



PRIME

Trustworthy
power

DELPHYS MP Elite+

80 to 200 kVA



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 MP *elite* + is a high performing transformer based UPS designed to secure power supply to critical industrial applications. It is the ideal solution for grouping with generator sets without using an excessively large generator.

The isolation transformer installed on the inverter output ensures complete galvanic isolation between DC circuit and load output.

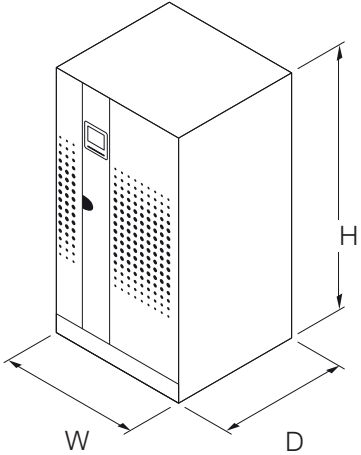
Models					
Rated power (kVA)	80	100	120	160	200
DELPHYS MP elite + 3/3	•	•	•	•	•

Matrix table for model and kVA power rating

DELPHYS MP *elite* + 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 80 TO 200 KVA

Dimensions			
Cabinet type	Width (W) [mm]	Depth (D) [mm]	Height (H) [mm]
	1000	800	1930

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 and communication interfaces are located and can be accessed in the front part,
- 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.

2.2 FLEXIBLE BACKUP TIME

Selection of the back-up time is flexible thanks to the wide range of DC bus voltages. The batteries are organised internally into racks based on their relative sizes, so as to ensure a compact unit while still guaranteeing substantial backup times.

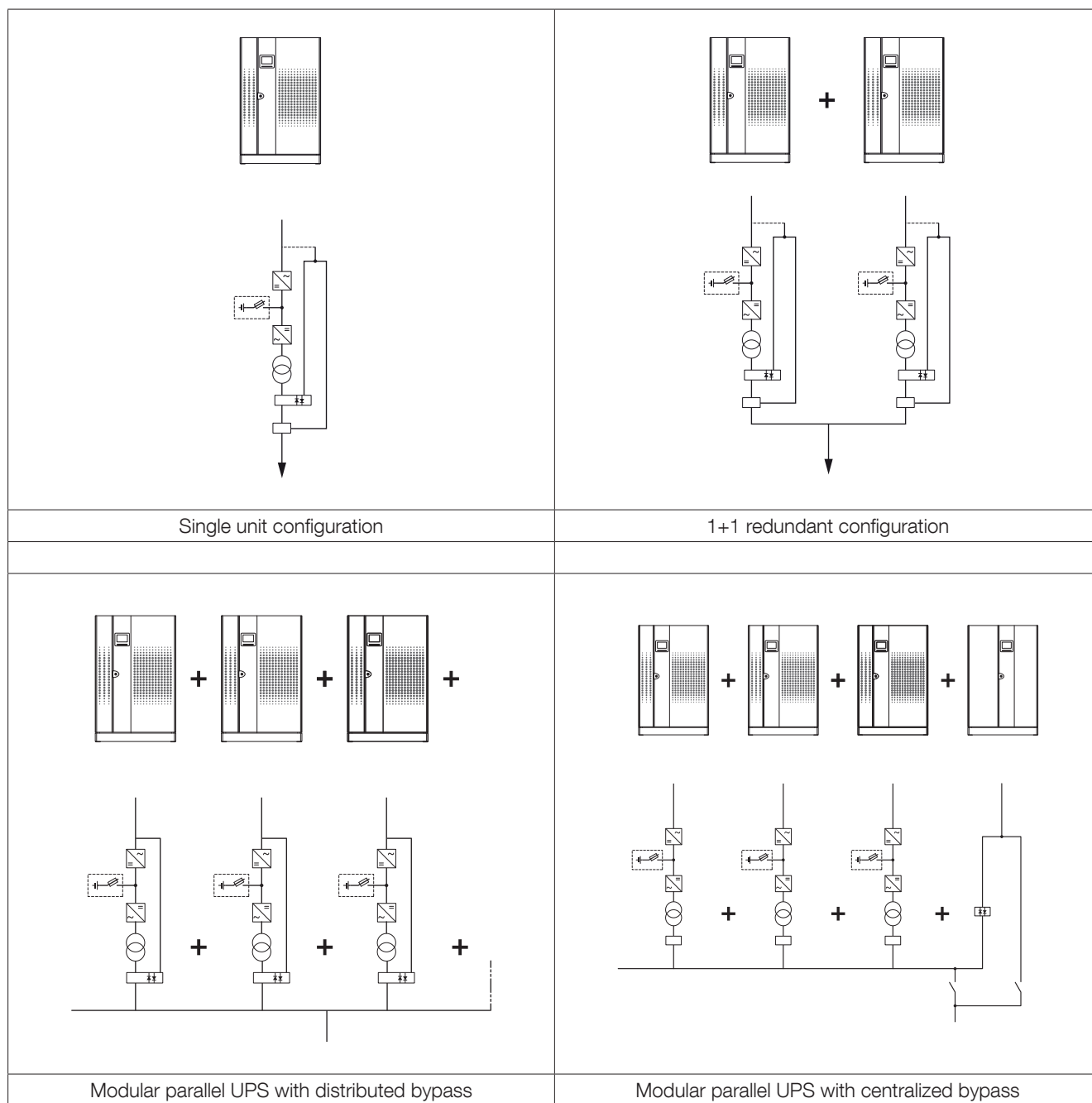
2.3 UPS AND SYSTEM ARCHITECTURES

DELPHYS MP *elite* + UPS units (rectifier, battery, inverter and bypass) can be connected in parallel (up to 6 units) with distributed or central bypass.

This solution, which is ideally suited for N+1 redundancy, offers flexible power upgrading and enables stand-alone UPS units to be expanded.

Each single UPS unit has a built-in maintenance bypass (single unit or 1+1 redundant configuration).

It is possible to add an external maintenance bypass, common to all of the UPS units, for maintenance access. A central bypass configuration has a common maintenance bypass for the complete system.



3. STANDARD AND OPTIONS

3.1 PARALLEL SYSTEMS

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

3.2 STANDARD ELECTRICAL FEATURES.

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

3.3 ELECTRICAL OPTIONS.

- EBS⁽¹⁾ (Expert Battery System).
- FLYWHEEL compatible.
- ACS synchronisation system.
- Redundant electronic power supplies.
- Hot plug option (increase the power keeping the load supplied in double conversion).
- Long backup time rectifier.

3.4 MECHANICAL OPTIONS.

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

3.5 STANDARD COMMUNICATION FEATURES.

- Multilanguage graphic display.
- Embedded dry contacts.

3.6 COMMUNICATION OPTIONS.

- GTS (Graphic Touch Screen).
- ADC interface (configurable voltage-free contacts).
- MODBUS RTU RS485 or TCP.
- PROFIBUS.
- 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.
- IoT Gateway for Socomec cloud services and SoLive mobile app.
- 3 extra slots for communication cards

3.7 REMOTE MONITORING SERVICE.

- 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.

(1) Conditions apply

4. SPECIFICATIONS

4.1 INSTALLATION PARAMETERS

Installation parameters						
Rated power (kVA)	80	100	120	160	200	
Phase in/out	3/3					
Active power (kW)	72	90	108	144	180	
Rated/maximum rectifier input current (A) @400V	129/159	162/197	196/235	257/301	297/366	
Rated bypass input current (A)	116	144	174	231	290	
Inverter output current @230V (A) P/N	116	144	174	231	290	
Maximum air flow (m³/h)	2200			2400		
Sound level (dBA)	65			67		
Dissipation at rated load (minimum mains power present and batteries charged)	kW	6.8	7.7	10.1	12.2	18.4
	kcal/h	5850	6640	8660	10470	15800
Dimensions (with standard back-up time)	W (mm)	1000				
	D (mm)	800				
	H (mm)	1930				
Weight (kg)	740	860		1020		

4.2 ELECTRICAL CHARACTERISTICS

Electrical characteristics - Input						
Rated power (kVA)	80	100	120	160	200	
Phase in/out	3/3	3/3	3/3	3/3	3/3	
Rated mains supply voltage	380/400/415 V (208/220/240 V on request)					
Voltage tolerance (ensuring battery recharge)	-10% to +15% (380 V) / ±15% (400 V) / -15% to +10% (415 V)					
Rated frequency	50/60 Hz					
Frequency tolerance	± 5 Hz					
Power factor (input at full load and rated voltage)	0.99					
Total harmonic distortion (THDi)	< 3%					
Max inrush current at start-up	<I _n (no overcurrent)					
Soft start	50 A/sec (settable)					

Electrical characteristics - Bypass						
Rated power (kVA)	80	100	120	160	200	
Bypass frequency variation speed	2 Hz/s (settable)					
Bypass rated voltage	Rated output voltage ±10% (settable)					
Bypass rated frequency	50/60 Hz (selectable)					
Bypass frequency tolerance	±2 Hz (from 0.2 to 4 Hz settable (operation with generator unit))					

Electrical characteristics - Inverter						
Rated power (kVA)		80	100	120	160	200
Rated output voltage (selectable)	380/400/415 V ⁽¹⁾					
Output voltage tolerance	Static: $\pm 1\%$ Dynamic: (0-100% P _n) -4% +2%					
Rated output frequency	50/60 Hz (selectable)					
Autonomous frequency tolerance	0.02 on mains power failure					
Load crest factor	3:1					
Voltage harmonic distortion	< 2% on linear load < 4% with non linear load					
Overload tolerated by the inverter (with mains power present) (kW)	10 min.	80	112.5	120	180	200
	1 min.	96	135	144	216	240

(1) Other voltages on request.

Electrical characteristics - Efficiency						
Rated power (kVA)		80	100	120	160	200
Double conversion efficiency (normal mode)	93.5% @ full load					
Efficiency in Eco Mode	98%					

Electrical characteristics - Environment						
Rated power (kVA)		80	100	120	160	200
Storage temperatures	-20 to +70 °C (-4 to 158 °F) (15 to 25 °C for better battery life)					
Working temperature	0 to +40 ⁽¹⁾ °C (32 to 104(1) °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 (other IP as option)					
Portability	EN 60068-2					
Colour	RAL 9006 (Grey Toyo)					

(1) Conditions apply

4.3 RECOMMENDED PROTECTION DEVICES

RECOMMENDED PROTECTION DEVICES - Rectifier ⁽¹⁾					
Rated power (kVA)	80	100	120	160	200
D curve circuit breaker (A)	160	200	250	300	400
gG fuse (A)	160	200	250	300	400

RECOMMENDED PROTECTION DEVICES - General bypass ⁽¹⁾					
Rated power (kVA)	80	100	120	160	200
Semiconductors characteristics	I ² t (A ² s)	80000	125000		320000
	Is/c (A peak)	4000	5000		8000
D curve circuit breaker (A)	160	200	250	400	
gG fuse (A)	160	200	250	400	

RECOMMENDED PROTECTION DEVICES - Input residual current circuit breaker ⁽²⁾					
Rated power (kVA)	80	100	120	160	200
Input residual current circuit breaker	0.5 A				

RECOMMENDED PROTECTION DEVICES - Output ⁽³⁾					
Rated power (kVA)	80	100	120	160	200
Short-circuit inverter current (A) - (0 to 100 ms) (when AUX MAINS is not present)	485	620		1060	
C curve circuit breaker ⁽³⁾ (A)	40	50		100	
High-speed fuse ⁽³⁾ (A)	80	125		250	

CABLES - Maximum cable section					
Rated power (kVA)	80	100	120	160	200
Rectifier terminals	Copper bar 63 x 4 mm (2x120 mm)				
Bypass terminals					
Battery terminals	Copper bar 40 x 5 mm (2x240 mm)				
Output terminals	Copper bar 63 x 4 mm (2x120 mm)				

(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.