

UPS and Critical Power Systems

2012
2013



Choose your product

UPS range

PRODUCT	PHASE	POWER (kVA) - single unit						
		0.5	0.75	1	5	10	50	100
NETYS PL p.10	1/1	0.5 - 0.75						
NETYS PE p.12	1/1	0.6 - 2						
NETYS PR p.14	1/1	1 - 1.5						
NETYS PR RACK p.16	1/1	1 - 1.5						
NETYS RT p.18	1/1	1.1 - 11						
ITYS p.22	1/1	1 - 10						
MODULYS System p.24	1/1	1.5 - 24						
MODULYS RM p.28	1/1	1.5 - 9						
MODULYS TC p.30	1/1	3 - 9						
CPSS EMERGENCY p.50	1/1	3 - 6						
MASTERY BC p.32	1/1	8 - 10						
MASTERY BC p.34	3/1	8 - 20						
GREEN POWER 2.0 p.40	3/1	10 - 20						
MASTERY IP+ p.44	3/1	10 - 60						
CPSS EMERGENCY p.50	3/1	10 - 20						
MASTERY BC p.34	3/3	10 - 120						
DELPHYS BC p.34	3/3	160 - 200						
MODULYS GREEN POWER p.36	3/3	20 - 360						
GREEN POWER 2.0 p.40	3/3	10 - 400						
MASTERY IP+ p.44	3/3	10 - 80						
DELPHYS MP ELITE p.46	3/3	80 - 200						
DELPHYS MX p.48	3/3							
CPSS EMERGENCY p.50	3/3	10 - 200						
SMART POWERPORT p.56	3/3							

Applications

SEGMENT	NON CRITICAL BUILDING			CRITICAL BUILDING			INDUSTRY		
APPLICATION	IT	SECURITY EMERGENCY	DATA CENTRE TELECOM DATA CENTRE	SECURITY EMERGENCY	MEDICAL	PROCESS	MONITORING CONTROL	SECURITY EMERGENCY	
UPS									
1/1 single	NETYS PL p.10 NETYS PE p.12 NETYS PR p.14								
1/1 modular	NETYS PR RACK p.16								
1/1 parallel	NETYS RT p.18		NETYS RT p.18						
3/1 single	MASTERY BC p.32	MASTERY EL p.54 MASTERY EF p.54	MASTERY BC p.32	MASTERY EL p.54 MASTERY EF p.54	GREEN POWER 2.0 p.40	MASTERY IP+ p.44	MASTERY IP+ p.44	MASTERY EL p.54 MASTERY EF p.54	
3/1 modular	MODULYS MC p.26 MODULYS EB p.27	MODULYS EL p.53	MODULYS MC p.26 MODULYS EB p.27	MODULYS EL p.53				MODULYS EL p.53	
3/1 parallel			GREEN POWER 2.0 p.40						
3/3 single	MASTERY BC p.34 DELPHYS BC p.34	MASTERY EL p.54 MASTERY EF p.54 DELPHYS EL p.55 DELPHYS EF p.55	MASTERY BC p.34 GREEN POWER 2.0 p.40 GREEN POWER 2.0 p.42	MASTERY EL p.54 MASTERY EF p.54 DELPHYS EL p.55 DELPHYS EF p.55	GREEN POWER 2.0 p.40 MASTERY IP+ p.44 DELPHYS MP p.46 GREEN POWER 2.0 p.42 DELPHYS MX p.48	MASTERY IP+ p.44 DELPHYS MP p.46 DELPHYS MX p.48	MASTERY IP+ p.44 DELPHYS MP p.46 DELPHYS MX p.48	MASTERY EL p.54 MASTERY EF p.54 DELPHYS EL p.55 DELPHYS EF p.55	
3/3 modular			MODULYS GP p.36						
3/3 parallel		MASTERY EL p.54 MASTERY EF p.54 DELPHYS EL p.55 DELPHYS EF p.55	GREEN POWER 2.0 p.40 GREEN POWER 2.0 p.42 DELPHYS MX p.48	MASTERY EL p.54 MASTERY EF p.54 DELPHYS EL p.55 DELPHYS EF p.55	MODULYS GP p.36			MASTERY EL p.54 MASTERY EF p.54 DELPHYS EL p.55 DELPHYS EF p.55	
Container solution			SMART POWERPORT p.56						
STS									
1/1	ASYS p.64 IT SWITCH p.62 STATYS p.60		ASYS p.64 IT SWITCH p.62 STATYS p.60		ASYS p.64 IT SWITCH p.62 STATYS p.60		IT SWITCH p.62 STATYS p.60		
3/3	STATYS p.60		STATYS 19" p.60		STATYS 19" p.60		STATYS p.60		
Rectifiers									
Rectifier		SHARYS IP p.68	SHARYS MICRO p.72 SHARYS MINI p.72 SHARYS ELITE p.74	SHARYS IP p.68		SHARYS IP p.68	SHARYS IP p.68		

Because your power supply must be faultless...

for peace of mind, install protection adapted to your needs

The distribution of electric power is affected by short and long term disturbances originating from the industrial and atmospheric environment.

Today's applications must have a faultless power supply if they are to operate efficiently. For example, who can tell what the consequences of failure in information systems may be considering the enormous role IT plays by in data processing? It is because we understand what you have at stake, and what would result from anything less than the highest quality power being supplied, that we offer you fail-safe solutions using the most advanced expertise and cutting-edge technologies.

IT applications

Information technology is an invisible layer that has an increasing impact on every aspect of our lives and businesses.

In these IT-driven times, loss of data can give rise to massive financial loss in a matter of minutes. Working on a network has become so important that intelligent distributed solutions capable of supplying perfect power to many different areas are now essential.

You need to protect:

- data centres,
- IT networks,
- mission critical applications,
- airport,
- large companies.

Your constraints:

- maximise availability,
- increase flexibility,
- lower TCO,
- optimize PuE.

We provide:

- ultra high efficiency,
- optimal energy protection,
- true online double conversion,
- full rated power (power factor 1),
- highly reliable UPS units,
- centralized or modular redundant UPS,
- power scalability,
- compact equipment,
- UPS power infrastructure in container,
- customized solutions for every Tier requirement,
- energy storage with or without batteries,
- energy saving solutions,
- European Code of Conduct for AC UPS subscription.

Industry

In many industries, the loss of quality or simply the loss of productivity that are caused by unplanned production shutdowns can have enormous financial implications. This fully justifies implementing an adapted protective system which is essential in industrial sites.



SITE 558 A

You need to protect:

- industrial loads and processes,
- process control,
- data processing and back office,
- emergency and security,
- energy control and monitoring.

Your constraints:

- ensure process continuity,
- guarantee security and plant safety,
- optimize the investments,
- achieve reliability in a harsh operating environment.

We provide:

- energy protection,
- high reliability,
- product designed to work in harsh environment (vibration, temperature, pressure, moisture, dust, water, shock...) for long lifetime expectancy,
- robustness,
- compatibility with any neutral system arrangements (galvanic isolation),
- high short-circuit current,
- wide input voltage tolerance,
- tropicalized anticorrosion protection,
- enhanced degree of protection up to IP52,
- communication over management protocols,
- TÜV / Bureau Veritas certified performance.



SITE 621 A

Because your power supply must be faultless...

for peace of mind, install protection adapted to your needs

Infrastructure

Every day, millions of people travel round the world, while tons of goods are shipped across the continents.

Infrastructures such as airports, railways, roads, tunnels and marine installations require new solutions to maximize performance, increase people security and lower the TCO.

You need to protect:

- supervisory control centres,
- data acquisition instrumentation,
- control rooms,
- emergency and signalling devices,
- communication systems,
- IT and non-IT equipment used in subways, tramways, high speed trains and traditional train stations.

Your constraints:

- ensure user's safety,
- avoid equipment damage or deterioration,
- protect the environment,
- guarantee availability and quality of the control/supervision system,
- avoid downtimes and related costs,
- achieve reliability in a harsh operating environment.



SITE 622 A

We provide:

- control of critical security, general supervision and signalling systems,
- long back-up time energy storage devices,
- solutions for the management of the power supply of industrial devices (i.e. motors, compressors, pumps) and lamps,
- product designed to work in harsh environments (vibration, temperature, pressure, moisture, dust, water, shock...) for long lifetime expectancy.

Healthcare sector

The power continuity in hospital structures and services must go further than ensuring the quality of patient life. Security and

availability of the power supply to the various critical items of equipment assume front line priority as defined by healthcare authorities.



SITE 560 A

You need to protect:

- IT networks,
- medical devices,
- patient areas,
- fire alarm system,
- emergency lighting system,
- communication networks.

Your constraints:

- reliable and fully available energy,
- productivity concerns,
- ensure patient safety,
- protect patient data,
- avoid damage or deterioration to expensive and critical items of equipment.

We provide:

- patient security and plant safety,
- equipment protection against damage and electrical disturbance,
- high availability,
- highly reliable UPS units,
- centralized or modular redundant UPS,
- reduced carbon footprint and energy consumption,
- energy saving solutions,
- protection of Emergency lighting systems,
- compactness,
- low MTTR,
- user friendly applications.

SOCOMEK: an independent manufacturer

the benefit of a specialist

Founded in 1922, SOCOMEC is an industrial group with a workforce of 3000 people. Our core business - the availability, control and safety of low voltage electrical networks with increased focus on our customers' power performance.



CORFO 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.

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



Four key applications: the know-how of a specialist

Critical Power

Ensuring the availability of high-quality power for critical applications.



Thanks to the company's wide range of continuously evolving products, solutions and services, SOCOMEC are experts in the three essential technologies that can ensure the high availability of supply to critical facilities and buildings i.e.:

- uninterruptible power supplies (UPS) that provide high-quality power and reduce distortion and interruptions to the mains supply due to their power storage back-up,

- changeover of high availability sources to transfer supply to an operational backup source,
- continuous monitoring of installation facilities to prevent failures and reduce operating losses.

Power Control & Safety

Managing power and protecting individuals and property.



SOCOMECS expertise in this domain is unquestionable; the company is an undisputed leader in power switching and changeover functions, and has been a specialist manufacturer of electrical equipment since 1922. The company has long defended the benefits of fuse protection for individuals and property, and has become a major player in cutting-edge technology such as the monitoring and detection of insulation defects.

SOCOMECS guarantees solutions and services which are both relevant and efficient.

Energy Efficiency

Improving building and facility energy efficiency



SOCOMECS solutions, ranging from sensors to the wide choice of innovative, modular software packages, are driven by experts in energy efficiency. They meet the essential requirements of managers or operators of tertiary, industrial or local authority buildings, and make it possible to:

- measure power consumption, identify sources of excess consumption, and raise occupant awareness,

- limit reactive energy and prevent associated tariff penalties,
- use the best tariffs, check supplier invoicing and accurately distribute energy bills amongst consumer entities.

Solar Power

Guaranteeing the safety and durability of photovoltaic (PV) facilities.



As experts in the solar energy equipment field, SOCOMEC has all the specialist know-how for implementing key strategic functions in PV facilities, including:

- safety, through specially designed switch disconnectors to cut the DC current generated by solar panels regardless of the facility configuration and operating conditions,
- the reliability of DC facilities thanks to solutions preventing the degradation of insulation and electric arc failure in DC current,

- control of very high-efficiency energy conversion, via PV inverters, to transform all energy generated by the solar panels into power to be consumed locally or re-injected into the national grid.

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).



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



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



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



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.

Green Power 2.0

maximum efficiency without compromises

Business continuity is a crucial aspect in modern data centre infrastructures. Availability must be ensured 24/7/365 to avoid data losses and downtime of company operations.

The rapid increase of data processing and storage needs, along with new cloud computing service requirements and the Tier IV restrictive standard, means new solutions are required to maximize the availability, increase the efficiency and reduce the TCO. SOCOMEC's innovative

Green Power 2.0 from 10 up to 2400 kVA/kW is the ultimate UPS solution for data centres for them to face these new challenges.



STITE 557 A



Maximum availability and total protection

High-quality power supplies are frequently polluted by consumer loads within the system itself, such as harmonics, flicker, frequency variations, power cuts and surges. Such disturbances can compromise the business continuity protection and reduce the system's availability.

Green Power 2.0 works in true **online double conversion** mode (VFI), the only technology able to provide **maximum availability** and **total protection**.

Reduced TCO

Companies today face a dilemma: how to generate more business and lower costs.

Energy efficiency means reduced energy losses, reduced electrical operating costs, fewer cooling resources, and consequently **significant cost savings** in energy bills.

High efficiency also helps to **reduce air conditioning investments** and cuts related energy bills.

Green Power 2.0 is also a highly compact UPS with a **reduced footprint**: more power without increasing floor space means less cost per kW.

Ultra high energy efficiency...

Green Power 2.0 provides:

- 3-level technology,
- 96% efficiency in online double conversion mode verified by external independent certification body under real site conditions,
- 99% efficiency mode available as option,
- 50% saving on energy losses compared to legacy UPS.

... at full rated power

- kW=kVA: maximum power available with the same size of UPS,
- full power up to 35 °C,
- no power downgrading when supplying in typical data centre conditions,
- 25% more power than an UPS with PF 0.8,
- 11% more power than an UPS with PF=0.9.



Single and three-phase UPS from 550 VA to 900 kVA

NeTYS PL

Single-phase UPS
550 and 750 VA
p.10

NeTYS PE

Single-phase UPS
600 to 2000 VA
p.12

NeTYS PR

Single-phase UPS
1000 to 3000 VA
p.14

NeTYS PR rack

Single-phase UPS
1000 to 1500 VA - Rack 1U
p.16

NeTYS RT

Single-phase UPS
1100 to 11000 VA
p.18

ITYS

Single-phase UPS
1000 to 10000 VA
p.22

MODULYS System

Single-phase UPS
1.5 to 24 kVA
p.24

MODULYS RM

Single-phase UPS
1.5 to 9 kVA
p.28

MODULYS TC

Single-phase UPS
3 to 9 kVA
p.30

MASTERYS BC

Single and three-phase UPS
8 to 12 kVA
p.32

BUSINESS CRITICAL

MASTERYS BC

Single and three-phase UPS
15 to 120 kVA
p.34

DELPHYS BC

Three-phase UPS
160 to 200 kVA
p.34

MODULYS Green Power

Three-phase UPS
20 to 360 kVA
p.36

Green Power 2.0

MASTERYS GP
Three-phase UPS
10 to 120 kVA
p.40

DELPHYS GP

Three-phase UPS
160 to 400 kVA
p.42

MASTERYS IP+

Single and three-phase UPS
10 to 80 kVA
p.44

DELPHYS MP elite

Three-phase UPS
80 to 200 kVA
p.46

DELPHYS MX

Three-phase UPS
250 to 900 kVA
p.48

CPSS Emergency

Emergency power supplies
3 to 200 kVA
p.50

Smart PowerPort

UPS power infrastructure in container
from 100 kW to 2.4 MW
p.56



NETYS PL

550 and 750 VA

a multi-socket UPS for easier connections

Single-phase UPS



The solution for

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

Complementary pages

- Communication and connectivity, [page 102](#)

An innovative solution

- Compact and modern design.
- Larger number of sockets adapted to IT environments.
- Can be used on the floor or on a desk, or wall-mounted.

Protection for all your needs

- 6 output sockets (Italian / Schuko or French standard) for easy distribution directly to your applications:
 - 4 sockets protected against power cuts and overvoltage, aimed at your most sensitive applications (central systems, monitors). The back-up time (up to 30 minutes) enables a standard PC configuration to be saved.
 - 2 sockets protected against overvoltage alone for use with less critical applications (1200 VA) and high absorption consumers (laser printers).

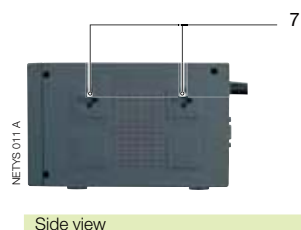
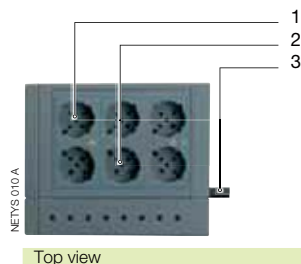
Protection for your 'phone line

- Protection for the telephone /modem / ADSL line (RJ11 connector) against the risk of on-line overvoltage.

Easy to use

- Operating mode indicated by means of the mimic panel connected to the status indicator lights.
- Easy battery maintenance (user replaceable).

Connections

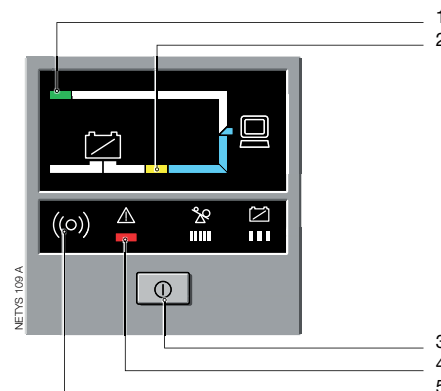


1. Filtered output sockets
2. Inverter output sockets
3. Input socket and fuse
4. Telephone / modem line protections

5. RS232 / USB serial port
6. Battery replacement flap
7. Bracket for wall mounting



Control panel



1. Normal operation
2. Operation with battery
3. On / Off
4. Alarm
5. Buzzer

Standard communication features

- **LOCAL VIEW:** ideal UPS monitoring and shutdown point-to-point solution for Windows® operating system.
- **UNI VISION:** software for the control and automatic shutdown of applications connected to Linux.

Technical data

NETYS PL		
Item code	NET550F-PL	NET750F-PL
Sn	550 VA	750 VA
Pn	330 VA	450 VA
Power (surge)	1200 VA	
Input/output	1/1	
INPUT		
Rated voltage	230 V	
Voltage tolerance	170 ÷ 260 V	
Rated frequency	50/60 Hz with automatic selection	
OUTPUT		
Rated voltage	230 V	
Rated frequency	50/60 Hz	
Sockets	6 sockets: n° 4 UPS and n° 2 surge (over voltage)	
Telephone protection	telephone line/modem/ADSL input/output: RJ11	
BATTERIES		
Type	sealed lead-acid maintenance free - expected life 3/5 years	
Back-up time ⁽¹⁾	20 min	30 min
COMMUNICATION		
Interfaces	RS232 and USB serial port (free software via Internet)	
UPS CABINET		
Dimensions W x D x H	160 x 210 x 125 mm	
Weight	5.3 kg	5.5 kg
STANDARDS		
Safety	EN 62040-1	
EMC	EN 62040-2	

(1) PC + 15" LCD monitor.



NETYS PE

from 600 to 2000 VA

practical and cost-effective UPS

Single-phase UPS



NETYS PE
600/800 VA

NETYS PE
1000/1400/2000 VA

GAMME 142 A

The solution for

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

Certifications



N876



N876

Complementary pages

- > Communication and connectivity, [page 102](#)

Ideal for protecting SOHO applications

- Adapted to protect home and office IT applications.
- A complete range of six models.

Easy to use

- Control panel with LCD / LEDs for easy monitoring of the operating mode.

A solution to network power cuts

- The integrated AVR function (Automatic Voltage Regulation) stabilizes the output voltage and avoids unnecessary switching to battery mode operation, therefore preserving battery life to support black outs.

Simplified connection

- Several IEC 320 sockets (IT standard) simplify the connectivity.

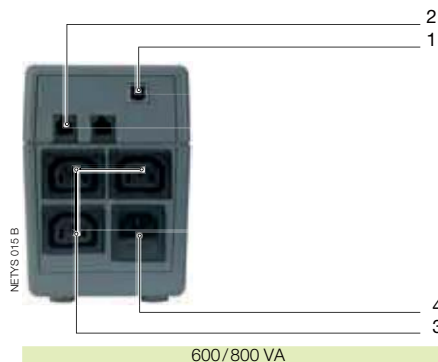
Protection for your 'phone line

- Integrated protections for 'phone line / modem / ADSL (RJ11 connector). Not available for B600 model.

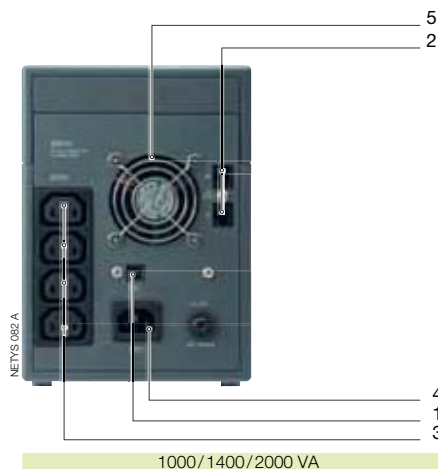
Communication with the computer system

- USB advanced connection for the management of the UPS and for the controlled automatic shutdown of the applications via PC (not available for B600 model).

Connections



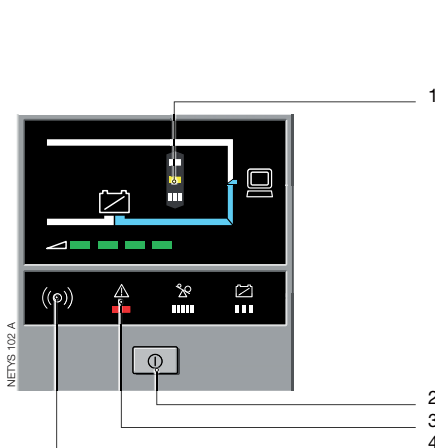
600/800 VA



1000/1400/2000 VA

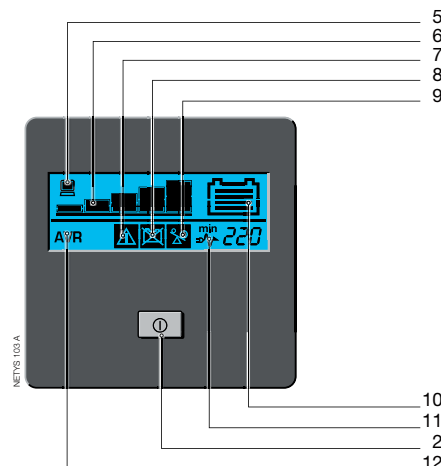
1. USB serial port
2. Phone / modem line protection
3. UPS output sockets
4. Input socket and fuse
5. Fan / air vents

Control panel



NETB600-PE/NET-600-PE/NET-800-PE

1. Normal operation / Operation with battery
2. On / Off
3. Alarm
4. Buzzer
5. Load present
6. Load level (5 steps)



NET1000-PE-LCD* / NET1400-PE-LCD* / NET2000-PE-LCD*

7. General Alarm
8. Battery fault / Replace the battery
9. Overload
10. Battery capacity
11. Normal mode / Battery mode (flashing)
12. Automatic Voltage / Regulation active

* Available only in some countries

Standard communication features

- **LOCAL VIEW:** ideal UPS monitoring and shutdown point-to-point solution for Windows® operating system.
- **UNI VISION:** software for the control and automatic shutdown of applications connected to Linux.

Technical data

NETYS PE						
Item code	NETB600-PE	NET-600-PE	NET-800-PE	NET1000-PE-LCD	NET1400-PE-LCD	NET2000-PE-LCD
Sn	600 VA	600 VA	800 VA	1000 VA	1400 VA	2000 VA
Pn	360 W	360 W	480 W	600 W	840 W	1200 W
Input/output	1/1					
INPUT						
Rated voltage	230 V					
Voltage tolerance	170 - 270 V					
Rated frequency	50/60 Hz with automatic selection					
OUTPUT						
Rated voltage	230 V nominal					
Rated frequency	50/60 Hz					
Sockets	3 x IEC 320 (C13)			4 x IEC 320 (C13)		
Telephone protection	- telephone line/modem/ADSL suppressor: RJ45					
BATTERIES						
Type	sealed lead-acid maintenance free - expected life 3/5 years					
Back-up time ⁽¹⁾	15 min	15 min	20 min	45 min	55 min	60 min
Communication						
Interfaces	USB					
UPS CABINET						
Dimensions W x D x H	99 x 334 x 143 mm			145 x 405 x 205 mm		
Weight	6.0 kg	6.1 kg	6.6 kg	9.7 kg	10.5 kg	10.6 kg
STANDARDS						
Safety	EN 62040-1, AS 62040-1					
EMC	EN 62040-2, AS 62040-2					
Product certification	A-Tick (N876), C-Tick (N876)					

(1) PC + 15" LCD monitor.



NETYS PR

from 1000 to 3000 VA
versatile UPS

Single-phase UPS



The solution for

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

Complementary pages

- > Communication and connectivity, [page 102](#)

A professional UPS

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

An installation adapted to the environment

- Can be installed as a Tower, Mini-Tower or 19" Rack, depending on the user's needs.

Simplified maintenance

- Battery 'hot swap', without closing down other applications.
- Battery can be changed from the front in rack installations.
- Battery check system and replacement indicator.

Adapted connections

- Easy connections to the applications (depending on power) via 6 or 8 IEC 320 (IT standard) sockets.

Data line protection

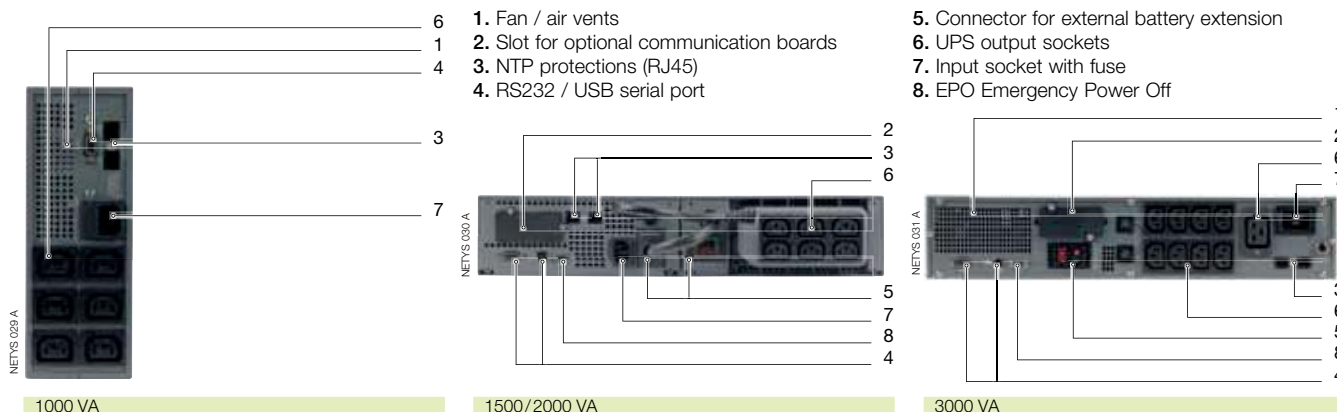
- With RJ45 connector.

Communication with the computer system

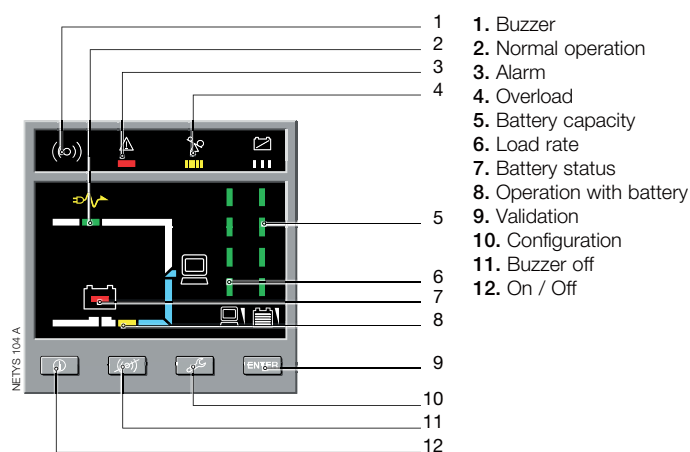
- RS232 or USB* advanced connections for the management of the power supply and local / remote shutdown of applications.
- Advanced diagnostics and remote control via various protocols and user environments: JBUS, HID, SNMP, TCP / IP.

* USB models from 1500 to 3000 VA.

Connections



Control panel



Standard communication features

- **LOCAL VIEW:** ideal UPS monitoring and shutdown point-to-point solution for Windows® operating system.
- **UNI VISION:** software for the control and automatic shutdown of applications connected to Linux.
- **UNI VISION PRO:** advanced user interface via serial link and multiple shutdown management for several operating systems.
- **HID:** UPS management based on Windows® embedded service - USB interface (not for **NETYS PR** 1000 VA).
- **MODBUS/JBUS RTU.**

Communication options

- **NET VISION:** professional WEB/SNMP interface for UPS monitoring and shutdown management of several operating systems.

Technical data

NetYS PR				
Item code	NET1000-PR	NET1500-PR	NET2000-PR	NET3000-PR
Sn	1000 VA	1500 VA	2000 VA	3000 VA
Pn	700 W	1000 W	1340 W	2100 W
Input / output	1/1			
INPUT				
Rated voltage	230 V			
Voltage tolerance	160 ÷ 276 V			
Rated frequency	50/60 Hz with automatic selection			
OUTPUT				
Rated voltage	230 V			
Rated frequency	50/60 Hz			
Sockets	6 IEC 320 (10 A)		2 sets of 4 IEC 320 (10 A) +1 16 A socket	
Telephone protection	NTP data line suppressor: RJ45 10 Base T			
BATTERIES				
Type	sealed lead-acid maintenance free - expected life 3/5 year			
Back-up time ⁽¹⁾	8 min			
COMMUNICATION				
Interfaces	RS232	RS232 and USB		
UPS CABINET				
Dimensions W x D x H	87 x 385 x 235 mm	2 x (87 x 415 x 220 mm)		87 x 585 x 440 mm
Dimensions rack W x D x H	-	435 x 415 x 87 (2U)		440 x 585 x 87 mm
Weight	9.6 kg	18 kg	19 kg	31.5 kg
STANDARDS				
Safety	EN 62040-1, AS 62040-1			
EMC	EN 62040-2, AS 62040-2			
Product certification	C-Tick (N876)			

(1) Back-up time at 75% of the rated power.

Battery extension

NETYS 111 A - 112 A		+ 1 (NETEX 20 PR)	+ 2 (NETEX 20 PR)
		1500	2000
		25 min.	45 min.
NETYS 113 A - 114 A		+ 1 (NETEX 30 PR)	+ 2 (NETEX 30 PR)
		3000	
		30 min.	60 min.



NeTYS PR

from 1000 to 1500 VA - Rack 1U
high density power slim UPS

Single-phase UPS



The solution for

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

Certifications



Complementary pages

- > Communication and connectivity, [page 102](#)

A professional UPS

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

An installation adapted to the networking environment

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

Adapted connections

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

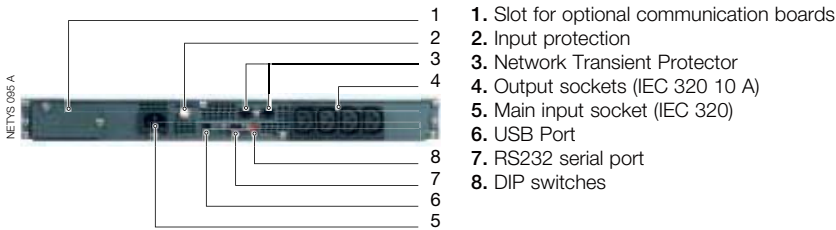
Data line protection

- With RJ45 connector.

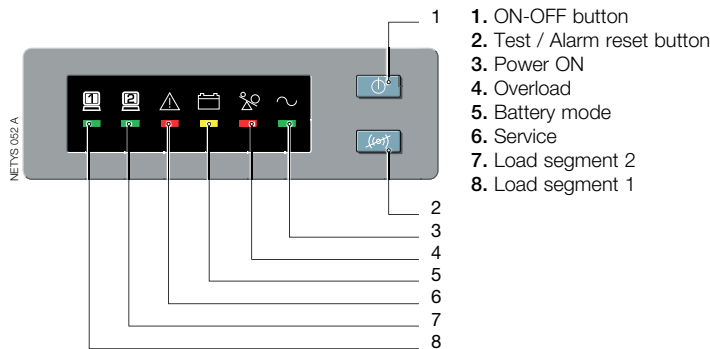
Communication with the computer system

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

Connections



Control panel



Battery Hot-swap

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



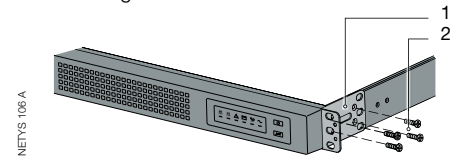
Technical data

NETYS PR RACK		
Item code	NET1000-PR-1U	NET1500-PR-1U
Sn	1000 VA	1500 VA
Pn	670 W	1000 W
Input/output	1/1	
INPUT		
Rated voltage	230 V (default), 220 V, 230 V, 240 V selectable	
Rated frequency	50/60 Hz auto-sensing	
OUTPUT		
Rated voltage	230 V	
Rated frequency	50/60 Hz	
Sockets	4 x IEC 320 (10 A)	
Telephone protection	NTP data line suppressor: RJ45 10 Base T	
BATTERIES		
Type	sealed lead-acid maintenance free - expected life 3/5 years	
Back-up time ⁽¹⁾	12 min	
COMMUNICATION		
Interfaces	RS232 - USB	
UPS CABINET		
Dimensions W x D x H	440 x 578 x 44.5 mm	
Weight	21 kg	23 kg
STANDARDS		
Safety	EN 62040-1, AS 62040-1	
EMC	EN 62040-2, AS 62040-2	
Product certification	C-Tick (N876)	

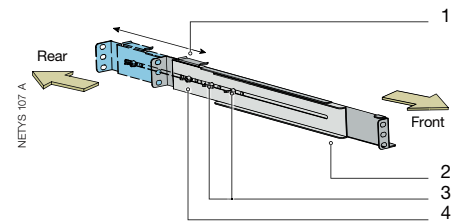
(1) Back-up time at 75% of the rated power.

Included

- Mounting bracket for 19" rack



- Adjustable rails



- Rear Hold-Down Bracket
- Rail assembly
- Assembly Wing Nuts
- Wing nut for rear Hold-down bracket

Standard communication features

- **LOCAL VIEW:** ideal UPS monitoring and shutdown point-to-point solution for Windows® operating system.
- **UNI VISION:** software for the control and automatic shutdown of applications connected to Linux.
- **UNI VISION PRO:** advanced user interface via serial link and multiple shutdown management for several operating systems.
- **HID:** UPS management based on Windows® embedded service - USB interface.
- MODBUS/JBUS RTU.

Communication options

- **NET VISION:** professional WEB/SNMP interface for UPS monitoring and shutdown management of several operating systems.
- Dry-contact interface.



NETYS RT

from 1100 to 11000 VA

complete solution for IT infrastructures

Single-phase UPS



The solution for

- > Switching
- > Storage
- > Servers and networking devices
- > VoIP communication systems
- > Structured cabling systems
- > Control systems
- > Video surveillance systems

Certifications



Advantages



Simple to install

- IEC input and output connections (1100-3000 VA) or terminal input and output connections with built-in magnetothermal input switch (5000-11000 VA).
- Compact footprint for installation in rack cabinets.
- Attractive design.

Easy to use

- No configuration necessary on first startup.
- Wide range of communication protocols for integration into LAN networks or Building Management Systems (BMS).
- Clear LED interface with buzzers that immediately indicate the operating status of the UPS, even for less specialist users (1100-3000 VA).
- LCD display with menu available in 6 languages (5000-11000 VA).

Meets practical needs

- Online double conversion technology with sinusoidal waveform, completely filters out all disturbances from / to the mains power supply and ensures maximum protection of the utility.
- Modular battery extension (EBM) to meet all back-up time requirements, even after installation.
- Possibility of 1+1 parallel redundant configuration to maximise the availability of critical utilities, even in the event of a module breakdown (5000-11000 VA).

Complementary pages

- > Communication and connectivity, [page 102](#)

Standard electrical features

- Built-in backfeed protection.
- Protection against atmospheric phenomena (NTP) for telephone / ADSL modems.
- RJ11 connection for Emergency Power Off (EPO).
- Connection for battery extension modules.
- Port for parallel operation (5000-11000 VA).

Electrical options

- 1+1 parallel module (5000-11000 VA).
- Manual bypass without interruption (5000-11000 VA).
- Battery extension modules.

Standard communication features

- **LOCAL VIEW:** ideal UPS monitoring and shutdown point-to-point solution for Windows® operating system.
- **UNI VISION:** software for the control and automatic shutdown of applications connected to Linux.
- **UNI VISION PRO:** advanced user interface via serial link and multiple shutdown management for several operating systems.
- **HID:** UPS management based on Windows® embedded service - USB interface (1100-3000 VA).
- MODBUS/JBUS RTU.

- **RT-VISION:** professional WEB/SNMP interface for UPS monitoring and shutdown management of several operating systems (5000-11000 VA).

Communication options

- **RT-VISION:** professional WEB/SNMP interface for UPS monitoring and shutdown management of several operating systems (1100-3000 VA).
- Dry-contact interface.

Technical data

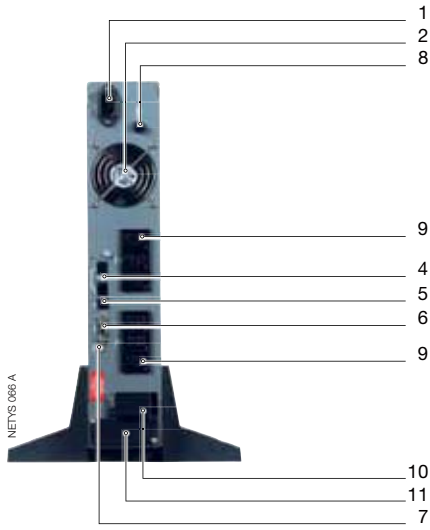
	NeTYS RT 1100	NeTYS RT 1700	NeTYS RT 2200	NeTYS RT 3000	NeTYS RT 5000	NeTYS RT 7000	NeTYS RT 9000	NeTYS RT 11000
MODELS	NRT-U1100	NRT-U1700	NRT-U2200	NRT-U3000	NRT-5000K	NRT-7000K	NRT-9000K	NRT-11000K
POWER	1100 VA / 800 W	1700 VA/1200 W	2200 VA/1600 W	3000 VA/2100 W	5000 VA/3500 W	7000 VA/4900 W	9000 VA/6400 W	11000 VA/8000 W
Architecture	online double conversion VFI with input PFC and automatic bypass							
Parallel redundant function	-	-	-	-	1+1	1+1	1+1	1+1
INPUT								
Voltage	230 V (1ph) 160~275 Vac; up to 130 Vac @70% load				230 V (1ph) 156~280 Vac up to 130 Vac @70% load			
Frequency	50/60 Hz +/-10% (Auto-Selectable)							
Power factor / THDi	>0.98 / <6%				>0.99 / <5%			
OUTPUT								
Voltage	230 V (1ph) selectable 200 / 208 / 220 / 240V - 50 or 60 Hz +/- 2% (+/- 0.05 Hz in battery mode)							
Efficiency	up to 91% online mode				up to 92% online mode			
Overload capability	up to 105% continuously; 125% x 3 min; 150% x 30 sec				up to 105% continuously; 125% x 5 min; 150% x 30 sec			
Output connections	6 x IEC 320-C13 (10 A)	6 x IEC 320-C13 (10 A) + 1 x IEC 320-C20 (16 A)			terminals			
BATTERY								
Standard autonomy*	8	12	8	10	10	7	12	8
Voltage	24 Vdc	48 Vdc	48 Vdc	72 Vdc	192 Vdc	192 Vdc	240 Vdc	240 Vdc
Recharge time	< 6h to recover 90% capacity				< 4h to recover 90% capacity			
COMMUNICATION								
Mimic panel	LED				LCD 6 languages			
RS232 (DB9 port) Jbus protocol	•	•	•	•	•	•	•	•
USB HID protocol	•	•	•	•	-	-	-	-
WEB/SNMP (Ethernet RJ45 port)	option	option	option	option	•	•	•	•
COMM slot	•	•	•	•	•	•	•	•
Dry contacts card	option	option	option	option	option	option	option	option
EPO input (RJ11 port)	•	•	•	•	•	•	•	•
Modem/ADSL surge protection	•	•	•	•	-	-	-	-
Parallel port	-	-	-	-	•	•	•	•
STANDARDS								
Performance & topology	EN 62040-3 (VFI-SS-111)							
Safety /EMC	EN 62040-1 (TÜV-GS certified) EN 62040-2							
Product certifications	CE, TÜV-GS, C-Tick							
IP rating	IP20							
ENVIRONMENT								
Operating ambient temperature	from 0 °C to +40 °C (from 15 °C to 25 °C for best battery life)							
Storage temperature range	from -15 °C to +50 °C (from 15 °C to 25 °C for best battery life)							
Relative Humidity	0-90% non-condensing							
Noise level (ISO 3746)	< 45 dB				< 55 dB			
DIMENSIONS & WEIGHT								
UPS size std (W x D x H)	88.7x332x 440 mm	88.7x430x440 mm	88.7x430x440 mm	88.7x608x440 mm	177.4x670x440 mm	177.4x670x440 mm	261.2x623x440 mm	261.2x623x440 mm
UPS size RACK	2U	2U	2U	2U	2U+2U	2U+2U	3U+3U	3U+3U
UPS weight std	13 kg	21 kg	22 kg	31 kg	15.5+40 kg	16+40 kg	19.5+66 kg	20+66 kg
EBM module size (W x D x H)	88.7x332x 440 mm	88.7x430x440 mm	88.7x430x440 mm	88.7x608x440 mm	88.7x608x440 mm	88.7x608x440 mm	130.6x623x440 mm	130.6x623x440 mm
EBM module RACK	2U	2U	2U	2U	2U	2U	3U	3U
EBM module weight	16 kg	29 kg	29 kg	43 kg	40 kg	40 kg	66 kg	66 kg

* @ 75% of nominal load.

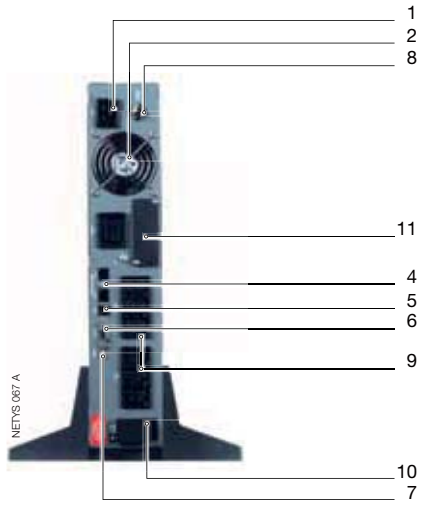
NETYS RT

from 1100 to 11000 VA
Single-phase UPS

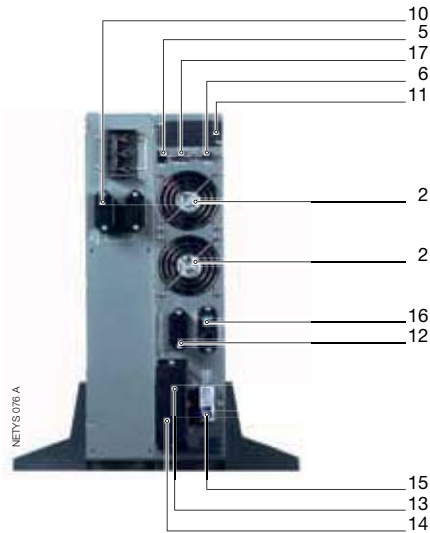
Connections



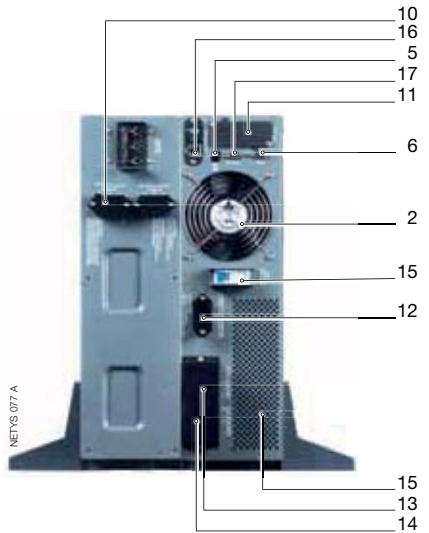
1100 VA



1700 VA - 2200 VA - 3000 VA



5000 VA - 7000 VA + battery



9000 VA - 11000 VA + battery

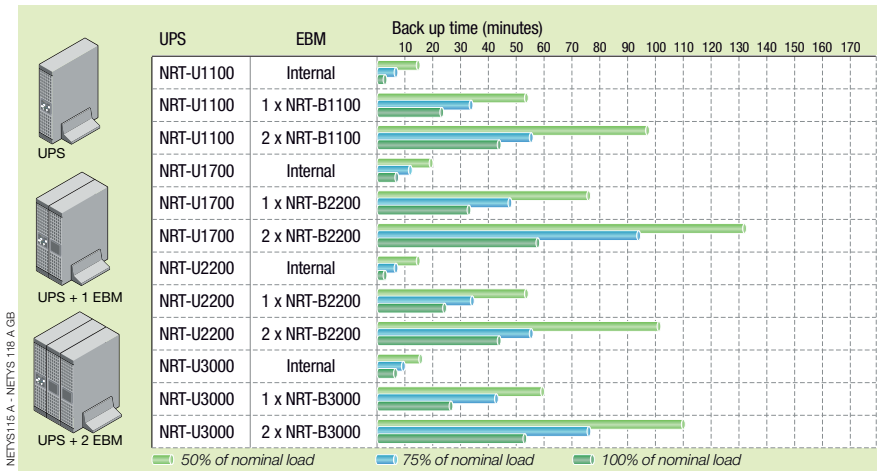
- 1. Mains input socket (IEC 320)
- 2. Fan
- 3. Output socket (full power)
- 4. Telephone/modem line protection
- 5. EPO (Emergency Power Off) input
- 6. RS232 interface (JBUS protocol)
- 7. USB port
- 8. Input protection
- 9. Output sockets (IEC 320 - 10 A)
- 10. Battery extension connector
- 11. Slot for optional communication boards
- 12. Battery extension connector
- 13. Output terminals
- 14. Input terminals
- 15. Input switch
- 16. RJ45 LAN ethernet connector
- 17. Parallel port connector

Converts from Tower to Rack mounted



APPLI 067 - 068 - 069 - 080 - 081 - 082 - 083 - 064 A

NETYS RT 1100-3000 VA - Battery extension



Parallel redundant operation for business continuity

To achieve the highest level of availability and to power critical utilities, **NETYS RT** UPS modules above 3 kVA can be configured for 1:1 redundancy.

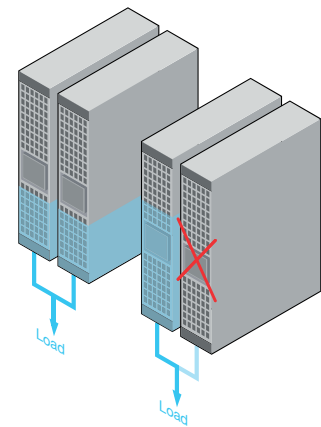
Redundant operation (1+1) means: the system incorporates one more UPS module than is needed to protect the load; in the event of a breakdown, it guarantees sufficient power supply capacity to the load by maintaining online protection.

Parallel technology is based on the principle of load sharing, whereby both units are always kept active.

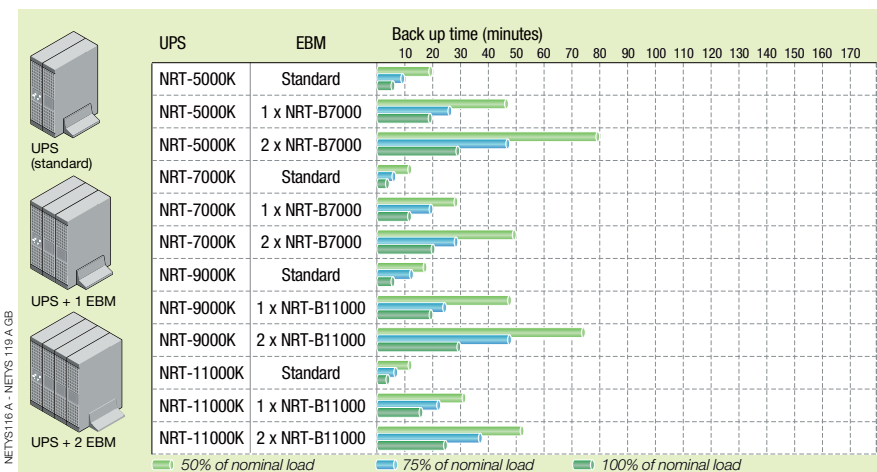
In a redundant configuration, overall system availability is much higher than a conventional UPS system using similar technology.

1+1 redundant configuration does not require additional circuits and can therefore be set up at a later date, simply by using two UPS modules and a collector/manual bypass module which simplifies cabling and maintenance of the UPS installation.

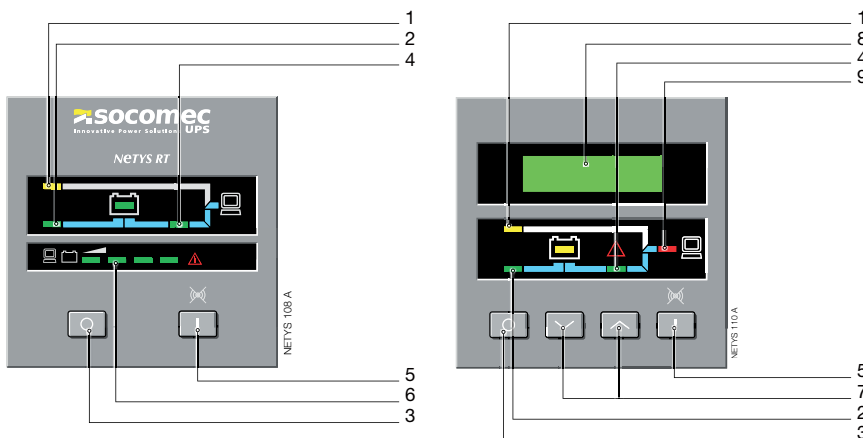
To further streamline the solution, it is also possible to select between operation with separate battery or shared battery, which is extremely useful in the case of applications requiring high levels of autonomy.



NETYS RT 5000-11000 VA - Battery extension



Control panel



1. Yellow LED lit. Operation in bypass mode
2. Green LED lit. Mains healthy
3. OFF button
4. Green LED lit. Normal operation (inverter in-line)
5. ON/TEST and buzzer override button
6. LED bar. Depending on the situation, this indicates either the charge level or the capacity of the battery
7. Navigator buttons
8. Alphanumeric LCD display
9. Green LED lit. Status of the load.

1100 VA - 1700 VA - 2200 VA - 3000 VA

5000 VA - 7000 VA - 9000 VA - 11000 VA



ITYS

from 1 to 10 kVA

continuity solutions for business IT & industrial applications

Single-phase UPS



The solution for

- > Professional workstations
- > Server and corporate networks
- > Storage systems
- > Industrial automation
- > Security systems
- > Telecom systems

Complementary pages

- > Communication and connectivity, [page 102](#)

High protection and high availability

- Online double conversion technology (VFI) and sinusoidal absorption compatible with all IT and industrial applications, operating environments and when used in conjunction with a generator set.
- Permanent regulation of output voltage and frequency.
- Wide tolerance of the input voltage limits the number of switchovers to battery mode, prolonging the battery life.
- The automatic bypass takes over immediately in the event of overloads or faults, ensuring continuous power supply to the loads.

Simple to install and easy to use

- The UPS comes ready for power up with the internal batteries connected and fully charged. The auto restart function to restart even in the event of prolonged power failure.
- No special plant preparation required thanks to the built-in magneto-thermal protection.
- The power distribution graphic display shows at-a-glance if the system is working correctly or not. Battery health can be checked either via the control panel or using a remote PC.

Operating efficiency and versatility

- The standard configuration and the communication accessories can easily be adapted to a wide range of operating environments.
- The manual bypass means that on site periodic and / or emergency maintenance can be performed on the 6 and 10 kVA models without having to disconnect the loads.
- The communication software can be used to program scheduled start-up and shutdown where automatic power management procedures are required.

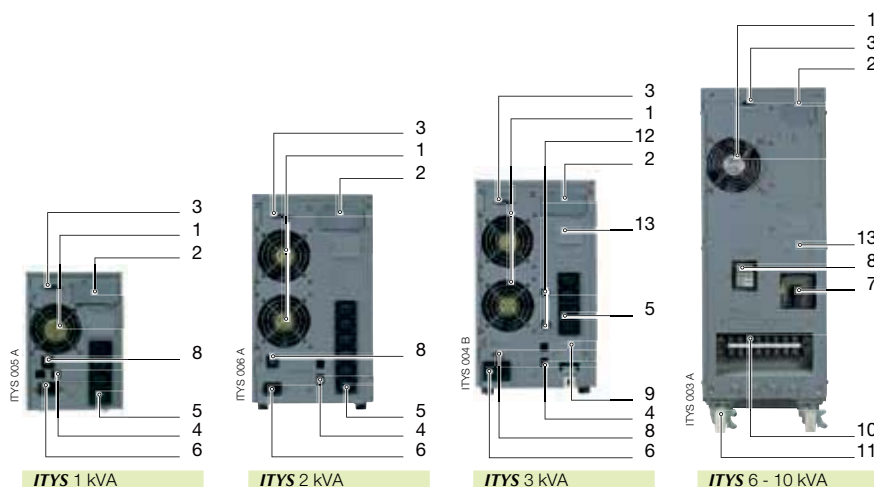
Standard communication features

- **LOCAL VIEW:** ideal UPS monitoring and shutdown point-to-point solution for Windows® operating system.
- **UNI VISION:** software for the control and automatic shutdown of applications connected to Linux.
- **UNI VISION PRO:** advanced user interface via serial link and multiple shutdown management for several operating systems.
- MODBUS/JBUS RTU.

Communication options

- **NET VISION:** professional WEB/SNMP interface for UPS monitoring and shutdown management of several operating systems.
- Dry-contact interface.

Connections



1. Fan
2. Slot for optional communication boards
3. RS232 serial port (JBUS protocol)
4. Telephone / modem / ADSL line protection
5. Output sockets (IEC 320)
6. Input socket (IEC 320)
7. Manual by pass
8. Input protection (thermal breaker)
9. Output terminals
10. Input / output terminals
11. Wheels with security lock
12. Selective protection fuse on output sockets (LB models only)
13. Connection for external battery cabinet (LB models only)

Technical data

ITYS					
Item code	ITY-TW010B	ITY-TW020B	ITY-TW030B/LB	ITY-TW060B/LB	ITY-TW100B/LB
Sn [kVA]	1000	2000	3000	6000	10000
Pn [kW]	700	1400	2100	4200	7000
Input/output	1/1				
INPUT					
Rated voltage	230 V				
Voltage tolerance	160÷300 V (up to 110 V at 60% of the load)			176÷276 V	
Rated frequency	50/60 Hz				
Power factor	0,98				
OUTPUT					
Rated voltage	230 V (can be set to 220/240 V)				
Voltage tolerance	± 1.5%			± 1%	
Rated frequency	Syncro range 46÷54 Hz				
Frequency stability (for 50 Hz)	50 Hz ± 0.2 in battery mode			50 Hz ± 0.05 in battery mode	
Overload	Up to 150% for 30 seconds			Up to 130% for 10 minutes	
Crest factor	3:1				
Connections	4 x IEC 320	6 x IEC 320	4 x IEC 320 + terminals	terminals	
BATTERIES					
Type	sealed lead-acid maintenance free - expected life 3/5 years				
Back-up time @75% of the rated load	10 min	17 min	9 min/without internal batteries	13 min/without internal batteries	9 min/without internal batteries
COMMUNICATION					
Interfaces	RS232 on DB9 connector				
COMM slots	•	•	•	•	•
Modem/ADSL surge protection	•	•	•	•	-
EFFICIENCY					
Online mode	up to 90%				
ENVIRONMENT					
Operating ambient temperature	from 0 °C to +40 °C (from 15 °C to 25 °C for best battery life)				
Relative humidity	0-90% non-condensing				
Maximum altitude	1000 m without de-rating (3000 m max)				
Acoustic level at 1 m	45 dBA			55 dBA	
UPS CABINET					
Dimensions W x D x H	145 x 400 x 220 mm	192 x 460 x 350 mm		260 x 570 x 715 mm	
Weight	14 kg	34 kg	35/16 kg	84/35 kg	93/38 kg
Degree of protection	IP20 (compliant with a IEC 60529)				
Colours	Case 430C, plastic panel 431C				
STANDARDS					
Safety	EN 62040-1, AS 62040-1				
EMC	EN 62040-2, AS 62040-2				
Product declaration	Equipped with input filters to eliminate atmospheric disturbance CE marking				

Battery extension (available with LB models only)

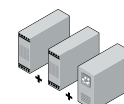
ITYS 029 A



ITYS	UPS +1 EBM
3000	75 min. +2 (ITY-EX030B)
6000	50 min. +1 (ITY-EX0100B)
10000	27 min. +1 (ITY-EX0100B)

(@ 75% of rated load)

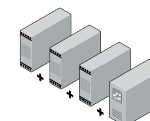
ITYS 030 A



ITYS	UPS +2 EBM
3000	30 min. +1 (ITY-EX030B)
6000	100 min. +2 (ITY-EX0100B)
10000	58 min. +2 (ITY-EX0100B)

(@ 75% of rated load)

ITYS 031 A



ITYS	UPS +3 EBM
3000	120 min. +3 (ITY-EX030B)
6000	150 min. +3 (ITY-EX0100B)
10000	90 min. +3 (ITY-EX0100B)

(@ 75% of rated load)



MODULYS System

from 1.5 to 24 kVA

a modular UPS for mission critical applications

Single-phase UPS



GAAMIE 237 A

The solution for

- > e.business
- > Server farms
- > Telecommunications
- > Medical
- > Computer networks

Complementary pages

- > Communication and connectivity, [page 102](#)

A completely modular system

- **MODULYS System** is the most flexible and modular system in the entire range.

For use under constraints

- Designed for the most demanding IT applications, such as data centres, ISP and ASP and call centres, **MODULYS System** guarantees unparalleled continuity of service. Offering a large number of available slots, it can be easily upgraded in terms of power and back-up time, and provides the essential redundancy required by these strategic applications.

Full digital control technology

- **MODULYS System** is controlled by digital circuits. Their use allows for greater precision and ensures that the operating parameters of the whole system are stable over time.

The answer to all your needs

Upgradable over time

- **MODULYS** adapts easily to changes and to the growth of your system. Power modules of 1.5, 3, 4.5 and 6 kVA, in tower, rack and system versions are easily combined to ensure the ideal configuration.

Total protection

- **MODULYS** is a modular UPS. The number of Mod-Power and Mod-Battery units can easily be increased to provide redundant operation, from N + 1 to N + X. In this way, total availability of the system is achieved, even if one or more modules are inoperative.

Continuous protection

- **MODULYS** has “hot swap” power and back-up modules which can be replaced or inserted while the system is in operation. In this way, true continuity of power supplied to the load is achieved, without any interruption of service.

Organisation of your future needs

- **MODULYS** modular design allows the number of modules to be increased and therefore, the power and back-up time of your UPS to grow. In this way you can easily cope with future situations which you are not able to predict today.

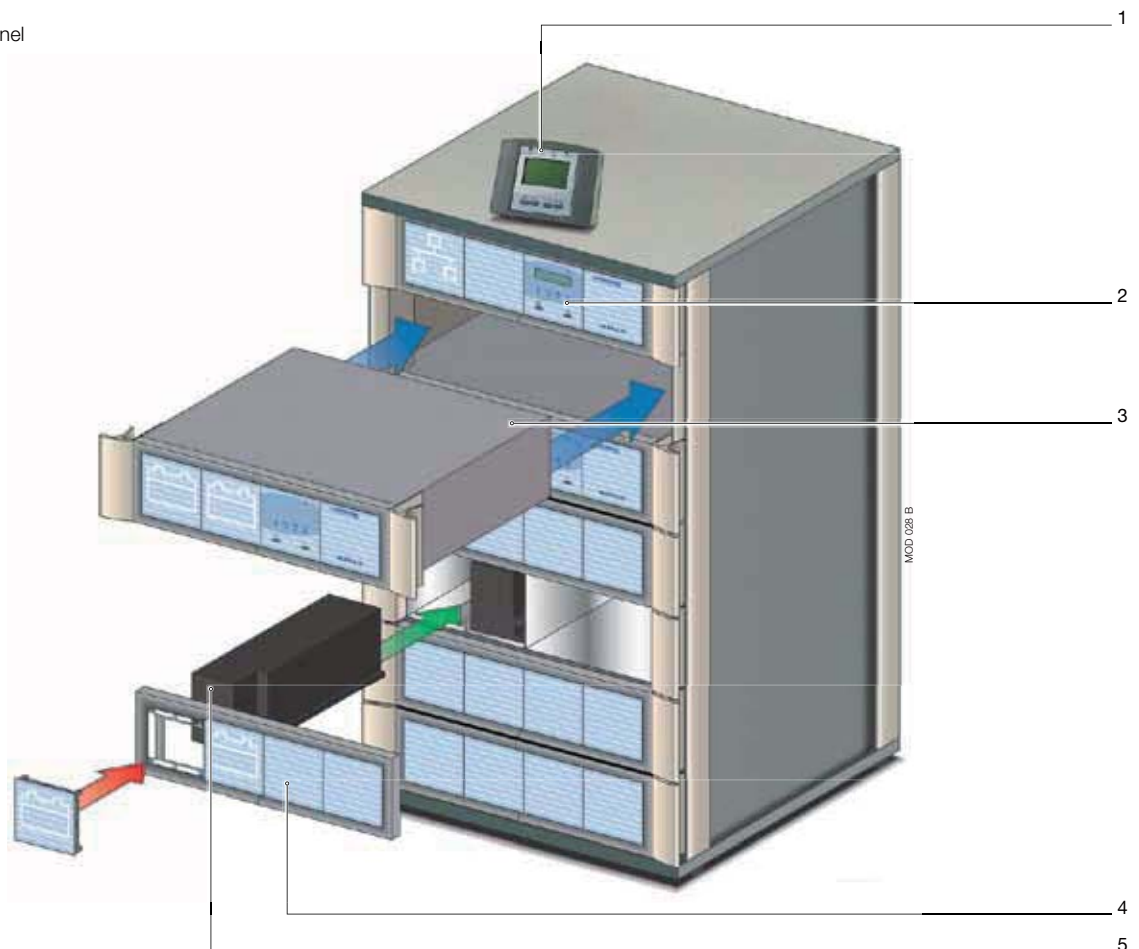
Working space

- **MODULYS** is the most compact UPS in its category. Whether in stand-alone version or one of the many system configurations, the installation takes up very little of your working area.

“No Single Point of Failure” solutions

- Each power module has its own integrated controller and an automatic bypass. In the system version, this design provides an additional guarantee since the load will be powered even if one of the modules is not working.

1. Remote control panel
2. Mimic panel
3. **Mod-Power**
4. **Mod-Battery**
5. Battery pack



MODULYS System

from 1.5 to 24 kVA

Single-phase UPS

MODULYS MC

Basic configurations

Mod-MC 4XX

expandable from 1.5 to 6 kVA

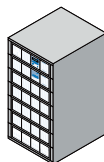


MOD 070 A

Model	MC 415	MC 430
Mod-Power	1 x 1500 VA	1 x 3000 VA
Battery pack	1	2

Mod-MC 6XX

expandable from 4.5 to 18 kVA

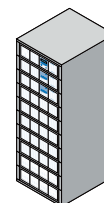


MOD 071 A

Model	MC 645	MC 660	MC 660 six
Mod-Power	1 x 4500 VA	2 x 3000 VA	1 x 6 000 VA
Battery pack	3	4	4

Mod-MC 9XX

expandable from 6 to 24 kVA



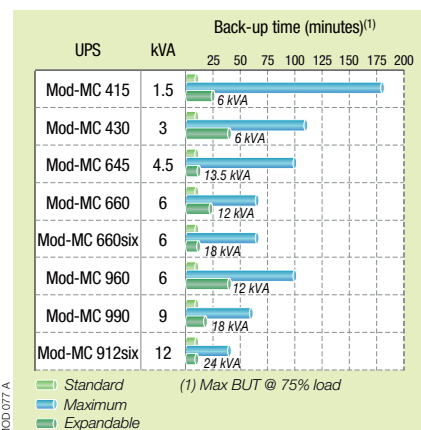
MOD 072 A

Model	MC 960	MC 990	MC 912 six
Mod-Power	2 x 3000 VA	2 x 4500 VA	2 x 6 000 VA
Battery pack	4	6	8

Technical data

MODULYS MC	
MOD-POWER	
Sn [VA]	1500 3000 4500 6000
Pn [W]	1050 2100 3150 4200
Input/output	1/1 1/1, 3/1
INPUT	
Rated voltage	230 V (1ph) 230 V (1ph + N) or 400 V (3ph + N)
Voltage tolerance	± 20% (up to -30% at 70% nominal load)
Rated frequency	50/60 Hz
Frequency tolerance	± 10%
Power factor /THDI	> 0.99 / 6%
OUTPUT	
Rated voltage	230 V (1ph + N)
Voltage tolerance	± 3% (can be set 208/220/240 V)
Rated frequency	50/60 Hz
Frequency tolerance	± 2% (± 0.1% autonomous frequency)
Overload	110% for 1 minute, 130% for 10 seconds, 200% for 5 cycles
Crest factor	3:1
BYPASS	
Rated voltage	voltage selected
Voltage tolerance	± 15%
Rated frequency	frequency selected
Frequency tolerance	± 2%
EFFICIENCY	
Online mode	up to 91%
Eco Mode	97%
ENVIRONMENT	
Operating ambient temperature	0 °C to + 40 °C (15 °C to 25 °C for best battery life)
Relative humidity	0% - 90% without condensation
Maximum altitude (above sea level)	1000 m without de-rating (maximum 3000 m)
Mod-System MODULYS MC	
Mod-MC 4XX - 4 slots W x D x H	550 x 625 x 760 mm
Mod-MC 6XX - 6 slots W x D x H	550 x 625 x 1026 mm
Mod-MC 9XX - 9 slots W x D x H	550 x 625 x 1425 mm
Weight	depending on the configuration
Degree of protection	IP20
Acoustic level at 1 m (ISO 3746)	< 52 dBA (Mod-MC 4XX) < 60 dBA (Mod-MC 6XX and Mod-MC 9XX)
Heat dissipation	530 W (Mod-MC 4XX) 700 W (Mod-MC 6XX) 2090 W (Mod-MC 9XX)
Connections	terminals
STANDARDS	
Safety	EN 62040-1
EMC	IEC 62040-2
Performance	EN 62040-3
Product declaration	CE

An adaptable system



Standard electrical features

- Separate bypass input.
- 4 dry contacts relay card.

Electrical options

- Galvanic isolation transformer.
- Temperature sensor.

Standard communication features

- 2 slots for communication options.
- MODBUS/JBUS RTU.

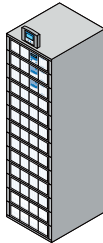
Communication options

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

MODULYS EB

Range

Mod-EB 12XX
expandable from 9 to 24 kVA



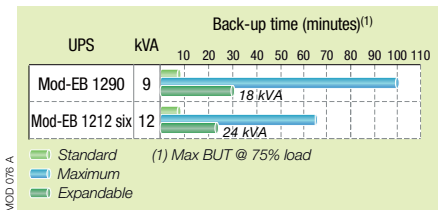
MOD 073 A

Model	EB 1290	EB 1212 six
Mod-Power	2 x 4500 VA	2 x 6000 VA
Battery pack	6	8

Technical data

MODULYS EB	
MOD-POWER	
Sn [VA]	4500 6000
Pn [W]	3150 4200
Input/output	1/1, 3/1
INPUT	
Rated voltage	230 V (1ph + N) or 400 V (3ph + N)
Voltage tolerance	± 20% (up to -30% at 70% nominal load)
Rated frequency	50/60 Hz
Frequency tolerance	± 10%
Power factor / THDI	> 0.99/6%
OUTPUT	
Rated voltage	230 V (1ph + N)
Voltage tolerance	± 3% (can be set 208/220/240 V)
Rated frequency	50/60 Hz
Frequency tolerance	± 2% (± 0.1% autonomous frequency)
Overload	110% for 1 minute, 130% for 10 seconds, 200% for 5 cycles
Crest factor	3:1
BYPASS	
Rated voltage	voltage selected
Voltage tolerance	± 15%
Rated frequency	frequency selected
Frequency tolerance	± 2%
EFFICIENCY	
Online mode	up to 91%
Eco Mode	97%
ENVIRONMENT	
Operating ambient temperature	from 0 °C up to +40 °C (from 15 °C to 25 °C for maximum battery life)
Relative humidity	0% - 90% without condensation
Maximum altitude	1000 m without derating (max. 3000 m)
Mod-System MODULYS EB	
Mod-EB 12XX (12 slots) - Dimensions W x D x H	550 x 625 x 1824 mm
Weight	depending on the configuration
Degree of protection	IP20
Acoustic level at 1 m (ISO 3746)	< 60 dBA
Heat dissipation	2080 W
Connections	terminals
STANDARDS	
Safety	EN 62040-1
EMC	IEC 62040-2
Performance	EN 62040-3
Product declaration	CE

An adaptable system



Standard electrical features

- Separate bypass input.
- 4 dry contacts relay card.

Electrical options

- Temperature sensor.

Standard communication features

- 2 slots for communication options.
- MODBUS/JBUS RTU.

Communication options

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



MODULYS RM

from 1500 to 9000 VA
for 19" rack applications

Single-phase UPS



The solution for

- > Computer networks
- > Telecommunications
- > LAN / WAN networks

Complementary pages

- > Communication and connectivity, [page 102](#)

A 19" rack solution"

- The **Mod-RM** series enables the UPS and all the protected equipment (HUB, server, back-up units, etc.) to be integrated into a single 19" rack. These modules are prewired so that connection is easier, simplifying installation.

An adaptable system

- **Mod-RM** has been specifically designed for usage up to 9 kVA, which requires a combination of reliability and adaptability.
- The free slots in each model enable the **Mod-Power** to be added to provide redundancy for the system or to increase the power.

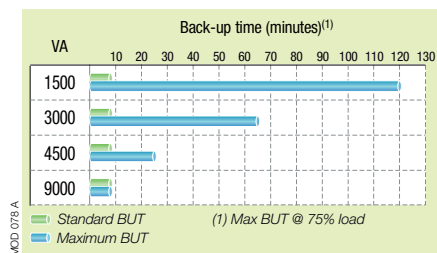
Modular back-up time

- In the same way, the spaces available enable the **Mod-Battery** to be added to increase back-up time.

System upgrades

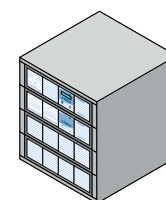
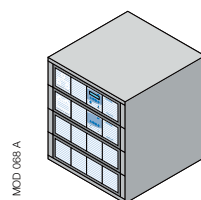
- Units bought separately (**Mod-TW** or **Mod-RK**) can be installed at a later date in a **Mod-System**, fulfilling your needs for modularity and redundancy.

An adaptable system



Range

For your needs from 1500 to 9000 VA



Model	Mod-RM 315
Mod-Power	1 x 1500 VA
Battery pack	1

Model	Mod-RM 330
Mod-Power	1 x 3000 VA
Battery pack	2

Technical data

MODULYS RM	
MOD-POWER	
Sn [VA]	1500 / 3000
Pn [W]	1050 / 2100
Input/output	1/1
INPUT	
Rated voltage	230 V
Voltage tolerance	± 20% (up to -30% at 70% nominal load)
Rated frequency	50/60 Hz
Frequency tolerance	± 10%
Power factor / THDI	> 0.99 / 6%
OUTPUT	
Rated voltage	230 V
Voltage tolerance	± 3% (adjustable 208/220/240 V)
Rated frequency	50/60 Hz
Frequency tolerance	± 2% (± 0.1% autonomous frequency)
Overload	110% for 1 minute, 130% for 10 seconds, 200% for 5 cycles
Crest factor	3:1
BYPASS	
Rated voltage	voltage selected
Voltage tolerance	± 15%
Rated frequency	frequency selected
Frequency tolerance	± 2%
EFFICIENCY	
Online mode	up to 91%
Eco Mode	97%
ENVIRONMENT	
Operating ambient temperature	from 0 °C up to +40 °C (from 15 °C to 25 °C for maximum battery life)
Relative humidity	0% - 90% without condensation
Maximum altitude	1000 m without derating (max. 3000 m)
MOD-SYSTEM	
Dimensions W x D x H	3 slots 19" x 550 mm x 12U
Weight	57 kg (Mod-RM 315), 68 kg (Mod-RM 330)
Degree of protection	IP20
Acoustic level at 1 m (ISO 3746)	< 52 dBA
Heat dissipation	780 W
Input connections	terminals
Output connections	terminals + 2 x IEC 320 C19 (16 A)
STANDARDS	
Safety	EN 62040-1
EMC	IEC 62040-2
Performance	EN 62040-3
Product declaration	CE

Standard electrical features

- Separate bypass input.

Electrical options

- Temperature sensor.

Standard communication features

- 2 slots for communication options.
- MODBUS/JBUS RTU.

Communication options

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

MODULYS TC

from 3000 to 9000 VA

for telecommunication applications

Single-phase UPS



Mod-TC 230
Mod-TC 245
Mod-TC 260

Mod-TC 360
Mod-TC 390

The solution for

- > e.business
- > Computer networks
- > Telecommunications

Complementary pages

- > Communication and connectivity, [page 102](#)

The solution for supplying power systems

- Thanks to its particular architecture, designed especially for the telecoms sector, the **Mod-TC** combines batteries with extended back-up time with high capacity.
- **Mod-TC** is the ideal solution for isolated, unmanned installations, such as radio stations or links, mobile radio stations for cellular phone networks and GSM - GPRS - UMTS repeaters.

Batteries and a charger adapted to prolonged back-up times

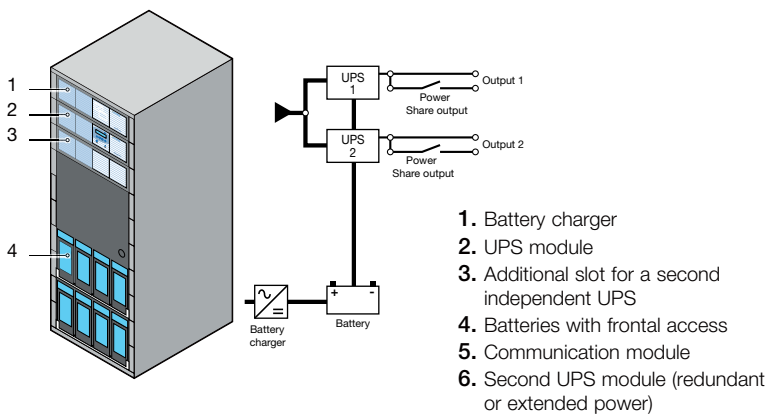
- Batteries have a lifespan of 10 years (AGMVRLA technology).
- Battery protection (fuses) connected by boards.
- Front battery access (easy maintenance).
- To guarantee constant and reliable operation, the 30 A battery charger provides rapid and stable recharging of 48 V - 100 Ah batteries after each period of back-up.

Five models available with different architectures

- The **Mod-TC 2XX** stand-alone unit provides the ideal solution for applications which do not require an extended back-up time (more than 8 hours for the **Mod-TC 230**) and will not need to be upgraded.
- **Mod-TC 3XX**. The redundant modular system.
- **Mod-TC 360** and **Mod-TC 390**. These are flexible, modular, redundant systems to which additional power modules may be installed to increase power or to obtain an operating redundancy N + 1.

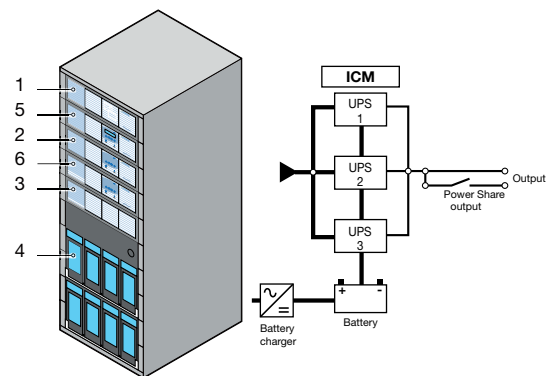
Basic configurations

Mod-TC 2XX system



Model	Mod-TC 315
Mod-Power	1 x 1500 VA
Battery pack	1

Mod-TC 3XX system



Model	Mod-TC 330
Mod-Power	1 x 3000 VA
Battery pack	2

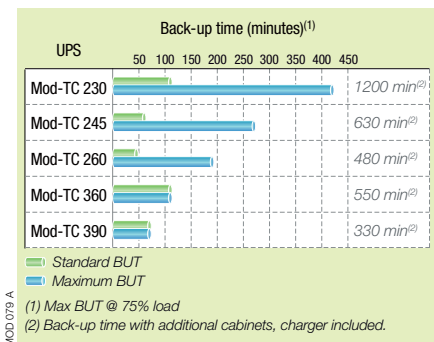
Technical data

MODULYS TC					
Model	Mod-TC 230	Mod-TC 245	Mod-TC 260	Mod-TC 360	Mod-TC 390
Sn [VA]	3000	4500	6000	6000	9000
Pn [W]	2100	3150	4200	4200	6300
Input/output	1/1	1/1, 3/1	1/1, 3/1	1/1	1/1, 3/1
INPUT					
Rated voltage	230 V (1ph + N) or 400 V (3ph + N)				
Voltage tolerance	± 20%				
Rated frequency	50/60 Hz				
Frequency tolerance	from 45 to 65 Hz				
Power factor / THDI	> 0.98 / < 6%				
OUTPUT					
Rated voltage	230 V (1ph)				
Voltage tolerance	± 3% (can be configured for 208/220/240 V)				
Rated frequency	50-60 Hz				
Frequency tolerance	± 2% (± 0.1% autonomous frequency)				
Redundant N+1 ⁽¹⁾	-	-	-	6000 VA	9000 VA
Two independent UPS ⁽¹⁾	3000 + 3000 VA	4500 + 4500 VA	6000 + 6000 VA	-	-
Overload	110% for 1 minute, 130% for 10 seconds, 200% for 5 cycles				
Crest factor	3:1				
BATTERIES					
Type	long life battery (sealed, maintenance free)				
Back-up time	1 to 8 hours				
Battery tray (100 Ah 48 V) ⁽²⁾	1	1	1	2	2
Recharge period	< 8 hours				
EFFICIENCY					
Online mode	up to 90%				
ENVIRONMENT					
Operating ambient temperature	from 0 °C up to +40 °C (from 15 °C to 25 °C for maximum battery life)				
Relative humidity	0% - 90% without condensation				
Maximum altitude	1000 m without derating (max. 3000 m)				
CABINET					
Dimensions W x D x H	600 x 600 x 1425 mm				
Weight	depending on the configuration				
Degree of protection	IP20				
Acoustic level at 1 m (ISO 3746)	< 60 dBA				
STANDARDS					
Safety	EN 62040-1				
EMC	IEC 62040-2				
Performance	EN 62040-3				
Product declaration	CE				

(1) With the addition of a supplementary UPS module.

(2) Internally or externally expandable (additional cabinet with battery charger).

An adaptable system



Standard electrical features

- Separate bypass input on **Mod-TC 245**, **Mod-TC 260**, **Mod-TC 360** and **Mod-TC 390**.
- Signal contacts relay card.

Electrical options

- Temperature sensor on **Mod-TC 360** and **Mod-TC 390**.

Standard communication features

- 2 slots for communication options.
- MODBUS/JBUS RTU.

Communication options

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



MASTERYS BC

from 8 to 12 kVA

for critical IT and light industrial applications

Single-phase and three-phase UPS



The solution for

- > Light industrial applications
- > Servers
- > Telecommunications
- > Medical and laboratories

Certifications



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

Complementary pages

- > Communication and connectivity, *page 102*
- > Technology, *page 110*

The ideal protection

- Simple and reliable power protection.
- Tailored for medium-sized businesses.
- Advantages of advanced technology.

An excellent size/power/back-up time ratio

- Ideal for sensitive professional applications.
- Suitable for protection in IT environments thanks to the internal back-up time and the possibility of installation in 19" rack cabinets.

Tailored to your environment

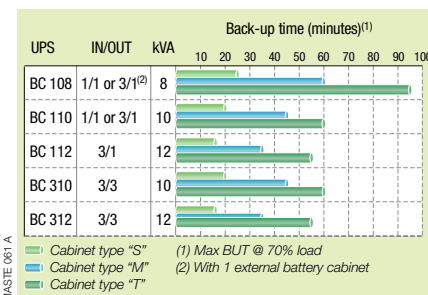
- Easy to install.
- Unique to the market with its highly compact size.
- Flexible back-up times: different back-up time configurations are available either within the UPS standard cabinet or by using taller UPS cabinets, without changing the floor space (W = 444, D = 795 mm).
- Increased system availability placing two UPS in parallel.
- Combi Concept: BC108 and BC110 models are compatible with single or three-phase inputs, which can be configured during installation.
- Fitted with a multilanguage LCD display.
- Separate rectifier supply and bypass networks.

Technical data

MASTERYS BC 8-12			
Sn [kVA]	8	10	12
Pn [kW]	5.6	7	8.4
Input/output 1/1	● ⁽¹⁾	● ⁽¹⁾	-
Input/output 3/1	● ⁽¹⁾	● ⁽¹⁾	●
Input/output 3/3	-	●	●
Parallel configuration	up to 2 units		
INPUT			
Rated voltage	230 V (1 ph + N), 400 V (3ph + N)		
Voltage tolerance	± 20% (up to -35% at 70% nominal load)		
Rated frequency	50/60 Hz ± 10%		
Power factor / THDI	0.99 / < 6% ⁽²⁾		
OUTPUT			
Rated voltage	230 V (1 ph + N), 400 V (3ph + N)		
Voltage tolerance	± 1% 1ph + N can be configured 208 ⁽³⁾ /220/230/240 V 3ph + N can be configured 360 ⁽³⁾ /380/400/415 V		
Rated frequency	50/60 Hz		
Frequency tolerance	± 2% (configurable from 1% to 8% with generating set)		
Overload	125% for 2 minutes, 150% for 10 seconds		
Crest factor	3:1 (complying with IEC 62040-3)		
Power factor without derating	up to 0.9 leading (up to 0.7 leading for 10 minutes)		
BYPASS			
Voltage tolerance	230 V (1ph + N), 400 V (3ph + N) ± 15% (configurable from 10% to 20%)		
Frequency tolerance	50/60 Hz ± 2% (configurable from 1% to 8%)		
EFFICIENCY			
Online mode	up to 92%		
Eco Mode	up to 98%		
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)	< 50 dBA		< 52 dBA
UPS CABINET			
Dimensions type S (short) W x D x H	444 x 795 x 800 mm		
Dimensions type M (medium) W x D x H	444 x 795 x 1000 mm		
Dimensions type T (tall) W x D x H	444 x 795 x 1400 mm		
Weight with standard batteries	155 kg	160 kg	175 kg
Degree of protection	IP20 (according to IEC 60529)		
Colours	RAL 7012, plastic front panels: dark grey		
STANDARDS			
Safety	EN 62040-1 (TÜV SÜD certified), EN 60950-1-1		
EMC	EN 62040-2		
Performance	EN 62040-3 [VFI-SS-111]		
Product declaration	CE		

(1) Combi: single or three-phase input configurations. - (2) 1/1 configuration, THDI < 25% for 3/1 configuration.
(3) @ Pout = 90% Pnom.

UPS and batteries



Standard electrical features

- Backfeed protection: detection circuit.
- **EBS** (Expert Battery System) for battery management.

Electrical options

- Dual input mains.
- Internal maintenance bypass.
- External maintenance bypass.
- External battery cabinet.
- Galvanic isolation transformer.
- Parallel kit.

Standard communication features

- MODBUS/JBUS RTU.
- 2 slots for communication options.

Communication options

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



Business Critical

MASTERYS BC 15-120 kVA - DELPHYS BC 160-200 kVA
solutions for your business critical applications

Single-phase and
three-phase UPS



The solution for

- > Data centres
- > Telecommunications
- > Service Sector

Certifications



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

Complementary pages

- > External battery cabinets, [page 82](#)
- > Communication and connectivity, [page 102](#)
- > Technology, [page 110](#)

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.
- Internal batteries providing more than 1 hour runtime.
- 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.

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.

Remote maintenance

- **T.SERVICE**: maintenance software for continuous 24/7 monitoring of the SOCOMEC UPS.

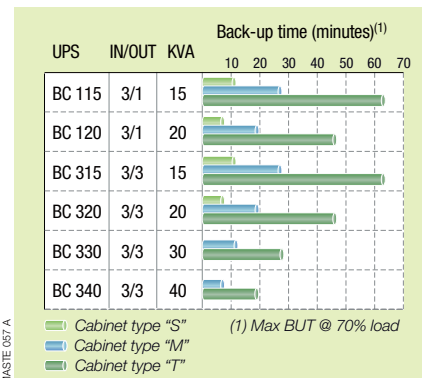
Standard communication features

- 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.

UPS and internal batteries



Technical data

	MASTERYS BC 15-120						DELPHYS BC 160 - 200			
Sn [kVA]	15	20	30	40	60	80	100	120	160	200
Pn [kW]	13.5	18	27	36	54	72	90	108	144	180
Input/output 3/1	•	•	-	-	-	-	-	-	-	-
Input/output 3/3	•	•	•	•	•	•	•	•	•	•
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	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 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 93.5%									
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)	< 52 dBA	< 55 dBA	< 62 dBA	< 65 dBA	< 68 dBA					
UPS CABINET										
Dimensions W x D x H	444 x 795 x 800/1000/1400 mm			444 x 795 x 1400 mm			700 x 800 x 1930 mm			
Weight ⁽³⁾	105 kg	110 kg	135 kg	152 kg	180 kg	200 kg	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, EN60950-1	
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.



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



Complementary pages

- > Communication and connectivity, [page 102](#)

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.

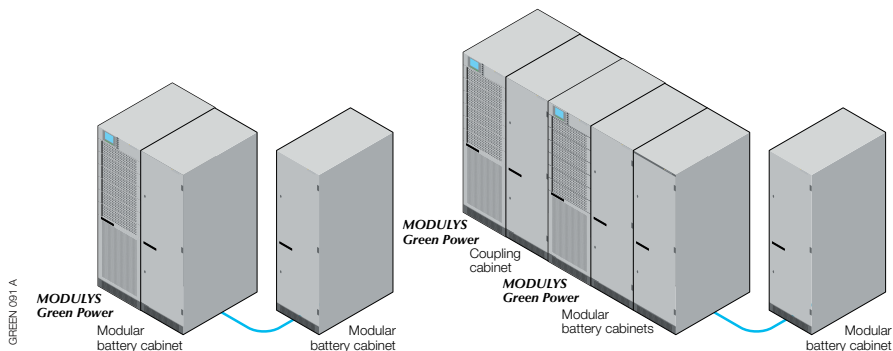
Performance optimisation while changing

- 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.

Configurations

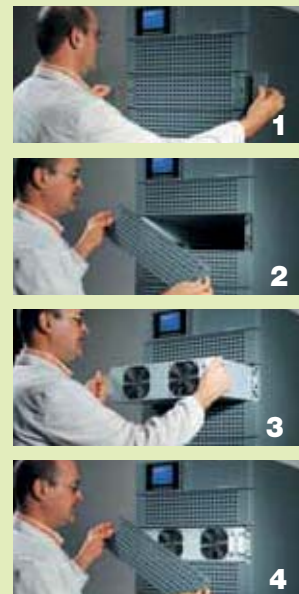


Technical data

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 THDI < 2% and nominal load. - (2) From inverter. - (3) @ 25 °C.

Module installation



Standard electrical features

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

Electrical options

- External maintenance 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

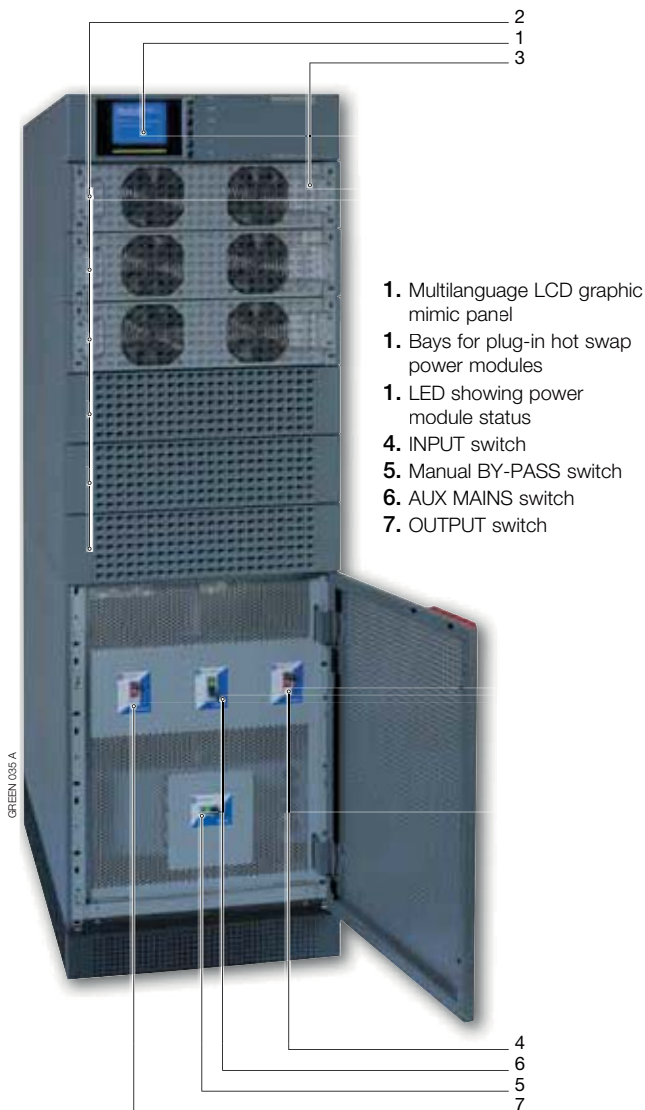
MODULAR BATTERY CABINET	
DIMENSIONS AND WEIGHT	
Dimensions W x D x H	600 x 900 x 1695 mm
Weight (empty cabinet)	161 kg
Weight (battery string)	121 kg
HIGH CAPACITY BATTERY CABINET	
Dimensions W x D x H	600 x 900 x 1695 mm
Weight	599 kg

MODULYS Green Power

from 20 to 360 kVA

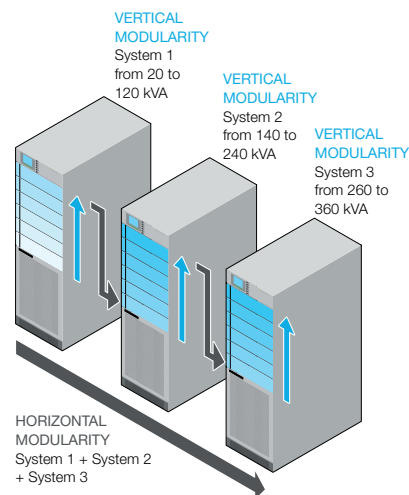
Three-phase UPS

Totally modular for the best modular UPS system



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.



GREEN 035 A GB

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.

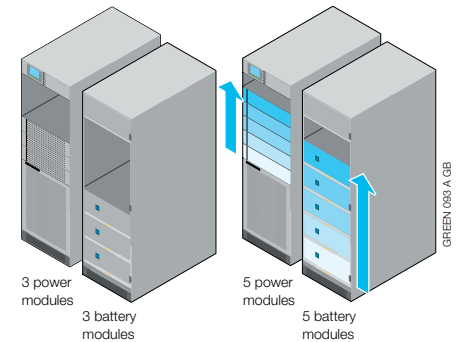
Totally modular for the best modular battery solution



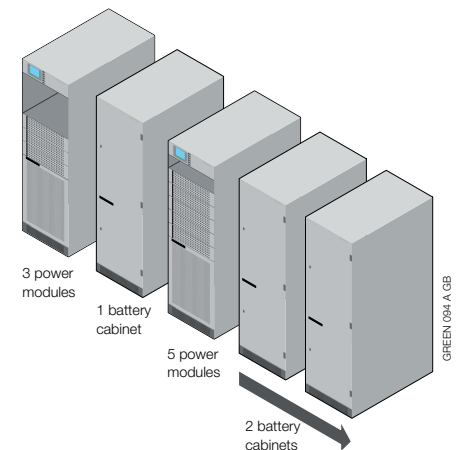
1. Six bays for battery hosting
2. Four hot swap battery packs for each string
3. Battery protection for each string

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
high availability, ultra high energy efficiency
and maximum power available

Three-phase UPS



GAMME 202 C

GAMME 125 B

The solution for

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

Certifications



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

Advantages



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

Complementary pages

- > External battery cabinets, [page 82](#)
- > Communication and connectivity, [page 102](#)
- > Technology, [page 110](#)

Energy saving + Full rated power = 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 in typical data centre conditions.
- Full power UPS design up to 35 °C, with 25% more power compared to UPS with PF=0.8 and 11% more power compared to UPS with PF=0.9.
- Suitable also for leading power factor loads down to 0.9 without derating.

Significant cost-saving (TCO)

- Maximum energy saving thanks to 96% output efficiency: 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 size of UPS, and therefore less €/kW.
- With its “clean rectifier”, **Green Power 2.0** UPS significantly optimize the upstream infrastructure without over rating the supply system (i.e. generator sets, switches, cables, protection devices).
- High efficiency minimizes the amount of battery for an equivalent back-up time.
- Battery configuration can be optimized, thanks to a very wide DC range.
- Extended battery life and performance:
 - long life battery,
 - very wide input voltage (-40% / +20%) and frequency (45 to 65 Hz) without battery use,
 - EBS (Expert Battery System) charging management improves battery service life.

Advanced interface

- Up to 30 languages embedded.
- Colour graphic display.
- Commissioning wizard.

Standard electrical features

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

Electrical options

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

Standard communication features

- MODBUS TCP.
- MODBUS/JBUS RTU.
- Embedded LAN interface (web pages, email).
- 2 slots for communication options.

Communication options

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

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 from 1% to 8%)								
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 dB	< 55 dB	< 60 dBA	< 65 dBA					
UPS CABINET									
Dimensions W x D x H (mm)	444 x 795 x 800	444 x 795 x 1000	444 x 795 x 1400	600 x 800 x 1400	700 x 800 x 1930				
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

Remote maintenance

- **T.SERVICE**: maintenance software for continuous 24/7 monitoring of the SOCOMEC UPS.

Green Power 2.0

DELPHYS GP from 160 to 400 kVA/kW

ultra high energy efficiency and maximum power availability

Three-phase UPS



GAMME 1B4 B

The solution for

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

Attestations



**BUREAU
VERITAS**
Green Power 2.0 is attested
by Bureau Veritas

Advantages



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

Complementary pages

- > *Flywheel*, page 78
- > *BHC Interactive*, page 80
- > *Communication and connectivity*, page 102
- > *Technology*, page 110

Energy saving + Full rated power = 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 attested 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 in typical data centre conditions.
- Full power UPS design up to 35 °C with 25% more power compared to UPS with PF=0.8 and 11% more power compared to UPS with PF=0.9.
- Suitable also for leading power factor loads down to 0.9 without power derating

Significant cost-saving (TCO)

- Maximum energy saving thanks to 96% output 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 size of UPS, and therefore less €/kW.
- With its “clean rectifier”, **Green Power 2.0** UPS significantly optimize the upstream infrastructure without over rating the supply system (i.e. generator sets, switches, cables, protection devices).
- High efficiency minimizes the amount of battery for an equivalent back-up time.
- Extended battery life and performance:
 - long life battery
 - very wide input voltage and frequency.
- EBS (Expert Battery System) charging management improves battery service life.
- 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 2400kW, development without constraint.
- Distributed or centralized bypass flexibility.
- 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.

Electrical options

- External maintenance bypass.
- Extended back-up time.
- Extended battery charger capability.
- Shared battery.
- Flywheel compatible.
- Isolation transformer.
- Backfeed isolation device.
- **ACS** synchronisation system.
- **BHC Interactive**.
- Cold start.
- **Fast EcoMode**.

Technical data

DELPHYS GP				
Sn [kVA]	160	200	320	400
Pn [kW]	160	200	320	400
Input / output	3/3			
Parallel configuration (distributed or central by-pass)	up to 8 units		up to 6 units	
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%			
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	< 1%			
Total output voltage distortion - non-linear load (IEC 62043-3)	< 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 0 °C up to +40 ⁽¹⁾ °C (from 15 °C to 25 °C for maximum battery life)			
Relative humidity	0% - 95% without condensation			
Maximum altitude	1000 m without derating (max. 3000 m)			
Acoustic level at 1 m (ISO 3746)	< 65 dBA	< 67 dBA	< 68 dBA	< 70 dBA
UPS CABINET				
Dimensions W x D x H	700 x 800 x 1930 mm		1400 x 800 x 1930 mm	
Weight	470 kg	490 kg	980 kg	1000 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.

Standard mechanical features

- IP20.
- Battery temperature sensor.

Mechanical options

- IP31 or higher.
- Anti-dust filter.

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).
- PROFIBUS.
- SMS alert.

Remote maintenance

- **T.SERVICE:** maintenance software for continuous 24/7 monitoring of the SOCOMEC UPS.



MASTERYS IP+

from 10 to 80 kVA

high reliability in harsh industrial environments

Single-phase and three-phase UPS



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



Complementary pages

- > External battery cabinets, [page 82](#)
- > Communication and connectivity, [page 102](#)
- > Technology, [page 110](#)

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 frame).
- Floor anchoring (to prevent tilting).
- IP31 and IP52 protection degree for harsh environments with easy replaceable dust filters.
- Wide input voltage tolerance from -40 % up to +20 % of nominal voltage.
- Double EMC immunity compared to UPS international standard IEC 62040-2.

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.

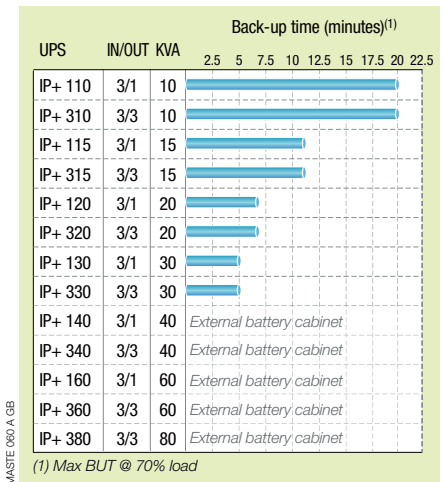
For industrial loads

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

Standard electrical features

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

UPS and batteries



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.

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% ⁽³⁾ (up to -40% @ 50% of rated power)						
Rated frequency	50/60 Hz						
Frequency tolerance	± 10%						
Power factor / THDI ⁽²⁾	0.99 / < 3%						
OUTPUT							
Rated voltage	1ph + N: 230 V (can be configured 220/240 V) 3ph + N: 400 V (380/415 V configurable) ⁽³⁾						
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						
Crest factor	3:1 (complying with IEC 62040-3)						
Power factor without derating	up to 0.9 leading (up to 0.7 leading for 10 minutes)						
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 +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)	< 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) For source THDV < 2% and nominal load.

(3) Three-phase 220-230-240 V from 15 to 40 kVA.

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 maintenance

- T.SERVICE: maintenance software for continuous 24/7 monitoring of the SOCOMECS UPS.



DELPHYS MP elite

from 80 to 200 kVA

your protection up to 1200 kVA

Three-phase UPS



DELPHYS MP elite

The solution for

- > Data centres
- > Industry
- > Telecommunications
- > Processes

Advantages



Complementary pages

- > **Flywheel**, page 78
- > **BHC Universal**, page 80
- > External battery cabinets, page 82
- > Communication and connectivity, page 102
- > Technology, page 110

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 ($\pm 2\%$ in less than 5 ms).
- Active power without derating, for loads with a lagging power factor and up to 0.9 leading.
- Sinusoidal THDV output voltage $< 2\%$ with linear loads and $< 3\%$ with non-linear loads.
- With sinusoidal voltage for non-linear loads (Crest Factor 3:1).
- 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: THDI $< 2.5\%$.
- Reduced current consumption due 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.
- Reinforced IP protection degree.
- Ventilation filters.
- Ventilation failure detection
- Top entry connection

Standard communication features

- Multilanguage graphic display.
- Embedded dry contacts.

Communication options

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

Remote maintenance

- **T.SERVICE**: maintenance software for continuous 24/7 monitoring of the SOCOMEC UPS.

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%				
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

- > Data centre
- > Industry
- > Telecommunications
- > Processes

Attestations



Advantages



Complementary pages

- > *Flywheel*, page 78
- > *BHC Universal and BHC Interactive*, page 80
- > *Communication and connectivity*, page 102
- > *Technology*, page 110

Lower Total Cost of Ownership

- Minimized running costs, by:
 - very high efficiency of up to 93.5% (VFI mode),
 - '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): 900 kVA in less than 3.2 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 maintenance

- 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.
- Double bypass, to simplify operation.
- Double bypass, for easier operation.
- 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).
- EBS (Expert Battery System).
- Parallel connection up to 6 units.

Standard communication features

- Multilanguage graphic display.

Electrical options

- **BHC Universal** and **BHC Interactive**.
- **ACS** synchronisation system.
- Reinforced IP protection degree.
- Ventilation filters.
- Ventilation control.

Remote maintenance

- **T.SERVICE**: maintenance software for continuous 24/7 monitoring of the SOCOMECS UPS.

Communication options

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

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	-				3.5 In 100 ms	
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 Hz (0.2 Hz to 4 Hz settable)					
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: three-phase 220-230-240 V on demand. - (2) As per power range.



CPSS *EM*ergency*

from 3 to 200 kVA

a centralized power supply for your emergency systems

Central Power
Supply Systems

The solution for

- > Tertiary sector
- > Industry
- > Small businesses
- > Museums, hospitals



Central power supply systems (CPSS) are designed to meet building fire safety regulations

Designed and manufactured in compliance with standard EN 50171, CPSS (Central Power Supply Systems) are intended to provide emergency lighting in the event of mains supply outage, but can also be used for other emergency systems, such as:

- automatic fire sprinkler systems,
- emergency detection and warning units,
- smoke extraction equipment,
- carbon monoxide detection systems,
- specific systems for safety-sensitive areas.

CPSS: key benefits

- Reduces the cost of your investment.
- Reduces installation costs.
- Reduces operating costs (long term reliability).
- Simplifies mandatory periodic testing procedures.
- Eliminates the drawbacks associated with thermal stress on back-up batteries at high elevations.

* Please check the product availability for your country.

Fully compliant product ranges

The CPSS **EMergency** range has been developed to meet your critical needs, while ensuring compliance with European standards.

Batteries

- VRLA (Valved Regulated Lead Acid).
- Long life expectancy: 10 years operating at 20 °C.
- Compliant with EN 50272-2.
- Back-up time between 30 and 180 minutes.

Slow-discharge protection

- Inverter shutdown function, designed to prevent deep-discharge battery damage.
- Preventive alarm and manual reset after shutdown.

Battery charger

- Compliant with EN 50272-2 and EN 60146-1-1.
- Recharge to 80 % capacity within 12 hours, in conformity with EN 50171.
- Low AC ripple currents for maximum battery life, and in conformity with EN 50171.
- Battery voltage regulated automatically according to temperature.

Test

- Automatic and manual battery test.
- Input switch for mandatory periodic verification of battery back-up time.

Enclosure

- Metal structure compliant with EN 60598-1.
- Minimum protection category IP 20.
- Compact dimensions (small footprint).

Inverter

- Low harmonic distortion (THDU %) on output side.
- Protection against battery polarity inversion, in conformity with EN 50171.

Transformers

- Double wound with safety earth screen, conforms to EN 61558-2-6 (option).

On request

- Galvanic isolation transformer compliant with EN 61558-2-6.
- Prewired for isolated neutral (IT).
- Permanent Isolation Controller.

Remote indication

Advanced Dry Contact (ADC) card, available depending on the model selected:

- Operating status.
- Battery charge low.
- Battery charger fault.
- General alarm.
- Earth leakage fault.

Local signalling

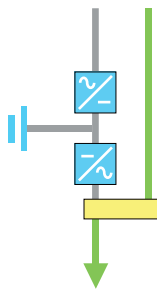
- Input voltage out of tolerance.
- Output voltage present.
- Battery mode.
- Battery circuit interrupted.
- Floating voltage fault.
- On battery when mains present.
- Slow discharge pre-alarm.
- Slow discharge protection alarm.
- Charger fault.
- Earth leakage fault (option).

EN 50171-compliant system control and operating modes

It is a requirement of any well-designed emergency lighting system that the back-up power source will activate both in the case of a complete a.c. mains failure and in the case of a local power supply fault.

The emergency lighting system can be equipped with lamps classified as permanent or non-permanent. Similarly, the central power supply system can operate in changeover or parallel stand-by mode.

Changeover mode

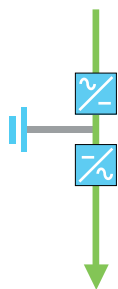


The CPSS Systems supply power to the load using the bypass circuit and maintaining battery charge, the output being permanently mains-powered (AR).

In the event of a supply outage, the load is switched by an automatic transfer switching device (ATSD) to the inverter, which supplies a filtered and stabilized output voltage.

The battery energizes the inverter and guarantees a steady power source for the duration of the specified back-up time.

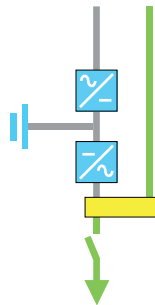
Parallel stand-by mode



The load is connected continuously to the inverter, so that the output is permanently under power (SA).

In the event of a supply outage, the battery takes over without interruption, supplying power to the load for the duration of the specified back-up time.

Changeover mode with additional control switch for central load switching



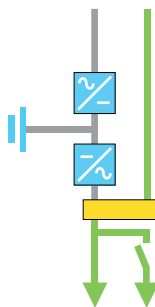
In normal operating mode, with healthy a.c. mains, the CPSS remains on stand-by, and the output is 'emergency-only' (SE).

A general control switch device (CSD) is connected between the load and the CPSS. The CSD switch relay is operated manually or automatically (according to the state of the utility supply). Its function is to guarantee that the emergency supply will never be connected during normal operation of the system.

Power is supplied to the load via the bypass circuit, closing the relay.

In the event of a utility power failure, the load is connected to the inverter and the battery will supply power for the duration of the specified back-up time.

Changeover mode with additional control switch for partial load switching



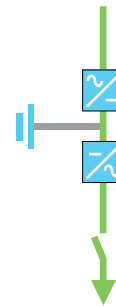
In normal operating mode, the CPSS supplies power to certain services, which are split between a permanently connected output (SA) and an emergency-only output (SE).

A control switch device (CSD) is connected to one part of the load and the CPSS. The CSD switch relay is operated manually or automatically (according to the state of the utility supply).

Its function is to guarantee that the emergency supply will never be disconnected during normal operation.

The remaining services are powered permanently by the CPSS. Accordingly, part of the load is powered constantly by the inverter, whereas the remaining part is connected to the inverter only in the event of a utility power failure.

Non-maintained changeover mode



In this instance, essential safety equipment is powered only in the event of a supply outage (emergency only output – SE).

A control switch device (CSD) is connected between the load and the CPSS. The battery guarantees a steady power supply to the load for the duration of the specified back-up time.

MODULYS EL single-phase

from 3 to 6 kVA



Advantages of CPSS *EM*ergency

- Main power source compliant with EN 50171.
- Online double conversion technology (VFI-SS-111).
- Accurate voltage and frequency.
- Fully digital controls.
- Integrated batteries (up to 60 minutes).
- High capacity batteries with a 10-year life expectancy.
- Batteries tested automatically.
- Control panel with alphanumeric display.
- RS 232 serial interface.
- RS 485 serial interface on 4.5 and 6 kVA models.
- Interface with voltage-free contacts.

Operating modes

- Changeover mode.
- Parallel stand-by mode.
- Changeover mode with additional control switch for central and partial load switching (on request).
- Non-maintained changeover mode.

Optional accessories

- Galvanic isolation transformer.
- Permanent isolation control.

Communication options

- LCD remote access panel.
- **NET VISION** interface allowing control via Ethernet network.

Technical data

				<i>MODULYS EL</i>		
	3	4.5	6			
Sn [kVA]	3	4.5	6			
Pn [kW]	2.1	3.15	4.2			
Input/output 1/1	•	•	•			
INPUT						
Rated voltage	230 V (1ph + N)					
Voltage tolerance	± 20%					
Permissible voltage tolerance	-30% to 70% of nominal load					
Rated frequency	50-60 Hz					
Frequency tolerance	± 10%					
Power factor / THDI	> 0.98 / < 5%					
OUTPUT						
Rated voltage	230 V (1ph + N)					
Voltage tolerance	± 3%					
Rated frequency	50-60 Hz					
Frequency tolerance	± 0.1%					
Overload	130% for 10 sec					
Crest factor	3:1					
BATTERIES						
Back-up time	60 min ⁽¹⁾					
UPS CABINET						
Dimensions W x D x H	444 x 795 x 1000 mm					
Weight	240 kg	330 kg	340 kg			
Degree of protection	IP20					
Acoustic level at 1 m (ISO 3746)	< 52 dBA					
STANDARDS						
Central Power Supply System	EN 50171					
Safety	EN 62040-1					
EMC	EN 50091-2					
Performance	IEC 62040-3					
Classification (IEC 62040-3)	VFI ⁽²⁾ - SS - 111					

(1) Other back-up times on request.

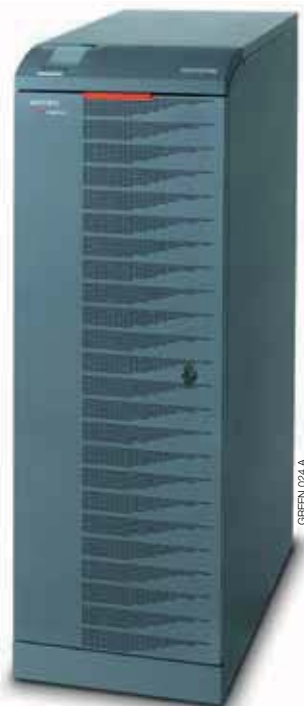
(2) Voltage Frequency Independent.

CPSS *EMergency*

from 3 to 200 kVA
Central Power Supply Systems

MASTERYS EL Green Power single and three-phase

from 10 to 80 kVA



Advantages of CPSS *EMergency*

- Main power source compliant with EN 50171.
- Online double conversion technology (VFI-SS-111).
- Suitable for leading loads up to PF 0.9 without derating.
- High capacity batteries with a 10-year life expectancy.
- Batteries with two independent and redundant units.
- Manual and automatic battery test.
- Control panel with graphic display.
- LAN interface (Ethernet).
- RS 232 / 485 serial interface.
- Interface with voltage-free contacts

Operating modes

- Changeover mode.
- Parallel stand-by mode.
- Changeover mode with additional control switch for central and partial load switching (on request).
- Non-maintained changeover mode.

Optional accessories

- Galvanic isolation transformer.
- Permanent isolation control.

Communication options

- LCD remote access panel.
- **NET VISION** interface allowing control via Ethernet network.
- Advanced Dry Contact interface.
- GSS interface allowing advanced management of generator set connected to UPS input.

Technical data

MASTERYS EL							
Sn [kVA]	10 ⁽¹⁾	15 ⁽¹⁾	20 ⁽¹⁾	30 ⁽¹⁾	40 ⁽¹⁾	60	80
Pn [kW]	9	13.5	18	27	36	48	64
Input/output 3/1	•	•	•	-	-	-	-
Input/output 3/3	•	•	•	•	•	•	•
INPUT							
Rated voltage	400 V (3ph + N) ⁽²⁾						
Voltage tolerance	± 20%						
Rated frequency	50-60 Hz						
Frequency tolerance	± 10%						
Power factor / THDI	> 0.99 / < 6%						
OUTPUT							
Rated voltage	230 V (1ph + N) - 400 V (3ph + N) ⁽¹⁾						
Voltage tolerance	± 1%						
Rated frequency	50-60 Hz						
Frequency tolerance	± 0.1%						
Overload	150% for 60 sec						
Crest factor	3:1						
UPS CABINET							
Dimensions W x D x H	444 x 795 x 1400 mm						
Weight	118 kg	123 kg	126 kg	137 kg	157 kg	200 kg	210 kg
Degree of protection	IP20						
Acoustic level at 1 m (ISO 3746)	< 62 dBA						
STANDARDS							
Central Power Supply System	EN 50171						
Safety	EN 62040-1						
EMC	EN 50091-2						
Performance	IEC 62040-3						
Classification (IEC 62040-3)	VFI ⁽³⁾ - SS - 111						

(1) TÜV SÜD. Battery dimensions and weight, dependent on back-up time; please contact SOCOMECS UPS.

(2) Three-phase 220-230-240 V on request.

(3) Voltage Frequency Independent.

DELPHYS elite EL three-phase

from 100 to 200 kVA



Advantages of CPSS *EM*ergency

- Main power source compliant with EN 50171.
- Online double conversion technology (VFI-SS-111).
- Accurate voltage and frequency (digital control).
- Suitable for capacitive loads up to PF 0.9 without derating.
- Rectifier giving sinusoidal current draw.
- High capacity batteries with a 10-year life expectancy.
- Batteries tested automatically.
- Galvanic isolation between the DC circuit and the load.
- Control panel with alphanumeric display.
- Interface with voltage-free contacts.

Operating modes

- Changeover mode.
- Mode without interruption

Optional accessories

- Galvanic isolation transformer on by-pass circuit.
- Permanent isolation control.

Communication options

- LCD remote access panel.
- JBUS / M ODBUS serial interface.
- **NET VISION** interface allowing control via Ethernet network.

Technical data

DELPHYS EL				
Sn [kVA]	100 ⁽¹⁾	120 ⁽¹⁾	160 ⁽¹⁾	200 ⁽¹⁾
Pn [kW]	80	95	128	160
Input/output 3/3	•	•	•	•
INPUT				
Rated voltage	400 V (3ph + N) ⁽²⁾			
Voltage tolerance	± 15%			
Rated frequency	50-60 Hz			
Frequency tolerance	± 5%			
THDI	< 2.5%			
OUTPUT				
Rated voltage	400 V (3ph + N) ⁽²⁾			
Voltage tolerance	± 1%			
Rated frequency	50-60 Hz			
Frequency tolerance	± 0.1%			
Overload	150% for 60 sec			
Crest factor	3:1			
UPS CABINET				
Dimensions W x D x H	1000 x 845 x 1930 mm			
Weight	820 kg	840 kg	970 kg	1000 kg
Degree of protection	IP20			
Acoustic level at 1 m (ISO 3746)	< 68 dBA			
STANDARDS				
Central Power Supply System	EN 50171			
Safety	EN 62040-1			
EMC	EN 50091-2			
Performance	IEC 62040-3			
Classification (IEC 62040-3)	VFI ⁽³⁾ - SS - 111			

(1) Higher rated powers on request. Battery dimensions and weight, dependent on back-up time; please contact SOCOMEC UPS.

(2) Three-phase 220-230-240 V on request.

(3) Voltage Frequency Independent.



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



SMART 026 A

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.

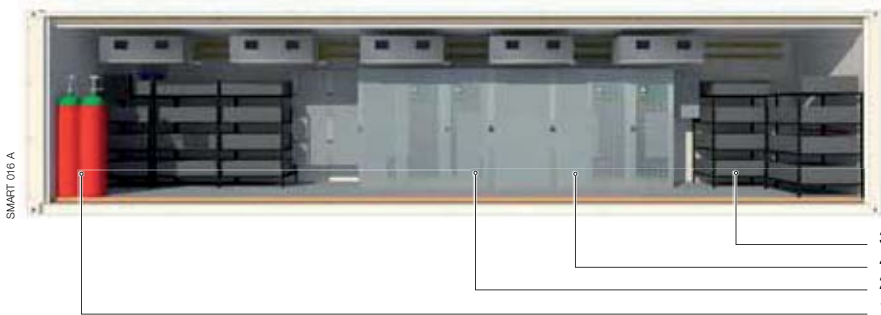
(1) PuE (Power Usage Effectiveness) is a metric used to determine the energy efficiency of a data centre by dividing the amount of power entering a data centre by the power used to run the computer infrastructure within it.

Smart PowerPort

from 100 kW to 2.4 MW

UPS power infrastructure in container

40' container - Example of internal arrangement



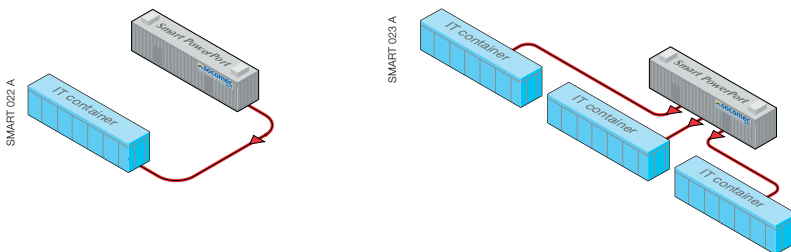
1. Fire protection
2. UPS
3. Batteries and/or *Flywheel*
4. Input/Output switchboard

Range

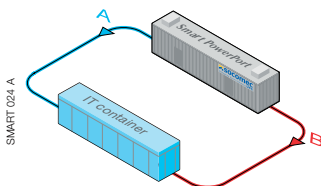
UPS model	UPS Power	Max output power	Smart PowerPort	Smart PowerPort Configuration
<i>Green Power 2.0</i>	1 UPS x 200 kVA	200 kW / 200 kVA	20' high cube	single room
<i>Green Power 2.0</i>	2 UPS x 200 kVA	400 kW / 400 kVA		
<i>Green Power 2.0</i>	1 UPS x 400 kVA	400 kW / 400 kVA		
<i>DELPHYS MX</i>	1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

Examples of applications

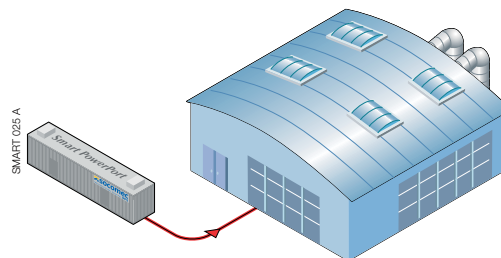
- Single supply



- Dual supply



- Building power infrastructure



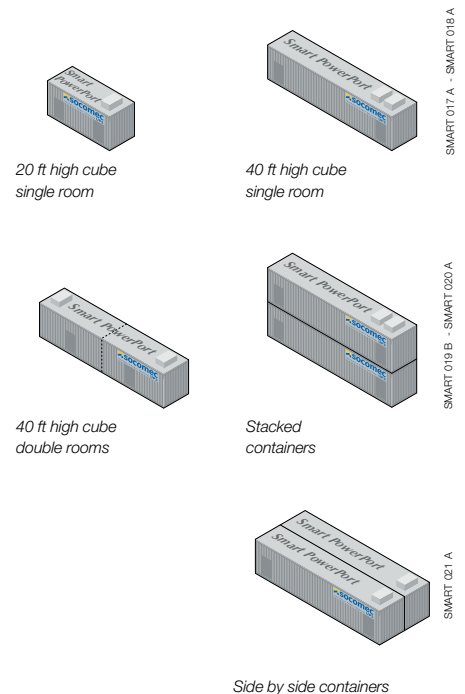
Enclosure technical specifications

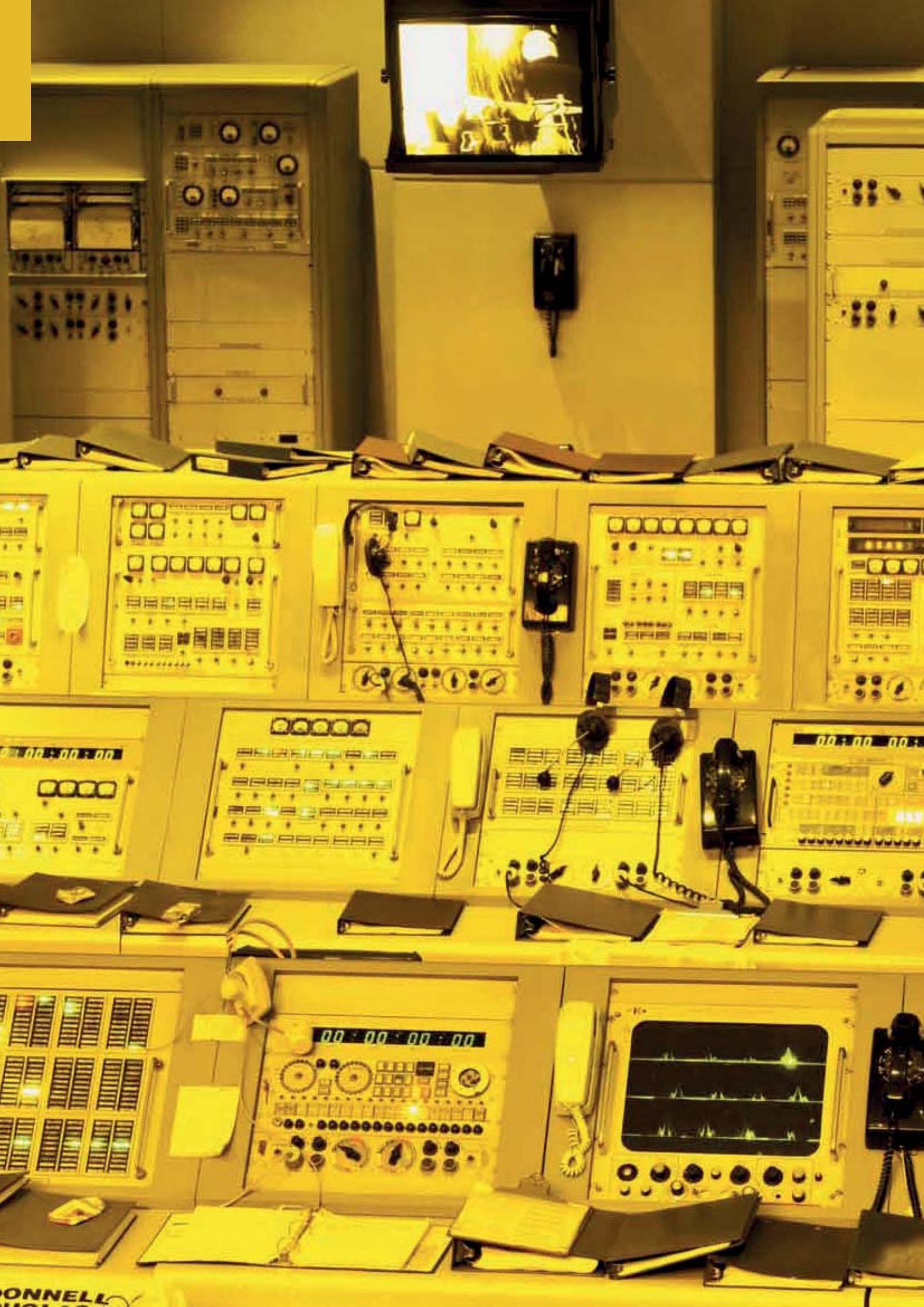
- 20' and 40' high cube container for indoor and outdoor applications.
- Industry standard cooling system.
- EN-1047 compliant (TÜV and SGS certified).
- Water and flood protection: IPX5.
- Thermal insulation: 0.42 W/m² K.
- Fire protection: 120 minutes.
- Dust protection.
- Emergency Power Off (EPO).
- 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







Static, electronic and automatic transfer systems

STATYS

Single and three-phase STS
32 to 4000 A
p.60

IT SWITCH

Electronic Transfer Systems
16 to 20 A
p.62

ASYS

Automatic Transfer System
16 A, 19" rack mounted
p.64



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

Complementary pages

- > Communication and connectivity, [page 102](#)
- > Technology, [page 110](#)

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.

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

Complementary pages

- > Technology, page 110

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.

IT SWITCH

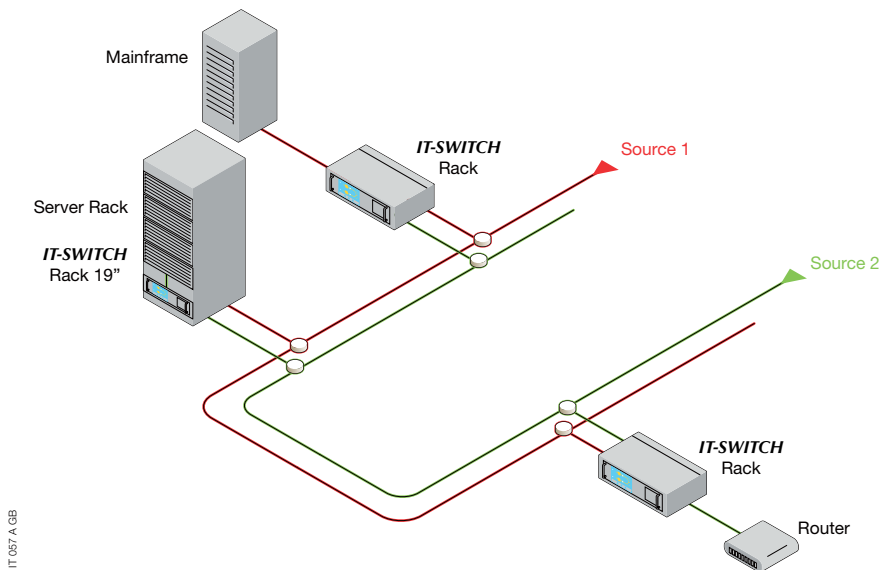
from 16 to 20 A single-phase
Electronic transfer systems

Installation and operation

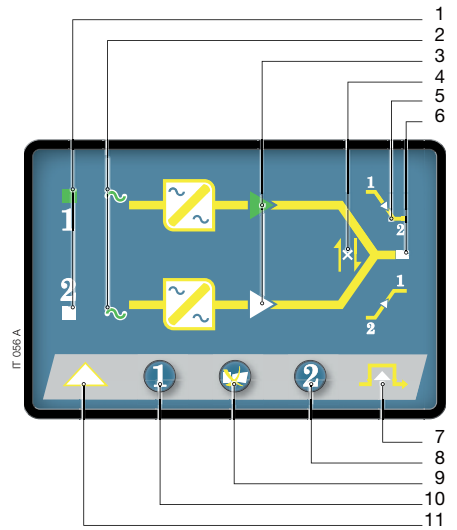
IT SWITCH HA (High Availability) is especially suited to sensitive applications thanks to its advanced transfer parameter controls: source synchronisation, power quality adaptation, operating modes and downstream fault current.

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 $\pm 15\%$)	
Rated frequency	50 or 60 Hz	
Frequency tolerance	$\pm 10\%$ 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).



ASYS

16 A, 19" Rack mounted

a secure power supply close to your application

Automatic Transfer
System

Your protection for

- Rack servers
- IT applications
- Routers, switches, hubs, etc



Rack automatic system for IT networks

The **ASYS** automatic transfer system provides reliable redundant power to single corded IT equipment.

It performs an automatic and seamless transfer of the critical load to an alternate source in case of preferred source corruption. The transfer is carried out without source overlapping.

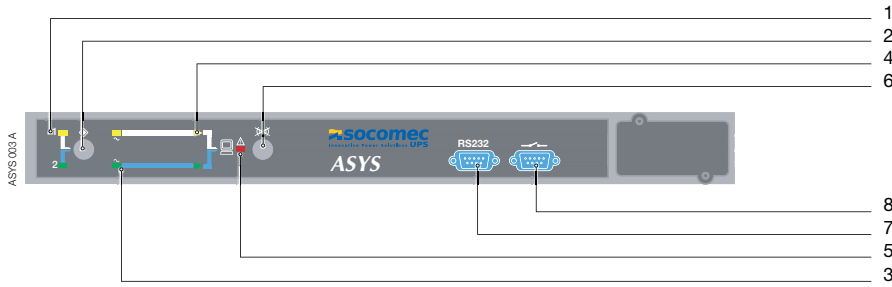
Continuity of service for critical applications

- Located as close as possible to the application, **ASYS** allows for a highly accessible architecture.
- **ASYS** has been designed to be easily installed near sensitive applications, to fit into 19" racks.

Easy site operation

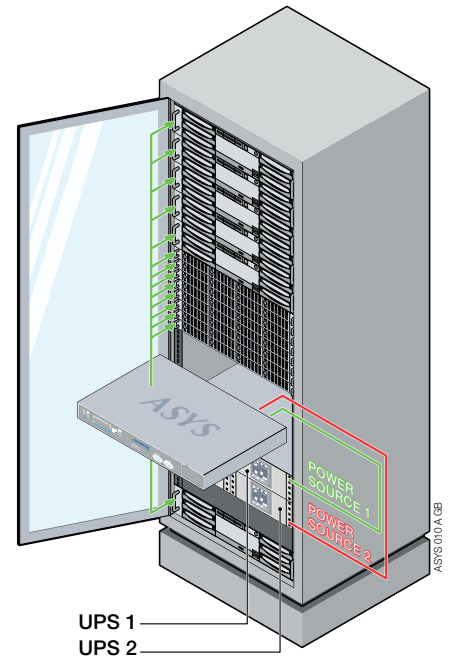
- Easy changing of the preferred supply path without modifying the cabling.
- Carried out by the operator and secured by the automatic control, **ASYS** switches the load from one path to the other.
- Provides redundant power supply to single corded equipment, servers, routers, switches, hubs, etc.
- Powered by two separate independent sources (UPS).
- Permanent source monitoring.
- Automatic switching to alternate source.
- Preferred source selection on front panel.
- Fast switching with synchronised or out of phase sources.
- Compact 19" rack 1U system

Front view



1. Preferred source indication
2. Preferred source selection
3. Input source status
4. Supplying source
5. General alarm
6. Buzzer acknowledge
7. RS232 communication port
8. Dry contacts communication port

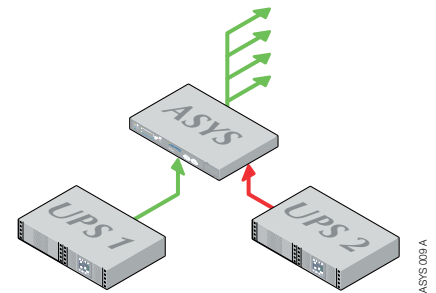
Application Rack



Technical data

ASYS		
Model	16A-120	16A-230
INPUT		
Rated voltage	120 V	220/230/240 V (selectable)
Input voltage tolerance	± 12% (± 20% available on request)	
Rated frequency	50/60 Hz (auto sensing)	
Frequency tolerance	± 15%	
Rated current	16 A	
OUTPUT		
Rated voltage	120 V	220/230/240 V (selectable)
Input voltage tolerance	± 12%	
Rated frequency	50/60 Hz	
Frequency tolerance	± 15%	
Rated current	16 A	
Transfer time	6 ms (typical), ≤ 15 ms (maximum)	
CONNECTION		
Input	AWG12X3C/20A	2 x IEC 320-C20
Output	4 x NEMA 5-20R	6 x IEC 320-C19
Communication	5 dry contacts, RS232	
ENVIRONMENT		
Operating ambient temperature	0 to 40 °C	
Relative humidity	20% - 85% without condensation	
Maximum altitude	≤ 1000 m without derating	
Acoustic level at 1 m (ISO 3746)	< 25 dBA	
Cooling	Natural	
MECHANICAL SPECIFICATIONS		
Dimensions W x D x H	430 x 315 x 44 mm (1U)	
Weight	5 kg	
Degree of protection	IP30	
Colours	Pantone 432C	
MECHANICAL SPECIFICATIONS		
Safety	IEC 62310-1	
EMC	IEC 62310-2	

Example of possible architecture





Rectifiers

from 15 to 600 A

SHARYS IP

Industrial DC Power Station

15 to 200 A

p.68

SHARYS MICRO and SHARYS MINI

Rectifiers

30 to 200 A

p.72

SHARYS ELITE

Rectifiers

30 to 600 A

p.80



SHARYS IP

from 15 to 200 A

industrial, rugged modular DC power

Rectifiers



SHARYS IP Enclosure



SHARYS IP System

The solution for

- > Process industry
- > Switchgear tripping
- > Signalling
- > Alarms systems
- > Automatism (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).

Complementary pages

- > Communication and connectivity, [page 102](#)
- > Technology, [page 110](#)

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

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 ₀	≤ 1%					
Rated current	50 A	15 A	30 A	50 A	20 A	20 A
Permanent current overload with constant power	105% of rated current					
Residual ripple (with I ₀ ≥ 10%)	AC < 50 mV, PP < 100 mV					
Current imbalance in parallel operation	≤ 0,05 I ₀					
Dynamic behaviour on load variation (Δ I ₀ = 50% I ₀ in the range 10-100% I ₀)	Δ V ₀ ≤ 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 disconnect.
- 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 + N			
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.



	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⁾

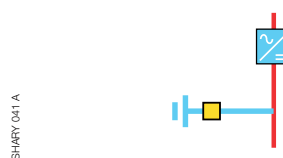
The **SHARYS PLUS** advanced control and monitoring module is included as standard on all **SHARYS IP Systems**. A 32-digit LCD display provides easy and fast access to all information parameter settings.

- 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.

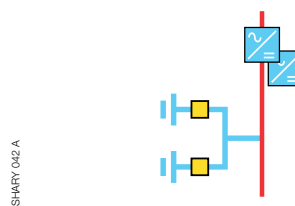
⁽¹⁾ System only.

Typical configurations

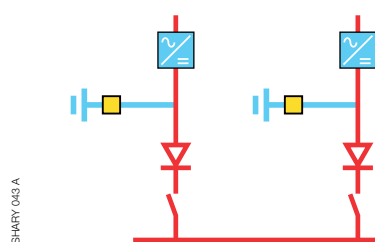
Single



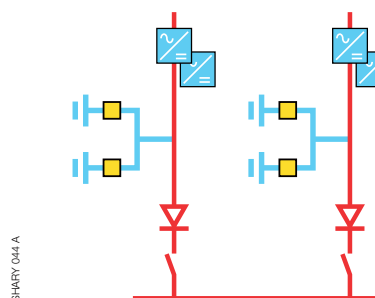
Redundant N+1



Full redundant 1+1



Extended full redundant



Full battery compatibility

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

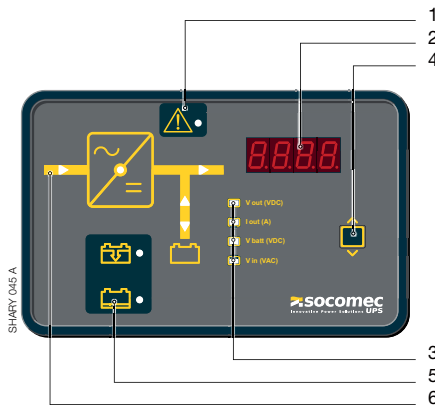
- Valve Regulated Lead Acid (VRLA),
- Open Vented Lead Acid,
- Nichel Cadmium.

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



APPLJ 146 A

Mimic panel



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

Product highlights

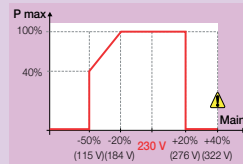
Double conversion
IGBT based topology



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



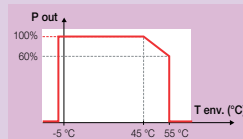
Digital microprocessor control and regulation SMD technology



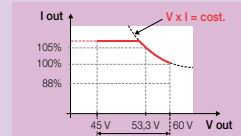
PCB tropicalization



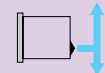
Wide temperature and environment range up to +55 °C ambient temperature



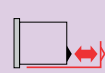
Constant output power



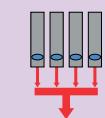
Can bus communication between modules



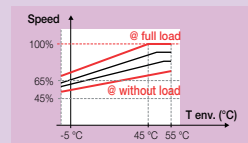
Hot swappable wireless modules with selective disconnection



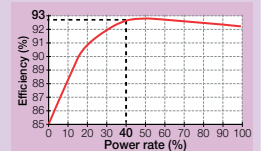
Active load sharing among modules



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



Optimized efficiency design point



APPLJ 498 A



SHARYS MICRO and MINI

from 30 to 200 A

19" integrable 48 VDC power subrack

Rectifiers



SHARYS 003 B 1 CAT

SHARYS MICRO

Example: 100 A subrack with controller and 2 rectifier modules



SHARYS 000 A

SHARYS MINI

Example: 200 A subrack with controller and 4 rectifier modules

The solution for

- > Telecommunications
- > Transmission systems
- > Telephone exchanges

Complementary pages

- > Communication and connectivity, [page 102](#)

Specifically designed for Telecom application, **SHARYS** series combine all telecom features such as modularity, hot-swap module replacements, redundancy N+1 and scalability together with a robust power module design.

Upgradeability

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

Reliability & Robustness

- 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

- High efficiency up to 92%: low energy consumption, low heat dissipation.
- Sinusoidal current absorption with Power factor close to one.
- Process continuity with hot-swap capabilities (replacement of modules without any power interruption).

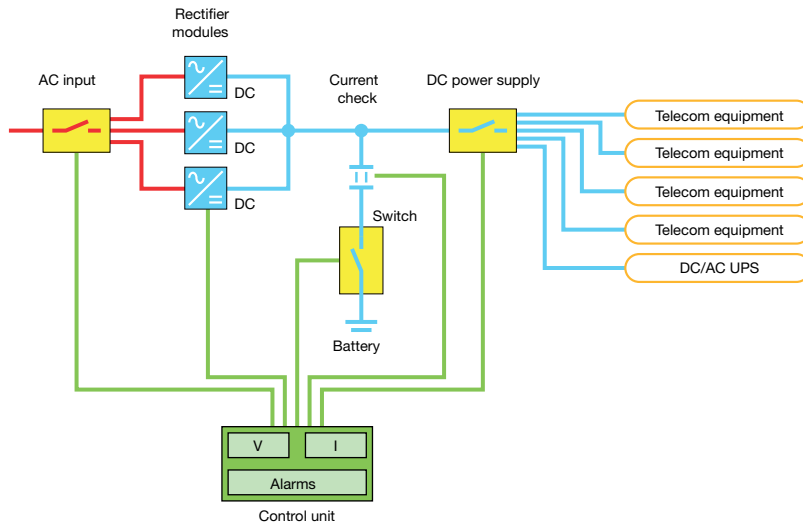
SHARYS MICRO and MINI

SHARYS MICRO and **MINI** is a DC power solution consisting of complete compact subracks including rectifier modules and related power distribution units.

SHARYS MICRO can be fitted with a maximum of 2 **SHARYS** rectifier modules to achieve up to 4.8 kW (100 A) effective power installed.

SHARYS MINI can be fitted with a maximum of 4 **SHARYS** rectifier modules to achieve up to 9.6 kW (200 A) effective power installed.

Block diagram



SHARYS DC/A GB

Technical data

SHARYS MICRO and MINI - RECTIFIER MODULE		
Reference	SH 1600W	SH 2700W
INPUT		
Rated voltage	230 VAC 1ph+N	
Voltage tolerance ⁽¹⁾	+20% -40%	
Rated frequency	from 47.5 to 63 Hz	
Power factor	≥ 0.99 (nominal conditions)	
Current distortion	compliant with IEC61000-3-2 (EN60555-2)	
OUTPUT		
Rated voltage	48 VDC (45-58 VDC)	
Ripple in all conditions and without batteries	< 50 mVrms, < 100 mVpp, < 1 mVps	
Maximum power	1600 W	2700 W
Rated current	30 A	50 A
EFFICIENCY		
Typical	up to 0.91	up to 0.92
ENVIRONMENT		
Operating ambient temperature	-5 °C to +45 °C (without derating), up to +55 °C with power derating	
Relative humidity	10% to 90%	
Cooling	forced with intelligent fan speed control	
STANDARDS		
Safety	EN 60950	
EMC emission	complies with EN 50081-2	
EMC immunity	complies with EN 61000-4-6 (EN50082-2), EN 61000-4-3, ETSI EN 300-386 v1.3.1	

Reference	SHARYS MICRO		SHARYS MINI	
	MC 60	MC 100	MN 120	MN 200
Rectifier type	SH 1600W	SH 2700W	SH 1600W	SH 2700W
INPUT				
Rated voltage	230 VAC 1ph+N		400 VAC 3ph+N / 230 VAC 1ph+N	
Voltage tolerance ⁽¹⁾	+20% -40%			
Rated frequency	from 47.5 to 63 Hz			
OUTPUT				
Rated voltage	48 VDC (45-58 VDC)			
Rated current ⁽²⁾	60 A	100 A	120 A	200 A
RECTIFIER CABINET				
Dimensions W x D x H	19" x 500 x 262 mm (6U)		19" x 500 x 524 mm (12U)	
Weight	up to 30 kg ⁽²⁾		up to 52 kg ⁽²⁾	
Degree of protection	IP20 (with modules inserted)			
Colours	RAL 7012			

(1) Power derating from -20% up to -40%.
(2) With complete rectifier configuration.

SHARYS PLUS control module

The **SHARYS PLUS** advanced control and monitoring module is included as standard on all **SHARYS DC** 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.

Rectifier modules

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.
- Wide temperature and input mains voltage tolerance.

Standard electrical features

- Positive pole grounded.
- Internal battery fuse protection.
- Fitting for output DC distribution.
- Battery temperature sensor.

Electrical options

- BLVD Battery Low Voltage Disconnect.
- Output distribution.
- Double battery protection.

Standard communication features

- **SHARYS PLUS** advanced digital controller.
- MODBUS/JBUS RTU.
- 1 slot for communication options.

Communication options

- **NET VISION** for DC systems: professional WEB/ SNMP interface for DC system monitoring and shutdown management of several operating systems.
- Dry-contact interface.



SHARYS ELITE

from 30 to 600 A

a scalable 48 VDC Power System

Rectifiers



SHARYS 007 B 1 CAT

SHARYS ELITE
Example: 600 A power system
with 14 rectifier modules

The solution for

- > Telecommunications
- > Transmission systems
- > Telephone exchanges

Complementary pages

- > Communication and connectivity, [page 102](#)

Specifically designed for Telecom application, **SHARYS** series combine all telecom features such as modularity, hot-swap module replacements, redundancy N+1 and scalability together with a robust power module design.

Upgradeability

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

Reliability & Robustness

- 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

- High efficiency up to 92%: low energy consumption, low heat dissipation.
- Sinusoidal current absorption with power factor close to one.
- Process continuity with hot-swap capabilities (replacement of modules without any power interruption).

SHARYS ELITE

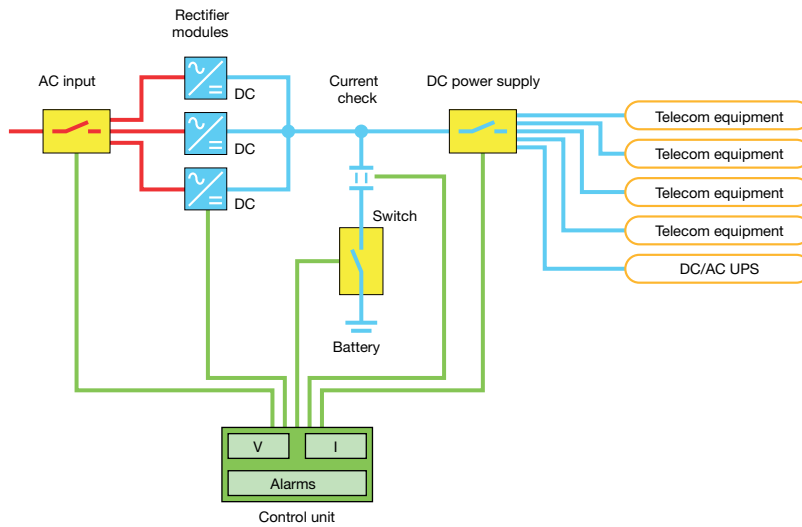
SHARYS ELITE is a complete DC power system consisting of compact rack enclosure including rectifier modules and related power distribution units.

SHARYS ELITE can be fitted with up to 14 **SHARYS** rectifier modules.

Up to 28.8 kW (600A)⁽¹⁾ effective power installed in one cabinet ensuring redundancy N+2.

(1) Contact us for power extension requirements

Block diagram



SHARYS 600 A GB

Technical data

SHARYS ELITE - RECTIFIER MODULE		
Reference	SH 1600W	SH 2700W
INPUT		
Rated voltage	230 VAC	
Voltage tolerance ⁽¹⁾	+20% -40%	
Rated frequency	from 47.5 to 63 Hz	
Power factor	≥ 0.99 (nominal conditions)	
Current distortion	compliant with IEC61000-3-2 (EN60555-2)	
OUTPUT		
Rated voltage	48 VDC (45-58 VDC)	
Ripple in all conditions and without batteries	< 50 mVrms, < 100 mVpp, < 1 mVps	
Maximum power	1600 W	2700 W
Rated current	30 A	50 A
EFFICIENCY		
Typical	up to 0.91	up to 0.92
ENVIRONMENT		
Operating ambient temperature	-5 °C to +45 °C (without derating), up to +55 °C with power derating	
Relative humidity	10% to 90%	
Cooling	forced with intelligent fan speed control	
STANDARDS		
Safety	EN 60950	
EMC emission	complies with EN50081-2	
EMC immunity	complies with EN 61000-4-6 (EN 50082-2), EN 61000-4-3, ETSI EN 300-386 v1.3.1	

SHARYS ELITE - POWER SYSTEM								
Rectifier SH1600W	SH-LT60	-	SH-LT120	-	SH-LT270	SH-LT420	-	-
Rectifier SH2700W	-	SH-LT100	-	SH-LT200	-	-	SH-LT450	SH-LT600
INPUT								
Rated voltage	400 VAC 3ph+ N / 230 V AC 1ph +N (up to 200 A)							
Voltage tolerance ⁽¹⁾	+20% -40%							
Rated frequency	from 47.5 to 63 Hz							
OUTPUT								
Rated voltage	48 VDC (45-58 VDC)							
Rated current ⁽²⁾	60 A	100 A	120 A	200 A	270 A	420 A	450 A	600 A
RECTIFIER CABINET								
Dimensions W x D x H	600 x 600 x 1800 mm							
Degree of protection	IP20 (with modules inserted)							
Colours	RAL 7012							

(1) Power derating from -20% to -40%. - (2) With complete rectifier configuration.

SHARYS PLUS control module

The **SHARYS PLUS** advanced control and monitoring module is included as standard on all **SHARYS DC** 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 be replaced.

Rectifier modules

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.
- Wide temperature and input mains voltage tolerance.

Standard electrical features

- Positive pole grounded.
- Internal battery fuse protection.
- Battery temperature sensor.

Electrical options

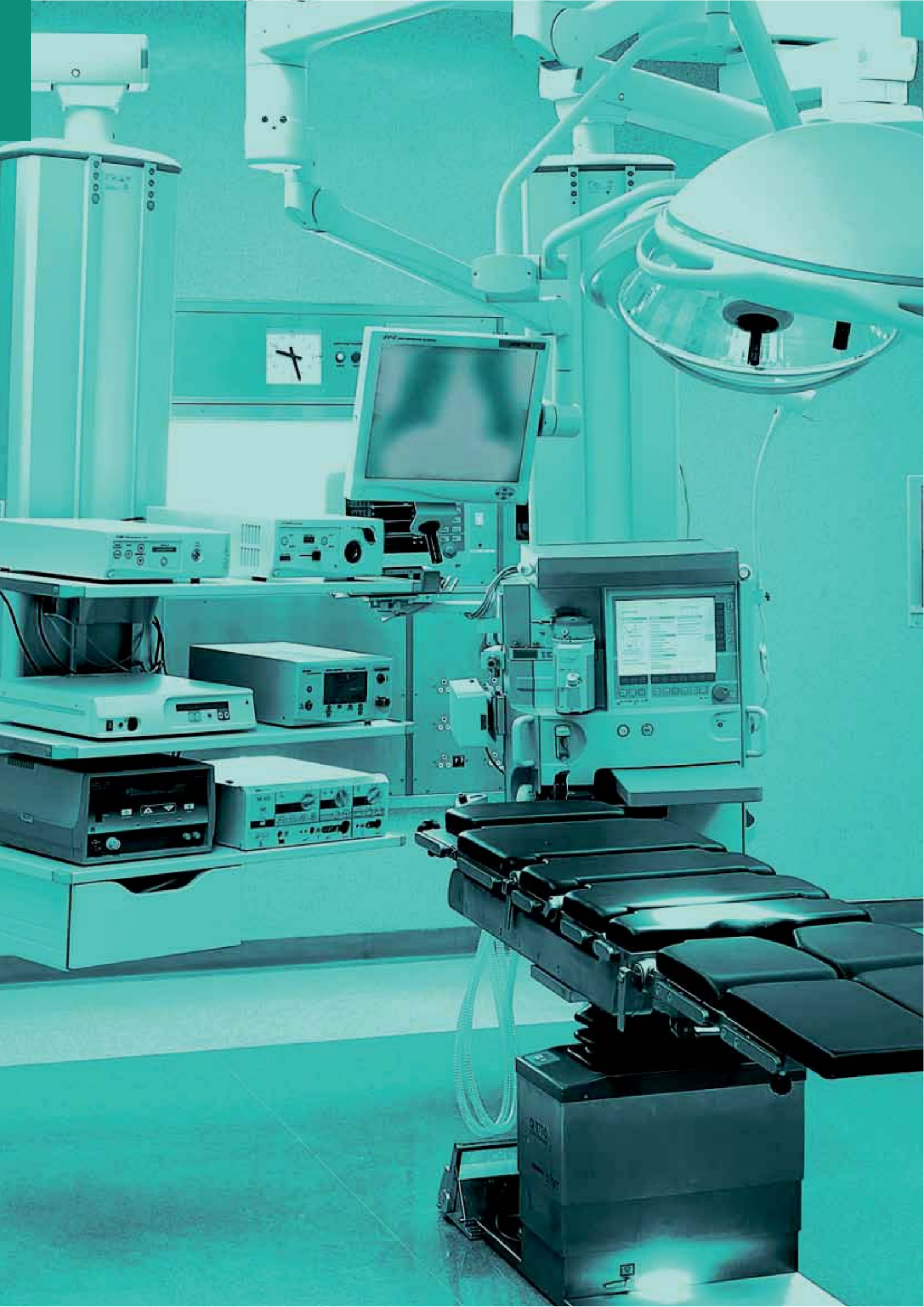
- BLVD Battery Low Voltage Disconnect.
- Output distribution.
- Double battery protection.
- Internal batteries.

Standard communication features

- **SHARYS PLUS** advanced digital controller.
- MODBUS/JBUS RTU.
- 2 slots for communication options.

Communication options

- **NET VISION**: professional WEB/ SNMP interface for UPS monitoring and shutdown management of several operating systems.
- Dry-contact interface.





Energy storage

Flywheel

Dynamic Energy Storage Systems

60 to 900 kVA

p.78

BHC Universal and BHC Interactive

Battery health check

p.80

MASTERYS Battery Cabinets

Battery system

10 to 120 kVA

p.82



Flywheel

from 60 to 900 kVA

Voltage Support Solution to ensure an autonomous static power supply

Dynamic energy storage systems



The solution for

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

Complementary pages

- > **Green Power 2.0**, page 42
- > **DELPHYS MP elite**, page 46
- > **DELPHYS MX**, page 48

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** 160-400 kVA Uninterruptible Power Supply units.

The **Flywheel** advantages

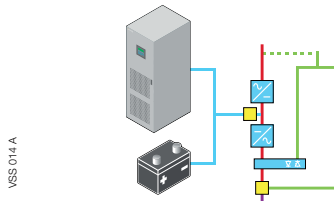
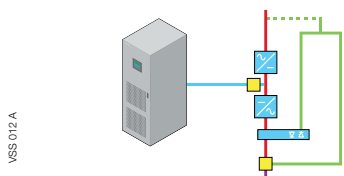
Dynamic energy storage technology with even more technical advantages:

- outstanding reliability,
- reduced maintenance,
- simplified maintenance,
- long service life (> 20 years),
- max. power in min. volume,
- less floor space < 0,5 m²,
- high efficiency 99.8 %,
- self-diagnostics,
- rapid recharging (configurable, up to 7 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 upper section,
- simplified connections,
- units coupled in parallel to increase power and back-up time,
- front access for maintenance,
- environmentally-friendly.

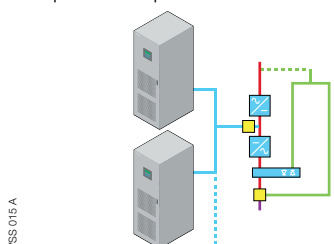
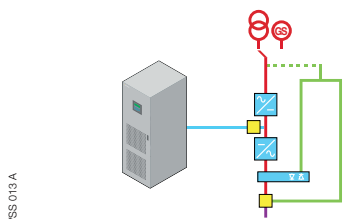
Various configurations

Various solutions or combinations for meeting your requirements for electrical energy availability are possible depending on your operating constraints and technical environment.

- Operation during power outages
- Operation with a battery



- Operation with a generator unit
- Operation in parallel



Flywheel: a battery-free solution

- The systems provide end-users with excellent results for very low operating costs.
- The systems may be used in operating conditions where battery use is impossible ; the system is unaffected by ambient temperatures.

	<i>Flywheel</i>	Battery
Operating costs		
Energy consumption	very high efficiency energy	consumption to maintain, float charge
Maintenance	reduced	high
Ventilation - Air conditioning	not applicable	maintaining ambient temperature increases operating costs
Technical floor space	reduced	considerable, with ground loading constraints
Service life	high (> 20 years)	frequent 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	reduced temperature range
Recharge time	very low (100 % in about 7 minutes)	high (80 % in about 8 hours)

Technical data

<i>Flywheel</i>	
ELECTRICAL SPECIFICATIONS	
Rated unit power	up to: 190 kW / 12.5 seconds
Rated voltage (Input / output)	600 V DC (adjustable)
Output voltage control	± 1% under static conditions
Ripple factor	< 2%
Auxiliary voltage	110/230 VAC
Auxiliary power	400 VA
ENVIRONMENT	
Operating ambient temperature	- 20 °C to + 50 °C
Maximum altitude	up to 3000 metres
Acoustic level at 1 m (ISO 3746)	< 45 dBA
UPS CABINET	
Dimensions W x D x H	630 x 830 x 1800 mm
Weight	590 kg
Degree of protection	IP20
Colours	cabinet: RAL 7012, door: silver grey
STANDARDS	
Conformity	CEE 73/23 Low voltage directive, CEE 98/037 Machine directive, IEC/EC 60439-1, IEC/EN 60204-1 Machine safety, EN 1127-1 Explosive atmospheres

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.

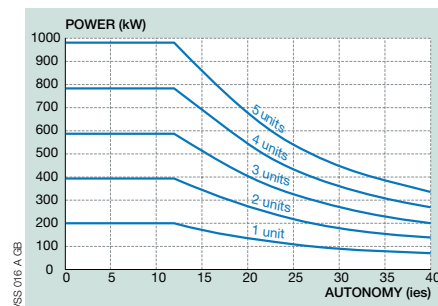
Additional equipment

- Air filter.

Communication options

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

Autonomy versus power output





BHC Universal and BHC Interactive

battery monitoring system for battery lifetime availability and optimization

Battery health check



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.

BHC Universal and BHC Interactive

Battery monitoring system for battery lifetime availability and optimization

Battery health check

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,

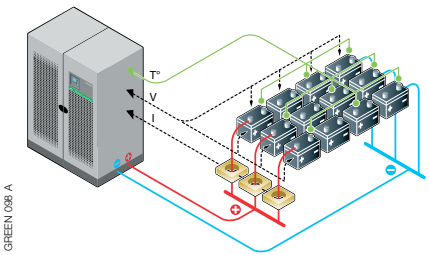
currents and temperatures are continuously logged in 10-minute steps, while battery and block diagnostics, alerts, statistics, event data and maintenance dates are stored every 10 seconds during discharge.

- **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

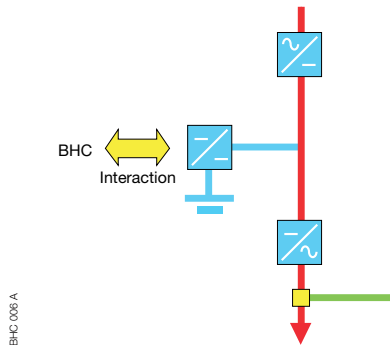


BHC Interactive, to optimize battery lifetime

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.



Warning alerts



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	



MASTERY'S 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

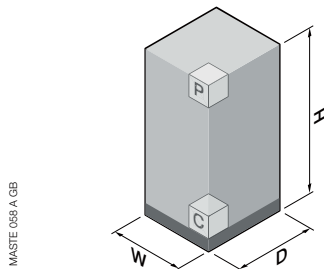
- > **MASTERY'S BC**, page 34
- > **Green Power 2.0 10-120 kVA**, page 40
- > **MASTERY'S IP+**, page 44
- > **MASTERY'S EMERGENCY**, page 54
- > **BHC**, page 80
- > **Technology**, page 110

Coordination of protection for your safety

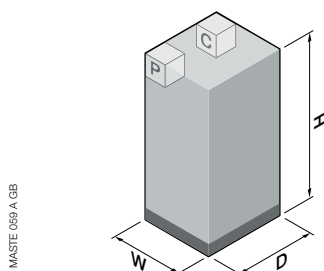
Different protection devices tailored to your UPS range:

- 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.



Type A



Type B

Key:
C: connections
P: protections

Technical data

Cabinet	type A	type B	
Dimensions WxDxH	600x835x1400	800x845x1930	1000x845x1930
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 (recommended: 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.

MASTERYS Battery Cabinets

from 10 to 120 kVA
Battery cabinets

MASTERYS BC

	BC 15		BC 20		BC 30		BC 40		BC 60		BC 80		BC 100		BC 120	
N° of cabinet	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Cabinet type	A		A		A		A		A	A/B	A	A/B	B		B	
Typical BUT (min) ⁽¹⁾	118	169	91	124	53	76	33	49	18	58/134	12	44/101	32	83	25	61
Weight	800	1118	800	1118	800	1118	800	1118	800	1690/3600	800	1690/3600	1752	3504	1752	3504

(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		B	
Typical BUT (min) ⁽¹⁾	203	564/877	120	368/532	93	254/362	54	151/207	35	109/141	19	65	12	49	32	83	25	61
Weight	800	1753/2300	800	1753/2300	800	1753/2300	800	1753/2300	800	1753/2300	800	1753	800	1753	1752	3504	1752	3504

(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⁾	198	557/1118	118	355/763	91	248/541	53	148/330	34	108/237	18	58/132	11	43/100
Weight	800	1753/3600	800	1753/3600	800	1753/3600	800	1753/3600	800	1753/3600	800	1690/3600	800	1690/3600

(1) Max BUT @ 70% of the load

MASTERYS EMergency

	EL 10		EL 15		EL 20		EL 30		EL 40		EL 60		EL 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⁾	203	564/887	120	368/532	93	254/362	54	151/207	35	109/141	18	58/134	12	44/101
Weight	788	1753/2300	788	1753/2300	788	1753/2300	788	1753/2300	788	1753/2300	788	1690/3600	788	1690/3600

(1) Max BUT @ 70% of the load



Xsocomtec



Control Panel 2.0

UPS



Adapted solutions

ATRYS

H3 Equalizers
15 to 240 A
p.86

PHASYS

DC/AC inverters
1.5 to 18 kVA
p.88

RACK PDU

Power Distribution Units
Power Management Solution
p.90

NETYS RT-M

Single-phase UPS
for marine applications
1100 to 3000 VA
p.92

ITYS cab

Single-phase UPS systems
for substations
1000 to 3000 VA
p.94

Solutions in container

Site-specific solutions
p.98



ATRYs

from 15 to 240 A

eliminating harmonic current in your distribution network

Harmonic equalizers



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.

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.



PHASYS S.A. and PHASYS ELITE

from 1.5 to 18 kVA

DC/AC single and modular inverter systems

DC/AC Inverters



PHASYS
from 1500 to 4500 VA



PHASYS ELITE
from 1.5 to 18 kVA

The solution for

- > Modem, PC, router
- > Fibre optic systems
- > Accounting systems for telecom applications
- > New energy sources: wind and solar

Complementary pages

- > Communication and connectivity, [page 102](#)

PHASYS S.A. inverters

- Stand-alone modules
- Output power from 1.5 to 4.5 kVA
- Integratable in 19" racks.
- Switching technology: perfectly sinusoidal output, the sinusoidal output waveform ensures its compatibility with all IT and other loads.
- Microprocessor control: enhances reliability and ensures high stability and long-lasting electrical characteristics.
- LCD display.
- Robust design to limit thermal stress and longer life of the components.
- Input-output galvanically isolated.
- Cooling controlled by variable speed fan.
- Fan efficiency test: periodically tests the efficiency of the fans and notifies if they need to be replaced.
- Integrated automatic bypass: in the event of an overload or an internal failure, the consumer is still powered via the bypass circuit that is activated.
- Autorestart function.
- Protection against polarity inversion in input to protect against the accidental inversion of the battery input connection (on the "stand-alone" version only).
- Eco-Mode modality.
- RS232 port for communication.

PHASYS ELITE systems

A modular scalable DC/AC Power System that can include up to 4 inverters for a total power of 18 kVA⁽¹⁾.

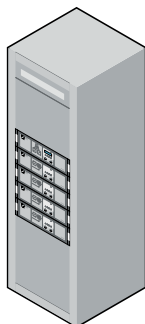
- Easy and quick installation with hot-swap modules: replacement of defective modules without any power interruption.
- High availability achieved through modular redundancy.
- Batteries input fuse protection.
- Battery bypass mains protection.
- I/O connections on the top.
- AC distribution (optional).
- Internal manual bypass (optional).

PHASYS STAR control and monitoring unit

- Management of the equipment.
- Easy control and monitoring via 32-digit LCD display.

(1) Up to 27 kVA on demand

PHASYS ELITE inverter system



PHASYS 009 A

PHASYS STAR control and monitoring unit



PHASYS 001 B 2 CAT

Integrated with **PHASYS ELITE**, the **PHASYS STAR** control and monitoring module manages the information from inverters working in parallel.

The 32-digit LCD display and 4 LEDs provide secure and simple access to all information.

- Digital control and monitoring of the inverter modules.
- Microprocessor technology with CAN-BUS communication.
- Hot-swap and Hot plug-in internal board.

PHASYS ELITE SYSTEM

	9 kVA	18 kVA
UPS output power ⁽¹⁾	9 kVA	18 kVA
No. of modules	max. 3	max 4
Dimensions W x D x H	600 x 600 x 1800 mm	
Input/output connections	From the top	
Degree of protection	IP20	
Colours	RAL 7012	

(1) Up to 27 kVA on demand.

Standard electrical features

- Integrated static bypass.
- 3 kVA input-output galvanic isolation.
- Autorestart function.
- Protection against polarity inversion in input (on the "stand-alone" version only).

Electrical options⁽¹⁾

- Output AC distribution.
- Internal manual bypass.
- Second battery's input protection by fuse.
- Output Power Share.
- Bypass galvanic isolation transformer.

Standard communication features

- **PHASYS STAR** digital controller⁽¹⁾.
- MODBUS/JBUS RTU.
- Dry-contact interface⁽¹⁾.
- 2 slots for communication options.

Technical data

PHASYS S.A. and PHASYS ELITE module

INVERTER UNIT	PH 1500	PH 3000	PH 4500
Module			
INPUT			
Rated voltage		48 VDC	
Voltage tolerance		40-58 VDC	
OUTPUT			
Rated voltage		single-phase 208 ⁽¹⁾ /220/230/240 VAC	
Voltage tolerance	± 3%	± 3.5%	± 4%
Rated frequency		50/60 Hz	
Frequency tolerance		± 0.1% (inverter), ± 2% (bypass synchronisation)	
Waveform		Sinusoidal	
Output power	1500 VA	3000 VA	4500 VA
Active power supplied	1050 W	2100 W	3150 W
Total harmonic distortion		< 4%	
Short-circuit current		3 In for 50 ms	
Overload		permanent overload 105% Iout nom	
Crest factor		3:1	
Commutation time inverter to bypass		< 1 ms	
BYPASS			
Rated voltage		single-phase 208/220/230/240 VAC	
Voltage tolerance		+15% -20%	
Rated frequency		50/60 Hz	
Frequency tolerance		± 2% ÷ ± 8%	
Commutation time bypass to inverter		< 3 ms (normal mode), < 15 ms (ECO-MODE)	
EFFICIENCY			
Normal mode		up to 85%	
ECO MODE		98%	
ENVIRONMENT			
Operating ambient temperature		0 ÷ 50 °C ⁽¹⁾ (reccomended: 20 ÷ 30 °C)	
Relative humidity		10% to 90% (not condensing)	
Cooling		Forced with variable speed	
ISOLATION			
Primary/secondary isolation		3 kVac 50 Hz	
RELIABILITY			
Mean Time Between Failure (MTBF)		≥ 35 years at 25 °C	
STANDARDS			
Safety		EN 60950	
EMC		EN50081-2, EN 61000-6-2 (immunity), ETSI EN 300 386 V1.3.1	
Performance		ASTM D 999 (Vibrations), ASTM D 5276 (Shock)	

(1) Output power derating when either the output voltage is 208 V or output temperature higher than 40 °C.

Communications options⁽¹⁾

- **NET VISION** professional WEB/SNMP interface for UPS monitoring and shutdown management of several operating systems.
- Additional dry-contact interface⁽¹⁾.

(1) **PHASYS ELITE** version.



RACK PDU

monitored and managed rack PDU
Power Distribution Unit

Power Management
Solution



The solution for

- > Data centre rack cabinet
- > Networking infrastructure
- > Computer room

Ensuring efficient load development and power supply flexibility in server rooms is becoming increasingly important, which is why SOCOME C offers a variety of PDUs for rack applications. SOCOME C PDUs in 0U configuration (single-phase or three-phase) with metered or monitored technology, and PDUs in 1U configuration (still single-phase but with single or dual power supply) with managed technology, allow IT managers to find the configuration best suited to their requirements.

Metered or monitored Zero-U vertical PDU

With only one single-phase or three-phase input, these PDUs guarantee reliable power distribution for equipment with small and medium-scale energy requirements integrated into rack cabinets. The PDU does not require the installation of 'U space' due to its vertical position on the rear of the rack cabinet, and simplifies the electrical connection of many devices, saving time during fitting procedures and offering easy power supply configuration adjustment. The numerous output sockets and their positioning help this PDU fit perfectly into high density network solutions.

Using two PDUs in the same rack cabinet allows the development of a redundant architecture typical of critical applications which use dual cord electronic devices.

Monitoring and supervision

The two-digit LED display allows an easy reading and monitoring of the current consumption.

The reverse display function allows the cable input both from above and below, ensuring a proper reading in every installing position.

The ADD-IN SNMP module (available as an option), allows the remote control and monitoring of the PDUs via LAN network.

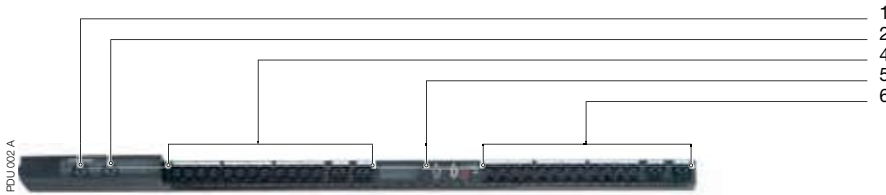
Managed 1U PDU

These PDUs, which have one or two single-phase inputs, are ideal for mission critical power distribution for equipment with small and medium-scale energy requirements integrated into rack cabinets. The extremely compact solution in a single rack unit allows installation inside the rack while guaranteeing at-a-glance data viewing via the display on the front panel. These PDUs offer an extremely sophisticated level of monitoring and management, meaning server consumption for each output socket can be measured as both instantaneous and cumulative values (current, energy and power factor) and recorded in log files which can be consulted and downloaded easily via a web interface. The individual sockets can also be controlled remotely (switch-on, switch-off or power-cycle), both manually and via the web interface or the remote console, or even in a scheduled manner.

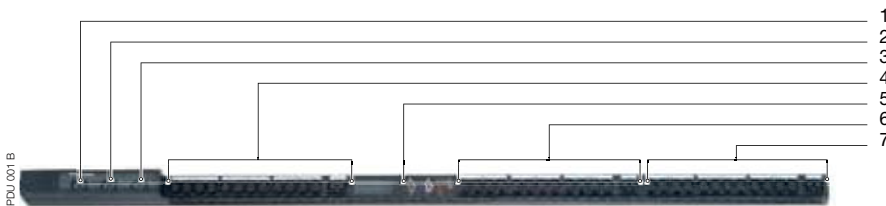
Up to 5 PDUs can be connected in a 'daisy chain' configuration, allowing the control and monitoring of all PDUs from a single access point, transforming the PDUs into a real power management system. Extensive communication capability (web browser, NMS, Telnet, SNMP, HyperTerminal, SMTP, SSL V3, SSH V1), and the use of 'secure' protocols and multi-account management make it an ideal device for power management in IT applications.

Zero-U PDU

Connections



Single-phase model



Three-phase model

1. ON-OFF switch segment #1
2. ON-OFF switch segment #2
3. ON-OFF switch segment #3
4. Output connectors segment #1
5. Front panel
6. Output connectors segment #2
7. Output connectors segment #3

Communication options

PDU VISION, WEB/SNMP manager interface for the connection to the LAN network. The device - suitable for remote monitoring – can be integrated into the PDU.



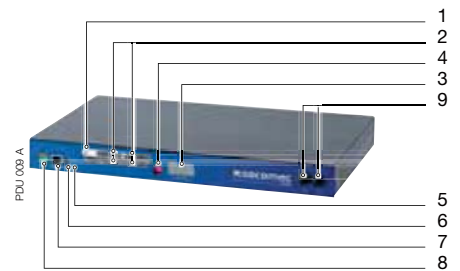
PDU008 A

Technical data

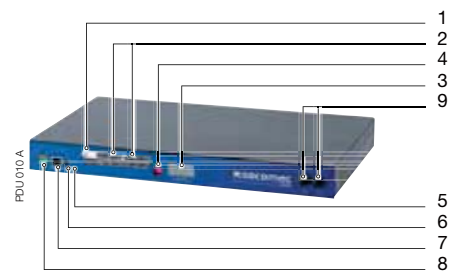
Zero-U PDU		
Item code	NRT-OP-PDU1-28	NRT-OP-PDU3-39
Input / output	1/1	3/1
INPUT		
Rated voltage	200-240 V (1ph)	346-415 V (3ph, Y+N)
Rated frequency	50/60 Hz	
Rated current	32 A (1ph)	16 A (3ph)
Connector	IEC309-32 A	IEC309-16 A
OUTPUT		
Rated voltage	200-240 V	
Connectors	(24) IEC320-C13, (4) IEC320-C19	(36) IEC320-C13, (3) IEC320-C19
COMMUNICATION		
Interfaces	RS232 - (WEB/SNMP optional)	
Environmental sensor	•	
ENVIRONMENT		
Operating ambient temperature	0 to 45 °C	
Relative humidity	5% to 95% without condensation	
Maximum altitude	operating: up to 2000 m	
RACK PDU		
Dimensions W x D x H	48 x 1250 x 50 mm	48 x 1560 x 50 mm
Weight	5.4 kg	6.0 kg

iPDU		
Item code	PDU1U-I116-I011	PDU1U-I116-I012
Input / output	1/1	
INPUT		
Rated voltage	200-240 V (1ph)	
Rated frequency	50/60 Hz	
Rated current	16 A (1ph)	2x 16 A (1ph)
Connector	IEC320 C20	2x IEC320 C20
OUTPUT		
Rated voltage	200-240 V	
Connectors	(12) IEC320-C13	(6+6) IEC320-C13
COMMUNICATION		
Interfaces	RS 232 - WEB/SNMP	
ENVIRONMENT		
Operating ambient temperature	0 to 50 °C	
Relative humidity	10% to 80% without condensation	
Maximum altitude	operating: up to 2000 m	
RACK PDU		
Dimensions W x D x H	436 x 300 x 44 mm (1U)	
Weight	2.0 kg	

iPDU



Front Panel of 2-inlet Model



Front Panel of 1-inlet Model

1. Input power status indicator
2. Output power status indicator (A÷L)
3. Status indicator
4. Daisy-chaining Mode DIP Switch (C-link DIP)
5. Reset button
6. Operation mode DIP switch
7. Serial (CONSOLE) Port
8. Digital output
9. Breaker



NETYS RT-M

from 1100 to 3000 VA

the high-performance UPS for marine applications

Single-phase UPS



The solution for

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

Certifications



High availability in marine environments

The marine industry calls for reliable equipment which is able to supply applications operating in harsh environments. In such a context, power outages cause extremely serious problems to critical equipment for the navigation system, and communication and engine controls, which leads to costs increasing. In line with the company's commitment to develop innovative solutions to ensure availability, improve energy efficiency and reduce costs, SOCOMEC UPS has introduced **NETYS RT-M**, high-performance UPS DNV 2.4 standard certified.

DNV - Det Norske Veritas

DNV is a self-governing, independent foundation which aims to safeguard life, property and the environment, at sea and onshore. DNV undertakes classification, certification, and other verification and consultancy services relating to the quality of ships, offshore units and installations, and onshore industries worldwide, and carries out research in relation to these functions.

Easy to use

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

Meets practical needs

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

Standard electrical features

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

Electrical options

- Battery extension modules.

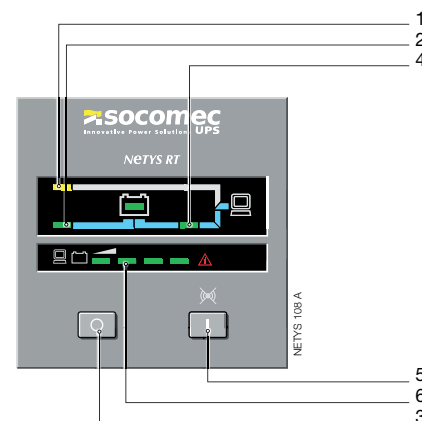
Standard communication features

- **LOCAL VIEW:** ideal UPS monitoring and shutdown point-to-point solution for Windows® operating system.
- **UNI VISION:** software for the control and automatic shutdown of applications connected to Linux.
- **UNI VISION PRO:** advanced user interface via serial link and multiple shutdown management for several operating systems.
- **HID:** UPS management based on Windows® embedded service - USB interface.
- MODBUS/JBUS RTU.

Communication options

- **RT-VISION:** professional WEB/SNMP interface for UPS monitoring and shutdown management of several operating systems.

Control panel



1. Yellow LED lit. Operation in bypass mode
2. Green LED lit. Mains healthy
3. OFF button
4. Green LED lit. Normal operation (inverter in-line)
5. ON/TEST and buzzer override button
6. LED bar. Depending on the situation, this indicates either the charge level or the capacity of the battery

Technical data

NETYS RT 1100-3000 - marine applications				
Sn [VA]	1100	1700	2200	3000
Pn [W]	800	1200	1600	2100
Input/output	1/1			
Architecture	on-line double conversion VFI with input PFC and automatic bypass			
INPUT				
Rated voltage	230 V			
Voltage tolerance	160÷275 V; up to 130 V @70 % load			
Rated frequency	50/60 Hz			
Frequency tolerance	± 10% (Auto-Selectable)			
Power factor / THDI	> 0.98 / < 6 %			
OUTPUT				
Rated voltage	230 V			
Voltage tolerance	selectable 200/208/220/240 V			
Rated frequency	50 or 60 Hz			
Frequency tolerance	± 2% (± 0.05 Hz in battery mode)			
Overload	up to 105% continuously; 125% for 3 minutes; 150% for 30 seconds			
Connections	6 x IEC 320-C13 (10 A)	6 x IEC 320-C13 (10 A) + 1 x IEC 320-C20 (16 A)		
BATTERY				
Back-up time ⁽¹⁾	8 minutes	12 minutes	8 minutes	10 minutes
Voltage	24 Vdc	48 Vdc		72 Vdc
Recharge time	< 6 hours to recover 90% capacity			
COMMUNICATION				
Interfaces	RS232 (DB9 port) Jbus protocol, USB HID protocol			
Ethernet	WEB / SNMP (Ethernet RJ45 port) - option			
COMM slots	1 available as standard			
Dry contacts card	Option			
EPO input	RJ11 port			
Modem/ADSL surge protection	Available as standard			
EFFICIENCY				
Online mode	up to 91%			
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)	< 45 dBA		< 55 dBA	
UPS CABINET				
Dimensions W x D x H	88.7 x 332 x 440 mm	88.7 x 430 x 440 mm		88.7 x 608 x 440 mm
Dimensions RACK U	2U			
Weight	13 kg	21 kg	22 kg	31 kg
Degree of protection	IP20			
EBM - EXTERNAL BATTERY MODULE				
Dimensions W x D x H	88.7 x 332 x 440 mm	88.7 x 430 x 440 mm		88.7 x 608 x 440 mm
Dimensions RACK U	2U			
Weight	16 kg	29 kg	43 kg	
STANDARDS				
Safety	IEC 62040-1 (TÜV-GS certified)			
EMC	IEC 62040-2, DNV 2.4			
Performance	IEC 62040-3 (VFI-SS-111)			
Product declaration	CE, TÜV-GS, A-Tick, C-Tick, DNV type approval			

(1) @ 75 % of nominal load.



ITYS cab

from 1000 to 3000 VA

solutions for supplying MV/LV transformer cabins

Single-phase UPS systems



The solution for

- > Control devices
- > Electric lines

High protection and high availability

- The **ITYS cab** series is a range of compact UPS systems available in 1000, 2000 and 3000 VA models with on-line double conversion technology (VFI) with sinusoidal absorption.
- **ITYS cab** guarantees permanent regulation of the output voltage and frequency. This technology is compatible with all IT and industrial applications and operating environments, installations with generator sets included.
- Wide tolerance on input voltage ensures that switchovers to battery mode are infrequent, significantly prolonging battery lifetime.
- The automatic bypass device switches over in zero time in the event of overload or failure, guaranteeing uninterrupted services.

Straightforward to install and easy to use

- The UPS is shipped ready for connection with internal batteries connected and charged.
- **ITYS cab**, with the manual bypass option is easy to install without any special plant engineering preparation, as it is equipped with built-in thermal protection.

- The LED monitoring/control panel and a buzzer make the equipment extremely easy and intuitive to use. The graphic indicating the power distribution path shows at a glance whether or not the system is working as it should.
- Battery efficiency can be tested via the control panel or using dedicated software.

Operating efficiency and versatility

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

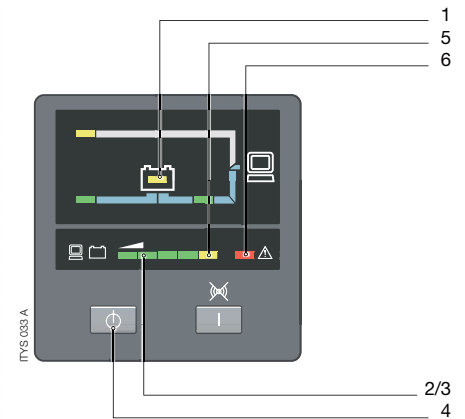
UPS - Technical data

ITYS cab - UPS			
Item Code	ITYS cab 1k0	ITYS cab 2k0	ITYS cab 3k0
Sn [kVA]	1000	2000	3000
Pn [kW]	700	1400	2100
Input/output	1/1		
INPUT			
Rated voltage	230 V		
Voltage tolerance	160-300 V (up to 110 V at 60% of the load)		
Rated frequency	50/60 Hz		
Power factor	0.98		
OUTPUT			
Rated voltage	230 V (can be set to 220/240 V)		
Voltage tolerance	± 1.5%		
Rated frequency	Range of synchronism 46-54 Hz		
Frequency stability (for 50 Hz)	50 Hz ± 0.2 in battery mode		
Overload	Up to 150% for 30 seconds		
Crest factor	3:1		
Wiring	4 x IEC 320	6 x IEC 320	4 x IEC 320 + terminals
BATTERIES			
Type	sealed lead-acid maintenance free - expected lifetime 3-5 years		
Back-up time at 75% of the rated load ⁽¹⁾	10 minutes	17 minutes	9 minutes
Sized for a back-up time of	115 minutes @ 50 W	154 minutes @ 100 W	216 minutes @ 150 W
Back-up time (2) + switching back on	60 minutes @ 50 W	60 minutes @ 100 W	60 minutes @ 150 W
Battery test	•	•	•
COMMUNICATION			
Interfaces	RS232 (DB9 connector)		
Communication slots	•	•	•
Modem/ADSL protection	•	•	•
EFFICIENCY			
On-line mode	up to 90%		
ENVIRONMENT			
Ambient service temperature	From 0°C up to +40°C (from 15°C to 25°C for maximum battery lifetime)		
Relative humidity	0-90% non-condensing		
Maximum altitude	1000 m without de-rating (3000 m max)		
Noise level at 1 m	45 dBA		
UPS			
Dimensions W x D x H	145 x 400 x 220 mm	192 x 460 x 350 mm	
Weight	14 kg	34 kg	35/16 kg
Protection rating	IP20 (according to IEC 60529)		
Colours	Cabinet 430C, front 431C		
COMPLIANCE WITH STANDARDS			
Safety	EN 62040-1		
EMC	EN 62040-2 Equipped with input filters to suppress atmospheric interference		
Product certification	CE		
ITYS cab - Manual bypass			
Sn [kVA]	1000	2000	3000
INPUT			
Type of terminals	CBD6		
Wire Size	6 mm ² max		
Nominal current	13.05 A max		
BYPASS			
Switching positions	1: UPS - 2: MAINS		
Switching time	6 ms max		
LOAD OUTPUT			
Type of terminals	CBD6		
Wire Size	6 mm ² max		
UPS SUPPLY OUTPUT			
Type of socket	IEC 320 10 A	IEC 320 16 A	
SURGE ARRESTORS (on request)			
Type	"L" in compliance with CEI EN 61643-11		
L/N pulse current	40 kA (8/20) max		
Vac N/GND	255 V max		
Vac L/N	320 V max		

(1) @ 25 °C with charged battery.

(2) Factory setting: back-up time limited to 60 minutes to permit subsequent restarting with battery.

The command/control panel



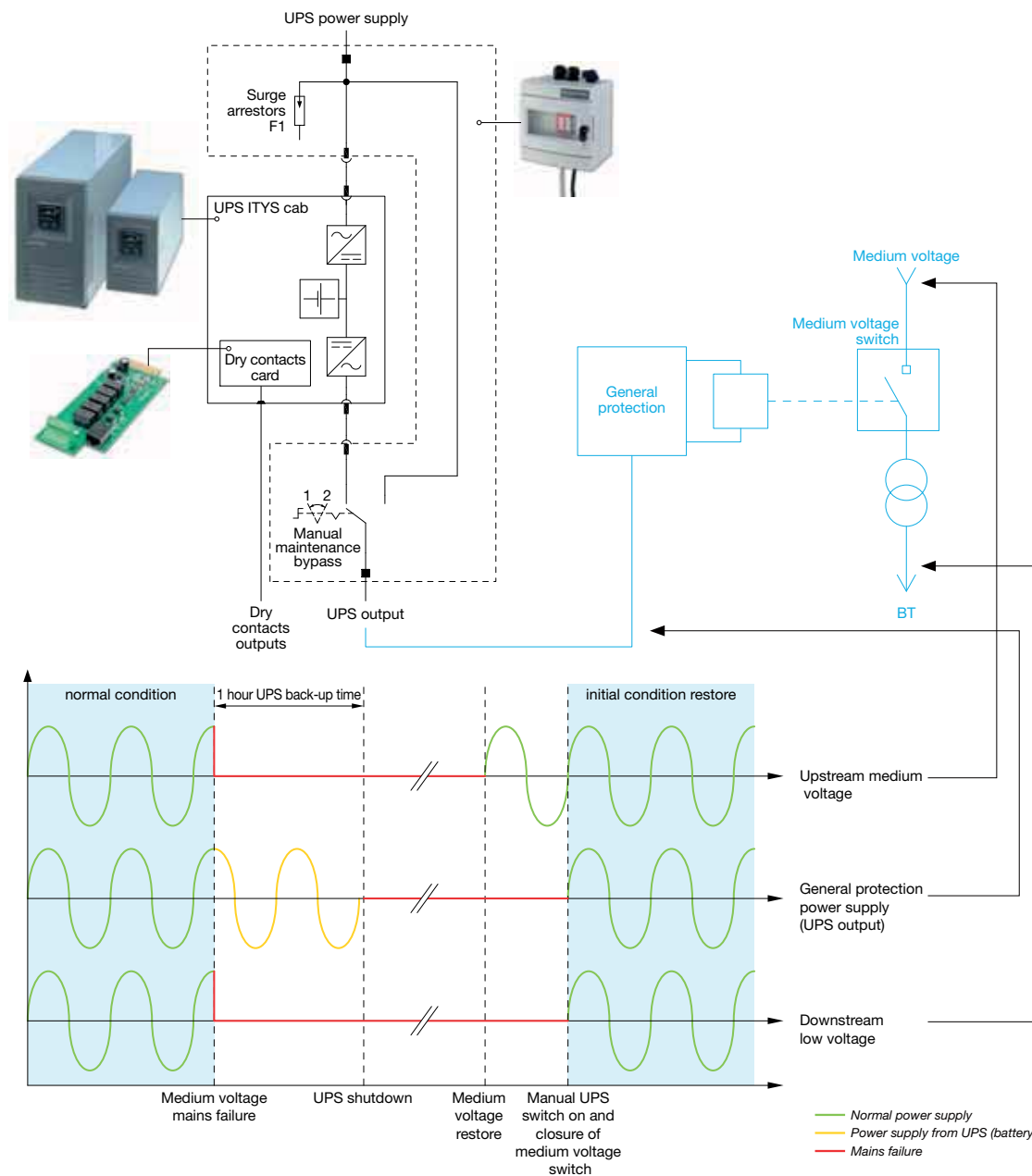
Graphic operating status:

- 1 Battery indicator
- 2 LED bar - % of connected load
- 3 LED bar - % battery available
- 4 On / off button and deactivation of the buzzer
- 5 Overload indicator
- 6 Fault indicator

ITYS cab

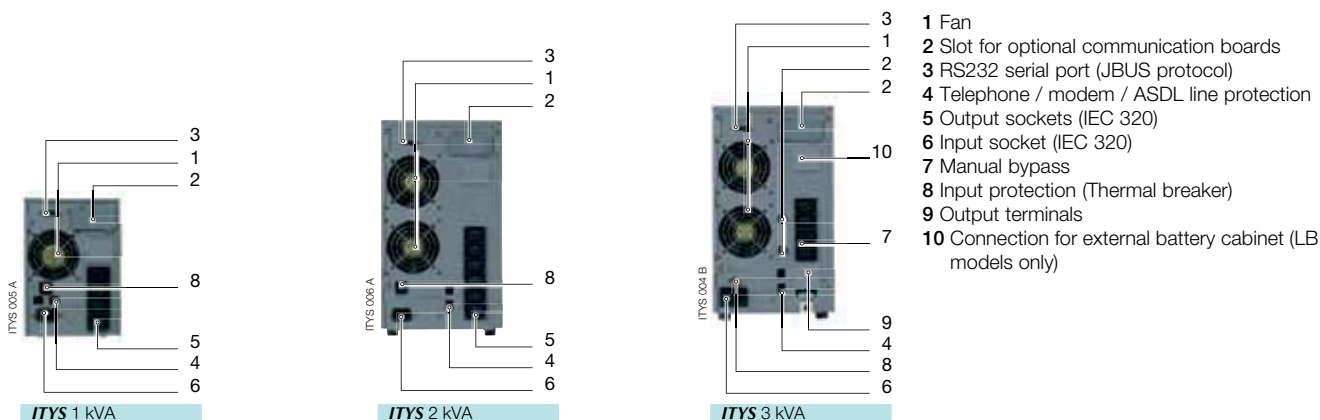
from 1000 to 3000 VA
Single-phase UPS systems

Architecture



ITYS 032 A,GB

Connections

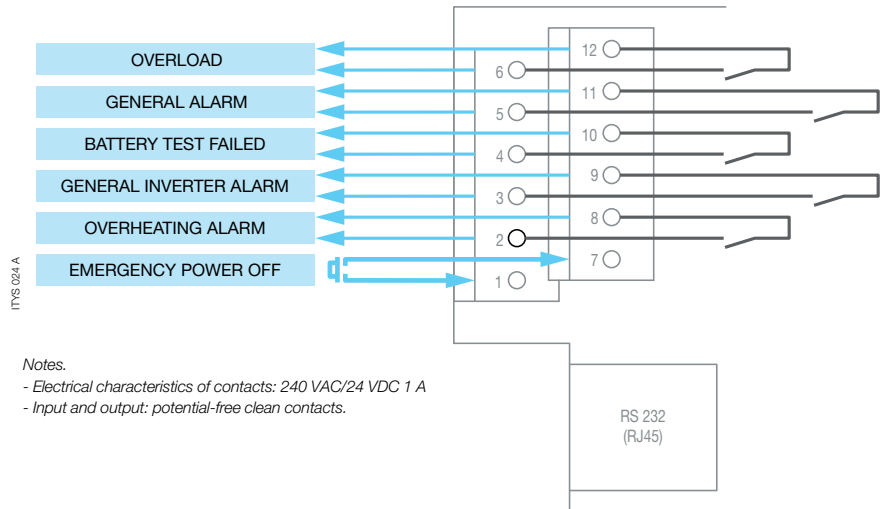


Programmable clean contacts board (option)

Dedicated interface with clean contacts, can be installed on the rear slot: gives the status of the UPS with five potential-free contacts and provides an input for remote emergency stopping (EPO).



ITYS 023 A



Notes.

- Electrical characteristics of contacts: 240 VAC/24 VDC 1 A
- Input and output: potential-free clean contacts.

Standard communication features

- **LOCAL VIEW**: ideal UPS monitoring and shutdown point-to-point solution for Windows® operating system.
- **UNI VISION**: software for the control and automatic shutdown of applications connected to Linux.
- **UNI VISION PRO**: advanced user interface via serial link and multiple shutdown management for several operating systems.
- MODBUS/JBUS RTU.

Communication options

- **NET VISION**: professional WEB/SNMP interface for UPS monitoring and shutdown management of several operating systems.
- Dry contact interface.

Manual bypass (option)

Specially designed for **ITYS cab**, the manual bypass option enables:

- simplified installation: connection to the system is made with industrial grade terminals, while connection to the UPS is via the pre-wired plug and socket supplied.
- easy maintenance and uninterrupted operation: thanks to the manual bypass isolator it is possible to service or replace the UPS while maintaining the power supply to the devices downstream in complete safety for the operator. This operation has been specially devised to be simple to carry out, even in an emergency.

- increased level of equipment immunity to surge voltages, typical for this type of application, thanks to suitable surge arrestors included in addition to standard UPS protection.



ITYS 025 A

Tech info

The CEI 016 STANDARD for auxiliary cabin equipment requires an uninterrupted power supply to the control circuits for the PG and DG.

The control circuits for the PG, DG and coil must be powered by the same auxiliary voltage when there is no power. The power supply must be guaranteed for a back-up

time of 1 hour, either by the UPS or by buffer batteries.

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

It is necessary to power the DG before closing the main isolator.

The required protection comprises:

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



Solutions in container or shelter

tailored infrastructure for critical applications

Site-specific solutions



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

SOCOMECS UPS 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

SOCOMECS UPS 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.

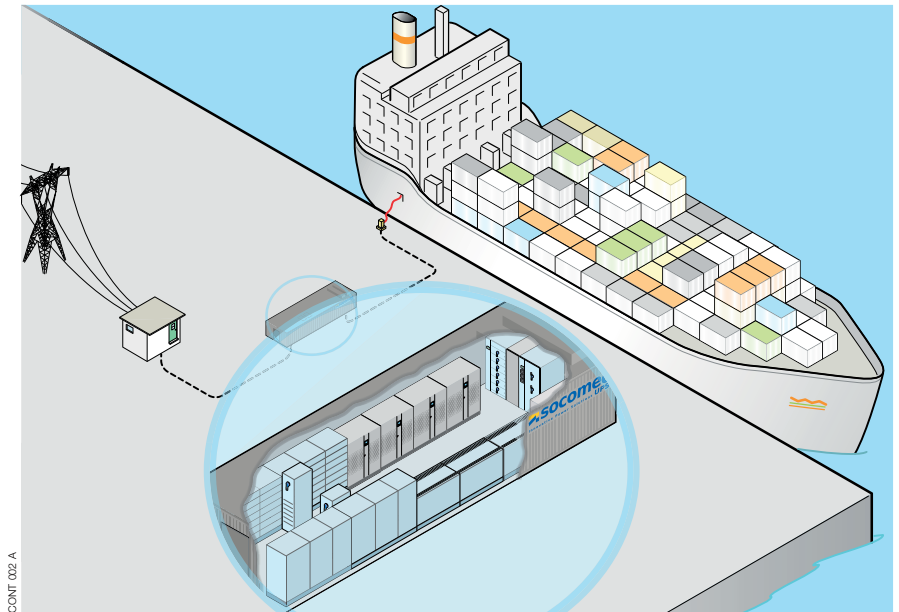
Solutions in container or shelter

tailored infrastructure for critical applications

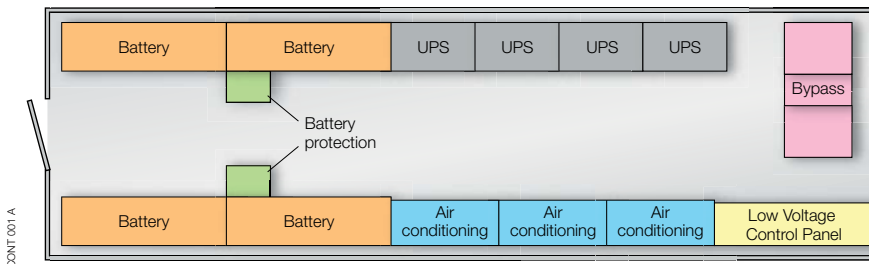
Site-specific solutions

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 UPS 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.





Communication and connectivity

Communication Software

Management solutions

p.102

Communication Interfaces

Connectivity solutions

p.107



Communication and connectivity

the ideal solution for integrated system management and data integrity

Management solutions



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.

SOCOMEK 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 SOCOMEK 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.

Local solutions

Solutions for local information technology applications

If the UPS powers a single computer or a single workstation (or server), it is sufficient to connect the UPS to the PC via the USB port or the serial port (point-to-point connection) to monitor the electrical measurements of the UPS.

In addition, under critical conditions, the UPS can proceed with controlled shutdown of the PC/server.

For point-to-point connection topology, several solutions are available depending on the UPS model and the operating system used:

- **Plug and Play solution:** via USB connection and HID protocol, this enables Windows® to recognise the UPS automatically without installing any additional software. This solution manages PC shutdown and alert messages directly with the operating system tools, without having to install any additional software.

- **LOCAL VIEW⁽¹⁾:** simple to install and configure, **LOCAL VIEW** is the ideal point-to-point solution for all Windows® systems. Its simple, user-friendly, multilingual graphic interface, together with its many, clear messages (sending emails, pop-ups and icons on the Windows® bar) makes it easy to use even for less experienced users. In addition to it being easy to use, **LOCAL VIEW** also has a view in "advanced" mode, which provides access to the UPS events and measurement logs, and makes it possible to customize shutdown procedures with user-defined scripts. The UPS systems supported and compatible operating systems can be viewed at www.socomec.com.

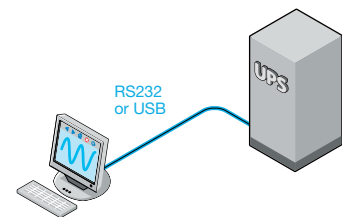
LOCAL VIEW is compatible with Windows Server™ 2000/2003/2003 R2/2008/2008 R2/XP/VISTA/7 (32/64 bit).

(1) Included in the **VISION-SUITE** package or downloadable free of charge from www.socomec.com/download.

- **UNI VISION** allows the UPS to be managed from the local workstation/ server and from every remote local station present in the same network of the local workstation/server.

It supports local and remote UPS monitoring using an internet browser, automatic shutdown of local workstations or servers on which **UNI VISION** runs, events data log (status changes and alarms), notification of faults via email to up to 8 addresses.

UNI VISION is compatible with Linux kernel 2.4 (32 bit) Intel architecture.



LOGIC 015 A GB

	HID Windows® Power Management	LOCAL VIEW for Windows®	UNI VISION for Linux
NETYS PE	-	•	•
NETYS PL	-	•	•
ITYS	-	•	•
NETYS PR - PR RACK 1U	• ⁽²⁾	•	•
NETYS RT	• ⁽¹⁾	•	•

(1) **NETYS RT 1.1-1.7-2.2-3 kVA only.**

(2) Not available on **NETYS PR 1000 VA.**

Note.

For point-to-point connections with IBM-AIX, HP-UX, Sun Solaris and Novell operating systems, **UNI VISION PRO** software must be used.

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 in two ways:

- 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).
- via a 'proxy agent': connecting one of the PCs/servers to the UPS via a serial port or USB and using the network PC connection to make the UPS communication and control functions available in the network.

- **NET VISION, RT VISION, PDU VISION** network adapters.

Connection of SOCOMEC devices to the LAN

Product	Embedded LAN	Optional advanced LAN
NETYS PR	no	NET VISION⁽³⁾
NETYS RT 1100-3000	no	RT VISION⁽³⁾
NETYS RT 5000-11000	yes ⁽³⁾	embedded ⁽³⁾
ITYS	no	NET VISION⁽³⁾
MODULYS SYSTEM	no	NET VISION⁽³⁾
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	no	NET VISION⁽³⁾
MASTERYS IP+	yes ⁽¹⁾⁽²⁾	NET VISION⁽³⁾
MASTERYS EEmergency	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⁾
SHARYS MICRO and MINI	no	NET VISION⁽³⁾
SHARYS ELITE	no	NET VISION⁽³⁾
Zero-U PDU	no	PDU VISION⁽²⁾
1U iPDU	yes ⁽²⁾	embedded ⁽²⁾

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

Communication and connectivity

Software

Management solutions

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:

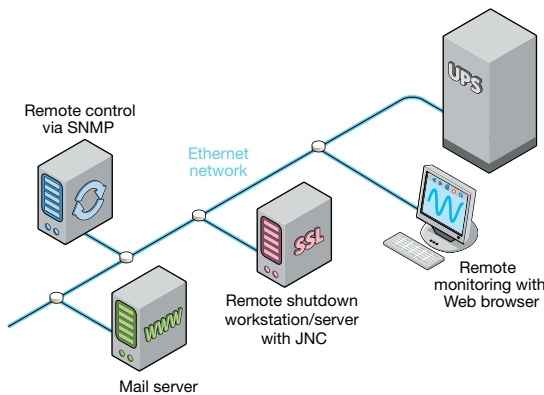
- 10 / 100 Mb Ethernet connection (RJ 45),
- UPS monitoring screen via a Web browser,
- remote shutdown of workstations,
- notification of faults via email to up to 8 addresses,
- UPS management via SNMP protocol,
- monitoring of the operating environment (optional EMD temperature and humidity sensor). Configurable alarm trigger, notification via email,
- suitable for remote maintenance service **T.SERVICE**.

Shutdown clients included in standard **NET VISION**:

- Windows Server™ 2000/2003/2003 R2/2008/2008 R2/ XP/VISTA/7 (32 / 64 bit),
- Novell 4.x.
- Sun Solaris versions 8.0 (Intel x86 architecture).
- Linux Kernel 2.4 or later versions (Intel architecture).
- Red Hat compatible.



MOD 067 A



LOGIC 017 A GB

IP network solutions (UPS connection via Proxy Server)

The **UNI VISION PRO**⁽¹⁾ software meets professional requirements. With similar features to **UNI VISION**, it also has several additional functions, such as the programming and execution of the automatic shutdown of remote server-based workstations connected to the network thanks to **UNI VISION PRO** compatibility with JNC universal shutdown client.

The UPS can also be programmed by networked server-based workstations.

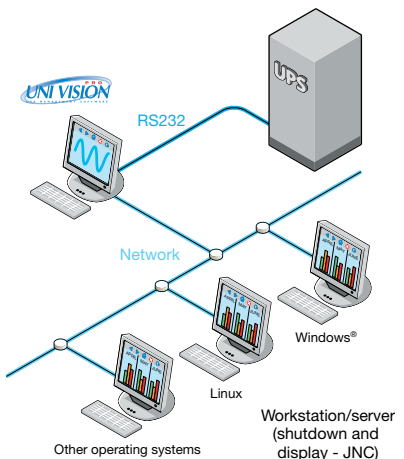
The main functions are as follows:

- UPS monitoring via Web browser,
- local shutdown of the server on which **UNI VISION PRO** runs,
- remote shutdown (optional) by Java shutdown client,
- notification of faults via email to up to 8 addresses.


This range of communication software, specially designed by SOCOMEC UPS, ensures maximum compatibility with all the main operating systems and their future releases. **UNI VISION PRO** should be installed in the computers directly connected to the UPS.

The table below shows their compatibility with the OS with Java technology installed.

⁽¹⁾ Included in the **VISION-SUITE** package or downloadable free of charge from www.socomec.com/download



LOGIC 016 E GB

	
Windows Server™ 2000 / 2003 / 2003 R2 / 2008 / 2008 R2 / XP / VISTA / 7 (32 / 64 bit)	•
Linux kernel 2.4 (32 bit) Intel architecture	•
IBM AIX 4.3.3/5.x Rs 6000 / PPC architecture	•
HP HP-UX 10.20 / 11.x PA-RISC architecture	•
Sun Solaris 8/9/10 Sparc and x86 architectures	•
Novell 5/6	•

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**.

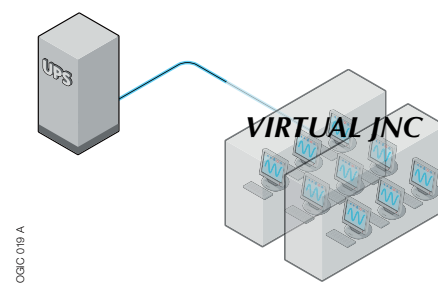
JNC (JAVA & .NET Shutdown client) is a small software programme that is installed in the remote computers. It shows data and executes commands sent by **UNI VISION PRO** or by some LAN interfaces via the LAN. It has been developed by SOCOMEC UPS on a JRE and .NET platform.

Operating system	O.S. version	Libraries required / Version	JNC
Microsoft™	Windows™ 2000 SP4 or later	.NET Framework v1.1.4322 / 2.0.50727 or later	•
	Windows™ Xp Sp2 or later	.NET J# Framework v1.1.4322 / 2.0.50727 or later	•
	Windows™ 2003 / 2003 R2 Server (32 / 64 bit)	.NET Framework 2.X	•
	Windows™ 2008 Server (32 / 64 bit)	Nothing more	•
	Windows™ Vista (32 / 64 bit)	(.NET Framework 3.0 is natively installed)	•
	Windows™ 7 (32/64 bit)	(.NET Framework 3.0 is natively installed)	•
IBM	AIX 4.3.3 or later	RS / 6000 - PowerPC	•
	AS 400 V4R5 or later	JAVA JRE included in O.S.	•
SUN	SOLARIS 8 or later (SPARC / x86)	JAVA JRE 1.3 or later	•
HP	HP-UX 10.20 or later	JAVA JRE 1.3 or later	•
NOVELL	NETWARE 5.x or later	JAVA JRE 1.3 or later	•
Linux	All versions distributed (32 bit)	JAVA JRE 1.3 or later	•
Apple	Mac Os X (PowerPC G3)	JAVA JRE included in O.S.	•

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™.



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	•

Communication and connectivity

Software

Management solutions

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 (2)	PROFIBUS DP (2)	MODBUS TCP (2)
NETYS PR - PR RACK 1U	•	• (1)		
NETYS RT	•	•		
ITYS	•	•		
MODULYS Green Power	•	•		
MASTERYS	•	•	•	•
Green Power 2.0	•	•	•	•
DELPHYS	•	•	•	•
IT-SWITCH	•	•		
STATYS	•	•		
Zero-U PDU - 1U iPDU		•		

(1) Not available on **NETYS PR 1000**

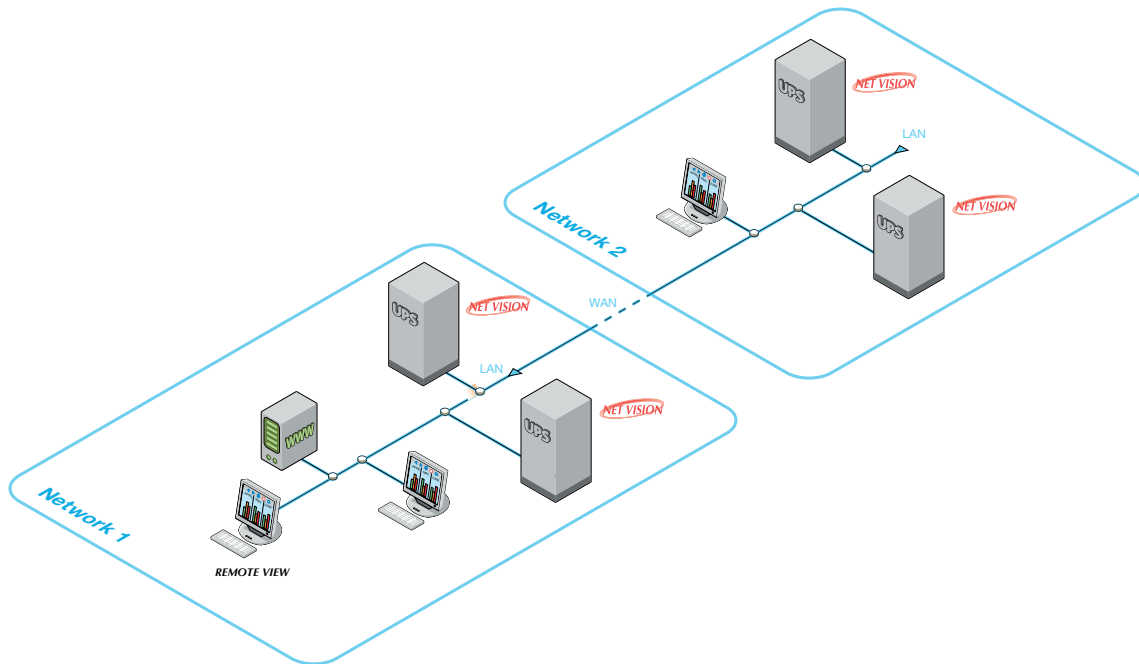
(2) The protocols above can be either embedded in some UPS/PDU or optional. Contact SOCOMEC for further information.

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.



LCD remote access panel



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.

MODBUS TCP interface

Transferring the MODBUS-TCP protocol

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

MOD 007 A



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**

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



EMD device for **RT VISION** and **MODULYS Green Power**

SNMP/WEB interface

Communication via LAN

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

LOGIC 020 A



RT VISION

LOGIC 020 A



NET VISION

PDU 008 A



PDU VISION

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



3
LEVEL
TECHNOLOGY
96%
EFFICIENCY
kW = kVA

Green Power 2.0
**FULL
RATED
POWER**
kW = kVA

Power Factor 1
**Green
Power
2.0**
kW = kVA

Technology

The answer to your needs
p.110

High quality voltage
p.111

Architectures
p.113

Economical operation
p.116

UPS interfaces
p.117





The answer to your needs

solutions adapted

to your applications, to your environment
and to your operating constraints

Innovative solutions

- To meet your supply needs for critical equipment, SOCOMECS UPS offers solutions drawn from extensive experience with high quality power supplies using the latest technology.
- **Green Power 2.0**: full rated power available thanks to Power Factor 1 (kW=kVA) that requires no power downgrading when supplying the latest generation of servers in typical data centre conditions.

High quality power supply

- Precise voltage produced by means of digital control.
- Adapted to non-linear loads.
- Compatible, without derating, with the latest IT-loads having high and leading power factor.

An infrastructure reduced in size and cost

- Integration into your environment is simplified by using rectifiers delivering a sinusoidal current that eliminates the constraints caused by harmonics and limiting the current used upstream.
- High power factor upstream of the rectifiers allows the cable diameter and protection level to be reduced.
- Optimal power sizing of the transformer source or the generator set.
- High short-circuit current, simplifying the protection needed to maintain selectivity upstream.
- Optimal size and front access reduces the impact on space requirements.

A progressive investment

- Modular UPS and parallel modular configurations make it possible to spread your power investment over time and according to your needs, by upgrading your existing equipment.
- Real hot-swap pluggable power modules allow power upgrading and maintenance without affecting the system availability.

Reduction in operating costs

- High efficiency online reduces your electricity bill by reducing not only the electricity needed to supply the UPS but also the electricity required for cooling or air conditioning.
- Energy Saver system that optimizes the efficiency of the UPS in parallel when operating with a partial load.
- **Fast EcoMode**, automatic operating mode that optimizes the efficiency depending on the quality of the input voltage.

Simplified operations

- Design that allows the architecture to be adapted to your own specifications concerning: redundancy, energy storage, specific configurations and connection with static transfer systems.
- Installation and connection on your facilities.
- Interfaces and software allowing local and remote monitoring of your equipment.

Constant availability of your power supply

- Fault-tolerant design with numerous redundant functions.
- Battery reliability over time using an innovative charging system.
- Permanent monitoring of the battery system and simplified maintenance.

Accurate diagnostics and maintenance

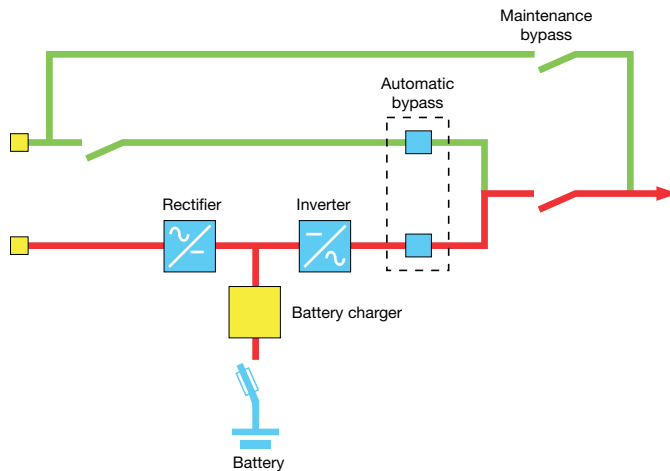
- Operating status shown on a control and monitoring panel.
- Remote monitoring and teleservice.
- Easily accessible components and subassemblies, reducing repair time.
- Preventive maintenance.

High quality voltage

sinusoidal output voltage whatever the load supplied

Technology

VFI technology



ASI 003 A GB

Online double conversion (Voltage and Frequency Independent VFI)

- The only UPS working-mode that assures total load protection against all possible power mains quality problems.

The rectifier:

- receives the power from the network,
- transforms the alternating current into direct current,
- supplies the UPS inverter.

The battery charger:

- controls the battery charge,
- keeps the battery voltage independent from the DC bus voltage,
- eliminates ripple current to preserve the batteries.

The battery:

- stores electrical energy,
- is kept fully charged by the charger,
- automatically supplies the UPS inverter when the supply network is unavailable.

The inverter:

- is supplied by the rectifier or the battery,
- transforms direct current into alternating current,
- permanently supplies applications with high quality voltage with a stable frequency, independent of the specifications and disturbances on the supply network.

The bypass:

- supplies applications directly from the network when the inverter output voltage is out of tolerances,
- the maintenance bypass function allows applications to be supplied during repair operations.

Sinusoidal energy

These features reduce the effect on the rate of distortion generated downstream by non-linear loads. The equipment supplied works under the best possible conditions, extending their service life and improving their availability over time.

The technology used guarantees:

- perfectly sinusoidal voltage: THDV < 2 % with linear loads and < 3 % with non-linear loads,
- precise output voltage even when the load is completely unbalanced,
- an immediate response to major variations in load with no deviations in output voltage (up to ± 2 % in less than 5 ms).

Transformer-based and transformeless technologies

The two main UPS technologies available on the market are:

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

Both technologies have their respective advantages and drawbacks in terms of design constraints such as: footprint, neutral, efficiency, short-circuit currents, etc.

Focusing on customer installation needs, Socomec UPS provides both technologies for meeting all possible requirements.

High quality voltage

Sinusoidal output voltage whatever the load characteristics

Technology

IGBT rectifier

A "clean" IGBT rectifier

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

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

A consistent rectifier

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

An economical IGBT rectifier

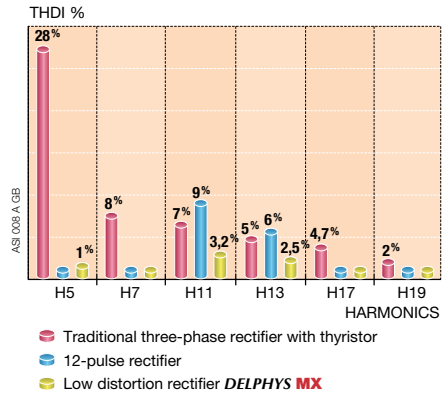
- The power factor upstream of the rectifier: 0.99, reducing by 30% the used kVA compared with conventional technology.

The reduction in input current results in a saving in terms of the size of sources, cables and protective devices.

- Rectifier capabilities:
 - low upstream THDI,
 - gradual, timed restarting,
 - possibility of suspending battery recharge when operating with a generator set.
 This allows the impact caused when the generator set is engaged to be reduced, as well as the energy used and the footprint.

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

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



SVM, digital Space Vector Modulation

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

- perfectly sinusoidal output voltage THDV < 2 % with linear loads and < 3 % with non-linear loads,
- output voltage precision even when load is completely unbalanced between phases,

- an immediate response to major variations in load, without deviating the output voltage ($\pm 2\%$ in less than 5 ms),
- a very high short-circuit capacity up to 4 In (Ph / N) allows selectivity,
- a complete galvanic isolation between DC circuit and load output.

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

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

Architectures

solutions to increase power and availability

Technology

Solutions to meet all your needs

Different configurations make it possible to create architectures to meet the most stringent availability requirements in terms of flexibility and upgradeability.

Increasing power

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

Increasing availability

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

Easy to maintain

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

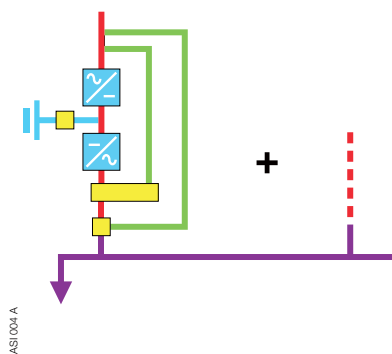
Unit architecture

An upgradeable solution

This architecture is secured by an integrated automatic bypass, which constitutes a first level of redundancy guaranteed by the network.

The maintenance bypass function allows maintenance to be carried out without shutting down applications.

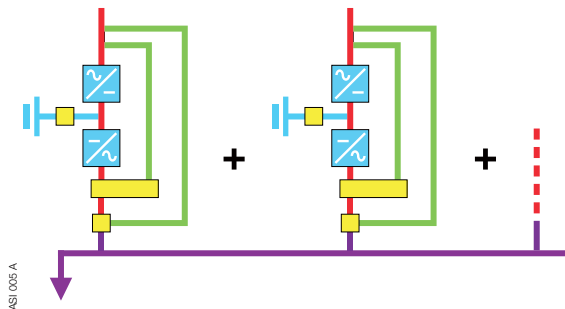
It can be the first stage of your investment, with the possibility to upgrade, as your requirements change, to a modular parallel architecture to increase power or availability (redundancy).



Distributed architecture

Development without constraint

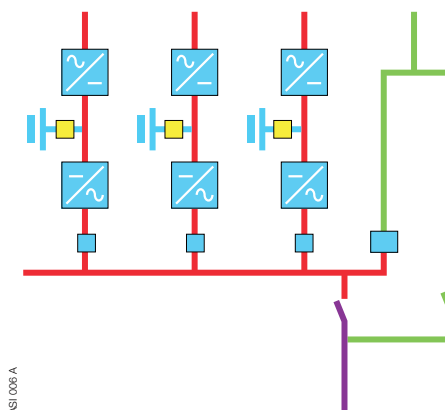
The simplest solution to ensure power supply availability and flexibility in case of unscheduled installation upgrades by means of the parallel configuration of the UPS units, each one incorporating its own bypass. This configuration enables power output to be increased and is suitable for N+1 redundancy.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



Centralised architecture

Redundancy and power upgrades

The ideal solution for system redundancy and planned power upgrades. The automatic and maintenance bypass functions are centralized. In the event of anomalies inside the UPS or of an overload, the power is automatically switched to bypass ensuring the maximum availability. This solution also allows to adapt the bypass size according to the real power and installation short-circuit capability.



Architectures

solutions to increase power and availability

Technology

Vertical modular architecture

Flexible and completely modular

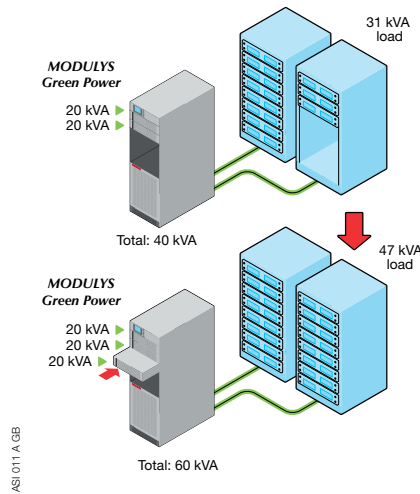
A new, innovative UPS concept that can adapt to all types of growth.

Power can be increased by successively adding modules.

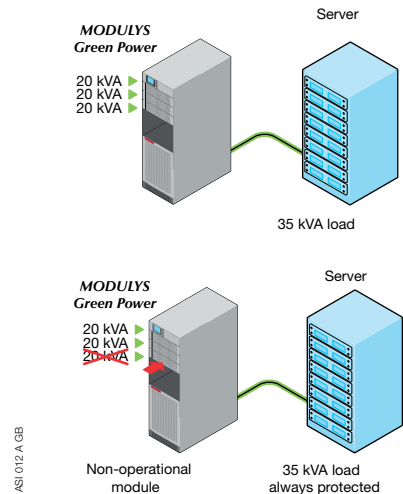
The increasing of availability (redundancy) is simply carried out by adding a module to the number required to meet the power requirements for the applications.

All the modules are connectible (plug-in).

Removal or adding of modules can be carried out with the system running (hot-swap) without affecting the general operation of the installation.



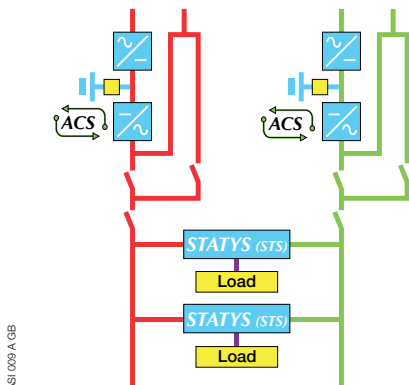
Scalable configuration



Scalable redundant configuration

Double bus architecture

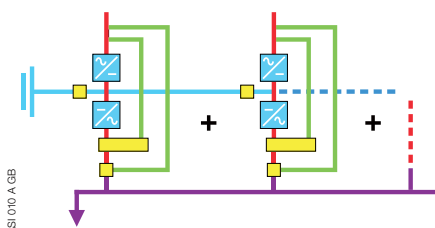
Double bus architecture for very high availability (TIER III or TIER IV classification).



ACS: Automatic Cross Synchronisation
STS: Static Transfer System

Shared battery

Optimization of battery size for parallel systems.



Available with distributed batteries, **Green Power 2.0** 160-400 kVA makes it possible to optimize battery size thanks to shared battery operation. This reduces the overall system footprint, the weight of required batteries, the battery monitoring system, the amount of wiring needed and amount of lead.

Fault-tolerant UPS architecture

Integrated internal redundancy ensures permanent power supply even during system failure:

- redundant ventilation system,
- ring bus synchronisation,
- no single point of failure since the synchronisation bus uses a fault-tolerant token ring topology that accepts an accidental opening of the synchronisation loop, without UPS malfunctioning or load losses. An alarm is also given to the operator at the first fault,
- "Cascade failure" protection function eliminates fault propagation downstream of a module in parallel system when configured with central bypass,
- "backfeed" protection eliminates any risk of energy feedback upstream of the UPS,
- hardware and software watchdog ensures that the power supplied to applications is secure in case of a circuit and control software fault,
- redundancy of the electronic power supply, locating ventilation faults, preventive detection of faults on a battery component.

Protecting your battery investment

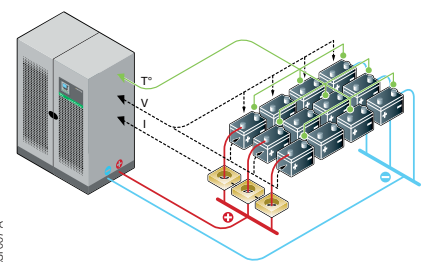
EBS (Expert Battery System) technology significantly optimizes the battery life:

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

Guaranteed battery availability

- The battery and DC circuit are regularly tested automatically and the operator is notified of their condition,
- Available as option, **BHC Interactive** (Battery Health Check), a battery monitoring system that provides permanent monitoring of the battery system, simplifies maintenance (either preventative or curative) and optimizes battery lifetime.

Interacting proactively with the battery charger recharging system (**EBS**), it optimizes battery capacity, increases charger precision, performs automatic battery testing and automatic procedure to recover a block when becoming weakened before it is totally unusable.



Optimized electrical network

More high quality power for latest-generation leading IT loads

- The **Green Power 2.0** UPS systems are designed to supply the latest-generation servers.
- The rated output power factor 1 responds perfectly to high power factor load requirements.
- The UPS is also suitable for leading power factor loads down to 0.9 without power derating.

"Clean" rectifier, for a reduced upstream installation and reduced input current

Upstream constant power factor of 0.99 and extremely low harmonic distortion (< 2.5 %), optimizes the upstream infrastructure:

- optimal gen-set and transformer,
- minimum upstream protection and cable sizing,
- the overall installation power is noticeably improved in terms of capacity and quality.



Significant cost savings (TCO)

Reduces costs and helps to save the environment

- More high quality power for latest-generation leading IT loads:
 - 12% more active power,
 - high active power, and without derating up to a power factor value of 1.
- "Clean" rectifier, for a reduced upstream installation and reduced input current:
 - optimal gen-set size and transformer,
 - minimum upstream protection and cable sizing,
 - the overall installation power is noticeably improved in terms of capacity and quality.

- Reduces costs and helps to save the environment:
 - reduced energy loss and requirement of air conditioning systems,
 - highest efficiency performance on the market, with to 96% over a wide range of uses, allowing low energy waste,
 - excellent input power factor and harmonic content avoid the over sizing of the supply system,

- **EBS** (Expert Battery System) manages the charging method to optimize the battery lifetime,
- extremely compact footprint (high power density) to leave the server room to the servers and save valuable floor space,
- CO₂ emissions are reduced by 45%,
- minimised amount of battery cabinets needed for an equivalent back-up time.

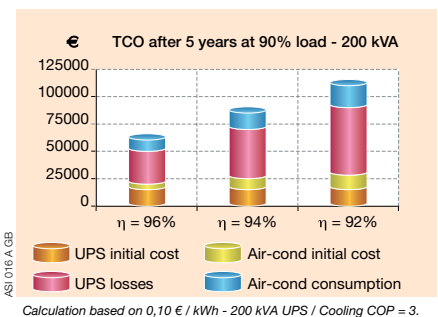
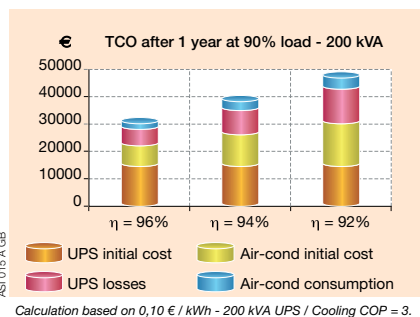
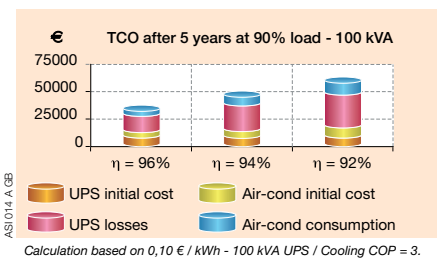
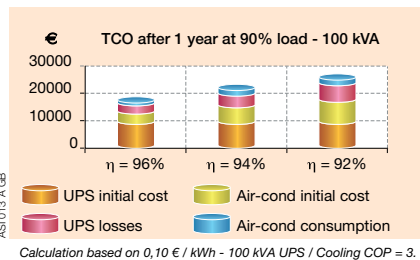
Three-level power bridges

A recent innovation in UPS technology for output converters is the three-level inverter topology.

Generally used for small inverters, such new architecture allows a reduction of losses thanks to a reduction of the switching voltage on the IGBT inverter. The result is an overall improvement of the system's efficiency.

By integrating this 3-level technology (both for the inverter and rectifier) in the

Green Power 2.0 high power range, SOCOMEC UPS today provides the highest certified efficiency performance (96%) on the market for online double conversion UPS. High efficiency UPS reduces TCO (Total Cost of Ownership) by having much lower operating costs during the equipment's life time.



Economical operation

for real reductions of your electricity bill

Technology

EcoMode

For more tolerant applications

- **EcoMode** allows an even more economical operation for less demanding applications or for periods of operation where permanent voltage is not required.
- In this configuration applications are supplied by the network.
- In the event of a failure the system automatically switches to UPS mode.
- The efficiency achieved is > 98%.

"Always on" Mode

For more tolerant applications

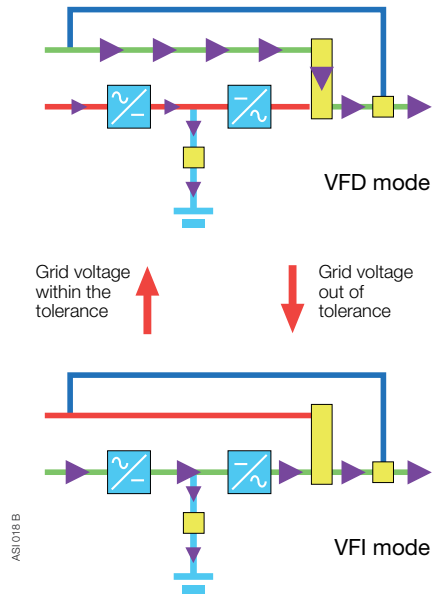
- This innovative operating mode has been designed specifically for the **MASTERYS** range.
- In this configuration, applications are supplied by the network, but the harmonic feedback normally generated on the network by non-linear loads is analysed and automatically corrected by the inverter.

This configuration guarantees economical operation with a supply of sinusoidal current from the network.

Fast EcoMode

Up to 99% efficiency

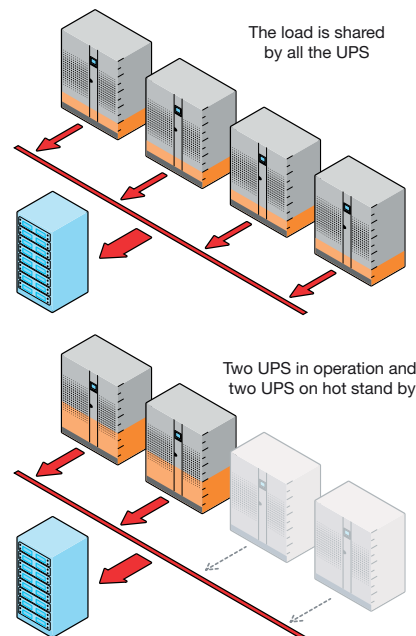
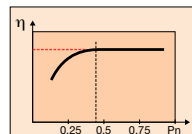
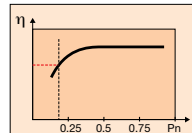
- Available as option for the **Green Power 2.0** 160-400 range, **Fast EcoMode** is an automatic operating mode that optimizes the efficiency depending on the quality of the input voltage.
- When the input voltage is within the tolerance (value is settable), the load is supplied by the bypass (VFD mode) and the efficiency achieved is 99%.
- Ultra fast transfer time from bypass to inverter (2 ms) if the input voltage is out of tolerances and automatic transfer back to bypass when the input voltage is restored.
- Batteries are permanently maintained under charging, avoiding periodic restarts of the rectifier
- Available both for single and parallel units.



Energy Saver

Optimum energy management

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



AS/017 A GB

UPS interfaces

for managing your equipment

Technology

GTS (Graphic Touch Screen)

User-friendly interface

The colour graphic touch screen, available on request, for **DELPHYS MP elite** and **MX**, is a user-friendly interface providing both safe operation of the UPS as well as a global system overview.

The mimic diagram is interactive and intuitive and provides a quick overview of the whole equipment. Direct access through the mimic panel to the main functions such as the event log, graphic reports and the interactive help menu makes using the controls easier and safer.

Remote monitoring is available via LAN connection, and the interface is included in the graphical touch screen.



DELPHYS 102 A

HMI (Human Machine Interface)

Multilanguage graphic interface

HMI is a multilanguage Human Machine Interface available on **Green Power 2.0** which displays information regarding operating status, electrical measurements, allows the access to control functions and configuration parameters and provides a global overview of the system.

It includes a colour graphic display and a luminous status bar, and provides access to:

- main functions via the mimic panel,
- measurements, alerts and UPS commands,
- programming battery tests and UPS operating modes,
- assisted startup and switching to maintenance bypass procedures,
- configuration menu,
- event log and alerts.



GREEN 055 A

ADICOM (advanced interface)

User-friendly graphic colour display

Gives a clear view of the UPS subassemblies status and provides the user with a full array of controls for their management.

USB connection with front access

For downloading or uploading of files from a memory key such as reports, custom language, software releases...

LED status bar

Gives the UPS status in 3 colours: green, yellow, or red.

Easy procedures for start and shutdown of the UPS

The display gives operators a step-by-step explanation of the procedures.

Wide range of network connections

Extensive communication possibilities are on offer, including: HTML page for remote monitoring, SNMP agent sending TRAP to network management station, email sent according to events selection, MODBUS TCP for BMS data transfer, SMS alert.

Shutdown agent

Allows sending a shutdown command to stand-alone or virtual servers.



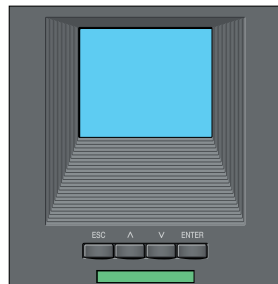
GREEN 056 A

LCD synoptic panels

LCD synoptic panels show all items of information relative to operating status, electrical measurements, gives access to control functions and configuration parameters.

These are some of the indicators available:

- input voltage out of tolerance,
- output voltage present,
- no mains power,
- battery circuit broken,
- battery maintenance voltage fault,
- battery output operational with mains power present,
- slow discharge pre-alarm,
- slow discharge protection alarm,
- battery charger fault,
- earth leakage fault (option).



GREEN 055 A



87.8°F
E = 1.00
67/66
Location: 07

Commissioning Inspection and Maintenance

CIM maintenance contracts
p.122

T.SERVICE
p.123

CIM Thermo
p.124

CIM Rent
p.126



CIM

Commissioning Inspection and Maintenance

Services



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

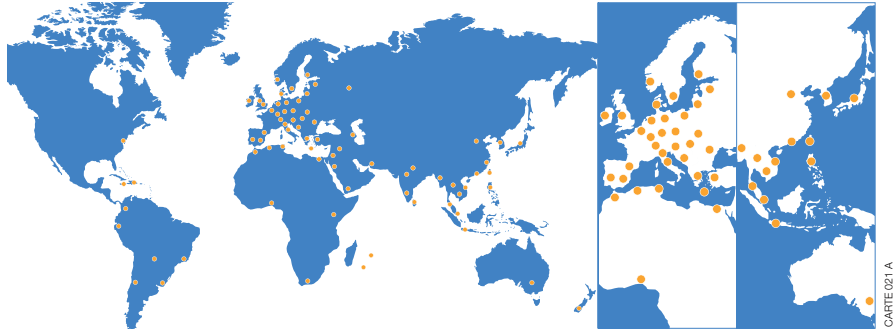
Understanding the need to maintain the availability of high quality energy, we place all the skills of our wide range of specialists at your disposal. Your entire equipment base is managed by the support service information system dedicated to monitoring it.

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.



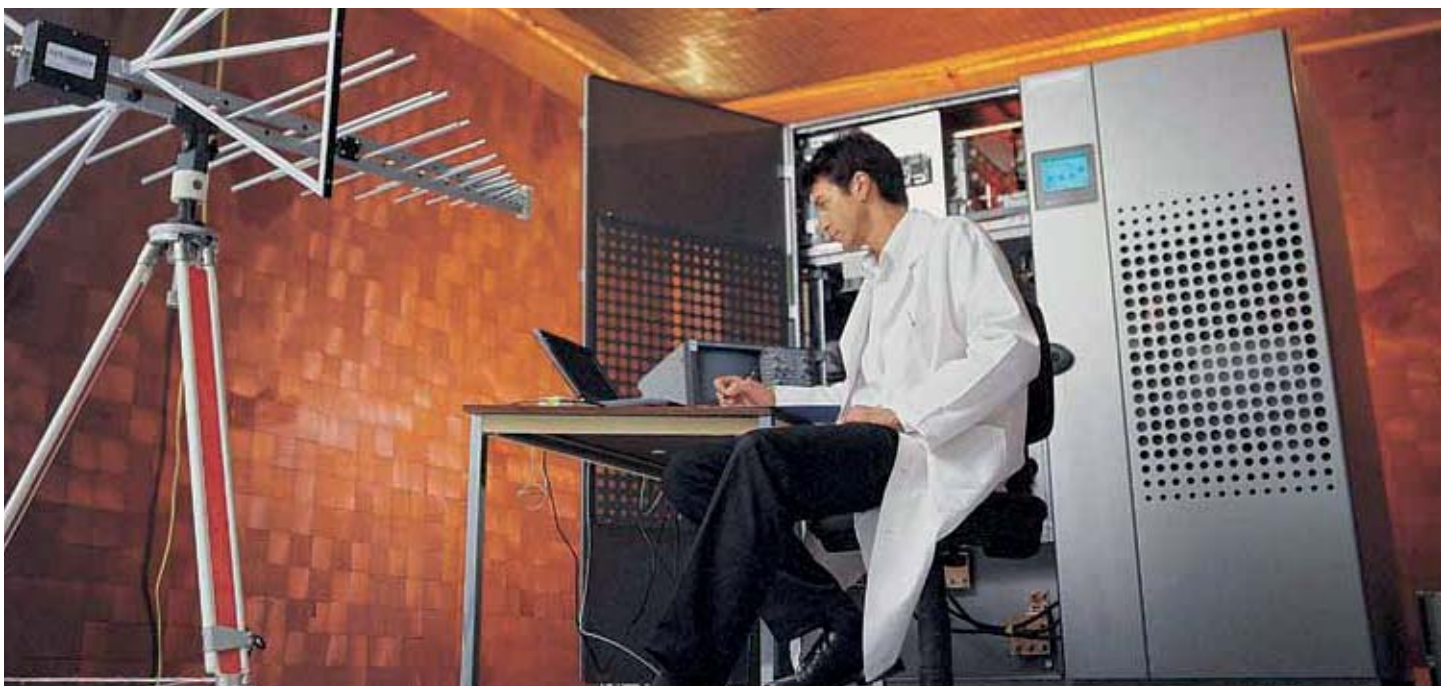
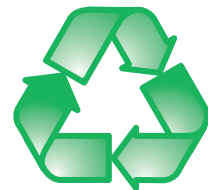
Guaranteed response time

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.



APU112 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.

T.SERVICE

What is T.SERVICE ?

T.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.

T.SERVICE 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 T.SERVICE ?

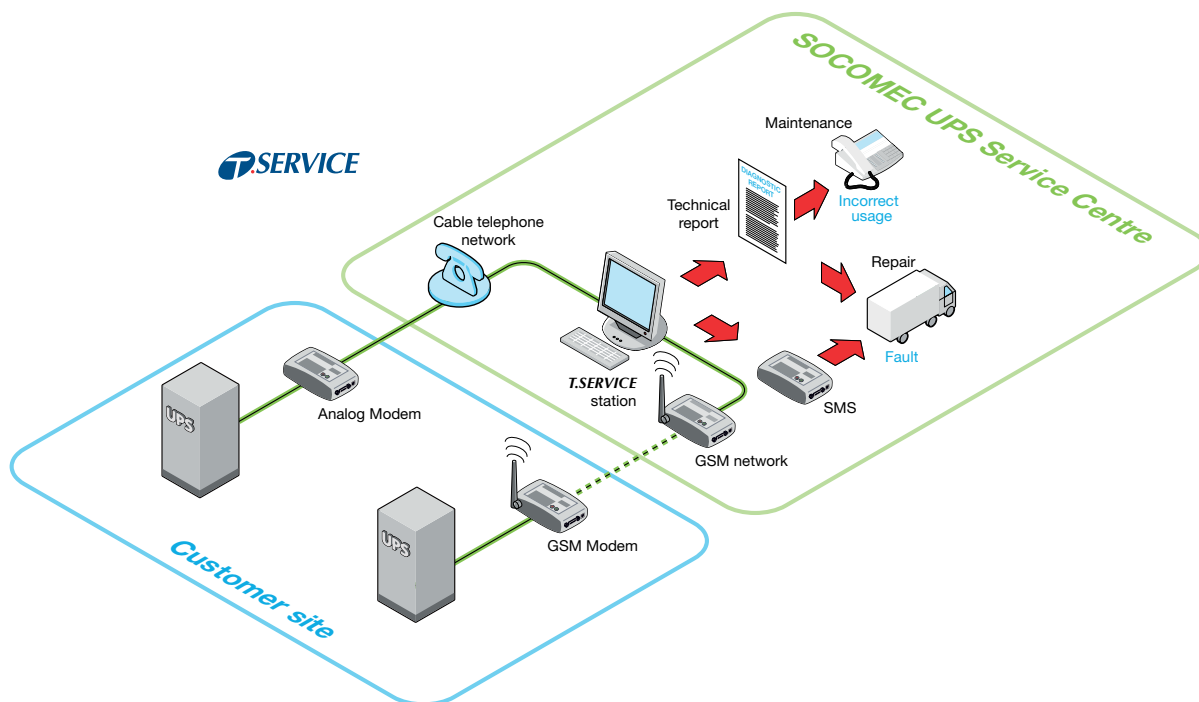
For Mission Critical applications that need high availability solutions. Such aims cannot be achieved only with good design and product quality. A fast and reliable maintenance service is the best solution for maintaining high system availability for the entire life cycle. The surveillance automation 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.

T.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.

T.SERVICE in conjunction with Socomec UPS maintenance services provides effective protection for your installation and assures the continuing high availability of the UPS, with a much-reduced technical intervention time.

T.SERVICE description

- Connection between the UPS and the Socomec UPS Service Centre is available via:
 - GSM modem or analog installation directly to the customer's 'phone system,
 - two-way communication: through the **T.SERVICE**, along with the periodic reports or alarms, the UPS can also be checked by our Service Centre at any time.
- Status reports issued by Monitoring Centre (periodical or failure notification):
 - to customer via e-mail.
- 24 / 7 / 365 Service:
 - **T.SERVICE** ensures full time surveillance to ensure the customer's peace of mind. Even during nights or weekends the service is ensured by automatic SMS notification from service station to on-duty skilled technicians.



CIM 014 A GB

(1) Please check the availability for your area.

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



DEYS 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).

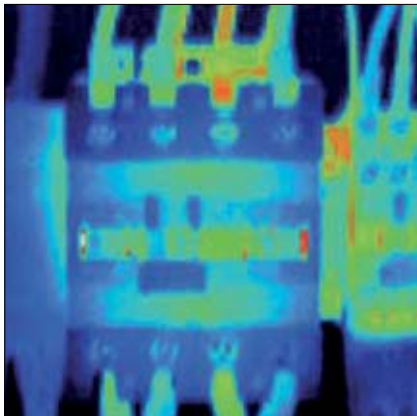
Using thermography it is possible to check active installations and rapidly identify critical situations affecting energy distribution and electrical components (loose or corroded connections, load imbalance, overloads, presence of harmonic currents).

Expert servicing by certified specialists

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



CIM 008 A



CIM 008 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 137 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.

SOCOMECS UPS 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.
- Measurement 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

SOCOMECS UPS 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.



COUW 142 A

(1) Please check the availability for your area.

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.



APPL135.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.

SOCOMECS 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.



APPL206.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).

Production: SOCOMEC Communication Department
Graphics: SOCOMEC
Photography: Martin Bernhart and SOCOMEC
Printing: PVA, Druck und Medien-Dienstleistungen GmbH
Industriestraße 15, D-76829 Landau/Pfalz

Socomec UPS worldwide

IN WESTERN EUROPE

BELGIUM

Schaatsstraat, 30 rue du Patinage
B - 1190 Bruxelles
Tel. +32 (0)2 340 02 34
info.ups.be@socomec.com

FRANCE

95, rue Pierre Grange
F - 94132 Fontenay-sous-Bois Cedex
Tel. +33 (0)1 45 14 63 90
dcm.ups.fr@socomec.com

GERMANY

Heppenheimer Straße 57
D - 68309 Mannheim
Tel. +49 (0) 621 71 68 40
info.ups.de@socomec.com

ITALY

Via Leone Tolstoi, 73 - Zivido
20098 San Giuliano Milanese (MI)
Tel. +39 02 98 242 942
info.ups.it@socomec.com

PORTUGAL

Núcleo Empresarial de Mafra II
Av. Dr. Francisco Sá Carneiro, Fracção N
2640-486 Mafra
Tel. +351 261 812 599
info.ups.pt@socomec.com

SPAIN

C/Nord, 22 Pol. Ind. Buvisa
E - 08329 Teià (Barcelona)
Tel. +34 935 407 575
info.ups.sib@socomec.com

THE NETHERLANDS

Duwboot 13
NL - 3991 CD Houten
Tel. +31 (0)30 760 0911
info.ups.nl@socomec.com

UNITED KINGDOM

Units 7A-9A Lakeside Business Park
Broadway Lane - South Cerney
Cirencester - GL7 5XL
Tel. +44 (0)1285 863300
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

LIU-E17 DAFZA
371355 Dubai airport free zone
Dubai (United Arab Emirates)
Tel.: +971 (0) 4 29 98 441
info.ups.ae@socomec.com

POLAND

ul. Mickiewicza 63
01-625 Warszawa
Tel. +48 22 825 73 60
info.ups.pl@socomec.com

ROMANIA

Heliade Intre VII Street no.8, 2 District
023383 Bucharest
Tel. +40 21 319 36 88 (89, 81, 82)
info.ups.ro@socomec.com

RUSSIA

4th Street 8 Marta, 6A, 405
125167 - Moscow
Tel. +7 495 775 19 85
info.ups.ru@socomec.com

SLOVENIA

Savlje 89
SI - 1000 Ljubljana
Tel. +386 1 5807 860
info.ups.si@socomec.com

TURKEY

Masuklar Yokusu No:57/2
34357 Besiktas
Istanbul
Tel. +90 212 2580810
info.ups.tr@socomec.com

OTHER COUNTRIES

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

IN ASIA PACIFIC

AUSTRALIA

Unit 3, 2 Eden Park Drive (Rydecorp)
Macquarie Park NSW 2113
Tel. +61 2 9325 3900
info.ups.au@socomec.com

CHINA

Universal Business Park
B33, Floor 3, 10 Jiuxianqiao Lu,
Chaoyang, Beijing 100016 P.R., China
Tel. +86 10 59756108
info.ups.cn@socomec.com

INDIA

B1, IInd Floor, Thiru-Vi-Ka-Industrial Estate
Guindy
Chennai - 600 032
Tel. +91 44 3921 5400
info.ups.in@socomec.com

MALAYSIA

31 Jalan SS 25/41- Mayang Industrial Park
47301 Petaling Jaya - Selangor, Malaysia
Tel. +603 7804 1153
info.ups.my@socomec.com

SINGAPORE

31 Ubi Road 1 #01-00 (Lobby B)
Aztech Building
Singapore 408694
Tel. +65 6506 7600
info.ups.sg@socomec.com

THAILAND

No.9 Soi Vibhavadirangsit 42
Vibhavadirangsit Rd, Ladyao
Chatujak Bangkok 10900
Tel. +66 2 941-1644-7
info.ups.th@socomec.com

VIETNAM

539/23 Luy Ban Bich St.,
Phu Thanh Ward, Tan Phu Dist
Ho Chi Minh City
Tel. +84-839734.990
info.ups.vn@socomec.com

ASIA PACIFIC HEAD OFFICE

Tel. +65 6507 9770
info.ups.apac@socomec.com

IN AMERICA

LATIN AMERICAN COUNTRIES

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

HEAD OFFICE

SOCOME C GROUP

S.A. SOCOME C capital 11 149 200 € - R.C.S. Strasbourg B 548 500 149
B.P. 60010 - 1, rue de Westhouse - F-67235 Benfeld Cedex

SOCOME C UPS Strasbourg

11, route de Strasbourg - B.P. 10050 - F-67235 Huttenheim Cedex- FRANCE
Tel. +33 (0)3 88 57 45 45 - Fax +33 (0)3 88 74 07 90
admin.ups.fr@socomec.com

SOCOME C UPS Isola Vicentina

Via Sila, 1/3 - I - 36033 Isola Vicentina (VI) - ITALY
Tel. +39 0444 598611 - Fax +39 0444 598622
hr.ups.it@socomec.com

SALES, MARKETING AND SERVICE MANAGEMENT

SOCOME C UPS Paris

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

YOUR DISTRIBUTOR

www.socomec.com

Non contractual document. © 2012, Socomec SA. All rights reserved.

