Galaxy VS

UPS with Internal Batteries

Technical Specifications

10-100 kW 400 V

Latest updates are available on the Schneider Electric website
8/2023

Legal Information

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

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

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, section 3.102).

Electromagnetic Compatibility

NOTICE

RISK OF ELECTROMAGNETIC DISTURBANCE

This is a product category C2 UPS product. In a residential environment, this product may cause radio inference, in which case the user may be required to take additional measures.

Failure to follow these instructions can result in equipment damage.

Safety Precautions

⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- 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 circuit breakers, battery circuit breakers, cabling, etc.) and environmental requirements. No responsibility is assumed by Schneider Electric if these requirements are not respected.
- After the UPS system has been electrically wired, do not start up the system. Start-up must only be performed by Schneider Electric.

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

⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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

- IEC 60364 (including 60364–4–41- protection against electric shock, 60364–4–42 - protection against thermal effect, and 60364–4–43 - protection against overcurrent), **or**
- NEC NFPA 70

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 area free of conductive contaminants and humidity.
- Install the UPS system on a non-inflammable, 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.

NOTICE

RISK OF OVERHEATING

Respect the clearance 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

UPS with Internal Batteries Up to 2 Battery Strings

See UPS with Internal Batteries Up to 2 Battery Strings, page 13 for technical specifications for this UPS.

- Galaxy VS UPS 10 kW 400 V, with 1 internal 7 Ah smart modular battery string, expandable to 2, Start-up 5x8 (GVSUPS10KB2HS)
- Galaxy VS UPS 15 kW 400 V, with 1 internal 7 Ah smart modular battery string, expandable to 2, Start-up 5x8 (GVSUPS15KB2HS)
- Galaxy VS UPS 20 kW 400 V, with 1 internal 7 Ah smart modular battery string, expandable to 2, Start-up 5x8 (GVSUPS20KB2HS)

UPS with Internal Batteries Up to 4 Battery Strings

See UPS with Internal Batteries Up to 4 Battery Strings, page 35 for technical specifications for this UPS.

- Galaxy VS UPS 10 kW 400 V, with 1 internal 9 Ah smart modular battery string, expandable to 4, Start-up 5x8 (GVSUPS10KB4HS)
- Galaxy VS UPS 15 kW 400 V, with 1 internal 9 Ah smart modular battery string, expandable to 4, Start-up 5x8 (GVSUPS15KB4HS)
- Galaxy VS UPS 20 kW 400 V, with 1 internal 9 Ah smart modular battery string, expandable to 4, Start-up 5x8 (GVSUPS20KB4HS)
- Galaxy VS UPS 20 kW 400 V, for up to 4 internal 9 Ah smart modular battery strings, Start-up 5x8 (GVSUPS20K0B4HS)
- Galaxy VS UPS 30 kW 400 V, with 2 internal 9 Ah smart modular battery strings, expandable to 4, Start-up 5x8 (GVSUPS30KB4HS)
- Galaxy VS UPS 30 kW 400 V, for up to 4 internal 9 Ah smart modular battery strings, Start-up 5x8 (GVSUPS30K0B4HS)
- Galaxy VS UPS 40 kW 400 V, with 2 internal 9 Ah smart modular battery strings, expandable to 4, Start-up 5x8 (GVSUPS40KB4HS)
- Galaxy VS UPS 40 kW 400 V, for up to 4 internal 9 Ah smart modular battery strings, Start-up 5x8 (GVSUPS40K0B4HS)
- Galaxy VS UPS 50 kW 400 V, with 2 internal 9 Ah smart modular battery strings, expandable to 4, Start-up 5x8 (GVSUPS50KB4HS)
- Galaxy VS UPS 50 kW 400 V, for up to 4 internal 9 Ah smart modular battery strings, Start-up 5x8 (GVSUPS50K0B4HS)

UPS with Internal Batteries Up to 5 Battery Strings

See UPS with Internal Batteries Up to 5 Battery Strings, page 66 for technical specifications for this UPS.

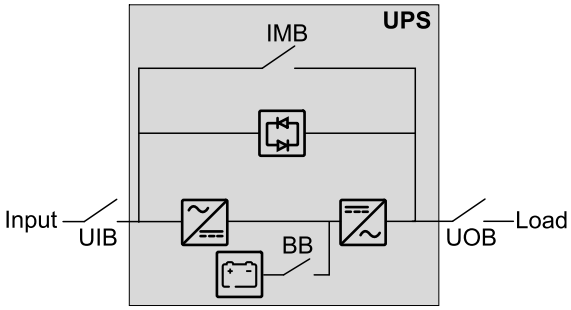
- Galaxy VS UPS 20 kW 400 V, with N+1 power module, for 5 smart modular 9 Ah battery strings, Start-up 5x8 (GVSUPS20KR0B5HS)
- Galaxy VS UPS 30 kW 400 V, with N+1 power module, for 5 smart modular 9 Ah battery strings, Start-up 5x8 (GVSUPS30KR0B5HS)
- Galaxy VS UPS 40 kW 400 V, with N+1 power module, for 5 smart modular 9 Ah battery strings, Start-up 5x8 (GVSUPS40KR0B5HS)
- Galaxy VS UPS 50 kW 400 V, with N+1 power module, for 5 smart modular 9 Ah battery strings, Start-up 5x8 (GVSUPS50KR0B5HS)
- Galaxy VS UPS 60 kW 400 V, with 3 internal 9 Ah smart modular battery strings, expandable to 5, Start-up 5x8 (GVSUPS60KB5HS)
- Galaxy VS UPS 60 kW 400 V, for up to 5 internal 9 Ah smart modular battery strings, Start-up 5x8 (GVSUPS60K0B5HS)
- Galaxy VS UPS 80 kW 400 V, with 3 internal 9 Ah smart modular battery strings, expandable to 5, Start-up 5x8 (GVSUPS80KB5HS)
- Galaxy VS UPS 80 kW 400 V, for up to 5 internal 9 Ah smart modular battery strings, Start-up 5x8 (GVSUPS80K0B5HS)
- Galaxy VS UPS 100 kW 400 V, with 3 internal 9 Ah smart modular battery strings, expandable to 5, Start-up 5x8 (GVSUPS100KB5HS)
- Galaxy VS UPS 100 kW 400 V, for up to 5 internal 9 Ah smart modular battery strings, Start-up 5x8 (GVSUPS100K0B5HS)

UPS with Internal Batteries Up to 2 Battery Strings

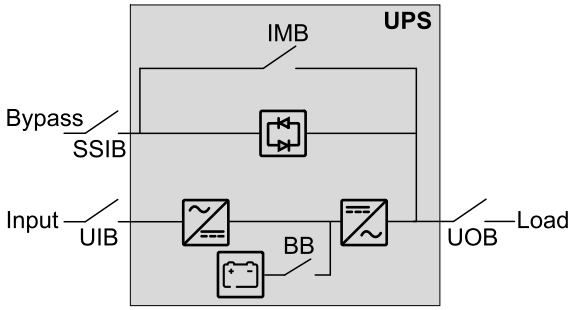
Single System Overview

UIB	Unit input breaker
SSIB	Static switch input breaker
IMB	Internal maintenance breaker
UOB	Unit output breaker
BB	Battery breaker in UPS for internal batteries

Single System – Single Mains



Single System – Dual Mains



Parallel System Overview

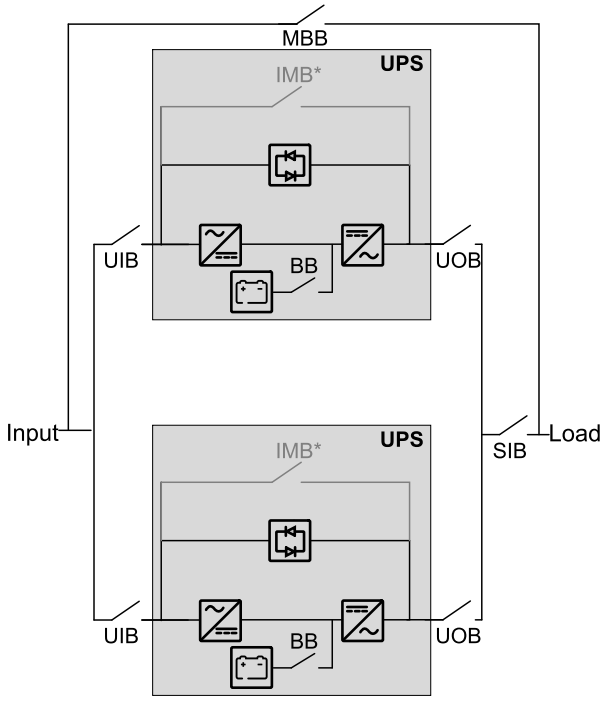
UIB	Unit input breaker
SSIB	Static switch input breaker
IMB	Internal maintenance breaker
UOB	Unit output breaker
SIB	System isolation breaker
BB	Battery breaker in UPS for internal batteries
MBB	External maintenance bypass breaker

Parallel Systems with Individual Unit Input Breaker UIB and Static Switch Input Breaker SSIB

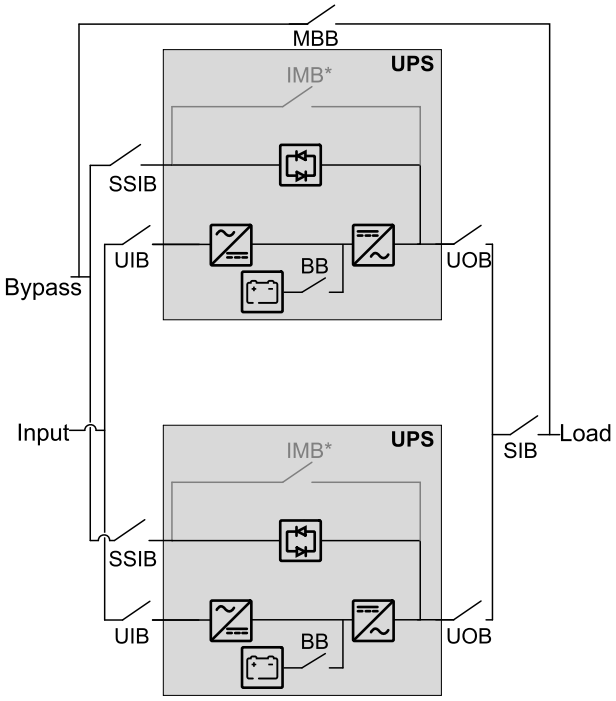
Galaxy VS can support up to 4 UPSs in parallel for capacity and up to 3+1 UPSs in parallel for redundancy with individual unit input breaker UIB and static switch input breaker SSIB.

NOTE: In parallel systems an external maintenance bypass breaker MBB must be provided and the internal maintenance breaker IMB* must be padlocked in the open position.

Parallel System – Single Mains



Parallel System – Dual Mains

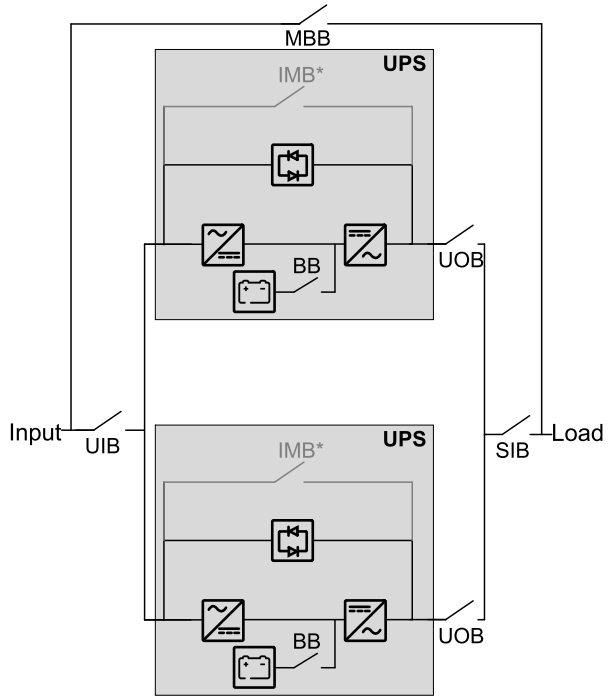


Parallel Systems with Shared Unit Input Breaker UIB and Static Switch Input Breaker SSIB

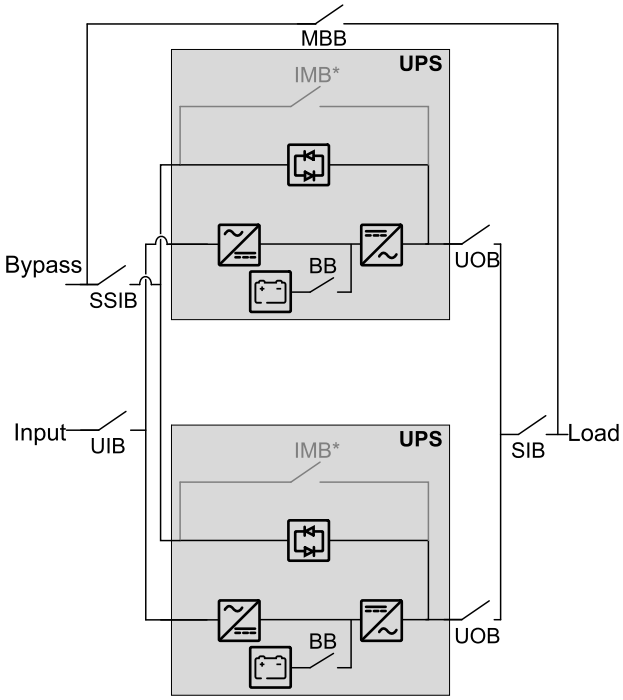
Galaxy VS can support up to 4 UPSs in parallel for capacity and up to 3+1 UPSs in parallel for redundancy with shared unit input breaker UIB and static switch input breaker SSIB.

NOTE: In parallel systems an external maintenance bypass breaker MBB must be provided and the internal maintenance breaker IMB* must be padlocked in the open position.

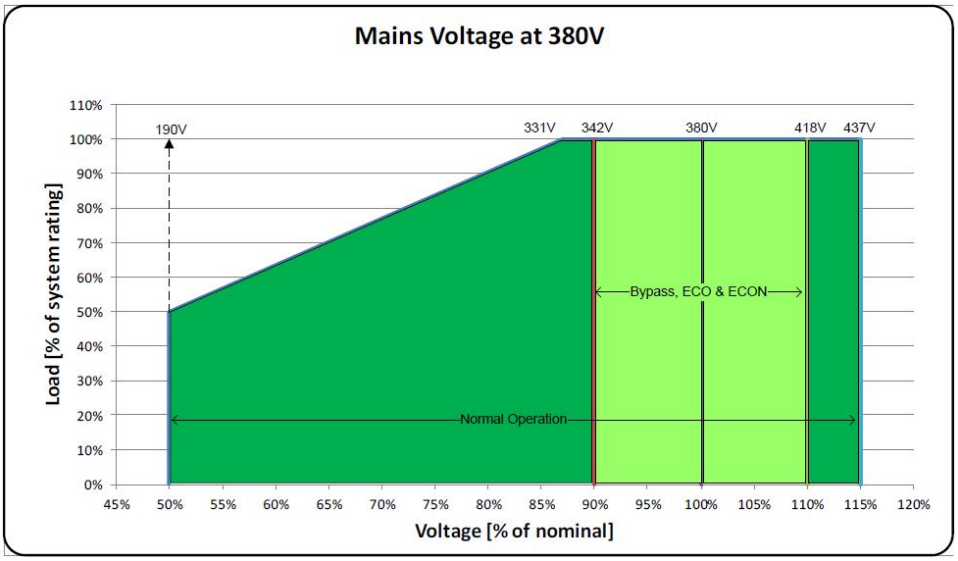
Parallel System – Single Mains

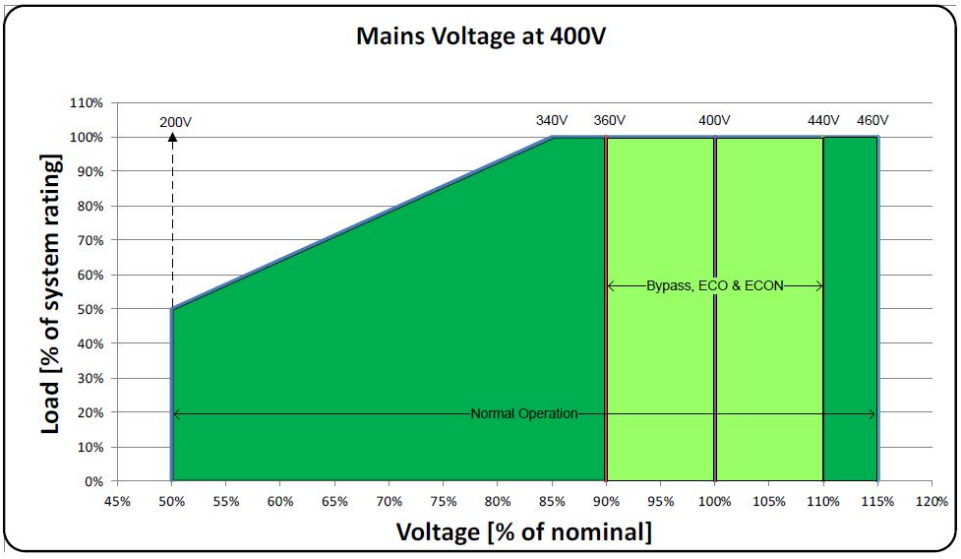


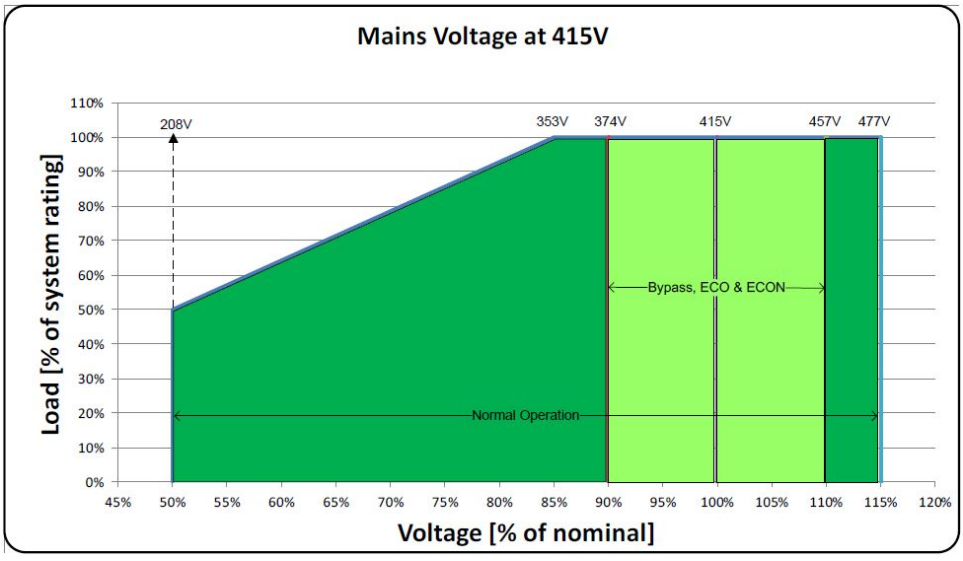
Parallel System – Dual Mains



Input Voltage Window

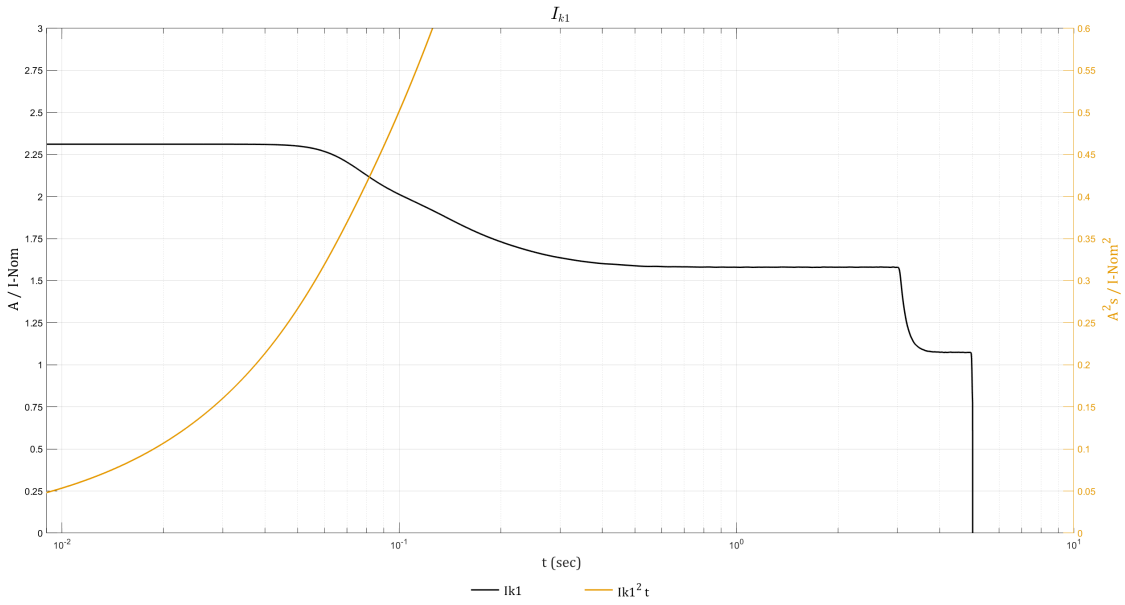






Inverter Short Circuit Capabilities (Bypass not Available)

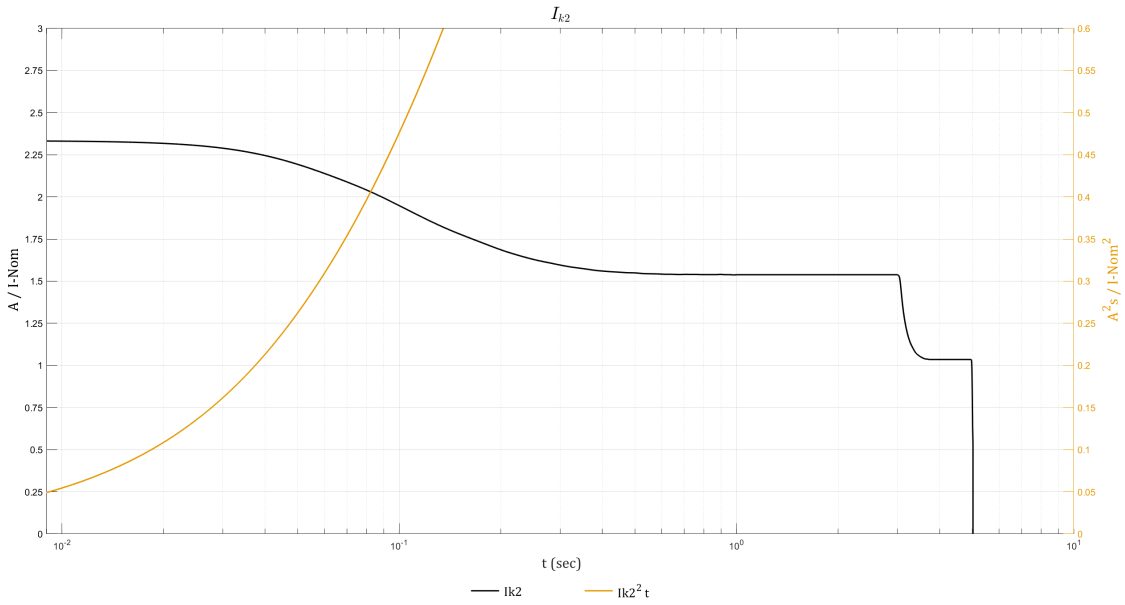
IK1 – Short Circuit between a Phase and Neutral



IK1 400 V

S [kVA]	10ms; I[A]/I²t [A²t]	20ms; I[A]/I²t [A²t]	30ms; I[A]/I²t [A²t]	100ms; I[A]/I²t [A²t]	1s; I[A]/I²t [A²t]
10	33 / 11	33 / 22	33 / 33	29 / 104	23 / 603
15	50 / 25	50 / 50	50 / 75	44 / 235	34 / 1356
20	67 / 45	67 / 89	67 / 134	58 / 418	46 / 2411

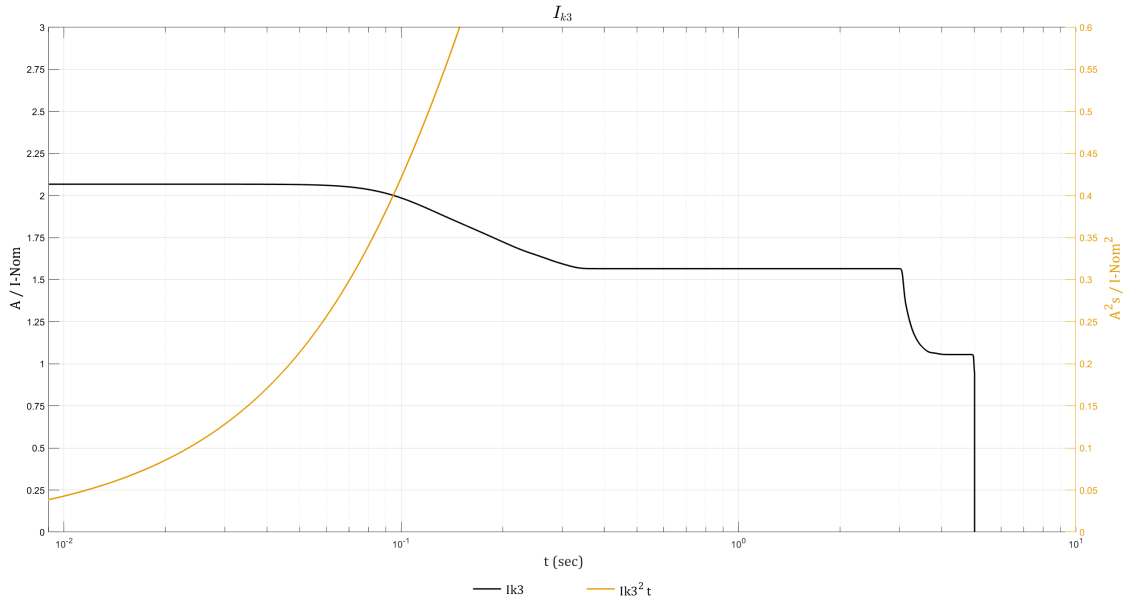
IK2 – Short Circuit between Two Phases



IK2 400 V

S [kVA]	10ms; I[A]/I²t [A²t]	20ms; I[A]/I²t [A²t]	30ms; I[A]/I²t [A²t]	100ms; I[A]/I²t [A²t]	1s; I[A]/I²t [A²t]
10	34 / 11	33 / 23	33 / 34	28 / 99	22 / 571
15	50 / 26	50 / 51	50 / 76	42 / 223	33 / 1285
20	67 / 45	67 / 90	67 / 135	56 / 397	44 / 2284

IK3 – Short Circuit between Three Phases



IK3 400 V

S [kVA]	10ms; I[A]/I²t [A²t]	20ms; I[A]/I²t [A²t]	30ms; I[A]/I²t [A²t]	100ms; I[A]/I²t [A²t]	1s; I[A]/I²t [A²t]
10	30 / 9	30 / 18	30 / 27	29 / 88	23 / 574
15	45 / 20	45 / 40	45 / 60	43 / 198	34 / 1290
20	60 / 36	60 / 71	60 / 107	57 / 351	45 / 2294

Efficiency

10 kW UPS	Normal operation			ECO mode		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	92.8%	92.8%	92.9%	94.8%	94.7%	94.8%
50% load	95.1%	95.4%	95.3%	97.0%	97.1%	97.1%
75% load	96.1%	96.2%	96.1%	97.7%	98.0%	97.9%
100% load	96.3%	96.5%	96.6%	98.2%	98.3%	98.3%

10 kW UPS	eConversion			Battery operation		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	94.9%	94.7%	94.6%	89.9%	89.5%	89.5%
50% load	97.1%	97.0%	97.0%	94.0%	93.8%	93.8%
75% load	97.9%	97.9%	97.8%	95.3%	95.2%	95.1%
100% load	98.3%	98.3%	98.2%	95.8%	95.8%	95.7%

15 kW UPS	Normal operation			ECO mode		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	94.3%	94.3%	94.5%	96.0%	96.3%	96.5%
50% load	96.1%	96.2%	96.1%	97.7%	98.0%	97.9%
75% load	96.4%	96.6%	96.6%	98.2%	98.4%	98.4%
100% load	96.5%	96.7%	96.8%	98.5%	98.6%	98.7%

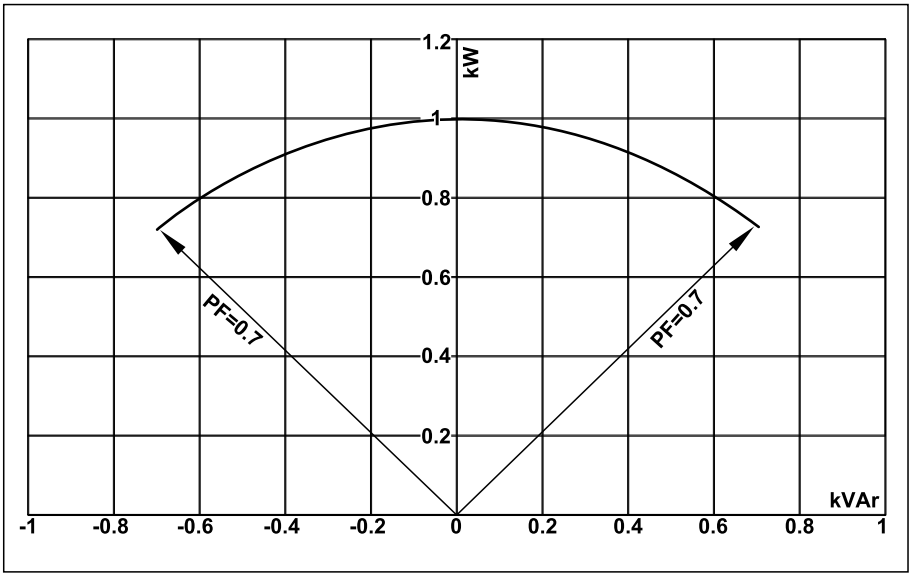
15 kW UPS	eConversion			Battery operation		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	96.4%	96.2%	96.1%	92.6%	92.4%	92.3%
50% load	97.9%	97.9%	97.8%	95.3%	95.2%	95.1%
75% load	98.4%	98.4%	98.4%	96.0%	96.0%	95.9%
100% load	98.6%	98.6%	98.6%	96.2%	96.2%	96.2%

20 kW UPS	Normal operation			ECO mode		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	95.1%	95.4%	95.3%	97.0%	97.1%	97.1%
50% load	96.3%	96.5%	96.6%	98.2%	98.3%	98.3%
75% load	96.5%	96.7%	96.8%	98.5%	98.6%	98.7%
100% load	96.3%	96.5%	96.7%	98.7%	98.8%	98.8%

20 kW UPS	eConversion			Battery operation		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	97.1%	97.0%	97.0%	94.0%	93.8%	93.8%
50% load	98.3%	98.3%	98.2%	95.8%	95.8%	95.7%
75% load	98.6%	98.6%	98.6%	96.2%	96.2%	96.2%
100% load	98.8%	98.8%	98.8%	96.2%	96.2%	96.2%

Derating Due to Load Power Factor

0.7 leading to 0.7 lagging without derating.



UPS rating	UPS output					
	Lagging			Leading		
PF=1	PF=0.7	PF=0.8	PF=0.9	PF=0.9	PF=0.8	PF=0.7
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

Leakage Current

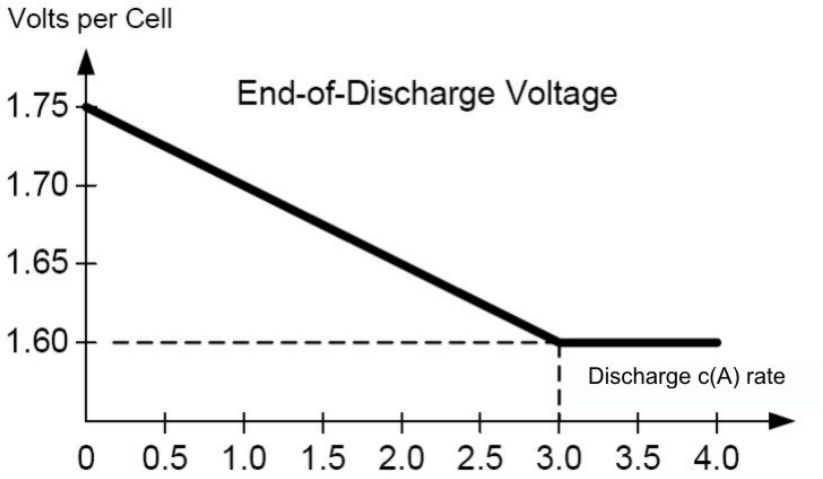
380/400/415 V UPS system 4-wire installation at 100% load

UPS rating	Leakage current
10-20 kW	60 mA

Batteries

End of Discharge Voltage

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



Battery Voltage Window

	Boost 2.38 Vpc	**Nominal 2.0 Vpc**	**Minimum 1.6 Vpc**
Battery voltage (V)	571.2	480	384

Battery Runtimes in Minutes

400 V UPS

UPS rating	**10 kW**	**15 kW**	**20 kW**
Number of modular battery strings			
1	8.5	NA	NA
2	22.5	12.5	8.5

Compliance

Safety	IEC 62040-1: 2017, Edition 2.0, Uninterruptible Power Systems (UPS) - Part 1: Safety requirements UL 1778 5th edition
EMC/EMI/RFI	IEC 62040-2: 2016, 3rd edition Uninterruptible Power Systems (UPS) - Part 2: Electromagnetic compatibility (EMC) requirements C2 FCC Part 15 Subpart B, Class A IEEE C62.41-1991 Location Category B2, IEEE Recommended Practice on Surge Voltages in Low-Voltage AC Power Circuits
Transportation	IEC 60721-4-2 Level 2M1
Seismic	ICC-ES AC 156 (2015): OHSPD Pre-approved; Sds=1.33 g for z/h=1 and Sds=1.63 g for z/h=0; Ip= 1.5
Earthing system	TN-C, TN-S, TT, IT
Overvoltage category	This UPS is OVCII compliant. If the UPS is installed in an environment with an OVC rating higher than II, an SPD (surge protection device) must be installed upstream of the UPS to reduce the overvoltage category to OVCII.
Protective class	I
Pollution degree	2

Performance

Performance in accordance with: IEC 62040-3: 2021, 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

Regional Seismic Compliance

Certificate available upon request.

Country/Region	Code ID	Hazard level ground	Hazard level roof
Argentina	INPRES-CIRSOC103	Zone 4	Zone 4
Australia	AS 1170.4-2007	Z = 0.22	Z = 0.22
Canada[1]	2020 NBCC	S_a = 2.0	S_a = 1.46
Chile	NCh 433.Of1996	Zone 3	Zone 2
China	GB 50011-2010 (2016)	α_{Max} = 1.4	α_{Max} = 1.2
Europe	Eurocode 8 EN1998-1	α_{gR} = 0.45	α_{gR} = 0.3
India	IS 1893 (Part 1) : 2016	Z = 0.36	Z = 0.36
Japan	Building Standard Law	Zone A	Zone A
New Zealand	NZS 1170.5:2004+A1	Z = 0.6	Z = 0.42
Peru	N.T.E. - E.030	Zone 4	Zone 4
Russia	SNIP II-7-81 (SP 14.13330.2014)	MSK 10	MSK 9
Taiwan	CPA 2011 Seismic Design Code	S_S^D = 0.8	S_S^D = 0.8
U.S.A.[1]	ASCE 7-16 / IBC 2018	S_{DS} = 2.0	S_{DS} = 1.47

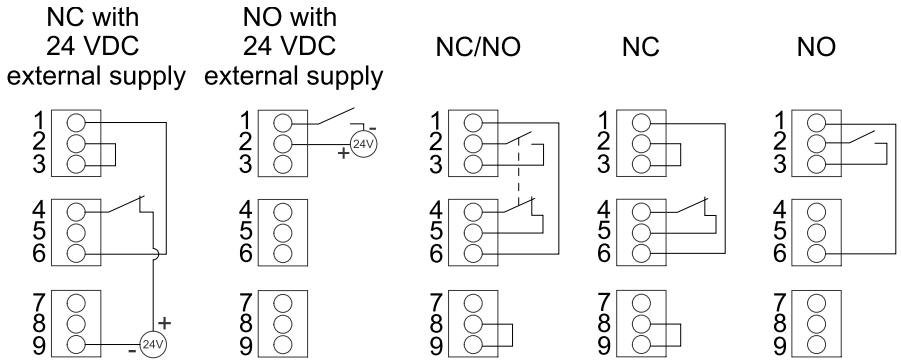
1. OSHPD Pre-approved in accordance with AC156 test protocol.

Communication and Management

Local area network	1 Gbps – 1 port as default
Modbus	Modbus (SCADA)
Output relays	4 x SELV configurable
Input contacts	4 x SELV configurable
Standard control panel	4.3 inch touchscreen display
Audible alarm	Yes
Emergency Power Off (EPO)	Options: • Normally Open (NO) • Normally Closed (NC) • External 24 VDC SELV
External switchgear	UIB UOB SSIB MBB SIB
External synchronization	No
Battery monitoring	Available for modular batteries

EPO

EPO Configurations (640–4864 terminal J6600, 1–9)



The EPO input supports 24 VDC.

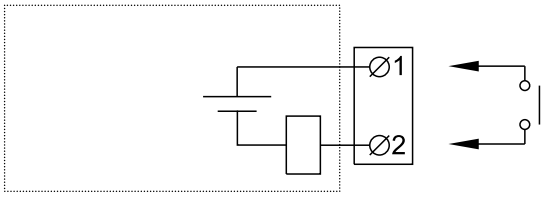
NOTE: The default setting for the EPO activation is to turn off the inverter.

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

Configurable Input Contacts and Output Relays

Input Contacts

Four input contacts are available and can be configured to indicate a given event via the display. The input contacts support 24 VDC 10 mA.

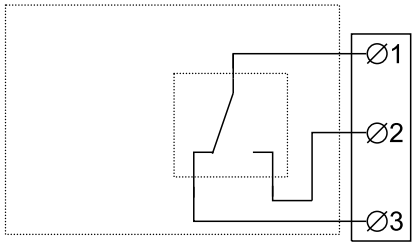


Name	Description	Location
IN _1 (input contact 1)	Configurable input contact	640-4864 terminal J6616, 1–2
IN _2 (input contact 2)	Configurable input contact	640-4864 terminal J6616, 3–4
IN _3 (input contact 3)	Configurable input contact	640-4864 terminal J6616, 5–6
IN _4 (input contact 4)	Configurable input contact	640-4864 terminal J6616, 7–8

Output Relays

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

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



Name	Description	Location
OUT _1 (output relay 1)	Configurable output relay	640–4864 terminal J6617, 1–3
OUT _2 (output relay 2)	Configurable output relay	640–4864 terminal J6617, 4–6
OUT _3 (output relay 3)	Configurable output relay	640–4864 terminal J6617, 7–9
OUT _4 (output relay 4)	Configurable output relay	640–4864 terminal J6617, 10–12

Energized check mode: When this mode is enabled, it means that the output relay is activated when the events associated with the output relay are not present (normally activated). **Energized check mode** is individually set for each output relay and makes it possible to detect if the power supply to the output relays is lost, as all output relays will deactivate and the events associated with the output relays will be indicated as present.

Specifications

Input Specifications

UPS rating	**10 kW**	**15 kW**	**20 kW**
Voltage (V)	**380/400/415**	**380/400/415**	**380/400/415**
Connections	4-wire (L1, L2, L3, N, PE) WYE (single mains) 3-wire (L1, L2, L3, PE) WYE (dual mains)[2] [3]		
Input voltage range (V)	380 V: 331-437 400 V: 340-460 415 V: 353-477		
Frequency range (Hz)	40-70		
Nominal input current (A)	16/15/14	24/22/22	32/30/29
Maximum input current (A)	20/19/18	29/28/27	39/37/36
Input current limitation (A)	21/20/19	30/29/28	39/37/36
Input power factor	0.99 for load greater than 50% 0.95 for load greater than 25%		
Total harmonic distortion (THDI)	<3% at full linear load (symmetrical)		
Minimum short circuit rating	Dependent on upstream protection. See section for **Recommended Upstream Protection for 400 V** for details.		
Maximum short circuit rating	65 kA RMS		
Protection	Built-in backfeed protection and fuses		
Ramp-in	Programmable and adaptive 1-40 seconds		

Bypass Specifications

UPS rating	**10 kW**	**15 kW**	**20 kW**
Voltage (V)	**380/400/415**	**380/400/415**	**380/400/415**
Connections	4-wire (L1, L2, L3, N, PE) WYE		
Bypass voltage range (V)	380 V: 342-418 400 V: 360-440 415 V: 374-457		
Frequency range (Hz)	50/60 ± 1, 50/60 ± 3, 50/60 ± 10 (user selectable)		
Nominal bypass current (A)	16/16/15	24/23/22	32/29/28
Nominal neutral current (A)	26/25/24	39/37/36	53/50/48
Minimum short circuit rating	Dependent on upstream protection. See section for **Recommended Upstream Protection for 400 V** for details.		
Maximum short circuit rating[4]	65 kA RMS		
Protection	Built-in backfeed protection and fuses Internal fuse specifications: Rated 160 A, prearcing 2.68 kA^2s		

2. TN and TT power distribution systems are supported. Corner (line) grounding is not permitted.
3. **Only for dual mains system with upstream 4-pole breakers**: Install an N connection with the input cables (L1, L2, L3, N, PE).
4. Conditioned by the internal fuse rated 160 A, prearcing 2.68 kA^2s.

Output Specifications

UPS rating	**10 kW**	**15 kW**	**20 kW**
Voltage (V)	**380/400/415**	**380/400/415**	**380/400/415**
Connections	4-wire (L1, L2, L3, N, PE)		
Output voltage regulation	Symmetrical load ± 1% Asymmetrical load ± 3%		
Overload capacity	150% for 1 minute (in normal operation) 125% for 10 minutes (in normal operation) 125% for 1 minute (in battery operation) 110% continuous (bypass operation) 1000% for 100 milliseconds (bypass operation)		
Dynamic load response	± 5% after 2 milliseconds ± 1% after 50 milliseconds		
Output power factor	1		
Nominal output current (A)	15/14/14	23/22/21	30/29/28
Minimum short circuit rating[5]	Dependent on upstream protection. See section for **Recommended Upstream Protection for 400 V** for details.		
Maximum short circuit rating[6]	65 kA RMS		
Inverter output short circuit capabilities	Varies with time. See graph and table values in Inverter Short Circuit Capabilities (Bypass not Available), page 17.		
Frequency regulation (Hz)	50/60 Hz bypass synchronized – 50/60 Hz ± 0.1% free-running		
Synchronized slew rate (Hz/sec)	Programmable to 0.25, 0.5, 1, 2, 4, 6		
Total harmonic distortion (THDU)	<1% for linear load <3% for non-linear load		
Output performance classification (according to IEC 62040-3:2021)	VFI-SS-11		
Load crest factor	2.5		
Load power factor	From 0.7 leading to 0.7 lagging without any derating		

Battery Specifications

All values are based on 40 battery blocks.

UPS rating	**10 kW**	**15 kW**	**20 kW**
Charging power in % of output power at 0-40% load	80%		
Charging power in % of output power at 100% load	20%		
Maximum charging power (at 0-40% load) (kW)	8	12	16
Maximum charging power (at 100% load) (kW)	2	3	4
Nominal battery voltage (VDC)	480		
Nominal float voltage (VDC)	545		
Maximum boost voltage (VDC)	571		
Temperature compensation (per cell)	-3.3mV/°C, for T ≥ 25 °C – 0mV/°C, for T < 25 °C		

5. Minimum short circuit rating for output takes backfeeding energy through the bypass of parallel UPSs into consideration.
6. Maximum short circuit rating for output takes backfeeding energy through the bypass of parallel UPSs into consideration.

UPS rating	10 kW	15 kW	20 kW
End of discharge voltage (full load) (VDC)	384		
Battery current at full load and nominal battery voltage (A)	22	33	43
Battery current at full load and minimum battery voltage (A)	27	41	54
Ripple current	< 5% C20 (5 minute runtime)		
Battery test	Manual/automatic (selectable)		
Maximum short circuit rating	10 kA		

Recommended Upstream Protection for 400 V

Upstream Protection for 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 0.2 seconds for a minimum prospective phase-to-earth short circuit current calculated or measured at the input/bypass terminals of the UPS.

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

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

NOTICE

RISK OF UNINTENTIONAL DEVICE OPERATION

If a residual current-operated protective device (RCD-B) is used upstream as ground fault protection, then the RCD-B shall be sized to not trip on the leakage current of this product, which can be up to 60 mA.

Failure to follow these instructions can result in equipment damage.

Recommended Upstream Protection for 400 V IEC UPS

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.

$Ik_{Ph\text{-}PE}$ is the minimum prospective phase-to-earth short circuit current required at the input/bypass terminals of the UPS. The $Ik_{Ph\text{-}PE}$ in the table is based on the recommended protective device.

UPS rating	10 kW		15 kW		20 kW	
	Input	Bypass	Input	Bypass	Input	Bypass
$Ik_{Ph\text{-}PE}$ (kA)	**0.55**	**0.6**	**0.8**	**0.6**	**0.6**	**0.5**
Breaker type	NSX100H TM25D (C10H3TM025)	NSX100H TM16D (C10H3TM016)	NSX100H TM32D (C10H3TM032)	NSX100H TM25D (C10H3TM025)	NSX100H TM40D (C10H3TM040)	NSX100H TM32D (C10H3TM032)
In (A)	25	16	32	25	40	32
Ir (A)	20	16	32	23	40	32
Im (A)	300 (fixed)	190 (fixed)	400 (fixed)	300 (fixed)	500 (fixed)	400 (fixed)

Recommended Cable Sizes for 380/400/415 V

⚠⚠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 25 mm^2.

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 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
- Installation method C

PE cable size is based on table 54.2 of IEC 60364-4-54.

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. Not all auxiliary products support aluminum cables. Refer to the installation manual provided with the auxiliary product.

NOTE: Neutral conductor is sized to handle 1.73 times phase current in case of high harmonic content from non-linear loads. If non or less harmonic currents are expected, neutral conductor can be sized accordingly but not less than the phase conductor.

Copper

UPS rating	**10 kW**	**15 kW**	**20 kW**
Voltage (V)	**380/400/415**	**380/400/415**	**380/400/415**
Input phases (mm^2)	6	6	10
Input PE (mm^2)	6	6	10
Bypass/output phases (mm^2)	6	6	10
Bypass PE/output PE (mm^2)	6	6	10
Neutral (mm^2)	6	10	16

Torque Specifications

Bolt size	**Torque**
M4	1.7 Nm
M5	2.2 Nm
M6	5 Nm
M8	17.5 Nm
M10	30 Nm
M12	50 Nm

Environment

	Operating	Storage
Temperature	0 °C to 40 °C	-15 °C to 40 °Cfor systems with batteries.
Relative humidity	5 - 95% non-condensing	10 - 80% non-condensing
Elevation	Designed for operation in 0-3000 m elevation. Power derating required from 1000-3000 m: Up to 1000 m: 1.000 Up to 1500 m: 0.975 Up to 2000 m: 0.950 Up to 2500 m: 0.925 Up to 3000 m: 0.900	
Audible noise one meter from unit	400 V 10-20 kW: 49 dB at 70% load, 55 dB at 100% load	
Protection class	IP20	
Color	RAL 9003, gloss level 85%	

Heat Dissipation in BTU/hr

10 kW UPS	Normal operation			ECO mode		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	663	664	652	469	475	470
50% load	888	831	845	524	502	516
75% load	1052	1024	1026	610	525	542
100% load	1300	1240	1218	622	594	593

10 kW UPS	eConversion			Battery operation		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	460	475	486	957	998	995
50% load	512	519	530	1088	1123	1137
75% load	550	556	563	1268	1288	1312
100% load	599	602	610	1479	1491	1519

15 kW UPS	Normal operation			ECO mode		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	769	767	744	529	487	461
50% load	1052	1024	1026	610	525	542
75% load	1425	1350	1339	704	612	610
100% load	1856	1761	1716	790	706	688

15 kW UPS	eConversion			Battery operation		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	484	501	517	1021	1056	1062
50% load	550	556	563	1268	1288	1312
75% load	635	630	630	1599	1595	1635
100% load	709	707	701	2014	2013	2031

20 kW UPS	Normal operation			ECO mode		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	888	831	845	524	502	516
50% load	1300	1240	1218	622	594	593
75% load	1856	1761	1716	790	706	688
100% load	2600	2454	2353	871	836	801

20 kW UPS	eConversion			Battery operation		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	512	519	530	1088	1123	1137
50% load	599	602	610	1479	1491	1519
75% load	709	707	701	2014	2013	2031
100% load	835	819	810	2697	2690	2672

UPS Shipping Weights and Dimensions

	Weight kg	Height mm	Width mm	Depth mm
UPS with one battery string	270	1680	640	990

UPS Weights and Dimensions

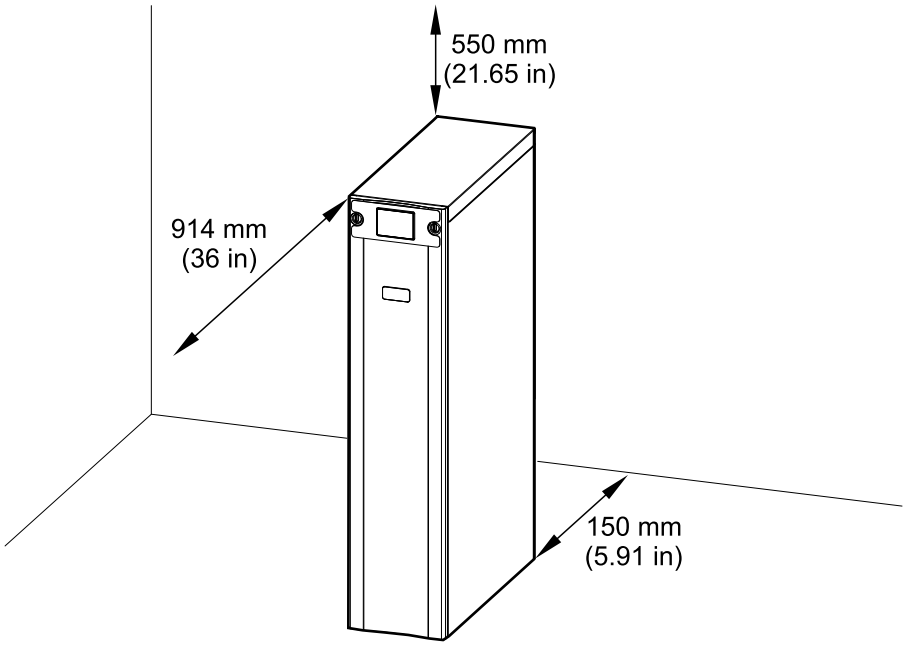
	Weight kg	Height mm	Width mm	Depth mm
UPS with one battery string	245	1485	333	847

NOTE: One battery module weighs approximately 32 kg. One battery string consists of four battery modules.

Clearance

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

NOTE: The required minimum rear clearance is 150 mm (5.91 in).

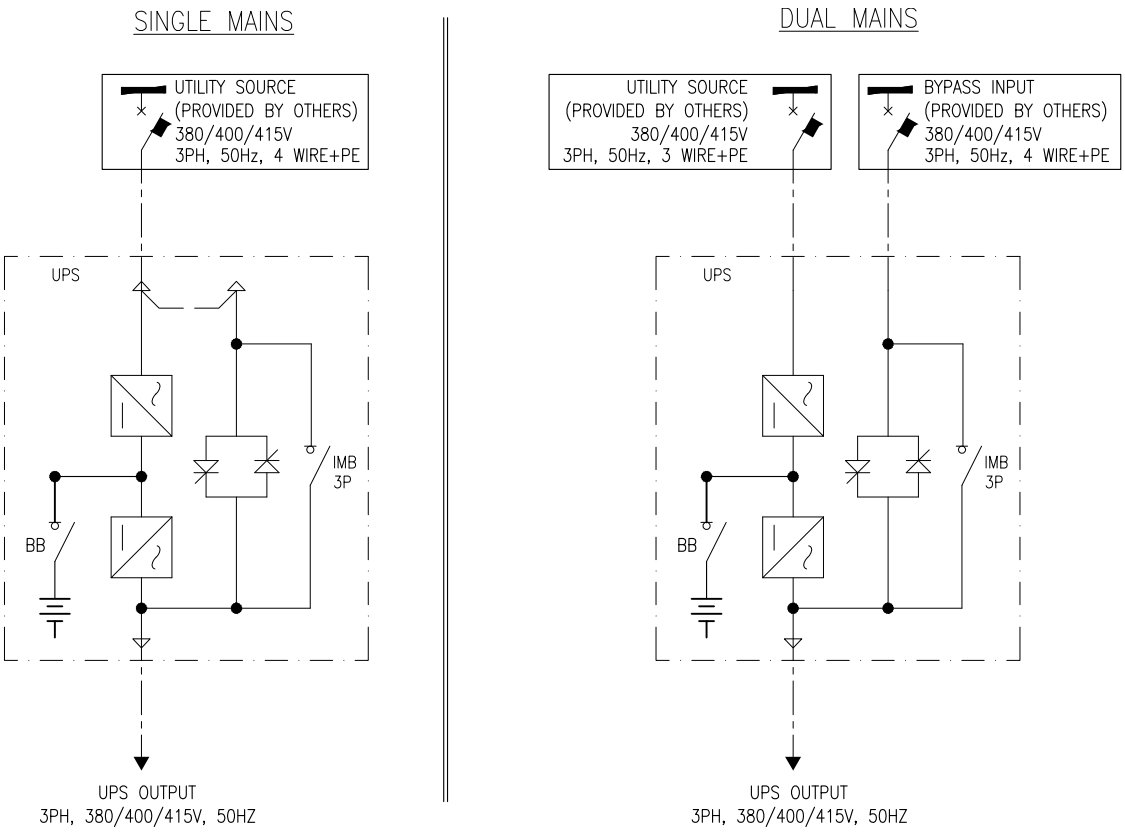


Drawings

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

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

10-20 kW 400 V



Options

Configuration Options

- eConversion mode
- Compact design, high density technology, and modular architecture
- Internal battery modules
- Single or dual mains
- Up to 4+0 UPSs in parallel for capacity
- Up to 3+1 UPSs in parallel for redundancy
- Rear cable entry
- EcoStruxure IT compatible
- Generator compatible
- Touchscreen LCD
- Replacement of power module in any operation mode (Live Swap)[7]
- ECO mode

7. In all systems configured for Live Swap.

Hardware Options

See Weights and Dimensions for Options, page 101.

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

Power Module

- Power module 20 kW 400 V (GVPM20KD)

Maintenance Bypass Panel

Maintenance bypass panel for complete isolation of the UPS during service operations. Only for single UPS or 1+1 parallel system for redundancy.

- 10-20 kW maintenance bypass panel (GVSBPSU10K20H)
- 20-60 kW maintenance bypass panel (GVSBPSU20K60H)

Parallel Maintenance Bypass Panel for Two UPSs

Maintenance bypass panel for complete isolation of two UPSs in a parallel system. 10-30 kW in 1+1 parallel system for redundancy, 20-60 kW in 2+0 parallel system for capacity.

- 10-30 kW maintenance bypass panel (GVSBPAR10K30H)

Auxiliary Cabinets

- Empty auxiliary cabinet (GVEAC7)

Optional Installation Kits

- Seismic kit for UPS (GVSOPT017)
- Parallel kit for UPS (GVSOPT006)
- Live Swap kit for the UPS (GVSOPT039)

Optional Network Management Card

- Network Management Card LCES2 with Modbus, Ethernet and AUX sensors (AP9644)

Air Filter

- Air filter kit (GVSOPT015)

Battery Modules

7 Ah smart battery modules.

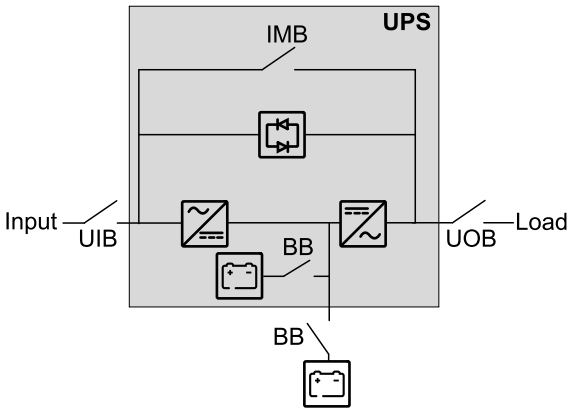
- Galaxy VS 7 Ah Smart Battery Module (GVSBTU)
- Galaxy VS 7 Ah Smart Modular Battery String (GVSBT4)

UPS with Internal Batteries Up to 4 Battery Strings

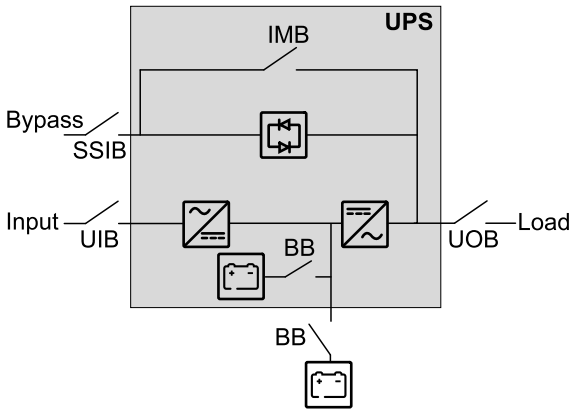
Single System Overview

UIB	Unit input breaker
SSIB	Static switch input breaker
IMB	Internal maintenance breaker
UOB	Unit output breaker
BB	Battery breaker in UPS for internal batteries and in external battery solution (if present)

Single System – Single Mains



Single System – Dual Mains



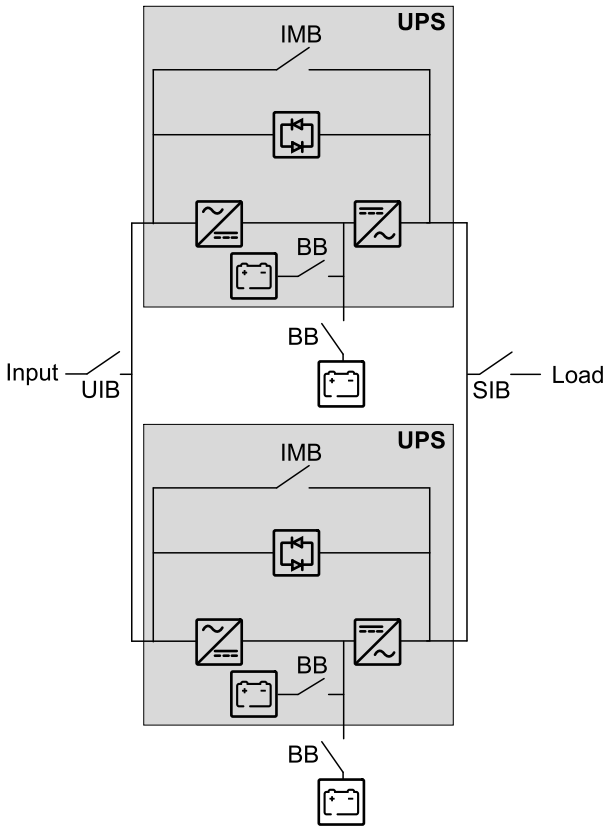
Parallel System Overview

UIB	Unit input breaker
SSIB	Static switch input breaker
IMB	Internal maintenance breaker
UOB	Unit output breaker
SIB	System isolation breaker
BB	Battery breaker in UPS for internal batteries and in external battery solution (if present)
MBB	External maintenance bypass breaker

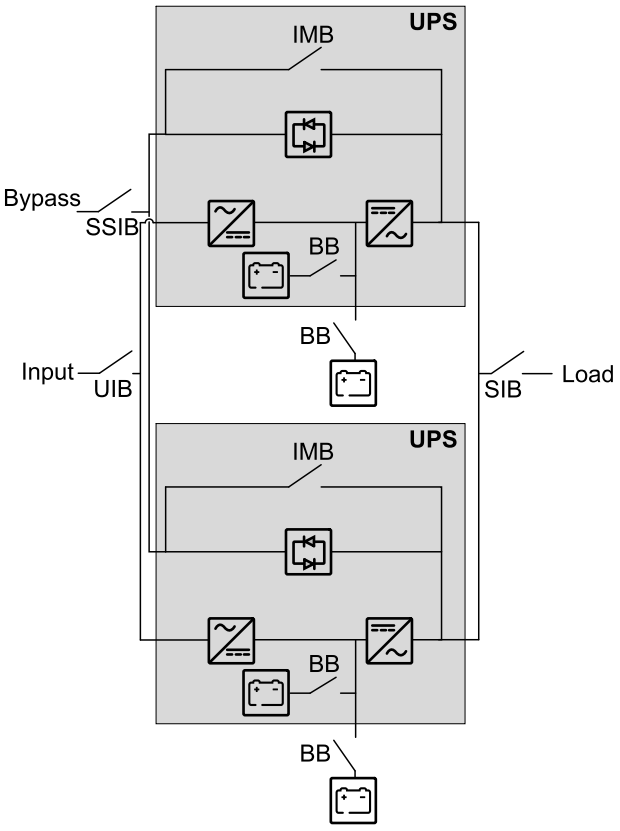
Simplified 1+1 Parallel Systems

Galaxy VS can support 2 UPSs in a simplified 1+1 parallel system for redundancy with shared unit input breaker UIB and static switch input breaker SSIB.

Simplified 1+1 Parallel System – Single Mains



Simplified 1+1 Parallel System – Dual Mains

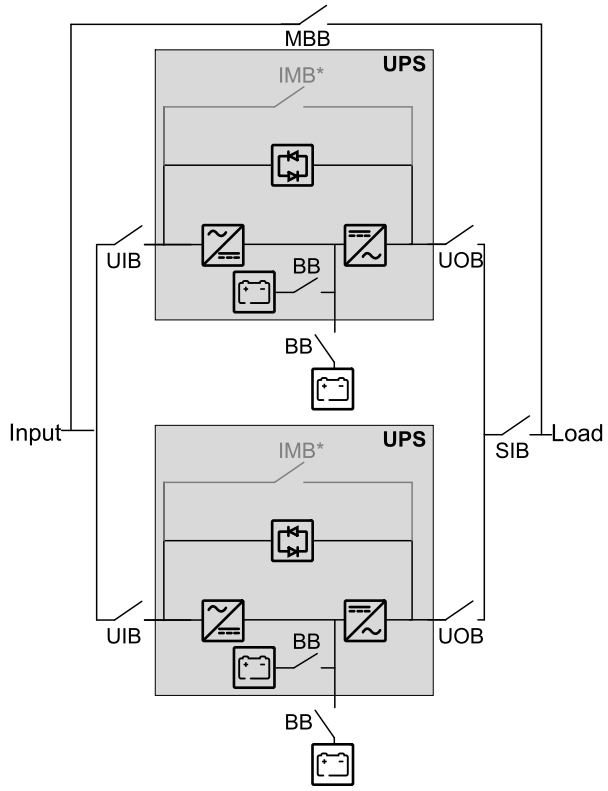


Parallel Systems with Individual Unit Input Breaker UIB and Static Switch Input Breaker SSIB

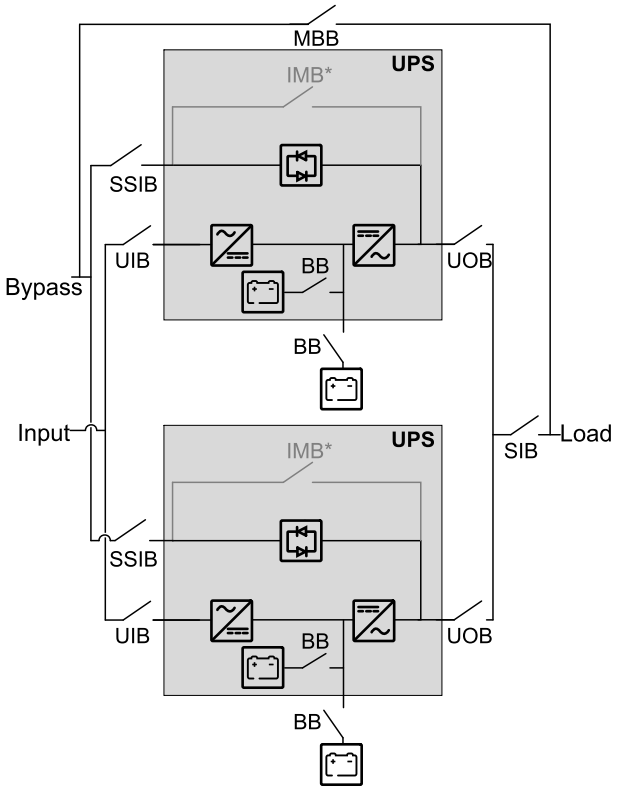
Galaxy VS can support up to 4 UPSs in parallel for capacity and up to 3+1 UPSs in parallel for redundancy with individual unit input breaker UIB and static switch input breaker SSIB.

NOTE: The internal maintenance breaker IMB can only be used in a simplified 1+1 parallel system. In any other parallel system, an external maintenance bypass breaker MBB must be provided and the internal maintenance breaker IMB* must be padlocked in the open position.

Parallel System – Single Mains



Parallel System – Dual Mains

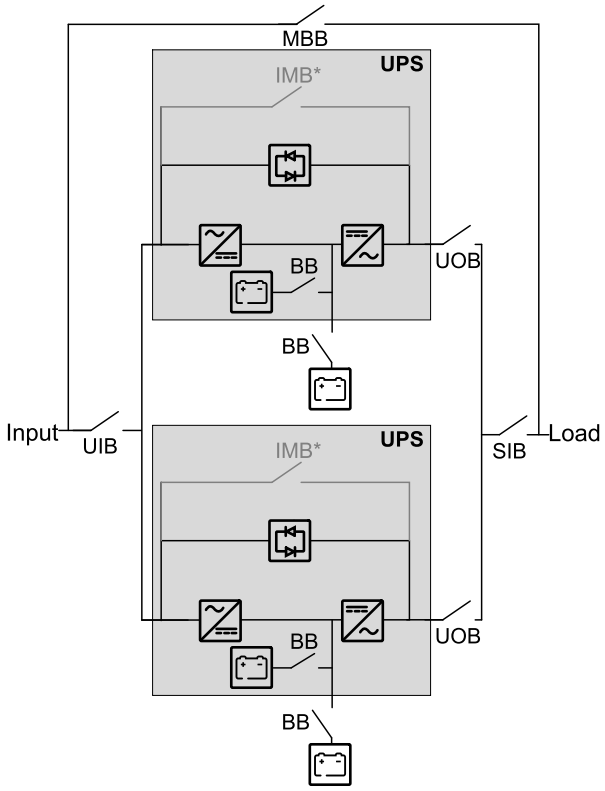


Parallel Systems with Shared Unit Input Breaker UIB and Static Switch Input Breaker SSIB

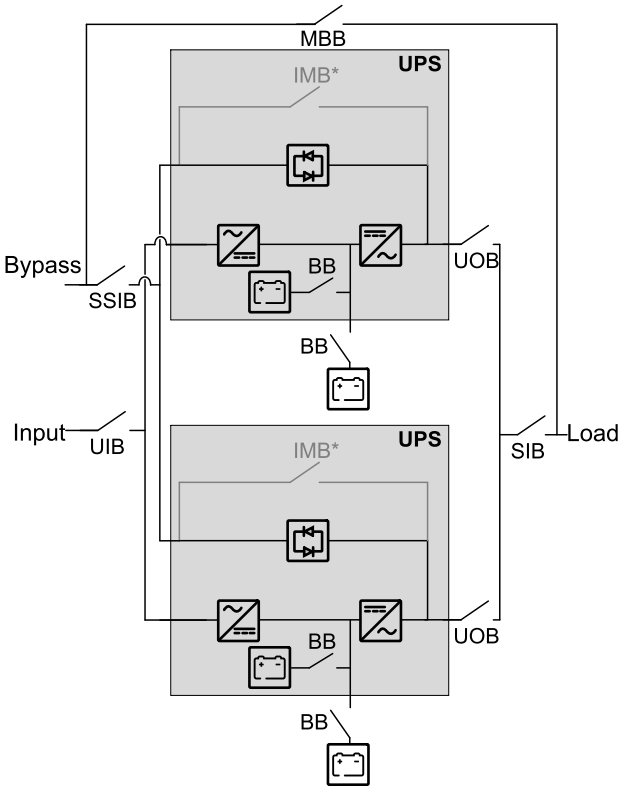
Galaxy VS can support up to 4 UPSs in parallel for capacity and up to 3+1 UPSs in parallel for redundancy with shared unit input breaker UIB and static switch input breaker SSIB.

NOTE: The internal maintenance breaker IMB can only be used in a simplified 1+1 parallel system. In any other parallel system, an external maintenance bypass breaker MBB must be provided and the internal maintenance breaker IMB* must be padlocked in the open position.

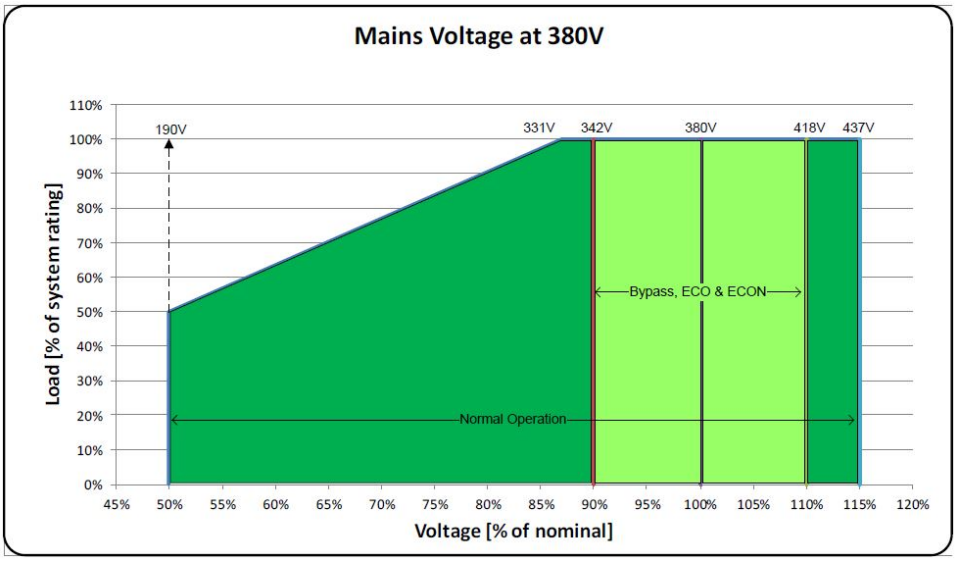
Parallel System – Single Mains

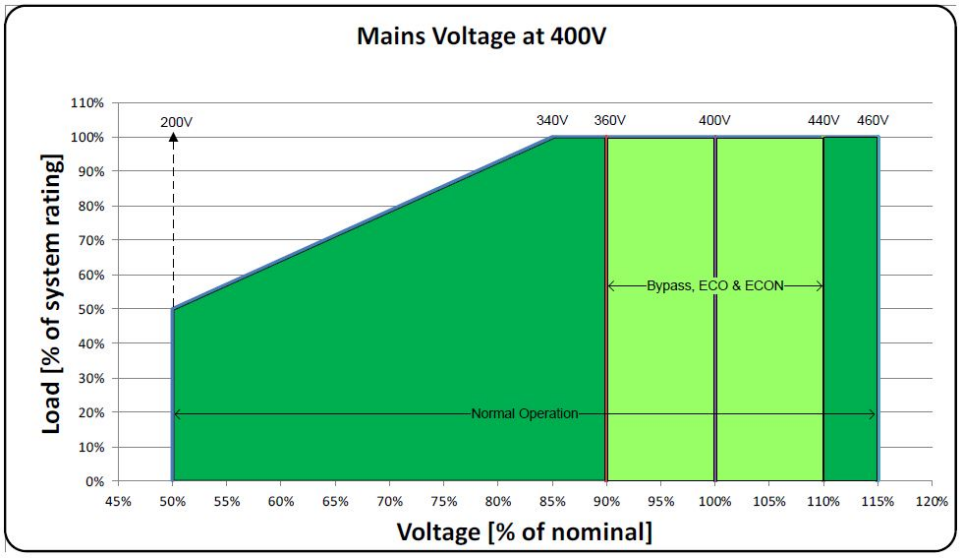


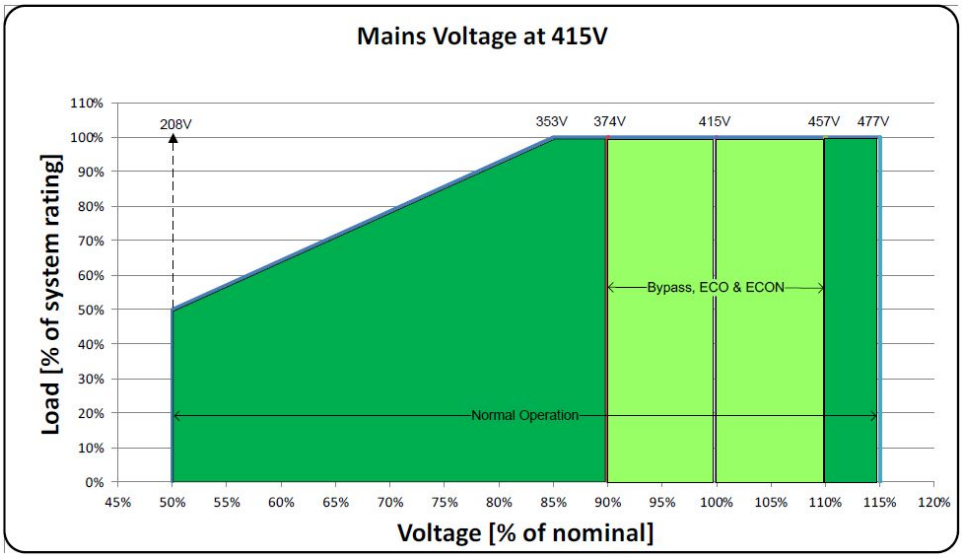
Parallel System – Dual Mains



Input Voltage Window

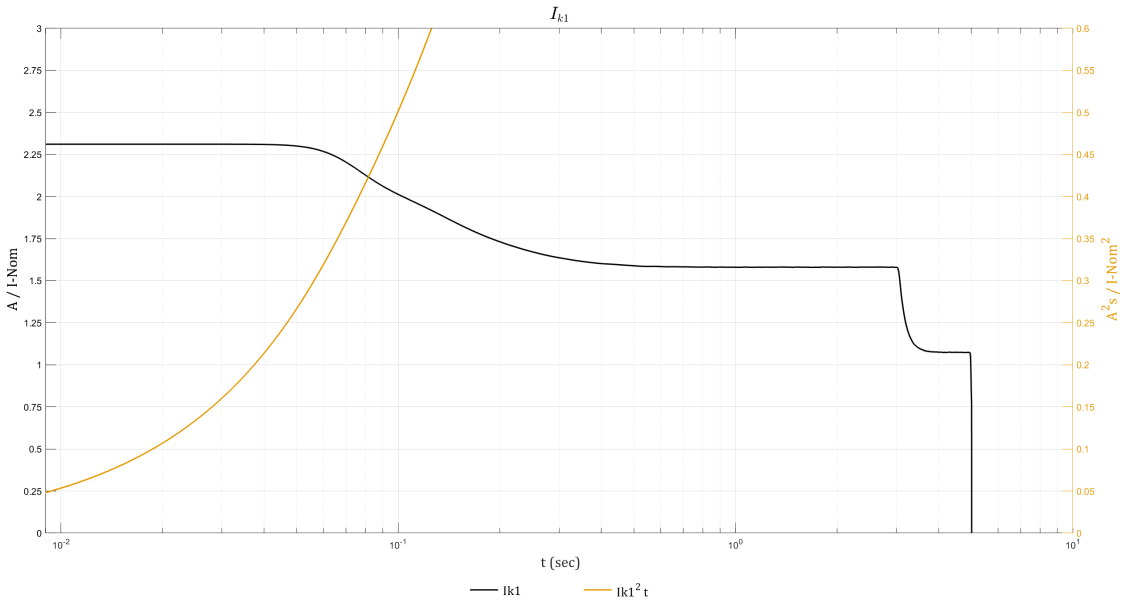






Inverter Short Circuit Capabilities (Bypass not Available)

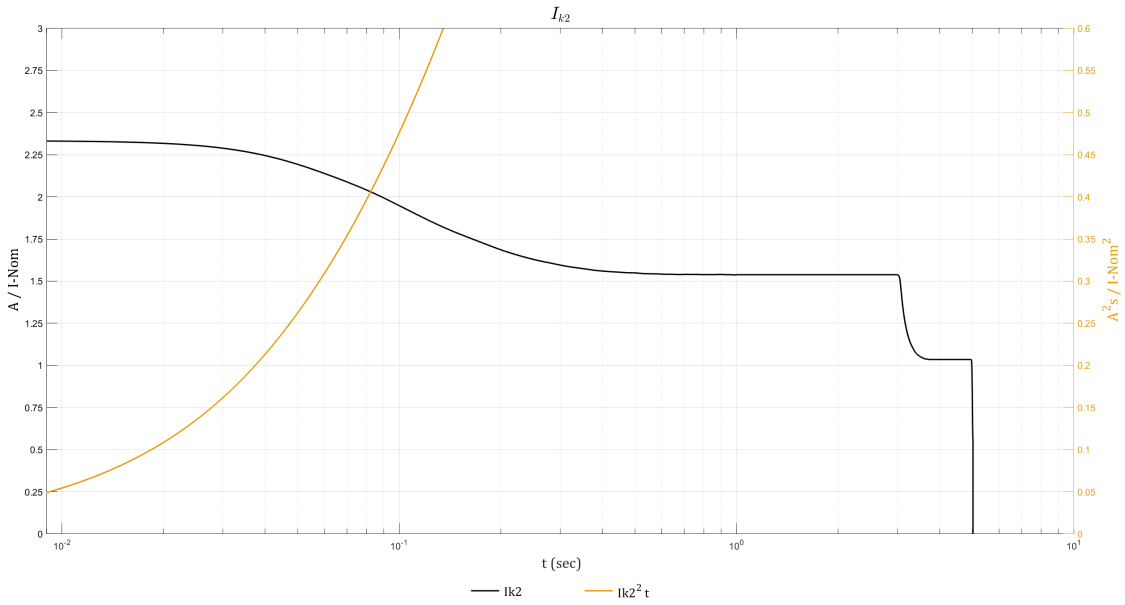
IK1 – Short Circuit between a Phase and Neutral



IK1 400 V

S [kVA]	10ms; I[A]/I²t [A²t]	20ms; I[A]/I²t [A²t]	30ms; I[A]/I²t [A²t]	100ms; I[A]/I²t [A²t]	1s; I[A]/I²t [A²t]
10	33 / 11	33 / 22	33 / 33	29 / 104	23 / 603
15	50 / 25	50 / 50	50 / 75	44 / 235	34 / 1356
20	67 / 45	67 / 89	67 / 134	58 / 418	46 / 2411
30	100 / 100	100 / 200	100 / 300	87 / 940	68 / 5420
40	133 / 180	133 / 360	133 / 530	116 / 1670	91 / 9640
50	167 / 280	167 / 560	167 / 830	145 / 2610	114 / 15070

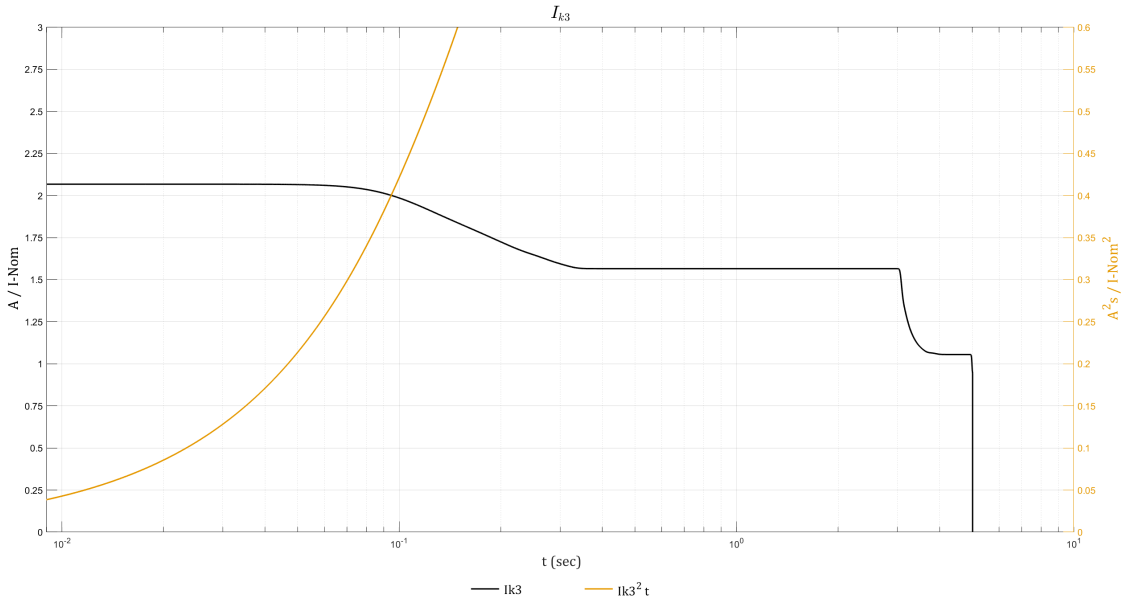
IK2 – Short Circuit between Two Phases



IK2 400 V

S [kVA]	10ms; I[A]/I²t [A²t]	20ms; I[A]/I²t [A²t]	30ms; I[A]/I²t [A²t]	100ms; I[A]/I²t [A²t]	1s; I[A]/I²t [A²t]
10	34 / 11	33 / 23	33 / 34	28 / 99	22 / 571
15	50 / 26	50 / 51	50 / 76	42 / 223	33 / 1285
20	67 / 45	67 / 90	67 / 135	56 / 397	44 / 2284
30	101 / 100	100 / 200	100 / 300	84 / 890	67 / 5140
40	135 / 180	134 / 360	134 / 540	112 / 1590	89 / 9140
50	168 / 280	167 / 570	167 / 840	141 / 2480	111 / 14280

IK3 – Short Circuit between Three Phases



IK3 400 V

S [kVA]	10ms; I[A]/I²t [A²t]	20ms; I[A]/I²t [A²t]	30ms; I[A]/I²t [A²t]	100ms; I[A]/I²t [A²t]	1s; I[A]/I²t [A²t]
10	30 / 9	30 / 18	30 / 27	29 / 88	23 / 574
15	45 / 20	45 / 40	45 / 60	43 / 198	34 / 1290
20	60 / 36	60 / 71	60 / 107	57 / 351	45 / 2294
30	90 / 80	90 / 160	90 / 240	86 / 790	68 / 5160
40	119 / 140	119 / 290	119 / 430	115 / 1400	90 / 9180
50	149 / 220	149 / 450	149 / 670	143 / 2200	113 / 14340

Efficiency 400 V

400 V UPS

10 kW	Normal operation			ECO mode		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	93.2%	92.8%	93.0%	94.6%	94.6%	94.8%
50% load	95.2%	95.5%	95.2%	97.0%	97.2%	97.0%
75% load	96.0%	96.2%	96.2%	97.9%	97.9%	97.9%
100% load	96.4%	96.5%	96.5%	98.3%	98.3%	98.3%

10 kW	eConversion			Battery operation		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	93.9%	93.8%	93.9%	90.0%	89.6%	89.6%
50% load	96.6%	96.8%	96.6%	94.1%	93.9%	93.9%
75% load	97.6%	97.7%	97.6%	95.4%	95.3%	95.2%
100% load	98.1%	98.1%	98.1%	95.9%	95.9%	95.8%

15 kW	Normal operation			ECO mode		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	94.4%	94.4%	94.6%	96.3%	96.2%	96.2%
50% load	96.0%	96.2%	96.2%	97.9%	97.9%	97.9%
75% load	96.5%	96.6%	96.6%	98.4%	98.5%	98.4%
100% load	96.5%	96.7%	96.8%	98.7%	98.7%	98.7%

15 kW	eConversion			Battery operation		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	95.8%	95.6%	95.6%	92.7%	92.5%	92.4%
50% load	97.6%	97.7%	97.6%	95.4%	95.3%	95.2%
75% load	98.3%	98.3%	98.3%	96.1%	96.1%	96.0%
100% load	98.5%	98.6%	98.6%	96.3%	96.3%	96.3%

20 kW	Normal operation			ECO mode		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	95.2%	95.5%	95.2%	97.0%	97.2%	97.1%
50% load	96.4%	96.5%	96.5%	98.3%	98.3%	98.3%
75% load	96.5%	96.7%	96.8%	98.7%	98.7%	98.7%
100% load	96.4%	96.6%	96.7%	98.8%	98.9%	98.9%

20 kW	eConversion			Battery operation		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	96.6%	96.8%	96.6%	94.1%	93.9%	93.9%
50% load	98.1%	98.1%	98.1%	95.9%	95.9%	95.8%
75% load	98.5%	98.6%	98.6%	96.3%	96.3%	96.3%
100% load	98.8%	98.8%	98.8%	96.3%	96.3%	96.3%

30 kW	Normal operation			ECO mode		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	95.0%	94.9%	94.9%	97.6%	97.5%	97.6%
50% load	96.3%	96.4%	96.3%	98.5%	98.6%	98.6%
75% load	96.6%	96.8%	96.7%	98.9%	98.8%	98.9%
100% load	96.7%	96.9%	96.8%	99.0%	99.0%	99.0%

30 kW	eConversion			Battery operation		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	97.1%	97.0%	96.9%	92.9%	92.6%	92.3%
50% load	98.3%	98.2%	98.2%	95.7%	95.4%	95.3%
75% load	98.7%	98.7%	98.7%	96.4%	96.2%	96.2%
100% load	98.9%	98.9%	98.9%	96.5%	96.5%	96.5%

40 kW	Normal operation			ECO mode		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	95.7%	95.7%	95.6%	98.1%	98.0%	98.2%
50% load	96.6%	96.7%	96.6%	98.8%	98.8%	98.8%
75% load	96.7%	96.9%	96.8%	99.0%	99.0%	99.0%
100% load	96.6%	96.8%	96.8%	99.1%	99.1%	99.1%

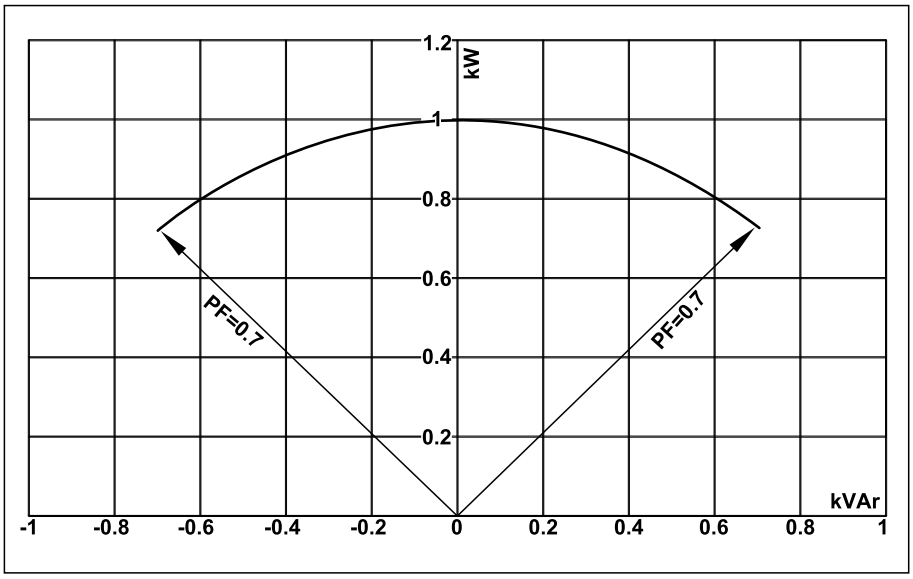
40 kW	eConversion			Battery operation		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	97.7%	97.6%	97.6%	94.3%	94.0%	93.9%
50% load	98.6%	98.5%	98.5%	96.2%	96.0%	96.0%
75% load	98.9%	98.9%	98.9%	96.5%	96.5%	96.5%
100% load	99.0%	99.0%	99.0%	96.4%	96.5%	96.6%

50 kW	Normal operation			ECO mode		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	96.1%	96.1%	96.0%	98.3%	98.4%	98.4%
50% load	96.7%	96.8%	96.8%	98.9%	98.9%	98.9%
75% load	96.6%	96.8%	96.8%	99.1%	99.1%	99.1%
100% load	96.3%	96.6%	96.6%	99.1%	99.1%	99.2%

50 kW	eConversion			Battery operation		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	98.0%	98.0%	98.0%	95.2%	94.8%	94.8%
50% load	98.8%	98.8%	98.8%	96.5%	96.3%	96.3%
75% load	99.0%	99.0%	99.0%	96.5%	96.5%	96.6%
100% load	99.1%	99.1%	99.1%	96.2%	96.4%	96.5%

Derating Due to Load Power Factor

0.7 leading to 0.7 lagging without derating.



UPS rating	UPS output					
	Lagging			Leading		
PF=1	PF=0.7	PF=0.8	PF=0.9	PF=0.9	PF=0.8	PF=0.7
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	40 kVA / 28 kW	40 kVA / 32 kW	40 kVA / 36 kW	40 kVA / 36 kW	40 kVA / 32 kW	40 kVA / 28 kW
50 kVA/kW	50 kVA / 35 kW	50 kVA / 40 kW	50 kVA / 45 kW	50 kVA / 45 kW	50 kVA / 40 kW	50 kVA / 35 kW

Leakage Current

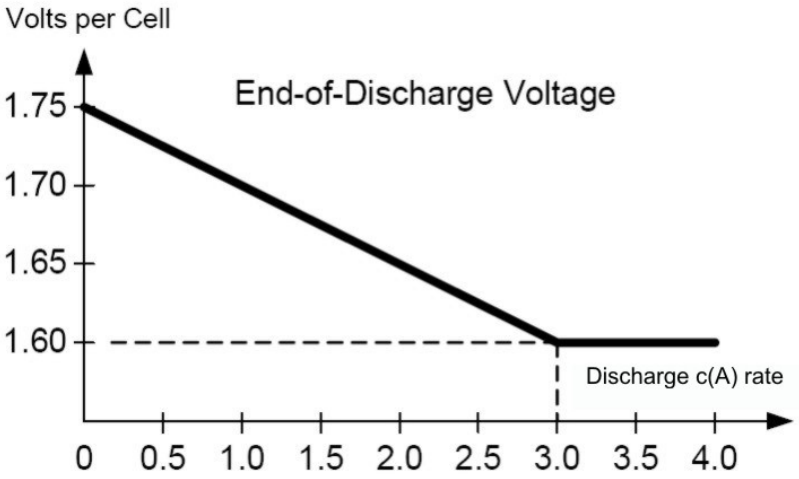
380/400/415 V UPS system 4-wire installation at 100% load

UPS rating	Leakage current
20-50 kW	62 mA

Batteries

End of Discharge Voltage

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



Battery Voltage Window

	Boost 2.38 Vpc	**Nominal 2.0 Vpc**	**Minimum 1.6 Vpc**
Battery voltage (V)	571.2	480	384

Battery Runtimes in Minutes

400 V UPS

UPS rating Number of modular battery strings	10 kW	15 kW	20 kW	30 kW	40 kW	50 kW
1	11	6.2	NA	NA	NA	NA
2	27.5	16	11	6.1	NA	NA
3	45.5	27	18.5	11	7.3	5.2
4	64.5	39	27	16	11	8
5	84.5	51.5	36	21.5	14.5	11
6	105	64	45	27	18.5	14
7	125	77.5	54.5	32.5	23	17
8	145	91	64	38.5	27	20
9	170	105	74	45	31.5	23.5
10	190	115	84	51	36	27
11	215	130	94.5	57.5	40.5	30.5
12	240	145	105	63.5	45	34
13	265	160	115	70.5	49.5	37.5
14	290	175	125	77	54.5	41
15	315	190	135	83.5	59	45
16	340	205	145	90.5	64	48.5
17	365	225	155	97.5	69	52
18	390	240	170	100	74	56
19	415	255	180	110	79	60
20	446	270	190	115	84	63.5
21	470	290	205	125	89	67.5
22	495	305	215	130	94	71.5
23	525	320	225	140	99.5	75.5
24	550	340	240	145	100	79.5
25	580	355	250	150	110	83.5
26	605	370	265	160	115	87.5
27	635	390	275	165	120	92
28	660	405	285	175	125	96

Compliance

Safety	IEC 62040-1: 2017, Edition 2.0, Uninterruptible Power Systems (UPS) - Part 1: Safety requirements UL 1778 5th edition
EMC/EMI/RFI	IEC 62040-2: 2016, 3rd edition Uninterruptible Power Systems (UPS) - Part 2: Electromagnetic compatibility (EMC) requirements C2 FCC Part 15 Subpart B, Class A IEEE C62.41-1991 Location Category B2, IEEE Recommended Practice on Surge Voltages in Low-Voltage AC Power Circuits
Transportation	IEC 60721-4-2 Level 2M1
Seismic	ICC-ES AC 156 (2015): OHSPD Pre-approved; Sds=1.33 g for z/h=1 and Sds=1.63 g for z/h=0; Ip= 1.5
Earthing system	TN-C, TN-S, TT, IT
Overvoltage category	This UPS is OVCII compliant. If the UPS is installed in an environment with an OVC rating higher than II, an SPD (surge protection device) must be installed upstream of the UPS to reduce the overvoltage category to OVCII.
Protective class	I
Pollution degree	2

Performance

Performance in accordance with: IEC 62040-3: 2021, 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

Regional Seismic Compliance

Certificate available upon request.

Country/Region	Code ID	Hazard level ground	Hazard level roof
Argentina	INPRES-CIRSOC103	Zone 4	Zone 4
Australia	AS 1170.4-2007	Z = 0.22	Z = 0.22
Canada[8]	2020 NBCC	S_a = 2.0	S_a = 1.46
Chile	NCh 433.Of1996	Zone 3	Zone 2
China	GB 50011-2010 (2016)	α_{Max} = 1.4	α_{Max} = 1.2
Europe	Eurocode 8 EN1998-1	α_{gR} = 0.45	α_{gR} = 0.3
India	IS 1893 (Part 1) : 2016	Z = 0.36	Z = 0.36
Japan	Building Standard Law	Zone A	Zone A
New Zealand	NZS 1170.5:2004+A1	Z = 0.6	Z = 0.42
Peru	N.T.E. - E.030	Zone 4	Zone 4
Russia	SNIP II-7-81 (SP 14.13330.2014)	MSK 10	MSK 9
Taiwan	CPA 2011 Seismic Design Code	S_S^D = 0.8	S_S^D = 0.8
U.S.A.[8]	ASCE 7-16 / IBC 2018	S_{DS} = 2.0	S_{DS} = 1.47

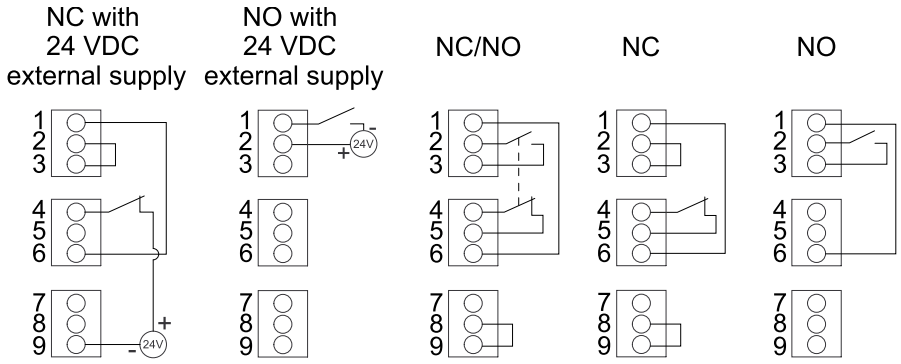
8. OSHPD Pre-approved in accordance with AC156 test protocol.

Communication and Management

Local area network	1 Gbps – 1 port as default
Modbus	Modbus (SCADA)
Output relays	4 x SELV configurable
Input contacts	4 x SELV configurable
Standard control panel	4.3 inch touchscreen display
Audible alarm	Yes
Emergency Power Off (EPO)	Options: • Normally Open (NO) • Normally Closed (NC) • External 24 VDC SELV
External switchgear	UIB UOB SSIB MBB SIB
External synchronization	No
Battery monitoring	Available for modular batteries

EPO

EPO Configurations (640–4864 terminal J6600, 1–9)



The EPO input supports 24 VDC.

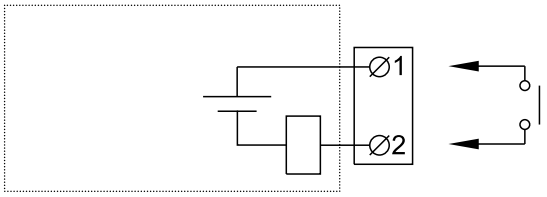
NOTE: The default setting for the EPO activation is to turn off the inverter.

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

Configurable Input Contacts and Output Relays

Input Contacts

Four input contacts are available and can be configured to indicate a given event via the display. The input contacts support 24 VDC 10 mA.

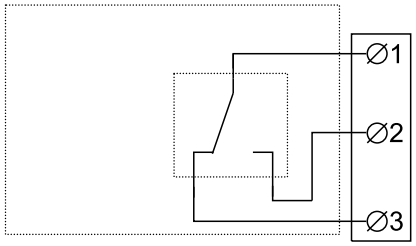


Name	Description	Location
IN _1 (input contact 1)	Configurable input contact	640-4864 terminal J6616, 1–2
IN _2 (input contact 2)	Configurable input contact	640-4864 terminal J6616, 3–4
IN _3 (input contact 3)	Configurable input contact	640-4864 terminal J6616, 5–6
IN _4 (input contact 4)	Configurable input contact	640-4864 terminal J6616, 7–8

Output Relays

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

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



Name	Description	Location
OUT _1 (output relay 1)	Configurable output relay	640–4864 terminal J6617, 1–3
OUT _2 (output relay 2)	Configurable output relay	640–4864 terminal J6617, 4–6
OUT _3 (output relay 3)	Configurable output relay	640–4864 terminal J6617, 7–9
OUT _4 (output relay 4)	Configurable output relay	640–4864 terminal J6617, 10–12

Energized check mode: When this mode is enabled, it means that the output relay is activated when the events associated with the output relay are not present (normally activated). **Energized check mode** is individually set for each output relay and makes it possible to detect if the power supply to the output relays is lost, as all output relays will deactivate and the events associated with the output relays will be indicated as present.

Specifications for 400 V Systems

Input Specifications 400 V

UPS rating	10 kW	15 kW	20 kW	30 kW	40 kW	50 kW
Voltage (V)	**380/400/415**	**380/400/415**	**380/400/415**	**380/400/415**	**380/400/415**	**380/400/415**
Connections	4-wire (L1, L2, L3, N, PE) WYE (single mains) 3-wire (L1, L2, L3, PE) WYE (dual mains)[9] [10]					
Input voltage range (V)	380 V: 331-437 400 V: 340-460 415 V: 353-477					
Frequency range (Hz)	40-70					
Nominal input current (A)	16/15/14	24/22/22	32/30/29	47/45/43	63/60/58	79/75/72
Maximum input current (A)	20/19/18	29/28/27	39/37/36	58/55/53	77/73/70	93/92/88
Input current limitation (A)	21/20/19	30/29/28	39/37/36	60/57/55	79/75/73	93/93/91
Input power factor	0.99 for load greater than 50% 0.95 for load greater than 25%					
Total harmonic distortion (THDI)	<3% at full linear load (symmetrical)					
Minimum short circuit rating	Dependent on upstream protection. See section for **Recommended Upstream Protection for 400 V** for details.					
Maximum short circuit rating	65 kA RMS					
Protection	Built-in backfeed protection and fuses					
Ramp-in	Programmable and adaptive 1-40 seconds					

Bypass Specifications 400 V

UPS rating	10 kW	15 kW	20 kW	30 kW	40 kW	50 kW
Voltage (V)	**380/400/415**	**380/400/415**	**380/400/415**	**380/400/415**	**380/400/415**	**380/400/415**
Connections	4-wire (L1, L2, L3, N, PE) WYE					
Bypass voltage range (V)	380 V: 342-418 400 V: 360-440 415 V: 374-457					
Frequency range (Hz)	50/60 ± 1, 50/60 ± 3, 50/60 ± 10 (user selectable)					
Nominal bypass current (A)	16/16/15	24/23/22	32/29/28	47/45/43	62/59/57	78/74/71
Nominal neutral current (A)	26/25/24	39/37/36	53/50/48	79/75/72	105/100/96	132/125/120
Minimum short circuit rating	Dependent on upstream protection. See section for **Recommended Upstream Protection for 400 V** for details.					

9. TN and TT power distribution systems are supported. Corner (line) grounding is not permitted.
10. **Only for dual mains system with upstream 4-pole breakers**: Install an N connection with the input cables (L1, L2, L3, N, PE).

UPS rating	10 kW	15 kW	20 kW	30 kW	40 kW	50 kW
Voltage (V)	**380/400/415**	**380/400/415**	**380/400/415**	**380/400/415**	**380/400/415**	**380/400/415**
Maximum short circuit rating [11]	65 kA RMS					
Protection	Built-in backfeed protection and fuses Internal fuse specifications: Rated 200 A, prearcing 5.25 kA^2s					

Output Specifications 400 V

UPS rating	10 kW	15 kW	20 kW	30 kW	40 kW	50 kW
Voltage (V)	**380/400/415**	**380/400/415**	**380/400/415**	**380/400/415**	**380/400/415**	**380/400/415**
Connections	4-wire (L1, L2, L3, N, PE)					
Output voltage regulation	Symmetrical load ± 1% Asymmetrical load ± 3%					
Overload capacity	150% for 1 minute (in normal operation) 125% for 10 minutes (in normal operation) 125% for 1 minute (in battery operation) 110% continuous (bypass operation) 1000% for 100 milliseconds (bypass operation)					
Dynamic load response	± 5% after 2 milliseconds ± 1% after 50 milliseconds					
Output power factor	1					
Nominal output current (A)	15/14/14	23/22/21	30/29/28	46/43/42	61/58/56	76/72/70
Minimum short circuit rating[12]	Dependent on upstream protection. See section for **Recommended Upstream Protection for 400 V** for details.					
Maximum short circuit rating[13]	65 kA RMS					
Inverter output short circuit capabilities	Varies with time. See graph and table values in Inverter Short Circuit Capabilities (Bypass not Available), page 40.					
Frequency regulation (Hz)	50/60 Hz bypass synchronized – 50/60 Hz ± 0.1% free-running					
Synchronized slew rate (Hz/sec)	Programmable to 0.25, 0.5, 1, 2, 4, 6					
Total harmonic distortion (THDU)	<1% for linear load ≤20 kW: <3% for non-linear load >20 kW: <5% for non-linear load					
Output performance classification (according to IEC 62040-3:2021)	VFI-SS-11					
Load crest factor	2.5					
Load power factor	From 0.7 leading to 0.7 lagging without any derating					

11. Conditioned by the internal fuse rated 200 A, prearcing 5.25 kA^2s.
12. Minimum short circuit rating for output takes backfeeding energy through the bypass of parallel UPSs into consideration.
13. Maximum short circuit rating for output takes backfeeding energy through the bypass of parallel UPSs into consideration.

Battery Specifications 400 V

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Protection of the energy storage device: An overcurrent protective device must be located in close proximity to the energy storage device.

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

All values are based on 40 battery blocks.

UPS rating	**10 kW**	**15 kW**	**20 kW**	**30 kW**	**40 kW**	**50 kW**
Charging power in % of output power at 0-40% load	80%					
Charging power in % of output power at 100% load	20%					
Maximum charging power (at 0-40% load) (kW)	8	12	16	24	32	40
Maximum charging power (at 100% load) (kW)	2	3	4	6	8	10
Nominal battery voltage (VDC)	480					
Nominal float voltage (VDC)	545					
Maximum boost voltage (VDC)	571					
Temperature compensation (per cell)	-3.3mV/°C, for T ≥ 25 °C – 0mV/°C, for T < 25 °C					
End of discharge voltage (full load) (VDC)	384					
Battery current at full load and nominal battery voltage (A)	22	33	43	65	87	109
Battery current at full load and minimum battery voltage (A)	27	41	54	81	109	136
Ripple current	< 5% C20 (5 minute runtime)					
Battery test	Manual/automatic (selectable)					
Maximum short circuit rating	10 kA					

Recommended Cable Sizes 400 V

⚠⚠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 50 mm^2.

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

The maximum number of cable connections per busbar: 2 on input/output/bypass busbars; 2 on DC+/DC- busbars; 4 on N busbar; 5 on PE busbar.

NOTE: Overcurrent protection is to be provided by others.

Cable sizes in this manual are based on 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
- Installation method C

PE cable size is based on table 54.2 of IEC 60364-4-54.

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. Not all auxiliary products support aluminum cables. 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 breaker rating.

NOTE: Neutral conductor is sized to handle 1.73 times phase current in case of high harmonic content from non-linear loads. If non or less harmonic currents are expected, neutral conductor can be sized accordingly but not less than the phase conductor.

Copper

UPS rating	10 kW	15 kW	20 kW	30 kW	40 kW	50 kW
Input phases (mm^2)	6	6	10	16	25	35
Input PE (mm^2)	6	6	10	16	16	16
Bypass/output phases (mm^2)	6	6	10	16	25	25
Bypass PE/output PE (mm^2)	6	6	10	16	16	16
Neutral (mm^2)	6	10	16	25	35	50
DC+/DC-[14] (mm^2)	6	10	16	25	35	50
DC PE (mm^2)	6	10	16	16	16	25

14. Values are based on 40 battery blocks.

Recommended Upstream Protection for 400 V

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

For parallel systems, instantaneous override (Ii) values must not be set higher than 800 A. Place the label 885-92557 adjacent to the upstream circuit breaker to inform about the hazard.

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

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.

NOTICE

RISK OF UNINTENTIONAL DEVICE OPERATION

If a residual current-operated protective device (RCD-B) is used upstream as ground fault protection, then the RCD-B shall be sized to not trip on the leakage current of this product, which can be up to 62 mA.

Failure to follow these instructions can result in equipment damage.

Upstream Protection for 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 0.2 seconds for a minimum prospective phase-to-earth short circuit current calculated or measured at the input/bypass terminals of the UPS.

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

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

Recommended Upstream Protection for 400 V IEC

Ik_{Ph-PE} is the minimum prospective phase-to-earth short circuit current required at the input/bypass terminals of the UPS. The Ik_{Ph-PE} in the table is based on the recommended protective device.

UPS rating	**10 kW**		**15 kW**		**20 kW**	
	Input	**Bypass**	**Input**	**Bypass**	**Input**	**Bypass**
Ik_{Ph-PE} (kA)	**0.55**	**0.6**	**0.8**	**0.6**	**0.6**	**0.5**
Breaker type	NSX100H TM25D (C10H3TM025)	NSX100H TM16D (C10H3TM016)	NSX100H TM32D (C10H3TM032)	NSX100H TM25D (C10H3TM025)	NSX100H TM40D (C10H3TM040)	NSX100H TM32D (C10H3TM032)
In (A)	25	16	32	25	40	32
Ir (A)	20	16	32	23	40	32
Im (A)	300 (fixed)	190 (fixed)	400 (fixed)	300 (fixed)	500 (fixed)	400 (fixed)

UPS rating	**30 kW**		**40 kW**		**50 kW**	
	Input	**Bypass**	**Input**	**Bypass**	**Input**	**Bypass**
Ik_{Ph-PE} (kA)	**0.6**	**0.5**	**0.7**	**0.6**	**0.8**	**0.7**
Breaker type	NSX100H TM63D (C10H3TM063)	NSX100H TM50D (C10H3TM050)	NSX100H TM80D (C10H3TM080)	NSX100H TM63D (C10H3TM063)	NSX100H TM100D (C10H3TM100)	NSX100H TM80D (C10H3TM080)
In (A)	63	50	80	63	100	80
Ir (A)	63	50	80	63	100	80
Im (A)	500 (fixed)	500 (fixed)	640 (fixed)	500 (fixed)	800 (fixed)	640 (fixed)

Torque Specifications

Bolt size	**Torque**
M4	1.7 Nm
M5	2.2 Nm
M6	5 Nm
M8	17.5 Nm
M10	30 Nm
M12	50 Nm

Environment

	Operating	Storage
Temperature	0 °C to 40 °C	-15 °C to 40 °C for systems with batteries.
Relative humidity	5 - 95% non-condensing	10 - 80% non-condensing
Elevation	Designed for operation in 0-3000 m elevation. Power derating required from 1000-3000 m: Up to 1000 m: 1.000 Up to 1500 m: 0.975 Up to 2000 m: 0.950 Up to 2500 m: 0.925 Up to 3000 m: 0.900	
Audible noise one meter from unit	400 V 10-20 kW: 49 dB at 70% load, 55 dB at 100% load 400 V 30-50 kW: 54 dB at 70% load, 61 dB at 100% load	
Protection class	IP20	
Color	RAL 9003, gloss level 85%	

Heat Dissipation in BTU/hr

10 kW	Normal operation			ECO mode		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	619	667	639	485	492	472
50% load	860	811	855	529	500	522
75% load	1066	1014	1003	562	549	562
100% load	1267	1227	1230	590	576	597

10 kW	eConversion			Battery operation		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	551	563	556	947	987	985
50% load	599	573	597	1075	1104	1118
75% load	624	616	635	1240	1260	1284
100% load	650	664	661	1442	1454	1482

15 kW	Normal operation			ECO mode		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	755	759	733	493	512	505
50% load	1066	1014	1003	562	549	562
75% load	1388	1347	1339	620	596	616
100% load	1856	1763	1719	690	685	679

15 kW	eConversion			Battery operation		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	561	585	596	1006	1041	1047
50% load	624	616	635	1240	1260	1284
75% load	676	680	684	1557	1565	1593
100% load	774	753	727	1958	1958	1975

20 kW	Normal operation			ECO mode		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	860	811	855	529	500	511
50% load	1267	1227	1230	590	576	597
75% load	1856	1763	1719	690	685	679
100% load	2578	2431	2336	815	787	759

20 kW	eConversion			Battery operation		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	599	573	597	1075	1104	1118
50% load	650	664	661	1442	1454	1482
75% load	774	753	727	1958	1958	1975
100% load	836	836	829	2624	2617	2599

30 kW	Normal operation			ECO mode		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	1341	1370	1389	619	656	629
50% load	1966	1928	1966	758	733	725

30 kW	Normal operation			ECO mode		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
75% load	2669	2565	2628	877	901	862
100% load	3493	2758	3362	1051	1055	1034

30 kW	eConversion			Battery operation		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	765	796	809	1947	2059	2122
50% load	908	919	928	2312	2474	2507
75% load	1019	1028	1034	2888	3041	3040
100% load	1177	1169	1164	3674	3759	3722

40 kW	Normal operation			ECO mode		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	1518	1539	1585	657	680	640
50% load	2409	2336	2402	861	851	847
75% load	3493	3309	3362	1051	1055	1034
100% load	4862	4546	4512	1281	1281	1267

40 kW	eConversion			Battery operation		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	797	827	842	2046	2181	2234
50% load	996	1005	1021	2672	2836	2846
75% load	1177	1169	1164	3674	3759	3722
100% load	1412	1377	1379	5049	4952	4861

50 kW	Normal operation			ECO mode		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	1731	1721	1773	740	692	692
50% load	2902	2794	2865	936	957	914
75% load	4476	4216	4203	1212	1227	1201
100% load	6518	6072	5987	1538	1567	1449

50 kW	eConversion			Battery operation		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	859	866	892	2167	2319	2362
50% load	1068	1077	1071	3126	3264	3251
75% load	1353	1330	1321	4670	4629	4552
100% load	1633	1630	1607	6799	6414	6264

UPS Shipping Weights and Dimensions

	Weight kg	Height mm	Width mm	Depth mm
20-50 kW UPS 400 V without preinstalled battery strings*	200	1680	640	990
10-20 kW 400 V UPS with one battery string	350	1680	640	990
30-50 kW 400 V UPS with two battery strings	490	1680	640	990

NOTE: The UPS models marked with an * in the table above are shipped with no power modules preinstalled in the UPS and all power modules shipped separately. Battery strings are not included and must be bought separately.

Power Module Shipping Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
GVPM20KD	48	330	580	780
GVPM50KD	62	330	580	780

Modular Battery Shipping Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
GVSBTHU	33	180	150	800
GVSBTHULL	33	180	150	800

UPS Weights and Dimensions

	Weight kg	Height mm	Width mm	Depth mm
10-20 kW 400 V UPS with one battery string	320	1485	521	847
30-50 kW 400 V UPS with two battery strings	460	1485	521	847

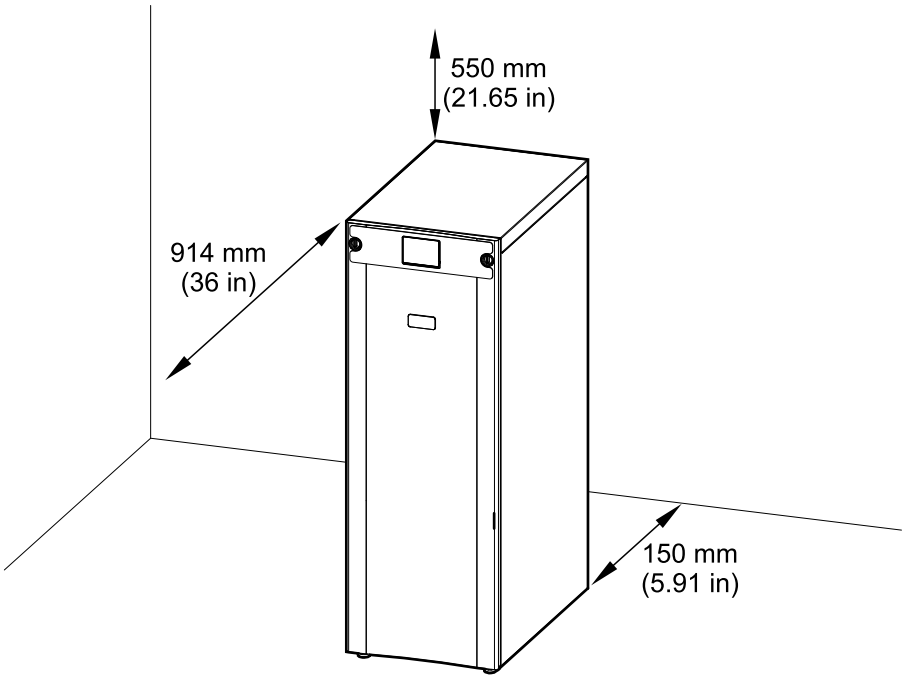
NOTE: One battery module weighs approximately 32 kg. One battery string consists of four battery modules.

Clearance

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

NOTE: The required minimum rear clearance is 150 mm (5.91 in).

Front View of the UPS

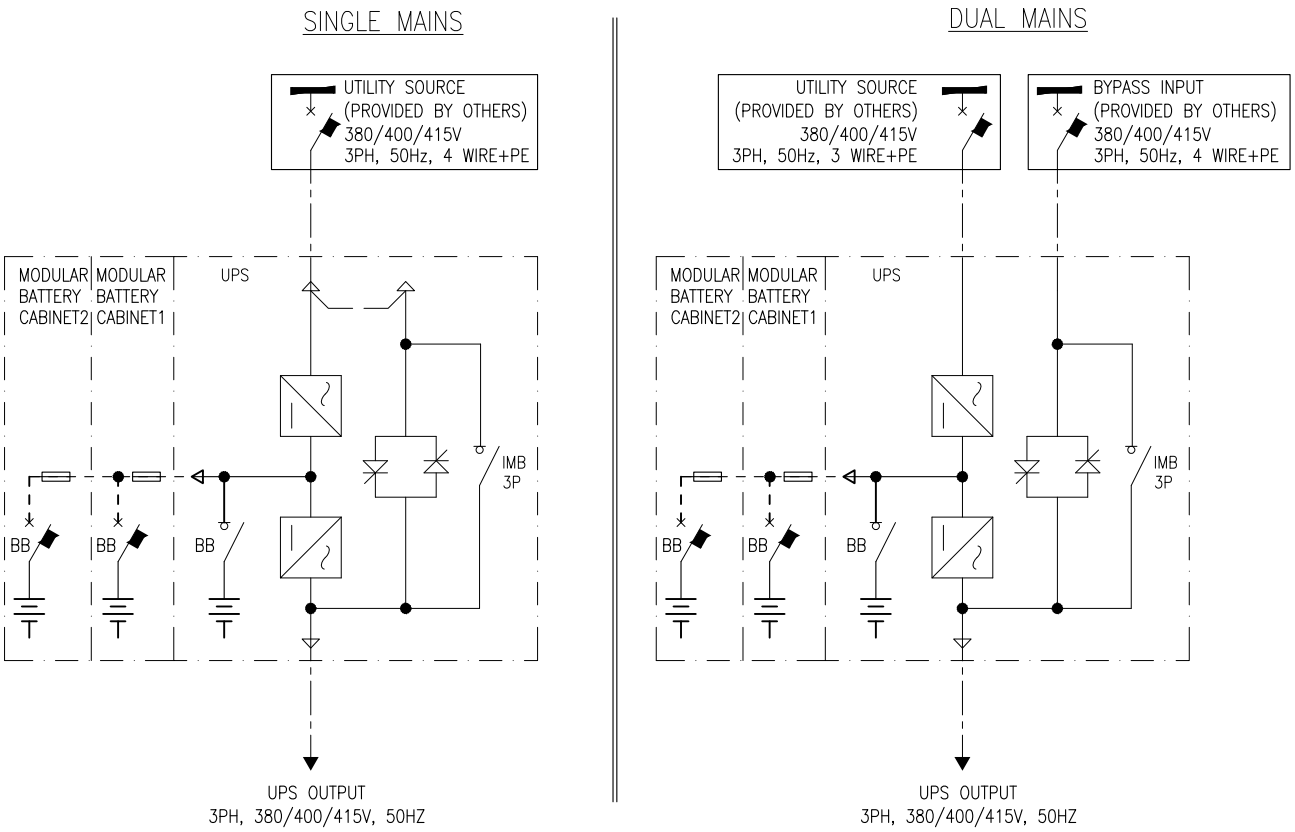


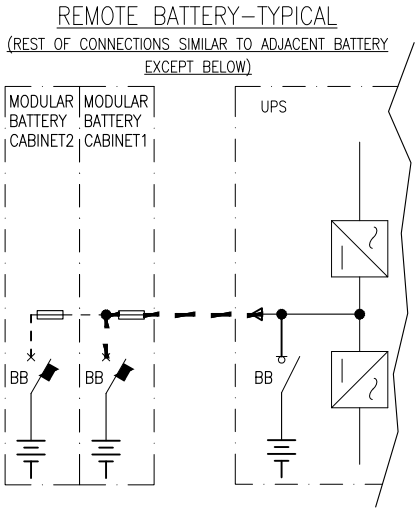
Drawings

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

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

10-50 kW 400 V UPS





Options

Configuration Options

- eConversion mode
- Compact design, high density technology, and modular architecture
- Internal battery modules
- Single or dual mains
- Up to 4+0 UPSs in parallel for capacity
- Up to 3+1 UPSs in parallel for redundancy
- Rear cable entry
- EcoStruxure IT compatible
- Generator compatible
- Touchscreen LCD
- Replacement of power module in any operation mode (Live Swap)[15]
- ECO mode

15. In all systems configured for Live Swap.

Hardware Options

See Weights and Dimensions for Options, page 101.

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

Power Module

- Power module 50 kW 400 V (GVPM50KD)
- Power module 20 kW 400 V (GVPM20KD)

Modular Battery Cabinet

Modular battery cabinet including battery breaker.

- Modular battery cabinet for up to six smart modular battery strings (GVSMODBC6)
- Modular battery cabinet for up to nine smart modular battery strings (GVSMODBC9)

Maintenance Bypass Panel

Maintenance bypass panel for complete isolation of the UPS during service operations. Only for single UPS or 1+1 parallel system for redundancy.

- 10-20 kW maintenance bypass panel (GVSBPSU10K20H)
- 20-60 kW maintenance bypass panel (GVSBPSU20K60H)

Parallel Maintenance Bypass Panel for Two UPSs

Maintenance bypass panel for complete isolation of two UPSs in a parallel system. 10-50 kW in 1+1 parallel system for redundancy, 20-100 kW in 2+0 parallel system for capacity.

- 10-30 kW maintenance bypass panel (GVSBPAR10K30H)
- 40-50 kW maintenance bypass panel (GVSBPAR40K50H)

Auxiliary Cabinets

- Empty auxiliary cabinet (GVEAC7)

Remote Alarm Panel

- Remote alarm panel (GVSOPT036)

Optional Installation Kits

- Seismic kit for UPS (GVSOPT002)
- Parallel kit for UPS (GVSOPT006)
- Live Swap kit for the UPS (GVSOPT039)

Optional Network Management Card

- Network Management Card LCES2 with Modbus, Ethernet and AUX sensors (AP9644)

Air Filter

- Air filter kit (GVSOPT001)

Battery Modules

9 Ah smart high capacity battery modules. This battery module type is delivered for UPS models with preinstalled battery strings.

- Galaxy VS 9 Ah Smart High Capacity Battery Module (GVSBTHU)
- Galaxy VS 9 Ah Smart Modular High Capacity Battery String (GVSBTH4)

9 Ah smart long-life high capacity battery modules. For this battery module type, select a UPS models without preinstalled battery strings.

- Galaxy VS 9 Ah Smart Long-Life High Capacity Battery Module (GVSBTHULL)
- Galaxy VS 9 Ah Smart Modular Long-Life High Capacity Battery String (GVSBTH4LL)

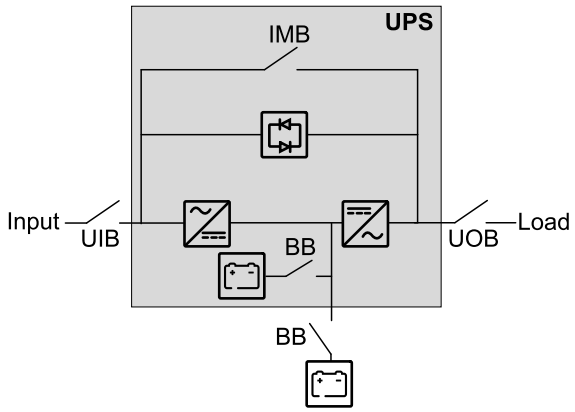
  NOTE: Always use the same battery module type in the UPS system. Do not mix different battery module types.

UPS with Internal Batteries Up to 5 Battery Strings

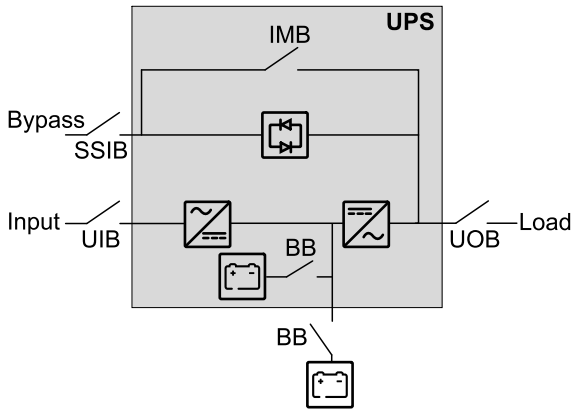
Single System Overview

UIB	Unit input breaker
SSIB	Static switch input breaker
IMB	Internal maintenance breaker
UOB	Unit output breaker
BB	Battery breaker in UPS for internal batteries and in external battery solution (if present)

Single System – Single Mains



Single System – Dual Mains



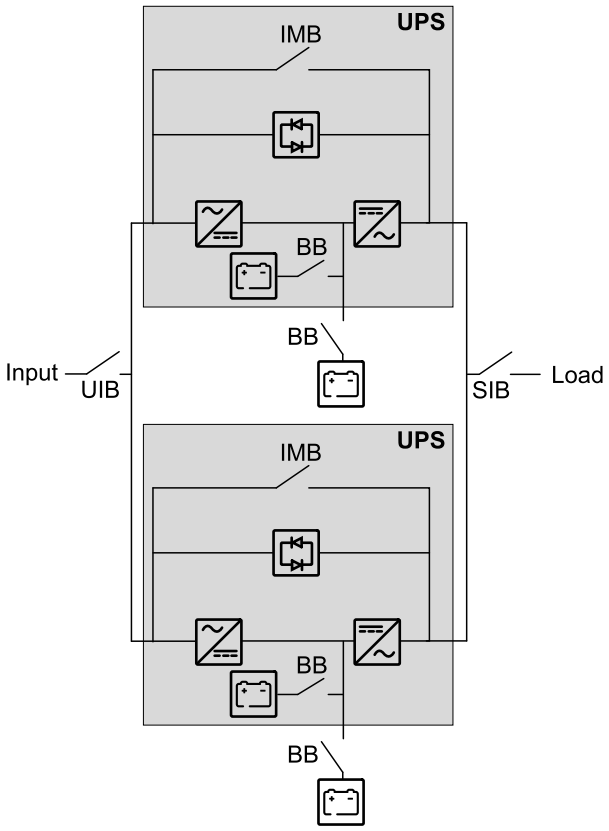
Parallel System Overview

UIB	Unit input breaker
SSIB	Static switch input breaker
IMB	Internal maintenance breaker
UOB	Unit output breaker
SIB	System isolation breaker
BB	Battery breaker in UPS for internal batteries and in external battery solution (if present)
MBB	External maintenance bypass breaker

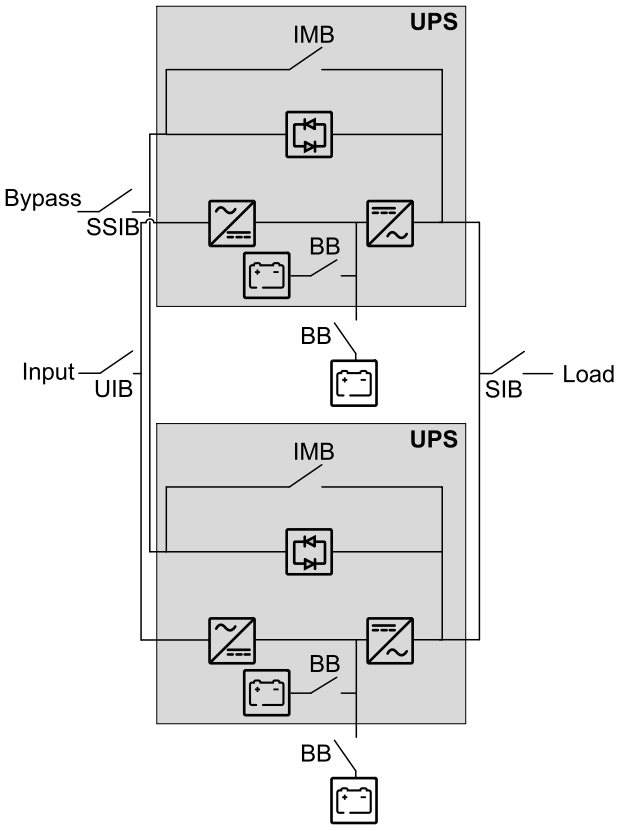
Simplified 1+1 Parallel Systems

Galaxy VS can support 2 UPSs in a simplified 1+1 parallel system for redundancy with shared unit input breaker UIB and static switch input breaker SSIB.

Simplified 1+1 Parallel System – Single Mains



Simplified 1+1 Parallel System – Dual Mains

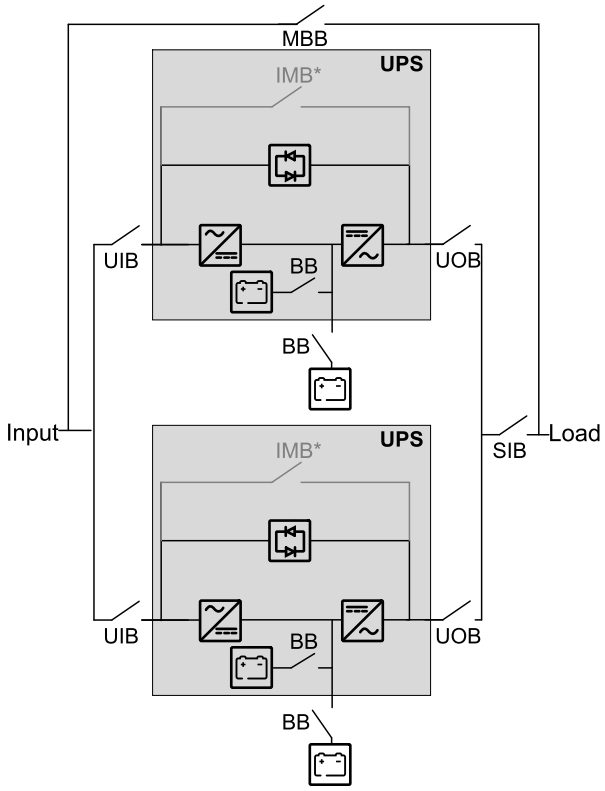


Parallel Systems with Individual Unit Input Breaker UIB and Static Switch Input Breaker SSIB

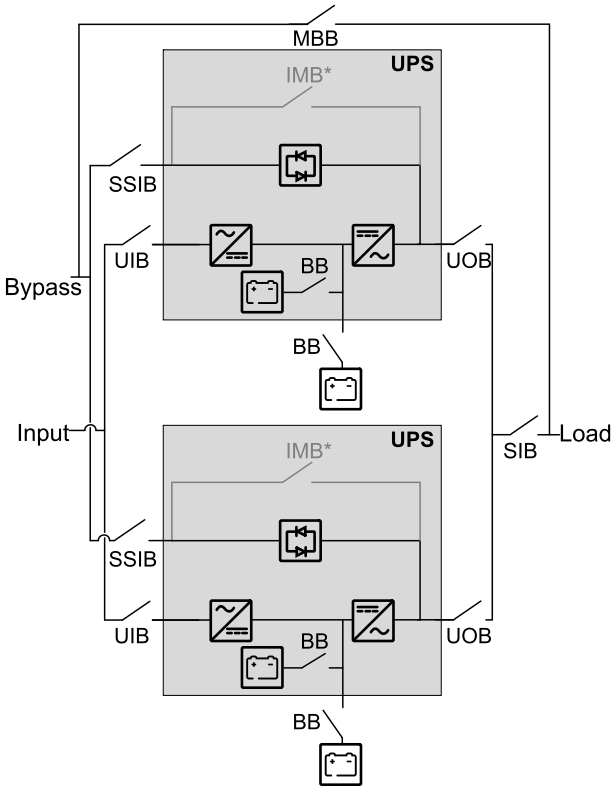
Galaxy VS can support up to 4 UPSs in parallel for capacity and up to 3+1 UPSs in parallel for redundancy with individual unit input breaker UIB and static switch input breaker SSIB.

NOTE: The internal maintenance breaker IMB can only be used in a simplified 1+1 parallel system. In any other parallel system, an external maintenance bypass breaker MBB must be provided and the internal maintenance breaker IMB* must be padlocked in the open position.

Parallel System – Single Mains



Parallel System – Dual Mains

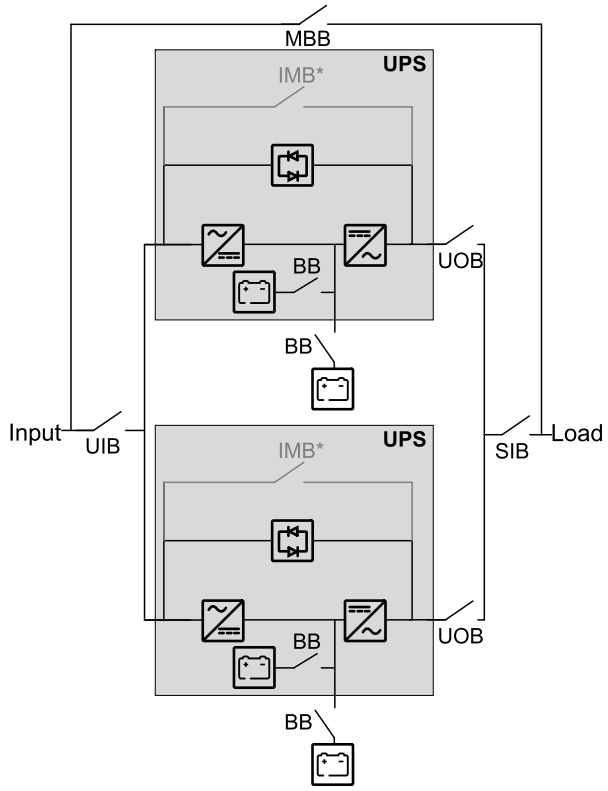


Parallel Systems with Shared Unit Input Breaker UIB and Static Switch Input Breaker SSIB

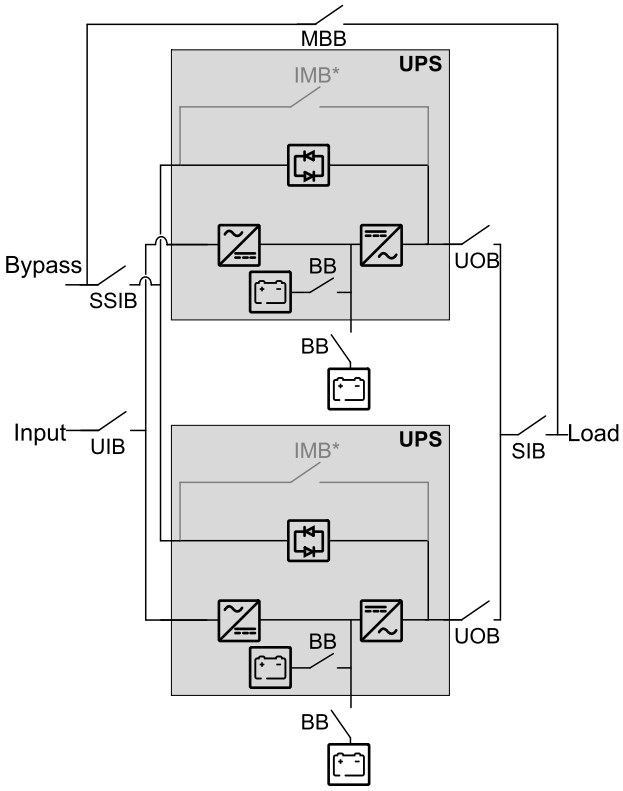
Galaxy VS can support up to 4 UPSs in parallel for capacity and up to 3+1 UPSs in parallel for redundancy with shared unit input breaker UIB and static switch input breaker SSIB.

NOTE: The internal maintenance breaker IMB can only be used in a simplified 1+1 parallel system. In any other parallel system, an external maintenance bypass breaker MBB must be provided and the internal maintenance breaker IMB* must be padlocked in the open position.

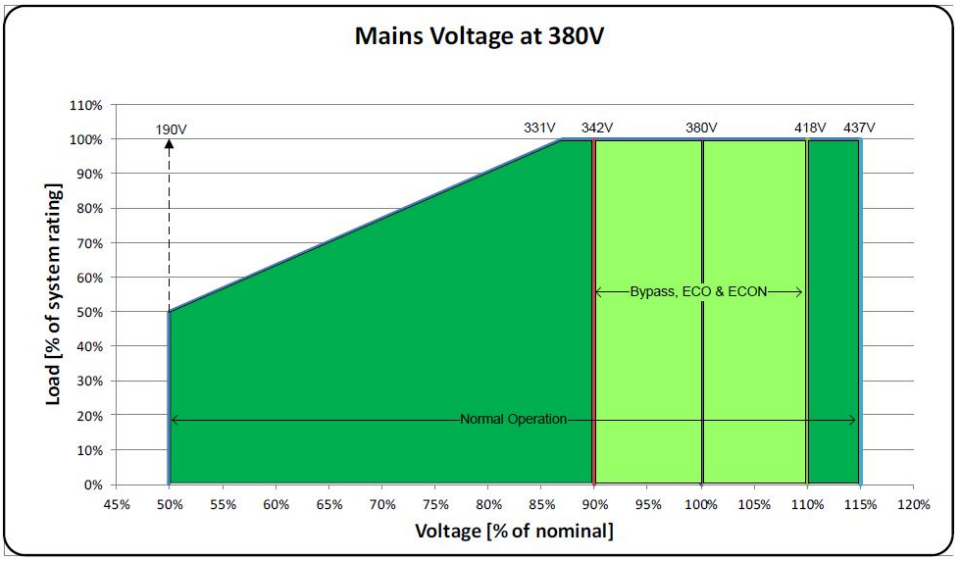
Parallel System – Single Mains

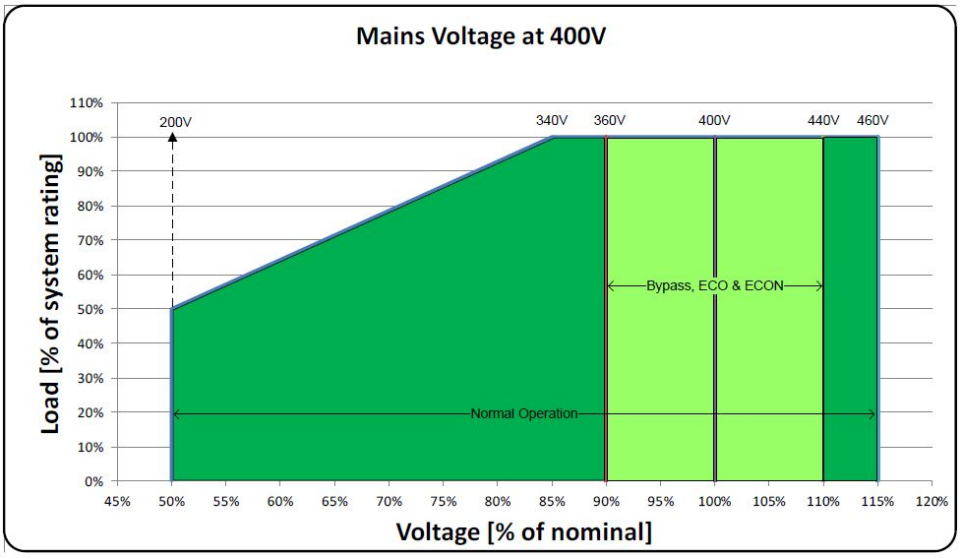


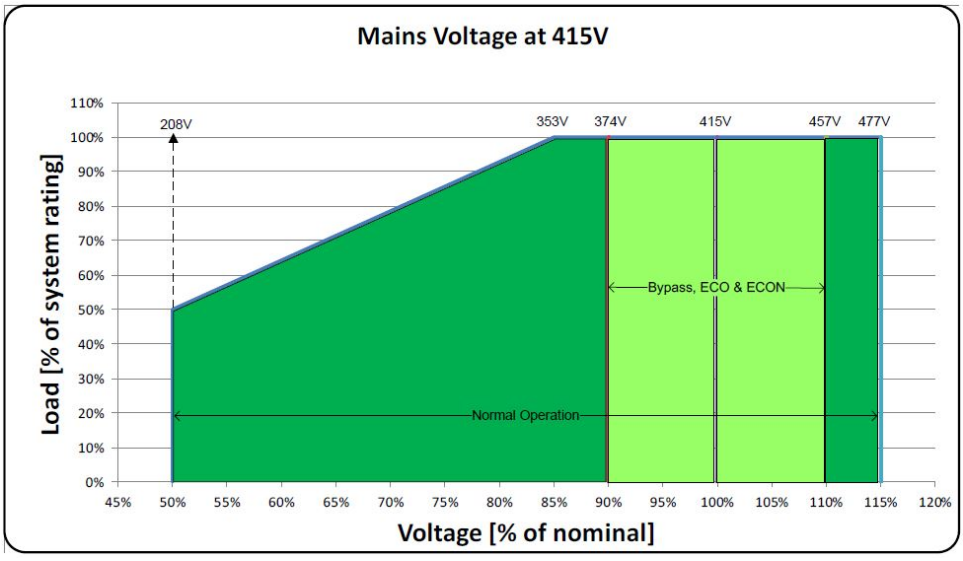
Parallel System – Dual Mains



Input Voltage Window

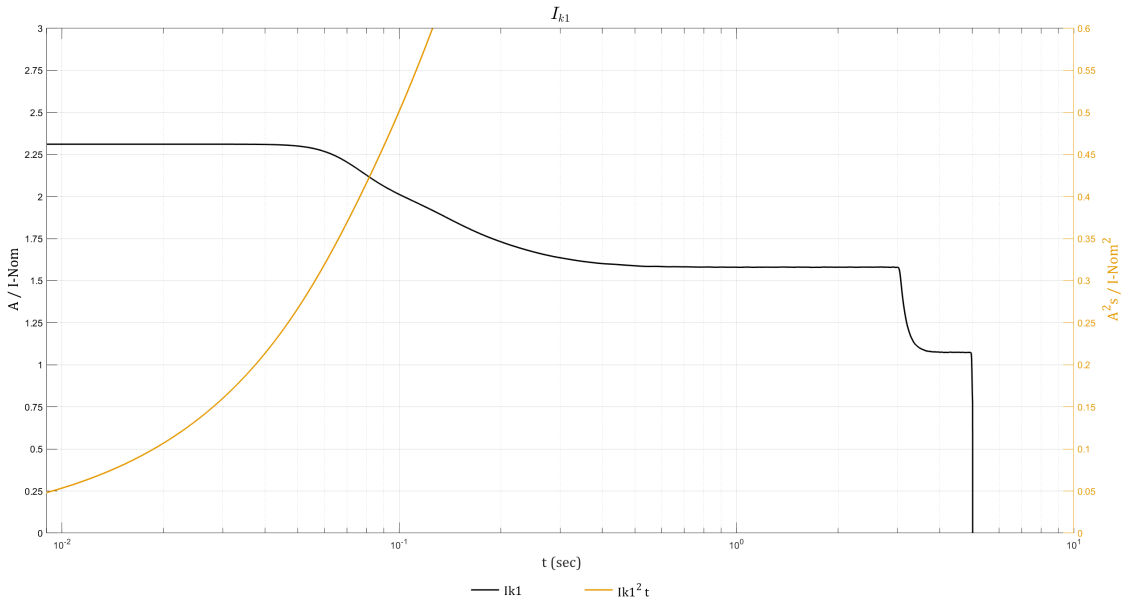






Inverter Short Circuit Capabilities (Bypass not Available)

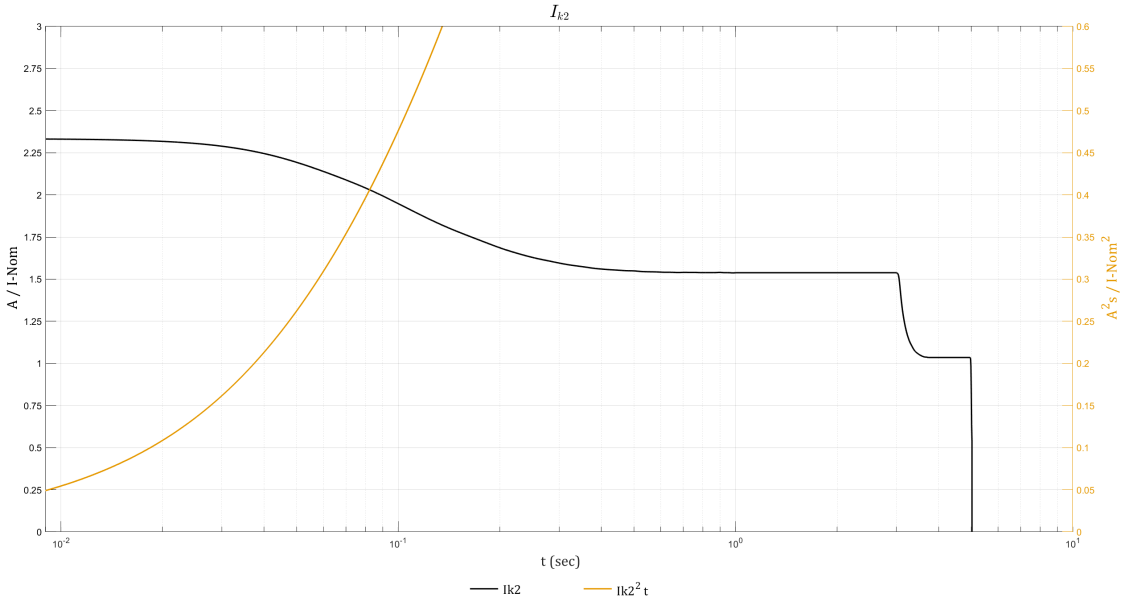
IK1 – Short Circuit between a Phase and Neutral



IK1 400 V

S [kVA]	10ms; I[A]/I²t [A²t]	20ms; I[A]/I²t [A²t]	30ms; I[A]/I²t [A²t]	100ms; I[A]/I²t [A²t]	1s; I[A]/I²t [A²t]
20	67 / 45	67 / 89	67 / 134	58 / 418	46 / 2411
30	100 / 100	100 / 200	100 / 300	87 / 940	68 / 5420
40	133 / 180	133 / 360	133 / 530	116 / 1670	91 / 9640
50	167 / 280	167 / 560	167 / 830	145 / 2610	114 / 15070
60	200 / 400	200 / 800	200 / 1200	174 / 3760	137 / 21700
80	267 / 710	267 / 1420	267 / 2140	232 / 6690	182 / 38580
100	334 / 1110	334 / 2230	334 / 3340	291 / 10450	228 / 60270

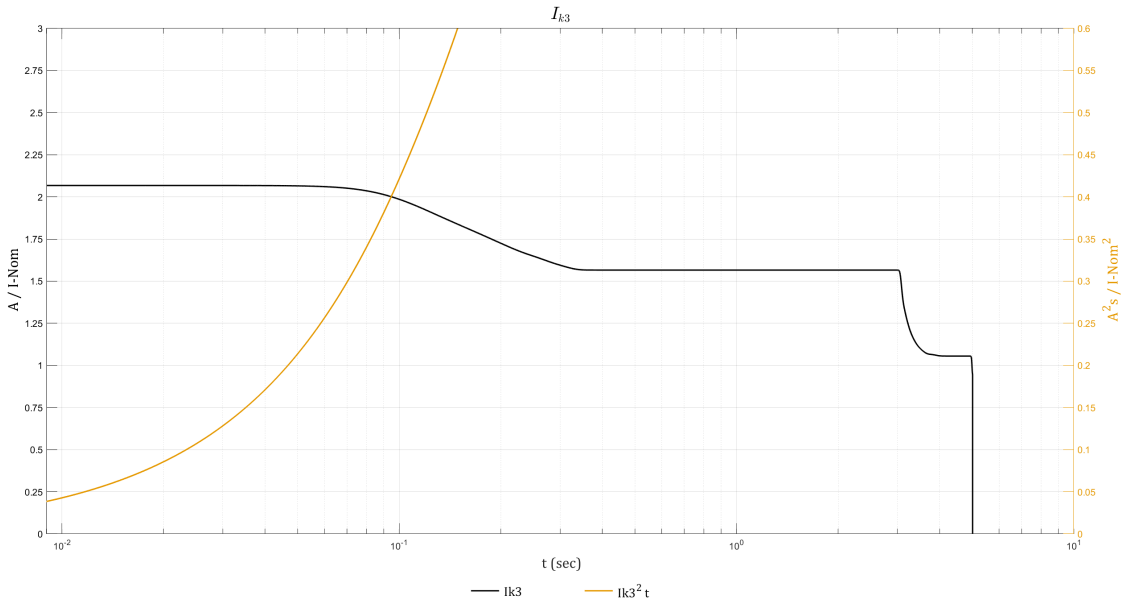
IK2 – Short Circuit between Two Phases



IK2 400 V

S [kVA]	10ms; I[A]/I²t [A²t]	20ms; I[A]/I²t [A²t]	30ms; I[A]/I²t [A²t]	100ms; I[A]/I²t [A²t]	1s; I[A]/I²t [A²t]
20	67 / 45	67 / 90	67 / 135	56 / 397	44 / 2284
30	101 / 100	100 / 200	100 / 300	84 / 890	67 / 5140
40	135 / 180	134 / 360	134 / 540	112 / 1590	89 / 9140
50	168 / 280	167 / 570	167 / 840	141 / 2480	111 / 14280
60	202 / 410	201 / 810	201 / 1210	169 / 3570	133 / 20560
80	269 / 730	268 / 1450	268 / 2150	225 / 6350	178 / 36550
100	336 / 1130	335 / 2260	335 / 3370	281 / 9920	222 / 57110

IK3 – Short Circuit between Three Phases



IK3 400 V

S [kVA]	10ms; I[A]/I²t [A²t]	20ms; I[A]/I²t [A²t]	30ms; I[A]/I²t [A²t]	100ms; I[A]/I²t [A²t]	1s; I[A]/I²t [A²t]
20	60 / 36	60 / 71	60 / 107	57 / 351	45 / 2294
30	90 / 80	90 / 160	90 / 240	86 / 790	68 / 5160
40	119 / 140	119 / 290	119 / 430	115 / 1400	90 / 9180
50	149 / 220	149 / 450	149 / 670	143 / 2200	113 / 14340
60	179 / 320	179 / 640	179 / 960	172 / 3160	136 / 20650
80	239 / 570	239 / 1140	239 / 1710	229 / 5620	181 / 36710
100	298 / 890	298 / 1780	298 / 2670	287 / 8780	226 / 57350

Efficiency 400 V

400 V UPS

20 kW with N+1 power module	Normal operation			ECO mode		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	93.7%	94.0%	93.6%	95.4%	95.4%	95.5%
50% load	95.7%	95.9%	95.7%	97.6%	97.5%	97.6%
75% load	96.4%	96.6%	96.4%	98.2%	98.2%	98.2%
100% load	96.7%	96.9%	96.7%	98.5%	98.5%	98.5%

20 kW with N+1 power module	eConversion			Battery operation		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	95.4%	95.3%	95.3%	93.2%	93.1%	93.0%
50% load	97.5%	97.5%	97.5%	95.4%	95.3%	95.3%
75% load	98.2%	98.2%	98.2%	96.2%	96.1%	96.0%
100% load	98.5%	98.5%	98.5%	96.6%	96.5%	96.4%

30 kW with N+1 power module	Normal operation			ECO mode		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	92.5%	92.5%	92.4%	96.3%	96.3%	96.3%
50% load	95.1%	95.0%	94.9%	97.9%	98.0%	98.0%
75% load	95.9%	95.9%	95.8%	98.5%	98.5%	98.5%
100% load	96.4%	96.4%	96.4%	98.8%	98.8%	98.8%

30 kW with N+1 power module	eConversion			Battery operation		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	94.8%	94.5%	94.4%	93.4%	93.2%	93.2%
50% load	97.1%	97.1%	97.1%	95.5%	95.3%	95.2%
75% load	98.0%	97.9%	97.9%	96.2%	96.0%	96.0%
100% load	98.4%	98.4%	98.4%	96.5%	96.4%	96.3%

40 kW with N+1 power module	Normal operation			ECO mode		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	93.9%	93.8%	93.7%	97.2%	97.2%	97.2%
50% load	95.8%	95.7%	95.7%	98.4%	98.4%	98.4%
75% load	96.4%	96.4%	96.4%	98.8%	98.8%	98.8%
100% load	96.7%	96.7%	96.7%	99.0%	99.0%	99.0%

40 kW with N+1 power module	eConversion			Battery operation		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	96.1%	95.9%	95.9%	94.5%	94.2%	94.2%
50% load	97.8%	97.8%	97.7%	96.0%	95.8%	95.8%

40 kW with N+1 power module	eConversion			Battery operation		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
75% load	98.4%	98.4%	98.4%	96.5%	96.4%	96.3%
100% load	98.7%	98.7%	98.7%	96.7%	96.6%	96.6%

50 kW with N+1 power module	Normal operation			ECO mode		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	94.7%	94.6%	94.5%	97.7%	97.7%	97.7%
50% load	96.2%	96.1%	96.1%	98.6%	98.6%	98.6%
75% load	96.6%	96.6%	96.6%	98.9%	98.9%	99.0%
100% load	96.7%	96.8%	96.9%	99.1%	99.1%	99.1%

50 kW with N+1 power module	eConversion			Battery operation		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	96.7%	96.7%	96.6%	95.1%	94.9%	94.8%
50% load	98.2%	98.1%	98.1%	96.3%	96.2%	96.1%
75% load	98.6%	98.6%	98.6%	96.7%	96.6%	96.5%
100% load	98.8%	98.8%	98.8%	96.8%	96.8%	96.8%

60 kW	Normal operation			ECO mode		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	95.7%	96.0%	95.7%	98.0%	98.1%	98.1%
50% load	96.7%	96.6%	96.7%	98.9%	98.9%	98.9%
75% load	96.7%	96.8%	96.9%	99.1%	99.1%	99.1%
100% load	96.6%	96.6%	96.8%	99.2%	99.2%	99.2%

60 kW	eConversion			Battery operation		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	97.6%	97.7%	97.6%	95.7%	95.6%	95.5%
50% load	98.6%	98.6%	98.6%	96.6%	96.5%	96.5%
75% load	99.0%	98.9%	99.0%	96.7%	96.7%	96.7%
100% load	99.1%	99.0%	99.1%	96.6%	96.6%	96.6%

80 kW	Normal operation			ECO mode		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	95.8%	95.7%	95.4%	98.3%	98.4%	98.4%
50% load	96.6%	96.7%	96.6%	98.9%	99.0%	99.0%
75% load	96.7%	96.8%	96.8%	99.1%	99.1%	99.2%
100% load	96.6%	96.8%	96.8%	99.1%	99.2%	99.2%

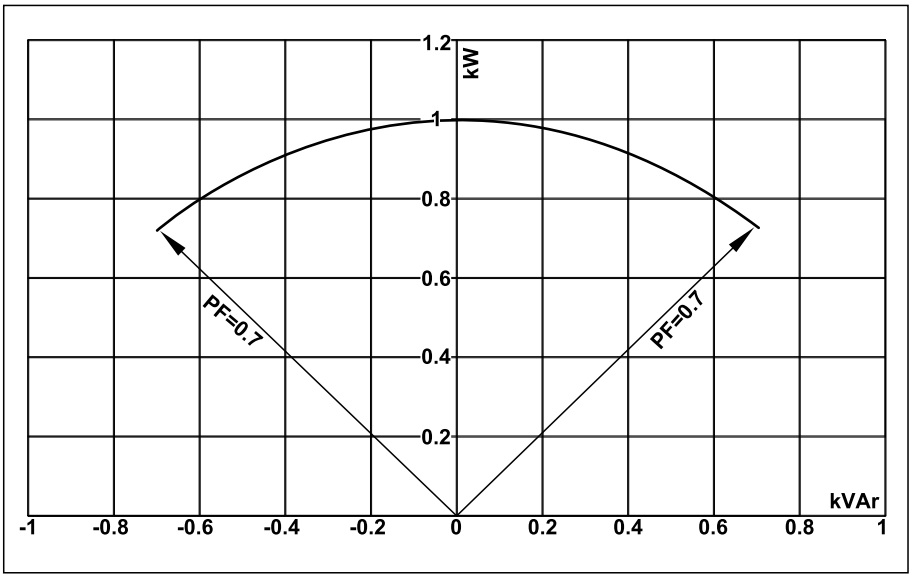
80 kW	eConversion			Battery operation		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	97.8%	97.8%	97.7%	96.2%	96.0%	96.0%
50% load	98.7%	98.7%	98.7%	96.8%	96.7%	96.7%
75% load	98.9%	98.9%	98.9%	96.8%	96.7%	96.7%
100% load	99.0%	99.0%	99.0%	96.6%	96.6%	96.6%

100 kW	Normal operation		ECO mode	
Voltage (V)	**400**	**415**	**400**	**415**
25% load	96.1%	95.9%	98.6%	98.6%
50% load	96.8%	96.7%	99.1%	99.1%
75% load	96.8%	96.8%	99.1%	99.2%
100% load	96.5%	96.6%	99.1%	99.2%

100 kW	eConversion		Battery operation	
Voltage (V)	**400**	**415**	**400**	**415**
25% load	98.1%	98.2%	96.3%	96.3%
50% load	98.8%	98.8%	96.7%	96.7%
75% load	99.0%	99.0%	96.7%	96.7%
100% load	99.0%	99.0%	96.4%	96.5%

Derating Due to Load Power Factor

0.7 leading to 0.7 lagging without derating.



UPS rating	UPS output					
	Lagging			Leading		
PF=1	**PF=0.7**	**PF=0.8**	**PF=0.9**	**PF=0.9**	**PF=0.8**	**PF=0.7**
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	40 kVA / 28 kW	40 kVA / 32 kW	40 kVA / 36 kW	40 kVA / 36 kW	40 kVA / 32 kW	40 kVA / 28 kW
50 kVA/kW	50 kVA / 35 kW	50 kVA / 40 kW	50 kVA / 45 kW	50 kVA / 45 kW	50 kVA / 40 kW	50 kVA / 35 kW
60 kVA/kW	60 kVA / 42 kW	60 kVA / 48 kW	60 kVA / 54 kW	60 kVA / 54 kW	60 kVA / 48 kW	60 kVA / 42 kW
80 kVA/kW	80 kVA / 56 kW	80 kVA / 64 kW	80 kVA / 72 kW	80 kVA / 72 kW	80 kVA / 64 kW	80 kVA / 56 kW
100 kVA/kW	100 kVA / 70 kW	100 kVA / 80 kW	100 kVA / 90 kW	100 kVA / 90 kW	100 kVA / 80 kW	100 kVA / 70 kW

Leakage Current

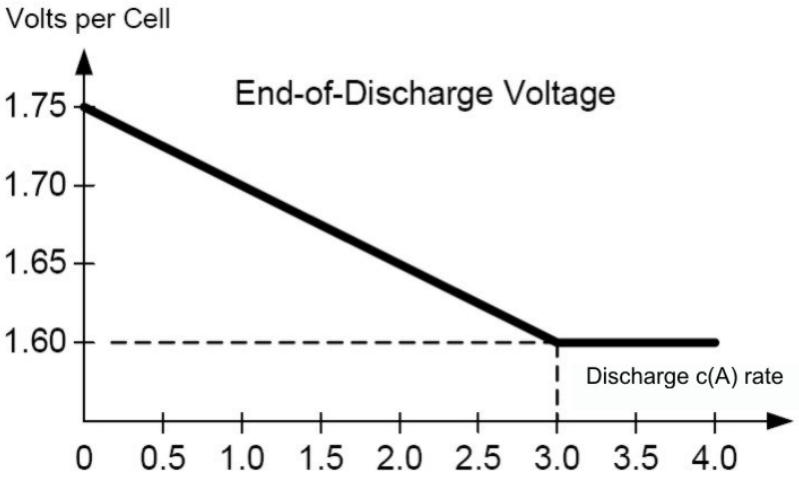
380/400/415 V UPS system 4-wire installation at 100% load

UPS rating	Leakage current
20-50 kW with N+1 power module	67 mA
60-100 kW	67 mA

Batteries

End of Discharge Voltage

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



Battery Voltage Window

	Boost 2.38 Vpc	**Nominal 2.0 Vpc**	**Minimum 1.6 Vpc**
Battery voltage (V)	571.2	480	384

Battery Runtimes in Minutes

NOTE: Runtimes are given at power factor 1 with 100% load.

400 V UPS

UPS rating Number of modular battery strings	20 kW UPS with N+1 power module	30 kW UPS with N+1 power module	40 kW UPS with N+1 power module	50 kW UPS with N+1 power module	60 kW UPS	80 kW UPS	100 kW UPS
1	NA	NA	NA	NA	NA	NA	NA
2	11.0	6.1	NA	NA	NA	NA	NA
3	19.0	11.0	7.3	5.2	NA	NA	NA
4	27.5	16.0	11.0	8.0	6.2	NA	NA
5	36.0	21.5	14.5	11.0	8.5	5.6	NA
6	45.5	27.0	18.5	14.0	11.0	7.3	5.2
7	55.0	32.5	23.0	17.0	13.5	9.2	6.6
8	64.5	38.5	27.0	20.5	16.0	11.0	8.0
9	74.5	45.0	31.5	23.5	18.5	12.5	9.5
10	84.5	51.0	36.0	27.0	21.5	14.5	11.0
11	95.0	57.5	40.5	30.5	24.0	16.5	12.5
12	105	63.5	45.0	34.0	27.0	18.5	14.0
13	115	70.5	49.5	37.5	30.0	20.5	15.5
14	125	77.0	54.5	41.0	33.0	23.0	17.0
15	135	83.5	59.0	45.0	36.0	25.0	18.5
16	145	90.5	64.0	48.5	39.0	27.0	20.0
17	160	97.5	69.0	52.5	42.0	29.0	22.0
18	170	100	74.0	56.0	45.0	31.5	23.5
19	180	110	79.0	60.0	48.0	33.5	25.5
20	190	115	84.0	64.0	51.0	36.0	27.0
21	205	125	89.0	68.0	54.5	38.0	28.5
22	215	130	94.0	71.5	57.5	40.5	30.5
23	230	140	99.5	75.5	60.5	42.5	32.0
24	240	145	100	79.5	64.0	45.0	34.0
25	250	150	110	84.0	67.0	47.0	35.5
26	265	160	115	88.0	70.5	49.5	37.5
27	275	165	120	92.0	74.0	52.0	39.5
28	290	175	125	96.0	77.0	54.5	41.0
29	300	185	130	100	80.5	56.5	43.0
30	315	190	135	100	84.0	59.0	45.0
31	325	200	140	105	87.5	61.5	46.5
32	340	205	145	110	90.5	64.0	48.5
33	350	215	150	115	94.0	66.5	50.5
34	365	220	155	120	97.5	69.0	52.0
35	375	230	160	125	100	71.5	54.0
36	390	235	170	130	100	74.0	56.0
37	405	245	175	130	105	76.5	58.0
38	415	255	180	135	110	79.0	60.0

UPS rating Number of modular battery strings	20 kW UPS with N+1 power module	30 kW UPS with N+1 power module	40 kW UPS with N+1 power module	50 kW UPS with N+1 power module	60 kW UPS	80 kW UPS	100 kW UPS
39	430	260	185	140	115	81.5	62.0
40	445	270	190	145	115	84.0	63.5
41	455	275	195	150	120	86.5	65.5

Compliance

Safety	IEC 62040-1: 2017, Edition 2.0, Uninterruptible Power Systems (UPS) - Part 1: Safety requirements UL 1778 5th edition
EMC/EMI/RFI	IEC 62040-2: 2016, 3rd edition Uninterruptible Power Systems (UPS) - Part 2: Electromagnetic compatibility (EMC) requirements C2 FCC Part 15 Subpart B, Class A IEEE C62.41-1991 Location Category B2, IEEE Recommended Practice on Surge Voltages in Low-Voltage AC Power Circuits
Transportation	IEC 60721-4-2 Level 2M1
Seismic	ICC-ES AC 156 (2015): OHSPD Pre-approved; Sds=1.33 g for z/h=1 and Sds=1.63 g for z/h=0; Ip= 1.5
Earthing system	TN-C, TN-S, TT, IT
Overvoltage category	This UPS is OVCII compliant. If the UPS is installed in an environment with an OVC rating higher than II, an SPD (surge protection device) must be installed upstream of the UPS to reduce the overvoltage category to OVCII.
Protective class	I
Pollution degree	2

Performance

Performance in accordance with: IEC 62040-3: 2021, 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

Regional Seismic Compliance

Certificate available upon request.

Country/Region	Code ID	Hazard level ground	Hazard level roof
Argentina	INPRES-CIRSOC103	Zone 4	Zone 4
Australia	AS 1170.4-2007	Z = 0.22	Z = 0.22
Canada[16]	2020 NBCC	S_a = 2.0	S_a = 1.46
Chile	NCh 433.Of1996	Zone 3	Zone 2
China	GB 50011-2010 (2016)	α_{Max} = 1.4	α_{Max} = 1.2
Europe	Eurocode 8 EN1998-1	α_{gR} = 0.45	α_{gR} = 0.3
India	IS 1893 (Part 1) : 2016	Z = 0.36	Z = 0.36
Japan	Building Standard Law	Zone A	Zone A
New Zealand	NZS 1170.5:2004+A1	Z = 0.6	Z = 0.42
Peru	N.T.E. - E.030	Zone 4	Zone 4
Russia	SNIP II-7-81 (SP 14.13330.2014)	MSK 10	MSK 9
Taiwan	CPA 2011 Seismic Design Code	S_S^D = 0.8	S_S^D = 0.8
U.S.A.[16]	ASCE 7-16 / IBC 2018	S_{DS} = 2.0	S_{DS} = 1.47

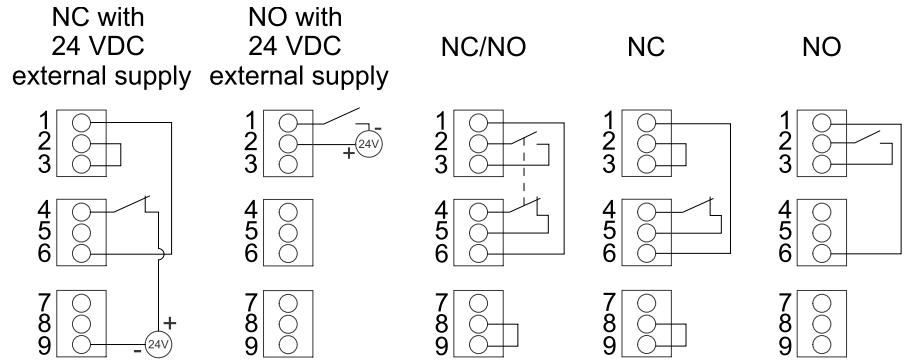
16. OSHPD Pre-approved in accordance with AC156 test protocol.

Communication and Management

Local area network	1 Gbps – 1 port as default
Modbus	Modbus (SCADA)
Output relays	4 x SELV configurable
Input contacts	4 x SELV configurable
Standard control panel	4.3 inch touchscreen display
Audible alarm	Yes
Emergency Power Off (EPO)	Options: • Normally Open (NO) • Normally Closed (NC) • External 24 VDC SELV
External switchgear	UIB UOB SSIB MBB SIB
External synchronization	No
Battery monitoring	Available for modular batteries

EPO

EPO Configurations (640–4864 terminal J6600, 1–9)



The EPO input supports 24 VDC.

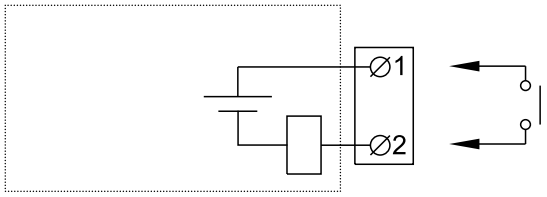
NOTE: The default setting for the EPO activation is to turn off the inverter.

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

Configurable Input Contacts and Output Relays

Input Contacts

Four input contacts are available and can be configured to indicate a given event via the display. The input contacts support 24 VDC 10 mA.

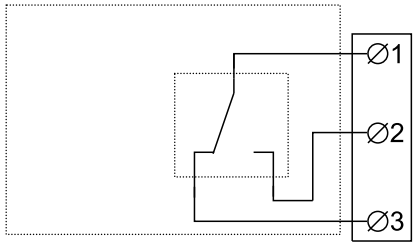


Name	Description	Location
IN _1 (input contact 1)	Configurable input contact	640-4864 terminal J6616, 1–2
IN _2 (input contact 2)	Configurable input contact	640-4864 terminal J6616, 3–4
IN _3 (input contact 3)	Configurable input contact	640-4864 terminal J6616, 5–6
IN _4 (input contact 4)	Configurable input contact	640-4864 terminal J6616, 7–8

Output Relays

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

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



Name	Description	Location
OUT _1 (output relay 1)	Configurable output relay	640–4864 terminal J6617, 1–3
OUT _2 (output relay 2)	Configurable output relay	640–4864 terminal J6617, 4–6
OUT _3 (output relay 3)	Configurable output relay	640–4864 terminal J6617, 7–9
OUT _4 (output relay 4)	Configurable output relay	640–4864 terminal J6617, 10–12

Energized check mode: When this mode is enabled, it means that the output relay is activated when the events associated with the output relay are not present (normally activated). **Energized check mode** is individually set for each output relay and makes it possible to detect if the power supply to the output relays is lost, as all output relays will deactivate and the events associated with the output relays will be indicated as present.

Specifications for 400 V Systems

Input Specifications 400 V

UPS rating	**20 kW with N+1 power module**	**30 kW with N+1 power module**	**40 kW with N+1 power module**	**50 kW with N+1 power module**
Voltage (V)	**380/400/415**	**380/400/415**	**380/400/415**	**380/400/415**
Connections	4-wire (L1, L2, L3, N, PE) WYE (single mains)[17] 3-wire (L1, L2, L3, PE) WYE (dual mains)[18] [19]			
Input voltage range (V)	380 V: 331-437 400 V: 340-460 415 V: 353-477			
Frequency range (Hz)	40-70			
Nominal input current (A)	32/30/29	47/45/43	63/60/58	79/75/72
Maximum input current (A)	39/37/36	58/55/53	77/73/70	93/92/88
Input current limitation (A)	39/37/36	60/57/55	79/75/73	93/93/91
Input power factor	0.99 at 100% load			
Total harmonic distortion (THDI)	<6% at full linear load (symmetrical)			
Minimum short circuit rating	Dependent on upstream protection. See section for **Recommended Upstream Protection for 400 V** for details.			
Maximum short circuit rating	65 kA RMS			
Protection	Built-in backfeed protection and fuses			
Ramp-in	Programmable and adaptive 1-40 seconds			

UPS rating	**60 kW**	**80 kW**	**100 kW**
Voltage (V)	**380/400/415**	**380/400/415**	**400/415**
Connections	4-wire (L1, L2, L3, N, PE) WYE (single mains)[17] 3-wire (L1, L2, L3, PE) WYE (dual mains)[18] [19]		
Input voltage range (V)	380 V: 331-437 400 V: 340-460 415 V: 353-477		
Frequency range (Hz)	40-70		
Nominal input current (A)	95/90/87	126/120/116	150/144
Maximum input current (A)	116/110/106	154/146/141	183/176
Input current limitation (A)	119/113/109	158/148/145	184/180
Input power factor	0.99 for load greater than 50% 0.95 for load greater than 25%		
Total harmonic distortion (THDI)	<3% at full linear load (symmetrical)		
Minimum short circuit rating	Dependent on upstream protection. See section for **Recommended Upstream Protection for 400 V** for details.		

17. TN and TT power distribution systems are supported. Corner (line) grounding is not premitted.
18. TN and TT power distribution systems are supported. Corner (line) grounding is not permitted.
19. **Only for dual mains system with upstream 4-pole breakers**: Install an N connection with the input cables (L1, L2, L3, N, PE). Refer to earthing schematics for TN-S dual mains 4-pole circuit breaker.

UPS rating	**60 kW**	**80 kW**	**100 kW**
Voltage (V)	**380/400/415**	**380/400/415**	**400/415**
Maximum short circuit rating	65 kA RMS		
Protection	Built-in backfeed protection and fuses		
Ramp-in	Programmable and adaptive 1-40 seconds		

Bypass Specifications 400 V

UPS rating	**20 kW with N+1 power module**	**30 kW with N+1 power module**	**40 kW with N+1 power module**	**50 kW with N+1 power module**
Voltage (V)	**380/400/415**	**380/400/415**	**380/400/415**	**380/400/415**
Connections	4-wire (L1, L2, L3, N, PE) WYE			
Bypass voltage range (V)	380 V: 342-418 400 V: 360-440 415 V: 374-457			
Frequency range (Hz)	50/60 ± 1, 50/60 ± 3, 50/60 ± 10 (user selectable)			
Nominal bypass current (A)	32/29/28	47/45/43	62/59/57	78/74/71
Nominal neutral current (A)	53/50/48	79/75/72	105/100/96	132/125/120
Minimum short circuit rating	Dependent on upstream protection. See section for **Recommended Upstream Protection for 400 V** for details.			
Maximum short circuit rating[20]	65 kA RMS			
Protection	Built-in backfeed protection and fuses Internal fuse specifications: Rated 400 A, prearcing 33 kA^2s			

UPS rating	**60 kW**	**80 kW**	**100 kW**
Voltage (V)	**380/400/415**	**380/400/415**	**400/415**
Connections	4-wire (L1, L2, L3, N, PE) WYE		
Bypass voltage range (V)	380 V: 342-418 400 V: 360-440 415 V: 374-457		
Frequency range (Hz)	50/60 ± 1, 50/60 ± 3, 50/60 ± 10 (user selectable)		
Nominal bypass current (A)	94/88/85	125/119/114	148/143
Nominal neutral current (A)	158/150/144	210/200/193	250/241
Minimum short circuit rating	Dependent on upstream protection. See section for **Recommended Upstream Protection for 400 V** for details.		
Maximum short circuit rating[20]	65 kA RMS		
Protection	Built-in backfeed protection and fuses Internal fuse specifications: Rated 400 A, prearcing 33 kA^2s		

20. Conditioned by the internal fuse rated 400 A, prearcing 33 kA^2s.

Output Specifications 400 V

UPS rating	20 kW with N+1 power module	30 kW with N+1 power module	40 kW with N+1 power module	50 kW with N+1 power module
Voltage (V)	**380/400/415**	**380/400/415**	**380/400/415**	**380/400/415**
Connections	4-wire (L1, L2, L3, N, PE)			
Output voltage regulation	Symmetrical load ± 1% Asymmetrical load ± 3%			
Overload capacity	150% for 1 minute (in normal operation) 125% for 10 minutes (in normal operation) 125% for 1 minute (in battery operation) 110% continuous (bypass operation) 1000% for 100 milliseconds (bypass operation)			
Dynamic load response	± 5% after 2 milliseconds ± 1% after 50 milliseconds			
Output power factor	1			
Nominal output current (A)	30/29/28	46/43/42	61/58/56	76/72/70
Minimum short circuit rating[21]	Dependent on upstream protection. See section for **Recommended Upstream Protection for 400 V** for details.			
Maximum short circuit rating[22]	65 kA RMS			
Inverter output short circuit capabilities	Varies with time. See graph and table values in Inverter Short Circuit Capabilities (Bypass not Available), page 71.			
Frequency regulation (Hz)	50/60 Hz bypass synchronized – 50/60 Hz ± 0.1% free-running			
Synchronized slew rate (Hz/sec)	Programmable to 0.25, 0.5, 1, 2, 4, 6			
Output performance classification (according to IEC 62040-3:2021)	VFI-SS-11			
Total harmonic distortion (THDU)	<1% for linear load <3% for non-linear load			
Load crest factor	2.5			
Load power factor	From 0.7 leading to 0.7 lagging without any derating			

UPS rating	60 kW	80 kW	100 kW
Voltage (V)	**380/400/415**	**380/400/415**	**400/415**
Connections	4-wire (L1, L2, L3, N, PE)		
Output voltage regulation	Symmetrical load ± 1% Asymmetrical load ± 3%		
Overload capacity	150% for 1 minute (in normal operation) 125% for 10 minutes (in normal operation) 125% for 1 minute (in battery operation) 110% continuous (bypass operation) 1000% for 100 milliseconds (bypass operation)		
Dynamic load response	± 5% after 2 milliseconds ± 1% after 50 milliseconds		
Output power factor	1		
Nominal output current (A)	91/87/83	122/115/111	144/139
Minimum short circuit rating[21]	Dependent on upstream protection. See section for **Recommended Upstream Protection for 400 V** for details.		

21. Minimum short circuit rating for output takes backfeeding energy through the bypass of parallel UPSs into consideration.
22. Maximum short circuit rating for output takes backfeeding energy through the bypass of parallel UPSs into consideration.

UPS rating	**60 kW**	**80 kW**	**100 kW**
Voltage (V)	**380/400/415**	**380/400/415**	**400/415**
Maximum short circuit rating[23]	65 kA RMS		
Inverter output short circuit capabilities	Varies with time. See graph and table values in Inverter Short Circuit Capabilities (Bypass not Available), page 71.		
Frequency regulation (Hz)	50/60 Hz bypass synchronized – 50/60 Hz ± 0.1% free-running		
Synchronized slew rate (Hz/sec)	Programmable to 0.25, 0.5, 1, 2, 4, 6		
Output performance classification (according to IEC 62040-3:2021)	VFI-SS-11		
Total harmonic distortion (THDU)	<1% for linear load <3% for non-linear load		
Load crest factor	2.5		
Load power factor	From 0.7 leading to 0.7 lagging without any derating		

Battery Specifications 400 V

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Protection of the energy storage device: An overcurrent protective device must be located in close proximity to the energy storage device.

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

UPS rating	**20 kW with N+1 power module**	**30 kW with N+1 power module**	**40 kW with N+1 power module**	**50 kW with N+1 power module**	**60 kW**	**80 kW**	**100 kW**
Charging power in % of output power at 0-40% load	80%						
Charging power in % of output power at 100% load	20%						
Maximum charging power (at 0-40% load) (kW)	16	24	32	40	48	64	80
Maximum charging power (at 100% load) (kW)	4	6	8	10	12	16	20
Nominal battery voltage (VDC)	480						
Nominal float voltage (VDC)	545						
Maximum boost voltage (VDC)	572						
Temperature compensation (per cell)	-3.3mV/°C, for T ≥ 25 °C – 0mV/°C, for T < 25 °C						
End of discharge voltage (full load) (VDC)	384						
Battery current at full load and nominal battery voltage (A)	43	65	87	109	130	174	217
Battery current at full load and minimum battery voltage (A)	54	81	109	136	163	217	271
Ripple current	< 5% C20 (5 minute runtime)						

23. Maximum short circuit rating for output takes backfeeding energy through the bypass of parallel UPSs into consideration.

UPS rating	**20 kW with N+1 power module**	**30 kW with N+1 power module**	**40 kW with N+1 power module**	**50 kW with N+1 power module**	**60 kW**	**80 kW**	**100 kW**
Battery test	Manual/automatic (selectable)						
Maximum short circuit rating	10 kA						

Recommended Cable Sizes 400 V

⚠⚠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 150 mm^2.

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

The maximum number of cable connections per busbar: Two on input/output/bypass busbars; Four on DC busbars; Six on N/PE busbars.

NOTE: Overcurrent protection is to be provided by others.

Cable sizes in this manual are based on 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
- Installation method C

PE cable size is based on table 54.2 of IEC 60364-4-54.

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. Not all auxiliary products support aluminum cables. 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 breaker rating.

NOTE: Neutral conductor is sized to handle 1.73 times phase current in case of high harmonic content from non-linear loads. If non or less harmonic currents are expected, neutral conductor can be sized accordingly but not less than the phase conductor.

UPS rating	20 kW with N+1 power module	30 kW with N +1 power module	40 kW with N+1 power module	50 kW with N +1 power module	60 kW	80 kW	100 kW
Input phases (mm^2)	6	10	16	25	35	50	70
Input PE (mm^2)	6	10	16	16	16	25	35
Bypass/output phases (mm^2)	6	6	10	16	25	35	50
Bypass PE/output PE (mm^2)	6	6	10	16	16	16	25
Neutral (mm^2)	10	16	25	35	50	70	95
DC+/DC- (mm^2)	10	16	25	35	50	70	95
DC PE (mm^2)	10	16	16	16	25	35	50

Recommended Upstream Protection for 400 V

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- For parallel systems, instantaneous override (Ii) values must not be set higher than 1250 A. Place the label 885-92556 adjacent to the upstream circuit breaker to inform about the hazard.
- In parallel systems with three or more UPSs, a circuit breaker must be installed on the output of each UPS. The unit output breaker (UOB) instantaneous override (Ii) values must not be set higher than 1250 A.

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

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.

NOTICE

RISK OF UNINTENTIONAL DEVICE OPERATION

If a residual current-operated protective device (RCD-B) is used upstream as ground fault protection, then the RCD-B shall be sized to not trip on the leakage current of this product, which can be up to 67 mA.

Failure to follow these instructions can result in equipment damage.

Upstream Protection for 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 0.2 seconds for a minimum prospective phase-to-earth short circuit current calculated or measured at the input/bypass terminals of the UPS.

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

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

Recommended Upstream Protection for 400 V IEC

$Ik_{Ph\text{-}PE}$is the minimum prospective phase-to-earth short circuit current required at the input/bypass terminals of the UPS. The $Ik_{Ph\text{-}PE}$ in the table is based on the recommended protective device.

UPS rating	20 kW with N+1 power module		30 kW with N+1 power module		40 kW with N+1 power module		50 kW with N+1 power module	
	Input	Bypass	Input	Bypass	Input	Bypass	Input	Bypass
Ik_{Ph-PE} (kA)	**0.6**	**0.5**	**0.6**	**0.5**	**0.7**	**0.6**	**0.8**	**0.7**
Breaker type	NSX100H TM40D (C10H3T-M040)	NSX100H TM32D (C10H3T-M032)	NSX100H TM63D (C10H3T-M063)	NSX100H TM50D (C10H3T-M050)	NSX100H TM80D (C10H3T-M080)	NSX100H TM63D (C10H3T-M063)	NSX100H TM100D (C10H3T-M100)	NSX100H TM80D (C10H3T-M080)
In setting	40	32	63	50	80	63	100	80
Ir setting	40	32	63	50	80	63	100	80
Im setting	500 (fixed)	400 (fixed)	500 (fixed)	500 (fixed)	640 (fixed)	500 (fixed)	800 (fixed)	640 (fixed)

UPS rating	60 kW		80 kW		100 kW	
	Input	Bypass	Input	Bypass	Input	Bypass
Ik_{Ph-PE} (kA)	**1.5**	**0.8**	**1.6**	**1.5**	**2**	**1.6**
Breaker type	NSX160H TM125D (C16H3TM125)	NSX100H TM100D (C10H3TM100)	NSX160H TM160D (C16H3TM160)	NSX160H TM125D (C16H3TM125)	NSX250H TM200D (C25H3TM200)	NSX160H TM160D (C16H3TM160)
In setting	125	100	160	125	200	160
Ir setting	125	100	160	125	200	160
Im setting	1250 (fixed)	800 (fixed)	1250 (fixed)	1250 (fixed)	≤6 x In	1250 (fixed)

Torque Specifications

Bolt size	Torque
M4	1.7 Nm
M5	2.2 Nm
M6	5 Nm
M8	17.5 Nm
M10	30 Nm
M12	50 Nm

Environment

	Operating	Storage
Temperature	0 °C to 40 °C	-15 °C to 40 °C for systems with batteries.
Relative humidity	5 - 95% non-condensing	10 - 80% non-condensing
Elevation	Designed for operation in 0-3000 m elevation. Power derating required from 1000-3000 m: Up to 1000 m: 1.000 Up to 1500 m: 0.975 Up to 2000 m: 0.950 Up to 2500 m: 0.925 Up to 3000 m: 0.900	
Audible noise one meter from unit	400 V 20-60 kW: 49 dB at 70% load, 54 dB at 100% load 400 V 80-100 kW: 57 dB at 70% load, 65 dB at 100% load	
Protection class	IP20	
Color	RAL 9003, gloss level 85%	

Heat Dissipation in BTU/hr

20 kW with N+1 power module	**Normal operation**			**ECO mode**		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	1140	1089	1162	816	814	795
50% load	1527	1468	1550	854	862	852
75% load	1913	1814	1912	964	933	925
100% load	2354	2213	2294	1051	1005	1005

20 kW with N+1 power module	**eConversion**			**Battery operation**		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	818	835	833	1245	1270	1282
50% load	877	879	881	1631	1675	1698
75% load	961	951	954	2028	2080	2114
100% load	1048	1023	1032	2436	2485	2530

30 kW with N+1 power module	**Normal operation**			**ECO mode**		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	2060	2081	2106	977	990	995
50% load	2648	2683	2777	1078	1057	1046
75% load	3254	3268	3335	1181	1163	1151
100% load	3781	3788	3813	1246	1236	1219

30 kW with N+1 power module	**eConversion**			**Battery operation**		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	1403	1476	1507	1796	1871	1881
50% load	1531	1514	1533	2417	2522	2559
75% load	1589	1615	1610	3059	3184	3237
100% load	1652	1664	1679	3720	3858	3915

40 kW with N+1 power module	Normal operation			ECO mode		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	2201	2255	2303	993	991	979
50% load	3000	3062	3085	1136	1138	1128
75% load	3781	3788	3813	1246	1236	1219
100% load	4714	4660	4617	1432	1404	1373

40 kW with N+1 power module	eConversion			Battery operation		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	1386	1450	1463	2001	2087	2107
50% load	1536	1567	1597	2843	2962	3011
75% load	1652	1664	1679	3720	3858	3915
100% load	1844	1849	1846	4634	4775	4820

50 kW with N+1 power module	Normal operation			ECO mode		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	2391	2454	2485	1021	1016	1007
50% load	3393	3428	3426	1213	1206	1198
75% load	4489	4456	4440	1386	1363	1345
100% load	5753	5598	5473	1627	1584	1538

50 kW with N+1 power module	eConversion			Battery operation		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	1446	1446	1490	2208	2304	2333
50% load	1599	1624	1646	3277	3408	3463
75% load	1789	1806	1794	4402	4544	4594
100% load	2051	2037	2014	5584	5713	5726

60 kW	Normal operation			ECO mode		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	2282	2152	2296	1034	1009	982
50% load	3508	3557	3537	1158	1190	1103
75% load	5167	5117	4939	1419	1443	1349
100% load	7262	7103	6742	1741	1752	1694

60 kW	eConversion			Battery operation		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	1245	1222	1261	2290	2362	2400
50% load	1420	1444	1432	3621	3700	3742
75% load	1596	1663	1570	5252	5308	5321
100% load	1869	1974	1813	7183	7186	7139

80 kW	Normal operation			ECO mode		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	2988	3062	3284	1149	1138	1124
50% load	4738	4660	4851	1454	1404	1359
75% load	6960	6674	6806	1892	1811	1712
100% load	9753	9151	9141	2408	2259	2128

80 kW	eConversion			Battery operation		
Voltage (V)	**380**	**400**	**415**	**380**	**400**	**415**
25% load	1547	1567	1576	2720	2833	2869
50% load	1853	1849	1852	4549	4686	4726
75% load	2287	2236	2229	6803	6925	6935
100% load	2862	2712	2836	9481	9551	9497

100 kW	Normal operation		ECO mode	
Voltage (V)	**400**	**415**	**400**	**415**
25% load	3428	3642	1206	1179
50% load	5598	5756	1584	1525
75% load	8487	8466	2208	2074
100% load	12286	12091	3097	2909

100 kW	eConversion		Battery operation	
Voltage (V)	**400**	**415**	**400**	**415**
25% load	1624	1599	3260	3300
50% load	2037	2061	5757	5786
75% load	2583	2643	8858	8823
100% load	3303	3373	12563	12413

UPS Shipping Weights and Dimensions

UPS rating	Weight kg	Height mm	Width mm	Depth mm
20-50 kW UPS 400 V with N+1 power module*	250	2082	755	1010
60-100 kW UPS 400 V without preinstalled battery strings*	250	2082	755	1010
60 kW UPS 400 V with three battery strings	690	2082	755	1010
80-100 kW UPS 400 V with three battery strings	705	2082	755	1010

NOTE: The UPS models marked with an * in the table above are shipped with no power modules preinstalled in the UPS and all power modules shipped separately. Battery strings are not included and must be bought separately.

Power Module Shipping Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
GVPM20KD	48	330	580	780
GVPM50KD	62	330	580	780

Modular Battery Shipping Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
GVSBTHU	33	180	150	800
GVSBTHULL	33	180	150	800

UPS Weights and Dimensions

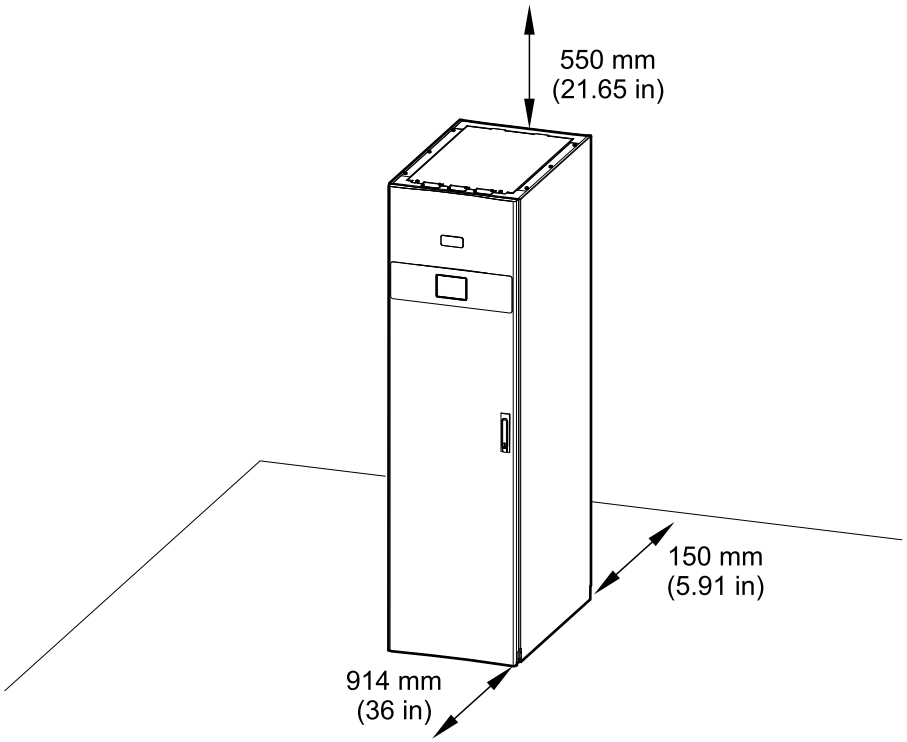
UPS rating	Weight kg	Height mm	Width mm	Depth mm
20 kW UPS 400 V with three battery strings[24]	650	1970	550	847
30-50 kW UPS 400 V with three battery strings[24]	680	1970	550	847
60 kW UPS 400 V with three battery strings	665	1970	550	847
80-100 kW UPS 400 V with three battery strings	680	1970	550	847

NOTE: One battery module weighs approximately 32 kg.

24. UPS model with N+1 power module.

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.

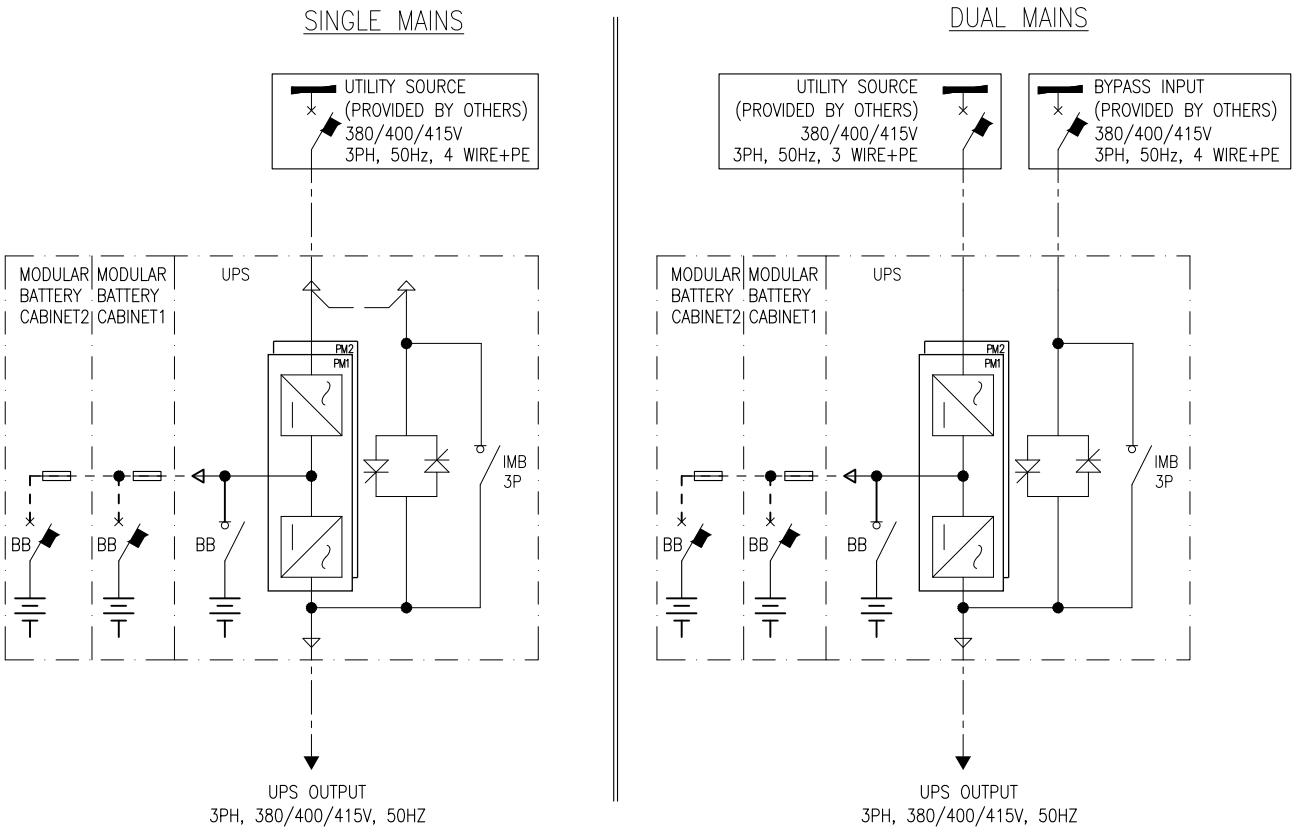


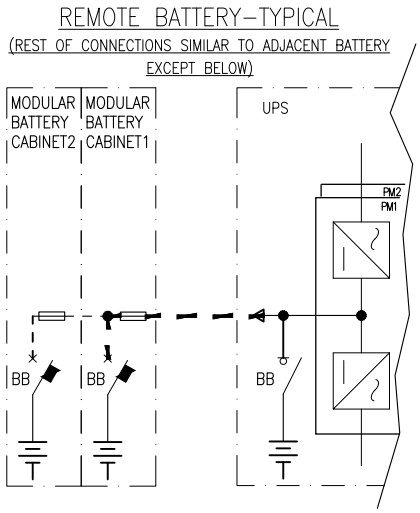
Drawings

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

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

20-50 kW (N+1 Power Module) and 60-100 kW 400 V UPS





Options

Configuration Options

- eConversion mode
- Compact design, high density technology, and modular architecture
- Internal battery modules
- Single or dual mains
- Up to 4+0 UPSs in parallel for capacity
- Up to 3+1 UPSs in parallel for redundancy
- Rear cable entry
- EcoStruxure IT compatible
- Generator compatible
- Touchscreen LCD
- Replacement of power module in any operation mode (Live Swap)[25]
- ECO mode

25. In all systems configured for Live Swap.

Hardware Options

See Weights and Dimensions for Options, page 101.

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

Power Module

- Power module 50 kW 400 V (GVPM50KD)
- Power module 20 kW 400 V (GVPM20KD)

Modular Battery Cabinet

Modular battery cabinet including battery breaker.

- Modular battery cabinet for up to six smart modular battery strings (GVSMODBC6)
- Modular battery cabinet for up to nine smart modular battery strings (GVSMODBC9)

Maintenance Bypass Panel

Maintenance bypass panel for complete isolation of the UPS during service operations. Only for single UPS or 1+1 parallel system for redundancy.

- 20-60 kW maintenance bypass panel (GVSBPSU20K60H)
- 80-120 kW maintenance bypass panel (GVSBPSU80K120H)

Parallel Maintenance Bypass Panel for Two UPSs

Maintenance bypass panel for complete isolation of two UPSs in a parallel system. 60-120 kW in 1+1 parallel system for redundancy, 120-240 kW in 2+0 parallel system for capacity.

- 60-120 kW maintenance bypass panel (GVSBPAR60K120H)

Remote Alarm Panel

- Remote alarm panel (GVSOPT036)

Optional Installation Kits

- Seismic kit for UPS (GVSOPT016)
- Parallel kit for UPS (GVSOPT006)
- Live Swap kit for the UPS (GVSOPT039)

Optional Network Management Card

- Network Management Card LCES2 with Modbus, Ethernet and AUX sensors (AP9644)

Air Filter

- Air filter kit (GVSOPT014)

Battery Modules

9 Ah smart high capacity battery modules. This battery module type is delivered for UPS models with preinstalled battery strings.

- Galaxy VS 9 Ah Smart High Capacity Battery Module (GVSBTHU)
- Galaxy VS 9 Ah Smart Modular High Capacity Battery String (GVSBTH4)

9 Ah smart long-life high capacity battery modules. For this battery module type, select a UPS models without preinstalled battery strings.

- Galaxy VS 9 Ah Smart Long-Life High Capacity Battery Module (GVSBTHULL)
- Galaxy VS 9 Ah Smart Modular Long-Life High Capacity Battery String (GVSBTH4LL)

  NOTE: Always use the same battery module type in the UPS system. Do not mix different battery module types.

Weights and Dimensions for Options

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

Maintenance Bypass Panel Shipping Weights and Dimensions

Commercial reference	Weight kg	Height mm[26]	Width mm	Depth mm[26]
GVSBPSU10K20H	20	260	530	590
GVSBPSU20K60H	40	440	730	810
GVSBPSU80K120H	55	490	840	1220

Maintenance Bypass Panel Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
GVSBPSU10K20H	12	450	400	150
GVSBPSU20K60H	25	600	550	220
GVSBPSU80K120H	40	800	600	280

Parallel Maintenance Bypass Panel Shipping Weights and Dimensions

Commercial reference	Weight kg	Height[27] mm	Width mm	Depth[27] mm
GVSBPAR10K30H	55	460	800	1200
GVSBPAR40K50H	75	500	865	1200
GVSBPAR60K120H	113	565	1000	1200

Parallel Maintenance Bypass Panel Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
GVSBPAR10K30H	35	700	650	210
GVSBPAR40K50H	50	850	750	250
GVSBPAR60K120H	83	1000	900	280

26. The product is packaged in a horizontal position, so the shipping height and depth dimensions differ from the product itself.
27. The parallel maintenance bypass panel is packaged in a horizontal position, so the height and depth dimensions differ from the product itself.

Modular Battery Cabinet Shipping Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
GVSMODBC6	175	1664	635	990
GVSMODBC9	206	2082	755	1010

NOTE: The modular battery cabinet is shipped without battery strings installed.

Modular Battery Cabinet Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
GVSMODBC6 – Empty – With six battery strings	 145 913	1485	521	847
GVSMODBC9 – Empty – With nine battery strings	 186 1338	1970	550	847

NOTE: One battery module weighs approximately 32 kg.

Remote Alarm Panel Shipping Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
GVSOPT036	19	581	468	366

Remote Alarm Panel Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
GVSOPT036	14	400	300	178

Limited Factory Warranty

One-Year Factory Warranty

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

Terms of Warranty

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

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 caused by end user or any third person misuse, negligence, improper installation or testing. Further, Schneider Electric shall not be liable under the warranty for unauthorized attempts to repair or modify wrong or inadequate electrical voltage

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