



# 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



### 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.

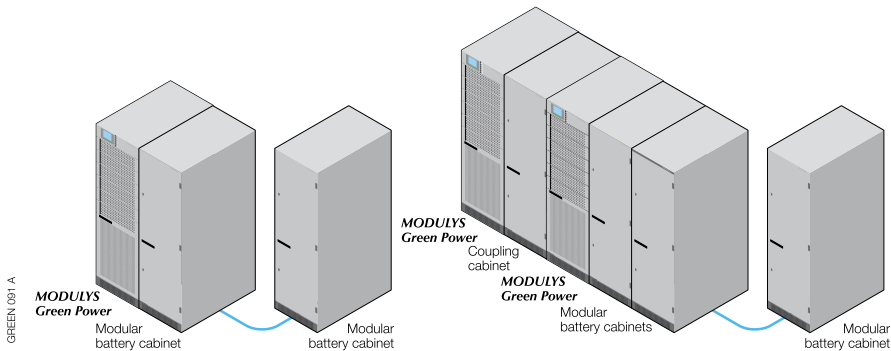
### Performance optimisation while changing

- 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

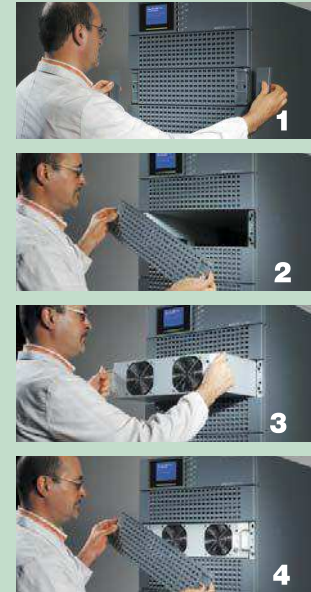


## Technical data

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 <sup>(3)</sup>	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																	
<b>INPUT</b>																		
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 <sup>(1)</sup>	0.99 / < 3%																	
<b>OUTPUT</b>																		
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 <sup>(2)</sup>	125% for 10 minutes, 150% for 1 minute																	
Crest factor	3:1																	
<b>BYPASS</b>																		
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)																	
<b>MODULE</b>																		
Battery charging current	1.2 - 5 A																	
Efficiency - On-line mode	up to 96%																	
Efficiency - Eco Mode	up to 98%																	
Weight	30 kg																	
<b>ENVIRONMENT</b>																		
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																	
<b>UPS CABINET</b>																		
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																	
<b>STANDARDS</b>																		
Safety	EN 62040-1 (NEMKO certified), EN 60950-1																	
EMC	EN 62040-2																	
Performance	EN 62040-3 [VFI-SS-111]																	
Product declaration	CE																	

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

## Module installation



## Standard electrical features

- Dual input mains.
- Internal 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

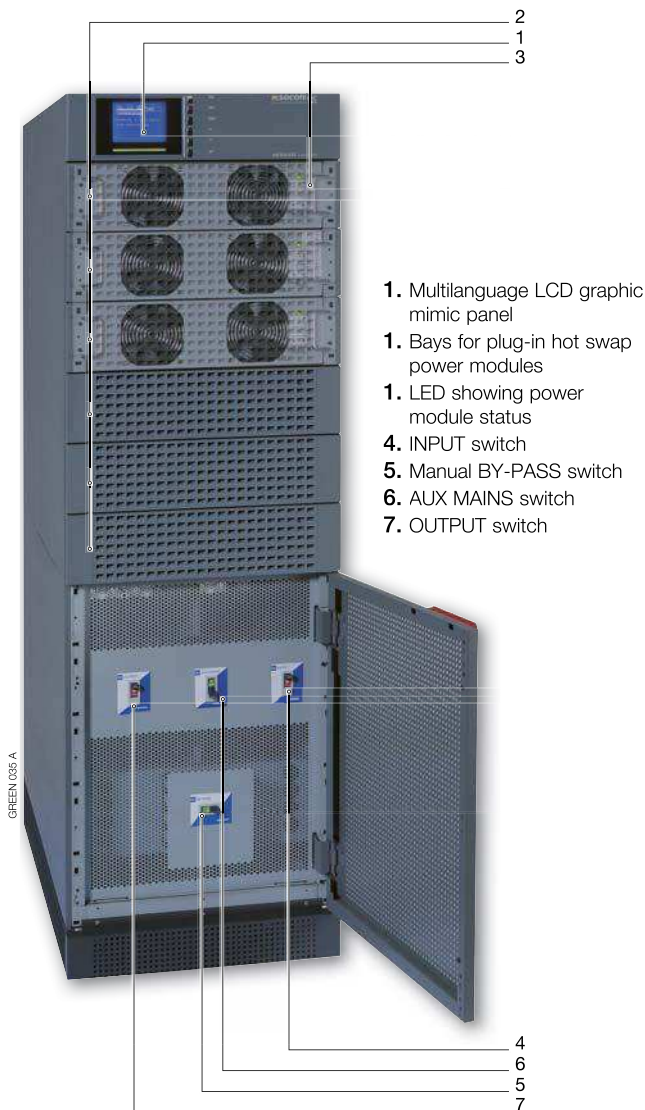
MODULAR BATTERY CABINET	
DIMENSIONS AND WEIGHT	
Dimensions W x D x H	600 x 900 x 1695 mm
Weight (empty cabinet)	161 kg
Weight (battery string)	121 kg
HIGH CAPACITY BATTERY CABINET	
Dimensions W x D x H	600 x 900 x 1695 mm
Weight	599 kg

# MODULYS Green Power

from 20 to 360 kVA

Three-phase UPS

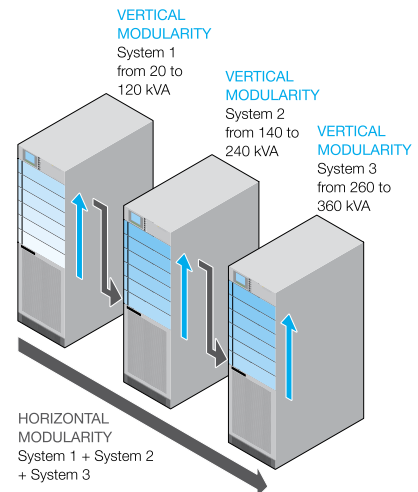
Totally modular for the best modular UPS system



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

## Power scalability up to 360 kVA

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



GREEN 032 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.

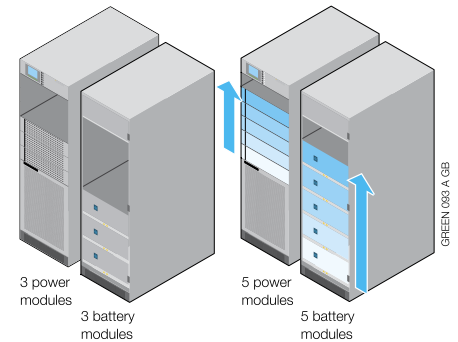
Totally modular for the best modular battery solution



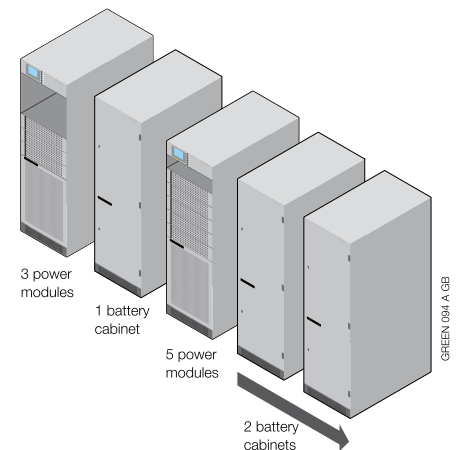
1. Six bays for battery hosting
2. Four hot swap battery packs for each string
3. Battery protection for each string

**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 **MTRR reduction** as result.
- **Hot swap battery pack solution** allows back-up time increases according to power requirements, without switching off the battery cabinet.

**Flexibility**

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

**Total Cost of Ownership (TCO)**

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



# Green Power 2.0

## MASTERYS GP from 10 to 120 kVA/kW

ultra high energy efficiency and maximum power availability

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

## Energy saving + Full rated power = reduced TCO

### Energy Saving: high efficiency without compromise

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

### Full-rated power: kW=kVA

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

### Significant cost-saving (TCO)

- Maximum energy saving thanks to 96% efficiency in true double conversion mode: 50% saving on energy losses compared to legacy UPS gives significant savings in energy bill.
- UPS “self-paying” with energy saving.
- Energy Saver mode for global efficiency improvement on parallel systems.
- kW=kVA means maximum power available with the same UPS rating: no overdesign cost and therefore less €/kW.
- Upstream infrastructure cost optimization (sources and distribution), thanks to high performance IGBT rectifier.
- Battery configuration can be optimized, thanks to a very wide DC range.
- Extended battery life and performance:
  - long life battery,
  - very wide input voltage and frequency acceptance, without battery use.
- EBS (Expert Battery System) charging management improves battery service life.

### Standard electrical features

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

### Electrical options

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

### Standard communication features

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

### Technical data

<b>MASTERYS GP</b>										
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									
<b>INPUT</b>										
Rated voltage	400 V 3ph+N									
Voltage tolerance	240 V to 480 V <sup>(1)</sup>									
Rated frequency	50/60 Hz ± 10%									
Power factor / THDI	> 0.99 / < 2.5%									
<b>OUTPUT</b>										
Rated voltage	1ph + N: 230 V (can be configured 220/240 V) 3ph + N: 400 V (can be configured 380/415 V)									
Voltage tolerance	static load ±1% dynamic load in accordance with VFI-SS-111									
Rated frequency	50/60 Hz									
Frequency tolerance	± 2% (configurable for GenSet compatibility)									
Total output voltage distortion - linear load	< 1%									
Total output voltage distortion - non-linear load	< 3%									
Overload	125% for 10 minutes, 150% for 1 minute <sup>(1)</sup>									
Crest factor	3:1									
<b>BYPASS</b>										
Rated voltage	rated output voltage									
Voltage tolerance	± 15% (configurable with from 10% to 20%)									
Rated frequency	50/60 Hz									
Frequency tolerance	± 2%									
<b>EFFICIENCY (TÜV SÜD verified)</b>										
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%									
<b>ENVIRONMENT</b>										
Operating ambient temperature	from 0 °C up to +40 <sup>(1)</sup> °C (from 15 °C to 25 °C for maximum battery life)									
Relative humidity	0% - 95% without condensation									
Maximum altitude	1000 m without derating (max. 3000 m)									
Acoustic level at 1 m (ISO 3746)	< 52 dBA	< 55 dBA	< 60 dBA	< 65 dBA						
<b>UPS CABINET</b>										
Dimensions	W	444 mm			600 mm		700 mm			
	D	795 mm						800 mm		
	H	800 mm	1000 mm	1400 mm		1930 mm				
Weight	190 kg	195 kg	315 kg	320 kg	180 kg	200 kg	380 kg	460 kg		
Degree of protection	IP20									
Colours	RAL 7012									
<b>STANDARDS</b>										
Safety	EN 62040-1 (TÜV SÜD certified), EN 60950-1									
EMC	EN 62040-2									
Performance	EN 62040-3 (VFI-SS-111)									
Product declaration	CE									

<sup>(1)</sup> Conditions apply.

### Communication options

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

### Remote monitoring service

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



# Green Power 2.0

## DELPHYS GP from 160 to 500 kVA/kW

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

Three-phase UPS



GAMME 3003 A

### 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

## Energy saving + Full rated power = reduced TCO

### Energy saving: high efficiency without compromise

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

### Full rated power: kW=kVA

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

### Significant cost-saving (TCO)

- Maximum energy saving thanks to 96% efficiency in true double conversion mode: 50% saving on energy losses compared to legacy UPS gives significant savings in energy bill.
- Up to 99% efficiency with FAST ECOMODE.
- UPS “self-paying” with energy saving.
- Energy Saver mode for global efficiency improvement on parallel systems.
- kW=kVA means maximum power available with the same UPS rating: no overdesign cost and therefore less €/kW.
- Upstream infrastructure cost optimization (sources and distribution), thanks to high performance IGBT rectifier.
- Extended battery life and performance:
  - long life battery,
  - very wide input voltage and frequency acceptance, without battery use.
- EBS (Expert Battery System) charging management improves battery service life.
- BHC INTERACTIVE: Accurate battery monitoring with UPS interactivity for even more prolonged service life.

## Parallel systems

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

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

## Standard electrical features

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

## Electrical options

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

## Technical data

<b>DELPHYS GP</b>						
Sn [kVA]	160	200	250	320	400	500
Pn [kW]	160	200	250	320	400	500
Input / output	3/3					
Parallel configuration	up to 4 MW					
<b>INPUT</b>						
Rated voltage	400 V 3ph					
Voltage tolerance	200 V to 480 V <sup>(1)</sup>					
Rated frequency	50/60 Hz					
Frequency tolerance	± 10 Hz					
Power factor / THDI	> 0.99 / < 2.5% <sup>(2)</sup>					
<b>OUTPUT</b>						
Rated voltage	3ph + N 400 V					
Voltage tolerance static load	±1 % dynamic load in accordance with VFI-SS-111					
Rated frequency	50/60 Hz					
Frequency tolerance	± 2% (configurable for GenSet compatibility)					
Total output voltage distortion linear load	ThdU < 1.5%					
Total output voltage distortion non-linear load (IEC 62043-3)	ThdU < 3%					
Short-circuit current	up to 3.4 x In					
Overload	125% for 10 minutes, 150% for 1 minute <sup>(1)</sup>					
Crest factor	3:1					
<b>BYPASS</b>						
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)					
<b>EFFICIENCY</b>						
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%					
<b>ENVIRONMENT</b>						
Operating ambient temperature	from 10 °C up to +40 <sup>(1)</sup> °C (from 15 °C to 25 °C for maximum battery life)					
Relative humidity	0 % - 95 % without condensation					
Maximum altitude	1000 m without derating (max. 3000 m)					
Acoustic level at 1 m (ISO 3746)	< 65 dBA	< 67 dBA	< 70 dBA	< 68 dBA	< 70 dBA	< 72 dBA
<b>UPS CABINET</b>						
Dimensions	W	700 mm	1000 mm	1400 mm	1600 mm	
	D	800 mm	950 mm	800 mm	950 mm	
	H	1930 mm				
Weight	470 kg	490 kg	850 kg	980 kg	1000 kg	1500 kg
Degree of protection	IP20 (other IP as option)					
Colours	cabinet: RAL 7012, door: silver grey					
<b>STANDARDS</b>						
Safety	EN 62040-1, EN 60950-1					
EMC	EN 62040-2					
Performance	EN 62040-3 (VFI-SS-111)					
Product declaration	CE					

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

## Standard communication features

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

## Communication options

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

## Remote monitoring service

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