# Easy UPS 3S Pro for Internal / External Batteries

## 10-40 kVA 400 V 3:3

## Technical Specifications

**Latest updates are available on the Schneider Electric website**
**9/2025**

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

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In your web browser, type in https://www.go2se.com/ref= and the commercial reference for your product.
Example: *https://www.go2se.com/ref=**E3SP10KH***

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

Scan the QR code to go to the Easy UPS 3S Pro online manual portal:
https://www.productinfo.schneider-electric.com/easyups3s_pro_iec/

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 3S Pro Here:

Go to *https://www.se.com/ww/en/product-range/319433188* to learn more about this product.

# Table of Contents

# 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 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 disconnect devices, battery disconnect devices, 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.**

## ⚠DANGER

**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR 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 will result in death or serious injury.**

## *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.**

# Model List

**Easy UPS 3S Pro UPS for Internal Batteries**

**Easy UPS 3S Pro UPS for External Batteries**

# UPS Models

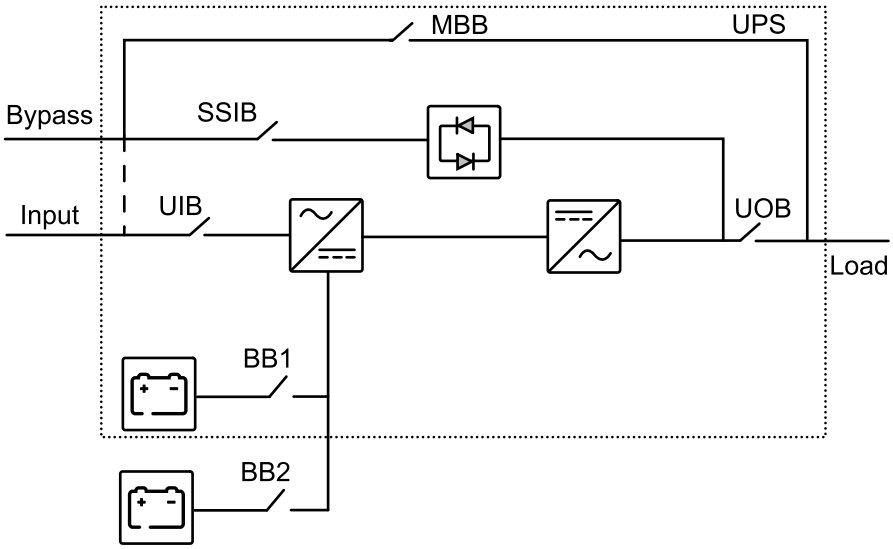
- Easy UPS 3S Pro 10 kVA 400 V 3:3 UPS for internal batteries (E3SP10KHB)
- Easy UPS 3S Pro 15 kVA 400 V 3:3 UPS for internal batteries (E3SP15KHB)
- Easy UPS 3S Pro 20 kVA 400 V 3:3 UPS for internal batteries (E3SP20KHB)
- Easy UPS 3S Pro 30 kVA 400 V 3:3 UPS for internal batteries (E3SP30KHB)
- Easy UPS 3S Pro 40 kVA 400 V 3:3 UPS for internal batteries (E3SP40KHB)
- Easy UPS 3S Pro 10 kVA 400 V 3:3 UPS for external batteries (E3SP10KH)
- Easy UPS 3S Pro 15 kVA 400 V 3:3 UPS for external batteries (E3SP15KH)
- Easy UPS 3S Pro 20 kVA 400 V 3:3 UPS for external batteries (E3SP20KH)
- Easy UPS 3S Pro 30 kVA 400 V 3:3 UPS for external batteries (E3SP30KH)
- Easy UPS 3S Pro 40 kVA 400 V 3:3 UPS for external batteries (E3SP40KH)
- Easy UPS 3S Pro 15 kVA 400 V India 3:3 UPS for external batteries (E3SP15KHIN)
- Easy UPS 3S Pro 20 kVA 400 V India 3:3 UPS for external batteries (E3SP20KHIN)
- Easy UPS 3S Pro 30 kVA 400 V India 3:3 UPS for external batteries (E3SP30KHIN)
- Easy UPS 3S Pro 40 kVA 400 V India 3:3 UPS for external batteries (E3SP40KHIN)

# UPS for Internal Batteries Overview

## Overview of Single UPS

| | |
|---|---|
| UIB | Unit input disconnect device |
| SSIB | Static switch input disconnect device |
| UOB | Unit output disconnect device |
| MBB | Maintenance bypass disconnect device |
| BB1 | Battery disconnect device 1 |
| BB2 | Battery disconnect device 2 |

**NOTE:** In Schneider Electric literature, 'disconnect device' is used as a generic term covering circuit breakers or switches as their position may vary depending on configuration. Details about the individual configuration are found in the electrical diagram and/or by reading the symbol on the front of each disconnect device.

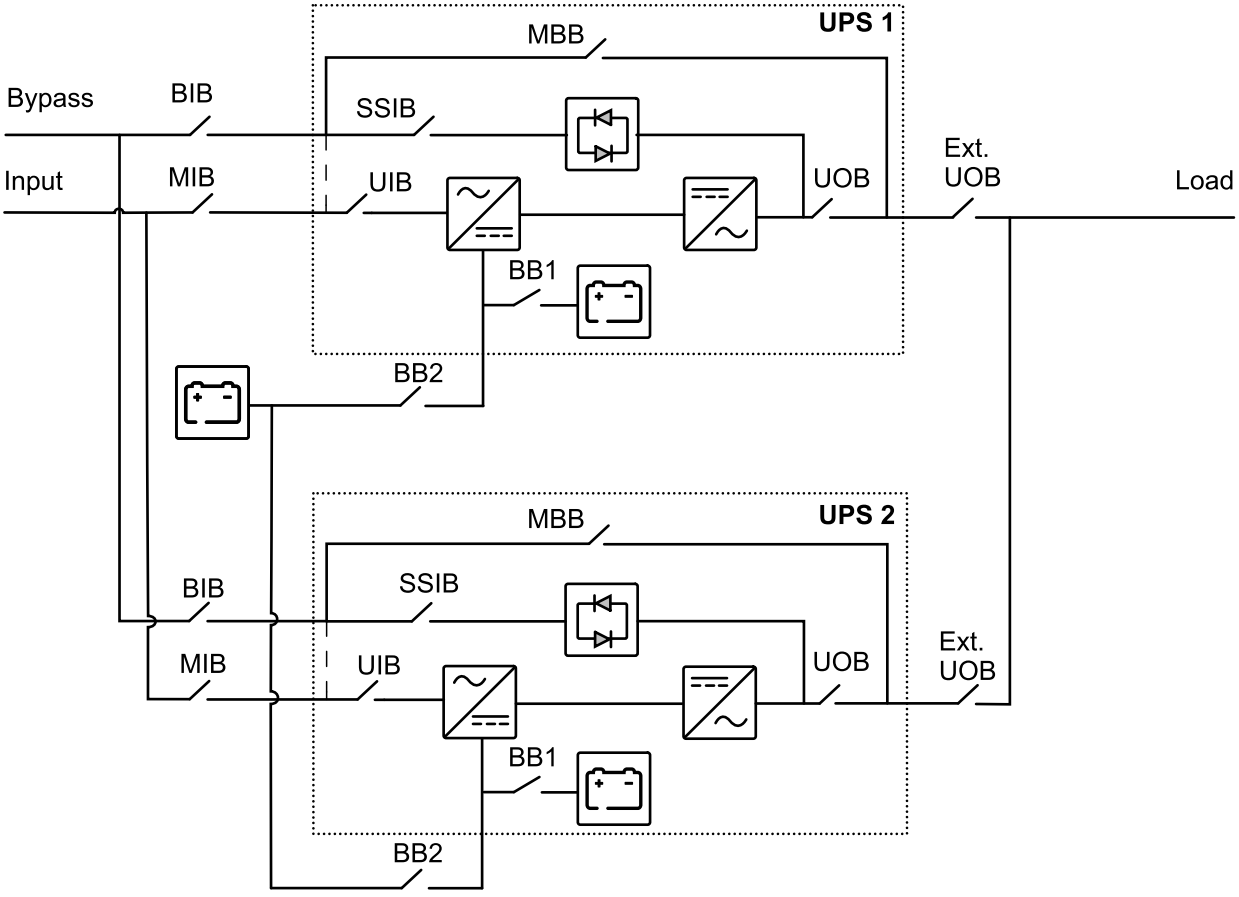



**NOTE:** Ensure that any external battery matches the internal battery's type and configuration. Schneider Electric offers modular battery modules such as E3SXR6, which are factory-tested to work with the provided internal batteries. To order E3SXR6 or verify compatibility, please contact Schneider Electric.

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

| | |
|---|---|
| MIB | Main input disconnect device |
| BIB | Bypass input disconnect device |
| UIB | Unit input disconnect device |
| SSIB | Static switch input disconnect device |
| UOB | Unit output disconnect device |
| Ext. UOB | External unit output disconnect device |
| MBB | Maintenance bypass disconnect device |
| BB1 | Battery disconnect device 1 |
| BB2 | Battery disconnect device 2 |

**NOTE:** In Schneider Electric literature, 'disconnect device' is used as a generic term covering circuit breakers or switches as their position may vary depending on configuration. Details about the individual configuration are found in the electrical diagram and/or by reading the symbol on the front of each disconnect device.



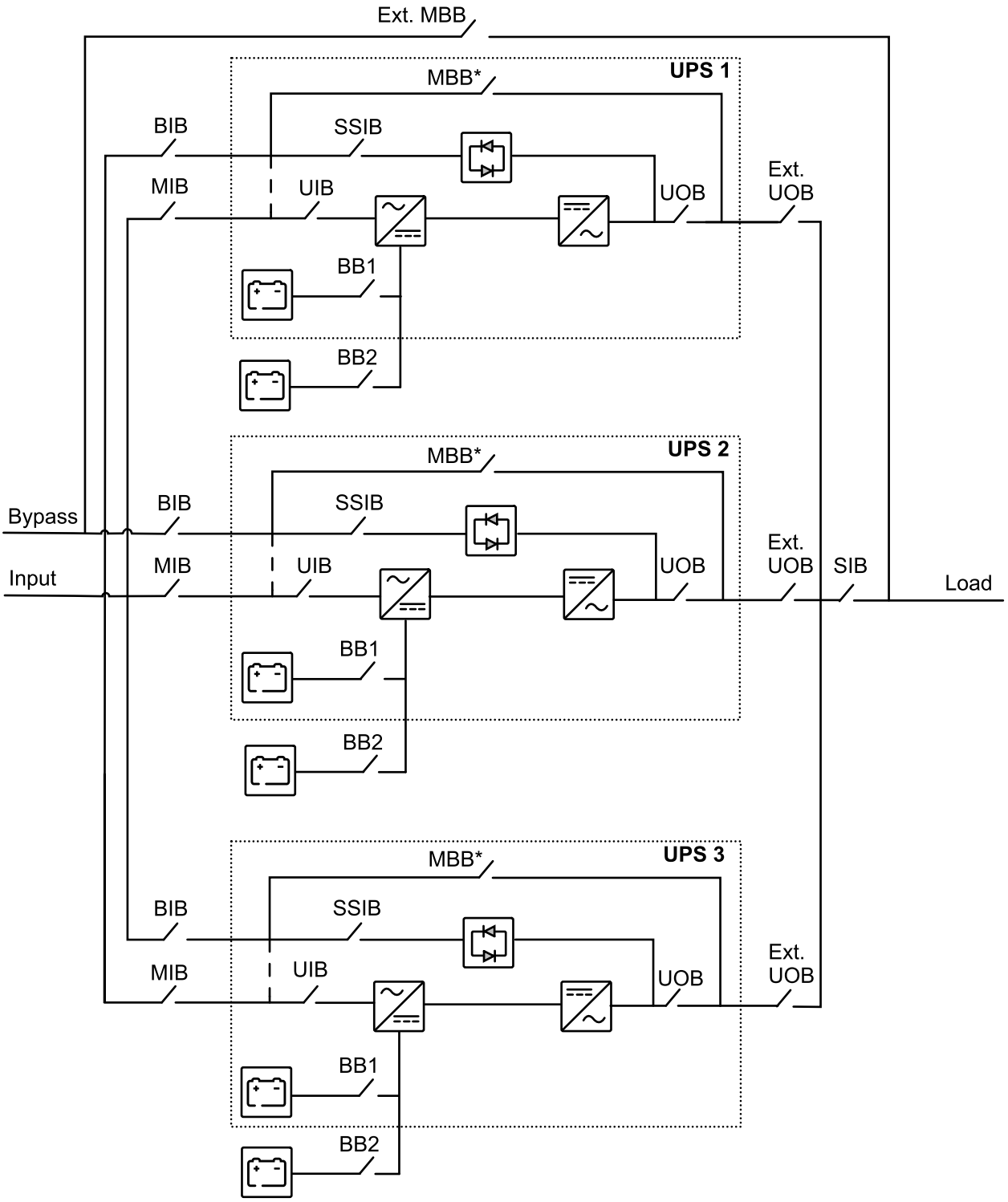

**NOTE:** Ensure that any external battery matches the internal battery's type and configuration. Schneider Electric offers modular battery modules such as E3SXR6, which are factory-tested to work with the provided internal batteries. To order E3SXR6 or verify compatibility, please contact Schneider Electric.

# Overview of Parallel System

| | |
|---|---|
| MIB | Main input disconnect device |
| BIB | Bypass input disconnect device |
| UIB | Unit input disconnect device |
| SSIB | Static switch input disconnect device |
| UOB | Unit output disconnect device |
| Ext. UOB | External unit output disconnect device |
| MBB | Maintenance bypass disconnect device |
| Ext. MBB | External maintenance bypass disconnect device |
| SIB | System isolation disconnect device |
| BB1 | Battery disconnect device 1 |
| BB2 | Battery disconnect device 2 |

**NOTE:** In Schneider Electric literature, 'disconnect device' is used as a generic term covering circuit breakers or switches as their position may vary depending on configuration. Details about the individual configuration are found in the electrical diagram and/or by reading the symbol on the front of each disconnect device.

**NOTE:** In parallel systems with an external maintenance bypass disconnect device Ext. MBB, the internal maintenance bypass disconnect devices MBB* must be padlocked in the open (OFF) position.



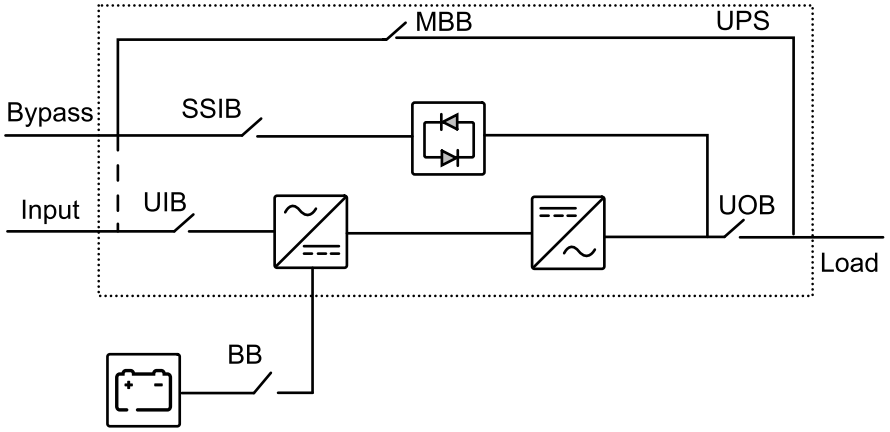

**NOTE:** Ensure that any external battery matches the internal battery's type and configuration. Schneider Electric offers modular battery modules such as E3SXR6, which are factory-tested to work with the provided internal batteries. To order E3SXR6 or verify compatibility, please contact Schneider Electric.

# UPS for External Batteries Overview

## Overview of Single UPS

| | |
|---|---|
| UIB | Unit input disconnect device |
| SSIB | Static switch input disconnect device |
| UOB | Unit output disconnect device |
| MBB | Maintenance bypass disconnect device |
| BB | Battery disconnect device |

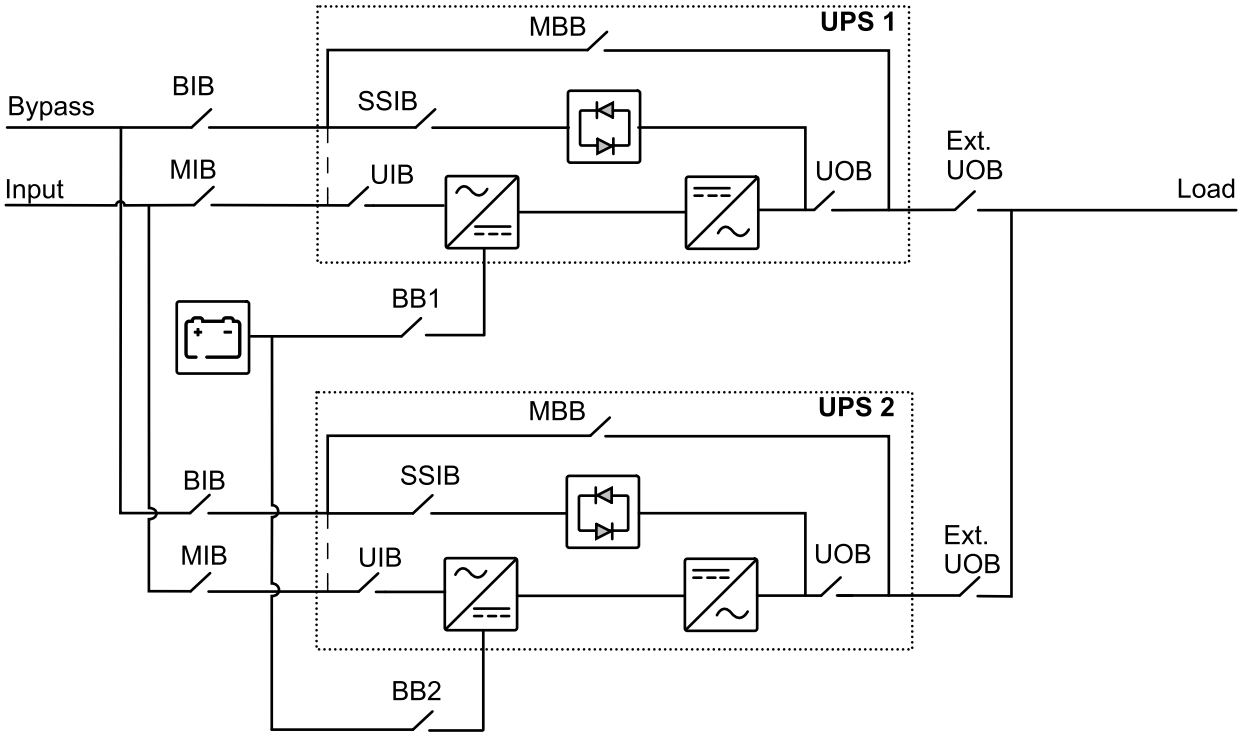
**NOTE:** In Schneider Electric literature, 'disconnect device' is used as a generic term covering circuit breakers or switches as their position may vary depending on configuration. Details about the individual configuration are found in the electrical diagram and/or by reading the symbol on the front of each disconnect device.



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

| | |
|---|---|
| MIB | Main input disconnect device |
| BIB | Bypass input disconnect device |
| UIB | Unit input disconnect device |
| SSIB | Static switch input disconnect device |
| UOB | Unit output disconnect device |
| Ext. UOB | External unit output disconnect device |
| MBB | Maintenance bypass disconnect device |
| Ext. MBB | External maintenance bypass disconnect device |
| BB1 | Battery disconnect device 1 |
| BB2 | Battery disconnect device 2 |

**NOTE:** In Schneider Electric literature, 'disconnect device' is used as a generic term covering circuit breakers or switches as their position may vary depending on configuration. Details about the individual configuration are found in the electrical diagram and/or by reading the symbol on the front of each disconnect device.

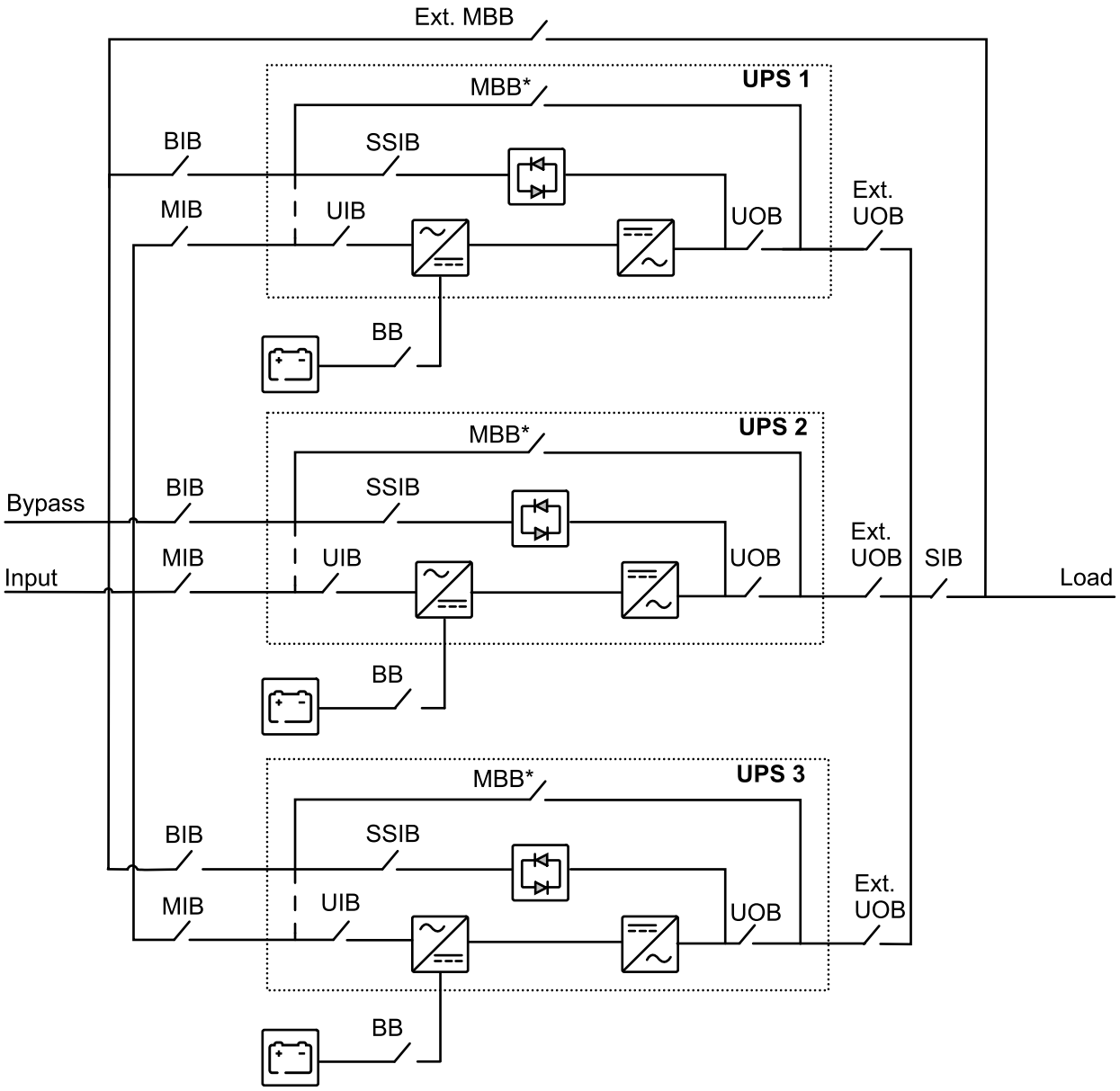


# Overview of Parallel System

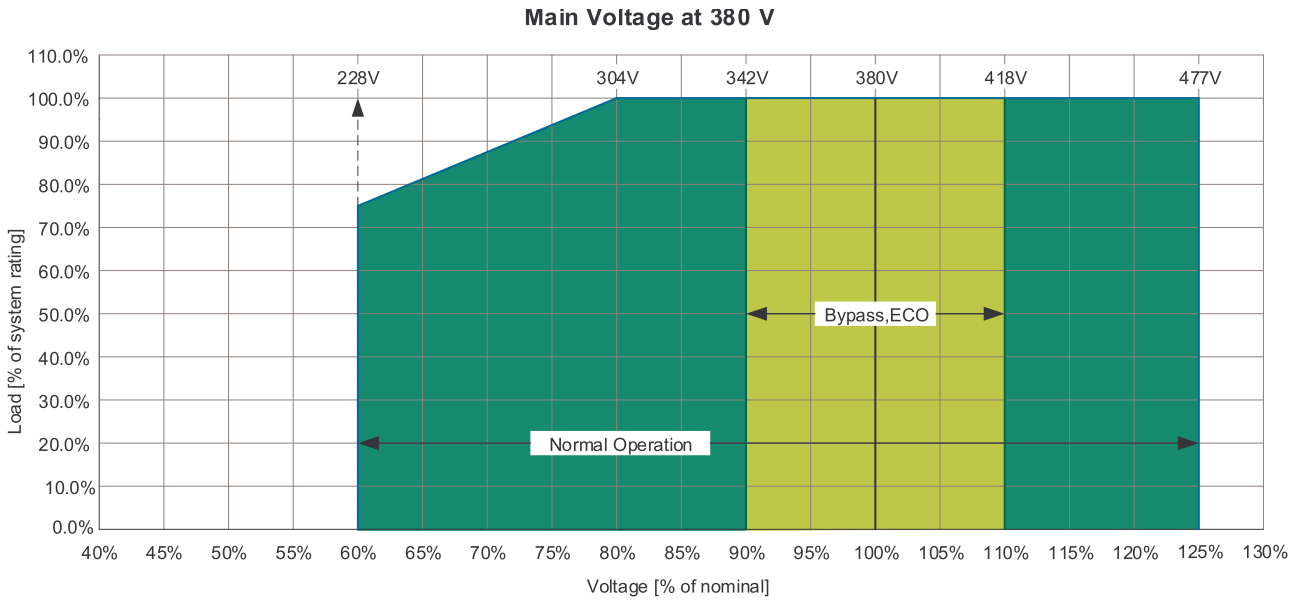
| | |
|---|---|
| MIB | Main input disconnect device |
| BIB | Bypass input disconnect device |
| UIB | Unit input disconnect device |
| SSIB | Static switch input disconnect device |
| UOB | Unit output disconnect device |
| Ext. UOB | External unit output disconnect device |
| MBB | Maintenance bypass disconnect device |
| Ext. MBB | External maintenance bypass disconnect device |
| SIB | System isolation disconnect device |
| BB | Battery disconnect device |

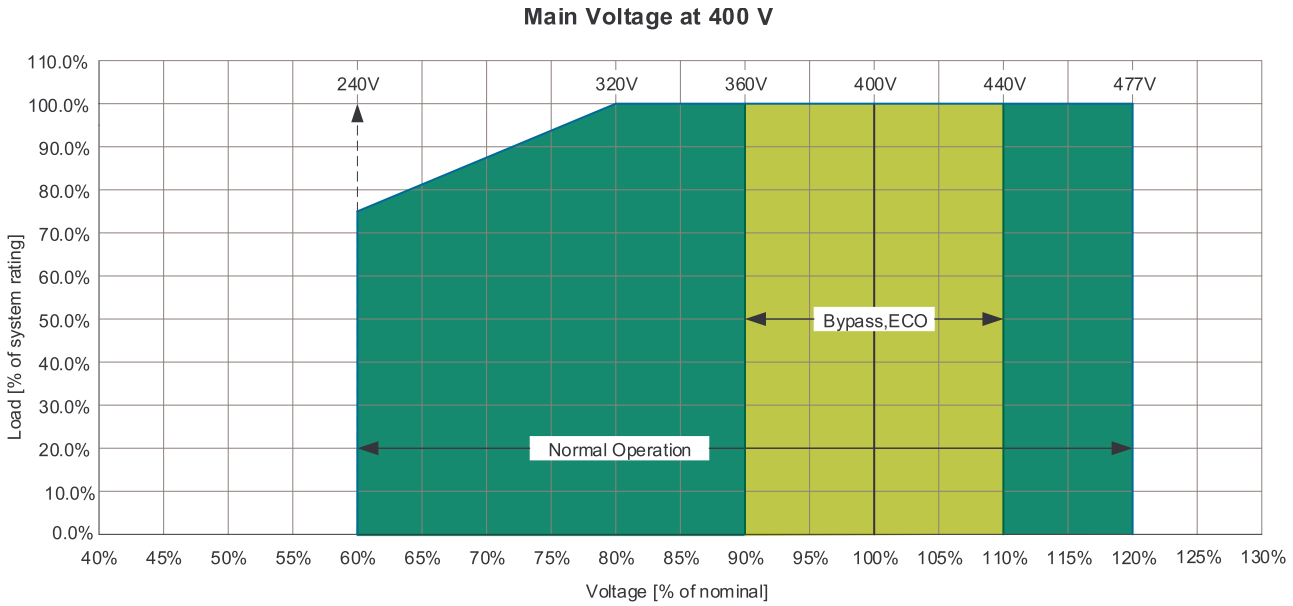
**NOTE:** In Schneider Electric literature, 'disconnect device' is used as a generic term covering circuit breakers or switches as their position may vary depending on configuration. Details about the individual configuration are found in the electrical diagram and/or by reading the symbol on the front of each disconnect device.

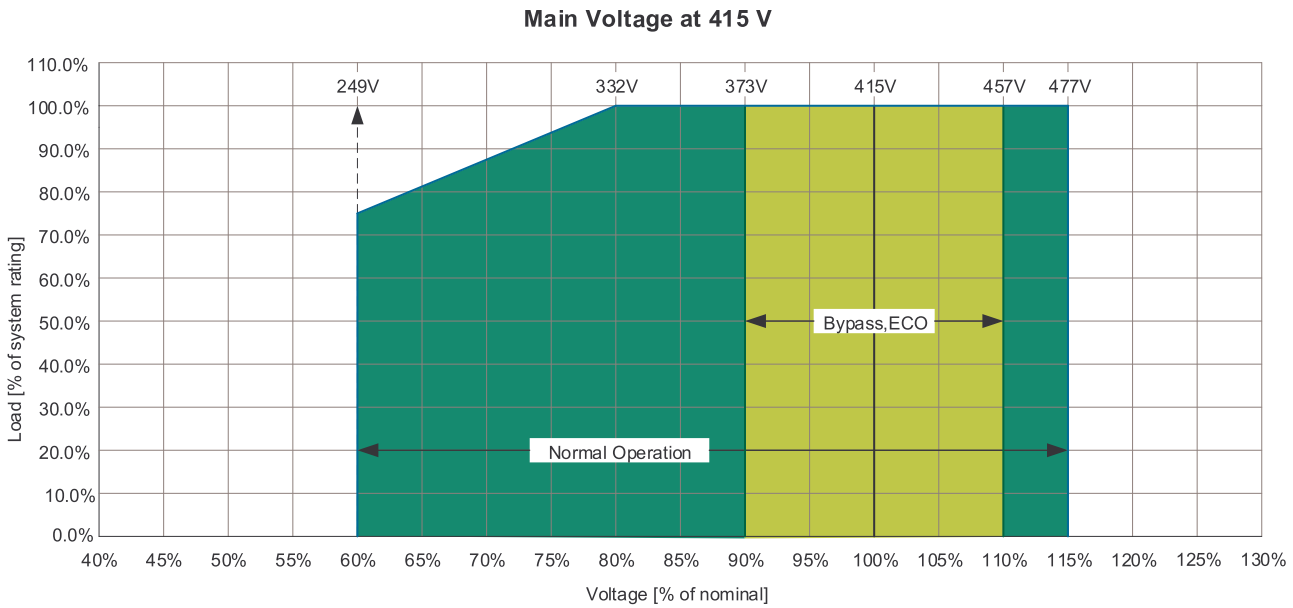
**NOTE:** In parallel systems with an external maintenance bypass disconnect device Ext. MBB, the internal maintenance bypass disconnect devices MBB* must be padlocked in the open (OFF) position.


Ext. MBB
UPS 1
MBB*
BIB
SSIB
MIB
UIB
UOB
Ext.
UOB
BB
UPS 2
MBB*
Bypass
BIB
SSIB
Input
MIB
UIB
UOB
Ext.
UOB
SIB
Load
BB
UPS 3
MBB*
BIB
SSIB
MIB
UIB
UOB
Ext.
UOB
BB

# Input Voltage Window



# Inverter Short Circuit Capabilities (Bypass not Available)

## IK1 – Short Circuit between a Phase and Neutral

**IK1 400 V**

| S [kVA] | 10 ms | | 20 ms | | 30 ms | |
|---|---|---|---|---|---|---|
| | I[A] | I²t [A²s] | I[A] | I²t [A²s] | I[A] | I²t [A²s] |
| 10 | 34 | 12 | 34 | 23 | 34 | 35 |
| 15 | 52 | 27 | 52 | 54 | 52 | 81 |
| 20 | 74 | 55 | 74 | 110 | 74 | 164 |
| 30 | 104 | 108 | 104 | 216 | 104 | 324 |
| 40 | 140 | 196 | 140 | 392 | 140 | 588 |

**IK1 400 V**

| S [kVA] | 50 ms | | 100 ms | | 200 ms | |
|---|---|---|---|---|---|---|
| | I[A] | I²t [A²s] | I[A] | I²t [A²s] | I[A] | I²t [A²s] |
| 10 | 34 | 58 | 34 | 116 | 34 | 231 |
| 15 | 52 | 135 | 52 | 270 | 52 | 541 |
| 20 | 74 | 274 | 74 | 548 | 74 | 1095 |
| 30 | 104 | 541 | 104 | 1082 | 104 | 2163 |
| 40 | 140 | 980 | 140 | 1960 | 140 | 3920 |

## IK2 – Short Circuit between Two Phases

**IK2 400 V**

| S [kVA] | 10 ms | | 20 ms | | 30 ms | |
|---|---|---|---|---|---|---|
| | I[A] | I²t [A²s] | I[A] | I²t [A²s] | I[A] | I²t [A²s] |
| 10 | 33 | 11 | 33 | 22 | 33 | 33 |
| 15 | 49 | 24 | 49 | 48 | 49 | 72 |
| 20 | 70 | 49 | 70 | 98 | 70 | 147 |
| 30 | 101 | 102 | 101 | 204 | 101 | 306 |
| 40 | 138 | 190 | 138 | 381 | 138 | 571 |

**IK2 400 V**

| S [kVA] | 50 ms | | 100 ms | | 200 ms | |
|---|---|---|---|---|---|---|
| | I[A] | I²t [A²s] | I[A] | I²t [A²s] | I[A] | I²t [A²s] |
| 10 | 33 | 54 | 33 | 109 | 33 | 218 |
| 15 | 49 | 120 | 49 | 240 | 49 | 480 |
| 20 | 70 | 245 | 70 | 490 | 70 | 980 |
| 30 | 101 | 510 | 101 | 1020 | 101 | 2040 |
| 40 | 138 | 952 | 138 | 1904 | 138 | 3809 |

# IK3 – Short Circuit between Three Phases

### IK3 400 V

| S [kVA] | 10 ms | | 20 ms | | 30 ms | |
|---|---|---|---|---|---|---|
| | I[A] | $I^2t$ [$A^2s$] | I[A] | $I^2t$ [$A^2s$] | I[A] | $I^2t$ [$A^2s$] |
| 10 | 37 | 14 | 37 | 27 | 37 | 41 |
| 15 | 53 | 28 | 53 | 56 | 53 | 84 |
| 20 | 80 | 64 | 80 | 128 | 80 | 192 |
| 30 | 110 | 121 | 110 | 242 | 110 | 363 |
| 40 | 146 | 213 | 146 | 426 | 146 | 639 |

### IK3 400 V

| S [kVA] | 50 ms | | 100 ms | | 200 ms | |
|---|---|---|---|---|---|---|
| | I[A] | $I^2t$ [$A^2s$] | I[A] | $I^2t$ [$A^2s$] | I[A] | $I^2t$ [$A^2s$] |
| 10 | 37 | 68 | 37 | 137 | 37 | 274 |
| 15 | 53 | 140 | 53 | 281 | 53 | 562 |
| 20 | 80 | 320 | 80 | 640 | 80 | 1280 |
| 30 | 110 | 605 | 110 | 1210 | 110 | 2420 |
| 40 | 146 | 1066 | 146 | 2132 | 146 | 4263 |

# Efficiency

### 10 kVA

| | Normal operation | | | ECO mode | | | Battery operation | | |
|---|---|---|---|---|---|---|---|---|---|
| **Voltage (V)** | **380** | **400** | **415** | **380** | **400** | **415** | **380** | **400** | **415** |
| 25% load | 95.1% | 95.3% | 95.1% | 99.0% | 99.1% | 99.1% | 92.0% | 91.9% | 91.2% |
| 50% load | 95.7% | 95.8% | 95.7% | 99.5% | 99.5% | 99.5% | 94.5% | 94.1% | 94.3% |
| 75% load | 95.7% | 96.0% | 96.1% | 99.5% | 99.5% | 99.6% | 95.1% | 94.9% | 95.0% |
| 100% load | 95.6% | 95.8% | 95.9% | 99.7% | 99.6% | 99.7% | 95.2% | 95.0% | 95.0% |

### 15 kVA

| | Normal operation | | | ECO mode | | | Battery operation | | |
|---|---|---|---|---|---|---|---|---|---|
| **Voltage (V)** | **380** | **400** | **415** | **380** | **400** | **415** | **380** | **400** | **415** |
| 25% load | 95.1% | 95.1% | 95.0% | 98.9% | 98.9% | 99.0% | 93.3% | 93.4% | 93.1% |
| 50% load | 95.9% | 95.9% | 95.9% | 99.6% | 99.5% | 99.5% | 94.9% | 94.9% | 94.7% |
| 75% load | 95.8% | 95.9% | 96.0% | 99.4% | 99.4% | 99.4% | 95.3% | 95.3% | 95.1% |
| 100% load | 95.6% | 95.7% | 95.9% | 99.7% | 99.6% | 99.6% | 95.3% | 95.2% | 95.3% |

### 20 kVA

| | Normal operation | | | ECO mode | | | Battery operation | | |
|---|---|---|---|---|---|---|---|---|---|
| **Voltage (V)** | **380** | **400** | **415** | **380** | **400** | **415** | **380** | **400** | **415** |
| 25% load | 94.9% | 95.0% | 94.7% | 99.3% | 99.4% | 99.4% | 94.4% | 93.1% | 93.8% |
| 50% load | 96.1% | 96.2% | 96.2% | 99.6% | 99.6% | 99.6% | 95.6% | 94.9% | 95.2% |
| 75% load | 95.8% | 96.0% | 96.0% | 99.6% | 99.6% | 99.6% | 95.8% | 95.2% | 95.6% |
| 100% load | 95.6% | 95.6% | 95.8% | 99.6% | 99.7% | 99.7% | 95.6% | 95.3% | 94.9% |

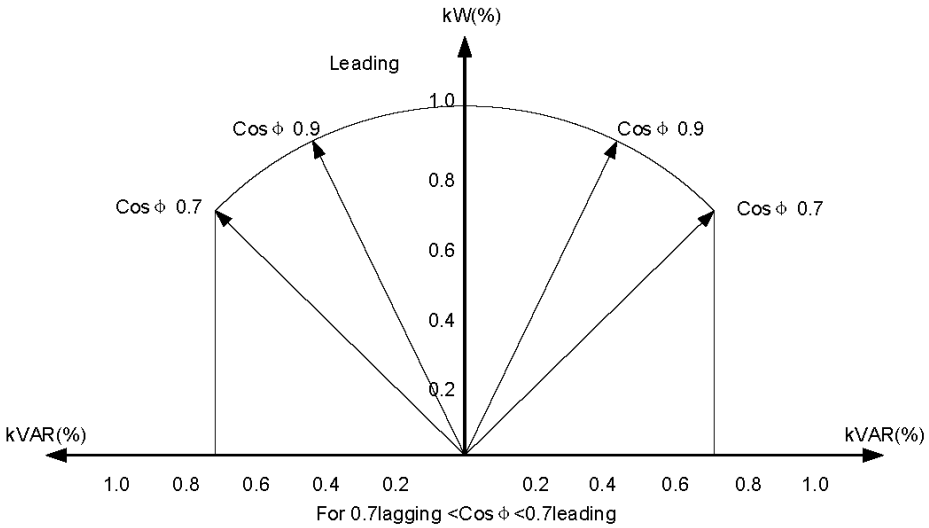
### 30 kVA

| | Normal operation | | | ECO mode | | | Battery operation | | |
|---|---|---|---|---|---|---|---|---|---|
| **Voltage (V)** | **380** | **400** | **415** | **380** | **400** | **415** | **380** | **400** | **415** |
| 25% load | 95.2% | 95.2% | 95.1% | 99.4% | 99.4% | 99.4% | 95.2% | 94.5% | 95.0% |
| 50% load | 96.0% | 96.0% | 96.0% | 99.6% | 99.7% | 99.7% | 95.8% | 95.6% | 95.3% |
| 75% load | 95.6% | 95.8% | 95.8% | 99.5% | 99.5% | 99.5% | 95.8% | 95.7% | 95.7% |
| 100% load | 95.4% | 95.4% | 95.6% | 99.5% | 99.6% | 99.6% | 95.5% | 95.7% | 95.6% |

### 40 kVA

| | Normal operation | | | ECO mode | | | Battery operation | | |
|---|---|---|---|---|---|---|---|---|---|
| **Voltage (V)** | **380** | **400** | **415** | **380** | **400** | **415** | **380** | **400** | **415** |
| 25% load | 95.4% | 95.4% | 95.4% | 99.5% | 99.5% | 99.5% | 95.3% | 94.7% | 95.4% |
| 50% load | 96.2% | 96.2% | 96.3% | 99.5% | 99.6% | 99.6% | 95.8% | 95.7% | 95.9% |
| 75% load | 95.7% | 95.8% | 96.0% | 99.5% | 99.5% | 99.6% | 95.9% | 95.9% | 95.9% |
| 100% load | 95.3% | 95.5% | 95.7% | 99.4% | 99.4% | 99.5% | 95.7% | 95.7% | 95.9% |

# Derating Due to Load Power Factor

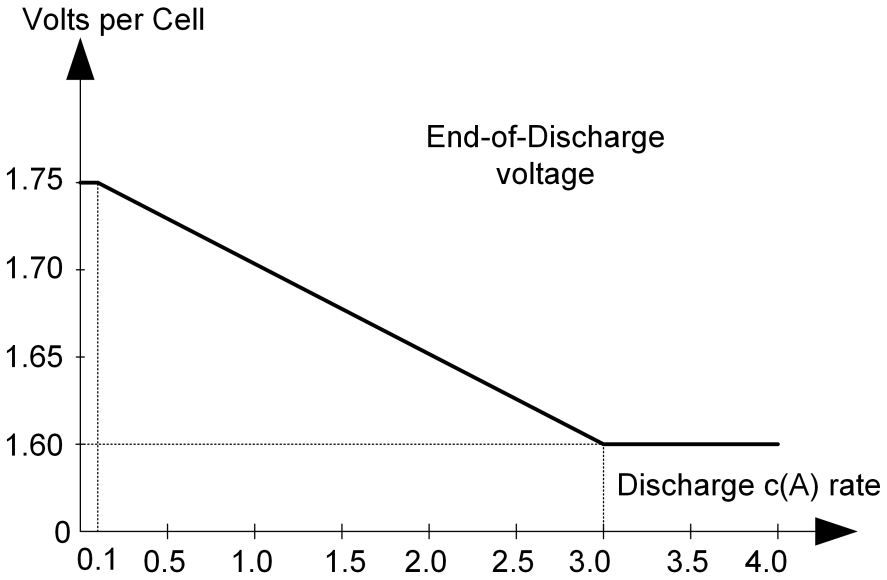



0.7 leading to 0.7 lagging without derating.

| UPS rating | UPS Output | | | | | |
|---|---|---|---|---|---|---|
| | Leading | | | Leading | | |
| PF=1 | PF=0.7 | PF=0.8 | PF=0.9 | PF=0.9 | PF=0.8 | PF=0.7 |
| 10 kVA/kW | 10 kVA/7 kW | 10 kVA/8 kW | 10 kVA/9 kW | 10 kVA/9 kW | 10 kVA/8 kW | 10 kVA/7 kW |
| 15 kVA/kW | 15 kVA/10.5 kW | 15 kVA/12 kW | 15 kVA/13.5 kW | 15 kVA/13.5 kW | 15 kVA/12 kW | 15 kVA/10.5 kW |
| 20 kVA/kW | 20 kVA/14 kW | 20 kVA/16 kW | 20 kVA/18 kW | 20 kVA/18 kW | 20 kVA/16 kW | 20 kVA/14 kW |
| 30 kVA/kW | 30 kVA/21 kW | 30 kVA/24 kW | 30 kVA/27 kW | 30 kVA/27 kW | 30 kVA/24 kW | 30 kVA/21 kW |
| 40 kVA/kW | 30 kVA/28 kW | 40 kVA/32 kW | 40 kVA/36 kW | 40 kVA/36 kW | 40 kVA/32 kW | 30 kVA/28 kW |

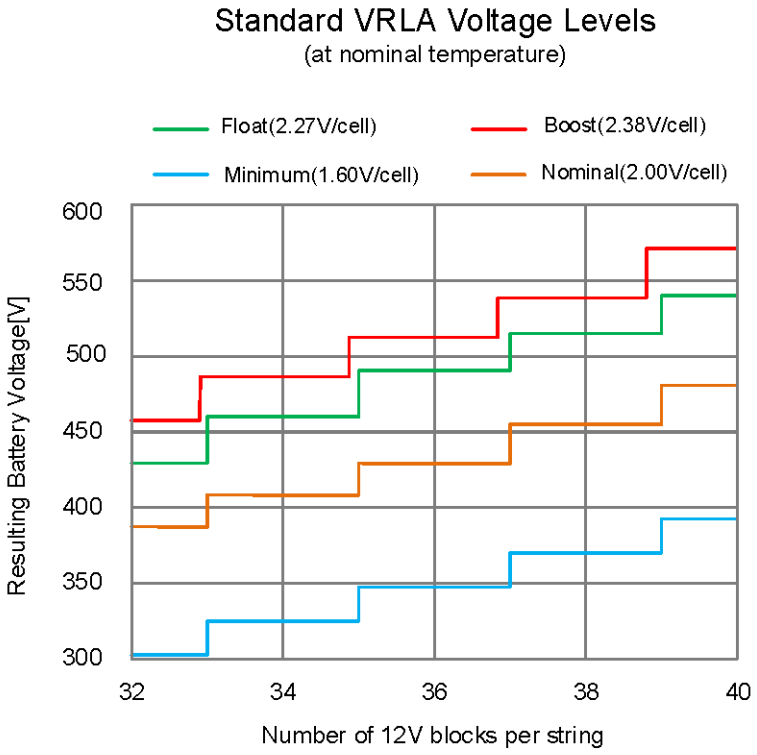
# Batteries

## End of Discharge Voltage




This diagram is applicable for end of discharge (EOD) set as 1.6 V/cell at 3C – for VRLA only.

## Standard VRLA Voltage Levels




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

# Compliance

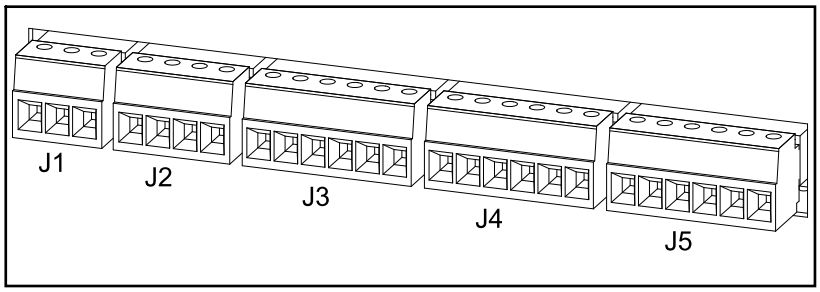
| | |
|---|---|
| Safety | IEC 62040-1: 2017, Edition 2.0, Uninterruptible Power Systems (UPS) - Part 1: Safety requirements<br>IEC 62040-1/A1: 2021+A2: 2022 Amendment 1 + Amendment 2 |
| EMC/EMI/RFI | IEC 62040-2: 2005, 2nd edition Uninterruptible Power Systems (UPS) - Part 2: Electromagnetic compatibility (EMC) requirements C3<br><br>IEC 62040-2: 2016, 3rd edition Uninterruptible Power Systems (UPS) - Part 2: Electromagnetic compatibility (EMC) requirements C3 |
| Performance | Performance in accordance with: IEC 62040-3: 2021-04, 3rd edition Uninterruptible Power Systems (UPS) - Part 3: Method of specifying the performance and test requirements. Output performance classification (according to IEC 62040-3, Clause 5.3.4): VFI SS 11 |
| Transportation | ISTA 2B 2011 |
| Earthing system | Supports TN, TT(1), IT(2) |
| Overvoltage category | OVC III |
| Protective class | I |
| Pollution degree | 2 |

(1) Neutral connection is mandatory for supported TT earthing system.
(2) Neutral connection is mandatory for supported IT earthing system.

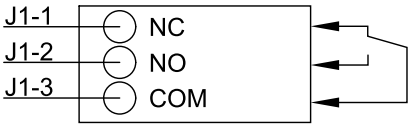
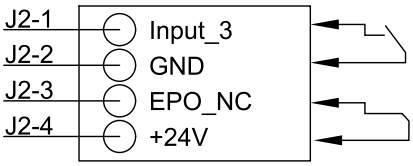
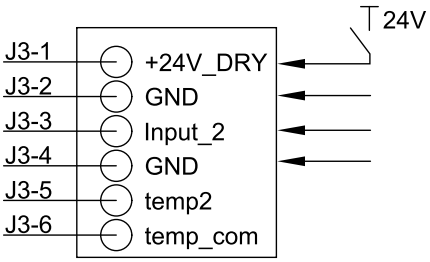
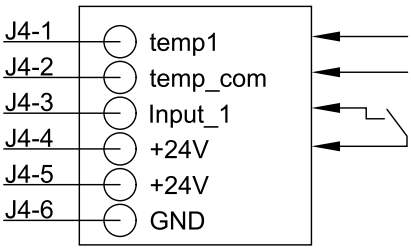
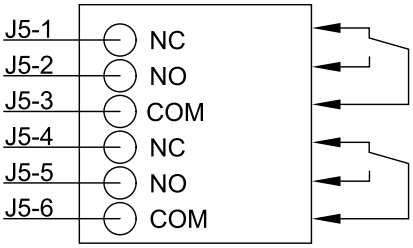
# Communication and Management

| | |
|---|---|
| Modbus | Modbus (RTU) |
| Output relays | 3 x SELV configurable |
| Input contacts | 3 x SELV configurable |
| Standard control panel | 5 inch touchscreen display |
| Audible alarm | Yes |
| Emergency power off (EPO) | Options:<br>• Normally Closed (NC) |
| Internal switch | UIB<br>UOB<br>SSIB<br>MBB<br>BB (Only applicable for UPS for internal batteries) |
| Battery monitoring | Available for external battery solutions |

# Configurable Input Contacts and Output Relays

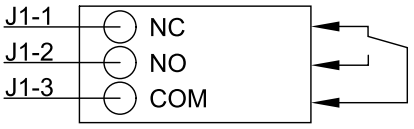
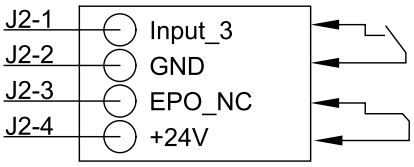
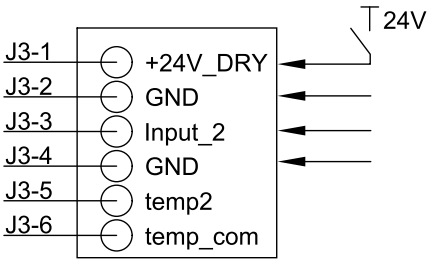
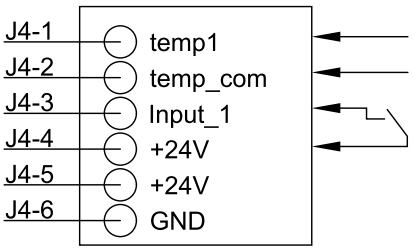
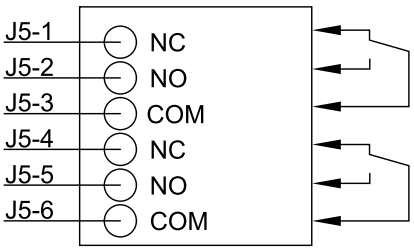



**Configurable Input Contacts and Output Relays (UPS for Internal Batteries)**

| Terminal | Function | | Diagram |
|---|---|---|---|
| J1-1 | Configurable output (30 VDC / 3 A) | NC |  |
| J1-2 | | NO | |
| J1-3 | | COM | |
| J2-1 | Configurable input (24 VDC / 1 mA) | Input_3 |  |
| J2-2 | | GND | |
| J2-3 | EPO normally closed (24 VDC / 1 mA) | EPO NC | |
| J2-4 | | +24 V | |
| J3-1 | Configurable output (24 VDC / 400 mA) | +24_DRY |  |
| J3-2 | | GND | |
| J3-3 | Configurable input[3] (24 VDC / 1 mA) | Input_2 | |
| J3-4 | | GND | |
| J3-5 | Ambient temperature signal | Temp 2 | |
| J3-6 | | Temp_COM | |
| J4-1 | External battery temperature signal[4] | Temp 1 |  |
| J4-2 | | Temp_COM | |
| J4-3 | Configurable input / (24 VDC / 1 mA) | Input_1 | |
| J4-4 | — (24 VDC / 400 mA) | +24 V | |
| J4-5 | — (24 VDC / 400 mA) | +24 V | |
| J4-6 | — | GND | |
| J5-1 | Configurable output [5] (30 VDC / 3 A) | NC |  |
| J5-2 | | NO | |
| J5-3 | | COM | |
| J5-4 | Bypass backfeed trip (30 VDC / 3 A) | NC | |
| J5-5 | | NO | |
| J5-6 | | COM | |

(3) For E3SP10KHB, E3SP15KHB, E3SP20KHB, E3SP30KHB, or E3SP40KHB, the default function for J3-3 is UIB open.
(4) The battery temperature sensor is built-in for E3SP10KHB, E3SP15KHB, E3SP20KHB, E3SP30KHB, or E3SP40KHB.
(5) For E3SP10KHB, E3SP15KHB, E3SP20KHB, E3SP30KHB, or E3SP40KHB, the default function for J5-1, J5-2, and J5-3 is Main backfeed trip.

**Configurable Input Contacts and Output Relays (UPS for External Batteries)**

| Terminal | Function | | Diagram |
|---|---|---|---|
| J1-1 | Configurable output (30 VDC / 3 A) | NC |  |
| J1-2 | | NO | |
| J1-3 | | COM | |
| J2-1 | Configurable input (24 VDC / 1 mA) | Input_3 |  |
| J2-2 | | GND | |
| J2-3 | EPO normally closed (24 VDC / 1 mA) | EPO NC | |
| J2-4 | | +24 V | |
| J3-1 | Configurable output (24 VDC / 400 mA) | +24_DRY |  |
| J3-2 | | GND | |
| J3-3 | Configurable input (24 VDC / 1 mA) | Input_2 | |
| J3-4 | | GND | |
| J3-5 | Ambient temperature signal | Temp 2 | |
| J3-6 | | Temp_COM | |
| J4-1 | External battery temperature signal | Temp 1 |  |
| J4-2 | | Temp_COM | |
| J4-3 | Configurable input(6) / (24 VDC / 1 mA) | Input_1 | |
| J4-4 | — (24 VDC / 400 mA) | +24 V | |
| J4-5 | — (24 VDC / 400 mA) | +24 V | |
| J4-6 | — | GND | |
| J5-1 | Configurable output (30 VDC / 3 A) | NC |  |
| J5-2 | | NO | |
| J5-3 | | COM | |
| J5-4 | Bypass backfeed trip (30 VDC / 3 A) | NC | |
| J5-5 | | NO | |
| J5-6 | | COM | |

(6) For E3SP15KHIN, E3SP20KHIN, E3SP30KHIN, or E3SP40KHIN, the default function for J4-3 is surge protection abnormal.

# Requirements for a Third Party Battery Solution (Only for UPS for External Batteries)

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

## Third Party Battery Circuit Breaker Requirements

**⚠⚠DANGER**

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

- All selected battery circuit 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 circuit breakers.

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

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

**Design Requirements for a Battery Circuit Breaker**

| | |
|---|---|
| Battery circuit 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 circuit 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 | Three DC landings (+, -, N) for DC cables are required. |
| AUX switches for monitoring | One AUX switch must be installed in the battery circuit breaker and connected to the UPS. The UPS can monitor one battery circuit breaker. |
| 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 circuit breaker must match the (smallest) battery configuration, to make the circuit breaker trip in case of a short circuit, up to the end of its life time. |

# UPS for Internal Batteries Specifications

## Specifications for 10 kVA UPS

| | Voltage (V) | 380 | 400 | 415 |
|---|---|---|---|---|
| Input | Connections | 4-wire (L1, L2, L3, N, PE)(7) | | |
| | Input voltage range (V) | 304-477 | 320-477 | 332-477 |
| | Frequency range (Hz) | 40-70 | | |
| | Nominal input current (A) | 16 | 16 | 15 |
| | Maximum input current (A) | 21 | 20 | 19 |
| | Input current limitation (A) | 21 | 20 | 19 |
| | Minimum short circuit rating | Dependent on upstream protection. See Upstream and Downstream Protection, page 58 for details. | | |
| | Maximum short circuit rating | Icc = 16 kA | | |
| | Total harmonic distortion (THDI) | < 3% at full linear load<br>< 4% (full non-linear load) | | |
| | Input power factor | 0.99 at load > 75% | | |
| | Protection | Built-in backfeed circuit breaker and fuses | | |
| Bypass | Connections | 4-wire (L1, L2, L3, N, PE)(7) | | |
| | Bypass voltage range (V) | 342-418 | 360-440 | 373-457 |
| | Frequency (Hz) | 50 or 60 | | |
| | Frequency range (Hz) | Selectable, ±1, ±3, ±5 | | |
| | Nominal bypass current (A) | 16 | 15 | 15 |
| | Minimum short circuit rating | Dependent on upstream protection. See Upstream and Downstream Protection, page 58 for details. | | |
| | Maximum short circuit rating | 16 kA | | |
| | Backfeed protection | Dry contact (with 24 VDC source) | | |

(7) Note: Refer to the earthing diagrams for your specific earthing system requirements concerning the N connection.

| | Voltage (V) | 380 | 400 | 415 |
|---|---|---|---|---|
| Output | Connections[8] | 4-wire (L1, L2, L3, N, PE)[9] | | |
| | Output voltage regulation | Symmetrical load ± 1%<br>Asymmetrical load ± 3% | | |
| | Overload capacity | Normal operation: 110% for 60 minutes, 125% for 10 minutes, 150% for 1 minute<br>Battery operation: 110% for 60 minutes, 125% for 10 minutes, 150% for 1 minute<br>Bypass operation: 150% for 1 minute, 125% for 10 minutes, 110% continuous | | |
| | Output power factor | 1 | | |
| | Nominal output current (A) | 16 | 15 | 14 |
| | Maximum short circuit rating | 16 kA | | |
| | Inverter output short circuit capabilities | Varies with time. See graph and table values in Inverter Short Circuit Capabilities (Bypass not Available), page 22. | | |
| | Output short circuit current (inverter) (A)[10] | 34 | | |
| | Output frequency (Hz) | 50/60 Hz bypass synchronized; 50/60 Hz ±0.1% free running | | |
| | Synchronized slew rate (Hz/sec) | Programmable: 0.5, 1.0, 1.5, or 2.0. Default is 2.0. | | |
| | Total harmonic distortion (THDU) | <1% for 100% balanced linear load<br><5% for non-linear load | | |
| | Output voltage compensation | ± 10 V | | |
| | Output performance classification (according to IEC/ EN62040-3) | VFI SS 11 | | |
| | Load crest factor | Maximum crest factor 3:1 | | |
| | Load power factor | From 0.7 leading to 0.7 lagging without any derating | | |
| Battery | Charging power in % of output power | Programmable from 1% to 30% of UPS capacity. Default is 10%. | | |
| | Maximum charging power (kW) (at 100% load) | 2 | | |
| | Maximum charging power (kW) (at 0% load) | 3 | | |
| | Number of battery blocks | 40 blocks | | |
| | Nominal battery voltage (VDC) | 480 | | |
| | Nominal float voltage (VDC) | 545 | | |
| | Maximum boost voltage (VDC) | 572 | | |
| | Maximum charge current (A) | 5.5 | | |
| | Temperature compensation (per cell) | Compensate with 15 °C (if < 15°C)<br>+(0-5) mV (if 15 – 25 °C)<br>-(0-5) mV (if 25 – 35 °C)<br>Compensate with 35 °C (if ≥ 35 °C) | | |
| | End of discharge voltage (full load) (VDC) | 384 | | |
| | End of discharge voltage (no load) (VDC) | 420 | | |
| | Battery current at full load and nominal battery voltage (A) | 22 | | |
| | Battery current at full load and minimum battery voltage (A) | 27 | | |
| | Ripple current | < 5% C10 | | |
| | Battery test | Manual/automatic (selectable) | | |
| | Maximum short circuit rating | 16 kA | | |

**NOTE:** Battery specifications are based on VRLA batteries.

(8) The number of output connections must match the number of input connections in a single mains system. The number of output connections must match the number of bypass connections in a dual mains system.
(9) Note: Refer to the earthing diagrams for your specific earthing system requirements concerning the N connection.
(10) The output short circuit current (inverter) is based on IK1 at 10 ms.

# Specifications for 15 kVA UPS

| | Voltage (V) | 380 | 400 | 415 |
|---|---|---|---|---|
| Input | Connections | 4-wire (L1, L2, L3, N, PE)(11) | | |
| | Input voltage range (V) | 304-477 | 320-477 | 332-477 |
| | Frequency range (Hz) | 40-70 | | |
| | Nominal input current (A) | 24 | 23 | 22 |
| | Maximum input current (A) | 31 | 29 | 28 |
| | Input current limitation (A) | 31 | 29 | 28 |
| | Minimum short circuit rating | Dependent on upstream protection. See Upstream and Downstream Protection, page 58 for details. | | |
| | Maximum short circuit rating | Icc = 16 kA | | |
| | Total harmonic distortion (THDI) | < 3% at full linear load<br>< 4% (full non-linear load) | | |
| | Input power factor | 0.99 at load > 75% | | |
| | Protection | Built-in backfeed circuit breaker and fuses | | |
| Bypass | Connections | 4-wire (L1, L2, L3, N, PE)(11) | | |
| | Bypass voltage range (V) | 342-418 | 360-440 | 373-457 |
| | Frequency (Hz) | 50 or 60 | | |
| | Frequency range (Hz) | Selectable, ±1, ±3, ±5 | | |
| | Nominal bypass current (A) | 24 | 22 | 22 |
| | Minimum short circuit rating | Dependent on upstream protection. See Upstream and Downstream Protection, page 58 for details. | | |
| | Maximum short circuit rating | 16 kA | | |
| | Backfeed protection | Dry contact (with 24 VDC source) | | |

(11) Note: Refer to the earthing diagrams for your specific earthing system requirements concerning the N connection.

| | Voltage (V) | 380 | 400 | 415 |
|---|---|---|---|---|
| Output | Connections[12] | 4-wire (L1, L2, L3, N, PE)[13] | | |
| | Output voltage regulation | Symmetrical load ± 1%<br>Asymmetrical load ± 3% | | |
| | Overload capacity | Normal operation: 110% for 60 minutes, 125% for 10 minutes, 150% for 1 minute<br>Battery operation: 110% for 60 minutes, 125% for 10 minutes, 150% for 1 minute<br>Bypass operation: 150% for 1 minute, 125% for 10 minutes, 110% continuous | | |
| | Output power factor | 1 | | |
| | Nominal output current (A) | 23 | 22 | 21 |
| | Maximum short circuit rating | 16 kA | | |
| | Inverter output short circuit capabilities | Varies with time. See graph and table values in Inverter Short Circuit Capabilities (Bypass not Available), page 22. | | |
| | Output short circuit current (inverter) (A)[14] | 52 | | |
| | Output frequency (Hz) | 50/60 Hz bypass synchronized; 50/60 Hz ±0.1% free running | | |
| | Synchronized slew rate (Hz/sec) | Programmable: 0.5, 1.0, 1.5, or 2.0. Default is 2.0. | | |
| | Total harmonic distortion (THDU) | <1% for 100% balanced linear load<br><5% for non-linear load | | |
| | Output voltage compensation | ± 10 V | | |
| | Output performance classification (according to IEC/ EN62040-3) | VFI SS 11 | | |
| | Load crest factor | Maximum crest factor 3:1 | | |
| | Load power factor | From 0.7 leading to 0.7 lagging without any derating | | |
| Battery | Charging power in % of output power | Programmable from 1% to 26% of UPS capacity. Default is 10%. | | |
| | Maximum charging power (kW) (at 100% load) | 3 | | |
| | Maximum charging power (kW) (at 0% load) | 3.9 | | |
| | Number of battery blocks | 40 blocks | | |
| | Nominal battery voltage (VDC) | 480 | | |
| | Nominal float voltage (VDC) | 545 | | |
| | Maximum boost voltage (VDC) | 572 | | |
| | Maximum charge current (A) | 7.1 | | |
| | Temperature compensation (per cell) | Compensate with 15 °C (if < 15°C)<br>+(0-5) mV (if 15 – 25 °C)<br>-(0-5) mV (if 25 – 35 °C)<br>Compensate with 35 °C (if ≥ 35 °C) | | |
| | End of discharge voltage (full load) (VDC) | 384 | | |
| | End of discharge voltage (no load) (VDC) | 420 | | |
| | Battery current at full load and nominal battery voltage (A) | 33 | | |
| | Battery current at full load and minimum battery voltage (A) | 41 | | |
| | Ripple current | < 5% C10 | | |
| | Battery test | Manual/automatic (selectable) | | |
| | Maximum short circuit rating | 16 kA | | |

**NOTE:** Battery specifications are based on VRLA batteries.

(12) The number of output connections must match the number of input connections in a single mains system. The number of output connections must match the number of bypass connections in a dual mains system.
(13) Note: Refer to the earthing diagrams for your specific earthing system requirements concerning the N connection.
(14) The output short circuit current (inverter) is based on IK1 at 10 ms.

# Specifications for 20 kVA UPS

| | Voltage (V) | 380 | 400 | 415 |
|---|---|---|---|---|
| Input | Connections | 4-wire (L1, L2, L3, N, PE)(15) | | |
| | Input voltage range (V) | 304-477 | 320-477 | 332-477 |
| | Frequency range (Hz) | 40-70 | | |
| | Nominal input current (A) | 32 | 31 | 29 |
| | Maximum input current (A) | 41 | 39 | 38 |
| | Input current limitation (A) | 41 | 39 | 38 |
| | Minimum short circuit rating | Dependent on upstream protection. See Upstream and Downstream Protection, page 58 for details. | | |
| | Maximum short circuit rating | Icc = 16 kA | | |
| | Total harmonic distortion (THDI) | < 3% at full linear load<br>< 4% (full non-linear load) | | |
| | Input power factor | 0.99 at load > 75% | | |
| | Protection | Built-in backfeed circuit breaker and fuses | | |
| Bypass | Connections | 4-wire (L1, L2, L3, N, PE)(15) | | |
| | Bypass voltage range (V) | 342-418 | 360-440 | 373-457 |
| | Frequency (Hz) | 50 or 60 | | |
| | Frequency range (Hz) | Selectable, ±1, ±3, ±5 | | |
| | Nominal bypass current (A) | 31 | 30 | 29 |
| | Minimum short circuit rating | Dependent on upstream protection. See Upstream and Downstream Protection, page 58 for details. | | |
| | Maximum short circuit rating | 16 kA | | |
| | Backfeed protection | Dry contact (with 24 VDC source) | | |

(15) Note: Refer to the earthing diagrams for your specific earthing system requirements concerning the N connection.

| | Voltage (V) | 380 | 400 | 415 |
|---|---|---|---|---|
| Output | Connections[16] | 4-wire (L1, L2, L3, N, PE)[17] | | |
| | Output voltage regulation | Symmetrical load ± 1%<br>Asymmetrical load ± 3% | | |
| | Overload capacity | Normal operation: 110% for 60 minutes, 125% for 10 minutes, 150% for 1 minute<br>Battery operation: 110% for 60 minutes, 125% for 10 minutes, 150% for 1 minute<br>Bypass operation: 150% for 1 minute, 125% for 10 minutes, 110% continuous | | |
| | Output power factor | 1 | | |
| | Nominal output current (A) | 31 | 29 | 28 |
| | Maximum short circuit rating | 16 kA | | |
| | Inverter output short circuit capabilities | Varies with time. See graph and table values in Inverter Short Circuit Capabilities (Bypass not Available), page 22. | | |
| | Output short circuit current (inverter) (A)[18] | 74 | | |
| | Output frequency (Hz) | 50/60 Hz bypass synchronized; 50/60 Hz ±0.1% free running | | |
| | Synchronized slew rate (Hz/sec) | Programmable: 0.5, 1.0, 1.5, or 2.0. Default is 2.0. | | |
| | Total harmonic distortion (THDU) | <1% for 100% balanced linear load<br><5% for non-linear load | | |
| | Output voltage compensation | ± 10 V | | |
| | Output performance classification (according to IEC/ EN62040-3) | VFI SS 11 | | |
| | Load crest factor | Maximum crest factor 3:1 | | |
| | Load power factor | From 0.7 leading to 0.7 lagging without any derating | | |
| Battery | Charging power in % of output power | Programmable from 1% to 20% of UPS capacity. Default is 10%. | | |
| | Maximum charging power (kW) (at 100% load) | 4 | | |
| | Maximum charging power (kW) (at 0% load) | 4 | | |
| | Number of battery blocks | 40 blocks | | |
| | Nominal battery voltage (VDC) | 480 | | |
| | Nominal float voltage (VDC) | 545 | | |
| | Maximum boost voltage (VDC) | 572 | | |
| | Maximum charge current (A) | 7.4 | | |
| | Temperature compensation (per cell) | Compensate with 15 °C (if < 15°C)<br>+(0-5) mV (if 15 – 25 °C)<br>-(0-5) mV (if 25 – 35 °C)<br>Compensate with 35 °C (if ≥ 35 °C) | | |
| | End of discharge voltage (full load) (VDC) | 384 | | |
| | End of discharge voltage (no load) (VDC) | 420 | | |
| | Battery current at full load and nominal battery voltage (A) | 44 | | |
| | Battery current at full load and minimum battery voltage (A) | 55 | | |
| | Ripple current | < 5% C10 | | |
| | Battery test | Manual/automatic (selectable) | | |
| | Maximum short circuit rating | 16 kA | | |

**NOTE:** Battery specifications are based on VRLA batteries.

(16) The number of output connections must match the number of input connections in a single mains system. The number of output connections must match the number of bypass connections in a dual mains system.
(17) Note: Refer to the earthing diagrams for your specific earthing system requirements concerning the N connection.
(18) The output short circuit current (inverter) is based on IK1 at 10 ms.

# Specifications for 30 kVA UPS

| | Voltage (V) | 380 | 400 | 415 |
|---|---|---|---|---|
| Input | Connections | 4-wire (L1, L2, L3, N, PE)(19) | | |
| | Input voltage range (V) | 304-477 | 320-477 | 332-477 |
| | Frequency range (Hz) | 40-70 | | |
| | Nominal input current (A) | 48 | 46 | 44 |
| | Maximum input current (A) | 60 | 57 | 55 |
| | Input current limitation (A) | 60 | 57 | 55 |
| | Minimum short circuit rating | Dependent on upstream protection. See Upstream and Downstream Protection, page 58 for details. | | |
| | Maximum short circuit rating | Icc = 16 kA | | |
| | Total harmonic distortion (THDI) | < 3% at full linear load<br>< 4% (full non-linear load) | | |
| | Input power factor | 0.99 at load > 75% | | |
| | Protection | Built-in backfeed circuit breaker and fuses | | |
| Bypass | Connections | 4-wire (L1, L2, L3, N, PE)(19) | | |
| | Bypass voltage range (V) | 342-418 | 360-440 | 373-457 |
| | Frequency (Hz) | 50 or 60 | | |
| | Frequency range (Hz) | Selectable, ±1, ±3, ±5 | | |
| | Nominal bypass current (A) | 47 | 44 | 43 |
| | Minimum short circuit rating | Dependent on upstream protection. See Upstream and Downstream Protection, page 58 for details. | | |
| | Maximum short circuit rating | 16 kA | | |
| | Backfeed protection | Dry contact (with 24 VDC source) | | |

(19) Note: Refer to the earthing diagrams for your specific earthing system requirements concerning the N connection.

| | Voltage (V) | 380 | 400 | 415 |
|---|---|---|---|---|
| Output | Connections[20] | 4-wire (L1, L2, L3, N, PE)[21] | | |
| | Output voltage regulation | Symmetrical load ± 1%<br>Asymmetrical load ± 3% | | |
| | Overload capacity | Normal operation: 110% for 60 minutes, 125% for 10 minutes, 150% for 1 minute<br>Battery operation: 110% for 60 minutes, 125% for 10 minutes, 150% for 1 minute<br>Bypass operation: 150% for 1 minute, 125% for 10 minutes, 110% continuous | | |
| | Output power factor | 1 | | |
| | Nominal output current (A) | 46 | 44 | 42 |
| | Maximum short circuit rating | 16 kA | | |
| | Inverter output short circuit capabilities | Varies with time. See graph and table values in Inverter Short Circuit Capabilities (Bypass not Available), page 22. | | |
| | Output short circuit current (inverter) (A)[22] | 104 | | |
| | Output frequency (Hz) | 50/60 Hz bypass synchronized; 50/60 Hz ±0.1% free running | | |
| | Synchronized slew rate (Hz/sec) | Programmable: 0.5, 1.0, 1.5, or 2.0. Default is 2.0. | | |
| | Total harmonic distortion (THDU) | <1% for 100% balanced linear load<br><5% for non-linear load | | |
| | Output voltage compensation | ± 10 V | | |
| | Output performance classification (according to IEC/ EN62040-3) | VFI SS 11 | | |
| | Load crest factor | Maximum crest factor 3:1 | | |
| | Load power factor | From 0.7 leading to 0.7 lagging without any derating | | |
| Battery | Charging power in % of output power | Programmable from 1% to 26% of UPS capacity. Default is 10%. | | |
| | Maximum charging power (kW) (at 100% load) | 6 | | |
| | Maximum charging power (kW) (at 0% load) | 7.8 | | |
| | Number of battery blocks | 40 blocks | | |
| | Nominal battery voltage (VDC) | 480 | | |
| | Nominal float voltage (VDC) | 545 | | |
| | Maximum boost voltage (VDC) | 572 | | |
| | Maximum charge current (A) | 14.4 | | |
| | Temperature compensation (per cell) | Compensate with 15 °C (if < 15°C)<br>+(0-5) mV (if 15 – 25 °C)<br>-(0-5) mV (if 25 – 35 °C)<br>Compensate with 35 °C (if ≥ 35 °C) | | |
| | End of discharge voltage (full load) (VDC) | 384 | | |
| | End of discharge voltage (no load) (VDC) | 420 | | |
| | Battery current at full load and nominal battery voltage (A) | 65 | | |
| | Battery current at full load and minimum battery voltage (A) | 82 | | |
| | Ripple current | < 5% C10 | | |
| | Battery test | Manual/automatic (selectable) | | |
| | Maximum short circuit rating | 16 kA | | |

**NOTE:** Battery specifications are based on VRLA batteries.

(20) The number of output connections must match the number of input connections in a single mains system. The number of output connections must match the number of bypass connections in a dual mains system.
(21) Note: Refer to the earthing diagrams for your specific earthing system requirements concerning the N connection.
(22) The output short circuit current (inverter) is based on IK1 at 10 ms.

# Specifications for 40 kVA UPS

| | Voltage (V) | 380 | 400 | 415 |
|---|---|---|---|---|
| Input | Connections | 4-wire (L1, L2, L3, N, PE)(23) | | |
| | Input voltage range (V) | 304-477 | 320-477 | 332-477 |
| | Frequency range (Hz) | 40-70 | | |
| | Nominal input current (A) | 64 | 61 | 58 |
| | Maximum input current (A) | 81 | 77 | 74 |
| | Input current limitation (A) | 81 | 77 | 74 |
| | Minimum short circuit rating | Dependent on upstream protection. See Upstream and Downstream Protection, page 58 for details. | | |
| | Maximum short circuit rating | Icc = 16 kA | | |
| | Total harmonic distortion (THDI) | < 3% at full linear load<br>< 4% (full non-linear load) | | |
| | Input power factor | 0.99 at load > 75% | | |
| | Protection | Built-in backfeed circuit breaker and fuses | | |
| Bypass | Connections | 4-wire (L1, L2, L3, N, PE)(23) | | |
| | Bypass voltage range (V) | 342-418 | 360-440 | 373-457 |
| | Frequency (Hz) | 50 or 60 | | |
| | Frequency range (Hz) | Selectable, ±1, ±3, ±5 | | |
| | Nominal bypass current (A) | 62 | 59 | 57 |
| | Minimum short circuit rating | Dependent on upstream protection. See Upstream and Downstream Protection, page 58 for details. | | |
| | Maximum short circuit rating | 16 kA | | |
| | Backfeed protection | Dry contact (with 24 VDC source) | | |

(23) Note: Refer to the earthing diagrams for your specific earthing system requirements concerning the N connection.

| | Voltage (V) | 380 | 400 | 415 |
|---|---|---|---|---|
| Output | Connections[24] | 4-wire (L1, L2, L3, N, PE)[25] | | |
| | Output voltage regulation | Symmetrical load ± 1%<br>Asymmetrical load ± 3% | | |
| | Overload capacity | Normal operation: 110% for 60 minutes, 125% for 10 minutes, 150% for 1 minute<br>Battery operation: 110% for 60 minutes, 125% for 10 minutes, 150% for 1 minute<br>Bypass operation: 150% for 1 minute, 125% for 10 minutes, 110% continuous | | |
| | Output power factor | 1 | | |
| | Nominal output current (A) | 61 | 58 | 56 |
| | Maximum short circuit rating | 16 kA | | |
| | Inverter output short circuit capabilities | Varies with time. See graph and table values in Inverter Short Circuit Capabilities (Bypass not Available), page 22. | | |
| | Output short circuit current (inverter) (A)[26] | 140 | | |
| | Output frequency (Hz) | 50/60 Hz bypass synchronized; 50/60 Hz ±0.1% free running | | |
| | Synchronized slew rate (Hz/sec) | Programmable: 0.5, 1.0, 1.5, or 2.0. Default is 2.0. | | |
| | Total harmonic distortion (THDU) | <1% for 100% balanced linear load<br><5% for non-linear load | | |
| | Output voltage compensation | ± 10 V | | |
| | Output performance classification (according to IEC/ EN62040-3) | VFI SS 11 | | |
| | Load crest factor | Maximum crest factor 3:1 | | |
| | Load power factor | From 0.7 leading to 0.7 lagging without any derating | | |
| Battery | Charging power in % of output power | Programmable from 1% to 20% of UPS capacity. Default is 10%. | | |
| | Maximum charging power (kW) (at 100% load) | 8 | | |
| | Maximum charging power (kW) (at 0% load) | 8 | | |
| | Number of battery blocks | 40 blocks | | |
| | Nominal battery voltage (VDC) | 480 | | |
| | Nominal float voltage (VDC) | 545 | | |
| | Maximum boost voltage (VDC) | 572 | | |
| | Maximum charge current (A) | 14.8 | | |
| | Temperature compensation (per cell) | Compensate with 15 °C (if < 15°C)<br>+(0-5) mV (if 15 – 25 °C)<br>-(0-5) mV (if 25 – 35 °C)<br>Compensate with 35 °C (if ≥ 35 °C) | | |
| | End of discharge voltage (full load) (VDC) | 384 | | |
| | End of discharge voltage (no load) (VDC) | 420 | | |
| | Battery current at full load and nominal battery voltage (A) | 87 | | |
| | Battery current at full load and minimum battery voltage (A) | 109 | | |
| | Ripple current | < 5% C10 | | |
| | Battery test | Manual/automatic (selectable) | | |
| | Maximum short circuit rating | 16 kA | | |

**NOTE:** Battery specifications are based on VRLA batteries.

(24) The number of output connections must match the number of input connections in a single mains system. The number of output connections must match the number of bypass connections in a dual mains system.
(25) Note: Refer to the earthing diagrams for your specific earthing system requirements concerning the N connection.
(26) The output short circuit current (inverter) is based on IK1 at 10 ms.

# Upstream and Downstream Protection

**NOTE:** For local directives which require 4-pole circuit breakers: 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:** For local directives which require 4-pole circuit breakers: Refer to the earthing diagrams for details about neutral connection.

The bypass/output disconnect devices are sized based on the nominal current +10%. This is to accommodate either low grid voltage or deviation in length between parallel UPSs.

## Required Upstream Protection for 380/400/415 V (IEC) and Minimum Prospective Phase-To-Earth Short Circuit at the UPS Input/Bypass Terminals

**⚠⚠DANGER**

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

The upstream overcurrent protective device (and its settings) must be sized to ensure a disconnecting time within 0.07 seconds in case of a short circuit between the input/bypass phase and the UPS.

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

Compliance is assured with the recommended circuit breaker (and its settings) from the table below.

## Required 3-Pole Upstream Protection

**NOTE:** Ir must be set on the circuit breakers during start-up.

| **UPS rating** | **10 kVA** | | | | | |
|---|---|---|---|---|---|---|
| | **Input** | | | **Bypass/Output** | | |
| **Voltage (V)** | **380** | **400** | **415** | **380** | **400** | **415** |
| Circuit breaker type | NSX100B TM25D 3P3D, C10B3TM025 | | | NSX100B TM25D 3P3D, C10B3TM025 | | |
| In | 25 | 25 | 25 | 25 | 25 | 25 |
| Ir | 0.8 x In | 0.8 x In | 0.8 x In | 0.7 x In | 0.7 x In | 0.7 x In |
| Im | 300 | 300 | 300 | 300 | 300 | 300 |

| **UPS rating** | **15 kVA** | | | | | |
|---|---|---|---|---|---|---|
| | **Input** | | | **Bypass/Output** | | |
| **Voltage (V)** | **380** | **400** | **415** | **380** | **400** | **415** |
| Circuit breaker type | NSX100B NSX TM32D 3P3D, C10B3TM032 | | | NSX100B TM32D 3P3D, C10B3TM032 | | |
| In | 32 | 32 | 32 | 32 | 32 | 32 |
| Ir | In | In | In | 0.9 x In | 0.8 x In | 0.8 x In |
| Im | 400 | 400 | 400 | 400 | 400 | 400 |

| UPS rating | 20 kVA | | | | | |
|---|---|---|---|---|---|---|
| | Input | | | Bypass/Output | | |
| Voltage (V) | 380 | 400 | 415 | 380 | 400 | 415 |
| Circuit breaker type | NSX100B TM40D 3P3D, C10B3TM040 | | | NSX100B TM40D 3P3D, C10B3TM040 | | |
| In | 40 | 40 | 40 | 40 | 40 | 40 |
| Ir | In | In | In | 0.9 x In | 0.9 x In | 0.8 x In |
| Im | 500 | 500 | 500 | 500 | 500 | 500 |

| UPS rating | 30 kVA | | | | | |
|---|---|---|---|---|---|---|
| | Input | | | Bypass/Output | | |
| Voltage (V) | 380 | 400 | 415 | 380 | 400 | 415 |
| Circuit breaker type | NSX100B TM63D 3P3D, C10B3TM063 | | | NSX100B TM63D 3P3D, C10B3TM063 | | |
| In | 63 | 63 | 63 | 63 | 63 | 63 |
| Ir | In | In | In | 0.9 x In | 0.8 x In | 0.8 x In |
| Im | 500 | 500 | 500 | 500 | 500 | 500 |

| UPS rating | 40 kVA | | | | | |
|---|---|---|---|---|---|---|
| | Input | | | Bypass/Output | | |
| Voltage (V) | 380 | 400 | 415 | 380 | 400 | 415 |
| Circuit breaker type | NSX100B TM63D 3P3D, C10B3TM080 | | | NSX100B TM63D 3P3D, C10B3TM080 | | |
| In | 80 | 80 | 80 | 80 | 80 | 80 |
| Ir | In | In | In | 0.9 x In | 0.9 x In | 0.8 x In |
| Im | 640 | 640 | 640 | 640 | 640 | 640 |

# Required 4-Pole Upstream Protection

**NOTE:** Ir must be set on the circuit breakers during start-up.

| UPS rating | 10 kVA | | | | | |
|---|---|---|---|---|---|---|
| | Input | | | Bypass/Output | | |
| Voltage (V) | 380 | 400 | 415 | 380 | 400 | 415 |
| Circuit breaker type | NSX100B TM25D 4P3D, C10B6TM025 | | | NSX100B TM25D 4P3D, C10B6TM025 | | |
| In | 25 | 25 | 25 | 25 | 25 | 25 |
| Ir | 0.8 x In | 0.8 x In | 0.8 x In | 0.7 x In | 0.7 x In | 0.7 x In |
| Im | 300 | 300 | 300 | 300 | 300 | 300 |

| UPS rating | 15 kVA | | | | | |
|---|---|---|---|---|---|---|
| | Input | | | Bypass/Output | | |
| Voltage (V) | 380 | 400 | 415 | 380 | 400 | 415 |
| Circuit breaker type | NSX100B TM40D 4P3D, C10B6TM040 | | | NSX100B TM40D 4P3D, C10B6TM040 | | |
| In | 40 | 40 | 40 | 40 | 40 | 40 |
| Ir | 0.8 x In | 0.8 x In | 0.8 x In | 0.7 x In | 0.7 x In | 0.7 x In |
| Im | 500 | 500 | 500 | 500 | 500 | 500 |

| UPS rating | 20 kVA | | | | | |
|---|---|---|---|---|---|---|
| | Input | | | Bypass/Output | | |
| Voltage (V) | 380 | 400 | 415 | 380 | 400 | 415 |
| Circuit breaker type | NSX100B TM63D 4P3D, C10B6TM063 | | | NSX100B TM63D 4P3D, C10B6TM063 | | |
| In | 63 | 63 | 63 | 63 | 63 | 63 |
| Ir | 0.7 x In | 0.7 x In | 0.7 x In | 0.7 x In | 0.7 x In | 0.7 x In |
| Im | 500 | 500 | 500 | 500 | 500 | 500 |

| UPS rating | 30 kVA | | | | | |
|---|---|---|---|---|---|---|
| | Input | | | Bypass/Output | | |
| Voltage (V) | 380 | 400 | 415 | 380 | 400 | 415 |
| Circuit breaker type | NSX100B TM80D 4P3D, C10B6TM080 | | | NSX100B TM80D 4P3D, C10B6TM080 | | |
| In | 80 | 80 | 80 | 80 | 80 | 80 |
| Ir | 0.8 x In | 0.8 x In | 0.8 x In | 0.7 x In | 0.7 x In | 0.7 x In |
| Im | 640 | 640 | 640 | 640 | 640 | 640 |

| UPS rating | 40 kVA | | | | | |
|---|---|---|---|---|---|---|
| | Input | | | Bypass/Output | | |
| Voltage (V) | 380 | 400 | 415 | 380 | 400 | 415 |
| Circuit breaker type | NSX100B TM100D 4P3D, C10B6TM100 | | | NSX100B TM100D 4P3D, C10B6TM100 | | |
| In | 100 | 100 | 100 | 100 | 100 | 100 |
| Ir | 0.8 x In | 0.8 x In | 0.8 x In | 0.7 x In | 0.7 x In | 0.7 x In |
| Im | 800 | 800 | 800 | 800 | 800 | 800 |

## Recommended Downstream Protection for 380/400/415 V (IEC)

| UPS rating | Circuit breaker type |
|---|---|
| 10 kVA | IC65N-4P-C 4A / IC65H-4P-C 4A |
| 15 kVA | IC65N-4P-C 4A / IC65H-4P-C 4A |
| 20 kVA | IC65N-4P-C 6A / IC65H-4P-C 6A |
| 30 kVA | IC65N-4P-C 6A / IC65H-4P-C 6A |
| 40 kVA | IC65N-4P-C 10A / IC65H-4P-C 10A |

## Recommended Cable 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 6 $mm^2$ (10 -15 kVA UPS), 16 $mm^2$ (20 kVA UPS) , 25 $mm^2$ (30 kVA UPS), or 35 $mm^2$ (40 kVA UPS).
- Shrink sleeves must be fitted over the cable lug crimped zone and must overlap with the cable insulation on all power cables.

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

**NOTE:** Overcurrent protection is to be provided by others.

Cable sizes in this manual are based on the minimum requirements in table B.52.3 and 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
- PE cable size is based on table 54.2 of IEC 60364-5-54
- Installation method C
- 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%.
- Specific to DC cables: Maximum length 15 m with a line voltage drop <1%

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

**NOTE:** Recommended cable sizes and maximum allowable cable size may vary for the auxiliary products. Refer to the installation manual provided with the auxiliary product.

**NOTE:** The DC cable sizes given here are recommendations – Always follow the specific instructions in the battery solution documentation for DC cable sizes and DC PE cable sizes and ensure that the DC cable sizes match the battery disconnect device rating.

### Copper

| **UPS rating** | **10 kVA** | | | **15 kVA** | | | **20 kVA** | | |
|---|---|---|---|---|---|---|---|---|---|
| **Voltage (V)** | **380** | **400** | **415** | **380** | **400** | **415** | **380** | **400** | **415** |
| Input phases ($mm^2$) | 6 | 6 | 6 | 6 | 6 | 6 | 10 | 10 | 10 |
| Input PE ($mm^2$) | 6 | 6 | 6 | 6 | 6 | 6 | 10 | 10 | 10 |
| Bypass/output phases ($mm^2$) | 6 | 6 | 6 | 6 | 6 | 6 | 10 | 10 | 10 |
| Bypass PE/output PE ($mm^2$) | 6 | 6 | 6 | 6 | 6 | 6 | 10 | 10 | 10 |
| Neutral ($mm^2$) | 6 | 6 | 6 | 6 | 6 | 6 | 16 | 16 | 16 |
| DC+/DC-/DC N ($mm^2$) | 6 | 6 | 6 | 6 | 6 | 6 | 16 | 16 | 16 |
| DC PE ($mm^2$) | 6 | 6 | 6 | 6 | 6 | 6 | 16 | 16 | 16 |

### Copper

| **UPS rating** | **30 kVA** | | | **40 kVA** | | |
|---|---|---|---|---|---|---|
| **Voltage (V)** | **380** | **400** | **415** | **380** | **400** | **415** |
| Input phases ($mm^2$) | 16 | 16 | 16 | 25 | 25 | 25 |
| Input PE ($mm^2$) | 16 | 16 | 16 | 16 | 16 | 16 |
| Bypass/output phases ($mm^2$) | 16 | 16 | 16 | 25 | 25 | 25 |
| Bypass PE/output PE ($mm^2$) | 16 | 16 | 16 | 16 | 16 | 16 |
| Neutral ($mm^2$) | 25 | 25 | 25 | 35 | 35 | 35 |
| DC+/DC-/DC N ($mm^2$) | 25 | 25 | 25 | 35 | 35 | 35 |
| DC PE ($mm^2$) | 16 | 16 | 16 | 16 | 16 | 16 |

# Load Sharing in Bypass Operation in a Parallel System

## *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.**

The impedance of the bypass paths needs 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.

# Recommended Bolt and Lug Sizes

### UPS for Internal Batteries

| Cable size mm² | Bolt size | Cable lug type |
|---|---|---|
| 6 | M6 | KST TLK6-6 |
| 8 | M6 | KST RNBS8-6 |
| 10 | M6 | KST TLK10-6 |
| 16 | M6 / M8 | KST TLK16-6 / KST TLK16-8 |
| 25 | M6 / M8 | KST TLK25-6 / KST TLK25-8 |
| 35 | M8 | KST TLK35-8 |

### UPS for External Batteries

| Cable size mm² | Bolt size | Cable lug type |
|---|---|---|
| 6 | M6 | KST TLK6-6 |
| 8 | M6 | KST RNBS8-6 |
| 10 | M6 | KST TLK10-6 |
| 16 | M6 | KST TLK16-6 |
| 25 | M6 | KST DRNB6-25 |
| 35 | M6 | KST TLK35-6 |

# Torque Specifications

| Bolt size | Torque |
|---|---|
| M5 | 4 Nm |
| M6 | 5 Nm |
| M8 | 12 Nm |

# Leakage Current

| UPS rating | Leakage current at 100% load (mA) |
|---|---|
| 10 kVA | 250 |
| 15 kVA | 250 |
| 20 kVA | 250 |
| 30 kVA | 100 |
| 40 kVA | 100 |

**NOTE:** As per IEC 62477-1, the leakage current should not exceed 5% of the rated input current.

# UPS for External Batteries Specifications

## Specifications for 10 kVA UPS

| | Voltage (V) | 380 | 400 | 415 |
|---|---|---|---|---|
| Input | Connections | 4-wire (L1, L2, L3, N, PE)(27) | | |
| | Input voltage range (V) | 304-477 | 320-477 | 332-477 |
| | Frequency range (Hz) | 40-70 | | |
| | Nominal input current (A) | 16 | 16 | 15 |
| | Maximum input current (A) | 21 | 20 | 19 |
| | Input current limitation (A) | 21 | 20 | 19 |
| | Minimum short circuit rating | Dependent on upstream protection. See Upstream and Downstream Protection, page 58 for details. | | |
| | Maximum short circuit rating | Icc = 16 kA | | |
| | Total harmonic distortion (THDI) | <3% at full linear load<br>≤ 4% (full non-linear load) | | |
| | Input power factor | 0.99 at load > 75% | | |
| | Protection | Fuse | | |
| Bypass | Connections | 4-wire (L1, L2, L3, N, PE)(27) | | |
| | Bypass voltage range (V) | 342-418 | 360-440 | 373-457 |
| | Frequency (Hz) | 50 or 60 | | |
| | Frequency range (Hz) | Selectable, ±1, ±3, ±5 | | |
| | Nominal bypass current (A) | 16 | 15 | 15 |
| | Minimum short circuit rating | Dependent on upstream protection. See Upstream and Downstream Protection, page 58 for details. | | |
| | Maximum short circuit rating | Icc = 16 kA | | |
| | Backfeed protection | Dry contact (with 24 VDC source) | | |

(27) Note: Refer to the earthing diagrams for your specific earthing system requirements concerning the N connection.

| | Voltage (V) | 380 | 400 | 415 |
|---|---|---|---|---|
| Output | Connections[28] | 4-wire (L1, L2, L3, N, PE)[29] | | |
| | Output voltage regulation | Symmetrical load ± 1%<br>Asymmetrical load ± 3% | | |
| | Overload capacity | Normal operation: 110% for 60 minutes, 125% for 10 minutes, 150% for 1 minute<br>Battery operation: 110% for 60 minutes, 125% for 10 minutes, 150% for 1 minute<br>Bypass operation: 150% for 1 minute, 125% for 10 minutes, 110% continuous | | |
| | Output power factor | 1 | | |
| | Nominal output current (A) | 16 | 15 | 14 |
| | Maximum short circuit rating | Icc = 16 kA | | |
| | Inverter output short circuit capabilities | Varies with time. See graph and table values in Inverter Short Circuit Capabilities (Bypass not Available), page 22.. | | |
| | Output short circuit current (inverter) (A)[30] | 34 | | |
| | Output frequency (Hz) | 50/60 Hz bypass synchronized; 50/60 Hz ±0.1% free running | | |
| | Synchronized slew rate (Hz/sec) | Programmable: 0.5, 1.0, 1.5, or 2.0. Default is 2.0. | | |
| | Total harmonic distortion (THDU) | <1% for 100% balanced linear load<br><5% for non-linear load | | |
| | Output voltage compensation | ± 10 V | | |
| | Output performance classification (according to IEC/ EN62040-3) | VFI SS 11 | | |
| | Load crest factor | Maximum crest factor 3:1 | | |
| | Load power factor | From 0.7 leading to 0.7 lagging without any derating | | |
| Battery | Charging power in % of output power | Programmable from 1% to 30% of UPS capacity. Default is 10%. | | |
| | Maximum charging power (kW) (at 100% load) | 2 | | |
| | Maximum charging power (kW) (at 0% load) | 3 | | |
| | Number of battery blocks | 32-40 blocks | | |
| | Nominal battery voltage (VDC) | 384-480 | | |
| | Nominal float voltage (VDC) | 436-545 | | |
| | Maximum boost voltage (VDC) | 457-572 | | |
| | Maximum charge current (A) | 5.5 | | |
| | Temperature compensation (per cell) | Compensate with 15 °C (if < 15°C)<br>+(0-5) mV (if 15 – 25 °C)<br>-(0-5) mV (if 25 – 35 °C)<br>Compensate with 35 °C (if ≥ 35 °C) | | |
| | End of discharge voltage (full load) (VDC) | 308-384 | | |
| | End of discharge voltage (no load) (VDC) | 336-420 | | |
| | Battery current at full load and nominal battery voltage (A) | 27-22 | | |
| | Battery current at full load and minimum battery voltage (A) | 34-27 | | |
| | Ripple current | < 5% C10 | | |
| | Battery test | Manual/automatic (selectable) | | |
| | Maximum short circuit rating | 16 kA | | |

**NOTE:** Battery specifications are based on VRLA batteries.

(28) The number of output connections must match the number of input connections in a single mains system. The number of output connections must match the number of bypass connections in a dual mains system.
(29) Note: Refer to the earthing diagrams for your specific earthing system requirements concerning the N connection.
(30) The output short circuit current (inverter) is based on IK1 at 10 ms.

# Specifications for 15 kVA UPS

| | Voltage (V) | 380 | 400 | 415 |
|---|---|---|---|---|
| Input | Connections | 4-wire (L1, L2, L3, N, PE)(31) | | |
| | Input voltage range (V) | 304-477 | 320-477 | 332-477 |
| | Frequency range (Hz) | 40-70 | | |
| | Nominal input current (A) | 24 | 23 | 22 |
| | Maximum input current (A) | 31 | 29 | 28 |
| | Input current limitation (A) | 31 | 29 | 28 |
| | Minimum short circuit rating | Dependent on upstream protection. See Upstream and Downstream Protection, page 58 for details. | | |
| | Maximum short circuit rating | Icc = 16 kA | | |
| | Total harmonic distortion (THDI) | <3% at full linear load<br>≤ 4% (full non-linear load) | | |
| | Input power factor | 0.99 at load > 75% | | |
| | Protection | Fuse | | |
| Bypass | Connections | 4-wire (L1, L2, L3, N, PE)(31) | | |
| | Bypass voltage range (V) | 342-418 | 360-440 | 373-457 |
| | Frequency (Hz) | 50 or 60 | | |
| | Frequency range (Hz) | Selectable, ±1, ±3, ±5 | | |
| | Nominal bypass current (A) | 24 | 22 | 22 |
| | Minimum short circuit rating | Dependent on upstream protection. See Upstream and Downstream Protection, page 58 for details. | | |
| | Maximum short circuit rating | Icc = 16 kA | | |
| | Backfeed protection | Dry contact (with 24 VDC source) | | |

(31) Note: Refer to the earthing diagrams for your specific earthing system requirements concerning the N connection.

| | Voltage (V) | 380 | 400 | 415 |
|---|---|---|---|---|
| Output | Connections[32] | 4-wire (L1, L2, L3, N, PE)[33] | | |
| | Output voltage regulation | Symmetrical load ± 1%<br>Asymmetrical load ± 3% | | |
| | Overload capacity | Normal operation: 110% for 60 minutes, 125% for 10 minutes, 150% for 1 minute<br>Battery operation: 110% for 60 minutes, 125% for 10 minutes, 150% for 1 minute<br>Bypass operation: 150% for 1 minute, 125% for 10 minutes, 110% continuous | | |
| | Output power factor | 1 | | |
| | Nominal output current (A) | 23 | 22 | 21 |
| | Maximum short circuit rating | Icc = 16 kA | | |
| | Inverter output short circuit capabilities | Varies with time. See graph and table values in Inverter Short Circuit Capabilities (Bypass not Available), page 22. | | |
| | Output short circuit current (inverter) (A)[34] | 52 | | |
| | Output frequency (Hz) | 50/60 Hz bypass synchronized; 50/60 Hz ±0.1% free running | | |
| | Synchronized slew rate (Hz/sec) | Programmable: 0.5, 1.0, 1.5, or 2.0. Default is 2.0. | | |
| | Total harmonic distortion (THDU) | <1% for 100% balanced linear load<br><5% for non-linear load | | |
| | Output voltage compensation | ± 10 V | | |
| | Output performance classification (according to IEC/ EN62040-3) | VFI SS 11 | | |
| | Load crest factor | Maximum crest factor 3:1 | | |
| | Load power factor | From 0.7 leading to 0.7 lagging without any derating | | |
| Battery | Charging power in % of output power | Programmable from 1% to 26% of UPS capacity. Default is 10%. | | |
| | Maximum charging power (kW) (at 100% load) | 3 | | |
| | Maximum charging power (kW) (at 0% load) | 3.9 | | |
| | Number of battery blocks | 32-40 blocks | | |
| | Nominal battery voltage (VDC) | 384-480 | | |
| | Nominal float voltage (VDC) | 436-545 | | |
| | Maximum boost voltage (VDC) | 457-572 | | |
| | Maximum charge current (A) | 7.1 | | |
| | Temperature compensation (per cell) | Compensate with 15 °C (if < 15°C)<br>+(0-5) mV (if 15 – 25 °C)<br>-(0-5) mV (if 25 – 35 °C)<br>Compensate with 35 °C (if ≥ 35 °C) | | |
| | End of discharge voltage (full load) (VDC) | 308-384 | | |
| | End of discharge voltage (no load) (VDC) | 336-420 | | |
| | Battery current at full load and nominal battery voltage (A) | 41-33 | | |
| | Battery current at full load and minimum battery voltage (A) | 51-41 | | |
| | Ripple current | < 5% C10 | | |
| | Battery test | Manual/automatic (selectable) | | |
| | Maximum short circuit rating | 16 kA | | |

**NOTE:** Battery specifications are based on VRLA batteries.

(32) The number of output connections must match the number of input connections in a single mains system. The number of output connections must match the number of bypass connections in a dual mains system.
(33) Note: Refer to the earthing diagrams for your specific earthing system requirements concerning the N connection.
(34) The output short circuit current (inverter) is based on IK1 at 10 ms.

# Specifications for 20 kVA UPS

| | Voltage (V) | 380 | 400 | 415 |
|---|---|---|---|---|
| Input | Connections | 4-wire (L1, L2, L3, N, PE)(35) | | |
| | Input voltage range (V) | 304-477 | 320-477 | 332-477 |
| | Frequency range (Hz) | 40-70 | | |
| | Nominal input current (A) | 32 | 31 | 29 |
| | Maximum input current (A) | 41 | 39 | 38 |
| | Input current limitation (A) | 41 | 39 | 38 |
| | Minimum short circuit rating | Dependent on upstream protection. See Upstream and Downstream Protection, page 58 for details. | | |
| | Maximum short circuit rating | Icc = 16 kA | | |
| | Total harmonic distortion (THDI) | <3% at full linear load<br>≤ 4% (full non-linear load) | | |
| | Input power factor | 0.99 at load > 75% | | |
| | Protection | Fuse | | |
| Bypass | Connections | 4-wire (L1, L2, L3, N, PE)(35) | | |
| | Bypass voltage range (V) | 342-418 | 360-440 | 373-457 |
| | Frequency (Hz) | 50 or 60 | | |
| | Frequency range (Hz) | Selectable, ±1, ±3, ±5 | | |
| | Nominal bypass current (A) | 31 | 30 | 29 |
| | Minimum short circuit rating | Dependent on upstream protection. See Upstream and Downstream Protection, page 58 for details. | | |
| | Maximum short circuit rating | Icc = 16 kA | | |
| | Backfeed protection | Dry contact (with 24 VDC source) | | |

(35) Note: Refer to the earthing diagrams for your specific earthing system requirements concerning the N connection.

| | Voltage (V) | 380 | 400 | 415 |
|---|---|---|---|---|
| Output | Connections[36] | 4-wire (L1, L2, L3, N, PE)[37] | | |
| | Output voltage regulation | Symmetrical load ± 1%<br>Asymmetrical load ± 3% | | |
| | Overload capacity | Normal operation: 110% for 60 minutes, 125% for 10 minutes, 150% for 1 minute<br>Battery operation: 110% for 60 minutes, 125% for 10 minutes, 150% for 1 minute<br>Bypass operation: 150% for 1 minute, 125% for 10 minutes, 110% continuous | | |
| | Output power factor | 1 | | |
| | Nominal output current (A) | 31 | 29 | 28 |
| | Maximum short circuit rating | Icc = 16 kA | | |
| | Inverter output short circuit capabilities | Varies with time. See graph and table values in Inverter Short Circuit Capabilities (Bypass not Available), page 22. | | |
| | Output short circuit current (inverter) (A)[38] | 74 | | |
| | Output frequency (Hz) | 50/60 Hz bypass synchronized; 50/60 Hz ±0.1% free running | | |
| | Synchronized slew rate (Hz/sec) | Programmable: 0.5, 1.0, 1.5, or 2.0. Default is 2.0. | | |
| | Total harmonic distortion (THDU) | <1% for 100% balanced linear load<br><5% for non-linear load | | |
| | Output voltage compensation | ± 10 V | | |
| | Output performance classification (according to IEC/ EN62040-3) | VFI SS 11 | | |
| | Load crest factor | Maximum crest factor 3:1 | | |
| | Load power factor | From 0.7 leading to 0.7 lagging without any derating | | |
| Battery | Charging power in % of output power | Programmable from 1% to 20% of UPS capacity. Default is 10%. | | |
| | Maximum charging power (kW) (at 100% load) | 4 | | |
| | Maximum charging power (kW) (at 0% load) | 4 | | |
| | Number of battery blocks | 32-40 blocks | | |
| | Nominal battery voltage (VDC) | 384-480 | | |
| | Nominal float voltage (VDC) | 436-545 | | |
| | Maximum boost voltage (VDC) | 457-572 | | |
| | Maximum charge current (A) | 7.4 | | |
| | Temperature compensation (per cell) | Compensate with 15 °C (if < 15°C)<br>+(0-5) mV (if 15 – 25 °C)<br>-(0-5) mV (if 25 – 35 °C)<br>Compensate with 35 °C (if ≥ 35 °C) | | |
| | End of discharge voltage (full load) (VDC) | 308-384 | | |
| | End of discharge voltage (no load) (VDC) | 336-420 | | |
| | Battery current at full load and nominal battery voltage (A) | 55-44 | | |
| | Battery current at full load and minimum battery voltage (A) | 68-55 | | |
| | Ripple current | < 5% C10 | | |
| | Battery test | Manual/automatic (selectable) | | |
| | Maximum short circuit rating | 16 kA | | |

**NOTE:** Battery specifications are based on VRLA batteries.

(36) The number of output connections must match the number of input connections in a single mains system. The number of output connections must match the number of bypass connections in a dual mains system.
(37) Note: Refer to the earthing diagrams for your specific earthing system requirements concerning the N connection.
(38) The output short circuit current (inverter) is based on IK1 at 10 ms.

# Specifications for 30 kVA UPS

| | Voltage (V) | 380 | 400 | 415 |
|---|---|---|---|---|
| Input | Connections | 4-wire (L1, L2, L3, N, PE)(39) | | |
| | Input voltage range (V) | 304-477 | 320-477 | 332-477 |
| | Frequency range (Hz) | 40-70 | | |
| | Nominal input current (A) | 48 | 46 | 44 |
| | Maximum input current (A) | 60 | 57 | 55 |
| | Input current limitation (A) | 60 | 57 | 55 |
| | Minimum short circuit rating | Dependent on upstream protection. See Upstream and Downstream Protection, page 58 for details. | | |
| | Maximum short circuit rating | Icc = 16 kA | | |
| | Total harmonic distortion (THDI) | <3% at full linear load<br>≤ 4% (full non-linear load) | | |
| | Input power factor | 0.99 at load > 75% | | |
| | Protection | Fuse | | |
| Bypass | Connections | 4-wire (L1, L2, L3, N, PE)(39) | | |
| | Bypass voltage range (V) | 342-418 | 360-440 | 373-457 |
| | Frequency (Hz) | 50 or 60 | | |
| | Frequency range (Hz) | Selectable, ±1, ±3, ±5 | | |
| | Nominal bypass current (A) | 47 | 44 | 43 |
| | Minimum short circuit rating | Dependent on upstream protection. See Upstream and Downstream Protection, page 58 for details. | | |
| | Maximum short circuit rating | Icc = 16 kA | | |
| | Backfeed protection | Dry contact (with 24 VDC source) | | |

(39) Note: Refer to the earthing diagrams for your specific earthing system requirements concerning the N connection.

| | Voltage (V) | 380 | 400 | 415 |
|---|---|---|---|---|
| Output | Connections[40] | 4-wire (L1, L2, L3, N, PE)[41] | | |
| | Output voltage regulation | Symmetrical load ± 1%<br>Asymmetrical load ± 3% | | |
| | Overload capacity | Normal operation: 110% for 60 minutes, 125% for 10 minutes, 150% for 1 minute<br>Battery operation: 110% for 60 minutes, 125% for 10 minutes, 150% for 1 minute<br>Bypass operation: 150% for 1 minute, 125% for 10 minutes, 110% continuous | | |
| | Output power factor | 1 | | |
| | Nominal output current (A) | 46 | 44 | 42 |
| | Maximum short circuit rating | Icc = 16 kA | | |
| | Inverter output short circuit capabilities | Varies with time. See graph and table values in Inverter Short Circuit Capabilities (Bypass not Available), page 22. | | |
| | Output short circuit current (inverter) (A)[42] | 104 | | |
| | Output frequency (Hz) | 50/60 Hz bypass synchronized; 50/60 Hz ±0.1% free running | | |
| | Synchronized slew rate (Hz/sec) | Programmable: 0.5, 1.0, 1.5, or 2.0. Default is 2.0. | | |
| | Total harmonic distortion (THDU) | <1% for 100% balanced linear load<br><5% for non-linear load | | |
| | Output voltage compensation | ± 10 V | | |
| | Output performance classification (according to IEC/ EN62040-3) | VFI SS 11 | | |
| | Load crest factor | Maximum crest factor 3:1 | | |
| | Load power factor | From 0.7 leading to 0.7 lagging without any derating | | |
| Battery | Charging power in % of output power | Programmable from 1% to 26% of UPS capacity. Default is 10%. | | |
| | Maximum charging power (kW) (at 100% load) | 6 | | |
| | Maximum charging power (kW) (at 0% load) | 7.8 | | |
| | Number of battery blocks | 32-40 blocks | | |
| | Nominal battery voltage (VDC) | 384-480 | | |
| | Nominal float voltage (VDC) | 436-545 | | |
| | Maximum boost voltage (VDC) | 457-572 | | |
| | Maximum charge current (A) | 14.4 | | |
| | Temperature compensation (per cell) | Compensate with 15 °C (if < 15°C)<br>+(0-5) mV (if 15 – 25 °C)<br>-(0-5) mV (if 25 – 35 °C)<br>Compensate with 35 °C (if ≥ 35 °C) | | |
| | End of discharge voltage (full load) (VDC) | 308-384 | | |
| | End of discharge voltage (no load) (VDC) | 336-420 | | |
| | Battery current at full load and nominal battery voltage (A) | 82-65 | | |
| | Battery current at full load and minimum battery voltage (A) | 102-82 | | |
| | Ripple current | < 5% C10 | | |
| | Battery test | Manual/automatic (selectable) | | |
| | Maximum short circuit rating | 16 kA | | |

**NOTE:** Battery specifications are based on VRLA batteries.

(40) The number of output connections must match the number of input connections in a single mains system. The number of output connections must match the number of bypass connections in a dual mains system.
(41) Note: Refer to the earthing diagrams for your specific earthing system requirements concerning the N connection.
(42) The output short circuit current (inverter) is based on IK1 at 10 ms.

# Specifications for 40 kVA UPS

| | Voltage (V) | 380 | 400 | 415 |
|---|---|---|---|---|
| Input | Connections | 4-wire (L1, L2, L3, N, PE)(43) | | |
| | Input voltage range (V) | 304-477 | 320-477 | 332-477 |
| | Frequency range (Hz) | 40-70 | | |
| | Nominal input current (A) | 64 | 61 | 58 |
| | Maximum input current (A) | 81 | 77 | 74 |
| | Input current limitation (A) | 81 | 77 | 74 |
| | Minimum short circuit rating | Dependent on upstream protection. See Upstream and Downstream Protection, page 58 for details. | | |
| | Maximum short circuit rating | Icc = 16 kA | | |
| | Total harmonic distortion (THDI) | <3% at full linear load<br>≤ 4% (full non-linear load) | | |
| | Input power factor | 0.99 at load > 75% | | |
| | Protection | Fuse | | |
| Bypass | Connections | 4-wire (L1, L2, L3, N, PE)(43) | | |
| | Bypass voltage range (V) | 342-418 | 360-440 | 373-457 |
| | Frequency (Hz) | 50 or 60 | | |
| | Frequency range (Hz) | Selectable, ±1, ±3, ±5 | | |
| | Nominal bypass current (A) | 62 | 59 | 57 |
| | Minimum short circuit rating | Dependent on upstream protection. See Upstream and Downstream Protection, page 58 for details. | | |
| | Maximum short circuit rating | Icc = 16 kA | | |
| | Backfeed protection | Dry contact (with 24 VDC source) | | |

(43) Note: Refer to the earthing diagrams for your specific earthing system requirements concerning the N connection.

| | Voltage (V) | 380 | 400 | 415 |
|---|---|---|---|---|
| Output | Connections(44) | 4-wire (L1, L2, L3, N, PE)(45) | | |
| | Output voltage regulation | Symmetrical load ± 1%<br>Asymmetrical load ± 3% | | |
| | Overload capacity | Normal operation: 110% for 60 minutes, 125% for 10 minutes, 150% for 1 minute<br>Battery operation: 110% for 60 minutes, 125% for 10 minutes, 150% for 1 minute<br>Bypass operation: 150% for 1 minute, 125% for 10 minutes, 110% continuous | | |
| | Output power factor | 1 | | |
| | Nominal output current (A) | 61 | 58 | 56 |
| | Maximum short circuit rating | 16 kA | | |
| | Inverter output short circuit capabilities | Varies with time. See graph and table values in Inverter Short Circuit Capabilities (Bypass not Available), page 22. | | |
| | Output short circuit current (inverter) (A)(46) | 140 | | |
| | Output frequency (Hz) | 50/60 Hz bypass synchronized; 50/60 Hz ±0.1% free running | | |
| | Synchronized slew rate (Hz/sec) | Programmable: 0.5, 1.0, 1.5, or 2.0. Default is 2.0. | | |
| | Total harmonic distortion (THDU) | <1% for 100% balanced linear load<br><5% for non-linear load | | |
| | Output voltage compensation | ± 10 V | | |
| | Output performance classification (according to IEC/ EN62040-3) | VFI SS 11 | | |
| | Load crest factor | Maximum crest factor 3:1 | | |
| | Load power factor | From 0.7 leading to 0.7 lagging without any derating | | |
| Battery | Charging power in % of output power | Programmable from 1% to 20% of UPS capacity. Default is 10%. | | |
| | Maximum charging power (kW) (at 100% load) | 8 | | |
| | Maximum charging power (kW) (at 0% load) | 8 | | |
| | Number of battery blocks | 32-40 blocks | | |
| | Nominal battery voltage (VDC) | 384-480 | | |
| | Nominal float voltage (VDC) | 436-545 | | |
| | Maximum boost voltage (VDC) | 457-572 | | |
| | Maximum charge current (A) | 14.8 | | |
| | Temperature compensation (per cell) | Compensate with 15 °C (if < 15°C)<br>+(0-5) mV (if 15 – 25 °C)<br>-(0-5) mV (if 25 – 35 °C)<br>Compensate with 35 °C (if ≥ 35 °C) | | |
| | End of discharge voltage (full load) (VDC) | 308-384 | | |
| | End of discharge voltage (no load) (VDC) | 336-420 | | |
| | Battery current at full load and nominal battery voltage (A) | 109-87 | | |
| | Battery current at full load and minimum battery voltage (A) | 136-109 | | |
| | Ripple current | < 5% C10 | | |
| | Battery test | Manual/automatic (selectable) | | |
| | Maximum short circuit rating | 16 kA | | |

**NOTE:** Battery specifications are based on VRLA batteries.

(44) The number of output connections must match the number of input connections in a single mains system. The number of output connections must match the number of bypass connections in a dual mains system.
(45) Note: Refer to the earthing diagrams for your specific earthing system requirements concerning the N connection.
(46) The output short circuit current (inverter) is based on IK1 at 10 ms.

# Upstream and Downstream Protection

**NOTE:** For local directives which require 4-pole circuit breakers: 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:** For local directives which require 4-pole circuit breakers: Refer to the earthing diagrams for details about neutral connection.

The bypass/output disconnect devices are sized based on the nominal current +10%. This is to accommodate either low grid voltage or deviation in length between parallel UPSs. The battery disconnect devices are sized based on end-of-discharge voltage which has been defined as 308 VDC.

## Required Upstream Protection for 380/400/415 V (IEC) and Minimum Prospective Phase-To-Earth Short Circuit at the UPS Input/Bypass Terminals

**⚠⚠DANGER**

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

The upstream overcurrent protective device (and its settings) must be sized to ensure a disconnecting time within 0.07 seconds in case of a short circuit between the input/bypass phase and the UPS.

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

Compliance is assured with the recommended circuit breaker (and its settings) from the table below.

## Required 3-Pole Upstream Protection

**NOTE:** Ir must be set on the circuit breakers during start-up.

| **UPS rating** | **10 kVA** | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Input** | | | **Bypass/Output** | | | **Battery** |
| **Voltage (V)** | **380** | **400** | **415** | **380** | **400** | **415** | **380-415** |
| Circuit breaker type | NSX100B TM25D 3P3D, C10B3TM025 | | | NSX100B TM25D 3P3D, C10B3TM025 | | | ComPacT NSX100F DC 3P3D+TM40G, C10F3D+C103MG040 |
| In | 25 | 25 | 25 | 25 | 25 | 25 | 40 |
| Ir | 0.8 x In | 0.8 x In | 0.8 x In | 0.7 x In | 0.7 x In | 0.7 x In | 0.9 x In |
| Im | 300 | 300 | 300 | 300 | 300 | 300 | 100 |

| **UPS rating** | **15 kVA** | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Input** | | | **Bypass/Output** | | | **Battery** |
| **Voltage (V)** | **380** | **400** | **415** | **380** | **400** | **415** | **380-415** |
| Circuit breaker type | NSX100B NSX TM32D 3P3D, C10B3TM032 | | | NSX100B TM32D 3P3D, C10B3TM032 | | | ComPacT NSX100F DC 3P3D+TM63G, C10F3D+C103MG063 |
| In | 32 | 32 | 32 | 32 | 32 | 32 | 63 |
| Ir | In | In | In | 0.9 x In | 0.8 x In | 0.8 x In | 0.8 x In |
| Im | 400 | 400 | 400 | 400 | 400 | 400 | 150 |

| UPS rating | 20 kVA | | | | | | |
|---|---|---|---|---|---|---|---|
| | Input | | | Bypass/Output | | | Battery |
| Voltage (V) | 380 | 400 | 415 | 380 | 400 | 415 | 380-415 |
| Circuit breaker type | NSX100B TM40D 3P3D, C10B3TM040 | | | NSX100B TM40D 3P3D, C10B3TM040 | | | ComPacT NSX100F DC 3P3D+TM80G, C10F3D+C103MG080 |
| In | 40 | 40 | 40 | 40 | 40 | 40 | 80 |
| Ir | In | In | In | 0.9 x In | 0.9 x In | 0.8 x In | 0.9 x In |
| Im | 500 | 500 | 500 | 500 | 500 | 500 | 250 |

| UPS rating | 30 kVA | | | | | | |
|---|---|---|---|---|---|---|---|
| | Input | | | Bypass/Output | | | Battery |
| Voltage (V) | 380 | 400 | 415 | 380 | 400 | 415 | 380-415 |
| Circuit breaker type | NSX100B TM63D 3P3D, C10B3TM063 | | | NSX100B TM63D 3P3D, C10B3TM063 | | | ComPacT NSX160F DC 3P3D+TM125G, C16F3D+C163MG125D |
| In | 63 | 63 | 63 | 63 | 63 | 63 | 125 |
| Ir | In | In | In | 0.9 x In | 0.8 x In | 0.8 x In | 0.8 x In |
| Im | 500 | 500 | 500 | 500 | 500 | 500 | 530 |

| UPS rating | 40 kVA | | | | | | |
|---|---|---|---|---|---|---|---|
| | Input | | | Bypass/Output | | | Battery |
| Voltage (V) | 380 | 400 | 415 | 380 | 400 | 415 | 380-415 |
| Circuit breaker type | NSX100B TM63D 3P3D, C10B3TM080 | | | NSX100B TM63D 3P3D, C10B3TM080 | | | ComPacT NSX160F DC 3P3D+TM160G, C16F3D+C163MG160D |
| In | 80 | 80 | 80 | 80 | 80 | 80 | 160 |
| Ir | In | In | In | 0.9 x In | 0.9 x In | 0.8 x In | 0.9 x In |
| Im | 640 | 640 | 640 | 640 | 640 | 640 | 530 |

# Required 4-Pole Upstream Protection

**NOTE:** Ir must be set on the circuit breakers during start-up.

| UPS rating | 10 kVA | | | | | | |
|---|---|---|---|---|---|---|---|
| | Input | | | Bypass/Output | | | Battery |
| Voltage (V) | 380 | 400 | 415 | 380 | 400 | 415 | 380-415 |
| Circuit breaker type | NSX100B TM25D 4P3D, C10B6TM025 | | | NSX100B TM25D 4P3D, C10B6TM025 | | | ComPacT NSX100F DC 3P3D+TM40G, C10F3D+C103MG040 |
| In | 25 | 25 | 25 | 25 | 25 | 25 | 40 |
| Ir | 0.8 x In | 0.8 x In | 0.8 x In | 0.7 x In | 0.7 x In | 0.7 x In | 0.9 x In |
| Im | 300 | 300 | 300 | 300 | 300 | 300 | 100 |

| UPS rating | 15 kVA | | | | | | |
|---|---|---|---|---|---|---|---|
| | Input | | | Bypass/Output | | | Battery |
| Voltage (V) | 380 | 400 | 415 | 380 | 400 | 415 | 380-415 |
| Circuit breaker type | NSX100B TM40D 4P3D, C10B6TM040 | | | NSX100B TM40D 4P3D, C10B6TM040 | | | ComPacT NSX100F DC 3P3D+TM63G, C10F3D+C103MG063 |
| In | 40 | 40 | 40 | 40 | 40 | 40 | 63 |
| Ir | 0.8 x In | 0.8 x In | 0.8 x In | 0.7 x In | 0.7 x In | 0.7 x In | 0.8 x In |
| Im | 500 | 500 | 500 | 500 | 500 | 500 | 150 |

| UPS rating | 20 kVA | | | | | | |
|---|---|---|---|---|---|---|---|
| | Input | | | Bypass/Output | | | Battery |
| Voltage (V) | 380 | 400 | 415 | 380 | 400 | 415 | 380-415 |
| Circuit breaker type | NSX100B TM63D 4P3D, C10B6TM063 | | | NSX100B TM63D 4P3D, C10B6TM063 | | | ComPacT NSX100F DC 3P3D+TM80G, C10F3D+C103MG080 |
| In | 63 | 63 | 63 | 63 | 63 | 63 | 80 |
| Ir | 0.7 x In | 0.7 x In | 0.7 x In | 0.7 x In | 0.7 x In | 0.7 x In | 0.9 x In |
| Im | 500 | 500 | 500 | 500 | 500 | 500 | 250 |

| UPS rating | 30 kVA | | | | | | |
|---|---|---|---|---|---|---|---|
| | Input | | | Bypass/Output | | | Battery |
| Voltage (V) | 380 | 400 | 415 | 380 | 400 | 415 | 380-415 |
| Circuit breaker type | NSX100B TM80D 4P3D, C10B6TM080 | | | NSX100B TM80D 4P3D, C10B6TM080 | | | ComPacT NSX160F DC 3P3D+TM125G, C16F3D+C163MG125D |
| In | 80 | 80 | 80 | 80 | 80 | 80 | 125 |
| Ir | 0.8 x In | 0.8 x In | 0.8 x In | 0.7 x In | 0.7 x In | 0.7 x In | 0.8 x In |
| Im | 640 | 640 | 640 | 640 | 640 | 640 | 530 |

| UPS rating | 40 kVA | | | | | | |
|---|---|---|---|---|---|---|---|
| | Input | | | Bypass/Output | | | Battery |
| Voltage (V) | 380 | 400 | 415 | 380 | 400 | 415 | 380-415 |
| Circuit breaker type | NSX100B TM100D 4P3D, C10B6TM100 | | | NSX100B TM100D 4P3D, C10B6TM100 | | | ComPacT NSX160F DC 3P3D+TM160G, C16F3D+C163MG160D |
| In | 100 | 100 | 100 | 100 | 100 | 100 | 160 |
| Ir | 0.8 x In | 0.8 x In | 0.8 x In | 0.7 x In | 0.7 x In | 0.7 x In | 0.9 x In |
| Im | 800 | 800 | 800 | 800 | 800 | 800 | 530 |

# Recommended Downstream Protection for 380/400/415 V (IEC)

| UPS rating | Circuit breaker type |
|---|---|
| 10 kVA | IC65N-4P-C 4A / IC65H-4P-C 4A |
| 15 kVA | IC65N-4P-C 4A / IC65H-4P-C 4A |
| 20 kVA | IC65N-4P-C 6A / IC65H-4P-C 6A |
| 30 kVA | IC65N-4P-C 6A / IC65H-4P-C 6A |
| 40 kVA | IC65N-4P-C 10A / IC65H-4P-C 10A |

# Recommended Cable 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 6 $mm^2$ (10 -15 kVA UPS), 16 $mm^2$ (20 kVA UPS) , 25 $mm^2$ (30 kVA UPS), or 35 $mm^2$ (40 kVA UPS).
- Shrink sleeves must be fitted over the cable lug crimped zone and must overlap with the cable insulation on all power cables.

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

**NOTE:** Overcurrent protection is to be provided by others.

Cable sizes in this manual are based on the minimum requirements in table B.52.3 and 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
- PE cable size is based on table 54.2 of IEC 60364-5-54
- Installation method C
- 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%.
- Specific to DC cables: Maximum length 15 m with a line voltage drop <1%

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

**NOTE:** Recommended cable sizes and maximum allowable cable size may vary for the auxiliary products. Refer to the installation manual provided with the auxiliary product.

**NOTE:** The DC cable sizes given here are recommendations – Always follow the specific instructions in the battery solution documentation for DC cable sizes and DC PE cable sizes and ensure that the DC cable sizes match the battery disconnect device rating.

### Copper

| **UPS rating** | **10 kVA** | | | **15 kVA** | | | **20 kVA** | | |
|---|---|---|---|---|---|---|---|---|---|
| **Voltage (V)** | **380** | **400** | **415** | **380** | **400** | **415** | **380** | **400** | **415** |
| Input phases ($mm^2$) | 6 | 6 | 6 | 6 | 6 | 6 | 10 | 10 | 10 |
| Input PE ($mm^2$) | 6 | 6 | 6 | 6 | 6 | 6 | 10 | 10 | 10 |
| Bypass/output phases ($mm^2$) | 6 | 6 | 6 | 6 | 6 | 6 | 10 | 10 | 10 |
| Bypass PE/output PE ($mm^2$) | 6 | 6 | 6 | 6 | 6 | 6 | 10 | 10 | 10 |
| Neutral ($mm^2$) | 6 | 6 | 6 | 6 | 6 | 6 | 16 | 16 | 16 |
| DC+/DC-/DC N ($mm^2$) | 6 | 6 | 6 | 6 | 6 | 6 | 16 | 16 | 16 |
| DC PE ($mm^2$) | 6 | 6 | 6 | 6 | 6 | 6 | 16 | 16 | 16 |

### Copper

| UPS rating | 30 kVA | | | 40 kVA | | |
|---|---|---|---|---|---|---|
| **Voltage (V)** | **380** | **400** | **415** | **380** | **400** | **415** |
| Input phases ($mm^2$) | 16 | 16 | 16 | 25 | 25 | 25 |
| Input PE ($mm^2$) | 16 | 16 | 16 | 16 | 16 | 16 |
| Bypass/output phases ($mm^2$) | 16 | 16 | 16 | 25 | 25 | 25 |
| Bypass PE/output PE ($mm^2$) | 16 | 16 | 16 | 16 | 16 | 16 |
| Neutral ($mm^2$) | 25 | 25 | 25 | 35 | 35 | 35 |
| DC+/DC-/DC N ($mm^2$) | 25 | 25 | 25 | 35 | 35 | 35 |
| DC PE ($mm^2$) | 16 | 16 | 16 | 16 | 16 | 16 |

## Load Sharing in Bypass Operation in a Parallel System

**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.**

The impedance of the bypass paths needs 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.

## Recommended Bolt and Lug Sizes

### UPS for Internal Batteries

| Cable size $mm^2$ | Bolt size | Cable lug type |
|---|---|---|
| 6 | M6 | KST TLK6-6 |
| 8 | M6 | KST RNBS8-6 |
| 10 | M6 | KST TLK10-6 |
| 16 | M6 / M8 | KST TLK16-6 / KST TLK16-8 |
| 25 | M6 / M8 | KST TLK25-6 / KST TLK25-8 |
| 35 | M8 | KST TLK35-8 |

**UPS for External Batteries**

| Cable size mm² | Bolt size | Cable lug type |
|---|---|---|
| 6 | M6 | KST TLK6-6 |
| 8 | M6 | KST RNBS8-6 |
| 10 | M6 | KST TLK10-6 |
| 16 | M6 | KST TLK16-6 |
| 25 | M6 | KST DRNB6-25 |
| 35 | M6 | KST TLK35-6 |

# Torque Specifications

| Bolt size | Torque |
|---|---|
| M5 | 4 Nm |
| M6 | 5 Nm |
| M8 | 12 Nm |

# Leakage Current

| UPS rating | Leakage current at 100% load (mA) |
|---|---|
| 10 kVA | 250 |
| 15 kVA | 250 |
| 20 kVA | 250 |
| 30 kVA | 100 |
| 40 kVA | 100 |

**NOTE:** As per IEC 62477-1, the leakage current should not exceed 5% of the rated input current.

# Physical

## UPS Shipping Weights and Dimensions

### UPS for Internal Batteries

| UPS rating (Commercial reference) | Weight kg (lbs) | Height mm (in) | Width mm (in) | Depth mm (in) |
|---|---|---|---|---|
| 10 kVA (E3SP10KHB) | 145 | 1580 | 800 | 1200 |
| 15 kVA (E3SP15KHB) | 145 | 1580 | 800 | 1200 |
| 20 kVA (E3SP20KHB) | 145 | 1580 | 800 | 1200 |
| 30 kVA (E3SP30KHB) | 184 | 1580 | 800 | 1200 |
| 40 kVA (E3SP40KHB) | 184 | 1580 | 800 | 1200 |

### UPS for External Batteries

| UPS rating (Commercial reference) | Weight kg (lbs) | Height mm (in) | Width mm (in) | Depth mm (in) |
|---|---|---|---|---|
| 10 kVA (E3SP10KH) | 50 | 813 | 380 | 780 |
| 15 kVA (E3SP15KH) | 51 | 813 | 380 | 780 |
| 20 kVA (E3SP20KH) | 52 | 813 | 380 | 780 |
| 30 kVA (E3SP30KH) | 69 | 970 | 380 | 982 |
| 40 kVA (E3SP40KH) | 73 | 970 | 380 | 982 |
| 15 kVA (E3SP15KHIN) | 52 | 813 | 380 | 780 |
| 20 kVA (E3SP20KHIN) | 53 | 813 | 380 | 780 |
| 30 kVA (E3SP30KHIN) | 70 | 970 | 380 | 982 |
| 40 kVA (E3SP40KHIN) | 74 | 970 | 380 | 982 |

## UPS Weights and Dimensions

### UPS for Internal Batteries

| UPS rating | Weight kg (lbs) | Height mm (in) | Width mm (in) | Depth mm (in) |
|---|---|---|---|---|
| 10 kVA (E3SP10KHB) | 119 | 1400 | 380 | 907 |
| 15 kVA (E3SP15KHB) | 119 | 1400 | 380 | 907 |
| 20 kVA (E3SP20KHB) | 119 | 1400 | 380 | 907 |
| 30 kVA (E3SP30KHB) | 151 | 1400 | 500 | 940 |
| 40 kVA (E3SP40KHB) | 151 | 1400 | 500 | 940 |

### UPS for External Batteries

| UPS rating | Weight kg (lbs) | Height mm (in) | Width mm (in) | Depth mm (in) |
|---|---|---|---|---|
| 10 kVA (E3SP10KH) | 35 | 629 | 250 | 660 |
| 15 kVA (E3SP15KH) | 36 | 629 | 250 | 660 |
| 20 kVA (E3SP20KH) | 37 | 629 | 250 | 660 |
| 30 kVA (E3SP30KH) | 56 | 796 | 250 | 916 |
| 40 kVA (E3SP40KH) | 59 | 796 | 250 | 916 |

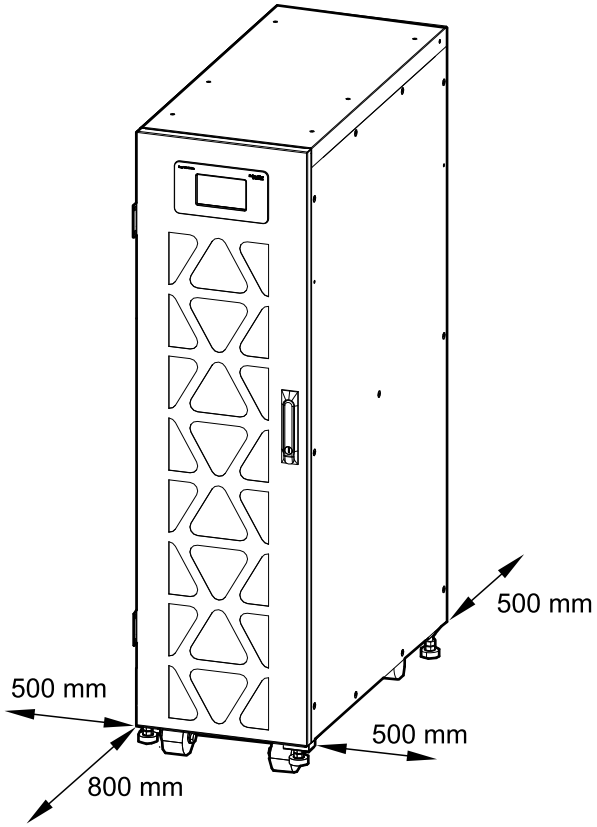
### UPS for External Batteries (Continued)

| UPS rating | Weight kg (lbs) | Height mm (in) | Width mm (in) | Depth mm (in) |
|---|---|---|---|---|
| 15 kVA (E3SP15KHIN) | 37 | 629 | 250 | 660 |
| 20 kVA (E3SP20KHIN) | 38 | 629 | 250 | 660 |
| 30 kVA (E3SP30KHIN) | 57 | 796 | 250 | 916 |
| 40 kVA (E3SP40KHIN) | 60 | 796 | 250 | 916 |

# Clearance

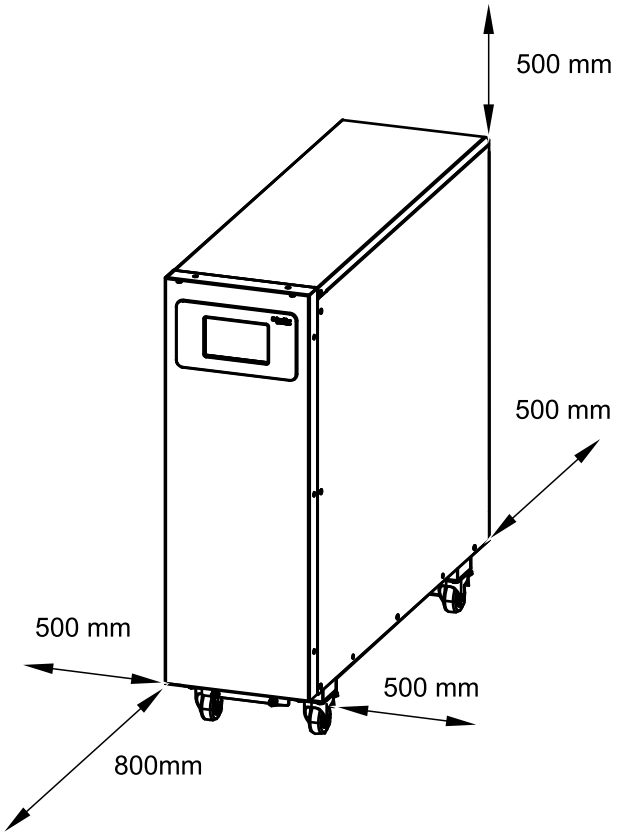
**NOTE:** Clearance dimensions are published for airflow and service access only. Consult with the local safety codes and standards for additional requirements in your local area.

**UPS for Internal Batteries**




**NOTE:** The recommended rear clearance is 500 mm while 150 mm is minimum requirement mandatory for proper air flow.

**UPS for External Batteries**



# Environment

### UPS for Internal Batteries

| | Operating | Storage |
|---|---|---|
| Temperature | 0 °C to 40 °C without load derating. | -25 °C to 55 °C for systems without batteries. |
| Relative humidity | 0-95% non-condensing | 0-95% non-condensing |
| Elevation | Designed for operation in 0-1000 m elevation at 100% load.<br><br>Derating required from 1000-2000 m with forced air cooling:<br><br>Up to 1000 m: 1.000<br><br>Up to 1500 m: 0.975<br><br>Up to 2000 m: 0.950 | |
| Audible noise one meter (three feet) from unit | **10 kVA UPS**: 45 dB at 70% load; 53 dB at 100% load<br>**15 kVA UPS**: 46 dB at 70% load; 54 dB at 100% load<br>**20 kVA UPS**: 48 dB at 70% load; 57 dB at 100% load<br>**30 kVA UPS**: 58 dB at 70% load; 61 dB at 100% load<br>**40 kVA UPS**: 60 dB at 70% load; 63 dB at 100% load | |
| Protection class | IP20 | |
| Color | RAL 9003, gloss level 85% | |

| | Operating | Storage |
|---|---|---|
| Temperature | 0 °C to 40 °C without load derating. | -25 °C to 55 °C for systems without batteries. |
| Relative humidity | 0-95% non-condensing | 0-95% non-condensing |
| Elevation | Designed for operation in 0-1000 m elevation at 100% load.<br><br>Derating required from 1000-2000 m with forced air cooling:<br><br>Up to 1000 m: 1.000<br><br>Up to 1500 m: 0.975<br><br>Up to 2000 m: 0.950 | |
| Audible noise one meter (three feet) from unit | **10 kVA UPS**: 46 dB at 70% load; 55 dB at 100% load<br>**15 kVA UPS**: 48 dB at 70% load; 56 dB at 100% load<br>**20 kVA UPS**: 50 dB at 70% load; 58 dB at 100% load<br>**30 kVA UPS**: 60 dB at 70% load; 64 dB at 100% load<br>**40 kVA UPS**: 63 dB at 70% load; 66 dB at 100% load | |
| Protection class | IP20 | |
| Color | RAL 9003, gloss level 85% | |

# Heat Dissipation in BTU/hr

## 10 kVA

| | Normal operation | | | ECO mode | | | Battery operation | | |
|---|---|---|---|---|---|---|---|---|---|
| **Voltage (V)** | **380** | **400** | **415** | **380** | **400** | **415** | **380** | **400** | **415** |
| 25% load | 633 | 599 | 628 | 127 | 121 | 116 | 1024 | 1040 | 1123 |
| 50% load | 1099 | 1081 | 1091 | 130 | 127 | 122 | 1407 | 1516 | 1466 |
| 75% load | 1647 | 1522 | 1510 | 175 | 173 | 162 | 1886 | 1971 | 1935 |
| 100% load | 2227 | 2156 | 2091 | 171 | 188 | 174 | 2466 | 2583 | 2540 |

## 15 kVA

| | Normal operation | | | ECO mode | | | Battery operation | | |
|---|---|---|---|---|---|---|---|---|---|
| **Voltage (V)** | **380** | **400** | **415** | **380** | **400** | **415** | **380** | **400** | **415** |
| 25% load | 628 | 630 | 636 | 142 | 139 | 134 | 860 | 839 | 880 |
| 50% load | 1055 | 1042 | 1040 | 102 | 130 | 123 | 1306 | 1316 | 1362 |
| 75% load | 1599 | 1560 | 1528 | 234 | 227 | 223 | 1792 | 1816 | 1863 |
| 100% load | 2274 | 2197 | 2124 | 139 | 216 | 189 | 2412 | 2443 | 2426 |

## 20 kVA

| | Normal operation | | | ECO mode | | | Battery operation | | |
|---|---|---|---|---|---|---|---|---|---|
| **Voltage (V)** | **380** | **400** | **415** | **380** | **400** | **415** | **380** | **400** | **415** |
| 25% load | 864 | 847 | 904 | 115 | 101 | 109 | 964 | 1183 | 1065 |
| 50% load | 1317 | 1309 | 1309 | 132 | 123 | 122 | 1505 | 1736 | 1622 |
| 75% load | 2151 | 2055 | 2023 | 196 | 190 | 180 | 2172 | 2437 | 2254 |
| 100% load | 3034 | 2971 | 2899 | 241 | 237 | 218 | 2978 | 3214 | 3506 |

## 30 kVA

| | Normal operation | | | ECO mode | | | Battery operation | | |
|---|---|---|---|---|---|---|---|---|---|
| **Voltage (V)** | **380** | **400** | **415** | **380** | **400** | **415** | **380** | **400** | **415** |
| 25% load | 1227 | 1240 | 1260 | 157 | 144 | 156 | 1225 | 1401 | 1278 |
| 50% load | 2028 | 2048 | 2045 | 188 | 174 | 169 | 2168 | 2238 | 2420 |
| 75% load | 3401 | 3255 | 3263 | 391 | 354 | 361 | 3262 | 3304 | 3330 |
| 100% load | 4694 | 4681 | 4491 | 500 | 455 | 461 | 4629 | 4439 | 4555 |

# 40 kVA

| | Normal operation | | | ECO mode | | | Battery operation | | |
|---|---|---|---|---|---|---|---|---|---|
| **Voltage (V)** | **380** | **400** | **415** | **380** | **400** | **415** | **380** | **400** | **415** |
| 25% load | 1559 | 1564 | 1558 | 186 | 180 | 169 | 1609 | 1797 | 1572 |
| 50% load | 2610 | 2615 | 2556 | 312 | 294 | 272 | 2870 | 2906 | 2791 |
| 75% load | 4353 | 4253 | 4079 | 511 | 482 | 455 | 4162 | 4245 | 4198 |
| 100% load | 6365 | 6164 | 5936 | 868 | 811 | 628 | 5820 | 5827 | 5652 |

# Airflow Values

## Indicative Airflow Values in m³/Hour Based on a 30 °C Environment in Normal Operation Mode

| UPS rating | 10 kVA | 15 kVA | 20 kVA | 30 kVA | 40 kVA |
|---|---|---|---|---|---|
| 50% load | 83 | 83 | 94 | 243 | 276 |
| 70% load | 94 | 101 | 116 | 334 | 382 |
| 100% load | 130 | 150 | 157 | 408 | 456 |

## Indicative Airflow Values in m³/Hour Based on a 40 °C Environment in Normal Operation Mode

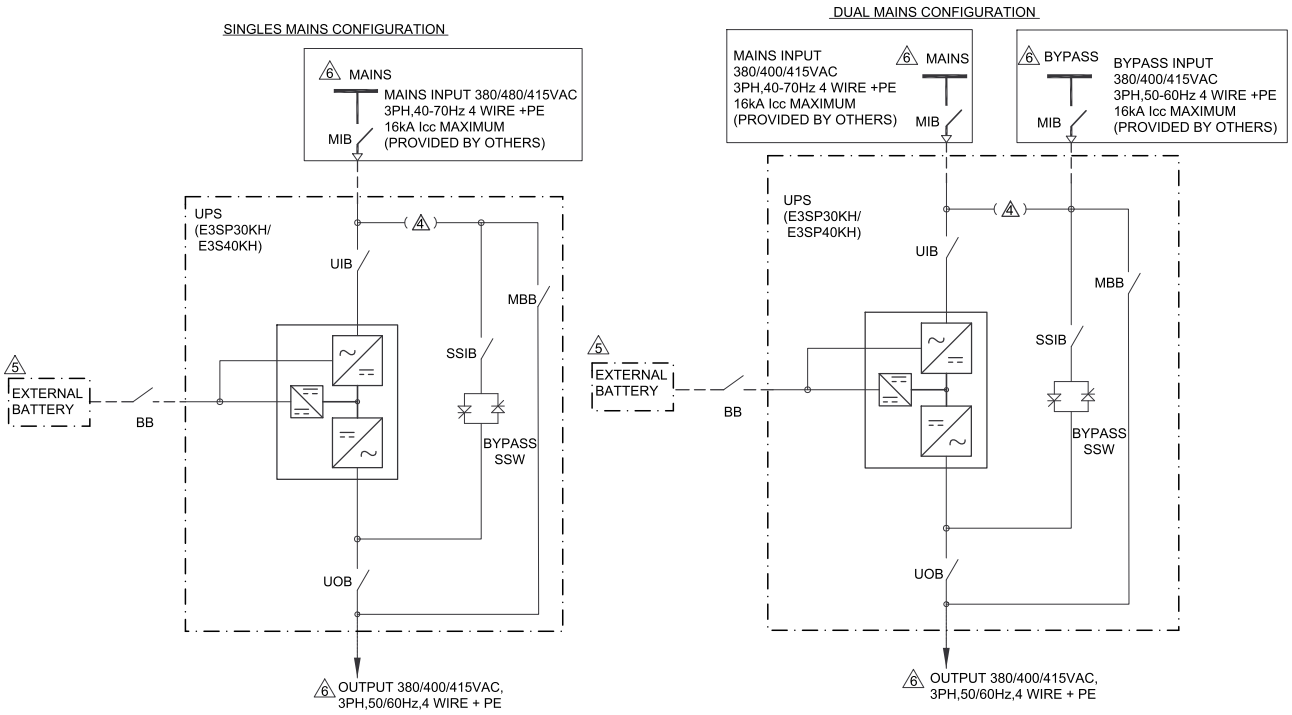
| UPS rating | 10 kVA | 15 kVA | 20 kVA | 30 kVA | 40 kVA |
|---|---|---|---|---|---|
| 50% load | 130 | 150 | 157 | 408 | 456 |
| 70% load | 185 | 185 | 185 | 585 | 585 |
| 100% load | 185 | 185 | 185 | 585 | 585 |

# 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 Pro 10-40 kVA



# Options

## Configuration Options

- Compact Design
- Single or dual mains
- Bottom cable entry
- Up to 4+0 and 3+1 UPSs in parallel capacity
- EcoStruxure IT compatible
- Generator compatible
- Touchscreen LCD
- ECO mode
- Robust design against harsh environment
- Built-in backfeed protection
- Supported battery types: VRLA, Lithium-ion
- SPoT mode, easier self-test without a load bank
- Enhanced charging capacity
- Enhanced short-circuit capability

# Hardware Options

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

## Battery Module/String

- Battery module (E3SBTU)
- High capacity battery module (E3SBTHU)
- Battery string (E3SBT4)
- High capacity battery string (E3SBTH4)

## Battery Cabinet

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

- Empty battery cabinet, 700 mm (GVEBC7)
- Empty battery cabinet, 1100 mm (GVEBC11)
- Empty battery cabinet, 1500 mm (GVEBC15)
- Modular battery cabinet (E3SXR6)

## Maintenance Bypass Panel

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

- Parallel maintenance bypass panel, 10-40 kVA (E3SOPT006)
- Maintenance bypass panel, single unit, 10 – 20 kVA 400 V wall-mount (GVSBPSU10K20H)
- Maintenance bypass panel, single unit, 20 – 60 kVA 400 V wall-mount (GVSBPSU20K60H)

## Battery Circuit Breaker Kit

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

- Battery circuit breaker kit (E3SOPT008)

## Battery Circuit Breaker Box

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

- Battery circuit breaker box (E3SOPT007)

## Optional Installation Kits

- Cold start kit (E3SPOPT001)
- Parallel kit with 5 m cable (E3SOPT002)
- Parallel kit with 15 m cable (E3SOPT016)
- Easy UPS 3S Pro 10-20 KVA 6-16 $mm^2$ cable lug kit (E3SPOPT002)

- Easy UPS 3S Pro 30-40 KVA 16-35 mm² cable lug kit (E3SPOPT003)
- Dry contact card (E3SOPT010)
- Backfeed box, 95 A 3-phase power contactor, bottom connection (SP3OPT008)

## Temperature Sensors

- Temperature sensor kit for external battery system (E3SOPT003)

# 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, or within 18 months from the shipment date from Schneider Electric, whichever occurs first. 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.

## Non-transferable Warranty

This warranty is extended to the first person, firm, association or corporation (herein referred to by “You” or “Your”) for whom the Schneider Electric product specified herein has been purchased. This warranty is not transferable or assignable without the prior written permission of Schneider Electric.

## Assignment of Warranties

Schneider Electric will assign you any warranties which are made by manufacturers and suppliers of components of the Schneider Electric product and which are assignable. Any such warranties are assigned “AS IS” and Schneider Electric makes no representation as to the effectiveness or extent of such warranties, assumes no responsibility for any matters which may be warranted by such manufacturers or suppliers and extends no coverage under this Warranty to such components.

## Drawings, Descriptions

Schneider Electric warrants for the warranty period and on the terms of the warranty set forth herein that the Schneider Electric product will substantially conform to the descriptions contained in the Schneider Electric Official Published Specifications or any of the drawings certified and agreed to by contract with Schneider Electric if applicable thereto (“Specifications”). It is understood that the Specifications are not warranties of performance and not warranties of fitness for a particular purpose.

## Exclusions

Schneider Electric shall not be liable under the warranty if its testing and examination disclose that the alleged defect in the product does not exist or was

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