

Easy UPS 3-Phase Modular

50-250 kW UPS

Technical Specifications

380 V, 400 V, 415 V

Latest updates are available on the Schneider Electric website
3/2024



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Access to Your Product Manuals Online

Find the UPS Manuals, Submittal Drawings, and Other Documentation for Your Specific UPS Here:

From the main menu on the UPS display, tap **Digital experience** and scan the QR code,

OR

In your web browser, type in <https://www.go2se.com/ref=> and the commercial reference for your product.

Example: <https://www.go2se.com/ref=EMUPS50K250PBHS>

Find the UPS Manuals, Relevant Auxiliary Product Manuals, and Option Manuals Here:

Scan the QR code to go to the Easy UPS 3-Phase Modular online manual portal:



<https://www.productinfo.schneider-electric.com/easyups3pmodular/>

Here you can find your UPS installation manual, UPS operation manual, and UPS technical specifications, and you can also find installation manuals for your auxiliary products and options.

This online manual portal is available on all devices and offers digital pages, search functionality across the different documents in the portal, and PDF download for offline use.

Learn More About the Easy UPS 3-Phase Modular Here:

Go to <https://www.se.com/ww/en/product-range/74219412> to learn more about this product.

Important Safety Instructions — SAVE THESE INSTRUCTIONS

Read these instructions carefully and look at the equipment to become familiar with it before trying to install, operate, service or maintain it. The following safety messages may appear throughout this manual or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a “Danger” or “Warning” safety message indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages with this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in death or serious injury.**

Failure to follow these instructions will result in death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in death or serious injury.**

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result in minor or moderate injury.**

Failure to follow these instructions can result in injury or equipment damage.

NOTICE

NOTICE is used to address practices not related to physical injury. The safety alert symbol shall not be used with this type of safety message.

Failure to follow these instructions can result in equipment damage.

Please Note

Electrical equipment should only be installed, operated, serviced, and maintained by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

Per IEC 62040-1: "Uninterruptible power systems (UPS) -- Part 1: Safety Requirements," this equipment, including battery access, must be inspected, installed and maintained by a skilled person.

The skilled person is a person with relevant education and experience to enable him or her to perceive risks and to avoid hazards which the equipment can create (reference IEC 62040-1, section 3.102).

Electromagnetic Compatibility

NOTICE

RISK OF ELECTROMAGNETIC DISTURBANCE

This is a product category C3 product. In a residential environment, this product may cause radio interference, in which case the user may be required to take additional measures.

Failure to follow these instructions can result in equipment damage.

Safety Precautions

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

All safety instructions in this document must be read, understood and followed.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Read all instructions in the Installation Manual before installing or working on this UPS system.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Do not install the UPS system until all construction work has been completed and the installation room has been cleaned.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- The product must be installed according to the specifications and requirements as defined by Schneider Electric. It concerns in particular the external and internal protections (upstream breakers, battery breakers, cabling, etc.) and environmental requirements. No responsibility is assumed by Schneider Electric if these requirements are not respected.
- After the UPS system has been electrically wired, do not start up the system. Start-up must only be performed by Schneider Electric.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

The UPS system must be installed according to local and national regulations. Install the UPS according to:

- IEC 60364 (including 60364-4-41- protection against electric shock, 60364-4-42 - protection against thermal effect, and 60364-4-43 - protection against overcurrent), **or**
- NEC NFPA 70, **or**
- Canadian Electrical Code (C22.1, Part 1)

depending on which one of the standards apply in your local area.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- Install the UPS system in a temperature controlled indoor environment free of conductive contaminants and humidity.
- Install the UPS system on a non-flammable, level and solid surface (e.g. concrete) that can support the weight of the system.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

The UPS is not designed for and must therefore not be installed in the following unusual operating environments:

- Damaging fumes
- Explosive mixtures of dust or gases, corrosive gases, or conductive or radiant heat from other sources
- Moisture, abrasive dust, steam or in an excessively damp environment
- Fungus, insects, vermin
- Salt-laden air or contaminated cooling refrigerant
- Pollution degree higher than 2 according to IEC 60664-1
- Exposure to abnormal vibrations, shocks, and tilting
- Exposure to direct sunlight, heat sources, or strong electromagnetic fields

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

Do not drill or cut holes for cables or conduits with the gland plates installed and do not drill or cut holes in close proximity to the UPS.

Failure to follow these instructions will result in death or serious injury.

⚠ WARNING**HAZARD OF ARC FLASH**

Do not make mechanical changes to the product (including removal of cabinet parts or drilling/cutting of holes) that are not described in the Installation Manual.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

NOTICE

RISK OF OVERHEATING

Respect the space requirements around the UPS system and do not cover the product's ventilation openings when the UPS system is in operation.

Failure to follow these instructions can result in equipment damage.

NOTICE

RISK OF EQUIPMENT DAMAGE

Do not connect the UPS output to regenerative load systems including photovoltaic systems and speed drives.

Failure to follow these instructions can result in equipment damage.

Additional Safety Precautions After Installation

⚠️⚠️ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Do not install the UPS system until all construction work has been completed and the installation room has been cleaned. If additional construction work is needed in the installation room after this product has been installed, turn off the product and cover the product with the protective packaging bag the product was delivered in.

Failure to follow these instructions will result in death or serious injury.

Electrical Safety

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Electrical equipment must be installed, operated, serviced, and maintained only by qualified personnel.
- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices.
- Turn off all power supplying the UPS system before working on or inside the equipment.
- Before working on the UPS system, check for hazardous voltage between all terminals including the protective earth.
- The UPS contains an internal energy source. Hazardous voltage can be present even when disconnected from the mains supply. Before installing or servicing the UPS system, ensure that the units are OFF and that mains and batteries are disconnected. Wait five minutes before opening the UPS to allow the capacitors to discharge.
- A disconnection device (e.g. disconnection circuit breaker or switch) must be installed to enable isolation of the system from upstream power sources in accordance with local regulations. The disconnection device must be easily accessible and visible.
- The UPS must be properly earthed/grounded and due to a high leakage current, the earthing/grounding conductor must be connected first.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

In systems where backfeed protection is not part of the standard design, an automatic isolation device (backfeed protection option or other device meeting the requirements of IEC/EN 62040–1 or UL1778 5th Edition – depending on which of the two standards apply to your local area) must be installed to prevent hazardous voltage or energy at the input terminals of the isolation device. The device must open within 15 seconds after the upstream power supply fails and must be rated according to the specifications.

Failure to follow these instructions will result in death or serious injury.

When the UPS input is connected through external isolators that, when opened, isolate the neutral or when the automatic backfeed isolation is provided external to the equipment or is connected to an IT power distribution system, a label must be fitted at the UPS input terminals, and on all primary power isolators installed remote from the UPS area and on external access points between such isolators and the UPS, by the user, displaying the following text (or equivalent in a language which is acceptable in the country in which the UPS system is installed):

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Risk of Voltage Backfeed. Before working on this circuit: Isolate the UPS and check for hazardous voltage between all terminals including the protective earth.

Failure to follow these instructions will result in death or serious injury.

⚠ CAUTION

RISK OF ELECTRICAL DISTURBANCE

This product can cause a DC current in the PE conductor. Where a residual current-operated protective device (RCD) is used for protection against electrical shock, only an RCD of Type B is allowed on the supply side of this product.

Failure to follow these instructions can result in injury or equipment damage.

Battery Safety

⚠⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Battery circuit breakers must be installed according to the specifications and requirements as defined by Schneider Electric.
- Servicing of batteries must only be performed or supervised by qualified personnel knowledgeable of batteries and the required precautions. Keep unqualified personnel away from batteries.
- Disconnect charging source prior to connecting or disconnecting battery terminals.
- Do not dispose of batteries in a fire as they can explode.
- Do not open, alter, or mutilate batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.

Failure to follow these instructions will result in death or serious injury.

⚠⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Batteries can present a risk of electric shock and high short-circuit current. The following precautions must be observed when working on batteries

- Remove watches, rings, or other metal objects.
- Use tools with insulated handles.
- Wear protective glasses, gloves and boots.
- Do not lay tools or metal parts on top of batteries.
- Disconnect the charging source prior to connecting or disconnecting battery terminals.
- Determine if the battery is inadvertently grounded. If inadvertently grounded, remove source from ground. Contact with any part of a grounded battery can result in electric shock. The likelihood of such shock can be reduced if such grounds are removed during installation and maintenance (applicable to equipment and remote battery supplies not having a grounded supply circuit).

Failure to follow these instructions will result in death or serious injury.

⚠⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

When replacing batteries, always replace with the same type and number of batteries or battery packs.

Failure to follow these instructions will result in death or serious injury.















▲ CAUTION**RISK OF EQUIPMENT DAMAGE**

- Mount the batteries in the UPS system, but do not connect the batteries until the UPS system is ready to be powered up. The time duration from battery connection until the UPS system is powered up must not exceed 72 hours or 3 days.
- Batteries must not be stored more than six months due to the requirement of recharging. If the UPS system remains de-energized for a long period, we recommend that you energize the UPS system for a period of 24 hours at least once every month. This charges the batteries, thus avoiding irreversible damage.

Failure to follow these instructions can result in injury or equipment damage.

NOTE: Always follow the battery manufacturer's installation manual for battery installation and maintenance instructions.

Symbols Used in the Product

	This is the earthing/ground symbol.
	This is the protective earth/equipment grounding conductor symbol.
	This is the direct current symbol. It is also referred to as DC.
	This is the alternating current symbol. It is also referred to as AC.
	This is the positive polarity symbol. It is used to identify the positive terminal(s) of equipment which is used with, or generates direct current.
	This is the negative polarity symbol. It is used to identify the negative terminal(s) of equipment which is used with, or generates direct current.
	This is the battery symbol.
	This is the static switch symbol. It is used to indicate switches that are designed to connect or disconnect the load to or from the supply respectively without the existence of moving parts.
	This is the AC/DC converter (rectifier) symbol. It is used to identify an AC/DC converter (rectifier) and, in case of plug-in devices, to identify the relevant receptacles.
	This is the DC/AC converter (inverter) symbol. It is used to identify an DC/AC converter (inverter) and, in case of plug-in devices, to identify the relevant receptacles.
	This is the input symbol. It is used to identify an input terminal when it is necessary to distinguish between inputs and outputs.
	This is the output symbol. It is used to identify an output terminal when it is necessary to distinguish between inputs and outputs.
	This is the switch disconnecter symbol. It is used to identify the disconnecting device in the form of switch.
	This is the circuit breaker symbol. It is used to identify the disconnecting device in the form of circuit breaker that protects the equipment from short circuit or heavy load current. It opens the circuits once the current flow crosses its maximum limit.

Model List

- Easy UPS 3-Phase Modular 50 kW scalable to 250 kW 400 V, 1 switch, for external batteries (EMUPS50K250QBH)
- Easy UPS 3-Phase Modular 50 kW scalable to 250 kW 400 V, 4 switches, for external batteries (EMUPS50K250PBH)
- Easy UPS 3-Phase Modular 50 kW scalable to 250 kW 400 V, 1 switch, for external batteries, start-up 5x8 (EMUPS50K250QBHS)
- Easy UPS 3-Phase Modular 50 kW scalable to 250 kW 400 V, 4 switches, for external batteries, start-up 5x8 (EMUPS50K250PBHS)

NOTE: 50 kW power modules (EMPM50KH) are bought separately for ratings over 50 kW.

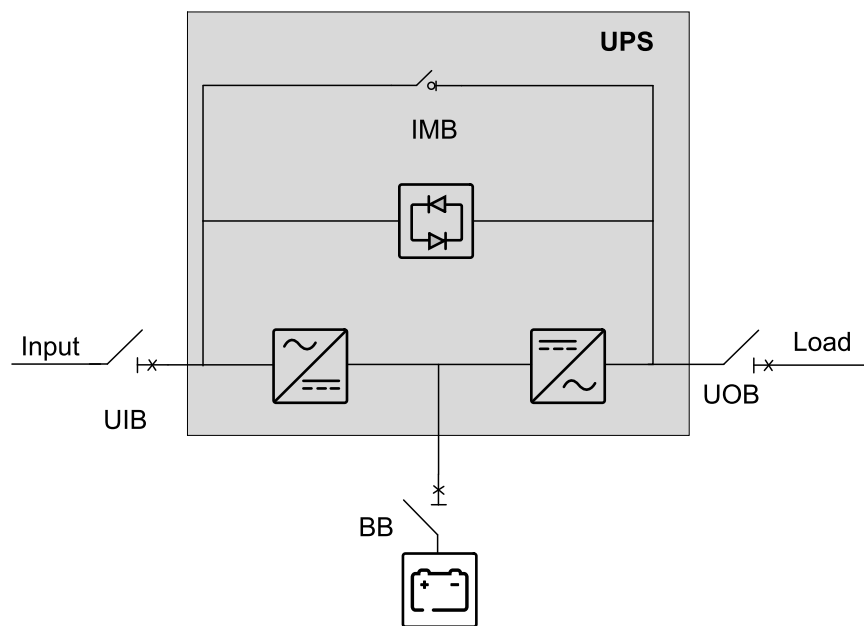
Overview

Single System Overview

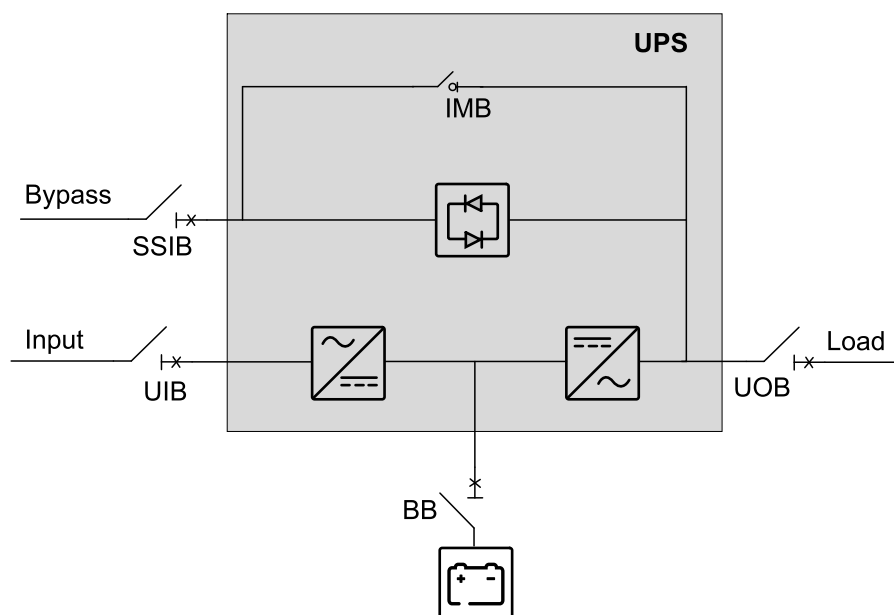
UPS with One Internal Switch

UIB	Unit input breaker
SSIB	Static switch input breaker
UOB	Unit output breaker
IMB	Internal maintenance switch
BB	Battery breaker

Single System – Single Mains (One Internal Switch)



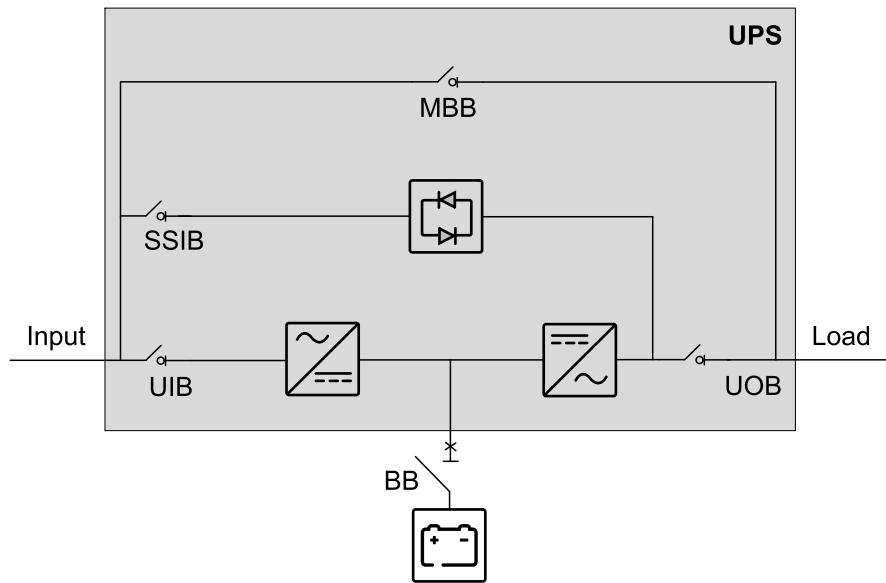
Single System – Dual Mains (One Internal Switch)



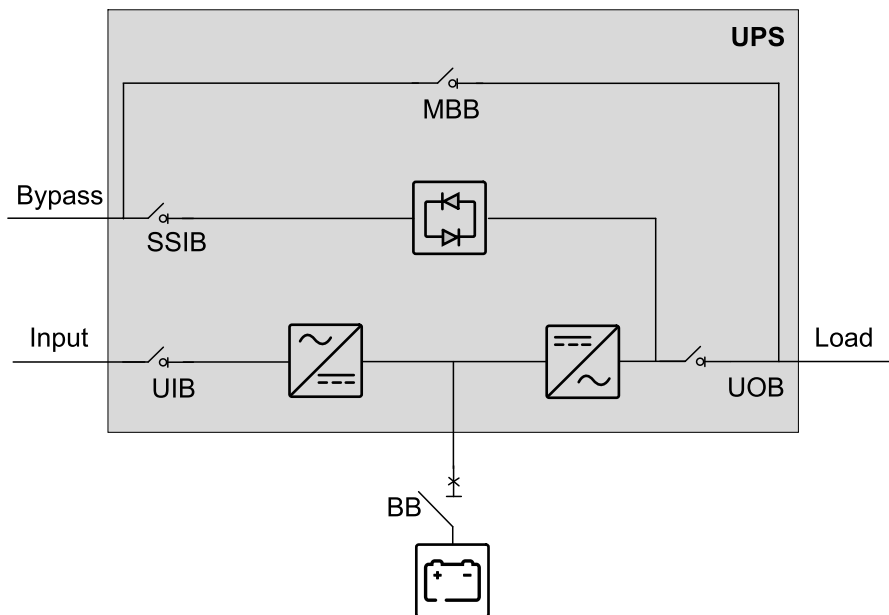
UPS with Four Internal Switches

UIB	Unit input switch
SSIB	Static switch input switch
UOB	Unit output switch
MBB	Maintenance bypass switch
BB	Battery breaker

Single System – Single Mains (Four Internal Switches)



Single System – Dual Mains (Four Internal Switches)



Parallel System Overview

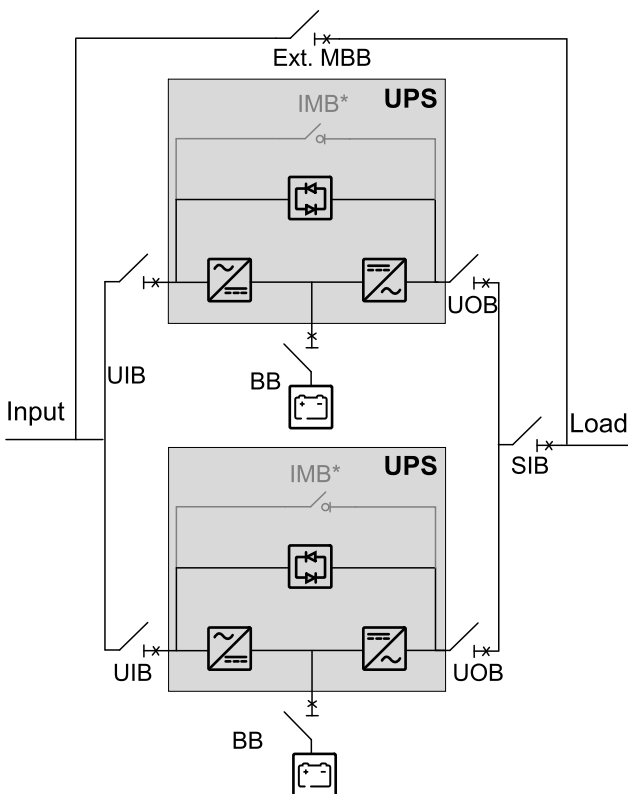
The UPS can support up to 4 UPSs in parallel for capacity and up to 3+1 UPSs in parallel for redundancy.

NOTE: In a parallel system, an external maintenance bypass switch/breaker (Ext. MBB) must be provided and the internal maintenance switch IMB and MBB (marked with an * in the diagrams) must be padlocked in the open position.

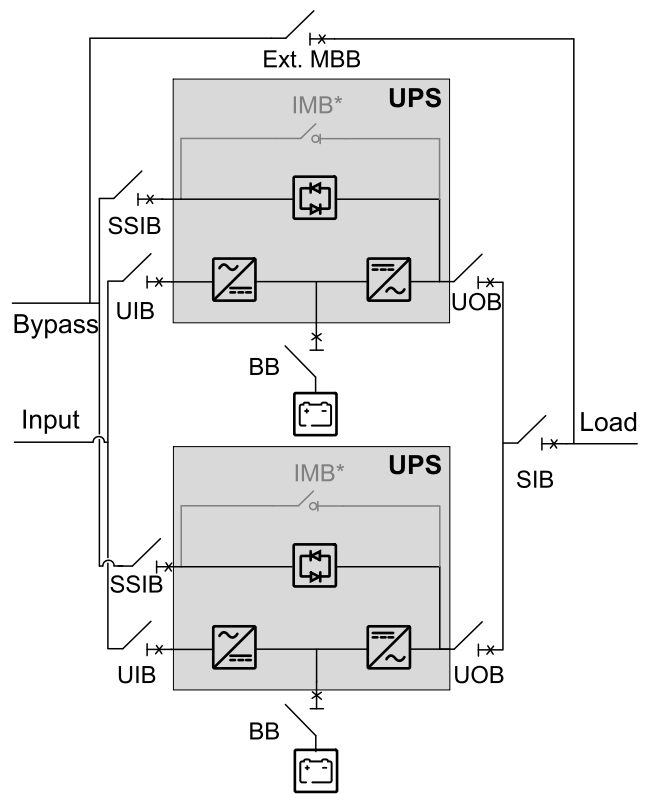
UPS with One Internal Switch

UIB	Unit input breaker
SSIB	Static switch input breaker
UOB	Unit output breaker
SIB	System isolation breaker
BB	Battery breaker
IMB	Internal maintenance switch
Ext. MBB	External maintenance bypass switch/breaker

Parallel System – Single Mains (One Internal Switch)



Parallel System – Dual Mains (One Internal Switch)

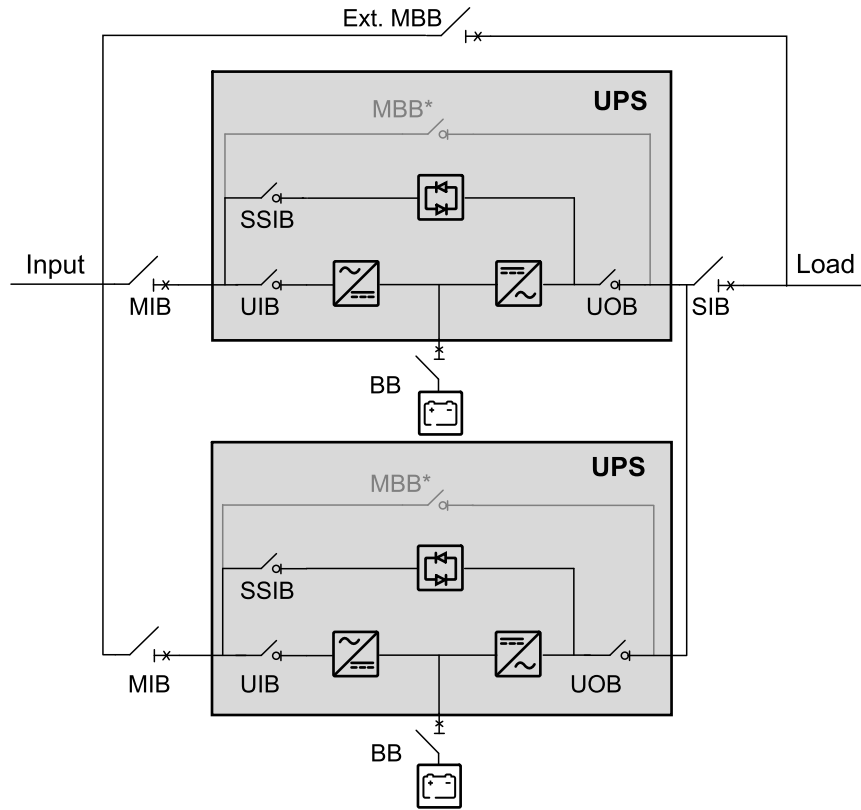


UPS with Four Internal Switches

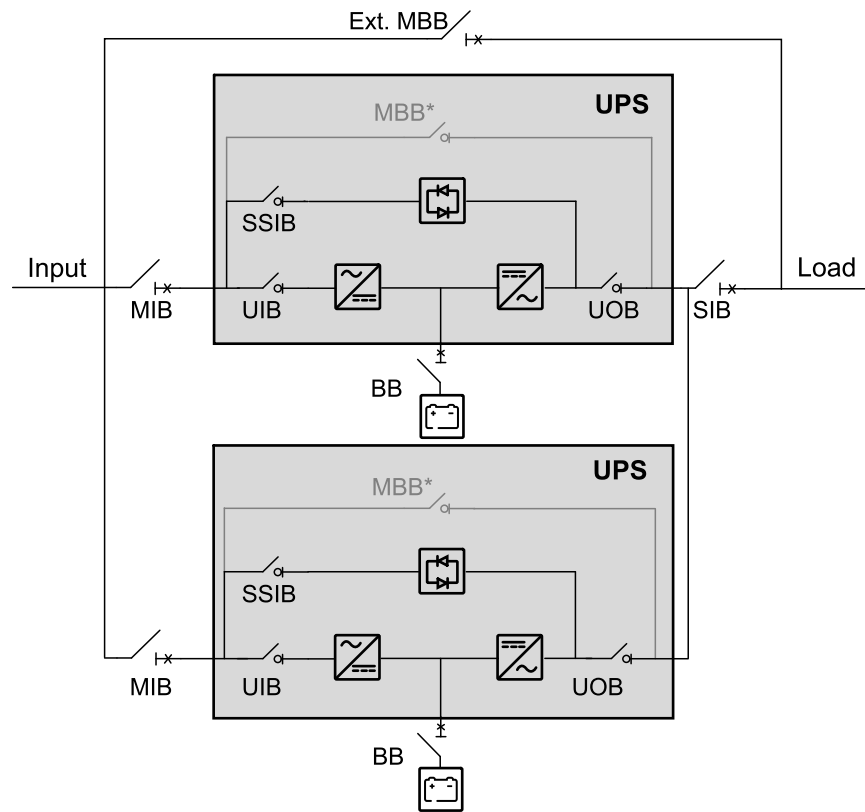
UIB	Unit input switch
SSIB	Static switch input switch
UOB	Unit output switch
SIB	System isolation breaker
BIB	Bypass input breaker
MIB	Mains input breaker
BB	Battery breaker
MBB	Maintenance bypass switch
Ext. MBB	External maintenance bypass switch/breaker

The UPS can support up to 4 UPSs in parallel for capacity and up to 3+1 UPSs in parallel for redundancy.

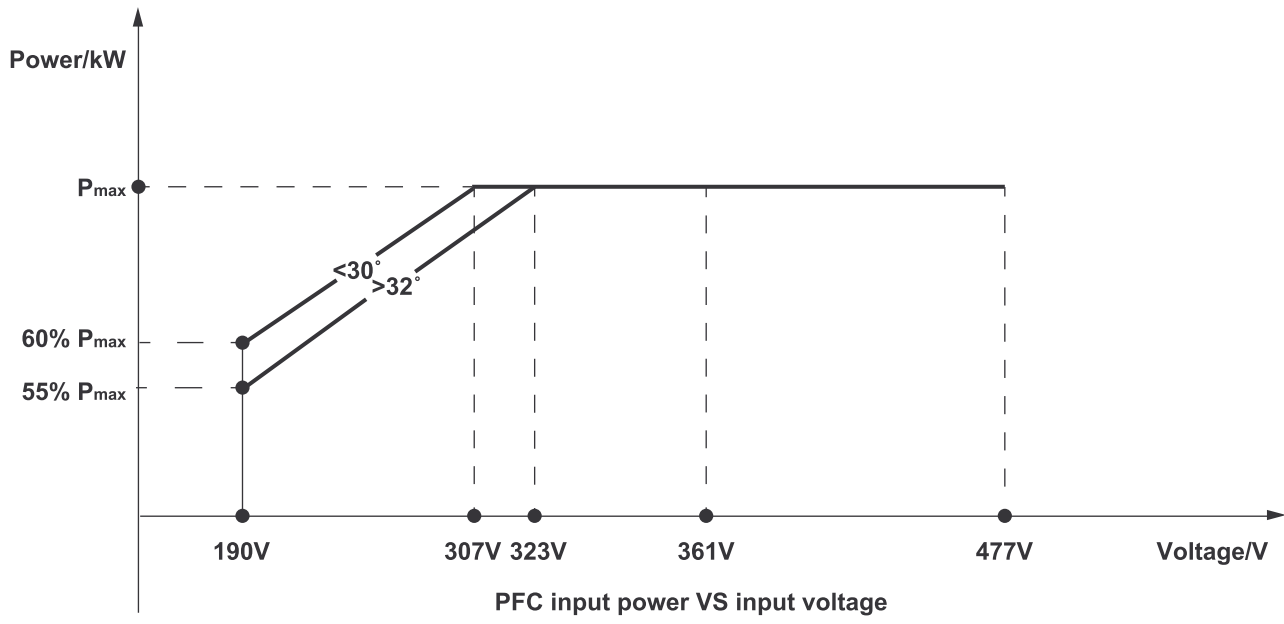
Parallel System – Single Mains (Four Internal Switches)



Parallel System – Dual Mains (Four Internal Switches)



Input Voltage Window



Inverter Short Circuit Current

Term Explanations

IK1	Short circuit between a phase and neutral
IK2	Short circuit between two phases
IK3	Short circuit between three phases

S [kW]	IK1	IK2	IK3
50	182 A/220 ms	172 A/220 ms	161 A/220 ms
100	364 A/220 ms	344 A/220 ms	322 A/220 ms
150	546 A/220 ms	516 A/220 ms	483 A/220 ms
200	728 A/220 ms	688 A/220 ms	644 A/220 ms
250	904 A/220 ms	862 A/220 ms	807 A/220 ms

Efficiency

50 kW	Normal operation			Battery operation			ECO mode		
	Voltage (V)	380	400	415	380	400	415	380	400
25% load	95.6%	95.7%	95.6%	96.6%	96.2%	96.5%	98.4%	98.4%	98.6%
50% load	95.9%	96.1%	96.0%	96.4%	96.3%	96.4%	99.0%	98.9%	99.1%
75% load	95.6%	95.8%	95.8%	96.1%	96.1%	96.1%	99.1%	99.1%	99.2%
100% load	95.1%	95.3%	95.4%	95.4%	95.5%	95.5%	99.2%	99.2%	99.3%

100 kW	Normal operation			Battery operation			ECO mode		
	Voltage (V)	380	400	415	380	400	415	380	400
25% load	95.9%	95.9%	95.9%	96.3%	96.2%	96.1%	98.8%	99.0%	99.0%
50% load	96.0%	96.1%	96.1%	96.3%	96.4%	96.3%	99.1%	99.2%	99.3%
75% load	95.7%	95.8%	95.9%	95.9%	96.1%	96.0%	99.2%	99.3%	99.3%
100% load	95.2%	95.4%	95.3%	95.2%	95.5%	95.3%	99.2%	99.4%	99.4%

150 kW	Normal operation			Battery operation			ECO mode		
	Voltage (V)	380	400	415	380	400	415	380	400
25% load	95.9%	96.0%	95.9%	96.4%	96.3%	96.2%	99.0%	99.0%	99.0%
50% load	96.1%	96.2%	96.1%	96.4%	96.4%	96.4%	99.3%	99.2%	99.3%
75% load	95.7%	95.9%	95.8%	96.0%	96.1%	96.1%	99.3%	99.3%	99.3%
100% load	95.1%	95.4%	95.4%	95.4%	95.6%	95.5%	99.2%	99.3%	99.3%

200 kW	Normal operation			Battery operation			ECO mode		
	Voltage (V)	380	400	415	380	400	415	380	400
25% load	96.0%	96.0%	95.9%	96.3%	96.3%	96.2%	99.0%	99.0%	99.0%
50% load	96.1%	96.2%	96.1%	96.3%	96.4%	96.3%	99.2%	99.3%	99.2%
75% load	95.7%	95.9%	95.8%	96.0%	96.1%	96.0%	99.3%	99.3%	99.3%
100% load	95.1%	95.3%	95.4%	95.4%	95.6%	95.5%	99.2%	99.3%	99.3%

250 kW	Normal operation			Battery operation			ECO mode		
	Voltage (V)	380	400	415	380	400	415	380	400
25% load	96.0%	96.1%	96.0%	96.2%	96.2%	96.1%	99.0%	99.1%	99.0%
50% load	96.1%	96.2%	96.1%	96.5%	96.4%	96.5%	99.2%	99.3%	99.3%
75% load	95.6%	95.9%	95.8%	96.1%	96.1%	96.1%	99.2%	99.3%	99.3%
100% load	95.0%	95.4%	95.2%	95.5%	95.6%	95.6%	99.2%	99.3%	99.2%

Derating Due to Load Power Factor

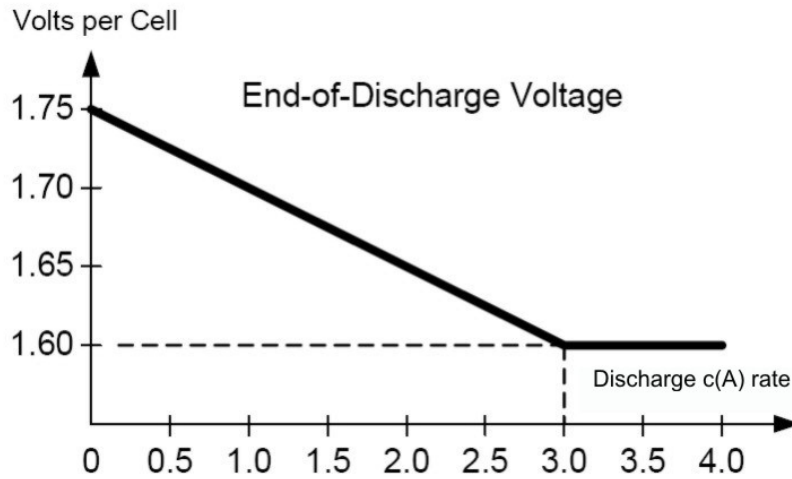
0.7 leading to 0.7 lagging without derating.

UPS rating	UPS output					
	Lagging			Leading		
PF=1	PF=0.7	PF=0.8	PF=0.9	PF=0.9	PF=0.8	PF=0.7
100 kVA/kW	100 kVA/70 kW	100 kVA/80 kW	100 kVA/90 kW	100 kVA/90 kW	100 kVA/80 kW	100 kVA/70 kW
150 kVA/kW	150 kVA/105 kW	150 kVA/120 kW	150 kVA/135 kW	150 kVA/135 kW	150 kVA/120 kW	150 kVA/105 kW
200 kVA/kW	200 kVA/140 kW	200 kVA/160 kW	200 kVA/180 kW	200 kVA/180 kW	200 kVA/160 kW	200 kVA/140 kW
250 kVA/kW	250 kVA/175 kW	250 kVA/200 kW	250 kVA/225 kW	250 kVA/225 kW	250 kVA/200 kW	250 kVA/175 kW

Batteries

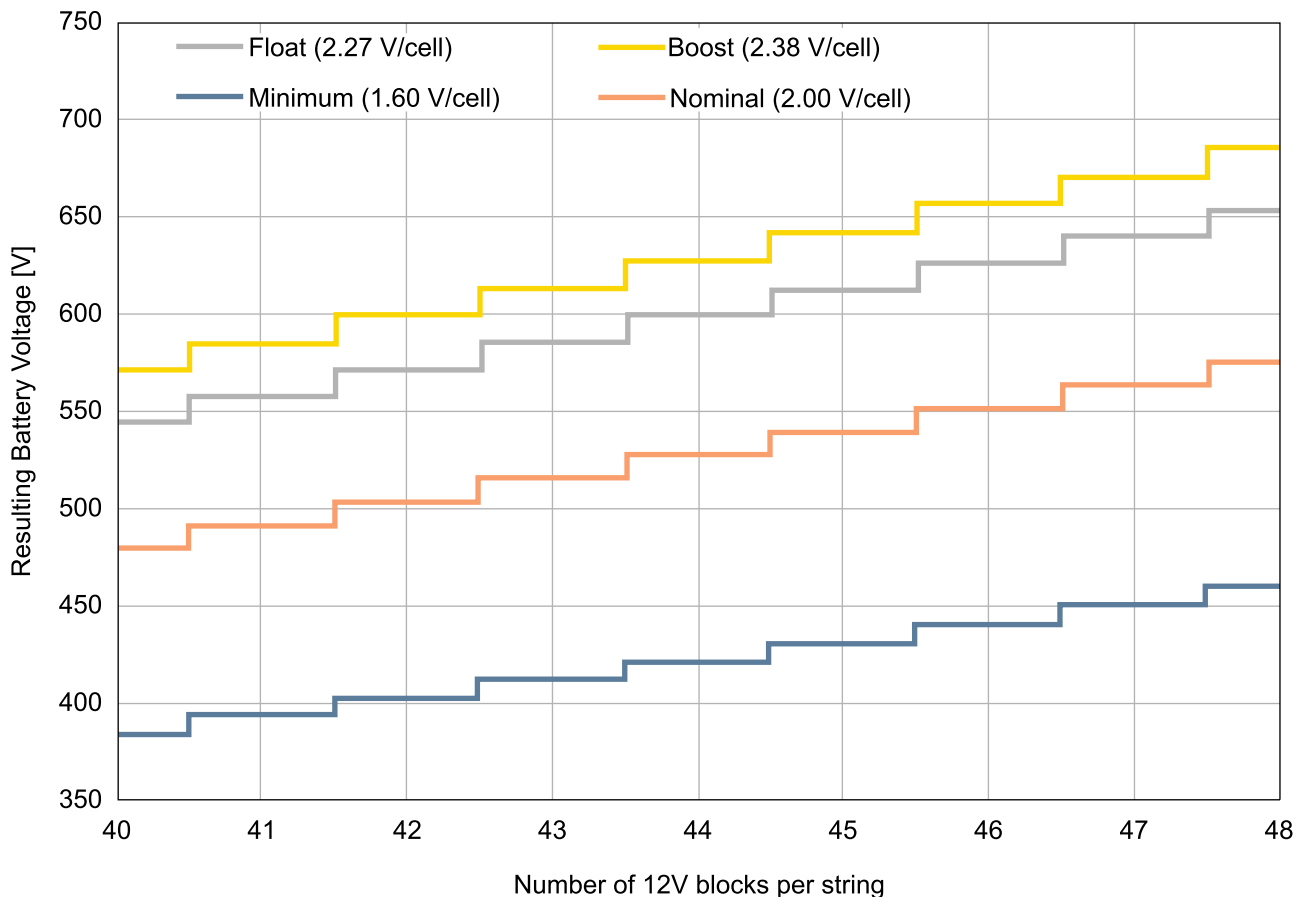
End of Discharge Voltage

The voltage is 1.6 to 1.75 per cell depending on discharge ratio.



Standard VRLA Voltage Levels

Standard VRLA Voltage Levels
(at nominal temperature)



NOTE: Specific configurations may differ from the general constraint shown above.

Compliance

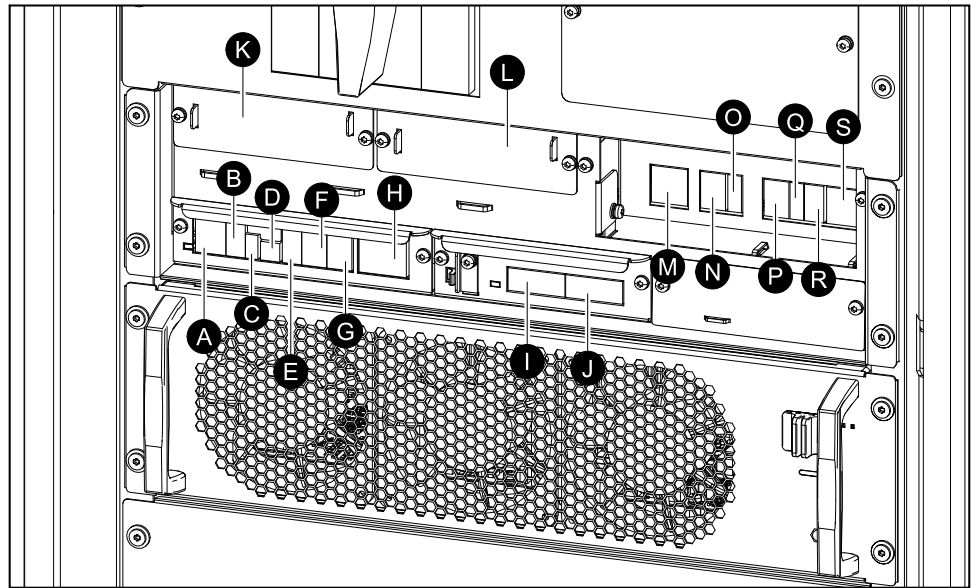
Safety	IEC 62040-1:2017, Edition 2.0, Uninterruptible power systems (UPS) – Part 1: Safety requirements
EMC	IEC 62040-2:2016, Edition 3.0, Uninterruptible power systems (UPS) – Part 2: Electromagnetic compatibility (EMC) requirements. IEC 62040-2:2005-10, Edition 2.0, Uninterruptible Power Systems (UPS) – Part 2: Electromagnetic compatibility (EMC) requirements
Performance	IEC 62040-3: 2021-03, Edition 3.0, Uninterruptible Power Systems (UPS) - Part 3: Method of specifying the performance and test requirements
Transportation	IEC TR 60721-4-2: 2001 Level 2M2
Pollution degree	2
Overvoltage category	III
Earthing system	TN-S, TN-C, TN-C-S, TT
Protective class	I
Arc flash safety	IEC TR 61641: 2014 Edition 3.0

Communication and Management

Local area network	1 Gbps – 1 port as default	
Modbus	Modbus (SCADA)	
Output relays	5 x SELV configurable	
Input contacts	4 x SELV configurable	
Standard control panel	7 inch touchscreen display	
Audible alarm	Yes	
Emergency Power Off (EPO)	Options: <ul style="list-style-type: none"> • Normally Closed (NC) with 24 VDC external supply • Normally Open (NO) with 24 VDC external supply • Normally Closed (NC)/Normally Open (NO) • Normally Open (NO) • Normally Closed (NC) 	
External switchgear	For UPS with one internal switch: UIB UOB SSIB Ext. MBB SIB BB	For UPS with four internal switches: Ext. MBB SIB BB

Signal Connection Terminals

Overview of Signal Connection Terminals in the UPS



- A. Remote EPO (J6600)
- B. Display port (for internal use)
- C. USB port (for service)
- D. Tuner port (for service)
- E. Modbus port
- F. Battery temperature sensor (J3008)
- G. Input contacts (J3009)
- H. Output relays (J3001)
 - I. PBUS2
 - J. PBUS1
- K. Network management card (NMC) slot 1
- L. Network management card (NMC) slot 2
- M. Backfeed relay and sync output relay (J8310)
- N. Auxiliary contacts 1 (J8302)
- O. Auxiliary contacts 2 (J8303)
- P. Battery breaker auxiliary contacts (J8304)
- Q. IMB and RIMB auxiliary contacts (J8305)
- R. Sync input (J8300)
- S. Battery breaker trip (J8301)

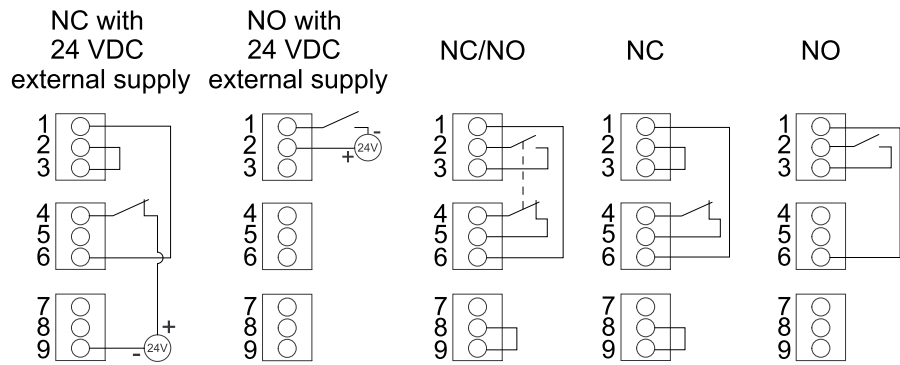
NOTE: Route the signal cables separately from the power cables and route the Class 2/SELV cables (A to L) separately from the non-Class 2/non-SELV cables (M to S). Non-Class 2/non-SELV cables should be rated for 600 V.

NOTE: The recommended size for the signal cables is 0.5 mm².

NOTE: Do not unplug the signal terminals by hand. Be sure to use the tool (TME12560) in the accessory bag to unplug the signal terminals. Be sure to restore the two rows of terminals to their original position: the grey terminals in the upper row and the green terminals in the lower row.

EPO

EPO Configurations on Board 640-02383 (Terminal J6600, 1-9)



The EPO input supports 24V SELV.

NOTE: The default setting for the EPO activation is to turn off the inverter.

If you want the EPO activation to transfer the UPS into forced static bypass operation instead, please contact Schneider Electric.

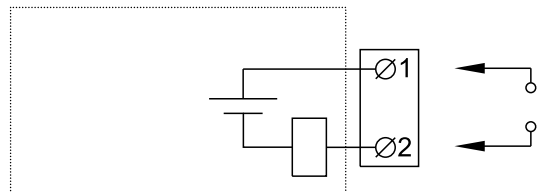
For more information about terminal locations, see [Signal Connection Terminals](#), page 27.

Configurable Input Contacts and Output Relays

Input Contacts

Four input contacts are available and can be configured to indicate a given event via the display.

The input contacts support 24 VDC 10 mA. All circuits connected must have the same 0 V reference.

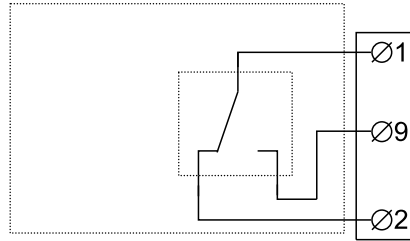


Name	Description	Location on board 640-02383
IN_1 (input contact 1)	Configurable input contact	Terminal J3009, 1-2
IN_2 (input contact 2)		Terminal J3009, 3-4
IN_3 (input contact 3)		Terminal J3009, 5-6
IN_4 (input contact 4)		Terminal J3009, 7-8

Output Relays

Five output relays are available and can be configured to activate on one or more events via the display.

The output relays support 24 VAC/VDC 1 A. All external circuitry must be fused with maximum 1 A fast acting fuses.




Name	Description	Location on board 640-02383
OUT_1 (output relay 1)	Configurable output relay	Terminal J3001, 1 (Comm), 9 (NO), 2 (NC)
OUT_2 (output relay 2)		Terminal J3001, 10 (Comm), 3 (NO), 11 (NC)
OUT_3 (output relay 3)		Terminal J3001, 4 (Comm), 12 (NO), 5 (NC)
OUT_4 (output relay 4)		Terminal J3001, 13 (Comm), 6 (NO), 14 (NC)
OUT_5 (output relay 5)		Terminal J3001, 7 (Comm), 15 (NO), 8 (NC)

Requirements for a Third Party Battery Solution

Battery breaker boxes from Schneider Electric are recommended for the battery interface. Please contact Schneider Electric for more information.

Third Party Battery Breaker Requirements



HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- All selected battery breakers must be equipped with instantaneous trip functionality with an undervoltage release coil or a shunt trip release coil.
- Trip delay must be set to zero on all battery breakers.

Failure to follow these instructions will result in death or serious injury.

NOTE: There are more factors to consider when selecting a battery breaker than the requirements listed below. Please contact Schneider Electric for more information.

Design Requirements for Battery Breaker

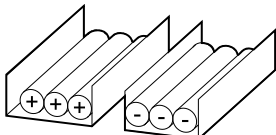
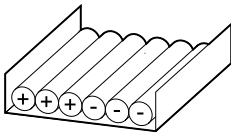
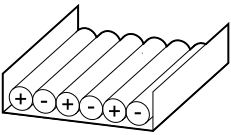
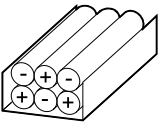
Battery breaker rated DC voltage > Normal battery voltage	The normal voltage of the battery configuration is defined as the highest nominal occurring battery voltage. This can be equivalent to the float voltage which may be defined as number of battery blocks x number of cells x cell float voltage .
Battery breaker rated DC current > Rated discharge battery current	This current is controlled by the UPS and must include maximum discharge current. This will typically be the current at the end of discharge (minimum operation DC voltage or in overload condition or a combination).
DC landings	Two DC landings for DC cables (DC+ and DC-) are required.
AUX switches for monitoring	One AUX switch must be installed in each battery breaker and connected to the UPS. The UPS can monitor up to four battery breakers.
Short-circuit breaking capability	The short-circuit breaking capability must be higher than the short-circuit DC current of the (largest) battery configuration.
Minimum trip current	The minimum short-circuit current to trip the battery breaker must match the (smallest) battery configuration, to make the breaker trip in case of a short circuit, up to the end of its life time.
Common battery solution	Individual battery breaker for each UPS in the parallel system.

Guidance for Organizing Battery Cables

NOTE: For 3rd party batteries, use only high rate batteries for UPS applications.

NOTE: When the battery bank is placed remotely, the organizing of the cables is important to reduce voltage drop and inductance. The distance between the battery bank and the UPS must not exceed 200 m (656 ft). Contact Schneider Electric for installations with a longer distance.

NOTE: To minimize the risk of electromagnetic radiation, it is highly recommended to follow the below guidance and to use grounded metallic tray supports.

Cable Length				
<30 m	Not recommended	Acceptable	Recommended	Recommended
31–75 m	Not recommended	Not recommended	Acceptable	Recommended
76–150 m	Not recommended	Not recommended	Acceptable	Recommended
151–200 m	Not recommended	Not recommended	Not recommended	Recommended

Specifications

Specifications for 50 kW UPS

	Voltage (V)	380	400	415
Input	Connections	L1, L2, L3, N, PE (single mains) L1, L2, L3, PE (dual mains) ¹		
	Input voltage range at full load (V)	304-456 ²	320-460	332-477
	Frequency (Hz)	40-70		
	Nominal input current (A)	80	76	74
	Maximum input current (A)	100	95	95
	Total harmonic distortion (THDI)	≤ 3% for linear load		
	Input power factor	> 0.99 (full load)		
	Maximum short circuit rating	Rated conditional short-circuit current I _{cc} = 35 kA Device: Refer to Required Upstream Protection, page 42.		
	Ramp-in	Programmable and adaptive 1-40 seconds		
	Protection	Built-in backfeed protection and fuses		
Bypass	Connections	L1, L2, L3, N, PE		
	Minimum bypass voltage (V)	342	360	374
	Maximum bypass voltage (V)	418	440	457
	Frequency (Hz)	50 or 60		
	Frequency range (Hz)	±1 Hz, ±3 Hz, ±10 Hz (user selectable)		
	Nominal bypass current (A)	78	74	71
	Maximum short circuit rating	Rated conditional short-circuit current I _{cc} = 35 kA Device: Refer to Required Upstream Protection, page 42.		
	Protection	Dry contact signal for backfeed protection		
Output	Connections	L1, L2, L3, N, PE		
	Output voltage regulation	±1% (symmetrical load) ±3% (asymmetrical load)		
	Overload capacity	Normal operation: ≤125% for 10 minutes; ≤150% for 1 minute Bypass operation: ≤110% continuous; ≤125% for 10 minutes; ≤150% for 1 minute Battery operation: ≤125% for 1 minute; ≤150% for 1 second		
	Output power factor	1		
	Nominal output current (A)	76	73	70
	Total harmonic distortion (THDU)	1% (linear load) 3% (non-linear load)		
	Output frequency (Hz)	50/60 Hz bypass synchronized 50/60 Hz ± 0.1% free-running		
	Slew rate (Hz/sec)	Programmable to 0.25, 0.5, 1, 2, 4, 6 Hz/second		
	Output performance classification (according to IEC/ EN62040-3)	VFI-SS-11		
	Load power factor	0.7 leading to 0.7 lagging without derating		
	Output short circuit current (inverter)	160 A/220 ms		

- Common N with bypass. For dual mains systems with upstream 4-pole breakers: install an N connection with the UPS input cables (L1, L2, L3, N, PE) and connect Input N with Bypass N.
- Measured at 30 °C.

	Voltage (V)	380	400	415
Battery	Charging power in % of output power	5% to 60% (selectable)		
	Maximum charging power (kW)	30		
	Nominal battery voltage (VDC)	480 to 576		
	Nominal float voltage (VDC)	545 to 654		
	End of discharge voltage (full load) (VDC)	384 to 461		
	Temperature compensation (per cell)	-3.3 mV/°C/cell for T ≥ 25 °C 0 mV/°C/cell for T < 25 °C		
	Battery current at full load and nominal battery voltage (A)	111		
	Battery current at full load and minimum battery voltage (A)	130		
	Ripple current	< 5% C20 (5-minute runtime)		
	Battery test	Manual/automatic (selectable)		
	Maximum short circuit rating	25 kA		

Specifications for 100 kW UPS

	Voltage (V)	380	400	415
Input	Connections	L1, L2, L3, N, PE (single mains) L1, L2, L3, PE (dual mains) ³		
	Input voltage range of full load (V)	304-456 ⁴	320-460	332-477
	Frequency (Hz)	40-70		
	Nominal input current (A)	160	152	147
	Maximum input current (A)	200	190	190
	Total harmonic distortion (THDI)	≤ 3% for linear load		
	Input power factor	> 0.99 (full load)		
	Maximum short circuit rating	Rated conditional short-circuit current I _{cc} = 35 kA Device: Refer to Required Upstream Protection, page 42.		
	Ramp-in	Programmable and adaptive 1-40 seconds		
	Protection	Built-in backfeed protection and fuses		
Bypass	Connections	L1, L2, L3, N, PE		
	Minimum bypass voltage (V)	342	360	374
	Maximum bypass voltage (V)	418	440	457
	Frequency (Hz)	50 or 60		
	Frequency range (Hz)	±1 Hz, ±3 Hz, ±10 Hz (user selectable)		
	Nominal bypass current (A)	155	147	142
	Maximum short circuit rating	Rated conditional short-circuit current I _{cc} = 35 kA Device: Refer to Required Upstream Protection, page 42.		
	Protection	Dry contact signal for backfeed protection		
Output	Connections	L1, L2, L3, N, PE		
	Output voltage regulation	±1% (symmetrical load) ±3% (asymmetrical load)		
	Overload capacity	Normal operation: ≤125% for 10 minutes; ≤150% for 1 minute Bypass operation: ≤110% continuous; ≤125% for 10 minutes; ≤150% for 1 minute Battery operation: ≤125% for 1 minute; ≤150% for 1 second		
	Output power factor	1		
	Nominal output current (A)	152	145	140
	Total harmonic distortion (THDU)	1% (linear load) 3% (non-linear load)		
	Output frequency (Hz)	50/60 Hz bypass synchronized 50/60 Hz ± 0.1% free-running		
	Slew rate (Hz/sec)	Programmable to 0.25, 0.5, 1, 2, 4, 6 Hz/second		
	Output performance classification (according to IEC/ EN62040-3)	VFI-SS-11		
	Load power factor	0.7 leading to 0.7 lagging without derating		
	Load crest factor	2.5		
Output short circuit current (inverter)	320 A/220 ms			

3. Common N with bypass. For dual mains systems with upstream 4-pole breakers: install an N connection with the UPS input cables (L1, L2, L3, N, PE) and connect Input N with Bypass N.
4. Measured at 30 °C.

	Voltage (V)	380	400	415
Battery	Charging power in % of output power	5% to 60% (selectable)		
	Maximum charging power (kW)	60		
	Nominal battery voltage (VDC)	480 to 576		
	Nominal float voltage (VDC)	545 to 654		
	End of discharge voltage (full load) (VDC)	384 to 461		
	Temperature compensation (per cell)	-3.3 mV/°C/cell for T ≥ 25 °C 0 mV/°C/cell for T < 25 °C		
	Battery current at full load and nominal battery voltage (A)	222		
	Battery current at full load and minimum battery voltage (A)	260		
	Ripple current	< 5% C20 (5-minute runtime)		
	Battery test	Manual/automatic (selectable)		
	Maximum short circuit rating	25 kA		

Specifications for 150 kW UPS

	Voltage (V)	380	400	415
Input	Connections	L1, L2, L3, N, PE (single mains) L1, L2, L3, PE (dual mains) ⁵		
	Input voltage range at full load (V)	304-456 ⁶	320-460	332-477
	Frequency (Hz)	40-70		
	Nominal input current (A)	240	228	220
	Maximum input current (A)	300	285	285
	Total harmonic distortion (THDI)	≤ 3% for linear load		
	Input power factor	> 0.99 (full load)		
	Maximum short circuit rating	Rated conditional short-circuit current I _{cc} = 35 kA Device: Refer to Required Upstream Protection, page 42.		
	Ramp-in	Programmable and adaptive 1-40 seconds		
	Protection	Built-in backfeed protection and fuses		
Bypass	Connections	L1, L2, L3, N, PE		
	Minimum bypass voltage (V)	342	360	374
	Maximum bypass voltage (V)	418	440	457
	Frequency (Hz)	50 or 60		
	Frequency range (Hz)	±1 Hz, ±3 Hz, ±10 Hz (user selectable)		
	Nominal bypass current (A)	232	220	212
	Maximum short circuit rating	Rated conditional short-circuit current I _{cc} = 35 kA Device: Refer to Required Upstream Protection, page 42.		
	Protection	Dry contact signal for backfeed protection		
Output	Connections	L1, L2, L3, N, PE		
	Output voltage regulation	±1% (symmetrical load) ±3% (asymmetrical load)		
	Overload capacity	Normal operation: ≤125% for 10 minutes; ≤150% for 1 minute Bypass operation: ≤110% continuous; ≤125% for 10 minutes; ≤150% for 1 minute Battery operation: ≤125% for 1 minute; ≤150% for 1 second		
	Output power factor	1		
	Nominal output current (A)	228	217	209
	Total harmonic distortion (THDU)	1% (linear load) 3% (non-linear load)		
	Output frequency (Hz)	50/60 Hz bypass synchronized 50/60 Hz ± 0.1% free-running		
	Slew rate (Hz/sec)	Programmable to 0.25, 0.5, 1, 2, 4, 6 Hz/second		
	Output performance classification (according to IEC/ EN62040-3)	VFI-SS-11		
	Load power factor	0.7 leading to 0.7 lagging without derating		
Output short circuit current (inverter)	480 A/220 ms			

5. Common N with bypass. For dual mains systems with upstream 4-pole breakers: install an N connection with the UPS input cables (L1, L2, L3, N, PE) and connect Input N with Bypass N.
6. Measured at 30 °C.

	Voltage (V)	380	400	415
Battery	Charging power in % of output power	5% to 60% (selectable)		
	Maximum charging power (kW)	90		
	Nominal battery voltage (VDC)	480 to 576		
	Nominal float voltage (VDC)	545 to 654		
	End of discharge voltage (full load) (VDC)	384 to 461		
	Temperature compensation (per cell)	-3.3 mV/°C/cell for T ≥ 25 °C 0 mV/°C/cell for T < 25 °C		
	Battery current at full load and nominal battery voltage (A)	333		
	Battery current at full load and minimum battery voltage (A)	390		
	Ripple current	< 5% C20 (5-minute runtime)		
	Battery test	Manual/automatic (selectable)		
	Maximum short circuit rating	25 kA		

Specifications for 200 kW UPS

	Voltage (V)	380	400	415
Input	Connections	L1, L2, L3, N, PE (single mains) L1, L2, L3, PE (dual mains) ⁷		
	Input voltage range at full load (V)	304-456 ⁸	320-460	332-477
	Frequency (Hz)	40-70		
	Nominal input current (A)	320	304	293
	Maximum input current (A)	400	380	380
	Total harmonic distortion (THDI)	≤ 3% for linear load		
	Input power factor	> 0.99 (full load)		
	Maximum short circuit rating	Rated conditional short-circuit current I _{cc} = 35 kA Device: Refer to Required Upstream Protection, page 42.		
	Ramp-in	Programmable and adaptive 1-40 seconds		
	Protection	Built-in backfeed protection and fuses		
Bypass	Connections	L1, L2, L3, N, PE		
	Minimum bypass voltage (V)	342	360	374
	Maximum bypass voltage (V)	418	440	457
	Frequency (Hz)	50 or 60		
	Frequency range (Hz)	±1 Hz, ±3 Hz, ±10 Hz (user selectable)		
	Nominal bypass current (A)	309	294	283
	Maximum short circuit rating	Rated conditional short-circuit current I _{cc} = 35 kA Device: Refer to Required Upstream Protection, page 42.		
	Protection	Dry contact signal for backfeed protection		
Output	Connections	L1, L2, L3, N, PE		
	Output voltage regulation	±1% (symmetrical load) ±3% (asymmetrical load)		
	Overload capacity	Normal operation: ≤125% for 10 minutes; ≤150% for 1 minute Bypass operation: ≤110% continuous; ≤125% for 10 minutes; ≤150% for 1 minute Battery operation: ≤125% for 1 minute; ≤150% for 1 second		
	Output power factor	1		
	Nominal output current (A)	304	289	279
	Total harmonic distortion (THDU)	1% (linear load) 3% (non-linear load)		
	Output frequency (Hz)	50/60 Hz bypass synchronized 50/60 Hz ± 0.1% free-running		
	Slew rate (Hz/sec)	Programmable to 0.25, 0.5, 1, 2, 4, 6 Hz/second		
	Output performance classification (according to IEC/ EN62040-3)	VFI-SS-11		
	Load power factor	0.7 leading to 0.7 lagging without derating		
Output short circuit current (inverter)	640 A/220 ms			

7. Common N with bypass. For dual mains systems with upstream 4-pole breakers: install an N connection with the UPS input cables (L1, L2, L3, N, PE) and connect Input N with Bypass N.
8. Measured at 30 °C.

	Voltage (V)	380	400	415
Battery	Charging power in % of output power	5% to 60% (selectable)		
	Maximum charging power (kW)	120		
	Nominal battery voltage (VDC)	480 to 576		
	Nominal float voltage (VDC)	545 to 654		
	End of discharge voltage (full load) (VDC)	384 to 461		
	Temperature compensation (per cell)	-3.3 mV/°C/cell for T ≥ 25 °C 0 mV/°C/cell for T < 25 °C		
	Battery current at full load and nominal battery voltage (A)	444		
	Battery current at full load and minimum battery voltage (A)	520		
	Ripple current	< 5% C20 (5-minute runtime)		
	Battery test	Manual/automatic (selectable)		
	Maximum short circuit rating	25 kA		

Specifications for 250 kW UPS

	Voltage (V)	380	400	415
Input	Connections	L1, L2, L3, N, PE (single mains) L1, L2, L3, PE (dual mains) ⁹		
	Input voltage range at full load (V)	304-456 ¹⁰	320-460	332-477
	Frequency (Hz)	40-70		
	Nominal input current (A)	400	380	367
	Maximum input current (A)	500	475	475
	Total harmonic distortion (THDI)	≤ 3% for linear load		
	Input power factor	> 0.99 (full load)		
	Maximum short circuit rating	Rated conditional short-circuit current I _{cc} = 35 kA Device: Refer to Required Upstream Protection, page 42.		
	Ramp-in	Programmable and adaptive 1-40 seconds		
	Protection	Built-in backfeed protection and fuses		
Bypass	Connections	L1, L2, L3, N, PE		
	Minimum bypass voltage (V)	342	360	374
	Maximum bypass voltage (V)	418	440	457
	Frequency (Hz)	50 or 60		
	Frequency range (Hz)	±1 Hz, ±3 Hz, ±10 Hz (user selectable)		
	Nominal bypass current (A)	386	367	354
	Maximum short circuit rating	Rated conditional short-circuit current I _{cc} = 35 kA Device: Refer to Required Upstream Protection, page 42.		
	Protection	Dry contact signal for backfeed protection		
Output	Connections	L1, L2, L3, N, PE		
	Output voltage regulation	±1% (symmetrical load) ±3% (asymmetrical load)		
	Overload capacity	Normal operation: ≤125% for 10 minutes; ≤150% for 1 minute Bypass operation: ≤110% continuous; ≤125% for 10 minutes; ≤150% for 1 minute Battery operation: ≤125% for 1 minute; ≤150% for 1 second		
	Output power factor	1		
	Nominal output current (A)	380	361	348
	Total harmonic distortion (THDU)	1% (linear load) 3% (non-linear load)		
	Output frequency (Hz)	50/60 Hz bypass synchronized 50/60 Hz ± 0.1% free-running		
	Slew rate (Hz/sec)	Programmable to 0.25, 0.5, 1, 2, 4, 6 Hz/second		
	Output performance classification (according to IEC/ EN62040-3)	VFI-SS-11		
	Load power factor	0.7 leading to 0.7 lagging without derating		
	Load crest factor	2.5		
Output short circuit current (inverter)	800 A/220 ms			

9. Common N with bypass. For dual mains systems with upstream 4-pole breakers: install an N connection with the UPS input cables (L1, L2, L3, N, PE) and connect Input N with Bypass N.

10. Measured at 30 °C.

	Voltage (V)	380	400	415
Battery	Charging power in % of output power	5% to 60% (selectable)		
	Maximum charging power (kW)	150		
	Nominal battery voltage (VDC)	480 to 576		
	Nominal float voltage (VDC)	545 to 654		
	End of discharge voltage (full load) (VDC)	384 to 461		
	Temperature compensation (per cell)	-3.3 mV/°C/cell for T ≥ 25 °C 0 mV/°C/cell for T < 25 °C		
	Battery current at full load and nominal battery voltage (A)	555		
	Battery current at full load and minimum battery voltage (A)	650		
	Ripple current	< 5% C20 (5-minute runtime)		
	Battery test	Manual/automatic (selectable)		
	Maximum short circuit rating	25 kA		

Required Upstream Protection

⚡ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

The upstream protection must use the required 3-pole breakers OR 4-pole breakers listed below. The use of 3-pole breaker or 4-pole breaker depends on your local and national regulations.

Failure to follow these instructions will result in death or serious injury.

Required 3-Pole Upstream Protection

UPS rating	50 kW		100 kW	
	Input	Bypass	Input	Bypass
Breaker type	NSX100H TM100D (C10H3TM100)	NSX100H TM80D (C10H3TM080)	NSX250H TM200 (C25H3TM200)	NSX160H TM160 (C16H3TM160)
Io	100	80	200	160
I _r	100	80	200	160
I _{sd}	800 (fixed)	640 (fixed)	5 - 10	1250 (fixed)

UPS rating	150 kW		200 kW		250 kW	
	Input	Bypass	Input	Bypass	Input	Bypass
Breaker type	NSX400H MiC.2.3 (C40H32D400)	NSX250H TM250 (C25H3TM250)	NSX400H MiC.2.3 (C40H32D400)	NSX400H MiC.2.3 (C40H32D400)	NSX630H MiC.2.3 (C63H32D630)	NSX400H MiC.2.3 (C40H32D400)
Io	320	250	400	320	500	400
I _r	0.95	250	1	1	1	1
I _{sd}	1.5 - 10	5 - 10	1.5 - 10	1.5 - 10	1.5 - 10	1.5 - 10

Required 4-Pole Upstream Protection

UPS rating	50 kW		100 kW	
	Input	Bypass	Input	Bypass
Breaker type	NSX100H TM100D (C10H4TM100)	NSX160H TM160 (C16H4TM160)	NSX250H TM200 (C25H4TM200)	NSX400H MiC.2.3 (C40H42D400)
Io	100	160	200	280
I _r	100	0.8	200	0.95
I _{sd}	800 (fixed)	1250 (fixed)	1.5 - 10	1.5 - 10

UPS rating	150 kW		200 kW		250 kW	
	Input	Bypass	Input	Bypass	Input	Bypass
Breaker type	NSX400H MiC.2.3 (C40H42D400)	NSX400H MiC.2.3 (C40H42D400)	NSX400H MiC.2.3 (C40H42D400)	NSX400H MiC.2.3 (C40H42D400)	NSX630H MiC.2.3 (C63H42D630)	NSX400H MiC.2.3 (C40H42D400)
Io	320	280	400	320	500	400
I _r	0.95	0.95	1	1	1	1
I _{sd}	1.5 - 10	1.5 - 10	1.5 - 10	1.5 - 10	1.5 - 10	1.5 - 10

Recommended Cables Sizes

⚠️⚠️ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

All wiring must comply with all applicable national and/or electrical codes. The maximum allowable cable size is 185 mm².

Failure to follow these instructions will result in death or serious injury.

NOTE: Overcurrent protection is to be provided by external devices..

Cable sizes in this manual are based on table A.52-5 of IEC 60364-5-52 with the following assertions:

- 90 °C conductors
- An ambient temperature of 30 °C
- Use of copper conductors
- Installation method C

PE size is based on table 54.3 of IEC 60364-5-54.

If the ambient temperature is greater than 30 °C, larger conductors are to be used in accordance with the correction factors of the IEC.

NOTE: Battery cables are sized according to 40 battery blocks. Contact Schneider Electric for cable sizes for systems with more than 40 battery blocks.

NOTE: It is recommended to use the provided screws to connect cables for clients.

50 kW UPS

	Cable size per phase (mm ²)	Neutral cable size (mm ²)	PE cable size (mm ²)
Input	25	35	16
Bypass	16 (for 3-pole upstream protection) 35 (for 4-pole upstream protection)	35	16
Output	16	35	16
Battery	35	35 ¹¹	16

100 kW UPS

	Cable size per phase (mm ²)	Neutral cable size (mm ²)	PE cable size (mm ²)
Input	70	2 x 70	35
Bypass	70 (for 3-pole upstream protection) 2 x 70 (for 4-pole upstream protection)	2 x 70	35
Output	70	2 x 70	35
Battery	95	95 ¹¹	50

11. Only applicable for battery solutions with midpoint.

150 kW UPS

	Cable size per phase (mm ²)	Neutral cable size (mm ²)	PE cable size (mm ²)
Input	120	2 x 70	70
Bypass	120 (for 3-pole upstream protection) 2 x 70 (for 4-pole upstream protection)	2 x 70	70
Output	120	2 x 70	70
Battery	2 x 70	2 x 70 ¹²	70

200 kW UPS

	Cable size per phase (mm ²)	Neutral cable size (mm ²)	PE cable size (mm ²)
Input	2 x 95	2 x 95	95
Bypass	2 x 70		70
Output	2 x 70	2 x 70	70
Battery	2 x 120	2 x 120 ¹³	120

250 kW UPS

	Cable size per phase (mm ²)	Neutral cable size (mm ²)	PE cable size (mm ²)
Input	2 x 120	2 x 120	120
Bypass	2 x 95		95
Output	2 x 95	2 x 95	95
Battery	2 x 150	2 x 150 ¹³	150

Recommended Bolt and Lug Sizes

Copper

Cable size (mm ²)	Bolt size	Cable lug type
16	M10x40 mm	TLK 16-10
25	M10x40 mm	TLK 25-10
35	M10x40 mm	TLK 35-10
50	M10x40 mm	TLK 50-10
70	M10x40 mm	TLK 70-10
95	M10x40 mm	TLK 95-10
120	M10x40 mm	TLK 120-10
150	M10x40 mm	TLK 150-10
185	M10x40 mm	TLK 185-10

12. Only applicable for battery solutions with midpoint.

13. Only applicable for battery solutions with midpoint.

Torque Specifications

Bolt size	Torque
M4	1.7 Nm
M6	5 Nm
M8	17.5 Nm
M10	30 Nm
M12	50 Nm

Physical

UPS Shipping Weights and Dimensions

UPS with One Internal Switch

Commercial reference	Weight kg	Height mm	Width mm	Depth mm	Number of preinstalled power modules in the UPS	Number of extra power modules that can be ordered ¹⁴
EMUPS50K250QBH	262	2191	800	1200	1	5
EMUPS50K250QBHS	262	2191	800	1200	1	5

UPS with Four Internal Switch

Commercial reference	Weight kg	Height mm	Width mm	Depth mm	Number of preinstalled power modules in the UPS	Number of extra power modules that can be ordered ¹⁴
EMUPS50K250PBH	295	2191	800	1200	1	5
EMUPS50K250PBHS	295	2191	800	1200	1	5

Power Module Shipping Weights and Dimensions

NOTE: For N+1 UPS models the weight increases with 28 kg for the redundant power module.

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
EMPM50KH	33	280	590	850

14. See Power Module Shipping Weights and Dimensions, page 46 for shipping weight and dimensions for the extra power modules which are shipped separately.

UPS Weights and Dimensions

UPS with One Internal Switch

Type	Weight kg	Height mm	Width mm	Depth mm
50 kW	216	1991	600	850
50 kW with N+1 power module	244	1991	600	850
100 kW	244	1991	600	850
100 kW with N+1 power module	272	1991	600	850
150 kW	272	1991	600	850
150 kW with N+1 power module	300	1991	600	850
200 kW	300	1991	600	850
200 kW with N+1 power module	328	1991	600	850
250 kW	328	1991	600	850
250 kW with N+1 power module	356	1991	600	850

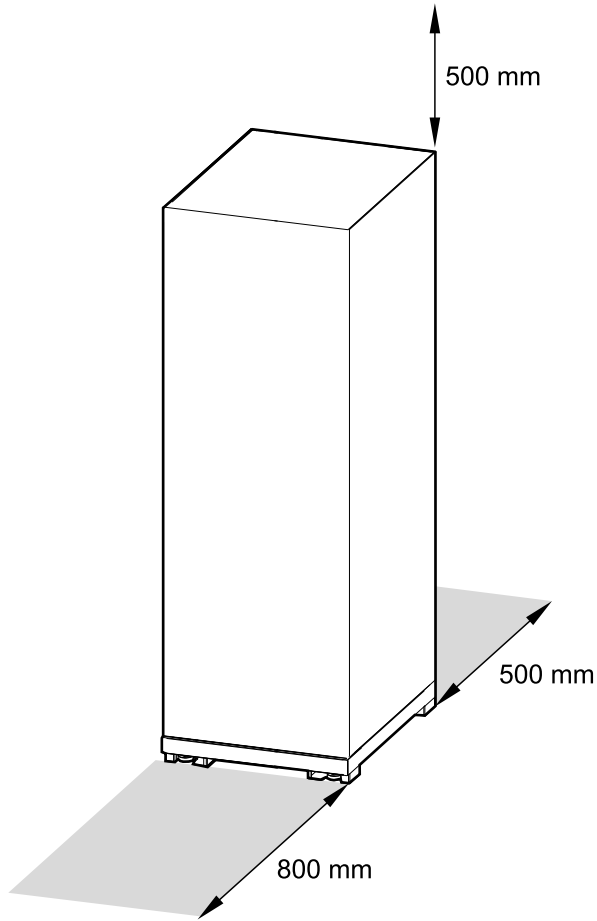
UPS with Four Internal Switches

Type	Weight kg	Height mm	Width mm	Depth mm
50 kW	251	1991	600	850
50 kW with N+1 power module	279	1991	600	850
100 kW	279	1991	600	850
100 kW with N+1 power module	307	1991	600	850
150 kW	307	1991	600	850
150 kW with N+1 power module	335	1991	600	850
200 kW	335	1991	600	850
200 kW with N+1 power module	363	1991	600	850
250 kW	363	1991	600	850
250 kW with N+1 power module	391	1991	600	850

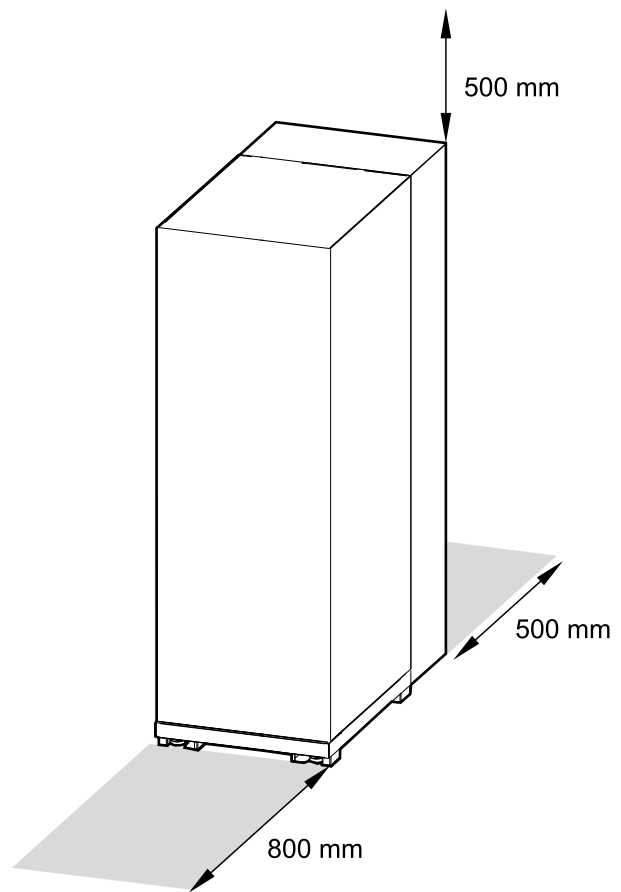
Clearance

NOTE: Clearance dimensions are published for airflow and service access only. Consult with the local safety codes and standards for additional requirements in your local area.

UPS



UPS with Depth Adapter



NOTE: 500 mm rear clearance is also required when the depth adapter is installed with the UPS.

Environment

	Operating	Storage
Temperature	0 °C to 50 °C with load derating above 40 °C ¹⁵	-25 °C to 55 °C
Relative humidity	0-95% non-condensing	0-95% non-condensing
Elevation	Designed for operation in 0-3000 m elevation. Derating required from 1000-3000 m with forced air cooling: Up to 1000 m: 1.000 Up to 1500 m: 0.975 Up to 2000 m: 0.950 Up to 2500 m: 0.925 Up to 3000 m: 0.900	
Audible noise ¹⁶	68 dB at 70% load 74 dB at 100% load	
Protection class	IP20	
Color	Black	

15. For temperatures between 40 °C and 50 °C, derate the load power rating to 75%.

16. Values are measured for the maximum configuration.

Heat Dissipation in BTU/hr

50 kW	Normal operation			ECO mode			Battery operation		
Voltage (V)	380	400	415	380	400	415	380	400	415
25% load	1963	1916	1963	694	694	606	1501	1685	1547
50% load	3647	3462	3554	862	949	775	3094	3278	3186
75% load	5889	5610	5610	1162	1162	1032	5193	5193	5332
100% load	8791	8414	8226	1376	1376	1203	8226	8039	8039

100 kW	Normal operation			ECO mode			Battery operation		
Voltage (V)	380	400	415	380	400	415	380	400	415
25% load	3647	3647	3647	1036	862	862	3278	3370	3370
50% load	7109	6924	6924	1549	1376	1203	6555	6371	6555
75% load	11499	11220	10941	2064	1804	1804	10941	10386	10941
100% load	17204	16453	16828	2752	2060	2060	16828	16078	16453

150 kW	Normal operation			ECO mode			Battery operation		
Voltage (V)	380	400	415	380	400	415	380	400	415
25% load	5471	5332	5471	1293	1293	1293	4778	4916	5054
50% load	10386	10109	10386	1804	2064	1804	9557	9557	9833
75% load	17248	16411	16829	2706	2706	2706	15994	15578	15578
100% load	26371	24679	24679	4128	3608	3608	24679	23557	24117

200 kW	Normal operation			ECO mode			Battery operation		
Voltage (V)	380	400	415	380	400	415	380	400	415
25% load	7109	7109	7294	1723	1723	1723	6739	6555	6924
50% load	138479	13478	13847	2752	2405	2752	12742	12742	12742
75% load	229979	21882	22439	3608	3608	3608	21326	20771	21326
100% load	35162	33656	32905	5504	4811	4811	32905	31409	32156

250 kW	Normal operation			ECO mode			Battery operation		
Voltage (V)	380	400	415	380	400	415	380	400	415
25% load	8886	8655	8886	2154	1937	2154	8194	8424	8655
50% load	17309	16848	17309	3440	3007	3007	15928	15928	15928
75% load	29446	27352	28049	5160	4510	4510	26657	25964	25964
100% load	44897	41132	43010	6879	6013	6879	40195	39261	39261

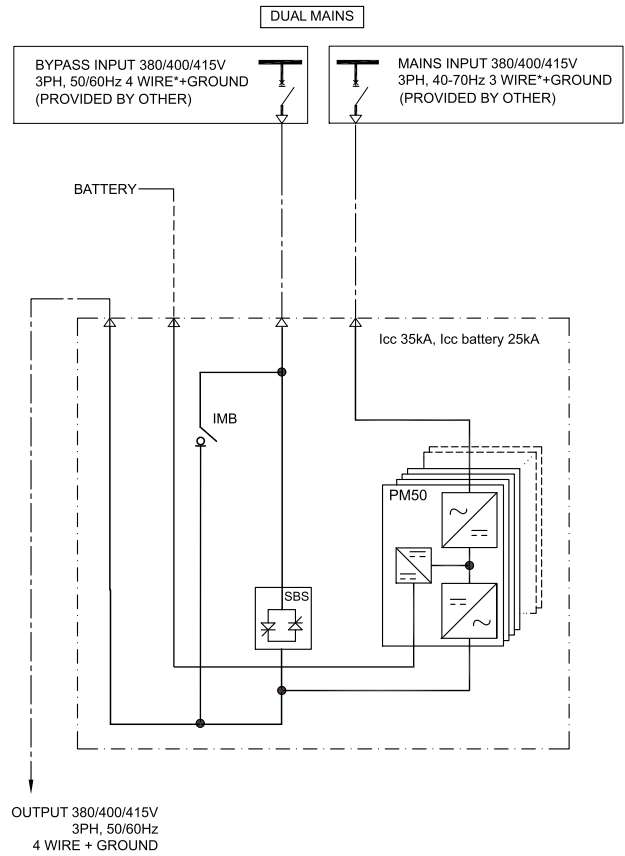
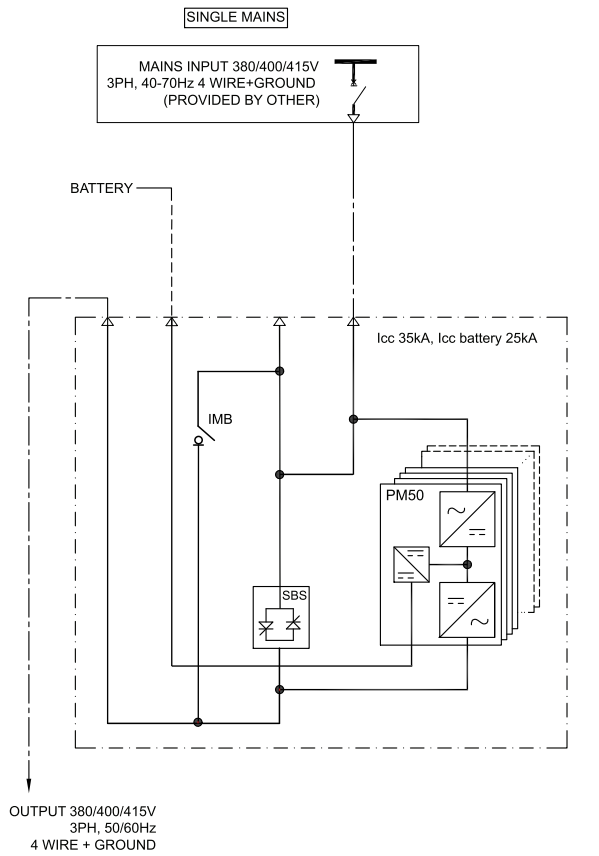
Drawings

NOTE: A comprehensive set of drawings is available on www.se.com.

NOTE: These drawings are for reference ONLY – subject to change without notice.

Easy UPS 3-Phase Modular 50-250 kW 400 V UPS

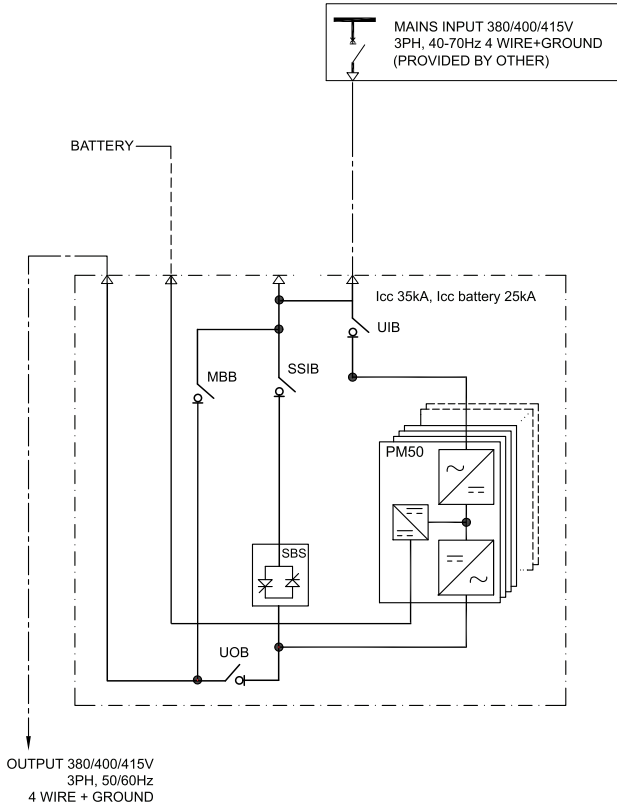
UPS with One Internal Switch



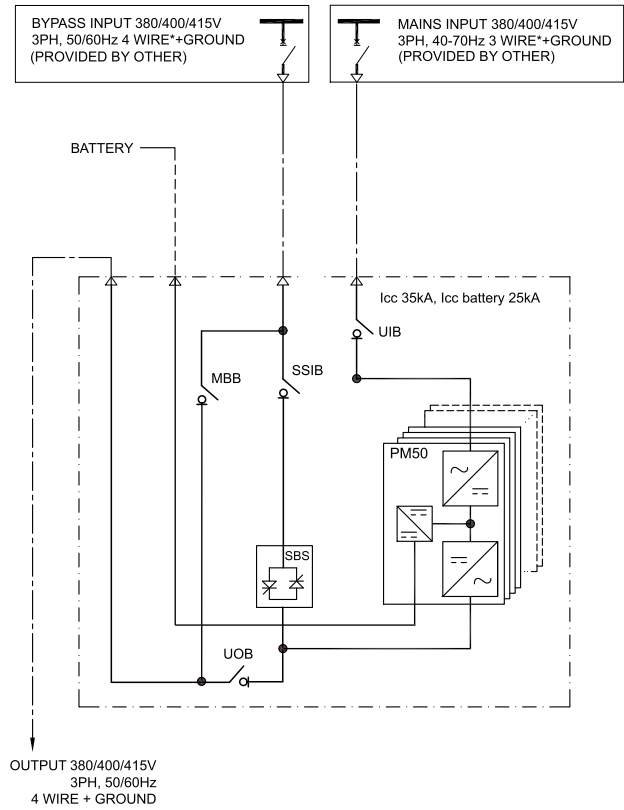
Note: Bypass N and mains input N are connected together outside the UPS.

UPS with Four Internal Switches

SINGLE MAINS



DUAL MAINS



Note: Bypass N and mains input N are connected together outside the UPS.

Options

Configuration Options

- Single or dual mains
- Default top cable entry. Bottom cable entry available with bottom entry cabinet installed.
- ECO mode
- EcoStruxure IT compatible
- Generator compatible
- Simplified common battery (VRLA/Lithium-ion) supported

Hardware Options

NOTE: All hardware options listed here may not be available in all regions.

Power Module

- Power module 50 kW (EMPM50KH)

Galaxy Lithium-ion Battery Cabinet

Battery cabinet including Lithium-ion batteries and battery breaker.

- Galaxy Lithium-ion battery cabinet with 16 battery modules (LIBSESMG16IEC)
- Galaxy Lithium-ion battery cabinet with 17 battery modules (LIBSESMG17IEC)

Classic Battery Cabinet

Classic battery cabinet including batteries and battery breaker.

- 700 mm wide, classic battery cabinet (GVSCBC7D, GVSCBC7E)
- 1000 mm wide, classic battery cabinet (GVSCBC10A2, GVSCBC10B2)

Empty Battery Cabinet

Empty battery cabinet for use with third party batteries. Battery breaker kit is required (sold separately).

- 1100 mm wide empty battery cabinet (SP3BEB11)

Battery Breaker Box

Wall mounted battery breaker box for use with third party battery solutions.

- 100-300 kW battery breaker box with one battery breaker (GVBBB630EL-1CB)
- 250-500 kW battery breaker box with two battery breakers (GVBBB630EL-2CB)

Battery Breaker Kit

Battery breaker kit for use with empty battery cabinets or third party battery solutions.

- 100-300 kW battery breaker kit (GVBBK630EL)

Maintenance Bypass Panel

Maintenance bypass panel for complete isolation of the UPS during service operations.

- 60-400 kW maintenance bypass panel (E3MBP60K400H)

Bottom Entry Cabinet

Bottom entry cabinet for bottom cable entry.

- Bottom entry cabinet (SP3BBEC)

Optional Installation Kits

- Depth adapter for UPS
 - 850 to 1100 mm depth adapter (SP3OPT002)
 - 850 to 1200 mm depth adapter (SP3OPT003)
- Neutral disconnection kit for UPS (SP3OPT004)
- Battery temperature sensor (SP3OPT006)
- 250 kW backfeed kit for UPS (SP3OPT007)
- Parallel communication kit for UPS (GVSOPT006)

Optional Network Management Card

- Network management card 3 (AP9640)
- UPS network management card 3 with environmental monitoring (AP9641)

Temperature Sensors

- Temperature sensor (AP9335T) for network management card (AP9641)
- Temperature sensor (AP9335TH) for network management card (AP9641)

Weights and Dimensions for Options

NOTE: Not all options listed here are available for all UPS models. Refer to the hardware options list for the relevant UPS model.

Maintenance Bypass Panel Shipping Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
E3MBP60K400H	110	1200	810	600

Maintenance Bypass Panel Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
E3MBP60K400H	75	1050	750	350

Galaxy Lithium-ion Battery Cabinet Shipping Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
LIBSESMG10IEC/ LIBSESMG10UL	211	2150	1200	800
LIBSESMG13IEC/ LIBSESMG13UL	211	2150	1200	800
LIBSESMG16IEC/ LIBSESMG16UL	211	2150	1200	800
LIBSESMG17IEC/ LIBSESMG17UL	211	2150	1200	800

NOTE: The battery cabinets are shipped without batteries. The battery modules are shipped separately per the chosen configuration with 10, 13, 16, or 17 battery modules.

Galaxy Lithium-ion Battery Cabinet Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
LIBSESMG10IEC/ LIBSESMG10UL	355	1970	650	587
LIBSESMG13IEC/ LIBSESMG13UL	415	1970	650	587
LIBSESMG16IEC/ LIBSESMG16UL	470	1970	650	587
LIBSESMG17IEC/ LIBSESMG17UL	490	1970	650	587

Battery Breaker Box Shipping Weights and Dimensions

Commercial reference	Weight kg	Height mm ¹⁷	Width mm	Depth mm
GVBBB630EL-1CB	40	560	800	1200
GVBBB630EL-2CB	72	560	1000	1200
GVBBB630EL-3CB	82	560	1000	1200

Battery Breaker Box Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
GVBBB630EL-1CB	35	800	500	280
GVBBB630EL-2CB	66	1000	750	280
GVBBB630EL-3CB	76	1000	750	280

Battery Breaker Kit Shipping Weights and Dimensions

Commercial reference	Weight kg	Height mm ¹⁷	Width mm	Depth mm
GVBBK630EL	15	560	500	800

Battery Breaker Kit Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
GVBBK630EL	12	520	290	240

Classic Battery Cabinet Shipping Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
GVSCBC7C	920	1980	815	970
GVSCBC7D	589	1980	815	970
GVSCBC7E	810	1980	815	970
GVSCBC10A2	1300	1980	1130	970
GVSCBC10B2	1532	1980	1130	970

Classic Battery Cabinet Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
GVSCBC7C	900	1900	710	845
GVSCBC7D	569	1900	710	845
GVSCBC7E	790	1900	710	845

17. The product is packaged in a horizontal position, so the shipping height and depth dimensions differ from the product itself.

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
GVSCBC10A2	1102	1900	1010	845
GVSCBC10B2	1368	1900	1010	845

Empty Battery Cabinet Shipping Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
SP3BEBC11	284	2191	1200	1000

Empty Battery Cabinet Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
SP3BEBC11	255	1970	1100	850

Bottom Entry Cabinet Shipping Weight and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
SP3BBEC	98	2191	800	1200

Bottom Entry Cabinet Weight and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
SP3BBEC	62	1991	300	850

Limited Factory Warranty

One-Year Factory Warranty

The limited warranty provided by Schneider Electric in this Statement of Limited Factory Warranty applies only to products you purchase for your commercial or industrial use in the ordinary course of your business.

Terms of Warranty

Schneider Electric warrants that the product shall be free from defects in materials and workmanship for a period of one year from the date of product start-up when start-up is performed by Schneider Electric-authorized service personnel and occurs within six months of the Schneider Electric shipment date. This warranty covers repairing or replacing any defective parts including on-site labor and travel. In the event that the product fails to meet the foregoing warranty criteria, the warranty covers repairing or replacing defective parts at the sole discretion of Schneider Electric for a period of one year from the shipment date. For Schneider Electric cooling solutions, this warranty does not cover circuit breaker resetting, loss of refrigerant, consumables, or preventive maintenance items. Repair or replacement of a defective product or part thereof does not extend the original warranty period. Any parts furnished under this warranty may be new or factory-remanufactured.

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