Easy UPS 3S

For Internal and External Batteries
10-40 kVA 400 V & 10-20 kVA 208 V 3:3
10-30 kVA 400 V 3:1

Technical Specifications

Latest updates are available on the Schneider Electric website
6/2023

www.se.com

Legal Information

Find the manuals here:
Trouvez les manuels ici:
在这里找到手册
Hier finden Sie die Handbücher:
Encuentre los manuales aquí:
Encontre os manuais aqui:

https://www.productinfo.schneider-electric.com/easyups3s/

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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, section 3.102).

Electromagnetic Compatibility

NOTICE

RISK OF ELECTROMAGNETIC DISTURBANCE

This is a product Category C3 according to IEC 62040-2. This is a product for commercial and industrial applications in the second environment - installation restrictions or additional measures may be needed to prevent disturbances. The second environment includes all commercial, light industry, and industrial locations other than residential, commercial, and light industrial premises directly connected without intermediate transformer to a public low-voltage mains supply. The installation and cabling must follow the electromagnetic compatibility rules, e.g.:

- the segregation of cables,
- the use of shielded or special cables when relevant,
- the use of grounded metallic cable tray and supports.

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. The start-up requirements depend on the installation country. For countries with bundled start-up service, start-up must 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

The UPS must use an external regenerative braking kit to dissipate energy when connected to regenerative loads including photovoltaic systems and speed drives.

Failure to follow these instructions can result in equipment damage.

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.

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 disconnector 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

400 V UPSs

3:3 UPS for External Batteries

- Easy UPS 3S 10 kVA 400 V 3:3 UPS for external batteries (E3SUPS10KH)
- Easy UPS 3S 15 kVA 400 V 3:3 UPS for external batteries (E3SUPS15KH)
- Easy UPS 3S 20 kVA 400 V 3:3 UPS for external batteries (E3SUPS20KH)
- Easy UPS 3S 30 kVA 400 V 3:3 UPS for external batteries (E3SUPS30KH)
- Easy UPS 3S 40 kVA 400 V 3:3 UPS for external batteries (E3SUPS40KH)

3:1 UPS for External Batteries

- Easy UPS 3S 10 kVA 400 V 3:1 UPS for external batteries (E3SUPS10K3I)
- Easy UPS 3S 15 kVA 400 V 3:1 UPS for external batteries (E3SUPS15K3I)
- Easy UPS 3S 20 kVA 400 V 3:1 UPS for external batteries (E3SUPS20K3I)
- Easy UPS 3S 30 kVA 400 V 3:1 UPS for external batteries (E3SUPS30K3I)

3:3 UPS for Internal Batteries

- Easy UPS 3S 10 kVA 400 V 3:3 UPS for internal batteries (E3SUPS10KHB) [1]
- Easy UPS 3S 15 kVA 400 V 3:3 UPS for internal batteries (E3SUPS15KHB) [1]
- Easy UPS 3S 20 kVA 400 V 3:3 UPS for internal batteries (E3SUPS20KHB) [1]
- Easy UPS 3S 30 kVA 400 V 3:3 UPS for internal batteries (E3SUPS30KHB) [1]
- Easy UPS 3S 40 kVA 400 V 3:3 UPS for internal batteries (E3SUPS40KHB) [1]
- Easy UPS 3S 10 kVA 400V 3:3 UPS, 1 internal 7Ah modular battery string, expandable to 3 (E3SUPS10KHB1) [1]
- Easy UPS 3S 10 kVA 400V 3:3 UPS, 2 internal 7Ah modular battery strings, expandable to 3 (E3SUPS10KHB2) [1]
- Easy UPS 3S 15 kVA 400V 3:3 UPS, 1 internal 7Ah modular battery string, expandable to 3 (E3SUPS15KHB1) [1]
- Easy UPS 3S 15 kVA 400V 3:3 UPS, 2 internal 7Ah modular battery strings, expandable to 3 (E3SUPS15KHB2) [1]
- Easy UPS 3S 20 kVA 400V 3:3 UPS, 2 internal 7Ah modular battery strings, expandable to 3 (E3SUPS20KHB1) [1]
- Easy UPS 3S 20 kVA 400V 3:3 UPS, 3 internal 7Ah modular battery strings (E3SUPS20KHB2) [1]
- Easy UPS 3S 30 kVA 400V 3:3 UPS, 2 internal 7Ah modular battery strings, expandable to 4 (E3SUPS30KHB1) [1]
- Easy UPS 3S 30 kVA 400V 3:3 UPS, 4 internal 7Ah modular battery strings (E3SUPS30KHB2) [1]
- Easy UPS 3S 40 kVA 400V 3:3 UPS, 3 internal 7Ah modular battery strings, expandable to 4 (E3SUPS40KHB1) [1]
- Easy UPS 3S 40 kVA 400V 3:3 UPS, 4 internal 7Ah modular battery strings (E3SUPS40KHB2) [1]

3:1 UPS for Internal Batteries

- Easy UPS 3S 10 kVA 400 V 3:1 UPS for internal batteries (E3SUPS10K3IB) [1]
- Easy UPS 3S 15 kVA 400 V 3:1 UPS for internal batteries (E3SUPS15K3IB) [1]
- Easy UPS 3S 20 kVA 400 V 3:1 UPS for internal batteries (E3SUPS20K3IB) [1]
- Easy UPS 3S 30 kVA 400 V 3:1 UPS for internal batteries (E3SUPS30K3IB) [1]
- Easy UPS 3S 10 kVA 400V 3:1 UPS, 1 internal 7Ah modular battery string, expandable to 3 (E3SUPS10K3IB1) [1]
- Easy UPS 3S 10 kVA 400V 3:1 UPS, 2 internal 7Ah modular battery strings, expandable to 3 (E3SUPS10K3IB2) [1]
- Easy UPS 3S 15 kVA 400V 3:1 UPS, 1 internal 7Ah modular battery string, expandable to 3 (E3SUPS15K3IB1) [1]
- Easy UPS 3S 15 kVA 400V 3:1 UPS, 2 internal 7Ah modular battery strings, expandable to 3 (E3SUPS15K3IB2) [1]
- Easy UPS 3S 20 kVA 400V 3:1 UPS, 2 internal 7Ah modular battery strings, expandable to 3 (E3SUPS20K3IB1) [1]
- Easy UPS 3S 20 kVA 400V 3:1 UPS, 3 internal 7Ah modular battery strings (E3SUPS20K3IB2) [1]
- Easy UPS 3S 30 kVA 400V 3:1 UPS, 2 internal 7Ah modular battery strings, expandable to 4 (E3SUPS30K3IB1) [1]
- Easy UPS 3S 30 kVA 400V 3:1 UPS, 4 internal 7Ah modular battery strings (E3SUPS30K3IB2) [1]

1. Not available in India and China

208 V UPSs

3:3 UPS

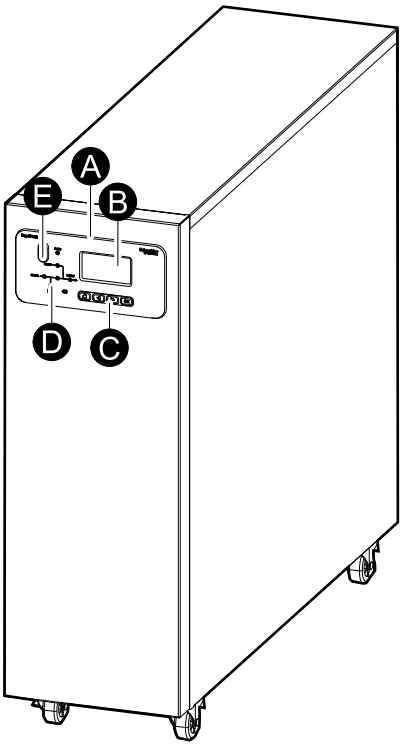
- Easy UPS 3S 10 kVA 208 V 3:3 UPS 15 minutes runtime (E3SUPS10KFB1) [2]
- Easy UPS 3S 15 kVA 208 V 3:3 UPS 9 minutes runtime (E3SUPS15KFB1) [2]
- Easy UPS 3S 20 kVA 208 V 3:3 UPS 10 minutes runtime (E3SUPS20KFB1) [2]

2. The product is not UL-certified.

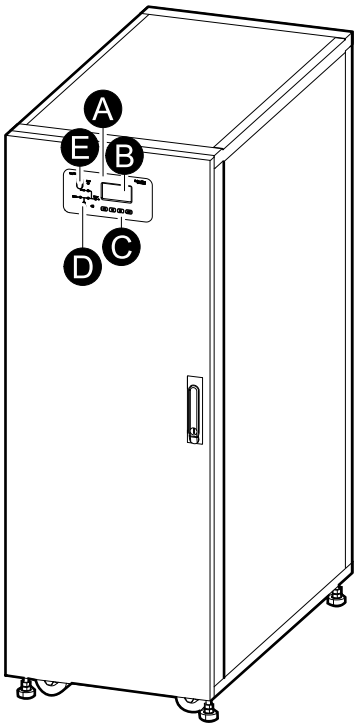
System Overview

A. User interface
B. Display interface
C. Keys
D. Status LEDs
E. EPO button

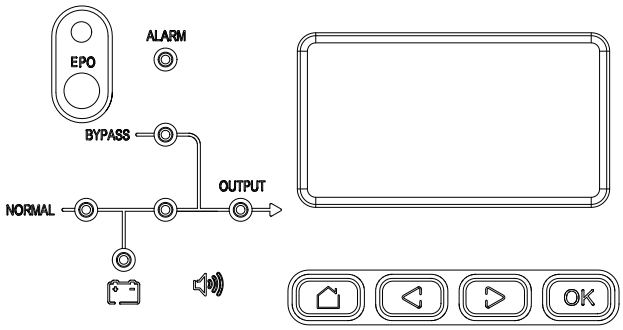
UPS for External Batteries



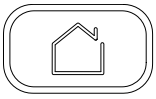
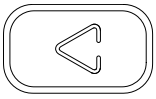
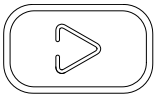
UPSs with Internal Batteries



User Interface



Keys

			
Home	Previous	Next	Confirm

EPO

Only use the EPO button in case of emergency.

It can be configured whether, when the EPO is activated, the UPS should:

- turn off the rectifier, inverter, charger, and static bypass and stop supplying the load immediately (default), or
- transfer to static bypass mode and continue supplying the load.

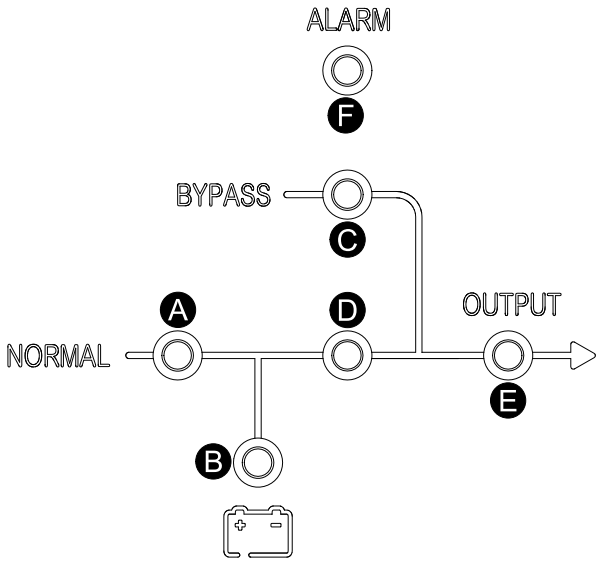
⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

The UPS control circuit will remain active after the EPO has been pushed if utility/mains is available.

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

Status LEDs

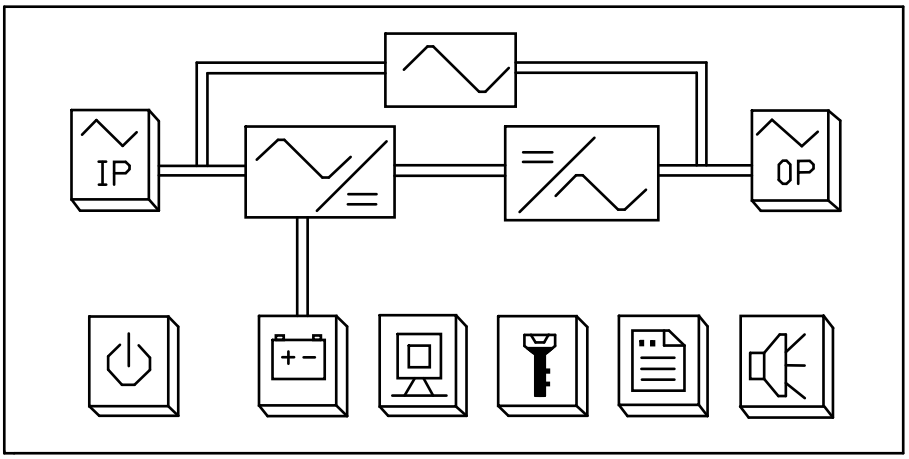


	LED	Status
A	Rectifier	Green: Rectifier is working correctly. Flashing green: Rectifier is starting up. Red: Rectifier is inoperable. Flashing red: Utility/mains is unavailable. OFF: Rectifier is off.
B	Battery	Green: Battery is charging. Flashing green: Battery is discharging. Red: Battery is inoperable. Flashing red: Battery low voltage. OFF: Battery and battery charger are OK, battery is not charging or discharging.
C	Bypass	Green: Load supplied by bypass source. Red: Bypass source is unavailable or static bypass switch is inoperable. Flashing red: Bypass voltage is out of tolerance. OFF: Bypass source is OK.
D	Inverter	Green: Load supplied by inverter. Flashing green: Inverter on, start, synchronization or standby (ECO mode). Red: Load not supplied by inverter, inverter is inoperable.

	LED	Status
		Flashing red: Load supplied by inverter, but an inverter alarm is present. OFF: Inverter is off.
E	Load	Green: UPS output is on. Red: Overload on UPS output for too long, or output has shorted, or no output power present. Flashing red: Overload on UPS output. OFF: UPS output is off.
F	Status	Green: UPS is OK. Red: Inoperable status.

Display Interface

Home Screen



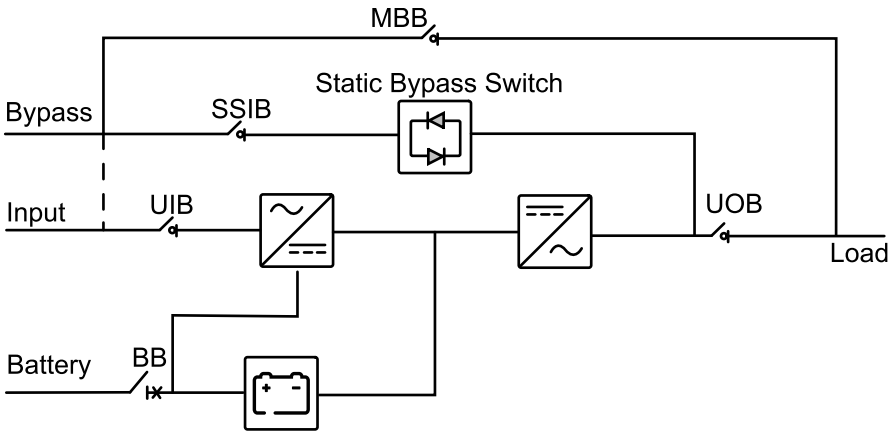
Buttons

							
Power On/ Off	Input and bypass status information	Output status information	Battery status information	UPS status	Function settings	Log	Mute

Overview of Single UPS

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

NOTE: Refer to Appendix: Switch/Breaker Details, page 65 for the disconnecting device type.

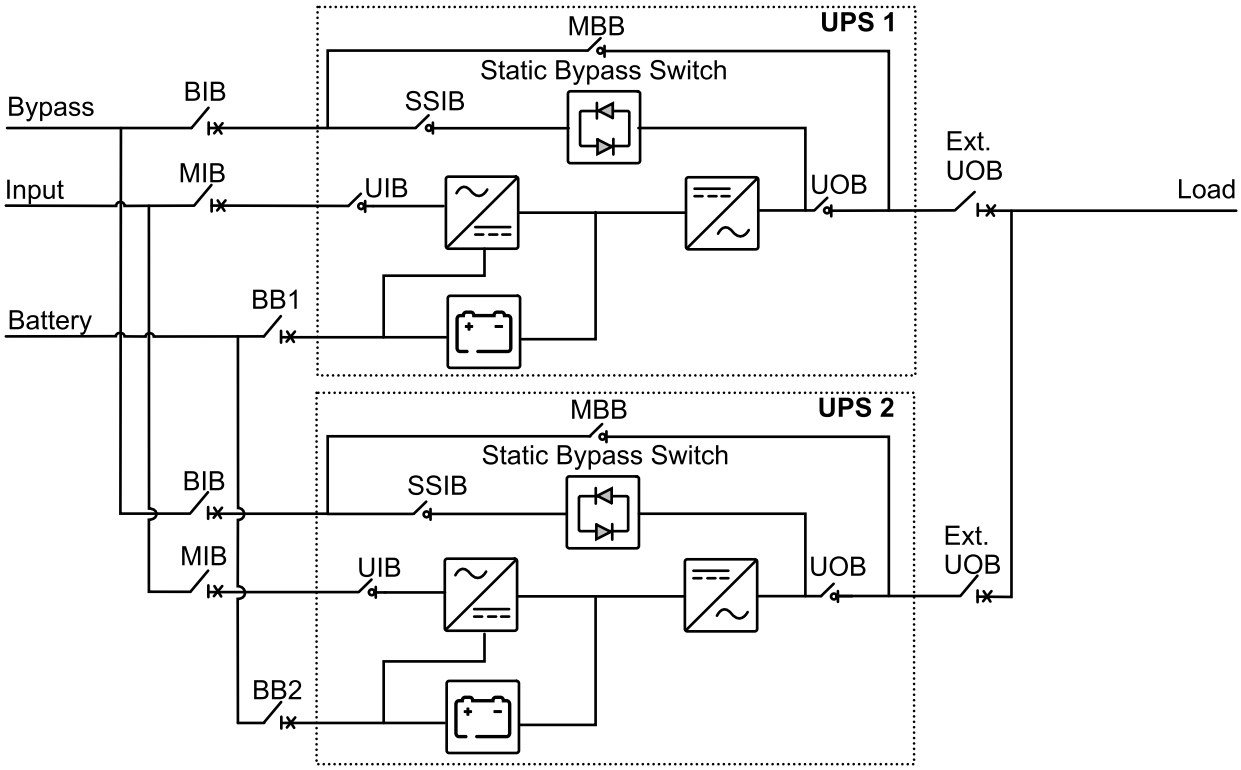


Overview of 1+1 Redundant Parallel System with Common Battery Bank

MIB	Mains input breaker/switch
BIB	Bypass input breaker/switch
UIB	Unit input breaker/switch
SSIB	Static switch input breaker/switch
UOB	Unit output breaker/switch
Ext. UOB	External unit output breaker/switch
MBB	Maintenance bypass breaker/switch
Ext. MBB	External maintenance bypass breaker/switch
BB1	Battery breaker/switch 1
BB2	Battery breaker/switch 2

NOTE: Refer to Appendix: Switch/Breaker Details, page 65 for the disconnecting device type.

NOTE: For UPS with internal batteries, the batteries must be removed and the internal battery breaker (BB) must be padlocked in the open (OFF) position.



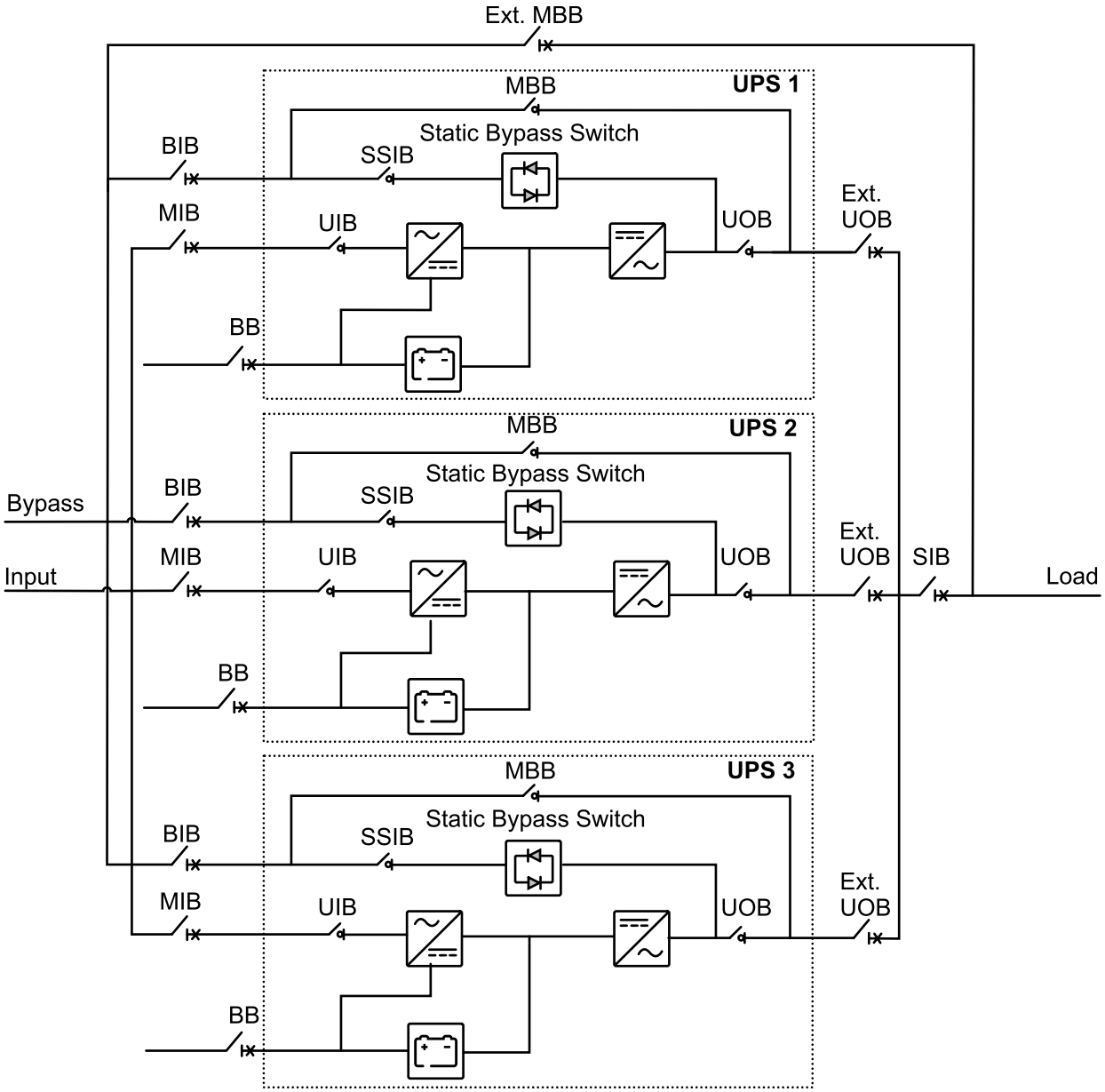
Overview of Parallel System

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

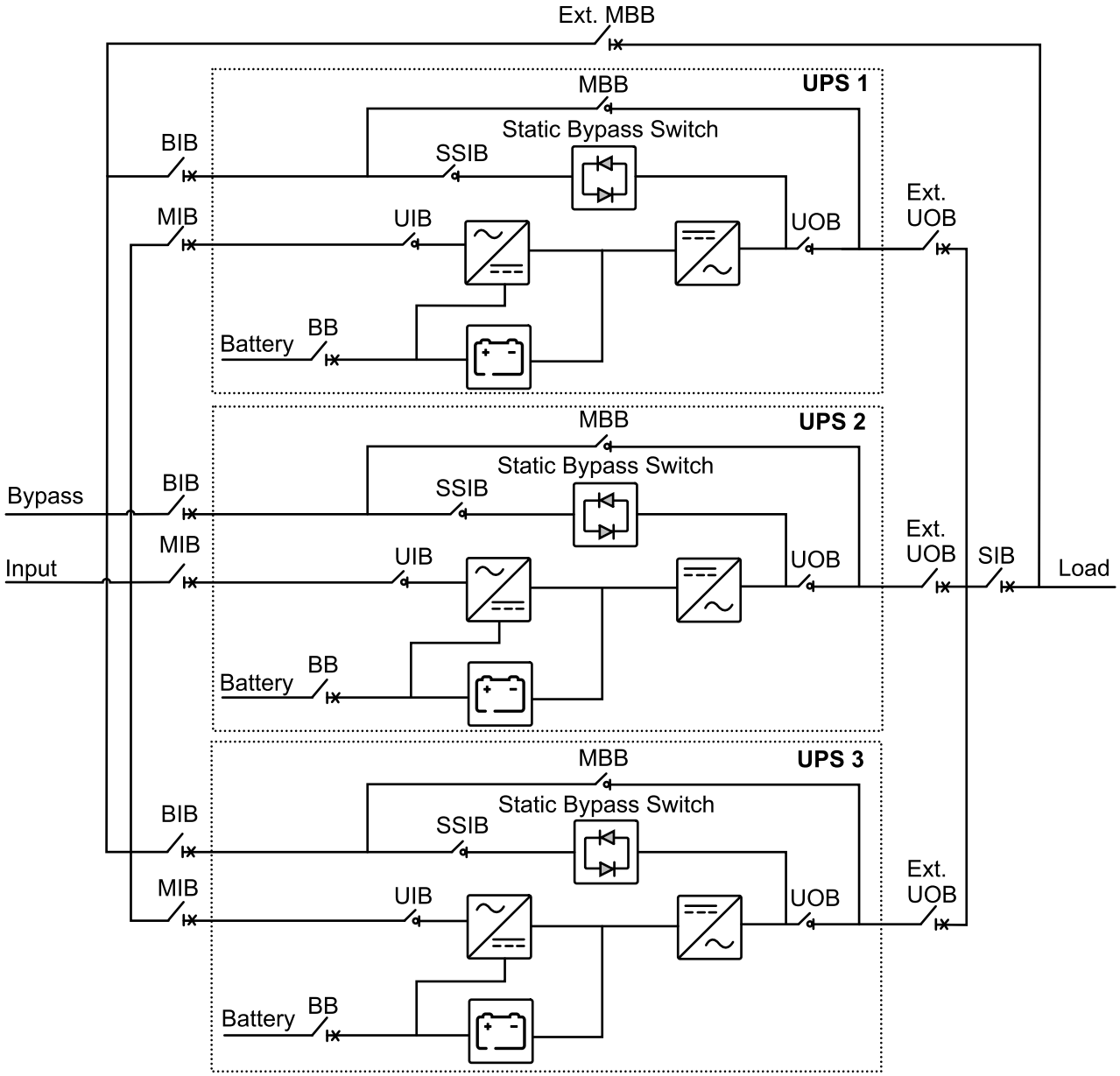
NOTE: Refer to Appendix: Switch/Breaker Details, page 65 for the disconnecting device type.

NOTE: In parallel systems with an external maintenance bypass breaker Ext. MBB, the maintenance bypass breakers/switches MBB must be padlocked in the open (OFF) position.

UPSs for External Batteries



UPSs for Internal Batteries



The impedance of the bypass paths need to be controlled in a parallel UPS system. When operating in bypass mode, the parallel load sharing is determined by the total impedance of the bypass path comprising cables, switchgear, static bypass switch, and cable formation.

NOTICE

RISK OF EQUIPMENT DAMAGE

To ensure correct load sharing in bypass operation in a parallel system, the following recommendations apply:

- The bypass cables must be the same length for all UPSs.
- The output cables must be the same length for all UPSs.
- The input cables must be the same length for all UPSs in a single mains system.
- Cable formation recommendations must be followed.
- The reactance of busbar layout in the bypass/input and output switchgear must be the same for all UPSs.

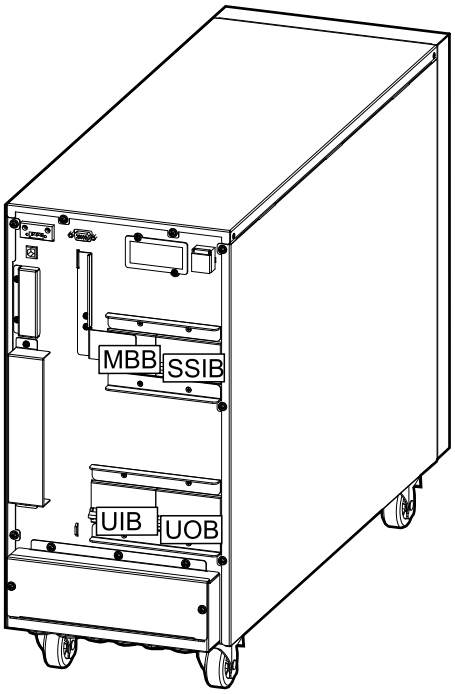
If the above recommendations are not followed the result can be uneven load sharing in bypass and overload of individual UPSs.

Failure to follow these instructions can result in equipment damage.

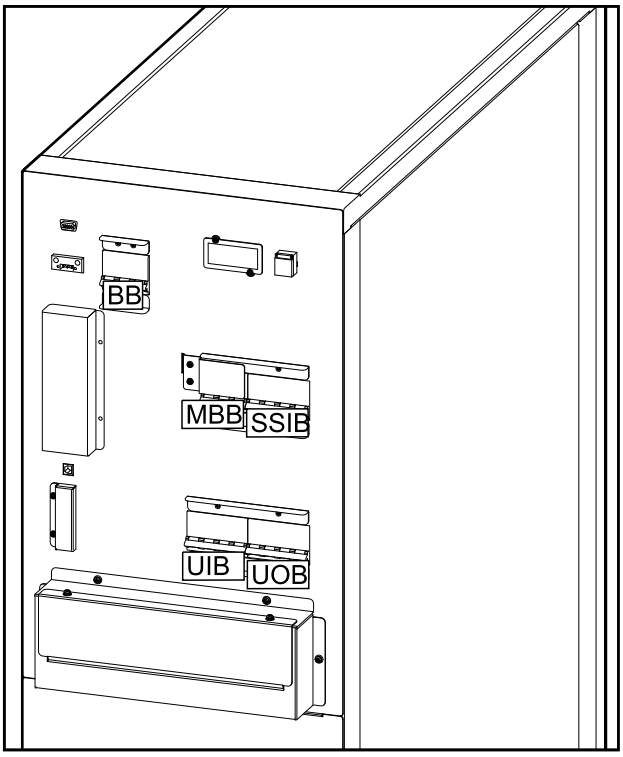
Location of Breakers - 400 V Systems

Location of Breakers in 3:3 UPSs

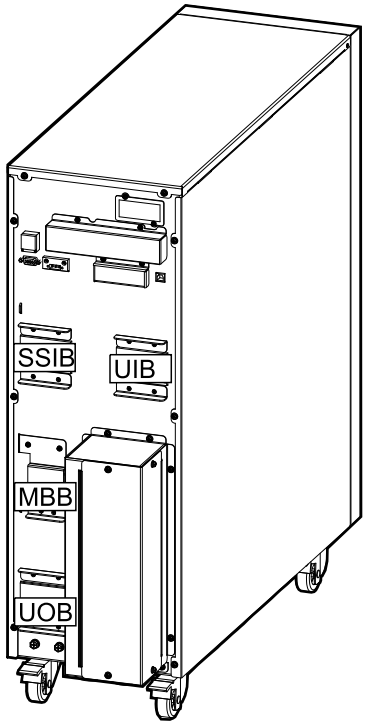
Rear View of the 10–15 kVA UPS for External Batteries



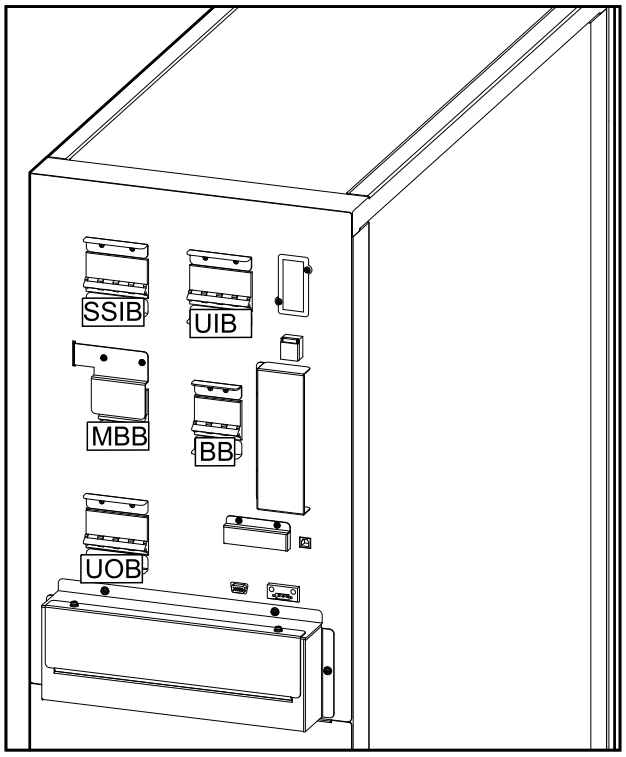
Rear View of the 10–15 kVA UPS with Internal Batteries



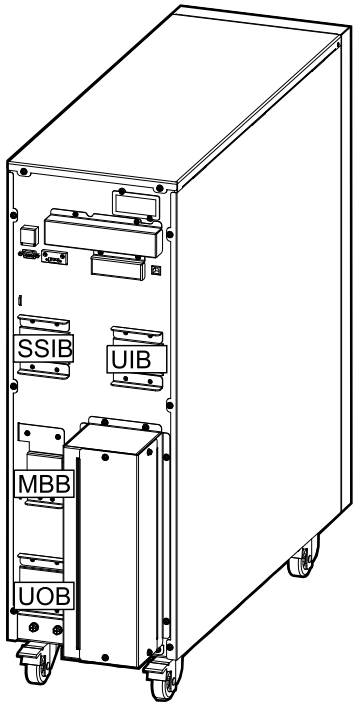
Rear View of the 20 kVA UPS for External Batteries



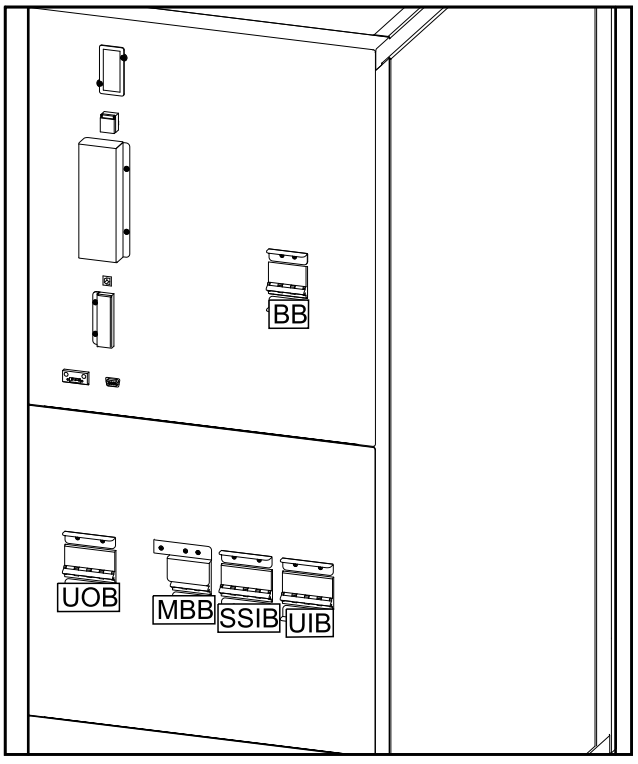
Rear View of the 20 kVA UPS with Internal Batteries



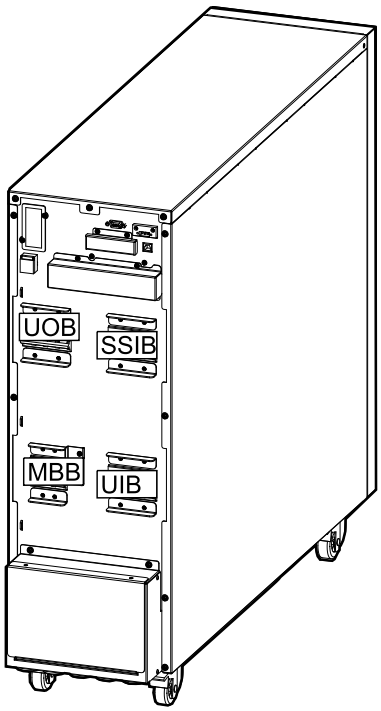
Rear View of the 30 kVA UPS for External Batteries



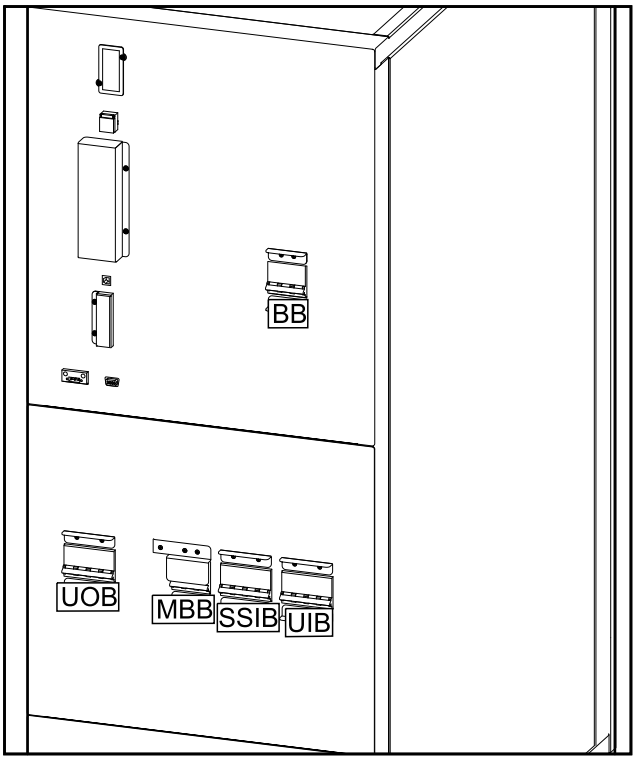
Rear View of the 30 kVA UPS with Internal Batteries



Rear View of the 40 kVA UPS for External Batteries

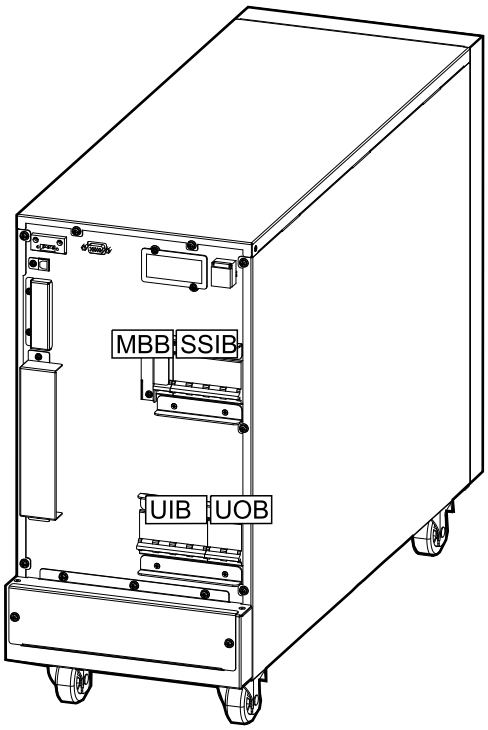


Rear View of the 40 kVA UPS with Internal Batteries

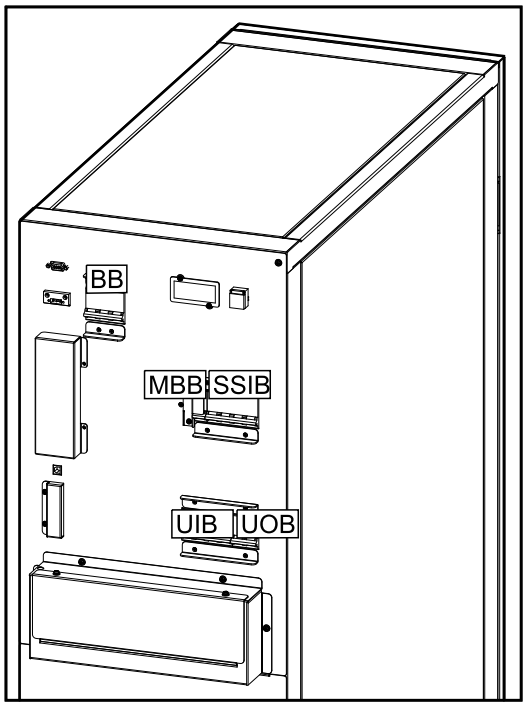


Location of Breakers in 3:1 UPSs

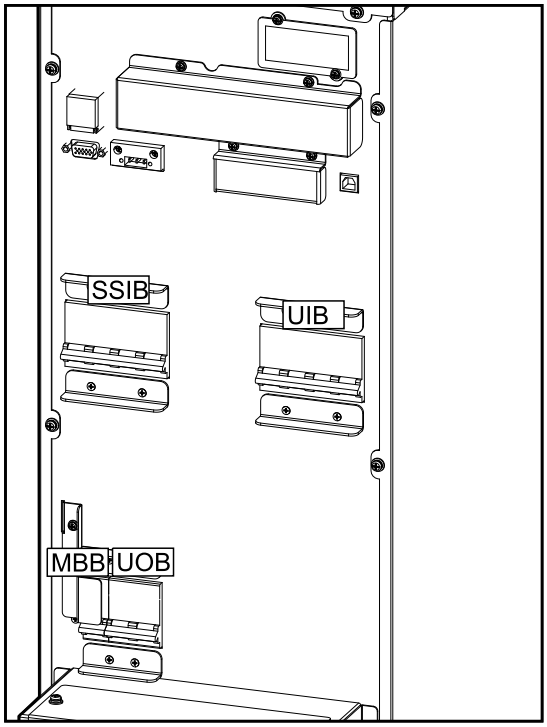
Rear View of the 10–15 kVA UPS for External Batteries



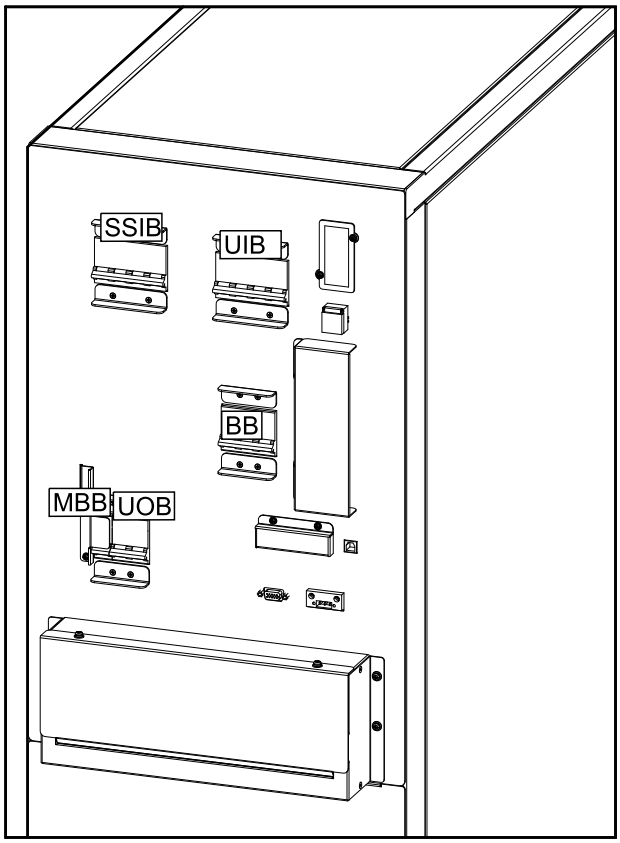
Rear View of the 10–15 kVA UPS with Internal Batteries



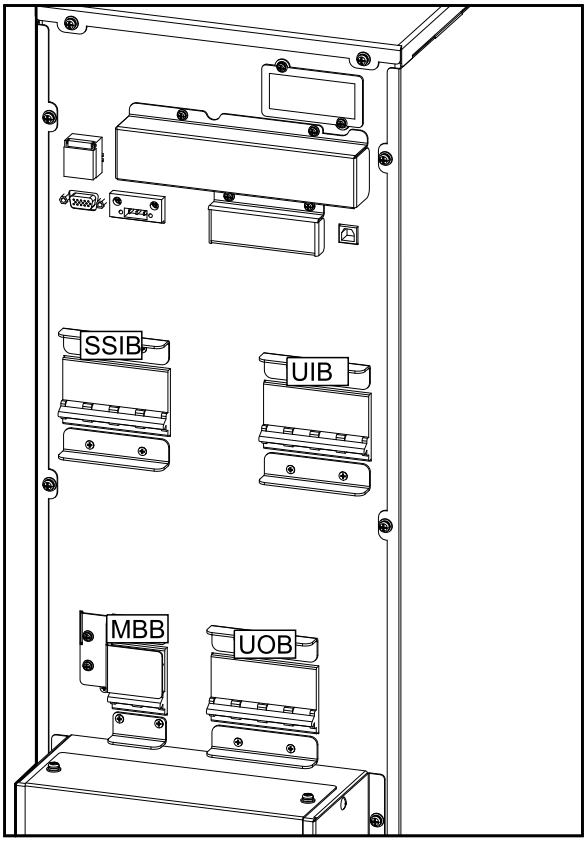
Rear View of the 20 kVA UPS for External Batteries



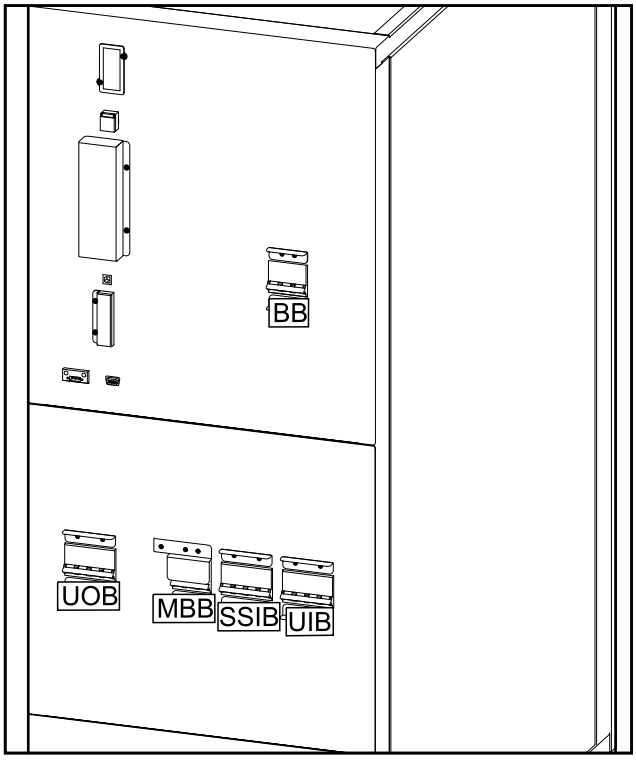
Rear View of the 20 kVA UPS with Internal Batteries



Rear View of the 30 kVA UPS for External Batteries



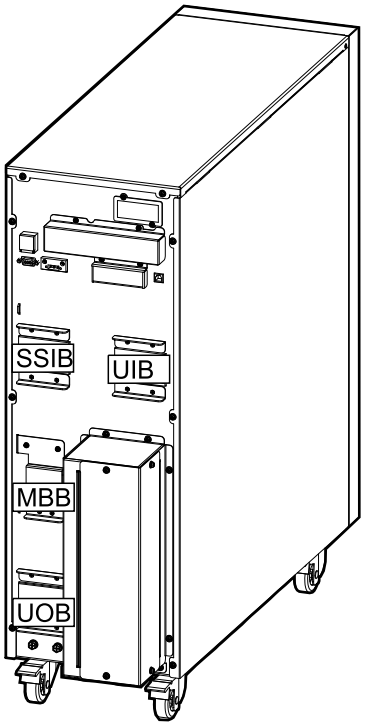
Rear View of the 30 kVA UPS with Internal Batteries



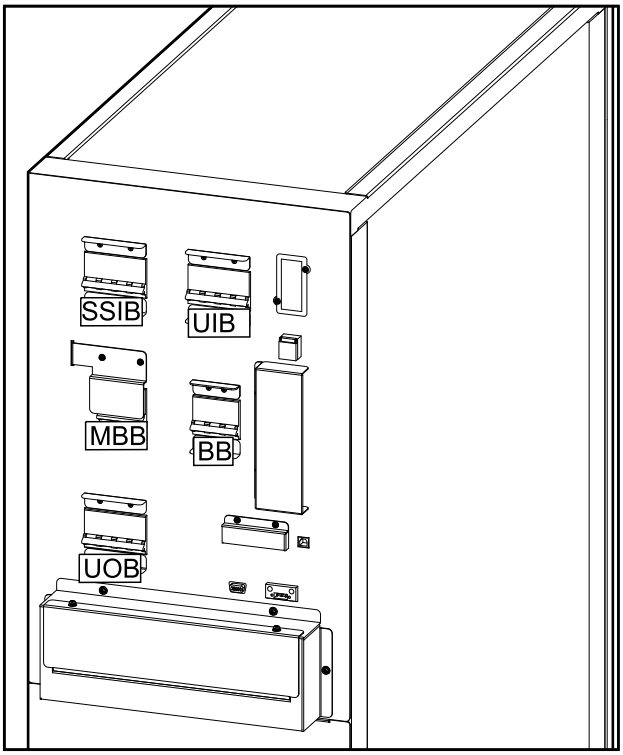
Location of Breakers - 208 V Systems

Location of Breakers in 3:3 UPSs

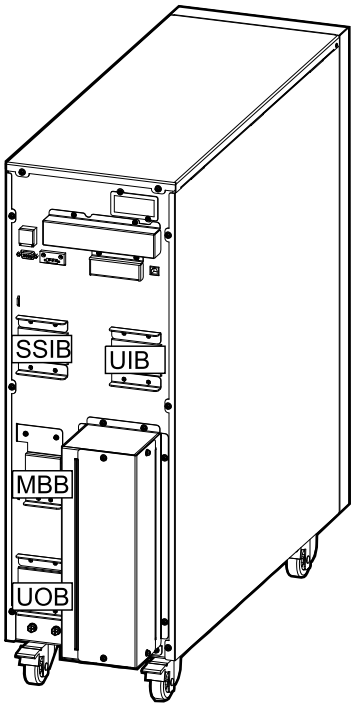
Rear View of the 10 kVA UPS for External Batteries



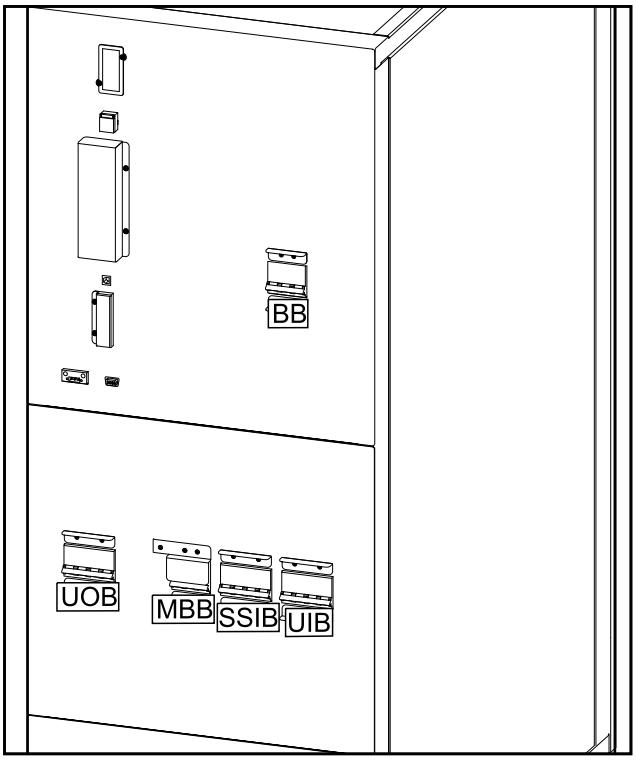
Rear View of the 10 kVA UPS with Internal Batteries



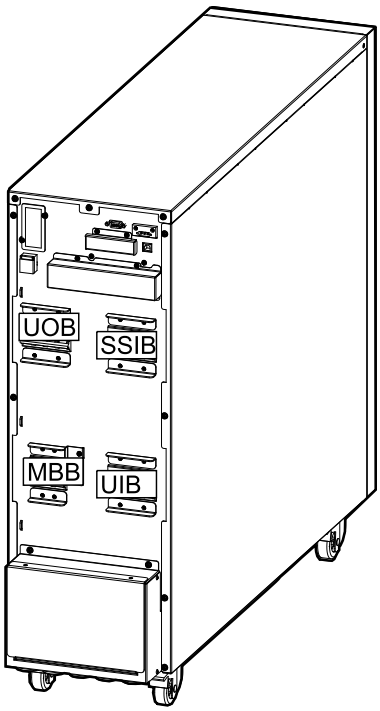
Rear View of the 15 kVA UPS for External Batteries



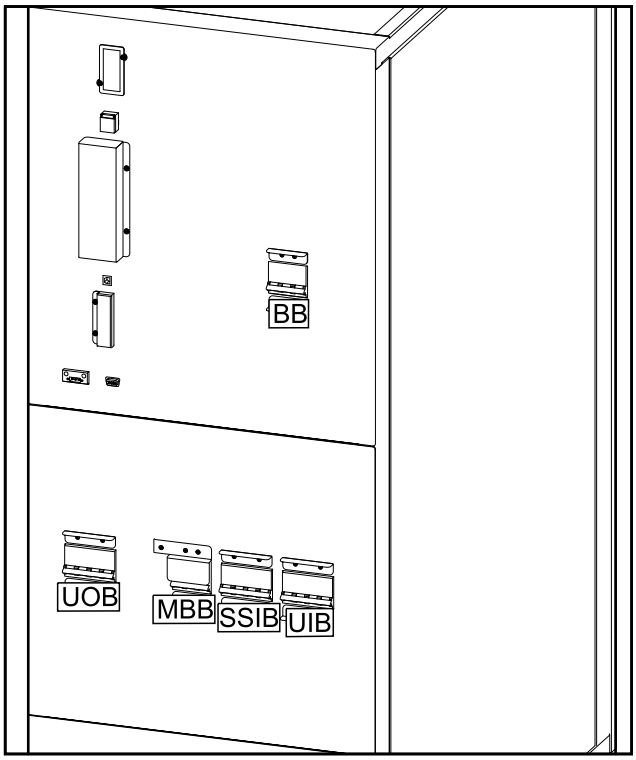
Rear View of the 15 kVA UPS with Internal Batteries



Rear View of the 20 kVA UPS for External Batteries



Rear View of the 20 kVA UPS with Internal Batteries



Technical Data

Technical Data for 400 V Systems

Input Power Factor

Input Power Factor – 3:3 UPSs

The values are at a 400 V, 50 Hz load.

	10 kVA	15 kVA	20 kVA	30 kVA	40 kVA
25% load	0.90	0.92	0.93	0.97	0.96
50% load	0.98	0.98	0.99	0.99	0.99
75% load	0.99	0.99	0.99	0.99	0.99
100% load	0.99	0.99	0.99	0.99	0.99

Input Power Factor – 3:1 UPSs

	10 kVA	15 kVA	20 kVA	30 kVA
25% load	0.96	0.97	0.94	0.96
50% load	0.99	0.99	0.99	0.99
75% load	0.99	0.99	0.99	0.99
100% load	0.99	0.99	0.99	0.99

Efficiency – 3:3 UPSs

Efficiency in Normal Mode

The values are at a 400 V, 50 Hz load.

	10 kVA	15 kVA	20 kVA	30 kVA	40 kVA
25% load	94.4	94.0	95.0	95.3	95.2
50% load	95.3	95.1	95.8	95.9	95.8
75% load	95.3	95.0	95.8	95.8	95.7
100% load	94.9	94.7	95.5	95.3	95.3

Efficiency in ECO Mode

	10 kVA	15 kVA	20 kVA	30 kVA	40 kVA
25% load	95.1	96.3	97.0	97.9	98.0
50% load	97.3	97.9	98.1	98.6	98.8
75% load	98.0	98.5	98.6	99.0	99.0
100% load	98.4	98.7	98.8	99.1	99.1

Efficiency in Battery Mode

	10 kVA	15 kVA	20 kVA	30 kVA	40 kVA
25% load	94.0	93.3	94.5	94.7	94.7
50% load	94.9	94.6	95.2	95.4	95.2
75% load	94.7	94.5	95.2	95.2	95.1
100% load	94.3	94.0	94.9	94.6	94.6

Efficiency – 3:1 UPSs

Efficiency in Normal Mode

The values are at a 400 V, 50 Hz load.

	10 kVA	15 kVA	20 kVA	30 kVA
25% load	94.2	94.2	94.6	95.1
50% load	95.2	95.0	95.5	95.6
75% load	94.9	94.8	95.3	95.2
100% load	94.4	94.4	95.0	94.7

Efficiency in ECO Mode

	10 kVA	15 kVA	20 kVA	30 kVA
25% load	94.0	94.9	95.2	96.4
50% load	96.2	96.7	97.4	98.0
75% load	97.3	97.6	98.0	98.5
100% load	97.8	98.1	98.4	98.7

Efficiency in Battery Mode

	10 kVA	15 kVA	20 kVA	30 kVA
25% load	94.0	93.3	94.5	94.7
50% load	94.9	94.6	95.2	95.4
75% load	94.7	94.5	95.2	95.2
100% load	94.3	94.0	94.9	94.6

Technical Data for 208 V Systems

Input Power Factor

Input Power Factor – 3:3 UPSs

The values are at 208 V, 60 Hz load.

	10 kVA	15 kVA	20 kVA
25% load	0.98	0.99	0.97
50% load	0.99	0.99	0.99
75% load	0.99	0.99	0.99
100% load	0.99	0.99	0.99

Efficiency – 3:3 UPSs

Efficiency in Normal Mode

The values are at a 208 V, 60 Hz load.

	10 kVA	15 kVA	20 kVA
25% load	90.7	92.8	93.1
50% load	92.1	92.9	93.5
75% load	91.9	92.0	92.7
100% load	91.6	91.1	92.1

Efficiency in ECO Mode

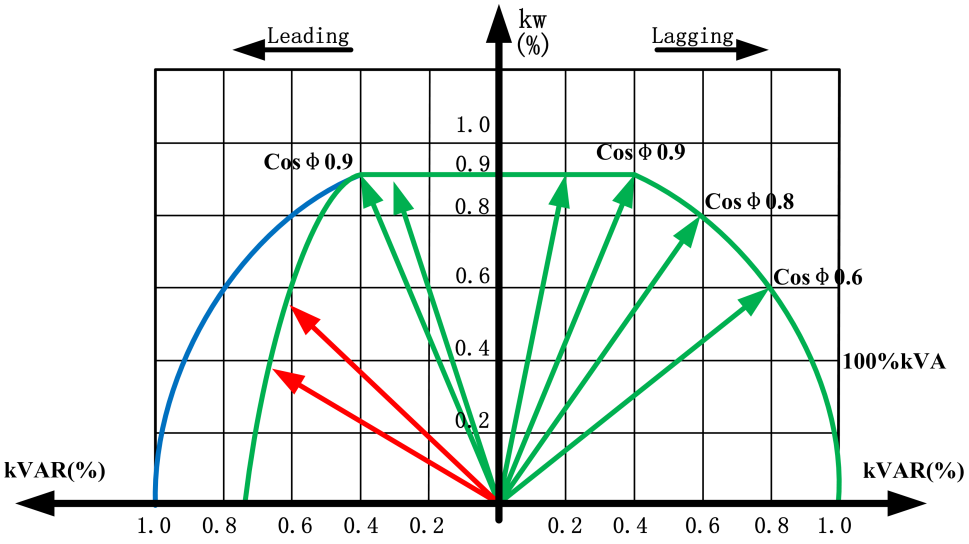
	10 kVA	15 kVA	20 kVA
25% load	96.5	96.1	96.5
50% load	97.5	97.3	97.5
75% load	97.8	97.4	98.6
100% load	98.0	97.7	98.0

Efficiency in Battery Mode

	10 kVA	15 kVA	20 kVA
25% load	90.4	92.4	92.6
50% load	91.8	93.3	93.4
75% load	92.0	92.8	93.0
100% load	91.8	91.8	92.5

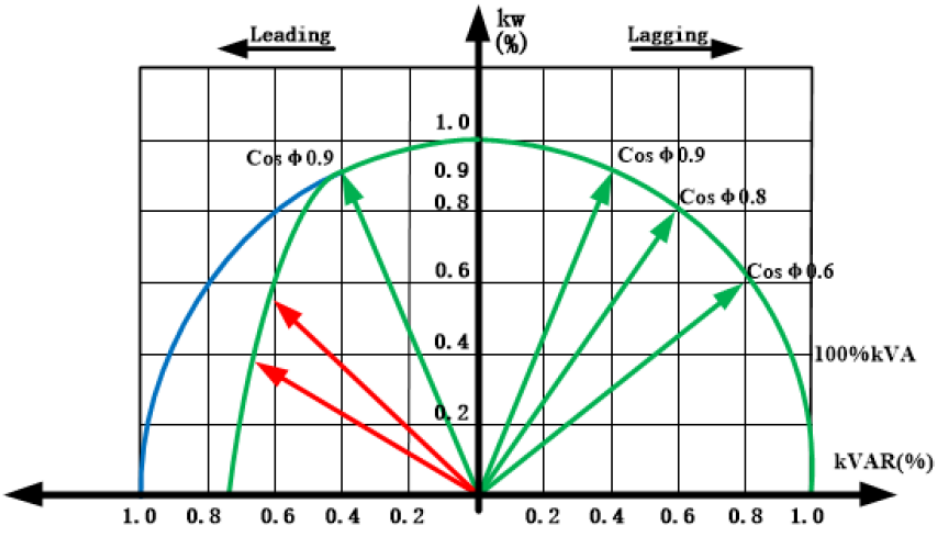
Derating Due to Load Power Factor

400 V Systems



For $0.9_{\text{lagging}} < \text{Cos}\Phi < 0.9_{\text{leading}}$

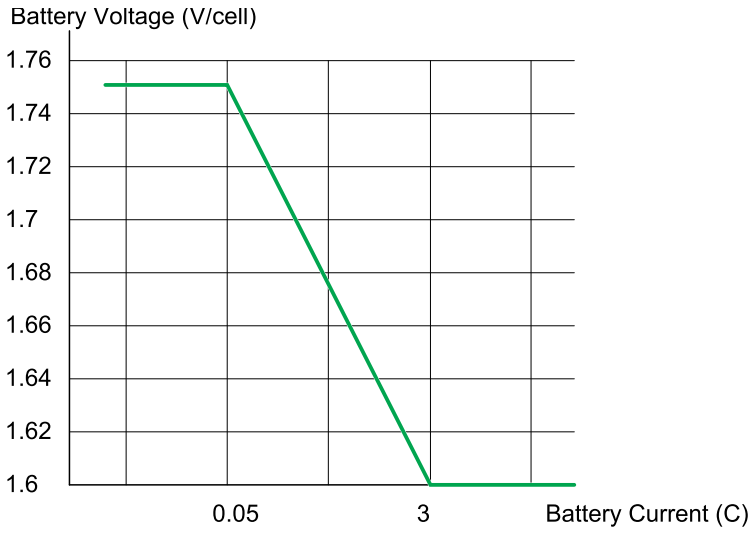
208 V Systems



For $1_{\text{lagging}} < \text{Cos}\Phi < 0.9_{\text{leading}}$

Batteries

End of Discharge Voltage



Battery Gassing Rates for Modular Battery Cabinets and UPSs with Internal Batteries

The battery gassing rates are calculated based on:

- Gassing Rate at 2.4 V/cell (ft3 /hr) assuming 97% recombination efficiency
- Six cells per battery module
- Ten batteries per cartridge

Commercial Reference	Description	Typical cm^3/hr (ml/hr)
E3SBTU	Standard battery module	10.73 (10.73)
E3SBT4	Standard battery string	42.93 (42.93)
E3SBTHU	High performance battery module	12.67 (12.67)
E3SBTH4[3]	High performance battery string	50.68 (50.68)

Electrolyte Values for Modular Battery Cabinet and UPSs with Internal Batteries

Commercial Reference	Description	Electrolyte Volume L (gal)	Electrolyte Weight kg (lbs)
E3SBTU	Standard battery module	3.780 (1)	5 (11.1)
E3SBT4	Standard battery string	15.120 (4)	20 (44.4)
E3SBTHU	High performance battery module	3.330 (0.9)	4.4 (9.8)
E3SBTH4	High performance battery string	13.320 (3.6)	17.6 (39.2)

3. Each battery string E3SBTH4 consists of four 9 Ah battery modules E3SBTHU.

Compliance

Safety	IEC 62040-1:2017, Edition 2.0, Uninterruptible power systems (UPS) – Part 1: Safety requirements IEC 62040-1: 2008-6, 1st edition, Uninterruptible Power Systems (UPS) – Part 1: General and safety requirements for UPS IEC 62040-1:2013-01, 1st edition amendment 1
EMC/EMI/RFI	IEC 62040-2:2016, Edition 3.0, Uninterruptible power systems (UPS) – Part 2: Electromagnetic compatibility (EMC) requirements. IEC 62040-2:2005-10, 2nd edition, Uninterruptible Power Systems (UPS) – Part 2: Electromagnetic compatibility (EMC) requirements
Performance	IEC 62040-3: 2011-03, 2nd edition Uninterruptible Power Systems (UPS) - Part 3: Method of specifying the performance and test requirements
Markings	CE, RCM, EAC, WEEE, UKCA
Transportation	ISTA 2B
Pollution degree	2
Overvoltage category	III
Earthing system	TN, TT, or IT

Communication and Management

- User interface with status LEDs and display
- RS232
- RS485
- SNMP
- Dry contacts
- USB

Facility Planning

Facility Planning for Easy UPS 3S 3:3 400 V

Input Specifications – 3:3 UPSs

	10 kVA			15 kVA			20 kVA			30 kVA			40 kVA		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**	**380**	**400**	**415**	**380**	**400**	**415**	**380**	**400**	**415**
Connections	L1, L2, L3, N, PE														
Input voltage range (V)	304–477														
Frequency range (Hz)	45–65														
Nominal input current (A)	16	15	15	24	23	22	32	31	30	48	46	44	65	61	59
Maximum input current (A)	19	18	18	29	28	26	38	37	36	58	55	53	78	73	71
Input current limitation (A)	22	20	20	33	31	30	44	42	41	65	63	60	89	83	80
Total harmonic distortion (THDI)	<3% for 10 kVA UPS <4% for 15–40 kVA UPS														
Input power factor	> 0.99														
Maximum input shortcircuit withstand	Icc=10 kA														
Protection	Circuit breaker and fuse									Fuse					
Ramp-in	15 seconds														

Bypass Specifications – 3:3 UPSs

	10 kVA			15 kVA			20 kVA			30 kVA			40 kVA		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**	**380**	**400**	**415**	**380**	**400**	**415**	**380**	**400**	**415**
Connections	L1, L2, L3, N, PE														
Overload capacity	125% continuous 125–130% for 10 minutes 130–150% for 1 minute >150% for 300 milliseconds														
Minimum bypass voltage (V)	304	320	332	304	320	332	304	320	332	304	320	332	304	320	332
Maximum bypass voltage (V)	437	460	477	437	460	477	437	460	477	437	460	477	437	460	477
Frequency (Hz)	50 or 60														
Nominal bypass current (A)	15	14	14	23	22	21	30	29	28	46	43	42	61	58	56
Maximum input short circuit withstand	Icc=10 kA														

Output Specifications – 3:3 UPSs

	10 kVA			15 kVA			20 kVA			30 kVA			40 kVA		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**	**380**	**400**	**415**	**380**	**400**	**415**	**380**	**400**	**415**
Connections	L1, L2, L3, N, PE														
Overload capacity	110% for 60 minutes 125% for 10 minutes 150% for 1 minute >150% for less than 200 milliseconds														
Output voltage tolerance	± 1%														
Dynamic load response	40 milliseconds														
Output power factor	1.0						1.0[4]								
Nominal output current (A)	15	14	14	23	22	21	30	29	28	46	43	42	61	58	56
Output short circuit current	52 A/246 ms			58 A/261 ms			82 A/255 ms			121 A/258 ms			181 A/253 ms		
Total harmonic distortion (THDU)	<1% at 100% balanced linear load <5.5% at 100% non-linear load														
Output frequency (Hz)	50 or 60														
Slew rate (Hz/sec)	Programmable: 0.1 to 5.0. Default is 2.0.														
Output performance classification (according to EN62040–3)	VFI-SS–111														

Battery Specifications – 3:3 UPSs with Internal Batteries

	10 kVA	15 kVA	20 kVA	30 kVA	40 kVA
Charging power	Programmable from 1% to 20% of UPS capacity. Default is 10%.				
Maximum charging power (W)	2000	3000	4000	6000	8000
Nominal battery voltage (VDC)	± 240				
Nominal float voltage (VDC)	± 270				
End of discharge voltage (full load) (VDC)	± 192				
End of discharge voltage (no load) (VDC)	± 210				
Battery current at full load and nominal battery voltage (A)	22	33	44	66	89
Battery current at full load and minimum battery voltage (A)	27	40	54	81	107
Temperature compensation (per cell)	Programmable from 0–5 mV. Default is 3 mV.				
Ripple current	< 5% C10				

4. When ambient temperature is below 30 °C. When the ambient temperature is above 30 °C, the power factor is 0.9.

Battery Specifications – 3:3 UPSs for External Batteries

	10 kVA	15 kVA	20 kVA	30 kVA	40 kVA
Charging power	Programmable from 1% to 20% of UPS capacity. Default is 10%.				
Maximum charging power (W)	2000	3000	4000	6000	8000
Nominal battery voltage (16–20 blocks) (VDC)	±192 to ± 240				
Nominal float voltage (16–20 blocks) (VDC)	± 216 to ± 270				
End of discharge voltage (16–20 blocks) (full load) (VDC)	± 153 to ± 192				
End of discharge voltage (16–20 blocks) (no load) (VDC)	± 168 to ± 210				
Battery current at full load and nominal battery voltage (16–20 blocks) (A)	28–22	42–33	55–44	83–66	111–89
Battery current at full load and minimum battery voltage (16–20 blocks) (A)	34–27	50–40	67–54	101–81	134–107
Temperature compensation (per cell)	Programmable from 0–5 mV. Default is 3 mV.				
Ripple current	< 5% C10				

Required Upstream Protection and Cable Sizes – 3:3 UPSs

NOTE: Overcurrent protection must be provided by others.

Cable sizes in this manual are based on table B.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 54.2 of IEC 60364-5-54.
- Specific to AC cables: Maximum length 70 m with a line voltage drop <3% installed on perforated cable trays, XLPE-type insulation, single layer trefoil formation, THDI between 15% and 33%, 35 °C at 400 V grouped in four touching cables
- Specific to DC cables: Maximum length 15 m with a line voltage drop <1%

NOTE: If neutral conductor is expected to carry a high current, due to line-neutral non-linear load, the circuit breaker must be rated according to expected neutral current.

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

10 kVA UPS

	Breaker type	Cable size per phase (mm^2)	PE cable size (mm^2))
Input – single mains Input – dual mains	iC65H-C-20A / C60H-C-20A iC65H-C-20A / C60H-C-20A	6	6
Bypass	iC65H-C-20A / C60H-C-20A	6	6
Output	C65N-B-4P-10A / C60N-B-4P-10A / C65N-B-4P-10A / C60N-C-4P-6A iC65N-4P-C4A	6	6
Battery	Compact NSX100F DC TM50D - 3P	8	8

15 kVA UPS

	Breaker type	Cable size per phase (mm^2)	PE cable size (mm^2))
Input – single mains Input – dual mains	iC65H-C-32A / C60H-C-32A iC65H-C-32A / C60H-C-32A	6	6
Bypass	iC65H-C-32A / C60H-C-32A	6	6
Output	C65N-B-4P-10A / C60N-B-4P-10A/ C65N-B-4P-10A / C60N-C-4P-6A iC65N-4P-C6A	6	6
Battery	Compact NSX100F DC TM63D - 3P	8	8

20 kVA UPS

	Breaker type	Cable size per phase (mm^2)	PE cable size (mm^2))
Input – single mains Input – dual mains	iC65H-C-40A / C60H-C-40A iC65H-C-40A / C60H-C-40A	10	10
Bypass	iC65H-C-40A / C60H-C-40A	10	10
Output	C65N-B-4P-10A / C60N-B-4P-10A/ C65N-B-4P-10A / C60N-C-4P-6A iC65N-4P-C6A	10	10
Battery	Compact NSX100F DC TM80D - 3P	25	16

30 kVA UPS

	Breaker type	Cable size per phase (mm^2)	PE cable size (mm^2))
Input – single mains Input – dual mains	iC65H-C-63A / C60H-C-63A / C120H-C-63A iC65H-C-63A / C60H-C-63A / C120H-C-63A	16	16
Bypass	iC65H-C-63A / C60H-C-63A / C120H-C-63A	16	16
Output	C65N-B-4P-16A / C60N-B-4P-16A / C65N-C-4P-10A / C60N-C-4P-10A iC65N-4P-C10A	16	16
Battery	Compact NSX160F DC TM125D - 3P	25	16

40 kVA UPS

	Breaker type	Cable size per phase (mm^2)	PE cable size (mm^2))
Input – single mains Input – dual mains	C120H-C-80A / NSX100F TM80C 80A C120H-C-80A / NSX100F TM80C 80A	25	16
Bypass	C120H-C-80A / NSX100F TM80C 80A	25	16
Output	C65N-B-4P-20A / C60N-B-4P-20A / C65N-C-4P-10A / C60N-C-4P-10A iC65N-4P-C10A	25	16
Battery	Compact NSX160F DC TM160D - 3P	35	16

NOTE:

- These protection devices ensures discrimination for each of the **Easy 3S** output circuits. If the recommended downstream protection is not installed and a short-circuit occurs, the result may be a break longer than 50 ms on all the other output circuits.
- The recommended output branch breakers are for reference only. Whether to include the output branch breakers in your circuit depends on your use cases.

UPS Weights and Dimensions – 3:3 UPSs

UPS	Weight kg	Height mm	Width mm	Depth mm
10 kVA UPS for external batteries	36	530	250	700
15 kVA UPS for external batteries	36	530	250	700
20 kVA UPS for external batteries	58	770	250	800
30 kVA UPS for external batteries	60	770	250	800
40 kVA UPS for external batteries	70	770	250	900
10 kVA UPS with internal batteries	112[5]	1400	380	928
15 kVA UPS with internal batteries	112[5]	1400	380	928
20 kVA UPS with internal batteries	122[5]	1400	380	928
30 kVA UPS with internal batteries	152[5]	1400	500	969
40 kVA UPS with internal batteries	158[5]	1400	500	969
Battery	27	157	107	760

UPS Shipping Weights and Dimensions – 3:3 UPSs

UPS	Weight kg	Height mm	Width mm	Depth mm
10 kVA UPS for external batteries	50	772	400	857
15 kVA UPS for external batteries	50	772	400	857
20 kVA UPS for external batteries	75	1015	400	982
30 kVA UPS for external batteries	77	1015	400	982
40 kVA UPS for external batteries	86	1015	400	1050
10 kVA UPS with internal batteries	145[5]	1640	563	1014
15 kVA UPS with internal batteries	145[5]	1640	563	1014
20 kVA UPS with internal batteries	158[5]	1640	563	1014
30 kVA UPS with internal batteries	190[5]	1640	683	1114
40 kVA UPS with internal batteries	195[5]	1640	683	1114
Battery	28	180	140	820

5. Weight without batteries

Facility Planning for Easy UPS 3S 3:1 400 V

Input Specifications – 3:1 UPSs

	10 kVA			15 kVA			20 kVA			30 kVA		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**	**380**	**400**	**415**	**380**	**400**	**415**
Connections	L1, L2, L3, N, PE											
Input voltage range (V)	304–477											
Frequency range (Hz)	45–65											
Nominal input current (A)	16	15	15	24	23	22	32	31	30	48	46	44
Maximum input current (A)	19	18	18	29	28	26	38	37	36	58	55	53
Input current limitation (A)	22	20	20	33	31	30	44	42	41	65	63	60
Total harmonic distortion (THDI)	<4% for 10 kVA UPS <5% for 15–30 kVA UPS											
Input power factor	> 0.99											
Maximum input shortcircuit withstand	Icc=10 kA											
Protection	Circuit breaker and fuse									Fuse		
Ramp-in	15 seconds											

Bypass Specifications – 3:1 UPSs

	10 kVA			15 kVA			20 kVA			30 kVA		
Voltage (V)	**220**	**230**	**240**	**220**	**230**	**240**	**220**	**230**	**240**	**220**	**230**	**240**
Connections	L, N, PE											
Overload capacity	125% continuous 125–130% for 10 minutes 130–150% for 1 minute >150% for 300 milliseconds											
Minimum bypass voltage (V)	176	184	192	176	184	192	176	184	192	176	184	192
Maximum bypass voltage (V)	253	264	276	253	264	276	253	264	276	253	264	276
Frequency (Hz)	50 or 60											
Nominal bypass current (A)	46	43	42	69	66	63	91	87	84	137	131	125
Maximum input short circuit withstand	Icc=10 kA											

Output Specifications – 3:1 UPSs

	10 kVA			15 kVA			20 kVA			30 kVA		
Voltage (V)	**220**	**230**	**240**	**220**	**230**	**240**	**220**	**230**	**240**	**220**	**230**	**240**
Connections	L, N, PE											
Overload capacity	110% for 60 minutes 125% for 10 minutes 150% for 1 minute >150% for less than 200 milliseconds											
Output voltage tolerance	± 1%											
Dynamic load response	40 milliseconds											
Output power factor	1.0						1.0[6]					
Nominal output current (A)	46	43	42	69	66	63	91	87	84	137	131	125
Output short circuit current	154 A/242 ms			168 A/242 ms			236 A/247 ms			339 A/239 ms		
Total harmonic distortion (THDU)	<1% at 100% balanced linear load <5.5% at 100% non-linear load											
Output frequency (Hz)	50 or 60											
Slew rate (Hz/sec)	Programmable: 0.1 to 5.0. Default is 2.0.											
Output performance classification (according to EN62040–3)	VFI-SS–111											

Battery Specifications – 3:1 UPSs with Internal Batteries

	10 kVA	15 kVA	20 kVA	30 kVA
Charging power	Programmable from 1% to 20% of UPS capacity. Default is 10%.			
Maximum charging power (W)	2000	3000	4000	6000
Nominal battery voltage (VDC)	± 240			
Nominal float voltage (VDC)	± 270			
End of discharge voltage (full load) (VDC)	± 198			
End of discharge voltage (no load) (VDC)	± 210			
Battery current at full load and nominal battery voltage (A)	22	33	44	66
Battery current at full load and minimum battery voltage (A)	27	40	54	81
Temperature compensation (per cell)	Programmable from 0–5 mV. Default is 3 mV.			
Ripple current	< 5% C10			

6. When ambient temperature is below 30 °C. When the ambient temperature is above 30 °C, the power factor is 0.9.

Battery Specifications – 3:1 UPSs for External Batteries

	10 kVA	15 kVA	20 kVA	30 kVA
Charging power	Programmable from 1% to 20% of UPS capacity. Default is 10%.			
Maximum charging power (W)	2000	3000	4000	6000
Nominal battery voltage (16–20 blocks) (VDC)	± 192 to ± 240			
Nominal float voltage (16–20 blocks) (VDC)	± 216 to ± 270			
End of discharge voltage (16–20 blocks) (full load) (VDC)	± 158 to ± 198			
End of discharge voltage (16–20 blocks) (no load) (VDC)	± 168 to ± 210			
Battery current at full load and nominal battery voltage (16–20 blocks) (A)	28–22	42–33	55–44	83–66
Battery current at full load and minimum battery voltage (16–20 blocks) (A)	34–27	50–40	67–54	101–81
Temperature compensation (per cell)	Programmable from 0–5 mV. Default is 3 mV.			
Ripple current	< 5% C10			

Required Upstream and Downstream Protection and Cable Sizes – 3:1 UPSs

NOTE: Overcurrent protection must be provided by others.

Cable sizes in this manual are based on table B.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 54.2 of IEC 60364-5-54
- Specific to AC cables: Maximum length 70 m with a line voltage drop <3% installed on perforated cable trays, XLPE-type insulation, single layer trefoil formation, THDI between 15% and 33% , 35 °C at 400 V grouped in four touching cables
- Specific to DC cables: Maximum length 15 m with a line voltage drop <1%

NOTE: If neutral conductor is expected to carry a high current, due to line-neutral non-linear load, the circuit breaker must be rated according to expected neutral current.

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

10 kVA UPS

	Breaker type	Cable size per phase (mm^2)	PE cable size (mm^2))
Input – single mains Input – dual mains	iC65H-C-50A / C60H-C-50A iC65H-C-20A / C60H-C-20A	16 6	16 6
Bypass	iC65H-C-50A / C60H-C-50A	16	16
Output	C65N-B-2P-25A/ C60N-B-2P-25A	16	16
Battery	Compact NSX100F DC TM50D - 3P	8	8

15 kVA UPS

	Breaker type	Cable size per phase (mm^2)	PE cable size (mm^2))
Input – single mains Input – dual mains	C120H-C-80A / NSX100F TM80C 80A iC65H-C-32A / C60H-C-32A	25 6	16 6
Bypass	C120H-C-80A / NSX100F TM80C 80A	25	16
Output	C65N-B-2P-25A/ C60N-B-2P-25A	25	16
Battery	Compact NSX100F DC TM63D - 3P	8	8

20 kVA UPS

	Breaker type	Cable size per phase (mm^2)	PE cable size (mm^2))
Input – single mains Input – dual mains	C120H-C-100A / NSX100F TM100C 100A iC65H-C-40A / C60H-C-40A	35 10	16 10
Bypass	C120H-C-100A / NSX100F TM100C 100A	35	16
Output	C65N-B-2P-32A/ C60N-B-2P-32A	35	16
Battery	Compact NSX100F DC TM80D - 3P	16	16

30 kVA UPS

	Breaker type	Cable size per phase (mm^2)	PE cable size (mm^2))
Input – single mains Input – dual mains	Compact NSX160F TM160C 160A iC65H-C-63A / C60H-C-63A / C120H-C-63A	50 16	25 16
Bypass	Compact NSX160F TM160C 160A	50	25
Output	C65N-B-2P-50A/ C60N-B-2P-50A	50	25
Battery	Compact NSX160F DC TM125D - 3P	25	16

NOTE:

- These protection device ensures discrimination for each of the Easy 3S output circuits.
- If the recommended downstream protection is not installed and a short-circuit occurs, the result may be a break longer than 50 ms on all the other output circuits.
- The recommended output branch breakers are for reference only. Whether to include the output branch breakers in your circuit depends on your use cases.

Weights and Dimensions – 3:1 UPSs

UPS	Weight kg	Height mm	Width mm	Depth mm
10 kVA 3:1 UPS for external batteries	36	530	250	700
15 kVA 3:1 UPS for external batteries	36	530	250	700
20 kVA 3:1 UPS for external batteries	58	770	250	800

UPS	Weight kg	Height mm	Width mm	Depth mm
30 kVA 3:1 UPS for external batteries	60	770	250	800
10 kVA 3:1 UPS with internal batteries	130[7]	1400	380	907
15 kVA 3:1 UPS with internal batteries	130[7]	1400	380	907
20 kVA 3:1 UPS with internal batteries	150[7]	1400	380	907
30 kVA 3:1 UPS with internal batteries	185[7]	1400	500	996
Battery	27	157	107	760

Shipping Weights and Dimensions – 3:1 UPSs

UPS	Weight kg	Height mm	Width mm	Depth mm
10 kVA 3:1 UPS for external batteries	50	772	400	857
15 kVA 3:1UPS for external batteries	50	772	400	857
20 kVA 3:1 UPS for external batteries	75	1015	400	982
30 kVA 3:1 UPS for external batteries	77	1015	400	982
10 kVA 3:1 UPS with internal batteries	145[7]	1640	563	1014
15 kVA 3:1 UPS with internal batteries	145[7]	1640	563	1014
20 kVA 3:1 UPS with internal batteries	158[7]	1640	563	1014
30 kVA 3:1 UPS with internal batteries	185[7]	1640	683	1114
Battery	28	180	140	820

7. Weight without batteries.

Facility Planning for Easy UPS 3S 3:3 208 V

Input Specifications – 3:3 UPSs

	10 kVA			15 kVA			20 kVA		
Voltage (V)	**200**	**208**	**220**	**200**	**208**	**220**	**200**	**208**	**220**
Connections	L1, L2, L3, N, PE								
Input voltage range (V)	180-253								
Frequency range (Hz)	45–65								
Nominal input current (A)	32	31	29	48	46	43	63	61	58
Maximum input current (A)	36	34	32	53	51	49	70	68	65
Input current limitation (A)	42	40	38	63	60	57	83	80	76
Total harmonic distortion (THDI)	<4%								
Input power factor	> 0.99								
Maximum input shortcircuit withstand	Icc=10 kA								
Protection	Circuit breaker and fuse			Fuse					
Ramp-in	15 seconds								

Bypass Specifications – 3:3 UPSs

	10 kVA			15 kVA			20 kVA		
Voltage (V)	**200**	**208**	**220**	**200**	**208**	**220**	**200**	**208**	**220**
Connections	L1, L2, L3, N, PE								
Overload capacity	110% continuous 110–120% for 10 minutes 120–135% for 1 minute >135% for 300 milliseconds								
Minimum bypass voltage (V)	180	187	198	180	187	198	180	187	198
Maximum bypass voltage (V)	230	240	253	230	240	253	230	240	253
Frequency (Hz)	50 or 60								
Nominal bypass current (A)	29	28	27	44	42	40	58	56	53
Maximum input short circuit withstand	Icc=10 kA								

Output Specifications – 3:3 UPSs

	10 kVA			15 kVA			20 kVA		
Voltage (V)	**200**	**208**	**220**	**200**	**208**	**220**	**200**	**208**	**220**
Connections	L1, L2, L3, N, PE								
Overload capacity	110% for 60 minutes 125% for 10 minutes 150% for 1 minute >150% for less than 200 milliseconds								
Output voltage tolerance	± 1%								
Dynamic load response	40 milliseconds								
Output power factor	1.0								
Nominal output current (A)	29	28	27	44	42	40	58	56	53
Output short circuit current	77 A/223 ms			111 A/248 ms			177 A/252 ms		
Total harmonic distortion (THDU)	<2% at 100% linear load <6% at 100% non-linear load								
Output frequency (Hz)	50 or 60								
Slew rate (Hz/sec)	Programmable: 0.1 to 5.0. Default is 2.0.								
Output performance classification (according to EN62040–3)	VFI-SS–111								

Battery Specifications – 3:3 UPSs with Internal Batteries

	10 kVA	15 kVA	20 kVA
Charging power	Programmable from 1% to 20% of UPS capacity. Default is 10%.		
Maximum charging power (W)	2000	3000	4000
Nominal battery voltage (VDC)	± 120		
Nominal float voltage (VDC)	± 135		
End of discharge voltage (full load) (VDC)	± 96		
End of discharge voltage (no load) (VDC)	± 105		
Battery current at full load and nominal battery voltage (A)	46	68	92
Battery current at full load and minimum battery voltage (A)	56	83	111
Temperature compensation (per cell)	Programmable from 0-5 mV. Default is 3 mV.		
Ripple current	< 5% C10		

Battery Specifications – 3:3 UPSs for External Batteries

	10 kVA	15 kVA	20 kVA
Charging power	Programmable from 1% to 20% of UPS capacity. Default is 10%.		
Maximum charging power (W)	2000	3000	4000
Nominal battery voltage (10 blocks) (VDC)	±120		
Nominal float voltage (10 blocks) (VDC)	± 135		
End of discharge voltage (10 blocks) (full load) (VDC)	± 96		
End of discharge voltage (10 blocks) (no load) (VDC)	± 105		
Battery current at full load and nominal battery voltage (10 blocks) (A)	46	68	92
Battery current at full load and minimum battery voltage (10 blocks) (A)	56	83	111
Temperature compensation (per cell)	Programmable from 0–5 mV. Default is 3 mV.		
Ripple current	< 5% C10		

Required Upstream Protection and Cable Sizes – 3:3 UPSs

NOTE: Overcurrent protection must be provided by others.

Cable sizes in this manual are based on table B.52.5 of IEC 60364-5-52 with the following assertions:

- 90 °C conductors
- Ambient temperature of 30 °C
- Use of copper conductors
- Installation method C
- PE size is based on table 54.2 of IEC 60364-5-54.
- Specific to AC cables: Maximum length 70 m with a line voltage drop <3% installed on perforated cable trays, XLPE-type insulation, single layer trefoil formation, THDI between 15% and 33%, 35 °C at 208 V grouped in four touching cables
- Specific to DC cables: Maximum length 15 m with a line voltage drop <1%

NOTE: If neutral conductor is expected to carry a high current, due to line-neutral non-linear load, the circuit breaker must be rated according to expected neutral current.

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

10 kVA UPS

	Breaker type	Cable size per phase (mm^2)	PE cable size (mm^2))
Input – single mains Input – dual mains	iC65H-C-40A / C60H-C-40A iC65H-C-40A / C60H-C-40A	10	10
Bypass	iC65H-C-40A / C60H-C-40A	10	10
Output	C65N-B-4P-10A / C60N-B-4P-10A / C65N-B-4P-10A / C60N-C-4P-6A	10	10
Battery	Compact NSX100F DC TM80D - 3P	25	16

15 kVA UPS

	Breaker type	Cable size per phase (mm^2)	PE cable size (mm^2))
Input – single mains Input – dual mains	iC65H-C-63A / C60H-C-63A / C120H-C-63A iC65H-C-63A / C60H-C-63A / C120H-C-63A	16	16
Bypass	iC65H-C-63A / C60H-C-63A / C120H-C-63A	16	16
Output	C65N-B-4P-16A / C60N-B-4P-16A / C65N-C-4P-10A / C60N-C-4P-10A	16	16
Battery	Compact NSX160F DC TM125D - 3P	25	16

20 kVA UPS

	Breaker type	Cable size per phase (mm^2)	PE cable size (mm^2))
Input – single mains Input – dual mains	C120H-C-80A / NSX100F TM80C 80A C120H-C-80A / NSX100F TM80C 80A	25	16
Bypass	C120H-C-80A / NSX100F TM80C 80A	25	16
Output	C65N-B-4P-20A / C60N-B-4P-20A / C65N-C-4P-10A / C60N-C-4P-10A	25	16
Battery	Compact NSX160F DC TM160D - 3P	35	16

NOTE:

- These protection devices ensures discrimination for each of the **Easy 3S** output circuits. If the recommended downstream protection is not installed and a short-circuit occurs, the result may be a break longer than 50 ms on all the other output circuits.
- The recommended output branch breakers are for reference only. Whether to include the output branch breakers in your circuit depends on your use cases.

UPS Weights and Dimensions – 3:3 UPSs

UPS	Weight kg	Height mm	Width mm	Depth mm
10 kVA UPS for external batteries	58	770	250	800
15 kVA UPS for external batteries	60	770	250	800
20 kVA UPS for external batteries	70	770	250	900
10 kVA UPS with internal batteries	122[8]	1400	380	928
15 kVA UPS with internal batteries	152[8]	1400	500	969
20 kVA UPS with internal batteries	158[8]	1400	500	969
Battery	27	157	107	760

8. Weight without batteries

UPS Shipping Weights and Dimensions – 3:3 UPSs

UPS	Weight kg	Height mm	Width mm	Depth mm
10 kVA UPS for external batteries	75	1015	400	982
15 kVA UPS for external batteries	77	1015	400	982
20 kVA UPS for external batteries	86	1015	400	1050
10 kVA UPS with internal batteries	158[9]	1640	563	1014
15 kVA UPS with internal batteries	190[9]	1640	683	1114
20 kVA UPS with internal batteries	195[9]	1640	683	1114
Battery	28	180	140	820

Recommended Bolts and Cable Lugs

Cable Size (mm^2)	Bolt Size	Cable Lug Type	Note
6	M5	KST TLK6-5	If the recommended lug type is not available, use a local M5 lug type as a substitute.
8	M5	KST RNBS8-5	
10	M6	KST TLK10-6	If the recommended lug type is not available, use a local M6 lug type as a substitute.
16	M6	KST TLK16-6	
25	M6	KST DRNB6-25	
35	M6	KST TLK35-6	
50	M8	KST TLK50-8	If the recommended lug type is not available, use a local M8 lug type as a substitute.

Torque Specifications

Bolt Size	Torque
M5	4 Nm
M6	5 Nm
M8	12 Nm

Clearance

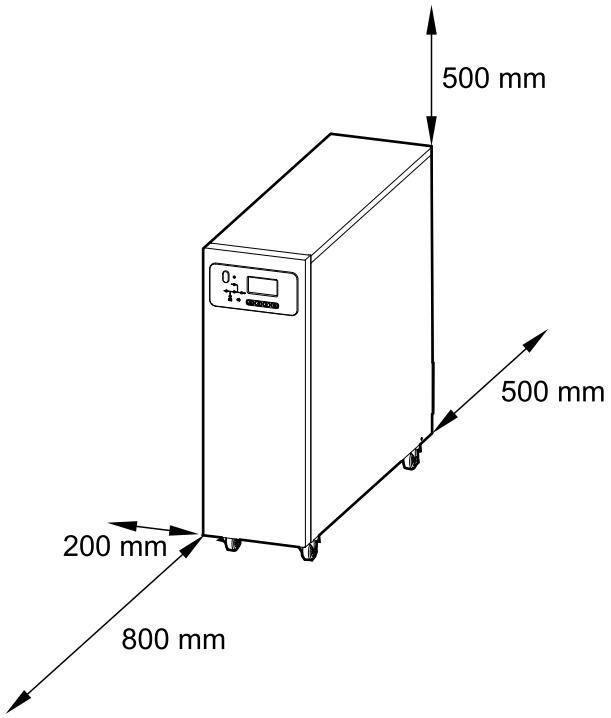
NOTE: Clearance dimensions are published for airflow and service access only. Consult with the local safety codes and standards for additional requirements in your local area.

NOTE: If the UPS is installed without side access (Option A*), the length of the cables connected to the UPS must allow for rolling out the UPS.

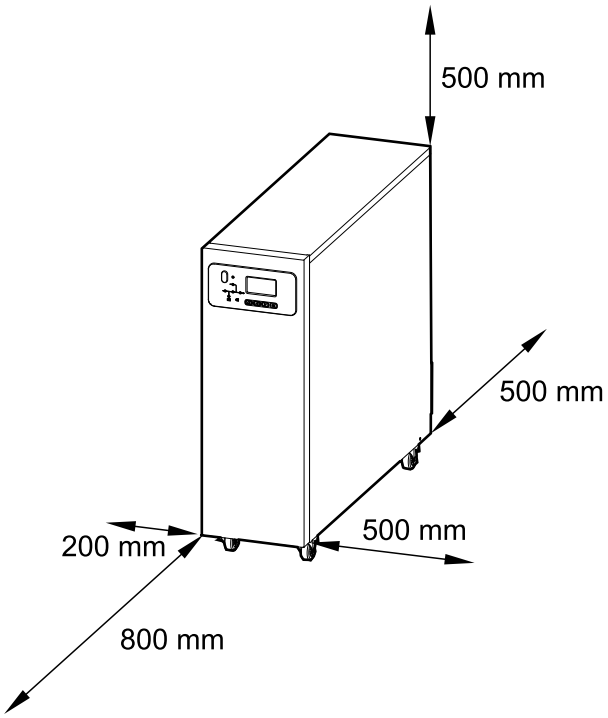
9. Weight without batteries

Clearance for UPS for External Batteries

Option A*



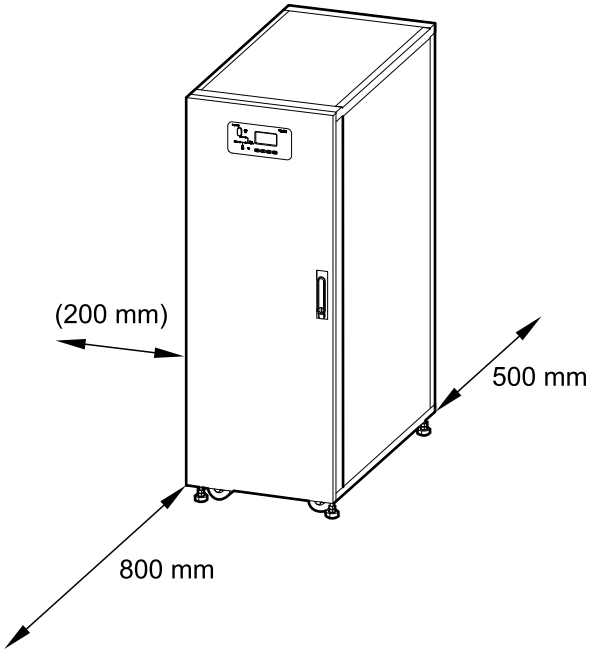
Option B



NOTE: 200 mm left side clearance is required when the UPS is placed next to a wall to allow the front door to open properly.

Clearance for UPS with Internal Batteries

Option A*



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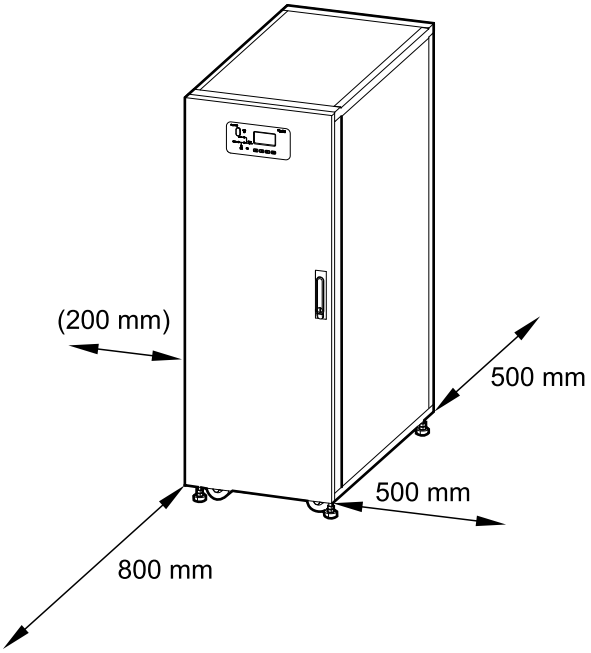


NOTE: 200 mm left side clearance is required when the UPS is placed next to a wall to allow the front door to open properly.

Environmental

	Operation	Storage
Temperature	0 °C to 40 °C 20 °C to 25 °C (optimal operation temperature for batteries)	-15 °C to 40 °C for systems with batteries -25 °C to 55 °C for systems without batteries
Relative humidity	0–95% non-condensing	
Elevation derating according to IEC 62040–3	1000 m: 1.000 1500 m: 0.975 2000 m: 0.950	< 15000 m above sea level (or in an environment with equivalent air pressure)
Audible noise	10–20 kVA 400 V: <60 dBA at full load 30–40 kVA 400 V: <63 dBA at full load 10–20 kVA 208 V: <63 dBA at full load	
Protection class	IP20 (dust filter as standard)	
Color	RAL 9003	

Heat Dissipation for 400 V Systems

	10 kVA	15 kVA	20 kVA	30 kVA	40 kVA
Normal mode (W)	516	852	870	1410	1810
Battery mode (W)	600	950	1080	1700	2270
ECO mode (W)	135	223	240	370	480

Heat Dissipation for 208 V Systems

	10 kVA	15 kVA	20 kVA
Normal mode (W)	920	1469	1701
Battery mode (W)	948	1247	1861
ECO mode (W)	245	358	415

Airflow Requirement for 400 V Systems

NOTE: The UPS requires a sufficient amount of fresh air in the installation room.

	10 kVA	15 kVA	20 kVA	30 kVA	40 kVA
Fan air throughput (m^3/min)	6.20	8.25	10.85	15.57	16.38

Airflow Requirement for 208 V Systems

NOTE: The UPS requires a sufficient amount of fresh air in the installation room.

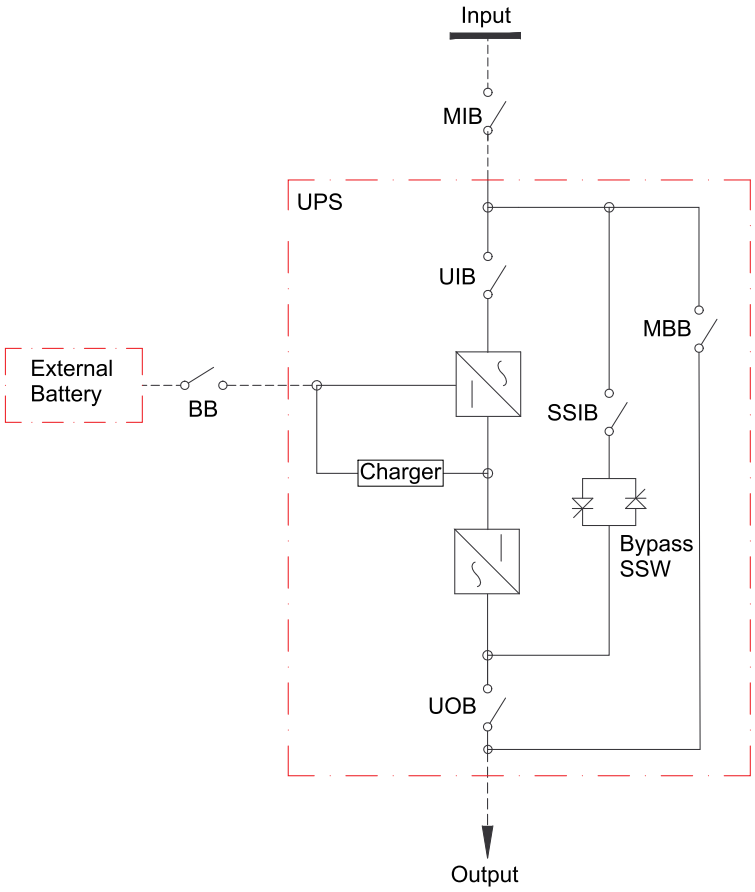
	10 kVA	**15 kVA**	**20 kVA**
Fan air throughput (m^3/min)	10.85	15.57	16.38

Drawings

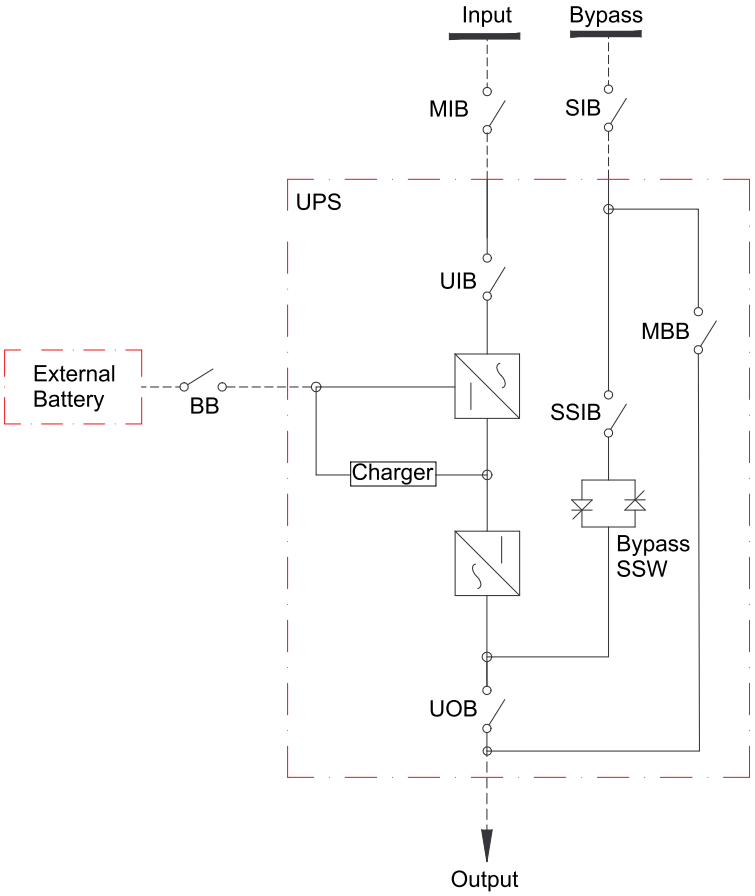
NOTE: A comprehensive set of drawings is available on www.se.com.

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

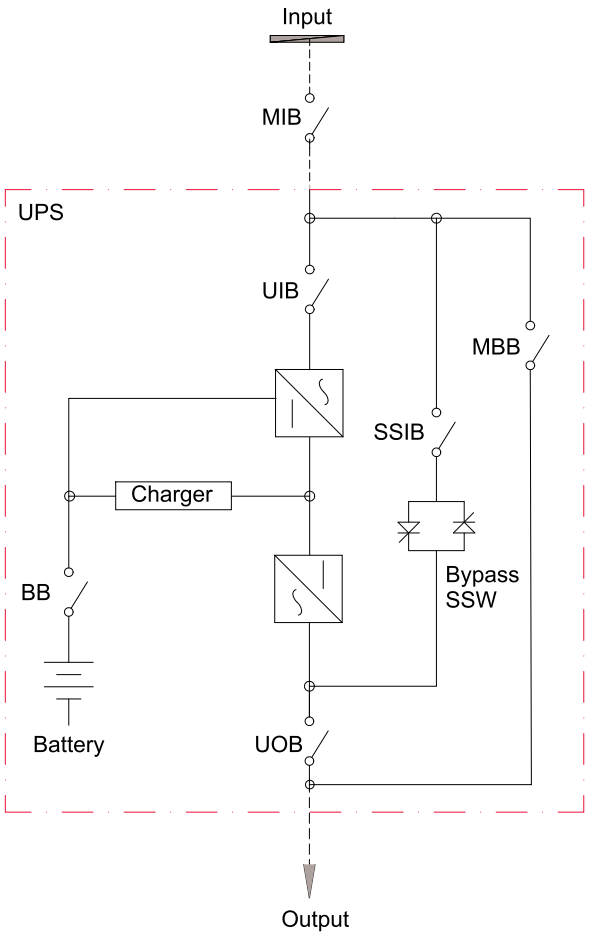
Easy UPS 3S for External Batteries – Single Mains System



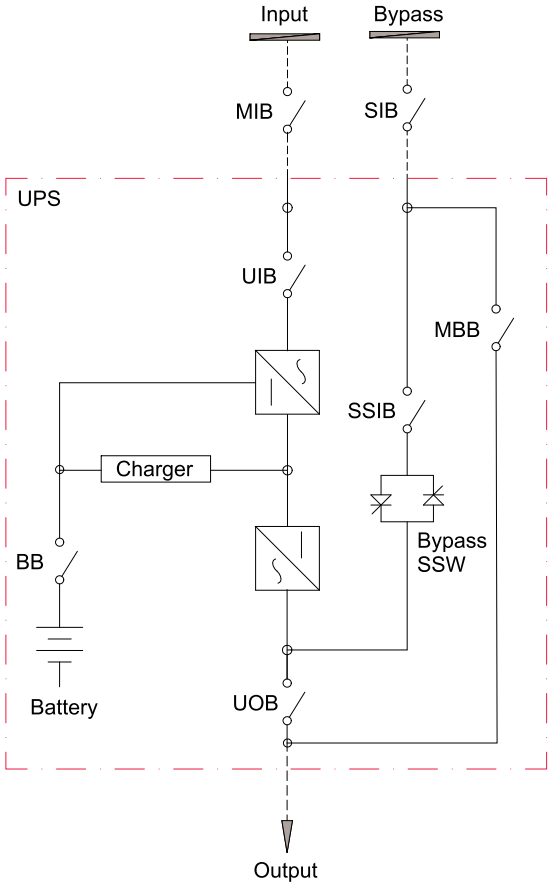
Easy UPS 3S for External Batteries – Dual Mains System



Easy UPS 3S with Internal Batteries – Single Mains System



Easy UPS 3S with Internal Batteries – Dual Mains System



Options

Configuration Options

- Single or dual mains
- Bottom cable entry
- Up to four UPSs in parallel
- ECO mode

Hardware Options

Modular Battery Cabinet

- Easy UPS 3S modular battery cabinet (E3SXR6)

Battery Breaker Box

- Easy UPS 3S battery breaker box (E3SOPT007)

Battery Breaker Kit

- Easy UPS 3S battery breaker kit (E3SOPT008)

Empty Battery Cabinets

- Empty battery cabinet, 700 mm wide (GVEBC7)
- Empty battery cabinet, 1100 mm wide (GVEBC11)

Batteries

- Easy UPS 3S standard battery module (E3SBTU)
- Easy UPS 3S high performance battery module (E3SBTHU)
- Easy UPS 3S standard battery string (E3SBT4)
- Easy UPS 3S high performance battery string (E3SBTH4)

Maintenance Bypass Panels

- Easy UPS 3S parallel maintenance bypass panel for up to 2 units 10-40 kVA (E3SOPT006)
- Maintenance Bypass Panel, single unit, 10-400kVA 400V wallmount, for Easy UPS 3-Phase (E3MBP60K400H)
- Parallel Maintenance Bypass Panel, 10-200kVA 400V wallmount, for Easy UPS 3S/3M (E3MBPAR60K200H)
- Parallel Maintenance Bypass Panel for 2 UPSs, 40-50kW 400V wallmount, for Galaxy VS and Easy UPS 3S (GVSBPAR40K50H)

- Parallel Maintenance Bypass Panel for 2 UPSs, 60-120kW 400V wallmount for Galaxy VS & Easy UPS 3S/3M (GVSBPAR60K120H)
- Maintenance Bypass Panel, single unit, 10-20kW 400V wallmount, for Galaxy VS and Easy UPS 3S (GVSBPSU10K20H)
- Maintenance Bypass Panel, single unit, 20-60kW 400V wallmount, for Galaxy VS and Easy UPS 3S (GVSBPSU20K60H)
- Maintenance Bypass Panel, single unit, 80-120kW 400V wallmount, for Galaxy VS and Easy UPS 3S/3M (GVSBPSU80K120H)

Backfeed Box

- Wall-mount box with 95A power contactor and connections that delivers backfeed protection for 400V Easy UPS 3S 10-40 kVA 3:1 and 3:3 (SP3OPT008)

Options

- Easy UPS 3S parallel kit (E3SOPT002)
- Easy UPS 3S temperature sensor kit for external battery system (E3SOPT003)
- Easy UPS 3S cold start kit (E3SOPT004)
- Easy UPS battery connector kit (E3SOPT009)
- Easy UPS 3S parallel kit with 15m cable (E3SOPT016)
- Wall-mount cabinet with 95 A power contactor and connections that delivers backfeed protection for Easy UPS 3S 10-40 kVA 400 V (SP3OPT008)

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.

Battery Breaker Box Shipping Weights and Dimensions

	Weight kg	Height mm	Width mm	Depth mm
Battery breaker box (E3SOPT007)	46.5	1220	850	510

Battery Breaker Box Weights and Dimensions

	Weight kg	Height mm	Width mm	Depth mm
Battery breaker box (E3SOPT007)	25	650	500	280

Modular Battery Cabinet Shipping Weights and Dimensions

	Weight kg	Height mm	Width mm	Depth mm
Modular battery cabinet	140	1620	650	1020

Modular Battery Cabinet Weights and Dimensions

	Weight kg	Height mm	Width mm	Depth mm
Modular battery cabinet	125	1400	500	851

Backfeed Box Shipping Weights and Dimensions

Commercial reference	Weight kg (lbs)	Height mm (in)	Width mm (in)	Depth mm (in)
SP3OPT008	30	530	780	460
SP3OPT009	48	835	835	510
SP3OPT010	76	940	1050	660

NOTE: Shipping weights and dimensions are for one unit on a wooden pallet.

Backfeed Box Weights and Dimensions

Commercial reference	Weight kg (lbs)	Height mm (in)	Width mm (in)	Depth mm (in)
SP3OPT008	20	300	550	200
SP3OPT009	33	600	600	250
SP3OPT010	58	800	700	400

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Appendix: Switch/Breaker Details

3:1 UPS

	Model	Switch/Breaker	Description	Switch or Breaker
10 kVA	UIB	OSMC65H4C32	32A 4P	Breaker
	SIB	OSMC65H4C32	32A 4P	Breaker
	UOB	A9S68263	63A 2P	Switch
	MBB	A9S68163	63A 1P	Switch
	BB	A9S68332	32A 3P	Switch (for UPSs with internal batteries)
15 kVA	UIB	OSMC65H4C40	40A 4P	Breaker
	SIB	OSMC65H4C40	40A 4P	Breaker
	UOB	A9S68280	80A 2P	Switch
	MBB	A9S68180	80A 1P	Switch
	BB	A9S68363	63A 3P	Switch (for UPSs with internal batteries)
20 kVA	UIB	OSMC65H4C63	63A 4P	Breaker
	SIB	OSMC65H4C63	63A 4P	Breaker
	UOB	A9S68292	125A 2P	Switch
	MBB	A9S68192	125A 1P	Switch
	BB	A9S68363	63A 3P	Switch (for UPSs with internal batteries)
30 kVA	UIB	A9S68480	500VAC 80A 4P	Switch
	SIB	A9S68491	100A 4P	Switch
	UOB	A9S68491	100A 4P	Switch
	MBB	A9S68280	80A 2P	Switch
	BB	A9S68391	100A 3P	Switch (for UPSs with internal batteries)

3:3 UPS

	Model	Switch/Breaker	Description	Switch or Breaker
10 kVA	UIB	OSMC65H4C32	32A 4P	Breaker
	SIB	OSMC65H4C32	32A 4P	Breaker
	UOB	A9S68432	32A 4P	Switch
	MBB	OSMC65H3C32	32A 3P	Breaker
	BB	A9S68332	32A 3P	Switch (for UPSs with internal batteries)
15 kVA	UIB	OSMC65H4C40	40A 4P	Breaker
	SIB	OSMC65H4C40	40A 4P	Breaker
	UOB	A9S68440	40A 4P	Switch
	MBB	OSMC65H3C40	40A 3P	Breaker
	BB	A9S68363	63A 3P	Switch (for UPSs with internal batteries)
20 kVA	UIB	OSMC65H4C63	63A 4P	Breaker
	SIB	OSMC65H4C63	63A 4P	Breaker
	UOB	A9S68463	63A 4P	Switch
	MBB	OSMC65H3C50	50A 3P	Breaker
	BB	A9S68363	63A 3P	Switch (for UPSs with internal batteries)
30 kVA	UIB	A9S68480	500VAC 80A 4P	Switch

	SIB	A9S68480	500VAC 80A 4P	Switch
	UOB	A9S68480	500VAV 80A 4P	Switch
	MBB	A9S68363	500VAC 63A 3P	Switch
	BB	A9S68391	100A 3P	Switch (for UPSs with internal batteries)
40 kVA	UIB	A9S68492	125A 4P	Switch
	SIB	A9S68492	125A 4P	Switch
	UOB	A9S68492	125A 4P	Switch
	MBB	A9S68380	80A 3P	Switch
	BB	A9S68392	125A 3P	Switch (for UPSs with internal batteries)

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As standards, specifications, and design change from time to time, please ask for confirmation of the information given in this publication.

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