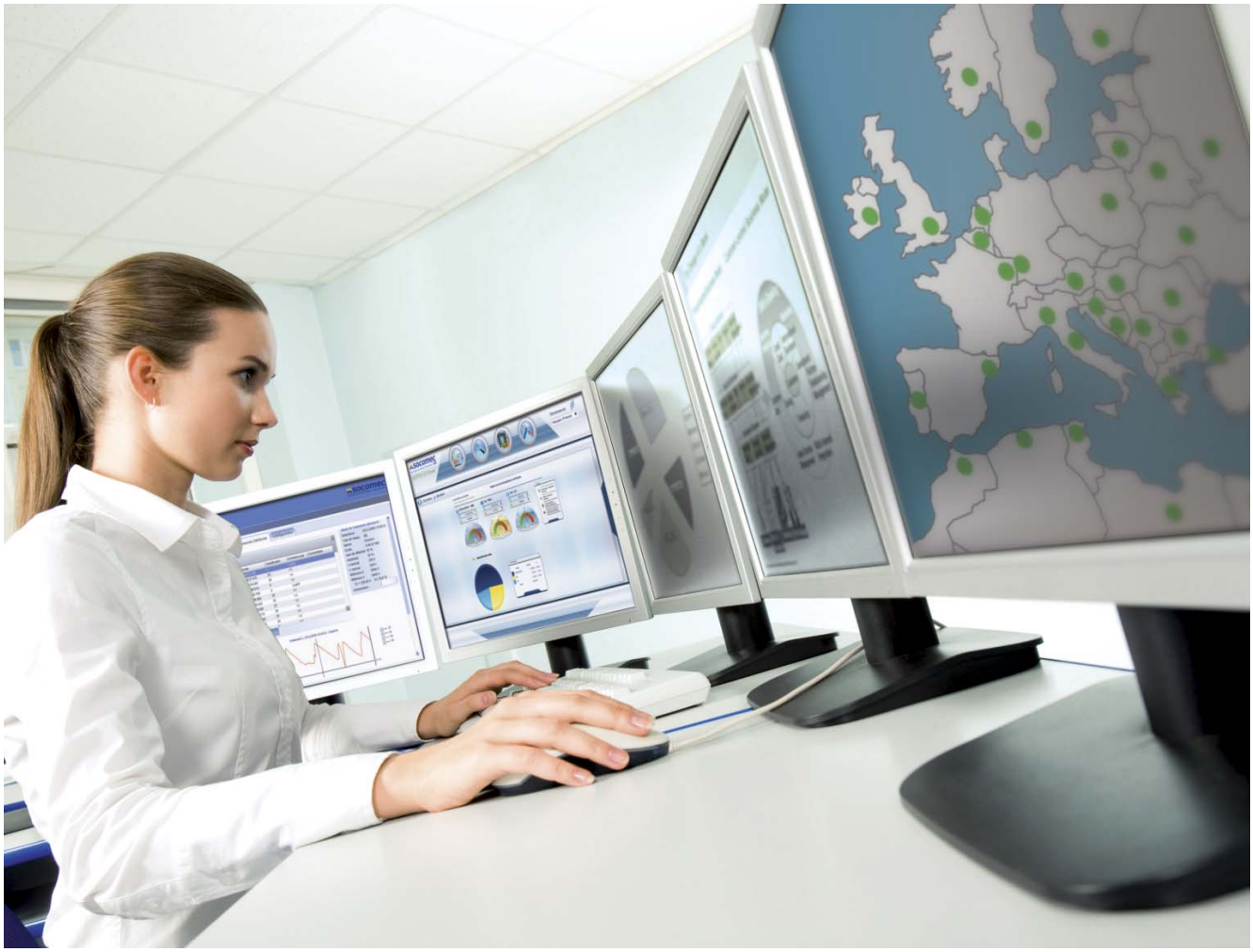
For Mission Critical applications that need high availability solutions. Such aims cannot be achieved only with good design and product quality. A fast and reliable maintenance service is the best solution for maintaining high system availability for the entire life cycle. The surveillance automation ensures 24 / 7 / 365 continuous monitoring, preventing human errors or omissions and prevents faults from the outset of symptoms.

Customers with applications with lower availability requirements also need remote surveillance as the customer's personnel are not always on hand to react to operating anomalies.

SOCOMEC 24/7 real-time monitoring service can also monitor the energy supply to critical electrical installations thanks to the reports that are sent periodically and can therefore update the installations event history for a more detailed expert analysis at a later date. Such reports help build a more informed picture of energy usage that could be used for future updates / designs or power quality enhancement consultations.

It provides effective protection for your installation and assures the continuing high availability of the UPS, with a much-reduced technical intervention time.

(1) Please check the availability for your area.



APPLI 568 A

CIM Thermo(1)

Thermal technology for precision monitoring of your electrical installation

The CIM THERMO service involves checking the components of your electrical installation using special equipment (thermal imaging cameras). In this way it is possible to perform a preventive diagnosis of breakdown risks by analysing the temperature (thermographic control) of components including:

- transformers,
- electrical switchboards,
- power factor correction systems,
- distribution cables,
- joints,
- connections,
- terminals,
- clamps,
- protection devices, isolators, fuses, circuit breakers,
- UPS and converters,
- batteries,
- loads (motors and actuators, lighting).

APPLI 193 A

Transformer inspection

DEFYS 114 A

UPS inspection

APPLI 195 A

Switchboard inspection

A preventive diagnosis service from a specialist manufacturer

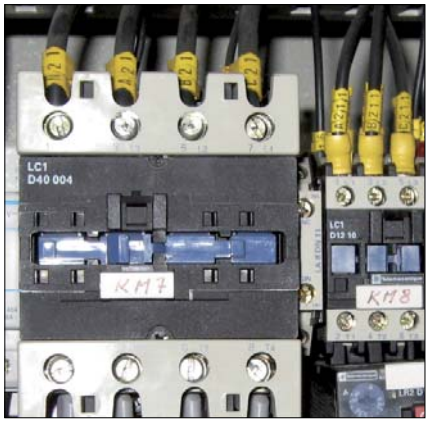
A comprehensive thermographic diagnostic service for uninterruptible power supply systems (distribution and components) Maximising the overall effectiveness of an installation means above all optimising its availability by increasing its reliability (MTBF, mean time between failures) and reducing repair times (MTTR, mean time to repair).

Using thermography it is possible to check active installations and rapidly identify critical situations affecting energy distribution and electrical components (loose or corroded connections, load imbalance, overloads, presence of harmonic currents).

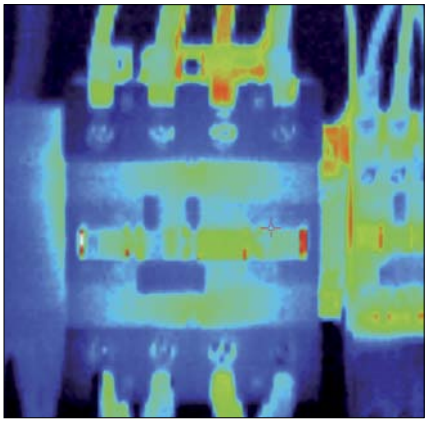
Expert servicing by certified specialists

SOCOMEC technicians are specially trained and certified, and operate in compliance with standards and procedures established by international authorities.

CIM 008 A



CIM 009 A



Infrared thermography

Thermography, also known as thermal imaging, is a technique which involves the detection of infrared radiation produced by warm objects.

Infrared cameras are used to detect and photograph this radiation, thus enabling an object's temperature to be analysed in a non-invasive way and with a high level of precision (to 1 / 10th of a degree).

(1) Please check the availability for your area.

CIM Thermo(1)

Infrared thermographic camera

The particular model of camera used by our technicians to inspect components can store images and sequences for comparison during future checks.

The camera identifies critical components that require immediate maintenance or simple verification.

APPLI 197 A

Application software for thermographic analyser

Thermal images are displayed using thermographic software.

By comparing the various images, customised reports can be created for further analysis.

Temperature gradients, displayed in the form of graphical images and tables, facilitate future checks and the generation of reports identifying each critical component.

Key benefits that make the difference

The CIM THERMO thermography service offers

the following advantages:

- Prevention
- Prevention of breakdowns in the uninterruptible power supply system.
- Highly effective diagnostics due to the control of cable connections and clamps, an operation which is impossible using conventional visual checks.
- Maximum diagnostic reliability due to total system control, from the master distribution panel to the smallest functional details
- Improved safety of personnel, users and customers
- Cost reduction
- Reduction of costs incurred due to breakdowns and power loss, which are prevented by ensuring the efficiency and effectiveness of installations.
- Reduction of costs incurred due to installation downtime.
- Uninterrupted power
- Conveniently scheduled stop times and targeted maintenance interventions.
- Uninterrupted power with checks carried out while the installation is in operation, without cutting off power.

SOCOMEC proposes a comprehensive, end-to-end diagnostic service:

- Audit: visual check of the environment, installations and equipment.
- Fault finding: readings taken from the equipment using thermographic cameras to search for and quantify breakdowns.
- Solutions: identification of defective components and improvement solutions.
- Repairs: implementation of proposed solutions.
- Mesurement of results: effectiveness of applied solutions checked by comparing them with measurements taken before maintenance using a software application.
- Report: definitive technical record displaying the list of identified critical points, the state of the installation and the recommended monitoring frequency.

Contract options

SOCOMEC proposes a variety of contract plans to suit your needs:

- a general plan for the detection of faults and critical points,
- a monitoring plan for checking the effectiveness of maintenance interventions,
- periodic plans for the monitoring of critical areas.

COUV 142 A

(1) Please check the availability for your area.

CIM
Commissioning Inspection and Maintenance

CIM Rent[1]

UPS leasing, your high-quality temporary power solution

When you require high-quality uninterrupted electrical energy over a limited period (weeks or months), leasing is the most economical answer for your short-term needs.

Leasing enables you to draw on the global expertise of SOCOMEC, which not only assures the availability of the UPS system, but also provides an all-in-one service to guarantee you a clean and uninterrupted energy supply.

The user chooses the required power rating and back-up time, as well as the lease term, which can be extended according to need.

No need to waste further time and resources managing your UPS system, the CIM (Consulting, Inspection and Maintenance) service will take care of everything, from operation and maintenance to removal at the end of the contract.

Applications

- Computing.
- Event-based technical platforms.
- Sound and lighting consoles.
- Industrial processes.

Events

- Temporary works phase.
- Unforeseen disaster.
- Displays and shows.
- When investment isn't possible.

Requirements specifications

To set up the lease, simply specify:

- the required power rating (several kVA to several hundred kVA),
- the redundancy level (single / parallel),
- the required back-up time,
- the lease term,
- the site / address of the installation,
- any additional options,
- associated services.

Standard services included in the lease

- Consulting on environmental aspects: ventilation, positioning, electrical distribution and protection ratings.
- Transport.
- Commissioning.
- Telephone hot-line (freephone).
- Next-day repair service.
- UPS decommissioning and removal.

Additional services

- On-site maintenance.
- Installation and cabling.
- Maintenance response within 6-hour or next working day.
- 24-hour on-call maintenance.
- Training for operation personnel.


APPLI_135_A

Benefits

- Reduced investment: solution supplied with a reduced operating budget, without the obligation to purchase.
- Quick: rapid delivery and commissioning.
- Simple: leasing, transport, commissioning and return of hardware included.
- Responsive: priority response from the SOCOMEC After-Sales Service in the event of breakdowns.
- Compliance with standards: guaranteed by SOCOMEC.
- Tax relief: rental fees can be posted in an operating budget.

Our specific leasing packages

Long-term leasing

For lease periods of several weeks to several months, hardware can be delivered ready-to-run.

SOCOMEC is able to provide consulting on environmental aspects (ventilation and room layout, cable sizing and protective devices, etc). SOCOMEC can install the UPS in your dedicated equipment room prior to commissioning it. This latter process, which is performed in compliance with applicable safety standards and regulations, ensures the efficient operation of the system.

The installed system solution gives you the opportunity of selecting the:

- power rating,
- back-up time,
- optional extras,
- associated services.

Contract flexibility

The contract may be modified:

- there is no maximum rental period,
- the lease term can be increased while the contract is ongoing.


APPLI_205_A

(1) Please check the availability for your area.

To help protect the environment, this document has been printed on PEFC paper (Programme for the Endorsement of Forest Certification).

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Graphics: SOCOMEC
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15, rue de Commerce - L-1351 Luxembourg

Socomec worldwide

IN WESTERN EUROPE

BELGIUM
B - 1070 Bruxelles
Tel. +32 2 340 02 30
info.be@socomec.com

FRANCE
F - 94132 Fontenay-sous-Bois Cedex
Tel. +33 1 45 14 63 90
dcm.ups.fr@socomec.com

GERMANY
D - 68309 Mannheim
Tel. +49 621 71 68 40
info.ups.de@socomec.com

ITALY
20098 San Giuliano Milanese (MI)
Tel. +39 02 98 242 942
info.ups.it@socomec.com

NETHERLANDS
NL - 3991 CD Houten
Tel. +31 30 760 0900
info.nl@socomec.com

PORTUGAL
2640-486 Mafra
Tel. +351 261 812 599
info.ups.pt@socomec.com

SPAIN
E - 08329 Teià (Barcelona)
Tel. +34 935 407 575
info.ups.sib@socomec.com

UNITED KINGDOM
Cirencester - GL7 5XL
Tel. +44 1285 863 300
info.ups.uk@socomec.com

OTHER COUNTRIES
Tel. +34 935 407 575
info.ups.europe@socomec.com

IN EASTERN EUROPE, MIDDLE EAST, AFRICA

UNITED ARAB EMIRATES
371355 Dubai airport free zone
Dubai (United Arab Emirates)
Tel. +971 4 29 98 441
info.ae@socomec.com

POLAND
01-625 Warszawa
Tel. +48 22 825 73 60
info.ups.pl@socomec.com

ROMANIA
023383 Bucharest
Tel. +40 21 319 36 88
info.ro@socomec.com

RUSSIA
125167 - Moscow
Tel. +7 495 775 19 85
info.ru@socomec.com

SLOVENIA
SI - 1000 Ljubljana
Tel. +386 1 5807 860
info.si@socomec.com

TURKEY
34357 Istanbul
Tel. +90 216 540 71 20-21-22
info.tr@socomec.com

OTHER COUNTRIES
Tel. +39 0444 598 611
info.ups.emea@socomec.com

IN ASIA PACIFIC

AUSTRALIA
Macquarie Park NSW 2113
Tel. +61 2 9325 3900
info.ups.au@socomec.com

CHINA
P.R.C 200052 Shanghai - China
Tel. +86 21 5298 9555
info.cn@socomec.com

INDIA
Guindy, Chennai – 600 032
Tel. +91 44 3921 5400
info.ups.in@socomec.com

SINGAPORE
Singapore 408723
Tel. +65 6506 7600
info.sg@socomec.com

THAILAND
Chatujak Bangkok 10900
Tel. +66 2 941-1644-7
info.ups.th@socomec.com

VIETNAM
Ho Chi Minh City
Tel. +84 8 3559 1220
info.ups.vn@socomec.com

ASIA PACIFIC HEAD OFFICE
Tel. +65 6506 7600
info.ups.apac@socomec.com

IN AMERICA

LATIN AMERICAN COUNTRIES
Tel. +34 935 407 575
info.ups.sib@socomec.com

HEAD OFFICE

SOCOMEC GROUP
S.A. SOCOMEC capital 10 951 300 €
R.C.S. Strasbourg B 548 500 149
B.P. 60010 - 1, rue de Westhouse
F-67235 Benfeld Cedex - FRANCE

SALES, MARKETING AND SERVICE MANAGEMENT

SOCOMEC Paris
95, rue Pierre Grange
F-94132 Fontenay-sous-Bois Cedex
FRANCE
Tel. +33 1 45 14 63 90
Fax +33 (0)1 48 77 31 12
dcm.ups.fr@socomec.com

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