PRIME

Trustworthy power

DELPHYS BC

200 to 300 kVA

RoHS COMPLIANT

3 LEVEL TECHNOLOGY

95% EFFICIENCY

socomec

Innovative Power Solutions

OBJECTIVES

The aim of these specifications is to provide:

- the information required to choose the right uninterruptible power supply for a specific application.
- the information required to prepare the system and installation site.

The specifications are intended for:

- installation engineers.
- design engineers.
- engineering consultants.

INSTALLATION REQUIREMENTS AND PROTECTION

Connection to the mains power supply and to the load(s) must be made using cables of suitable size, in accordance with current standards. If not already present, an electrical control station which can isolate the network upstream of the UPS must be installed. This electrical control station must be equipped with a circuit breaker (or two, if there is a separate bypass line) of an appropriate rating for the power draw at full load.

If an external manual bypass is required, only the model supplied by the manufacturer must be installed.

We recommend fitting two metres of unanchored flexible cable between the UPS output terminals and the cable anchor (wall or cabinet). This makes it possible to move and service the UPS.

For detailed information, see the installation and operating manual.

1. ARCHITECTURE

1.1 RANGE

DELPHYS BC is a full range of high performing UPS designed to protect critical and sensitive appliances in “business critical” applications such as data centres.

Models		
Rated power (kVA)	200	300
DELPHYS BC 3/3	•	•
Matrix table for model and kVA power rating		

Each range has been specifically designed to meet the demands of loads in specific application contexts, in order to optimise the features of the product and to facilitate its integration within the system.

2. FLEXIBILITY

2.1 POWER RATINGS FROM 200 TO 300 kVA

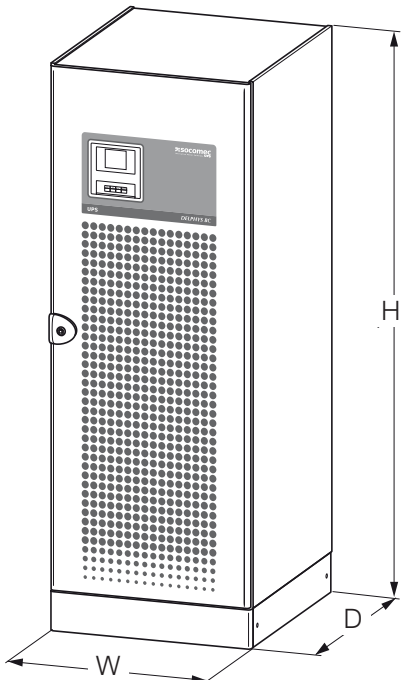
The equipment has been designed with a minimum direct and indirect footprint (the actual space occupied by the unit and the space required around it for maintenance, ventilation and access to the operating mechanisms and communication devices).

The careful design also provides easy access for maintenance and installation.

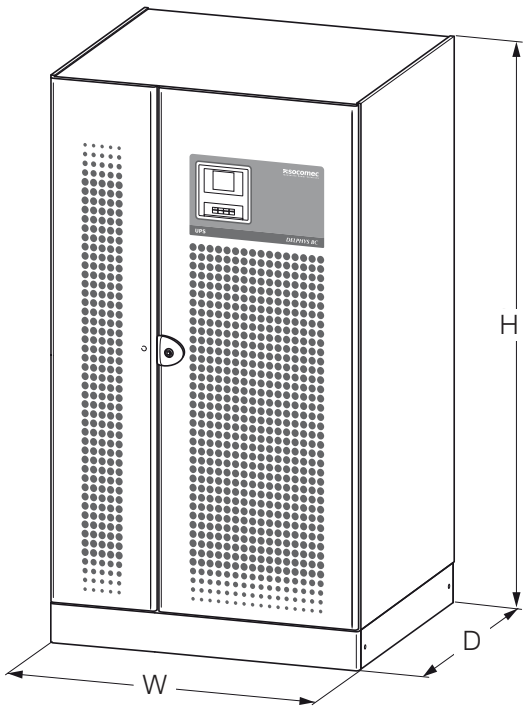
All of the control mechanisms are located in the front bottom side, while the communication interfaces in the internal upper side of the door.

The air inlet is on the front, with outflow from the upper side; this means other equipment or external battery enclosures can be placed alongside the UPS unit.

Dimensions			
	Width (W) [mm]	Depth (D) [mm]	Height (H) [mm]
DELPHYS BC 200 kVA	700	800	1930
DELPHYS BC 300 kVA	1000	950	1930



DELPHYS BC 200 kVA



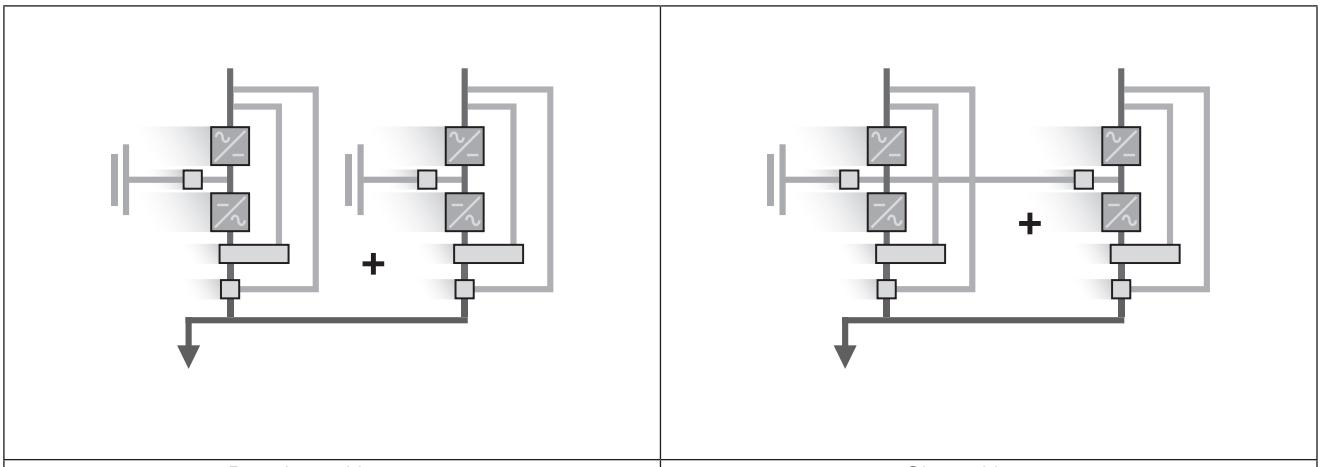
DELPHYS BC 300 kVA

2.2 BATTERY MANAGEMENT

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

To guarantee maximum back-up time availability and battery life, DELPHYS BC includes:

- EBS (Expert Battery System), smart battery charging management.
- Distributed or shared battery for energy storage optimization on parallel systems.

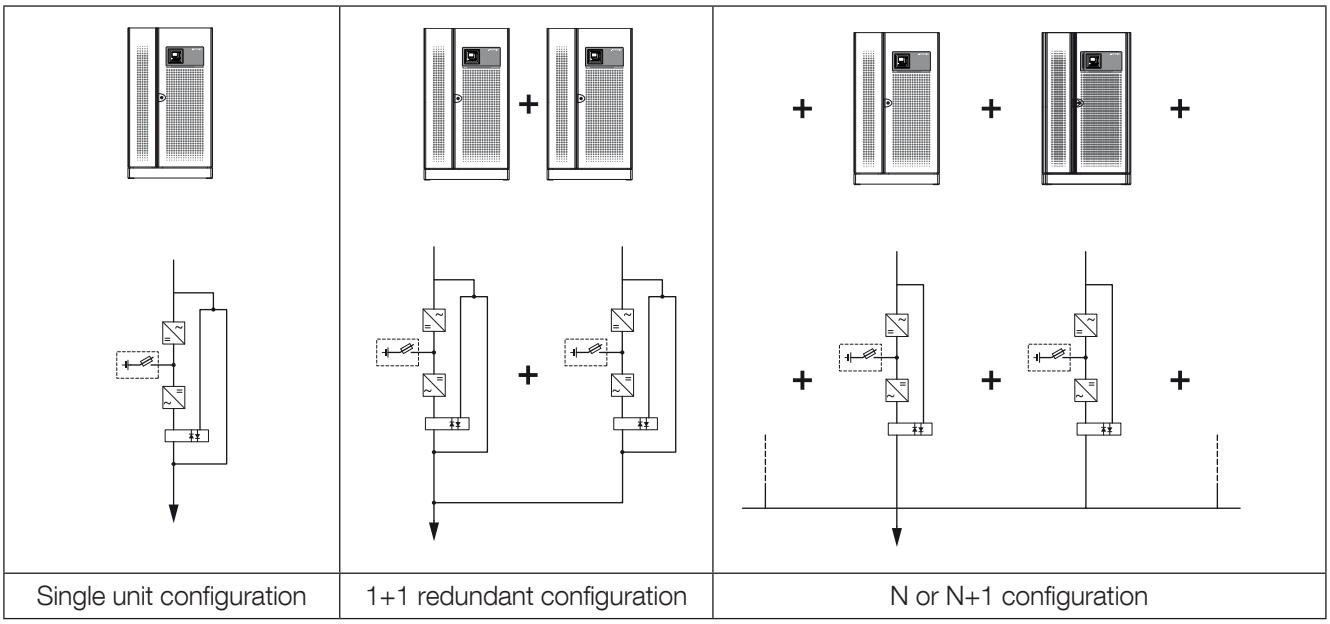


Distributed battery	Shared battery

2.3 HORIZONTAL AND VERTICAL PARALLEL

DELPHYS BC offers 3 “configurations” of UPS in the same range:

- Stand alone (Single unit configuration with rectifier, battery, inverter, static bypass and maintenance bypass)
- 1+1 redundant system (with built-in maintenance by-pass in each unit)
- Parallel system up to 6 modules working in parallel (n or n+1)



Single unit configuration	1+1 redundant configuration	N or N+1 configuration

3. STANDARD AND OPTIONS

3.1 STANDARD ELECTRICAL FEATURES.

- Dual input mains.
- Integrated maintenance bypass (single and 1+1 redundant units).
- Backfeed protection: detection circuit.
- EBS (Expert Battery System) for battery management.
- Battery temperature sensor.

3.2 ELECTRICAL OPTIONS.

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

3.3 STANDARD COMMUNICATION FEATURES.

- User-friendly 7’ touch-screen multilingual color graphic display.
- 2 Com-Slots for communication options.
- USB port to download UPS report and log file.
- Ethernet port for service purpose.

3.4 COMMUNICATION OPTIONS.

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

3.5 REMOTE MONITORING AND CLOUD SERVICES.

- SoLink: Socomec 24/7 Remote Monitoring Service connecting your installation to the nearest Socomec Service Centre.
- SoLive: Mobile app taking the surveillance of all your UPS systems into your smartphone.

4. SPECIFICATIONS

4.1 INSTALLATION PARAMETERS

Installation paramenters			
Rated power (kVA)		200	300
Phase in/out		3/3	
Active power (kW)	kW	180	270
Rated/maximum rectifier input current (A)	A	278/340 (1)	417/436 (1)
Rated bypass input current	A	290	433
Inverter output current @ 400 V P/N	A	290	433
Maximum air flow	m^3/h	2250	2700
Sound level	dB(A)	< 68	< 71
Power dissipation in nominal conditions(2)	W	11200	17000
	kcal/h	9630	14617
	BTU/h	38215	58006
Power dissipation (max) in the worst conditions(3)	W	13100	17700
	kcal/h	11263	15219
	BTU/h	44699	60394
Dimensions	W (mm)	700	1000
	D (mm)	800	950
	H (mm)	1930	1930
Weight	kg	500	830

(1) At minimum input mains

(2) Considering nominal input current (400 V, battery charged) and rated output active power (PF 0.9).

(3) Considering maximum input current (low input voltage, battery recharge) and rated output active power (PF 0.9).

4.2 ELECTRICAL CHARACTERISTICS

Electrical characteristics - Rectifier(1) Input		
Rated power (kVA)	200	300
Rated mains supply voltage	400 V 3ph	
Voltage tolerance	240 to 480 V(2)	
Rated frequency	50/60 Hz (selectable)	
Frequency tolerance	±10%	
Power factor (input at full load and rated voltage)	≥ 0.99	
Total harmonic distortion (THDi)	< 3%	
Max inrush current at start-up	<In (no overcurrent)	

(1) IGBT rectifier. (2) Conditions apply.

Electrical characteristics - Bypass			
Rated power (kVA)		200	300
Bypass frequency variation speed		1.5 Hz/s (settable up to 3 Hz/s)	
Bypass rated voltage		Nominal output voltage ±15%	
Bypass rated frequency		50/60 Hz (selectable)	
Bypass frequency tolerance		from ±1% to ±8% (operation with generator unit)	
Electrical characteristics - Inverter			
Rated power (kVA)		200	300
Rated output voltage (selectable)		380/400/415 V	
Output voltage tolerance		Static: ±1% Dynamic: VFI-SS-111	
Rated output frequency (selectable)		50/60 Hz (selectable)	
Output frequency tolerance		±0.01% on mains power failure	
Load crest factor		3:1	
Voltage harmonic distortion		< 1.5% with linear load	
Overload tolerated by the inverter - 25 °C	1 min	270 kW	311 kW
Electrical characteristics - Efficiency			
Rated power (kVA)		200	300
Double conversion efficiency (normal mode) - full load		up to 95%	
Electrical characteristics - Environment			
Rated power (kVA)		200	300
Storage temperatures		-5 to +45 °C (23 to 113 °F) (15 to 25 °C for better battery life)	
Working temperature		0 to +40(1) °C (32 to 104 °F) (15 to 25 °C for better battery life)	
Maximum relative humidity (non-condensing)		95%	
Maximum altitude without derating		1000 m (3300 ft)	
Degree of protection		IP20	
Colour		RAL 7012, silver grey frontal door	

(1) Conditions apply.

4.3 RECOMMENDED PROTECTIONS

RECOMMENDED PROTECTION DEVICES - Rectifier[1]			
Rated power (kVA)		200	300
D curve circuit breaker (A)		400	630
gG fuse (A)		400	630

RECOMMENDED PROTECTION DEVICES - General bypass[1]			
Rated power (kVA)		200	300
Semiconductors characteristics	I^2t (A^2s)	320000	
	Is/c (A peak)	8000	
D curve circuit breaker (A)		400	630
gG fuse (A)		400	630

RECOMMENDED PROTECTION DEVICES - Input residual current circuit breaker[2]		
Rated power (kVA)	200	300
Input residual current circuit breaker	3 A	

RECOMMENDED PROTECTION DEVICES - Output[3]		
Rated power (kVA)	200	300
Short-circuit inverter current (A) - (0 to 100 ms) (when AUX MAINS is not present)	720 A	900
C curve circuit breaker[3] (A)	≤ 63 A	≤ 80
B curve circuit breaker[3] (A)	≤ 125 A	-
High-speed fuse[3] (A)	≤ 160 A	

CABLES CONNECTION - Maximum capability per pole		
Rated power (kVA)	200	300
Rectifier terminals	2 x 150 mm^2	2 x 240 mm^2
Bypass terminals	2 x 150 mm^2	2 x 240 mm^2
Battery terminals	2 x 240 mm^2	2 x 240 mm^2
Output terminals	2 x 150 mm^2	2 x 240 mm^2

(1) Rectifier protection should only be considered in the event of separate inputs. The bypass protection is given by recommendation. When the bypass and rectifier inputs are combined (common input), the general input protection rating must be the highest of both (bypass or rectifier).

(2) Must be selective with residual current circuit breakers downstream of the UPS connected to the UPS output. If the bypass network is separate from the rectifier circuit, or in the event of parallel UPS, use a single residual current circuit breaker upstream of the UPS.

(3) Selectivity of distribution after the UPS with inverter short-circuit current (short-circuit with AUX MAINS not present). The rating of the protection can be increased by "n" times downstream a parallel UPS system, with "n" equal to the number of parallel modules.

5. REFERENCE STANDARDS AND DIRECTIVES

5.1 OVERVIEW

The equipment, installed, used and serviced in accordance with its intended use, its regulations and standards, its manufacturer instructions and rules, is in compliance with the relevant Union harmonisation legislation:

LVD 2014 / 35 / EU

DIRECTIVE 2014/35/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014, on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits.

EMC 2014 / 30 / EU

DIRECTIVE 2014/30/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014, on the harmonisation of the laws of the Member States relating to electromagnetic compatibility.

RoHS 2011/65/EU

Directive 2011/65 of the European parliament and of the council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment

5.2 STANDARDS

5.2.1 SAFETY

EN 62040-1 Uninterruptible Power System (UPS) - Part 1: General and safety requirements

IEC 62040-1 Uninterruptible Power System (UPS) - Part 1: Safety requirements

5.2.2 ELECTROMAGNETIC COMPATIBILITY

EN 62040-2 Uninterruptible Power System (UPS) - Part 2: Electromagnetic compatibility (EMC) requirements

IEC 62040-2 Uninterruptible Power System (UPS) - Part 2: Electromagnetic compatibility (EMC) requirements

5.2.3 ENVIRONMENTAL

IEC 62040-4 Uninterruptible Power System (UPS) - Part 4: Enviromental aspects - Requirements and reporting

5.3 SYSTEM AND INSTALLATION GUIDELINES

When carrying out electrical installation, all the above standards must be observed. All national and international standards (e.g IEC60364)applicable to the specific electrical installation including batteries must be observed. For further information refer to 'Technical specifications' chapter in the user manual.

ELITE UPS: a mark of efficiency

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