

# Galaxy VL

## For IEC

### Technical Specifications

Latest updates are available on the Schneider Electric website  
11/2024



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Example: <https://www.go2se.com/ref=GVL200K500DS>

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

Scan the code to go to the Galaxy VL online manual portal:

**IEC (380/400/415/440 V)**



[https://www.productinfo.schneider-electric.com/galaxyvl\\_iec/](https://www.productinfo.schneider-electric.com/galaxyvl_iec/)

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

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

### Learn More About the Galaxy VL Here:

Go to <https://www.se.com/ww/en/product-range/22545656> to learn more about this product.



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# Important Safety Instructions — SAVE THESE INSTRUCTIONS

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



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



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

## DANGER

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

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

## WARNING

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

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

## CAUTION

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

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

## NOTICE

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

**Failure to follow these instructions can result in equipment damage.**

## Please Note

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

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

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

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

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

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

**⚠ DANGER**

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

Read all instructions in the installation manual before installing or working on this UPS system.

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

**⚠ DANGER**

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

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

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

**⚠ DANGER**

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

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

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



## DANGER

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

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

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

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

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

## DANGER

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

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

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

## DANGER

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

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

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

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

## DANGER

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

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

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

## DANGER

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

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

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

**⚠ CAUTION****RISK OF HOT SURFACE**

The outer plates of the cabinet can exceed temperatures of 65 °C at 50 °C ambient room temperature, if the air filter(s) in the front door is clogged. Replace the air filter regularly as described in the UPS operation manual.

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

***NOTICE*****RISK OF OVERHEATING**

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

**Failure to follow these instructions can result in equipment damage.**

***NOTICE*****RISK OF EQUIPMENT DAMAGE**

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

**Failure to follow these instructions can result in equipment damage.**

# Model List



- Galaxy VL UPS scalable to 500 kW, 400V, start-up 5x8 (GVL0K500DS)<sup>1</sup>
- Galaxy VL UPS 200 kW scalable to 500 kW, 400/480V, start-up 5x8 (GVL200K500DS)
- Galaxy VL UPS 300 kW scalable to 500 kW, 400/480V, start-up 5x8 (GVL300K500DS)
- Galaxy VL UPS 400 kW scalable to 500 kW, 400/480V, start-up 5x8 (GVL400K500DS)
- Galaxy VL UPS 500 kW, 400/480V, start-up 5x8 (GVL500KDS)

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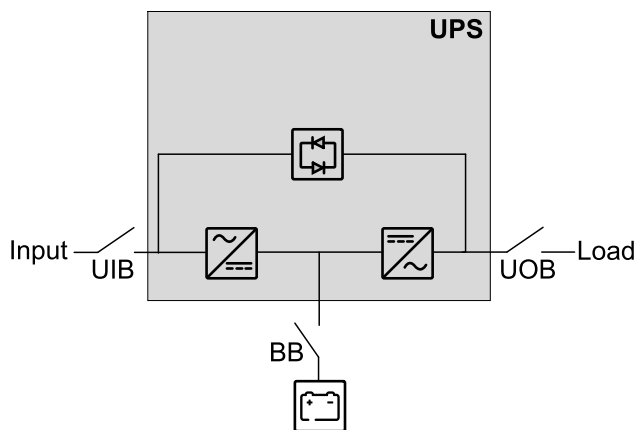
1. 50 kW power modules bought separately.

# Single System Overview

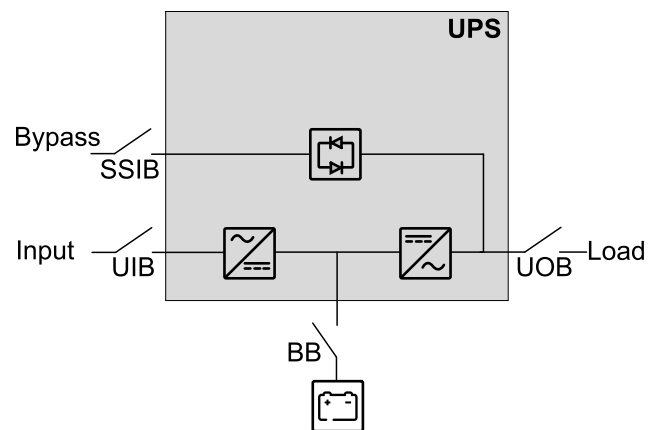
UIB	Unit input breaker
SSIB	Static switch input breaker
UOB	Unit output breaker
BB	Battery breaker

**NOTE:** The word 'breaker' is used as a generic term covering circuit breakers and switches.

**Single System – Single Mains**



**Single System – Dual Mains**

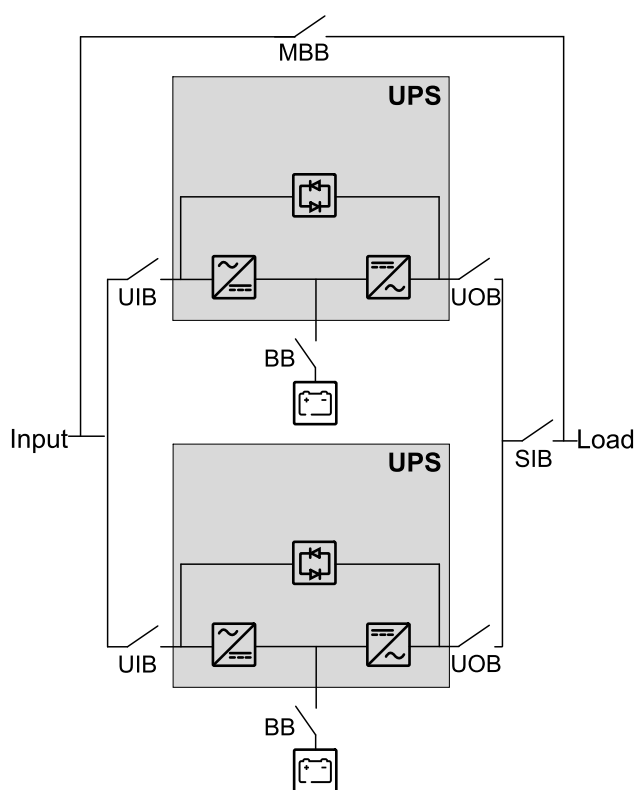


# Parallel System Overview

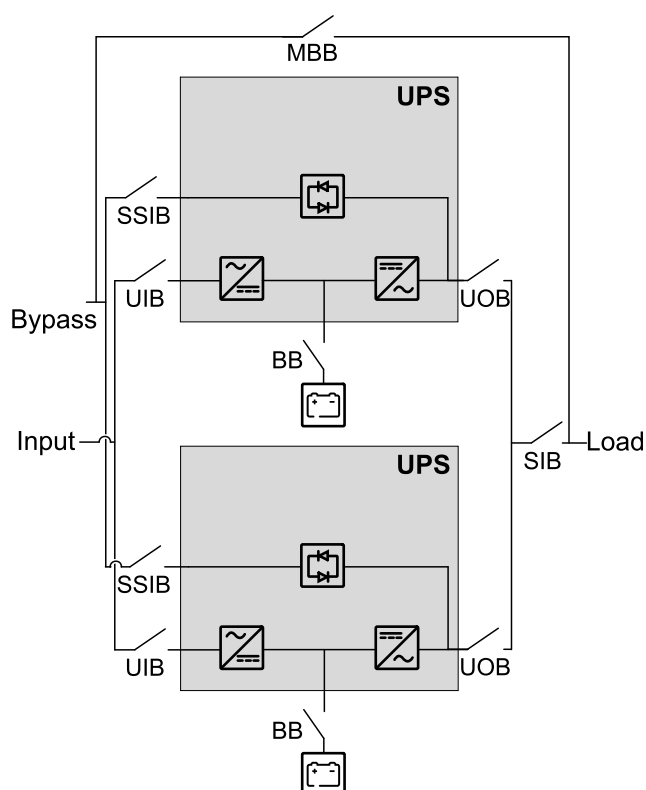
UIB	Unit input breaker
SSIB	Static switch input breaker
UOB	Unit output breaker
SIB	System isolation breaker
BB	Battery breaker
MBB	External maintenance bypass breaker

Galaxy VL can support up to 6 UPSs in parallel for capacity and up to 5+1 UPSs in parallel for redundancy with individual unit input breaker UIB and static switch input breaker SSIB.

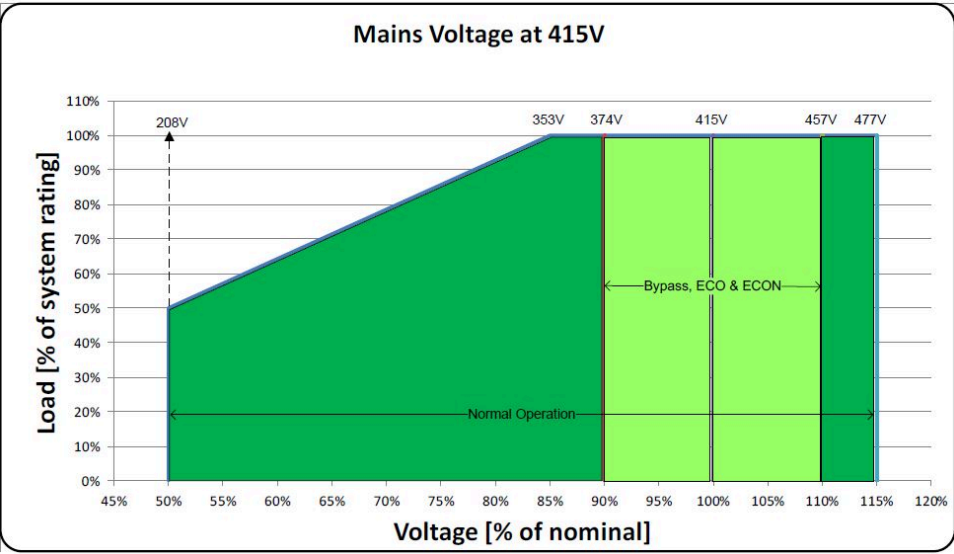
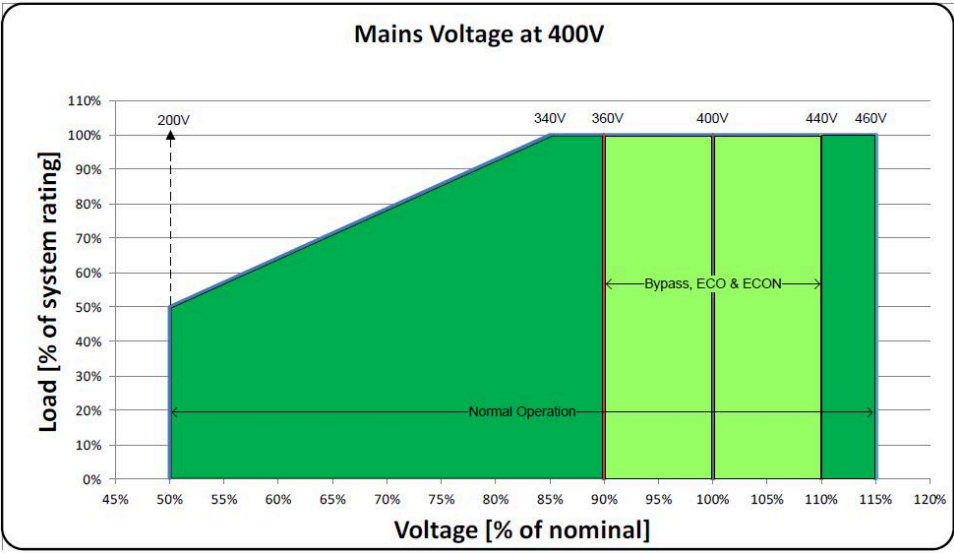
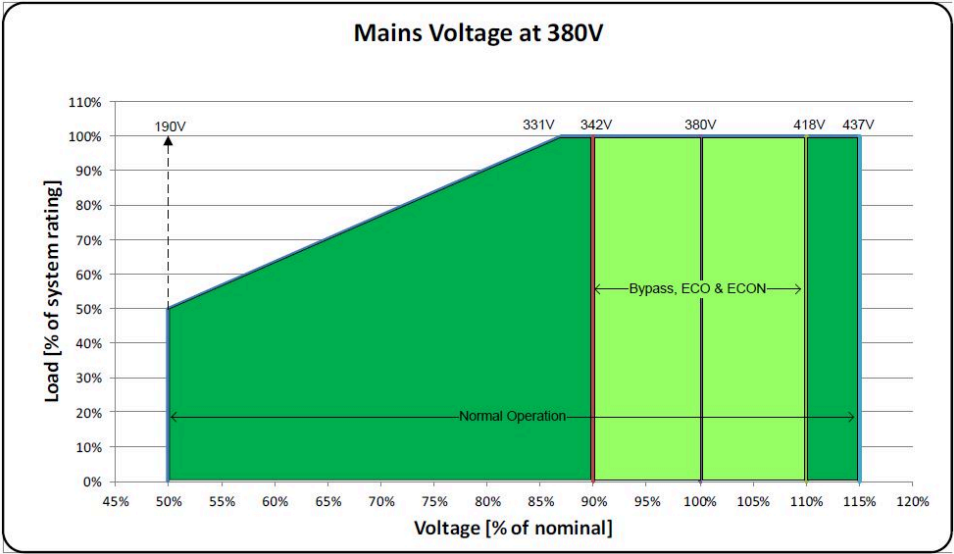
**Parallel System – Single Mains**



**Parallel System – Dual Mains**

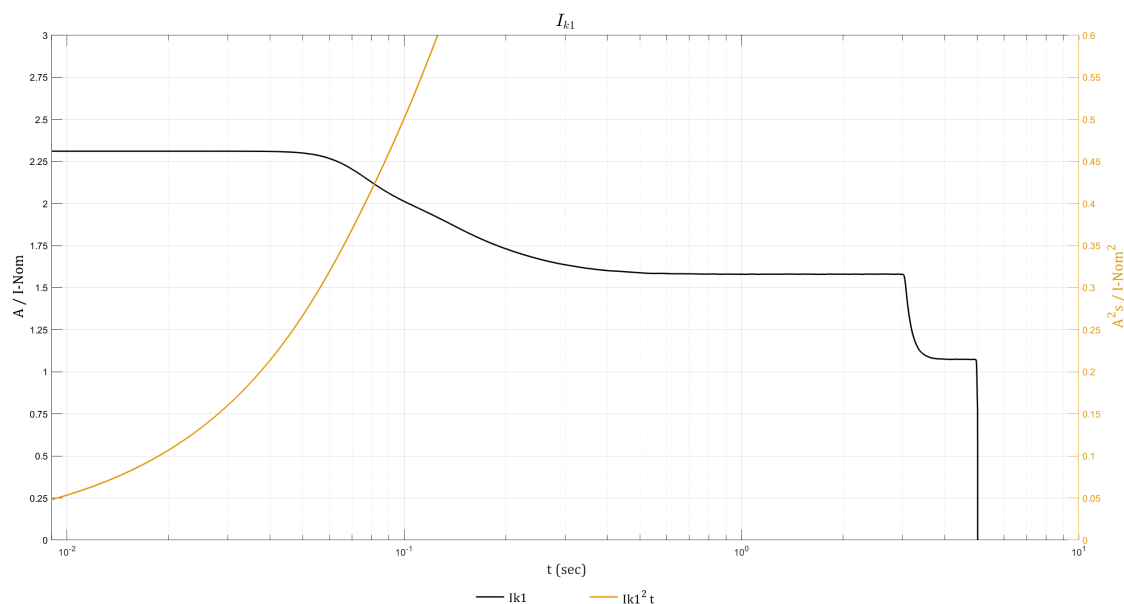


# Input Voltage Window



# Inverter Short Circuit Capabilities (Bypass not Available)

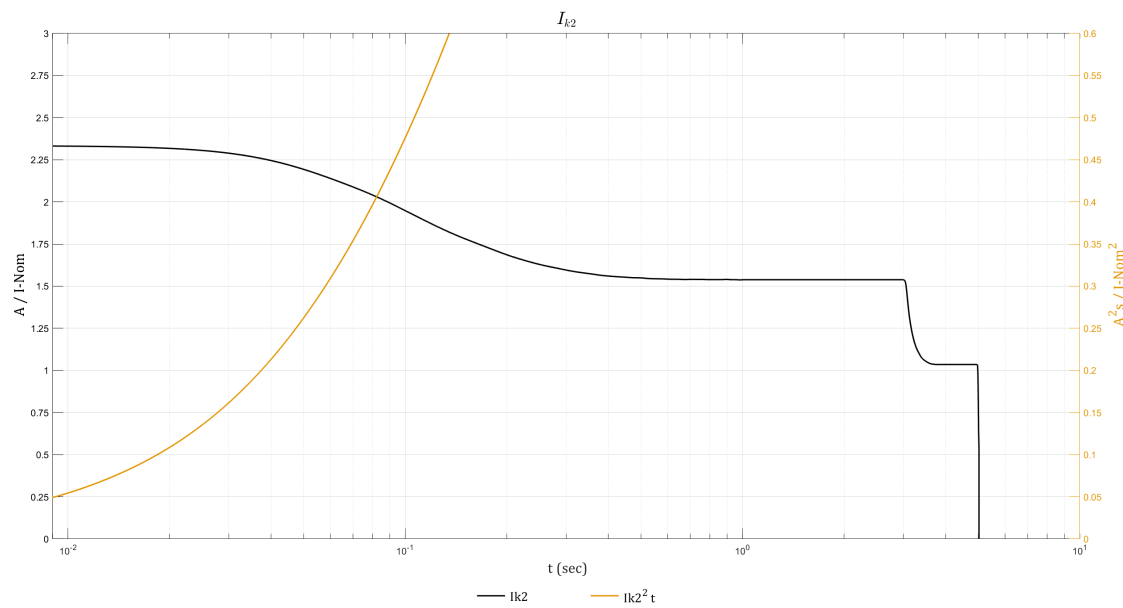
## IK1 – Short Circuit between a Phase and Neutral



### IK1 400 V

S [kVA]	10ms; $I[A]/I^2t [A^2t]$	20ms; $I[A]/I^2t [A^2t]$	30ms; $I[A]/I^2t [A^2t]$	100ms; $I[A]/I^2t [A^2t]$	1s; $I[A]/I^2t [A^2t]$
200	670 /4450	670 /8910	670 /13360	580 /41790	460 /241100
250	830 /6960	830 /13910	830 /20870	730 /65300	570 /376720
300	1000 /10020	1000 /20040	1000 /30050	870 /94030	680 /542470
350	1170 /13640	1170 /27270	1170 /40910	1020 /127990	800 /738360
400	1330 /17810	1330 /35620	1330 /53430	1160 /167170	910 /964390
450	1500 /22540	1500 /45080	1500 /67620	1310 /211580	1030 /1220560
500	1670 /27830	1670 /55660	1670 /83480	1450 /261210	1140 /1506870

IK2 – Short Circuit between Two Phases

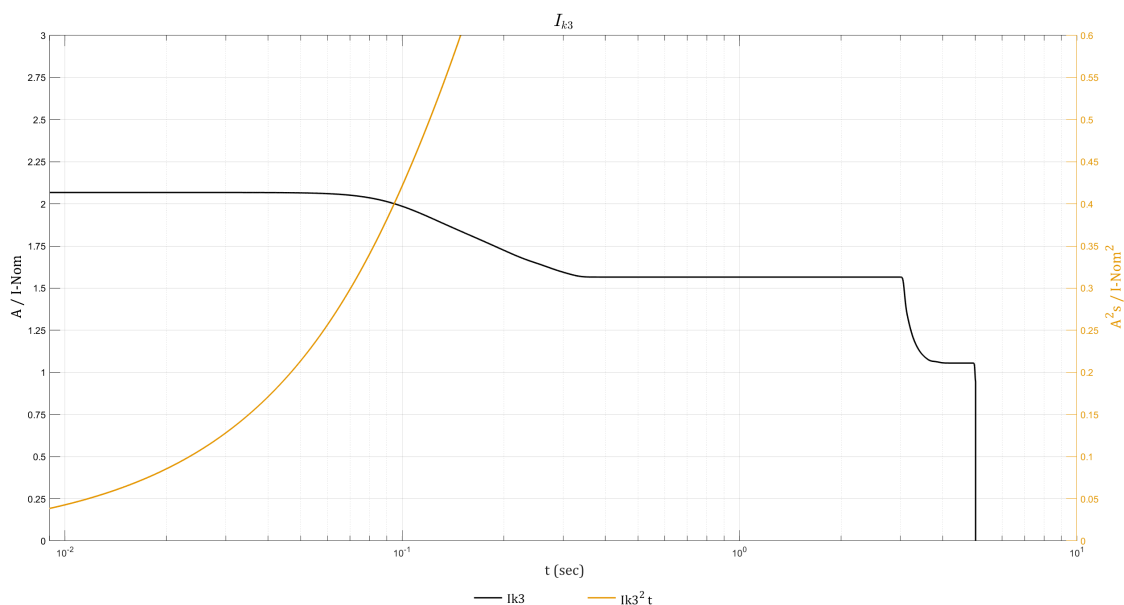


IK2 400 V

S [kVA]	10ms; I[A]/I <sup>2</sup> t [A <sup>2</sup> t]	20ms; I[A]/I <sup>2</sup> t [A <sup>2</sup> t]	30ms; I[A]/I <sup>2</sup> t [A <sup>2</sup> t]	100ms; I[A]/I <sup>2</sup> t [A <sup>2</sup> t]	1s; I[A]/I <sup>2</sup> t [A <sup>2</sup> t]
200	670 /4530	670 /9040	670 /13470	560 /39680	440 /228420
250	840 /7090	840 /14130	840 /21040	700 /61990	550 /356910
300	1010 /10200	1000 /20340	1000 /30300	840 /89270	670 /513950
350	1180 /13890	1170 /27690	1170 /41250	980 /121510	780 /699540
400	1350 /18140	1340 /36160	1340 /53870	1120 /158700	890 /913680
450	1510 /22960	1510 /45770	1510 /68180	1270 /200860	1000 /1156380
500	1680 /28340	1670 /56510	1670 /84170	1410 /247970	1110 /1427630



## IK3 – Short Circuit between Three Phases



### IK3 400 V

S [kVA]	10ms; $I[A]/I^2t [A^2t]$	20ms; $I[A]/I^2t [A^2t]$	30ms; $I[A]/I^2t [A^2t]$	100ms; $I[A]/I^2t [A^2t]$	1s; $I[A]/I^2t [A^2t]$
200	600 /3560	600 /7130	600 /10690	570 /35120	450 /229410
250	750 /5570	750 /11140	750 /16700	720 /54880	570 /358450
300	900 /8020	900 /16040	900 /24050	860 /79020	680 /516170
350	1040 /10910	1040 /21830	1040 /32740	1000 /107560	790 /702560
400	1190 /14250	1190 /28510	1190 /42760	1150 /140490	900 /917630
450	1340 /18040	1340 /36080	1340 /54120	1290 /177800	1020 /1161370
500	1490 /22270	1490 /44540	1490 /66810	1430 /219510	1130 /1433790

# Efficiency

**NOTE:** The efficiency values are measured at the output terminals/busbars of the UPS.

200 kW	Normal operation				ECO mode			
Voltage (V)	380	400	415	440	380	400	415	440
25% load	96.5%	96.6%	96.5%	96.5%	98.9%	98.8%	98.9%	98.9%
50% load	97.0%	97.1%	97.1%	97.1%	99.3%	99.3%	99.3%	99.2%
75% load	96.9%	97.0%	97.1%	97.2%	99.3%	99.4%	99.4%	99.4%
100% load	96.5%	96.7%	96.9%	97.0%	99.4%	99.4%	99.4%	99.4%

200 kW	eConversion				Battery operation			
Voltage (V)	380	400	415	440	380	400	415	440
25% load	98.4%	98.4%	98.3%	98.3%	96.0%	96.0%	96.0%	95.5%
50% load	99.0%	99.0%	99.0%	99.0%	96.6%	96.6%	96.6%	96.3%
75% load	99.2%	99.2%	99.2%	99.2%	96.6%	96.6%	96.6%	96.5%
100% load	99.3%	99.3%	99.3%	99.3%	96.4%	96.4%	96.4%	96.4%

250 kW	Normal operation				ECO mode			
Voltage (V)	380	400	415	440	380	400	415	440
25% load	96.6%	96.6%	96.6%	96.5%	98.9%	98.9%	98.9%	98.9%
50% load	97.0%	97.1%	97.1%	97.2%	99.3%	99.3%	99.3%	99.3%
75% load	96.9%	97.0%	97.1%	97.2%	99.4%	99.4%	99.4%	99.4%
100% load	96.5%	96.7%	96.8%	97.0%	99.4%	99.4%	99.4%	99.4%

250 kW	eConversion				Battery operation			
Voltage (V)	380	400	415	440	380	400	415	440
25% load	98.4%	98.4%	98.3%	98.3%	96.1%	96.1%	96.1%	95.7%
50% load	99.0%	99.0%	99.0%	99.0%	96.6%	96.6%	96.6%	96.4%
75% load	99.2%	99.2%	99.2%	99.2%	96.6%	96.6%	96.6%	96.5%
100% load	99.3%	99.3%	99.3%	99.3%	96.4%	96.4%	96.4%	96.4%

300 kW	Normal operation				ECO mode			
Voltage (V)	380	400	415	440	380	400	415	440
25% load	96.6%	96.6%	96.6%	96.5%	98.9%	99.0%	98.9%	98.9%
50% load	97.0%	97.1%	97.1%	97.2%	99.3%	99.3%	99.3%	99.3%
75% load	96.9%	97.0%	97.1%	97.2%	99.4%	99.4%	99.4%	99.4%
100% load	96.5%	96.7%	96.8%	97.0%	99.4%	99.4%	99.4%	99.4%

300 kW	eConversion				Battery operation			
Voltage (V)	380	400	415	440	380	400	415	440
25% load	98.4%	98.4%	98.3%	98.3%	96.2%	96.2%	96.2%	95.8%
50% load	99.0%	99.0%	99.0%	99.0%	96.7%	96.7%	96.7%	96.4%
75% load	99.2%	99.2%	99.2%	99.2%	96.6%	96.6%	96.6%	96.5%
100% load	99.3%	99.3%	99.3%	99.3%	96.4%	96.4%	96.4%	96.4%

350 kW	Normal operation				ECO mode			
Voltage (V)	380	400	415	440	380	400	415	440
25% load	96.6%	96.6%	96.6%	96.5%	99.0%	99.0%	99.0%	99.0%
50% load	97.0%	97.1%	97.1%	97.1%	99.3%	99.3%	99.3%	99.3%
75% load	96.8%	97.0%	97.1%	97.2%	99.3%	99.4%	99.4%	99.4%
100% load	96.5%	96.7%	96.8%	97.0%	99.4%	99.4%	99.4%	99.4%

350 kW	eConversion				Battery operation			
Voltage (V)	380	400	415	440	380	400	415	440
25% load	98.4%	98.4%	98.4%	98.3%	96.3%	96.3%	96.3%	95.9%
50% load	99.1%	99.0%	99.0%	99.0%	96.7%	96.7%	96.7%	96.5%
75% load	99.2%	99.2%	99.2%	99.2%	96.6%	96.6%	96.6%	96.5%
100% load	99.3%	99.3%	99.3%	99.3%	96.4%	96.4%	96.4%	96.4%

400 kW	Normal operation				ECO mode			
Voltage (V)	380	400	415	440	380	400	415	440
25% load	96.6%	96.6%	96.6%	96.5%	99.0%	99.0%	99.0%	99.0%
50% load	97.0%	97.1%	97.1%	97.1%	99.3%	99.3%	99.3%	99.3%
75% load	96.8%	97.0%	97.1%	97.2%	99.3%	99.4%	99.4%	99.4%
100% load	96.5%	96.7%	96.8%	97.0%	99.4%	99.4%	99.4%	99.4%

400 kW	eConversion				Battery operation			
Voltage (V)	380	400	415	440	380	400	415	440
25% load	98.4%	98.4%	98.4%	98.3%	96.3%	96.3%	96.3%	95.9%
50% load	99.1%	99.0%	99.0%	99.0%	96.7%	96.7%	96.7%	96.5%
75% load	99.2%	99.2%	99.2%	99.2%	96.6%	96.6%	96.6%	96.5%
100% load	99.3%	99.3%	99.3%	99.3%	96.4%	96.4%	96.4%	96.4%

450 kW	Normal operation				ECO mode			
Voltage (V)	380	400	415	440	380	400	415	440
25% load	96.6%	96.6%	96.6%	96.5%	99.0%	99.0%	99.0%	99.0%
50% load	97.0%	97.1%	97.1%	97.1%	99.3%	99.3%	99.3%	99.3%
75% load	96.8%	96.9%	97.0%	97.1%	99.3%	99.3%	99.4%	99.4%
100% load	96.4%	96.6%	96.8%	96.9%	99.3%	99.4%	99.4%	99.4%

450 kW	eConversion				Battery operation			
Voltage (V)	380	400	415	440	380	400	415	440
25% load	98.5%	98.4%	98.4%	98.3%	96.3%	96.3%	96.3%	96.0%
50% load	99.1%	99.0%	99.0%	99.0%	96.7%	96.7%	96.7%	96.5%
75% load	99.2%	99.2%	99.2%	99.2%	96.6%	96.6%	96.6%	96.5%
100% load	99.3%	99.3%	99.3%	99.3%	96.4%	96.4%	96.4%	96.4%

500 kW	Normal operation				ECO mode			
Voltage (V)	380	400	415	440	380	400	415	440
25% load	96.6%	96.6%	96.6%	96.5%	99.0%	99.0%	99.0%	99.0%
50% load	97.0%	97.1%	97.1%	97.1%	99.3%	99.3%	99.3%	99.3%

500 kW	Normal operation				ECO mode			
Voltage (V)	380	400	415	440	380	400	415	440
75% load	96.8%	96.9%	97.0%	97.1%	99.3%	99.3%	99.4%	99.4%
100% load	96.4%	96.6%	96.8%	96.9%	99.3%	99.4%	99.4%	99.4%

500 kW	eConversion				Battery operation			
Voltage (V)	380	400	415	440	380	400	415	440
25% load	98.5%	98.4%	98.4%	98.3%	96.3%	96.3%	96.3%	96.0%
50% load	99.1%	99.0%	99.0%	99.0%	96.7%	96.7%	96.7%	96.5%
75% load	99.2%	99.2%	99.2%	99.2%	96.6%	96.6%	96.6%	96.5%
100% load	99.3%	99.3%	99.3%	99.3%	96.4%	96.4%	96.4%	96.4%

# Derating Due to Load Power Factor

0.5 leading to 0.5 lagging without derating.

UPS rating	UPS output									
	Lagging					Leading				
PF=1	PF=0.5	PF=0.6	PF=0.7	PF=0.8	PF=0.9	PF=0.9	PF=0.8	PF=0.7	PF=0.6	PF=0.5
200 kW/ kVA	200 kVA / 100 kW	200 kVA / 120 kW	200 kVA / 140 kW	200 kVA / 160 kW	200 kVA / 180 kW	200 kVA / 180 kW	200 kVA / 160 kW	200 kVA / 140 kW	200 kVA / 120 kW	200 kVA / 100 kW
250 kW/ kVA	250 kVA / 125 kW	250 kVA / 150 kW	250 kVA / 175 kW	250 kVA / 200 kW	250 kVA / 225 kW	250 kVA / 225 kW	250 kVA / 200 kW	250 kVA / 175 kW	250 kVA / 150 kW	250 kVA / 125 kW
300 kW/ kVA	300 kVA / 150 kW	300 kVA / 180 kW	300 kVA / 210 kW	300 kVA / 240 kW	300 kVA / 270 kW	300 kVA / 270 kW	300 kVA / 240 kW	300 kVA / 210 kW	300 kVA / 180 kW	300 kVA / 150 kW
350 kW/ kVA	350 kVA / 175 kW	350 kVA / 210 kW	350 kVA / 245 kW	350 kVA / 280 kW	350 kVA / 315 kW	350 kVA / 315 kW	350 kVA / 280 kW	350 kVA / 245 kW	350 kVA / 210 kW	350 kVA / 175 kW
400 kW/ kVA	400 kVA / 200 kW	400 kVA / 240 kW	400 kVA / 280 kW	400 kVA / 320 kW	400 kVA / 360 kW	400 kVA / 360 kW	400 kVA / 320 kW	400 kVA / 280 kW	400 kVA / 240 kW	400 kVA / 200 kW
450 kW/ kVA	450 kVA / 225 kW	450 kVA / 270 kW	450 kVA / 315 kW	450 kVA / 360 kW	450 kVA / 405 kW	450 kVA / 405 kW	450 kVA / 360 kW	450 kVA / 315 kW	450 kVA / 270 kW	450 kVA / 225 kW
500 kW/ kVA	500 kVA / 250 kW	500 kVA / 300 kW	500 kVA / 350 kW	500 kVA / 400 kW	500 kVA / 450 kW	500 kVA / 450 kW	500 kVA / 400 kW	500 kVA / 350 kW	500 kVA / 300 kW	500 kVA / 250 kW

# Leakage Current

## 380/400/415 V UPS System 4-wire Installation at 100% Load

UPS rating	Leakage current
200 kW-500 kW	700 mA

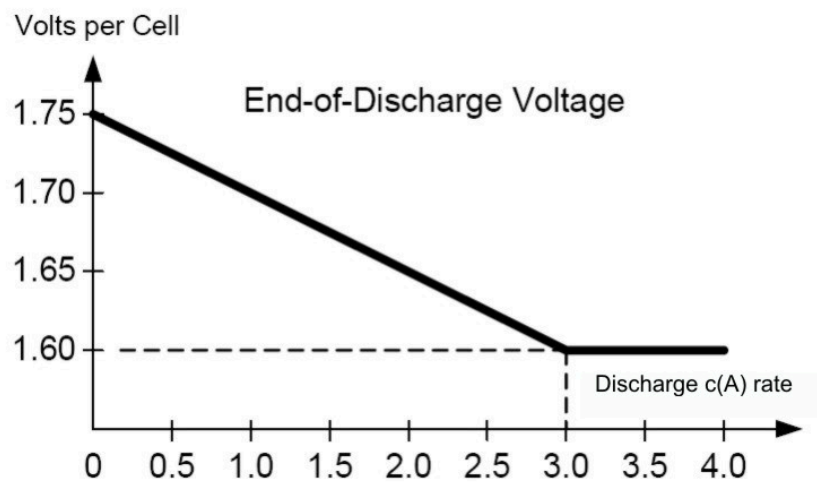
# Batteries

## Common Battery

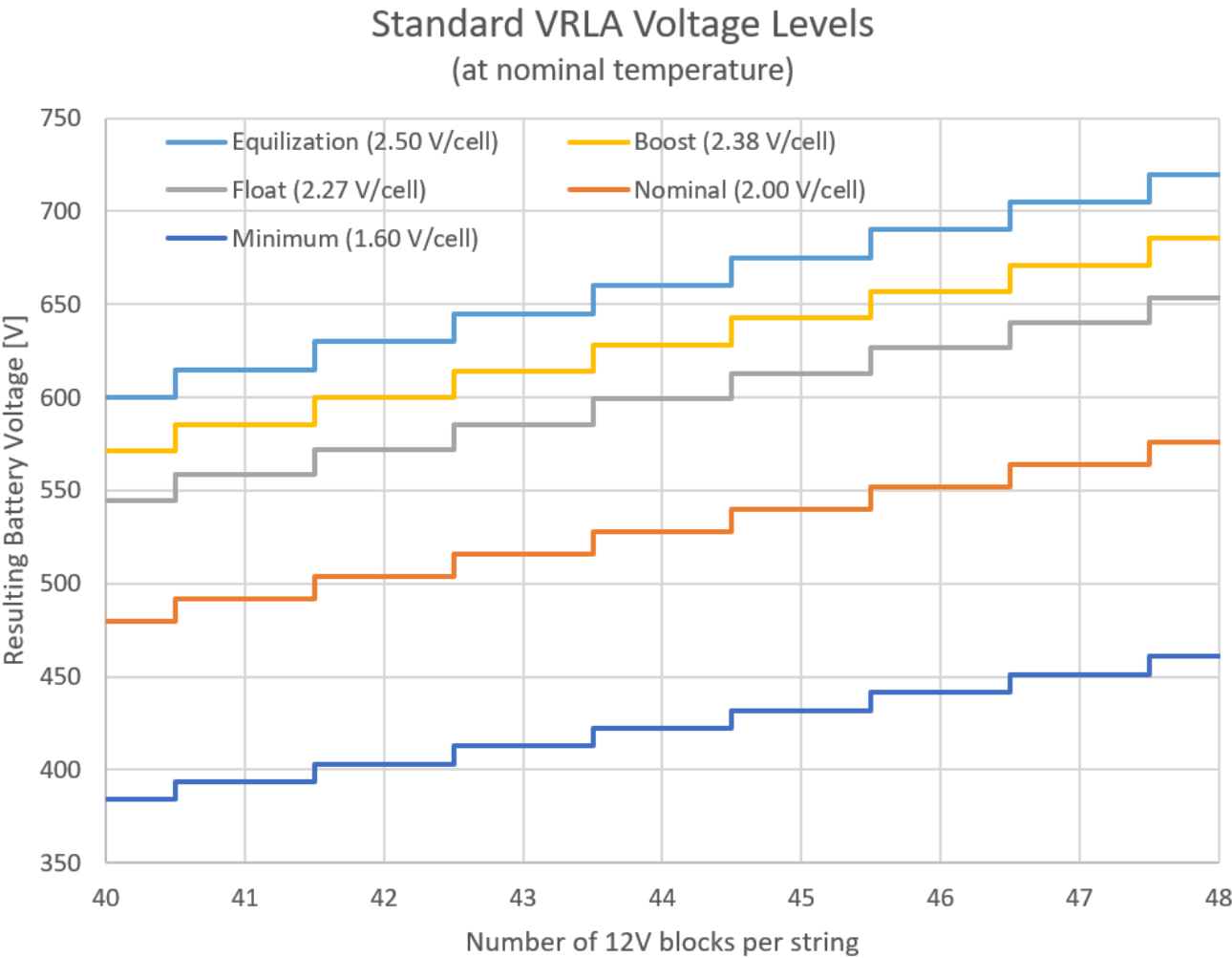
For parallel UPS systems, simplified common battery configuration (VRLA/Lithium-ion) is supported.

## End of Discharge Voltage

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



## Standard VRLA Voltage Levels



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

## Battery Runtimes

Go to [www.se.com](http://www.se.com) for battery runtimes.



## Compliance

Safety	IEC 62040-1: 2017, Edition 2.0, Uninterruptible Power Systems (UPS) - Part 1: Safety requirements
EMC/EMI/RFI	IEC 62040-2: 2016-11, 3rd edition Uninterruptible Power Systems (UPS) - Part 2: Electromagnetic compatibility (EMC) requirements C2 FCC Part 15 Subpart B, Class A
Performance	Performance in accordance with: IEC 62040-3: 2021-04, 3rd edition Uninterruptible Power Systems (UPS) - Part 3: Method of specifying the performance and test requirements.  Output performance classification (according to IEC 62040-3, Clause 5.3.4): VFI-SS-11
Transportation	IEC 60721-4-2 Level 2M2
Seismic	ICC-ES AC 156 (2015); OSHPD Pre-approved; Sds=1.45 g for z/h=1 and Sds=2.00 g for z/h=0; Ip=1.5
Earthing system <sup>2</sup>	TN, TT, TNC, IT, TN-S, TNC-S
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

## 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 <sup>3</sup>	2020 NBCC	S <sub>a</sub> = 1.95	S <sub>a</sub> = 1.44
Chile	NCh 433.Of1996	Zone 3	Zone 2
China	GB 50011-2010 (2016)	α <sub>Max</sub> = 1.4	α <sub>Max</sub> = 0.9
Europe	Eurocode 8 EN1998-1	α <sub>gR</sub> = 0.375	α <sub>gR</sub> = 0.25
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 = 0.54	Z = 0.37
Peru	N.T.E. - E.030	Zone 4	Zone 4
Russia	SNIP II-7-81 (SP 14.13330.2014)	MSK 9	MSK 9
Taiwan	CPA 2011 Seismic Design Code	S <sub>s</sub> <sup>D</sup> = 0.8	S <sub>s</sub> <sup>D</sup> = 0.8
U.S.A. <sup>3</sup>	ASCE 7-16 / IBC 2018	S <sub>DS</sub> = 1.98	S <sub>DS</sub> = 1.45

2. Corner grounding not permitted.

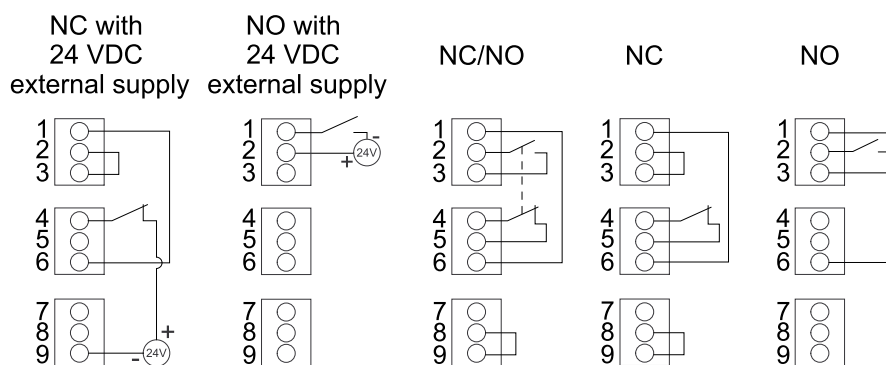
3. OSHPD Pre-approved in accordance with AC156 test protocol.

# 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	7 inch touchscreen display
Audible alarm	Yes
Emergency Power Off (EPO)	Options: <ul style="list-style-type: none"> <li>• Normally Open (NO)</li> <li>• Normally Closed (NC)</li> <li>• External 24 VDC SELV</li> </ul>
External switchgear	UIB UOB SSIB MBB SIB
External synchronization	Yes
Battery monitoring	Available for external battery solutions

## EPO

### EPO Configurations (Terminal J6600, 1-9)



The EPO input supports 24 VDC.

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

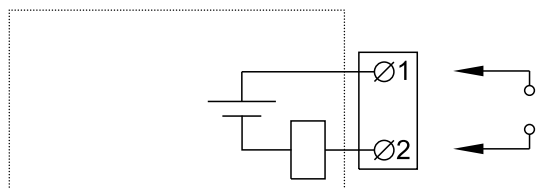
If you want the EPO activation to transfer the UPS into forced static bypass operation instead, please contact Schneider Electric.

# 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. All circuits connected must have the same 0 V reference.

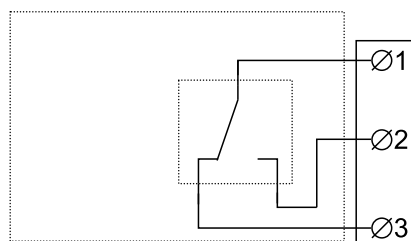


Name	Description	Location
IN_1 (input contact 1)	Configurable input contact	Terminal J6616, 1-2
IN_2 (input contact 2)		Terminal J6616, 3-4
IN_3 (input contact 3)		Terminal J6616, 5-6
IN_4 (input contact 4)		Terminal J6616, 7-8

## 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	Terminal J6617, 1-3
OUT_2 (output relay 2)		Terminal J6617, 4-6
OUT_3 (output relay 3)		Terminal J6617, 7-9
OUT_4 (output relay 4)		Terminal J6617, 10-12

When **Energized check mode** is enabled, the output relay is activated, and will deactivate when the events assigned to the output relay occurs (normally activated).

**Energized check mode** must be individually enabled for each output relay and makes it possible to detect if the output relay is inoperable:

- If the power supply to the output relays is lost, the events assigned to all the output relays will be indicated as present.
- If a single output relay has become inoperable, the events assigned to the single output relay will be indicated as present.

# Requirements for a Third Party Battery Solution

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

## Third Party Battery Breaker Requirements

### DANGER

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

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

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

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

#### Design Requirements for Battery Breaker

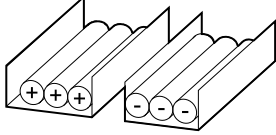
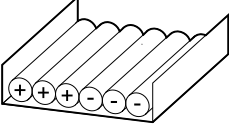
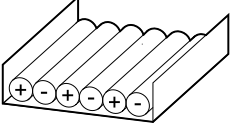
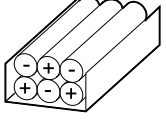
Battery breaker rated DC voltage > Normal battery voltage	The normal voltage of the battery configuration is defined as the highest nominal occurring battery voltage. This can be equivalent to the float voltage which may be defined as <b>number of battery blocks x number of cells x cell float voltage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

## Guidance for Organizing Battery Cables

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

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

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

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

# Specifications

## Specifications for 200 kW UPS

	Voltage (V)	380	400	415	440	480
Input	Connections	Single mains: 4-wire (L1, L2, L3, N, PE) or 3-wire (L1, L2, L3, PE) Dual mains: 3-wire (L1, L2, L3, PE)				Single mains: 4-wire <sup>4</sup> (L1, L2, L3, N, G) or 3-wire <sup>4</sup> (L1, L2, L3, G) Dual mains: 3-wire <sup>4</sup> (L1, L2, L3, G)
	Input voltage range (V)	331-437	340-460	353-477	374-506	408-552
	Frequency (Hz)	40-70				
	Nominal input current (A)	316	299	288	272	249
	Minimum short circuit rating	Dependent on upstream protection. See section for <b>Recommended upstream protection for IEC</b> for details.				–
	Maximum short circuit rating	65 kA l <sub>cw</sub> 25 kA l <sub>cw</sub> with maintenance bypass cabinet (GVLBCA200K500H) 45 kA l <sub>cw</sub> with bottom entry cabinet (GVBECC) 65 kA l <sub>cw</sub> with bottom entry cabinet (GVBECC and GVLOPT012 installed) 65 kA l <sub>cc</sub> with backfeed breaker kit (GVLOPT004) installed in the UPS <sup>5</sup>				–
	Maximum input current (A)	371	365	352	332	303
	Input current limitation (A)	371	370	366	342	313
	Total harmonic distortion (THDI)	<3% at 100% load				
	Input power factor	>0.99 at load >25%, 0.95 at >15% load				
	Protection	Built-in backfeed protection and fuses				
	Ramp-in	Adaptive 1-300 seconds				

4. WYE source – solid grounded and high resistance grounded sources are supported. Corner (line) grounding is not permitted.

5. Refer to the physical short circuit rating label on the UPS for the exact short circuit rating options of the specific UPS.

	Voltage (V)	380	400	415	440	480
Bypass	Connections	4-wire (L1, L2, L3, N, PE) or 3-wire (L1, L2, L3, PE)				4-wire (L1, L2, L3, N, G) or 3-wire (L1, L2, L3, G)
	Bypass voltage range (V)	342-418	360-440	374-457	396-484	432-528
	Frequency (Hz)	50 or 60				
	Frequency range (Hz)	Programmable: $\pm 1$ , $\pm 3$ , $\pm 10$ . Default is $\pm 3$ .				
	Nominal bypass current (A)	312	297	286	270	247
	Minimum short circuit rating	Dependent on upstream protection. See section for <b>Recommended upstream protection for IEC</b> for details.				—
	Maximum short circuit rating (three cycles)	65 kA l <sub>cw</sub> 25 kA l <sub>cw</sub> with maintenance bypass cabinet (GVLMBCA200K500H) 45 kA l <sub>cw</sub> with bottom entry cabinet (GVBECE) 65 kA l <sub>cw</sub> with bottom entry cabinet (GVBECE and GVLOPT012 installed) 65 kA l <sub>cc</sub> with backfeed breaker kit (GVLOPT004) installed in the UPS <sup>6</sup>				65 kAIC 65 kAIC with maintenance bypass cabinet (GVLMBCA200K500-G) 45 kAIC l <sub>cw</sub> with bottom entry cabinet (GVBECE) 65 kAIC l <sub>cw</sub> with bottom entry cabinet (GVBECE and GVLOPT012 installed) 65 kAIC with backfeed breaker kit (GVLOPT003) installed in the UPS <sup>6</sup>
	I <sup>2</sup> t thyristor value (A <sup>2</sup> s)	3.1 MA <sup>2</sup> s				
	Bypass backfeed protection options	1: Upstream installation of breaker with shunt trip connected to the UPS, OR 2: Installation with maintenance bypass cabinet (GVLMBCA200K500H / GVLMBCA200K500G), OR 3: Installation of backfeed breaker kit (GVLOPT004 / GVLOPT003) in the UPS.				

6. Refer to the physical short circuit rating label on the UPS for the exact short circuit rating options of the specific UPS.

	Voltage (V)	380	400	415	440	480
Output	Connections <sup>7</sup>	4-wire (L1, L2, L3, N, PE) or 3-wire (L1, L2, L3, PE)				4-wire (L1, L2, L3, N, G) or 3-wire (L1, L2, L3, G, GEC <sup>8</sup> )
	Output voltage regulation	Symmetrical load $\pm 1\%$ Asymmetrical load $\pm 3\%$				
	Overload capacity	Normal operation: 150% for 1 minute, 125% for 10 minutes, (110% continuous <sup>9</sup> ) Battery operation: 125% for 1 minute Bypass operation: 110% continuous, 1600% for 100 milliseconds				Normal operation: 150% for 1 minute, 125% for 10 minutes, (110% continuous <sup>9</sup> ) Battery operation: 125% for 1 minute Bypass operation: 125% continuous, 1600% for 100 milliseconds
	Dynamic load response	$\pm 5\%$ after 2 ms, $\pm 1\%$ after 50 ms				
	Output power factor	1				
	Nominal output current (A)	304	289	278	262	241
	Minimum short circuit rating <sup>10</sup>	Dependent on upstream protection. See section for <b>Recommended upstream protection for IEC</b> for details.				–
	Maximum short circuit rating <sup>11</sup>	65 kA l <sub>cw</sub> 25 kA l <sub>cw</sub> with maintenance bypass cabinet GVLMBCA200K500H 45 kA l <sub>cw</sub> with bottom entry cabinet (GVBE <sub>C</sub> ) 65 kA l <sub>cw</sub> with bottom entry cabinet (GVBE <sub>C</sub> and GVLOPT012 installed) 65 kA l <sub>cc</sub> with backfeed breaker kit GVLOPT004 installed in the UPS <sup>12</sup>				–
	Inverter output short circuit capabilities	Varies with time. See graph and table values in Inverter Short Circuit Capabilities (Bypass not Available), page 15.				
	Output frequency (Hz)	50/60 (synchronized to bypass), 50/60 Hz $\pm 0.1\%$ (free-running)				
	Synchronized slew rate (Hz/sec)	Programmable: 0.25, 0.5, 1, 2, 4, 6				
	Total harmonic distortion (THDU)	<1% for linear load, <5% for non-linear load				
	Output performance classification (according to IEC/ EN62040-3)	VFI-SS-11				
	Load crest factor	3				
	Load power factor	0.5 leading to 0.5 lagging without derating				

7. The number of output connections must match the number of input connections in a single mains system or the number of bypass connections in a dual mains system.

8. Per NEC 250.30.

9. 110% continuous overload in normal operation at nominal mains voltage and at maximum 40 °C ambient temperature. Contact Schneider Electric to enable this function.

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

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

12. Refer to the physical short circuit rating label on the UPS for the exact short circuit rating options of the specific UPS.



	Voltage (V)	380	400	415	440	480
Battery	Charging power in % of output power	0-40% load: 80% 100% load: 15%	0-40% load: 80% 100% load: 20%			
	Maximum charging power (kW)	0-40% load: 160 100% load: 30	0-40% load: 160 100% load: 40			
	Nominal battery voltage (VDC)	480 for 40 blocks 576 for 48 blocks				
	Nominal float voltage (VDC)	545 for 40 blocks 654 for 48 blocks				
	Maximum boost voltage (VDC)	571 for 40 blocks 685 for 48 blocks				
	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				
	End of discharge voltage (no load) (VDC)	420				
	Battery current at full load and nominal battery voltage (A)	434				
	Battery current at full load and minimum battery voltage (A)	543				
	Ripple current	< 5% C20 (5 minute runtime)				
	Battery test	Manual/automatic (selectable)				
	Maximum short circuit rating	30 kA				

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

## Specifications for 250 kW UPS

	Voltage (V)	380	400	415	440	480
Input	Connections	Single mains: 4-wire (L1, L2, L3, N, PE) or 3-wire (L1, L2, L3, PE) Dual mains: 3-wire (L1, L2, L3, PE)				Single mains: 4-wire <sup>13</sup> (L1, L2, L3, N, G) or 3-wire <sup>13</sup> (L1, L2, L3, G) Dual mains: 3-wire <sup>13</sup> (L1, L2, L3, G)
	Input voltage range (V)	331-437	340-460	353-477	374-506	408-552
	Frequency (Hz)	40-70				
	Nominal input current (A)	395	374	360	340	311
	Minimum short circuit rating	Dependent on upstream protection. See section for <b>Recommended upstream protection for IEC</b> for details.				–
	Maximum short circuit rating (three cycles)	65 kA l <sub>cw</sub> 25 kA l <sub>cw</sub> with maintenance bypass cabinet (GVLMBCA200K500H) 45 kA l <sub>cw</sub> with bottom entry cabinet (GVBECC) 65 kA l <sub>cw</sub> with bottom entry cabinet (GVBECC and GVLOPT012 installed) 65 kA l <sub>cc</sub> with backfeed breaker kit (GVLOPT004) installed in the UPS <sup>14</sup>				–
	Maximum input current (A)	463	457	440	415	379
	Input current limitation (A)	463	463	458	427	392
	Total harmonic distortion (THDI)	<3% at 100% load				
	Input power factor	>0.99 at load >25%, 0.95 at >15% load				
	Protection	Built-in backfeed protection and fuses				
	Ramp-in	Adaptive 1-300 seconds				

13. WYE source – solid grounded and high resistance grounded sources are supported. Corner (line) grounding is not permitted.

14. Refer to the physical short circuit rating label on the UPS for the exact short circuit rating options of the specific UPS.

	Voltage (V)	380	400	415	440	480
Bypass	Connections	4-wire (L1, L2, L3, N, PE) or 3-wire (L1, L2, L3, PE)				4-wire (L1, L2, L3, N, G) or 3-wire (L1, L2, L3, G)
	Bypass voltage range (V)	342-418	360-440	374-457	396-484	432-528
	Frequency (Hz)	50 or 60				
	Frequency range (Hz)	Programmable: $\pm 1$ , $\pm 3$ , $\pm 10$ . Default is $\pm 3$ .				
	Nominal bypass current (A)	390	371	357	337	309
	Minimum short circuit rating	Dependent on upstream protection. See section for <b>Recommended upstream protection for IEC</b> for details.				—
	Maximum short circuit rating (three cycles)	65 kA l <sub>cw</sub> 25 kA l <sub>cw</sub> with maintenance bypass cabinet (GVLMBCA200K500H) 45 kA l <sub>cw</sub> with bottom entry cabinet (GVBECE) 65 kA l <sub>cw</sub> with bottom entry cabinet (GVBECE and GVLOPT012 installed) 65 kA l <sub>cc</sub> with backfeed breaker kit (GVLOPT004) installed in the UPS <sup>15</sup>				65 kAIC 65 kAIC with maintenance bypass cabinet (GVLMBCA200K500-G) 45 kAIC l <sub>cw</sub> with bottom entry cabinet (GVBECE) 65 kAIC l <sub>cw</sub> with bottom entry cabinet (GVBECE and GVLOPT012 installed) 65 kAIC with backfeed breaker kit (GVLOPT003) installed in the UPS <sup>15</sup>
	I <sup>2</sup> t thyristor value (A <sup>2</sup> s)	3.1 MA <sup>2</sup> s				
	Bypass backfeed protection options	1: Upstream installation of breaker with shunt trip connected to the UPS, OR 2: Installation with maintenance bypass cabinet (GVLMBCA200K500H / GVLMBCA200K500G), OR 3: Installation of backfeed breaker kit (GVLOPT004 / GVLOPT003) in the UPS.				

15. Refer to the physical short circuit rating label on the UPS for the exact short circuit rating options of the specific UPS.

	Voltage (V)	380	400	415	440	480
Output	Connections <sup>16</sup>	4-wire (L1, L2, L3, N, PE) or 3-wire (L1, L2, L3, PE)				4-wire (L1, L2, L3, N, G) or 3-wire (L1, L2, L3, G, GEC <sup>17</sup> )
	Output voltage regulation	Symmetrical load $\pm 1\%$ Asymmetrical load $\pm 3\%$				
	Overload capacity	Normal operation: 150% for 1 minute, 125% for 10 minutes, (110% continuous <sup>18</sup> ) Battery operation: 125% for 1 minute Bypass operation: 110% continuous, 1600% for 100 milliseconds				Normal operation: 150% for 1 minute, 125% for 10 minutes, (110% continuous <sup>18</sup> ) Battery operation: 125% for 1 minute Bypass operation: 125% continuous, 1600% for 100 milliseconds
	Dynamic load response	$\pm 5\%$ after 2 ms, $\pm 1\%$ after 50 ms				
	Output power factor	1				
	Nominal output current (A)	380	361	348	328	301
	Minimum short circuit rating <sup>19</sup>	Dependent on upstream protection. See section for <b>Recommended upstream protection for IEC</b> for details.				–
	Maximum short circuit rating <sup>20</sup>	65 kA l <sub>cw</sub> 25 kA l <sub>cw</sub> with maintenance bypass cabinet GVLMBCA200K500H 45 kA l <sub>cw</sub> with bottom entry cabinet (GVBECC) 65 kA l <sub>cw</sub> with bottom entry cabinet (GVBECC and GVLOPT012 installed) 65 kA l <sub>cc</sub> with backfeed breaker kit GVLOPT004 installed in the UPS <sup>21</sup>				–
	Inverter output short circuit capabilities	Varies with time. See graph and table values in Inverter Short Circuit Capabilities (Bypass not Available), page 15.				
	Output frequency (Hz)	50/60 (synchronized to bypass), 50/60 Hz $\pm 0.1\%$ (free-running)				
	Synchronized slew rate (Hz/sec)	Programmable: 0.25, 0.5, 1, 2, 4, 6				
	Total harmonic distortion (THDU)	<1% for linear load, <5% for non-linear load				
	Output performance classification (according to IEC/ EN62040-3)	VFI-SS-11				
	Load crest factor	3				
	Load power factor	0.5 leading to 0.5 lagging without derating				

16. The number of output connections must match the number of input connections in a single mains system or the number of bypass connections in a dual mains system.

17. Per NEC 250.30.

18. 110% continuous overload in normal operation at nominal mains voltage and at maximum 40 °C ambient temperature. Contact Schneider Electric to enable this function.

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

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

21. Refer to the physical short circuit rating label on the UPS for the exact short circuit rating options of the specific UPS.

	Voltage (V)	380	400	415	440	480
Battery	Charging power in % of output power	0-40% load: 80% 100% load: 15%	0-40% load: 80% 100% load: 20%			
	Maximum charging power (kW)	0-40% load: 200 100% load: 37.5	0-40% load: 200 100% load: 50			
	Nominal battery voltage (VDC)	480 for 40 blocks 576 for 48 blocks				
	Nominal float voltage (VDC)	545 for 40 blocks 654 for 48 blocks				
	Maximum boost voltage (VDC)	571 for 40 blocks 685 for 48 blocks				
	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				
	End of discharge voltage (no load) (VDC)	420				
	Battery current at full load and nominal battery voltage (A)	543				
	Battery current at full load and minimum battery voltage (A)	678				
	Ripple current	< 5% C20 (5 minute runtime)				
	Battery test	Manual/automatic (selectable)				
	Maximum short circuit rating	30 kA				

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

## Specifications for 300 kW UPS

	Voltage (V)	380	400	415	440	480
Input	Connections	Single mains: 4-wire (L1, L2, L3, N, PE) or 3-wire (L1, L2, L3, PE) Dual mains: 3-wire (L1, L2, L3, PE)				Single mains: 4-wire <sup>22</sup> (L1, L2, L3, N, G) or 3-wire <sup>22</sup> (L1, L2, L3, G) Dual mains: 3-wire <sup>22</sup> (L1, L2, L3, G)
	Input voltage range (V)	331-437	340-460	353-477	374-506	408-552
	Frequency (Hz)	40-70				
	Nominal input current (A)	474	449	432	408	373
	Minimum short circuit rating	Dependent on upstream protection. See section for <b>Recommended upstream protection for IEC</b> for details.				–
	Maximum short circuit rating (three cycles)	65 kA l <sub>cw</sub> 25 kA l <sub>cw</sub> with maintenance bypass cabinet (GVLMBCA200K500H) 45 kA l <sub>cw</sub> with bottom entry cabinet (GVBECC) 65 kA l <sub>cw</sub> with bottom entry cabinet (GVBECC and GVLOPT012 installed) 65 kA l <sub>cc</sub> with backfeed breaker kit (GVLOPT004) installed in the UPS <sup>23</sup>				–
	Maximum input current (A)	555	548	528	498	455
	Input current limitation (A)	555	555	549	513	470
	Total harmonic distortion (THDI)	<3% at 100% load				
	Input power factor	>0.99 at load >25%, 0.95 at >15% load				
	Protection	Built-in backfeed protection and fuses				
	Ramp-in	Adaptive 1-300 seconds				

22. WYE source – solid grounded and high resistance grounded sources are supported. Corner (line) grounding is not permitted.

23. Refer to the physical short circuit rating label on the UPS for the exact short circuit rating options of the specific UPS.

	Voltage (V)	380	400	415	440	480
Bypass	Connections	4-wire (L1, L2, L3, N, PE) or 3-wire (L1, L2, L3, PE)				4-wire (L1, L2, L3, N, G) or 3-wire (L1, L2, L3, G)
	Bypass voltage range (V)	342-418	360-440	374-457	396-484	432-528
	Frequency (Hz)	50 or 60				
	Frequency range (Hz)	Programmable: $\pm 1$ , $\pm 3$ , $\pm 10$ . Default is $\pm 3$ .				
	Nominal bypass current (A)	468	445	429	404	371
	Minimum short circuit rating	Dependent on upstream protection. See section for <b>Recommended upstream protection for IEC</b> for details.				–
	Maximum short circuit rating (three cycles)	65 kA l <sub>cw</sub> 25 kA l <sub>cw</sub> with maintenance bypass cabinet (GVLMBCA200K500H) 45 kA l <sub>cw</sub> with bottom entry cabinet (GVBECE) 65 kA l <sub>cw</sub> with bottom entry cabinet (GVBECE and GVLOPT012 installed) 65 kA l <sub>cc</sub> with backfeed breaker kit (GVLOPT004) installed in the UPS <sup>24</sup>				65 kAIC 65 kAIC with maintenance bypass cabinet (GVLMBCA200K500-G) 45 kAIC l <sub>cw</sub> with bottom entry cabinet (GVBECE) 65 kAIC l <sub>cw</sub> with bottom entry cabinet (GVBECE and GVLOPT012 installed) 65 kAIC with backfeed breaker kit (GVLOPT003) installed in the UPS <sup>24</sup>
	I <sup>2</sup> t thyristor value (A <sup>2</sup> s)	3.1 MA <sup>2</sup> s				
	Bypass backfeed protection options	1: Upstream installation of breaker with shunt trip connected to the UPS, OR 2: Installation with maintenance bypass cabinet (GVLMBCA200K500H / GVLMBCA200K500G), OR 3: Installation of backfeed breaker kit (GVLOPT004 / GVLOPT003) in the UPS.				

24. Refer to the physical short circuit rating label on the UPS for the exact short circuit rating options of the specific UPS.

	Voltage (V)	380	400	415	440	480
Output	Connections <sup>25</sup>	4-wire (L1, L2, L3, N, PE) or 3-wire (L1, L2, L3, PE)				4-wire (L1, L2, L3, N, G) or 3-wire (L1, L2, L3, G, GEC <sup>26</sup> )
	Output voltage regulation	Symmetrical load $\pm 1\%$ Asymmetrical load $\pm 3\%$				
	Overload capacity	Normal operation: 150% for 1 minute, 125% for 10 minutes, (110% continuous <sup>27</sup> ) Battery operation: 125% for 1 minute Bypass operation: 110% continuous, 1600% for 100 milliseconds				Normal operation: 150% for 1 minute, 125% for 10 minutes, (110% continuous <sup>27</sup> ) Battery operation: 125% for 1 minute Bypass operation: 125% continuous, 1600% for 100 milliseconds
	Dynamic load response	$\pm 5\%$ after 2 ms, $\pm 1\%$ after 50 ms				
	Output power factor	1				
	Nominal output current (A)	456	433	417	394	361
	Minimum short circuit rating <sup>28</sup>	Dependent on upstream protection. See section for <b>Recommended upstream protection for IEC</b> for details.				–
	Maximum short circuit rating <sup>29</sup>	65 kA l <sub>cw</sub> 25 kA l <sub>cw</sub> with maintenance bypass cabinet GVLMBCA200K500H 45 kA l <sub>cw</sub> with bottom entry cabinet (GVBE <sub>C</sub> ) 65 kA l <sub>cw</sub> with bottom entry cabinet (GVBE <sub>C</sub> and GVLOPT012 installed) 65 kA l <sub>cc</sub> with backfeed breaker kit GVLOPT004 installed in the UPS <sup>30</sup>				–
	Inverter output short circuit capabilities	Varies with time. See graph and table values in Inverter Short Circuit Capabilities (Bypass not Available), page 15.				
	Output frequency (Hz)	50/60 (synchronized to bypass), 50/60 Hz $\pm 0.1\%$ (free-running)				
	Synchronized slew rate (Hz/sec)	Programmable: 0.25, 0.5, 1, 2, 4, 6				
	Total harmonic distortion (THDU)	<1% for linear load, <5% for non-linear load				
	Output performance classification (according to IEC/ EN62040-3)	VFI-SS-11				
	Load crest factor	3				
	Load power factor	0.5 leading to 0.5 lagging without derating				

25. The number of output connections must match the number of input connections in a single mains system or the number of bypass connections in a dual mains system.

26. Per NEC 250.30.

27. 110% continuous overload in normal operation at nominal mains voltage and at maximum 40 °C ambient temperature. Contact Schneider Electric to enable this function.

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

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

30. Refer to the physical short circuit rating label on the UPS for the exact short circuit rating options of the specific UPS.



	Voltage (V)	380	400	415	440	480
Battery	Charging power in % of output power	0-40% load: 80% 100% load: 15%	0-40% load: 80% 100% load: 20%			
	Maximum charging power (kW)	0-40% load: 240 100% load: 45	0-40% load: 240 100% load: 60			
	Nominal battery voltage (VDC)	480 for 40 blocks 576 for 48 blocks				
	Nominal float voltage (VDC)	545 for 40 blocks 654 for 48 blocks				
	Maximum boost voltage (VDC)	571 for 40 blocks 685 for 48 blocks				
	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				
	End of discharge voltage (no load) (VDC)	420				
	Battery current at full load and nominal battery voltage (A)	651				
	Battery current at full load and minimum battery voltage (A)	814				
	Ripple current	< 5% C20 (5 minute runtime)				
	Battery test	Manual/automatic (selectable)				
	Maximum short circuit rating	30 kA				

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

## Specifications for 350 kW UPS

	Voltage (V)	380	400	415	440	480
Input	Connections	Single mains: 4-wire (L1, L2, L3, N, PE) or 3-wire (L1, L2, L3, PE) Dual mains: 3-wire (L1, L2, L3, PE)				Single mains: 4-wire <sup>31</sup> (L1, L2, L3, N, G) or 3-wire <sup>31</sup> (L1, L2, L3, G) Dual mains: 3-wire <sup>31</sup> (L1, L2, L3, G)
	Input voltage range (V)	331-437	340-460	353-477	374-506	408-552
	Frequency (Hz)	40-70				
	Nominal input current (A)	553	524	505	476	435
	Minimum short circuit rating	Dependent on upstream protection. See section for <b>Recommended upstream protection for IEC</b> for details.				–
	Maximum short circuit rating (three cycles)	65 kA l <sub>cw</sub> 25 kA l <sub>cw</sub> with maintenance bypass cabinet (GVLMBCA200K500H) 45 kA l <sub>cw</sub> with bottom entry cabinet (GVBECC) 65 kA l <sub>cw</sub> with bottom entry cabinet (GVBECC and GVLOPT012 installed) 65 kA l <sub>cc</sub> with backfeed breaker kit (GVLOPT004) installed in the UPS <sup>32</sup>				–
	Maximum input current (A)	648	640	616	581	531
	Input current limitation (A)	648	648	641	598	548
	Total harmonic distortion (THDI)	<3% at 100% load				
	Input power factor	>0.99 at load >25%, 0.95 at >15% load				
	Protection	Built-in backfeed protection and fuses				
	Ramp-in	Adaptive 1-300 seconds				

31. WYE source – solid grounded and high resistance grounded sources are supported. Corner (line) grounding is not permitted.

32. Refer to the physical short circuit rating label on the UPS for the exact short circuit rating options of the specific UPS.

	Voltage (V)	380	400	415	440	480
Bypass	Connections	4-wire (L1, L2, L3, N, PE) or 3-wire (L1, L2, L3, PE)				4-wire (L1, L2, L3, N, G) or 3-wire (L1, L2, L3, G)
	Bypass voltage range (V)	342-418	360-440	374-457	396-484	432-528
	Frequency (Hz)	50 or 60				
	Frequency range (Hz)	Programmable: $\pm 1$ , $\pm 3$ , $\pm 10$ . Default is $\pm 3$ .				
	Nominal bypass current (A)	546	519	500	472	432
	Minimum short circuit rating	Dependent on upstream protection. See section for <b>Recommended upstream protection for IEC</b> for details.				—
	Maximum short circuit rating (three cycles)	65 kA l <sub>cw</sub> 25 kA l <sub>cw</sub> with maintenance bypass cabinet (GVLMBCA200K500H) 45 kA l <sub>cw</sub> with bottom entry cabinet (GVBECE) 65 kA l <sub>cw</sub> with bottom entry cabinet (GVBECE and GVLOPT012 installed) 65 kA l <sub>cc</sub> with backfeed breaker kit (GVLOPT004) installed in the UPS <sup>33</sup>				65 kAIC 65 kAIC with maintenance bypass cabinet (GVLMBCA200K500-G) 45 kAIC l <sub>cw</sub> with bottom entry cabinet (GVBECE) 65 kAIC l <sub>cw</sub> with bottom entry cabinet (GVBECE and GVLOPT012 installed) 65 kAIC with backfeed breaker kit (GVLOPT003) installed in the UPS <sup>33</sup>
	I <sup>2</sup> t thyristor value (A <sup>2</sup> s)	3.1 MA <sup>2</sup> s				
	Bypass backfeed protection options	1: Upstream installation of breaker with shunt trip connected to the UPS, OR 2: Installation with maintenance bypass cabinet (GVLMBCA200K500H / GVLMBCA200K500G), OR 3: Installation of backfeed breaker kit (GVLOPT004 / GVLOPT003) in the UPS.				

33. Refer to the physical short circuit rating label on the UPS for the exact short circuit rating options of the specific UPS.

	Voltage (V)	380	400	415	440	480
Output	Connections <sup>34</sup>	4-wire (L1, L2, L3, N, PE) or 3-wire (L1, L2, L3, PE)				4-wire (L1, L2, L3, N, G) or 3-wire (L1, L2, L3, G, GEC <sup>35</sup> )
	Output voltage regulation	Symmetrical load $\pm 1\%$ Asymmetrical load $\pm 3\%$				
	Overload capacity	Normal operation: 150% for 1 minute, 125% for 10 minutes, (110% continuous <sup>36</sup> ) Battery operation: 125% for 1 minute Bypass operation: 110% continuous, 1600% for 100 milliseconds				Normal operation: 150% for 1 minute, 125% for 10 minutes, (110% continuous <sup>36</sup> ) Battery operation: 125% for 1 minute Bypass operation: 125% continuous, 1600% for 100 milliseconds
	Dynamic load response	$\pm 5\%$ after 2 ms, $\pm 1\%$ after 50 ms				
	Output power factor	1				
	Nominal output current (A)	532	505	487	459	421
	Minimum short circuit rating <sup>37</sup>	Dependent on upstream protection. See section for <b>Recommended upstream protection for IEC</b> for details.				–
	Maximum short circuit rating <sup>38</sup>	65 kA l <sub>cw</sub> 25 kA l <sub>cw</sub> with maintenance bypass cabinet GVLMBCA200K500H 45 kA l <sub>cw</sub> with bottom entry cabinet (GVBECC) 65 kA l <sub>cw</sub> with bottom entry cabinet (GVBECC and GVLOPT012 installed) 65 kA l <sub>cc</sub> with backfeed breaker kit GVLOPT004 installed in the UPS <sup>39</sup>				–
	Inverter output short circuit capabilities	Varies with time. See graph and table values in Inverter Short Circuit Capabilities (Bypass not Available), page 15.				
	Output frequency (Hz)	50/60 (synchronized to bypass), 50/60 Hz $\pm 0.1\%$ (free-running)				
	Synchronized slew rate (Hz/sec)	Programmable: 0.25, 0.5, 1, 2, 4, 6				
	Total harmonic distortion (THDU)	<1% for linear load, <5% for non-linear load				
	Output performance classification (according to IEC/ EN62040-3)	VFI-SS-11				
	Load crest factor	3				
	Load power factor	0.5 leading to 0.5 lagging without derating				

34. The number of output connections must match the number of input connections in a single mains system or the number of bypass connections in a dual mains system.

35. Per NEC 250.30.

36. 110% continuous overload in normal operation at nominal mains voltage and at maximum 40 °C ambient temperature. Contact Schneider Electric to enable this function.

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

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

39. Refer to the physical short circuit rating label on the UPS for the exact short circuit rating options of the specific UPS.

	Voltage (V)	380	400	415	440	480
Battery	Charging power in % of output power	0-40% load: 80% 100% load: 15%	0-40% load: 80% 100% load: 20%			
	Maximum charging power (kW)	0-40% load: 280 100% load: 52.5	0-40% load: 280 100% load: 70			
	Nominal battery voltage (VDC)	480 for 40 blocks 576 for 48 blocks				
	Nominal float voltage (VDC)	545 for 40 blocks 654 for 48 blocks				
	Maximum boost voltage (VDC)	571 for 40 blocks 685 for 48 blocks				
	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				
	End of discharge voltage (no load) (VDC)	420				
	Battery current at full load and nominal battery voltage (A)	760				
	Battery current at full load and minimum battery voltage (A)	949				
	Ripple current	< 5% C20 (5 minute runtime)				
	Battery test	Manual/automatic (selectable)				
	Maximum short circuit rating	30 kA				

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

## Specifications for 400 kW UPS

	Voltage (V)	380	400	415	440	480
Input	Connections	Single mains: 4-wire (L1, L2, L3, N, PE) or 3-wire (L1, L2, L3, PE) Dual mains: 3-wire (L1, L2, L3, PE)				Single mains: 4-wire <sup>40</sup> (L1, L2, L3, N, G) or 3-wire <sup>40</sup> (L1, L2, L3, G) Dual mains: 3-wire <sup>40</sup> (L1, L2, L3, G)
	Input voltage range (V)	331-437	340-460	353-477	374-506	408-552
	Frequency (Hz)	40-70				
	Nominal input current (A)	632	599	577	544	497
	Minimum short circuit rating	Dependent on upstream protection. See section for <b>Recommended upstream protection for IEC</b> for details.				–
	Maximum short circuit rating (three cycles)	65 kA l <sub>cw</sub> 25 kA l <sub>cw</sub> with maintenance bypass cabinet (GVLMBCA200K500H) 45 kA l <sub>cw</sub> with bottom entry cabinet (GVBECC) 65 kA l <sub>cw</sub> with bottom entry cabinet (GVBECC and GVLOPT012 installed) 65 kA l <sub>cc</sub> with backfeed breaker kit (GVLOPT004) installed in the UPS <sup>41</sup>				–
	Maximum input current (A)	740	731	704	664	607
	Input current limitation (A)	740	740	732	683	626
	Total harmonic distortion (THDI)	<3% at 100% load				
	Input power factor	>0.99 at load >25%, 0.95 at >15% load				
	Protection	Built-in backfeed protection and fuses				
	Ramp-in	Adaptive 1-300 seconds				

40. WYE source – solid grounded and high resistance grounded sources are supported. Corner (line) grounding is not permitted.

41. Refer to the physical short circuit rating label on the UPS for the exact short circuit rating options of the specific UPS.

	Voltage (V)	380	400	415	440	480
Bypass	Connections	4-wire (L1, L2, L3, N, PE) or 3-wire (L1, L2, L3, PE)				4-wire (L1, L2, L3, N, G) or 3-wire (L1, L2, L3, G)
	Bypass voltage range (V)	342-418	360-440	374-457	396-484	432-528
	Frequency (Hz)	50 or 60				
	Frequency range (Hz)	Programmable: $\pm 1$ , $\pm 3$ , $\pm 10$ . Default is $\pm 3$ .				
	Nominal bypass current (A)	624	593	572	539	494
	Minimum short circuit rating	Dependent on upstream protection. See section for <b>Recommended upstream protection for IEC</b> for details.				—
	Maximum short circuit rating (three cycles)	65 kA l <sub>cw</sub> 25 kA l <sub>cw</sub> with maintenance bypass cabinet (GVLMBCA200K500H) 45 kA l <sub>cw</sub> with bottom entry cabinet (GVBECE) 65 kA l <sub>cw</sub> with bottom entry cabinet (GVBECE and GVLOPT012 installed) 65 kA l <sub>cc</sub> with backfeed breaker kit (GVLOPT004) installed in the UPS <sup>42</sup>				65 kAIC 65 kAIC with maintenance bypass cabinet (GVLMBCA200K500-G) 45 kAIC l <sub>cw</sub> with bottom entry cabinet (GVBECE) 65 kAIC l <sub>cw</sub> with bottom entry cabinet (GVBECE and GVLOPT012 installed) 65 kAIC with backfeed breaker kit (GVLOPT003) installed in the UPS <sup>42</sup>
	I <sup>2</sup> t thyristor value (A <sup>2</sup> s)	3.1 MA <sup>2</sup> s				
	Bypass backfeed protection options	1: Upstream installation of breaker with shunt trip connected to the UPS, OR 2: Installation with maintenance bypass cabinet (GVLMBCA200K500H / GVLMBCA200K500G), OR 3: Installation of backfeed breaker kit (GVLOPT004 / GVLOPT003) in the UPS.				

42. Refer to the physical short circuit rating label on the UPS for the exact short circuit rating options of the specific UPS.

	Voltage (V)	380	400	415	440	480
Output	Connections <sup>43</sup>	4-wire (L1, L2, L3, N, PE) or 3-wire (L1, L2, L3, PE)				4-wire (L1, L2, L3, N, G) or 3-wire (L1, L2, L3, G, GEC <sup>44</sup> )
	Output voltage regulation	Symmetrical load $\pm 1\%$ Asymmetrical load $\pm 3\%$				
	Overload capacity	Normal operation: 150% for 1 minute, 125% for 10 minutes, (110% continuous <sup>45</sup> ) Battery operation: 125% for 1 minute Bypass operation: 110% continuous, 1600% for 100 milliseconds				Normal operation: 150% for 1 minute, 125% for 10 minutes, (110% continuous <sup>45</sup> ) Battery operation: 125% for 1 minute Bypass operation: 125% continuous, 1600% for 100 milliseconds
	Dynamic load response	$\pm 5\%$ after 2 ms, $\pm 1\%$ after 50 ms				
	Output power factor	1				
	Nominal output current (A)	608	577	556	525	481
	Minimum short circuit rating <sup>46</sup>	Dependent on upstream protection. See section for <b>Recommended upstream protection for IEC</b> for details.				–
	Maximum short circuit rating <sup>47</sup>	65 kA l <sub>cw</sub> 25 kA l <sub>cw</sub> with maintenance bypass cabinet GVLMBCA200K500H 45 kA l <sub>cw</sub> with bottom entry cabinet (GVBECC) 65 kA l <sub>cw</sub> with bottom entry cabinet (GVBECC and GVLOPT012 installed) 65 kA l <sub>cc</sub> with backfeed breaker kit GVLOPT004 installed in the UPS <sup>48</sup>				–
	Inverter output short circuit capabilities	Varies with time. See graph and table values in Inverter Short Circuit Capabilities (Bypass not Available), page 15.				
	Output frequency (Hz)	50/60 (synchronized to bypass), 50/60 Hz $\pm 0.1\%$ (free-running)				
	Synchronized slew rate (Hz/sec)	Programmable: 0.25, 0.5, 1, 2, 4, 6				
	Total harmonic distortion (THDU)	<1% for linear load, <5% for non-linear load				
	Output performance classification (according to IEC/ EN62040-3)	VFI-SS-11				
	Load crest factor	3				
	Load power factor	0.5 leading to 0.5 lagging without derating				

43. The number of output connections must match the number of input connections in a single mains system or the number of bypass connections in a dual mains system.

44. Per NEC 250.30.

45. 110% continuous overload in normal operation at nominal mains voltage and at maximum 40 °C ambient temperature. Contact Schneider Electric to enable this function.

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

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

48. Refer to the physical short circuit rating label on the UPS for the exact short circuit rating options of the specific UPS.



	Voltage (V)	380	400	415	440	480
Battery	Charging power in % of output power	0-40% load: 80% 100% load: 15%	0-40% load: 80% 100% load: 20%			
	Maximum charging power (kW)	0-40% load: 320 100% load: 60	0-40% load: 320 100% load: 80			
	Nominal battery voltage (VDC)	480 for 40 blocks 576 for 48 blocks				
	Nominal float voltage (VDC)	545 for 40 blocks 654 for 48 blocks				
	Maximum boost voltage (VDC)	571 for 40 blocks 685 for 48 blocks				
	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				
	End of discharge voltage (no load) (VDC)	420				
	Battery current at full load and nominal battery voltage (A)	868				
	Battery current at full load and minimum battery voltage (A)	1085				
	Ripple current	< 5% C20 (5 minute runtime)				
	Battery test	Manual/automatic (selectable)				
	Maximum short circuit rating	30 kA				

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

## Specifications for 450 kW UPS

	Voltage (V)	380	400	415	440	480
Input	Connections	Single mains: 4-wire (L1, L2, L3, N, PE) or 3-wire (L1, L2, L3, PE) Dual mains: 3-wire (L1, L2, L3, PE)				Single mains: 4-wire <sup>49</sup> (L1, L2, L3, N, G) or 3-wire <sup>49</sup> (L1, L2, L3, G) Dual mains: 3-wire <sup>49</sup> (L1, L2, L3, G)
	Input voltage range (V)	331-437	340-460	353-477	374-506	408-552
	Frequency (Hz)	40-70				
	Nominal input current (A)	711	674	649	612	559
	Minimum short circuit rating	Dependent on upstream protection. See section for <b>Recommended upstream protection for IEC</b> for details.				–
	Maximum short circuit rating (three cycles)	65 kA l <sub>cw</sub> 25 kA l <sub>cw</sub> with maintenance bypass cabinet (GVLMBCA200K500H) 45 kA l <sub>cw</sub> with bottom entry cabinet (GVBECC) 65 kA l <sub>cw</sub> with bottom entry cabinet (GVBECC and GVLOPT012 installed) 65 kA l <sub>cc</sub> with backfeed breaker kit (GVLOPT004) installed in the UPS <sup>50</sup>				–
	Maximum input current (A)	833	822	792	747	682
	Input current limitation (A)	833	833	824	769	705
	Total harmonic distortion (THDI)	<3% at 100% load				
	Input power factor	>0.99 at load >25%, 0.95 at >15% load				
	Protection	Built-in backfeed protection and fuses				
	Ramp-in	Adaptive 1-300 seconds				

49. WYE source – solid grounded and high resistance grounded sources are supported. Corner (line) grounding is not permitted.

50. Refer to the physical short circuit rating label on the UPS for the exact short circuit rating options of the specific UPS.

	Voltage (V)	380	400	415	440	480
Bypass	Connections	4-wire (L1, L2, L3, N, PE) or 3-wire (L1, L2, L3, PE)				4-wire (L1, L2, L3, N, G) or 3-wire (L1, L2, L3, G)
	Bypass voltage range (V)	342-418	360-440	374-457	396-484	432-528
	Frequency (Hz)	50 or 60				
	Frequency range (Hz)	Programmable: $\pm 1$ , $\pm 3$ , $\pm 10$ . Default is $\pm 3$ .				
	Nominal bypass current (A)	702	667	643	607	556
	Minimum short circuit rating	Dependent on upstream protection. See section for <b>Recommended upstream protection for IEC</b> for details.				—
	Maximum short circuit rating (three cycles)	65 kA l <sub>cw</sub> 25 kA l <sub>cw</sub> with maintenance bypass cabinet (GVLMBCA200K500H) 45 kA l <sub>cw</sub> with bottom entry cabinet (GVBECE) 65 kA l <sub>cw</sub> with bottom entry cabinet (GVBECE and GVLOPT012 installed) 65 kA l <sub>cc</sub> with backfeed breaker kit (GVLOPT004) installed in the UPS <sup>51</sup>				65 kAIC 65 kAIC with maintenance bypass cabinet (GVLMBCA200K500-G) 45 kAIC l <sub>cw</sub> with bottom entry cabinet (GVBECE) 65 kAIC l <sub>cw</sub> with bottom entry cabinet (GVBECE and GVLOPT012 installed) 65 kAIC with backfeed breaker kit (GVLOPT003) installed in the UPS <sup>51</sup>
	I <sup>2</sup> t thyristor value (A <sup>2</sup> s)	3.1 MA <sup>2</sup> s				
	Bypass backfeed protection options	1: Upstream installation of breaker with shunt trip connected to the UPS, OR 2: Installation with maintenance bypass cabinet (GVLMBCA200K500H / GVLMBCA200K500G), OR 3: Installation of backfeed breaker kit (GVLOPT004 / GVLOPT003) in the UPS.				

51. Refer to the physical short circuit rating label on the UPS for the exact short circuit rating options of the specific UPS.

	Voltage (V)	380	400	415	440	480
Output	Connections <sup>52</sup>	4-wire (L1, L2, L3, N, PE) or 3-wire (L1, L2, L3, PE)				4-wire (L1, L2, L3, N, G) or 3-wire (L1, L2, L3, G, GEC <sup>53</sup> )
	Output voltage regulation	Symmetrical load $\pm 1\%$ Asymmetrical load $\pm 3\%$				
	Overload capacity	Normal operation: 150% for 1 minute, 125% for 10 minutes, (110% continuous <sup>54</sup> ) Battery operation: 125% for 1 minute Bypass operation: 110% continuous, 1600% for 100 milliseconds				Normal operation: 150% for 1 minute, 125% for 10 minutes, (110% continuous <sup>54</sup> ) Battery operation: 125% for 1 minute Bypass operation: 125% continuous, 1600% for 100 milliseconds
	Dynamic load response	$\pm 5\%$ after 2 ms, $\pm 1\%$ after 50 ms				
	Output power factor	1				
	Nominal output current (A)	684	650	626	590	541
	Minimum short circuit rating <sup>55</sup>	Dependent on upstream protection. See section for <b>Recommended upstream protection for IEC</b> for details.				–
	Maximum short circuit rating <sup>56</sup>	65 kA l <sub>cw</sub> 25 kA l <sub>cw</sub> with maintenance bypass cabinet GVLMBCA200K500H 45 kA l <sub>cw</sub> with bottom entry cabinet (GVBECC) 65 kA l <sub>cw</sub> with bottom entry cabinet (GVBECC and GVLOPT012 installed) 65 kA l <sub>cc</sub> with backfeed breaker kit GVLOPT004 installed in the UPS <sup>57</sup>				–
	Inverter output short circuit capabilities	Varies with time. See graph and table values in Inverter Short Circuit Capabilities (Bypass not Available), page 15.				
	Output frequency (Hz)	50/60 (synchronized to bypass), 50/60 Hz $\pm 0.1\%$ (free-running)				
	Synchronized slew rate (Hz/sec)	Programmable: 0.25, 0.5, 1, 2, 4, 6				
	Total harmonic distortion (THDU)	<1% for linear load, <5% for non-linear load				
	Output performance classification (according to IEC/ EN62040-3)	VFI-SS-11				
	Load crest factor	3				
	Load power factor	0.5 leading to 0.5 lagging without derating				

52. The number of output connections must match the number of input connections in a single mains system or the number of bypass connections in a dual mains system.

53. Per NEC 250.30.

54. 110% continuous overload in normal operation at nominal mains voltage and at maximum 40 °C ambient temperature. Contact Schneider Electric to enable this function.

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

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

57. Refer to the physical short circuit rating label on the UPS for the exact short circuit rating options of the specific UPS.

	Voltage (V)	380	400	415	440	480
Battery	Charging power in % of output power	0-40% load: 80% 100% load: 15%	0-40% load: 80% 100% load: 20%			
	Maximum charging power (kW)	0-40% load: 360 100% load: 67.5	0-40% load: 360 100% load: 90			
	Nominal battery voltage (VDC)	480 for 40 blocks 576 for 48 blocks				
	Nominal float voltage (VDC)	545 for 40 blocks 654 for 48 blocks				
	Maximum boost voltage (VDC)	571 for 40 blocks 685 for 48 blocks				
	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				
	End of discharge voltage (no load) (VDC)	420				
	Battery current at full load and nominal battery voltage (A)	977				
	Battery current at full load and minimum battery voltage (A)	1221				
	Ripple current	< 5% C20 (5 minute runtime)				
	Battery test	Manual/automatic (selectable)				
	Maximum short circuit rating	30 kA				

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

## Specifications for 500 kW UPS

	Voltage (V)	380	400	415	440	480
Input	Connections	Single mains: 4-wire (L1, L2, L3, N, PE) or 3-wire (L1, L2, L3, PE) Dual mains: 3-wire (L1, L2, L3, PE)				Single mains: 4-wire <sup>58</sup> (L1, L2, L3, N, G) or 3-wire <sup>58</sup> (L1, L2, L3, G) Dual mains: 3-wire <sup>58</sup> (L1, L2, L3, G)
	Input voltage range (V)	331-437	340-460	353-477	374-506	408-552
	Frequency (Hz)	40-70				
	Nominal input current (A)	790	749	721	680	621
	Minimum short circuit rating	Dependent on upstream protection. See section for <b>Recommended upstream protection for IEC</b> for details.				–
	Maximum short circuit rating (three cycles)	65 kA l <sub>cw</sub> 25 kA l <sub>cw</sub> with maintenance bypass cabinet (GVLMBCA200K500H) 45 kA l <sub>cw</sub> with bottom entry cabinet (GVBECC) 65 kA l <sub>cw</sub> with bottom entry cabinet (GVBECC and GVLOPT012 installed) 65 kA l <sub>cc</sub> with backfeed breaker kit (GVLOPT004) installed in the UPS <sup>59</sup>				–
	Maximum input current (A)	925	914	880	830	758
	Input current limitation (A)	925	925	915	854	783
	Total harmonic distortion (THDI)	<3% at 100% load				
	Input power factor	>0.99 at load >25%, 0.95 at >15% load				
	Protection	Built-in backfeed protection and fuses				
	Ramp-in	Adaptive 1-300 seconds				

58. WYE source – solid grounded and high resistance grounded sources are supported. Corner (line) grounding is not permitted.

59. Refer to the physical short circuit rating label on the UPS for the exact short circuit rating options of the specific UPS.

	Voltage (V)	380	400	415	440	480
Bypass	Connections	4-wire (L1, L2, L3, N, PE) or 3-wire (L1, L2, L3, PE)				4-wire (L1, L2, L3, N, G) or 3-wire (L1, L2, L3, G)
	Bypass voltage range (V)	342-418	360-440	374-457	396-484	432-528
	Frequency (Hz)	50 or 60				
	Frequency range (Hz)	Programmable: $\pm 1$ , $\pm 3$ , $\pm 10$ . Default is $\pm 3$ .				
	Nominal bypass current (A)	780	741	715	674	618
	Minimum short circuit rating	Dependent on upstream protection. See section for <b>Recommended upstream protection for IEC</b> for details.				—
	Maximum short circuit rating (three cycles)	65 kA l <sub>cw</sub> 25 kA l <sub>cw</sub> with maintenance bypass cabinet (GVLMBCA200K500H) 45 kA l <sub>cw</sub> with bottom entry cabinet (GVBECE) 65 kA l <sub>cw</sub> with bottom entry cabinet (GVBECE and GVLOPT012 installed) 65 kA l <sub>cc</sub> with backfeed breaker kit (GVLOPT004) installed in the UPS <sup>60</sup>				65 kAIC 65 kAIC with maintenance bypass cabinet (GVLMBCA200K500-G) 45 kAIC l <sub>cw</sub> with bottom entry cabinet (GVBECE) 65 kAIC l <sub>cw</sub> with bottom entry cabinet (GVBECE and GVLOPT012 installed) 65 kAIC with backfeed breaker kit (GVLOPT003) installed in the UPS <sup>60</sup>
	I <sup>2</sup> t thyristor value (A <sup>2</sup> s)	3.1 MA <sup>2</sup> s				
	Bypass backfeed protection options	1: Upstream installation of breaker with shunt trip connected to the UPS, OR 2: Installation with maintenance bypass cabinet (GVLMBCA200K500H / GVLMBCA200K500G), OR 3: Installation of backfeed breaker kit (GVLOPT004 / GVLOPT003) in the UPS.				

60. Refer to the physical short circuit rating label on the UPS for the exact short circuit rating options of the specific UPS.

	Voltage (V)	380	400	415	440	480
Output	Connections <sup>61</sup>	4-wire (L1, L2, L3, N, PE) or 3-wire (L1, L2, L3, PE)				4-wire (L1, L2, L3, N, G) or 3-wire (L1, L2, L3, G, GEC <sup>62</sup> )
	Output voltage regulation	Symmetrical load $\pm 1\%$ Asymmetrical load $\pm 3\%$				
	Overload capacity	Normal operation: 150% for 1 minute, 125% for 10 minutes, (110% continuous <sup>63</sup> ) Battery operation: 125% for 1 minute Bypass operation: 110% continuous, 1600% for 100 milliseconds				Normal operation: 150% for 1 minute, 125% for 10 minutes, (110% continuous <sup>63</sup> ) Battery operation: 125% for 1 minute Bypass operation: 125% continuous, 1600% for 100 milliseconds
	Dynamic load response	$\pm 5\%$ after 2 ms, $\pm 1\%$ after 50 ms				
	Output power factor	1				
	Nominal output current (A)	760	722	696	656	601
	Minimum short circuit rating <sup>64</sup>	Dependent on upstream protection. See section for <b>Recommended upstream protection for IEC</b> for details.				–
	Maximum short circuit rating <sup>65</sup>	65 kA l <sub>cw</sub> 25 kA l <sub>cw</sub> with maintenance bypass cabinet GVLMBCA200K500H 45 kA l <sub>cw</sub> with bottom entry cabinet (GVBE <sub>C</sub> ) 65 kA l <sub>cw</sub> with bottom entry cabinet (GVBE <sub>C</sub> and GVLOPT012 installed) 65 kA l <sub>cc</sub> with backfeed breaker kit GVLOPT004 installed in the UPS <sup>66</sup>				–
	Inverter output short circuit capabilities	Varies with time. See graph and table values in Inverter Short Circuit Capabilities (Bypass not Available), page 15.				
	Output frequency (Hz)	50/60 (synchronized to bypass), 50/60 Hz $\pm 0.1\%$ (free-running)				
	Synchronized slew rate (Hz/sec)	Programmable: 0.25, 0.5, 1, 2, 4, 6				
	Total harmonic distortion (THDU)	<1% for linear load, <5% for non-linear load				
	Output performance classification (according to IEC/ EN62040-3)	VFI-SS-11				
	Load crest factor	3				
	Load power factor	0.5 leading to 0.5 lagging without derating				

61. The number of output connections must match the number of input connections in a single mains system or the number of bypass connections in a dual mains system.

62. Per NEC 250.30.

63. 110% continuous overload in normal operation at nominal mains voltage and at maximum 40 °C ambient temperature. Contact Schneider Electric to enable this function.

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

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


66. Refer to the physical short circuit rating label on the UPS for the exact short circuit rating options of the specific UPS.



	Voltage (V)	380	400	415	440	480
Battery	Charging power in % of output power	0-40% load: 80% 100% load: 15%	0-40% load: 80% 100% load: 20%			
	Maximum charging power (kW)	0-40% load: 400 100% load: 75	0-40% load: 400 100% load: 100			
	Nominal battery voltage (VDC)	480 for 40 blocks 576 for 48 blocks				
	Nominal float voltage (VDC)	545 for 40 blocks 654 for 48 blocks				
	Maximum boost voltage (VDC)	571 for 40 blocks 685 for 48 blocks				
	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				
	End of discharge voltage (no load) (VDC)	420				
	Battery current at full load and nominal battery voltage (A)	1085				
	Battery current at full load and minimum battery voltage (A)	1356				
	Ripple current	< 5% C20 (5 minute runtime)				
	Battery test	Manual/automatic (selectable)				
	Maximum short circuit rating	30 kA				

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

# Surge Protection Device (SPD)

 **DANGER**

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

This UPS is OVCII (Over Voltage Category Class II) compliant. This UPS must only be installed in an OVCII compliant environment.

- 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.
- The SPD must include a status indicator to show the user if the SPD is operational or is no longer functioning according to design. The status indicator may be visual and/or audible and/or may have remote signalling and/or output contact capability in accordance with IEC 62040-1.

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

## Surge Protection Device Requirements

Select a surge protection device that complies with the following requirements:

Class	Type 2
Rated voltage (Ur)	230/400 V, 277/480 V
Voltage protection level (Up)	< 2.5 kV
Short circuit rating (Iscsr) <sup>67</sup>	According to installation prospective short circuit level
Earthing system <sup>68</sup>	TN-S, TT, IT, TN-C
Poles	3P/4P depending on earthing configuration
Standards	IEC 61643-11 / UL 1449
Monitoring	Yes

67. Lower short circuit rating can be achieved with fuse protection.

68. Corner grounding not permitted.

## Upstream and Downstream Protection for IEC

**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.

The bypass/output breakers are sized based on the nominal current +10%. This is to accommodate either low grid voltage or deviation in length between parallel UPSs. The battery breakers are sized based on end-of-discharge voltage which has been defined as 380 VDC.

## Preconditions for Live Swap of Power Modules

Live Swap of power modules is only allowed under the following preconditions for the UPS installation; Follow either scenario 1 or scenario 2:

<b>Preconditions for UPS installation – scenario 1 with instantaneous override values and trip times set according to the tables below in Recommended Upstream Protection for IEC, page 60</b>	<b>Preconditions for UPS installation – scenario 2 with alternative breaker configurations supported with GVLOPT011 and breaker with ERMS mode<sup>69</sup></b>
Circuit breakers must have instantaneous trip time of maximum 60 ms.	Circuit breakers must be installed for input (unit input breaker UIB) and bypass (static switch input breaker SSIB).
Circuit breakers must have instantaneous override values set according to the table below.	Circuit breakers (UIB, SSIB) must be equipped with NEC 240.87, NFPA70E, IEEE1584, or EN51110-1 compliant ERMS mode.
Circuit breakers must be installed for input (unit input breaker UIB) and bypass (static switch input breaker SSIB).	For parallel systems with three or more UPSs: Circuit breakers must be installed for the output (unit output breaker UOB) of each UPS. The unit output breaker (UOB) is sized as the static switch input breaker (SSIB).
For parallel system with three or more UPSs: Circuit breakers must be installed for the output (unit output breaker UOB) of each UPS. The unit output breaker (UOB) is sized as the static switch input breaker (SSIB).	Circuit breaker (UOB) must be equipped with NEC 240.87, NFPA70E, IEEE1584, or EN51110-1 compliant ERMS mode.
Live Swap is not supported for >65kA <sub>br</sub> installations where current limiting disconnect devices are used to protect the UPS.	GVLOPT011 (Galaxy VL door switch kit) must be installed in the UPS and connected so ERMS mode is set to ON on UIB and SSIB and UOB when the front door of the UPS is opened.
	In ERMS mode, the instantaneous trip current shall be set to 5000 A or less. All time-delay settings shall be set to zero.

Schneider Electric reserves the right to remove the Live Swap label from the product front if the preconditions for scenario 1 or scenario 2 are not met.

### **DANGER**

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

Only perform Live Swap of the power modules in UPS installations that follow the preconditions for scenario 1 or scenario 2.

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

<sup>69</sup>. Energy Reduction Maintenance Settings (ERMS)

## 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 in case of a short circuit between the input/bypass phase and the UPS enclosure.

**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 IEC

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

UPS rating	200 kW								
	Input				Bypass/Output				Battery
$I_{k_{Ph-PE}}$ (kA)	5				4.5				NA
Voltage (V)	380	400	415	440	380	400	415	440	380-440
Breaker type	ComPacT NSX 400H MicroLogic 2.0 (3P: C4032D400, 4P: C4042D400)								ComPacT NS 630S DC TM-D (C634TM630D)
In/trip unit	400	400	400	400	400	400	400	400	360
$I_o$	400	400	360	360	360	360	320	320	–
$I_r$ setting	0.93	0.92	0.98	0.93	0.95	0.9	0.98	0.93	0.9
$I_r$	372	368	353	335	342	324	314	298	567
$I_{sd}$	<10 x $I_r$	<10 x $I_r$	<10 x $I_r$	<10 x $I_r$	10 x $I_r$	10 x $I_r$	10 x $I_r$	10 x $I_r$	<10 x $I_r$

UPS rating	250 kW								
	Input				Bypass/Output				Battery
$I_{k_{Ph-PE}}$ (kA)	6				6				NA
Voltage (V)	380	400	415	440	380	400	415	440	380-440
Breaker type	ComPacT NSX 630H MicroLogic 2.0 (3P: C6332D630, 4P: C6342D630)				ComPacT NSX 400H MicroLogic 2.0 (3P: C4032D400, 4P: C4042D400)			MasterPacT NW10HDC-D MicroLogic 1.0 DC (48649+65272)	
In/trip unit	630	630	630	630	630	630	400	400	1000
$I_o$	500	500	450	450	450	450	400	400	–
$I_r$ setting	0.93	0.92	0.98	0.93	0.95	0.9	0.98	0.93	–
$I_r$	465	460	441	418	428	405	392	372	1000
$I_{sd}$	<10 x $I_r$	<10 x $I_r$	<10 x $I_r$	<10 x $I_r$	10 x $I_r$	10 x $I_r$	10 x $I_r$	10 x $I_r$	1500

UPS rating	300 kW								
	Input				Bypass/Output				Battery
$I_{kPh-PE}$ (kA)	7.5				7				NA
Voltage (V)	380	400	415	440	380	400	415	440	380-440
Breaker type	ComPacT NSX 630H MicroLogic 2.0 (3P: C6332D630, 4P: C6342D630)								MasterPacT NW10HDC-D MicroLogic 1.0 DC (48649+65272)
In/trip unit	630	630	630	630	630	630	630	630	1000
$I_o$	570	570	570	500	570	500	500	450	–
$I_r$ setting	0.98	0.97	0.93	1	0.9	0.98	0.94	1	–
$I_r$	559	553	530	500	513	490	470	450	1000
$I_{sd}$	<10 x $I_r$	<10 x $I_r$	<10 x $I_r$	<10 x $I_r$	10 x $I_r$	10 x $I_r$	10 x $I_r$	10 x $I_r$	<10 x $I_r$

UPS rating	350 kW								
	Input				Bypass/Output				Battery
$I_{kPh-PE}$ (kA)	8.5				8				NA
Voltage (V)	380	400	415	440	380	400	415	440	380-440
Breaker type	ComPacT NS800H MicroLogic 5.0 (3P: 33553, 4P: 33556)		ComPacT NSX 630H MicroLogic 2.0 (3P: C6332D630, 4P: C6342D630)						MasterPacT NW10HDC-D MicroLogic 1.0 DC (48649+65272)
In/trip unit	800	800	630	630	630	630	630	630	1000
$I_o$	–	630	630	630	630	570	570	570	–
$I_r$ setting	0.9	0.8	0.98	0.93	0.95	1	0.96	0.92	–
$I_r$	720	640	617	586	598	570	547	524	1000
$I_{sd}/i_{ii}^{70}$	<10 x $I_r$	<10 x $I_r$	<10 x $I_r$	<10 x $I_r$	10 x $I_r$	10 x $I_r$	10 x $I_r$	10 x $I_r$	<10 x $I_r$
$t_{sd}$ (s)	<0.2	NA							

UPS rating	400 kW								
	Input				Bypass/Output				Battery
$I_{kPh-PE}$ (kA)	10				9.5				NA
Voltage (V)	380	400	415	440	380	400	415	440	380-440
Breaker type	ComPacT NS800H MicroLogic 5.0 (3P: 33553, 4P: 33556)						ComPacT NSX 630H MicroLogic 2.0 (3P: C6332D630, 4P: C6342D630)		MasterPacT NW20HDC-D MicroLogic 1.0 DC (48652+65273)
In/trip unit	800	800	800	800	800	800	630	630	2000
$I_o$	–	–	–	–	–	–	630	630	–
$I_r$ setting	0.95	0.95	0.9	0.9	0.9	0.9	1	0.94	–
$I_r$	760	760	720	720	720	720	630	592	2000
$I_{sd}/i_{ii}^{70}$	<10 x $I_n$	<10 x $I_n$	<10 x $I_n$	<10 x $I_n$	10 x $I_n$	10 x $I_n$	10 x $I_r$	10 x $I_r$	<10 x $I_r$
$t_{sd}$ (s)	<0.2						NA		

70. Only applicable for MicroLogic 5.0.

<b>UPS rating</b>	<b>450 kW</b>								
	<b>Input</b>				<b>Bypass/Output</b>				<b>Battery</b>
<b>I<sub>kPh-PE</sub> (kA)</b>	<b>12</b>				<b>10.5</b>				<b>NA</b>
<b>Voltage (V)</b>	<b>380</b>	<b>400</b>	<b>415</b>	<b>440</b>	<b>380</b>	<b>400</b>	<b>415</b>	<b>440</b>	<b>380-440</b>
Breaker type	ComPacT NS1000H MicroLogic 5.0 (3P: 33559, 4P: 33562)		ComPacT NS800H MicroLogic 5.0 (3P: 33553, 4P: 33556)		ComPacT NS800H MicroLogic 5.0 (3P: 33553, 4P: 33556)				MasterPacT NW20HDC-D MicroLogic 1.0 DC (48652+65273)
In/trip unit	1000	1000	800	800	800	800	800	800	2000
I <sub>o</sub>	–	–	–	–	–	–	–	–	–
I <sub>r</sub> setting	0.9	0.9	1	0.95	0.98	0.95	0.9	0.9	–
I <sub>r</sub>	900	900	800	760	784	760	720	720	2000
I <sub>sd</sub> /i <sup>71</sup>	<8 x I <sub>n</sub>	<8 x I <sub>n</sub>	<10 x I <sub>n</sub>	<10 x I <sub>n</sub>	10 x I <sub>n</sub>	10 x I <sub>n</sub>	10 x I <sub>n</sub>	10 x I <sub>n</sub>	2500
tsd (s)	<0.2								NA

<b>UPS rating</b>	<b>500 kW</b>								
	<b>Input</b>				<b>Bypass/Output</b>				<b>Battery</b>
<b>I<sub>kPh-PE</sub> (kA)</b>	<b>12.5</b>				<b>12</b>				<b>NA</b>
<b>Voltage (V)</b>	<b>380</b>	<b>400</b>	<b>415</b>	<b>440</b>	<b>380</b>	<b>400</b>	<b>415</b>	<b>440</b>	<b>380-440</b>
Breaker type	ComPacT NS1000H MicroLogic 5.0 (3P: 33559, 4P: 33562)						ComPacT NS800H MicroLogic 5.0 (3P: 33553, 4P: 33556)		MasterPacT NW20HDC-D MicroLogic 1.0 DC (48652+65273)
In/trip unit	1000	1000	1000	1000	1000	1000	800	800	2000
I <sub>o</sub>	–	–	–	–	–	–	–	–	–
I <sub>r</sub> setting	0.95	0.95	0.9	0.9	0.9	0.9	0.98	0.95	–
I <sub>r</sub>	950	950	900	900	900	900	784	760	2000
I <sub>sd</sub> /i <sup>71</sup>	<8 x I <sub>n</sub>	<8 x I <sub>n</sub>	<8 x I <sub>n</sub>	<8 x I <sub>n</sub>	8 x I <sub>n</sub>	8 x I <sub>n</sub>	10 x I <sub>n</sub>	10 x I <sub>n</sub>	2500
tsd (s)	<0.2								NA

## Recommended Downstream Protection for Distribution Circuit Breakers for IEC

**NOTE:** The recommended downstream protection for distribution circuit breakers is sized for protection of the SCRs in the static bypass switch and for coordination with the unit input breaker (UIB)/static switch input breaker (SSIB) when external backfeed protection is used.

<b>UPS rating</b>	<b>200 kW</b>	<b>250 kW</b>	<b>300 kW</b>	<b>350 kW</b>	<b>400 kW</b>	<b>450 kW</b>	<b>500 kW</b>
Breaker type	NSX160		NSX250			NSX400	
Trip module type	TM-D or Micrologic		TM-D or Micrologic			Micrologic	
In/trip module rating	≤160		≤250			≤400	

71. Only applicable for MicroLogic 5.0.

## Recommended Cable Sizes for IEC

### **⚠⚠ 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 240 mm<sup>2</sup>.
- Shrink sleeve must be fitted over cable lug crimped zone and must overlap with the cable insulation on all power cables.

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

The maximum number of cable connections per busbar:

- 4 on input/output/bypass busbars
- 4 x 240 mm<sup>2</sup> on input/output/bypass busbars
- 4 x 240 mm<sup>2</sup> or 8 x 150 mm<sup>2</sup> on DC+/DC- busbars
- 8 on N busbar
- 16 on PE busbar

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

Cable sizes in this manual are based on the minimum requirements in table B.52.3 and table B.52.5 of IEC 60364-5-52 with the following assertions<sup>72</sup>:

- 90 °C conductors
- An ambient temperature of 30 °C
- Use of copper or aluminum conductors
- Installation method F
- Single layer on a perforated cable tray

PE cable size is based on table 54.2 of IEC 60364-5-54.

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

The bypass/output cables are sized based on the nominal current +10%. This is to accommodate either low grid voltage or deviation in cable length between parallel UPSs. The DC cables are sized based on end-of-discharge voltage which has been defined as 380 VDC per IEC 60364.3 Omission of devices for protection against overload.

### Copper

UPS rating	200 kW				250 kW			
Voltage (V)	380	400	415	440	380	400	415	440
Input phases (mm <sup>2</sup> )	1 x 120	1 x 120	1 x 120	1 x 120	1 x 185	1 x 185	1 x 150	1 x 150
Input PE (mm <sup>2</sup> )	1 x 70	1 x 70	1 x 70	1 x 70	1 x 95	1 x 95	1 x 95	1 x 95
Bypass/output phases (mm <sup>2</sup> )	1 x 120	1 x 95	1 x 95	1 x 95	1 x 150	1 x 150	1 x 150	1 x 120
Bypass PE/output PE (mm <sup>2</sup> )	1 x 70	1 x 50	1 x 50	1 x 50	1 x 95	1 x 95	1 x 95	1 x 70
Neutral (mm <sup>2</sup> )	1 x 120	1 x 95	1 x 95	1 x 95	1 x 150	1 x 150	1 x 150	1 x 120
DC+/DC- (mm <sup>2</sup> )	1 x 185				1 x 240			
DC PE (mm <sup>2</sup> )	1 x 95				1 x 120			
Inverter midpoint cable for 3-wire parallel (mm <sup>2</sup> )	1 x 120	1 x 120	1 x 120	1 x 120	1 x 185	1 x 185	1 x 150	1 x 150

72. Using non-recommended cable sizes will affect the eConversion limits for parallel UPS systems. For this installation scenario, refer to the table: Standard eConversion Limits Based on Non-recommended Cable Sizes, page 67.

## Copper

UPS rating	300 kW				350 kW			
Voltage (V)	380	400	415	440	380	400	415	440
Input phases (mm <sup>2</sup> )	1 x 240	1 x 240	1 x 240	1 x 185	2 x 150	2 x 120	2 x 120	1 x 240
Input PE (mm <sup>2</sup> )	1 x 120	1 x 120	1 x 120	1 x 95	1 x 150	1 x 120	1 x 120	1 x 120
Bypass/output phases (mm <sup>2</sup> )	1 x 240	1 x 185	1 x 185	1 x 185	1 x 240	1 x 240	1 x 240	1 x 240
Bypass PE/output PE (mm <sup>2</sup> )	1 x 120	1 x 95	1 x 95	1 x 95	1 x 120	1 x 120	1 x 120	1 x 120
Neutral (mm <sup>2</sup> )	1 x 240	1 x 185	1 x 185	1 x 185	1 x 240	1 x 240	1 x 240	1 x 240
DC+/DC- (mm <sup>2</sup> )	2 x 150				2 x 185			
DC PE (mm <sup>2</sup> )	1 x 150				1 x 185			
Inverter midpoint cable for 3-wire parallel (mm <sup>2</sup> )	1 x 240	1 x 240	1 x 240	1 x 240	2 x 120	2 x 120	2 x 120	1 x 240

## Copper

UPS rating	400 kW				450 kW				500 kW			
Voltage (V)	380	400	415	440	380	400	415	440	380	400	415	440
Input phases (mm <sup>2</sup> )	2 x 150	2 x 150	2 x 150	2 x 150	2 x 240	2 x 240	2 x 185	2 x 150	2 x 240	2 x 240	2 x 240	2 x 240
Input PE (mm <sup>2</sup> )	1 x 150	1 x 150	1 x 150	1 x 150	1 x 240	1 x 240	1 x 185	1 x 150	1 x 240	1 x 240	1 x 240	1 x 240
Bypass/output phases (mm <sup>2</sup> )	2 x 150	2 x 150	2 x 120	1 x 240	2 x 185	2 x 150	2 x 150	2 x 150	2 x 240	2 x 240	2 x 185	2 x 150
Bypass PE/output PE (mm <sup>2</sup> )	1 x 150	1 x 150	1 x 120	1 x 120	1 x 185	1 x 150	1 x 150	1 x 150	1 x 240	1 x 240	1 x 185	1 x 150
Neutral (mm <sup>2</sup> )	2 x 150	2 x 150	2 x 120	1 x 240	2 x 185	2 x 150	2 x 150	2 x 150	2 x 240	2 x 240	2 x 185	2 x 150
DC+/DC- (mm <sup>2</sup> )	2 x 240				3 x 150				3 x 185			
DC PE (mm <sup>2</sup> )	1 x 240				2 x 120				2 x 150			
Inverter midpoint cable for 3-wire parallel (mm <sup>2</sup> )	2 x 150	2 x 150	2 x 150	2 x 150	2 x 240	2 x 240	2 x 185	2 x 150	2 x 240	2 x 240	2 x 240	2 x 240

## Aluminum

UPS rating	200 kW				250 kW			
Voltage (V)	380	400	415	440	380	400	415	440
Input phases (mm <sup>2</sup> )	1 x 185	1 x 185	1 x 185	1 x 150	1 x 240	1 x 240	1 x 240	1 x 240
Input PE (mm <sup>2</sup> )	1 x 95	1 x 95	1 x 95	1 x 95	1 x 120	1 x 120	1 x 120	1 x 120
Bypass/output phases (mm <sup>2</sup> )	1 x 150	1 x 150	1 x 150	1 x 150	1 x 240	1 x 240	1 x 185	1 x 185
Bypass PE/output PE (mm <sup>2</sup> )	1 x 95	1 x 95	1 x 95	1 x 95	1 x 120	1 x 120	1 x 95	1 x 95
Neutral (mm <sup>2</sup> )	1 x 150	1 x 150	1 x 150	1 x 150	1 x 240	1 x 240	1 x 185	1 x 185
DC+/DC- (mm <sup>2</sup> )	2 x 120				2 x 150			
DC PE (mm <sup>2</sup> )	1 x 120				1 x 150			
Inverter midpoint cable for 3-wire parallel (mm <sup>2</sup> )	1 x 185	1 x 185	1 x 185	1 x 150	1 x 240	1 x 240	1 x 240	1 x 240



## Aluminum

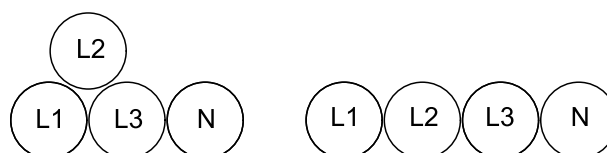
UPS rating	300 kW				350 kW			
Voltage (V)	380	400	415	440	380	400	415	440
Input phases (mm <sup>2</sup> )	2 x 150	2 x 150	2 x 150	2 x 120	2 x 240	2 x 185	2 x 185	2 x 150
Input PE (mm <sup>2</sup> )	1 x 150	1 x 150	1 x 150	1 x 120	1 x 240	1 x 185	1 x 185	1 x 150
Bypass/output phases (mm <sup>2</sup> )	2 x 120	2 x 120	1 x 240	1 x 240	2 x 150	2 x 150	2 x 150	2 x 150
Bypass PE/output PE (mm <sup>2</sup> )	1 x 120	1 x 120	1 x 120	1 x 120	1 x 150	1 x 150	1 x 150	1 x 150
Neutral (mm <sup>2</sup> )	2 x 120	2 x 120	1 x 240	1 x 240	2 x 150	2 x 150	2 x 150	2 x 150
DC+/DC- (mm <sup>2</sup> )	2 x 240				3 x 150			
DC PE (mm <sup>2</sup> )	1 x 240				2 x 120			
Inverter midpoint cable for 3-wire parallel (mm <sup>2</sup> )	2 x 150	2 x 150	2 x 150	2 x 120	2 x 185	2 x 185	2 x 185	2 x 150

## Aluminum

UPS rating	400 kW				450 kW				500 kW			
Voltage (V)	380	400	415	440	380	400	415	440	380	400	415	440
Input phases (mm <sup>2</sup> )	2 x 240	2 x 240	2 x 240	2 x 240	(3 x 185) <sup>73</sup>	(3 x 185) <sup>73</sup>	2 x 240	2 x 240	(3 x 185) <sup>73</sup>	(3 x 185) <sup>73</sup>	(3 x 185) <sup>73</sup>	(3 x 185) <sup>73</sup>
Input PE (mm <sup>2</sup> )	1 x 240	1 x 240	1 x 240	1 x 240	2 x 150	2 x 150	1 x 240	1 x 240	2 x 150	2 x 150	2 x 150	2 x 150
Bypass/output phases (mm <sup>2</sup> )	2 x 240	2 x 240	2 x 185	2 x 150	2 x 240	2 x 240	2 x 240	2 x 240	(3 x 185) <sup>73</sup>	(3 x 185) <sup>73</sup>	2 x 240	2 x 240
Bypass PE/output PE (mm <sup>2</sup> )	1 x 240	1 x 240	1 x 185	1 x 150	1 x 240	1 x 240	1 x 240	1 x 240	2 x 150	2 x 150	1 x 240	1 x 240
Neutral (mm <sup>2</sup> )	2 x 240	2 x 240	2 x 185	2 x 150	2 x 240	2 x 240	2 x 240	2 x 240	(3 x 185) <sup>73</sup>	(3 x 185) <sup>73</sup>	2 x 240	2 x 240
DC+/DC- (mm <sup>2</sup> )	3 x 185				3 x 240				4x185			
DC PE (mm <sup>2</sup> )	2 x 150				2 x 185				2 x 185			
Inverter midpoint cable for 3-wire parallel (mm <sup>2</sup> )	2 x 240	2 x 240	2 x 240	2 x 240	(3 x 185)	(3 x 185)	2 x 240	2 x 240	(3 x 185)	(3 x 185)	(3 x 185)	(3 x 185)

## Guidance for Organizing Input, Bypass, And Output Cables

The input, bypass, and output cables must be grouped in circuits. On raceways, use one of the two shown cable formations.

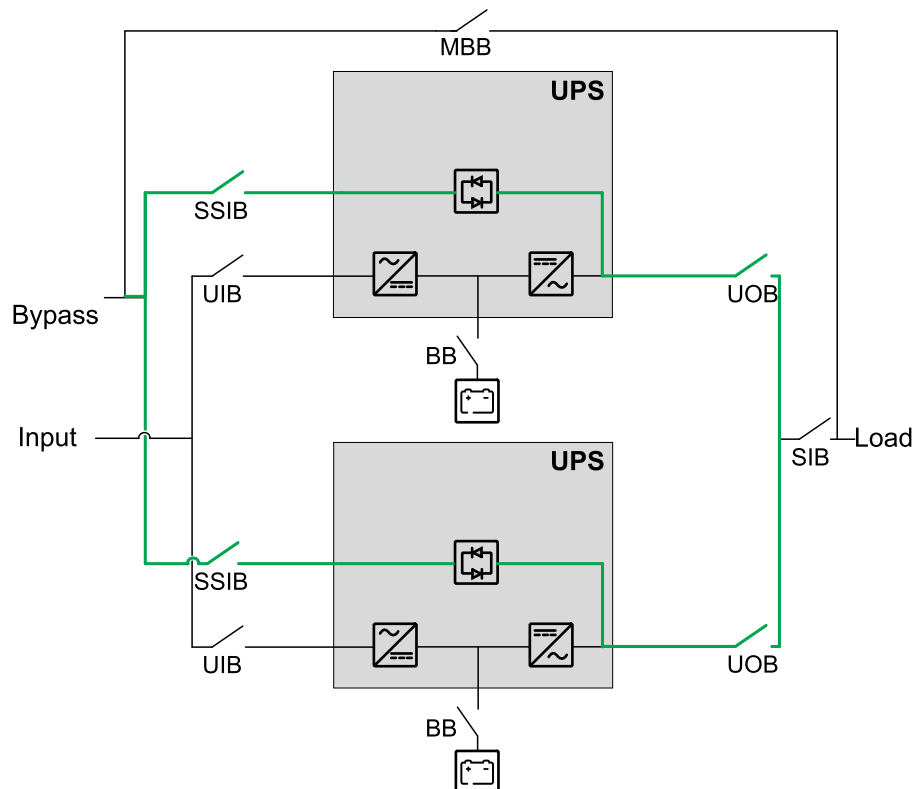


73. For parallel UPS systems, you must refer to this table: Standard eConversion Limits Based on Non-recommended Cable Sizes, page 67.

## Load Sharing in Bypass Operation in a Parallel System

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

### Parallel System – Dual Mains



### NOTICE

#### RISK OF EQUIPMENT DAMAGE

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

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

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

**Failure to follow these instructions can result in equipment damage.**

## eConversion Limits for Parallel UPS Systems

eConversion requires a minimum load percentage on the UPS for parallel UPS systems. The minimum required load percentages depend on the power cable sizes.

**NOTE:** For installations using the recommended cable sizes, refer to this table for the minimum load percentages: [Standard eConversion Limits Based on Recommended Cable Sizes](#), page 67.

#### Standard eConversion Limits Based on Recommended Cable Sizes

UPS rating	Minimum load %
200 kW	34%
250 kW	27%
300 kW	23%
350 kW	19%
400 kW	17%
450 kW	15%
500 kW	14%

The other prerequisites to use this table include:

- The values are calculated based on the use of recommended cable sizes.
- Installations with maximum two cables on each phase are supported.
- The bypass and output cables must have equal length for all UPSs.

**NOTE:** For certain installations such as installations with 80% breakers or where other installation methods have been applied to comply with the IEC standard, it is possible that non-recommended cable sizes will be used. For installations using non-recommended cable sizes, refer to this table for the voltage rating percentages: [Standard eConversion Limits Based on Non-recommended Cable Sizes](#), page 67.

#### Standard eConversion Limits Based on Non-recommended Cable Sizes

UPS rating	Minimum load %
200 kW	50%
250 kW	40%
300 kW	34%
350 kW	29%
400 kW	25%
450 kW	22%
500 kW	20%

The other prerequisites to use this table include:

- The values are calculated based on the scenario of using non-recommended cable sizes.
- Installations with three or four cables on each phase are supported.
- The bypass and output cables must have equal length for all UPSs.

## Recommended Bolt and Lug Sizes for IEC

Cable size mm <sup>2</sup>	Bolt size	Cable lug type
16	M10 x 40 mm	TLK 16-10
25	M10 x 40 mm	TLK 25-10
35	M10 x 40 mm	TLK 35-10
50	M10 x 40 mm	TLK 50-10
70	M10 x 40 mm	TLK 70-10
95	M10 x 40 mm	TLK 95-10
120	M10 x 40 mm	TLK 120-10
150	M10 x 40 mm	TLK 150-10
185	M10 x 40 mm	TLK 185-10
240	M10 x 40 mm	TLK 240-10

## Torque Specifications

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

# Physical

## UPS Shipping Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm	Number of preinstalled power modules in the UPS	Number of power modules shipped separately <sup>74</sup>	Number of extra power modules that can be ordered <sup>75</sup>
GVL0K500DS	468	2145	950	1100	0	0	10
GVL200K500DS	620	2145	950	1100	4	0	6
GVL300K500DS	620	2145	950	1100	4	2	4
GVL400K500DS	620	2145	950	1100	4	4	2
GVL500KDS	620	2145	950	1100	4	6	0

## Power Module Shipping Weights and Dimensions

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

## UPS Weights and Dimensions

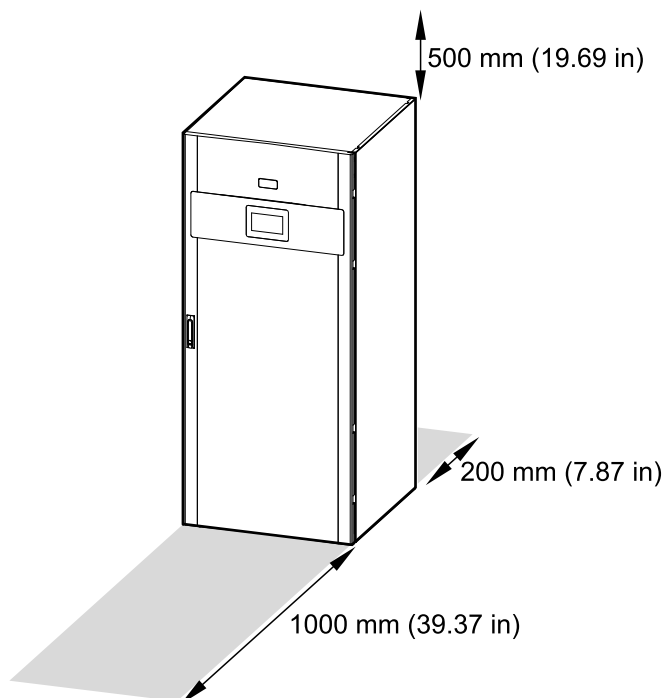
UPS rating	Weight kg	Height mm	Width mm	Depth mm
200 kW	550	1970	850	925
250 kW	588	1970	850	925
300 kW	626	1970	850	925
350 kW	664	1970	850	925
400 kW	702	1970	850	925
450 kW	740	1970	850	925
500 kW	778	1970	850	925

74. See Power Module Shipping Weights and Dimensions, page 69 for shipping weight and dimensions for the separately shipped power module.

75. See Power Module Shipping Weights and Dimensions, page 69 for shipping weight and dimensions for the extra power modules which are shipped separately.

## 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.



## Environment

	Operating	Storage
Temperature	0 °C to 40 °C without load derating. 40 °C to 50 °C when derated to 70% power.	-25 °C to 55 °C for systems without batteries.
Relative humidity	5-95% non-condensing	10-80% non-condensing
Elevation	Designed for operation in 0-3000 m elevation.  Derating required from 1000-3000 m with forced air cooling: Up to 1000 m: 1.000 Up to 1500 m : 1.000 conditioned by 2 x 300 mm <sup>2</sup> input cables at 500 kW Up to 1500 m : 0.975 Up to 2000 m: 1.000 conditioned by 2 x 300 mm <sup>2</sup> input cables at 500 kW Up to 2000 m: 0.950 Up to 2500 m: 0.975 conditioned by 2 x 300 mm <sup>2</sup> input cables at 500 kW Up to 2500 m: 0.925 Up to 3000 m: 0.950 conditioned by 2 x 300 mm <sup>2</sup> input cables at 500 kW Up to 3000 m: 0.900  Derating required from 1000-3000 m with convection cooling: Up to 1000 m: 1.000 Up to 1500 m : 0.985 Up to 2000 m: 0.970 Up to 2500 m: 0.955 Up to 3000 m: 0.940	
Audible noise one meter from unit	62 dB at 70% load  69.5 dB at 100% load for 400 V systems	
Protection class	IP20	
Color	RAL 9003, gloss level 85%	

## Heat Dissipation in BTU/hr

200 kW	Normal operation				ECO mode			
Voltage (V)	380	400	415	440	380	400	415	440
25% load	6188	6005	6188	6188	1897	2072	1897	1897
50% load	10553	10190	10190	10190	2405	2405	2405	2752
75% load	16373	15829	15285	14743	3608	3089	3089	3089
100% load	24750	23288	21831	21105	4119	4119	4119	4119

200 kW	eConversion				Battery operation			
Voltage (V)	380	400	415	440	380	400	415	440
25% load	2774	2774	2950	2950	7108	7108	7108	8039
50% load	3446	3446	3446	3446	12009	12009	12009	13109
75% load	4127	4127	4127	4127	18014	18014	18014	18563
100% load	4810	4810	4810	4810	25484	25484	25484	25484

<b>250 kW</b>	<b>Normal operation</b>				<b>ECO mode</b>			
<b>Voltage (V)</b>	<b>380</b>	<b>400</b>	<b>415</b>	<b>440</b>	<b>380</b>	<b>400</b>	<b>415</b>	<b>440</b>
25% load	7506	7506	7506	7734	2372	2372	2372	2372
50% load	13191	12738	12738	12286	3007	3007	3007	3007
75% load	20467	19786	19107	18429	3862	3862	3862	3862
100% load	30938	29110	28198	26381	5149	5149	5149	5149

<b>250 kW</b>	<b>eConversion</b>				<b>Battery operation</b>			
<b>Voltage (V)</b>	<b>380</b>	<b>400</b>	<b>415</b>	<b>440</b>	<b>380</b>	<b>400</b>	<b>415</b>	<b>440</b>
25% load	3467	3467	3688	3688	8654	8654	8654	9582
50% load	4308	4308	4308	4308	15011	15011	15011	15927
75% load	5159	5159	5159	5159	22517	22517	22517	23203
100% load	6013	6013	6013	6013	31855	31855	31855	31855

<b>300 kW</b>	<b>Normal operation</b>				<b>ECO mode</b>			
<b>Voltage (V)</b>	<b>380</b>	<b>400</b>	<b>415</b>	<b>440</b>	<b>380</b>	<b>400</b>	<b>415</b>	<b>440</b>
25% load	9007	9007	9007	9281	2846	2585	2846	2846
50% load	15829	15285	15285	14743	3608	3608	3608	3608
75% load	24560	23743	22928	22115	4634	4634	4634	4634
100% load	37125	34932	33838	31658	6179	6179	6179	6179

<b>300 kW</b>	<b>eConversion</b>				<b>Battery operation</b>			
<b>Voltage (V)</b>	<b>380</b>	<b>400</b>	<b>415</b>	<b>440</b>	<b>380</b>	<b>400</b>	<b>415</b>	<b>440</b>
25% load	4161	4161	4426	4426	10108	10108	10108	11219
50% load	5170	5170	5170	5170	17466	17466	17466	19113
75% load	6191	6191	6191	6191	27020	27020	27020	27844
100% load	7216	7216	7216	7216	38226	38226	38226	38226

<b>350 kW</b>	<b>Normal operation</b>				<b>ECO mode</b>			
<b>Voltage (V)</b>	<b>380</b>	<b>400</b>	<b>415</b>	<b>440</b>	<b>380</b>	<b>400</b>	<b>415</b>	<b>440</b>
25% load	10508	10508	10508	10828	3016	3016	3016	3016
50% load	18467	17833	17833	17833	4209	4209	4209	4209
75% load	29608	27701	26750	25801	6314	5406	5406	5406
100% load	43313	40753	39478	36934	7208	7208	7208	7208

<b>350 kW</b>	<b>eConversion</b>				<b>Battery operation</b>			
<b>Voltage (V)</b>	<b>380</b>	<b>400</b>	<b>415</b>	<b>440</b>	<b>380</b>	<b>400</b>	<b>415</b>	<b>440</b>
25% load	4854	4854	4854	5163	11471	11471	11471	12764
50% load	5423	6031	6031	6031	20377	20377	20377	21656
75% load	7223	7223	7223	7223	31524	31524	31524	32485
100% load	8418	8418	8418	8418	44597	44597	44597	44597

<b>400 kW</b>	<b>Normal operation</b>				<b>ECO mode</b>			
<b>Voltage (V)</b>	<b>380</b>	<b>400</b>	<b>415</b>	<b>440</b>	<b>380</b>	<b>400</b>	<b>415</b>	<b>440</b>
25% load	12009	12009	12009	12375	3446	3446	3446	3446
50% load	21105	20381	20381	20381	4810	4810	4810	4810



400 kW	Normal operation				ECO mode			
Voltage (V)	380	400	415	440	380	400	415	440
75% load	33838	31658	30571	29486	7216	6179	6179	6179
100% load	49501	46575	45117	42210	8238	8238	8238	8238

400 kW	eConversion				Battery operation			
Voltage (V)	380	400	415	440	380	400	415	440
25% load	5548	5548	5548	5901	13109	13109	13109	14587
50% load	6197	6893	6893	6893	23288	23288	23288	24750
75% load	8255	8255	8255	8255	36027	36027	36027	37125
100% load	9621	9621	9621	9621	50968	50968	50968	50968

450 kW	Normal operation				ECO mode			
Voltage (V)	380	400	415	440	380	400	415	440
25% load	13510	13510	13510	13922	3877	3877	3877	3877
50% load	23743	22928	22928	22928	5412	5412	5412	5412
75% load	38068	36840	35615	34392	8118	8118	6951	6951
100% load	57339	54041	50757	49120	10824	9268	9268	9268

450 kW	eConversion				Battery operation			
Voltage (V)	380	400	415	440	380	400	415	440
25% load	5845	6241	6241	6638	14748	14748	14748	15994
50% load	6972	7755	7755	7755	26199	26199	26199	27844
75% load	9287	9287	9287	9287	40531	40531	40531	41766
100% load	10824	10824	10824	10824	57339	57339	57339	57339

500 kW	Normal operation				ECO mode			
Voltage (V)	380	400	415	440	380	400	415	440
25% load	15011	15011	15011	15469	4308	4308	4308	4308
50% load	26381	25476	25476	25476	6013	6013	6013	6013
75% load	42298	40933	39572	38214	9020	9020	7723	7723
100% load	63710	60046	56397	54578	12026	10298	10298	10298

500 kW	eConversion				Battery operation			
Voltage (V)	380	400	415	440	380	400	415	440
25% load	6495	6935	6935	7376	16387	16387	16387	17771
50% load	7747	8616	8616	8616	29110	29110	29110	30938
75% load	10319	10319	10319	10319	45034	45034	45034	46407
100% load	12026	12026	12026	12026	63710	63710	63710	63710

## Airflow Values

### Indicative Airflow Values in m<sup>3</sup>/Hour Based on a 30 °C Environment

UPS rating	200 kW	250 kW	300 kW	350 kW	400 kW	450 kW	500 kW
50% load	1617	1920	2223	2526	2829	3132	3435
75% load	2102	2526	2950	3375	3799	4223	4749
90% load	2344	2829	3314	3799	4365	4911	5436
100% load	2405	2905	3405	3905	4547	5087	5709

### Indicative Airflow Values in m<sup>3</sup>/Hour Based on a 40 °C Environment

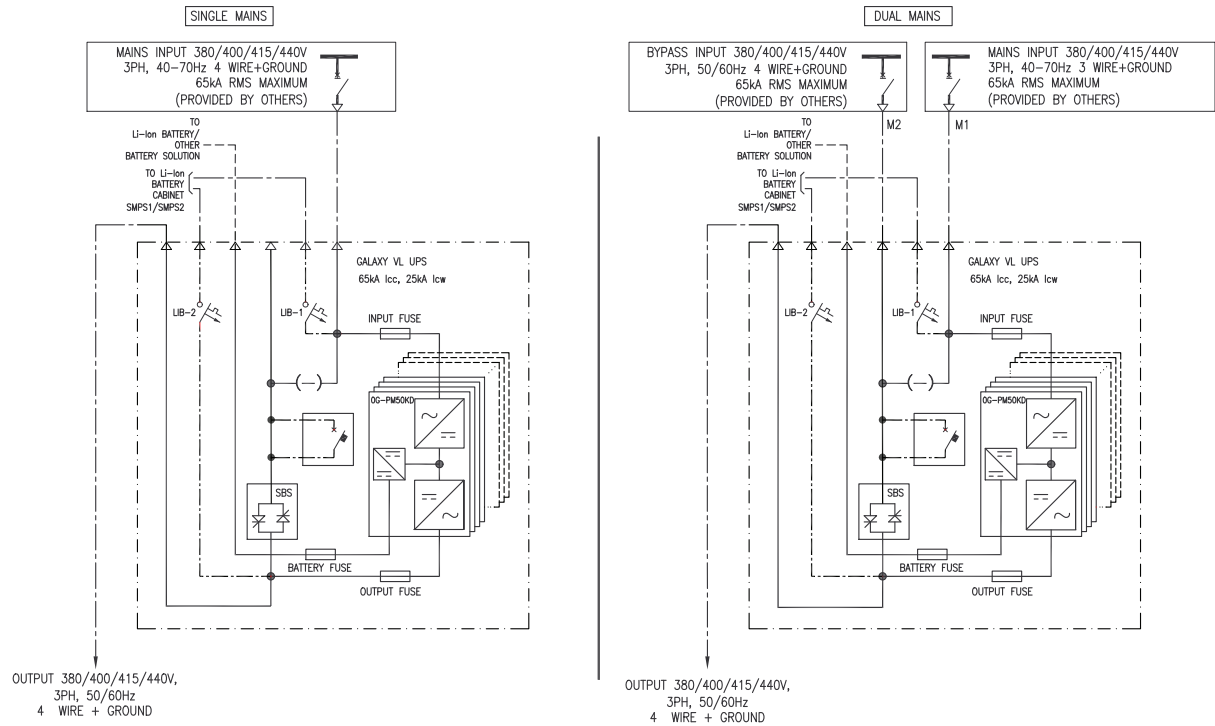
UPS rating	200 kW	250 kW	300 kW	350 kW	400 kW	450 kW	500 kW
50% load	1920	2299	2678	3056	3435	3814	4193
75% load	2284	2753	3223	3693	4163	4774	5284
90% load	2465	2981	3496	4112	4668	5224	5860
100% load	2647	3208	3769	4471	5072	5754	6416

# Drawings

**NOTE:** A comprehensive set of drawings is available on [www.se.com](http://www.se.com).

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

## Galaxy VL 200-500 kW 400 V UPS



# Options

## Configuration Options

- Compact design, high density technology, and modular architecture
- Single or dual mains
- Up to 6+0 UPSs in parallel for capacity
- Up to 5+1 UPSs in parallel for redundancy
- Default top cable entry
- ECO mode
- eConversion mode
- EcoStruxure IT compatible
- Generator compatible
- Touchscreen LCD
- Replacement of power module in any operation mode (Live Swap)<sup>76</sup>
- Simplified common battery (VRLA/Lithium-ion) supported

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76. In all systems that live up to the prerequisites for Live Swap.

## Hardware Options

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

### Power Module

- Power module 50 kW (GVPM50KD)

### Lithium-ion Battery Cabinet

Battery cabinet including Lithium-ion batteries and battery breaker.

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

### Classic Battery Cabinets

Classic battery cabinet including batteries and battery breaker.

- 1010 mm wide, classic battery cabinet (GVSCBC10A2, GVSCBC10B2)

### Empty Battery Cabinets

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

- 700 mm wide empty classic battery cabinet (GVEBC7)
- 1100 mm wide empty classic battery cabinet (GVEBC11)
- 1500 mm wide empty classic battery cabinet (GVEBC15)

### Battery Breaker Box

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

- 100-300 kW battery breaker box with one battery breaker (GVBBB630EL-1CB)
- 250-500 kW battery breaker box with two battery breakers (GVBBB630EL-2CB)
- 400-500 kW battery breaker box with three battery breakers (GVBBB630EL-3CB)

### Battery Breaker Kit

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

- 100-300 kW battery breaker kit (GVBBK630EL)

## Maintenance Bypass Cabinet

Maintenance bypass cabinet for complete isolation of the UPS during service operations. Only for single UPS.

- 200-500 kW maintenance bypass cabinet with backfeed (GVLMBCA200K500H)

## Bottom Entry Cabinet

Bottom entry cabinet for cable entry through the bottom of the system.

- Bottom entry cabinet (GVBEC)

## Remote Centralized Display

- Galaxy VL Remote Centralized Display (GVLOPT007)

## Optional Installation Kits

- Seismic kit for UPS, maintenance bypass cabinet, and bottom entry cabinet (GVLOPT002)
- Backfeed kit for UPS (GVLOPT004)
- Lithium-ion battery control breaker kit (GVLOPT005)
- Parallel kit for UPS (GVLOPT006)
- Door switch option kit (GVLOPT011)
- Bottom entry cabinet 65 kAIC kit for Galaxy VL (GVLOPT012)

## Optional Network Management Card

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

## Air Filter

- Performance air filter kit for UPS (GVLOPT001)

## Temperature Sensors

- Temperature sensor for network management card (AP9335T)
- Temperature/humidity sensor for network management card (AP9335TH)

## 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.

### Classic Battery Cabinet Shipping Weights and Dimensions

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

### Classic Battery Cabinet Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
GVSCBC7C	900	1900	710	845
GVSCBC7D	569	1900	710	845
GVSCBC7E	790	1900	710	845
GVSCBC10A2	1102	1900	1010	845
GVSCBC10B2	1368	1900	1010	845

### Maintenance Bypass Cabinet Shipping Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
GVLMBCA200K500H	212	2134	635	990

### Maintenance Bypass Cabinet Weights and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
GVLMBCA200K500H	175	1970	500	847

### Bottom Entry Cabinet Shipping Weight and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
GVBEC	96	2134	535	990

## Bottom Entry Cabinet Weight and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
GVBEC	85	1970	400	850

## Battery Breaker Box Shipping Weights and Dimensions

Commercial reference	Weight kg	Height mm <sup>77</sup>	Width mm	Depth mm
GVBBB630EL-1CB	40	560	800	1200
GVBBB630EL-2CB	72	560	1000	1200
GVBBB630EL-3CB	82	560	1000	1200

## Battery Breaker Box Weights and Dimensions

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

## Empty Battery Cabinet Shipping Weight and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
GVEBC7	205	2100	930	970
GVEBC11	250	2100	1330	970
GVEBC15	405	2120	1700	1000

## Empty Battery Cabinet Weight and Dimensions

Commercial reference	Weight kg	Height mm	Width mm	Depth mm
GVEBC7	190	1970	700	850
GVEBC11	230	1970	1100	850
GVEBC15	390	1970	1500	854

## Battery Breaker Kit Shipping Weights and Dimensions

Commercial reference	Weight kg	Height mm <sup>77</sup>	Width mm	Depth mm
GVBBK630EL	15	560	500	800

<sup>77</sup>. The product is packaged in a horizontal position, so the shipping height and depth dimensions differ from the product itself.



## Battery Breaker Kit Weights and Dimensions

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

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